



gainesvillemechanical.com

## **Plumbing Table of Contents For Georgia BioScience Training Center**

- 1. Spec Section: 331120 Water Distribution**
  - a. 2.1 Pipe
  - b. 2.2 Water Main Fittings
  - c. 2.3 Valves And Boxes
  - d. 2.4 Fire Hydrants
  - e. 2.5 Water Meters
  - f. 2.6 Backflow Preventers And Double Check Valves
  - g. 2.8 Detection Tape
  - h. 2.9 Post Indicator Valves
- 2. Spec Section: 220519 Meter & Gauges for Plumbing Piping**
  - a. 2.1 Pressure Gauges
  - b. 2.2 Pressure Gauge Tapping
  - c. 2.3 Stem Type Thermometers
  - d. 2.4 Dial Thermometers
  - e. 2.5 Thermometer Supports
  - f. 2.6 Test Plugs
- 3. Spec Section: 220553 Identification for Plumbing Piping & Equipment**
  - a. 2.1 Name Plates
  - b. 2.2 Tags
  - c. 2.3 Pipe Markers
- 4. Spec Section: 220719 Plumbing Piping Insulation**
- 5. Spec Section: 221005 Plumbing Piping**
  - a. 2.1 Sanitary Sewer Piping, Buried Within 5 Feet of Building
  - b. 2.2 Sanitary Sewer Piping, Above Slab on Grade
  - c. 2.3 Chemical Resistant Sewer Piping Buried Within 5 Feet of Building
  - d. 2.4 Chemical Resistant Sewer Piping, Above Grade
  - e. 2.5 Water Piping, Above Grade
  - f. 2.6 Storm Water Piping, Buried Within 5 Feet of Building
  - g. 2.7 Storm Water Piping, Above Grade
  - h. 2.8 Storm Water Overflow Piping
  - i. 2.9 Compressed Air And Vacuum, Above Slab on Grade
  - j. 2.10 Unions, Flanges & Couplings
  - k. 2.11 Pipe Hangers & Supports (C & D)
  - l. 2.12 Globe Valves



[gainesvillemechanical.com](http://gainesvillemechanical.com)

- m. 2.13 Ball Valves
  - n. 2.14 Flow Indicator- Balancer Controls
  - o. 2.15 Swing Check Vales
  - p. 2.16 Water Pressure Reducing Valve
  - q. 2.17 Relief Valves
  - r. 2.18 Strainers
- 6. Spec Section: 221006 Plumbing Piping Specialties**
- a. 2.1 Roof Drains
  - b. 2.2 Roof Overflow Drains
  - c. 2.3 Downspout Nozzles
  - d. 2.4 Floor Drains (A-H)
  - e. 2.5 Cleanouts (A-E)
  - f. 2.6 Hose Bibbs (A )
  - g. 2.7 Hydrants (A)
  - h. 2.8 Backflow Preventers
  - i. 2.9 Water Hammers (A-D)
  - j. 2.10 Thermostatic Mixing Valve
  - k. 2.11 Trap Primers
  - l. 2.12 Vacuum Breaker for Hose Connection
  - m. 2.13 Compressed Air Manifold
  - n. 2.14 Air Pressure Regulator
  - o. 2.15 Flashing
- 7. Spec Section: 223000 Plumbing Equipment**
- a. 2.1 Commercial Electric Water Heater (A &B)
  - b. 2.2 Time Clocks
  - c. 2.3 Diaphragm- Type Compression Tanks (DWH-1 & LWH-1)
  - d. 2.4 Pumps (DRP-1, DRP-2 & LRP-1)
- 8. Spec Section: 224010 Plumbing Fixtures**
- a. 2.1 Flush Valve Water Closet (A-B)
  - b. 2.2 Urinals (A-B)
  - c. 2.3 Lavatories
  - d. 2.4 Counter Mounted Lavatories (A-C)
  - e. 2.5 Mop Sinks & Service Sinks
  - f. 2.6 Miscellaneous Fixtures (A-B)
  - g. 2.7 Emergency Shower & Eye Washes
  - h. 2.8 Electric Water Coolers
  - i. 2.9 Fixture Accessories (A-H)

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Water Distribution

SPECIFICATION REFERENCES: 33120

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

By:

Steven A. Dochy  
(signed)

Date: January 17, 2014

Steven A. Dochy  
(printed)

INSTALLER: Gainesville Mechanical

By:

Steven A. Dochy  
(signed)

Date: January 17, 2014

Steven A. Dochy  
(printed)

OTHER: Kytle Backhoe (Fire & Water Mains)

By:

Chris Kytle  
(signed)

Date: January 17, 2014

Chris Kytle  
(printed)

**END OF FORM**



# Griffin Pipe Products Co.

## Technical Data Sheet No. 120

ONE OF THE **Amsted** INDUSTRIES

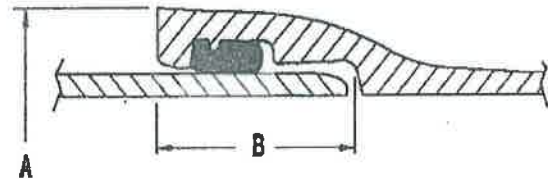
9/1/93

### Ductile Iron Pipe TYTON JOINT® Pipe Thickness Class Designation

#### Specifications

Pipe shall be ductile iron manufactured in accordance with the requirements of ANSI/AWWA C151/A21.51. Push-on joints for such pipe shall be in accordance with ANSI/AWWA C111/A21.11. Pipe shall be Griffin or equal. Pipe thickness shall be designed in accordance with ANSI/AWWA C150/A21.50 and shall be based on laying conditions and internal pressure as specified in the project plans.

Pipe shall have cement mortar lining and seal coating, where applicable, in accordance with ANSI/AWWA C104/A21.4.



#### Dimensions & Weights

| Pipe Barrel |                 |                       |                     | Laying Length            |                           |                             |                          |                           |                          |                           |  |
|-------------|-----------------|-----------------------|---------------------|--------------------------|---------------------------|-----------------------------|--------------------------|---------------------------|--------------------------|---------------------------|--|
|             |                 |                       |                     | 18 ft.                   |                           |                             |                          | 20 ft.                    |                          |                           |  |
| Size<br>in. | Thick.<br>Class | Nom.<br>Thick.<br>in. | Nom.<br>O.D.<br>in. | A<br>Bell<br>O.D.<br>in. | B<br>Bell<br>Depth<br>in. | X<br>Defl.<br>Angle<br>deg. | Wt. Per<br>Lgth.†<br>lb. | Y<br>Max.<br>Defl.<br>in. | Wt. Per<br>Lgth.†<br>lb. | Y<br>Max.<br>Defl.<br>in. |  |
| 3           | 51              | 0.25                  | 3.96                | 5.48                     | 3.00                      | 5                           | 168                      | 19                        |                          |                           |  |
|             | 52              | 0.28                  | 3.96                | 5.48                     | 3.00                      | 5                           | 186                      | 19                        |                          |                           |  |
|             | 53              | 0.31                  | 3.96                | 5.48                     | 3.00                      | 5                           | 204                      | 19                        |                          |                           |  |
|             | 54              | 0.34                  | 3.96                | 5.48                     | 3.00                      | 5                           | 221                      | 19                        |                          |                           |  |
|             | 55              | 0.37                  | 3.96                | 5.48                     | 3.00                      | 5                           | 238                      | 19                        |                          |                           |  |
|             | 56              | 0.40                  | 3.96                | 5.48                     | 3.00                      | 5                           | 254                      | 19                        |                          |                           |  |
| 4           | 51              | 0.26                  | 4.80                | 6.52                     | 3.15                      | 5                           | 214                      | 19                        |                          |                           |  |
|             | 52              | 0.29                  | 4.80                | 6.52                     | 3.15                      | 5                           | 236                      | 19                        |                          |                           |  |
|             | 53              | 0.32                  | 4.80                | 6.52                     | 3.15                      | 5                           | 258                      | 19                        |                          |                           |  |
|             | 54              | 0.35                  | 4.80                | 6.52                     | 3.15                      | 5                           | 280                      | 19                        |                          |                           |  |
|             | 55              | 0.38                  | 4.80                | 6.52                     | 3.15                      | 5                           | 301                      | 19                        |                          |                           |  |
|             | 56              | 0.41                  | 4.80                | 6.52                     | 3.15                      | 5                           | 321                      | 19                        |                          |                           |  |
| 6           | 50              | 0.25                  | 6.90                | 8.66                     | 3.38                      | 5                           | 304                      | 19                        | 396                      | 21                        |  |
|             | 51              | 0.28                  | 6.90                | 8.66                     | 3.38                      | 5                           | 337                      | 19                        | 372                      | 21                        |  |
|             | 52              | 0.31                  | 6.90                | 8.66                     | 3.38                      | 5                           | 370                      | 19                        | 409                      | 21                        |  |
|             | 53              | 0.34                  | 6.90                | 8.66                     | 3.38                      | 5                           | 402                      | 19                        | 445                      | 21                        |  |
|             | 54              | 0.37                  | 6.90                | 8.66                     | 3.38                      | 5                           | 434                      | 19                        | 481                      | 21                        |  |
|             | 55              | 0.40                  | 6.90                | 8.66                     | 3.38                      | 5                           | 466                      | 19                        | 516                      | 21                        |  |
| 8           | 50              | 0.27                  | 9.05                | 10.82                    | 3.69                      | 5                           | 431                      | 19                        | 477                      | 21                        |  |
|             | 51              | 0.30                  | 9.05                | 10.82                    | 3.69                      | 5                           | 475                      | 19                        | 526                      | 21                        |  |
|             | 52              | 0.33                  | 9.05                | 10.82                    | 3.69                      | 5                           | 519                      | 19                        | 574                      | 21                        |  |
|             | 53              | 0.36                  | 9.05                | 10.82                    | 3.69                      | 5                           | 562                      | 19                        | 622                      | 21                        |  |
|             | 54              | 0.39                  | 9.05                | 10.82                    | 3.69                      | 5                           | 605                      | 19                        | 670                      | 21                        |  |
|             | 55              | 0.42                  | 9.05                | 10.82                    | 3.69                      | 5                           | 648                      | 19                        | 718                      | 21                        |  |
|             | 56              | 0.45                  | 9.05                | 10.82                    | 3.69                      | 5                           | 691                      | 19                        | 765                      | 21                        |  |

NOTE: 10" THRU 24"  
continued on back.

TYTON JOINT® is a registered trademark of U.S. Pipe and Foundry Co.

#### Plants and Regional Sales Offices:

Council Bluffs, Iowa 51501  
2601 Ninth Avenue  
712/325-5131 Fax 712/325-5139

Florence, New Jersey 08518  
1100 West Front Street  
609/499-1400  
Fax 609/499-4868

Lynchburg, Virginia 24505  
Adams St. - Upper Basin, Box 740  
804/522-4742 Fax 804/522-4739

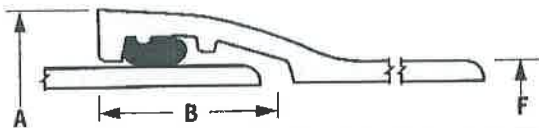


**Push-On Joint Pipe**

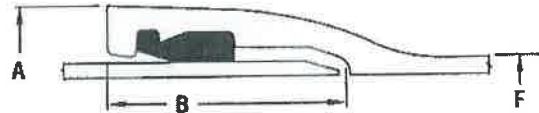
**Griffin Push-On Joint Ductile Iron Pipe**

The **TYTON JOINT®** and **FASTITE JOINT®** designs incorporate a single rubber sealing gasket assuring a tight, permanent seal. The "push-on" type joint is easy to assemble and fast to install. The push-on design eliminates the need for glands and fasteners. The rubber gasket fits inside the contour of the bell socket, which seats the gasket. The plain-end (spigot) of each pipe is beveled to further ease assembly.

**TYTON JOINT® Pipe 3" – 24"**



**FASTITE JOINT® Pipe 30" – 48"**



| Nominal Pipe Size (inches) | "F" Pipe O.D. (inches) | "A" Pipe Bell O.D. (inches) | "B" Depth of Bell (inches) | Maximum Joint Deflection Angle (degrees) | Maximum Deflection per Joint (inches) |                      |
|----------------------------|------------------------|-----------------------------|----------------------------|--|---------------------------------------|----------------------|
|                            |                        |                             |                            |  | 18 ft. Laying Length                  | 20 ft. Laying Length |
| 3                          | 3.96                   | 5.46                        | 3.00                       | 5  | 19                                    | 21                   |
| 4                          | 4.80                   | 6.52                        | 3.15                       | 5  | 19                                    | 21                   |
| 6                          | 6.90                   | 8.66                        | 3.38                       | 5  | 19                                    | 21                   |
| <b>8</b>                   | <b>9.05</b>            | <b>10.82</b>                | <b>3.69</b>                | <b>5</b>                                 | <b>19</b>                             | <b>21</b>            |
| 10                         | 11.10                  | 12.91                       | 3.75                       | 5  | 19                                    | 21                   |
| 12                         | 13.20                  | 15.05                       | 3.75                       | 5  | 19                                    | 21                   |
| 14                         | 15.30                  | 17.67                       | 5.00                       | 5  | 19                                    | 21                   |
| 16                         | 17.40                  | 19.79                       | 5.00                       | 5  | 19                                    | 21                   |
| 18                         | 19.50                  | 21.91                       | 5.00                       | 5  | 19                                    | 21                   |
| 20                         | 21.60                  | 24.03                       | 5.50                       | 5  | 19                                    | 21                   |
| 24                         | 25.80                  | 28.21                       | 5.95                       | 5  | 19                                    | 21                   |
| 30                         | 32.00                  | 34.95                       | 6.50                       | 5  | na                                    | 21                   |
| 36                         | 38.30                  | 41.37                       | 6.50                       | 4  | na                                    | 17                   |
| 42                         | 44.50                  | 48.25                       | 7.50                       | 3  | na                                    | 12                   |
| 48                         | 50.80                  | 54.73                       | 8.00                       | 3  | na                                    | 12                   |

TYTON JOINT® is a registered trademark of U.S. Pipe and Foundry Co.  
 FASTITE® is a registered trademark of American Cast Iron Pipe Co.



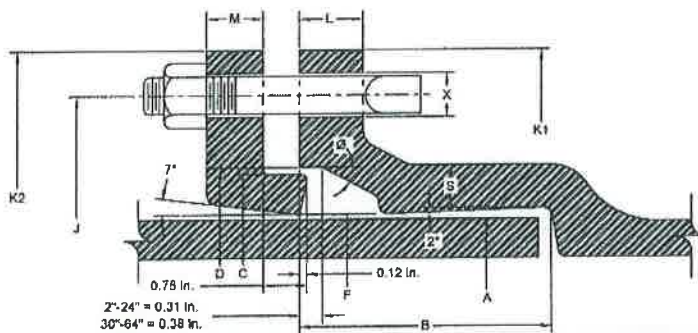
Compact MJ Fittings

ANSI/AWWA C153/A21.53

2" - 64" DUCTILE IRON MECHANICAL JOINT COMPACT FITTINGS

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" sizes
- TESTING:** In accordance with ANSI/AWWA C153/A21.53 and UL requirements
- LAYING LENGTH:** In accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
- DEFLECTION:** 2"-4"=8" | 6"-7" | 8"-12"=5" | 14"-16"=3 1/2" | 18"-24"=3" | 30"-48"=2"
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- FLANGES:** Flanged ends on fittings match ANSI/AWWA C115/A21.15 and ANSI B16.1 class 125 flanges
- CEMENT LINING:** In accordance with ANSI/AWWA C104/A21.4 -- size 2" - 3" single thickness and sizes 4" - 64" double thickness
- COATING:** Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4 and referenced in ANSI/AWWA C153/A21.53
- GASKETS:** SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 16)
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C111/A21.11 (see pg. 18)
- APPROVALS:** 3" - 12" UL/ULC Listed | 3" and greater are UL/ANSI/NSF Standards 61 and 372 | 3" - 16" FM APPROVED. Please consult factory for detail listing and approvals.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905



| MECHANICAL JOINT DIMENSIONS |   |      |        |        |        |        |         |         |      |      |      |     |        |              |     |
|-----------------------------|---|------|--------|--------|--------|--------|---------|---------|------|------|------|-----|--------|--------------|-----|
| NOM. SIZE                   | A DIA.  | B    | C DIA. | D DIA. | F DIA. | J DIA. | K1 DIA. | K2 DIA. | L    | M    | S    | Ø   | X DIA. | BOLTS        |     |
|                             |   |      |        |        |        |        |         |         |      |      |      |     |        | SIZE         | NO. |
| 2                           | 2.50  | 2.50 | 3.39   | 3.50   | 2.61   | 4.75   | 6.19    | 6.25    | 0.58 | 0.62 | 0.36 | 28° | 3/8    | 3/8 x 3      | 2   |
| 3                           | 3.96  | 2.50 | 4.84   | 4.94   | 4.06   | 6.19   | 7.62    | 7.69    | 0.58 | 0.62 | 0.39 | 28° | 3/8    | 3/8 x 3      | 4   |
| 4                           | 4.80  | 2.50 | 5.92   | 6.02   | 4.90   | 7.50   | 9.06    | 9.12    | 0.60 | 0.75 | 0.39 | 28° | 7/16   | 7/16 x 3 1/2 | 4   |
| 6                           | 6.90  | 2.50 | 8.02   | 8.12   | 7.00   | 9.50   | 11.06   | 11.12   | 0.63 | 0.88 | 0.43 | 28° | 7/16   | 7/16 x 3 1/2 | 6   |
| 8                           | 9.05  | 2.50 | 10.17  | 10.27  | 9.15   | 11.75  | 13.31   | 13.37   | 0.66 | 1.00 | 0.45 | 28° | 7/16   | 7/16 x 3 1/2 | 6   |
| 10                          | 11.10   | 2.50 | 12.22  | 12.34  | 11.20  | 14.00  | 15.62   | 15.62   | 0.70 | 1.00 | 0.47 | 28° | 7/16   | 7/16 x 3 1/2 | 8   |
| 12                          | 13.20   | 2.50 | 14.32  | 14.44  | 13.30  | 16.25  | 17.88   | 17.88   | 0.73 | 1.00 | 0.49 | 28° | 7/16   | 7/16 x 3 1/2 | 8   |
| 14                          | 15.30   | 3.50 | 16.40  | 16.54  | 15.44  | 18.75  | 20.25   | 20.25   | 0.79 | 1.25 | 0.55 | 28° | 7/16   | 7/16 x 4     | 10  |
| 16                          | 17.40   | 3.50 | 18.50  | 18.64  | 17.54  | 21.00  | 22.50   | 22.50   | 0.85 | 1.31 | 0.58 | 28° | 7/16   | 7/16 x 4     | 12  |
| 18                          | 19.50   | 3.50 | 20.60  | 20.74  | 19.64  | 23.25  | 24.83   | 24.75   | 1.00 | 1.38 | 0.68 | 28° | 7/16   | 7/16 x 4     | 12  |
| 20                          | 21.60   | 3.50 | 22.70  | 22.84  | 21.74  | 25.50  | 27.08   | 27.00   | 1.02 | 1.44 | 0.69 | 28° | 7/16   | 7/16 x 4     | 14  |
| 24                          | 25.80   | 3.50 | 26.90  | 27.04  | 25.94  | 30.00  | 31.58   | 31.50   | 1.02 | 1.56 | 0.75 | 28° | 7/16   | 7/16 x 4 1/2 | 16  |
| 30                          | 32.00   | 4.00 | 33.29  | 33.46  | 32.17  | 36.88  | 39.12   | 39.12   | 1.31 | 2.00 | 0.82 | 20° | 1 1/4  | 1 x 5 1/2    | 20  |
| 36                          | 38.30   | 4.00 | 39.59  | 39.76  | 38.47  | 43.75  | 46.00   | 46.00   | 1.45 | 2.00 | 1.00 | 20° | 1 1/4  | 1 x 5 1/2    | 24  |
| 42                          | 44.50   | 4.00 | 45.79  | 45.96  | 44.67  | 50.62  | 53.12   | 53.12   | 1.45 | 2.00 | 1.25 | 20° | 1 1/4  | 1 1/2 x 6    | 28  |
| 48                          | 50.80   | 4.00 | 52.09  | 52.26  | 50.97  | 57.50  | 60.00   | 60.00   | 1.45 | 2.00 | 1.35 | 20° | 1 1/4  | 1 1/2 x 6    | 32  |
| 54                          | {Fittings & Dimensions Available On Request } |      |        |        |        |        |         |         |      |      |      |     |        |              |     |
| 60                          |   |      |        |        |        |        |         |         |      |      |      |     |        |              |     |
| 64                          |   |      |        |        |        |        |         |         |      |      |      |     |        |              |     |

STAR<sup>®</sup> PIPE PRODUCTS



UCAT 11.01  
\*REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR PIPE PRODUCTS  
HOUSTON CORPORATE TOLL FREE 1-800-999-3009 FAX 281-558-9000  
www.starpipeproducts.com



**NATIONAL PIPE & PLASTICS, INC.**

# DURA-FLOW

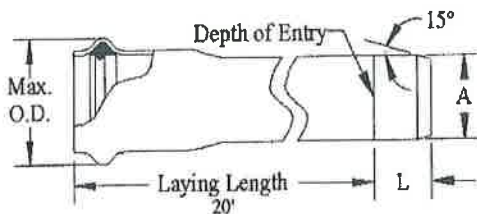
## PVC PRESSURE-RATED WATER PIPE

**Scope:** This submittal designates the general requirements for **Unplasticized Polyvinyl Chloride Pressure-Rated Water Pipe from compound which equals or exceeds cell classification 12454, as defined in ASTM Standard D-1784.**

**Pipe:** All pipe shall meet the requirements of ASTM Standard D-2241. Pipe supplied with a solvent cement joint shall meet the requirements of ASTM D-2672. Pipe supplied with a gasketed joint shall meet the requirements of ASTM D-3139, and the joint gasket shall conform to the requirements of ASTM F-477.

All pipe shall meet the requirements of NSF Standard #14, "Plastic Piping Components and Related Materials," and Standard #61, "Drinking Water System Components-Health Effects". The pipe displays the "NSF-PW" listing mark signifying use in potable water applications.

Pipe shall be furnished in laying lengths of 20' (+/- 1"). Other lengths and plain end finish may be available upon request.



This product is manufactured in alternative colors for specific applications. **Purple** for Reclaimed Water application. Print legend will include the marking "Reclaimed Water". **Green** for Sanitary Sewer Force Main applications. Print legend will include "Force Main". Although manufactured in accordance with the same industrial standards and testing requirements, these products do not bear the NSF Listing Mark as they are used for different applications.

### ASTM D-2241 Pressure Pipe

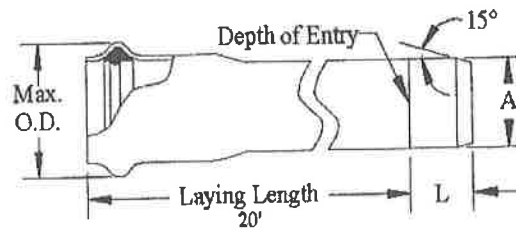
| Nominal Size<br>(Inches) (m.m.) | Standard Dimension Ratio (SDR) | Pressure Rating (PSI) | "A" Average Outside Diameter (O.D.) | Minimum Wall | Maximum O.D. | "L" Dimension Reference ** |
|---------------------------------|--------------------------------|-----------------------|-------------------------------------|--------------|--------------|----------------------------|
| 1 1/2                           | 35                             | 200                   | 1.900                               | 0.090        | 3.130        | 3.000                      |
| 2                               | 21                             | 200                   | 2.375                               | 0.113        | 3.650        | 3.000                      |
|                                 | 17                             | 250                   |                                     | 0.140        | 3.700        |                            |
|                                 | 13.5                           | 315                   |                                     | 0.176        | 4.200        |                            |
| 2 1/2                           | 60                             | 200                   | 2.875                               | 0.137        | 4.200        | 3.500                      |
| 3                               | 26 †                           | 160                   | 3.500                               | 0.135        | 4.820        | 4.000                      |
|                                 | 21                             | 200                   |                                     | 0.167        | 4.900        |                            |
|                                 | 17                             | 250                   |                                     | 0.206        | 4.970        |                            |
|                                 | 13.5 †                         | 315                   |                                     | 0.259        | 5.090        |                            |

\* Gasketed bell end finish is not available, optional alternatives are solvent cement joint or plain end.

\*\* Depth of entry line is a reference dimension and may vary +/- 0.125.

† Manufactured by special order.





### ASTM D-2241 Pressure Pipe (continued)

| Nominal Size<br>(inches) (m.m.) |     | Standard<br>Dimension Ratio<br>(SDR) | Pressure<br>Rating<br>(PSI) | "A" Average<br>Outside Diameter<br>(O.D.) | Minimum<br>Wall | Maximum<br>O.D. | "L" Dimension<br>Reference ** |
|---------------------------------|-----|--------------------------------------|-----------------------------|---|-----------------|-----------------|-------------------------------|
| 4                               | 100 | 26                                   | 160                         | 4.500                                     | 0.173           | 5.900           | 4.000                         |
|                                 |     | 21                                   | 200                         |   | 0.214           | 6.000           |                               |
|                                 |     | 17                                   | 250                         |   | 0.265           | 6.100           |                               |
|                                 |     | 13.5 †                               | 315                         |   | 0.333           | 6.230           |                               |
| 6                               | 150 | 26                                   | 160                         | 6.625                                     | 0.255           | 8.210           | 5.250                         |
|                                 |     | 21                                   | 200                         |   | 0.316           | 8.340           |                               |
|                                 |     | 17                                   | 250                         |   | 0.390           | 8.510           |                               |
| 8                               | 200 | 26                                   | 160                         | 8.625                                     | 0.332           | 10.380          | 6.000                         |
|                                 |     | 21                                   | 200                         |   | 0.410           | 10.560          |                               |
|                                 |     | 17                                   | 250                         |   | 0.508           | 10.780          |                               |
| 10                              | 250 | 26                                   | 160                         | 10.750                                    | 0.413           | 12.690          | 6.500                         |
|                                 |     | 21                                   | 200                         |   | 0.511           | 12.910          |                               |
|                                 |     | 17                                   | 250                         |   | 0.632           | 13.180          |                               |
| 12                              | 300 | 26                                   | 160                         | 12.750                                    | 0.490           | 14.860          | 7.000                         |
|                                 |     | 21                                   | 200                         |   | 0.606           | 15.120          |                               |
|                                 |     | 17                                   | 250                         |   | 0.750           | 15.450          |                               |

\* Gasketed bell end finish is not available, optional alternatives are solvent cement joint or plain end.

\*\* Depth of entry line is a reference dimension and may vary +/- 0.125.

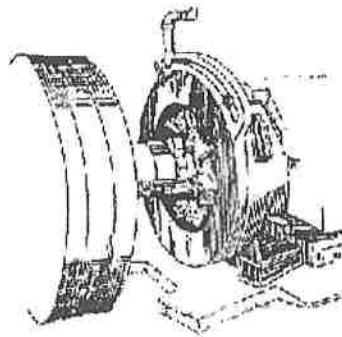
† Manufactured by special order.



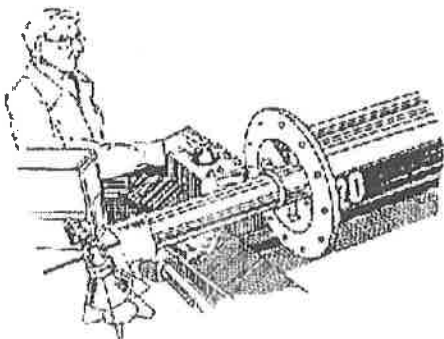
## Flange Ductile Iron Pipe - Data

Ductile Iron Pipe is commonly fabricated for use as interior process piping in water and sewage treatment facilities and has been covered by ANSI Standards since 1926. Under direction of committee A/21 of AWWA, this standard is subject to periodic review and is updated to include fabricator practices reflecting current usage in the industry.

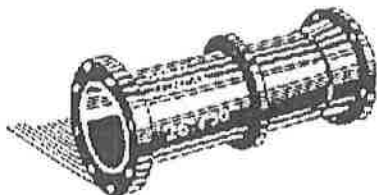
Flanged Ductile Iron Pipe is fabricated by means of threading the pipe and attaching threaded companion flanges in accordance with ANSI/ AWWA C115 / A21.15.



Taper pipe threads in accordance with ANSI B2.1 Table 15.1 and 15.2 of above Standard.



Machine tightened flanges and pipe ends shall be faced after fabrication.



Length, weight and fabrication mark, (if other than flange manufacturer) must appear on each piece of fabricated pipe.



# CAMBRIDGE-LEE INDUSTRIES, INC.

Reading Tube Division

P.O. Box 14026, Reading, PA 19612 - 4026

Phone 610 - 926 4141 Fax 610 - 926 7317

|              |           |
|--------------|-----------|
| Distributor: | Customer: |
| Address:     | Address:  |
| Order No.:   | P.O. No.: |
| Product:     |           |

## Standard Tube Certificate of Conformance

| Tube Type                                     | Specification No.*  | Specification Title  |
|---|---------------------|--|
| Type K, L & M                                 | ASTM B 88<br>NSF 61 | Standard Specification for Seamless Copper Water Tube<br>ANSI/NSF Standard 61 Drinking Water System Components Health Effects <sup>1</sup> |
| Coils and Straight Lengths Marked as ACR      | ASTM B 280          | Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service                                       |
| Type DWV Drainage                             | ASTM B 306          | Standard Specification for Copper Drainage Tube (DWV)  |
| Type K & L Straight Lengths Marked as OXY/MED | ASTM B 819          | Standard Specification for Seamless Copper Tube for Medical Gas Systems  |

Cambridge-Lee Industries, Reading Tube Division (CLI - RTD) certifies that the copper tube manufactured is grade UNS C12200 and meets the chemical, mechanical, cleanliness and eddy current testing requirements of the current specification(s) indicated below.

\* Although CLI - RTD strives to meet all requirements specified in ASTM, Standard Tube<sup>2</sup> may not fully meet ASTM dimensional requirements. When specified at order placement and for an additional cost, CLI - RTD can produce Certified Tube to meet all requirements of the current ASTM standard, including dimensions.

Copper tube manufactured by Cambridge-Lee Industries does not contain mercury or come in contact with mercury, mercury compounds or mercury containing devices at any stage in manufacturing, inspection, packaging or shipping.

All of the specifications require a minimum copper plus silver content of 99.9% and a phosphorus content between .015 - .040%. As indicated by the compositional requirements, the copper tube is essentially lead free.

<sup>1</sup> Seamless Copper Tube (Alloy C12200) is certified by NSF to NSF/ANSI Standard 61 for public water supplies meeting, or in process of meeting the U.S. EPA Lead and Copper Rule (56FR 26460, June 7, 1991). Water Supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water.

<sup>2</sup> Standard Tube will be provided unless Certified Tube is clearly defined on Purchase Order.

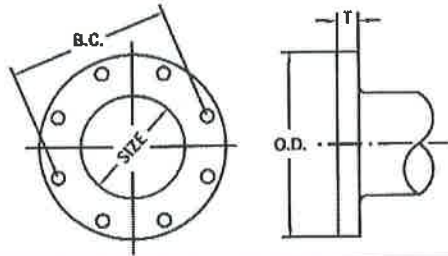


**Flanged Fittings**  
ANSI/AWWA C110/A21.10

**1" - 64" DUCTILE IRON FLANGED FITTINGS**

**GENERAL SPECIFICATIONS**

- MATERIAL:** Ductile iron per ASTM A536
- PRESSURE:** 250 PSI rating for 1" - 48" sizes and 150 PSI rating for 54" - 64"
- TESTING:** In accordance with ANSI/AWWA C110/A21.10, UL and FM requirements
- LAYING LENGTH:** 2" - 48" sizes in accordance with ANSI/AWWA C110/A21.10 and ANSI B16.1 and 54" - 64" sizes in accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coatings
- DRILLING:** In accordance with ANSI/AWWA C110/A21.10, ANSI/AWWA C153/A21.53 and ANSI B16.1 Class 125 Flanges
- CEMENT LINING:** In accordance with ANSI/AWWA C104/A21.4 -- sizes 1" - 3" single thickness and sizes 4" - 64" double thickness
- COATING:** Asphaltic seal coat inside in accordance with ANSI/AWWA C104/A21.4 and prime coat outside
- APPROVALS:** 2" - 12" Underwriters Laboratories and ULC Listed and Factory Mutual approved for 300 PSI rating. Please consult factory for detail listing and approvals. 2" and greater are UL/ANSI/NSF Standards 61 and 372.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C110 and C111



| FLANGE DETAILS |       |       |      |                |               |     |
|----------------|-------|-------|------|----------------|---------------|-----|
| NOM. SIZE      | O.D.  | B.C.  | T    | BOLT HOLE DIA. | BOLTS         |     |
|                |       |       |      |                | SIZE          | NO. |
| 1              | 4.25  | 3.12  | 0.44 | 0.62           | 1/2 x 2       | 4   |
| 1 1/2          | 5.00  | 3.88  | 0.56 | 0.62           | 1/2 x 2       | 4   |
| 2              | 6.00  | 4.75  | 0.62 | 0.75           | 3/4 x 2 1/4   | 4   |
| 2 1/2          | 7.00  | 5.50  | 0.69 | 0.75           | 3/4 x 2 1/2   | 4   |
| 3              | 7.50  | 6.00  | 0.75 | 0.75           | 5/8 x 2 1/2   | 4   |
| 4              | 9.00  | 7.50  | 0.94 | 0.75           | 3/4 x 3       | 8   |
| 5              | 10.00 | 8.50  | 0.94 | 0.88           | 3/4 x 3       | 8   |
| 6              | 11.00 | 9.50  | 1.00 | 0.88           | 3/4 x 3 1/2   | 8   |
| 8              | 13.50 | 11.75 | 1.12 | 0.88           | 3/4 x 3 1/2   | 8   |
| 10             | 16.00 | 14.25 | 1.19 | 1.00           | 7/8 x 4       | 12  |
| 12             | 19.00 | 17.00 | 1.25 | 1.00           | 7/8 x 4       | 12  |
| 14             | 21.00 | 18.75 | 1.38 | 1.13           | 1 x 4 1/2     | 12  |
| 16             | 23.50 | 21.25 | 1.44 | 1.13           | 1 x 4 1/2     | 16  |
| 18             | 25.00 | 22.75 | 1.56 | 1.25           | 1 1/4 x 5     | 16  |
| 20             | 27.50 | 25.00 | 1.69 | 1.25           | 1 1/4 x 5     | 20  |
| 24             | 32.00 | 29.50 | 1.88 | 1.38           | 1 1/4 x 5 1/2 | 20  |
| 30             | 38.75 | 36.00 | 2.12 | 1.38           | 1 1/4 x 6 1/2 | 28  |
| 36             | 46.00 | 42.75 | 2.38 | 1.63           | 1 1/2 x 7     | 32  |
| 42             | 53.00 | 49.50 | 2.62 | 1.63           | 1 1/2 x 7 1/2 | 36  |
| 48             | 59.50 | 56.00 | 2.75 | 1.63           | 1 1/2 x 8     | 44  |
| 54             | 66.25 | 62.75 | 3.00 | 2.00           | 1 3/4 x 8 1/2 | 44  |
| 60             | 73.00 | 69.25 | 3.12 | 2.00           | 1 3/4 x 9     | 52  |
| 64             | 80.00 | 76.00 | 3.38 | 2.00           | 1 3/4 x 9     | 52  |

STAR<sup>®</sup> PIPE PRODUCTS



ULCAT14.01  
\*REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

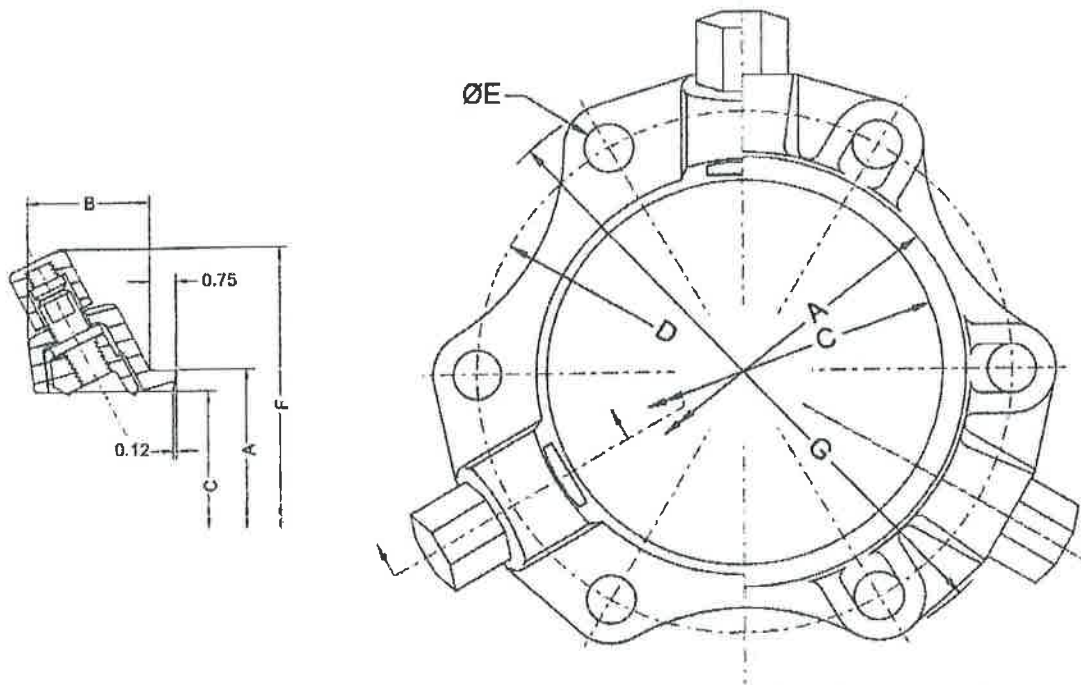
STAR PIPE PRODUCTS  
HOUSTON CORPORATE TOLL FREE 1-800-299-3479, FAX 281-558-9800  
www.starppipeproducts.com



**Stargrip® series 3000**

Mechanical Joint Wedge Action Restraint  
for Ductile Iron Pipe  
Patent #5,772,252

TECHNICAL INFORMATION



| STARGRIP® 3000 SPECIFICATIONS* |                           |       |      |       |       |       |       |                      |       |               |                |                  |
|--------------------------------|---------------------------|-------|------|-------|-------|-------|-------|----------------------|-------|---------------|----------------|------------------|
| NOM. SIZE                      | MAX PRESSURE RATING (PSI) | A     | B    | C     | D     | E     | F     | F W/NUTS TWISTED OFF | G     | NO. OF WEDGES | NO. OF T-BOLTS | APPROX WT. (LBS) |
| 3                              | 350                       | 4.84  | 2.40 | 4.06  | 6.19  | 3/4   | 9.85  | 8.45                 | 7.69  | 2             | 4              | 6                |
| 4                              | 350                       | 5.92  | 2.40 | 4.90  | 7.50  | 7/8   | 11.06 | 9.28                 | 9.15  | 2             | 4              | 8                |
| 6                              | 350                       | 8.02  | 2.40 | 7.00  | 9.50  | 7/8   | 13.06 | 11.38                | 11.15 | 3             | 6              | 12               |
| 8                              | 350                       | 10.17 | 2.51 | 9.15  | 11.75 | 7/8   | 15.25 | 13.53                | 13.40 | 4             | 6              | 17               |
| 10                             | 350                       | 12.22 | 2.51 | 11.20 | 14.00 | 7/8   | 17.25 | 15.58                | 15.92 | 6             | 8              | 24               |
| 12                             | 350                       | 14.32 | 2.51 | 13.30 | 16.25 | 7/8   | 19.50 | 12.68                | 17.90 | 8             | 8              | 34               |
| 14                             | 350                       | 16.40 | 2.91 | 15.44 | 18.75 | 7/8   | 21.25 | 19.82                | 20.25 | 10            | 10             | 49               |
| 16                             | 350                       | 18.50 | 2.91 | 17.54 | 21.00 | 7/8   | 23.34 | 21.92                | 24.83 | 12            | 12             | 56               |
| 18                             | 250                       | 20.60 | 2.91 | 19.64 | 23.25 | 7/8   | 26.40 | 24.84                | 25.25 | 12            | 12             | 59               |
| 20                             | 250                       | 22.70 | 2.67 | 21.74 | 25.50 | 7/8   | 28.56 | 27.00                | 27.50 | 14            | 14             | 75               |
| 24                             | 250                       | 26.90 | 3.50 | 25.94 | 30.00 | 7/8   | 33.86 | 32.30                | 31.54 | 16            | 16             | 139              |
| 30                             | 250                       | 33.29 | 3.49 | 32.17 | 36.88 | 1-1/8 | 40.12 | 38.56                | 39.12 | 20            | 20             | 199              |
| 36                             | 250                       | 39.59 | 3.49 | 38.47 | 43.75 | 1-1/8 | 46.42 | 44.86                | 46.00 | 24            | 24             | 232              |
| 42                             | 250                       | 45.79 | 5.15 | 44.75 | 50.62 | 1-3/8 | 54.86 | 53.32                | 53.12 | 28            | 28             | 400              |
| 48                             | 250                       | 52.09 | 5.15 | 51.05 | 57.50 | 1-3/8 | 61.16 | 59.62                | 59.42 | 32            | 32             | 488              |

\*All dimensions in inches except where indicated.

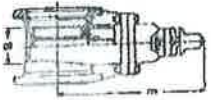
© REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR PIPE PRODUCTS  
HOUSTON CORPORATE OFFICE 1-800-999-3089 FAX 281-556-9000  
www.starpipeproducts.com

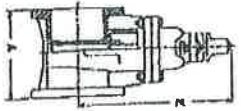


M&H responded by introducing the first RWV (Resilient Wedge) Valve in America. This introduction revolutionized the valve market in the U.S.

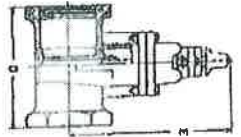
The M&H Resilient Wedge Valve, with its unique features and benefits, were the first to be manufactured with both AWWA and UL/FM approval for all water system requirements.



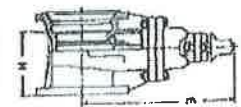
4067  
MECHANICAL JOINT  
2" - 12"



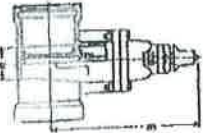
4067-02  
FLANGED  
2" - 12"



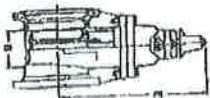
4067-07  
THREADED ENDS  
2" - 3"



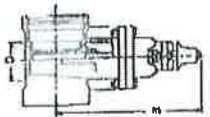
4067-13  
FLANGED X MJ  
3" - 12"



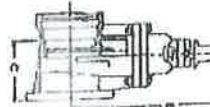
4067-03  
PUSH ON FOR  
SDR PVC  
2" - 12"



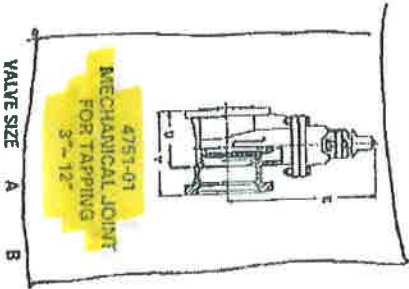
4067-01  
MECHANICAL  
CUTTING IN JOINT  
4" - 12"



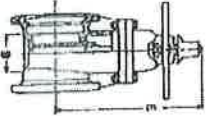
4067-22  
TYTON ENDS FOR DUCTILE  
IRON AND C900 PVC PIPE  
4" - 12"



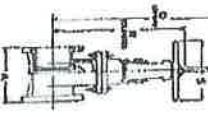
4067-23  
FLANGED X TYTON  
4" - 12"



4751-01  
MECHANICAL JOINT  
FOR TAPPING  
3" - 12"



4067-01P  
MECHANICAL JOINT  
POST INDICATOR VALVE  
2" - 12"



4068-02  
FLANGED OS & Y  
CONSTRUCTION  
2" - 12"

**NOTE:**  
It is recommended that valves be installed with stems vertical when used in raw sewage or sludge applications or in water with excessive sediment. Flanged end connections not recommended for buried service.

VALVE SIZE A B C D E G H P Q R S U V NO. OF TURNS TO FULL OPEN



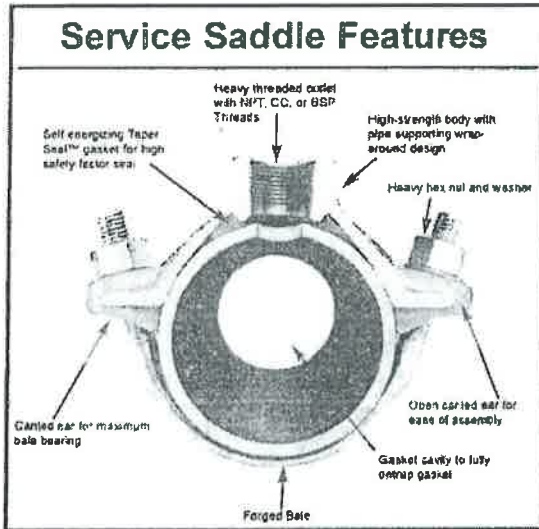
Smith-Blair  
A SENSUS COMPANY

## 311 & 313 TaperSeal™ Service Saddles, Ductile Iron ANSI/NSF® 61 Listed



### General Information

#### Service Saddle Features



**Smith-Blair® TaperSeal™ Wrap-Around Service Saddles** are designed to provide maximum support and reinforcement to the pipe; the result of nearly 360 degrees of contact.

When installed on a pipe with an outside diameter equal to or near to the top of the saddle's O.D. range, the saddle body wraps around the pipe approximately 180 degrees. On a pipe that has an O.D. equal to or near to the bottom of the saddle's O.D. range, the saddle body will wrap around the pipe approximately 180 degrees.

As the bale bolts are tightened, tangential pull directs the mechanical forces toward and around the pipe, uniformly distributing pressure around the circumference of the pipe to support and reinforce it.

#### Sealing Qualities

Smith-Blair® Service Saddles are designed to hold high pressures with just a few pounds of torque applied to the bale nuts. The unique, pressure-energized TaperSeal™ gasket, which seals as the result of both mechanical and hydrostatic pressure, is contained within a tapered gasket cavity cast into the saddle body. This feature provides a positive hydro-mechanical seal and prevents the gasket from being blown out along the pipe. At the recommended torque on the bale nuts, Smith-Blair® Saddles are designed to hold pressures in excess of the working pressure of the pipe.

#### Stability of Pipe

The wide skirt on Smith-Blair® TaperSeal™ Service Saddle bodies, combined with the wrap-around feature, results in excellent stability of the saddle on the pipe. These two features work together to prevent the saddle from rocking or creeping on the pipe, which could be caused by vibration, pressure or excessive external loading. This makes it possible to use single bale saddles instead of double bale saddles on many installations, resulting in substantial savings.

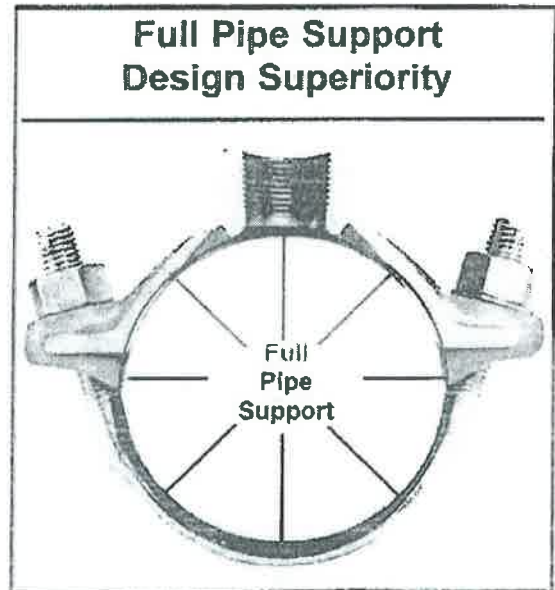
#### Single or Double Bale

The optimum number of bales needed is based on two factors: the pipe O.D. and the outlet size. Double straps are necessary to accommodate larger pipe O.D.'s and to equalize gasket pressure around larger outlets.

#### Easy to Install

For fast, easy installation, Smith-Blair® TaperSeal™ Service Saddles feature a closed lug on one side of the body that holds one end of the strap and its nut in place and acts as a hinge. The other side features an open canted lug, where the other end of the bale and its nut and washer can be slipped. Thus, no loose parts get lost, and disassembly is not required.

#### Full Pipe Support Design Superiority

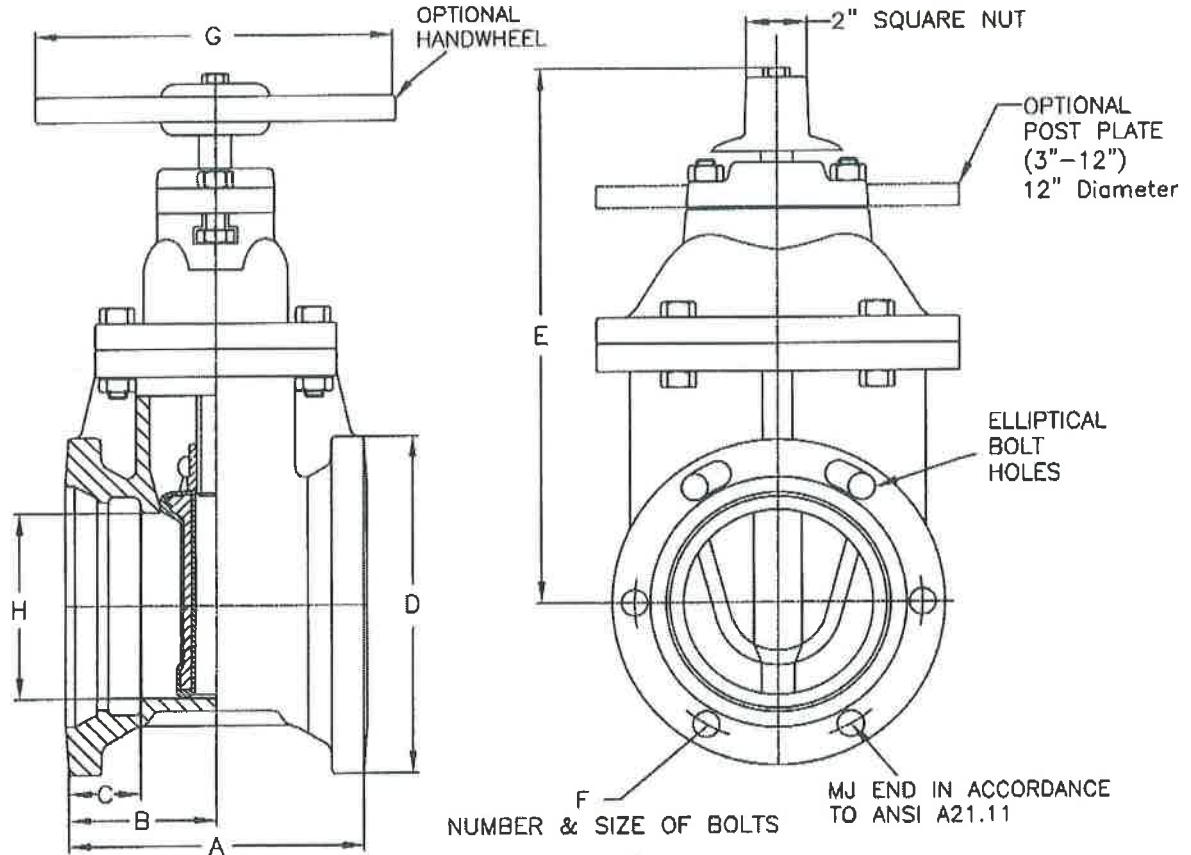




COMPLIES WITH APPLICABLE REQUIREMENTS OF AWWA C515

7571  
7571-HW  
7571-P

WITH 2" SQUARE NUT  
WITH HANDWHEEL  
WITH POST PLATE (3"-12")



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

| VALVE SIZE | A      | B      | C     | D      | E      | F     | G     | H      | WEIGHT 2" NUT |
|------------|--------|--------|-------|--------|--------|-------|-------|--------|---------------|
| **2        | 8 1/4  | 4 1/8  | 2 1/2 | 4 1/2  | 10 7/8 | 4-5/8 | 7 1/4 | 2      | 25            |
| **2 1/2    | —      | —      | —     | —      | —      | —     | —     | —      | —             |
| **3        | 8 1/2  | 4 3/4  | 2 1/2 | 7 3/4  | 12 3/8 | 4-5/8 | 10    | 3      | 40            |
| 4          | 9 1/2  | 4 3/4  | 2 1/2 | 9 1/8  | 14 3/4 | 4-3/4 | 10    | 4 1/4  | 66            |
| 6          | 10 1/2 | 5 1/4  | 2 1/2 | 11 1/8 | 19     | 6-3/4 | 12    | 6 1/4  | 107           |
| 8          | 13 1/8 | 6 9/16 | 2 1/2 | 13 3/4 | 22 1/2 | 6-3/4 | 14    | 8 1/4  | 159           |
| 10         | 15 1/2 | 7 3/4  | 2 1/2 | 15 3/4 | 26 1/2 | 8-3/4 | 18    | 10 1/4 | 281           |
| 12         | 16     | 8      | 2 5/8 | 18     | 30     | 8-3/4 | 18    | 12 1/4 | 353           |

HANDWHEEL--ADD 1# (2" - 2 1/2"), 6.5# (3"-4"), 7#(6"), 10#(8"), 16#(10" & 12")

INDICATOR POST PLATE ADD 16# (3"-12") ONLY

PALLET QUANTITIES 2" NUT: 46(2 1/2"), 36(3"), 30(4"), 24(6"), 10(8"), 6(10"), 6(12")

PALLET QUANTITIES HANDWHEEL: 36(2" & 2 1/2"), 30(3"), 40(4"), 18(6"), 8(8"), 6(10"), 4(12")

TURNS TO OPEN: 7 3/4(2"), 8(2 1/2"), 10(3"), 13 1/2(4"), 19 1/2(6"),

25 1/2(8"), 31 1/2(10"), 37 3/4(12")

\*\*2" to 3" SIZES FULL WALL DUCTILE (PER AWWA C509 DIMENSIONS)

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ

DATE: 9/1/12

DWG. NO.  
7571

2" THRU 12"  
RESILIENT SEAT GATE VALVE  
C515-STYLE 7571  
MJ X MJ

## ENGINEERING FEATURES

### THRUST BEARINGS

Delrin thrust bearings above and below the thrust collar reduce friction and minimize operating torques.

### STAINLESS STEEL HARDWARE

304 stainless steel nuts and bolts provide long-life corrosion protection.

### COPPER ALLOY STEM

Long, trouble free life with high strength, non-corrosive copper alloy stem and stem nut.

### 100% COATED WEDGE

100% coated wedge ensures bubble-tight seal every time up to 250 PSI. With twin seal design.

### ELLIPTICAL BOLT HOLES

Hole design on MJ connection eliminates the need for anti-rotation bolts (4" - 12").

### EASY STORAGE

Pads on the bottom of all valves keep valve in upright position for easier storage and protection from the elements.

### REPLACEABLE O-RINGS

Two O-ring seals are replaceable with the valve fully open and subjected to full-rated working pressure.

### NO FLAT GASKETS

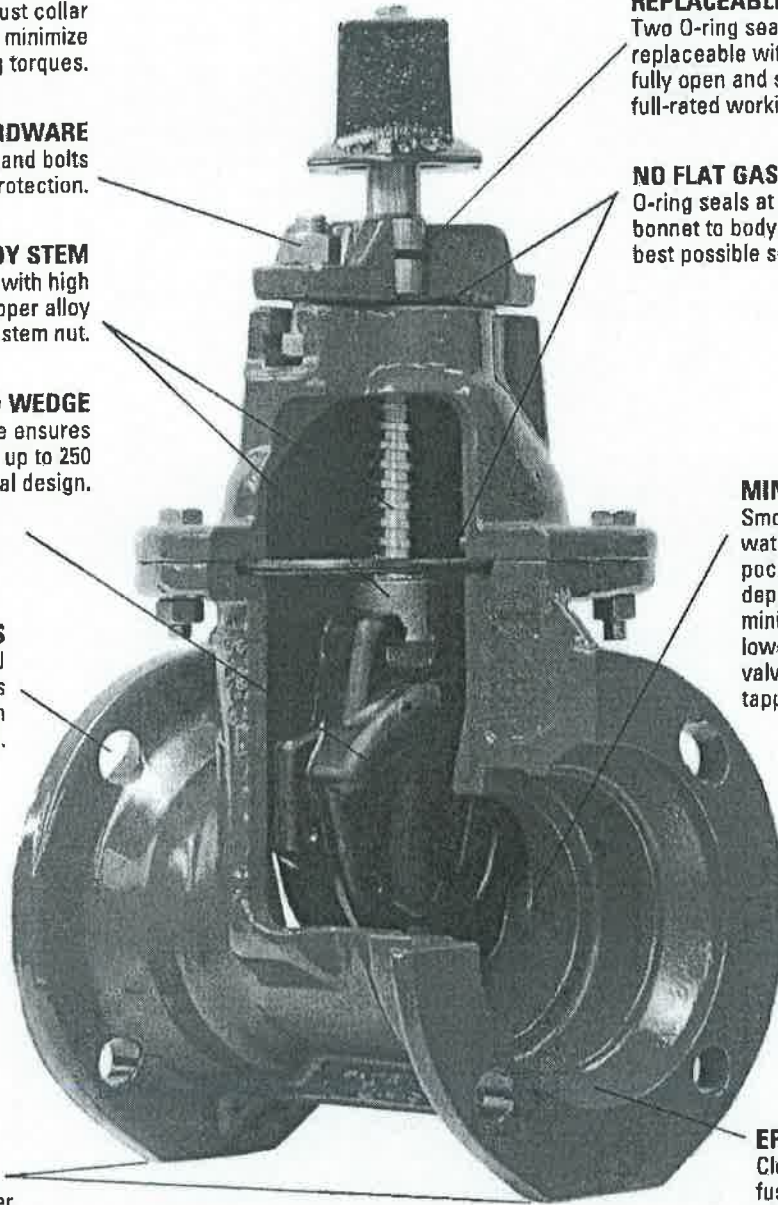
O-ring seals at stuffing box and bonnet to body flanges to ensure the best possible seal.

### MINIMAL FLOW LOSS

Smooth, unobstructed waterway is free of pockets, cavities, and depressions allowing for minimal flow loss and lower pumping costs. All valves accept full size tapping cutter.

### EPOXY COATING

Flow corrosion resistant fusion-bonded epoxy coating, conforming to AWWA C550 and NSF 61 Certified, protects both inside and outside of valve.



**VALVE RATING:** All valves are rated at 250 PSI for AWWA service and hydrostatically tested to 500 PSI.  
Valves through 16" are rated at 200 PSI for UL/FM service.



## COMMITTED TO ENVIRONMENTAL RESPONSIBILITY

M&H VALVE COMPANY IS COMMITTED TO PROTECTING OUR NATURAL RESOURCES THROUGH ENVIRONMENTALLY RESPONSIBLE MANUFACTURING PRACTICES, INCLUDING THE USE OF 80% RECYCLED CONTENT IN OUR HYDRANTS AND VALVES.

To learn more about our commitment to the environment, call 256-237-3521

## RECOMMENDED SPECIFICATIONS

1. Valves shall conform to the latest revision of AWWA Standard C515 covering resilient seated gate valves for water supply service.
2. The valves shall have a ductile iron body, bonnet, and O-ring plate. The wedge shall be totally encapsulated with rubber.
3. The sealing rubber shall be permanently bonded to the wedge per ASTM D429.
4. Valves shall be supplied with O-ring seals at all pressure retaining joints. No flat gaskets shall be allowed.
5. The valves shall be either non-rising stem or rising stem, opening by turning left or right, and provided with 2" square operating nut or a handwheel with the word "Open" and an arrow to indicate the direction to open.
6. Stems shall be cast copper alloy with integral collars in full compliance with AWWA. All stems shall operate with copper alloy stem nuts independent of wedge and of stem (in NRS valves).
7. Stems shall have two O-rings located above thrust collar and one O-ring below. Stem O-rings shall be replaceable with valve fully opened and subjected to full pressure. The stems on 4" - 20" shall also have two low torque thrust bearings located above and below the stem collar to reduce friction during operation.
8. Waterway shall be smooth, unobstructed and free of all pockets, cavities and depressions in the seat area. Valves 4" and larger shall accept a full size tapping cutter.
9. The body, bonnet and O-ring plate shall be fusion-bond epoxy coated, both interior and exterior on body and bonnet. Epoxy shall be applied in accordance with AWWA C550 and be NSF 61 Certified.
10. Each valve shall have maker's name, pressure rating, and year in which it was manufactured cast in the body. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to the requirements of AWWA C515 (and UL/FM where applicable).
11. Valves shall have all component parts cast and assembled in the USA and shall be manufactured by the M&H Valve Company.

ISO 9001



[www.mh-valve.com](http://www.mh-valve.com)



M&H VALVE COMPANY

605 West 23rd Street • Anniston, Alabama 36201  
PHONE 256-237-3521 FAX 888-549-5309



For Generations

M&H Valve is a division of McWane, Inc.

### Round Head Roadway Boxes With 4 1/4" Shaft



DROP COVER  
Figure B-117



LOCK COVER  
Figure B-118



OPEN BASE  
ROADWAY BOX  
Figure B-119



FLANGE BASE  
ROADWAY BOX  
Figure B-117

| Open Size                | Flange Size | Approximate Extension Inches | Complete Wt. | Top and Cover Length Wt. | Bottom Length Wt. |
|--------------------------|-------------|------------------------------|--------------|--------------------------|-------------------|
| 149-D                    | 49-D        | 18-24                        | 31           | 13 35                    | 13 21             |
| 175-D                    | 41-D        | 22-30                        | 54           | 13 35                    | 13 24             |
| 149-D                    | 43-D        | 30-36                        | 50           | 13 35                    | 27 30             |
| 149-R                    | 43-R        | 30-42                        | 72           | 19 45                    | 37 20             |
| 149-R                    | 45-R        | 30-45                        | 74           | 18 45                    | 34 34             |
| 4 1/4" Round Covers      |             |                              | 8            |                          |                   |
| 4 1/4" Round Lock Covers |             |                              | 10           |                          |                   |

### Extension Pieces For 4 1/4" Roadway Boxes

EXTENSION PIECE  
Figure B-119



| Size | Maximum Length Approximately | Wt. |
|------|------------------------------|-----|
| 49   | 18"                          | 21  |

### Two Piece Valve Boxes 5 1/4" Shaft

SCREW TYPE OR SLIP TYPE



SCREW TYPE  
B-122



SLIP TYPE  
B-127



EXTENSION PIECE  
SCREW TYPE  
Figure B-122

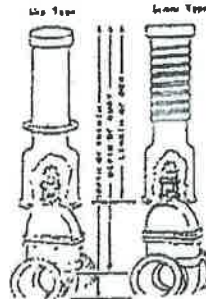


EXTENSION PIECE  
SLIP TYPE  
Figure B-127

| Screw Type | Shaft Type | Approximate Extension Inches | Complete Wt. | SCREW TYPE OR SLIP TYPE |     | Bottom Length Wt. | Extension Item Wt. |
|------------|------------|------------------------------|--------------|-------------------------|-----|-------------------|--------------------|
|            |            |                              |              | Top and Cover Length    | Wt. |                   |                    |
| 451-S      | 451-A      | 18-24                        | 80           | 10                      | 35  | 13 23             | Not Required       |
| 552-S      | 552-A      | 24-36                        | 90           | 18                      | 45  | 24 35             | "                  |
| 554-S      | 554-A      | 30-48                        | 90           | 16                      | 45  | 35 45             | "                  |
| 654-S      | 654-A      | 36-60                        | 110          | 28                      | 65  | 36 45             | "                  |
| 655-S      | 655-A      | 48-72                        | 135          | 35                      | 65  | 34 35             | #30 35             |
| 658-S      | 658-A      | 60-84                        | 145          | 35                      | 65  | 34 45             | #40 35             |

Our Figures B-122 and B-127 valve boxes are made with integral base which measures 8 1/4" diameter by 9" high. They are known as "two piece valve boxes". The base will cover only the stuffing box of valves 10" and smaller. (See illustration below). Our "Maximum and Minimum Trench Depth Sheet" will give you weights and our suggestions as to the correct lengths for certain trench conditions. Drop covers marked "WATER" furnished unless otherwise specified. The "two piece valve box" is not always acceptable. Some users require "three-piece valve boxes" (See illustrations of our Figure B-129 and B-130 valve boxes).

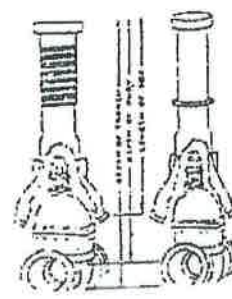
#### TWO PIECE STYLE



B-127

B-122

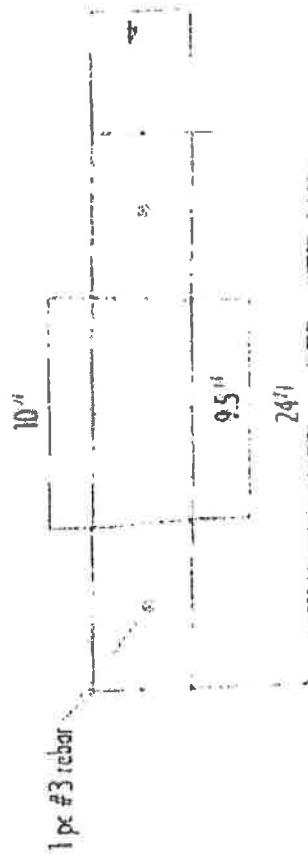
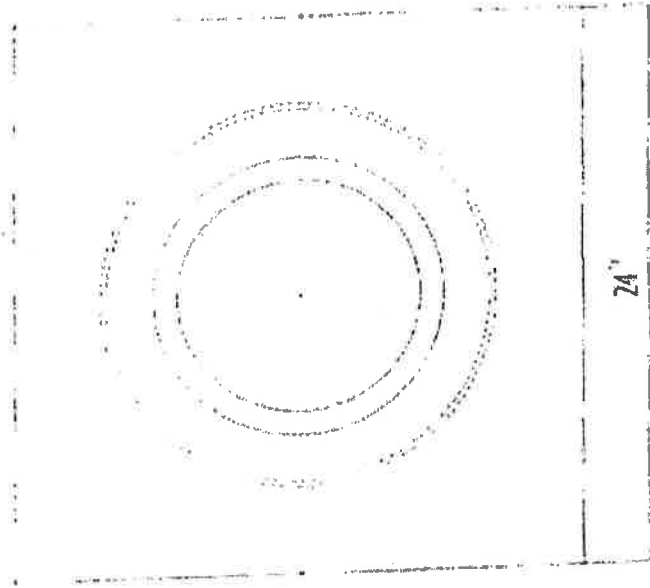
#### THREE PIECE STYLE



B-129

B-130

3/21/11 C  
#3 REBAR REINFORCEMENT ON 16" C/P



HOSCH CONCRETE PRODUCTS  
24" VANE PAD  
ALPHAL VALA 1000 PSI CONCRETE  
BUCKLE UP, WE'VE MADE STRONGER SINCE 1977 (1) 11/11/11

U.S. FILTER  
4355 Woodward View  
Buford, GA 30511  
770-932-6223

two #3 rebar reinforcement



48

4 ft valve post

HOSCH CONCRETE PRODUCTS

MATERIAL SPECS: 5000 PSI CONCRETE  
#3 REBAR

3000 HOSCH VALLEY RD  
BUFORD, GA 30519 PHONE (770)945-3971

## SUBMITTAL

(Current revisions for all Standards apply)

**SIZES:** ..... For 6" to 12" AWWA C900 PVC, Cast Iron, and AWWA C151 Ductile pipe with 4" to 12" side flanged outlet with 3/4" tap at branch.

**STANDARDS:** ..... Mechanical and \*Flanged joints comply with ANSI/AWWA C153/A21.53 cast with tested and traceable ASTM A536 Ductile Iron. Ductile Iron Mechanical Joint Tapping Sleeves are produced in accordance with Tyler Union manufacturer's standard. Dimensions and specification ranges are per the standards provided herein.

**Note:** Recess dimensions are per Manufacturer's Standardization Society standard practice SP-60.

**PRESSURE RATING:** 6" - 12" Assemblies rated @ 250 PSI.

**GASKETS:** ..... SBR Mechanical Joint and Split gaskets are per ASTM D2000 - AA and ANSI/AWWA C111/21.11-7, armor tipped with coiled brass wire spring.

**NSF-61:** ..... Meets all requirements

**ASPHALTIC**

**COATING:** ..... ANSI/AWWA C104/A21.4-08

**CEMENT LINING:** .... Tapping Sleeves are unlined to ensure they fit over the pipe being tapped.

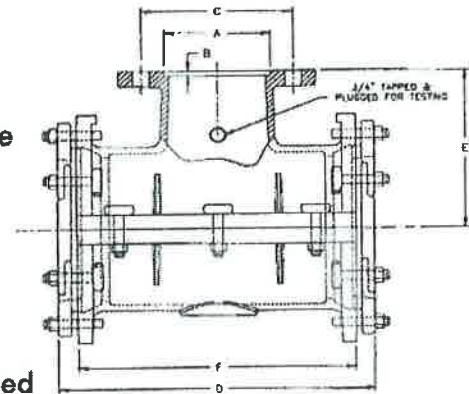
**FLANGE:** ..... ANSI Class 125B

**FLANGE THICKNESS:** ANSI/AWWA C153/A21.53-06

**BOLTS:** ..... ANSI/AWWA C111/A21.11-7

**DEFLECTION:** ..... Deflection is not recommended

**INSTALLATION:** ..... Per Tyler Union instructions as provided



- Clean pipe, insert side gasket into back half of gasket grooves. Make sure ends are flush with or slightly protrude into the end gasket seating area.
- Bolt sleeve halves together and trim side gaskets as necessary. **MAKE SURE SLEEVE WILL ROTATE FREELY ON PIPE.**
- Install end gaskets, locating cut ends 90° from side gasket. If pipe is maximum OD, stretch gasket to make certain cut ends match with no gap in between.
- Install glands and bolts-rotate sleeve to desired position. Be sure pipe is centered inside the sleeve.
- Tighten gland bolts alternately, using 80 to 90 foot pounds.
- After assembly, **PRESSURE TEST ALL JOINTS BEFORE TAPPING.** If additional tightening is required, release pressure and relax tension on gland bolts before tightening side bolts.

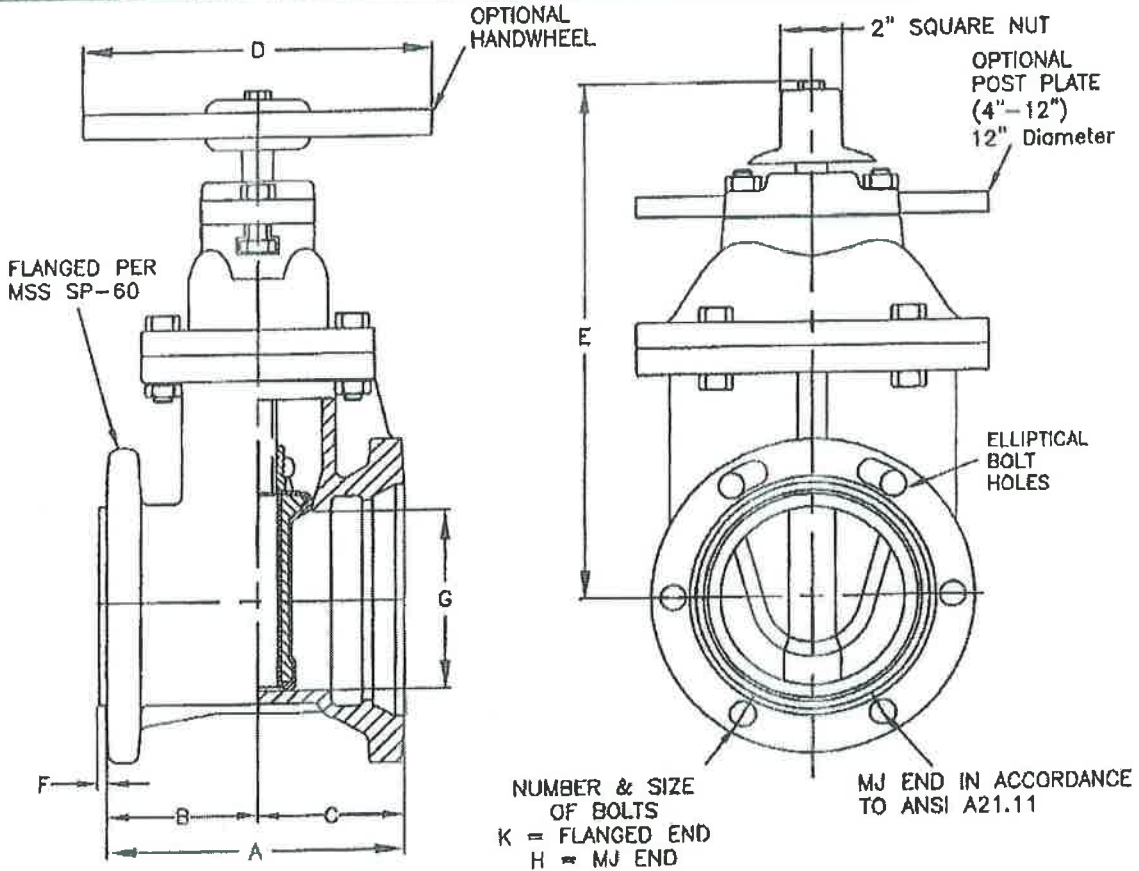
| Size  | Dimensions |      |       |       |       |        |       | Pipe O.D. Range |     | DI |
|-------|------------|------|-------|-------|-------|--------|-------|-----------------|-----|----|
|       | A          | B    | C     | D     | E     | F      | Min.  | Max.            |     |    |
| 6x4   | 5.016      | .250 | 7.50  | 15.75 | 8.00  | 12.75  | 6.85  | 7.15            | 104 |    |
| 6     | 7.016      | .312 | 9.50  | 15.75 | 8.00  | 12.75  | 6.85  | 7.15            | 108 |    |
| 8x4   | 5.016      | .250 | 7.50  | 16.50 | 9.00  | 13.375 | 9.00  | 9.35            | 134 |    |
| 8x6   | 7.016      | .312 | 9.50  | 16.50 | 9.00  | 13.375 | 9.00  | 9.35            | 140 |    |
| 8     | 9.016      | .312 | 11.75 | 16.50 | 9.00  | 13.375 | 9.00  | 9.35            | 148 |    |
| 10x4  | 5.016      | .250 | 7.50  | 24.00 | 11.00 | 20.75  | 11.04 | 11.45           | 236 |    |
| 10x6  | 7.016      | .312 | 9.50  | 24.00 | 11.00 | 20.75  | 11.04 | 11.45           | 240 |    |
| 10x8  | 9.016      | .312 | 11.75 | 24.00 | 11.00 | 20.75  | 11.04 | 11.45           | 246 |    |
| 10    | 11.016     | .312 | 14.25 | 24.00 | 11.00 | 20.75  | 11.04 | 11.45           | 257 |    |
| 12x4  | 5.016      | .250 | 7.50  | 26.50 | 12.00 | 23.25  | 13.14 | 13.56           | 273 |    |
| 12x6  | 7.016      | .312 | 9.50  | 26.50 | 12.00 | 23.25  | 13.14 | 13.56           | 286 |    |
| 12x8  | 9.016      | .312 | 11.75 | 26.50 | 12.00 | 23.25  | 13.14 | 13.56           | 292 |    |
| 12x10 | 11.016     | .312 | 14.25 | 26.50 | 12.00 | 23.25  | 13.14 | 13.56           | 303 |    |
| 12    | 13.016     | .312 | 17.00 | 26.50 | 12.00 | 23.25  | 13.14 | 13.56           | 320 |    |



COMPLIES WITH  
APPLICABLE  
REQUIREMENTS OF  
AWWA C509

4751  
4751-01HW  
4751-01P

WITH 2" SQUARE NUT  
WITH HANDWHEEL  
WITH POST PLATE (4"-12")



ELLIPTICAL BOLT HOLE DESIGN ALLEVIATES THE NEED FOR ANTI-ROTATIONAL BOLTS

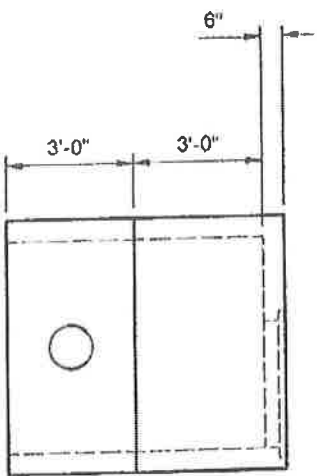
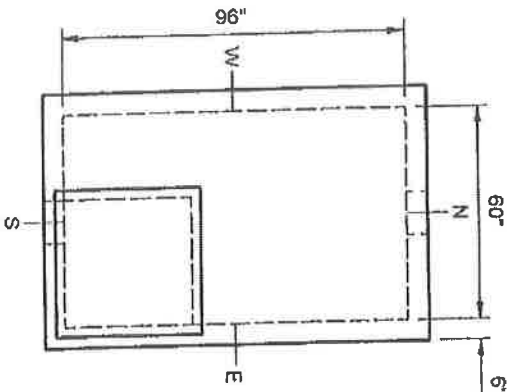
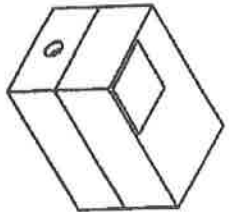
| VALVE SIZE | A      | B     | C     | D  | E      | F    | G      | H     | K      | WEIGHT 2" NUT |
|------------|--------|-------|-------|----|--------|------|--------|-------|--------|---------------|
| 4          | 9 1/4  | 4 1/2 | 4 3/4 | 10 | 14 3/4 | 3/16 | 4 1/4  | 4-3/4 | 8-5/8  | 84            |
| 6          | 10 1/2 | 5 1/4 | 5 1/4 | 12 | 19     | 1/4  | 6 1/4  | 6-3/4 | 8-3/4  | 132           |
| 8          | 13 1/4 | 5 3/4 | 7 1/2 | 14 | 22 1/2 | 1/4  | 8 1/4  | 8-3/4 | 8-3/4  | 208           |
| 10         | 14 1/4 | 6 1/2 | 7 3/4 | 18 | 26 1/2 | 1/4  | 10 1/4 | 8-3/4 | 12-7/8 | 378           |
| 12         | 15     | 7     | 8     | 18 | 30     | 1/4  | 12 1/4 | 8-3/4 | 12-7/8 | 492           |

EACH SIZE ACCOMMODATES A FULL SIZE DIAMETER TAPPING CUTTER  
HANDWHEEL—ADD 6.5# (4"), 7#(6"), 10#(8"), 16#(10" & 12")  
INDICATOR POST PLATE ADD 16# (4"-12") ONLY  
PALLET QUANTITIES 2" NUT: 30(4"), 24(6"), 8(8"), 6(10"), 6(12")  
PALLET QUANTITIES HANDWHEEL: 30(4"), 18(6"), 8(8"), 6(10"), 4(12")  
TURNS TO OPEN: 13 1/2(4"), 19 1/2(6"), 25 1/2(8"), 31 1/2(10"), 37 3/4(12")

M&H VALVE COMPANY  
ANNISTON, ALABAMA  
A DIVISION OF MCWANE INC.

DWN: TRIJ  
DATE: 9/1/12  
DWG. NO.  
SD--17

4" THRU 12"  
RESILIENT SEAT GATE VALVE  
C509-STYLE 4751-01  
TAPPING VALVE



BOTTOMLESS VAULT

1 EA 3x3 ALUM. HATCH CAST IN TO TOP



V-V-A  
5x8' VALVE VAULT - BOTTOMLESS # 1 ea

SPECIFICATIONS

|   |   |
|---|---|
| 1 |   |
| 2 | WALL STEEL- #4 @ 6" Vert #4 @ 6" Hor  |
| 3 | TOP SLAB- #4 @ 10" Short #4 @ 6" Long (Top) #4 @ 10" Short #4 @ 6" Long (Bot) |
| 4 |   |
| 5 |   |
| 6 | 4000 PSI with granite   |
| 7 |   |

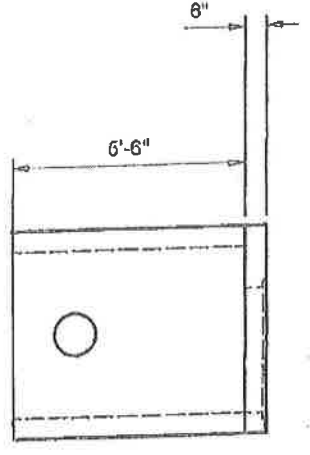
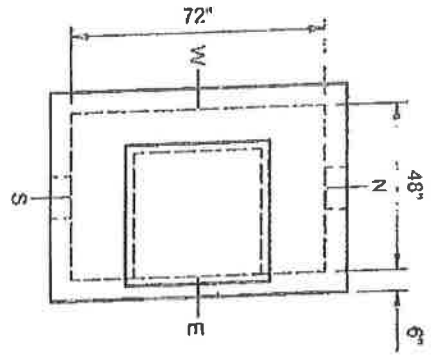
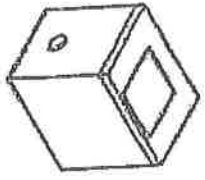
SPECIAL NOTES: 2 3x3 HATCH CAST INTO TOP

| PC # | WEIGHT          | PIECE DESCRIPTION                          | PRODUCT CODE     |           |           |             |            |
|------|-----------------|--|------------------|-----------|-----------|-------------|------------|
| 1    | 9602            | #Top: 072x10800, W06TH36, 36x36, Eng       | SSJ7Z1Z20693N100 |           |           |             |            |
| 2    | 6182            | #Box: 060, 096, W06TH36, Base Non Ext, Eng | SSJ7Z1Z20693N100 |           |           |             |            |
| PC # | DES / DIRECTION | PIPE SIZE                                  | PIPE INVERT      | HOLE SIZE | BOOT TYPE | HOLE INVERT | HOLE RAISE |
| 1    | N               |  |                  | 12" HOLE  |           |             | 12"        |
| 1    | S               |  |                  | 12" HOLE  |           |             | 12"        |

HANSON PIPE & PRECAST  
PRECAST V.V.

DRAWN BY: PRESTON  
SCALE: N.T.S.

**Hanson Pipe & Precast**



1 EA 3x6 ALUM. HATCH CAST IN TO TOP

4x6 VALVE VAULT # 1 ea

SPECIFICATIONS

|   |   |
|---|---|
| 1 | BASE STEEL - #4 @ 10" Spacing @ 8' Long                                   |
| 2 | WALL STEEL - #4 @ 8" Vert #4 @ 8" Hor                                     |
| 3 | TOP SLAB - #4 @ 10" Spacing @ 8' Long Top #4 @ 10" Spacing @ 8' Long Side |
| 4 |   |
| 5 |   |
| 6 | 4000 PSI with granite   |
| 7 |   |

SPECIAL NOTES: 2 3x6 HATCH CAST IN TO TOP

| PC # | WEIGHT          | PIECE DESCRIPTION                      | PRODUCT CODE  |           |           |             |            |
|------|-----------------|--|---------------|-----------|-----------|-------------|------------|
| 1    | 1520            | #1 Top 050X03400 W06*H16.36x36_Eng     | S10Z2Z219S00  |           |           |             |            |
| 2    | 11582           | #Box 048.072 W06*H72.Basement Excl_Eng | S3E0307267600 |           |           |             |            |
| PC # | DEE / DIRECTION | PIPE SIZE                              | PIPE INVERT   | HOLE SIZE | BOOT TYPE | HOLE INVERT | HOLE RAISE |
| 1    | N               |  |               | 12" HOLE  |           |             | 12"        |
| 1    | S               |  |               | 12" HOLE  |           |             | 12"        |

HANSON PIPE & PRECAST  
PRECAST V.V.

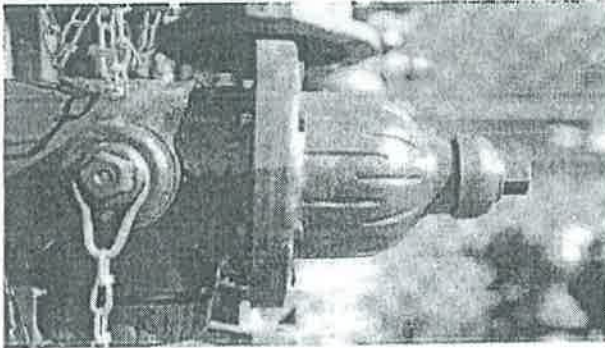
**Hanson Pipe & Precast**

DRAWN BY: PRESTON  
SCALE: N.T.S.

## GENERAL FEATURES / GENERAL SPEC

# M&H AWWA C502 FIRE HYDRANTS

- ◆ Model 129
- ◆ Traffic Model
- ◆ 250 PSI Working Pressure – 500 PSI Hydrostatic Test – AWWA
- ◆ UL / FM Approved



**Type:** Compression type, opening against line pressure. Main valve will remain closed should hydrant be broken off by traffic accident.

**Classification and Size:** Hydrants are classified by the main valve size, number and size of hose and pumper nozzles. Hydrant sizes are designated as 4 1/2 and 5 1/4 inches, size being the inside diameter of the main valve seat opening.

**Length:** Hydrant lengths are determined by depth of trench below ground level. Lengths are in multiples of six inches.

**Barrel:** Upper section of barrel (nozzle section) contains the hose and pumper nozzles. The water way is uniform in diameter for entire length of barrel.

**Hydrant Inlet:** Hydrant shoe or elbow is provided with flange or mechanical joint connection to fit connecting pipe. All shoe types except flanged are provided with lugs for strapping. The two drain openings in the hydrant shoe are bronze bushed. All shoes are protected from corrosion with fusion bonded epoxy coating.

**Hose and Pumper Nozzles:** Threaded with fine thread and screwed (not leaded) into tapped openings in nozzle section of hydrant. Hose and pumper nozzle caps are provided with rubber gaskets and chained to nozzle section.

**Dry Top:** Operating threads are isolated from the waterway by a double O-ring seal in the one piece bonnet. Operating nut has lubricating hole for lubrication of operating threads and thrust bearing.

**Dry Barrel:** When the valve of the hydrant is closed, two drain valves in the hydrant shoe automatically open and allow rapid and complete drainage of the hydrant barrel. This dry barrel eliminates danger of damage to the hydrant by freezing.

**Operating Mechanism and Working Parts:** A tamper resistant cast iron weather shield protects the operating mechanism and rubber O-ring seals from environmental elements and painting solvents. The bronze operating nut drives a steel main valve rod, which is bronze sheathed where it passes through the one-piece bonnet. A bronze-to-bronze seat assembly allow for all working parts to be easily removable through the top of the hydrant without excavating. The bronze seat ring threads into a bronze retainer ring bushing, which is permanently affixed into the shoe. The dual positive acting drain valve is constructed of a high strength aluminum bronze to provide additional strength for operation and disassembly. The rubber drain valve facings are water pressure activated and effectively eliminate the drain valve as a maintenance issue.

**Component Materials:** All gray iron parts conform to ASTM A-126, Class B. Ductile Iron components conform to ASTM A536. All non-corrosive metal parts are made of copper alloys conforming to AWWA Standard C502 requirements. Remaining components are performance selected from some of the highest quality materials available today.

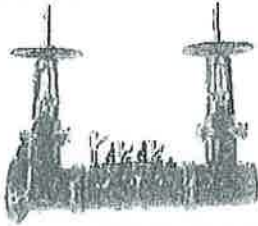
**Shop Tests:** Main valve tested from inlet side to 250psi. With main valve open, drain valve and entire hydrant, hydrant hydrostatic pressure tested to 500psi.

July 2005 / M&H C502 / Model 129

**Double Check Valve  
Backflow Preventers**

**4SG-100 Series (DCVA)**

**4SG-100 Series**



Sizes 2-1/2", 3", 4", 6", 8"

**MATERIALS**

|                            |                                    |
|----------------------------|------------------------------------|
| Body                       | Epoxy-coated (FDA)<br>Ductile Iron |
| Covers (2-1/2" - 6")       | Epoxy-coated (FDA)<br>Steel        |
| Covers (8")                | Epoxy-coated (FDA)<br>Ductile Iron |
| Check Valves (2-1/2" - 6") | Glass-Filled Noryl®                |
| Check Valves (8")          | Bronze                             |
| Springs                    | Stainless Steel                    |
| Seat Discs                 | Chloramine-resistant<br>EPDM       |
| Test Cock Handles          | Stainless Steel                    |

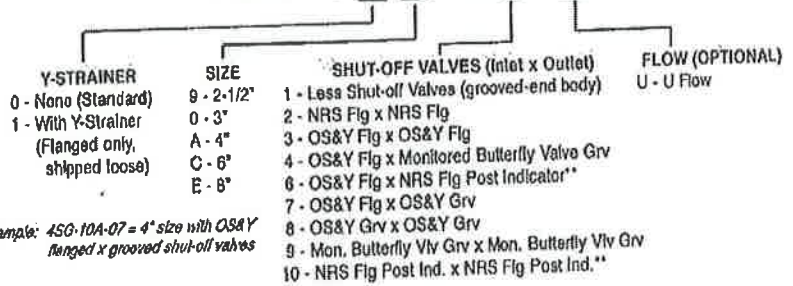
**4SG-100 SERIES DOUBLE CHECK VALVE ASSEMBLY**

The Apollo® 4SG-100 Series Double Check Valve is designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are non-health hazards. The modular check valves have replaceable seats and reversible EPDM seat discs. Grooved connections on an epoxy-coated ductile iron body allow for easy connection to butterfly valves or gate valves.

**FEATURES**

- Lightweight
- Short lay length
- Low pressure loss
- Modular check valves
- Individual access to check valves
- Reversible/replaceable seat discs
- Approved for vertical (up) and horizontal installations
- Corrosion resistant epoxy-coated ductile iron body
- US Patents #5,711,341 and #6,343,618
- MADE IN THE USA

**4SG - 1 X X - 0 X - U**



Example: 4SG-10A-07 = 4" size with OS&Y flanged x grooved shut-off valves

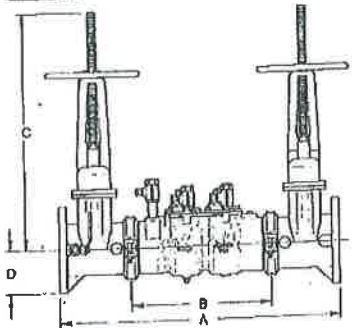
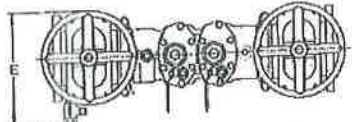
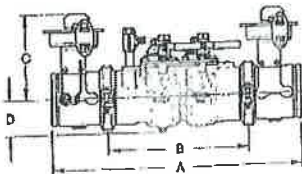
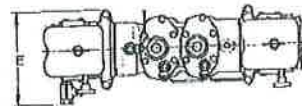
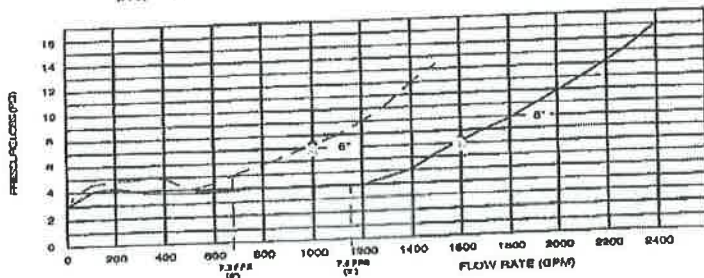
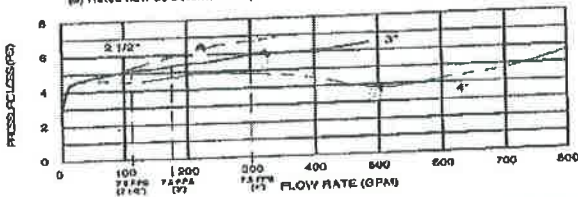
\*\*NRS with plate & nut option not available in 2-1/2" size

**Dimensions (in) - Weights (lbs.)**

| Size                         | 2 1/2" | 3"     | 4"     | 6"     | 8"     |
|------------------------------|--------|--------|--------|--------|--------|
| A (Butterfly Valves)*        | 29     | 29 1/2 | 29 3/4 | 32     | 43     |
| A (Gate Valves)*             | 32     | 33     | 34 1/2 | 39     | 50     |
| B (Grooved End Body)         | 17     | 17     | 16 1/2 | 18     | 27     |
| C (Butterfly Valves)         | 8      | 8 1/2  | 9 1/4  | 10 1/4 | 12     |
| C (OS&Y Open)                | 16 3/8 | 18 7/8 | 22 3/4 | 30 1/8 | 37 3/4 |
| D (Butterfly Valves)         | 4 1/2  | 4 1/2  | 4 1/2  | 4 1/2  | 6 1/2  |
| D (Gate Valves)              | 3 1/2  | 3 1/2  | 4 1/2  | 5 1/2  | 6 3/4  |
| E (Butterfly Valves)         | 9      | 9      | 9 1/2  | 12     | 15     |
| E (Gate Valves)              | 9 5/8  | 10 3/8 | 11 7/8 | 14 5/8 | 16 3/4 |
| Test Cocks (NPT)             | 1/2    | 1/2    | 1/2    | 3/4    | 3/4    |
| Net Wt. (Less Valves)        | 53     | 63     | 53     | 60     | 375    |
| Net Wt. (w/Butterfly Valves) | 80     | 83     | 97     | 128    | 506    |
| Net Wt. (w/OS&Y Valves)      | 149    | 174    | 208    | 309    | 852    |

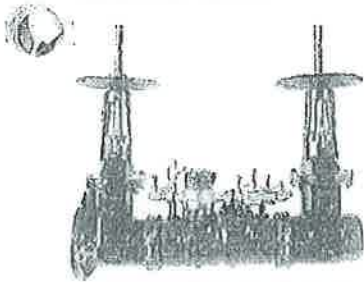
\*Nominal dimensions are shown. Allowances must be made for manufacturers' tolerances.

(\*) Rated flow as determined by USC's FCC&HR and ASSE design performance standards.



## 4SG-600 Series (DCDA)

### 4SG-600 Series



Sizes 2-1/2", 3", 4", 6", 8"

#### MATERIALS

|                            |  |
|----------------------------|--|
| Body (mainline)            | Epoxy-coated (FDA)<br>Ductile Iron<br>Bronze |
| Bypass DC                  | Epoxy-coated (FDA)<br>Steel                  |
| Covers (2-1/2" - 6")       | Epoxy-coated (FDA)<br>Ductile Iron           |
| Covers (8")                | Glass-Filled Noryl <sup>2</sup><br>Bronze    |
| Check Valves (2-1/2" - 6") | Stainless Steel                              |
| Check Valves (8")          | Chloramine-Resistant<br>EPDM                 |
| Springs                    | Stainless Steel                              |
| Seat Discs                 | Stainless Steel                              |
| Test Cock Handles          | Stainless Steel                              |

#### 4SG-600 SERIES DOUBLE CHECK DETECTOR ASSEMBLY

The Apollo® 4SG-100 Series Double Check Detector Assembly is designed to prevent contamination of the potable water supply due to back-siphonage or backpressure from substances that are non-health hazards. The device consists of a mainline double check valve with Apollo® shut-off ball valves as shut-offs. The by-pass serves to measure water use of up to 3 gpm. Grooved connections on an epoxy-coated ductile iron body allow for easy connection to butterfly valves or gate valves.

#### FEATURES

- Lightweight
- Short lay length
- Low pressure loss
- Modular check valves
- Individual access to check valves
- Reversible/replaceable seat discs
- Approved for vertical and horizontal installations
- Corrosion resistant epoxy-coated ductile iron body
- US Patents #5,711,341 and #6,343,618
- MADE IN THE USA

### 4SG - 60 X - X X - U

| SIZE       | METER OPTION       | SHUT-OFF VALVES (Inlet x Outlet)                    | FLOW (OPTIONAL) |
|------------|--------------------|---|-----------------|
| 9 - 2-1/2" | C - Cubic feet/min | 1 - Less Shut-off Valves (grooved-end body)         | U - U Flow      |
| 0 - 3"     | E - Gallons/min    | 2 - NRS Fig x NRS Fig                               |                 |
| A - 4"     | G - Less meter     | 3 - OS&Y Fig x OS&Y Fig                             |                 |
| C - 6"     |                    | 4 - OS&Y Fig x Monitored Butterfly Valve Grv        |                 |
| E - 8"     |                    | 6 - OS&Y Fig x NRS Fig Post Indicator**             |                 |
| 10 - 10"   |                    | 7 - OS&Y Fig x OS&Y Grv                             |                 |
|            |                    | 8 - OS&Y Grv x OS&Y Grv                             |                 |
|            |                    | 9 - Mon. Butterfly Vlv Grv x Mon. Butterfly Vlv Grv |                 |
|            |                    | 10 - NRS Fig Post Ind. x NRS Fig Post Ind.**        |                 |

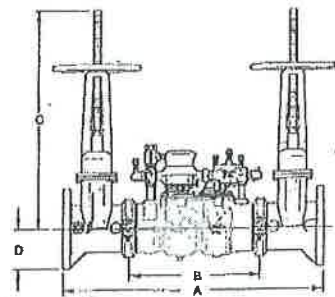
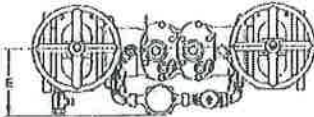
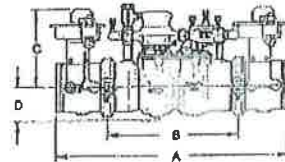
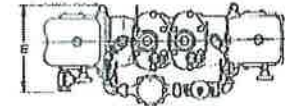
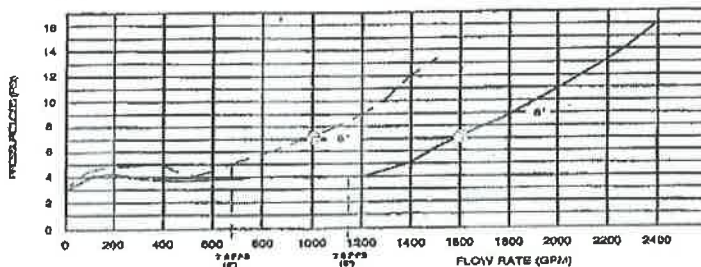
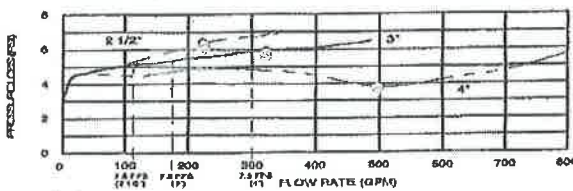
*Example: 4SG-60A-E7 = 4" size with meter in gpm and OS&Y flanged x grooved shut-off valves*

\*\*NRS with plate & nut option not available in 2-1/2" size

| Size                         | Dimensions (in) - Weights (lbs.) |        |        |        |        |
|------------------------------|----------------------------------|--------|--------|--------|--------|
|                              | 2 1/2"                           | 3"     | 4"     | 6"     | 8"     |
| A (Butterfly Valves)*        | 29                               | 29 1/2 | 29 3/4 | 32     | 43     |
| A (Gate Valves)*             | 32                               | 33     | 34 1/2 | 39     | 50     |
| B (Grooved End Body)         | 17                               | 17     | 18 1/2 | 18     | 27     |
| C (Butterfly Valves)         | 8                                | 8 1/2  | 9 1/4  | 10 1/4 | 12     |
| C (OS&Y Open)                | 16 3/8                           | 18 7/8 | 22 3/4 | 30 1/8 | 37 3/4 |
| D (Butterfly Valves)         | 4 1/2                            | 4 1/2  | 4 1/2  | 4 1/2  | 6 3/4  |
| D (Gate Valves)              | 3 1/2                            | 3 3/4  | 4 1/2  | 5 1/2  | 6 3/4  |
| E                            | 9                                | 9      | 9      | 9      | 10 3/4 |
| Test Cocks (NPT)             | 1/2                              | 1/2    | 1/2    | 3/4    | 3/4    |
| Net Wt. (Less Valves)        | 65                               | 65     | 65     | 72     | 395    |
| Net Wt. (w/Butterfly Valves) | 92                               | 95     | 109    | 140    | 526    |
| Net Wt. (w/OS&Y Valves)      | 161                              | 186    | 220    | 321    | 672    |

\*Nominal dimensions are shown. Allowances must be made for manufacturers' tolerances.

(p) Rated flow as determined by USC's FCCC5HR and ABBE design performance standards.





# UNITED BRASS WORKS, INC.

714 S. Main St., Randleman, NC 27317

Tel: 800-334-3035 Fax: 800-498-4696 www.ubw.com



## Model 90WBD Wafer Check Valve

**UL<sup>®</sup> Listed • FM Approved\***

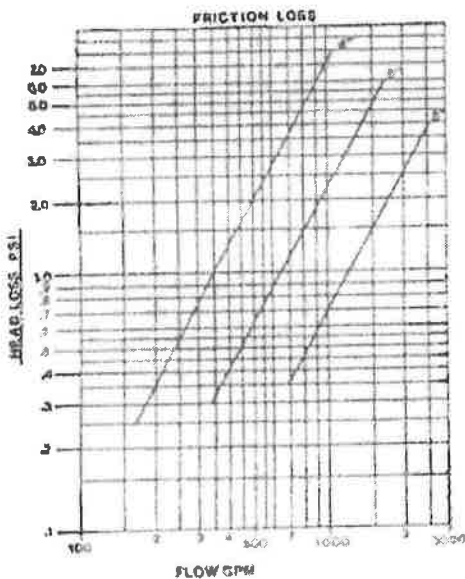
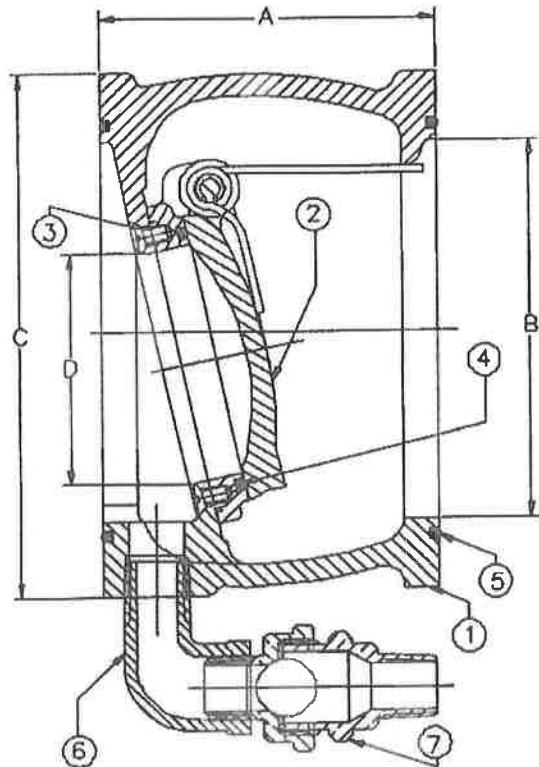
*\*As antiwater hammer check valve for fire pump service only!*

**250 WOG @ 180 ° Max  
100% Pressure Tested**

*Approved by New York City Board of Standards & Appeals  
under Calendar No. 157-84-SA.*

### MATERIAL LIST

| NO. | DESCRIPTION        | MATERIAL                |
|-----|--------------------|-------------------------|
| 1   | Body               | Ductile Iron            |
| 2   | Seat Ring Assembly | Bronze                  |
| 3   | Screw              | Stainless Steel         |
| 4   | Seat Ring O-Ring   | Buna-N                  |
| 5   | Face O-Ring        | Buna-N                  |
| 6   | Street Elbow       | Galvanized Steel        |
| 7   | Ball Drip          | (See spec for 235 1/2") |



| Size | A    | B    | C    | D    | Ship Wt. (lbs) | Qty. Per Ctn. |
|------|------|------|------|------|----------------|---------------|
| 4"   | 4.25 | 4.03 | 6.86 | 3.00 | 15.0           | 1             |

# ARGCO

[HOME](#) || [LOGIN](#) || [YOUR CART](#) || [CHECK OUT](#) || [SERVICE](#) || [ABOUT US](#)

[Advanced](#)

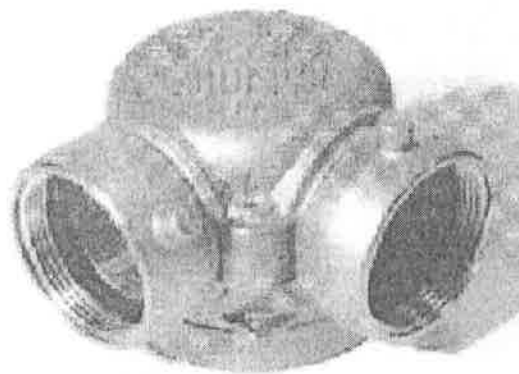
- [Fire Sprinkler Specialties](#)
- [Fire Equipment](#)
- [Valves](#)
- [Wall Plates](#)
- [Hangers & Fasteners](#)
- [Piping Tools](#)
- [Boiler Specialties](#)
- [Piping Chemicals](#)
- [Plumbing Specialties](#)
- [HVAC-R Specialties](#)

- [View Catalogs](#)
- [PT TOOL MANUALS](#)
- [MSDS](#)
- [TECH DATA](#)
- [TECH DATA \(SPANISH\)](#)

- [ARGCO Forum](#)
- [Credit Application](#)

**WEB SPECIALS**

## FDC-Projecting 2-Way Inlets : 90 Degree Pattern 2-Way FDC (Polished Brass)



FDC 90 degree pattern projecting 2- way (single clapper) 4" outlet x 2-1/2" (F) NST Polished Brass UL/FM Branding: "AUTO-SPKR"

**Available in City Threads:** Chicago, Cincinnati, Cleveland, Denver, Detroit, Louisville, New York Corp, New York FD, Phoenix, Pittsburgh, Pueblo, Raleigh, Toledo (Rough Brass Finish Pictured)

In Stock  Quantity:

Price: \$0.00

# ARGCO

[HOME](#) | [LOGIN](#) | [YOUR CART](#) | [CHECK OUT](#) | [SERVICE](#) | [ABOUT US](#)

Advanced

- Fire Sprinkler Specialties
- Fire Equipment
- Valves
- Wall Plates
- Hangers & Fasteners
- Piping Tools
- Boiler Specialties
- Piping Chemicals
- Plumbing Specialties
- HVAC-R Specialties

- [View Catalogs](#)
- [PT TOOL MANUALS](#)
- [MSDS](#)
- [TECH DATA](#)
- [TECH DATA \(SPANISH\)](#)

- [ARGCO Forum](#)
- [Credit Application](#)



## FDC-Plugs : 2-1/2"(M) Plug & Chain (Brass)



FDC Plug with chain 2-1/2" (M)  
NST  
Rough brass finish  
(available in polished brass & polished chrome)  
City Threads available - Call for Details

In Stock    Quantity:

Price: \$0.00

SEPTEMBER 25, 2013  
GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SECTION 013300 - 9  
SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Meters & Gauges for Plumbing Piping

SPECIFICATION REFERENCES: 220519

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

By:

(signed)

Date: January 17, 2014

(printed)

INSTALLER: Gainesville Mechanical

By:

(signed)

Date: January 17, 2014

(printed)

OTHER: \_\_\_\_\_

By: \_\_\_\_\_

(signed)

Date: \_\_\_\_\_

(printed)

END OF FORM

**220519 METER & GAUGE FOR PLUMBING PIPING**

**STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW**

**TRERICE 2.1 PRESSURE GAUGE**

**MILWAUKEE VALVE 2.2 600# THRD BRONZE  
BALL VALVE**

**TRERICE 2.3 STEM TYPE THERMOMETER**

**TRERICE 2.4 DIAL THERMOMETERS**

**FNW 2.5 THERMOMETER SUPPORTS**

**FNW 2.6 TEST PLUG**

# 500X Series

Dial Sizes thru 12" • Cast Aluminum Case

INDUSTRIAL GAUGES



500XB shown



4 1/2", 6", 8 1/2", 12" Dial Sizes  
±0.5% Accuracy  
Cast Aluminum Case

The Trerice 500X Series Industrial Gauge is designed to withstand the most demanding applications of a variety of industries. This pressure gauge has a back flanged, cast aluminum case and stainless steel ring. Wetted parts are either bronze tube with brass socket or stainless steel tube and socket.

- Optional features and case style variations available: Please consult the Options & Accessories Section for details.
- For correct use and application of all pressure gauges, please refer to: Pressure Gauge Standard ASME B40.100.

## Specifications

|                                    |  |
|------------------------------------|--|
| <b>Models</b>                      | Wetted Parts   |
| <b>500XB</b>                       | Bronze tube, brass socket  |
| <b>500XSS</b>                      | 316 stainless steel tube and socket *  |
| <b>Dial Sizes</b>                  | 4 1/2", 6", 8 1/2", 12"  |
| <b>Movement</b>                    | Stainless steel  |
| <b>Connection</b>                  | Lower male or lower back male, 1/4 or 1/2 NPT  |
| <b>Case</b>                        | Cast aluminum, black finished, surface mounted back flanged  |
| <b>Ring</b>                        | 4 1/2", 6", 8 1/2" Dial Size: Friction type, 304 stainless steel<br><br>12" Dial Size: Friction type, steel, black finished                        |
| <b>Window</b>                      | Clear glass  |
| <b>Pointer</b>                     | 4 1/2", 6", 8 1/2" Dial Size: Micro adjustable, black finished.<br><br>12" Dial Size: Plain, black finished  |
| <b>Dial Face</b>                   | Aluminum, white background with black graduations and markings   |
| <b>Accuracy</b>                    | ±0.5% Full Scale, ASME B40.100 Grade 2A  |
| <b>Maximum Temperature</b>         | 250°F (121°C)  |
| <b>Approximate Shipping Weight</b> | 4 1/2" Dial Size: 2.0 lbs [0.91 kg]<br>6" Dial Size: 2.8 lbs [1.27 kg]<br>8 1/2" Dial Size: 5.8 lbs [2.63 kg]<br>12" Dial Size: 14.6 lbs [6.62 kg] |

\* Ni-Span C tube and 316 stainless steel socket furnished above 10,000 psi.

## HOW TO ORDER

Sample Order Number: 500XB 45 02 L A 110

| Model  | Dial Size | Connection Size | Connection Location | Units of Measure           | Range Code          |
|--------|-----------|-----------------|---------------------|----------------------------|---------------------|
| 500XB  | 45 4 1/2" | 02 1/4 NPT      | L Lower             | A psi                      | See Standard Ranges |
| 500XSS | 60 6"     | 04 1/2 NPT      | B Back              | B kPa                      |                     |
|        | 85 8 1/2" |                 |                     | C kg/cm <sup>2</sup>       |                     |
|        | 12 12"    |                 |                     | D psi/kPa                  |                     |
|        |           |                 |                     | E psi & kg/cm <sup>2</sup> |                     |

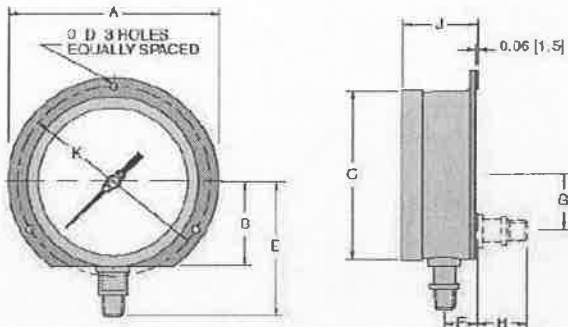


12950 W. Eight Mile Road • Oak Park, MI 48237-3288 • TEL:248/399-8000 • FAX: 248/399-7246 • www.TRERICE.com

# 500X Series

Dial Sizes thru 12" • Cast Aluminum Case

All dimensions are nominal. Dimensions in [ ] are in millimeters.



| Dial Size | A                | B               | C                | D             | E               | F              | G              | H              | J              | K               |
|-----------|------------------|-----------------|------------------|---------------|-----------------|----------------|----------------|----------------|----------------|-----------------|
| 4 1/2"    | 5.88<br>[149.7]  | 2.39<br>[60.7]  | 4.79<br>[121.7]  | 0.22<br>[5.6] | 3.63<br>[92.2]  | 0.94<br>[23.8] | 1.63<br>[41.3] | 1.41<br>[35.7] | 2.06<br>[52.4] | 5.38<br>[136.5] |
| 6"        | 7.62<br>[193.8]  | 3.14<br>[79.8]  | 6.29<br>[159.8]  | 0.28<br>[7.1] | 4.70<br>[119.5] | 0.93<br>[23.8] | 1.63<br>[41.3] | 1.41<br>[35.7] | 2.09<br>[53]   | 7.00<br>[177.8] |
| 8 1/2"    | 10.25<br>[260.4] | 4.38<br>[111.1] | 8.80<br>[223.4]  | 0.28<br>[7.1] | 5.81<br>[147.5] | 0.97<br>[24.6] | 1.63<br>[41.3] | 1.41<br>[35.7] | 2.24<br>[56.8] | 9.63<br>[244.5] |
| 12"       | 14.25<br>[362]   | N/A             | 12.66<br>[321.5] | 0.28<br>[7.1] | 7.90<br>[200.7] | 1.02<br>[25.9] | 1.63<br>[41.3] | 1.19<br>[30.2] | 2.53<br>[64.3] | 13.50<br>[343]  |

## Standard Ranges

| psi Ranges (A) |                      |                  |                 | kPa Ranges (B) |                  |                  |                 | kg/cm <sup>2</sup> Ranges (C) |                                   |                  |                 |
|----------------|----------------------|------------------|-----------------|----------------|------------------|------------------|-----------------|-------------------------------|-----------------------------------|------------------|-----------------|
| Range Code     | Specific Range (psi) | Figure Intervals | Minor Divisions | Range Code     | Specific Range   | Figure Intervals | Minor Divisions | Range Code                    | Specific Range                    | Figure Intervals | Minor Divisions |
| 010            | 30" Hg to 0          | 5                | 0.2             | 010            | -100 to 0 kPa    | 10               | 1               | 010                           | 76 cm Hg to 0                     | 10               | 0.5             |
| 020            | 30" Hg to 15 psi     | 5/5              | 0.5/0.2         | 020            | -100 to 100 kPa  | 20               | 2               | 020                           | 76 cm Hg to 1 kg/cm <sup>2</sup>  | 20/0.2           | 1/0.02          |
| 030            | 30" Hg to 30 psi     | 10/5             | 1/0.5           | 030            | -100 to 200 kPa  | 50               | 2               | 030                           | 76 cm Hg to 2 kg/cm <sup>2</sup>  | 20/0.5           | 2/0.02          |
| 040            | 30" Hg to 60 psi     | 10/10            | 1/1             | 040            | -100 to 400 kPa  | 50               | 5               | 040                           | 76 cm Hg to 4 kg/cm <sup>2</sup>  | 25/0.5           | 5/0.05          |
| 050            | 30" Hg to 100 psi    | 30/10            | 2/1             | 050            | -100 to 700 kPa  | 100              | 5               | 050                           | 76 cm Hg to 7 kg/cm <sup>2</sup>  | 76/1             | 5/0.1           |
| 060            | 30" Hg to 150 psi    | 30/20            | 5/2             | 060            | -100 to 1000 kPa | 100              | 10              | 060                           | 76 cm Hg to 10 kg/cm <sup>2</sup> | 76/1             | 15/0.1          |
| 070            | 30" Hg to 300 psi    | 30/50            | 5/2             | 070            | -100 to 2000 kPa | 200              | 20              | 070                           | 76 cm Hg to 21 kg/cm <sup>2</sup> | 76/2             | 19/0.2          |
| 080            | 0 to 15 psi          | 3                | 0.1             | 080            | 0 to 100 kPa     | 10               | 1               | 080                           | 0 to 1 kg/cm <sup>2</sup>         | 0.1              | 0.01            |
| 090            | 0 to 30 psi          | 5                | 0.2             | 090            | 0 to 200 kPa     | 20               | 2               | 090                           | 0 to 2 kg/cm <sup>2</sup>         | 0.2              | 0.02            |
| 100            | 0 to 60 psi          | 10               | 0.5             | 100            | 0 to 400 kPa     | 50               | 5               | 100                           | 0 to 4.2 kg/cm <sup>2</sup>       | 0.5              | 0.5             |
| 110            | 0 to 100 psi         | 10               | 1               | 110            | 0 to 700 kPa     | 100              | 5               | 110                           | 0 to 7 kg/cm <sup>2</sup>         | 1                | 0.5             |
| 120            | 0 to 160 psi         | 20               | 1               | 120            | 0 to 1200 kPa    | 200              | 10              | 120                           | 0 to 11 kg/cm <sup>2</sup>        | 1                | 0.1             |
| 130            | 0 to 200 psi         | 20               | 2               | 130            | 0 to 1500 kPa    | 300              | 10              | 130                           | 0 to 14 kg/cm <sup>2</sup>        | 2                | 0.1             |
| 140            | 0 to 300 psi         | 50               | 2               | 140            | 0 to 2000 kPa    | 200              | 20              | 140                           | 0 to 21 kg/cm <sup>2</sup>        | 3                | 0.2             |
| 150            | 0 to 400 psi         | 50               | 5               | 150            | 0 to 3000 kPa    | 300              | 20              | 150                           | 0 to 28 kg/cm <sup>2</sup>        | 4                | 0.2             |
| 160            | 0 to 600 psi         | 50               | 5               | 160            | 0 to 4000 kPa    | 500              | 50              | 160                           | 0 to 42 kg/cm <sup>2</sup>        | 6                | 0.5             |
| 180            | 0 to 1000 psi        | 100              | 10              | 180            | 0 to 7000 kPa    | 1000             | 50              | 180                           | 0 to 70 kg/cm <sup>2</sup>        | 10               | 0.5             |

Ranges over 1000 psi are not available on 500XB.

|     |                 |      |     |     |                  |        |      |     |                              |     |    |
|-----|-----------------|------|-----|-----|------------------|--------|------|-----|------------------------------|-----|----|
| 190 | 0 to 1500 psi   | 300  | 10  | 190 | 0 to 10,000 kPa  | 1000   | 100  | 190 | 0 to 100 kg/cm <sup>2</sup>  | 10  | 1  |
| 200 | 0 to 2000 psi   | 200  | 20  | 200 | 0 to 14,000 kPa  | 2000   | 100  | 200 | 0 to 140 kg/cm <sup>2</sup>  | 20  | 1  |
| 210 | 0 to 3000 psi   | 300  | 20  | 210 | 0 to 20,000 kPa  | 2000   | 200  | 210 | 0 to 210 kg/cm <sup>2</sup>  | 30  | 2  |
| 220 | 0 to 5000 psi   | 500  | 50  | 220 | 0 to 35,000 kPa  | 5000   | 250  | 220 | 0 to 350 kg/cm <sup>2</sup>  | 50  | 2  |
| 230 | 0 to 10,000 psi | 1000 | 100 | 230 | 0 to 60,000 kPa  | 10,000 | 500  | 230 | 0 to 700 kg/cm <sup>2</sup>  | 100 | 10 |
| 240 | 0 to 15,000 psi | 2000 | 100 | 240 | 0 to 100,000 kPa | 20,000 | 1000 | 240 | 0 to 1000 kg/cm <sup>2</sup> | 100 | 10 |
| 250 | 0 to 20,000 psi | 2000 | 200 | 250 | 0 to 140,000 kPa | 20,000 | 1000 | 250 | 0 to 1400 kg/cm <sup>2</sup> | 200 | 20 |

For dual scale ranges, specify the appropriate Units of Measure: D (psi/kPa) or E (psi & kg/cm<sup>2</sup>) followed by the equivalent A (psi) Range Code. Other pressure ranges are also available including: Altitude, Ammonia, Refrigerant and Receiver. Consult Special Application Ranges section or factory for availability.

# BA-100/100S

# 1/4" - 3"

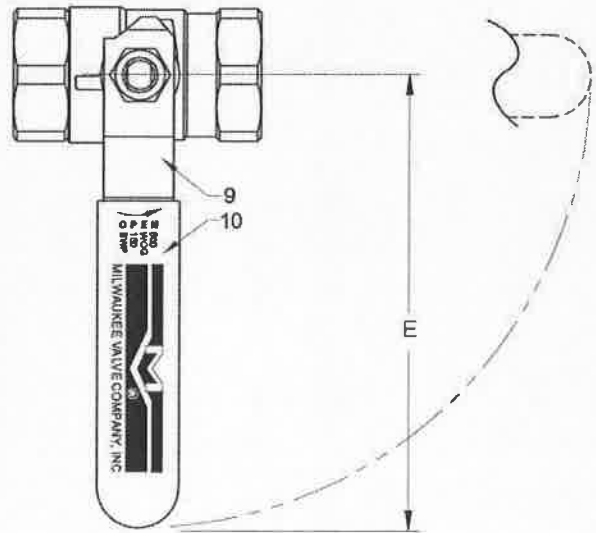
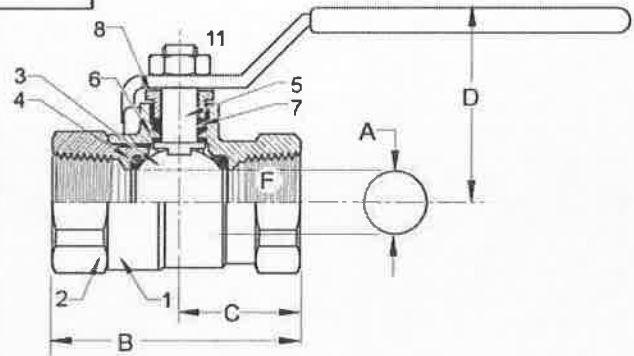
**BRONZE BALL VALVE**  
**TWO-PIECE, STANDARD-PORT**  
**600 PSIG WOG / 150 PSIG SWP (1)**  
**THREADED ENDS**

MSS SP-110

## MATERIALS LIST

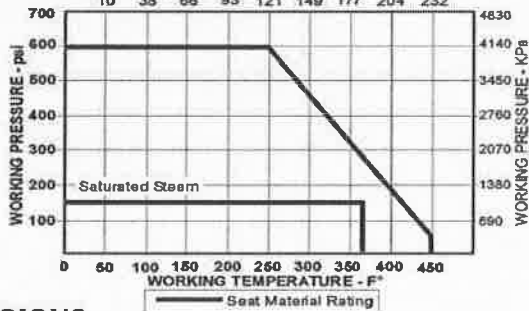
| ITEM                  | PART          | MATERIALS                    | ASTM SPEC. |
|-----------------------|---------------|------------------------------|------------|
| <b>MATERIALS LIST</b> |               |                              |            |
| 1                     | Body          | Cast Bronze                  | B584       |
| 2                     | Tailpiece     | Brass                        | B16        |
|                       |               | Cast Bronze (1" & up)        | B584       |
| 3                     | Ball          | Brass w/ Hard Chrome Plating | B16        |
|                       |               | 316 Stainless Steel (2)      | A276       |
| 4                     | Seat          | RPTFE, 15% Glass Filled      |            |
| 5                     | Stem          | Brass                        | B16        |
|                       |               | 316 Stainless Steel (2)      | A276       |
| 6                     | Thrust Washer | RPTFE, 25% Glass Filled      |            |
| 7                     | Packing       | PTFE                         |            |
| 8                     | Packing Nut   | Brass                        | B16        |
| 9                     | Handle        | Steel w/ Zinc Plating        | B633       |
| 10                    | Hand Grip     | Vinyl                        |            |
| 11                    | Handle Nut    | Steel w/ Zinc Plating        | B633       |

- (1) Milwaukee Valve Company recommends the use of Stainless steel ball and stem for steam applications. Please consult factory for more information.
- (2) Ball and stem are stainless for 100S



## PRESSURE - TEMPERATURE DATA

VALVES RATED FOR VACUUM SERVICE TO 29 INCHES Hg.  
 WORKING TEMPERATURE - °C



## DIMENSIONS

| UNITS   | 1/4"        | 3/8"     | 1/2"     | 3/4"     | 1"       | 1-1/4" | 1-1/2"     | 2"         | 2-1/2" | 3"         |
|---------|-------------|----------|----------|----------|----------|--------|------------|------------|--------|------------|
|         | DN6         | DN10     | DN15     | DN20     | DN25     | DN32   | DN40       | DN50       | DN65   | DN80       |
| A (DIA) | INCHES      | 0.38     | 0.38     | 0.50     | 0.76     | 0.88   | 1.06       | 1.31       | 1.56   | 2.31       |
|         | mm          | 9.7      | 9.7      | 12.7     | 19.3     | 22.4   | 26.9       | 33.3       | 39.6   | 58.7       |
| B       | INCHES      | 1.86     | 1.86     | 2.19     | 2.64     | 3.17   | 3.50       | 3.96       | 4.30   | 5.56       |
|         | mm          | 46.8     | 46.8     | 53.7     | 64.7     | 77.7   | 85.8       | 97.0       | 105.4  | 136.2      |
| C       | INCHES      | 1.00     | 1.00     | 1.10     | 1.30     | 1.58   | 1.74       | 1.97       | 2.15   | 2.79       |
|         | mm          | 24.5     | 24.5     | 27.0     | 31.9     | 38.7   | 42.6       | 48.3       | 52.7   | 68.4       |
| D       | INCHES      | 1.78     | 1.81     | 1.91     | 2.08     | 2.26   | 2.56       | 2.84       | 3.00   | 3.47       |
|         | mm          | 43.8     | 44.3     | 46.8     | 51.0     | 55.1   | 65.2       | 69.6       | 73.5   | 85.6       |
| E       | INCHES      | 3.81     | 3.81     | 3.81     | 4.56     | 4.56   | 6.31       | 6.31       | 7.19   | 7.19       |
|         | mm          | 93.3     | 93.3     | 93.3     | 111.7    | 111.7  | 154.6      | 154.6      | 178.2  | 178.2      |
| F       | THREAD SIZE | 1/4" NPT | 3/8" NPT | 1/2" NPT | 3/4" NPT | 1" NPT | 1-1/4" NPT | 1-1/2" NPT | 2" NPT | 2-1/2" NPT |
| Cv      |             | 7        | 7        | 13       | 30       | 38     | 61         | 87         | 121    | 228        |

Note: DN (Diameter Nominal) = Metric equivalent size.

Rev. 9

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)

BV-1

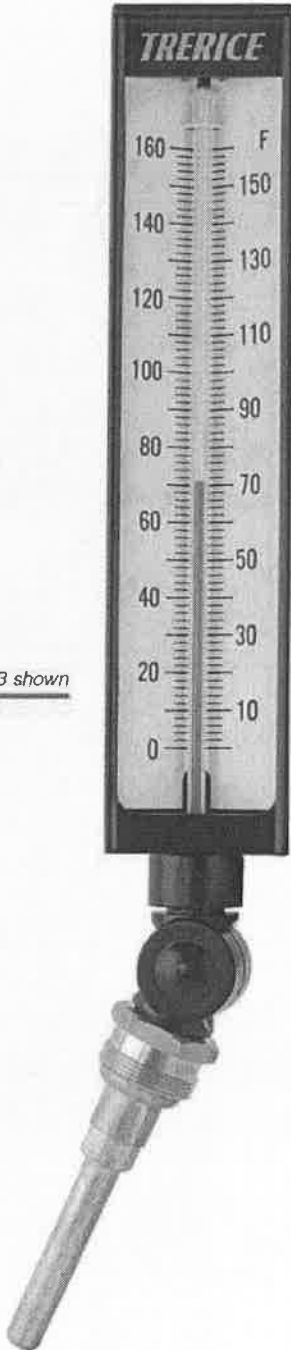
MILWAUKEE VALVE



# Adjustable Angle

7" • 9" • 12" Scale Sizes

INDUSTRIAL THERMOMETERS



BX91403 shown

- ▶ 7", 9", 12" Scale
- ▶ ± 1 Scale Division Accuracy
- ▶ Cast Aluminum Case
- ▶ Adjustable Angle Stem

Recognized globally as the Trerice "BX" Industrial Thermometer, this is an instrument of extreme accuracy and rugged dependability. Available in scale sizes of 7" (AX9), 9" (BX9), & 12" (CX9), with a durable cast aluminum case, this universally adjustable, liquid-in-glass thermometer is the most widely specified instrument of its kind.

- Optional features available: Please consult the Options & Accessories Section for details.

**Thermowell**

- For applications where the process media may be corrosive or contained under pressure, the use of a thermowell is required to prevent damage to the thermometer and facilitate its removal from the process. (Refer to page 152)

**Specifications**

|                                    |   |                  |
|------------------------------------|---|------------------|
| <b>Models</b>                      | <b>Scale Sizes</b>  | Adjustable Angle |
| AX9                                | 7"  |                  |
| BX9                                | 9"  |                  |
| CX9                                | 12"   |                  |
| <b>Fill Type</b>                   | Spirit: Blue colored, organic   |                  |
| <b>Case</b>                        | Cast Aluminum, blue epoxy finish  |                  |
| <b>Stem</b>                        | Aluminum, brass, 304 stainless steel or air-duct style available                                  |                  |
| <b>Connection</b>                  | Standard: 1 1/4-18 UNEF-2A coupling nut<br>Air-Duct: Reversible mounting flange with 3 bolt holes |                  |
| <b>Window</b>                      | Acrylic on ranges to 300° F<br>Glass on ranges over 300° F  |                  |
| <b>Tube</b>                        | Lens front, magnifying type   |                  |
| <b>Scale</b>                       | Aluminum, white background with black graduations and markings                                    |                  |
| <b>Top Plate</b>                   | ABS   |                  |
| <b>Accuracy</b>                    | ±1 scale division   |                  |
| <b>Approximate Shipping Weight</b> | AX9: 1.5 lbs [0.68 kg]<br>BX9: 1.6 lbs [0.73 kg]<br>CX9: 2.0 lbs [0.91 kg]                        |                  |

**HOW TO ORDER**

Sample Order Number: **BX9 1 403 07**

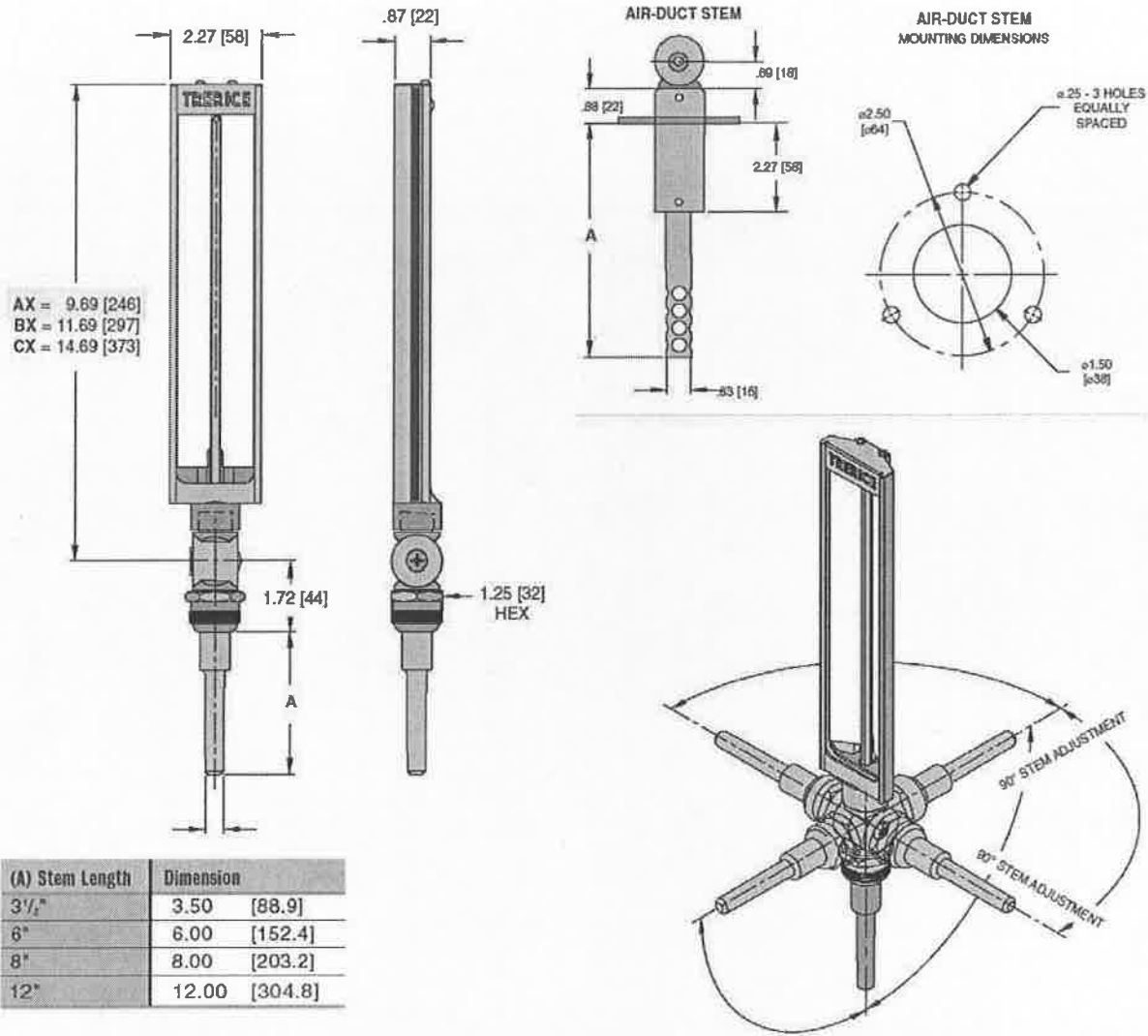
| Model              | Stem (Material)       | Stem (Length)          | Specific Range      |
|--------------------|-----------------------|------------------------|---------------------|
| AX9 7" Adjustable  | 1 Aluminum (standard) | 403 3 1/2"             | See Standard Ranges |
| BX9 9" Adjustable  | 2 Brass               | 406 6"                 |                     |
| CX9 12" Adjustable | 3 304 SS              | 408 8"                 |                     |
|                    |                       | 512 12"                |                     |
|                    |                       | 9 Air-Duct (Aluminum)* |                     |
|                    |                       | 012 12" Air-Duct       |                     |

\* Not for use with Thermowells



# Adjustable Angle

All dimensions are nominal.  
Dimensions in [ ] are in millimeters.



| (A) Stem Length | Dimension |         |
|-----------------|-----------|---------|
| 3 1/2"          | 3.50      | [88.9]  |
| 6"              | 6.00      | [152.4] |
| 8"              | 8.00      | [203.2] |
| 12"             | 12.00     | [304.8] |

## Standard Ranges

| Fahrenheit Scale |               | Celsius Scale |              | Dual Scale |                              | Fahrenheit       |                 | Celsius          |                 |
|------------------|---------------|---------------|--------------|------------|------------------------------|------------------|-----------------|------------------|-----------------|
| Range Code       | Range         | Range Code    | Range        | Range Code | Range                        | Figure Intervals | Minor Divisions | Figure Intervals | Minor Divisions |
| 01               | -40° to 110°F | 17            | -40° to 40°C | 41         | -40° to 110°F & -40° to 40°C | 10°              | 2°              | 5°               | 1°              |
| 02               | 0° to 100°F   | 24            | -18° to 38°C | 42         | 0° to 100°F & -18° to 38°C   | 5°               | 1°              | 5°               | 0.5°            |
| 03               | 30° to 130°F  | 25            | 0° to 55°C   | 43         | 30° to 130°F & 0° to 55°C    | 5°               | 1°              | 5°               | 1°              |
| 04               | 0° to 160°F   | 26            | -18° to 70°C | 44         | 0° to 160°F & -18° to 70°C   | 10°              | 2°              | 5°               | 1°              |
| 06               | 30° to 180°F  | 27            | 0° to 83°C   | 46         | 30° to 180°F & 0° to 83°C    | 10°              | 2°              | 5°               | 1°              |
| 07               | 30° to 240°F  | 19            | 0° to 115°C  | 47         | 30° to 240°F & 0° to 115°C   | 10°              | 2°              | 5°               | 1°              |
| 08               | 30° to 300°F  | 20            | 0° to 150°C  | 48         | 30° to 300°F & 0° to 150°C   | 10°              | 2°              | 10°              | 2°              |
| 09               | 50° to 400°F  | 28            | 10° to 205°C | 49         | 50° to 400°F & 10° to 205°C  | 25°              | 5°              | 10°              | 2°              |
| 15               | 50° to 500°F  | 31            | 10° to 260°C | 55         | 50° to 500°F & 10° to 260°C  | 25°              | 5°              | 10°              | 2°              |

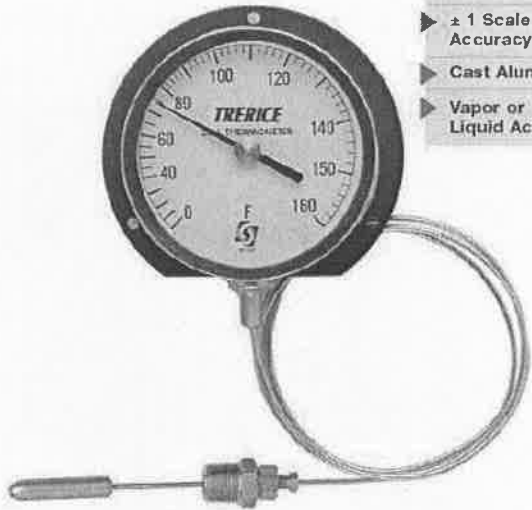
Dual scale figure intervals may differ

INDUSTRIAL THERMOMETERS

# Remote Mounted Dial Thermometer

4 1/2" • 6" • 8 1/2" Cast Aluminum Case

DIAL THERMOMETERS



- ▶ 4 1/2", 6", 8 1/2" Dial Sizes
- ▶ ± 1 Scale Division Accuracy
- ▶ Cast Aluminum Case
- ▶ Vapor or Liquid Actuated

V20341 shown

This Trerice **Remote-Mounted Dial Thermometer** is furnished with a rugged cast aluminum case in 4 1/2", 6" and 8 1/2" dial sizes. This instrument is designed for a wide variety of industrial applications, and is available with vapor or liquid actuation.

• Optional features available: Please consult the Optional Features Section for details.

**Thermowell**

• For applications where the process media may be corrosive or contained under pressure, the use of a thermowell is required to prevent damage to the thermometer and facilitate its removal from the process.

(Refer to page 154)

**Specifications**

| Models                  | Dial Sizes             | Case Styles                                       |
|-------------------------|------------------------|---|
| 80341<br>80361<br>80381 | 4 1/2"<br>6"<br>8 1/2" | Surface Mounted, back flanged, with bottom outlet |
| 80342<br>80362<br>80382 | 4 1/2"<br>6"<br>8 1/2" | Surface Mounted, back flanged, with back outlet   |
| 80345<br>80365          | 4 1/2"<br>6"           | Flush Mounted, hinged ring, with back outlet      |

**Movement** Brass

**Case Material**

Cast Aluminum, black finish

**Window**

Clear glass

**Ring**

Friction type, 304 stainless steel (hinged type, black finished aluminum; 80345, 80365 only)

**Pointer**

Adjustable, black finish

**Dialface**

Aluminum, white background with black graduations and markings

**Accuracy**

±1 scale division

**Approximate Shipping Weight**

4 1/2" Dial: 2.4 lbs [1.09 kg]  
6" Dial: 3.0 lbs [1.36 kg]  
8 1/2" Dial: 4.0 lbs [1.82 kg]

**HOW TO ORDER**

Sample Order Number: **V 80341 050 B02 20**

| Actuation | Model        | Range Code          | Thermal System                               | Capillary Length* |
|-----------|--------------|---------------------|--|-------------------|
| V Vapor   | 80341 4 1/2" | See Standard Ranges | See Thermal System Selection (pages 112-113) | 05 5 Feet         |
| L Liquid  | 80361 6"     |                     |  | 10 10 Feet        |
|           | 80381 8 1/2" |                     |  | 15 15 Feet        |
|           | 80342 4 1/2" |                     |  | 20 20 Feet        |
|           | 80362 6"     |                     |  |                   |
|           | 80382 8 1/2" |                     |  |                   |
|           | 80345 4 1/2" |                     |  |                   |
|           | 80365 6"     |                     |  |                   |

\* Other Capillary lengths available: Specify in feet. Vapor: 100 Feet Max  
Liquid: 20 Feet Max

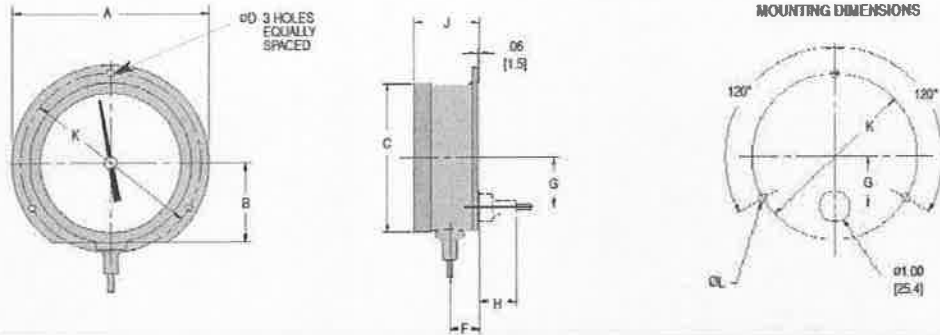


12950 W. Eight Mile Road • Oak Park, MI 48237-3288 • TEL:248/399-8000 • FAX: 248/399-7246 • www.TRERICE.com

## 220519 METER & GAUGE FOR PLUMBING PIPING

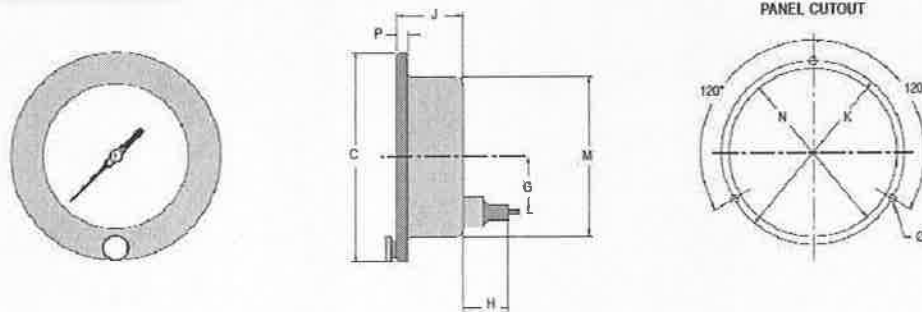
All dimensions are nominal. Dimensions in [ ] are in millimeters.

### Surface Mount Back Flange Case Models 80341, 80361, 80381 (bottom outlet), Models 80342, 80362, 80382 (back outlet)



| Dial Size | A             | B            | C            | D          | F           | G           | H           | J           | K            | L          |
|-----------|---------------|--------------|--------------|------------|-------------|-------------|-------------|-------------|--------------|------------|
| 4 1/2"    | 5.88 [149.7]  | 2.39 [60.7]  | 4.79 [121.7] | 0.22 [5.6] | 0.94 [23.8] | 1.63 [41.3] | 1.41 [35.7] | 2.06 [52.4] | 5.38 [136.5] | 0.25 [6.4] |
| 6"        | 7.62 [193.6]  | 3.14 [79.8]  | 6.29 [159.8] | 0.28 [7.1] | 0.94 [23.8] | 1.63 [41.3] | 1.41 [35.7] | 2.09 [53.0] | 7.00 [177.8] | 0.31 [7.9] |
| 8 1/2"    | 10.25 [260.4] | 4.38 [111.1] | 8.80 [223.4] | 0.28 [7.1] | 0.97 [24.6] | 1.63 [41.3] | 1.41 [35.7] | 2.24 [56.8] | 9.83 [244.5] | 0.31 [7.9] |

### Flush Mount Hinged Ring Case Models 80345 & 80365



| Dial Size | C            | G           | H           | J           | K            | L          | M            | N            | P          |
|-----------|--------------|-------------|-------------|-------------|--------------|------------|--------------|--------------|------------|
| 4 1/2"    | 6.30 [155.0] | 1.62 [41.1] | 1.31 [33.4] | 1.97 [50.0] | 5.38 [136.7] | 0.22 [5.6] | 4.78 [121.4] | 4.94 [125.5] | 0.34 [8.6] |
| 6"        | 7.69 [195.3] | 1.62 [41.1] | 1.31 [33.4] | 1.97 [50.0] | 7.00 [177.8] | 0.28 [7.1] | 6.22 [158.0] | 6.44 [163.5] | 0.34 [8.6] |

### Standard Ranges (Dual Scale includes both Fahrenheit & Celsius)

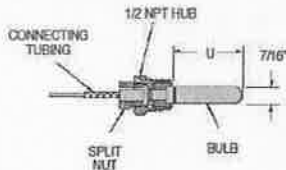
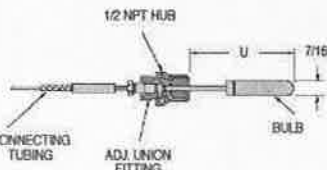
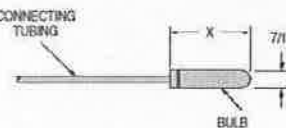
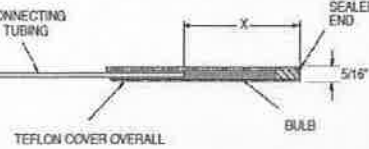
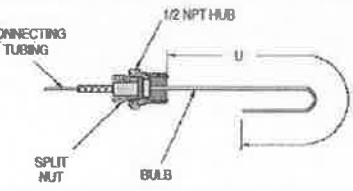
| Vapor Actuated |                        |            |                     |                       | Liquid Actuated |                        |            |                     |                       |
|----------------|------------------------|------------|---------------------|-----------------------|-----------------|------------------------|------------|---------------------|-----------------------|
| Range Code     | Fahrenheit Scale Range | Range Code | Celsius Scale Range | Dual Scale Range Code | Range Code      | Fahrenheit Scale Range | Range Code | Celsius Scale Range | Dual Scale Range Code |
| 030            | -40° to 150°F          | 430        | -40° to 65°C        | 230                   | 020             | -40° to 120°F          | 420        | -40° to 50°C        | 220                   |
| 040            | -20° to 100°F          | 440        | -30° to 40°C        | 240                   | 050             | 0° to 100°F            | 450        | -20° to 40°C        | 250                   |
| 050            | 0° to 100°F            | 450        | -20° to 40°C        | 250                   | 060             | 0° to 160°F            | 460        | -20° to 70°C        | 260                   |
| 065            | 0° to 160°F            | 465        | -20° to 70°C        | 265                   | 100             | 30° to 180°F           | 495        | 0° to 80°C          | 300                   |
| 100            | 30° to 180°F           | 500        | 0° to 85°C          | 300                   | 110             | 30° to 240°F           | 510        | 0° to 115°C         | 310                   |
| 110            | 30° to 240°F           | 510        | 0° to 115°C         | 310                   | 130             | 50° to 300°F           | 530        | 10° to 150°C        | 330                   |
| 120            | 30° to 300°F           | 520        | 0° to 150°C         | 320                   |                 |                        |            |                     |                       |
| 145            | 100° to 350°F          | 545        | 40° to 180°C        | 345                   |                 |                        |            |                     |                       |
| 160            | 200° to 450°F          | 560        | 90° to 230°C        | 360                   |                 |                        |            |                     |                       |

DIAL THERMOMETERS

# Thermal System Selection

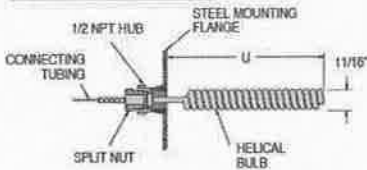
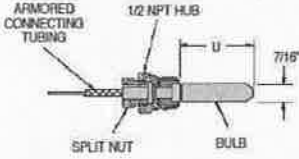
DIAL THERMOMETERS

## Remote Mounted Dial Thermometers

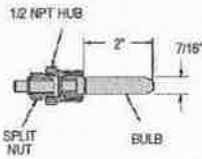
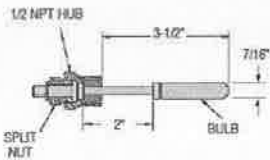
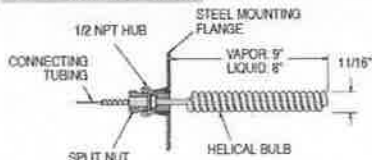
| Bulb & Capillary Style  | Order Code | Connection Style & Material | Bulb Material                                 | Capillary Tubing Material               | Minimum Bulb Insertion Length for Capillary Length (in feet) shown |                      |         |                         |
|---|------------|-----------------------------|---|---|--|----------------------|---------|-------------------------|
|   |            |                             |   |   | up to 10   | Vapor Actuated 15-50 | over 50 | Liquid Act. All Lengths |
| <b>Union Connection</b><br>            | B01        | Brass, 1/2 NPT              | Vapor: Copper Liquid: Brass                   | Copper with Bronze Braided Armour       | 2"   | 3 3/4"               | 5 5/8"  | 2"                      |
|   | B10        | Stainless Steel, 1/2 NPT    | Stainless Steel                               | Stainless Steel                         | 2"   | 3 3/4"               | 5 5/8"  | 2"                      |
| <b>Adjustable Union Connection</b><br> | B02        | Brass, 1/2 NPT              | Vapor: Copper Liquid: Brass                   | Copper with Bronze Braided Armour       | 1 3/4"   | 3 1/2"               | 5 1/4"  | 1 3/4"                  |
|   | B04        | Stainless Steel, 1/2 NPT    | Stainless Steel                               | Stainless Steel                         | 1 3/4"   | 3 1/2"               | 5 1/4"  | 1 3/4"                  |
| <b>Plain Bulb</b><br>                | B05        | None                        | Vapor: Copper Liquid: Brass                   | Copper with Bronze Braided Armour       | 2"   | 3 3/4"               | 5 5/8"  | 2"                      |
|   | B06        | None                        | Stainless Steel                               | Stainless Steel                         | 2"   | 3 3/4"               | 5 5/8"  | 2"                      |
| <b>Teflon Covered Bulb</b><br>       | B08        | None                        | Vapor: Copper Liquid: Brass with Teflon Cover | Bronze Braided Armour with Teflon Cover | 15"  | 15"                  | 15"     | 2 3/4"                  |
|   | B07        | None                        | Stainless Steel with Teflon Cover             | Stainless Steel with Teflon Cover       | 15"  | 15"                  | 15"     | 2 3/4"                  |
| <b>Averaging Bulb</b><br>            | B11*       | Brass, 1/2 NPT              | Copper  | Copper with Bronze Braided Armour       | N/A  | N/A                  | N/A     | Approx. 8 Feet          |
|   | B12*       | Stainless Steel, 1/2 NPT    | Stainless Steel                               | Stainless Steel                         | N/A  | N/A                  | N/A     | Approx. 8 Feet          |

\* B11 and B12 Averaging Bulbs are not available with vapor actuation.

**Remote Mounted Dial Thermometers (cont'd)**

| Bulb & Capillary Style  | Order Code | Connection Style & Material           | Bulb Material                  | Capillary Tubing Material                  | Minimum Bulb Insertion Length for Capillary Length (in feet) shown |                      |                        |                         |
|---|------------|---------------------------------------|--------------------------------|--|--|----------------------|------------------------|-------------------------|
|   |            |                                       |                                |  | Vapor Actuated up to 10  | Vapor Actuated 15-50 | Vapor Actuated over 50 | Liquid Act. All Lengths |
| <b>Air Sensitive Bulb</b><br>                  | B13        | Steel Mounting Flange, Brass Fittings | Copper                         | Copper with Bronze Braided Armor           | 9"   | 9"                   | 11"                    | 8"                      |
| <b>Union Connection with Spiral Armour</b><br> | B15        | Brass, 1/2 NPT                        | Vapor: Copper<br>Liquid: Brass | Copper with Bronze Braid & SS Spiral Armor | 2"   | 3 3/4"               | 5 5/8"                 | 2"                      |
|   | B16        | Stainless Steel, 1/2 NPT              | Stainless Steel                | Stainless Steel with SS Spiral Armor       | 2"   | 3 3/4"               | 5 5/8"                 | 2"                      |

**Direct Mounted Dial Thermometers**

| Bulb Style   | Order Code | Connection Material                   | Bulb Material                  | Minimum Bulb Insertion Length |             |
|--|------------|---------------------------------------|--------------------------------|-------------------------------|-------------|
|  |            |                                       |                                | Vapor Actuated                | Liquid Act. |
| <b>Union Connection</b><br>                         | B31        | Brass, 1/2 NPT                        | Vapor: Copper<br>Liquid: Brass | 2"                            | 2"          |
|  | B32        | Stainless Steel, 1/2 NPT              | Stainless Steel                | 2"                            | 2"          |
| <b>Union Connection with Bendable Extension</b><br> | B33        | Brass, 1/2 NPT                        | Vapor: Copper<br>Liquid: Brass | 3 1/2"                        | 3 1/2"      |
|  | B34        | Stainless Steel, 1/2 NPT              | Stainless Steel                | 3 1/2"                        | 3 1/2"      |
| <b>Air Sensitive Bulb</b><br>                       | B35        | Steel Mounting Flange, Brass Fittings | Copper                         | 9"                            | 8"          |



# Temperature Ranges

## Dial Thermometers

DIAL THERMOMETERS

Terlice offers a variety of temperature ranges to satisfy virtually any application. The following tables list the standard available ranges with figure intervals and minor divisions for Vapor or Liquid actuated dial thermometers.

Vapor actuated dial thermometers have a progressive scale. Maximum readability and stated intervals are in the upper two thirds of the scale. Liquid actuated dial thermometers have a linear scale. Figure intervals are equal throughout the range. Fahrenheit is primary (outside) scale on dual scale ranges.

### Vapor Actuated Ranges with Major and Minor Divisions

| Fahrenheit Scale |               | Celsius Scale |              | Dual Scale |                              | Fahrenheit       |                 | Celsius          |                 |
|------------------|---------------|---------------|--------------|------------|------------------------------|------------------|-----------------|------------------|-----------------|
| Range Code       | Range         | Range Code    | Range        | Range Code | Range                        | Figure Intervals | Minor Divisions | Figure Intervals | Minor Divisions |
| 030              | -40° to 150°F | 430           | -40° to 65°C | 230        | -40° to 150°F & -40° to 65°C | 20°              | 2°              | 10°              | 1°              |
| 040              | -20° to 100°F | 440           | -30° to 40°C | 240        | -20° to 100°F & -30° to 40°C | 10°              | 2°              | 5°               | 1°              |
| 050              | 0° to 100°F   | 450           | -20° to 40°C | 250        | 0° to 100°F & -20° to 40°C   | 10°              | 1°              | 10°              | 1°              |
| 065              | 0° to 160°F   | 465           | -20° to 70°C | 265        | 0° to 160°F & -20° to 70°C   | 20°              | 2°              | 10°              | 1°              |
| 100              | 30° to 180°F  | 500           | 0° to 85°C   | 300        | 30° to 180°F & 0° to 85°C    | 20°              | 2°              | 10°              | 1°              |
| 110              | 30° to 240°F  | 510           | 0° to 115°C  | 310        | 30° to 240°F & 0° to 115°C   | 20°              | 2°              | 10°              | 1°              |
| 120              | 30° to 300°F  | 520           | 0° to 150°C  | 320        | 30° to 300°F & 0° to 150°C   | 20°              | 2°              | 10°              | 1°              |
| 145              | 100° to 350°F | 645           | 40° to 180°C | 345        | 100° to 350°F & 40° to 180°C | 30°              | 2°              | 10°              | 1°              |
| 160              | 200° to 450°F | 560           | 90° to 230°C | 360        | 200° to 450°F & 90° to 230°C | 30°              | 2°              | 10°              | 2°              |

Vapor actuated dial thermometers have a progressive scale. Maximum readability and stated intervals are in the upper two thirds of the scale.

### Liquid Actuated Ranges with Major and Minor Divisions

| Fahrenheit Scale |               | Celsius Scale |              | Dual Scale |                              | Fahrenheit       |                 | Celsius          |                |
|------------------|---------------|---------------|--------------|------------|------------------------------|------------------|-----------------|------------------|----------------|
| Range Code       | Range         | Range Code    | Range        | Range Code | Range                        | Figure Intervals | Minor Divisions | Figure Intervals | Minor Division |
| 020              | -40° to 120°F | 420           | -40° to 50°C | 220        | -40° to 120°F & -40° to 50°C | 20°              | 2°              | 10°              | 1°             |
| 050              | 0° to 100°F   | 450           | -20° to 40°C | 250        | 0° to 100°F & -20° to 40°C   | 10°              | 1°              | 10°              | 0.5°           |
| 060              | 0° to 160°F   | 460           | -20° to 70°C | 260        | 0° to 160°F & -20° to 70°C   | 20°              | 2°              | 10°              | 1°             |
| 100              | 30° to 180°F  | 495           | 0° to 80°C   | 300        | 30° to 180°F & 0° to 85°C    | 20°              | 2°              | 10°              | 1°             |
| 110              | 30° to 240°F  | 510           | 0° to 115°C  | 310        | 30° to 240°F & 0° to 115°C   | 20°              | 2°              | 10°              | 1°             |
| 130              | 50° to 300°F  | 530           | 10° to 150°C | 330        | 50° to 300°F & 10° to 150°C  | 50°              | 5°              | 20°              | 2°             |

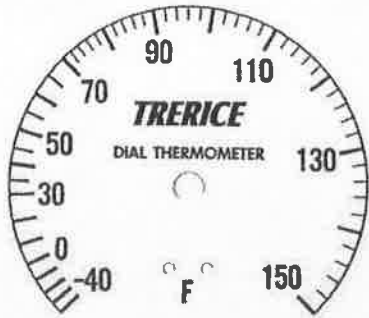
Liquid actuated dial thermometers have a linear scale. Figure intervals are equal throughout the range.

### Vapor and Liquid Actuated Dial Faces

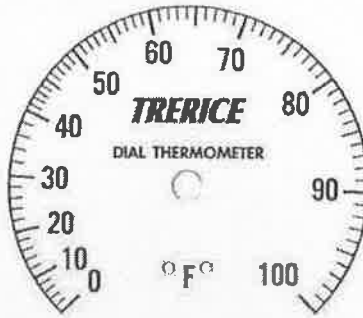
The physical principles of vapor actuation require that the dialface for vapor dial thermometers be printed with a non-linear progressively graduated temperature scale. Liquid actuated dial thermometers are furnished with linear dialfaces. Please see the Thermal System Selection section of our online catalog for sample vapor and liquid actuated dialfaces.

# Temperature Ranges

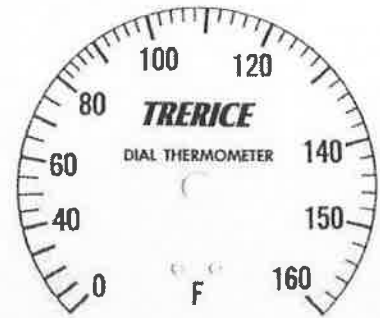
Sample Vapor Actuated Dials (others available)



-40° to 150°F



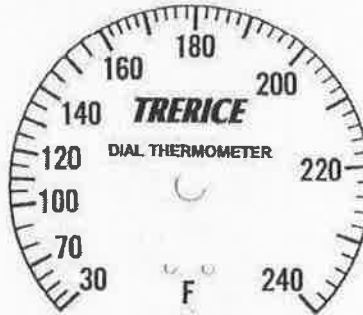
0° to 100°F



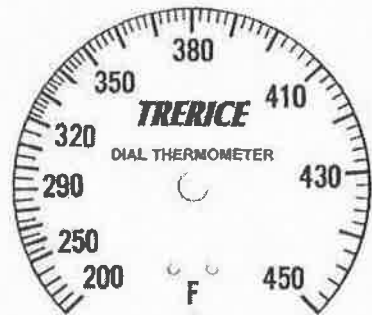
0° to 160°F



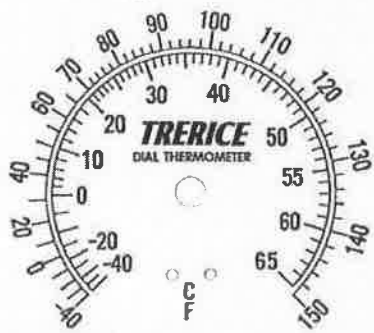
-30° to 180°F



30° to 240°F



200° to 450°F



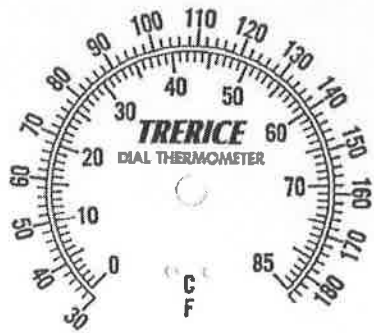
-40° to 150°F/C



0° to 100°F/C



0° to 160°F/C



30° to 180°F/C



30° to 240°F/C



200° to 450°F/C

# Temperature Ranges

Sample Liquid Actuated Dials (others available)



0° to 100°F



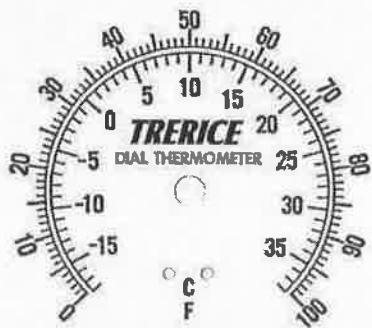
0° to 160°F



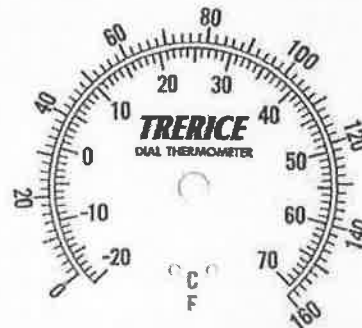
0° to 180°F



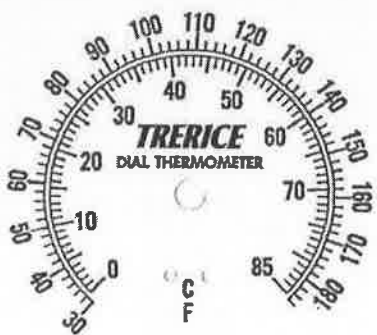
30° to 240°F



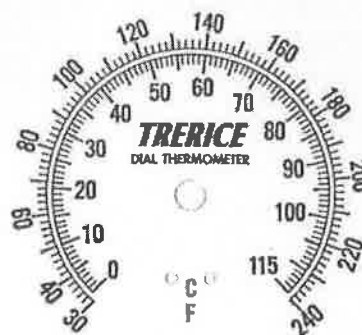
0° to 100°F/C



30° to 160°F/C



0° to 180°F/C



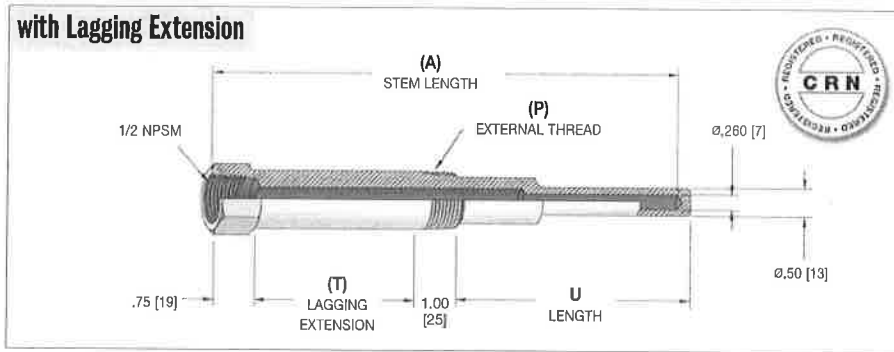
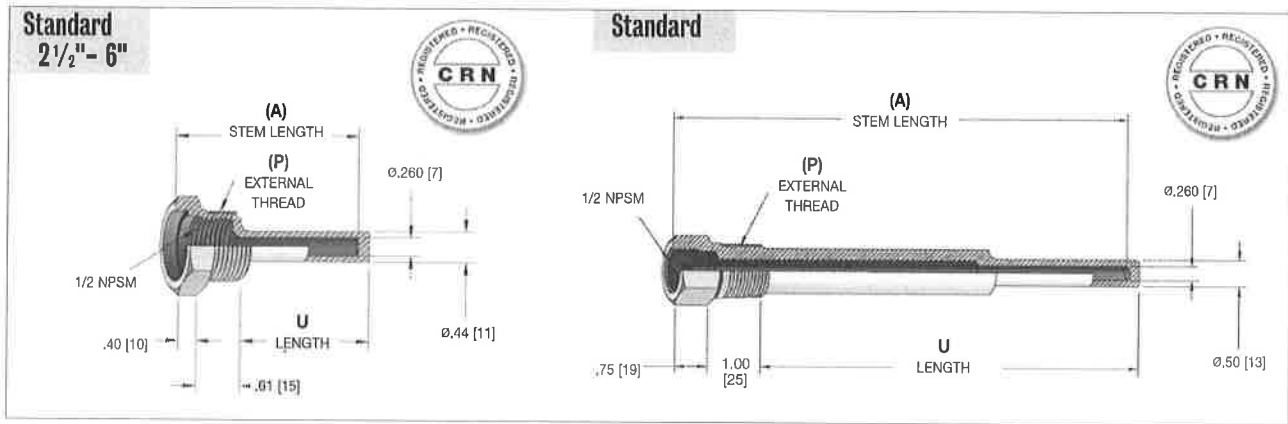
30° to 240°F/C

# Thermowells

for RTD & Thermocouple Temperature Sensors

All dimensions are nominal.  
Dimensions in [ ] are in millimeters.

CONTROLLER ACCESSORIES



### Lengths

| (A) Stem Length | Standard U Length | Lagging (T) Lagging Extension | U Length    |
|-----------------|-------------------|-------------------------------|-------------|
| 2 1/2"          | 1.75 [44]         | —                             | —           |
| 4"              | 2.50 [64]         | 1.00 [25]                     | 1.50 [38]   |
| 6"              | 4.50 [114]        | 2.00 [51]                     | 2.50 [64]   |
| 9"              | 7.50 [191]        | 3.00 [76]                     | 4.50 [114]  |
| 12"             | 10.50 [267]       | 3.00 [76]                     | 7.50 [191]  |
| 15"             | 13.50 [343]       | 3.00 [76]                     | 10.50 [267] |
| 18"             | 16.50 [419]       | 3.00 [76]                     | 13.50 [343] |
| 24"             | 22.50 [572]       | 3.00 [76]                     | 19.50 [495] |

### Pressure Rating (PSI)

| Material            | Operating Temperature          |       |       |       |       |        |
|---------------------|--------------------------------|-------|-------|-------|-------|--------|
|                     | 70°F                           | 200°F | 400°F | 600°F | 800°F | 1000°F |
| Carbon steel        | 5000                           | 5000  | 4800  | 4600  | 3500  | -      |
| 304 stainless steel | 6550                           | 6000  | 4860  | 4140  | 3510  | 3130   |
| 316 stainless steel | 6540                           | 6400  | 6000  | 5270  | 5180  | 4660   |
| Monel               | 5530                           | 4990  | 4660  | 4450  | 4450  | -      |
| Brass               | 3170 psi @ 150°F, 2930 @ 350°F |       |       |       |       |        |

Selection of the proper thermowell is the sole responsibility of the user. Temperature and pressure limitations must be considered. Improper application may cause failure of the thermowell, resulting in possible personal injury or property damage. For correct use and application, please refer to the Thermowells For Thermometers And Electrical Temperature Sensors Standard ASME B40.9.

### HOW TO ORDER

Sample Order Number: 76-4J6

| Thermowell Style  | (P) External Thread | (A) Stem Length  | (T) Lagging Extension                                    | Material                      |
|---|---------------------|--|--|-------------------------------|
| 76- Sensor, Stepped Shank<br>(2 1/2" - 6" Stem<br>Straight Shank) | 3 1/2 NPT*          | D 2 1/2" Stem  | A 1" Extension (4" Stem only)                            | 2 Brass                       |
|   | 4 3/4 NPT           | G 4" Stem  | C 2" Extension (6" Stem only)                            | 3 Steel                       |
|   | 5 1 NPT*            | J 6" Stem<br>M 9" Stem<br>R 12" Stem<br>V 15" Stem<br>Wa 18" Stem<br>Wk 24" Stem | E 3" Extension (9" and longer Stem only)<br>Omit if None | 4 Monel<br>5 304SS<br>6 316SS |

\*Not available with 2 1/2" Stem Length

Other thermowell styles available. Please consult pages 155-161 of the Trerice Temperature Section.

# Test Plugs & Accessories

The **Trerice Test Plug** provides a convenient access port for determining the pressure and/or temperature of process media contained in a pipe line or vessel. The test plug is designed for use in chilled or hot water systems and is permanently installed in the system at the desired test location. A test thermometer or pressure gauge with test adapter can be inserted through the plug to determine the conditions within the system. When the probe is withdrawn, the inner valve plug closes to seal the system. The test plug includes a removable cap to protect the inner valve plug and provide a secondary seal.

Nordel, otherwise known as EPDM, provides excellent service in hot or cold water. **Nordel should not be used with hydrocarbon solvents, hydrocarbon oils, chlorinated hydro carbons or turpentine.**

Neoprene, a synthetic rubber, provides excellent service in ammonia, high aniline point petroleum oils and silicate ester lubricants. **Neoprene should not be used with silicone greases, silicone oils or di-ester based lubricants.**

Test plugs are designed for initial startup and testing, not continuous or frequent use. If continuous or frequent use is desired or expected, a test well should be installed for temperature applications and a needle valve installed for pressure applications.

Tests should be made as quickly as possible because the inner plug resealing time is dependent upon the length of time the probe remains inserted, as well as the temperature and pressure of the system. The test plug may take longer to reseal at lower temperatures or pressures. The probe used for testing should never exceed a diameter of 0.156" (4 mm). The pressure gauge used for testing should always have a range of twice the system pressure.



## Test Plugs

| Test Plug Item No. | Test Plug with Retainer Item No. | Connection Size (NPT) | Body & Cap | Core     | Max Pres. (psig) | Max Temp. | Approximate Shipping Weight |
|--------------------|----------------------------------|-----------------------|------------|----------|------------------|-----------|-----------------------------|
| D3741              | D3764                            | 1/4                   | Brass      | Nordel   | 1000             | 350°F     | 0.1 lbs [0.05 kg]           |
| D3743              | D3763                            | 1/4                   | Brass      | Neoprene | 1000             | 200°F     | 0.1 lbs [0.05 kg]           |
| D3758              | D3766                            | 1/4                   | 316SS      | Nordel   | 1000             | 350°F     | 0.1 lbs [0.05 kg]           |
| D3757              | D3765                            | 1/4                   | 316SS      | Neoprene | 1000             | 200°F     | 0.1 lbs [0.05 kg]           |
| D3742              | D3770                            | 1/2                   | Brass      | Nordel   | 1000             | 350°F     | 0.2 lbs [0.09 kg]           |
| D3744              | D3769                            | 1/2                   | Brass      | Neoprene | 1000             | 200°F     | 0.2 lbs [0.09 kg]           |
| D3762              | D3772                            | 1/2                   | 316SS      | Nordel   | 1000             | 350°F     | 0.2 lbs [0.09 kg]           |
| D3761              | D3771                            | 1/2                   | 316SS      | Neoprene | 1000             | 200°F     | 0.2 lbs [0.09 kg]           |

## Accessories

| Item No. | Description                  | Approx. Shipping Weight |
|----------|------------------------------|-------------------------|
| D3747    | Gauge Adapter, 1/8" diameter | 0.1 lbs [0.05 kg]       |
| D3749    | 2" Brass Extension, 1/4 NPT  | 0.1 lbs [0.05 kg]       |
| D3753    | 2" Brass Extension, 1/2 NPT  | 0.2 lbs [0.09 kg]       |

## Test Kits

| Item No. | Pressure Range (psi) | Approximate Shipping Weight |
|----------|----------------------|-----------------------------|
| D3750    | 0 to 100             | 1.4 lbs [0.64 kg]           |
| D3751    | 0 to 200             | 1.4 lbs [0.64 kg]           |
| D3752    | 0 to 300             | 1.4 lbs [0.64 kg]           |
| D3748    | 0 to 600             | 1.4 lbs [0.64 kg]           |

Each test kit contains:  
 (1) 700B Pressure Gauge,  
 (1) B82105P03F&C Thermometer,  
 (1) B82105P05F&C Thermometer,  
 (1) D3747 Gauge Adapter,  
 (1) Carrying Case

## Test Kit Replacement Items

| Item No.      | Description   | Approximate Shipping Weight |
|---------------|---|-----------------------------|
| 700B2502LA110 | 700B Pressure Gauge, 2 1/2", 1/4 NPT, lower connection, 0 to 100 psi    | 0.4 lbs [0.18 kg]           |
| 700B2502LA130 | 700B Pressure Gauge, 2 1/2", 1/4 NPT, lower connection, 0 to 200 psi    | 0.4 lbs [0.18 kg]           |
| 700B2502LA140 | 700B Pressure Gauge, 2 1/2", 1/4 NPT, lower connection, 0 to 300 psi    | 0.4 lbs [0.18 kg]           |
| 700B2502LA160 | 700B Pressure Gauge, 2 1/2", 1/4 NPT, lower connection, 0 to 600 psi    | 0.4 lbs [0.18 kg]           |
| B82105P03     | B82105 Bimetal Thermometer, 1 3/4" dial size, 5" stem, 25° to 125°F & C | 0.4 lbs [0.18 kg]           |
| B82105P05     | B82105 Bimetal Thermometer, 1 3/4" dial size, 5" stem, 20° to 240°F & C | 0.4 lbs [0.18 kg]           |

SEPTEMBER 25, 2013  
GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SECTION 013300 - 9  
SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Identification for Plumbing Pipe & Equipment

SPECIFICATION REFERENCES: 220533

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

By: St A Dohy  
(signed)

Date: January 17, 2014

Steven A Dohy  
(printed)

INSTALLER: Gainesville Mechanical

By: St A Dohy  
(signed)

Date: January 17, 2014

Steven A Dohy  
(printed)

OTHER: \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_  
(signed)

(printed)

END OF FORM

**220553 IDENTIFICATION FOR PLUMBING PIPE & EQUIP**

**STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW**

**SETON 2.1 LAMINATED NAMEPLATES**

**SETON 2.2 BRASS TAGS**

**SETON 2.3 PIPE MARKERS**

**PRODUCT DATA SHEET**

**SETONFLEX® ENGRAVED PLASTIC NAMEPLATES**

**Description:** Setonflex® Engraved Signs/  
Nameplates are made of plastic  
with a contracting core that is  
exposed as letters are engraved  
into the material.

**Color Options:** White Letters on Brown  
Black Letters on Yellow  
White Letters on Green  
White Letters on Blue  
White Letters on Black  
White Letters on Red  
Black Letters on White  
Black Letters on Orange



**Thickness (ASTM-D1593):** Total 0.063 in. (1.6mm)

**Gloss:** 55 Gardner Units.

|                                   |               |             |         |         |             |
|-----------------------------------|---------------|-------------|---------|---------|-------------|
| <b>Standard Sizes/Dimensions:</b> | 2-1/2" x 3/4" | 2-1/2" x 1" | 3" x 1" | 3" x 3" | 4" x 1-1/2" |
|                                   | 4" x 2"       | 4" x 4"     | 5" x 3" | 5" x 5" | 6" x 3"     |
|                                   | 6" x 4"       | 6" x 6"     | 8" x 4" | 8" x 8" | 12" x 4"    |

**Abrasion Resistance:** CS-17 Wheels, 1000 g. wts.

**(Method 5306 of U.S. Federal Test Method Std. No. 191A):** Legend withstands up to 1200 cycles.

**Service Temperature:** -40°F to 175°F (-40°C to 80°C)

**Average Outdoor Durability:** 2-3 years (Average expected outdoor life of product will depend on user definition of failure, climatic conditions, mounting techniques, and material color).

| Chemical Resistance: | Reagent           | 7 day Immersion | Dip Test | Rub Test |
|----------------------|-------------------|-----------------|----------|----------|
|                      | 30% Sulfuric Acid | NE              | NE       | NE       |
|                      | 10% Sulfuric Acid | NE              | NE       | NE       |
|                      | 30% HCL           | NE              | NE       | NE       |
|                      | 10% HCL           | NE              | NE       | NE       |
|                      | 50% NaOH          | NE              | NE       | NE       |
|                      | 10% NaOH          | NE              | NE       | NE       |
|                      | Turpentine        | NE              | NE       | NE       |
|                      | Conc. Acetic Acid | NE              | NE       | NE       |

(continued on back)

Date: \_\_\_ / \_\_\_ / \_\_\_ Job: \_\_\_\_\_

Contractor \_\_\_\_\_

**SETONFLEX® ENGRAVED PLASTIC NAMEPLATES** (CONTINUED)

| Chemical Resistance:<br>(continued) | Reagent                | 7 day Immersion | Dip Test | Rub Test |
|-------------------------------------|------------------------|-----------------|----------|----------|
|                                     | 5% Acetic Acid         | NE              | NE       | NE       |
|                                     | Conc. Ammonia          | NE              | NE       | NE       |
|                                     | 10% Ammonia            | NE              | NE       | NE       |
|                                     | Methyl Ethyl Ketone    | F               | F        | NE       |
|                                     | Acetone                | F               | F        | NE       |
|                                     | Methanol               | F               | F        | NE       |
|                                     | 1,1,1, Trichloroethane | F               | F        | NE       |
|                                     | ASTM #3 Oil            | NE              | NE       | NE       |
|                                     | SAE 20 Oil             | NE              | NE       | NE       |
|                                     | Mineral Spirits        | NE              | NE       | NE       |
|                                     | Diesel Fuel            | NE              | NE       | NE       |
|                                     | Kerosene               | F               | NE       | NE       |
|                                     | Water                  | NE              | NE       | NE       |

NE: No Effect    F: Failed

|                         |   |
|-------------------------|---|
| <b>7 Day Immersion:</b> | Immersed in reagent for 7 days.                           |
| <b>Dip Test:</b>        | Five 10 minute dips in reagent with 30 minute recovery.   |
| <b>Rub Test:</b>        | Rubbed sample for one minute with swab soaked in reagent. |
| <b>Shelf Life:</b>      | Indefinite when stored at 70°F (21°C) and 40% to 50% R.H. |

**PRODUCT DATA SHEET**

**VALVE TAGS** SHAPE & TAG LETTERING OR NUMBERING TO BE SPECIFIED WHEN ORDERING

**Use:** Meet ANSI/ASME A13.1-1981 for identification of materials in pipes of less than 3/4" (19mm) in diameter, and for valve and fitting identification.

**Features:** Stamping or engraving available. Sequential numbering available.

**BRASS VALVE TAGS**

|                                |                                     |            |                 |             |
|--------------------------------|-------------------------------------|------------|-----------------|-------------|
| <b>Material:</b>               | 19 gauge solid Brass                |            |                 |             |
| <b>Size/Shape:</b>             | 1-1/2" Round                        | 2" Round   | 1-1/2" Square   | 2" Square   |
|                                | 1-1/2" Hexagon                      | 2" Octagon | 1-1/2" Triangle | 2" Triangle |
| <b>Ink Fill Color Options:</b> | Black, Blue, Natural, Red, or White |            |                 |             |
| <b>Maximum Temperature:</b>    | Material 1200°F. Ink fill 233°F     |            |                 |             |
| <b>Top Hole Size:</b>          | 3/16"                               |            |                 |             |
| <b>Letter Height:</b>          | 1/4"                                |            |                 |             |
| <b>Number Height:</b>          | 1/2"                                |            |                 |             |



**ALUMINUM VALVE TAGS**

|                                |                                  |          |               |           |
|--------------------------------|----------------------------------|----------|---------------|-----------|
| <b>Material:</b>               | 19 gauge Aluminum                |          |               |           |
| <b>Size/Shape:</b>             | 1-1/2" Round                     | 2" Round | 1-1/2" Square | 2" Square |
| <b>Ink Fill Color Options:</b> | Black, Blue, Red, or White       |          |               |           |
| <b>Maximum Temperature:</b>    | Material 1500°F. Ink fill 233°F. |          |               |           |
| <b>Top Hole Size:</b>          | 3/16"                            |          |               |           |
| <b>Letter Height:</b>          | 1/4"                             |          |               |           |
| <b>Number Height:</b>          | 1/2"                             |          |               |           |



**STAINLESS STEEL VALVE TAGS**

|                                |                                  |          |               |           |
|--------------------------------|----------------------------------|----------|---------------|-----------|
| <b>Material:</b>               | .025 / Grade 304 Stainless Steel |          |               |           |
| <b>Size/Shape:</b>             | 1-1/2" Round                     | 2" Round | 1-1/2" Square | 2" Square |
| <b>Ink Fill Color Options:</b> | Natural                          |          |               |           |
| <b>Maximum Temperature:</b>    | Material 2700°F. Ink fill 233°F  |          |               |           |
| <b>Top Hole Size:</b>          | 3/16"                            |          |               |           |
| <b>Letter Height:</b>          | 1/4"                             |          |               |           |
| <b>Number Height:</b>          | 1/2"                             |          |               |           |



Date: \_\_\_ / \_\_\_ / \_\_\_ Job: \_\_\_\_\_

Contractor \_\_\_\_\_

## PRODUCT DATA SHEET

### SETMARK® PIPE MARKERS

- Simply uncoil the marker ...it snaps into place
- Words repeated and reversed ...use same marker to indicate flow in either direction
- Never need to tape or band
- Save up 50% on installation costs
- Flow direction arrows included on every marker at no extra cost
- Over 150 standard wordings available as well as custom wordings
- Each Setmark® Pipe Marker is made of high quality UV resistant ink and vinyl to withstand the harshest industrial environments
- Length of color field 8" thru 32"... letter sizes from 1/2" thru 3-1/2"... to completely meet ANSI specs
- Snap-On marker completely encircles pipe to provide 360° visibility



### NO ADHESIVE NEEDED – NEVER NEED TO TAPE OR BAND

|                                    |  |
|------------------------------------|--|
| <b>Description:</b>                | Seton Setmark® Pipe Markers are cylindrically coiled printed plastic sheets that snap around pipes with OD up to 5.875". Flat strap-around markers are designed for pipes with OD of 6" to 10" and are fastened onto the pipes with included heavy duty nylon ties (included). Completely meets ANSI A13.1-2007. |
| <b>Use:</b>                        | Seton Setmark® Pipe Markers are designed for use on dirty, rusty, wet, oily or rough pipes. Designed for indoor or outdoor use.  |
| <b>Compliance:</b>                 | Seton Setmark® Pipe Markers meet ANSI/ASME A13.1-2007 for color scheme, length of field and letter height.   |
| <b>Standard Legend Colors:</b>     | Black or White   |
| <b>Standard Background Colors:</b> | Blue, Brown, Green, Orange, Red, and Yellow  |
| <b>Thickness (ASTM D 1593):</b>    | Size 8SM, 8LG, 12LG, 24 and 32: 0.020 in. (0.51mm.)<br>Size 12SM, 12MD: 0.030 in. (0.76 mm.)   |

| Standard Sizes/Dimensions: | Marker Size | Fits Pipe Outer Diameter    | Length Color Field | Letter Height |
|----------------------------|-------------|-----------------------------|--------------------|---------------|
|                            | 8SM         | .75" - 1.375" (19mm - 35mm) | 8" (203mm)         | .5" (13mm)    |
|                            | 8LG         | 1.5" - 2.375" (38mm - 60mm) | 8" (203mm)         | .75" (19mm)   |
|                            | 12SM        | 2.5" - 3.875" (64mm - 98mm) | 12" (305mm)        | 1.25" (32mm)  |
|                            | 12MD        | 4" - 5.875" (102mm - 149mm) | 12" (305mm)        | 1.25" (32mm)  |
|                            | 12LG        | 6" - 7.875" (152mm - 200mm) | 12" (305mm)        | 1.25" (32mm)  |
|                            | 24          | 8" - 10" (203mm - 254mm)    | 24" (610mm)        | 2.50" (64mm)  |
|                            | 32          | over 10" (over 254mm)       | 32" (813mm)        | 3.50" (89mm)  |

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Job: \_\_\_\_\_

Contractor \_\_\_\_\_

**SETMARK® PIPE MARKERS** (CONTINUED)

|   |  |                        |                 |                 |
|---|--|------------------------|-----------------|-----------------|
| <b>Gloss:</b>   | 40 Gardner Units.  |                        |                 |                 |
| <b>Abrasion Resistance:</b>                                     | CS-10 Wheels, 1000 g. wts.   |                        |                 |                 |
| <b>(Method 5306 of U.S. Federal Test Method Std. No. 191A):</b> | Legend withstands up to 1000 cycles.   |                        |                 |                 |
| <b>Service Temperature:</b>                                     | -40°F to 180°F (-40°C to 82°C).  |                        |                 |                 |
| <b>Average Outdoor Durability:</b>                              | 5-8 years (Average expected outdoor life of product will depend on user definition of failure, climactic conditions, mounting techniques, and material color). |                        |                 |                 |
| <b>Chemical Resistance:</b>                                     | <b>Reagent</b>   | <b>7 day Immersion</b> | <b>Dip Test</b> | <b>Rub Test</b> |
|   | 30% Sulfuric Acid  | F                      | NE              | NE              |
|   | 10% Sulfuric Acid  | F                      | NE              | NE              |
|   | 30% HCL  | F                      | NE              | NE              |
|   | 10% HCL  | F                      | NE              | NE              |
|   | 50% NaOH   | F                      | NE              | NE              |
|   | 10% NaOH   | F                      | NE              | NE              |
|   | Gasoline   | NE                     | NE              | NE              |
|   | Turpentine   | NE                     | NE              | NE              |
|   | Glacial Acetic Acid  | NE                     | NE              | NE              |
|   | Conc. Ammonia  | NE                     | NE              | NE              |
|   | 10% Ammonia  | NE                     | NE              | NE              |
|   | Methyl Ethyl Ketone  | F                      | F               | NE              |
|   | Acetone  | F                      | NE              | NE              |
|   | Methanol   | F                      | NE              | NE              |
|   | 1,1,1, Trichloroethane   | F                      | F               | NE              |
|   | IPA (Isopropanol)  | NE                     | NE              | NE              |
|   | ASTM #3 Oil  | NE                     | NE              | NE              |
|   | SAE 20 Oil   | NE                     | NE              | NE              |
|   | Mineral Spirits  | NE                     | NE              | NE              |
|   | Diesel Fuel  | NE                     | NE              | NE              |
|   | Heptane  | NE                     | NE              | NE              |
|   | Toluene  | F                      | NE              | NE              |
|   | Alconox  | NE                     | NE              | NE              |
|   | Kerosene   | NE                     | NE              | NE              |
|   | Water  | NE                     | NE              | NE              |
|   | NE: No Effect    F: Failed   |                        |                 |                 |
| <b>7 Day Immersion:</b>   | Immersed in reagent for 7 days.  |                        |                 |                 |
| <b>Dip Test:</b>  | Five 10 minute dips in reagent with 30 minute recovery.  |                        |                 |                 |
| <b>Rub Test:</b>  | Rubbed sample for one minute with swab soaked in reagent.  |                        |                 |                 |
| <b>Shelf Life:</b>  | Indefinite when stored at 70°F (21°C) and 40% to 50% R. H.   |                        |                 |                 |

SEPTEMBER 25, 2013

SECTION 013300 - 9

GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Plumbing Insulation

SPECIFICATION REFERENCES: 220719

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

Date: January 17, 2014

By: SLADachy  
(signed)

Steven A Dackery  
(printed)

INSTALLER: Gainesville Mechanical

Date: January 17, 2014

By: Ste A Dackery  
(signed)

Steven A Dackery  
(printed)

OTHER: Evans Insulation

Date: January 17, 2014

By: Drew Evans  
(signed)

Drew Evans  
(printed)

END OF FORM

**Micro-Lok® HP**  
High-Performance Fiber Glass Pipe Insulation

**DESCRIPTION**

Micro-Lok HP Fiber Glass Pipe Insulation is a high-performance insulation made from rotary glass fibers bonded with a thermosetting resin and produced in 36" (0.92 m) lengths. Micro-Lok HP insulation is used to insulate standard iron pipe and copper tubing. The 3' (0.92 m) sections are available plain or with a factory-applied vapor-barrier jacket. The all-service (ASJ) vapor-retarder jacket includes a longitudinal, self-sealing closure lap. The jacket system is adhered to each fiber glass section using a specially formulated adhesive to ensure jacket securement. Latex paint may be applied to the Micro-Lok HP jacket after installation.

The factory-installed tape system permits installation at ambient temperatures down to 20°F (-7°C) and will not soften or separate when exposed to high ambient temperatures and humidity.

**USES**

Micro-Lok HP fiber glass pipe insulation is suitable for installation over hot, cold, concealed and exposed piping systems with operating temperatures up to 850°F (454°C). Weather-protective jacketing is required for outdoor applications. Pipes operating below ambient temperatures require all joints to be sealed with the factory-applied, self-seal lap and butt strips.

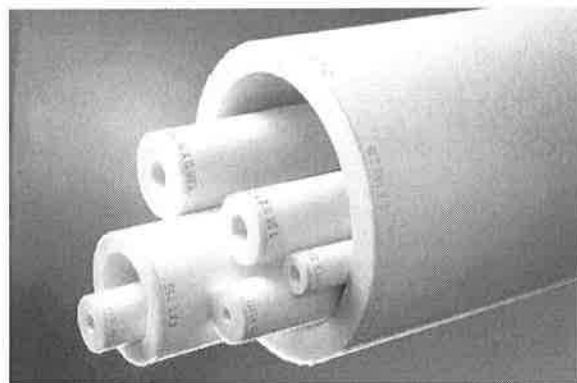
**PHYSICAL PROPERTIES**

|  |   |
|--|---|
| Service Temp. Range (ASTM C411)                | 0°F to 850°F (-18°C to 454°C)   |
| Moisture Sorption                              | <5% by weight   |
| Alkalinity                                     | <0.6% expressed as Na <sub>2</sub> O  |
| Corrosivity (ASTM C665)                        | Does not accelerate   |
| Capillarity                                    | Negligible (after 24 hours)   |
| Shrinkage (ASTM C356)                          | None  |
| Microbial Growth (ASTM C1338)                  | Does not promote microbial growth   |
| Surface Burning Characteristics                | Composite FHC 25/50 per ASTM E84, NFPA 255, CAN/ULC S102-M88                    |
| Limited Combustibility                         | NFPA 90A and 90B  |
| Jacketing                                      | ASTM C1136 (Type I)   |
| Water Vapor Permeance (ASTM E96 – Procedure A) | 0.02 perms max.   |
| Burst Strength (ASTM D774)                     | 50 Beach Units (1.5 Joules min.)  |
| Tensile Strength (ASTM D828)                   | 45 lbs./in. (7.9N/mm) width min. (MD)<br>30 lbs./in. (5.23N/mm) width min. (CD) |

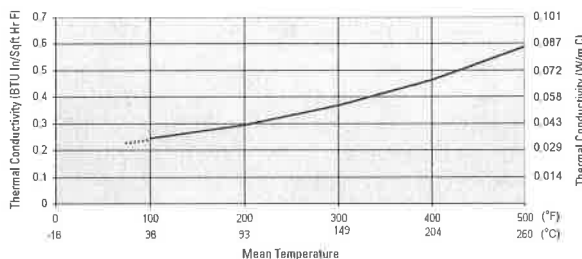
**Operating Temperature Limits:** 0°F to 850°F (-18°C to 454°C)

**SPECIFICATION COMPLIANCE**

- ASTM C547 Type I (Replaces HH-I-558B, Form D, Type III, Class 12, Class 13 up to 850°F [454°C])
- ASTM C585 – Dimension Standard
- ASTM C1136 (Jacketing) (Replaces HH-B-100B, Type I & II)
- MIL-I-22344D
- NRC 1.36, ASTM C795, MIL-I-24244C
- Coast Guard/IMO Approved 164.109/56/0 (plain, unjacketed only – excluding ¾ x ½ [22 mm x 13 mm], ½ x ½ [13 mm x 13 mm])
- New York City MEA # 330-85-M
- California Bureau of Home Furnishings and Thermal Insulation – Registry Number CA-T040 (CO)
- Firestop Assemblies: Meets requirement for jacketed fiber glass pipe insulation product density at or above 3.5 pcf.



**THERMAL CONDUCTIVITY ("K")**



| MEAN TEMPERATURE | K    | K(SI) |
|------------------|------|-------|
| 75°F (24°C)      | 0.23 | 0.034 |
| 100°F (38°C)     | 0.24 | 0.035 |
| 200°F (93°C)     | 0.28 | 0.040 |
| 300°F (149°C)    | 0.34 | 0.049 |
| 400°F (204°C)    | 0.44 | 0.063 |
| 500°F (260°C)    | 0.55 | 0.079 |

**GREEN BUILDING ATTRIBUTES**

|   |                        |           |
|---|------------------------|-----------|
| Manufacturing Location                  | Defiance, Ohio (43512) |           |
| Recycled Content                        | 36%                    |           |
| Volatile Organic Compounds (ASTM D5116) | Total                  | 0.15 g/l  |
| (Analysis ASTM D6196 & ASTM D5197)      |                        |           |
| Fiber Glass Pipe Insulation             | Formaldehyde           | 0.009 ppm |
|   | Aldehydes              | 0.009 ppm |
| Volatile Organic Compounds (Calculated) | Total                  | <49 g/l   |
| Self-Sealing Lap & Butt Strips          |                        |           |

**GREEN BUILDING CERTIFICATIONS**

|                        |  |  |
|------------------------|--|--|
| GREENGUARD®            |  |  |
| • Indoor Air Quality   | Certified  |  |
| • Children and Schools | Certified  |  |
| LEED® Credits          |  |  |
| LEED-NC                | See JM.com/buildgreen<br>JM LEED Credit Guide (HIG-1231) |  |

GREENGUARD® Certified products have been screened for more than 10,000 volatile organic compounds (VOCs) and meet stringent standards for low chemical emissions based on established criteria from key public health agencies.



# Micro-Lok® HP

## High-Performance Fiber Glass Pipe Insulation

### SIZE AVAILABILITY

| Insulation Thickness |     | Iron Pipe Size Range |        | Copper Tubing Size Range |        |
|----------------------|-----|----------------------|--------|--------------------------|--------|
| in.                  | mm  | in.                  | mm     | in.                      | mm     |
| ½                    | 13  | ½-6                  | 13-152 | ⅝-4⅞ <sup>§</sup>        | 16-105 |
| 1                    | 25  | ½-24                 | 13-610 | ⅝-6⅞                     | 16-156 |
| 1½                   | 38  | ½-24                 | 13-610 | ⅝-6⅞                     | 16-156 |
| 2                    | 51  | ½-24                 | 13-610 | 1⅞-6⅞                    | 29-156 |
| 2½                   | 64  | 1-24                 | 25-610 | 1⅞-6⅞                    | 35-156 |
| 3                    | 76  | 1-24                 | 25-610 | 1⅞-6⅞                    | 35-156 |
| 3½                   | 89  | 1½-24 <sup>*</sup>   | 38-610 | —                        | —      |
| 4                    | 102 | 3-24 <sup>**</sup>   | 76-610 | —                        | —      |
| 4½                   | 114 | 3-24 <sup>†</sup>    | 76-610 | —                        | —      |
| 5                    | 127 | 3-20 <sup>††</sup>   | 76-508 | —                        | —      |

### Notes:

\*2½" and 23" IPS not available in this insulation thickness.

\*\*22" and 23" IPS not available in this insulation thickness.

†21", 22" and 23" IPS not available in this insulation thickness.

††19" IPS not available in this insulation thickness.

§3⅞" CTS not available in this insulation thickness.

### QUALIFICATIONS FOR USE

A sufficient thickness of insulation must be used to keep the maximum surface temperature of Micro-Lok HP insulation below 150°F (66°C). In addition, at operating temperatures above 500°F (260°C), Micro-Lok HP pipe insulation must be applied in a thickness ranging from 2" (51 mm) minimum to 6" (152 mm) maximum.

During initial heat-up to operating temperatures above 350°F (177°C), an acrid odor and some smoke may be given off as the organic binders used in the fiber glass pipe insulation begin to decompose. When this occurs, caution should be exercised to ventilate the area well. This loss of binder does not directly affect the thermal performance of the pipe insulation, but the compressive strength and resiliency of the product are reduced. For applications with excessive physical abuse or vibration at high temperatures, consult your local Insulation Systems Market Development Manager for alternate material recommendations.

### CHILLED WATER SYSTEMS

For chilled water systems, see Chilled Water InsulSpec™ – 3-Part Specification, CI-239.

### APPLICATION RECOMMENDATIONS\*

#### MICRO-LOK HP PIPE INSULATION AND BUTT STRIPS

1. Do not apply Micro-Lok HP insulation if air temperature is below 20°F (-7°C) or above 130°F (54°C) due to the effect of temperature on tape performance. We recommend stapling when application falls outside this temperature range.

When stapling, we recommend mastic be applied over staples to prevent moisture penetration.

2. If stored below 20°F (-7°C) or above 130°F (54°C), insulation cartons should stand within the recommended temperature range for 24 hours prior to application.

3. Once release paper is removed, both adhesive and lap must be kept free of dirt and water, and the lap sealed immediately.

4. When adhered, the lap and butt strips must be pressurized by rubbing firmly with a plastic squeegee or the back of a knife blade to ensure positive closure.

\*For complete application recommendations and installation instructions, see CI-245 brochure.

### North American Sales Offices, Insulation Systems



717 17th St.  
Denver, CO 80202  
1-800-654-3103  
specJM.com

#### Eastern Region

P.O. Box 158  
Defiance, OH 43512  
(800) 334-2399  
Fax: (419) 784-7866

#### Western Region & Canada

P.O. Box 5108  
Denver, CO 80217  
(800) 368-4431  
Fax: (303) 978-4661

The physical and chemical properties of Micro-Lok® HP High-Performance Fiber Glass Pipe Insulation listed herein represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Numerical flame spread and smoke developed ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions. Check with the Regional Sales Office nearest you to ensure current information. **All Johns Manville products are sold subject to Johns Manville's standard Terms and Conditions including Limited Warranty and Limitation of Remedy. For a copy of the Johns Manville standard Terms and Conditions, Limited Warranty and Limitation of Remedy, and information on other Johns Manville thermal insulations and systems, call (800) 654-3103.**

# Childers®

Mastics, Coatings, Adhesives, Sealants

**AK-CRYL™**  
**CP-9**  
**Weather Barrier Coating**

## WATER BASED VINYL-ACRYLIC MASTIC COATING FOR THERMAL INSULATIONS

### DESCRIPTION

AK-CRYL® CP-9 is a polymeric, water based weather barrier, breather type mastic. CP-9 dries to a tough flexible film that protects thermal insulation from the ravages of weather by preventing water, rain, snow, sleet, spillage, wash water, etc., from entering into the system. In addition, CP-9 provides protection from mechanical damage created by external forces such as impact abrasion as well as the internal forces of thermal expansion, contraction, or vibration. Using CP-9 can also protect the insulation from chemical attack of acids, alkalis and solvents. CP-9 is fire resistant and U.V. stable.

### USES

AK-CRYL CP-9 Weather Barrier Coating provides weatherproofing and mechanical protection of thermal insulation both outdoors and indoors, in hot, cold and dual-temperature service. Because it is a 'breather' coating (vapors under pressure will pass through it), it should only be used over insulations in low temperature, or dual-temperature service when the insulations themselves are vapor barriers, or where a complete vapor barrier system is applied to the insulated surface either before or after the coating is applied. Industry experience has demonstrated that all weather barrier coatings may blister when applied over polystyrene board. This effect may be limited by the use of white colored coatings.

### APPLICATION

AK-CRYL CP-9 Weather Barrier Coating is easy to apply by Trowel, Glove, Brush or Heavy-Duty Airless Spray. Its thixotropic consistency yields a smooth, attractive finish even over rough substrates; it readily fills gaps and imperfections, and is normally applied with a glass fabric reinforcing mesh.

### ADVANTAGES

- In the wet state, AK-CRYL CP-9 Weather Barrier Coating is non-flammable for worker safety.
- Being water based, it contains no harmful solvents that will attack insulations or facings.
- Its special formulation allows for application during most times of the year for increased productivity.

### CERTIFIED

- Meets NFPA Standard 90-A and 90-B 25/50 requirements.
- This product has been testing according to ASTM E-84 (Surface Burning Characteristics of Building Materials).
- Meets requirements for LEED IEQ 4.2 Low-Emitting Materials, Paints and Coatings. VOC: 45 g/l, less water and exempt solvents

Visit us on the web at [www.fosterproducts.com](http://www.fosterproducts.com)



### COLORS

White  
Other colors available on special order

### WET WEIGHT

11.3 lbs./U.S. gal. (1.35 kg/liter)

### AVERAGE NON-VOLATILE

51% by volume (64% by weight)

### SERVICE TEMPERATURE RANGE

(Temperature to which dry coating is subjected.)  
-40°F to 180°F  
(-40°C to 83°C)

### APPLICATION TEMPERATURE RANGE

40°F to 100°F  
(4°C to 38°C)

### DRYING TIME

Touch - 2-4 hours  
Through - 24-36 hours  
(Drying time will vary depending upon film thickness, temperature and humidity.)

### COVERAGE

6 U.S. gal./100 sq. ft. (2.4 l/sq.m)  
(Varies with substrate and membrane.)

### CLEAN-UP

Warm, soapy water (wet), xylol (dry)

### WATER VAPOR PERMEANCE ASTM E-96

Greater than 1.0 perms (Procedure B) at 1/16" film thickness.



### GENERAL PURPOSE COATING SURFACE BURNING CHARACTERISTICS

Applied to 1/4" Inorganic Reinforced Cement Board  
Flame Spread: 10  
Smoke Developed: 5-40  
Rate per Coat (Sq.ft/gallon): 16.7  
Number of Coats: 1  
Flash point of liquid coating (closed cup): No flash to boiling  
282U

CP-9 contains no asbestos, lead, mercury, or mercury compounds.

08/09

**Specialty Construction Brands, Inc.**  
an H.B. Fuller Company

Customer Service  
800-231-9541

1105 South Frontenac Street  
Aurora, IL 60504

Fax  
800-942-6856

# Suggested Specifications

# AK-CRYL® CP-9

MASTIC FINISH over insulation shall be AK-CRYL CP-9 Weather Barrier Coating. It shall be applied in two coats. A tack coat is to be applied at a rate of two gallons per 100 sq. ft. (.81 l/sq. m.). While the tack coat is still wet, a layer of CHIL-GLAS #10 open weave glass fiber reinforcing mesh shall be embedded with all fabric seams overlapped a minimum of 2" (5.08 cm). A finish coat at a coverage of four gallons per 100 sq. ft. (1.6 l/sq. m) shall be applied, fully covering the glass fiber reinforcing mesh, so that the minimum dry film thickness is 1/16" (.063") (.16 cm). There shall be no voids or holidays and the mastic shall be trowelled, sprayed or wet-brushed to a smooth even finish.

All adjoining insulated or uninsulated surfaces must be completely waterproofed and flashed. To effectively seal those locations where the AK-CRYL CP-9 coating meets adjoining insulated or uninsulated surfaces, or dissimilar weather proofing materials, CHIL-JOINT CP-70 sealant shall be applied as the sealing/flushing material. CHIL-JOINT CP-70 sealant shall be trowelled at 1/8" thickness a minimum of 1" in both directions back onto and over the complete joint interface of the AK-CRYL CP-9 coating and the adjoining surface. CHIL-GLAS #5 glass fiber reinforcing mesh is recommended to provide thickness control and strength at the joint interface.

## NOTES TO SPECIFYING ENGINEER

1. Open weave synthetic fabric may be substituted for open weave glass cloth without affecting the application. For large areas or areas subject to severe mechanical abuse, use CHIL-GLAS #5 glass fiber reinforcing mesh. Do not use with canvas or other closed weave fabrics.
2. If Chicken Wire, Hardware Cloth, or other metal reinforcements are to be used in lieu of glass fiber reinforcing mesh, contact your representative for suggested procedures.
3. The above specification is for weather proofing and protection of insulation in HOT SERVICE: or for COLD or DUAL TEMPERATURE SERVICE where the insulation and/or the insulation system forms an adequate vapor barrier prior to the application of the AK-CRYL CP-9 coating.

## Application Guide and Suggested Procedures

### 1. USE OF MATERIAL

AK-CRYL CP-9 Weather Barrier Coating looks much heavier than it is - it is thixotropic - use it the way it comes WITHOUT THINNING! Keep from freezing. It is best to keep it stored over long periods of time in a heated area. For spray application AK-CRYL CP-9 coating must be kept at minimum 50°F (10°C) just prior to spraying to achieve optimum results.

### 2. THE CONDITION OF THE INSULATION TO BE COATED

The best coating in the world can be no better than the surface it is going over. KNOW THE TYPE AND CONDITION OF THE SUBSTRATE! AK-CRYL CP-9 is a "breathing coating," which means that it will allow reasonable amounts of water (in the form of vapor - a gas) to pass through it in a reasonable period of time. However, excessively wet insulation on equipment operating at elevated temperatures will cause excessive water vapor pressure, and therefore blistering of the finish. Make certain the insulation is dry prior to the application of any coating.

**To obtain proper bonding, dusty surfaces shall first be primed with Chil-Seal CP-50A MV1 diluted 50% with water.**

When applying AK-CRYL CP-9 coating over hygroscopic alkaline cements, first prime the surface of the cement with Chil-Seal CP-50A MV1 diluted 50% with water and allow to dry completely before applying the finish coat.

The presence of moisture in systems operating in Cold Service can completely destroy the effectiveness of not only the finish, but the entire insulation system. They MUST BE DRY.

All exterior horizontal surfaces must be sloped at least 1/2 inch per foot to prevent ponding water.

### 3. HAND APPLICATION

Large flat areas are best covered by application with trowel or stiff

brush. Smaller, irregular surfaces such as fittings are more readily covered by brushing or 'palmimg'. A smooth finish may be obtained by 'wet-brushing'.

### 4. SPRAY APPLICATION

AK-CRYL CP-9 Weather Barrier Coating is readily applied with Mastic Pumps and Air-Atomized or Airless Spraying equipment. The airless spray technique is generally considered more satisfactory - it is faster, neater, and gives a better, more uniform finish. A suggested size pump to use is the 40:1 using a tip with cross section radius between .043" and .055" depending upon fan size and output desired (a 651 tip would be the most common). Hose diameters should be 1" I.D. for the first 150 ft. (45 m) from the pump reduced to 3/4" I.D. diameter beyond 150'; use 8' (2.4 m) of 1/2" I.D. hose for coupling to the gun. Reverse-A-Clean tip is recommended for the spray gun.

A pump in the range of 9:1 is used in the conventional method. The gun should have a 1/4" nozzle and air cap.

To operate this equipment there should be air available at a minimum of 75 cfm and 100 psig. Water should be pumped through the system before spraying the AK-CRYL CP-9 coating. Ram plate or follower plate should be used in spraying AK-CRYL CP-9 coating.

Most manufacturers of mastic spray equipment maintain nearby service facilities to aid in the solution of any technical problems that arise with their equipment.

### 5. DRYING AND RECOATING

A finish coat of AK-CRYL CP-9 Weather Barrier Coating should be applied immediately after the tack coat and membrane for maximum bond. The volatile portion of AK-CRYL CP-9 coating is water and the rate at which the film will dry varies with any of a number of factors: the thickness at which the AK-CRYL CP-9 coating is applied, heat, humidity, and the absorption by the substrate.

## CUSTOMER SERVICE: 800-231-9541

IMPORTANT: Specialty Construction Brands, Inc. warrants that each of its products will be manufactured in accordance with the specifications in effect on the date of manufacture. WE MAKE NO OTHER WARRANTIES AND EXPRESSLY DISCLAIM ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. If a product fails to meet this limited warranty, purchaser's sole and exclusive remedy is replacement of the product or, at our option, refund of the purchase price. OUR ACCEPTANCE OF ANY ORDERS FOR THE PRODUCT IS EXPRESSLY CONDITIONAL UPON PURCHASER'S ASSENT TO THE TERMS ON THE APPLICABLE INVOICE.

ADEQUATE TESTS: The information contained herein we believe is correct to the best of our knowledge and tests. The recommendations and suggestions herein are made without guarantee or representation as to results. We recommend that adequate tests be performed by you to determine if this product meets all of your requirements. The warranted shelf life of our products is six months from date of shipment to the original purchaser.

For professional use only. Keep out of reach of children.  
Consult Material Safety Data Sheet and container label for further information.

# Friendly Feel® Duct Wrap with ECOSE® Technology

Submittal Date \_\_\_\_\_

# KNAUF INSULATION

## Description

Knauf Friendly Feel® Duct Wrap with ECOSE Technology and KwikStretch® Markings is a thermal and acoustical insulation blanket made from highly resilient, inorganic glass fibers bonded by a thermosetting resin. It is available unfaced, with a foil-scrim-kraft (FSK) jacket and with a white or black metalized polypropylene-scrim-kraft (PSK) jacket. Vapor retarders provide a 2" (51 mm) staple flange on one edge, and the factory-applied facing assures uniform quality. KwikStretch Markings on the staple flange allow for easy and accurate job site measurements.

## ECOSE Technology

ECOSE Technology is a revolutionary new binder chemistry that makes Knauf Insulation products even more sustainable than ever. It is based on rapidly renewable bio-based materials rather than non-renewable petroleum-based chemicals traditionally used in fiberglass insulation products. ECOSE Technology reduces binder embodied energy and does not contain phenol, formaldehyde, acrylics or artificial colors.

## Application

Knauf Friendly Feel Duct Wrap is used as external insulation on commercial or residential heating or air conditioning ducts. It is suitable for the exterior of rectangular or round sheet metal ducts and spaces or surfaces where temperature and condensation must be controlled.

## Features

- Low "k" factor significantly reduces heat gain or loss when applied with proper compression.
- Flexible.
- Lightweight.
- KwikStretch markings on the staple flanges.
- Excellent acoustical properties.
- Tough and resilient.
- Certified for indoor air quality as a low emitting product by The GREENGUARD Environmental Institute to both the GREENGUARD Certification Program<sup>SM</sup> and the more stringent GREENGUARD For Children and Schools<sup>SM</sup> standard.

## Benefits

- Energy conservation, which lowers operating costs.
- System efficiency increases; energy usage/costs decrease.
- Conforms easily to flat or irregular surfaces.
- Rolls allow for faster installation, lower labor costs.
- Easier, faster measurement of stretch-out lengths.
- Reduces sound transmission through the duct wall.
- Assured condensation control when used with proper installation and sealed joints, seams and penetrations.
- Resists damage in shipment, and during and after installation.

## Specification Compliance

### In U.S.:

- ASTM C 1139 - unfaced; Type I, Type II, Grade 1 - 0.75 lb/ft<sup>3</sup>  
Grade 2 - 1.0 lb/ft<sup>3</sup>  
Grade 3 - 1.5 lb/ft<sup>3</sup>
- ASTM C 553; Type I, II, III
- ASTM C 1136; Type II
- ASTM C 1290

- GREENGUARD Children and Schools<sup>SM</sup> Certification
- California Title 24 (installed at 25% compression)
- HH-1-558C; Form B, Type I, Class 7
- NFPA 90A and 90B

### In Canada:

- CAN/ULC S102-M88
- CAN/CGSB-51.5M; Type II (FSK facing)
- CAN/CGSB-51.11-92

## Technical Data

### Surface Burning Characteristics

- UL/ULC Classified (FSK).
- Unfaced or composite (insulation, facing and adhesive) does not exceed 25 Flame Spread, 50 Smoke Developed when tested in accordance with ASTM E 84 (PSK only), CAN/ULC S102-M88, NFPA 255 and UL 723.

### Temperature Range (ASTM C 411)

- Faced, can be used on ducts operating up to 250°F (121°C).
- Unfaced, up to 350°F (177°C).

### Water Vapor Permeance (ASTM E 96, Procedure A)

- FSK and white PSK facings have maximum water vapor permeance of .02 perms.
- Black PSK facing has a maximum water vapor permeance of .09 perms.

### Water Vapor Sorption (ASTM C 1104)

- Less than 5% by weight when tested for 96 hours at 120°F (49°C) and 95% relative humidity.

### Corrosiveness (ASTM C 665)

- Does not accelerate corrosion on steel, copper or aluminum.

### Corrosion (ASTM C 1617)

- The corrosion rate in mils/yr will not exceed that of the 1 ppm chloride solution.

### Mold Growth (ASTM C 1338).

- No growth.

### Puncture Resistance (TAPPI Test T803)

- (Beach Units)
- FSK and PSK: 25

## Application and Specification Guidelines

### Storage

- Protect stored insulation from water damage, construction damage and other abuse.
- If stored outside, proper protection from weather conditions should be provided.

### Preparation

- Install Knauf Friendly Feel Duct Wrap over clean, dry sheet metal ducts.
- All sheet metal joints and seams must be sealed to prevent air leakage from the duct.

### Application

- Install Knauf Friendly Feel Duct Wrap with facing to the outside to obtain specified R-value using a maximum of 25% compression.
- Butt all insulation joints firmly together. Longitudinal seam of the vapor retarder must be overlapped a minimum of 2" (51 mm). A 2" (51 mm) tab is provided for the circumferential seam and must be overlapped.
- Where vapor retarder performance is necessary, all penetrations, joints, seams and damage to the facing should be sealed with an FSK, PSK or foil tape

or glass fabric and mastic prior to system startup.

- Pressure sensitive tapes should be a minimum of 3" (76 mm) wide and be applied with moving pressure using an appropriate sealing tool. Staples should be outward clinch and placed approximately 6" (152 mm) on center.
- Closure systems should have a 25/50 F.H.C. per UL 723.
- For rectangular ducts over 24" (610 mm) wide, secure the insulation to the bottom side of the duct with mechanical fasteners spaced on 18" (457 mm) centers to reduce sag. Care should be taken to avoid overcompressing the insulation with the retaining washer.
- Unfaced Duct Wrap should be overlapped with a minimum of 2" (51 mm) and fastened with 4" (102mm) to 6" (152 mm) nails or skewers placed 4" (102mm) apart or secured with a wire or banding system. Care must be taken to avoid damaging the duct wrap. Refer to diagram for staple stitching and butt-joint method.

## Installation Procedures

- Use the table (back) to determine stretch-outs required for the nominal thickness of insulation to limit average compression of the insulation 25% or less. Use KwikStretch markings on the staple flanges to speed measurement of duct wrap.

## Fiber Glass and Mold

Fiber glass insulation will not sustain mold growth. However, mold can grow on almost any material when it becomes wet and contaminated. Carefully inspect any insulation that has been exposed to water. If it shows any sign of mold, it must be discarded. If the material is wet but shows no evidence of mold, it should be dried rapidly and thoroughly. If it shows signs of facing degradation from wetting, it should be replaced. Air handling insulation used in the air stream must be discarded if exposed to water.

## Notes

The chemical physical properties of Knauf Friendly Feel® Duct Wrap with KwikStretch® Markings represent typical average values determined in accordance with accepted test methods. The data is subject to normal manufacturing and testing variations. The data is supplied as a technical service and is subject to change without notice. References to numerical flame spread ratings are not intended to reflect hazards presented by these or any other materials under actual fire conditions.

Check with your Knauf Insulation sales representative to assure information is current.

# Friendly Feel® Duct Wrap with ECOSE® Technology

Submittal Date \_\_\_\_\_



| Insertion Loss (Reduction of Sound Transmitted Through Duct Wall)<br>(Sound and Vibration Design and Analysis, National Environmental Balancing Bureau, 1994) |             |                   |                   |  |                               |       |       |       |        |        |        |
|---|-------------|-------------------|-------------------|--|-------------------------------|-------|-------|-------|--------|--------|--------|
| Duct Wrap   |             |                   |                   |  | Insertion Loss, dB/LF of Duct |       |       |       |        |        |        |
| Duct Dimensions   | Sheet Metal | Nominal Thickness | Nominal Density   |  | 63Hz                          | 125Hz | 250Hz | 500Hz | 1000Hz | 2000Hz | 4000Hz |
| 12" x 12" (305 mm x 305 mm)   | 24 GA       | 1½" (38 mm)       | .75 PCF (12kg/m³) |  | .6                            | .6    | .6    | .7    | 7.4    | 14.2   | 20.9   |
| 24" x 12" (610 mm x 305 mm)   | 24 GA       | 1½" (38 mm)       | .75 PCF (12kg/m³) |  | .6                            | .6    | .6    | .7    | 7.4    | 14.2   | 20.9   |
| 48" x 12" (1219 mm x 305 mm)  | 22 GA       | 1½" (38 mm)       | .75 PCF (12kg/m³) |  | .5                            | .5    | .5    | .6    | 7.4    | 14.1   | 20.9   |
| 24" x 24" (610 mm x 610 mm)   | 22 GA       | 1½" (38 mm)       | .75 PCF (12kg/m³) |  | .5                            | .5    | .5    | .6    | 7.4    | 14.1   | 20.9   |
| 24" x 12" (610 mm x 305 mm)   | 26 GA       | 1½" (38 mm)       | .75 PCF (12kg/m³) |  | .8                            | .8    | .8    | .8    | 7.5    | 14.2   | 21.0   |
| 24" x 8" (610 mm x 203 mm)  | 26 GA       | 2" (51 mm)        | .75 PCF (12kg/m³) |  | 1.0                           | 1.0   | 1.0   | 3.6   | 10.4   | 17.1   | 23.9   |

| Stretch-Outs      |                                |                 |                 |                 |
|-------------------|--------------------------------|-----------------|-----------------|-----------------|
| Labeled Thickness | Installed Compressed Thickness | Round           | Square          | Rectangular     |
| 1½" (38 mm)       | 1¼" (29 mm)                    | P+9½" (241 mm)  | P+8" (203 mm)   | P+7" (178 mm)   |
| 2" (51 mm)        | 1½" (38 mm)                    | P+12" (305 mm)  | P+10" (254 mm)  | P+8" (203 mm)   |
| 2½" (64 mm)       | 1¾" (42 mm)                    | P+13" (330 mm)  | P+11" (279 mm)  | P+8½" (216 mm)  |
| 2½" (64 mm)       | 1¾" (48 mm)                    | P+14½" (368 mm) | P+12½" (318 mm) | P+9½" (241 mm)  |
| 3" (76 mm)        | 2¼" (57 mm)                    | P+17" (432 mm)  | P+14½" (368 mm) | P+11½" (292 mm) |

P = Perimeter of duct to be installed.

| Thermal Efficiency (ASTM C-177) |          |      |         |      |         |      |
|---------------------------------|----------|------|---------|------|---------|------|
| Mean Temperature                | 0.75 PCF |      | 1.0 PCF |      | 1.5 PCF |      |
|                                 | k        | (SI) | k       | (SI) | k       | (SI) |
| 50°F (10°C)                     | .28      | .040 | .26     | .037 | .23     | .033 |
| 75°F (24°C)                     | .29      | .042 | .27     | .039 | .24     | .035 |
| 100°F (38°C)                    | .31      | .045 | .29     | .042 | .26     | .037 |
| 125°F (52°C)                    | .33      | .048 | .31     | .045 | .28     | .040 |
| 150°F (66°C)                    | .36      | .052 | .34     | .049 | .31     | .045 |
| 175°F (80°C)                    | .39      | .056 | .37     | .053 | .33     | .048 |
| 200°F (93°C)                    | .43      | .063 | .40     | .058 | .36     | .052 |

| R-Value @ 75°F Mean Temperature |             |                        |  |
|---------------------------------|-------------|------------------------|--|
| Density                         | Thickness   | Out-Of-Package R-Value | Installed R-Value (at 25% Compression) |
| .75 PCF<br>(12 kg/m³)           | 1½" (38 mm) | 5.1                    | 4.2                                    |
|                                 | 2" (51 mm)  | 6.8                    | 5.6                                    |
|                                 | 2½" (64 mm) | 7.4                    | 6.0                                    |
|                                 | 2½" (64 mm) | 8.5                    | 7.0                                    |
|                                 | 3" (76 mm)  | 10.2                   | 8.4                                    |
| 1.0 PCF<br>(16 kg/m³)           | 1½" (38 mm) | 5.6                    | 4.5                                    |
|                                 | 2" (51 mm)  | 7.4                    | 6.0                                    |
| 1.5 PCF<br>(24 kg/m³)           | 1½" (38 mm) | 6.1                    | 4.8                                    |
|                                 | 2" (51 mm)  | 8.2                    | 6.4                                    |

| Forms Available       |             |                  |                |                      |
|-----------------------|-------------|------------------|----------------|----------------------|
| Density               | Thickness   | Width            | Length         | Facing               |
| .75 PCF<br>(12 kg/m³) | 1½" (38 mm) | 48"<br>(1219 mm) | 100' (30.48 m) | FSK, PSK,<br>unfaced |
|                       | 2" (51 mm)  |                  | 75' (22.86 m)  |                      |
|                       | 2½" (64 mm) |                  | 75' (22.86 m)  |                      |
|                       | 2½" (64 mm) |                  | 75' (22.86 m)  |                      |
|                       | 3" (76 mm)  |                  | 50' (15.24 m)  |                      |
| 1.0 PCF<br>(16 kg/m³) | 1½" (38 mm) | 48"<br>(1219 mm) | 100' (30.48 m) |                      |
|                       | 2" (51 mm)  |                  | 75' (22.86 m)  |                      |
| 1.5 PCF<br>(24 kg/m³) | 1½" (38 mm) | 48"<br>(1219 mm) | 75' (22.86 m)  |                      |
|                       | 2" (51 mm)  |                  | 50' (15.24 m)  |                      |

| Condensation Control<br>Recommended minimum install R-Values for condensation control on flat surfaces. Surface emittance: 0.2 (aged aluminum foil or galvanized sheet metal). |                          |      |      |      |      |                          |      |      |      |      |                          |      |      |      |      |
|--|--------------------------|------|------|------|------|--------------------------|------|------|------|------|--------------------------|------|------|------|------|
| RH %   | Operating Temperature    |      |      |      |      |                          |      |      |      |      |                          |      |      |      |      |
|  | 45°F (7°C)               |      |      |      |      | 55°F (13°C)              |      |      |      |      | 60°F (18°C)              |      |      |      |      |
|  | Ambient Temperature (°F) |      |      |      |      | Ambient Temperature (°F) |      |      |      |      | Ambient Temperature (°F) |      |      |      |      |
|  | 70                       | 80   | 90   | 100  | 110  | 70                       | 80   | 90   | 100  | 110  | 70                       | 80   | 90   | 100  | 110  |
| 60   | 2.2¹                     | 3.3¹ | 4.3¹ | 4.3² | 5.4³ | 1.1¹                     | 2.2¹ | 3.3¹ | 3.3¹ | 4.3² | 1.1¹                     | 1.1¹ | 2.2¹ | 3.3¹ | 4.3² |
| 70   | 3.3¹                     | 5.4³ | 6.5⁴ | 7.6⁵ | —    | 1.1¹                     | 3.3¹ | 4.3² | 6.5⁴ | 6.5⁴ | 1.1¹                     | 1.1¹ | 3.3¹ | 5.4³ | 6.5⁴ |
| 80   | 7.0⁴                     | —    | —    | —    | —    | 3.3¹                     | 6.5⁴ | —    | —    | —    | 2.2¹                     | 3.3¹ | 6.5⁴ | —    | —    |
| 90   | —                        | —    | —    | —    | —    | —                        | —    | —    | —    | —    | 6.5⁴                     | —    | —    | —    | —    |

¹ All Duct Wrap products  
² 0.75 PCF, 2" and greater; 1.0 PCF, 1½" and greater; 1.5 PCF, 1½" and greater

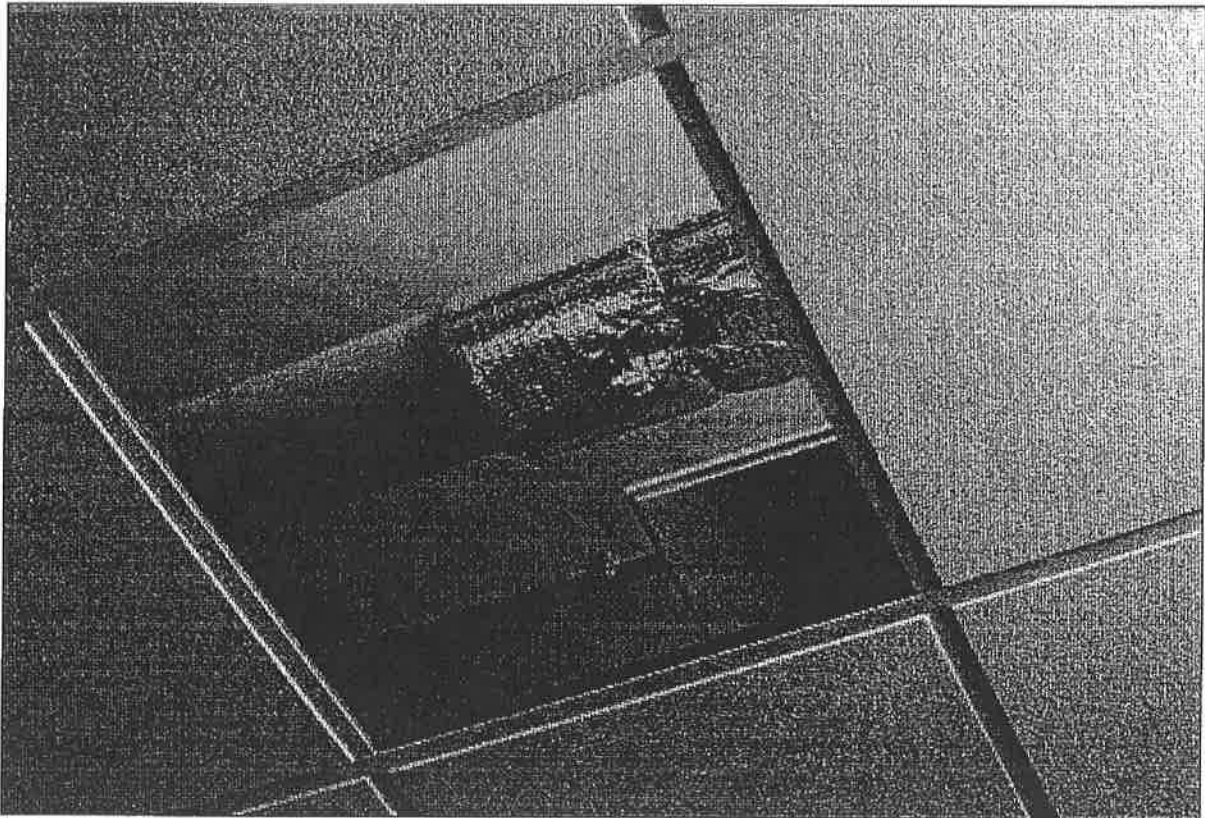
³ 0.75 PCF, 2" and greater; 1.0 PCF, 2"; 1.5 PCF, 2"  
⁴ 0.75 PCF, 2½" and greater

⁵ 0.75 PCF, 3"

**3M**

# Fire Barrier Plenum Wrap 5A

**Product Data and Installation Instructions**



### 1. Product Description

3M™ Fire Barrier Plenum Wrap 5A is a fire resistant wrap consisting of a patented inorganic blanket encapsulated with a scrim-reinforced foil. It provides a flexible, non-combustible enclosure for cables and pipe in return air plenums as tested to UL 910. Use with single and multiple 1 in. (25,4 mm) and larger plastic pipe and cabs. This non-asbestos wrap contains a safer fiber construction\* and installs easily because of its high flexibility and strength.

#### Features

- Tested to UL 910 flammability test
- Lightweight and with high flexibility for easy installation
- Foil encapsulated with unique center overlap seam for blanket strength, protection and less dust
- Safer fiber construction\*

\*Has been demonstrated to be soluble in the lungs according to EU 67/548/EWG, Note Q for biopersistence.

### 2. Applications

3M Fire Barrier Plenum Wrap is classified by Omega Point Laboratories for use on cables and on PVC, CPVC, PB, PE, PP, PVDF and ABS pipe in return air plenums. The 3M Fire Barrier Plenum Wrap 5A provides protection reducing external flame propagation and smoke generation for plastic pipes that are installed in ducts, plenums and other spaces used for environmental air.

### 3. Availability

| Product                        | Unit | Size   | Units/ctn. | Wt./ctn.         |
|--------------------------------|------|--|------------|------------------|
| 3M Fire Barrier Plenum Wrap 5A | Roll | 1/2 in. x 24 in. x 50 ft.<br>(12,7 mm x 60,9 cm x 1524 cm) | 1          | 45 lbs.<br>20 kg |
| 3M Fire Barrier Plenum Wrap 5A | Roll | 1/2 in. x 48 in. x 25 ft.<br>(12,7 mm x 121 cm x 762 cm)   | 2          | 90 lbs.<br>40 kg |

### 4. Typical Physical Properties

Blanket Color: gray/green  
Weight: 0.46 lbs./sq. ft. (2.15 kg/sq. m)

### 5. Performance

3M Fire Barrier Plenum Wrap 5A has been tested in accordance with the following:

- ASTM C 411
- ASTM C 518
- ASTM E 84
- ASTM E 136
- UL 910

UL 910 test results covering PVC pipe (this test method does not cover construction requirements for plastic pipe.):

- Maximum Flame Spread (Ft.) 0.01
- Maximum Smoke (Optical Density) 0.01
- Average Smoke (Optical Density) 0.00

### Surface Burning Characteristics (ASTM E 84)

Foil Encapsulated Blanket:  
 Flame Spread: 0  
 Smoke Developed: 0  
 Blanket:  
 Flame Spread: 0  
 Smoke Developed: 0

### Listing

Omega Point Laboratories Inc., Design Numbers: PP 100 F and PP 101 F

### 6. Installation Techniques

3M Fire Barrier Plenum Wrap 5A system should be installed in accordance with the following installation instructions.

### Material and Equipment

- 3M Fire Barrier Plenum Wrap 5A, 1/2 in. (12,7 mm) min. thickness, 24 in. wide by 50 ft. long, (60,9 cm x 1524 cm) and 48 in. wide by 25 in. long, (121 cm x 762 cm) which is totally encapsulated with an aluminum foil scrim.
- Minimum 3/4 in. (19 mm) wide filament tape.
- Carbon steel or stainless steel banding material, minimum 1/2 in. (12,7 mm) wide, minimum 0.015 in. (0.38 mm) thick, with steel banding clips.
- 16 gauge steel tie wire as alternate for banding.
- Hand banding tensioner, crimping tool, and banding cutter.

### Storage

The 3M Fire Barrier Plenum Wrap 5A must be stored in a dry warehouse environment. Pallets should not be stacked.

### Methods:

- Cut 3M Fire Barrier Plenum Wrap 5A to a length sufficient to wrap completely around the perimeter of the pipe, plus provide an overlap of not less than 1 in. (25,4 mm). 3M Fire Barrier Plenum Wrap 5A should be completely encapsulated with no exposed fiber. Aluminum foil tape is used to seal cut edges of the blanket. To minimize waste, 3M Fire Barrier Plenum Wrap 5A material should be rolled out tautly before measuring.
- Temporarily secure 3M Fire Barrier Plenum Wrap 5A in place using filament tape.
- Cut the next adjacent wrap of 3M Fire Barrier Plenum Wrap 5A to completely wrap around the perimeter of the pipe with enough excess to provide an overlap of not less than 1 in. (25,4 mm). A 1 in. (25,4 mm) longitudinal overlap is required onto the previous adjacent wrap.

D. Install banding or tie wire around the 3M Fire Barrier Plenum Wrap to hold it in place. Place the bands or tie wires 1/4 in. (6 mm) from each edge of the blanket and at the midpoint of the blanket, 11-3/4 in. (28,5 mm) on center). Tension the banding or tie wire to hold the 3M Fire Barrier Plenum Wrap 5A snugly in place, compressing the foil but not cutting the foil. Bands or wire may be hand tightened.

#### 7. Maintenance

No maintenance is required when installed in accordance with the 3M Installation Instructions. Once installed, if any section of the 3M Fire Plenum Wrap 5A is damaged so that the blanket is damaged, the following procedures will apply:

- The damaged section should be removed by cutting the steel banding or removing the clips holding it in place.
- A new section of the same dimension should be cut

from a roll of 3M Fire Barrier Plenum Wrap 5A, either 24 in. (60,9 cm) or 48 in. (121 cm) wide.

- The new section should be placed and fitted ensuring the same overlap that existed previously.
- The steel banding should be placed around the material and tensioned so as to sufficiently hold the 3M Fire Barrier Plenum Wrap 5A in place.
- If the blanket has not been damaged but the foil has ripped, seal the rip with aluminum foil tape.

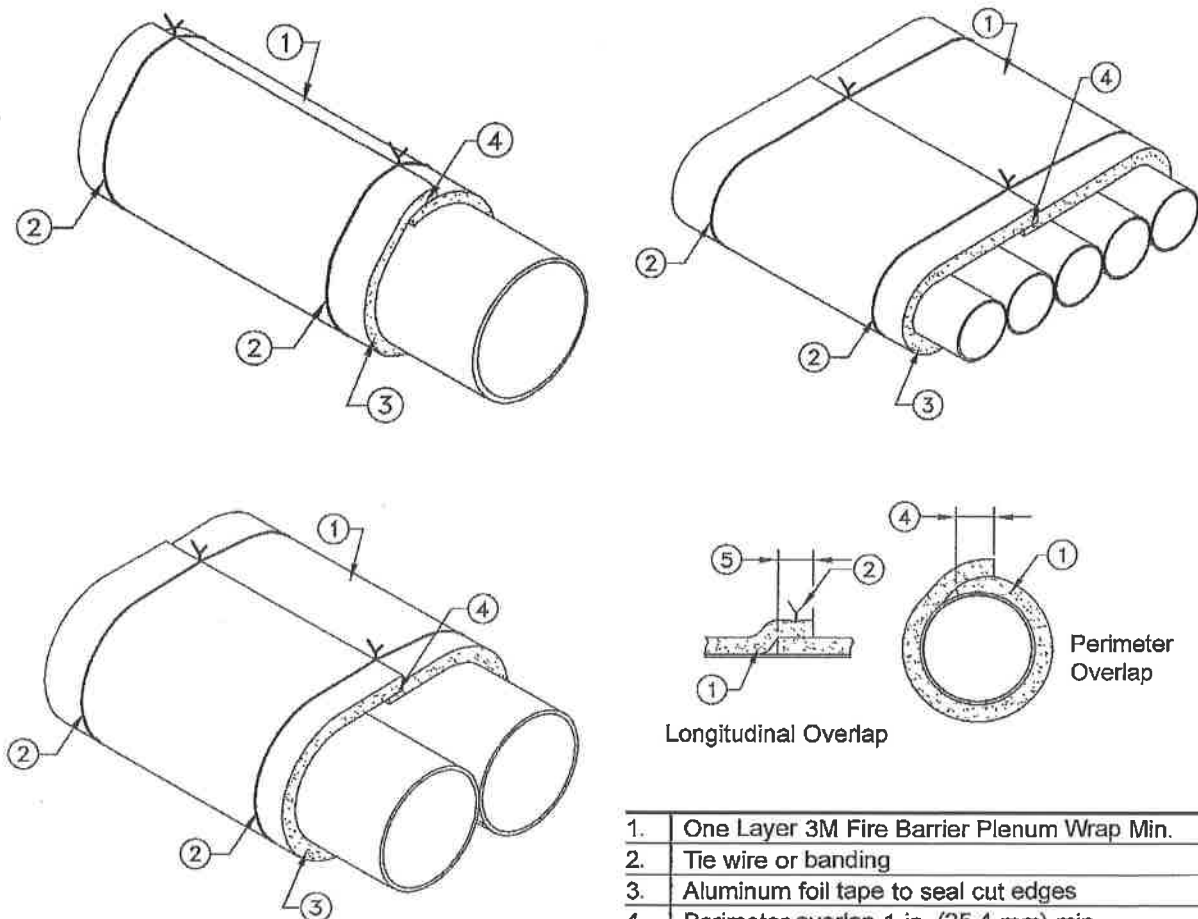
#### 8. Purchase Information

3M Fire Barrier products are available through a network of nationwide distributors. For information on where to buy, go to [www.3m.com/firestop](http://www.3m.com/firestop).

#### 9. Safe Handling Information

Consult Material Safety Data Sheet prior to handling and disposing of 3M Fire Barrier Plenum Wrap 5A.

### 3M Fire Barrier Plenum Wrap 5A Plastic Pipe or Cable System



|    |  |
|----|--|
| 1. | One Layer 3M Fire Barrier Plenum Wrap Min. |
| 2. | Tie wire or banding                        |
| 3. | Aluminum foil tape to seal cut edges       |
| 4. | Perimeter overlap 1 in. (25,4 mm) min.     |
| 5. | Longitudinal overlap 1 in. (25,4 mm) min.  |

System integrity is limited by quality of installation.

**Warranty and Limited Remedy.** This product will be free from defects in material and manufacture for a period of ninety (90) days from date of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of application. If this 3M product is proved to be defective within the warranty period stated above, your exclusive remedy and 3M's sole obligation shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the product.

**Limitation of Liability.** Except where prohibited by law, 3M will not be liable for any loss or damages arising from the use of this 3M product, whether direct, indirect, special, incidental or consequential, regardless of the legal theory asserted, including warranty, contract, negligence or strict liability.

**3M**

Specified Construction Products Department

3M Center 223-2N-21  
St. Paul, MN 55144-1000  
(800) 328-1687

Printed in U.S.A.

© 3M 2001 98-0400-5056-3 (July 2001)

SEPTEMBER 25, 2013

SECTION 013300 - 9

GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Plumbing Piping

SPECIFICATION REFERENCES: 221005

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

Date: January 17, 2014

By: SH A Dockey  
(signed)

Steven A Dockey  
(printed)

INSTALLER: Gainesville Mechanical

Date: January 17, 2014

By: SH A Dockey  
(signed)

Steven A Dockey  
(printed)

OTHER: \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_  
(signed)

\_\_\_\_\_  
(printed)

**END OF FORM**

2231005 PLUMBING PIPING

STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW

CHARLOTTE PIPE 2.1 SANITARY SEWER  
BURIED 5' OR CLOSER

CHARLOTTE PIPE 2.2 SANITARY SEWER ABOVE  
SLAB ON GRADE

PRO FLO 2.2A2 PROFLO NO HUB COUP MANF  
BY IDEAL

PRO FLO 2.2A2 MD NO HUB COUP

PRO FLO 2.2A2 HD NO HUB COUP

ORION 2.3 CHEMRESIST SWR PIPE BURY 5'OR  
CLOSE

ORION 2.4 CHEMRESIST SWR PIPE ABV GRADE

COPPER TUBE 2.5 WATER PIPNG ABOVE  
GRADE

NIBCO 2.5A1 WATER PIPNG ABOVE GRADE

CHARLOTTE PIPE 2.6 STORM WATER BURIED  
WITHIN 5' OF BUJ

CHARLOTTE PIPE 2.7 STORM WATER ABOVE  
GRADE

PRO FLO 2.7A2 PROFLO NO HUB COUP MANF  
BY IDEAL

PRO FLO 2.7A2 MD NO HUB COUP

PRO FLO 2.7A2 HD NO HUB COUP

CHARLOTTE PIPE 2.8 STORM WATER  
OVERFLOW PIPE

PRO FLO 2.8A2 PROFLO NO HUB COUP MANF

## Table Of Contents

PRO FLO 2.8A2 MD NO HUB COUP

PRO FLO 2.8A2 HD NO HUB COUP

COPPER TUBE 2.9 COMPRESS AIR &amp; VACUUM

ABOVE SLAB ON

NIBCO 2.9A1 COMPRESS AIR &amp; VACUUM ABOVE

SLAB ON

NIBCO 2.10 UNION, FLANGES &amp; COUPLINGS

WATTS 2.10C DIELECTRIC UNION

FNW 2.11C1 PIPE HANGERS &amp; SUPPORTS


BLINE 2.11C2 PIPE HANGERS &amp; SUPPORTS

FNW 2.11C3 PIPE HANGERS &amp; SUPPORTS

FNW 2.11D1 PIPE HANGERS &amp; SUPPORTS

FNW 2.11D2 PIPE HANGERS &amp; SUPPORTS

BLINE 2.11D3 PIPE HANGERS &amp; SUPPORTS


 FNW 2.11D4 PIPE HANGERS & SUPPORTS

51

MILWAUKEE VALVE 2.12 2" &amp; SMALLER GLOBE

VALVE

MILWAUKEE VALVE 2.13 2-1/2" &amp; DOWN BV LAB

&amp; DOM WATER

MILWAUKEE VALVE 2.13B 2-1/2" &amp; DOWN BV LAB

&amp; DOM WATER

MILWAUKEE VALVE 2.13C BV COMPRESS AIR &amp;

VACUUM

MILWAUKEE VALVE 2.13B BV COMPRESS AIR &amp;

VACUUM

TOUR &amp; ANDERSSON 2.14 FLOW

INDICATOR-BALANCE CONTROLS

MILWAUKEE 2.15A SWING CHECK VALVES

MILWAUKEE 2.15C SWING CHECK VALVES

WATTS 2.16 WATER PRESSURE REDUCING

VALVE

Table Of Contents

WATTS 2.17A RELIEF VALVE

WATTS 2.17B TEMPERATURE & PRESSURE

RELIEF

MUELLER 2.18C1 STRAINERS


MUELLER 2.18C2 STRAINERS

**CHARLOTTE**  
PIPE AND FOUNDRY COMPANY

**System:** Service Cast Iron Soil Pipe and Fittings

**Scope:** This specification covers Service Cast Iron pipe, fittings, and compression gaskets used in sanitary drain, waste, and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

**Specification:** Service Cast Iron pipe and fittings shall be manufactured from gray cast iron with a tensile strength of not less than 21,000 psi. Compression gaskets shall be manufactured from an elastomer meeting the requirements of ASTM C 564.

Pipe and fittings shall comply with ASTM A 74. Compression gaskets shall comply with ASTM C 564. All pipe and fittings shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, , and listed by NSF® International. All pipe and fittings shall be of the same manufacturer. All systems shall utilize a separate waste and vent system.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Joints shall be made with an elastomeric compression gaskets meeting the requirements of ASTM C 564 or lead and oakum. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**


ASTM A 74 Cast Iron Soil Pipe and Fittings  
ASTM C 564 Rubber Gaskets for Cast Iron Soil Pipe and Fittings  
Note: Latest revision of each standard applies.

(510)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605  
[www.charlottepipe.com](http://www.charlottepipe.com)

**CHARLOTTE**  
PIPE AND FOUNDRY COMPANY

- System:** Hubless Cast Iron Soil Pipe and Fittings
- Scope:** This specification covers hubless Cast Iron pipe, fittings, and couplings used in sanitary drain, waste, and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.
- Specification:** Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron with a tensile strength of not less than 21,000 psi. Regular hubless couplings shall be shielded and conform to CISPI Standard 310 or ASTM C 1277, with an elastomeric gasket meeting the requirements of ASTM C 564 and be certified by NSF® International. Heavy Duty hubless couplings shall be shielded and conform to ASTM C 1540, with an elastomeric gasket meeting the requirements of ASTM C 564.

Pipe and fittings shall comply with CISPI 301. Hubless couplings shall comply with ASTM C 564, and CISPI Standard 310 or ASTM C 1540. All pipe and fittings shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, , and listed by NSF® International. All pipe and fittings shall be of the same manufacturer. All systems shall utilize a separate waste and vent system.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Joints shall be made with hubless couplings and tightened using a calibrated torque wrench. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**

- ASTM C 564 Rubber Gaskets for Cast Iron Soil Pipe and Fittings
- CISPI 301 Hubless Cast Iron Soil Pipe and Fittings
- CISPI 310 Hubless Couplings for Cast Iron Soil Pipe and Fittings
- ASTM C 1277 Hubless Couplings
- ASTM C 1540 Hubless Heavy Duty Couplings

Note: Latest revision of each standard applies.

SPEC-LF-NH (611)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605  
[www.charlottepipe.com](http://www.charlottepipe.com)



---

February 8, 2012

Subject: PROFLO No-hub Couplings

To whom it may concern:

Please be advised that the PROFLO brand of no-hub couplings which is marketed and sold by Ferguson Enterprises is manufactured by Ideal Clamp Products, Inc.

These products are manufactured to the same exact standards as Ideal Brand couplings. The product itself is not altered in any way shape or form from the product marketed and sold under the Ideal brand by Ideal Products, Inc.

The rubber gaskets contained therein conform to ASTM C564.

All series of couplings are IAPMO listed. The Standard no-hub couplings are NSF certified and conform to ASTM C1277. The Heavy Duty and Medium Duty couplings conform to ASTM C1540.

Please contact the undersigned if you require further information.

Sincerely,

Joseph R. Lamberti  
National Sales Manager-Plumbing Market  
Ideal Division

Ph: 904 230 3583  
Fax: 904 230 3469  
Mobile: 904 608 8596

3200 Parker Drive  
St. Augustine, FL 32084-0897  
Phone 904-829-1000 • Fax 904-825-1121

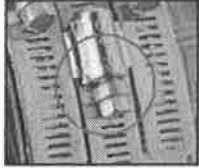
**PROFLO HEAVY DUTY  
NO-HUB COUPLINGS  
MD Series**



PROFLO™ Heavy-Duty  
"MD" No-Hub Coupling  
provides a cost-effective  
solution for Heavy-Duty  
Applications.

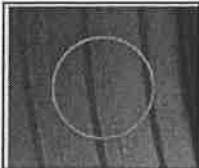


# PROFLO HEAVY DUTY NO-HUB COUPLINGS MD Series

#### User-Friendly 5/16" Hex-Head Screw

The new 5/16" hex-head screw is designed to apply the full load of 80 in.-lbs. of installation torque to the band/shield assembly.



#### Specialty Beaded Gaskets

The Heavy-Duty "MD" coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. Gaskets comply with ASTM C564.



#### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



#### Mechanical Interlocking Clamp Design

The sealing clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



#### Yellow Shield

The distinctive yellow shield quickly identifies the new PROFLO™ Heavy-Duty "MD" Couplings.



#### Patented BI-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

| Features                   | PROFLO Heavy Duty MD Series Couplings        |
|----------------------------|--|
| 9/16" Clamp Band           | ✓  |
| 5/16" Hex Head Screw       | ✓  |
| No. of Clamps Included     | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width             | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color               | Yellow                                       |
| BI-Directional Shield      | ✓  |
| Beaded Gasket              | 8" & 10"                                     |
| Offset Ribbed Gaskets      | 1-1/2" thru 6"                               |
| Floating Eyelets           | ✓  |
| Interlocked Housing Design | ✓  |
| Shield Material            | 304 SS                                       |
| Band Material              | 304 SS                                       |
| Housing Material           | 304 SS                                       |
| Screw Material             | 305 SS                                       |
| Eyelet Material            | 305 SS                                       |
| Gasket Material            | ASTM C564 Compliant                          |
| Installation Torque        | 80 in.-lbs                                   |
| Ultimate Torque            | 100 in.-lbs                                  |
| CISPI 310 Compliant        | Exceeds                                      |
| ASTM C1540 Compliant       | ✓  |
| Factory Mutual 1680        | Compliant                                    |
| IAPMO                      | Certified                                    |
| Canadian Std Association   | Certified                                    |
| Massachusetts Approval     | ✓  |

\*U.S. Patent N. 5,431,458

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## MD Series



The PROFLO™ Heavy-Duty “MD” No-Hub Coupling is engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. The “MD” coupling installs at 80 inch-pounds of screw torque and features the extra wide, patented, bi-directional shield and specially beaded gasket. Teamed with an additional complement of 9/16” wide clamps, they combine to exert exceptional hold on the pipe for a positive, reliable seal. And the user-friendly 5/16” hex-head screw eases installation. Look for the distinctive yellow shield to be sure you are getting the new PROFLO™ Heavy-Duty “MD” No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

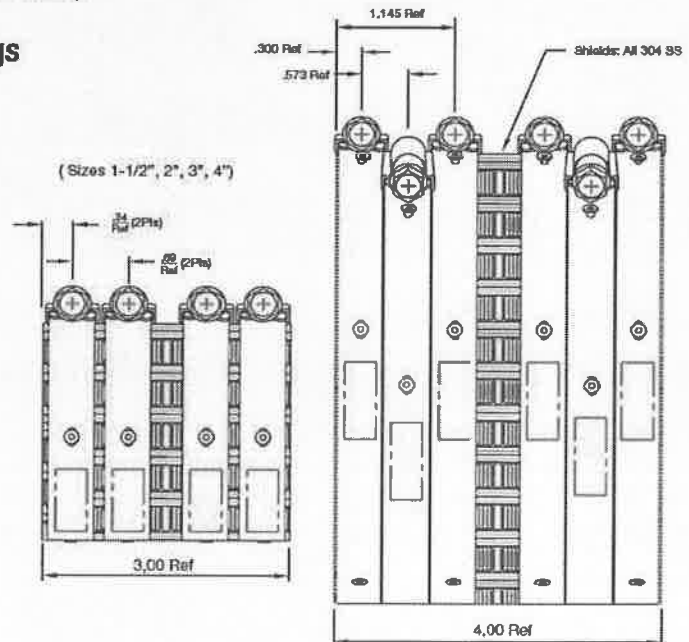
(Sizes 5”, 6”, 8”, 10”)

### PROFLO™ Heavy-Duty “MD” No-Hub Couplings

| Size   | Part No.   | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|--------|------------|--------------------------------------|-------------------------------|
| 1-1/2" | PFNHHMDCJ  | 80                                   | 4                             |
| 2"     | PFNHHMDCCK | 80                                   | 4                             |
| 3"     | PFNHHMDCM  | 80                                   | 4                             |
| 4"     | PFNHHMDCP  | 80                                   | 4                             |
| 5"     | PFNHHMDCS  | 80                                   | 6                             |
| 6"     | PFNHHMDCU  | 80                                   | 6                             |
| 8"     | PFNHHMDCX  | 80                                   | 6                             |
| 10"    | PFNHHMDC10 | 80                                   | 6                             |



To be used with the RAPTOR™  
**RAP18551 Torque Wrench**



Made in the USA



**PROFLO HEAVY DUTY  
NO-HUB COUPLINGS**  
*HD Series*

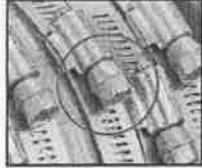


PROFLO™ Heavy-Duty No-Hub  
Couplings meet the demands of  
the toughest applications



# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series

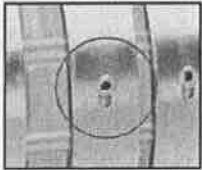
### Larger Hex Head Screw

The 3/8" hex head screw is designed to apply the full load of 80 in. lbs. of installation torque to the band/shield assembly.



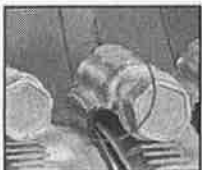
### Specially Beaded Gaskets

The heavy-duty coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. PROFLO™ gaskets comply with ASTM C564.



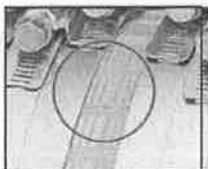
### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



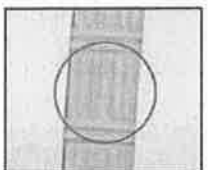
### Mechanical Interlocking Clamp Design

PROFLO™ clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



### Green Shield

The distinctive green shield quickly identifies the PROFLO™ Heavy-Duty Couplings.



### Patented BI-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

| Features                 | PROFLO Heavy Duty HD Series Couplings        |
|--------------------------|--|
| 9/16" Clamp Band         | ✓  |
| 3/8" Hex Head Screw      | ✓  |
| No. of Clamps Included   | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width           | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color             | Green  |
| Bi-Directional Shield    | ✓  |
| Beaded Gasket            | 8" & 10"                                     |
| Offset Ribbed Gaskets    | 1-1/2" thru 6"                               |
| Floating Eyelets         | ✓  |
| Shield Material          | 304 SS                                       |
| Band Material            | 304 SS                                       |
| Housing Material         | 304 SS                                       |
| Screw Material           | 305 SS                                       |
| Eyelet Material          | 305 SS                                       |
| Gasket Material          | ASTM C564 Compliant                          |
| Installation Torque      | 80 in-lbs                                    |
| Ultimate Torque          | 100 in-lbs                                   |
| CISPI 310 Compliant      | Exceeds                                      |
| ASTM C1540 Compliant     | ✓  |
| Factory Mutual 1680      | Compliant                                    |
| IAPMO                    | Certified                                    |
| Canadian Std Association | Certified                                    |
| Massachusetts Approval   | ✓  |

\*U.S. Patent N. 5,431,458

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series



The PROFLO™ Heavy-Duty No-Hub Coupling installs with 80 in.-lbs. of screw torque and boasts an ultimate torque rating exceeding 100 in.-lbs. Its patented, extra wide bi-directional shield is now constructed with a heavier gauge stainless steel. The mechanically interlocked 9/16" wide clamps have also been "beefed up" with a heavier gauge stainless steel and a 3/8" hex head screw. These changes, teamed with a specially beaded gasket, enable our new Heavy-Duty Coupling to exert exceptional hold on the pipe for a positive reliable seal. Look for the distinctive green shield to be sure you are getting the PROFLO™ Heavy-Duty No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

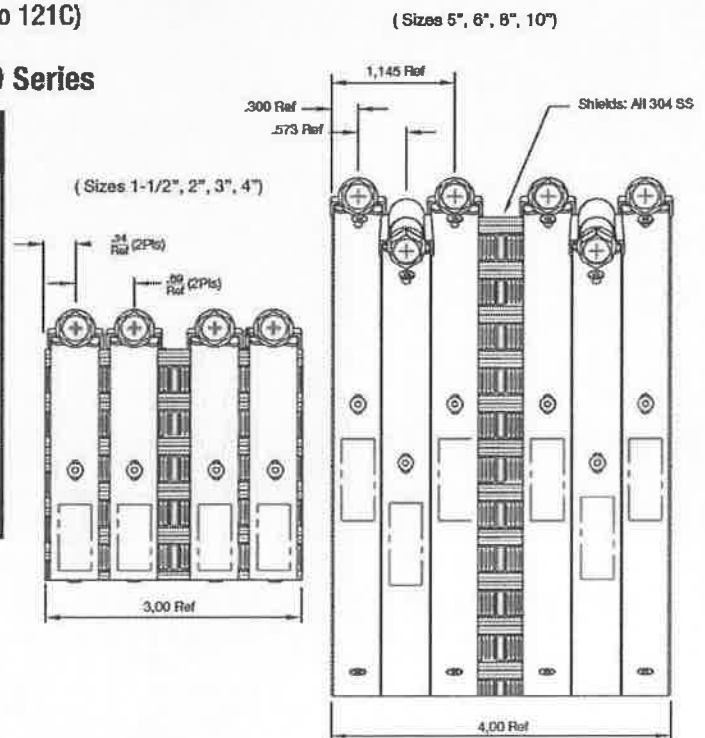
**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

### PROFLO™ Heavy-Duty No-Hub Couplings - HD Series

| Size          | Part No.   | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|---------------|------------|--------------------------------------|-------------------------------|
| 1-1/2" HD GRN | PFNHHHDCJ  | 80                                   | 4                             |
| 2" HD GRN     | PFNHHHDCK  | 80                                   | 4                             |
| 3" HD GRN     | PFNHHHDCM  | 80                                   | 4                             |
| 4" HD GRN     | PFNHHHDCP  | 80                                   | 4                             |
| 5" HD GRN     | PFNHHHDCS  | 80                                   | 6                             |
| 6" HD GRN     | PFNHHHDCU  | 80                                   | 6                             |
| 8" HD GRN     | PFNHHHDCX  | 80                                   | 6                             |
| 10" HD GRN    | PFNHHHDC10 | 80                                   | 6                             |



To be used with the RAPTOR™  
**RAP18552 Torque Wrench**



Made in the USA



**Acid Waste Submittal**

**Polypropylene Schedule 40**

**Pipe:**

**Flame Retardant Blueline® Schedule 40**

Orion's **Blueline®** acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from fire retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be supplied with factory grooves. The polypropylene material will conform to ASTM D4101.

➔ **Non Flame Retardant Brownline® Schedule 40**

Orion's **Brownline®** acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

**Fittings**

Orion **Blueline®** acid waste fittings will be manufactured to schedule 40 dimensions per ASTM F1412 and will be made of fire retardant polypropylene. Fitting layouts will conform to ASTM D3311 and F1412. The polypropylene material will conform to ASTM D4101.

**Joining Methods:**

**No Hub-Mechanical Joint®**

Pipe and fittings will be joined using the **NO HUB** method, Utilizing all PLAIN END fittings joined with Orion's **No Hub** Couplings. All couplings to have a chemical resistance equal to the pipe and fittings. Each **No Hub** coupling will have an outer band of 300 series stainless steel with 5/16" bolts, nuts and washers plated to meet a 100 hour salt spray per ASTM B117. The **No Hub** joint will conform to the requirements of ASTM F1412.

**Rionfuse CF® (Clamp-Free) Electrofusion**

The Orion **Rionfuse CF** System will utilize the SAME plain end fittings as the No Hub system, but are to be joined using the **Rionfuse CF** couplings. The Rionfuse machine will be used to produce a hermetically sealed joint. The joints will conform to ASTM 1290, Technique I.

➔ **Socket Fusion®**

All fittings are to be socket end. All joints are to be made with Orion's heat tools to produce a hermetically sealed joint. Joints and joining procedures will conform to ASTM 2657, Technique I



JobName: \_\_\_\_\_

Engineer \_\_\_\_\_

JobLocation: \_\_\_\_\_

Contractor: \_\_\_\_\_

Representative: \_\_\_\_\_

**Polypropylene Schedule 80**

**Acid Waste Submittal**

Polypropylene Schedule 80

Pipe: \_\_\_\_\_

Flame Retardant Blueline Schedule 80 ®

Orion's blueline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from fire retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

Non Flame Retardant Browline Schedule 80 ®

Orion's browline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

Fittings

Orion's blueline acid waste fittings will be manufactured to schedule 40 dimensions per ASTM F1412 and will be made of fire retardant polypropylene. Fitting layouts will conform to ASTM D3311 and F1412. The polypropylene material will conform to ASTM D4101.

Joining Methods: \_\_\_\_\_

No-Hub/Plain End ®


Pipe and fittings will be joined using the Riontite No-Hub/Plain End, having a chemical resistance equal to the pipe and fittings. Each Riontite coupling will have an outer band of 300 series stainless steel with 5/16" bolts, nuts and washers plated to meet a 100 hour salt spray per ASTM B117. The No-Hub/Plain End will conform to the requirements of ASTM F1412.

**Rionfuse CF® (Clamp-Free) Electrofusion**

The Orion **Rionfuse CF** System will utilize the SAME plain end fittings as the No Hub system, but are to be joined using the **Rionfuse CF** couplings. The Rionfuse machine will be used to produce a hermetically sealed joint. The joints will conform to ASTM 1290, Technique I.

Socket Fusion®

All fittings are to be socket end. All joints are to be made with Orion's heat tools to produce a hermetically sealed joint. Joints and joining procedures will conform to ASTM 2657, Technique I.

|   |                       |
|---|-----------------------|
|  |                       |
| JobName: _____  | Engineer _____        |
| JobLocation: _____  | Contractor: _____     |
|   | Representative: _____ |

**Acid Waste Submittal**

**Polypropylene BlackLine**

**Polypropylene Blackline**

Pipe: \_\_\_\_\_

Non Flame Retardant Blackline Pipe Sch 40

Orion's blackline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. The polypropylene material will conform to ASTM D4101 and manufactured to Schedule 40 wall thickness.

Non Flame Retardant Blackline Pipe Sch 80

Orion's blackline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. The polypropylene material will conform to ASTM D4101 and manufactured to Schedule 80 wall thickness.



JobName: \_\_\_\_\_

Engineer \_\_\_\_\_

JobLocation: \_\_\_\_\_

Contractor: \_\_\_\_\_

Representative: \_\_\_\_\_

Acid Waste Submittal

Polypropylene Schedule 40

Pipe:

→ **Flame Retardant Blueline® Schedule 40**

Orion's **Blueline®** acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from fire retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be supplied with factory grooves. The polypropylene material will conform to ASTM D4101.

**Non Flame Retardant Brownline® Schedule 40**

Orion's **Brownline®** acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

→ **Fittings**

Orion **Blueline®** acid waste fittings will be manufactured to schedule 40 dimensions per ASTM F1412 and will be made of fire retardant polypropylene. Fitting layouts will conform to ASTM D3311 and F1412. The polypropylene material will conform to ASTM D4101.

**Joining Methods:**

**No Hub-Mechanical Joint®**

Pipe and fittings will be joined using the **NO HUB** method, Utilizing all PLAIN END fittings joined with Orion's **No Hub** Couplings. All couplings to have a chemical resistance equal to the pipe and fittings. Each **No Hub** coupling will have an outer band of 300 series stainless steel with 5/16" bolts, nuts and washers plated to meet a 100 hour salt spray per ASTM B117. The **No Hub** joint will conform to the requirements of ASTM F1412.

**Rionfuse CF® (Clamp-Free) Electrofusion**

The Orion **Rionfuse CF** System will utilize the SAME plain end fittings as the No Hub system, but are to be joined using the **Rionfuse CF** couplings. The Rionfuse machine will be used to produce a hermetically sealed joint. The joints will conform to ASTM 1290, Technique I.

→ **Socket Fusion®**

All fittings are to be socket end. All joints are to be made with Orion's heat tools to produce a hermetically sealed joint. Joints and joining procedures will conform to ASTM 2657, Technique I



JobName: \_\_\_\_\_

Engineer \_\_\_\_\_

JobLocation: \_\_\_\_\_

Contractor: \_\_\_\_\_

Representative: \_\_\_\_\_

**Polypropylene Schedule 80**

**Acid Waste Submittal**

Polypropylene Schedule 80

Pipe:

Flame Retardant Blueline Schedule 80 ®

Orion's blueline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from fire retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

Non Flame Retardant Browline Schedule 80 ®

Orion's browline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. Pipe will be factory grooved. The polypropylene material will conform to ASTM D4101.

Fittings

Orion's blueline acid waste fittings will be manufactured to schedule 40 dimensions per ASTM F1412 and will be made of fire retardant polypropylene. Fitting layouts will conform to ASTM D3311 and F1412. The polypropylene material will conform to ASTM D4101.

Joining Methods:

No-Hub/Plain End ®

Pipe and fittings will be joined using the Riontite No-Hub/Plain End, having a chemical resistance equal to the pipe and fittings. Each Riontite coupling will have an outer band of 300 series stainless steel with 5/16" bolts, nuts and washers plated to meet a 100 hour salt spray per ASTM B117. The No-Hub/Plain End will conform to the requirements of ASTM F1412.

**Rionfuse CF® (Clamp-Free) Electrofusion**

The Orion **Rionfuse CF** System will utilize the SAME plain end fittings as the No Hub system, but are to be joined using the **Rionfuse CF** couplings. The Rionfuse machine will be used to produce a hermetically sealed joint. The joints will conform to ASTM 1290, Technique I.

Socket Fusion®

All fittings are to be socket end. All joints are to be made with Orion's heat tools to produce a hermetically sealed joint. Joints and joining procedures will conform to ASTM 2657, Technique I.



JobName: \_\_\_\_\_

Engineer: \_\_\_\_\_

JobLocation: \_\_\_\_\_

Contractor: \_\_\_\_\_

Representative: \_\_\_\_\_

Acid Waste Submittal

Polypropylene BlackLine

Polypropylene Blackline

Pipe: \_\_\_\_\_

Non Flame Retardant Blackline Pipe Sch 40

Orion's blackline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. The polypropylene material will conform to ASTM D4101 and manufactured to Schedule 40 wall thickness.

Non Flame Retardant Blackline Pipe Sch 80

Orion's blackline acid waste pipe will be manufactured to the dimensions and tolerances of ASTM F1412 from non-flame retardant material in 10' lengths. Pipe will be cylindrical and straight. The polypropylene material will conform to ASTM D4101 and manufactured to Schedule 80 wall thickness.



JobName: \_\_\_\_\_

Engineer: \_\_\_\_\_

JobLocation: \_\_\_\_\_

Contractor: \_\_\_\_\_

Representative: \_\_\_\_\_

December 2, 2009

## PRODUCT CERTIFICATION

Ferguson Enterprises distributes seamless copper tube manufactured from alloy C12200. This tubing is manufactured by Mueller Industries, Cerro Flow Products, and CMC Howell Metals. All tubing distributed by Ferguson Enterprises is manufactured in the USA to meet the applicable chemical and mechanical properties of the ASTM Standard Specification listed below:

- XX ASTM B88 and ANSI/NSF Standard 61  
Types K, L, & M Seamless Copper Water Tube
- XX ASTM B280  
Refrigeration Coils & ACR/OXY/MED Tube
- XX ASTM B306  
Type DWV Tube
- XX ASTM B819  
Types K & L, cleaned, capped, and marked for Oxygen/Medical Gas service.

NSF Standard 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U. S. EPA Lead and Copper Rules (56 FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water". Some water supplies may be corrosive to copper and in these cases water treatment may be necessary.

Ferguson Enterprises  
12500 Jefferson Ave  
Newport News, VA 23062  
757-874-7795



Date \_\_\_\_\_

### Product Certification

Mueller Copper Tube products are all manufactured in the USA. All tubing produced in Fulton, MS, and Wynne, AR, is seamless and of UNS C12200 grade of copper and is manufactured to meet the chemical and mechanical properties of the applicable ASTM specifications set forth below. When specified at order placement, Mueller Copper Tube can supply Certified Tube to meet all requirements of the current applicable ASTM specification, at an additional cost.

➔ Streamline Copper Water Tube (Types K  L  M)  
ASTM B88 and ANSI/NSF 61

Streamline Copper Refrigeration Service Coils  
ASTM B280

Streamline Nitrogenized ACR Hard Drawn  
Copper Tube - ASTM B280

Streamline Copper Drainage Tube (DWV)  
ASTM B306

\* Please contact Technical Services for certification in Oxygen and  
Medical service tube. (1.662.862.1700)

NSF 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting or in the process of meeting the U.S. EPA Lead and Copper Rule (56FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water."

P. O. BOX 849 ♦ FULTON, MS 38843 ♦ (662) 862-1700 ♦ FAX (662) 862-3002

P. O. BOX 309 ♦ WYNNE, AR 72396 ♦ (870) 238-3201 ♦ FAX (870) 238-8724



Always Moving Forward.®

Corporate Headquarters  
 PO Box 66800  
 St. Louis, MO 63166-6800  
 888-237-7611 | 618-337-6000  
 cerroflow.com

December 2, 2009

## PRODUCT CERTIFICATION

Our alloy C12200 seamless copper tubing is manufactured in the USA at Sauget, IL and Cedar City, UT and is produced in compliance with the applicable chemical and mechanical properties of the ASTM Standard Specification listed below:

- XX ASTM B88 and ANSI/NSF Standard 61  
Types K, L, & M Seamless Copper Water Tube
- XX ASTM B280  
Refrigeration Coils & ACR/OXY/MED N2 Charged Tube
- XX ASTM B306  
Type DWV Tube
- XX ASTM B819  
Types K & L, cleaned, capped, and marked for Oxygen/Medical Gas service per NFPA 99 & CSA Z305.1/Z7396.1

NSF Standard 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U. S. EPA Lead and Copper Rules (56 FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water". Some water supplies may be corrosive to copper and in these cases water treatment may be necessary.

Copper tube manufactured by Cerro Flow Products, Inc. does not contain mercury or come in contact with mercury, mercury compounds or mercury containing devices at any stage in manufacturing, inspection, packaging or shipping.

All of the specifications require a minimum copper content of 99.9% and a phosphorus content between .015 - .040%. As indicated by the compositional requirement, the copper tube is essentially lead free.

Bob Murray  
 Customer Service Manager  
 CERRO FLOW PRODUCTS, INC.



### Product Certification

CMC Howell Metal copper tubing products conform to current industry standards using the referenced American Society of Testing and Material (ASTM) standards and Federal Specifications WWT-775B and WWT-799B.

Chemical Composition (UNS C12200): Copper (Cu) 99.9% minimum, Phosphorus 0.015 - 0.040% range



#### SEAMLESS COPPER WATER TUBE – Types K, L, & M

ASTM B-88

*Restriction Statement: "Copper tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U.S. EPA Lead and Copper Rule (56FR26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water".*

#### SEAMLESS COPPER WATER TUBE – Type DWV

ASTM B-306

#### SEAMLESS COPPER TUBE FOR MEDICAL GAS SYSTEMS

ASTM B-819


*Manufactured tubes undergo a cleaning process and are then plugged and charged with dry nitrogen with the exception of "K/OXY" which is cleaned, purged with dry air and capped. All tubing manufactured by CMC Howell Metal labeled as "ACR", "ACR/OXY", or "OXY" has been manufactured to meet the cleanliness requirements of 0.0035 g/g2 maximum as required by the guidelines of ASTM B-819 Standard Specification for Seamless Copper Tube for Medical Gas Systems.*

#### SEAMLESS COPPER TUBE FOR AIR CONDITIONING AND REFRIGERATION FIELD SERVICE

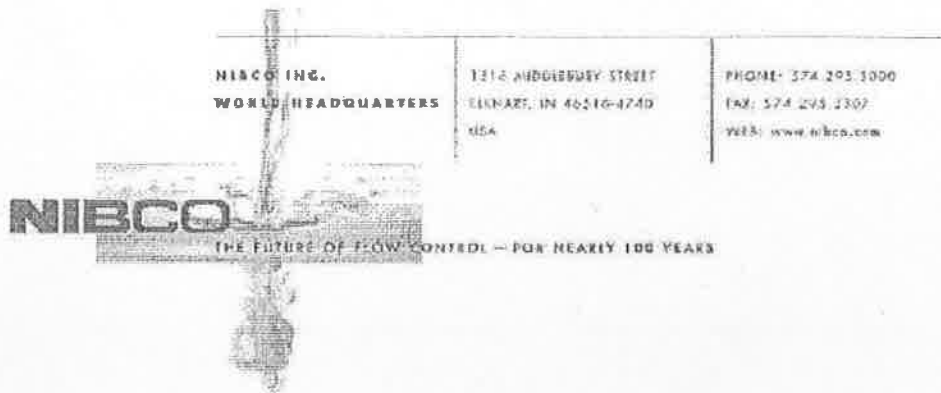
ASTM B-280

*Manufactured straight length tubes undergo a cleaning process and are then plugged and charged with nitrogen. Manufactured coiled length tubes undergo a cleaning process and are then purged with dry nitrogen and capped.*

All manufactured material printed or incised  
"HOWELL", "HOWELL USA", "CMC HOWELL", or "CMC HOWELL USA"  
is proudly made in the United States of America

  
Timothy Brannon  
Vice President, Operations





October 1, 2007

To: Ferguson Enterprises, Inc.  
ATTN: Chris Pickard  
FAX: (757) 989-2560

#### CERTIFICATION

This is to certify that NIBCO manufactured (trademarked/not trademarked) Wrought and Cast Copper Alloy Fittings are manufactured to meet the material and/or dimensional requirements of the following specifications:



Wrought Solder Joint Fittings (600 Series) - Produced to one of the following specifications:

1. Material and workmanship shall be in accordance with ASME/ANSI B16.22, "Wrought Copper and Copper Alloy Solder Joint Pressure Fittings."
2. The dimensions, material, and workmanship shall meet the requirements of MSS SP-104; "Wrought Copper Solder Joint Pressure Fittings."
3. The dimensional, material and workmanship of 5" - 12" Copper Fittings shall meet the requirements of MSS SP-109; "Welded Fabricated Copper Solder Joint Pressure Fittings."
4. ANSI/NSF-61.

Cast Copper Alloy Solder Joint Fittings (700 Series) - Shall be in conformance with the performance, materials and workmanship requirements of ANSI B16.18; "Cast Copper Solder Joint Pressure Fittings."

Cast Copper Alloy Flanges - Class 150 Flanges - Shall be in conformance with the requirements of MSS SP-106 and/or the workmanship and dimensions of the Federal Specifications WW-F-406 or ASME Std. B16.24. Class 125 Flanges - Material, workmanship and dimensions of flanges shall be in accordance with MSS SP-106

#### Materials:

The materials used to manufacture these fittings are also in compliance with the following specifications:

Copper Certification Letter

Page 2

Tubular Wrought Copper -

ASTM B75 Alloy C12200 (DHP); " Standard Specification for Seamless Copper Tube." Nominal Metal Content: 99.9% Copper, .02% Phosphorous.

Cast Products -

ASTM B584 Alloy C84400; " Standard Specification for Copper Alloy Sand Castings for General Applications." Nominal Metal Content: 81% Copper, 7%Lead, 3%Tin, 9% Zinc.

This is to further certify the products produced to the above standards contain no asbestos or PCB's, nor is mercury introduced into their manufacture. Further, we certify the wrought copper fittings contain less than 0.2% lead and the cast fittings contain no more than 8% lead in compliance with Federal guidelines.

This is to further state that all NIBCO brand wrought and cast copper fittings are manufactured at the location listed below:

- Wrought Copper Fittings - Stuarts Draft, VA (USA)
- Cast Copper Fittings - Nacogdoches, TX (USA)  
Reynosa, Mexico

Each of the above-mentioned manufacturing facilities is registered to the ISO 9001:2000.quality standard.


I declare that all statements made and all information contained herein are true and correct.

NIBCO Inc,

\_\_\_\_\_  
Ken McCoy  
Technical Service Advisor

**CHARLOTTE**  
PIPE AND FOUNDRY COMPANY

- System:** Service Cast Iron Soil Pipe and Fittings
- Scope:** This specification covers Service Cast Iron pipe, fittings, and compression gaskets used in sanitary drain, waste, and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.
- Specification:** Service Cast Iron pipe and fittings shall be manufactured from gray cast iron with a tensile strength of not less than 21,000 psi. Compression gaskets shall be manufactured from an elastomer meeting the requirements of ASTM C 564.

Pipe and fittings shall comply with ASTM A 74. Compression gaskets shall comply with ASTM C 564. All pipe and fittings shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, , and listed by NSF<sup>®</sup> International. All pipe and fittings shall be of the same manufacturer. All systems shall utilize a separate waste and vent system.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Joints shall be made with an elastomeric compression gaskets meeting the requirements of ASTM C 564 or lead and oakum. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**


- ASTM A 74 Cast Iron Soil Pipe and Fittings  
ASTM C 564 Rubber Gaskets for Cast Iron Soil Pipe and Fittings  
Note: Latest revision of each standard applies.

(510)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605  
[www.charlottepipe.com](http://www.charlottepipe.com)

**CHARLOTTE**  
PIPE AND FOUNDRY COMPANY

- System:** Hubless Cast Iron Soil Pipe and Fittings
- Scope:** This specification covers hubless Cast Iron pipe, fittings, and couplings used in sanitary drain, waste, and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.
- Specification:** Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron with a tensile strength of not less than 21,000 psi. Regular hubless couplings shall be shielded and conform to CISPI Standard 310 or ASTM C 1277, with an elastomeric gasket meeting the requirements of ASTM C 564 and be certified by NSF® International. Heavy Duty hubless couplings shall be shielded and conform to ASTM C 1540, with an elastomeric gasket meeting the requirements of ASTM C 564.

Pipe and fittings shall comply with CISPI 301. Hubless couplings shall comply with ASTM C 564, and CISPI Standard 310 or ASTM C 1540. All pipe and fittings shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, , and listed by NSF® International. All pipe and fittings shall be of the same manufacturer. All systems shall utilize a separate waste and vent system.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Joints shall be made with hubless couplings and tightened using a calibrated torque wrench. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**

- |             |  |
|-------------|--|
| ASTM C 564  | Rubber Gaskets for Cast Iron Soil Pipe and Fittings    |
| CISPI 301   | Hubless Cast Iron Soil Pipe and Fittings               |
| CISPI 310   | Hubless Couplings for Cast Iron Soil Pipe and Fittings |
| ASTM C 1277 | Hubless Couplings                                      |
| ASTM C 1540 | Hubless Heavy Duty Couplings                           |

Note: Latest revision of each standard applies.

SPEC-LF-NH (611)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605  
[www.charlottepipe.com](http://www.charlottepipe.com)



February 8, 2012

Subject: PROFLO No-hub Couplings

To whom it may concern:

Please be advised that the PROFLO brand of no-hub couplings which is marketed and sold by Ferguson Enterprises is manufactured by Ideal Clamp Products, Inc.

These products are manufactured to the same exact standards as Ideal Brand couplings. The product itself is not altered in any way shape or form from the product marketed and sold under the Ideal brand by Ideal Products, Inc.

The rubber gaskets contained therein conform to ASTM C564.

All series of couplings are IAPMO listed. The Standard no-hub couplings are NSF certified and conform to ASTM C1277. The Heavy Duty and Medium Duty couplings conform to ASTM C1540.

Please contact the undersigned if you require further information.

Sincerely,

Joseph R. Lamberti  
National Sales Manager-Plumbing Market  
Ideal Division

Ph: 904 230 3583  
Fax: 904 230 3469  
Mobile: 904 608 8596

3200 Parker Drive  
St. Augustine, FL 32084-0897  
Phone 904-829-1000 • Fax 904-825-1121

# PROFLO HEAVY DUTY NO-HUB COUPLINGS MD Series



PROFLO™ Heavy-Duty  
“MD” No-Hub Coupling  
provides a cost-effective  
solution for Heavy-Duty  
Applications.



# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## MD Series



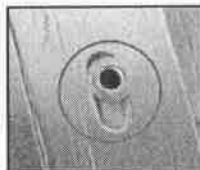

### User-Friendly 5/16" Hex-Head Screw

The new 5/16" hex-head screw is designed to apply the full load of 80 in.-lbs. of installation torque to the band/shield assembly.



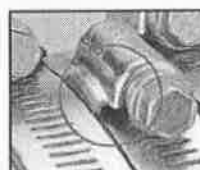
### Specially Beaded Gaskets

The Heavy-Duty "MD" coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. Gaskets comply with ASTM C564.



### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



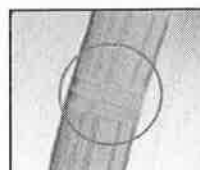
### Mechanical Interlocking Clamp Design

The sealing clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



### Yellow Shield

The distinctive yellow shield quickly identifies the new PROFLO™ Heavy-Duty "MD" Couplings.



### Patented Bi-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

| Features                   | PROFLO Heavy Duty MD Series Couplings        |
|----------------------------|--|
| 9/16" Clamp Band           | ✓  |
| 5/16" Hex Head Screw       | ✓  |
| No. of Clamps Included     | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width             | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color               | Yellow                                       |
| Bi-Directional Shield      | ✓  |
| Beaded Gasket              | 8" & 10"                                     |
| Offset Ribbed Gaskets      | 1-1/2" thru 6"                               |
| Floating Eyelets           | ✓  |
| Interlocked Housing Design | ✓  |
| Shield Material            | 304 SS                                       |
| Band Material              | 304 SS                                       |
| Housing Material           | 304 SS                                       |
| Screw Material             | 305 SS                                       |
| Eyelet Material            | 305 SS                                       |
| Gasket Material            | ASTM C564 Compliant                          |
| Installation Torque        | 80 in.-lbs                                   |
| Ultimate Torque            | 100 in.-lbs                                  |
| CISPI 310 Compliant        | Exceeds                                      |
| ASTM C1540 Compliant       | ✓  |
| Factory Mutual 1680        | Compliant                                    |
| IAPMO                      | Certified                                    |
| Canadian Std Association   | Certified                                    |
| Massachusetts Approval     | ✓  |

\*U.S. Patent N. 5,431,458

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## MD Series



The PROFLO™ Heavy-Duty “MD” No-Hub Coupling is engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. The “MD” coupling installs at 80 inch-pounds of screw torque and features the extra wide, patented, bi-directional shield and specially beaded gasket. Teamed with an additional complement of 9/16” wide clamps, they combine to exert exceptional hold on the pipe for a positive, reliable seal. And the user-friendly 5/16” hex-head screw eases installation. Look for the distinctive yellow shield to be sure you are getting the new PROFLO™ Heavy-Duty “MD” No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

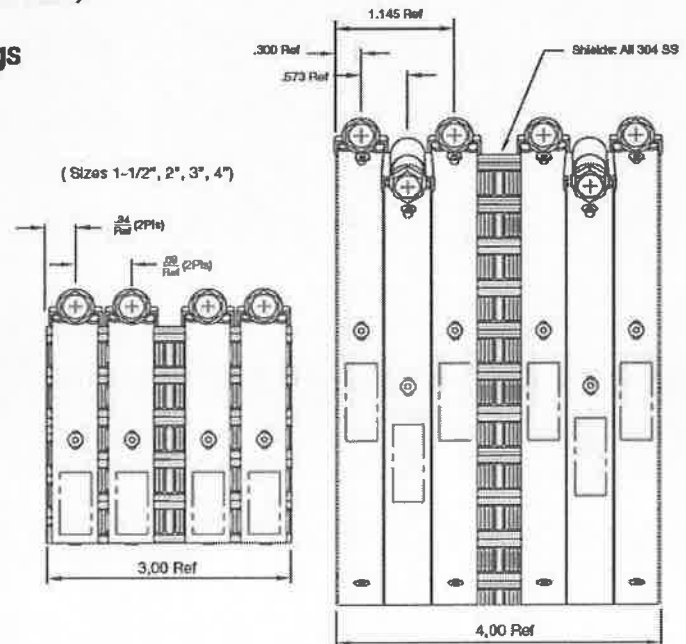
(Sizes 5”, 6”, 8”, 10”)

### PROFLO™ Heavy-Duty “MD” No-Hub Couplings

| Size   | Part No.   | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|--------|------------|--------------------------------------|-------------------------------|
| 1-1/2" | PFNHHMDCJ  | 80                                   | 4                             |
| 2"     | PFNHHMDCK  | 80                                   | 4                             |
| 3"     | PFNHHMDCM  | 80                                   | 4                             |
| 4"     | PFNHHMDCP  | 80                                   | 4                             |
| 5"     | PFNHHMDCS  | 80                                   | 6                             |
| 6"     | PFNHHMDCU  | 80                                   | 6                             |
| 8"     | PFNHHMDCX  | 80                                   | 6                             |
| 10"    | PFNHHMDC10 | 80                                   | 6                             |



To be used with the RAPTOR™  
**RAP18551 Torque Wrench**



Made in the USA



**PROFLO HEAVY DUTY  
NO-HUB COUPLINGS**  
*HD Series*

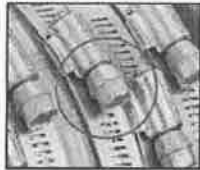


PROFLO™ Heavy-Duty No-Hub  
Couplings meet the demands of  
the toughest applications



# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series

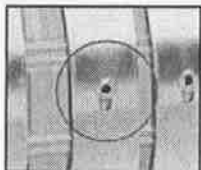
### Larger Hex Head Screw

The 3/8" hex head screw is designed to apply the full load of 80 in. lbs. of installation torque to the band/shield assembly.



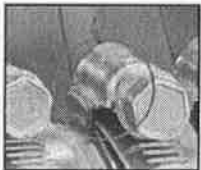
### Specially Beaded Gaskets

The heavy-duty coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. PROFLO™ gaskets comply with ASTM C564.



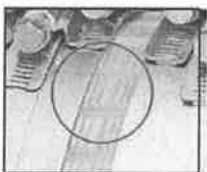
### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



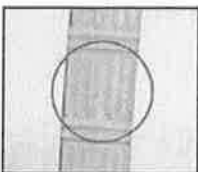
### Mechanical Interlocking Clamp Design

PROFLO™ clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



### Green Shield

The distinctive green shield quickly identifies the PROFLO™ Heavy-Duty Couplings.



### Patented Bi-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

\*U.S. Patent N. 5,431,458

| Features                 | PROFLO Heavy Duty HD Series Couplings        |
|--------------------------|--|
| 9/16" Clamp Band         | ✓  |
| 3/8" Hex Head Screw      | ✓  |
| No. of Clamps Included   | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width           | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color             | Green  |
| BI-Directional Shield    | ✓  |
| Beaded Gasket            | 8" & 10"                                     |
| Offset Ribbed Gaskets    | 1-1/2" thru 6"                               |
| Floating Eyelets         | ✓  |
| Shield Material          | 304 SS                                       |
| Band Material            | 304 SS                                       |
| Housing Material         | 304 SS                                       |
| Screw Material           | 305 SS                                       |
| Eyelet Material          | 305 SS                                       |
| Gasket Material          | ASTM C564 Compliant                          |
| Installation Torque      | 80 in-lbs                                    |
| Ultimate Torque          | 100 in-lbs                                   |
| CISPI 310 Compliant      | Exceeds                                      |
| ASTM C1540 Compliant     | ✓  |
| Factory Mutual 1680      | Compliant                                    |
| IAPMO                    | Certified                                    |
| Canadian Std Association | Certified                                    |
| Massachusetts Approval   | ✓  |

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series



The PROFLO™ Heavy-Duty No-Hub Coupling installs with 80 in.-lbs. of screw torque and boasts an ultimate torque rating exceeding 100 in.-lbs. Its patented, extra wide bi-directional shield is now constructed with a heavier gauge stainless steel. The mechanically interlocked 9/16" wide clamps have also been "beefed up" with a heavier gauge stainless steel and a 3/8" hex head screw. These changes, teamed with a specially beaded gasket, enable our new Heavy-Duty Coupling to exert exceptional hold on the pipe for a positive reliable seal. Look for the distinctive green shield to be sure you are getting the PROFLO™ Heavy-Duty No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

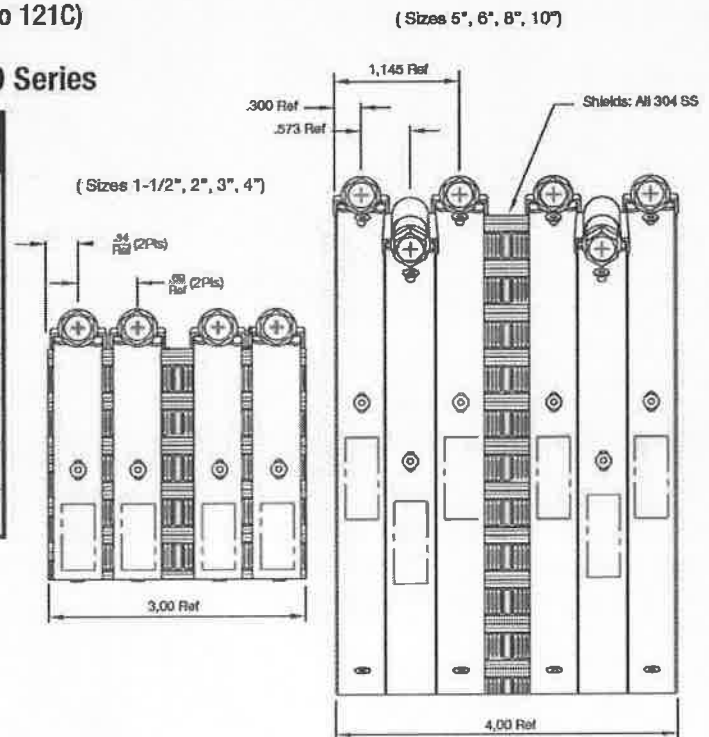
**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

### PROFLO™ Heavy-Duty No-Hub Couplings - HD Series

| Size          | Part No.  | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|---------------|-----------|--------------------------------------|-------------------------------|
| 1-1/2" HD GRN | PFNHHDCJ  | 80                                   | 4                             |
| 2" HD GRN     | PFNHHDCCK | 80                                   | 4                             |
| 3" HD GRN     | PFNHHDCM  | 80                                   | 4                             |
| 4" HD GRN     | PFNHHDCP  | 80                                   | 4                             |
| 5" HD GRN     | PFNHHDCS  | 80                                   | 6                             |
| 6" HD GRN     | PFNHHDCU  | 80                                   | 6                             |
| 8" HD GRN     | PFNHHDCX  | 80                                   | 6                             |
| 10" HD GRN    | PFNHHDC10 | 80                                   | 6                             |



To be used with the RAPTOR™  
RAP18552 Torque Wrench



Made in the USA




## CHARLOTTE

PIPE AND FOUNDRY COMPANY

**System:** Hubless Cast Iron Soil Pipe and Fittings

**Scope:** This specification covers hubless Cast Iron pipe, fittings, and couplings used in sanitary drain, waste, and vent (DWV), sewer, and storm drainage applications. This system is intended for use in non-pressure applications.

**Specification:** Hubless Cast Iron pipe and fittings shall be manufactured from gray cast iron with a tensile strength of not less than 21,000 psi. Regular hubless couplings shall be shielded and conform to CISPI Standard 310 or ASTM C 1277, with an elastomeric gasket meeting the requirements of ASTM C 564 and be certified by NSF® International. Heavy Duty hubless couplings shall be shielded and conform to ASTM C 1540, with an elastomeric gasket meeting the requirements of ASTM C 564.

Pipe and fittings shall comply with CISPI 301. Hubless couplings shall comply with ASTM C 564, and CISPI Standard 310 or ASTM C 1540. All pipe and fittings shall be made in the United States, and marked with the collective trademark of the Cast Iron Soil Pipe Institute, , and listed by NSF® International. All pipe and fittings shall be of the same manufacturer. All systems shall utilize a separate waste and vent system.

Installation shall comply with the latest installation instructions published by Charlotte Pipe and Foundry and shall conform to all applicable plumbing, fire, and building code requirements. Joints shall be made with hubless couplings and tightened using a calibrated torque wrench. The system shall be hydrostatically tested after installation to 10 ft. of head (4.3 psi maximum). **WARNING!** Never test with or transport/store compressed air or gas in Cast Iron pipe or fittings. Doing so can result in explosive failures and cause severe injury or death.

**Referenced Standards:**

|             |  |
|-------------|--|
| ASTM C 564  | Rubber Gaskets for Cast Iron Soil Pipe and Fittings    |
| CISPI 301   | Hubless Cast Iron Soil Pipe and Fittings               |
| CISPI 310   | Hubless Couplings for Cast Iron Soil Pipe and Fittings |
| ASTM C 1277 | Hubless Couplings                                      |
| ASTM C 1540 | Hubless Heavy Duty Couplings                           |

Note: Latest revision of each standard applies.

SPEC-LF-NH (611)

PO Box 35430 Charlotte, NC 28235 USA 704/372-5030 800/438-6091 FAX 800/553-1605  
www.charlottepipe.com



February 8, 2012

Subject: PROFLO No-hub Couplings

To whom it may concern:

Please be advised that the PROFLO brand of no-hub couplings which is marketed and sold by Ferguson Enterprises is manufactured by Ideal Clamp Products, Inc.

These products are manufactured to the same exact standards as Ideal Brand couplings. The product itself is not altered in any way shape or form from the product marketed and sold under the Ideal brand by Ideal Products, Inc.

The rubber gaskets contained therein conform to ASTM C564.

All series of couplings are IAPMO listed. The Standard no-hub couplings are NSF certified and conform to ASTM C1277. The Heavy Duty and Medium Duty couplings conform to ASTM C1540.

Please contact the undersigned if you require further information.

Sincerely,

Joseph R. Lamberti  
National Sales Manager-Plumbing Market  
Ideal Division

Ph: 904 230 3583  
Fax: 904 230 3469  
Mobile: 904 608 8596

3200 Parker Drive  
St. Augustine, FL 32084-0897  
Phone 904-829-1000 • Fax 904-825-1121



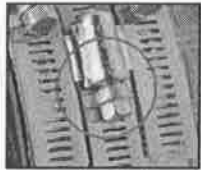
**PROFLO HEAVY DUTY  
NO-HUB COUPLINGS**  
*MD Series*



PROFLO™ Heavy-Duty  
"MD" No-Hub Coupling  
provides a cost-effective  
solution for Heavy-Duty  
Applications.

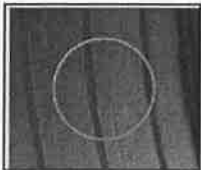


# PROFLO HEAVY DUTY NO-HUB COUPLINGS MD Series

#### User-Friendly 5/16" Hex-Head Screw

The new 5/16" hex-head screw is designed to apply the full load of 80 in.-lbs. of installation torque to the band/shield assembly.



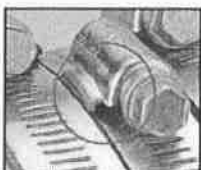
#### Specially Beaded Gaskets

The Heavy-Duty "MD" coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. Gaskets comply with ASTM C564.



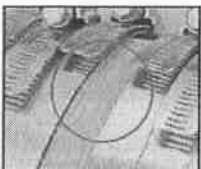
#### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



#### Mechanical Interlocking Clamp Design

The sealing clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



#### Yellow Shield

The distinctive yellow shield quickly identifies the new PROFLO™ Heavy-Duty "MD" Couplings.



#### Patented BI-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

| Features                   | PROFLO Heavy Duty MD Series Couplings        |
|----------------------------|--|
| 9/16" Clamp Band           | ✓  |
| 5/16" Hex Head Screw       | ✓  |
| No. of Clamps Included     | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width             | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color               | Yellow                                       |
| BI-Directional Shield      | ✓  |
| Beaded Gasket              | 8" & 10"                                     |
| Offset Ribbed Gaskets      | 1-1/2" thru 6"                               |
| Floating Eyelets           | ✓  |
| Interlocked Housing Design | ✓  |
| Shield Material            | 304 SS                                       |
| Band Material              | 304 SS                                       |
| Housing Material           | 304 SS                                       |
| Screw Material             | 305 SS                                       |
| Eyelet Material            | 305 SS                                       |
| Gasket Material            | ASTM C564 Compliant                          |
| Installation Torque        | 80 in.-lbs                                   |
| Ultimate Torque            | 100 in.-lbs                                  |
| CISPI 310 Compliant        | Exceeds                                      |
| ASTM C1540 Compliant       | ✓  |
| Factory Mutual 1680        | Compliant                                    |
| IAPMO                      | Certified                                    |
| Canadian Std Association   | Certified                                    |
| Massachusetts Approval     | ✓  |

\*U.S. Patent N. 5,431,458

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## MD Series



The PROFLO™ Heavy-Duty “MD” No-Hub Coupling is engineered to provide all the extra holding power of a Heavy-Duty coupling without all the extra cost. The “MD” coupling installs at 80 inch-pounds of screw torque and features the extra wide, patented, bi-directional shield and specially beaded gasket. Teamed with an additional complement of 9/16” wide clamps, they combine to exert exceptional hold on the pipe for a positive, reliable seal. And the user-friendly 5/16” hex-head screw eases installation. Look for the distinctive yellow shield to be sure you are getting the new PROFLO™ Heavy-Duty “MD” No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

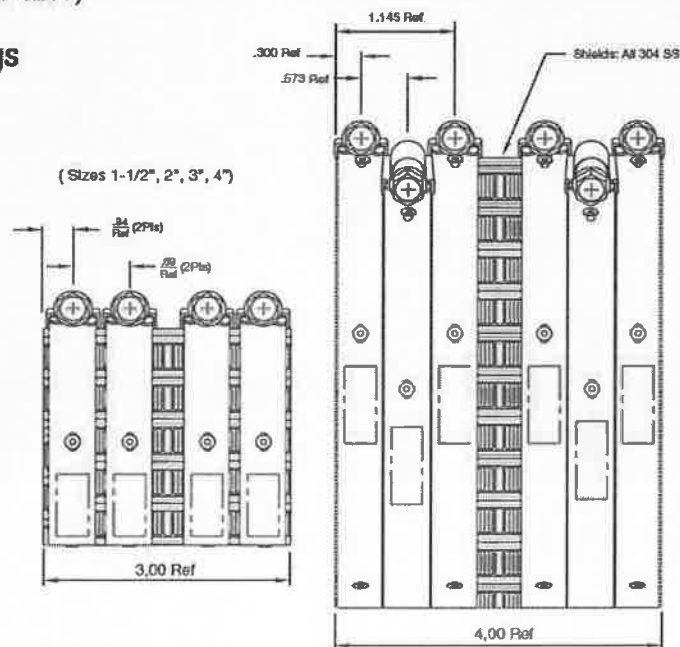
(Sizes 5”, 6”, 8”, 10”)

### PROFLO™ Heavy-Duty “MD” No-Hub Couplings

| Size   | Part No.   | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|--------|------------|--------------------------------------|-------------------------------|
| 1-1/2" | PFNHHMDCJ  | 80                                   | 4                             |
| 2"     | PFNHHMDCCK | 80                                   | 4                             |
| 3"     | PFNHHMDCM  | 80                                   | 4                             |
| 4"     | PFNHHMDCP  | 80                                   | 4                             |
| 5"     | PFNHHMDCS  | 80                                   | 6                             |
| 6"     | PFNHHMDCU  | 80                                   | 6                             |
| 8"     | PFNHHMDCX  | 80                                   | 6                             |
| 10"    | PFNHHMDC10 | 80                                   | 6                             |



To be used with the RAPTORTM  
RAP18551 Torque Wrench



Made in the USA



**PROFLO HEAVY DUTY  
NO-HUB COUPLINGS**  
*HD Series*

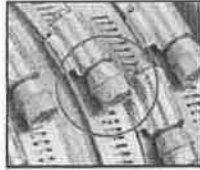


PROFLO™ Heavy-Duty No-Hub  
Couplings meet the demands of  
the toughest applications



# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series

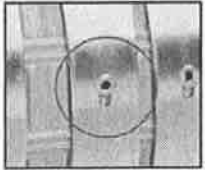
### Larger Hex Head Screw

The 3/8" hex head screw is designed to apply the full load of 80 in. lbs. of installation torque to the band/shield assembly.



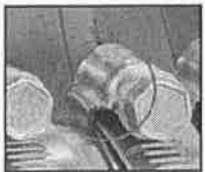
### Specially Beaded Gaskets

The heavy-duty coupling utilizes a specially beaded gasket that mates with the shield and clamping forces for superior sealing pressure and holding power. PROFLO™ gaskets comply with ASTM C564.



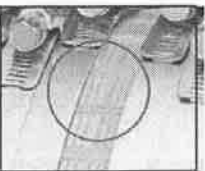
### Floating Eyelet Design

Floating eyelets fasten the clamps to the shield, allowing the clamp band and shield to move independently. This freedom prevents the shield from crimping during tightening, which can lead to leakage later on.



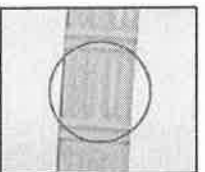
### Mechanical Interlocking Clamp Design

PROFLO™ clamps feature a one-piece screw housing that mechanically interlocks the housing to the band. This one-piece housing design eliminates leak paths that can occur in staked or welded clamps.



### Green Shield

The distinctive green shield quickly identifies the PROFLO™ Heavy-Duty Couplings.



### Patented BI-directional Shield Design

The unique shield design employs bi-directional corrugations for maximum transfer of pressure from the clamps to the gasket. This patented\* shield design adjusts to differences in the circumference and outside diameters of the pipes being joined. This eliminates gasket wrinkling and thereby eliminates leak paths. These bi-directional corrugations also create sealing pressure in both parallel and transverse patterns on the gasket and pipe. This works to avoid pullout failures and provides a positive, reliable seal.

\*U.S. Patent N. 5,431,458

| Features                 | PROFLO Heavy Duty HD Series Couplings        |
|--------------------------|--|
| 9/16" Clamp Band         | ✓  |
| 3/8" Hex Head Screw      | ✓  |
| No. of Clamps Included   | 4 (1-1/2" thru 4")<br>6 (5" thru 10")        |
| Coupling Width           | 1-1/2" thru 4" = 3"<br>5", 6", 8" & 10" = 4" |
| Shield Color             | Green  |
| BI-Directional Shield    | ✓  |
| Beaded Gasket            | 8" & 10"                                     |
| Offset Ribbed Gaskets    | 1-1/2" thru 6"                               |
| Floating Eyelets         | ✓  |
| Shield Material          | 304 SS                                       |
| Band Material            | 304 SS                                       |
| Housing Material         | 304 SS                                       |
| Screw Material           | 305 SS                                       |
| Eyelet Material          | 305 SS                                       |
| Gasket Material          | ASTM C564 Compliant                          |
| Installation Torque      | 80 in-lbs                                    |
| Ultimate Torque          | 100 in-lbs                                   |
| CISPI 310 Compliant      | Exceeds                                      |
| ASTM C1540 Compliant     | ✓  |
| Factory Mutual 1680      | Compliant                                    |
| IAPMO                    | Certified                                    |
| Canadian Std Association | Certified                                    |
| Massachusetts Approval   | ✓  |

# PROFLO HEAVY DUTY NO-HUB COUPLINGS

## HD Series



The PROFLO™ Heavy-Duty No-Hub Coupling installs with 80 in.-lbs. of screw torque and boasts an ultimate torque rating exceeding 100 in.-lbs. Its patented, extra wide bi-directional shield is now constructed with a heavier gauge stainless steel. The mechanically interlocked 9/16" wide clamps have also been "beefed up" with a heavier gauge stainless steel and a 3/8" hex head screw. These changes, teamed with a specially beaded gasket, enable our new Heavy-Duty Coupling to exert exceptional hold on the pipe for a positive reliable seal. Look for the distinctive green shield to be sure you are getting the PROFLO™ Heavy-Duty No-Hub Coupling.

**Description:** Couplings consist of gasket and shield assemblies. The shield assemblies have four or six clamps depending on size. The clamps are fastened with eyelets to the bi-directional corrugated shield.

**Materials:** Steels used in couplings are stainless steels. Shields, bands and housings are AISI 304. Screws and eyelets are AISI 305. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

**Specifications:** Couplings conform to CISPI 310, Factory Mutual CN 1680. Couplings comply with ASTM C564, ASTM C1540, IAPMO file #3198, Commonwealth of Massachusetts CMR-248 and City of New York MEA 253-98-E. Gaskets are made from an elastomeric compound that meets the requirements of ASTM C564.

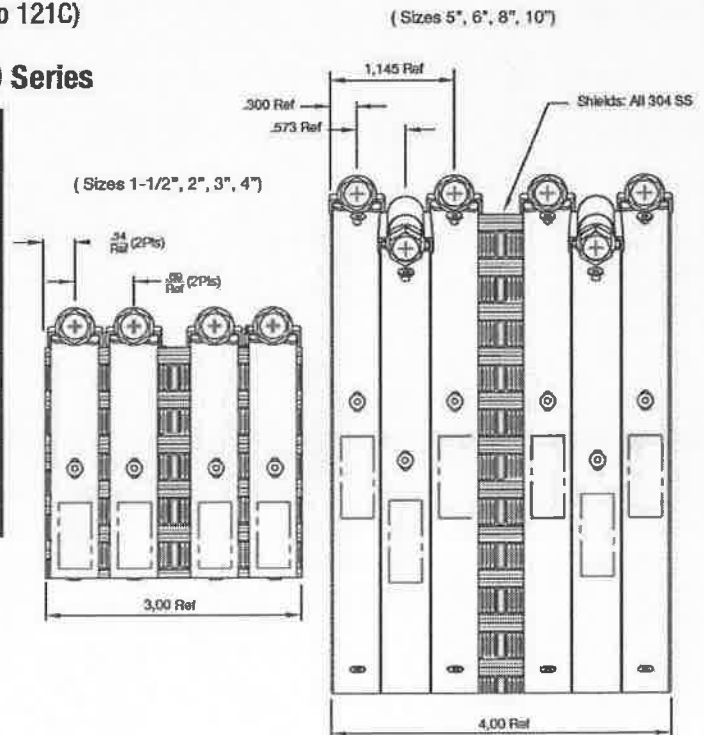
**Service temperature:** From -22 to 250 degrees F (-30 to 121C)

### PROFLO™ Heavy-Duty No-Hub Couplings - HD Series

| Size          | Part No.   | Installation Torque<br>(inch-pounds) | No. of Clamps<br>Per Coupling |
|---------------|------------|--------------------------------------|-------------------------------|
| 1-1/2" HD GRN | PFNHHHDCJ  | 80                                   | 4                             |
| 2" HD GRN     | PFNHHHDCK  | 80                                   | 4                             |
| 3" HD GRN     | PFNHHHDCM  | 80                                   | 4                             |
| 4" HD GRN     | PFNHHHDCP  | 80                                   | 4                             |
| 5" HD GRN     | PFNHHHDCS  | 80                                   | 6                             |
| 6" HD GRN     | PFNHHHDCU  | 80                                   | 6                             |
| 8" HD GRN     | PFNHHHDCX  | 80                                   | 6                             |
| 10" HD GRN    | PFNHHHDC10 | 80                                   | 6                             |



To be used with the RAPTOR™  
RAP18552 Torque Wrench



Made in the USA



December 2, 2009

## PRODUCT CERTIFICATION

Ferguson Enterprises distributes seamless copper tube manufactured from alloy C12200. This tubing is manufactured by Mueller Industries, Cerro Flow Products, and CMC Howell Metals. All tubing distributed by Ferguson Enterprises is manufactured in the USA to meet the applicable chemical and mechanical properties of the ASTM Standard Specification listed below:

- XX ASTM B88 and ANSI/NSF Standard 61  
Types K, L, & M Seamless Copper Water Tube
- XX ASTM B280  
Refrigeration Coils & ACR/OXY/MED Tube
- XX ASTM B306  
Type DWV Tube
- XX ASTM B819  
Types K & L, cleaned, capped, and marked for Oxygen/Medical Gas service.

NSF Standard 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U. S. EPA Lead and Copper Rules (56 FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water". Some water supplies may be corrosive to copper and in these cases water treatment may be necessary.

Ferguson Enterprises  
12500 Jefferson Ave  
Newport News, VA 23062  
757-874-7795



Date \_\_\_\_\_

## Product Certification

Mueller Copper Tube products are all manufactured in the USA. All tubing produced in Fulton, MS, and Wynne, AR, is seamless and of UNS C12200 grade of copper and is manufactured to meet the chemical and mechanical properties of the applicable ASTM specifications set forth below. When specified at order placement, Mueller Copper Tube can supply Certified Tube to meet all requirements of the current applicable ASTM specification, at an additional cost.

→ Streamline Copper Water Tube (Types K L M)  
ASTM B88 and ANSI/NSF 61

Streamline Copper Refrigeration Service Coils  
ASTM B280

Streamline Nitrogenized ACR Hard Drawn  
Copper Tube - ASTM B280

Streamline Copper Drainage Tube (DWV)  
ASTM B306

\* Please contact Technical Services for certification in Oxygen and Medical service tube. (1.662.862.1700)

NSF 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting or in the process of meeting the U.S. EPA Lead and Copper Rule (56 FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water."

P. O. BOX 849 ♦ FULTON, MS 38843 ♦ (662) 862-1700 ♦ FAX (662) 862-3002

P. O. BOX 309 ♦ WYNNE, AR 72396 ♦ (870) 238-3201 ♦ FAX (870) 238-8724



Always Moving Forward.\*

Corporate Headquarters  
 PO Box 66800  
 St. Louis, MO 63166-6800  
 888-237-7611 | 618-337-6000  
 cerroflow.com

December 2, 2009

## PRODUCT CERTIFICATION

Our alloy C12200 seamless copper tubing is manufactured in the USA at Sauget, IL and Cedar City, UT and is produced in compliance with the applicable chemical and mechanical properties of the ASTM Standard Specification listed below:

- XX ASTM B88 and ANSI/NSF Standard 61  
Types K, L, & M Seamless Copper Water Tube
- XX ASTM B280  
Refrigeration Coils & ACR/OXY/MED N2 Charged Tube
- XX ASTM B306  
Type DWV Tube
- XX ASTM B819  
Types K & L, cleaned, capped, and marked for Oxygen/Medical Gas service per NFPA 99 & CSA Z305.1/Z7396.1

NSF Standard 61 Restriction Statement: "Copper Tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U. S. EPA Lead and Copper Rules (56 FR 26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water". Some water supplies may be corrosive to copper and in these cases water treatment may be necessary.

Copper tube manufactured by Cerro Flow Products, Inc. does not contain mercury or come in contact with mercury, mercury compounds or mercury containing devices at any stage in manufacturing, inspection, packaging or shipping.

All of the specifications require a minimum copper content of 99.9% and a phosphorus content between .015 - .040%. As indicated by the compositional requirement, the copper tube is essentially lead free.

Bob Murray  
 Customer Service Manager  
 CERRO FLOW PRODUCTS, INC.



A Marmon Flow Products/Berkshire Hathaway Company



### Product Certification

CMC Howell Metal copper tubing products conform to current industry standards using the referenced American Society of Testing and Material (ASTM) standards and Federal Specifications WWT-775B and WWT-799B.

Chemical Composition (UNS C12200): Copper (Cu) 99.9% minimum, Phosphorus 0.015 – 0.040% range




**SEAMLESS COPPER WATER TUBE – Types K, L, & M** ASTM B-88  
*Restriction Statement: "Copper tube (Alloy C12200) is certified by NSF to ANSI/NSF Standard 61 for public water supplies meeting, or in the process of meeting the U.S. EPA Lead and Copper Rule (56FR26460, June 7, 1991). Water supplies with pH less than 6.5 may require corrosion control to limit copper solubility in drinking water".*

**SEAMLESS COPPER WATER TUBE – Type DWV** ASTM B-306

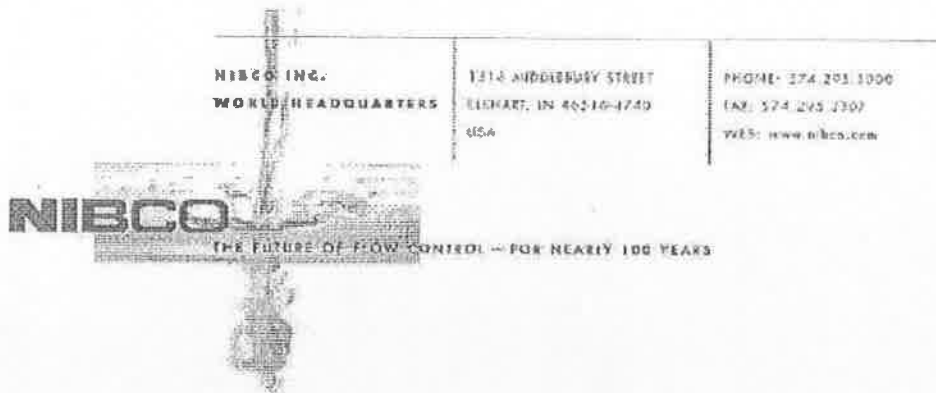
**SEAMLESS COPPER TUBE FOR MEDICAL GAS SYSTEMS** ASTM B-819  
*Manufactured tubes undergo a cleaning process and are then plugged and charged with dry nitrogen with the exception of "K/OXY" which is cleaned, purged with dry air and capped.  
All tubing manufactured by CMC Howell Metal labeled as "ACR", "ACR/OXY", or "OXY" has been manufactured to meet the cleanliness requirements of 0.0035 g/ft<sup>2</sup> maximum as required by the guidelines of ASTM B-819 Standard Specification for Seamless Copper Tube for Medical Gas Systems.*

**SEAMLESS COPPER TUBE FOR AIR CONDITIONING AND REFRIGERATION FIELD SERVICE** ASTM B-280  
*Manufactured straight length tubes undergo a cleaning process and are then plugged and charged with nitrogen.  
Manufactured coiled length tubes undergo a cleaning process and are then purged with dry nitrogen and capped.*

All manufactured material printed or incised  
"HOWELL", "HOWELL USA", "CMC HOWELL", or "CMC HOWELL USA"  
is proudly made in the United States of America

  
Timothy Brannon  
Vice President, Operations





October 1, 2007

To: Ferguson Enterprises, Inc.  
ATTN: Chris Pickard  
FAX: (757) 989-2560

#### CERTIFICATION

This is to certify that NIBCO manufactured (trademarked/not trademarked) Wrought and Cast Copper Alloy Fittings are manufactured to meet the material and/or dimensional requirements of the following specifications:



Wrought Solder Joint Fittings (600 Series) - Produced to one of the following specifications:

1. Material and workmanship shall be in accordance with ASME/ANSI B16.22, "Wrought Copper and Copper Alloy Solder Joint Pressure Fittings."
2. The dimensions, material, and workmanship shall meet the requirements of MSS SP-104; "Wrought Copper Solder Joint Pressure Fittings."
3. The dimensional, material and workmanship of 5" - 12" Copper Fittings shall meet the requirements of MSS SP-109; "Welded Fabricated Copper Solder Joint Pressure Fittings."
4. ANSI/NSF 61.

Cast Copper Alloy Solder Joint Fittings (700 Series) - Shall be in conformance with the performance, materials and workmanship requirements of ANSI B16.18; "Cast Copper Solder Joint Pressure Fittings."

Cast Copper Alloy Flanges - Class 150 Flanges - Shall be in conformance with the requirements of MSS SP-106 and/or the workmanship and dimensions of the Federal Specifications WW-F-406 or ASME Std. B16.24. Class 125 Flanges - Material, workmanship and dimensions of flanges shall be in accordance with MSS SP-106.

#### Materials:

The materials used to manufacture these fittings are also in compliance with the following specifications:

Copper Certification Letter

Page 2

Tubular Wrought Copper -

ASTM B75 Alloy C12200 (DHP); " Standard Specification for Seamless Copper Tube." Nominal Metal Content: 99.9% Copper, .02% Phosphorous.

Cast Products -

ASTM B584 Alloy C84400; " Standard Specification for Copper Alloy Sand Castings for General Applications." Nominal Metal Content: 81% Copper, 7%Lead, 3%Tin, 9% Zinc.

This is to further certify the products produced to the above standards contain no asbestos or PCB's, nor is mercury introduced into their manufacture. Further, we certify the wrought copper fittings contain less than 0.2% lead and the cast fittings contain no more than 8% lead in compliance with Federal guidelines.

This is to further state that all NIBCO brand wrought and cast copper fittings are manufactured at the location listed below:

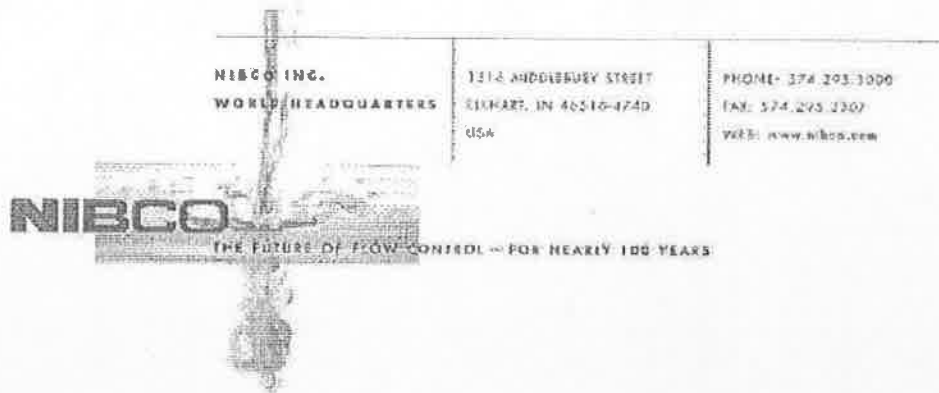
- Wrought Copper Fittings - Stuarts Draft, VA (USA)
- Cast Copper Fittings - Nacogdoches, TX (USA)  
Reynosa, Mexico

Each of the above-mentioned manufacturing facilities is registered to the ISO 9001:2000.quality standard.

I declare that all statements made and all information contained herein are true and correct.

NIBCO Inc,

\_\_\_\_\_  
Ken McCoy  
Technical Service Advisor



October 1, 2007

To: Ferguson Enterprises, Inc.  
ATTN: Chris Pickard  
FAX: (757) 989-2560

#### CERTIFICATION

This is to certify that NIBCO manufactured (trademarked/not trademarked) Wrought and Cast Copper Alloy Fittings are manufactured to meet the material and/or dimensional requirements of the following specifications:

Wrought Solder Joint Fittings (600 Series) - Produced to one of the following specifications:

1. Material and workmanship shall be in accordance with ASME/ANSI B16.22, "Wrought Copper and Copper Alloy Solder Joint Pressure Fittings."
2. The dimensions, material, and workmanship shall meet the requirements of MSS SP-104; "Wrought Copper Solder Joint Pressure Fittings."
3. The dimensional, material and workmanship of 5" - 12" Copper Fittings shall meet the requirements of MSS SP-109; "Welded Fabricated Copper Solder Joint Pressure Fittings."
4. ANSI/NSF 61.



Cast Copper Alloy Solder Joint Fittings (700 Series) - Shall be in conformance with the performance, materials and workmanship requirements of ANSI B16.18; "Cast Copper Solder Joint Pressure Fittings." **INCLUDES CLASS 150 BRONZE UNIONS**



Cast Copper Alloy Flanges - Class 150 Flanges - Shall be in conformance with the requirements of MSS SP-106 and/or the workmanship and dimensions of the Federal Specifications WW-F-406 or ASME Std. B16.24. Class 125 Flanges - Material, workmanship and dimensions of flanges shall be in accordance with MSS SP-106

#### Materials:

The materials used to manufacture these fittings are also in compliance with the following specifications:

Copper Certification Letter

Page 2

Tubular Wrought Copper -

ASTM B75 Alloy C12200 (DHP); " Standard Specification for Seamless Copper Tube." Nominal Metal Content: 99.9% Copper, .02% Phosphorous.

Cast Products -

ASTM B584 Alloy C84400; " Standard Specification for Copper Alloy Sand Castings for General Applications." Nominal Metal Content: 81% Copper, 7%Lead, 3%Tin, 9% Zinc.

This is to further certify the products produced to the above standards contain no asbestos or PCB's, nor is mercury introduced into their manufacture. Further, we certify the wrought copper fittings contain less than 0.2% lead and the cast fittings contain no more than 8% lead in compliance with Federal guidelines.

This is to further state that all NIBCO brand wrought and cast copper fittings are manufactured at the location listed below:

- Wrought Copper Fittings - Stuarts Draft, VA (USA)
- Cast Copper Fittings - Nacogdoches, TX (USA)  
Reynosa, Mexico

Each of the above-mentioned manufacturing facilities is registered to the ISO 9001:2000 quality standard.

I declare that all statements made and all information contained herein are true and correct.

NIBCO Inc,

\_\_\_\_\_  
Ken McCoy  
Technical Service Advisor

**For Residential and Commercial Applications**

|                    |                             |
|--------------------|-----------------------------|
| Job Name _____     | Contractor _____            |
| Job Location _____ | Approval _____              |
| Engineer _____     | Contractor's P.O. No. _____ |
| Approval _____     | Representative _____        |

## Series 3001A Dielectric Unions

Sizes 1/2" – 2" (15 – 50mm)

Series 3001A Dielectric Unions feature a female iron pipe thread to solder connection. These unions are designed to be installed between pipe made from dissimilar metals to prevent accelerated corrosion and deterioration in the piping system due to galvanic and stray current.

### Features

- Female iron pipe thread to solder connection
- Designed and manufactured to the highest quality standards
- Individually factory certified to withstand a minimum of 600 volts on a dry line with no flashover
- Rated to 180°F (82°C) at 250psi (17.2 bar) with standard gasket A and 300°F (149°C) at 50psi (3.4 bar) with optional gasket B

### Specifications

A dielectric union shall be installed where indicated on the plans. The union shall feature a female iron pipe thread to solder connection. The union shall be a Watts Regulator Company Series 3001A.

### Materials

|                      |               |
|----------------------|---------------|
| Gray Iron            | ASTM A48-83   |
| Malleable Iron Parts | ASTM A-197-79 |
| Steel Parts          | ASTM A108     |
| Brass Parts          | ASTM B-16     |
| Bronze Parts         | ASTM B-584    |
| Zinc Parts           | ASTM B633-85  |
| Standard Gasket A    | Buna-N        |
| Optional Gasket B    | EPDM          |

### Options

GB - Optional EPDM gasket for use in steam or hot water applications up to 300°F (149°C) at 50psi (3.4 bar).



3001A

### Standards

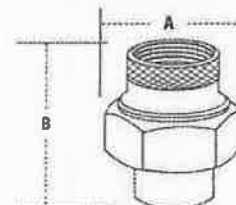
Meets federal specifications for tensile strength and thread end connections

### Pressure – Temperature

**Maximum Pressure:** 250psi (17.2 bar) with standard gasket A; 50psi (3.4 bar) with optional gasket B

**Maximum Temperature:** 180°F (82°C) with standard gasket A; 300°F (149°C) with optional gasket B

### Dimensions – Weights



| SIZE (DN) |    | DIMENSIONS |    |       |    | WEIGHT |      |
|-----------|----|------------|----|-------|----|--------|------|
|           |    | A          |    | B     |    |        |      |
| in.       | mm | in.        | mm | in.   | mm | oz.    | gms. |
| 1/2       | 15 | 1 1/2      | 32 | 1 1/4 | 48 | 6      | 170  |
| 3/4       | 20 | 1 3/4      | 41 | 2 1/4 | 54 | 6.7    | 190  |
| 1         | 25 | 1 3/4      | 48 | 2 1/2 | 64 | 9.3    | 264  |
| 1 1/4     | 32 | 2 1/4      | 57 | 3     | 76 | 13.3   | 377  |
| 1 1/2     | 40 | 2 3/4      | 70 | 3     | 76 | 13.3   | 377  |
| 2         | 50 | 3 1/2      | 89 | 3     | 76 | 34.7   | 984  |

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



USA: 315 Chestnut St., No. Andover, MA 01845-6098; www.watts.com  
 Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.watts.ca



Water Safety & Flow Control Products

ES-3001A 0805

© Watts, 2008

# Pipe Hangers

## B3100 - Standard Clevis Hanger (TOLCO Fig.1)

### SLIDE-RITE™ Clevis Hanger Features

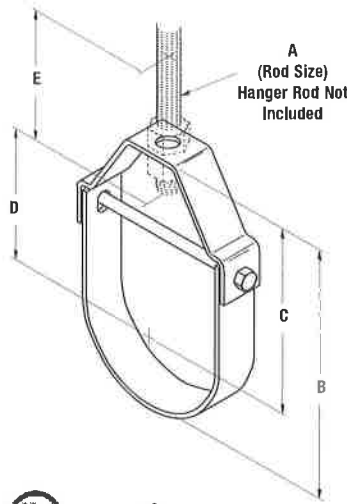
Pipe will not 'pinch' when installing.

15° swing in either direction allows pipe to easily feed thru.

Engineered design aligns bolt holes for quicker overhead installation.

\*SLIDE-RITE™ Clevis Hanger design, as shown below, for sizes 2, 2½, 3, 4, 5 & 6.

Pat. No. 5,848,770  
5,924,655



Component of State of California OSHPD Approved Seismic Restraints System

- B Bottom of pipe to top of hanger.
- C Center of pipe to top of hanger.
- D Rod Take-Out  
Center of pipe to bottom of hanger rod.
- E Minimum thread length of hanger rod
- F Adjustment  
Top of cross bolt to bottom of hanger rod nut inside the hanger.



Pipe Hangers

| Part No.      | Nominal Pipe Size |       | Rod Size A |         | B        |          | C         |         | D        |         |
|---------------|-------------------|-------|------------|---------|----------|----------|-----------|---------|----------|---------|
|               | in.               | (mm)  | Std        | NFPA**  | in.      | (mm)     | in.       | (mm)    | in.      | (mm)    |
| B3100-1/2     | 1/2"              | (15)  | 3/8"-16    | 3/8"-16 | 2 1/8"   | (54.0)   | 1 11/16"  | (42.9)  | 15/16"   | (23.8)  |
| B3100-3/4     | 3/4"              | (20)  | 3/8"-16    | 3/8"-16 | 2 7/16"  | (61.9)   | 1 7/8"    | (47.6)  | 1 1/8"   | (28.6)  |
| B3100-1       | 1"                | (25)  | 3/8"-16    | 3/8"-16 | 2 13/16" | (71.4)   | 2 1/8"    | (54.0)  | 1 3/8"   | (34.9)  |
| B3100-1 1/4   | 1 1/4"            | (32)  | 3/8"-16    | 3/8"-16 | 3 7/16"  | (87.3)   | 2 9/16"   | (65.1)  | 1 13/16" | (46.0)  |
| B3100-1 1/2   | 1 1/2"            | (40)  | 3/8"-16    | 3/8"-16 | 4"       | (101.6)  | 3"        | (76.2)  | 2 1/4"   | (57.1)  |
| B3100-2 *     | 2"                | (50)  | 3/8"-16    | 3/8"-16 | 4 1/2"   | (114.3)  | 3 1/4"    | (82.5)  | 2 1/2"   | (63.5)  |
| B3100-2 1/2 * | 2 1/2"            | (65)  | 1/2"-13    | 3/8"-16 | 5 9/16"  | (141.3)  | 4"        | (101.6) | 3 1/16"  | (77.8)  |
| B3100-3 *     | 3"                | (80)  | 1/2"-13    | 3/8"-16 | 6 3/4"   | (171.4)  | 4 7/8"    | (123.8) | 3 15/16" | (100.0) |
| B3100-3 1/2   | 3 1/2"            | (90)  | 1/2"-13    | 3/8"-16 | 7"       | (177.8)  | 5"        | (127.0) | 4 1/16"  | (103.2) |
| B3100-4 *     | 4"                | (100) | 5/8"-11    | 3/8"-16 | 7 13/16" | (198.4)  | 5 1/2"    | (139.7) | 4 3/8"   | (111.1) |
| B3100-5 *     | 5"                | (125) | 5/8"-11    | 1/2"-13 | 9 1/16"  | (230.2)  | 6 1/8"    | (155.6) | 5"       | (127.0) |
| B3100-6 *     | 6"                | (150) | 3/4"-10    | 1/2"-13 | 10 7/16" | (265.1)  | 6 15/16"  | (176.2) | 5 1/16"  | (144.5) |
| B3100-8       | 8"                | (200) | 3/4"-10    | 1/2"-13 | 12 3/4"  | (323.8)  | 8 3/8"    | (212.7) | 7 1/8"   | (181.0) |
| B3100-10      | 10"               | (250) | 7/8"-9     | 5/8"-11 | 15 1/4"  | (387.3)  | 9 13/16"  | (249.2) | 8 3/8"   | (212.7) |
| B3100-12      | 12"               | (300) | 7/8"-9     | 5/8"-11 | 17 5/8"  | (447.7)  | 11 3/16"  | (284.2) | 9 1/16"  | (246.1) |
| B3100-14      | 14"               | (350) | 1"-8       | --      | 19 9/16" | (496.9)  | 12 1/2"   | (317.5) | 10 5/8"  | (269.9) |
| B3100-16      | 16"               | (400) | 1"-8       | --      | 21 7/16" | (544.5)  | 13 5/16"  | (338.1) | 11 9/16" | (293.7) |
| B3100-18      | 18"               | (450) | 1"-8       | --      | 25"      | (635.0)  | 15 7/8"   | (403.2) | 14 3/16" | (360.3) |
| B3100-20      | 20"               | (500) | 1 1/4"-7   | --      | 27 1/2"  | (698.5)  | 17 3/8"   | (441.3) | 16 5/8"  | (422.3) |
| B3100-24      | 24"               | (600) | 1 1/4"-7   | --      | 31 3/4"  | (806.4)  | 19 5/8"   | (498.5) | 18 5/8"  | (473.1) |
| B3100-30      | 30"               | (750) | 1 1/4"-7   | --      | 38 7/8"  | (987.3)  | 23 3/4"   | (603.2) | 22 3/4"  | (577.8) |
| B3100-36      | 36"               | (900) | 1 1/4"-7   | --      | 46"      | (1168.4) | 27 13/16" | (706.4) | 25"      | (635.0) |

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# Pipe Hangers

## B3100 - Standard Clevis Hanger (TOLCO Fig.1)

Component of State of California OSHPD Approved Seismic Restraints System

**Size Range:** 1/2" (15mm) to 36" (900mm)

**Material:** Steel

**Function:** Recommended for the suspension of non-insulated pipe or insulated pipe with a B3151 shield.

**Note:** When an oversized clevis is used, a pipe spacer should be placed over the cross bolt to assure that the lower U-strap will not move in on the bolt. When attaching seismic bracing to the clevis hangers, a B3100PS (cross bolt spacer) must be installed. See Seismic Restraints Approval Guidelines.

**Order pipe sleeves Fig. 1CBS-(pipe size) separately.**

**Approvals:** Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the B-Line/TOLCO Seismic Restraint Systems Guidelines. Underwriter's Laboratories Listed in the USA (UL) and Canada (cUL) for sizes 3/4" (20mm) thru 12" (300mm). Factory Mutual Engineering Approved (FM) for 3/4" (20mm) thru 12" (300mm) pipe. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 1 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1. Also available to accommodate rod schedule per per National Fire Protection Association (NFPA) Pamphlet 13.

**Maximum Temperature:** 650°F (343°C).

**Standard Finish:** Plain, Electro-Galvanized, DURA-GREEN™, or Hot-Dip Galvanized also available in Stainless Steel



**Order By:** Part number and finish.

For AWWA - Ductile Iron Clevis Hangers, see B3102, page 51.

**\*\* Note:** Do not use the dimensions shown in the B3100 chart for NFPA hanger sizes. Contact B-Line for NFPA rod sizing on 1/2" (15mm) thru 12" (300mm) pipe. Part numbers will be 1NFPA-pipe size.

| Part No.      | E      |         | Adjustment F |         | Design Load |         | Approx. Wt./100 |          |
|---------------|--------|---------|--------------|---------|-------------|---------|-----------------|----------|
|               | in.    | (mm)    | in.          | (mm)    | Lbs.        | (kN)    | Lbs.            | (kg)     |
| B3100-1/2     | 2 1/2" | (63.5)  | 7/16"        | (11.1)  | 730         | (3.25)  | 25              | (11.3)   |
| B3100-3/4     | 2 1/2" | (63.5)  | 1/2"         | (12.7)  | 730         | (3.25)  | 29              | (13.1)   |
| B3100-1       | 2 1/2" | (63.5)  | 5/8"         | (15.9)  | 730         | (3.25)  | 35              | (15.9)   |
| B3100-1 1/4   | 2 1/2" | (63.5)  | 7/8"         | (22.2)  | 730         | (3.25)  | 40              | (18.1)   |
| B3100-1 1/2   | 2 1/2" | (63.5)  | 1 3/16"      | (30.2)  | 730         | (3.25)  | 42              | (19.0)   |
| B3100-2 *     | 2 1/2" | (63.5)  | 1 5/8"       | (41.3)  | 730         | (3.25)  | 52              | (23.6)   |
| B3100-2 1/2 * | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 90              | (40.8)   |
| B3100-3 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 110             | (49.9)   |
| B3100-3 1/2   | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 142             | (64.4)   |
| B3100-4 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1430        | (6.36)  | 132             | (59.9)   |
| B3100-5 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1430        | (6.36)  | 215             | (97.5)   |
| B3100-6 *     | 3"     | (76.2)  | 2"           | (50.8)  | 1940        | (8.63)  | 320             | (145.1)  |
| B3100-8       | 3 1/2" | (88.9)  | 2 5/16"      | (58.7)  | 2000        | (8.89)  | 485             | (220.0)  |
| B3100-10      | 3 1/2" | (88.9)  | 2 5/16"      | (58.7)  | 3600        | (16.01) | 846             | (383.7)  |
| B3100-12      | 3 1/2" | (88.9)  | 2 5/8"       | (66.7)  | 3800        | (16.90) | 1083            | (491.2)  |
| B3100-14      | 4"     | (101.6) | 2 7/8"       | (73.0)  | 4200        | (18.68) | 1432            | (649.5)  |
| B3100-16      | 4"     | (101.6) | 2 11/16"     | (68.3)  | 4600        | (20.46) | 2200            | (997.9)  |
| B3100-18      | 4 1/2" | (114.3) | 3 15/16"     | (100.0) | 4800        | (21.35) | 2500            | (1134.0) |
| B3100-20      | 5"     | (127.0) | 5 3/8"       | (136.5) | 4800        | (21.35) | 4400            | (1995.8) |
| B3100-24      | 5"     | (127.0) | 5 3/8"       | (136.5) | 4800        | (21.35) | 5000            | (2268.0) |
| B3100-30      | 5"     | (127.0) | 6 1/4"       | (158.7) | 6000        | (26.69) | 6600            | (2993.7) |
| B3100-36      | 5"     | (127.0) | 5 7/16"      | (138.1) | 6000        | (26.69) | 8474            | (3843.8) |

\*SLIDE-RITE™ Clevis Hanger design, as shown above, for sizes 2, 2 1/2, 3, 4, 5 & 6.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Hangers

# Pipe Hangers

## B3100C - Standard Clevis Hanger - Plastic Coated (TOLCO Fig.1PVC)

## B3100F - Standard Clevis Hanger - Felt Lined for Copper Tubing (TOLCO Fig.1F)

**Size Range:** 1/2" (15mm) to 8" (200mm) pipe

**Material:** Steel

**Insulation Material:** 3/16" (4.8mm) Felt

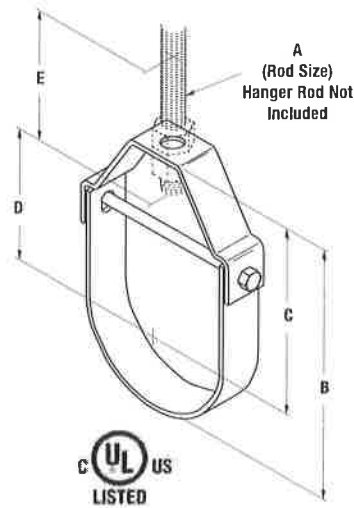
**Service:** The B3100F is designed for the suspension of copper tube so as to prevent electrolysis between tubing and hanger. The B3100C is designed for steel or other pipe types of the same O.D. Both B3100F and B3100C act to reduce noise and vibration in pipe or tubing systems.

**Approvals:** Underwriter's Laboratories Listed in the USA (UL) and Canada (cUL).

**Maximum Temperature:** 650°F (343°C).

**Standard Finish:** Plain, Electro-Galvanized, or Hot-Dip Galvanized. Contact B-Line for alternative finishes and materials.

**Order By:** Part number and finish.



- B**  
Bottom of pipe to top of hanger.
- C**  
Center of pipe to top of hanger.
- D**  
Rod Take-Out  
Center of pipe to bottom of hanger rod.
- E**  
Minimum thread length of hanger rod
- F**  
Adjustment  
Top of cross bolt to bottom of hanger rod nut inside the hanger.

Pipe Hangers

| Part No.    | Pipe Size |       | Rod Size |          | B       |          | C       |          | D       |  |
|-------------|-----------|-------|----------|----------|---------|----------|---------|----------|---------|--|
|             | in.       | (mm)  | A        | in.      | (mm)    | in.      | (mm)    | in.      | (mm)    |  |
| B3100-1/2   | 1/2"      | (15)  | 3/8"-16  | 2 1/8"   | (54.0)  | 1 11/16" | (42.9)  | 15/16"   | (23.8)  |  |
| B3100-3/4   | 3/4"      | (20)  | 3/8"-16  | 2 7/16"  | (61.9)  | 1 7/8"   | (47.6)  | 1 1/8"   | (28.6)  |  |
| B3100-1     | 1"        | (25)  | 3/8"-16  | 2 13/16" | (71.4)  | 2 1/8"   | (54.0)  | 1 3/8"   | (34.9)  |  |
| B3100-1 1/4 | 1 1/4"    | (32)  | 3/8"-16  | 3 7/16"  | (87.3)  | 2 9/16"  | (65.1)  | 1 13/16" | (46.0)  |  |
| B3100-1 1/2 | 1 1/2"    | (40)  | 3/8"-16  | 4"       | (101.6) | 3"       | (76.2)  | 2 1/4"   | (57.1)  |  |
| B3100-2     | 2"        | (50)  | 3/8"-16  | 4 1/2"   | (114.3) | 3 1/4"   | (82.5)  | 2 1/2"   | (63.5)  |  |
| B3100-2 1/2 | 2 1/2"    | (65)  | 1/2"-13  | 5 9/16"  | (141.3) | 4"       | (101.6) | 3 1/16"  | (77.8)  |  |
| B3100-3     | 3"        | (80)  | 1/2"-13  | 6 3/4"   | (171.4) | 4 7/8"   | (123.8) | 3 15/16" | (100.0) |  |
| B3100-3 1/2 | 3 1/2"    | (90)  | 1/2"-13  | 7"       | (177.8) | 5"       | (127.0) | 4 1/16"  | (103.2) |  |
| B3100-4     | 4"        | (100) | 5/8"-11  | 7 13/16" | (198.4) | 5 1/2"   | (139.7) | 4 3/8"   | (111.1) |  |
| B3100-5     | 5"        | (125) | 5/8"-11  | 9 1/16"  | (230.2) | 6 1/8"   | (155.6) | 5"       | (127.0) |  |
| B3100-6     | 6"        | (150) | 3/4"-10  | 10 7/16" | (265.1) | 6 15/16" | (176.2) | 5 11/16" | (144.5) |  |
| B3100-8     | 8"        | (200) | 3/4"-10  | 12 3/4"  | (323.8) | 8 3/8"   | (212.7) | 7 1/8"   | (181.0) |  |

| Part No.    | E      |        | Adjustment F |        | Design Load |        | Approx. Wt./100 |         |
|-------------|--------|--------|--------------|--------|-------------|--------|-----------------|---------|
|             | in.    | (mm)   | in.          | (mm)   | Lbs.        | (kN)   | Lbs.            | (kg)    |
| B3100-1/2   | 2 1/2" | (63.5) | 7/16"        | (11.1) | 730         | (3.25) | 25              | (11.3)  |
| B3100-3/4   | 2 1/2" | (63.5) | 1/2"         | (12.7) | 730         | (3.25) | 29              | (13.1)  |
| B3100-1     | 2 1/2" | (63.5) | 5/8"         | (15.9) | 730         | (3.25) | 35              | (15.9)  |
| B3100-1 1/4 | 2 1/2" | (63.5) | 7/8"         | (22.2) | 730         | (3.25) | 40              | (18.1)  |
| B3100-1 1/2 | 2 1/2" | (63.5) | 1 3/16"      | (30.2) | 730         | (3.25) | 42              | (19.0)  |
| B3100-2     | 2 1/2" | (63.5) | 1 5/8"       | (41.3) | 730         | (3.25) | 52              | (23.6)  |
| B3100-2 1/2 | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 90              | (40.8)  |
| B3100-3     | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 110             | (49.9)  |
| B3100-3 1/2 | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 142             | (64.4)  |
| B3100-4     | 2 1/2" | (63.5) | 2"           | (50.8) | 1430        | (6.36) | 132             | (59.9)  |
| B3100-5     | 2 1/2" | (63.5) | 2"           | (50.8) | 1430        | (6.36) | 215             | (97.5)  |
| B3100-6     | 3"     | (76.2) | 2"           | (50.8) | 1940        | (8.63) | 320             | (145.1) |
| B3100-8     | 3 1/2" | (88.9) | 2 5/16"      | (58.7) | 2000        | (8.89) | 485             | (220.0) |



B3100C



B3100F

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# TRAPEZE BRACING

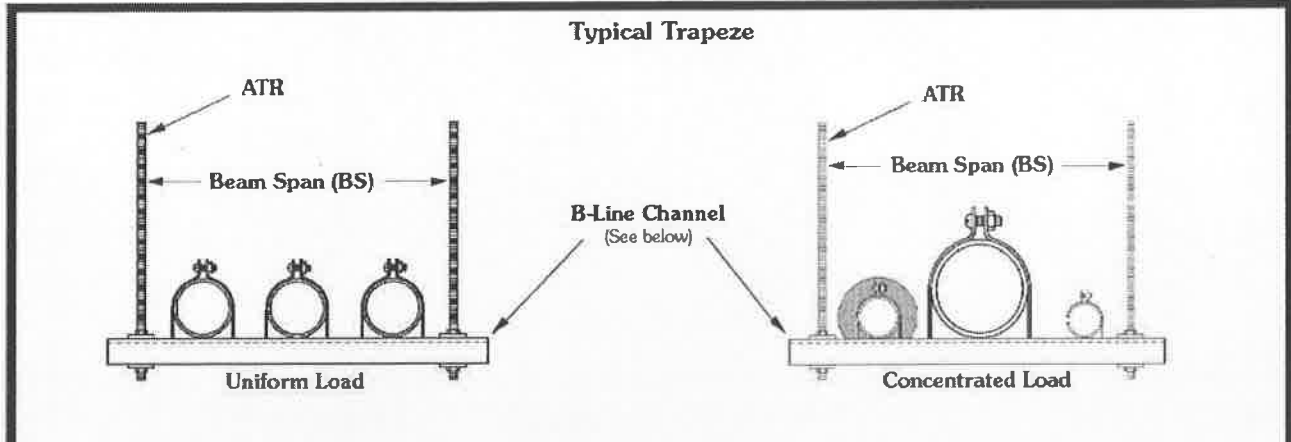


Table 4

| Beam Span (BS)<br>in. (mm) | Channel Type & Uniform Beam Load Rating |         |      |         |      |         |      |         |       |         |      |         |       |         |
|----------------------------|---|---------|------|---------|------|---------|------|---------|-------|---------|------|---------|-------|---------|
|                            | B22SH                                   |         | B22  |         | B22A |         | B12  |         | B12A* |         | B11  |         | B11A* |         |
|                            | lbs.                                    | (kN)    | lbs. | (kN)    | lbs. | (kN)    | lbs. | (kN)    | lbs.  | (kN)    | lbs. | (kN)    | lbs.  | (kN)    |
| 12" (305)                  | 2553                                    | (11.35) | 2837 | (12.62) | 8165 | (36.32) | 5498 | (24.45) | 3259  | (14.49) | 4395 | (19.54) | 4309  | (19.16) |
| 24" (610)                  | 1276                                    | (5.68)  | 1418 | (6.31)  | 4083 | (18.16) | 2750 | (12.23) | 3259  | (14.49) | 4395 | (19.54) | 4309  | (19.16) |
| 36" (914)                  | 851                                     | (3.78)  | 946  | (4.21)  | 2722 | (12.11) | 1833 | (8.15)  | 3259  | (14.49) | 2930 | (13.03) | 4309  | (19.16) |
| 48" (1219)                 | 638                                     | (2.84)  | 709  | (3.15)  | 2042 | (9.08)  | 1374 | (6.11)  | 3259  | (14.49) | 2197 | (9.77)  | 4309  | (19.16) |
| 60" (1524)                 | 511                                     | (2.27)  | 568  | (2.52)  | 1633 | (7.26)  | 1100 | (4.89)  | 3231  | (14.37) | 1758 | (7.82)  | 4309  | (19.16) |
| 72" (1829)                 | 426                                     | (1.89)  | 473  | (2.10)  | 1361 | (6.05)  | 916  | (4.07)  | 2693  | (11.98) | 1465 | (6.51)  | 4309  | (19.16) |
| 84" (2133)                 | 365                                     | (1.62)  | 405  | (1.80)  | 1167 | (5.19)  | 785  | (3.49)  | 2308  | (10.26) | 1256 | (5.58)  | 3824  | (17.01) |
| 96" (2438)                 | 319                                     | (1.42)  | 354  | (1.57)  | 1021 | (4.54)  | 687  | (3.05)  | 2019  | (8.98)  | 1011 | (4.49)  | 3346  | (14.88) |
| 108" (2743)                | 284                                     | (1.26)  | 315  | (1.40)  | 908  | (4.04)  | 611  | (2.72)  | 1795  | (7.98)  | 977  | (4.34)  | 2974  | (13.23) |
| 120" (3048)                | 255                                     | (1.13)  | 283  | (1.26)  | 817  | (3.63)  | 550  | (2.44)  | 1616  | (7.19)  | 879  | (3.91)  | 2677  | (11.91) |

- Loads shown in chart have a safety factor of 2.
- Based on uniformly loaded simple span with adequate lateral bracing using an allowable stress of 21,000 psi (144.7 MPa).
- To determine concentrated load capacity at mid-span, multiply the uniform load by 0.5.
- Refer to note 3c) on page 17 for uniform and concentrated load requirements.
- Use 90% of the solid channel loads for corresponding SH and SHA channels.
- Refer to note Q) on page 10 for installations requiring insulated pipe.
- These back to back channels are mig welded.

Table 4A

| Structure Connection Type | Channel type and maximum beam span for longitudinal beam loading |        |     |        |      |        |     |        |       |         |     |        |       |         |
|---------------------------|--|--------|-----|--------|------|--------|-----|--------|-------|---------|-----|--------|-------|---------|
|                           | B22SH  |        | B22 |        | B22A |        | B12 |        | B12A* |         | B11 |        | B11A* |         |
|                           | in.  | (mm)   | in. | (mm)   | in.  | (mm)   | in. | (mm)   | in.   | (mm)    | in. | (mm)   | in.   | (mm)    |
| I                         | 176  | (4470) | 196 | (4978) | 391  | (9931) | 276 | (7010) | 552   | (14021) | 357 | (9068) | 714   | (18135) |
| II                        | 103  | (2616) | 114 | (2895) | 228  | (5791) | 161 | (4089) | 322   | (8179)  | 208 | (5283) | 416   | (10566) |
| III                       | 68   | (1727) | 76  | (1930) | 152  | (3861) | 107 | (2718) | 215   | (5461)  | 139 | (3530) | 278   | (7061)  |
| IV                        | 46   | (1168) | 51  | (1295) | 101  | (2565) | 72  | (1829) | 143   | (3632)  | 93  | (2362) | 185   | (4699)  |
| V                         | 32   | (813)  | 35  | (889)  | 70   | (1778) | 50  | (1270) | 99    | (2514)  | 64  | (1625) | 128   | (3251)  |

**REGISTERED PROFESSIONAL ENGINEER**  
**RAAFAT S. ABOULHOSS**  
 No. S3913  
 Exp. 12-31-07  
**STRUCTURAL**  
 STATE OF CALIFORNIA

Raafat S. Aboulhoss  
Structural Engineer S 3913

## B-Line

**COOPER B-Line**  
 509 West Monroe Street  
 Highland, Illinois 62249  
 Phone: 800-851-7415  
 Fax: 618-654-1917

**A P P R O V E D**  
 Fixed Equipment Anchorage  
 Office of Statewide Health Planning and Development

**OPA-0114**

on  
 Friday, June 2, 2006

*Anthony R. Pike*  
 Anthony R. Pike (916) 654-3582

Date: 6 - 2 - 06

Page No. 22

Sheet Number: \_\_\_ of \_\_\_

# Pipe Hangers

## B3198H - Hinged Extension Split Pipe Clamp (TOLCO Fig. 302)

**Size Range:** 3/8" (10mm) to 3" (80mm) pipe

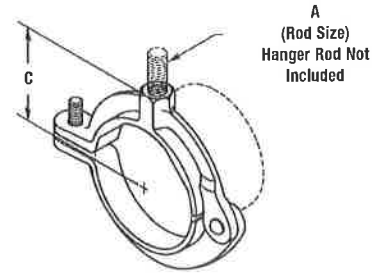
**Material:** Malleable Iron

**Function:** Designed for suspending non-insulated pipe horizontally or vertically.

**Approvals:** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

**Standard Finish:** Plain or Electro-Galvanized

**Order By:** Part number and finish.



| Part No.    | Pipe Size |      | Rod Size | C       |        | Design Load |        | Approx. Wt./100 |        |
|-------------|-----------|------|----------|---------|--------|-------------|--------|-----------------|--------|
|             | in.       | (mm) | A        | in.     | (mm)   | Lbs.        | kN     | Lbs.            | kg     |
| B3198H-3/8  | 3/8"      | (10) | 3/8"-16  | 31/32"  | (24.6) | 180         | (.80)  | 9               | (4.1)  |
| B3198H-1/2  | 1/2"      | (15) | 3/8"-16  | 11/16"  | (27.0) | 180         | (.80)  | 12              | (5.4)  |
| B3198H-3/4  | 3/4"      | (20) | 3/8"-16  | 17/32"  | (30.9) | 180         | (.80)  | 12              | (5.4)  |
| B3198H-1    | 1"        | (25) | 3/8"-16  | 111/32" | (34.1) | 180         | (.80)  | 13              | (5.9)  |
| B3198H-11/4 | 11/4"     | (32) | 3/8"-16  | 119/32" | (39.7) | 180         | (.80)  | 18              | (8.1)  |
| B3198H-11/2 | 11/2"     | (40) | 3/8"-16  | 123/32" | (43.6) | 180         | (.80)  | 21              | (9.5)  |
| B3198H-2    | 2"        | (50) | 3/8"-16  | 2"      | (50.8) | 180         | (.80)  | 44              | (19.9) |
| B3198H-21/2 | 21/2"     | (65) | 1/2"-13  | 211/32" | (59.5) | 300         | (1.33) | 73              | (33.1) |
| B3198H-3    | 3"        | (80) | 1/2"-13  | 223/32" | (69.0) | 300         | (1.33) | 95              | (43.1) |

## B3198R - Extension Split Pipe Clamp

**Size Range:** 3/8" (10mm) to 4" (100mm) pipe

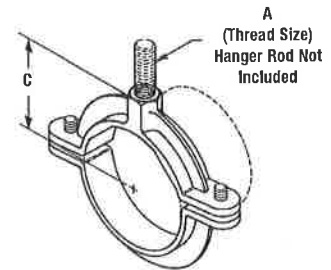
**Material:** Malleable Iron

**Function:** Designed for suspending non-insulated pipe horizontally or vertically.

**Approvals:** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

**Standard Finish:** Plain or Electro-Galvanized. Contact B-Line for alternative finishes and materials.

**Order By:** Part number and finish.



| Part No.<br>Rod Thread | Pipe Size |       | Rod<br>Thread Size | C       |        | Design Load |        | Approx. Wt./100 |        |
|------------------------|-----------|-------|--------------------|---------|--------|-------------|--------|-----------------|--------|
|                        | in.       | (mm)  | A                  | in.     | (mm)   | Lbs.        | (kN)   | Lbs.            | (kg)   |
| B3198R-3/8             | 3/8"      | (10)  | 3/8"-16            | 31/32"  | (24.6) | 180         | (.80)  | 12              | (5.4)  |
| B3198R-1/2             | 1/2"      | (15)  | 3/8"-16            | 11/16"  | (27.0) | 180         | (.80)  | 16              | (7.2)  |
| B3198R-3/4             | 3/4"      | (20)  | 3/8"-16            | 17/32"  | (30.9) | 180         | (.80)  | 18              | (8.1)  |
| B3198R-1               | 1"        | (25)  | 3/8"-16            | 111/32" | (34.1) | 180         | (.80)  | 24              | (10.9) |
| B3198R-11/4            | 11/4"     | (32)  | 3/8"-16            | 119/32" | (39.7) | 180         | (.80)  | 29              | (13.1) |
| B3198R-11/2            | 11/2"     | (40)  | 3/8"-16            | 123/32" | (43.6) | 180         | (.80)  | 32              | (14.5) |
| B3198R-2               | 2"        | (50)  | 3/8"-16            | 2"      | (50.8) | 180         | (.80)  | 39              | (17.7) |
| B3198R-21/2            | 21/2"     | (65)  | 1/2"-13            | 211/32" | (59.5) | 300         | (1.33) | 115             | (52.1) |
| B3198R-3               | 3"        | (80)  | 1/2"-13            | 223/32" | (69.0) | 300         | (1.33) | 140             | (63.5) |
| B3198R-4               | 4"        | (100) | 1/2"-13            | 311/32" | (84.9) | 300         | (1.33) | 160             | (72.6) |

Pipe Hangers

## B3198HCT - Hinged Extension Split Pipe Clamp (TOLCO Fig. 301CT)

**Size Range:** 1/2" (15mm) to 2" (50mm) copper tubing

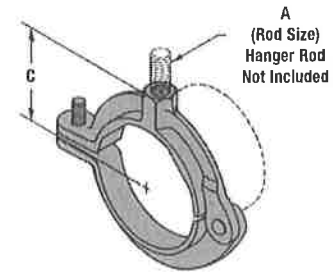
**Material:** Malleable Iron

**Function:** A rigid support to suspend tubing horizontally or vertically.

**Approvals:** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

**Standard Finish:** DURA-COPPER™

**Order By:** Part number and finish.



| Part No.       | Tubing Size |      | Rod Size<br>A | C       |        | Design Load |       | Approx. Wt./100 |        |
|----------------|-------------|------|---------------|---------|--------|-------------|-------|-----------------|--------|
|                | in.         | (mm) |               | in.     | (mm)   | Lbs.        | (kN)  | Lbs.            | (kg)   |
| B3198HCT-1/2   | 1/2"        | (15) | 3/8"-16       | 5/8"    | (15.9) | 180         | (.80) | 8               | (3.6)  |
| B3198HCT-3/4   | 3/4"        | (20) | 3/8"-16       | 13/16"  | (20.6) | 180         | (.80) | 10              | (4.5)  |
| B3198HCT-1     | 1"          | (25) | 3/8"-16       | 15/16"  | (23.8) | 180         | (.80) | 10              | (4.5)  |
| B3198HCT-1 1/4 | 1 1/4"      | (32) | 3/8"-16       | 1 1/8"  | (28.6) | 180         | (.80) | 14              | (6.3)  |
| B3198HCT-1 1/2 | 1 1/2"      | (40) | 3/8"-16       | 1 9/16" | (39.7) | 180         | (.80) | 18              | (8.1)  |
| B3198HCT-2     | 2"          | (50) | 3/8"-16       | 1 7/8"  | (47.6) | 180         | (.80) | 23              | (10.4) |

## B3198RCT - Extension Split Pipe Clamp

**Size Range:** 1/2" (15mm) to 2" (50mm) copper tubing

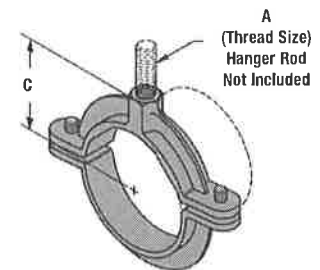
**Material:** Malleable Iron

**Function:** A rigid support to suspend tubing horizontally or vertically.

**Approvals:** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 25 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 12.

**Standard Finish:** DURA-COPPER™

**Order By:** Part number and finish.



| Part No.       | Tubing Size |      | Rod Size<br>A | C        |        | Design Load |       | Approx. Wt./100 |        |
|----------------|-------------|------|---------------|----------|--------|-------------|-------|-----------------|--------|
|                | in.         | (mm) |               | in.      | (mm)   | Lbs.        | (kN)  | Lbs.            | (kg)   |
| B3198RCT-3/8   | 3/8"        | (10) | 3/8"-16       | 1 1/16"  | (17.5) | 180         | (.80) | 12              | (5.4)  |
| B3198RCT-1/2   | 1/2"        | (15) | 3/8"-16       | 1 11/16" | (17.5) | 180         | (.80) | 12              | (5.4)  |
| B3198RCT-3/4   | 3/4"        | (20) | 3/8"-16       | 7/8"     | (22.2) | 180         | (.80) | 14              | (6.3)  |
| B3198RCT-1     | 1"          | (25) | 3/8"-16       | 1 1/16"  | (27.0) | 180         | (.80) | 17              | (7.7)  |
| B3198RCT-1 1/4 | 1 1/4"      | (32) | 3/8"-16       | 1 1/8"   | (28.6) | 180         | (.80) | 17              | (7.7)  |
| B3198RCT-1 1/2 | 1 1/2"      | (40) | 3/8"-16       | 1 5/16"  | (33.3) | 180         | (.80) | 22              | (10.0) |
| B3198RCT-2     | 2"          | (50) | 3/8"-16       | 1 1/2"   | (38.1) | 180         | (.80) | 26              | (11.8) |

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# Pipe Hangers

## B3170CT - Adjustable Swivel Hanger for Copper Tubing (TOLCO Fig. 202) B3170CTC - Adjustable Swivel Hanger for Copper Tubing - Plastic Coated

**Size Range:** 1/2" (15mm) thru 6" (150mm) copper tubing

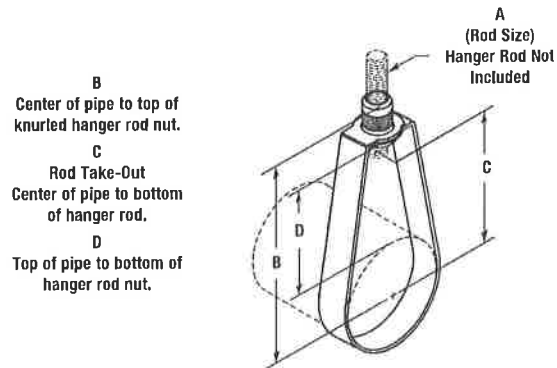
**Material:** Steel

**Function:** Recommended for the suspension of copper tubing, allowing for vertical adjustment. (Available with plastic coating to provide additional separation between tubing and hanger.)

**Approvals:** Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

**Standard Finish:** DURA-COPPER™

**Order By:** Part number and finish.



| Part No.      | Nominal Pipe Size |       | Rod Size<br>A | B        |         | C       |         | D        |        |
|---------------|-------------------|-------|---------------|----------|---------|---------|---------|----------|--------|
|               | in.               | (mm)  |               | in.      | (mm)    | in.     | (mm)    | in.      | (mm)   |
| B3170CT-1/2   | 1/2"              | (15)  | 3/8"-16       | 2 1/16"  | (52.4)  | 1 1/8"  | (28.6)  | 3 1/32"  | (24.6) |
| B3170CT-3/4   | 3/4"              | (20)  | 3/8"-16       | 2 5/16"  | (58.7)  | 1 5/16" | (33.3)  | 1 1/32"  | (26.2) |
| B3170CT-1     | 1"                | (25)  | 3/8"-16       | 2 1/2"   | (63.5)  | 1 9/16" | (39.7)  | 1 5/32"  | (29.3) |
| B3170CT-1 1/4 | 1 1/4"            | (32)  | 3/8"-16       | 2 1/2"   | (63.5)  | 1 9/16" | (39.7)  | 1"       | (25.4) |
| B3170CT-1 1/2 | 1 1/2"            | (40)  | 3/8"-16       | 2 15/16" | (74.6)  | 2"      | (50.8)  | 1 5/16"  | (33.3) |
| B3170CT-2     | 2"                | (50)  | 3/8"-16       | 3 1/8"   | (79.4)  | 2 1/8"  | (54.0)  | 1 3/16"  | (30.2) |
| B3170CT-2 1/2 | 2 1/2"            | (65)  | 1/2"-13       | 4 1/16"  | (103.2) | 2 9/16" | (65.1)  | 1 3/8"   | (34.9) |
| B3170CT-3     | 3"                | (75)  | 1/2"-13       | 3 15/16" | (100.0) | 3 3/4"  | (95.2)  | 1 1/4"   | (31.7) |
| B3170CT-3 1/2 | 3 1/2"            | (90)  | 1/2"-13       | 4 7/16"  | (112.7) | 3 1/4"  | (82.5)  | 1 1/2"   | (38.1) |
| B3170CT-4     | 4"                | (100) | 1/2"-13       | 4 11/16" | (119.1) | 3 9/16" | (89.6)  | 1 9/16"  | (39.7) |
| B3170CT-5     | 5"                | (125) | 1/2"-13       | 5 15/16" | (150.8) | 4 5/16" | (109.5) | 1 25/32" | (45.2) |
| B3170CT-6     | 6"                | (150) | 1/2"-13       | 6 11/16" | (169.9) | 5 3/16" | (131.8) | 2 1/8"   | (54.0) |

Pipe Hangers

| Part No.      | Max. Rec. Load |        | Approx. Wt./100 |        |
|---------------|----------------|--------|-----------------|--------|
|               | lbs.           | (kN)   | lbs.            | (kg)   |
| B3170CT-1/2   | 180            | (0.80) | 8               | (6.6)  |
| B3170CT-3/4   | 180            | (0.80) | 10              | (4.5)  |
| B3170CT-1     | 180            | (0.80) | 10              | (4.5)  |
| B3170CT-1 1/4 | 180            | (0.80) | 12              | (5.4)  |
| B3170CT-1 1/2 | 180            | (0.80) | 12              | (5.4)  |
| B3170CT-2     | 180            | (0.80) | 12              | (5.4)  |
| B3170CT-2 1/2 | 200            | (0.89) | 31              | (24.0) |
| B3170CT-3     | 250            | (1.11) | 33              | (14.9) |
| B3170CT-3 1/2 | 300            | (1.33) | 39              | (17.2) |
| B3170CT-4     | 360            | (1.60) | 40              | (18.1) |
| B3170CT-5     | 480            | (2.13) | 95              | (43.1) |
| B3170CT-6     | 630            | (2.80) | 118             | (53.5) |



B3170CT



B3170CTC

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# Pipe Hangers

**Fig. 200 - "Trimline" Adjustable Band Hanger (B-Line B3170NF)**

**Fig. 200F - "Trimline" Adjustable Band Hanger with Felt Lining for Copper Tubing (B-Line B3170NFF)**

**Fig. 200C - "Trimline" Adjustable Band Hanger with Plastic Coated (B-Line B3170NFC)**

**Size Range:**

Fig. 200 - 1/2" (15mm) thru 8" (200mm) pipe

**Material:** Steel, Pre-Galvanized to G90 specifications

**Function:** For fire sprinkler and other general piping purposes. Knurled swivel nut design permits hanger adjustment after installation.

**Features:**

- (1/2" (15mm) thru 2" (50mm)) Flared edges ease installation for all pipe types and protect CPVC plastic pipe from abrasion. Captured design keeps adjusting nut from separating with hanger. Hanger is easily installed around pipe.
- (2 1/2" (65mm) thru 8" (200mm)) Spring tension on nut holds it securely in hanger before installation. Adjusting nut is easily removed.

**Approvals:** Underwriters Laboratories listed (1/2" (15mm) thru 8" (200mm)) in the USA (UL) and Canada (cUL) for steel and CPVC plastic pipe and Factory Mutual Engineering Approved (3/4" (20mm) thru 8" (200mm)). Conforms to Federal Specifications WW-H-171E & A-A-1192A, Type 10 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 10.

**Maximum Temperature:** 650°F (343°C)

**Finish:** Pre-Galvanized. Stainless Steel materials will be supplied with (2) hex nuts in place of a knurl nub.

**Order By:** Part number and pipe size

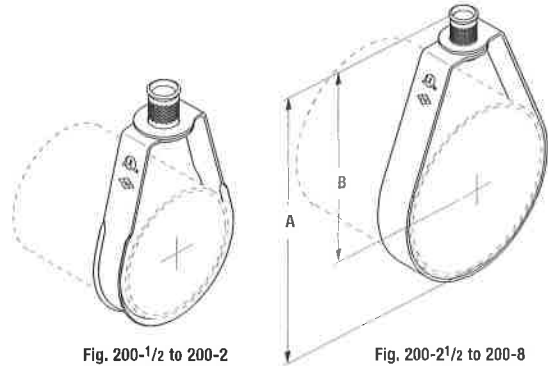


Fig. 200-1/2 to 200-2

Fig. 200-2 1/2 to 200-8



Fig. 200C



Fig. 200F



Fig. 200

**\*\* Note:** For metric hanger rod sizes add the metric rod size to the figure number.  
Example: 200M8-1 1/2 or 200M10-1 1/2

Pipe Hangers

| Part No.  | Pipe Size |       | Rod Size |           | A       |         | B      |         | Max. Rec. Load |        | Approx. Wt./100 |        |
|-----------|-----------|-------|----------|-----------|---------|---------|--------|---------|----------------|--------|-----------------|--------|
|           | in.       | (mm)  | in.      | mm**      | in.     | (mm)    | in.    | (mm)    | lbs.           | (kN)   | lbs.            | (kg)   |
| 200-1/2   | 1/2"      | (15)  | 3/8"-16  | M8 or M10 | 3 1/8"  | (79.4)  | 2 5/8" | (66.7)  | 400            | (1.78) | 11              | (5.0)  |
| 200-3/4   | 3/4"      | (20)  | 3/8"-16  | M8 or M10 | 3 1/8"  | (79.4)  | 2 1/2" | (63.5)  | 400            | (1.78) | 11              | (5.0)  |
| 200-1     | 1"        | (25)  | 3/8"-16  | M8 or M10 | 3 3/8"  | (85.7)  | 2 5/8" | (66.7)  | 400            | (1.78) | 12              | (5.5)  |
| 200-1 1/4 | 1 1/4"    | (32)  | 3/8"-16  | M8 or M10 | 3 3/4"  | (94.0)  | 2 7/8" | (73.0)  | 400            | (1.78) | 13              | (5.9)  |
| 200-1 1/2 | 1 1/2"    | (40)  | 3/8"-16  | M8 or M10 | 3 7/8"  | (98.4)  | 2 7/8" | (73.0)  | 400            | (1.78) | 14              | (6.4)  |
| 200-2     | 2"        | (50)  | 3/8"-16  | M8 or M10 | 4 1/2"  | (114.3) | 3"     | (76.3)  | 400            | (1.78) | 15              | (6.9)  |
| 200-2 1/2 | 2 1/2"    | (65)  | 3/8"-16  | M10       | 5 5/8"  | (142.9) | 4 1/8" | (104.7) | 600            | (2.67) | 27              | (12.3) |
| 200-3     | 3"        | (75)  | 3/8"-16  | M10       | 5 7/8"  | (149.1) | 4"     | (101.6) | 600            | (2.67) | 29              | (13.3) |
| 200-3 1/2 | 3 1/2"    | (90)  | 3/8"-16  | M10       | 7 3/8"  | (187.3) | 5 1/4" | (133.3) | 600            | (2.67) | 34              | (15.6) |
| 200-4     | 4"        | (100) | 3/8"-16  | M10       | 7 3/8"  | (187.3) | 5"     | (127.0) | 1000           | (4.45) | 35              | (16.0) |
| 200-5     | 5"        | (125) | 1/2"-13  | M12       | 9 1/8"  | (231.8) | 6 1/4" | (158.7) | 1250           | (5.56) | 66              | (30.2) |
| 200-6     | 6"        | (150) | 1/2"-13  | M12       | 10 1/8" | (257.2) | 6 3/4" | (171.4) | 1250           | (5.56) | 73              | (33.4) |
| 200-8     | 8"        | (200) | 1/2"-13  | M12       | 13 1/8" | (333.4) | 8 3/4" | (222.2) | 1250           | (5.56) | 136             | (62.3) |

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# Pipe Hangers

## B3100 - Standard Clevis Hanger (TOLCO Fig.1)

### SLIDE-RITE™ Clevis Hanger Features

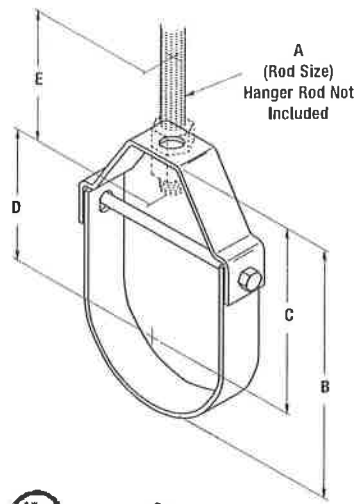
Pipe will not 'pinch' when installing.

15° swing in either direction allows pipe to easily feed thru.

Engineered design aligns bolt holes for quicker overhead installation.

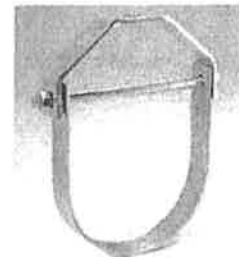
\*SLIDE-RITE™ Clevis Hanger design, as shown below, for sizes 2, 2½, 3, 4, 5 & 6.

Pat. No. 5,848,770  
5,924,655



Component of State of California OSHPD Approved Seismic Restraints System

- B Bottom of pipe to top of hanger.
- C Center of pipe to top of hanger.
- D Rod Take-Out Center of pipe to bottom of hanger rod.
- E Minimum thread length of hanger rod
- F Adjustment Top of cross bolt to bottom of hanger rod nut inside the hanger.



Pipe Hangers

| Part No.      | Nominal Pipe Size |       | Rod Size A |         | B        |          | C         |         | D        |         |
|---------------|-------------------|-------|------------|---------|----------|----------|-----------|---------|----------|---------|
|               | in.               | (mm)  | Std        | NFPA**  | in.      | (mm)     | in.       | (mm)    | in.      | (mm)    |
| B3100-1/2     | 1/2"              | (15)  | 3/8"-16    | 3/8"-16 | 2 1/8"   | (54.0)   | 1 11/16"  | (42.9)  | 1 5/16"  | (23.8)  |
| B3100-3/4     | 3/4"              | (20)  | 3/8"-16    | 3/8"-16 | 2 7/16"  | (61.9)   | 1 7/8"    | (47.6)  | 1 1/8"   | (28.6)  |
| B3100-1       | 1"                | (25)  | 3/8"-16    | 3/8"-16 | 2 13/16" | (71.4)   | 2 1/8"    | (54.0)  | 1 3/8"   | (34.9)  |
| B3100-1 1/4   | 1 1/4"            | (32)  | 3/8"-16    | 3/8"-16 | 3 7/16"  | (87.3)   | 2 9/16"   | (65.1)  | 1 13/16" | (46.0)  |
| B3100-1 1/2   | 1 1/2"            | (40)  | 3/8"-16    | 3/8"-16 | 4"       | (101.6)  | 3"        | (76.2)  | 2 1/4"   | (57.1)  |
| B3100-2 *     | 2"                | (50)  | 3/8"-16    | 3/8"-16 | 4 1/2"   | (114.3)  | 3 1/4"    | (82.5)  | 2 1/2"   | (63.5)  |
| B3100-2 1/2 * | 2 1/2"            | (65)  | 1/2"-13    | 3/8"-16 | 5 9/16"  | (141.3)  | 4"        | (101.6) | 3 1/16"  | (77.8)  |
| B3100-3 *     | 3"                | (80)  | 1/2"-13    | 3/8"-16 | 6 3/4"   | (171.4)  | 4 7/8"    | (123.8) | 3 15/16" | (100.0) |
| B3100-3 1/2   | 3 1/2"            | (90)  | 1/2"-13    | 3/8"-16 | 7"       | (177.8)  | 5"        | (127.0) | 4 1/16"  | (103.2) |
| B3100-4 *     | 4"                | (100) | 5/8"-11    | 3/8"-16 | 7 13/16" | (198.4)  | 5 1/2"    | (139.7) | 4 3/8"   | (111.1) |
| B3100-5 *     | 5"                | (125) | 5/8"-11    | 1/2"-13 | 9 1/16"  | (230.2)  | 6 1/8"    | (155.6) | 5"       | (127.0) |
| B3100-6 *     | 6"                | (150) | 3/4"-10    | 1/2"-13 | 10 7/16" | (265.1)  | 6 15/16"  | (176.2) | 5 11/16" | (144.5) |
| B3100-8       | 8"                | (200) | 3/4"-10    | 1/2"-13 | 12 3/4"  | (323.8)  | 8 3/8"    | (212.7) | 7 1/8"   | (181.0) |
| B3100-10      | 10"               | (250) | 7/8"-9     | 5/8"-11 | 15 1/4"  | (387.3)  | 9 13/16"  | (249.2) | 8 3/8"   | (212.7) |
| B3100-12      | 12"               | (300) | 7/8"-9     | 5/8"-11 | 17 5/8"  | (447.7)  | 11 13/16" | (284.2) | 9 11/16" | (246.1) |
| B3100-14      | 14"               | (350) | 1"-8       | --      | 19 9/16" | (496.9)  | 12 1/2"   | (317.5) | 10 5/8"  | (269.9) |
| B3100-16      | 16"               | (400) | 1"-8       | --      | 21 7/16" | (544.5)  | 13 5/16"  | (338.1) | 11 9/16" | (293.7) |
| B3100-18      | 18"               | (450) | 1"-8       | --      | 25"      | (635.0)  | 15 7/8"   | (403.2) | 14 3/16" | (360.3) |
| B3100-20      | 20"               | (500) | 1 1/4"-7   | --      | 27 1/2"  | (698.5)  | 17 3/8"   | (441.3) | 16 5/8"  | (422.3) |
| B3100-24      | 24"               | (600) | 1 1/4"-7   | --      | 31 3/4"  | (806.4)  | 19 5/8"   | (498.5) | 18 5/8"  | (473.1) |
| B3100-30      | 30"               | (750) | 1 1/4"-7   | --      | 38 7/8"  | (987.3)  | 23 3/4"   | (603.2) | 22 3/4"  | (577.8) |
| B3100-36      | 36"               | (900) | 1 1/4"-7   | --      | 46"      | (1168.4) | 27 13/16" | (706.4) | 25"      | (635.0) |

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

# Pipe Hangers

## B3100 - Standard Clevis Hanger (TOLCO Fig.1)

Component of State of California OSHPD Approved Seismic Restraints System

**Size Range:** 1/2" (15mm) to 36" (900mm)

**Material:** Steel

**Function:** Recommended for the suspension of non-insulated pipe or insulated pipe with a B3151 shield.

**Note:** When an oversized clevis is used, a pipe spacer should be placed over the cross bolt to assure that the lower U-strap will not move in on the bolt. When attaching seismic bracing to the clevis hangers, a B3100PS (cross bolt spacer) must be installed. See Seismic Restraints Approval Guidelines.

**Order pipe sleeves Fig. 1CBS-(pipe size) separately.**

**Approvals:** Included in our Seismic Restraints Catalog approved by the State of California Office of Statewide Health Planning and Development (OSHPD). For additional load, spacing and placement information relating to OSHPD projects, please refer to the B-Line/TOLCO Seismic Restraint Systems Guidelines. Underwriter's Laboratories Listed in the USA (UL) and Canada (cUL) for sizes 3/4" (20mm) thru 12" (300mm). Factory Mutual Engineering Approved (FM) for 3/4" (20mm) thru 12" (300mm) pipe. Conforms to Federal Specification WW-H-171E & A-A-1192A, Type 1 and Manufacturers Standardization Society ANSI/MSS SP-69 & SP-58, Type 1. Also available to accommodate rod schedule per per National Fire Protection Association (NFPA) Pamphlet 13.

**Maximum Temperature:** 650°F (343°C).

**Standard Finish:** Plain, Electro-Galvanized, DURA-GREEN™, or Hot-Dip Galvanized also available in Stainless Steel



**Order By:** Part number and finish.

For AWWA - Ductile Iron Clevis Hangers, see B3102, page 51.

**\*\* Note:** Do not use the dimensions shown in the B3100 chart for NFPA hanger sizes. Contact B-Line for NFPA rod sizing on 1/2" (15mm) thru 12" (300mm) pipe. Part numbers will be 1NFPA-pipe size.

| Part No.      | E      |         | Adjustment F |         | Design Load |         | Approx. Wt./100 |          |
|---------------|--------|---------|--------------|---------|-------------|---------|-----------------|----------|
|               | in.    | (mm)    | in.          | (mm)    | Lbs.        | (kN)    | Lbs.            | (kg)     |
| B3100-1/2     | 2 1/2" | (63.5)  | 7/16"        | (11.1)  | 730         | (3.25)  | 25              | (11.3)   |
| B3100-3/4     | 2 1/2" | (63.5)  | 1/2"         | (12.7)  | 730         | (3.25)  | 29              | (13.1)   |
| B3100-1       | 2 1/2" | (63.5)  | 5/8"         | (15.9)  | 730         | (3.25)  | 35              | (15.9)   |
| B3100-1 1/4   | 2 1/2" | (63.5)  | 7/8"         | (22.2)  | 730         | (3.25)  | 40              | (18.1)   |
| B3100-1 1/2   | 2 1/2" | (63.5)  | 1 3/16"      | (30.2)  | 730         | (3.25)  | 42              | (19.0)   |
| B3100-2 *     | 2 1/2" | (63.5)  | 1 5/8"       | (41.3)  | 730         | (3.25)  | 52              | (23.6)   |
| B3100-2 1/2 * | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 90              | (40.8)   |
| B3100-3 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 110             | (49.9)   |
| B3100-3 1/2   | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1350        | (6.00)  | 142             | (64.4)   |
| B3100-4 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1430        | (6.36)  | 132             | (59.9)   |
| B3100-5 *     | 2 1/2" | (63.5)  | 2"           | (50.8)  | 1430        | (6.36)  | 215             | (97.5)   |
| B3100-6 *     | 3"     | (76.2)  | 2"           | (50.8)  | 1940        | (8.63)  | 320             | (145.1)  |
| B3100-8       | 3 1/2" | (88.9)  | 2 5/16"      | (58.7)  | 2000        | (8.89)  | 485             | (220.0)  |
| B3100-10      | 3 1/2" | (88.9)  | 2 5/16"      | (58.7)  | 3600        | (16.01) | 846             | (383.7)  |
| B3100-12      | 3 1/2" | (88.9)  | 2 5/8"       | (66.7)  | 3800        | (16.90) | 1083            | (491.2)  |
| B3100-14      | 4"     | (101.6) | 2 7/8"       | (73.0)  | 4200        | (18.68) | 1432            | (649.5)  |
| B3100-16      | 4"     | (101.6) | 2 11/16"     | (68.3)  | 4600        | (20.46) | 2200            | (997.9)  |
| B3100-18      | 4 1/2" | (114.3) | 3 15/16"     | (100.0) | 4800        | (21.35) | 2500            | (1134.0) |
| B3100-20      | 5"     | (127.0) | 5 3/8"       | (136.5) | 4800        | (21.35) | 4400            | (1995.8) |
| B3100-24      | 5"     | (127.0) | 5 3/8"       | (136.5) | 4800        | (21.35) | 5000            | (2268.0) |
| B3100-30      | 5"     | (127.0) | 6 1/4"       | (158.7) | 6000        | (26.69) | 6600            | (2993.7) |
| B3100-36      | 5"     | (127.0) | 5 7/16"      | (138.1) | 6000        | (26.69) | 8474            | (3843.8) |

\*SLIDE-RITE™ Clevis Hanger design, as shown above, for sizes 2, 2 1/2, 3, 4, 5 & 6.

All dimensions in charts and on drawings are in inches. Dimensions shown in parentheses are in millimeters unless otherwise specified.

Pipe Hangers

# Pipe Hangers

## B3100C - Standard Clevis Hanger - Plastic Coated (TOLCO Fig.1PVC)

## B3100F - Standard Clevis Hanger - Felt Lined for Copper Tubing (TOLCO Fig.1F)

**Size Range:** 1/2" (15mm) to 8" (200mm) pipe

**Material:** Steel

**Insulation Material:** 3/16" (4.8mm) Felt

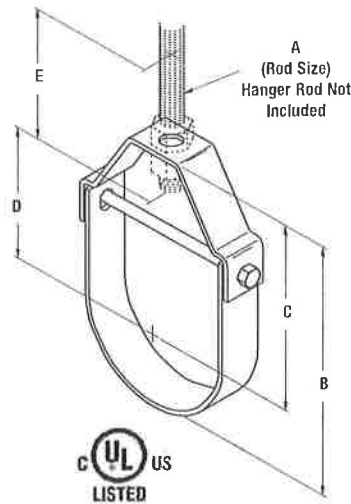
**Service:** The B3100F is designed for the suspension of copper tube so as to prevent electrolysis between tubing and hanger. The B3100C is designed for steel or other pipe types of the same O.D. Both B3100F and B3100C act to reduce noise and vibration in pipe or tubing systems.

**Approvals:** Underwriter's Laboratories Listed in the USA (UL) and Canada (cUL).

**Maximum Temperature:** 650°F (343°C).

**Standard Finish:** Plain, Electro-Galvanized, or Hot-Dip Galvanized. Contact B-Line for alternative finishes and materials.

**Order By:** Part number and finish.



- B Bottom of pipe to top of hanger.
- C Center of pipe to top of hanger.
- D Rod Take-Out Center of pipe to bottom of hanger rod.
- E Minimum thread length of hanger rod
- F Adjustment Top of cross bolt to bottom of hanger rod nut inside the hanger.



Pipe Hangers

| Part No.    | Pipe Size |       | Rod Size<br>A | B        |         | C        |         | D        |         |
|-------------|-----------|-------|---------------|----------|---------|----------|---------|----------|---------|
|             | in.       | (mm)  |               | in.      | (mm)    | in.      | (mm)    | in.      | (mm)    |
| B3100-1/2   | 1/2"      | (15)  | 3/8"-16       | 2 1/8"   | (54.0)  | 1 11/16" | (42.9)  | 1 5/16"  | (23.8)  |
| B3100-3/4   | 3/4"      | (20)  | 3/8"-16       | 2 7/16"  | (61.9)  | 1 7/8"   | (47.6)  | 1 1/8"   | (28.6)  |
| B3100-1     | 1"        | (25)  | 3/8"-16       | 2 13/16" | (71.4)  | 2 1/8"   | (54.0)  | 1 3/8"   | (34.9)  |
| B3100-1 1/4 | 1 1/4"    | (32)  | 3/8"-16       | 3 7/16"  | (87.3)  | 2 9/16"  | (65.1)  | 1 13/16" | (46.0)  |
| B3100-1 1/2 | 1 1/2"    | (40)  | 3/8"-16       | 4"       | (101.6) | 3"       | (76.2)  | 2 1/4"   | (57.1)  |
| B3100-2     | 2"        | (50)  | 3/8"-16       | 4 1/2"   | (114.3) | 3 1/4"   | (82.5)  | 2 1/2"   | (63.5)  |
| B3100-2 1/2 | 2 1/2"    | (65)  | 1/2"-13       | 5 9/16"  | (141.3) | 4"       | (101.6) | 3 1/16"  | (77.8)  |
| B3100-3     | 3"        | (80)  | 1/2"-13       | 6 3/4"   | (171.4) | 4 7/8"   | (123.8) | 3 5/16"  | (100.0) |
| B3100-3 1/2 | 3 1/2"    | (90)  | 1/2"-13       | 7"       | (177.8) | 5"       | (127.0) | 4 1/16"  | (103.2) |
| B3100-4     | 4"        | (100) | 5/8"-11       | 7 13/16" | (198.4) | 5 1/2"   | (139.7) | 4 3/8"   | (111.1) |
| B3100-5     | 5"        | (125) | 5/8"-11       | 9 1/16"  | (230.2) | 6 1/8"   | (155.6) | 5"       | (127.0) |
| B3100-6     | 6"        | (150) | 3/4"-10       | 10 7/16" | (265.1) | 6 5/16"  | (176.2) | 5 11/16" | (144.5) |
| B3100-8     | 8"        | (200) | 3/4"-10       | 12 3/4"  | (323.8) | 8 3/8"   | (212.7) | 7 1/8"   | (181.0) |

| Part No.    | E      |        | Adjustment F |        | Design Load |        | Approx. Wt./100 |         |
|-------------|--------|--------|--------------|--------|-------------|--------|-----------------|---------|
|             | in.    | (mm)   | in.          | (mm)   | Lbs.        | (kN)   | Lbs.            | (kg)    |
| B3100-1/2   | 2 1/2" | (63.5) | 7/16"        | (11.1) | 730         | (3.25) | 25              | (11.3)  |
| B3100-3/4   | 2 1/2" | (63.5) | 1/2"         | (12.7) | 730         | (3.25) | 29              | (13.1)  |
| B3100-1     | 2 1/2" | (63.5) | 5/8"         | (15.9) | 730         | (3.25) | 35              | (15.9)  |
| B3100-1 1/4 | 2 1/2" | (63.5) | 7/8"         | (22.2) | 730         | (3.25) | 40              | (18.1)  |
| B3100-1 1/2 | 2 1/2" | (63.5) | 1 3/16"      | (30.2) | 730         | (3.25) | 42              | (19.0)  |
| B3100-2     | 2 1/2" | (63.5) | 1 5/8"       | (41.3) | 730         | (3.25) | 52              | (23.6)  |
| B3100-2 1/2 | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 90              | (40.8)  |
| B3100-3     | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 110             | (49.9)  |
| B3100-3 1/2 | 2 1/2" | (63.5) | 2"           | (50.8) | 1350        | (6.00) | 142             | (64.4)  |
| B3100-4     | 2 1/2" | (63.5) | 2"           | (50.8) | 1430        | (6.36) | 132             | (59.9)  |
| B3100-5     | 2 1/2" | (63.5) | 2"           | (50.8) | 1430        | (6.36) | 215             | (97.5)  |
| B3100-6     | 3"     | (76.2) | 2"           | (50.8) | 1940        | (8.63) | 320             | (145.1) |
| B3100-8     | 3 1/2" | (88.9) | 2 5/16"      | (58.7) | 2000        | (8.89) | 485             | (220.0) |



B3100C



B3100F

**TRAPEZE BRACING**

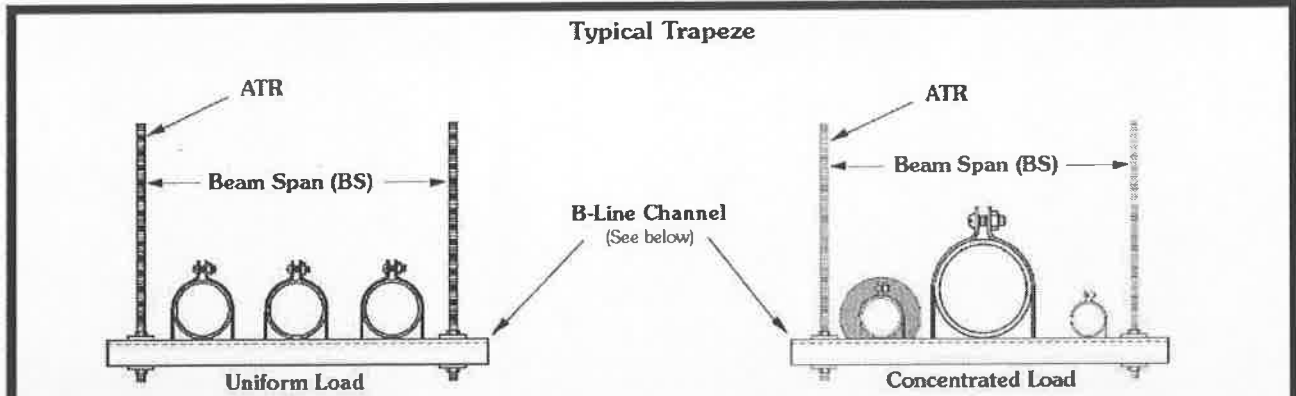


Table 4

| Beam Span (BS) | Channel Type & Uniform Beam Load Rating |      |         |      |         |      |         |      |         |      |         |      |         |      |         |
|----------------|---|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|
|                | B22SH                                   |      | B22     |      | B22A    |      | B12     |      | B12A*   |      | B11     |      | B11A*   |      |         |
|                | in.                                     | (mm) | lbs.    | (kN) | lbs.    | (kN) | lbs.    | (kN) | lbs.    | (kN) | lbs.    | (kN) | lbs.    | (kN) |         |
| 12"            | (305)                                   | 2553 | (11.35) | 2837 | (12.62) | 8165 | (36.32) | 5498 | (24.45) | 3259 | (14.49) | 4395 | (19.54) | 4309 | (19.16) |
| 24"            | (610)                                   | 1276 | (5.68)  | 1418 | (6.31)  | 4083 | (18.16) | 2750 | (12.23) | 3259 | (14.49) | 4395 | (19.54) | 4309 | (19.16) |
| 36"            | (914)                                   | 851  | (3.78)  | 946  | (4.21)  | 2722 | (12.11) | 1833 | (8.15)  | 3259 | (14.49) | 2930 | (13.03) | 4309 | (19.16) |
| 48"            | (1219)                                  | 638  | (2.84)  | 709  | (3.15)  | 2042 | (9.08)  | 1374 | (6.11)  | 3259 | (14.49) | 2197 | (9.77)  | 4309 | (19.16) |
| 60"            | (1524)                                  | 511  | (2.27)  | 568  | (2.52)  | 1633 | (7.26)  | 1100 | (4.89)  | 3231 | (14.37) | 1758 | (7.82)  | 4309 | (19.16) |
| 72"            | (1829)                                  | 426  | (1.89)  | 473  | (2.10)  | 1361 | (6.05)  | 916  | (4.07)  | 2693 | (11.98) | 1465 | (6.51)  | 4309 | (19.16) |
| 84"            | (2133)                                  | 365  | (1.62)  | 405  | (1.80)  | 1167 | (5.19)  | 785  | (3.49)  | 2308 | (10.26) | 1256 | (5.58)  | 3824 | (17.01) |
| 96"            | (2438)                                  | 319  | (1.42)  | 354  | (1.57)  | 1021 | (4.54)  | 687  | (3.05)  | 2019 | (8.98)  | 1011 | (4.49)  | 3346 | (14.88) |
| 108"           | (2743)                                  | 284  | (1.26)  | 315  | (1.40)  | 908  | (4.04)  | 611  | (2.72)  | 1795 | (7.98)  | 977  | (4.34)  | 2974 | (13.23) |
| 120"           | (3048)                                  | 255  | (1.13)  | 283  | (1.26)  | 817  | (3.63)  | 550  | (2.44)  | 1616 | (7.19)  | 879  | (3.91)  | 2677 | (11.91) |

- Loads shown in chart have a safety factor of 2.
- Based on uniformly loaded simple span with adequate lateral bracing using an allowable stress of 21,000 psi (144.7 MPa).
- To determine concentrated load capacity at mid-span, multiply the uniform load by 0.5.
- Refer to note 3c) on page 17 for uniform and concentrated load requirements.
- Use 90% of the solid channel loads for corresponding SH and SHA channels.
- Refer to note Q) on page 10 for installations requiring insulated pipe.
- These back to back channels are mig welded.

Table 4A

| Structure Connection Type | Channel type and maximum beam span for longitudinal beam loading |        |     |        |      |        |     |        |       |         |     |        |       |         |
|---------------------------|--|--------|-----|--------|------|--------|-----|--------|-------|---------|-----|--------|-------|---------|
|                           | B22SH  |        | B22 |        | B22A |        | B12 |        | B12A* |         | B11 |        | B11A* |         |
|                           | in.  | (mm)   | in. | (mm)   | in.  | (mm)   | in. | (mm)   | in.   | (mm)    | in. | (mm)   | in.   | (mm)    |
| I                         | 176  | (4470) | 196 | (4978) | 391  | (9931) | 276 | (7010) | 552   | (14021) | 357 | (9068) | 714   | (18135) |
| II                        | 103  | (2616) | 114 | (2895) | 228  | (5791) | 161 | (4089) | 322   | (8179)  | 208 | (5283) | 416   | (10566) |
| III                       | 68   | (1727) | 76  | (1930) | 152  | (3861) | 107 | (2718) | 215   | (5461)  | 139 | (3530) | 278   | (7061)  |
| IV                        | 46   | (1168) | 51  | (1295) | 101  | (2565) | 72  | (1829) | 143   | (3632)  | 93  | (2362) | 185   | (4699)  |
| V                         | 32   | (813)  | 35  | (889)  | 70   | (1778) | 50  | (1270) | 99    | (2514)  | 64  | (1625) | 128   | (3251)  |



Raafat S. Aboulhosen  
Structural Engineer S 3913

**B-Line**

**COOPER B-Line**  
509 West Monroe Street  
Highland, Illinois 62249  
Phone: 800-851-7415  
Fax: 618-654-1917

Date: 6 - 2 - 06  
Page No. 22  
Sheet Number: \_\_\_ of \_\_\_





# GLOBE UP502\* BRONZE

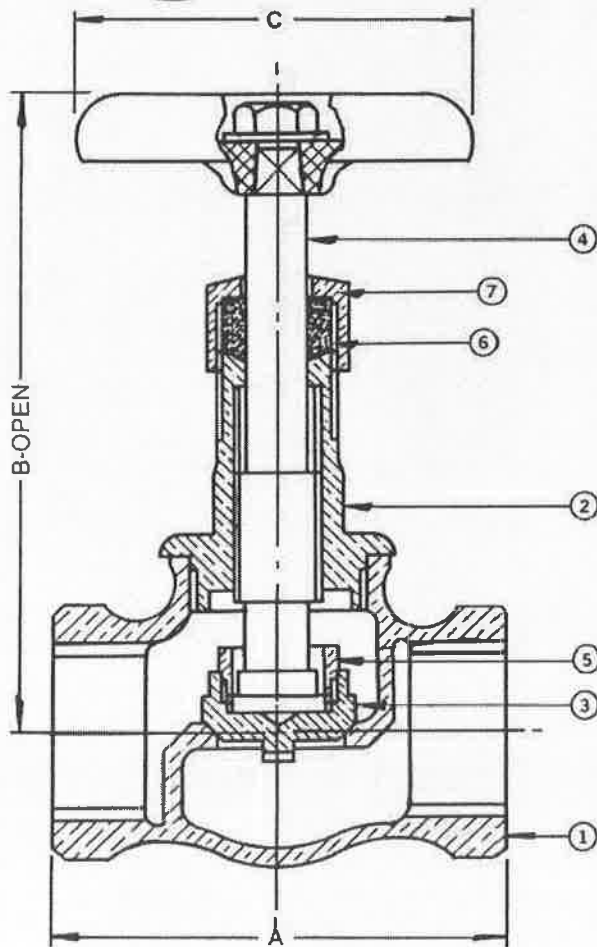
300 lb. WOG†  
Potable Water Service  
Bronze Disc  
Threaded Bonnet  
Threaded Ends



WQA tested and Certified against NSF/ANSI 372 for "lead free" compliance.

Dimensions and Workmanship Conform to MSS SP-80  
Designed in accordance with the requirements of California AB 1953,  
Vermont S 152 and Senate Bill S3874

1/4" to 1/2" sizes have the disc integral with the stem and have no disc ring.



| MATERIAL LIST |                      |            |                                |
|---------------|----------------------|------------|--------------------------------|
| NO.           | PART                 | MATERIAL   | SPECIFICATION                  |
| 1             | Body                 | Bronze     | ASTM B584 C89833               |
| 2             | Bonnet               | Bronze     | ASTM B584 C89833               |
| 3             | Disc                 | Bronze     | ASTM B584 C89833               |
| 4             | Stem                 | Bronze     | ASTM B584 C89833               |
| 5             | Disc Ring            | Brass      | ASTM B283 C27450<br>3/4" to 2" |
| 6             | Packing              | Graphite   | Commercial                     |
| 7             | Packing Nut          | Brass      | ASTM B 16                      |
| 8             | Handwheel            | Mall. Iron | Commercial                     |
| 9             | Identification Plate | Aluminum   | Commercial                     |
| 10            | Handwheel Nut        | Brass      | Commercial                     |

| DIMENSIONS - INCHES / MILLIMETERS |       |        |        |        |                |
|-----------------------------------|-------|--------|--------|--------|----------------|
| Units                             | Size  | A      | B      | C      | C <sub>v</sub> |
| Inches                            | 1/4   | 1.63   | 3.06   | 2.00   | 1.16           |
| mm                                | 6.35  | 41.28  | 77.80  | 50.80  |                |
| Inches                            | 3/8   | 1.81   | 3.19   | 2.00   | 2.21           |
| mm                                | 9.53  | 46.05  | 80.98  | 50.80  |                |
| Inches                            | 1/2   | 2.31   | 3.63   | 2.25   | 3.64           |
| mm                                | 12.70 | 58.75  | 92.08  | 57.15  |                |
| Inches                            | 3/4   | 2.56   | 3.94   | 2.50   | 6.65           |
| mm                                | 19.05 | 65.10  | 100.03 | 63.50  |                |
| Inches                            | 1     | 2.94   | 4.38   | 2.75   | 11.10          |
| mm                                | 25.40 | 74.63  | 111.13 | 69.85  |                |
| Inches                            | 1 1/4 | 3.38   | 5.19   | 3.13   | 20.00          |
| mm                                | 31.75 | 85.73  | 131.78 | 79.38  |                |
| Inches                            | 1 1/2 | 3.69   | 5.75   | 3.50   | 28.00          |
| mm                                | 38.10 | 93.68  | 146.05 | 88.90  |                |
| Inches                            | 2     | 4.44   | 6.75   | 4.00   | 48.00          |
| mm                                | 50.80 | 112.71 | 171.45 | 101.60 |                |

† Non-Shock

Rev. 7

\*Same design as Hammond UP440

Milwaukee Valve Company  
16550 W. Stratton Drive  
New Berlin, WI 53151  
Phone: 262-432-2700  
Fax: 262-432-2701

Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)



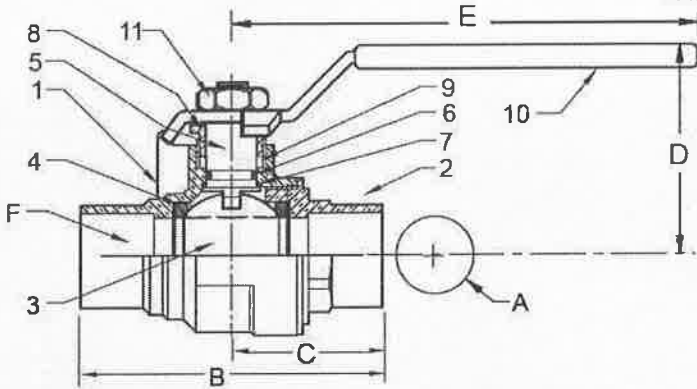


**Brass Ball Valve For Potable Water**  
**Two-Piece • Full-Port**  
**600 PSIG WOG**  
**Solder Ends**

**UPBA485B\* 1/2"-2"**

Dimensions and workmanship conform to MSS SP-110

Designed in accordance with the requirements of California AB 1953, Vermont S 152 and Senate Bill S3874



WQA tested and Certified against NSF/ANSI 372 for "lead free" compliance.

\*Same design as Hammond UP8911

**MATERIALS LIST**

| ITEM | PART          | MATERIALS         | ASTM SPEC.                |
|------|---------------|-------------------|---------------------------|
| 1    | Body          | Brass Forged      | B283 C27450               |
| 2    | Tailpiece     | Brass Forged      | B283 C27450               |
| 3    | Ball          | Brass w/ Chrome   | B283 C69300 Chrome Plated |
| 4    | Ball Seal     | PTFE              | Commercial                |
| 5    | Stem          | Brass             | B283 C69300               |
| 6    | O-Ring        | Buna-N            | D2006                     |
| 7    | Thrust Washer | PTFE              | Commercial                |
| 8    | Gland Nut     | Brass             | B16                       |
| 9    | Packing       | PTFE              | Commercial                |
| 10   | Handle        | Zinc Plated Steel | Commercial                |
| 11   | Handle Nut    | Zinc Plated Steel | Commercial                |

**DIMENSIONS**

| Valve Size | UNITS     | 1/2" | 3/4" | 1"   | 1-1/4" | 1-1/2" | 2"    |
|------------|-----------|------|------|------|--------|--------|-------|
| A          | INCHES    | .50  | .76  | 1.00 | 1.26   | 1.50   | 2.00  |
|            | mm        | 12.7 | 19.3 | 25.0 | 32.0   | 38.1   | 51.0  |
| B          | INCHES    | 2.28 | 3.1  | 3.56 | 4.13   | 4.64   | 5.75  |
|            | mm        | 58   | 79   | 90   | 105    | 118    | 146   |
| C          | INCHES    | 1.14 | 1.55 | 1.78 | 2.06   | 2.32   | 2.87  |
|            | mm        | 29   | 39   | 45   | 52     | 59     | 73    |
| D          | INCHES    | 1.46 | 1.93 | 2.10 | 2.33   | 2.52   | 2.96  |
|            | mm        | 37   | 49   | 53   | 59     | 64     | 75    |
| E          | INCHES    | 3.14 | 4.35 | 4.35 | 5.00   | 5.00   | 6.90  |
|            | mm        | 80   | 110  | 110  | 127    | 127    | 175   |
| F          | TUBE SIZE | .63  | .88  | 1.13 | 1.38   | 1.63   | 2.13  |
|            | Cv        | 18   | 40   | 72   | 112    | 161    | 287   |
| TORQUE     | in-lb     | 19   | 58   | 69   | 89     | 124    | 210   |
|            | N.m       | 2.1  | 6.5  | 7.8  | 10     | 14     | 24    |
| WEIGHT     | lbs       | 0.40 | 0.82 | 1.15 | 1.53   | 2.23   | 4.61  |
|            | Kg        | .180 | .370 | .521 | .696   | 1.012  | 2.092 |

Milwaukee Valve Company  
 16550 W. Stratton Drive  
 New Berlin, WI 53151  
 Phone: 262-432-2700  
 Fax: 262-432-2701

Rev 8

Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

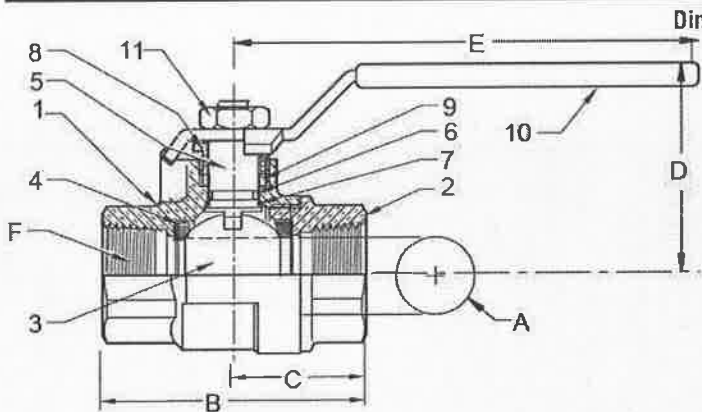
The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)





**Brass Ball Valve For Potable Water**  
**Two-Piece • Full-Port**  
**600 PSIG WOG**  
**Threaded Ends**

**UPBA475B\* 1/4"-2"**



Dimensions and workmanship conform to MSS SP-110  
 ASME A112.4.14

\*Also Available UPBA475B-LL  
 Designed in accordance with the  
 requirements of California AB 1953,  
 Vermont S 152 and Senate Bill S3874



WQA tested and Certified  
 against NSF/ANSI 372  
 for "lead free" compliance.

**MATERIALS LIST**

| ITEM | PART          | MATERIALS         | ASTM SPEC.  |
|------|---------------|-------------------|-------------|
| 1    | Body          | Brass, Forged     | B283 C27450 |
| 2    | Tailpiece     | Brass, Forged     | B283 C27450 |
| 3    | Ball          | Brass w/ Chrome   | C27450      |
| 4    | Ball Seal     | PTFE              | Commercial  |
| 5    | Stem          | Brass             | C27450      |
| 6    | O-Ring        | Buna-N            | D2006       |
| 7    | Thrust Washer | PTFE              | Commercial  |
| 8    | Gland Nut     | Brass             | B16         |
| 9    | Packing       | PTFE              | Commercial  |
| 10   | Handle        | Zinc Plated Steel | Commercial  |
| 11   | Handle Nut    | Zinc Plated Steel | Commercial  |

**DIMENSIONS**

| Valve Size | UNITS       | 1/4"     | 3/8"     | 1/2"     | 3/4"     | 1"     | 1-1/4"     | 1-1/2"     | 2"     |
|------------|-------------|----------|----------|----------|----------|--------|------------|------------|--------|
| A          | INCHES      | .39      | .39      | .51      | .76      | 1.00   | 1.26       | 1.50       | 2.00   |
|            | mm          | 9.9      | 9.9      | 12.7     | 19.3     | 25.0   | 32.0       | 38.1       | 51.0   |
| B          | INCHES      | 1.87     | 1.87     | 2.25     | 2.62     | 3.06   | 3.5        | 3.75       | 4.38   |
|            | mm          | 47       | 47       | 57       | 67       | 78     | 89         | 95         | 111    |
| C          | INCHES      | 0.95     | 0.95     | 1.12     | 1.31     | 1.91   | 2.21       | 1.87       | 2.19   |
|            | mm          | 24       | 24       | 61       | 33       | 49     | 56         | 47         | 56     |
| D          | INCHES      | 1.42     | 1.42     | 1.46     | 1.93     | 2.10   | 2.33       | 2.52       | 2.96   |
|            | mm          | 36       | 36       | 37       | 49       | 53     | 59         | 64         | 75     |
| E          | INCHES      | 3.14     | 3.14     | 3.14     | 4.35     | 4.35   | 5.00       | 5.00       | 6.90   |
|            | mm          | 80       | 80       | 80       | 110      | 110    | 127        | 127        | 175    |
| F          | THREAD SIZE | 1/4" NPT | 3/8" NPT | 1/2" NPT | 3/4" NPT | 1" NPT | 1-1/4" NPT | 1-1/2" NPT | 2" NPT |
| Cv         |             | 12       | 12       | 18       | 40       | 72     | 112        | 161        | 287    |
| TORQUE     | In-lb       | 16       | 16       | 19       | 58       | 69     | 89         | 124        | 210    |
|            | N.m         | 1.8      | 1.8      | 2.1      | 6.5      | 7.8    | 10         | 14         | 24     |
| WEIGHT     | lbs         | 0.33     | 0.34     | 0.47     | 0.89     | 1.24   | 1.66       | 2.34       | 4.94   |
|            | Kg          | .149     | .155     | .213     | .403     | .565   | .755       | 1.064      | 2.245  |

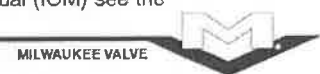
Rev 8

Milwaukee Valve Company  
 16550 W. Stratton Drive  
 New Berlin, WI 53151  
 Phone: 262-432-2700  
 Fax: 262-432-2701

\*Same design as Hammond UP8901

**Note:** Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)





# Bronze Ball Valve For Potable Water Three-Piece • Full-Port Blow-Out Proof Stem 600 PSIG WOG Soldered Ends

## UPBA350/350S\* 1/2"-2"

Dimensions and workmanship conform to MSS SP-110  
Designed in accordance with the requirements of California AB 1953,  
Vermont S 152 and Senate Bill S3874



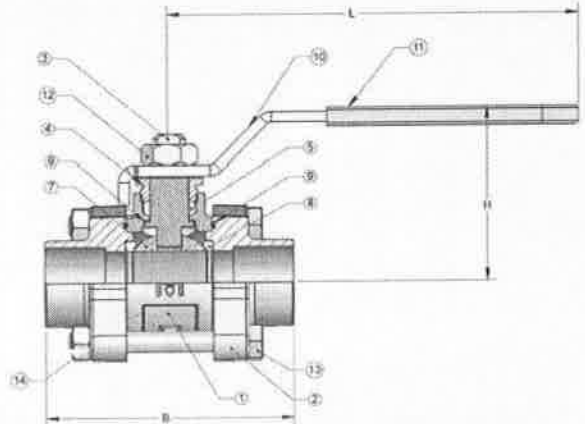
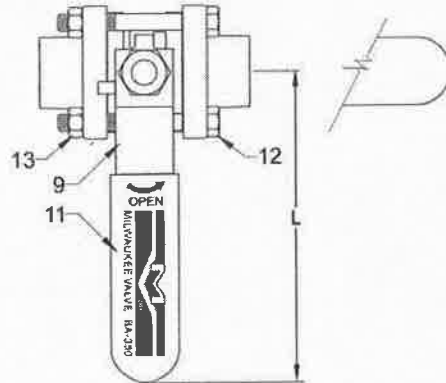
WQA tested and Certified  
against NSF/ANSI 372 for  
"lead free" compliance.

**MATERIALS LIST**

| ITEM | PART          | MATERIALS                   | ASTM SPEC.                      |
|------|---------------|-----------------------------|---------------------------------|
| 1    | Body          | Cast Bronze                 | B584 C89833                     |
| 2    | End Cap       | Cast Bronze                 | B584 C89833                     |
| 3    | Stem          | Brass                       | UNS C89833<br>or<br>UNS C27450  |
|      |               | 316 Stainless Steel (1)     | A276                            |
| 4    | Packing Nut   | Brass                       | B16                             |
| 5    | Packing       | PTFE                        |                                 |
| 6    | Thrust Washer | RPTFE, 25% Glass Reinforced |                                 |
| 7    | Ball          | Brass w/Hard Chrome Plating | B283 C69300<br>or<br>UNS C27450 |
|      |               | 316 Stainless Steel (1)     | A276                            |
| 8    | Seat          | RPTFE, 15% Glass Filled     |                                 |
| 9    | O- Ring       | Viton                       | Commercial                      |
| 10   | Handle        | Steel w/ Zinc Plating       | B633                            |
| 11   | Handle Grip   | Vinyl                       |                                 |
| 12   | Handle Nut    | Steel w/ Zinc Plating       | Commercial                      |
| 13   | Bolt          | Steel w/ Zinc Plating       | Commercial                      |
| 14   | Nut           | Steel w/ Zinc Plating       |                                 |

(1) Ball and stem are stainless for UPBA350S.

\*Same design as Hammond UP8614/8613

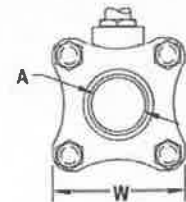


**DIMENSIONS**

|    | UNITS  | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   |
|----|--------|------|------|------|--------|--------|------|
|    |        | DN15 | DN20 | DN25 | DN32   | DN40   | DN50 |
| A  | INCHES | 0.50 | 0.75 | 1    | 1.25   | 1.50   | 2    |
|    | mm     | 13   | 19   | 25   | 32     | 38     | 51   |
| B  | INCHES | 2.80 | 3.44 | 3.87 | 4.75   | 5.25   | 6.10 |
|    | mm     | 72   | 88   | 94   | 121    | 134    | 153  |
| H  | INCHES | 1.95 | 2.26 | 2.44 | 2.80   | 3.12   | 3.58 |
|    | mm     | 50   | 57   | 62   | 71     | 79     | 91   |
| L  | INCHES | 3.88 | 4.75 | 4.75 | 6.50   | 7.38   | 7.38 |
|    | mm     | 99   | 121  | 121  | 165    | 187    | 187  |
| W  | INCHES | 1.91 | 2.19 | 2.48 | 2.98   | 2.98   | 4    |
|    | mm     | 49   | 56   | 62   | 76     | 76     | 102  |
| F  | THREAD | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   |
|    | SIZE   | NPT  | NPT  | NPT  | NPT    | NPT    | NPT  |
| Cv |        | 17   | 31   | 60   | 110    | 185    | 360  |

Rev. 6

Milwaukee Valve Company  
16550 W. Stratton Drive  
New Berlin, WI 53151  
Phone: 262-432-2700  
Fax: 262-432-2701



Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)



# Bronze Ball Valve For Potable Water

## Three-Piece • Full-Port

## Blow-Out Proof Stem

## UPBA300/300S\* 1/4"-2" 600 PSIG WOG

## Threaded Ends

Dimensions and workmanship conform to MSS SP-110  
 Designed in accordance with the requirements of California AB 1953,  
 Vermont S 152 and Senate Bill S3874



WQA tested and Certified  
 against NSF/ANSI 372 for  
 "lead free" compliance.

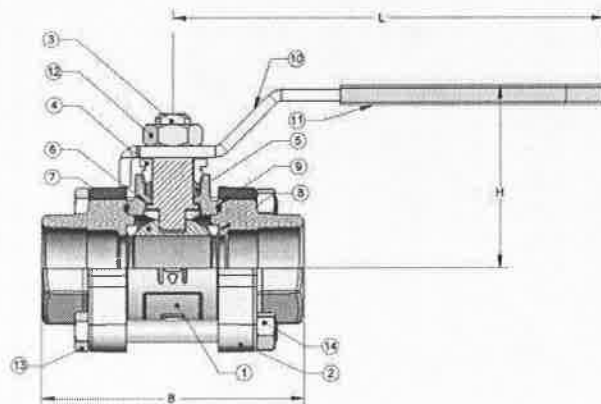
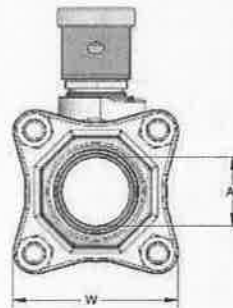
**MATERIALS LIST**

| ITEM | PART          | MATERIALS                   | ASTM SPEC.                      |
|------|---------------|-----------------------------|---------------------------------|
| 1    | Body          | Cast Bronze                 | B584 C89833                     |
| 2    | End Cap       | Cast Bronze                 | B584 C89833                     |
| 3    | Stem          | Brass                       | UNS C89833<br>or<br>UNS C27450  |
|      |               | 316 Stainless Steel (1)     | A276                            |
| 4    | Packing Nut   | Brass                       | B16                             |
| 5    | Packing       | PTFE                        |                                 |
| 6    | Thrust Washer | RPTFE, 25% Glass Reinforced |                                 |
| 7    | Ball          | Brass w/Hard Chrome Plating | B283 C69300<br>or<br>UNS C27450 |
|      |               | 316 Stainless Steel (1)     | A276                            |
| 8    | Seat          | RPTFE, 15% Glass Filled     |                                 |
| 9    | O-Ring        | Viton                       | Commercial                      |
| 10   | Handle        | Steel w/ Zinc Plating       | B633                            |
| 11   | Handle Grip   | Vinyl                       |                                 |
| 12   | Handle Nut    | Steel w/ Zinc Plating       | Commercial                      |
| 13   | Bolt          | Steel w/ Zinc Plating       | Commercial                      |
| 14   | Nut           | Steel w/ Zinc Plating       |                                 |

(1) Ball and stem are stainless for UPBA300S.

\*Same design as Hammond UP8604/8603.

\*\* Threaded Only.



**DIMENSIONS**

|    | UNITS  | 1/4" ** | 3/8" ** | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   |
|----|--------|---------|---------|------|------|------|--------|--------|------|
|    |        | DN6     | DN10    | DN15 | DN20 | DN25 | D32    | D40    | D50  |
| A  | INCHES | 0.5     | 0.5     | 0.5  | 0.75 | 1    | 1.25   | 1.5    | 2    |
|    | mm     | 13      | 13      | 13   | 19   | 25   | 32     | 38     | 51   |
| B  | INCHES | 3.03    | 3.03    | 3.03 | 3.65 | 3.82 | 4.86   | 5.06   | 6    |
|    | mm     | 77      | 77      | 77   | 90   | 97   | 123    | 129    | 152  |
| H  | INCHES | 1.65    | 1.65    | 1.65 | 2.24 | 2.65 | 2.86   | 3.03   | 3.26 |
|    | mm     | 42      | 42      | 42   | 57   | 67   | 73     | 77     | 83   |
| L  | INCHES | 4.03    | 4.03    | 4.06 | 4.58 | 6.3  | 6.32   | 7.2    | 7.2  |
|    | mm     | 102     | 102     | 103  | 116  | 160  | 161    | 183    | 183  |
| W  | INCHES | 1.95    | 1.95    | 1.95 | 2.19 | 2.48 | 3      | 3.13   | 3.78 |
|    | mm     | 50      | 50      | 50   | 56   | 63   | 76     | 80     | 96   |
| F  | THREAD | 1/4"    | 3/8"    | 1/2" | 3/4" | 1"   | 1 1/4" | 1 1/2" | 2"   |
|    | SIZE   | NPT     | NPT     | NPT  | NPT  | NPT  | NPT    | NPT    | NPT  |
| Cv |        | 7       | 7       | 17   | 31   | 60   | 110    | 185    | 360  |

Note: DN(Diameter Nominal)=Metric Equivalent Size

Rev. 6

Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

Milwaukee Valve Company  
 16550 W. Stratton Drive  
 New Berlin, WI 53151  
 Phone: 262-432-2700  
 Fax: 262-432-2701

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)



MILWAUKEE VALVE

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

The Tour & Andersson calibrated balancing valves offer a reliable, simple and cost effective way to measure and balance all flow rates. Full throttling range is achieved by 4, 8, 12 or 16 full turns of the handwheel, enabling a precise setting. This high degree of accurate adjustment means that the system can be balanced precisely.

The actual pressure drops in heating and cooling systems are difficult to establish by calculation because water flows are frequently incorrect. They can be corrected easily by regulating the desired water flow with Tour & Andersson globe style balancing valves. By measuring the pressure drop across measuring ports at a particular handwheel setting, the water flow for the valve size can be read easily from the appropriate pressure drop graph or flow balancing wheel. If the flow does not conform with that specified, adjust the valve and repeat the measuring procedure until the correct flow has been obtained. Insulation kits are available for 1/2 - 6/15 - 150mm sizes for Series 786, 787, 788 and 789 Tour & Andersson Circuit Balancing Valves.

NOTE: All Tour & Andersson Circuit Balancing Valves include a concealed memory feature with a locking tamper-proof setting.

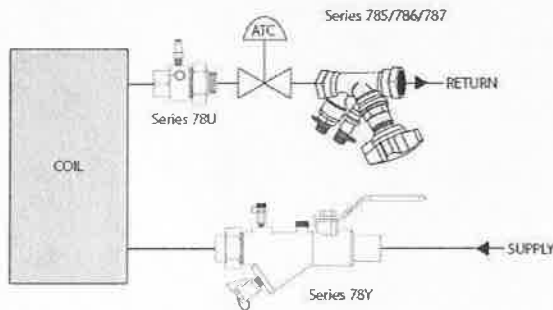
Series 785, 786, 787 and 78Y have an Ametal® body. Ametal is a copper alloy that also eliminates the added expense of dielectric fittings. The Series 78U has a brass body.

Series 788 and 789 have ductile iron bodies and Ametal or ductile iron trim, depending on size. Test points feature self-sealing construction for insertion-type pressure or temperature probes.

All valves are rated to +250°F/+120°C and -4°F/-20°C. Service will be governed by the connecting coupling gasket ratings for grooved and flanged valves.



BALANCING KOIL-KIT HOOK-UP PACKAGE



|                  |                    |                            |
|------------------|--------------------|----------------------------|
| <b>JOB/OWNER</b> | <b>CONTRACTOR</b>  | <b>ENGINEER</b>            |
| System No. _____ | Submitted By _____ | Spec Sect _____ Para _____ |
| Location _____   | Date _____         | Approved _____             |
|                  |                    | Date _____                 |

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

REV\_J



08.16.1

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### MATERIAL SPECIFICATIONS

#### Circuit Balancing Valves

##### BODY:

Series 785, 786, 787: Ametal, nonferrous pressure die cast, nonporous copper alloy  
Series 788, 789: Ductile Iron, ASTM A536 Grade 80-55-06 (BS Grade 500/7)

##### BODY COATING

Series 788, 789: 2 ½, 3, 4" - Epoxy resin; 5-12" - painted

##### TRIM: (Bonnet, Stem and Restriction Cone)

Series 785, 786, 787: Ametal

Series 788, 789:

Bonnet - 2 ½ - 6" - Ametal

Bonnet - 8 - 12" - Ductile Iron

Stem: Ametal

Restriction Cone: Ametal

##### SEAT:

Series 785, 786, 787: Ametal

Series 788, 789: Ductile Iron

##### SEAT SEAL:

Series 785: Ametal

Series 786, 787, 788, 789: EPDM

##### STEM SEALS: EPDM

##### PROBE SEALS: EPDM

**OPTIONAL SEAT, STEM AND PROBE SEALS:** Fluoroelastomer (available on 1 ½ and 2" Series 787; 2 ½ - 10" Series 789 (except 5"). Contact Victaulic for availability.

##### HANDWHEEL:

Series 785: ½-¾" sizes are fitted with a red Polyamide plastic hand wheel

Series 786, 787: ½-2" sizes are fitted with a red Polyamide plastic hand wheel

Series 788, 789: 2 ½-6" sizes are fitted with a red Polyamide plastic hand wheel; 8-12" sizes are fitted with an aluminum hand wheel

##### OPTIONAL EQUIPMENT:

Series 786, 787: Drain kit-Ametal

Series 786, 787: Insulation Kit-Polyurethane. Also available on Series 789 2 ½-6" sizes.

#### Koil-Kit Components

##### BODY:

Series 78Y: Ametal

Series 78U: Forged Brass

##### UNION:

Series 78Y, 78U: Brass with EPDM o-ring

##### SEALS: EPDM o-ring

##### BALL VALVE STRAINER COMBINATION:

Series 78Y: Teflon packing, brass packing nut, plated ball, steel handle with vinyl grip, blowout-proof stem, 20 mesh stainless steel strainer and seal is brass with EPDM o-ring

#### Allen Wrench Sizes

3mm memory ½-2" valves

5mm memory 2 ½-6" valves

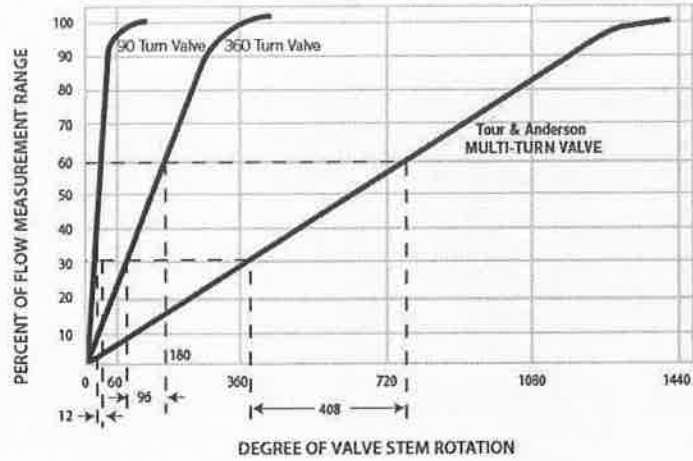
8mm memory 8-12" valves

5mm drain kit ½-2" valves

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### COMPARISON OF CIRCUIT BALANCING VALVE THROTTLING CHARACTERISTICS

- This curve illustrates the advantage of the four (4) turn adjustment available with Tour & Andersson balancing valves (½ – 2”/15 – 50mm). Valves 2 ½”/65mm and larger have 8, 12 or 16 turns.
- A 90° fully open to closed valve requires just a 12° change in adjustment to equal 30% change of the flow.
- A 360° fully open to closed valve would require 96° change in adjustment to equal the same 30% change in the flow measurement.
- Tour & Andersson balancing valves would require a 408° change in adjustment to equal the same 30% change in the flow.

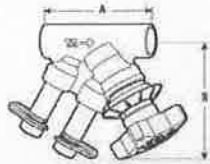


CARBON STEEL PIPE - GROOVED VALVES

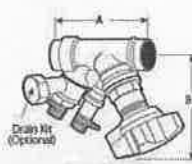
# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## Balancing Valve

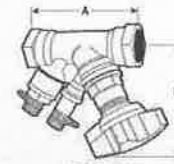
**SERIES 785 Solder Style**  
**SERIES 786 Solder End**  
**SERIES 787 Female**  
**Threaded End**



**SERIES 785**  
TYPICAL ½ - ¾" / 15 - 20 MM SIZES



**SERIES 786**  
TYPICAL ½ - ¾" / 15 - 20 MM SIZES



**SERIES 787**  
TYPICAL ½ - ¾" / 15 - 20 MM SIZES

| Size                   |                               | Series 785 Solder Style (250psi/1720kPa) Balancing Valve |                           |                             | Series 786 Solder End (300psi/2065kPa) Balancing Valve |                           |                             | Series 787 NPT (Female) Threaded End (300psi/2065kPa) Balancing Valve |                           |                             |
|------------------------|-------------------------------|--|---------------------------|-----------------------------|--|---------------------------|-----------------------------|---|---------------------------|-----------------------------|
| Nominal Size Inches/mm | Actual Outside Dia. Inches/mm | A End to End Inches/mm                                   | B Center to Top Inches/mm | Approx. Weight Each Lbs./kg | A End to End Inches/mm                                 | B Center to Top Inches/mm | Approx. Weight Each Lbs./kg | A End to End Inches/mm  | B Center to Top Inches/mm | Approx. Weight Each Lbs./kg |
| ½<br>15                | 0.840<br>21.3                 | 2.68<br>68   | 2.88<br>73                | 1.0<br>0.5                  | 3.50<br>89   | 4.00<br>102               | 1.4<br>0.6                  | 3.50<br>89  | 4.00<br>102               | 1.5<br>0.7                  |
| ¾<br>20                | 1.050<br>26.7                 | 3.42<br>87   | 3.07<br>78                | 1.0<br>0.5                  | 3.81<br>97   | 4.00<br>102               | 1.4<br>0.6                  | 3.81<br>97  | 4.00<br>102               | 1.6<br>0.7                  |
| 1<br>25                | 1.315<br>33.7                 | —  | —                         | —                           | 4.31<br>110  | 4.50<br>114               | 1.9<br>0.9                  | 4.31<br>110   | 4.50<br>114               | 2.0<br>0.9                  |
| 1 ¼<br>32              | 1.660<br>42.4                 | —  | —                         | —                           | 4.88<br>124  | 4.31<br>110               | 2.4<br>1.1                  | 4.88<br>124   | 4.31<br>110               | 2.6<br>1.2                  |
| 1 ½<br>40              | 1.900<br>48.3                 | —  | —                         | —                           | 5.13<br>130  | 4.75<br>121               | 3.1<br>1.4                  | 5.13<br>130   | 4.75<br>121               | 3.3<br>1.5                  |
| 2<br>50                | 2.375<br>60.3                 | —  | —                         | —                           | 6.13<br>156  | 4.75<br>121               | 4.5<br>2.0                  | 6.13<br>156   | 4.75<br>121               | 5.0<br>2.3                  |

### VALVE SELECTION GUIDE

| Size                   |                               | Series 785 Solder Style (250psi/1720kPa) Balancing Valve |                               |                      | Series 786 Solder End (300psi/2065kPa) Balancing Valve |                               |                      | Series 787 NPT (Female) Threaded End (300psi/2065kPa) Balancing Valve |                               |                      |
|------------------------|-------------------------------|--|-------------------------------|----------------------|--|-------------------------------|----------------------|---|-------------------------------|----------------------|
| Nominal Size Inches/mm | Actual Outside Dia. Inches/mm | Minimum Flow GPM/LPM                                     | Nominal Range of Flow GPM/LPM | Maximum Flow GPM/LPM | Minimum Flow GPM/LPM                                   | Nominal Range of Flow GPM/LPM | Maximum Flow GPM/LPM | Minimum Flow GPM/LPM  | Nominal Range of Flow GPM/LPM | Maximum Flow GPM/LPM |
| ½<br>15                | 0.840<br>21.3                 | 0.27<br>1.02   | 0.5 - 3.0<br>1.9 - 11.4       | 9.5<br>36.0          | 0.13<br>0.49   | 0.5 - 2.8<br>1.9 - 10.6       | 8.6<br>32.6          | 0.13<br>0.49  | 0.5 - 2.8<br>1.9 - 10.6       | 8.6<br>32.6          |
| ¾<br>20                | 1.050<br>26.7                 | 0.38<br>1.44   | 3.0 - 4.0<br>11.4 - 15.1      | 15.0<br>56.8         | 0.39<br>1.48   | 2.8 - 6.0<br>10.6 - 22.7      | 20.0<br>75.7         | 0.39<br>1.48  | 2.8 - 6.0<br>10.6 - 22.7      | 20.0<br>75.7         |
| 1<br>25                | 1.315<br>33.7                 | —  | —                             | —                    | 0.45<br>1.70   | 6.0 - 10.0<br>22.7 - 37.9     | 30.0<br>113.6        | 0.45<br>1.70  | 6.0 - 10.0<br>22.7 - 37.9     | 30.0<br>113.6        |
| 1 ¼<br>32              | 1.660<br>42.4                 | —  | —                             | —                    | 0.87<br>3.29   | 10.0 - 15.0<br>37.9 - 56.8    | 48.0<br>181.7        | 0.87<br>3.29  | 10.0 - 15.0<br>37.9 - 56.8    | 48.0<br>181.7        |
| 1 ½<br>40              | 1.900<br>48.3                 | —  | —                             | —                    | 1.30<br>4.92   | 15.0 - 20.0<br>56.8 - 75.7    | 66.0<br>249.8        | 1.30<br>4.92  | 15.0 - 20.0<br>56.8 - 75.7    | 66.0<br>249.8        |
| 2<br>50                | 2.375<br>60.3                 | —  | —                             | —                    | 2.00<br>7.57   | 20.0 - 36.0<br>75.7 - 136.3   | 110.0<br>416.4       | 2.00<br>7.57  | 20.0 - 36.0<br>75.7 - 136.3   | 110.0<br>416.4       |

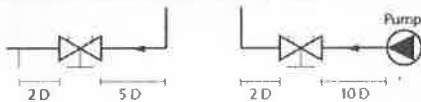
### IMPORTANT NOTES:

Balancing valves should be sized in relation to the GPM flows (and not in relation to pipeline size). Balancing valves should never be sized based on the maximum or minimum flow rates. They should be sized using the nominal flow rate only. The Minimum Flow is calculated from the minimum open setting of the valve and a minimum pressure drop 1 Ft. WG (= 3 kPa). The Nominal Flow is calculated from the maximum open setting of the valve and the minimum recommended pressure drop, 2 Ft. WG (= 6 kPa). The Maximum Flow is calculated from the maximum open setting of the valve and the maximum pressure drop, 20 Ft. WG (= 60 kPa). A computer program, TA-Select III, is available for calculation of pre-setting values and other applications.

Note: For information regarding Allen Wrench sizes see the Material Specifications section on page 2.

### MEASURING ACCURACY:

The hand wheel zero position is calibrated and must not be changed. Valves have an accuracy of flow measurement of 2% to 3% when used within their recommended flow range and installed in accordance with the figure below.\* For the most accurate results, a Series 737 TA CBI-II should be used. However, any differential pressure meter may be used.



The illustration above relates to differential pressure measurement accuracy and is not an installation requirement.

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

08.16\_4

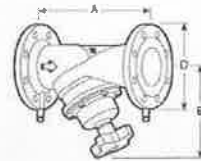


REV\_J

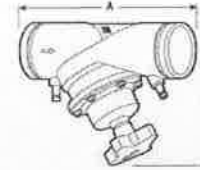
# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## Balancing Valve

**SERIES 788** Flanged End  
(Class 150 RF, ASME/ANSI B16.42)  
**SERIES 789** Grooved End



**SERIES 788**  
TYPICAL 2½ - 12"/65 - 300 MM SIZES



**SERIES 789**  
TYPICAL 2½ - 12"/65 - 300 MM SIZES

| Size                         |                                     | Series 788 Flange End (250psi/1720kPa) Balancing Valve |                             |                                      | Series 789 Groove End (350psi/2400kPa) Balancing Valve |                             |                                      |
|------------------------------|-------------------------------------|--|-----------------------------|--------------------------------------|--|-----------------------------|--------------------------------------|
| Nominal Size<br>Inches<br>mm | Actual Outside Dia.<br>Inches<br>mm | A<br>End to End<br>Inches<br>mm                        | B<br>Height<br>Inches<br>mm | Approx.<br>Weight Each<br>Lbs.<br>kg | A<br>End to End<br>Inches<br>mm                        | B<br>Height<br>Inches<br>mm | Approx.<br>Weight Each<br>Lbs.<br>kg |
| 2½<br>65                     | 2.875<br>73.0                       | 11.38<br>289   | 8.00<br>203                 | 240<br>10.9                          | 11.38<br>289   | 8.00<br>203                 | 140<br>6.4                           |
| 3<br>80                      | 3.500<br>88.9                       | 12.25<br>311   | 8.63<br>219                 | 31.0<br>14.1                         | 12.25<br>311   | 8.63<br>219                 | 200<br>9.1                           |
| 4<br>100                     | 4.500<br>114.3                      | 13.75<br>350   | 9.44<br>240                 | 43.0<br>19.6                         | 13.75<br>350   | 9.44<br>240                 | 31.0<br>14.1                         |
| 5<br>125                     | 5.563<br>141.3                      | 15.75<br>400   | 10.88<br>276                | 62.0<br>28.5                         | 15.75<br>400   | 10.88<br>276                | 50.0<br>22.7                         |
| 6<br>150                     | 6.625<br>168.3                      | 18.88<br>480   | 11.25<br>286                | 82.0<br>37.5                         | 18.88<br>480   | 11.25<br>286                | 69.0<br>31.3                         |
| 8<br>200                     | 8.625<br>219.1                      | 23.63<br>600   | 17.00<br>432                | 168.0<br>76.5                        | 23.63<br>600   | 17.00<br>432                | 140.0<br>63.7                        |
| 10<br>250                    | 10.750<br>273.0                     | 28.75<br>730   | 17.75<br>451                | 270.0<br>122.9                       | 28.75<br>730   | 17.75<br>451                | 202.0<br>91.9                        |
| 12<br>300                    | 12.750<br>323.9                     | 33.50<br>851   | 19.00<br>483                | 360.0<br>163.9                       | 33.50<br>851   | 19.00<br>483                | 280.0<br>127.4                       |

### VALVE SELECTION GUIDE

| Size                         |                                     | Series 788 Flange End (250psi/1720kPa) Balancing Valve |                                     |                            | Series 789 Groove End (350psi/2400kPa) Balancing Valve |                                     |                            |
|------------------------------|-------------------------------------|--|-------------------------------------|----------------------------|--|-------------------------------------|----------------------------|
| Nominal Size<br>Inches<br>mm | Actual Outside Dia.<br>Inches<br>mm | Minimum Flow<br>GPM<br>LPM                             | Nominal Range of Flow<br>GPM<br>LPM | Maximum Flow<br>GPM<br>LPM | Minimum Flow<br>GPM<br>LPM                             | Nominal Range of Flow<br>GPM<br>LPM | Maximum Flow<br>GPM<br>LPM |
| 2½<br>65                     | 2.875<br>73.0                       | 1.40<br>5.30   | 36.0 - 100.0<br>136.3 - 378.5       | 290.0<br>1097.7            | 1.40<br>5.30   | 36.0 - 100.0<br>136.3 - 378.5       | 290.0<br>1097.7            |
| 3<br>80                      | 3.500<br>88.9                       | 1.50<br>5.68   | 100.0 - 130.0<br>378.5 - 492.1      | 410.0<br>1551.9            | 1.50<br>5.68   | 100.0 - 130.0<br>378.5 - 492.1      | 410.0<br>1551.9            |
| 4<br>100                     | 4.500<br>114.3                      | 1.90<br>7.19   | 130.0 - 200.0<br>492.1 - 757.0      | 650.0<br>2460.3            | 1.90<br>7.19   | 130.0 - 200.0<br>492.1 - 757.0      | 650.0<br>2460.3            |
| 5<br>125                     | 5.563<br>141.3                      | 4.20<br>15.90  | 200.0 - 320.0<br>757.0 - 1211.2     | 1020.0<br>3860.7           | 4.20<br>15.90  | 200.0 - 320.0<br>757.0 - 1211.2     | 1020.0<br>3860.7           |
| 6<br>150                     | 6.625<br>168.3                      | 5.00<br>18.93  | 320.0 - 450.0<br>1211.2 - 1703.3    | 1430.0<br>5412.6           | 5.00<br>18.93  | 320.0 - 450.0<br>1211.2 - 1703.3    | 1430.0<br>5412.6           |
| 8<br>200                     | 8.625<br>219.1                      | 30.00<br>113.55  | 450.0 - 820.0<br>1703.3 - 3103.7    | 2600.0<br>9841.0           | 30.00<br>113.55  | 450.0 - 820.0<br>1703.3 - 3103.7    | 2600.0<br>9841.0           |
| 10<br>250                    | 10.750<br>273.0                     | 70.00<br>264.95  | 800.0 - 1300.0<br>3028.0 - 4920.5   | 4040.0<br>15291.4          | 70.00<br>264.95  | 800.0 - 1300.0<br>3028.0 - 4920.5   | 4040.0<br>15291.4          |
| 12<br>300                    | 12.750<br>323.9                     | 115.00<br>435.28                                       | 1300.0 - 1500.0<br>4920.5 - 5677.5  | 4950.0<br>18735.8          | 115.00<br>435.28                                       | 1300.0 - 1500.0<br>4920.5 - 5677.5  | 4950.0<br>18735.8          |

### IMPORTANT NOTES: (SEE PREVIOUS PAGE FOR MEASURING ACCURACY)

Balancing valves should be sized in relation to the GPM flows (and not in relation to pipeline size). Balancing valves should never be sized based on the maximum or minimum flow rates. They should be sized using the nominal flow rate only. The Minimum Flow is calculated from the minimum open setting of the valve and a minimum pressure drop 1 Ft. WG (= 3kPa). The Nominal Flow is calculated from the maximum open setting of the valve and the minimum recommended pressure drop, 2 Ft. WG (= 6kPa). The Maximum Flow is calculated from the maximum open setting of the valve and the maximum pressure drop, 20 Ft. WG (= 60kPa). A computer program, TA-Select III, is available for calculation of pre-setting values and other applications.

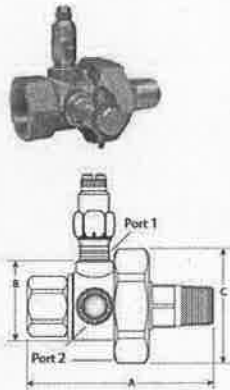
\*For the most accurate results, a Series 737 TA CBI-II should be used. However, any differential pressure meter may be used.

Note: For information regarding Allen Wrench sizes see the Material Specifications section on page 2.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### Koil-Kit Components

**SERIES 78U Union Port Fitting**  
 ½/15mm through 2/50mm Sizes



The TA Series 78U Union Port Fitting provides a simplified, quality terminal hookup for installation at coil outlet. The Series 78U features a port section equipped standard with a manual air vent port on top allowing for optimal positioning at coil outlet and effective venting together with a pressure/temperature port on the side. The Series 78U is equipped with an EPDM o-ring.

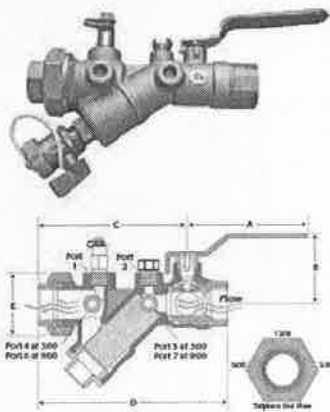
Rated up to 400psi/2758kPa and 250°F/121°C.

| Inlet Nominal Size<br>Inches/mm | Outlet Nominal Size<br>Inches/mm | A<br>Inches<br>mm | B<br>Inches<br>mm | C<br>Inches<br>mm | Approx. Weight Each<br>Lbs.<br>kg |
|---------------------------------|----------------------------------|-------------------|-------------------|-------------------|-----------------------------------|
| ½<br>15                         | ½<br>15                          | 3.5<br>89         | 0.8<br>19         | 1.6<br>39         | 0.6<br>0.28                       |
| ¾<br>20                         | ½<br>15                          | 3.7<br>94         | 0.9<br>23         | 2.2<br>56         | 1.0<br>0.45                       |
| 1<br>25                         | ¾<br>20                          | 4.1<br>104        | 1.0<br>25         | 2.4<br>60         | 1.2<br>0.56                       |
| 1¼<br>32                        | 1<br>25                          | 4.3<br>109        | 1.2<br>30         | 2.9<br>74         | 2.8<br>1.28                       |
| 1½<br>40                        | 1¼<br>32                         | 4.4<br>112        | 1.3<br>32         | 3.5<br>88         | 3.5<br>1.57                       |
| 2<br>50                         | 1½<br>40                         | 4.6<br>116        | 1.7<br>43         | 3.9<br>99         | 5.9<br>2.66                       |

**NOTES**

Dimensions based on F x M connections and will vary with mixed connections. All weights and dimensions are subject to minor changes.

**SERIES 78Y Strainer/Ball Valve Combination**  
 ½/15 mm through 2/50 mm Sizes



The TA Series 78Y Strainer/Ball Valve Combination provides a simplified, quality terminal hookup that protects both coil and modulating valve from pipe scale, sand or weld slag. The Series 78Y features a 20 grid stainless steel strainer (removable without breaking the line), a blow-out proof valve stem, Teflon® packing, plated ball and a strainer-blowdown & drain valve with hose thread, cap & retainer. Equipped standard with a pressure/temperature port and extra plugged port on top with a union end.

Rated up to 400psi/2758kPa and 250°F/121°C.

| Nominal Size<br>Inches<br>mm | A<br>Inches<br>mm | B<br>Inches<br>mm | C<br>Inches<br>mm | D<br>Inches<br>mm | E<br>Inches<br>mm | F<br>Inches<br>mm | Approx. Weight Each<br>Lbs.<br>kg | Cy/¼         |
|------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------|--------------|
| ½<br>15                      | 3.9<br>99         | 2.0<br>51         | 4.8<br>122        | 6.2<br>157        | 2.1<br>53         | 2.1<br>53         | 2.0<br>0.91                       | 7.8<br>6.7   |
| ¾<br>20                      | 3.9<br>99         | 2.0<br>51         | 4.8<br>122        | 6.2<br>157        | 2.1<br>53         | 2.1<br>53         | 2.0<br>0.95                       | 8.8<br>7.6   |
| 1<br>25                      | 3.9<br>99         | 2.0<br>51         | 4.8<br>122        | 6.2<br>157        | 2.1<br>53         | 2.1<br>53         | 2.0<br>0.95                       | 8.8<br>7.6   |
| 1*<br>25                     | 4.7<br>119        | 2.6<br>66         | 6.8<br>173        | 8.6<br>218        | 2.8<br>71         | 2.4<br>61         | 4.5<br>2.04                       | 19.7<br>17.0 |
| 1¼<br>32                     | 4.7<br>119        | 2.6<br>66         | 6.8<br>173        | 8.6<br>218        | 2.8<br>71         | 2.4<br>61         | 4.6<br>2.09                       | 20.4<br>17.6 |
| 1¼*<br>32                    | 4.7<br>119        | 2.6<br>66         | 6.8<br>173        | 8.6<br>218        | 2.8<br>71         | 2.4<br>61         | 4.6<br>2.09                       | 20.4<br>17.6 |
| 1½<br>40                     | 5.5<br>140        | 3.5<br>89         | 7.9<br>201        | 10.0<br>254       | 3.8<br>97         | 2.5<br>64         | 9.3<br>4.22                       | 52.7<br>45.4 |
| 2<br>50                      | 5.5<br>140        | 3.5<br>89         | 7.9<br>201        | 10.0<br>254       | 3.8<br>97         | 2.5<br>64         | 9.5<br>4.31                       | 55.1<br>47.5 |

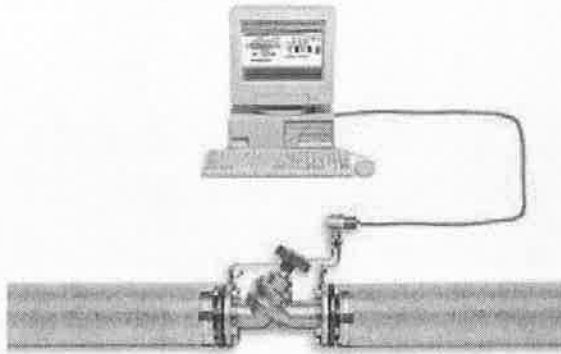
**NOTES**

Weights based on F x F connections and will vary with mixed options/connections.

Weights and dimensions are subject to minor changes.

\* Denotes female thread not available on union end

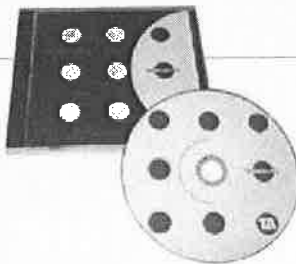
## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components



### TA Link Differential Pressure Sensor

#### SERIES 736

- Provides connection between a building's heating and cooling circuits and building's monitoring system (BMS)
- Continuously measures the flow and differential pressure through and across the Tour & Andersson balancing valves
- Measurement probes provided for direct connection to the measurement points on all Series 786, 787, 788, and 789 circuit balancing valves



### TA Select III Computer Program

TA Select III helps you choose the right balancing valve, taking the desired flow rate and pressure drop into consideration. The software will advise the correct combination of valve, handwheel position and pipe size to correctly balance the system. A sophisticated viscosity correction procedure displays the density, viscosity, specific heat and freezing point of fluids such as glycols and brines. It also shows the true value of flows in the valves.

The program will also size the pipe, generate Cv values for the ATC valves and give pre-set information for all the TA valves on the project.



### Hand-held Computerized Balancing Instrument (CBI)

#### SERIES 737

- Series 737 CBI-II meter is a hand-held computer balancing instrument programmed for use with Tour & Andersson balancing valves to obtain direct reading of flow and differential pressures
- This instrument consists of an electronic differential pressure sensor and a microcomputer
- Measured values can be saved in the unit before transferring the information to a PC for printing out a commissioning report of for creating a permanent record
- Automatically adjusts correction factor for media other than water.



### TA CMI Pressure Differential Meter

#### SERIES 73M

TA CMI is a computer programmed measuring instrument. It is a handheld instrument for measuring differential pressure, temperature and flow through balancing valves in hydronic systems. It consists of a sensor unit and an instrument unit that has been programmed with the TA valve characteristics, which makes it possible to take a direct reading of flow differential pressures.

[www.victaulic.com](http://www.victaulic.com)

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

REV\_J

**victaulic**  
OF AMERICA, INC. • 10000 WILSON AVENUE

08.16\_7

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### Drain Kit

SERIES 786-DK



- A separate drain kit with a 3/4"20mm connection is available for Series 786 and Series 787 valves
- Kit must be field mounted
- Kit comes complete with 2 gaskets and a hexnut.
- Partcode= K-000-786-CBV

Note: For information regarding Allen Wrench sizes see the Material Specifications section on page 2.

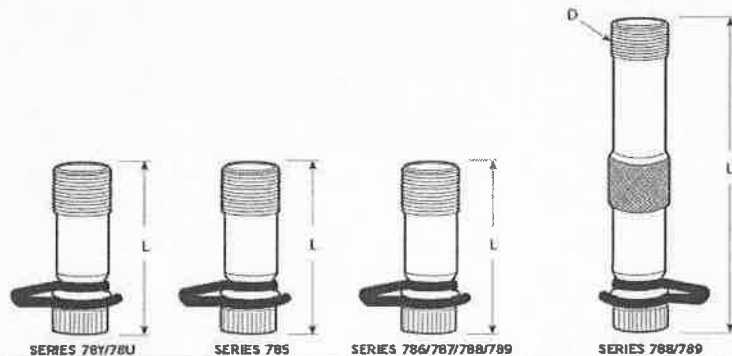
### HOSE END DRAIN VALVE For Series 78Y



- A separate drain kit with connection is available for the Series 78Y Strainer/ Ball Valve Combination sizes 1/2" - 2 1/15" - 50mm
- Kit must be field mounted
- Part Code= P-004-78P-OHN

### Accessories

#### PROBE PORT



| Style   | Size                   | Part Code     | Dimension  |               | Part Code  | Dimension     |                      |
|---------|------------------------|---------------|------------|---------------|------------|---------------|----------------------|
|         |                        |               | L          | Dimension     |            | L             | Dimension            |
|         | Inches/mm              |               | Inches/mm  | Inches/mm     |            | Inches/mm     | Inches/mm            |
| 78Y/78U | 1/2 - 1/4<br>15 - 20   | K-000-740-007 | 1.55<br>39 | —             | —          | —             | —                    |
| 785     | 1/2 - 1/4<br>15 - 20   | K-000-785-012 | 1.19<br>30 | —             | —          | —             | —                    |
| 786/787 | 1/2 - 2<br>15 - 50     | —             | —          | K-000-740-003 | 1.75<br>45 | —             | —                    |
| 788/789 | 2 1/2 - 12<br>65 - 300 | —             | —          | —             | —          | K-000-740-002 | .38<br>10 1.19<br>30 |
| 788/789 | 2 1/2 - 12<br>65 - 300 | —             | —          | —             | —          | K-000-740-001 | .38<br>10 3.50<br>89 |

Note: For information regarding Allen Wrench sizes see the Material Specifications section on page 2.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### PORT EXTENDER

For use with probe ports on the Series 78Y & 78U



- The port extender is used to extend accessories to clear 2750mm insulation (M x F ¼" or ½").
- Extends probe port and air vent.
- Length= 1.425/36mm
- Part Code= P-000-78P-EXT

### INSULATION EXTENSION

For Series 78Y



- Handle extension for use on chilled water to clear 2750mm insulation

| Valve Size<br>Inches/mm | Part Code     |
|-------------------------|---------------|
| ½ - ¾<br>15 - 20        | P-004-78P-HDL |
| 1 - 1 ½<br>25 - 32      | P-010-78P-HDL |
| 1 ½ - 2<br>40 - 50      | P-014-78P-HDL |

### AIR VENT

For Series 78Y & 78U



- Partcode= P-004-78P-OAV

### UNIVERSAL GAUGE METER CONVERSION KIT

- This kit includes 2 probes, necessary fittings, flow wheel and instruction sheet.
- Partcode= K-000-738-100

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

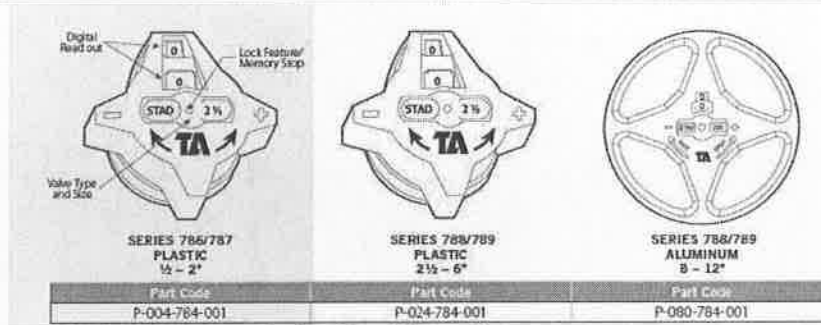
REV\_J



08.16\_9

# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## HANDWHEELS



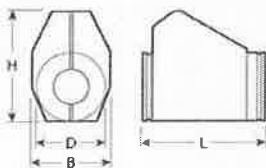
Note: For information regarding Allen Wrench sizes see the Material Specifications section on page 2.

## BALANCING WHEEL



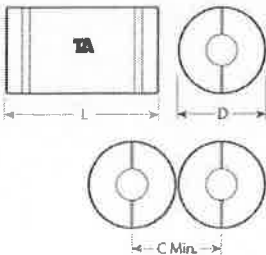
By using the balancing wheel it is easy to determine the relationship between flow, pressure drop and the handwheel setting values for all valve sizes. Order the balancing wheel from your nearest Victaulic representative.

## PREFAB INSULATION SERIES 786 & SERIES 787



| Valve Size           | Dimensions Inches/mm |               |             |             |             |             |
|----------------------|----------------------|---------------|-------------|-------------|-------------|-------------|
|                      | In./mm               | Part Code     | H           | D           | B           | L           |
| 1/2 & 3/4<br>15 & 20 |                      | K-004-784-INS | 5.31<br>135 | 3.54<br>90  | 4.06<br>103 | 5.51<br>140 |
| 1<br>25              |                      | K-010-784-INS | 5.59<br>142 | 3.70<br>94  | 4.06<br>103 | 6.30<br>160 |
| 1 1/4<br>32          |                      | K-012-784-INS | 6.14<br>156 | 4.17<br>106 | 4.06<br>103 | 7.09<br>180 |
| 1 1/2<br>40          |                      | K-014-784-INS | 6.65<br>169 | 4.25<br>108 | 4.45<br>113 | 8.43<br>214 |
| 2<br>50              |                      | K-020-784-INS | 7.01<br>178 | 4.25<br>108 | 4.49<br>114 | 9.65<br>245 |

## PREFAB INSULATION SERIES 788 & SERIES 789



| Valve Size  | Dimensions Inches/mm |               |              |              |              |
|-------------|----------------------|---------------|--------------|--------------|--------------|
|             | In./mm               | Part Code     | H            | D            | B            |
| 2 1/2<br>65 |                      | K-024-784-INS | 17.75<br>451 | 10.63<br>270 | 10.63<br>270 |
| 3<br>80     |                      | K-030-784-INS | 19.00<br>483 | 11.44<br>291 | 11.44<br>291 |
| 4<br>100    |                      | K-040-784-INS | 20.50<br>521 | 12.63<br>321 | 12.63<br>321 |
| 5<br>125    |                      | K-050-784-INS | 22.50<br>572 | 13.75<br>349 | 13.75<br>349 |
| 6<br>150    |                      | K-060-784-INS | 26.00<br>660 | 15.00<br>381 | 15.00<br>381 |

www.victaulic.com

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

08.16\_10



REV J

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### TYPICAL SPECIFICATIONS

All valves shall be of one manufacturer.

#### SERIES 785 – (½ – ¾" SOLDER STYLE)

Furnish and install, as shown on the plans, TA Hydronics (formerly known as Tour & Andersson) Solder Style Balancing valves with provision for connecting a portable Differential (Ft. of Head) Pressure meter. Each meter connection shall have pressure/temperature probes.

The TA Hydronics Series 785 TBV-S Balancing valves shall be Y-Pattern Globe Style design and all metal parts of nonferrous copper alloy. Each valve can be installed in any direction without affecting flow measurement and shall provide three (3) functions:

(1) Precise flow measurement, (2) Precision flow balancing, (3) Positive shut-off with no drip seat.

The Series 785 TBV-S valves shall have one (1) 360° adjustment turn of handwheel with memory feature for use with positive shut-off, and locking feature for tamperproof setting. The handwheel can be installed in any position without affecting performance.

All valves shall be of one manufacturer.

#### SERIES 786 – (½ – 2" SOLDER WITH DIGITAL HANDWHEEL)

#### SERIES 787 – (½ – 2" NPT)

Furnish and install, as shown on the job plans, Tour & Andersson Series 786/787 Circuit Balancing Valves with provision for connecting a portable differential (Ft. of Head) pressure meter. Each meter connection shall have pressure/temperature probes.

The balancing valves shall be Y-pattern globe style design and all metal parts of nonferrous, pressure die cast, nonporous Ametal. Each valve shall provide four (4) functions:

(1) Precise flow measurement, (2) Precision flow balancing, (3) Positive shut-off with no drip seat, eliminating the need of an additional isolation valve, (4) Drain connection using ¾" NPT hose end thread.

These valves shall have four (4) 360° adjustment turns of the handwheel for precise setting with hidden memory to provide a tamper-proof balancing setting. Handwheel shall have digital readout. The handwheel can be installed in any position without affecting performance.

#### SERIES 788/789 – (2 ½ – 12" FLANGED AND GROOVED WITH DIGITAL HANDWHEEL)

Furnish and install, as shown on the job plans, Tour & Andersson Series 788/789 Circuit Balancing valves with provision for connecting a portable differential (Ft. of Head) pressure meter. Each meter connection shall have pressure/temperature probes.

The balancing valves shall be Y-pattern globe style design with ductile iron body all other welded parts of nonferrous, pressure die cast Ametal. Each valve shall provide three (3) functions:

(1) Precision flow measurement, (2) Precision flow balancing, (3) Shut-off feature, eliminating the need of an additional isolation valve.

These valves shall have eight (8), twelve (12) or sixteen (16) 360° adjustment turns of the handwheel for precise setting with hidden memory feature to program the valve with precision tamper-proof balancing setting. Handwheel shall have digital readout. The handwheel can be installed in any position without affecting performance.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### TYPICAL SPECIFICATIONS

**Koil-Kit packages for ½" through 2":** Shall include the following three components: 78U, 78Y and Tour and Andersson balancing valve sized to flow, all components shall be from one manufacturer, Victaulic/Tour and Andersson.

**TA Series 78U Union Port Fitting ½" through 2":** 400 psi/2758 kPa maximum CWP, Sweat/Soldered or FPT threaded x Union ends, forged brass body with manual air vent port and pressure/temperature port, with EPDM seals. Union port fitting shall provide a simplified terminal hookup for installation at coil outlets. Suitable for operating temperatures to 250°F/120°C.

**TA Series 78Y Strainer/Ball Valve Combination ½" through 2":** 400 psi/2758 kPa maximum CWP, Sweat/Soldered ends or FPT threaded x FPT Union ends, Ametal copper alloy body consisting of a full port ball valve and strainer with flow measuring ports. Ball valve shall be complete with Teflon packing, plated ball, blow-out proof stem, and steel handle with vinyl grip. Strainer shall be Y-pattern, with 20 mesh stainless steel screen and blowdown port. Strainer/ball combination shall provide a simplified hookup to protect the coil and modulating valve. Suitable for operating temperatures to 250°F/120°C.

**TA Circuit Balancing Valves ½" through 2":** 300 psi/2065 kPa, y-pattern, globe type with soldered or threaded ends, non-ferrous Ametal® brass copper alloy body, EPDM o-ring seals. 4-turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting, and connections for portable differential meter. TA Hydronics Series 786 STAS or 787 STAD.

**TA Circuit Balancing Valves 2 ½" through 12":** 300 psi/2065 kPa, y-pattern, globe type with flanged or grooved ends, ASTM A536 ductile iron body, all other metal parts of Ametal® brass copper alloy, EPDM O-ring seals. 8, 12 or 16-turn digital readout handwheel for balancing, hidden memory feature with locking tamper-proof setting, and connections for portable differential meter. TA Hydronics Series 788 STAF or 789 STAG.

Purchased TA CBI-II or TA CMI balancing instruments are to be left with the project owner upon completion of the project.

#### INSULATION:

For insulation against heat loss or condensation. Preformed rigid polyurethane insulation is available for ½ - ¾" Series 785 valves, ½ - 2" Series 786/787 valves, and for 2 ½ - 6" Series 788/789 valves.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### CORRECTION FACTORS

For liquids other than water, the flow values from the balancing wheel can be adjusted as follows:

Divide the flow rate (as indicated by the balancing wheel) by the square root of the volume by weight (specific density  $\gamma$ ).

$$\text{Actual Flow} = \frac{q_m}{\sqrt{\gamma}}$$

This applies to liquids having, on the whole, the same viscosity as water, i.e. most water/glycol mixtures and water/brine solutions at room temperature. At low temperatures, the viscosity increases and laminar flow may occur in certain valves. The risk increases with small valves, low settings and low differential pressures.

A computer program (TA-Select III) is available for calculation of pre-setting values and other applications. When the flow setting is verified or changed to the final setting, the memory stop should be set. Contact Victaulic for further information.

### SIZING A BALANCING VALVE

When  $\Delta p$  and the design flow rate are known, use the formula shown to calculate the  $C_v$  value or use the graphs on page 16 – 18. The Tour & Andersson balancing wheel can also be used.

$$C_v = 1.52 \frac{q}{\sqrt{\Delta p}}$$

$q$  in GPM,  $\Delta p$  in Ft. of H<sub>2</sub>O

$$C_v = \frac{q}{\sqrt{\Delta p}}$$

$q$  in GPM,  $\Delta p$  in psi

A computer program, TA-Select III, is available from Victaulic for calculation of pre-setting values and other applications.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

### C<sub>v</sub> VALUES FOR VARIOUS HANDLE SETTINGS SERIES 785

The values below or the graph on page 16 may be used when calculating and sizing a piping system.

| Size<br>Inches | C <sub>v</sub> Values for Handwheel Position listed below ‡ |      |      |      |      |      |      |      |      |      |      |
|----------------|---|------|------|------|------|------|------|------|------|------|------|
|                | 0.5   | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10*  |
| ½              | 0.15  | 0.24 | 0.42 | 0.59 | 0.75 | 0.90 | 1.07 | 1.24 | 1.46 | 1.75 | 2.10 |
| ¾              | 0.28  | 0.43 | 0.71 | 1.01 | 1.30 | 1.61 | 1.93 | 2.30 | 2.71 | 3.34 | 4.20 |

‡ C<sub>v</sub> = GPM at a ΔP of 1 psi/7 kPa) through the valve at any given setting.

1 psi = 2.31 ft. of H<sub>2</sub>O.

\*Full open valve.

### C<sub>v</sub> VALUES FOR VARIOUS HANDLE SETTINGS SERIES 786/787

The values below or the graph on page 16 may be used when calculating and sizing a piping system.

| No. of Turns | C <sub>v</sub> Values for Sizes listed below ‡ |      |       |       |       |       |
|--------------|--|------|-------|-------|-------|-------|
|              | ½"   | ¾"   | 1"    | 1 ¼"  | 1 ½"  | 2"    |
| 0.50         | 0.15   | 0.59 | 0.70  | 1.32  | 2.03  | 2.97  |
| 1.00         | 0.25   | 0.88 | 1.19  | 2.20  | 3.83  | 4.87  |
| 1.50         | 0.36   | 1.38 | 2.44  | 3.60  | 5.34  | 8.35  |
| 2.00         | 0.66   | 2.20 | 4.20  | 5.40  | 7.08  | 13.60 |
| 2.50         | 1.02   | 3.24 | 6.15  | 8.24  | 10.20 | 18.80 |
| 3.00         | 1.60   | 4.49 | 8.00  | 11.00 | 14.60 | 24.90 |
| 3.50         | 2.30   | 5.51 | 9.28  | 13.70 | 18.60 | 30.70 |
| 4.00*        | 2.92   | 6.61 | 10.09 | 16.50 | 22.30 | 38.00 |

‡ C<sub>v</sub> = GPM at a ΔP of 1 psi/7 kPa) through the valve at any given setting.

1 psi = 2.31 ft. of H<sub>2</sub>O.

\*Full open valve.

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

**C<sub>v</sub> VALUES FOR VARIOUS HANDLE SETTINGS SERIES 788/789**

The values below or the graph on page 17 and 18 may be used when calculating and sizing a piping system.

| No. of Turns | C <sub>v</sub> Values for Sizes listed below † |          |          |          |          |          |           |           |
|--------------|--|----------|----------|----------|----------|----------|-----------|-----------|
|              | 2½"  | 3"       | 4"       | 5"       | 6"       | 8"       | 10"       | 12"       |
| 0.50         | 2.09   | 2.32     | 2.90     | 6.38     | 7.54     | —        | —         | —         |
| 1.00         | 3.94   | 4.64     | 6.96     | 12.20    | 13.90    | —        | —         | —         |
| 1.50         | 5.68   | 6.96     | 10.40    | 18.00    | 25.50    | —        | —         | —         |
| 2.00         | 7.54   | 9.28     | 13.30    | 24.90    | 46.40    | 46.40    | 104.00    | —         |
| 2.50         | 10.80  | 12.80    | 18.60    | 31.30    | 75.40    | 58.00    | 128.00    | —         |
| 3.00         | 18.90  | 16.20    | 30.20    | 41.80    | 116.00   | 75.40    | 162.00    | 174.00    |
| 3.50         | 29.70  | 22.60    | 51.00    | 63.80    | 157.00   | 104.00   | 226.00    | 267.00    |
| 4.00         | 40.90  | 33.60    | 73.10    | 96.30    | 196.00   | 139.00   | 296.00    | 348.00    |
| 4.50         | 51.60  | 47.60    | 92.80    | 132.00   | 240.00   | 191.00   | 371.00    | 429.00    |
| 5.00         | 60.30  | 63.80    | 114.00   | 164.00   | 281.00   | 261.00   | 447.00    | 522.00    |
| 5.50         | 70.20  | 78.90    | 133.00   | 194.00   | 324.00   | 331.00   | 516.00    | 621.00    |
| 6.00         | 78.90  | 92.80    | 153.00   | 229.00   | 362.00   | 394.00   | 580.00    | 719.00    |
| 6.50         | 84.70  | 107.00   | 168.00   | 255.00   | 394.00   | 464.00   | 632.00    | 800.00    |
| 7.00         | 89.30  | 119.00   | 184.00   | 289.00   | 426.00   | 505.00   | 684.00    | 870.00    |
| 7.50         | 93.40  | 131.00   | 203.00   | 320.00   | 454.00   | 545.00   | 766.00    | 945.00    |
| 8.00         | 98.60 *  | 139.00 * | 220.00 * | 348.00 * | 487.00 * | 597.00   | 841.00    | 1032.00   |
| 9.00         | —  | —        | —        | —        | —        | 690.00   | 951.00    | 1125.00   |
| 10.00        | —  | —        | —        | —        | —        | 754.00   | 1090.00   | 1206.00   |
| 11.00        | —  | —        | —        | —        | —        | 824.00   | 1218.00   | 1299.00   |
| 12.00        | —  | —        | —        | —        | —        | 887.00 * | 1375.00 * | 1392.00   |
| 13.00        | —  | —        | —        | —        | —        | —        | —         | 1531.00   |
| 14.00        | —  | —        | —        | —        | —        | —        | —         | 1589.00   |
| 15.00        | —  | —        | —        | —        | —        | —        | —         | 1624.00   |
| 16.00        | —  | —        | —        | —        | —        | —        | —         | 1682.00 * |

† C<sub>v</sub> = GPM at a ΔP of 1 psi (7 kPa) through the valve at any given setting.  
 1 psi = 2.31 ft. of H<sub>2</sub>O.  
 \*Full open valve.

# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## Diagram

SERIES 785/786/787

This graph shows the pressure drop across the pressure test points of the valve.

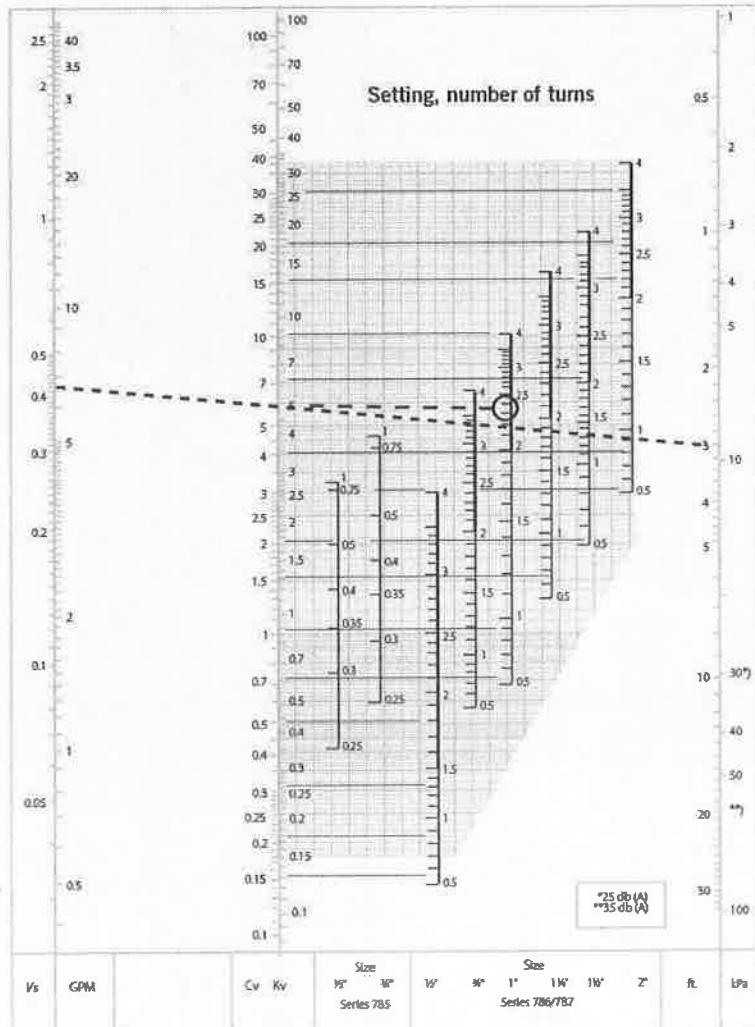
A straight line connecting the bars for flow rate,  $C_v$  and pressure drop shows the relationship between these variables. The position for each valve size is arrived at by drawing a horizontal line from the  $C_v$  value obtained.

**Example:**

**Wanted:** Pre-setting for a 1" valve at a desired flow rate of 6.7 GPM and a pressure drop of 3 ft.

**Solution:** Draw straight line joining 6.7 GPM and 3 ft. This gives  $C_v = 5.9$ . Now draw a horizontal line from  $C_v = 5.9$ . This intersects the bar for a 1" valve at the desired pre-setting of 2.35 turns.

**NOTE:** If the flow rate falls outside of the scale in the diagram, the reading can be made as follows: Starting with the example above, we get 3 ft.,  $C_v = 5.9$  and the flow rate 6.7 GPM. At 3 ft. and  $C_v = .59$  we get the flow rate .67 GPM. That is, for a given pressure drop, it is possible to read 10 times or 0.1 times the flow and  $C_v$  values.



# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## Diagram

SERIES 788/789  
SIZES 2½ - 6"

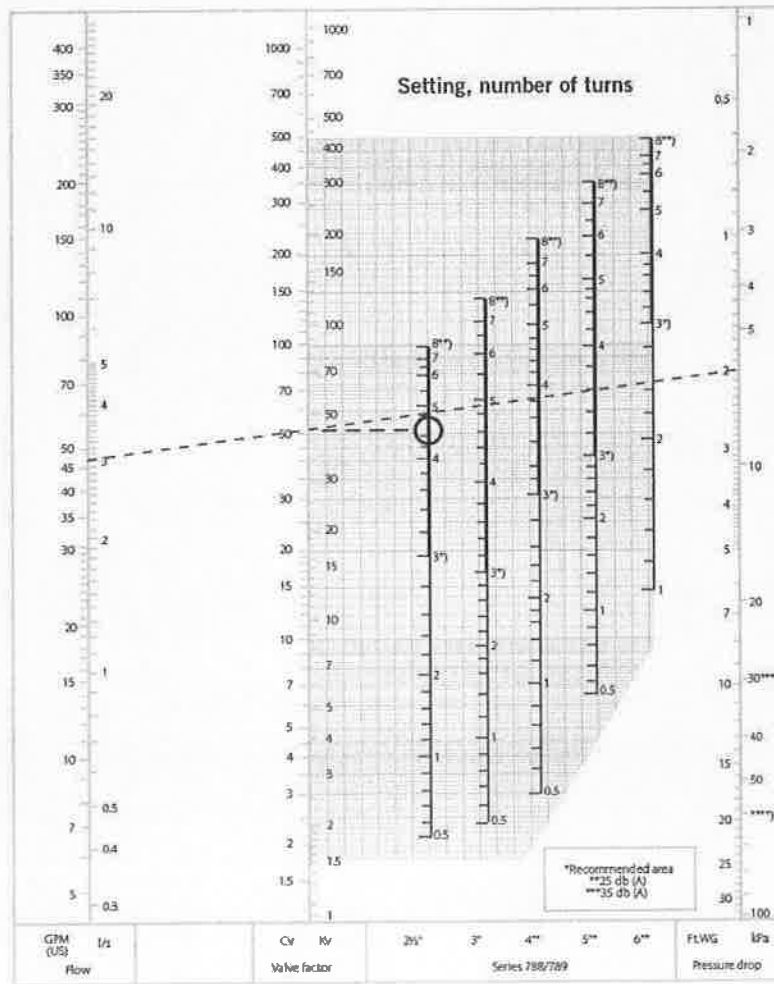
This graph shows the pressure drop across the pressure test points of the valve.

A straight line connecting the flow rate scale,  $C_v$  and pressure drop shows the relationship between these variables

**Example:**

Wanted: Pre-setting for a Series 788 or Series 789 2½" at a desired flow rate of 47 GPM and a pressure drop of 2 ft. WG.

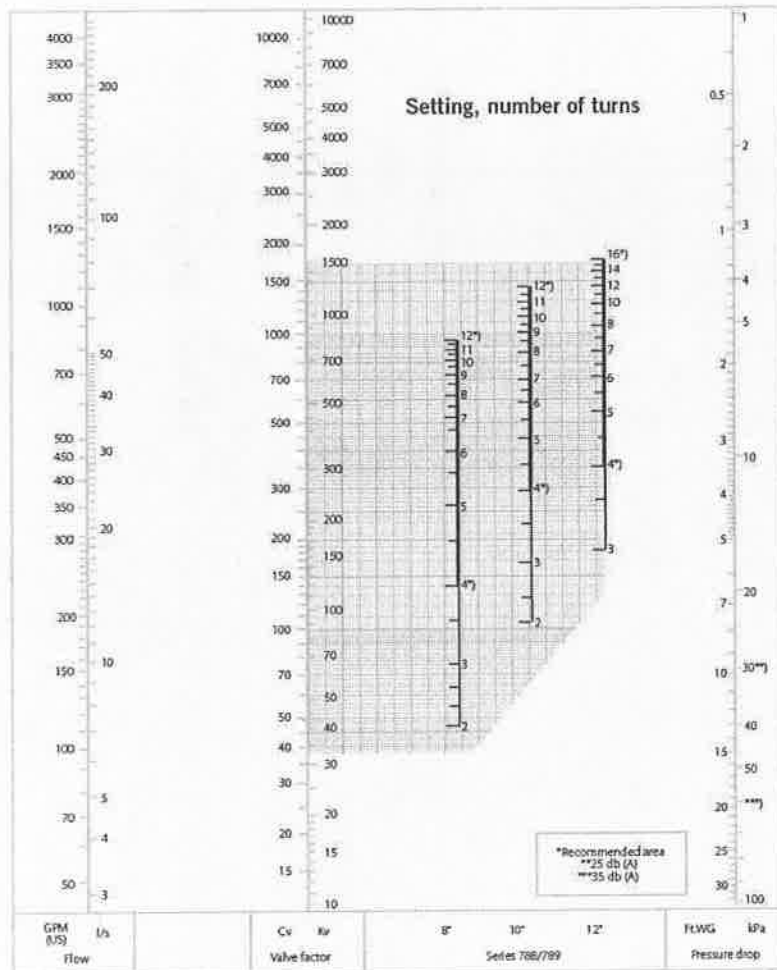
Solution: Draw straight line joining 47 GPM and 2 ft. WG. This gives  $C_v = 50$ . Now draw a horizontal line from  $C_v = 50$ . This intersects the flow rate scale for Series 788 2½" at the desired pre-setting of 4.5 turns.



# Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

## Diagram

SERIES 788/789  
SIZES 8, 10 AND 12"



---

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

---

---

[www.victaulic.com](http://www.victaulic.com)

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY, ALL RIGHTS RESERVED, PRINTED IN THE USA.

REV\_2



08.16\_19

## Tour & Andersson Circuit Balancing Valves and Koil-Kit™ Components

---

**WARRANTY**

Refer to the Warranty section of the current Price List or contact Victaulic for details.

---

**NOTE**

This product shall be manufactured by Victaulic or to Victaulic specifications. All products to be installed in accordance with current Victaulic installation/assembly instructions as recommended by Tour and Andersson. Victaulic reserves the right to change product specifications, designs and standard equipment without notice and without incurring obligations.



WCAS-72JHKJ

---

For complete contact information, visit [www.victaulic.com](http://www.victaulic.com)

08.16 0930 REV J UPDATED 2/2008

VICTAULIC IS A REGISTERED TRADEMARK OF VICTAULIC COMPANY. © 2008 VICTAULIC COMPANY. ALL RIGHTS RESERVED. PRINTED IN THE USA.

08.16





# CHECK UP1509\*

## HORIZONTAL SWING - BRONZE

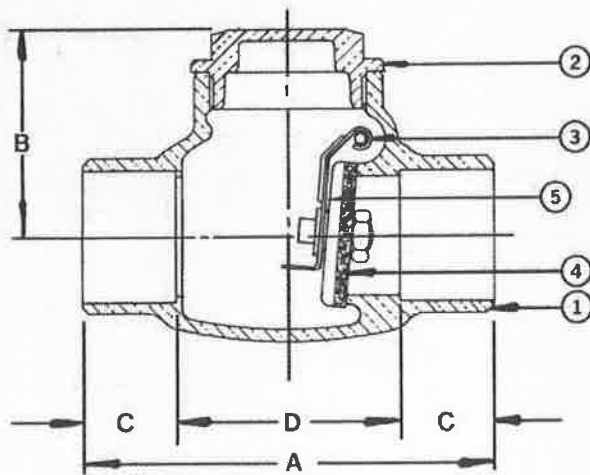
300 lb. WOG†  
Potable Water Service  
Bronze Disc  
Solder Ends

Dimensions and Workmanship Conform to MSS SP-80

Designed in accordance with the requirements of California AB 1953, Vermont S 152 and Senate Bill S3874



WQA tested and Certified against NSF/ANSI 372 for "lead free" compliance.



\*Same design as Hammond UP912

| MATERIAL LIST |                  |           |                     |
|---------------|------------------|-----------|---------------------|
| NO.           | PART             | MATERIAL  | SPECIFICATION       |
| 1             | Body             | Bronze    | ASTM B584 C89833    |
| 2             | Cap              | Bronze    | ASTM B584 C89833    |
| 3             | Pin              | St. Steel | Commercial          |
| 4             | Disc             | Brass     | ASTM B283 C27450    |
|               |                  | Bronze    | 2" ASTM B584 C89833 |
| 5             | Lever            | St. Steel | Commercial          |
| 6             | Retaining Ring   | St. Steel | Commercial          |
| 7             | Plug (not shown) | Brass     | ASTM B283 C69300    |

| DIMENSIONS - INCHES / MILLIMETERS |       |        |       |       |       |                |
|-----------------------------------|-------|--------|-------|-------|-------|----------------|
| UNITS                             | SIZE  | A      | B     | C     | D     | C <sub>v</sub> |
| Inches                            | 1/2   | 2.56   | 1.44  | 0.50  | 1.56  | 6.0            |
| mm                                | 12.70 | 65.10  | 36.53 | 12.70 | 39.70 | 6.0            |
| Inches                            | 3/4   | 3.31   | 1.69  | 0.75  | 1.75  | 10.0           |
| mm                                | 19.05 | 84.15  | 42.88 | 19.05 | 44.45 | 10.0           |
| Inches                            | 1     | 4.00   | 1.97  | 0.91  | 2.19  | 18.0           |
| mm                                | 25.40 | 101.60 | 50.01 | 23.01 | 55.58 | 18.0           |
| Inches                            | 1 1/4 | 4.25   | 2.16  | 0.97  | 2.31  | 31.0           |
| mm                                | 31.75 | 107.95 | 54.76 | 24.61 | 58.75 | 31.0           |
| Inches                            | 1 1/2 | 4.94   | 2.41  | 1.09  | 2.75  | 54.0           |
| mm                                | 38.10 | 125.43 | 61.11 | 27.79 | 69.85 | 54.0           |
| Inches                            | 2     | 6.13   | 2.81  | 1.34  | 3.44  | 76.0           |
| mm                                | 50.80 | 155.58 | 71.45 | 34.13 | 87.33 | 76.0           |

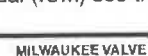
† Non-Shock

Rev. 9

Milwaukee Valve Company  
16550 W. Stratton Drive  
New Berlin, WI 53151  
Phone: 262-432-2700  
Fax: 262-432-2701

Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)





# CHECK UP509\*

## HORIZONTAL SWING - BRONZE

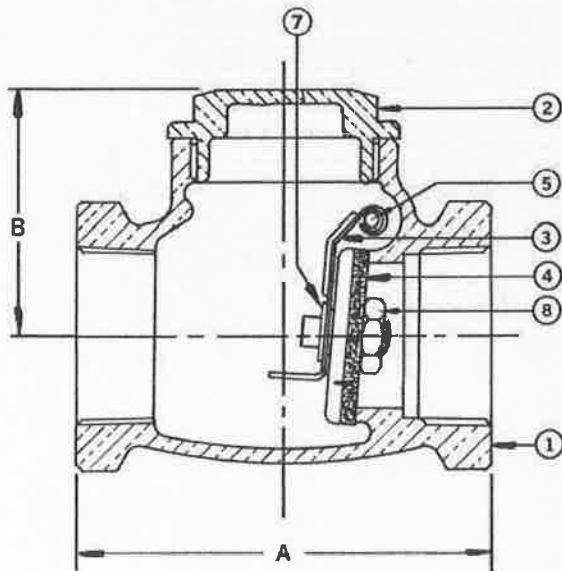
**300 lb. WOG†**  
**Potable Water Service**  
**Bronze Disc**  
**Threaded Ends**

Dimensions and Workmanship Conform to MSS SP-80

Designed in accordance with the requirements of California AB 1953, Vermont S 152 and Senate Bill S3874



WQA tested and Certified against NSF/ANSI 372 for "lead free" compliance.



\*Same design as Hammond UP904

**MATERIAL LIST**

| NO. | PART             | MATERIAL  | SPECIFICATION       |
|-----|------------------|-----------|---------------------|
| 1   | Body             | Bronze    | ASTM B584 C89833    |
| 2   | Cap              | Bronze    | ASTM B584 C89833    |
| 3   | Lever            | St. Steel | Commercial          |
| 4   | Disc             | Brass     | ASTM B283 C27450    |
|     |                  | Bronze    | 2" ASTM B584 C89833 |
| 5   | Pin              | St. Steel | Commercial          |
| 6   | Disc Nut         | Brass     | ASTM B283 C46400    |
| 7   | Retaining Ring   | St. Steel | Commercial          |
| 8   | Plug (not shown) | Brass     | ASTM B283 C27450    |

**DIMENSIONS - INCHES / MILLIMETERS**

| UNITS  | SIZE  | A      | B      | C <sub>v</sub> |
|--------|-------|--------|--------|----------------|
| Inches | 1/4   | 2.13   | 1.44   | 3.3            |
| mm     | 6.35  | 53.98  | 36.53  |                |
| Inches | 3/8   | 2.13   | 1.44   | 6.0            |
| mm     | 9.53  | 53.98  | 36.53  |                |
| Inches | 1/2   | 2.31   | 1.44   | 10.0           |
| mm     | 12.70 | 58.75  | 36.53  |                |
| Inches | 3/4   | 2.63   | 1.69   | 18.0           |
| mm     | 19.05 | 66.68  | 42.88  |                |
| Inches | 1     | 3.25   | 2.00   | 31.0           |
| mm     | 25.40 | 82.55  | 50.80  |                |
| Inches | 1 1/4 | 3.56   | 2.13   | 54.0           |
| mm     | 31.75 | 90.50  | 53.98  |                |
| Inches | 1 1/2 | 4.00   | 2.38   | 76.0           |
| mm     | 38.10 | 101.60 | 60.33  |                |
| Inches | 2     | 4.75   | 2.81   | 131.0          |
| mm     | 50.80 | 130.18 | 207.98 |                |

† Non-Shock

Rev. 7

Milwaukee Valve Company  
 16550 W. Stratton Drive  
 New Berlin, WI 53151  
 Phone: 262-432-2700  
 Fax: 262-432-2701

Note: Lead free refers to the wetted surface of the pipe, fittings and fixtures in potable water systems that have a weighted average lead content ≤0.25%. Source: California Health and Safety Code (116875).

The information presented on this sheet is correct at the time of publication. Milwaukee Valve reserves the right to change design, and/or material specifications without notice. For the Installation, Operation and Maintenance Manual (IOM) see the engineering section on our website. For the most current information access [www.milwaukeevalve.com](http://www.milwaukeevalve.com)

MILWAUKEE VALVE



**For Commercial, Institutional and Industrial Applications**

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

**LEAD FREE\***

**Series LF223, LF223S**  
 High Capacity Water Pressure Reducing Valves\*\*

Sizes: 1/2" - 2 1/2" (15 - 65mm)

Series LF223 and LF223S High Capacity Water Pressure Reducing Valves are designed to reduce incoming water pressure to a sensible level to protect plumbing system components and reduce water consumption. The LF223/LF223S features Lead Free\* construction to comply with Lead Free\* installation requirements. This series is suitable for water supply pressures up to 300psi (20.7 bar) and may be adjusted from 25 - 75psi (172 - 517 kPa). The standard setting is 50psi (345 kPa). Series LF223 features an enlarged diaphragm, spring cage and seat orifice for high capacity performance. Series LF223S has the same options as the LF223, except it is furnished with a strainer. All parts are quickly and easily serviceable without removing the valve from the line. The optional bypass feature permits the flow of water back through the valve into the main when pressures, due to thermal expansion on the outlet side of the valve, exceed the pressure in the main supply.

**Features**

- Enlarged diaphragm, spring cage and seat orifice for super capacity performance
- Lead Free\* brass body construction (except 2 1/2" (65mm) which is iron)
- Serviceable in line
- Series LF223S furnished with separate strainer
- Optional bypass feature controls thermal expansion pressure\*\*\*
- Sealed spring cage on all models for accessible outdoor or pit installations.

**Models**

LF223 NPT threaded female inlet x NPT threaded female outlet

LF223-S NPT threaded female inlet with strainer x NPT threaded female outlet

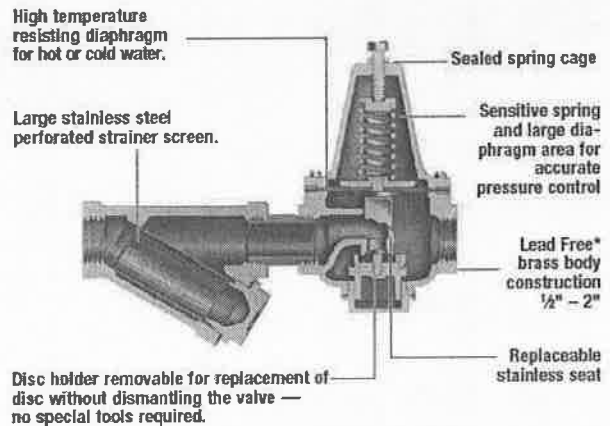
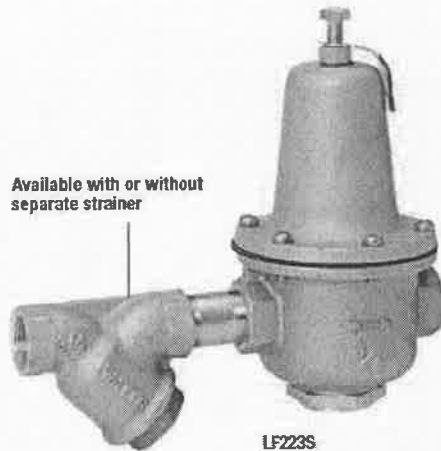
For 2 1/2" - 3" (65 - 80mm) bronze threaded valves, refer to literature ES-LFN223B.

For 3" (80mm) flanged connections, refer to literature ES-LFN223F.

**Specifications**

A Lead Free Water Pressure Reducing Valve shall be installed on the water service pipe near its entrance to the building where supply main pressure exceeds 60psi (413 kPa) to reduce it to 50psi (345 kPa) or lower. The water pressure reducing valve shall be constructed using Lead Free\* materials. Lead Free\* regulators shall comply with state codes and standards, where applicable, requiring reduced lead content. Sill cocks and outside wall hydrants may be left on full main pressure at the option of the owner. Provision shall be made to permit the bypass continued on next page

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



**IMPORTANT: INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS**

- \*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.
- \*\*A water saving test program concluded that reducing the supply pressure from 80-50psi (551-345 kPa) resulted in a water savings of 30%.
- \*\*\*The bypass feature will not prevent the pressure relief valve from opening on the hot water supply system with pressure above 150psi (10.3 bar).



**Specifications cont.**

flow of water back through the valve into the main when pressures, due to thermal expansion on the outlet side of the valve, exceed the pressure in the main supply. Pressure reducing valves with built-in bypass check valves and strainer will be acceptable. Approved valves shall comply with ASSE 1003. Valve shall be a Watts Regulator Company Series LF223 or LF223S (with strainer).

**Materials**

- Body: 1/2" – 2" (15 – 50mm) Lead Free\* Brass  
2 1/2" (65mm) Iron
- Seat: Replaceable stainless steel
- Strainer Screen: Stainless steel (Model LF223S)
- Diaphragm: Reinforced Buna-N
- Valve Disc: EPDM

**Pressure – Temperature**

- Temperature Range: 33°F – 160°F (0.5°C – 71°C)
- Maximum Working Pressure: 300psi (20.7 bar)
- Adjustable Reduced Pressure Range: 25-75psi (172 – 517 kPa)
- Standard Reduced Pressure Setting: 50psi (345 kPa)

**Standards**



1/2" – 2" (15 – 50mm) meets requirements of ASSE Standard 1003; (ANSI A112.26); CSA Standard B356; Southern Standard Plumbing Code, Military Standard MIL-V-18146B and listed by IAPMO.

**Options**

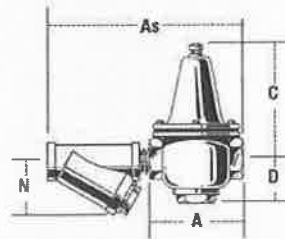
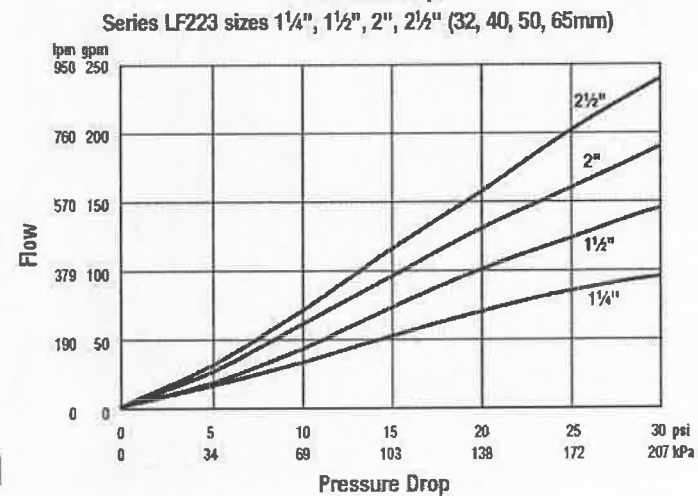
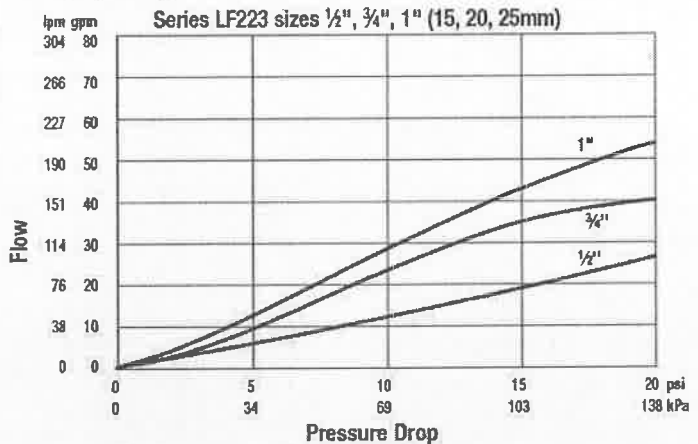
- B Built-in bypass feature
- LP Low pressure range 10-35psi (69 – 241 kPa)
- HP High pressure range, reduced range shown below:

| REDUCED PRESSURE RANGE - SUFFIX HP |    |        |          |
|------------------------------------|----|--------|----------|
| Size                               |    | Range  |          |
| in.                                | mm | psi    | bar      |
| 1/2                                | 15 | 50-145 | 3.4-10.0 |
| 3/4                                | 20 | 50-145 | 3.4-10.0 |
| 1                                  | 25 | 50-145 | 3.4-10.0 |
| 1 1/4                              | 32 | 50-120 | 3.4-8.3  |
| 1 1/2                              | 40 | 50-95  | 3.4-6.6  |
| 2                                  | 50 | 50-95  | 3.4-6.6  |
| 2 1/2                              | 65 | 50-95  | 3.4-6.6  |

**Dimensions – Weights**

| SIZE (DN) |    | DIMENSIONS |     |             |     | WEIGHT |     |       |    |            |     |       |      |        |      |
|-----------|----|------------|-----|-------------|-----|--------|-----|-------|----|------------|-----|-------|------|--------|------|
| in.       | mm | A (LF223)  |     | As (LF223S) |     | C      |     | D     |    | N (LF223S) |     | LF223 |      | LF223S |      |
|           |    | in.        | mm  | in.         | mm  | in.    | mm  | in.   | mm | in.        | mm  | lbs.  | kgs. | lbs.   | kgs. |
| 1/2       | 15 | 4 1/4      | 108 | 9           | 229 | 6 1/4  | 159 | 2     | 50 | 2 1/2      | 64  | 4.5   | 2.0  | 6      | 2.7  |
| 3/4       | 20 | 4 1/4      | 108 | 9           | 229 | 6 1/4  | 159 | 2     | 50 | 2 1/2      | 64  | 5     | 2.3  | 6.5    | 2.9  |
| 1         | 25 | 4 3/4      | 121 | 10 15/16    | 262 | 6 1/2  | 165 | 2 1/8 | 54 | 2 15/16    | 75  | 7     | 3.2  | 9.5    | 4.3  |
| 1 1/4     | 32 | 5          | 127 | 11 15/16    | 287 | 6 3/4  | 172 | 2 3/4 | 70 | 3          | 76  | 9     | 4.1  | 12     | 5.4  |
| 1 1/2     | 40 | 6 3/4      | 171 | 14 3/4      | 375 | 9 7/8  | 251 | 2 3/4 | 70 | 3 1/16     | 87  | 19.5  | 8.8  | 23.5   | 10.7 |
| 2         | 50 | 8          | 203 | 16 3/4      | 425 | 10 3/4 | 273 | 3 3/8 | 86 | 4          | 102 | 30    | 13.6 | 37.5   | 17.0 |
| 2 1/2     | 65 | 9          | 229 | 20 1/4      | 511 | 10 3/4 | 273 | 3 3/8 | 86 | 5          | 127 | 32.5  | 14.8 | 59     | 26.8 |

**Capacity**



A Watts Water Technologies Company



ISO 9001-2008 CERTIFIED

USA: No. Andover, MA • Tel. (978) 688-1811 • Fax: (978) 794-1848 • www.watts.com  
 Canada: Burlington, ON • Tel. (905) 332-4090 • Fax: (905) 332-7068 • www.wattscanada.ca  
 © 2012 Watts

ES-LF223 1205



**For Water Heater/Tank Applications**

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

**LEAD FREE\***

**Model LFN36-M1**  
**Vacuum Relief Valve**

Sizes: 1/2" - 3/4" (15 and 20mm) Male NPT

**Features**

- Low profile
- All Lead Free\* brass body
- Protective cap
- Suitable for low pressure steam and water service
- Tested and rated to ANSI Z21.22
- CSA certified
- The LFN36-M1 features Lead Free\* construction to comply with Lead Free\* installation requirements.

**Applications**

- Domestic water heaters and supply tanks
- Table top heaters
- Jacketed steam kettles
- Unit heaters
- Low pressure steam systems
- Steam coil heaters

**Note:** Vacuum relief valves are not designed or approved as backsiphonage backflow preventers. For protection against backsiphonage install Watts Series 288A vacuum breakers.

**Standards**

Tested and rated to ANSI Z21.22  
 CSA certified

**Specifications**

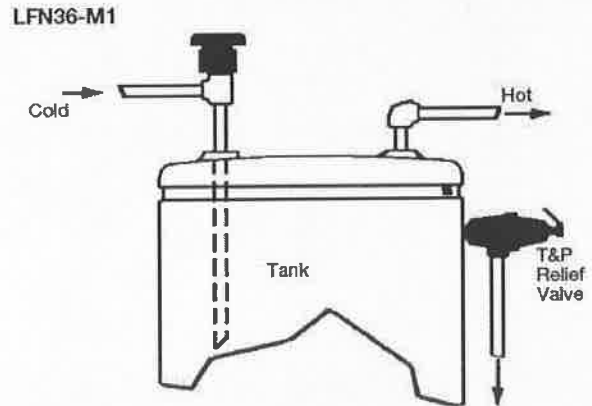
A Watts Model LFN36-M1 Vacuum Relief Valve shall be installed on domestic hot water supply tanks/ heaters/ unit heaters/ steam kettles as indicated on plans. The vacuum relief valve shall be ANSI Z21.22 rated and CSA certified. The vacuum relief valve shall have an all brass body and include a protective cap for automatic venting of a closed system to atmosphere when a vacuum is created. The Lead Free\* Vacuum Relief Valve shall comply with state codes and standards, where applicable, requiring reduced lead content. The Watts LFN36-M1 Vacuum Relief Valve permits air to enter and prevent vacuum conditions that could siphon the water from the system, resulting in collapse of a tank or water heater or equipment burn out. The valve shall be a Watts Model LFN36-M1.



LFN36-M1



Tested and rated under "ANSI Z21.22  
 Relief Valves for Hot Water Supply Systems".



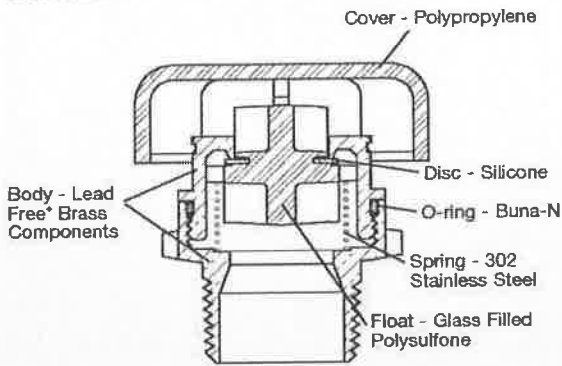
**Figure 1**  
 Domestic Hot Water Supply Tanks and Heaters with  
 Top Supply

\*The wetted surface of this product contacted by consumable water contains less than one quarter of one percent (0.25%) of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



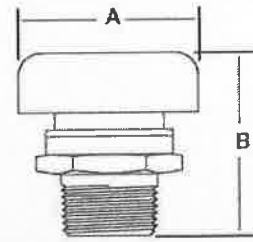
**Materials**



**Pressure/Temperature**

Maximum steam working pressure: 15 psi (1.03 bar)  
 Maximum temperature: 250°F (121°C)

**Dimensions-Weights**



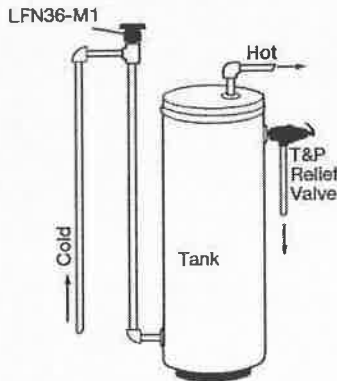
| SIZE (DN) |    | DIMENSIONS |    |   |    | WEIGHT |     |
|-----------|----|------------|----|---|----|--------|-----|
| in.       | mm | A          |    | B |    | oz.    | gr. |
| 1/2       | 15 | 2          | 50 | 2 | 50 | 4      | 113 |
| 3/4       | 20 | 2          | 50 | 2 | 50 | 4      | 113 |

**Capacity**

| SIZE (DN) |    | VENTING CAPACITY |         |
|-----------|----|------------------|---------|
| in.       | mm | MODEL            | CFM LPM |
| 1/2       | 15 | LFN36-M1         | 15 425  |
| 3/4       | 20 | LFN36-M1         | 15 425  |

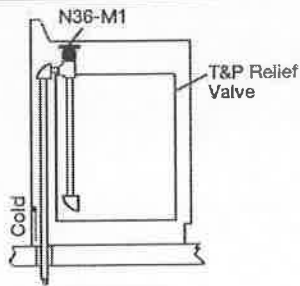
**Typical Installations**

**Water Service**



**Figure 2**

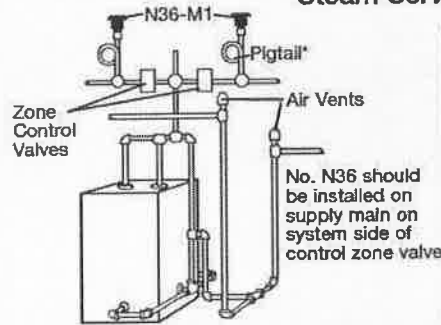
Domestic Hot Water Supply Tanks and Heaters with Bottom Feed



**Figure 3 -**

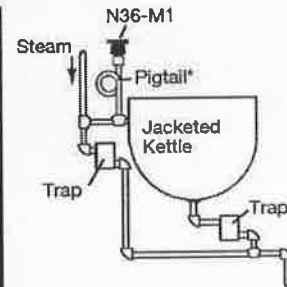
Table Top Heaters

**Steam Service**



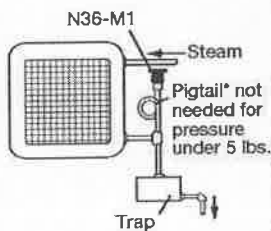
**Figure 4**

Low Pressure Steam Heating Systems



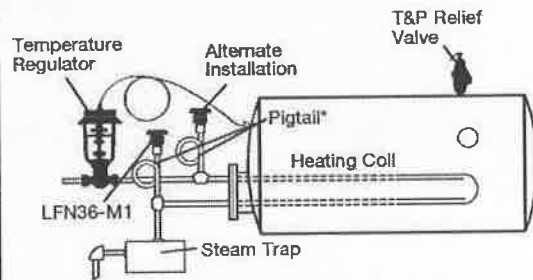
**Figure 5**

Jacketed Kettles



**Figure 6**

Unit Heaters



**Figure 7**

Steam Coil Heaters

\*Note: When used for steam service, be sure to use pigtail to prevent live steam from damaging N36 valve.



A Watts Water Technologies Company



ISO 9001-2000 CERTIFIED

USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.watts.com  
 Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscanada.ca

ES-LFN36 0940

© 2009 Watts



## For Hot Water Boiler Applications

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

# LEAD FREE\*

## Series LF174A ASME Water Pressure Relief Valves

For Pressure Protection of Hot  
Water Heating Boilers

Sizes: 3/4" - 2" (20 - 50mm)

### Series LF174A

Lead Free\* cast copper silicon alloy body safety relief valves for pressure protection only of all types of hot water heating boiler equipment. Pressure range 30 to 150psi (2 - 10 bar) with corresponding high ratings from 650,000 to 14,370,000 BTU/hr. Female inlet and outlet connections. Sizes 3/4" - 2" (20 - 50mm). The LF174A features Lead Free\* construction to comply with Lead Free\* installation requirements.

### Features

- Seat located above drain; water can't be trapped and sediment can't foul seat.
- Non-mechanical seat-to-disc alignment will not stick or freeze.
- Water seal of high temperature resisting material isolates spring working parts from water during relief.

### Specifications

#### Boiler Relief Valves

An ASME Section IV certified pressure relief valve shall be installed on each boiler as noted. The valve shall have a BTU rating in excess of the BTU rating of the boiler's heating output. Each hot water space heating boiler shall be equipped with a pressure relief valve set to relieve below the maximum boiler working pressure. The valve shall feature a raised seat and non-mechanical disc alignment. Working parts and spring shall be isolated from any discharge by a high temperature resistant material. The valve shall be constructed using Lead Free\* cast copper silicon alloy material. Lead Free\* boiler relief valve shall comply with state codes and standards where applicable, requiring reduced lead content. Valve shall be a Watts Series LF174A.



Series LF174A

### Operation

#### NOTICE

As thermal expansion conditions develop, pressure builds up to the setting of the relief valve. This will cause discharging of small quantity of water.

Should operating controls fail, permitting runaway firing, the boiler water may reach steam temperatures. The valve will then open to discharge steam at the rate or faster than the boiler can generate it, thus restoring system pressure to a safer level.

#### WARNING

The discharge line must be the same size as the valve outlet, and must pitch downward from the valve to a safe place for disposal.

Valve lever must be tripped at least once a year to ensure that waterways are clear. This device is designed for emergency safety relief and shall not be used as an operating control.

\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

# WATTS®

**Materials**

**Series LF174A**

- Lead Free\* brass
- Nonmetallic disc-to-metal seating

**Pressure – Temperature**

**Series LF174A**

Pressure range: 30psi to 150psi (2 to 10 bar) with corresponding high BTU/hr ratings from 650,000 to 14,370,000 BTU/hr. Maximum Temperature: 250°F (121°C)

**Standards**



Tested and rated by the National Board of Boiler and Pressure Vessel Inspectors to the requirements of ASME. Meets Military Spec. MIL-V-18634B, Type I, Class 3A, Style A (Bronze Body).

**Dimensions – Weights**

| SERIES LF174A |           |         |       |        |     |        |     |        |     |
|---------------|-----------|---------|-------|--------|-----|--------|-----|--------|-----|
| Model         | Size (Dn) |         | Model | Height |     | Length |     | Weight |     |
|               | in.       | mm      |       | in.    | mm  | in.    | mm  | lbs.   | kg. |
| LF174A        | ¾ x ¾     | 20 x 20 | M3    | 5¼     | 130 | 2½     | 64  | 1.50   | .7  |
| LF174A        | 1 x 1     | 25 x 25 | M1    | 5¼     | 146 | 3      | 76  | 3.13   | 1.4 |
| LF174A        | 1¼ x 1¼   | 32 x 32 | M1    | 8¼     | 213 | 4¼     | 121 | 6.25   | 2.8 |
| LF174A        | 1½ x 1½   | 40 x 40 | M     | 9      | 229 | 4¾     | 124 | 7.25   | 3.3 |
| LF174A        | 2 x 2     | 50 x 50 | M     | 11¾    | 295 | 8¼     | 159 | 13.75  | 6.2 |

**Capacity\***

BTU/hr Steam Pressure Discharge Capacities  
As tested and rated by the National Board of Boiler and Pressure Vessel Inspectors

| SERIES LF174A |                                  |                                  |                                    |                                   |                                 |            |
|---------------|----------------------------------|----------------------------------|------------------------------------|-----------------------------------|---------------------------------|------------|
| Set Pressure  | ¾" x ¾"<br>20 x 20mm<br>Model M3 | 1" x 1"<br>25 x 25mm<br>Model M1 | 1¼" x 1¼"<br>32 x 32mm<br>Model M1 | 1½" x 1½"<br>40 x 40mm<br>Model M | 2" x 2"<br>50 x 50mm<br>Model M |            |
| psi           | bar                              |                                  |                                    |                                   |                                 |            |
| 30            | 2.07                             | 650,000                          | 1,005,000                          | 1,682,000                         | 2,020,000                       | 3,815,000  |
| 33            | 2.27                             | 695,000                          | 1,075,000                          | 1,788,000                         | 2,150,000                       | 4,080,000  |
| 35            | 2.41                             | 725,000                          | 1,125,000                          | 1,877,000                         | 2,250,000                       | 4,250,000  |
| 36            | 2.48                             | 740,000                          | 1,145,000                          | 1,916,000                         | 2,310,000                       | 4,344,000  |
| 40            | 2.76                             | 800,000                          | 1,240,000                          | 2,071,000                         | 2,490,000                       | 4,690,000  |
| 45            | 3.10                             | 875,000                          | 1,355,000                          | 2,265,000                         | 2,720,000                       | 5,130,000  |
| 50            | 3.45                             | 950,000                          | 1,470,000                          | 2,459,000                         | 2,950,000                       | 5,575,000  |
| 55            | 3.79                             | 1,025,000                        | 1,590,000                          | 2,653,000                         | 3,190,000                       | 6,010,000  |
| 60            | 4.13                             | 1,100,000                        | 1,702,000                          | 2,847,000                         | 3,425,000                       | 6,450,000  |
| 65            | 4.58                             | 1,170,000                        | 1,820,000                          | 3,041,000                         | 3,660,000                       | 6,890,000  |
| 70            | 4.82                             | 1,245,000                        | 1,935,000                          | 3,325,000                         | 3,890,000                       | 7,330,000  |
| 75            | 5.17                             | 1,320,000                        | 2,055,000                          | 3,429,000                         | 4,125,000                       | 7,770,000  |
| 80            | 5.51                             | 1,400,000                        | 2,166,000                          | 3,605,000                         | 4,360,000                       | 8,215,000  |
| 85            | 5.86                             | 1,470,000                        | 2,285,000                          | 3,817,000                         | 4,590,000                       | 8,650,000  |
| 90            | 6.60                             | 1,545,000                        | 2,400,000                          | 4,011,000                         | 4,825,000                       | 9,090,000  |
| 95            | 6.55                             | 1,620,000                        | 2,520,000                          | 4,205,000                         | 5,060,000                       | 9,530,000  |
| 100           | 6.89                             | 1,695,000                        | 2,635,000                          | 4,399,000                         | 5,290,000                       | 9,970,000  |
| 105           | 7.23                             | 1,770,000                        | 2,750,000                          | 4,593,000                         | 5,525,000                       | 10,410,000 |
| 110           | 7.58                             | 1,845,000                        | 2,865,000                          | 4,787,000                         | 5,760,000                       | 10,850,000 |
| 115           | 7.92                             | 1,920,000                        | 2,980,000                          | 4,981,000                         | 5,990,000                       | 11,290,000 |
| 120           | 8.27                             | 1,995,000                        | 3,100,000                          | 5,175,000                         | 6,225,000                       | 11,730,000 |
| 125           | 8.61                             | 2,070,000                        | 3,215,000                          | 5,370,000                         | 6,460,000                       | 12,170,000 |
| 130           | 8.96                             | 2,145,000                        | 3,330,000                          | 5,564,000                         | 6,690,000                       | 12,610,000 |
| 135           | 9.30                             | 2,220,000                        | 3,445,000                          | 5,758,000                         | 6,925,000                       | 13,050,000 |
| 140           | 9.65                             | 2,295,000                        | 3,565,000                          | 5,952,000                         | 7,160,000                       | 13,490,000 |
| 145           | 9.99                             | 2,370,000                        | 3,680,000                          | 6,146,000                         | 7,390,000                       | 13,930,000 |
| 150           | 10.34                            | 2,445,000                        | 3,795,000                          | 6,340,000                         | 7,630,000                       | 14,370,000 |



A Watts Water Technologies Company

ES-LF174A 1306



USA: Tel: (978) 688-1811 • Fax: (978) 794-1848 • www.watts.com  
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • www.watts.ca

© 2013 Watts



**Models: LF351, LF352, LF358**

**LEAD FREE\***

**Cast Lead Free\* Bronze Screwed and Solder Y Strainers**  
**Sizes: 1/4" - 3" (8 - 80mm)**

| Pressure/Temperature - Non-Shock |           |   |
|----------------------------------|-----------|---|
| Model                            | Material  | Rating  |
| LF351                            | LF Bronze | 200psi @ -20 to 150°F                                 |
|                                  | C87800    | 13.8 bar @ 66°C<br>50psi @ 350°F<br>10.3 bar @ 177°C  |
| LF352                            | LF Bronze | 400 psi @ -20 to 150°F                                |
|                                  | C87800    | 27.6 bar @ 66°C<br>300psi @ 350°F<br>20.7 bar @ 177°C |
| LF358                            | LF Bronze | 400psi @ -20 to 100°F                                 |
|                                  | C87800    | 27.6 bar @ 37.8°C                                     |



|       |         |           |
|-------|---------|-----------|
| LF351 | Screwed | Class 125 |
| LF352 | Screwed | Class 250 |
| LF358 | Solder  | Class 125 |



LF351 Screwed ends (shown)  
 LF352 Screwed ends



LF358 Solder ends

**Typical Service**

- Used to strain foreign matter from pipelines and provide economical protection for costly pumps, meters, valves, and other similar mechanical equipment
- Lead Free\* construction to comply with lead free installation requirements.

**Features**

- Machined seats in both body and cap align and lock the screen in place to stop sediment bypass.
- Lead Free\* materials of construction

**Self-Cleaning**

- Self-cleaning is accomplished by opening the plug or valve connected to the blowoff outlet

**Blowoff Outlets**

- Outlets are NPT tapped
- Sizes of tapping are specified on next page
- Not normally furnished with plug. Plug is available, specify with order.

**Capacity**

- Generously proportioned bodies
- Open Area Ratio much greater than pipe size, ensuring low pressure drop.

**Screens**

| MODEL | SIZES       | STANDARD (WATER) |           | STEAM RECOMENDATION |           |
|-------|-------------|------------------|-----------|---------------------|-----------|
|       |             | MATERIAL         | OPENING   | MATERIAL            | OPENING   |
| All   | 1/4" - 2"   | 304SS            | 20 mesh   | 304SS               | .033 perf |
|       | 2 1/2" - 3" | 304SS            | .062 perf | 304SS               | .033 perf |

**Materials**

|        | LF351, LF352, LF358   |
|--------|-----------------------|
| Body   | C87800                |
| Cap    | C87800                |
| Screen | 304SS                 |
| Gasket | Metal Filled Graphite |

\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

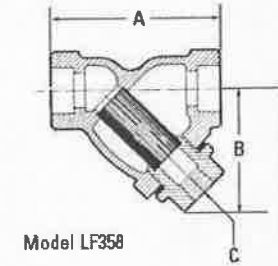
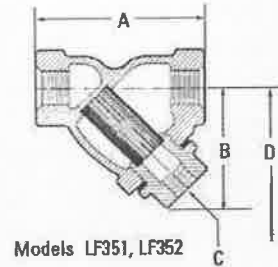


**Pressure Drop**

- See Pressure Drop Charts in Technical Data Section of the Mueller Steam Specialty Engineering binder.
- Pressure drops are the same as previous models 351M, 352M , 358S

**Dimensions and Weights**

| SIZE                |    | DIMENSIONS |     |       |     |         |    | WEIGHT           |     |          |
|---------------------|----|------------|-----|-------|-----|---------|----|------------------|-----|----------|
|                     |    | A          |     | B     |     | C (NPT) |    | D Screen Removal |     |          |
| in.                 | mm | in.        | mm  | in.   | mm  | in.     | mm | in.              | mm  |          |
| <b>LF351, LF352</b> |    |            |     |       |     |         |    |                  |     |          |
| 1/4                 | 8  | 2 3/4      | 70  | 2 1/4 | 57  | 1/4     | 6  | 2 1/2            | 64  | .75 .34  |
| 3/8                 | 10 | 2 3/4      | 70  | 2 1/4 | 57  | 1/4     | 6  | 2 1/2            | 64  | .75 .34  |
| 1/2                 | 15 | 2 3/4      | 70  | 2 1/4 | 57  | 1/4     | 6  | 2 1/2            | 64  | .75 .34  |
| 3/4                 | 20 | 3          | 76  | 2 3/8 | 65  | 3/8     | 10 | 2 3/8            | 67  | 1.38 .62 |
| 1                   | 25 | 3 3/4      | 95  | 2 3/4 | 70  | 3/8     | 10 | 3 3/8            | 86  | 2.13 .96 |
| 1 1/4               | 32 | 4 1/8      | 113 | 3 3/8 | 81  | 3/4     | 20 | 4 3/8            | 117 | 3.13 1.4 |
| 1 1/2               | 40 | 4 3/8      | 125 | 3 3/4 | 98  | 3/4     | 20 | 5                | 127 | 4.5 2    |
| 2                   | 50 | 6 1/8      | 156 | 5 1/4 | 130 | 1       | 25 | 6 1/8            | 175 | 7 3.1    |
| 2 1/2               | 65 | 8 1/4      | 210 | 6     | 152 | 1 1/4   | 32 | 8 3/4            | 222 | 12.5 5.6 |
| 3                   | 80 | 9          | 229 | 6 3/4 | 171 | 1 1/2   | 38 | 9 3/4            | 248 | 18 8     |
| <b>LF358</b>        |    |            |     |       |     |         |    |                  |     |          |
| 1/4                 | 8  | 3          | 76  | 2 1/4 | 57  | 1/4     | 6  | 1/4              | 6   | .75 .34  |
| 3/8                 | 10 | 3          | 76  | 2 1/4 | 57  | 1/4     | 6  | 1/4              | 6   | .75 .34  |
| 1/2                 | 15 | 3          | 76  | 2 1/4 | 57  | 1/4     | 6  | 1/4              | 6   | .75 .34  |
| 3/4                 | 20 | 3 1/8      | 93  | 2 3/8 | 65  | 3/8     | 10 | 3/8              | 10  | 1.38 .62 |
| 1                   | 25 | 4 1/4      | 120 | 2 3/4 | 70  | 3/8     | 10 | 3/8              | 10  | 2.13 .96 |
| 1 1/4               | 32 | 5 1/8      | 138 | 3 3/8 | 81  | 3/4     | 20 | 3/4              | 20  | 3.13 1.4 |
| 1 1/2               | 40 | 5 15/16    | 150 | 3 3/4 | 98  | 3/4     | 20 | 3/4              | 20  | 4.5 2    |
| 2                   | 50 | 7 3/8      | 192 | 5 1/4 | 130 | 1       | 25 | 1                | 25  | 7 3.1    |
| 2 1/2               | 65 | 9 1/4      | 248 | 6     | 152 | 1 1/4   | 32 | 1 1/4            | 32  | 12.5 5.6 |
| 3                   | 80 | 10 3/4     | 264 | 6 3/4 | 171 | 1 1/2   | 38 | 1 1/2            | 38  | 18 8     |



Mueller Steam Specialty product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Mueller Steam Specialty Technical Service. Mueller Steam Specialty reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Mueller Steam Specialty products previously or subsequently sold.



A Watts Water Technologies Company

USA: St. Pauls, NC • Tel. 1-800-334-6259 • Fax 1-800-421-6772 • www.muellersteam.com

ES-MS-LF351M\_LF358 1337

© 2013 Mueller Steam Specialty



**Models: LF351, LF352, LF358**

**LEAD FREE\***

**Cast Lead Free\* Bronze Screwed and Solder Y Strainers**  
**Sizes: 1/4" - 3" (8 - 80mm)**

**Pressure/Temperature - Non-Shock**

| Model | Material            | Rating  |
|-------|---------------------|---|
| LF351 | LF Bronze<br>C87800 | 200psi @ -20 to 150°F<br>13.8 bar @ 66°C<br>50psi @ 350°F<br>10.3 bar @ 177°C   |
| LF352 | LF Bronze<br>C87800 | 400 psi @ -20 to 150°F<br>27.6 bar @ 66°C<br>300psi @ 350°F<br>20.7 bar @ 177°C |
| LF358 | LF Bronze<br>C87800 | 400psi @ -20 to 100°F<br>27.6 bar @ 37.8°C                                      |



**LF351 Screwed Class 125**  
**LF352 Screwed Class 250**  
**LF358 Solder Class 125**



LF351 Screwed ends (shown)  
 LF352 Screwed ends



LF358 Solder ends

**Typical Service**

- Used to strain foreign matter from pipelines and provide economical protection for costly pumps, meters, valves, and other similar mechanical equipment
- Lead Free\* construction to comply with lead free installation requirements.

**Features**

- Machined seats in both body and cap align and lock the screen in place to stop sediment bypass.
- Lead Free\* materials of construction

**Self-Cleaning**

- Self-cleaning is accomplished by opening the plug or valve connected to the blowoff outlet

**Blowoff Outlets**

- Outlets are NPT tapped
- Sizes of tapping are specified on next page
- Not normally furnished with plug. Plug is available, specify with order.

**Capacity**

- Generously proportioned bodies
- Open Area Ratio much greater than pipe size, ensuring low pressure drop.

**Screens**

| MODEL | SIZES       | STANDARD (WATER) |           | STEAM RECOMENDATION |           |
|-------|-------------|------------------|-----------|---------------------|-----------|
|       |             | MATERIAL         | OPENING   | MATERIAL            | OPENING   |
| All   | 1/4" - 2"   | 304SS            | 20 mesh   | 304SS               | .033 perf |
|       | 2 1/4" - 3" | 304SS            | .062 perf | 304SS               | .033 perf |

**Materials**

|        | LF351, LF352, LF358   |
|--------|-----------------------|
| Body   | C87800                |
| Cap    | C87800                |
| Screen | 304SS                 |
| Gasket | Metal Filled Graphite |

\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

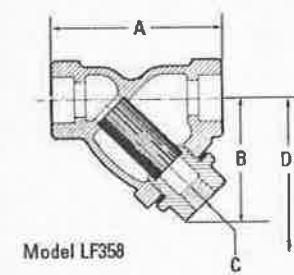
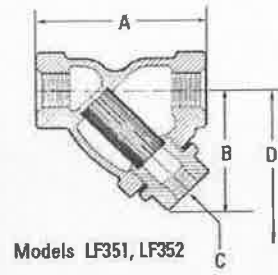


**Pressure Drop**

- See Pressure Drop Charts in Technical Data Section of the Mueller Steam Specialty Engineering binder.
- Pressure drops are the same as previous models 351M, 352M , 358S

**Dimensions and Weights**

| SIZE                |    | DIMENSIONS |     |        |     |         |    | WEIGHT           |     |
|---------------------|----|------------|-----|--------|-----|---------|----|------------------|-----|
|                     |    | A          |     | B      |     | C (NPT) |    | D Screen Removal |     |
| in.                 | mm | in.        | mm  | in.    | mm  | in.     | mm | in.              | mm  |
| <b>LF351, LF352</b> |    |            |     |        |     |         |    |                  |     |
| 1/4                 | 8  | 2 3/4      | 70  | 2 1/4  | 57  | 1/4     | 6  | 2 1/2            | 64  |
| 3/8                 | 10 | 2 3/4      | 70  | 2 1/4  | 57  | 1/4     | 6  | 2 1/2            | 64  |
| 1/2                 | 15 | 2 3/4      | 70  | 2 1/4  | 57  | 1/4     | 6  | 2 1/2            | 64  |
| 3/4                 | 20 | 3          | 76  | 2 3/8  | 65  | 3/8     | 10 | 2 3/4            | 67  |
| 1                   | 25 | 3 1/4      | 95  | 2 3/4  | 70  | 3/8     | 10 | 3 3/8            | 86  |
| 1 1/4               | 32 | 4 1/8      | 113 | 3 3/8  | 81  | 3/4     | 20 | 4 3/4            | 117 |
| 1 1/2               | 40 | 4 15/16    | 125 | 3 3/8  | 98  | 3/4     | 20 | 5                | 127 |
| 2                   | 50 | 6 1/8      | 156 | 5 1/8  | 130 | 1       | 25 | 6 1/8            | 175 |
| 2 1/2               | 65 | 8 1/4      | 210 | 6      | 152 | 1 1/4   | 32 | 8 3/4            | 222 |
| 3                   | 80 | 9          | 229 | 6 3/4  | 171 | 1 1/2   | 38 | 9 3/4            | 248 |
| <b>LF358</b>        |    |            |     |        |     |         |    |                  |     |
| 1/4                 | 8  | 3          | 76  | 2 1/4  | 57  | 1/4     | 6  | 1/4              | 6   |
| 3/8                 | 10 | 3          | 76  | 2 1/4  | 57  | 1/4     | 6  | 1/4              | 6   |
| 1/2                 | 15 | 3          | 76  | 2 1/4  | 57  | 1/4     | 6  | 1/4              | 6   |
| 3/4                 | 20 | 3 11/16    | 93  | 2 9/16 | 65  | 3/8     | 10 | 3/4              | 10  |
| 1                   | 25 | 4 3/4      | 120 | 2 3/4  | 70  | 3/8     | 10 | 3/4              | 10  |
| 1 1/4               | 32 | 5 7/16     | 138 | 3 3/8  | 81  | 3/4     | 20 | 3/4              | 20  |
| 1 1/2               | 40 | 5 15/16    | 150 | 3 3/8  | 98  | 3/4     | 20 | 3/4              | 20  |
| 2                   | 50 | 7 3/8      | 192 | 5 1/8  | 130 | 1       | 25 | 1                | 25  |
| 2 1/2               | 65 | 9 1/4      | 248 | 6      | 152 | 1 1/4   | 32 | 1 1/4            | 32  |
| 3                   | 80 | 10 3/4     | 264 | 6 3/4  | 171 | 1 1/2   | 38 | 1 1/2            | 38  |



Mueller Steam Specialty product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Mueller Steam Specialty Technical Service. Mueller Steam Specialty reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Mueller Steam Specialty products previously or subsequently sold.



A Watts Water Technologies Company  
ES-MS-LF351M\_LF358 1337

USA: St. Pauls, NC • Tel. 1-800-334-6259 • Fax 1-800-421-6772 • www.muellersteam.com

© 2013 Mueller Steam Specialty



SEPTEMBER 25, 2013  
GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SECTION 013300 - 9  
SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Plumbing Piping Specialties

SPECIFICATION REFERENCES: 221006


STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

Date: January 17, 2014

By:

  
(signed)

  
(printed)

INSTALLER: Gainesville Mechanical

Date: January 17, 2014

By:

  
(signed)

  
(printed)

OTHER:

Date:

By:

(signed)

(printed)

END OF FORM

221006 PLUMBING PIPING SPECIALTIES

STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW

JR SMITH    2.1    ROOF DRAIN

JR SMITH    2.2    ROOF OVERFLOW DRAIN

JR SMITH    2.3    DOWN SPOUT NOZZLES

JR SMITH    2.4A   FLOOR DRAIN IN FINISHED  
AREAS

JR SMITH    2.4B   FLOOR DRAIN IN MECHANICAL  
AREAS

JR SMITH    2.4C   FLOOR DRN LARGE AREA  
STERLIZER ETC.

JR SMITH    2.4D   FLOOR DRAIN LARGE AREA  
DRAIN

JR SMITH    2.4E   FLOOR DRAIN LARGE AREA  
DRAIN

SCHLUTER    2.4F   FLR DRN W TILE TOP

JR SMITH    2.4G   SSL DRAINS AT EMERGENCY  
SHWRS

JR SMITH    2.4H   STAINLESS STEEL LAB DRAIN

JR SMITH    2.5A   CLEAN OUT @ EXT

UNSURFACED AREA

JR SMITH    2.5B   GENERAL CO @ EXT SURFACE  
AREAS

JR SMITH    2.5C   CLEANOUTS @ INTERIOR  
FINISHED FLR

JR SMITH    2.5D   CLEANOUTS @ END OF LINE

JR SMITH    2.5E   CO @ INTERIOR FINISHED

Table Of Contents

WOODFORD 2.6 INTERIOR HOSE BIBB

WOODFORD 2.7 WALL HYDRANTS

WATTS 2.8 BACKFLOW PREVENTER

**SMITH® JAY R. SMITH MFG. CO.®**  
 MEMBER OF MORRIS GROUP INTERNATIONAL™  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8320 FAX: 334-272-7396 www.jrsmith.com

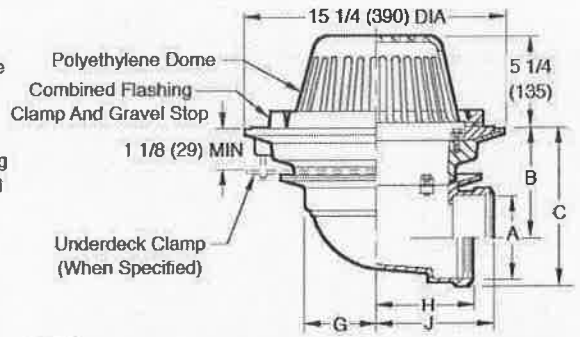
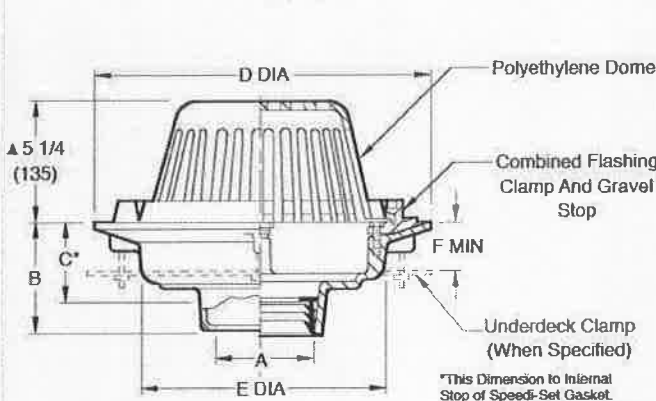
ASPE  
 MEMBER OF:  
 IAPMO

LOCATION  
 SIZE & OUTLET SPECIFIED  
 WHEN ORDERING

# LARGE GENERAL PURPOSE ROOF DRAINS

## LOW PROFILE DOME

**FUNCTION:** Used in flat roof of any construction. Large low profile dome provides sufficient free area for quick drainage of rain water and protects the drain sump and connected piping from the intrusion of debris. Wide clamping surface holds flashing and roofing materials without puncturing.



- Fig. 1010C ... CAULK OUTLET
- Fig. 1010Y ... NO-HUB OUTLET

**recommended deck opening**

| outlet size                | with suffix-R | less suffix-R    |
|----------------------------|---------------|------------------|
| 02(50),03(75),04(100)      | 17(430) DIA   | 14(355) DIA      |
| 05(125),06(150)            | 17(430) DIA   | 14 3/4 (375) DIA |
| **08(200)-16, **10(250)-16 | 17(430) DIA   | 14 3/4 (375) DIA |

| A SIZE                     | B (BOTTOM OUTLET)           |            |            |              |              |            | SIDE OUTLET |             |             | FREE AREA SQ IN (SQ CM) |
|----------------------------|-----------------------------|------------|------------|--------------|--------------|------------|-------------|-------------|-------------|-------------------------|
|                            | CAULK, NO-HUB, & SPEEDI-SET | THREADED   | C          | D DIA        | E DIA        | F MIN      | G           | H           | J           |                         |
| 02(50),03(75), 04(100)     | 5 (125)                     | 3 3/4 (95) | 3 3/4 (95) | 15 1/4 (390) | 11 (280)     | 1 1/8 (29) | 4 3/4 (120) | 6 (150)     | 7 3/4 (195) | 102.5 (661)             |
| 05(125), 06(150)           | 5 (125)                     | 3 3/4 (95) | --         | 15 1/4 (390) | 11 (280)     | 1 1/8 (29) | 6 1/4 (160) | 6 7/8 (175) | 7 3/4 (195) | 102.5 (661)             |
| **08(200)-16, **10(250)-16 | 6 (150)                     | 5 (125)    | --         | 16 (405)     | 12 1/2 (320) | 1 1/8 (29) | --          | --          | --          | 102.5(661) Δ122.5(790)  |

**REGULARLY FURNISHED:**

Duco Cast Iron Body with Combined Flashing Clamp and Gravel Stop with Polyethylene Dome.

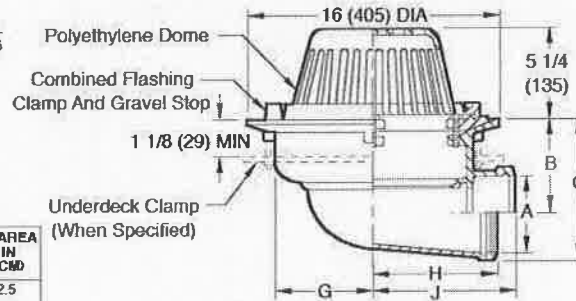
▲ **NOTE:** The dome height is 8 1/4" (210) for the 122.5 SQ IN free area dome and is regularly furnished in Cast Iron and is not available in polyethylene.

**NOTE:** Dimensions shown in parentheses are in millimeters.

**VARIATIONS:**

- Expansion Joint (Specify Fig.1710) (Fig. 1010 only)
- Extension (Specify Height) -E
- "L" Shaped Underdeck Clamp -CL
- L Speedi-Set Service Weight 02(50), 03(75), and 04(100)" sizes only (Fig. 1010 Only)
- LXH Speedi-Set Extra Heavy 02(50), 03(75), and 04(100)" sizes only (Fig. 1010 only)
- NO-HUB Adaptor (Specify Fig. 2646Y) (Fig. 1020 only)
- Secondary Flashing Clamp -C2
- Sump Receiver -R
- Underdeck Clamp -C
- Vandal Proof Dome -U
- T Threaded Outlet

- Fig. 1020C 02(50), 03(75) & 04(100)" CAULK OUTLET
- Fig. 1020T 02(50), 03(75) & 04(100)" THREADED OUTLET



- Fig. 1020C 05(125) & 06"(150) CAULK OUTLET
- Fig. 1020T 05(125) & 06"(150) THREADED OUTLET

| SIDE OUTLET |             |             |             |             |             |
|-------------|-------------|-------------|-------------|-------------|-------------|
| A SIZE      | 02 (50)     | 03 (75)     | 04 (100)    | 05 (125)    | 06 (150)    |
| B           | 6 7/8 (175) | 6 3/8 (162) | 5 7/8 (149) | 5 (125)     | 4 1/2 (115) |
| C           | 8 5/8 (219) | 8 3/4 (220) | 8 3/4 (220) | 8 1/2 (215) | 8 1/2 (215) |

**OPTIONAL MATERIALS:**

- All Aluminum -AA (Fig. 1010 only)
- ▲▲ Aluminum Dome -AD
- ▲▲ Cast Iron Dome -CID
- ▲▲ Galvanized Cast Iron Dome -CIDG
- Galvanized Cast Iron Body & Collar -G
- ▲▲ Rough Bronze Dome -RBD
- Stainless Steel (Specify Fig. 9780)

| ▲▲ Optional Domes' free area are as follows: |                       |
|--|-----------------------|
| Dome Mat'l                                   | 02-06 & 08-16 Outlets |
| Aluminum                                     | 98 (632)              |
| Cast Iron                                    | 80 (516)              |
| Bronze                                       | 95 (613)              |

DRAWING NUMBER  
S1010

SIZE  
A

SCALE:  
NONE

DATE:  
5-24-85

APPROVED BY:  
TD

CHECKED BY:  
TD

DRAWN BY:  
CR

FIGURE NUMBER  
**1010, 1020**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSIZED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV | DATE     | DESCRIPTION                    | BY  | CKD BY |
|-----|----------|--------------------------------|-----|--------|
| T   | 3-12-13  | Rev. Tables, Notes             | TBW | CL     |
| S   | 06/01/09 | Added Optional Dome free areas | JJ  | CL     |
| R   | 06-09-08 | Added NOTE                     | RN  | CL     |

| WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER     |
|---------------|-------------------|-------------------|
|               |                   | <b>1010, 1020</b> |

**SMITH® JAY R. SMITH MFG. CO.®**  
 MEMBER OF MCPBIS GROUP INTERNATIONAL™  
 POST OFFICE BOX 3037  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-5520 FAX: 334-272-7396 www.jaysmith.com

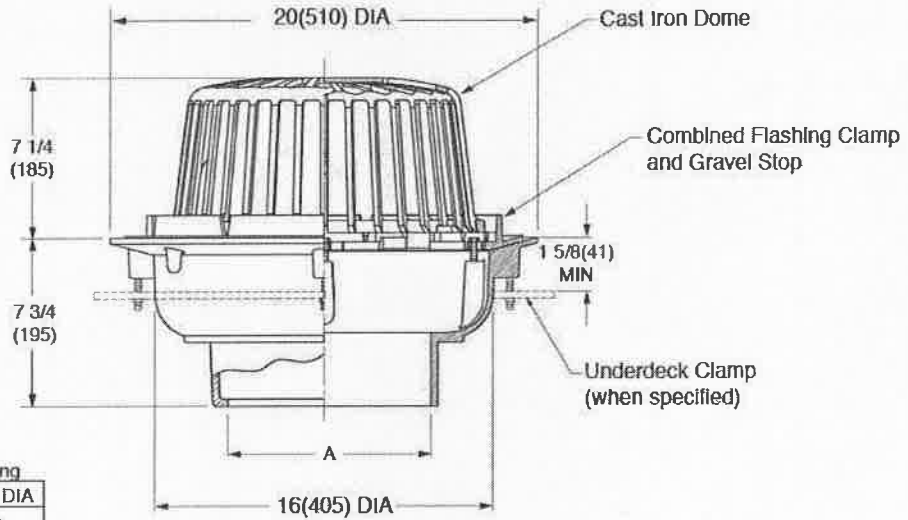


LOCATION

# LARGE GENERAL PURPOSE ROOF DRAIN

**FUNCTION:** Used in flat roof construction. Large dome provides sufficient free area for quick drainage of rain water and protects the drain sump and connected piping from the intrusion of debris. Wide clamping surface holds flashing and roofing materials without puncturing.

FREE AREA  
 228 SQ IN  
 (1471 SQ CM)



|                          |                 |
|--------------------------|-----------------|
| recommended deck opening |                 |
| less suffix -R           | 18 3/4(475) DIA |
| with suffix -R           | 21(535) DIA     |

A (PIPE SIZE) = 08(200), 10(250) or \*12(305)  
 \*12(305) outlet size available in No-Hub only.

- FIG. 1010C .....CAULK OUTLET
- FIG. 1010Y .....NO-HUB OUTLET
- FIG. 1010T .....THREADED OUTLET

**REGULARLY FURNISHED:**  
 Duco Cast Iron Body with Combined Flashing Clamp and Gravel Stop and Cast Iron Dome.

- VARIATIONS:**
- Extension (Specify Height) -E
  - Secondary Flashing Clamp -C2
  - Sump Receiver -R
  - Underdeck Clamp -C
  - "L" Shaped Underdeck Clamp -CL
  - Vandal Proof Dome -U
  - Stainless Steel Mesh Over Dome-SSM

- OPTIONAL MATERIALS:**
- Aluminum Dome -AD
  - Galvanized Cast Iron -G
  - Galvanized Cast Iron Dome Only -CIDG

DRAWING NUMBER  
 S1010BS

SIZE  
 A

SCALE:  
 NONE

DATE:  
 3-13-13

APPROVED BY:  
 CL




CHECKED BY:  
 CL

DRAWN BY:  
 TBW

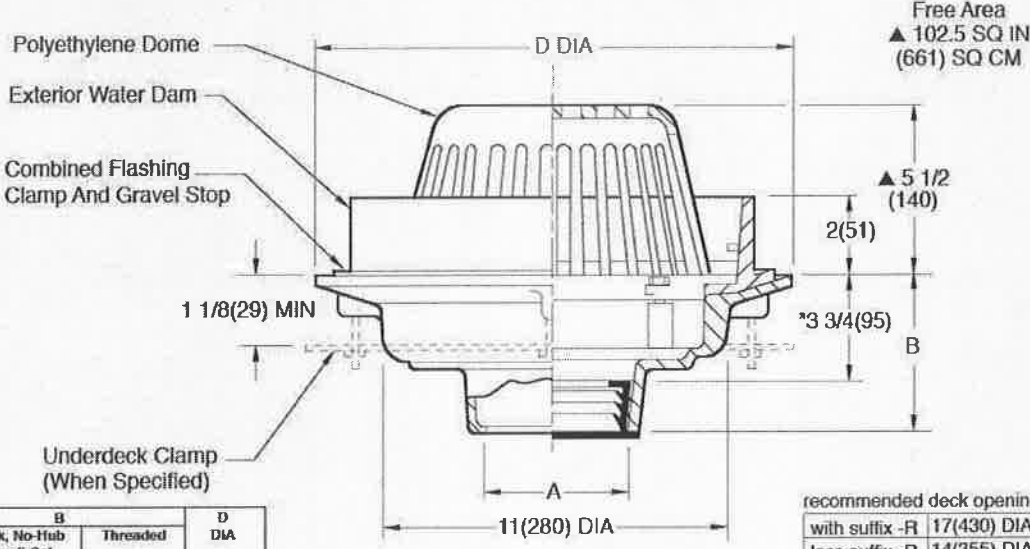
1010BS

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|      |      |             |    |        |               |                   |                                |
|------|------|-------------|----|--------|---------------|-------------------|--------------------------------|
| REV. | DATE | DESCRIPTION | BY | CKD BY | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER<br><b>1010BS</b> |
|------|------|-------------|----|--------|---------------|-------------------|--------------------------------|

|                |  |   |  |
|----------------|--|---|--|
| K              |  <p><b>SMITH® JAY R. SMITH MFG. CO.®</b><br/>MEMBER OF MORRIS GROUP INTERNATIONAL™<br/>POST OFFICE BOX 3237<br/>MONTGOMERY, ALABAMA 36109-0237 (USA)<br/>TEL: 334-277-8520 FAX: 334-272-7396 www.jsmith.com</p> |   <p>MEMBER OF:</p> | <p><b>LOCATION</b></p> <p><b>SIZE &amp; OUTLET SPECIFIED WHEN ORDERING</b></p> |
| DRAWING NUMBER | S1080  | <h1 style="margin: 0;">SPECIAL PURPOSE ROOF DRAINS</h1> <h2 style="margin: 0;">WATER DAM TYPE</h2>  |  |
| SIZE           | A  | SCALE:  | NONE   |
| DATE:          | 8-19-83  | APPROVED BY:  | JD   |
| CHECKED BY:    | JD   | DRAWN BY:   | CR   |
| FIGURE NUMBER  | 1080   | DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE   |  |
| REV.           | DATE   | DESCRIPTION   | BY   |
| K              | 3-13-13  | Rev. Notes  | JJ   |
| J              | 06/04/09   | Added Optional Dome Notes   | JJ   |
| H              | 9-8-08   | Rev. Variations   | RN   |
|                |  |   | CL   |
|                |  |   | CL   |
|                |  |   | TK   |
|                |  |   | CKD  |
|                |  |   | BY   |

**FUNCTION:** Used in flat roofs of any construction where a constant height of water is desired on the roof. It may also be used as an emergency overflow for conventional roofs, draining rain water when the depth of the water on the roof reaches the water dam height.



**Free Area**  
▲ 102.5 SQ IN  
(661) SQ CM

▲ 5 1/2 (140)  
2(51)  
▲ 3 3/4(95)  
B

1 1/8(29) MIN

D DIA

11(280) DIA

A

recommended deck opening  
with suffix -R 17(430) DIA  
less suffix -R 14(355) DIA

| A SIZE                    | B<br>Caulk, No-Hub Speedi-Set | Threaded  | D<br>DIA    |
|---------------------------|-------------------------------|-----------|-------------|
| 02(50), 03(75)<br>04(100) | 5(125)                        | 3 3/4(95) | 15 1/4(380) |
| 05(125), 06(150)          | 5(125)                        | 3 3/4(95) | 15 1/4(380) |
| 08(200)-16<br>10(250)-16  | 6(150)                        | 5(125)    | 16(405)     |

A (Pipe Size) 02(50), 03(75), 04(100), 05(125), 06(150), 08(200)-16 or ▲10(250)-16

Fig. 1080C . . . . CAULK OUTLET  
Fig. 1080Y . . . . NO-HUB OUTLET  
Fig. 1080T . . . . THREADED OUTLET

**VARIATIONS:**

- Adjustable Extension(Specify Fig. 1045)
- Expansion Joint (Specify Fig. 1710)
- Extension -E (Specify Height)
- "L" Shaped Underdeck Clamp -CL
- L Speedi-Set Service Weight  
02(50), 03(75) & 04(100)" sizes only
- LXH Speedi-Set Extra Heavy  
02(50), 03(75) & 04(100)" sizes only
- Secondary Flashing Clamp -C2
- Sump Receiver -R
- Underdeck Clamp -C
- Vandal Proof Dome -U
- 2 1/2(64), 3(76) or 4"(100) Water Dams  
Available -WD025, -WD03, -WD04

**OPTIONAL MATERIALS:**

- ▲▲ Aluminum Dome -AD
- ▲▲ Cast Iron Dome -CID
- Galvanized Cast Iron -G
- ▲▲ Galvanized Cast Iron Dome -CIDG
- ▲▲ Rough Bronze Dome -RBD

▲▲ Optional domes' free area are as follows:  
Aluminum 98 (632)  
Cast Iron 80 (516)  
Bronze 95 (613)

**NOTE:** Dimensions shown in parentheses are in millimeters.  
▲ When 10(250)-16 outlet size is specified dome height becomes 8 1/4(210) and free area of 122.5 SQ IN (790 SQ CM), furnished in cast iron and is not available in polyethylene.

**REGULARLY FURNISHED:**  
Duco Cast Iron Body, Flashing Clamp and Gravel Stop with Polyethylene Dome, and Cast Iron Water Dam.

**SMITH® JAY R. SMITH MFG. CO.®**  
 MEMBER OF MORRIS GROUP INTERNATIONAL™  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36105-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com



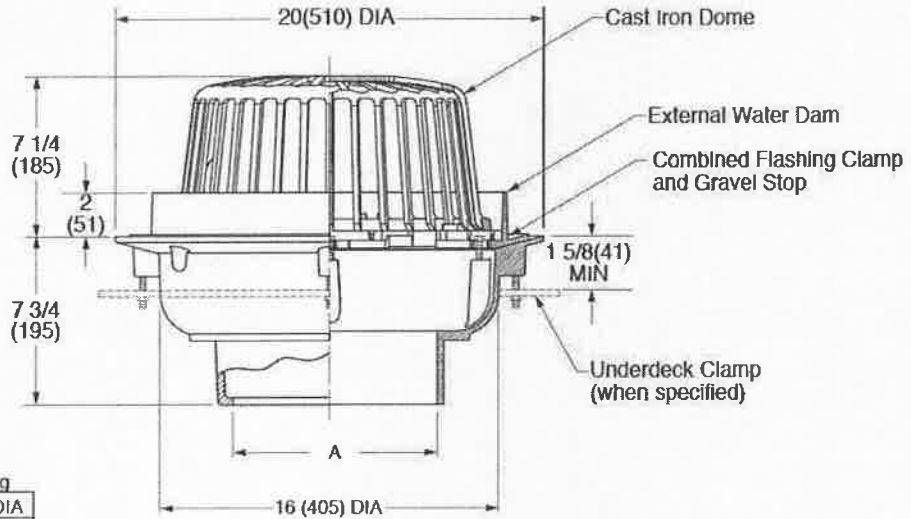
MEMBER OF:

LOCATION

# OVERFLOW ROOF DRAIN

**FUNCTION:** Used in flat roof construction as an emergency overflow, draining water when the depth of water on the roof reaches the water dam height. The Large dome provides sufficient free area for quick drainage of rain water and protects the drain sump and connected piping from the intrusion of debris. Wide clamping surface holds flashing and roofing materials without puncturing.

FREE AREA  
 228 SQ IN  
 (1471 SQ CM)



|                          |                 |
|--------------------------|-----------------|
| recommended deck opening |                 |
| less suffix -R           | 18 3/4(475) DIA |
| with suffix -R           | 21(535) DIA     |

A (PIPE SIZE) = 08(200), 10(250) or \*12(305)  
 \*12(305) outlet size available in No-Hub only.

- FIG.1080C .....CAULK OUTLET
- FIG.1080Y .....NO-HUB OUTLET
- FIG.1080T .....THREADED OUTLET

**REGULARLY FURNISHED:**  
 Duco Cast Iron Body with External Water Dam, Combined Flashing Clamp and Gravel Stop and Cast Iron Dome.

- VARIATIONS:**
- Extension (Specify Height) -E
  - Secondary Flashing Clamp -C2
  - Sump Receiver -R
  - Underdeck Clamp -C
  - "L" Shaped Underdeck Clamp -CL
  - Vandal Proof Dome -U
  - Stainless Steel Mesh Over Dome-SSM

- OPTIONAL MATERIALS:**
- Aluminum Dome -AD
  - Galvanized Cast Iron -G
  - Galvanized Cast Iron Dome Only -CIDG

DRAWING NUMBER  
 S1080BS

SIZE  
 A

SCALE:  
 NONE

DATE:  
 3-13-13

APPROVED BY:  
 CL

CHECKED BY:  
 CL

DRAWN BY:  
 TBW

**1080BS**

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV. | DATE | DESCRIPTION | BY | CKD BY |
|------|------|-------------|----|--------|
|      |      |             |    |        |

WEIGHT POUNDS

VOLUME CUBIC FEET

FIGURE NUMBER  
**1080BS**

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7386 www.jrsmith.com

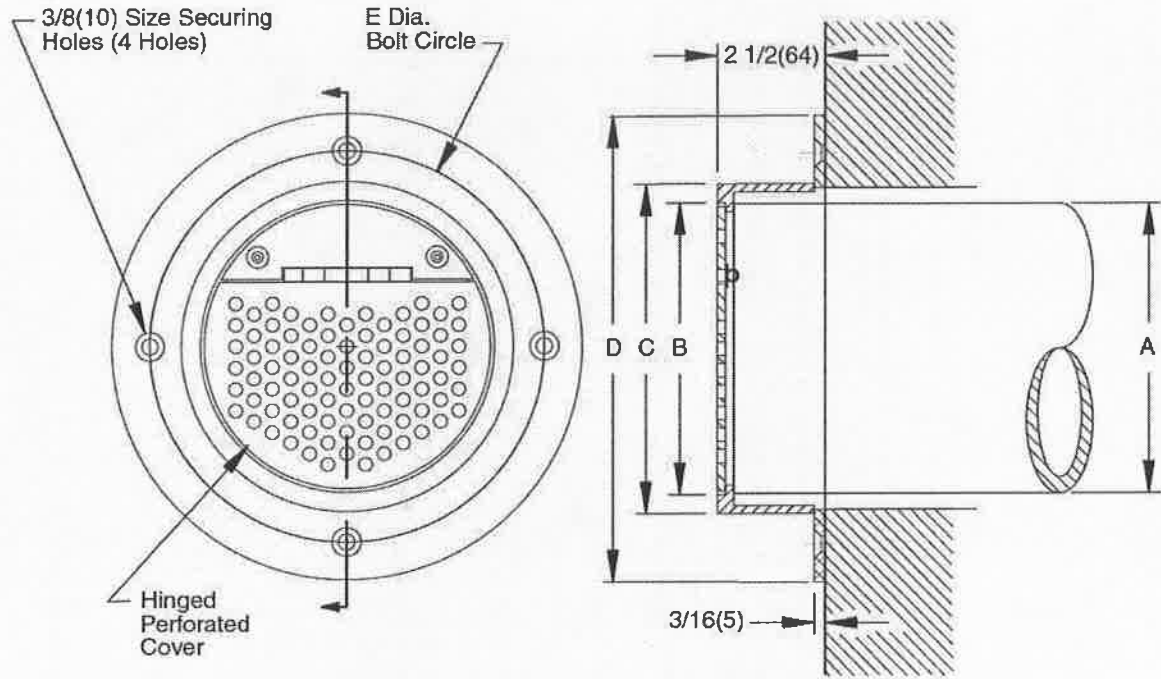


LOCATION

**FORMERLY  
SQ-9-2039**

# SPECIAL PURPOSE DOWNSPOUT COVER

**FUNCTION:** Used as a downspout cover on a wall where an overflow roof drain concealed leader discharges rainwater to the ground.



FRONT VIEW

RIGHT SIDE SECTION VIEW

| A (Pipe Size) | B DIA.        | C DIA.        | D DIA.       | E DIA.      |
|---------------|---------------|---------------|--------------|-------------|
| 0150(38)      | 3 1/2(89)     | 4 1/2(115)    | 7 11/16(194) | 6(150)      |
| 02(50)        | 3 1/2(89)     | 4 1/2(115)    | 7 11/16(194) | 6(150)      |
| 03(75)        | 3 1/2(89)     | 4 1/2(115)    | 7 11/16(194) | 6(150)      |
| 04(100)       | 4 9/16(118)   | 5 9/16(142)   | 8 3/4(220)   | 7 1/8(181)  |
| 05(125)       | 5 5/8(143)    | 6 5/8(168)    | 9 13/16(251) | 8 1/4(210)  |
| 06(150)       | 6 11/16(169)  | 7 11/16(194)  | 10 7/8(278)  | 9(230)      |
| 08(200)       | 8 11/16(219)  | 9 11/16(249)  | 12 7/8(328)  | 11 1/4(285) |
| 10(250)       | 10 13/16(276) | 11 13/16(301) | 15(360)      | 13 1/2(345) |
| 12(305)       | 12 13/16(326) | 13 13/16(351) | 17(430)      | 15 1/2(395) |
| 15(380)       | 16(405)       | 16 15/16(429) | 20 1/8(513)  | 18 1/2(470) |

Fig. 1775.....DOWNSPOUT COVER

**REGULARLY FURNISHED:**  
 Fabricated Type 304 Stainless Steel  
 Downspout Cover with Hinged Perforated Cover.

**VARIATIONS:**  
 Vandal Proof -U

**OPTIONAL MATERIALS:**  
 Fabricated Polished Brass -PB  
 Fabricated Chrome Plated Brass -CP

NOTE: Dimensions shown in parentheses are in millimeters.

DRAWING NUMBER s1775  
 SIZE A  
 SCALE: NONE  
 DATE: 03-07-05  
 APPROVED BY: JIM  
 CHECKED BY: JIM  
 DRAWN BY: JJ  
**1775**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|               |             |                                |  |                 |                |               |                   |               |
|---------------|-------------|--------------------------------|--|-----------------|----------------|---------------|-------------------|---------------|
| FIGURE NUMBER | REV.        | DATE                           | DESCRIPTION                                      | BY              | CKD. BY        | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER |
|               | D<br>C<br>C | 04/27/08<br>6-18-08<br>9-13-07 | Added Function<br>Revised Cover<br>Revised Table | JJ<br>TBW<br>RN | CL<br>CL<br>CL |               |                   | <b>1775</b>   |

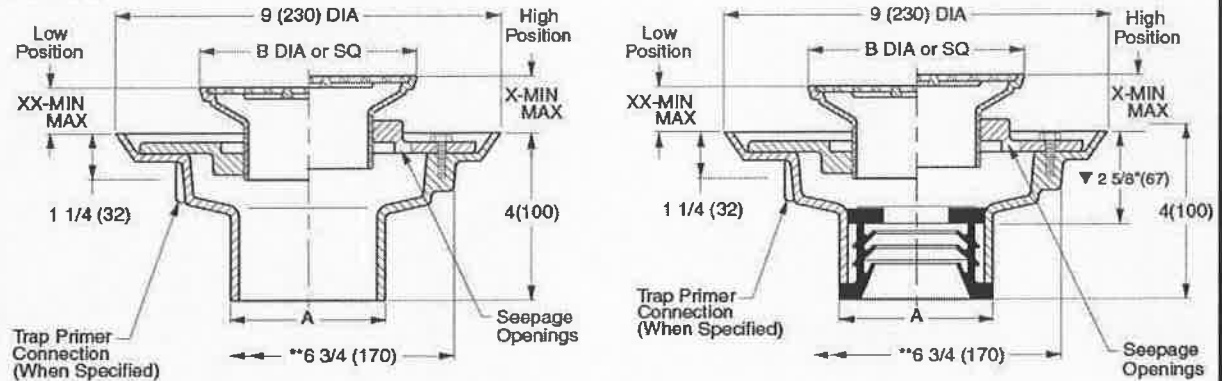
**SMITH® JAY R. SMITH MFG. CO.®**  
 MEMBER OF ADCORN'S FAMILY OF COMPANIES  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-4520 FAX: 334-272-7396 www.jrsmith.com



LOCATION  
 SIZE & OUTLET SPECIFIED  
 WHEN ORDERING

# FLOOR OR SHOWER DRAINS WITH ADJUSTABLE STRAINER HEADS

**FUNCTION:** General service floor drain for use in showers, toilets, kitchens and other finished areas where foot traffic is expected. The round top strainer head is used for all types of poured finished floors. The square top is particularly adaptable to floors that are finished in material of square or straight line pattern. Reversible flashing collar permits adjustment of the strainer to meet finished floor level.



A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

**NO-HUB OUTLET**

- Fig. 2005Y.....(A) ROUND TOP
- Fig. 2005Y.....(B) SQUARE TOP

**SPEEDI-SET OUTLET**

- Fig. 2005L.....(A) ROUND TOP
- Fig. 2005L.....(B) SQUARE TOP

| Outlet Size | Nickel Bronze Strainer Head |
|-------------|-----------------------------|
| ▲ 02(50)    | 05(125) DIA or SQ           |
| ▲ 03(75)    | 06(150) DIA or SQ           |
| ▲ 04(100)   | 08(205) DIA or SQ           |

| Strainer Size<br>B<br>DIA or SQ | *Collar In High Position<br>X |           | *Collar In Low Position<br>XX |           | Free Area<br>SQ IN<br>(SQ CM) |          |
|---------------------------------|-------------------------------|-----------|-------------------------------|-----------|-------------------------------|----------|
|                                 | MIN                           | MAX       | MIN                           | MAX       | ROUND                         | SQUARE   |
| 05 (125)                        | 1 1/4(32)                     | 2 1/4(57) | 3/4(19)                       | 1 5/8(41) | 7(45)                         | 8.5(42)  |
| 06 (150)                        | 1 1/4(32)                     | 2 1/4(57) | 3/4(19)                       | 1 5/8(41) | 9(58)                         | 12.5(61) |
| 07 (180)                        | 1 1/4(32)                     | 2 1/4(57) | 7/8(22)                       | 1 7/8(48) | 14(90)                        | 11(71)   |
| 08 (205)                        | 1 1/2(38)                     | 2 1/2(64) | 1(25)                         | 1 7/8(48) | 17(110)                       | 14(90)   |
| *09 (230)                       | 1 1/2(38)                     | 2 3/8(60) | 1(25)                         | 1 7/8(48) | 18(116)                       | 18(103)  |
| *10 (255)                       | 1 1/2(38)                     | 2 3/8(60) | 1(25)                         | 1 7/8(48) | 23(48)                        | 16(103)  |

- ▼ This dimension to internal stop of speedi-set gasket.
- Add 3/8"(10) to all min/max dimensions for round strainers.
- \* Collar is reversible to obtain extreme high and low strainer positions.
- \*\* Not available for 5"(125) size strainer.
- \*\* MIN 6 3/4"(170) hole required for core drilled application.

**REGULARLY FURNISHED:**  
 Duct Cast Iron Body with Flashing Collar and Adjustable Strainer Head as Indicated by Suffix Letter Selected.

**VARIATIONS:**

- Flapper Type Backwater Valve -V
- Hinged Grate -H
- Speedi-Set Service Weight 2(50), 3(75) & 4"(100) only
- LXH Speedi-Set Extra Heavy 2(50), 3(75) & 4"(100) only
- Sediment Bucket -B
- Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19)
- Vandal Proof Screws -U
- Wide Flanged Strainer (Specify Fig. DX2005)
- T Threaded Outlet
- Heelproof Grate -HP -AHP (Round) or -BHP (Square)

**OPTIONAL MATERIALS:**

- Bronze Body -BB
- Chrome Plated Strainer -CP
- Galvanized Cast Iron Body -G
- Nickel Bronze Strainer -NB
- Polished Bronze Strainer -PB
- Stainless Steel (Specify Fig. 9700-A)

NOTE: Dimensions shown in parentheses are in millimeters.

▲ Meets ASME Standard A112.6.3-2001 02(50), 03(75) or 04"(100) sizes only.

SEE PM0457 FOR OPTIONAL STRAINER HEADS.

DRAWING NUMBER: S2005  
 SIZE: A  
 SCALE: NONE  
 DATE: 5-17-85  
 APPROVED BY: TD  
 CHECKED BY: TD  
 DRAWN BY: PU  
 FIGURE NUMBER: 2005

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|      |          |                        |     |         |               |                   |               |
|------|----------|------------------------|-----|---------|---------------|-------------------|---------------|
| Q    | 11-18-11 | Rev. Dwg., Var.        | TBW | CR      | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER |
| P    | 11-20-09 | Revised Variations     | RN  | BW      |               |                   |               |
| N    | 12/18/08 | Addition to Variations | JJ  | BW      |               |                   |               |
| M    | 10/24/06 | NO-HUB to SPEEDI-SET   | RN  | CL      |               |                   |               |
| REV. | DATE     | DESCRIPTION            | BY  | CKD. BY | <b>2005</b>   |                   |               |
|      |          |                        |     |         |               |                   |               |

**SMITH® JAY R. SMITH MFG. CO.®**  
 MEMBER OF AODIN'S FAMILY OF COMPANIES  
 POST OFFICE BOX 3037  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7366 www.jrsmith.com

**ASPE**  
 MEMBER OF:

LOCATION

## OPTIONAL STRAINER HEADS

### ROUND STRAINER



**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 •Hinged Grate (Specify Suffix -AH)  
 Sediment Bucket -B  
 Vandal Proof Screws -U

| B DIA | 05 (125)   | 06 (150)   | 07 (180)   | 08 (205)   | 09 (230)   | 10 (255)   |
|-------|------------|------------|------------|------------|------------|------------|
| H     | 2 (51)     | 2 (51)     | 2 1/4 (57) | 2 1/2 (64) | 2 1/2 (64) | 2 3/4 (70) |
| X MIN | 1 1/4 (32) | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | 1 1/2 (38) | 1 1/2 (38) |
| X MAX | 2 1/4 (57) | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) | 2 1/2 (64) | 2 3/4 (70) |

Specify Type, Size & Finish eg: A05NB  
 \*Not available for 05" (125) size

**SUFFIX -A**

### FLAPPER TYPE BACKWATER VALVE



**FUNCTION:** Provides backwater protection at point where protection is needed.

**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 •Hinged Grate (Specify Suffix -AH)  
 Vandal Proof Screws -U

| B DIA | 05 (125)   | 06 (150)   | 07 (180)   | 08 (205)   |
|-------|------------|------------|------------|------------|
| H     | 2 (51)     | 2 (51)     | 2 1/4 (57) | 2 1/2 (64) |
| X MIN | 1 1/4 (32) | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) |
| X MAX | 2 1/4 (57) | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) |

Specify Type, Size & Finish eg: AV05NB  
 \*Not available for 05" (125) size

**SUFFIX -AV**

### SQUARE STRAINER



**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 Flapper Type Backwater Valve (Specify Suffix -BV) 05 (125), 06 (150), 07 (180) or 08" (205) sizes only  
 •Hinged Grate (Specify Suffix -BH)  
 Sediment Bucket -B  
 Vandal Proof Screws -U

| B DIA | 05 (125)   | 06 (150)   | 07 (180)   | 08 (205)   | 09 (230)   | 10 (255)   |
|-------|------------|------------|------------|------------|------------|------------|
| H     | 2 (51)     | 2 (51)     | 2 1/4 (57) | 2 1/2 (64) | 2 1/4 (57) | 2 1/4 (57) |
| X MIN | 1 1/4 (32) | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | 1 1/2 (38) | 1 1/2 (38) |
| X MAX | 2 1/4 (57) | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) | 2 1/4 (57) | 2 3/8 (60) |

Specify Type, Size & Finish eg: B05NB  
 \*Not available for 05" (125) size

**SUFFIX -B**

### STRAINER HEAD w/SQUARE HINGED COVER



**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 Gasketed Water Tight Cover -GC  
 Secured Cover -SC  
 Secondary Strainer Grate -SG

Specify Type, Size & Finish eg: BSNB

**SUFFIX -BS**

### REINFORCED ROUND STRAINER

**FUNCTION:** Used in finished floors where light wheeled loads are anticipated.



**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 Flapper Type Backwater Valve (Specify Suffix -CV)  
 Sediment Bucket -B  
 Vandal Proof Screws -U

| B DIA | 05 (125)   | 06 (150)   | 08 (205)   | 10 (255)   |
|-------|------------|------------|------------|------------|
| H     | 2 (51)     | 2 (51)     | 2 1/2 (64) | 2 3/4 (70) |
| MIN   | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | 1 7/8 (48) |
| MAX   | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) | 2 3/4 (70) |

**SUFFIX -C**

Specify Type, Size & Finish eg: C06NB

### REINFORCED TRACTOR STRAINER

**FUNCTION:** Used in finished floors where medium weight wheeled loads are anticipated and loose set non-tilt tractor grate is desired.



**MATERIALS:**  
 Cast Iron -CI  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 Flapper Type Backwater Valve (Specify Suffix -DV or -EV)  
 Sediment Bucket -B  
 Vandal Proof Screws -U

| SUFFIX | B DIA    | H          | MIN        | MAX        |
|--------|----------|------------|------------|------------|
| -D     | 07 (180) | 3 1/4 (83) | 2 5/8 (67) | 3 1/2 (89) |
| -E     | 09 (230) | 3 1/2 (89) | 2 3/4 (70) | 3 1/2 (89) |

Specify Type, Size & Finish eg: D09PB  
 E09PB

**SUFFIX -D-E**

### TILE FLANGE

**FUNCTION:** Provides integral flange set 5/32" (4) below rim to receive floor covering. Flange may have option of tapped holes for securing pan and gasket.



**MATERIALS:**  
 Chrome Plated -CP  
 Polished Bronze -PB  
 Nickel Bronze -NB

**VARIATIONS:**  
 Flapper Type Backwater Valve (Specify Suffix -FV)  
 Holes in Flange -SH  
 Sediment Bucket -B  
 Vandal Proof Screws -U

| X | MIN        | MAX        |
|---|------------|------------|
|   | 1 1/4 (32) | 2 1/8 (54) |

**SUFFIX -F**

Specify Type, Size & Finish eg: F06NB

### ADJUSTABLE STRAINER HEAD

**FUNCTION:** Used in a non-traffic area when a funnel type strainer head is required and space does not allow use of the 3500 series funnel. The extended rim allows use as an anti-flood and anti-splash drip pan.



**VARIATIONS:**  
 Flapper Type Backwater Valve (Specify Suffix -F37V or F38V)

**MATERIALS:**  
 Cast Iron -CI  
 Chrome Plated -CP  
 Galvanized Cast Iron -G  
 Polished Bronze -PB  
 Nickel Bronze -NB

| SUFFIX | -F37       | -F38       |
|--------|------------|------------|
| B DIA  | 07 (180)   | 09 (230)   |
| H      | 3 1/4 (83) | 3 1/2 (89) |
| X MIN  | 2 5/8 (67) | 2 3/4 (70) |
| X MAX  | 3 1/2 (89) | 3 1/2 (89) |

**SUFFIX -F37-F38**










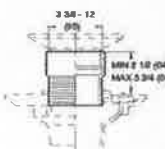






Specify Type, Size & Finish eg: F37NB F38CP

DRAWING NUMBER: PM0457 SH 1 of 2  
 SCALE: NONE  
 DATE: 5-17-85  
 APPROVED BY: TD  
 CHECKED BY: TD  
 DRAWN BY: PJ  
 2010 SERIES OPTIONAL STRAINER HEADS  
 DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCE AND CHANGE WITHOUT NOTICE

ASSUME NO RESPONSIBILITY OF USE OF SUPERSEDED OR VOID DATA.

| REV. | DATE    | DESCRIPTION         | BY  | CKD. BY | FIGURE NUMBER                                 |
|------|---------|---------------------|-----|---------|---|
|      | 10-4-01 | Revised Suffix-BS   | RN  | CL      | 2010 SERIES OPTIONAL STRAINER HEADS<br>1 of 2 |
|      | 8-24-99 | Revised             | TBW | BS      |   |
|      | 6-11-99 | Revised Tables      | CMD | BS      |   |
|      | 11-4-97 | Added Nickel Bronze | EMB | BS      |   |

NOTE: Dimensions shown in parenthesis are in millimeters.

|  |  |   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|--|--|---|---|----------------------|---|------------|--------|--------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|------------|------------|---|----------|----------|---|--------|--------|------------|------------|-------|-------------|------------|------------|------------|----------|------------|------------|------------|------------|---|--------|------------|------------|-----|------------|------------|------------|------------|------------|------------|-----|------------|------------|------------|--------|------------|------------|--|--------|---|---|---|---|--|--|--|--|--|-----|-----|----|------------|------------|-------------|------------|------------|----|-------------|-------------|-------------|------------|------------|
| DRAWING NUMBER<br>PM0457 SH 2 of 2<br><br>SCALE<br>NONE<br><br>DATE:<br>5-17-85<br><br>APPROVED BY:<br>TD<br><br>CHECKED BY:<br>TD<br><br>DRAWN BY:<br>PJ<br><br>2010 SERIES OPTIONAL<br>STRAINER HEADS<br><br>FIGURE<br>NUMBER  | <b>SMITH® JAY R. SMITH MFG. CO.®</b><br>MEMBER OF ACORN'S FAMILY OF COMPANIES<br>POST OFFICE BOX 3237<br>MONTGOMERY, ALABAMA 36109-0237 (USA)<br>TEL: 334-277-8520 FAX: 334-272-7308 www.jrsmith.com<br>   MEMBER OF:   | LOCATION  |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | <h2>OPTIONAL STRAINER HEADS</h2>   |   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | <b>LOW DOME STRAINER</b>   | <b>SOLID HINGED COVER</b>   | <b>SPANNER WRENCH COVER</b>   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | <p><b>FUNCTION:</b> Used in gutters and recessed areas where excessive debris build-up is expected. Dome insures drainage even when partly covered.</p> <p><b>MATERIALS:</b><br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Flapper Type Backwater Valve (Specify Suffix -GV)<br/>                 Sediment Bucket -B<br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td>B DIA</td> <td>05 (125)</td> <td>06 (150)</td> <td>08 (205)</td> </tr> <tr> <td>H</td> <td>2 (51)</td> <td>2 (51)</td> <td>2 1/2 (64)</td> </tr> <tr> <td>MIN</td> <td>1 1/4 (32)</td> <td>1 1/4 (32)</td> <td>1 1/2 (38)</td> </tr> <tr> <td>MAX</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/2 (64)</td> </tr> </table> <p><b>SUFFIX -G</b> Specify Type, Size &amp; Finish eg: G08PB</p> | B DIA   | 05 (125)  | 06 (150)             | 08 (205)  | H          | 2 (51) | 2 (51) | 2 1/2 (64) | MIN        | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | MAX        | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) | <p><b>FUNCTION:</b> Used in areas where intermittent drain use is required. Solid cover prevents intrusion of chips, saw-dust, etc., which are swept up before cover is opened for washdown. The secondary strainer prevents debris from entering the waste line.</p> <p><b>MATERIALS:</b><br/>                 Cast Iron -CI<br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Flapper Type Backwater Valve (Specify Suffix -GV)<br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td>B DIA</td> <td>05 (125)</td> <td>06 (150)</td> <td>07 (180)</td> <td>08 (205)</td> </tr> <tr> <td>H</td> <td>2 (51)</td> <td>2 (51)</td> <td>2 1/4 (57)</td> <td>2 1/2 (64)</td> </tr> <tr> <td>MIN</td> <td>1 1/4 (32)</td> <td>1 1/4 (32)</td> <td>1 1/4 (32)</td> <td>1 1/2 (38)</td> </tr> <tr> <td>MAX</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/2 (64)</td> </tr> </table> <p><b>SUFFIX -H</b> Specify Type, Size &amp; Finish eg: H05CP</p> | B DIA      | 05 (125)   | 06 (150)  | 07 (180) | 08 (205) | H | 2 (51) | 2 (51) | 2 1/4 (57) | 2 1/2 (64) | MIN   | 1 1/4 (32)  | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | MAX      | 2 1/4 (57) | 2 1/4 (57) | 2 1/4 (57) | 2 1/2 (64) | <p><b>FUNCTION:</b> Solid gas tight, vandal proof, threaded cover for areas where intermittent drain use is required.</p> <p><b>MATERIALS:</b><br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Flapper Type Backwater Valve (Specify Suffix -JV)<br/>                 Holes in Flange -SH<br/>                 Sediment Bucket -B<br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td></td> <td colspan="2">X</td> </tr> <tr> <td>MIN</td> <td>2 (51)</td> <td>3 (76)</td> </tr> <tr> <td>MAX</td> <td></td> <td></td> </tr> </table> <p><b>SUFFIX -J</b> Specify Type, Size &amp; Finish eg: J06NB</p> |        | X          |            | MIN | 2 (51)     | 3 (76)     | MAX        |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | B DIA  | 05 (125)  | 06 (150)  | 08 (205)             |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | H  | 2 (51)  | 2 (51)  | 2 1/2 (64)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | MIN  | 1 1/4 (32)  | 1 1/4 (32)  | 1 1/2 (38)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | MAX  | 2 1/4 (57)  | 2 1/4 (57)  | 2 1/2 (64)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | B DIA  | 05 (125)  | 06 (150)  | 07 (180)             | 08 (205)  |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | H  | 2 (51)  | 2 (51)  | 2 1/4 (57)           | 2 1/2 (64)  |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MIN  | 1 1/4 (32)   | 1 1/4 (32)  | 1 1/4 (32)  | 1 1/2 (38)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MAX  | 2 1/4 (57)   | 2 1/4 (57)  | 2 1/4 (57)  | 2 1/2 (64)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | X  |   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MIN  | 2 (51)   | 3 (76)  |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MAX  |  |   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| <b>REINFORCED SQUARE STRAINER</b>  | <b>RECTANGULAR STRAINER</b>  | <b>ANGLE STRAINER</b>   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| <p><b>FUNCTION:</b> Used in finished floors where some light wheeled traffic is anticipated.</p> <p><b>MATERIALS:</b><br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Flapper Type Backwater Valve (Specify Suffix -KV)<br/>                 Sediment Bucket -B<br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td>B SO</td> <td>05 (125)</td> <td>06 (150)</td> <td>07 (180)</td> <td>08 (205)</td> </tr> <tr> <td>H</td> <td>2 (51)</td> <td>2 (51)</td> <td>2 1/4 (57)</td> <td>2 1/2 (64)</td> </tr> <tr> <td>MIN</td> <td>1 1/4 (32)</td> <td>1 1/4 (32)</td> <td>1 1/4 (32)</td> <td>1 1/2 (38)</td> </tr> <tr> <td>MAX</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/2 (64)</td> </tr> </table> <p><b>SUFFIX -K</b> Specify Type, Size &amp; Finish eg: K07CP</p> | B SO   | 05 (125)  | 06 (150)  | 07 (180)             | 08 (205)  | H          | 2 (51) | 2 (51) | 2 1/4 (57) | 2 1/2 (64) | MIN        | 1 1/4 (32) | 1 1/4 (32) | 1 1/4 (32) | 1 1/2 (38) | MAX        | 2 1/4 (57) | 2 1/4 (57)  | 2 1/4 (57) | 2 1/2 (64) | <p><b>FUNCTION:</b> Used in finished floors where light wheeled loads and or heavy foot traffic are anticipated.</p> <p><b>MATERIALS:</b><br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Sediment Bucket -B<br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td>SUFFIX</td> <td>L</td> <td>M</td> <td>N</td> <td>P</td> <td>R</td> <td>T</td> </tr> <tr> <td>B x D</td> <td>4 1/2 (112)</td> <td>6 (152)</td> <td>8 (202)</td> <td>10 (252)</td> <td>12 (302)</td> <td>14 (352)</td> </tr> <tr> <td>H</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>2 1/4 (57)</td> <td>3 (76)</td> <td>3 1/4 (86)</td> <td>3 1/2 (89)</td> </tr> <tr> <td>MIN</td> <td>1 3/8 (35)</td> <td>1 3/8 (35)</td> <td>1 3/8 (35)</td> <td>2 1/8 (54)</td> <td>2 1/8 (54)</td> <td>2 1/8 (54)</td> </tr> <tr> <td>MAX</td> <td>2 3/8 (60)</td> <td>2 3/8 (60)</td> <td>2 3/8 (60)</td> <td>3 (76)</td> <td>3 3/8 (89)</td> <td>3 1/2 (89)</td> </tr> </table> <p><b>SUFFIX -L-M-N-P-R-T</b> Specify Type, Size &amp; Finish eg: LNB</p> | SUFFIX   | L        | M | N      | P      | R          | T          | B x D | 4 1/2 (112) | 6 (152)    | 8 (202)    | 10 (252)   | 12 (302) | 14 (352)   | H          | 2 1/4 (57) | 2 1/4 (57) | 2 1/4 (57)  | 3 (76) | 3 1/4 (86) | 3 1/2 (89) | MIN | 1 3/8 (35) | 1 3/8 (35) | 1 3/8 (35) | 2 1/8 (54) | 2 1/8 (54) | 2 1/8 (54) | MAX | 2 3/8 (60) | 2 3/8 (60) | 2 3/8 (60) | 3 (76) | 3 3/8 (89) | 3 1/2 (89) | <p><b>FUNCTION:</b> Shower room drain set at wall and floor junction. Vertical grate openings prevent drain stoppage should flat surface become covered.</p> <p><b>MATERIALS:</b><br/>                 Cast Iron -CI<br/>                 Chrome Plated -CP<br/>                 Polished Bronze -PB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Vandal Proof Screws -U</p>  <table border="1"> <tr> <td>SUFFIX</td> <td>B</td> <td>C</td> <td>D</td> <td colspan="2">X</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>MIN</td> <td>MAX</td> </tr> <tr> <td>-Y</td> <td>3 1/2 (89)</td> <td>3 1/2 (89)</td> <td>4 1/2 (115)</td> <td>1 5/8 (41)</td> <td>2 5/8 (67)</td> </tr> <tr> <td>-W</td> <td>5 3/4 (147)</td> <td>6 3/4 (170)</td> <td>6 1/2 (165)</td> <td>1 5/8 (41)</td> <td>2 5/8 (67)</td> </tr> </table> <p><b>SUFFIX -V-W</b> Specify Type, Size &amp; Finish eg: VPB, WNB</p> | SUFFIX | B | C | D | X |  |  |  |  |  | MIN | MAX | -Y | 3 1/2 (89) | 3 1/2 (89) | 4 1/2 (115) | 1 5/8 (41) | 2 5/8 (67) | -W | 5 3/4 (147) | 6 3/4 (170) | 6 1/2 (165) | 1 5/8 (41) | 2 5/8 (67) |
| B SO   | 05 (125)   | 06 (150)  | 07 (180)  | 08 (205)             |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| H  | 2 (51)   | 2 (51)  | 2 1/4 (57)  | 2 1/2 (64)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MIN  | 1 1/4 (32)   | 1 1/4 (32)  | 1 1/4 (32)  | 1 1/2 (38)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MAX  | 2 1/4 (57)   | 2 1/4 (57)  | 2 1/4 (57)  | 2 1/2 (64)           |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| SUFFIX   | L  | M   | N   | P                    | R   | T          |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| B x D  | 4 1/2 (112)  | 6 (152)   | 8 (202)   | 10 (252)             | 12 (302)  | 14 (352)   |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| H  | 2 1/4 (57)   | 2 1/4 (57)  | 2 1/4 (57)  | 3 (76)               | 3 1/4 (86)  | 3 1/2 (89) |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MIN  | 1 3/8 (35)   | 1 3/8 (35)  | 1 3/8 (35)  | 2 1/8 (54)           | 2 1/8 (54)  | 2 1/8 (54) |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| MAX  | 2 3/8 (60)   | 2 3/8 (60)  | 2 3/8 (60)  | 3 (76)               | 3 3/8 (89)  | 3 1/2 (89) |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| SUFFIX   | B  | C   | D   | X                    |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  |  |   |   | MIN                  | MAX   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| -Y   | 3 1/2 (89)   | 3 1/2 (89)  | 4 1/2 (115)   | 1 5/8 (41)           | 2 5/8 (67)  |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| -W   | 5 3/4 (147)  | 6 3/4 (170)   | 6 1/2 (165)   | 1 5/8 (41)           | 2 5/8 (67)  |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| <b>EXTENSION ADAPTOR</b>   | <b>OVERFLOW WITH STANDPIPE</b>   | <b>HEAVY DUTY ADJUSTABLE</b>  |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| <p><b>FUNCTION:</b> Used when a strainer head must be raised to accommodate deeper floor fill.</p> <p><b>REGULARLY FURNISHED:</b><br/>                 Duco Cast Iron -CI</p> <p><b>MATERIALS:</b><br/>                 Cast Bronze -CB<br/>                 Galvanized Cast Iron -G</p>  <p><b>NOTE:</b> Extension can be stacked for increased maximum adjustment.</p> <p><b>SUFFIX -X</b></p>  | <p><b>FUNCTION:</b> Used as overflow drain in decorative pools, fish ponds or similar areas. Dome prevents floating objects from entering drain line.</p> <p><b>MATERIALS:</b><br/>                 Chrome Plated -CP<br/>                 Nickel Bronze -NB<br/>                 Polished Bronze -PB</p> <p><b>VARIATIONS:</b><br/>                 Less Dome -LD<br/>                 Standpipe Height other than 6" (150) (Specify Height)</p>  <table border="1"> <tr> <td>SUFFIX</td> <td>A</td> <td colspan="2">X</td> </tr> <tr> <td></td> <td>SIZE</td> <td>MIN</td> <td>MAX</td> </tr> <tr> <td>-Y</td> <td>2 (51)</td> <td>3 1/4 (86)</td> <td>2 1/8 (54)</td> </tr> <tr> <td>-Z</td> <td>3 (76)</td> <td>3 1/4 (86)</td> <td>2 1/8 (54)</td> </tr> </table> <p><b>SUFFIX -Y-Z</b> Specify Type, Size &amp; Finish eg: YCP, ZCP</p>   | SUFFIX  | A   | X                    |   |            | SIZE   | MIN    | MAX        | -Y         | 2 (51)     | 3 1/4 (86) | 2 1/8 (54) | -Z         | 3 (76)     | 3 1/4 (86) | 2 1/8 (54) | <p><b>FUNCTION:</b> Used in finished floors where light wheeled loads and or heavy foot traffic are anticipated.</p> <p><b>MATERIALS:</b><br/>                 Polished Bronze -PB<br/>                 Rough Bronze -RB<br/>                 Nickel Bronze -NB</p> <p><b>VARIATIONS:</b><br/>                 Flapper Type Backwater Valve (Specify Suffix -69V)<br/>                 Sediment Bucket -B<br/>                 Vandal Proof Screws -U</p>  <p><b>SUFFIX-69</b> eg: A06NB-69</p>  |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| SUFFIX   | A  | X   |   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  | SIZE   | MIN   | MAX   |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| -Y   | 2 (51)   | 3 1/4 (86)  | 2 1/8 (54)  |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| -Z   | 3 (76)   | 3 1/4 (86)  | 2 1/8 (54)  |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
|  Fig. 3580  |  Fig. 3581  |  Fig. 3590              |  Fig. 3591 |                      |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| H<br>G<br>T<br>E<br>D  | 8-24-99<br>6-11-99<br>1-22-99<br>11-4-97<br>10-28-96   | Revised<br>Revised Tables<br>T Strainer was S Strainer<br>Added Nickel Bronze<br>Chg'd Func of Suffix -V -W | TBW<br>CMD<br>TBW<br>EMB  | BS<br>BS<br>BS<br>BS | FIGURE NUMBER<br>2010 SERIES OPTIONAL<br>STRAINER HEADS<br>2 of 2 |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |
| REV.   | DATE   | DESCRIPTION   | BY  | CKD. BY              |   |            |        |        |            |            |            |            |            |            |            |            |            |   |            |            |   |          |          |   |        |        |            |            |       |             |            |            |            |          |            |            |            |            |   |        |            |            |     |            |            |            |            |            |            |     |            |            |            |        |            |            |  |        |   |   |   |   |  |  |  |  |  |     |     |    |            |            |             |            |            |    |             |             |             |            |            |

NOTE: Dimensions shown in parenthesis are in millimeters.

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7366 www.jsmith.com

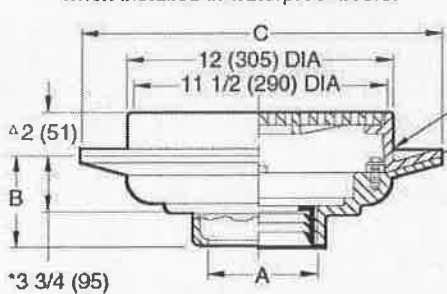


LOCATION

# FLOOR DRAINS WITH 12" (305) ROUND TOPS

## MEDIUM DUTY DRAINS

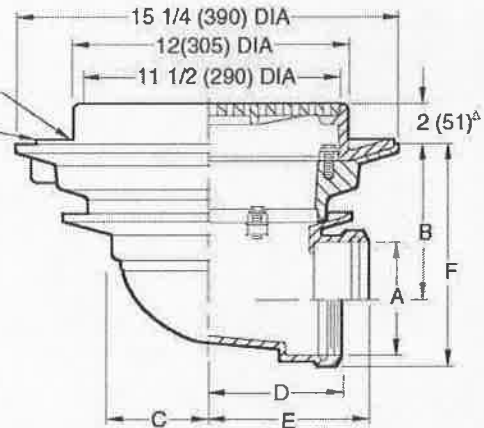
**FUNCTION:** Used in moderate traffic areas where waste water contains no sediment or debris and floor construction requires a shallow drain. Body flange and flashing collar serve as anchor in on grade locations and as flashing clamp when installed in waterproof floors.



Free Area  
28.5 SQ IN  
(184) SQ CM

Seepage Openings

Collar Can Be Used As Flashing Clamp (When Required)



A (Pipe Size) = 02(50), 03(75), 04(100), 05(125) or 06(150)

- Fig. 2130C ... SHALLOW BODY CAULK OUTLET
- Fig. 2131C ... DEEP BODY CAULK OUTLET
- Fig. 2131Y ... DEEP BODY NO-HUB OUTLET

- Fig. 2135C ... CAULK OUTLET
- Fig. 2135T ... THREADED OUTLET

| Figure | B          |            |         | C<br>DIA       |
|--------|------------|------------|---------|----------------|
|        | Caulk      | Thread     | NO-HUB  |                |
| 2130   | 3 3/4 (95) | 3 3/4 (95) | 5 (125) | **15 1/4 (390) |
| 2131   | 5 (125)    | 3 3/4 (95) | 5 (125) | 15 1/4 (390)   |

\*\* Dimension is 16 (405) for Caulk outlet.

| A SIZE | 02 (50)     | 03 (75)     | 04 (100)    | 05 (125)    | 06 (150)    |
|--------|-------------|-------------|-------------|-------------|-------------|
| B      | 6 7/8 (175) | 6 3/8 (162) | 5 7/8 (149) | 5 (125)     | 4 1/2 (115) |
| C      | 4 3/4 (120) | 4 3/4 (120) | 4 3/4 (120) | 6 1/4 (160) | 6 1/4 (160) |
| D      | 6 (150)     | 6 (150)     | 6 (150)     | 6 5/8 (168) | 6 7/8 (175) |
| E      | 7 1/4 (185) | 7 1/2 (190) | 7 3/4 (195) | 7 3/4 (195) | 7 3/4 (195) |
| F      | 8 5/8 (219) | 8 3/4 (220) | 8 3/4 (220) | 8 1/2 (215) | 8 1/2 (215) |

**REGULARLY FURNISHED:**  
 Duco Cast Iron Body and Flashing Collar with Cast Iron Bar Grate.

**VARIATIONS:**

- Deflector Grate -DG
- Dome Grate -D
- Flat Bottom Strainer -FBS
- Hinged Grate -H
- L Speedi-Set Service Weight 2(50), 3(75) & 4" (100) sizes only (Fig. 2131 only)
- LXH Speedi-Set Extra Heavy 2(50), 3(75) & 4" (100) sizes only (Fig. 2131 only)
- NO-HUB Adaptor (Specify Fig. 2646Y) (Fig. 2130 & 2135 only)
- Sediment Bucket -B
- Solid Scoriated Cover -SC
- Square Top -S
- Trap Primer Connection -P050 1/2" (13) & -P075 3/4" (19) (Fig. 2131, 2131Y & 2135 only)
- Vandal Proof Grate -U
- Wide Flange Deck Drain (Specify Fig. DX2566)
- T Threaded Outlet

**OPTIONAL MATERIALS:**

- Ductile Iron Grate -M
- Galvanized Cast Iron -G
- Nickel Bronze Top -NB
- Polished Bronze Top -PB

\*This Dimension to Internal Stop of Speedi-Set Gasket.  
 Δadd 3/8" (10) when hinged top is specified.  
 Δadd 1/8" (3) when bronze top is specified.  
 ■ Meets U. S. Gov't Spec. WW-P-541-b. Type 220 04" (100) size only.

NOTE: 02(50), 03(75), & 04"(100) sizes require a transition collar (as shown in above illustration) which fits between the body & collar. 05(125) & 06"(150) sizes do not require transition collar.

NOTE: Dimensions shown in parentheses are in millimeters.

H  
 DRAWING NUMBER S2130  
 SIZE A  
 SCALE: NONE  
 DATE: 5-17-85  
 APPROVED BY: TD  
 CHECKED BY: TD  
 DRAWN BY: BS  
**2130,2131,2135**  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV. | DATE    | DESCRIPTION         | BY  | CKD. BY |
|------|---------|---------------------|-----|---------|
| H    | 1-10-07 | Revised Millimeters | RN  | CL      |
| G    | 1-18-96 | Revised             | TBW | BS      |
| F    | 6-15-95 | Added Millimeters   | EMB | BS      |
| E    | 7-1-94  | Revised             | CMB | BS      |

| WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER         |
|---------------|-------------------|-----------------------|
|               |                   | <b>2130,2131,2135</b> |



## 14 Gage Stainless Steel Floor, Area & Indirect Waste Drains with 12"(304) Square Top

Figure Number: 9691-9699

### **Product Function:**

Used in nuclear and fossil fuel power stations, chemical plants, laboratories and other areas where the corrosion resistance of type 304 stainless steel is satisfactory for the intended service. Also used in other locations such as breweries, dairies, creameries and similar processing plants where superior corrosion resistance, durability and longevity are required. Excellent for use in restaurants, schools and all types of food handling areas for ultimate sanitation.

### **Regularly Furnished:**

14 Gage Type 304 SS Receptor Body with " Seepage Control Holes", Cast Type 316 SS

Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Square Holes. Perforated SS Dome Bottom Strainer or Sediment Bucket as Indicated by Figure Number.

### **Optional Materials**

---

- Fabricated from Type 316 Stainless Steel -316

### **Variations**

---

- Dome Bottom Strainer -DBS - (Bucket Models Only)
- Less Seepage Control Holes -LSH
- Solid Ported Bucket -SBP
- Anchor Flange -F
- Flashing Flange and Clamp -F-C
- Trap Primer Connection -P050 1/2" (13), -P075 3/4" (19)
- BW Butt Weld Outlet (Specify Schedule -S05, -S10, -S40)
- T Male Threaded Connection

**Telephone** [\(334\) 277-8520](tel:3342778520)

---

### **Jay R. Smith Mfg. Co.**




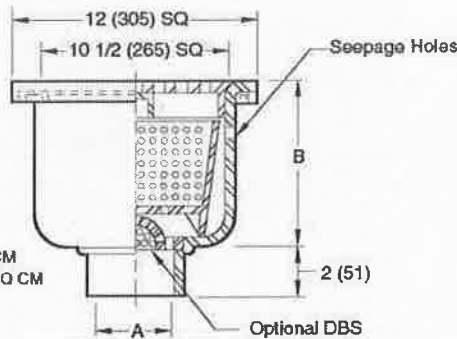
2781 Gunter Park Dr. East

Montgomery, AL 36109-1405 USA

© 1996-2013 Jay R. Smith Mfg. Co., Inc. All Rights Reserved.




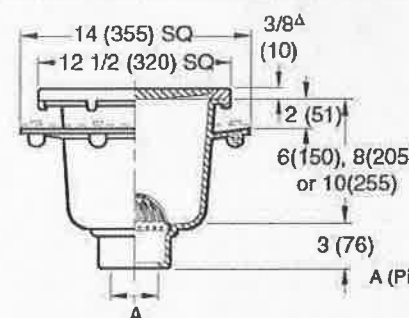
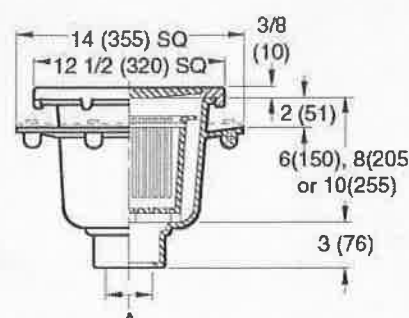
Member of the USGBC. Designed by web design company 352 Media.

**Member of Morris Group International**

| <b>9691 SERIES</b>   | DRAWING NUMBER<br><b>S9691</b>   | SIZE<br><b>A</b>  | SCALE:<br><b>NONE</b>   | DATE:<br><b>5-4-82</b> | APPROVED BY:<br><b>J.M.</b>   | CHECKED BY:<br><b>K.H.</b> | DRAWN BY:<br><b>C.R.</b>                   | SMITH® <b>JAY R. SMITH MFG. CO.®</b><br>DIVISION OF SMITH INDUSTRIES, INC.<br>POST OFFICE BOX 3237<br>MONTGOMERY, ALABAMA 36109-0237 (USA)<br>TEL. 334-277-8520 FAX 334-272-7366 www.jrsmith.com |    | LOCATION<br><b>SIZE &amp; OUTLET SPECIFIED WHEN ORDERING</b> |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|--|--|---|---|------------------------|---|----------------------------|--|--|---|--|------------------------------|-------------------|------------------------------|---|------------------------------|------------------------------------|------------------------------|---|------------------------------|---|------------------------------|---|------------------------------|--|------------------------------|---------------------|--|-------------------------|------------------------------|-------------------------|------------------------------|--|--|--|--|--|--|--|--------|-------------|------------------------------|---|------------------------------|---|------------------------------|--|------------------------------|--|------------------------------|---|
|  | <b>14 GAGE STAINLESS STEEL FLOOR, AREA &amp; INDIRECT WASTE DRAINS WITH 12" (304) SQUARE TOP</b>   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | <p><b>FUNCTION:</b> Used in nuclear and fossil fuel power stations, chemical plants, laboratories and other areas where the corrosion resistance of type 304 stainless steel is satisfactory for the intended service. Also used in other locations such as breweries, dairies, creameries and similar processing plants where superior corrosion resistance, durability and longevity are required. Excellent for use in restaurants, schools and all types of food handling areas for ultimate sanitation.</p> |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  |  <p style="text-align: center;"><b>With Dome Bottom Strainer</b></p>  |   | <p><b>FIGURE NUMBERS</b></p> <table border="1" style="margin: auto;"> <thead> <tr> <th>W/Dome Strainer</th> <th>"B" Dim.</th> <th>Approx. Wt. Lbs.</th> <th>W/Sediment Bucket</th> </tr> </thead> <tbody> <tr> <td>9691</td> <td>4 (100)</td> <td>14</td> <td>9696</td> </tr> <tr> <td>9692</td> <td>6 (150)</td> <td>17</td> <td>9697</td> </tr> <tr> <td>9693</td> <td>8 (205)</td> <td>20</td> <td>9698</td> </tr> <tr> <td>9694</td> <td>10 (255)</td> <td>23</td> <td>9699</td> </tr> </tbody> </table> <p style="text-align: center;">Grates w/1/2"(13) holes - Free Area 34 SQ IN (219) SQ CM<br/>Optional grates w/1/4"(6) holes - Free Area 18 SQ IN (116) SQ CM<br/>A (Pipe Size) = 02(50), 03(75) or 04(100)<br/>Y NO-HUB Outlet Regular</p> |                        |   |                            | W/Dome Strainer                            | "B" Dim.   | Approx. Wt. Lbs.  | W/Sediment Bucket  | 9691                         | 4 (100)           | 14                           | 9696                                    | 9692                         | 6 (150)                            | 17                           | 9697                                      | 9693                         | 8 (205)                                   | 20                           | 9698  | 9694                         | 10 (255)   | 23                           | 9699                |  <p style="text-align: center;"><b>With Sediment Bucket</b></p> |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | W/Dome Strainer  | "B" Dim.  | Approx. Wt. Lbs.  | W/Sediment Bucket      |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | 9691   | 4 (100)   | 14  | 9696                   |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | 9692   | 6 (150)   | 17  | 9697                   |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | 9693   | 8 (205)   | 20  | 9698                   |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | 9694   | 10 (255)  | 23  | 9699                   |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
|  | <b>FEATURES, OPTIONS AND ORDERING INFORMATION</b>  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <p><b>REGULARLY FURNISHED:</b> 14 Gage Type 304 SS Receptor Body with "Seepage Control Holes", Cast Type 316 SS Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Square Holes. Perforated SS Dome Bottom Strainer or Sediment Bucket as Indicated by Figure Number.</p>   |  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <p><b>VARIATIONS:</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Dome Bottom Strainer -DBS (Bucket Models only)</li> <li><input checked="" type="checkbox"/> Less Seepage Control Holes -LSH</li> <li><input type="checkbox"/> Solid Ported Bucket -SBP                     <ul style="list-style-type: none"> <li>*With Anchor Flange -F</li> <li>*With Flange and Flashing Clamp -F-C</li> </ul> </li> <li><input type="checkbox"/> Trap Primer Connection -P050 1/2"(13) &amp; -P075 3/4"(19)</li> <li><input type="checkbox"/> BW Butt Weld Outlet (Specify Schedule -S05, -S10 or -S40)</li> <li><input type="checkbox"/> T Male Threaded Connection</li> </ul>   |  |   |   |                        | <p><b>BUCKET MODELS ONLY:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> With SS Solid Bottom Ported Bucket -SBP</li> <li><input type="checkbox"/> With SS Dome Bottom Strainer -DBS</li> </ul> <p><b>OPTIONAL MATERIALS:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Fabricated from Type 316 Stainless Steel -316</li> </ul> |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <p><b>NOTE:</b><br/>When determining location of this drain, consideration must be given to traffic loading factors. When used in areas where the drain is subjected to any traffic loading heavier than pedestrian foot traffic, the location, load and description of load shall be submitted to Jay R. Smith's Sales Engineering Department for evaluation and selection of proper grate.</p>   |  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <b>OPTIONAL TOP GRATES AND COVERS</b>  |  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <table border="0"> <thead> <tr> <th>Suffix</th> <th>Description</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> -10</td><td>Less SS Grate</td></tr> <tr><td><input checked="" type="checkbox"/> -12</td><td>With SS 1/2 Grate</td></tr> <tr><td><input type="checkbox"/> -13</td><td>With SS 3/4 Grate</td></tr> <tr><td><input type="checkbox"/> -14</td><td>With SS 2 1/2(64) Sq. Center Hole Grate</td></tr> <tr><td><input type="checkbox"/> -15</td><td>With SS Recessed Grate with Handle</td></tr> <tr><td><input type="checkbox"/> -21</td><td>With SS Grate with 4"(100) Dia. SS Funnel</td></tr> <tr><td><input type="checkbox"/> -22</td><td>With SS Grate with 6"(150) Dia. SS Funnel</td></tr> <tr><td><input type="checkbox"/> -25</td><td>With SS Grate with 8 1/4(210) x 3 1/4(53) x 4 1/2"(115) High Oval SS Funnel</td></tr> <tr><td><input type="checkbox"/> -26</td><td>With SS Grate with 6(150) x 2 1/2(64) x 1"(25) High Oval SS Funnel</td></tr> <tr><td><input type="checkbox"/> -41</td><td>With SS Solid Cover</td></tr> <tr><td><input type="checkbox"/> -42</td><td>With SS 1/2 Solid Cover</td></tr> <tr><td><input type="checkbox"/> -43</td><td>With SS 3/4 Solid Cover</td></tr> <tr><td><input type="checkbox"/> -44</td><td>With SS 2 1/2"(64) Sq. Center Hole Solid Cover</td></tr> </tbody> </table> |  |   |   |                        | Suffix  | Description                | <input type="checkbox"/> -10               | Less SS Grate  | <input checked="" type="checkbox"/> -12   | With SS 1/2 Grate  | <input type="checkbox"/> -13 | With SS 3/4 Grate | <input type="checkbox"/> -14 | With SS 2 1/2(64) Sq. Center Hole Grate | <input type="checkbox"/> -15 | With SS Recessed Grate with Handle | <input type="checkbox"/> -21 | With SS Grate with 4"(100) Dia. SS Funnel | <input type="checkbox"/> -22 | With SS Grate with 6"(150) Dia. SS Funnel | <input type="checkbox"/> -25 | With SS Grate with 8 1/4(210) x 3 1/4(53) x 4 1/2"(115) High Oval SS Funnel | <input type="checkbox"/> -26 | With SS Grate with 6(150) x 2 1/2(64) x 1"(25) High Oval SS Funnel | <input type="checkbox"/> -41 | With SS Solid Cover | <input type="checkbox"/> -42   | With SS 1/2 Solid Cover | <input type="checkbox"/> -43 | With SS 3/4 Solid Cover | <input type="checkbox"/> -44 | With SS 2 1/2"(64) Sq. Center Hole Solid Cover | <table border="0"> <thead> <tr> <th>Suffix</th> <th>Description</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> -61</td><td>With SS Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes</td></tr> <tr><td><input type="checkbox"/> -63</td><td>With SS Medium Duty Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes</td></tr> <tr><td><input type="checkbox"/> -64</td><td>With SS Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes</td></tr> <tr><td><input type="checkbox"/> -66</td><td>With SS Extra Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes</td></tr> <tr><td><input type="checkbox"/> -69</td><td>With 1"(25) Thick Underbolted NB Rim and Extra Heavy Duty Cast Stainless Steel Secured Grate (Flange Regularly Furnished 2"(51) from top will become 3"(76) from top)</td></tr> </tbody> </table> |  |  |  |  |  | Suffix | Description | <input type="checkbox"/> -61 | With SS Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes | <input type="checkbox"/> -63 | With SS Medium Duty Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes | <input type="checkbox"/> -64 | With SS Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes | <input type="checkbox"/> -66 | With SS Extra Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes | <input type="checkbox"/> -69 | With 1"(25) Thick Underbolted NB Rim and Extra Heavy Duty Cast Stainless Steel Secured Grate (Flange Regularly Furnished 2"(51) from top will become 3"(76) from top) |
| Suffix   | Description  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -10   | Less SS Grate  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input checked="" type="checkbox"/> -12  | With SS 1/2 Grate  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -13   | With SS 3/4 Grate  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -14   | With SS 2 1/2(64) Sq. Center Hole Grate  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -15   | With SS Recessed Grate with Handle   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -21   | With SS Grate with 4"(100) Dia. SS Funnel  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -22   | With SS Grate with 6"(150) Dia. SS Funnel  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -25   | With SS Grate with 8 1/4(210) x 3 1/4(53) x 4 1/2"(115) High Oval SS Funnel  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -26   | With SS Grate with 6(150) x 2 1/2(64) x 1"(25) High Oval SS Funnel   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -41   | With SS Solid Cover  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -42   | With SS 1/2 Solid Cover  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -43   | With SS 3/4 Solid Cover  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -44   | With SS 2 1/2"(64) Sq. Center Hole Solid Cover   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| Suffix   | Description  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -61   | With SS Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -63   | With SS Medium Duty Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4"(6) Sq. Holes  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -64   | With SS Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -66   | With SS Extra Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2"(13) Sq. Holes   |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <input type="checkbox"/> -69   | With 1"(25) Thick Underbolted NB Rim and Extra Heavy Duty Cast Stainless Steel Secured Grate (Flange Regularly Furnished 2"(51) from top will become 3"(76) from top)  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| <p>*Flange is located 2" (51) from top of drain. 3"(76) when specified.<br/>NOTE: Dimensions shown in parentheses are in millimeters.</p>  |  |   |   |                        |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| O<br>P<br>N<br>M   | 12-13-06<br>4-28-06<br>05/17/04<br>5-30-03   | Revised Variations<br>Revised Variations<br>Changed Regularly Furnished<br>Chg'd (305) SS to (304) SS | RN<br>RN<br>JJ<br>RN  | CL<br>CL<br>CL<br>AM   | WEIGHT<br>POUNDS  | VOLUME<br>CUBIC FEET       | <b>FIGURE NUMBER</b><br><b>9691 SERIES</b> |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |
| REV.   | DATE   | DESCRIPTION   | BY  | CKD. BY                |   |                            |  |  |   |  |                              |                   |                              |   |                              |                                    |                              |   |                              |   |                              |   |                              |  |                              |                     |  |                         |                              |                         |                              |  |  |  |  |  |  |  |        |             |                              |   |                              |   |                              |  |                              |  |                              |   |

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| J                                       |     | LOCATION            |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
|---|--|---------------------|--------------------------|--------------------|------------------------------|-----------------------|------------------------------|---------------------|---|---------------------------|------------------------------|---------------------------|------------------------------|--|------------------------------|---|------------------------------|------------------------------|------------------------------|--|------------------------------|--|------------------------------|---|------------------------------|--|------------------------------|-----------------------------|------------------------------|---------------------------------|------------------------------|---------------------------------|------------------------------|---|------------------------------|--|
| DRAWING NUMBER<br>S3140                 | <h2 style="margin: 0;">SANI-CEPTOR® ACID RESISTANT COATED FLOOR &amp; INDIRECT WASTE DRAINS</h2> <h3 style="margin: 0;">SQUARE NICKEL BRONZE TOP</h3> <h4 style="margin: 0;">12 1/2" (320) TOP - MEDIUM, DEEP &amp; EXTRA DEEP RECEPTORS</h4>  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| SIZE<br>A                               | <p><b>FUNCTION:</b> Used in kitchens, hospitals, food markets, restaurants, schools and all types of food handling areas where the ultimate in sanitation is desirable and a medium capacity receptor is required.</p>   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| SCALE:<br>NONE                          | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>WITH DOME BOTTOM STRAINER</p> </div> <div style="text-align: center;">  <p>WITH SEDIMENT BUCKET</p> </div> </div> <p style="text-align: center;">Free Area<br/>42 SQ IN<br/>(271) SQ CM</p> <p style="text-align: center;">A (Pipe Size) = 02(50), 03(75) or 04(100)</p>   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| DATE:<br>9-19-85                        | <p>6*(150) deep    8*(205) deep    10*(255) deep</p> <p>Fig. ... <input checked="" type="checkbox"/> 3140C ... <input type="checkbox"/> 3150C ... <input type="checkbox"/> 3160C ... CAULK OUTLET ... Fig. ... <input type="checkbox"/> 3141C ... <input type="checkbox"/> 3151C ... <input type="checkbox"/> 3161C</p> <p>Fig. ... <input type="checkbox"/> 3140Y ... <input type="checkbox"/> 3150Y ... <input type="checkbox"/> 3160Y ... NO-HUB OUTLET ... Fig. ... <input type="checkbox"/> 3141Y ... <input type="checkbox"/> 3151Y ... <input type="checkbox"/> 3161Y</p>   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| APPROVED BY:<br>SJM                     | <h3 style="margin: 0;">FEATURES, OPTIONS &amp; ORDERING INFORMATION</h3> <p><b>REGULARLY FURNISHED:</b> Cast Iron Flanged Receptor with Seepage Holes, Acid Resistant Coated Interior, Nickel Bronze Rim and Secured Grate. Aluminum Dome Bottom Strainer or Sediment Bucket as Indicated by Figure Number.</p>  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| CHECKED BY:<br>JD                       | <p><b>OPTIONAL MATERIALS:</b></p> <p><input type="checkbox"/> All Duco Cast Iron Receptor -CI</p> <p><input type="checkbox"/> All Galvanized Receptor -G</p> <p style="text-align: center;">NOTE: Dimensions shown in parentheses are in millimeters.</p>  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| DRAWN BY:<br>PJ                         | <p><b>VARIATIONS:</b></p> <p><input type="checkbox"/> Aluminum Flat Bottom Strainer -FBS</p> <p><input type="checkbox"/> Flashing Clamp -C</p> <p><input type="checkbox"/> Less Flange (Fig. 3155, 3156 only)</p> <p><input type="checkbox"/> Polished Aluminum Dome Bottom Strainer -PDBS</p> <p><input type="checkbox"/> Vandal Proof Screws -U</p> <p><input type="checkbox"/> L Speedi-Set Service Weight<br/>02(50), 03(75) &amp; 04*(100) sizes only</p> <p><input type="checkbox"/> LXH Speedi-Set Extra Heavy<br/>02(50), 03(75) &amp; 04*(100) sizes only</p>   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| 3140-3161 Series                        | <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">SUFFIX NUMBER SQUARE RIM</th> <th style="width:80%;">DESCRIPTION</th> </tr> </thead> <tbody> <tr><td><input type="checkbox"/> -10</td><td>Less NB Rim and Grate</td></tr> <tr><td><input type="checkbox"/> -11</td><td>Less Grate w/NB Rim</td></tr> <tr><td><input checked="" type="checkbox"/> -12</td><td>With NB Rim and 1/2 Grate</td></tr> <tr><td><input type="checkbox"/> -13</td><td>With NB Rim and 3/4 Grate</td></tr> <tr><td><input type="checkbox"/> -14</td><td>With NB Rim and Grate with 2 1/2*(64) SQ Center Hole</td></tr> <tr><td><input type="checkbox"/> -15</td><td>With NB Rim and Aluminum Recessed Grate</td></tr> <tr><td><input type="checkbox"/> -19</td><td>With NB Rim and Hinged Grate</td></tr> <tr><td><input type="checkbox"/> -21</td><td>With NB Rim and Grate with 4*(100) DIA NB Funnel</td></tr> <tr><td><input type="checkbox"/> -22</td><td>With NB Rim and Grate with 6*(150) DIA NB Funnel</td></tr> <tr><td><input type="checkbox"/> -25</td><td>With NB Rim and Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2*(115) High Oval NB Funnel</td></tr> <tr><td><input type="checkbox"/> -26</td><td>With NB Rim and Grate with 6(150) x 2 1/2(64) x 1*(25) High Oval NB Funnel</td></tr> <tr><td><input type="checkbox"/> -41</td><td>With NB Rim and Solid Cover</td></tr> <tr><td><input type="checkbox"/> -42</td><td>With NB Rim and 1/2 Solid Cover</td></tr> <tr><td><input type="checkbox"/> -43</td><td>With NB Rim and 3/4 Solid Cover</td></tr> <tr><td><input type="checkbox"/> -44</td><td>With NB Rim and Solid Cover with 2 1/2*(64) DIA Center Hole</td></tr> <tr><td><input type="checkbox"/> -69</td><td>With NB Rim and XH Stainless Steel Secured Grate [<sup>Δ</sup>3/8*(10) dimension becomes 1*(25)]</td></tr> </tbody> </table> |                     | SUFFIX NUMBER SQUARE RIM | DESCRIPTION        | <input type="checkbox"/> -10 | Less NB Rim and Grate | <input type="checkbox"/> -11 | Less Grate w/NB Rim | <input checked="" type="checkbox"/> -12 | With NB Rim and 1/2 Grate | <input type="checkbox"/> -13 | With NB Rim and 3/4 Grate | <input type="checkbox"/> -14 | With NB Rim and Grate with 2 1/2*(64) SQ Center Hole | <input type="checkbox"/> -15 | With NB Rim and Aluminum Recessed Grate | <input type="checkbox"/> -19 | With NB Rim and Hinged Grate | <input type="checkbox"/> -21 | With NB Rim and Grate with 4*(100) DIA NB Funnel | <input type="checkbox"/> -22 | With NB Rim and Grate with 6*(150) DIA NB Funnel | <input type="checkbox"/> -25 | With NB Rim and Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2*(115) High Oval NB Funnel | <input type="checkbox"/> -26 | With NB Rim and Grate with 6(150) x 2 1/2(64) x 1*(25) High Oval NB Funnel | <input type="checkbox"/> -41 | With NB Rim and Solid Cover | <input type="checkbox"/> -42 | With NB Rim and 1/2 Solid Cover | <input type="checkbox"/> -43 | With NB Rim and 3/4 Solid Cover | <input type="checkbox"/> -44 | With NB Rim and Solid Cover with 2 1/2*(64) DIA Center Hole | <input type="checkbox"/> -69 | With NB Rim and XH Stainless Steel Secured Grate [ <sup>Δ</sup> 3/8*(10) dimension becomes 1*(25)] |
| SUFFIX NUMBER SQUARE RIM                | DESCRIPTION  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -10            | Less NB Rim and Grate  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -11            | Less Grate w/NB Rim  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input checked="" type="checkbox"/> -12 | With NB Rim and 1/2 Grate  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -13            | With NB Rim and 3/4 Grate  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -14            | With NB Rim and Grate with 2 1/2*(64) SQ Center Hole   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -15            | With NB Rim and Aluminum Recessed Grate  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -19            | With NB Rim and Hinged Grate   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -21            | With NB Rim and Grate with 4*(100) DIA NB Funnel   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -22            | With NB Rim and Grate with 6*(150) DIA NB Funnel   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -25            | With NB Rim and Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2*(115) High Oval NB Funnel  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -26            | With NB Rim and Grate with 6(150) x 2 1/2(64) x 1*(25) High Oval NB Funnel   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -41            | With NB Rim and Solid Cover  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -42            | With NB Rim and 1/2 Solid Cover  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -43            | With NB Rim and 3/4 Solid Cover  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -44            | With NB Rim and Solid Cover with 2 1/2*(64) DIA Center Hole  |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| <input type="checkbox"/> -69            | With NB Rim and XH Stainless Steel Secured Grate [ <sup>Δ</sup> 3/8*(10) dimension becomes 1*(25)]   |                     |                          |                    |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| FIGURE NUMBER                           | <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">J</td> <td style="width:10%;">10-31-12</td> <td style="width:80%;">Revised Variations</td> <td style="width:10%;">TBW</td> <td style="width:10%;">BW</td> <td style="width:10%;">WEIGHT POUNDS</td> <td style="width:10%;">VOLUME CUBIC FEET</td> <td style="width:20%;">FIGURE NUMBER</td> </tr> <tr> <td>H</td> <td>01/20/11</td> <td>Updated Logo</td> <td>JJ</td> <td>TW</td> <td></td> <td></td> <td rowspan="2" style="text-align: center; vertical-align: middle;">3140-3161 Series</td> </tr> <tr> <td>G</td> <td>9-4-09</td> <td>Rev Rim Description</td> <td>RN</td> <td>CL</td> <td></td> <td></td> </tr> <tr> <td>REV.</td> <td>DATE</td> <td>DESCRIPTION</td> <td>BY</td> <td>CKD. BY</td> <td></td> <td></td> <td></td> </tr> </table>   | J                   | 10-31-12                 | Revised Variations | TBW                          | BW                    | WEIGHT POUNDS                | VOLUME CUBIC FEET   | FIGURE NUMBER                           | H                         | 01/20/11                     | Updated Logo              | JJ                           | TW   |                              |   | 3140-3161 Series             | G                            | 9-4-09                       | Rev Rim Description                              | RN                           | CL   |                              |   | REV.                         | DATE   | DESCRIPTION                  | BY                          | CKD. BY                      |                                 |                              |                                 |                              |   |                              |  |
| J                                       | 10-31-12   | Revised Variations  | TBW                      | BW                 | WEIGHT POUNDS                | VOLUME CUBIC FEET     | FIGURE NUMBER                |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| H                                       | 01/20/11   | Updated Logo        | JJ                       | TW                 |                              |                       | 3140-3161 Series             |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| G                                       | 9-4-09   | Rev Rim Description | RN                       | CL                 |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |
| REV.                                    | DATE   | DESCRIPTION         | BY                       | CKD. BY            |                              |                       |                              |                     |   |                           |                              |                           |                              |  |                              |   |                              |                              |                              |  |                              |  |                              |   |                              |  |                              |                             |                              |                                 |                              |                                 |                              |   |                              |  |

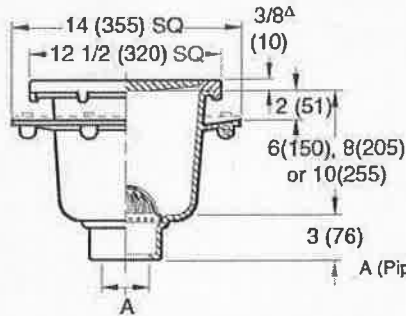
|   |   |          |
|---|---|----------|
| J |     | LOCATION |
|---|---|----------|

## SANI-CEPTOR® ACID RESISTANT COATED FLOOR & INDIRECT WASTE DRAINS

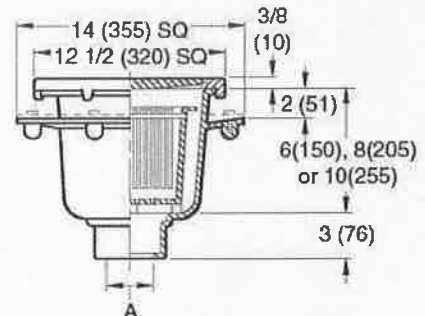
### SQUARE NICKEL BRONZE TOP

#### 12 1/2" (320) TOP - MEDIUM, DEEP & EXTRA DEEP RECEPTORS

**FUNCTION:** Used in kitchens, hospitals, food markets, restaurants, schools and all types of food handling areas where the ultimate in sanitation is desirable and a medium capacity receptor is required.



Free Area  
42 SQ IN  
(271) SQ CM



WITH DOME BOTTOM STRAINER

6\*(150) deep    8\*(205) deep    10\*(255) deep  
 Fig. ...  3140C ...  3150C ...  3160C ... CAULK OUTLET ...  
 Fig. ...  3140Y ...  3150Y ...  3160Y ... NO-HUB OUTLET ...

WITH SEDIMENT BUCKET

6\*(150) deep    8\*(205) deep    10\*(255) deep  
 Fig. ...  3141C ...  3151C ...  3161C  
 Fig. ...  3141Y ...  3151Y ...  3161Y

### FEATURES, OPTIONS & ORDERING INFORMATION

**REGULARLY FURNISHED:** Cast Iron Flanged Receptor with Seepage Holes, Acid Resistant Coated Interior, Nickel Bronze Rim and Secured Grate. Aluminum Dome Bottom Strainer or Sediment Bucket as Indicated by Figure Number.

**OPTIONAL MATERIALS:**

- All Duco Cast Iron Receptor -CI
- All Galvanized Receptor -G

NOTE: Dimensions shown in parentheses are in millimeters.

**VARIATIONS:**

- Aluminum Flat Bottom Strainer -FBS
- Flashing Clamp -C
- Less Flange (Fig. 3155, 3156 only)
- Polished Aluminum Dome Bottom Strainer -PDBS
- Vandal Proof Screws -U
- L Speedi-Set Service Weight  
02(50), 03(75) & 04\*(100) sizes only
- LXH Speedi-Set Extra Heavy  
02(50), 03(75) & 04\*(100) sizes only

| SUFFIX NUMBER<br>SQUARE RIM  | DESCRIPTION  |
|------------------------------|--|
| <input type="checkbox"/> -10 | Less NB Rim and Grate  |
| <input type="checkbox"/> -11 | Less Grate w/NB Rim  |
| <input type="checkbox"/> -12 | With NB Rim and 1/2 Grate  |
| <input type="checkbox"/> -13 | With NB Rim and 3/4 Grate  |
| <input type="checkbox"/> -14 | With NB Rim and Grate with 2 1/2*(64) SQ Center Hole                                 |
| <input type="checkbox"/> -15 | With NB Rim and Aluminum Recessed Grate  |
| <input type="checkbox"/> -19 | With NB Rim and Hinged Grate   |
| <input type="checkbox"/> -21 | With NB Rim and Grate with 4*(100) DIA NB Funnel                                     |
| <input type="checkbox"/> -22 | With NB Rim and Grate with 6*(150) DIA NB Funnel                                     |
| <input type="checkbox"/> -25 | With NB Rim and Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2*(115) High Oval NB Funnel  |
| <input type="checkbox"/> -26 | With NB Rim and Grate with 6(150) x 2 1/2(64) x 1*(25) High Oval NB Funnel           |
| <input type="checkbox"/> -41 | With NB Rim and Solid Cover  |
| <input type="checkbox"/> -42 | With NB Rim and 1/2 Solid Cover  |
| <input type="checkbox"/> -43 | With NB Rim and 3/4 Solid Cover  |
| <input type="checkbox"/> -44 | With NB Rim and Solid Cover with 2 1/2*(64) DIA Center Hole                          |
| <input type="checkbox"/> -69 | With NB Rim and XH Stainless Steel Secured Grate [3/8*(10) dimension becomes 1*(25)] |

DRAWING NUMBER S3140  
 SIZE A  
 SCALE: NONE  
 DATE: 9-19-85  
 APPROVED BY: SJM  
 CHECKED BY: JD  
 DRAWN BY: PJ  
**3140-3161 Series**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|               |             |                                |   |                 |                |                  |                      |   |
|---------------|-------------|--------------------------------|---|-----------------|----------------|------------------|----------------------|---|
| FIGURE NUMBER | J<br>H<br>G | 10-31-12<br>01/20/11<br>9-4-09 | Revised Variations<br>Updated Logo<br>Rev Rim Description | TBW<br>JJ<br>RN | BW<br>TW<br>CL | WEIGHT<br>POUNDS | VOLUME<br>CUBIC FEET | FIGURE NUMBER<br><b>3140-3161</b><br>Series |
| REV.          |             | DATE                           | DESCRIPTION   | BY              | CKD. BY        |                  |                      |   |



PROFILE OF INNOVATION

## FLOOR DRAINS



### INNOVATIVE SOLUTIONS FOR CERAMIC AND STONE TILE

#### FLOOR DRAINS FOR BONDED WATERPROOF MEMBRANES

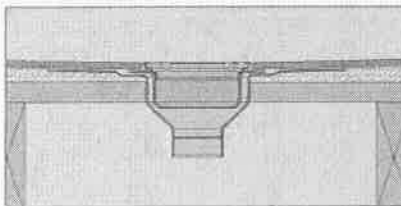
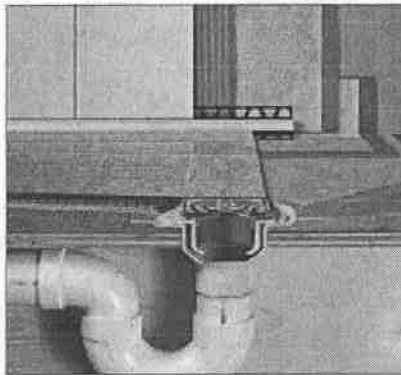
Schluter®-KERDI-DRAIN and Schluter®-KERDI-LINE floor drains provide a simple and secure connection to bonded waterproof membranes at the top of the assembly via an integrated bonding flange. Thus, the membrane is applied entirely at the surface, with all water directed into the top of the drain.

#### Application and Function

Schluter®-KERDI-DRAIN and Schluter®-KERDI-LINE are specifically designed for use in bonded waterproofing assemblies, such as showers, steam rooms, wet rooms, bathroom floors, commercial kitchen floors and other applications that require waterproofing and drainage.

**8.2 Schluter®-KERDI-DRAIN** is a floor drain specifically designed to allow connections to Schluter®-KERDI or other load-bearing, bonded waterproof membranes. The membrane is adhered to the large integrated bonding flange to form a waterproof connection at the top of the drain assembly. KERDI-DRAIN consists of a drain casing and fully adjustable grate assembly or covering support to which tile is applied. The grate assembly accommodates a wide range of tile thicknesses and allows lateral and tilt adjustment as well. The covering support is placed flush with the top of the bonding flange and can therefore accommodate any thickness tile covering.

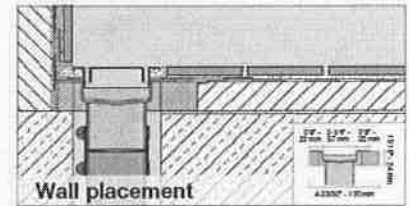
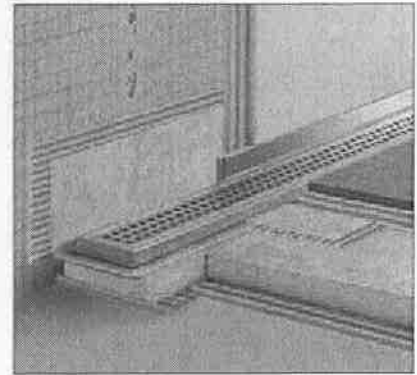
The standard KERDI-DRAIN is attached directly to the waste line. The drain casing is available in ABS, PVC, or stainless steel. The plastic drain casings feature a fleece-covered bonding flange. They are available with standard 2" (50 mm) and 3" (75 mm) outlets and attached to the pipe using an appropriate solvent cement. The stainless steel drain casings are



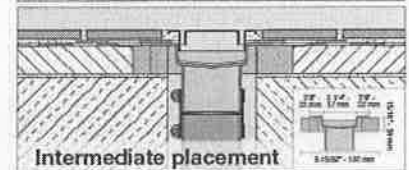
#### 8.2 Schluter®-KERDI-DRAIN

available with standard 2" (50 mm) and 3" (75 mm) no-hub outlets and are attached to the pipe using an appropriate mechanical no-hub coupling. The simple connection to standard drain outlets makes KERDI-DRAIN suitable for new construction and renovation.

The KERDI-DRAIN adaptor kit is designed to convert clamping ring drains by equipping them with an integrated bonding flange. The adaptor kit includes a stainless steel adaptor ring with an over-molded rubber gasket and a variety of perforated hole patterns that align with most common clamping ring shower drains. The adaptor ring replaces the clamping ring and is attached to the drain body using the clamping ring bolts. This connection is made watertight via the rubber gasket and Schluter®-KERDI-FIX adhesive/sealant. The integrated bonding



Wall placement



Intermediate placement

#### 8.7 Schluter®-KERDI-LINE

flange slides into the adaptor ring, with the over-molded rubber gasket ensuring a watertight seal. Commercial KERDI-DRAIN adaptor kits feature a 7-1/2" (191 mm) diameter adaptor ring and are available with a stainless steel bonding flange or an ABS bonding flange. The ABS bonding flange is available in two sizes (standard or extended length) to accommodate different tile assembly thicknesses. The residential KERDI-DRAIN adaptor kit features a 5-1/4" (133 mm) diameter adaptor ring and an ABS bonding flange. The KERDI-DRAIN adaptor kit is particularly useful in renovations where

the clamping ring drains are difficult to replace with the standard KERDI-DRAIN (e.g., when they are set in concrete slabs).

The grate assembly consists of a height adjustment collar, lateral adjustment ring, and drain grate or covering support. The grates are installed in conjunction with a height adjustment collar and lateral adjustment ring, which are made of ABS or stainless steel, to allow for simple and convenient adjustment when setting the tile. Drain grates are available in stainless steel with a polished or oil-rubbed bronze finish and in anodized aluminum with a brushed copper bronze, brushed brass, or brushed nickel finish. The polished stainless steel grates are available in 4" (100 mm) -square, 6" (150 mm) -square and -round versions. All other grates are available in the 4" (100 mm) -square version only. Please note that grate assemblies included with the plastic KERDI-DRAIN featuring 3" (75 mm) outlets and the residential adaptor kits only allow vertical and tilt adjustment (no lateral adjustment). The covering support is a 4" (100 mm) -square stainless steel plate with KERDI laminated on the surface to allow for bonding of ceramic or stone tile, which creates a virtually invisible drainage line.

**8.7 Schluter®-KERDI-LINE** is a low profile linear floor drain specifically designed for bonded waterproofing assemblies. KERDI-LINE can be installed adjacent to walls or at intermediate locations. The floor can be sloped on a single plane to KERDI-LINE, which enables the use of large-format tiles and creates interesting design opportunities.

KERDI-LINE consists of a formed stainless steel channel body and grate assembly or covering support to which tile is applied. The channel body features a standard 2" (50 mm) no-hub outlet and is attached to the pipe using an appropriate mechanical no-hub coupling. The simple connection to standard drain outlets makes KERDI-LINE suitable for new construction and renovation. KERDI-LINE is available with both center and off-set outlets. The off-set outlet is located 8" (20.3 cm) from the edge of the channel body and provides flexibility when obstacles (e.g., floor joists) are encountered during installation. The grate assembly can be seamlessly adjusted to the thickness of the ceramic tile or stone covering from 1/8" to 1" (3 to 25 mm). The covering support is placed flush with the top of the channel body and can therefore accommodate any thickness tile covering.

KERDI-LINE includes a corresponding polystyrene foam channel support. The perimeter of the channel body consists of a bonding flange laminated with a collar made of KERDI. It ensures a simple and secure connection to the bonded waterproofing assembly, both in the floor area and on adjacent walls.

The grate assembly consists of a brushed stainless steel frame and two design grate options. Option A is a closed-design, brushed stainless steel grate. Option B is a brushed stainless grate with square perforations. Option C is also available with a locking mechanism (3/4" - 19 mm frame only) for applications where tamper resistance is desired or required (e.g., healthcare and education facilities, etc.). The covering support D is a stainless steel plate with KERDI laminated on the surface to allow for bonding of ceramic or stone tile, which creates a virtually invisible drainage line. KERDI-LINE is available in channel lengths from 20" to 72" (50 to 180 cm) in 4" (10 cm) increments. Please note that the bonding flange extends approximately 1" (2.5 cm) beyond the channel on all sides.

**Schluter®-KERDI-LINE-FC** is a stainless steel cover plate for use with KERDI-LINE to create a seamless look in applications where multiple drains are installed end-to-end. KERDI-LINE-FC features a brushed finish, and is designed for use with either the solid or perforated grates with brushed stainless steel frame.

### Material Properties and Areas of Application

KERDI-DRAIN drain casings are formed using ABS, PVC, or stainless steel 304 (1.4301 = V2A). Plastic drain casings feature a polypropylene fleece webbing. The KERDI-DRAIN adaptor kits feature adaptor rings made of stainless steel 304 (1.4301 = V2A) with thermoplastic rubber gaskets and adaptor flanges made of stainless steel 304 (1.4301 = V2A) or ABS. Drain grates are available in stainless steel 304 (1.4301 = V2A) and anodized aluminum. The covering support is stainless steel 304 (1.4301 = V2A) with KERDI laminated on the surface.

The KERDI-LINE channel body is formed using stainless steel 316 L (1.4404 = V4A) and features a bonding flange with a KERDI collar laminated on the surface. KERDI is a bonded waterproof membrane made of soft polyethylene, which is covered on

both sides with a special fleece webbing to anchor the membrane in the thin-set mortar. The frame and grates are made of stainless steel 316 L (1.4404 = V4A). The channel support is made of pressure-resistant, expanded polystyrene (EPS).

KERDI-DRAIN and KERDI-LINE are suitable for use in residential and commercial applications, including areas subject to foot and wheelchair traffic, such as showers and wet rooms in homes, hotels, schools, healthcare facilities, etc.

The KERDI-LINE-FC is roll-formed using stainless steel 316 L (1.4404 = V4A).

Stainless steel can sustain high mechanical stresses and is particularly suitable for applications requiring resistance against chemicals and acids. However, even stainless steel is not resistant to all chemical stresses, and may be affected by hydrochloric and hydrofluoric acid or certain chloride and brine concentrations, which may be present in detergents or swimming pools. In special cases, the suitability of the selected floor drainage system must be verified based on the anticipated chemical, mechanical, and/or other stresses.

Anodized aluminum retains a uniform appearance during normal use. The surface, however, is susceptible to scratching and wear and may be damaged by grout or setting material. Therefore, these materials must be removed immediately.

Various configurations of KERDI-DRAIN and KERDI-LINE are listed by UPC®, CSA, NSF and ICC-ES PMG.

**Note:** Product listings and certifications can be referenced on page 14.

### Installation

The installation instructions below represent the use of KERDI-DRAIN and KERDI-LINE in floor applications. Installation instructions for the use of KERDI-DRAIN and KERDI-LINE in shower applications can be found in the Schluter®-Shower System Installation Handbook.

### KERDI-DRAIN

#### Preparation

After locating the correct position, cut a hole in the substrate for the drain outlet and coupling to the waste line using the template provided. Note: Fill in box-outs

## FLOOR DRAINS

in concrete floors with dry-pack mortar. A pipe coupling or similar can be used as a form around the waste line. Select form to accommodate the drain outlet and mechanical no-hub coupling (when applicable). Limit the diameter of the hole to 5" (125 mm) maximum to ensure proper support of the tile assembly. A larger hole can lead to lack of support and damage the tile assembly (e.g., cracked grout around drain).

**Drain installation**Access to plumbing from below

If there is access to the plumbing from below and the waste line can be connected after installing KERDI-DRAIN, the drain can be installed in conjunction with the mortar bed.

1. Place a ring of loose mortar up to the inlet hole in the floor and firmly press the drain into the mortar. The bonding flange must be fully supported to prevent damage to the tile assembly (e.g., cracked grout around drain). When installing KERDI-DRAIN over wood substrates, the minimum thickness of mortar required at the perimeter of the bonding flange is 1" (25 mm).
2. The screed is then placed flush with the top of the bonding flange of the KERDI-DRAIN. Slope the mortar bed using the bonding flange and mortar screeds as guides.

No access to plumbing from below

When there is no access to the plumbing from below, install the KERDI-DRAIN to the appropriate height prior to the installation of the shower base.

1. Begin the drain installation by dry fitting the components. Measure and cut a section of pipe to connect the KERDI-DRAIN to the odor trap below the floor, using the foam spacers included with the drain as a spacer. When installing KERDI-DRAIN over wood substrates, the minimum thickness of mortar required at the perimeter of the bonding flange is 1" (25 mm).
2. Prepare the odor trap, cut section of pipe, and KERDI-DRAIN with cleaner, primer and ABS or PVC cement per the solvent cement manufacturer's instructions and connect.
3. Pack loose mortar under the drain up to the inlet hole to ensure solid and uniform support of the bonding flange.

The screed is then placed flush with the top of the bonding flange of the KERDI-DRAIN. Slope the mortar bed using the bonding flange and mortar screeds as guides.

Clamping ring drain already installed

If a clamping ring drain is already installed, the drain must be replaced with KERDI-DRAIN or converted using the KERDI-DRAIN adaptor kit.

1. If using the KERDI-DRAIN adaptor kit, remove the clamping ring from the installed drain and save the bolts for installation of the adaptor ring. Align the bolt pattern of the clamping ring with the matching punch-outs in the adaptor ring. Punch the matching inserts out through the stainless steel adaptor ring.
2. Apply a continuous 1/4" - 3/8" (6 - 10 mm) bead of KERDI-FIX to the underside of the adaptor ring. Align the holes in the adaptor ring with the bolt holes in the installed drain and place the adaptor ring on the installed drain flange. Re-insert and tighten the bolts using a star pattern. Bolts are to be finger-tight plus 1/4 turn; do not overtighten, as this may warp the adaptor ring and result in leaks.
3. Slide the adaptor flange into the adaptor ring and ensure full support under the adaptor flange with mortar. The screed is then placed flush with the top of the bonding flange of the KERDI-DRAIN. Slope the mortar bed using the bonding flange and mortar screeds as guides.

**Note:** Schluter®-Systems recommends a leak test be performed on the connection between the drain and the waste line prior to continuing with the remainder of the installation whenever possible.

Connection to waterproofing membranes

The KERDI or DITRA waterproofing membranes can be installed over the mortar bed as soon as it can be walked upon.

KERDI

1. Apply unmodified thin-set mortar to the bonding flange and surrounding mortar bed with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the KERDI-TROWEL, which features a 1/8" x 1/8" (3 x 3 mm) square-notched design. The thin-set mortar must be

mixed to a fairly fluid consistency, but still able to hold a notch.

**Note:** When using the stainless steel bonding flange, the membrane is bonded to the integrated bonding flange with KERDI-FIX adhesive/sealant. The stainless steel bonding flange must be clean and free of grease or other contaminants prior to KERDI-FIX application.

2. Embed KERDI in the bond coat and work the membrane onto the KERDI-DRAIN bonding flange and mortar bed with the flat side of the trowel to ensure full coverage and remove air pockets. The membrane is carried to the step in the bonding flange (template provided).

DITRA or DITRA-XL

1. DITRA or DITRA-XL is installed up to the outer edge of the KERDI-DRAIN bonding flange. Apply unmodified thin-set mortar to the mortar bed surrounding KERDI-DRAIN with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the DITRA-TROWEL, which features an 11/64" x 11/64" (4.5 x 4.5 mm) square-notched design. The thin-set mortar must be mixed to a fairly fluid consistency, but still able to hold a notch. Solidly embed the matting into the bond coat using a float, screed trowel, or DITRA-ROLLER.
2. DITRA or DITRA-XL is sealed to the KERDI-DRAIN bonding flange using a cut section of the KERDI membrane. Apply unmodified thin-set mortar to the bonding flange and surrounding membrane with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the KERDI-TROWEL, which features a 1/8" x 1/8" (3 x 3 mm) square-notched design. **Note:** When using the stainless steel bonding flange, the KERDI is bonded to the integrated bonding flange with KERDI-FIX adhesive/sealant. The stainless steel bonding flange must be clean and free of grease or other contaminants prior to KERDI-FIX application.
3. Embed a 20" x 20" (50 x 50 cm) cut section of KERDI in the bond coat and work the membrane onto the KERDI-DRAIN bonding flange and surrounding membrane to ensure full coverage and remove air pockets. The KERDI is carried to the step in the bonding flange (template provided) and must overlap the DITRA or DITRA-XL membrane by a minimum of 2" (50 mm).



## Grate assembly

### Grate

1. The grate assembly is installed in conjunction with the tile. Place the height adjustment collar inside the lateral adjustment ring and snap the grate into place.  
**Note:** For drains with 6" (150 mm) grates, the height adjustment collar is integrated with the grate. For the residential adaptor kit, there is no lateral adjustment ring.
2. Fill the step in the bonding flange with unmodified thin-set mortar and back-butter the underside of the grate to ensure full support. Press the assembly into the mortar and install the surrounding tiles, ensuring full coverage.
3. Position the grate to match the joint pattern of the tile covering and press flush with the tile surface. Remove all excess setting material.

**Note:** Protect the visible surface of the grate from contact with setting and grouting materials. In particular, anodized aluminum is sensitive to alkaline materials.

### Tileable Covering Support

1. The covering support is installed in conjunction with the tile. Place the tile spacer inside the lateral adjustment ring.
2. Fill the step in the bonding flange with thin-set mortar and press the assembly into the mortar. Install the surrounding tiles up to the tile spacer using unmodified thin-set mortar, ensuring full coverage. Set the tile to the integrated tabs on the lateral adjustment ring, which provide for a flush transition to the covering support. Remove all excess setting material. Position the tile spacer to match the joint pattern of the tile covering.
3. Apply tile to the top of the covering support using unmodified thin-set mortar. The tile is installed flush with all sides of the covering support to provide the drainage openings.
4. Once the assembly has been set and grouted, remove the tile spacer and insert the tiled covering support in the lateral adjustment ring.  
**Note:** For acid-resistant coverings, use an epoxy adhesive to set and grout the tile.

## KERDI-LINE

### Preparation

1. Any leveling of the floor must be done prior to the installation of the channel body. For installation adjacent to the wall, the channel body must be aligned in accordance with the thickness of the wall covering. For intermediate installation, use the supplied filling strip with peel-and-stick adhesive layer to make the channel support symmetrical.
2. KERDI-LINE can be installed in conjunction with the provided channel support as described below or set in loose mortar. KERDI-LINE is connected to the waste line with the appropriate mechanical no-hub coupling in accordance with the coupling manufacturer's instructions.

### Channel body installation

#### Access to plumbing from below

When there is access to the plumbing from below and the waste line can be connected after installing KERDI-LINE, the channel body may be set without making a connection to the waste line simultaneously.

1. Apply unmodified thin-set mortar to the substrate where the drain is to be placed with a notched trowel and solidly embed the channel support in the mortar.
2. Apply unmodified thin-set mortar to the top of the channel support with a notched trowel and press the channel body firmly into the mortar, ensuring full support of the bonding flange. Check to make sure the KERDI-LINE is level.

#### No access to plumbing from below

When there is no access to the plumbing from below, the channel body must be set and connected to the waste line simultaneously.

1. Begin the drain installation by dry fitting the components. Measure and cut a section of pipe to connect the coupling to the odor trap below the floor, using the channel support as a spacer.
2. Apply unmodified thin-set mortar to the top of the channel support with a notched trowel and press the channel support firmly onto the underside of the channel body. Attach the mechanical coupling to the drain outlet and the cut section of the pipe per the coupling manufacturer's instructions.

3. Apply unmodified thin-set mortar to the substrate where the drain is to be placed with a notched trowel. Prepare the cut section of pipe and odor trap with cleaner, primer and ABS or PVC cement per the solvent cement manufacturer's instructions.
4. Solidly embed the channel support and KERDI-LINE into the mortar on the floor and connect the cut section of pipe to the odor trap. Check to make sure the KERDI-LINE is level.
5. The screed is then placed flush with the top of the bonding flange of the KERDI-LINE. Slope the mortar bed using the bonding flange and mortar screeds as guides.

**Note:** KERDI-FIX or other adhesives that are compatible with EPS foam can be used to install the channel support and channel body as an alternative to thin-set mortar. Apply a generous bead of KERDI-FIX to the top and bottom of the channel support. The use of KERDI-FIX limits the ability to level KERDI-LINE.

**Note:** Schluter®-Systems recommends a leak test be performed on the connection between the drain and the waste line prior to continuing with the remainder of the installation whenever possible.

### Connection to waterproofing membranes

The KERDI or DITRA waterproofing membranes can be installed as soon as the mortar bed can be walked upon.

1. KERDI, DITRA or DITRA-XL is installed up to the outer edge of the KERDI-LINE bonding flange using unmodified thin-set mortar. The thin-set mortar must be mixed to a fairly fluid consistency, but still able to hold a notch.
  - a. KERDI: Apply unmodified thin-set mortar to the mortar bed surrounding KERDI-LINE with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the KERDI-TROWEL, which features a 1/8" x 1/8" (3 x 3 mm) square-notched design. Embed KERDI in the bond coat with the flat side of the trowel to ensure full coverage and remove air pockets.
  - b. DITRA: Apply unmodified thin-set mortar to the mortar bed surrounding KERDI-LINE with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the DITRA-TROWEL, which features an 11/64" x 11/64" (4.5 x 4.5 mm) square-notched design. Solidly embed the matting into the bond coat using a float, screed trowel, or DITRA-ROLLER.

## FLOOR DRAINS



2. Apply unmodified thin-set mortar to the membrane surrounding KERDI-LINE with a 1/4" x 3/16" (6 x 5 mm) V-notched trowel or the KERDI-TROWEL, which features a 1/8" x 1/8" (3 x 3 mm) square-notched design. Embed the KERDI collar in the bond coat to ensure full coverage and remove air pockets.

## Grate assembly

## Grate A and B

1. Apply unmodified thin-set mortar to the underside of the grate frame and place it in the channel body ensuring full coverage and support of the frame. Insert the foam spacers in the grate frame to reinforce it during the remainder of the installation.  
**Note:** The tape on the grate frame does not need to be removed. It is intended to help keep setting material out of the channel body during installation.
2. Insert the plastic height adjustment spacers with threaded bolts under the tabs along the inside of the grate frame to adjust the elevation of the frame such that the surface of the frame will be flush with the surface of the tile covering. The spacers may be adjusted simply by turning the bolts by hand.
3. Apply unmodified thin-set mortar to the substrate and install the tiles, ensuring full coverage. Once the tile covering is set and grouted, remove the spacers from the grate frame and insert the grate.

**Note:** Protect the visible surfaces of the grate frame and grate from contact with setting and grouting materials. Setting and grouting materials must be removed immediately.

## KERDI-LINE-FC

1. Install KERDI-LINE channel bodies end-to-end and overlap the KERDI collars using unmodified thin-set mortar to ensure a waterproof connection. KERDI-LINE-FC is subsequently installed in conjunction with the KERDI-LINE grate assembly and adjacent tiles.  
**Note:** KERDI-LINE-FC may be used with tiles that are 1/4" (6 mm) thick or greater.

2. Apply a sufficient amount of thin-set mortar to the substrate and/or the back of KERDI-LINE-FC and press the profile into the mortar until its surface is flush with the adjacent tile and grate assembly.
3. Leave a space of approximately 1/16" – 1/8" (1.5 – 3 mm).
4. Fill the joints completely with grout or setting material.

## Grate D

## Wall Installation

1. Peel protective foil off the cover strip and adhere the strip to the bonding flange adjacent to the wall(s). Position the strip along the edge of the channel. The cover strip hides and protects the KERDI surface under the tile.
2. Insert the tile spacers into the channel body. Install the surrounding tile on the adjoining walls and mortar bed up to the spacers using unmodified thin-set mortar, ensuring full coverage. Remove all excess setting material.
3. Apply tile to the top of the covering support using unmodified thin-set mortar. The tile is installed flush with the front side of the covering support to provide the drainage opening and overhanging the back side of the covering support to cover the bonding flange along the wall. Measure and cut the tile such that an approximate 1/16" (1 mm) gap is left at the wall. When the ends of the channel body are located adjacent to walls, the tile is installed overhanging the end of the plate to cover the bonding flange along the walls. Measure and cut the tile such that an approximate 1/16" (1 mm) gap is left at the walls.

**Note:** When the mortar bed is tiled beyond the ends of the channel, the tile on the ends of the covering support can be cut to either match the grout joints of the surrounding floor covering or to provide a perimeter drainage opening.

## Intermediate Installation

1. When the ends of the channel body are located adjacent to walls, peel protective foil off the cover strip and adhere the strip to the bonding flange adjacent to the walls. Position the

strip along the edge of the channel. The cover strip hides and protects the KERDI surface under the tile. When the mortar bed will be tiled beyond the ends of the channel, the cover strip is not required.

2. Insert the tile spacers into the channel body. Install the surrounding tile on the adjoining walls (if applicable) and mortar bed up to the spacers using unmodified thin-set mortar, ensuring full coverage. Remove all excess setting material.
3. Apply tile to the top of the covering support using thin-set mortar. The tile is installed flush with the front and back of the covering support to provide the drainage openings. When the ends of the channel body are located adjacent to walls, the tile is installed overhanging the end of the plate to cover the bonding flange along the wall. Measure and cut the tile such that an approximate 1/16" (1 mm) gap is left at the wall.

**Note:** When the mortar bed is tiled beyond the ends of the channel, the tile on the ends of the covering support can be cut to either match the grout joints of the surrounding floor covering or to provide perimeter drainage openings.

**Note:** For acid-resistant coverings, use an epoxy adhesive to set and grout the tile.

## Maintenance

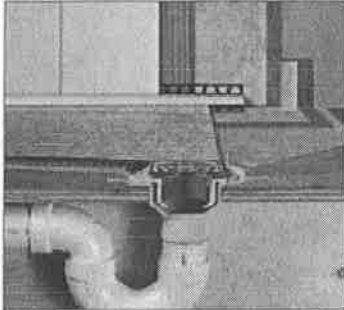
KERDI-DRAIN and KERDI-LINE require no special maintenance and are resistant to mold and fungi. The grate may be removed to clean the drain housing and the drain pipes.










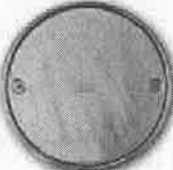



Clean the grates and profiles using common household cleaning agents. Stainless steel exposed to the environment or aggressive substances should be cleaned periodically using a mild household cleaner. Regular cleaning maintains the neat appearance of stainless steel and reduces the risk of corrosion. All cleaning agents must be free of hydrochloric and hydrofluoric acid. Stainless steel surfaces develop a sheen when treated with a chrome-polishing agent. Do not use abrasive or alkaline cleaning agents.



Product Item Numbers

8.2 Schluter®-KERDI-DRAIN



| 4" Grate Options   |  |  |
|--|--|--|
| Tileable Covering Support  | Anodized Aluminum  | Stainless Steel  |
|  <p>(ECS)<br/>Patent pending</p>    |  <p>Brushed nickel (ATGB)</p>  <p>Brushed copper/bronze (AKGB)</p>  <p>Brushed brass (AMGB)</p> |  <p>Oil-rubbed bronze (EOB)</p>  <p>Stainless steel (E)</p> |
| 6" Grate Options   |  |  |
| Stainless Steel  |  | Stainless Steel Cover for Cleanout Applications  |
|  <p>(6E)</p>    |  <p>(6RE)</p>  |  <p>(6CE)</p>  <p>(6RCE)</p>                             |
| Flange Options   |  |  |
| ABS - 2" or 3" Outlet  | PVC - 2" or 3" Outlet  | Stainless Steel - 2" or 3" No-hub Outlet   |
|  |    |    |

Note: Product listings and certifications can be referenced on page 14.



**DRAIN KITS - ABS or PVC FLANGE - 2" OR 3" OUTLET**

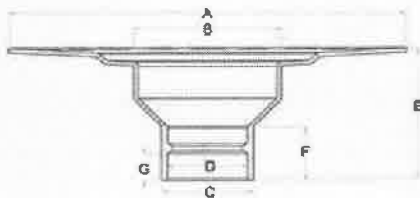
| Schluter®-KERDI-DRAIN - Components - ABS or PVC Flange |                  |  |                        |
|--|------------------|--|------------------------|
|  | Includes         | Description  | Quantity               |
|  | ① KERDI-DRAIN    | Drain, with integrated bonding flange and grate assembly | 1                      |
|  | ② KERDI-KERECK-F | Preformed waterproofing corners                          | 4 inside and 2 outside |
|  | ③ KERDI-SEAL-PS  | Pipe seal (3/4" - 20 mm)                                 | 1                      |
|  | ④ KERDI-SEAL-MV  | Mixing valve seal  | 1                      |

| 2" Drain Outlet                          |                           |                           |
|--|---------------------------|---------------------------|
|  | ABS flange                | PVC flange                |
| <b>4" (100 mm) Square Grate</b>          |                           |                           |
| Tileable covering support (ECS)*         | KD2/ABS/ECS <sup>2</sup>  | KD2/PVC/ECS <sup>2</sup>  |
| Stainless steel (E)                      | KD2/ABS/E <sup>1</sup>    | KD2/PVC/E <sup>1</sup>    |
| Oil-rubbed bronze stainless steel (EOB)  | KD2/ABS/EOB               | KD2/PVC/EOB               |
| Brushed brass anod. alu. (AMGB)          | KD2/ABS/AMGB <sup>1</sup> | KD2/PVC/AMGB <sup>1</sup> |
| Brushed copper/ bronze anod. alu. (AKGB) | KD2/ABS/AKGB <sup>1</sup> | KD2/PVC/AKGB <sup>1</sup> |
| Brushed nickel anod. alu. (ATGB)         | KD2/ABS/ATGB <sup>1</sup> | KD2/PVC/ATGB <sup>1</sup> |
| <b>6" (150 mm) Square or Round Grate</b> |                           |                           |
| Square grate stainless steel (6E)        | KD2/ABS/6E <sup>1</sup>   | KD2/PVC/6E <sup>1</sup>   |
| Round grate stainless steel (6RE)        | KD2/ABS/6RE <sup>1</sup>  | KD2/PVC/6RE <sup>1</sup>  |

| 3" Drain Outlet                          |                          |                          |
|--|--------------------------|--------------------------|
|  | ABS flange               | PVC flange               |
| <b>6" (150 mm) Square or Round Grate</b> |                          |                          |
| Square grate stainless steel (6E)        | KD3/ABS/6E <sup>1</sup>  | KD3/PVC/6E <sup>1</sup>  |
| Round grate stainless steel (6RE)        | KD3/ABS/6RE <sup>1</sup> | KD3/PVC/6RE <sup>1</sup> |

<sup>1</sup> Listed by UPCs, CSA, ICC-ES PMG, and NSF  
<sup>2</sup> Listed by CSA, ICC-ES PMG, and NSF. UPCs listing in progress.  
<sup>\*</sup> Patent pending

| Flange Measurements |                         |                         |
|---------------------|-------------------------|-------------------------|
| ABS or PVC          |                         |                         |
|                     | 2" (50 mm) drain outlet | 3" (75 mm) drain outlet |
| A                   | 11-13/16" - 300 mm      | 11-13/16" - 300 mm      |
| B                   | 4-17/32" - 115.2 mm     | 4-17/32" - 115.2 mm     |
| C                   | 2-45/64" - 68.6 mm      | 3-15/16" - 100 mm       |
| D                   | 2-3/8" - 60.5 mm        | 3-1/2" - 88.8 mm        |
| E                   | 3-15/16" - 100 mm       | 3-15/16" - 100 mm       |
| F                   | 1-39/64" - 40.6 mm      | 2" - 50.8 mm            |
| G                   | 7/8" - 22.5 mm          | 1-1/2" - 38.1 mm        |





**DRAIN KITS - STAINLESS STEEL FLANGE - 2" OR 3" NO-HUB OUTLET**

| Schluter®-KERDI-DRAIN - Components - Stainless Steel Flange |                  |  |                        |
|---|------------------|--|------------------------|
|   | Includes         | Description  | Quantity               |
|   | ① KERDI-DRAIN    | Drain, with integrated bonding flange and grate assembly | 1                      |
|   | ② KERDI-KERECK-F | Preformed waterproofing corners                          | 4 inside and 2 outside |
|   | ③ KERDI-SEAL-PS  | Pipe seal (3/4" - 20 mm)                                 | 1                      |
|   | ④ KERDI-SEAL-MV  | Mixing valve seal  | 1                      |
|   | ⑤ KERDI-FIX      | Sealing and bonding compound (66 ml)                     | 1                      |

| 2" No-hub Outlet                         |                         |
|--|-------------------------|
|  | Stainless steel flange  |
| 4" (100 mm) Square Grate                 |                         |
| Tileable covering support (ECS)*         | KD2/E/ECS <sup>2</sup>  |
| Stainless steel (E)                      | KD2/E/E <sup>1</sup>    |
| Oil-rubbed bronze stainless steel (EOB)  | KD2/E/EOB               |
| Brushed brass anod. alu. (AMGB)          | KD2/E/AMGB <sup>1</sup> |
| Brushed copper/ bronze anod. alu. (AKGB) | KD2/E/AKGB <sup>1</sup> |
| Brushed nickel anod. alu. (ATGB)         | KD2/E/ATGB <sup>1</sup> |
| 6" (150 mm) Square or Round Grate        |                         |
| Square grate stainless steel (6E)        | KD2/E/6E <sup>1</sup>   |
| Round grate stainless steel (6RE)        | KD2/E/6RE <sup>1</sup>  |

| 3" No-hub Outlet                  |                        |
|-----------------------------------|------------------------|
|                                   | Stainless steel flange |
| 6" (150 mm) Square or Round Grate |                        |
| Square grate stainless steel (6E) | KD3/E/6E <sup>1</sup>  |
| Round grate stainless steel (6RE) | KD3/E/6RE <sup>1</sup> |

<sup>1</sup> Listed by UPC®, CSA, ICC-ES PMG, and NSF  
<sup>2</sup> Listed by CSA, ICC-ES PMG, and NSF. UPC® listing in progress.  
<sup>\*</sup> Patent pending

| Flange Measurements |   |                                 |                                 |
|---------------------|---|---------------------------------|---------------------------------|
| Stainless steel     |   |                                 |                                 |
|                     |   | <b>2" (50 mm) no-hub outlet</b> | <b>3" (75 mm) no-hub outlet</b> |
|                     | A | 9-27/32" - 250 mm               | 9-27/32" - 250 mm               |
|                     | B | 4-1/2" - 115.4 mm               | 4-1/2" - 114 mm                 |
|                     | C | 2-13/32" - 61.3 mm              | 3-7/16" - 87.4 mm               |
|                     | D | 2-13/32" - 60.6 mm              | 3-5/16" - 84.2 mm               |
|                     | E | 3-11/32" - 85 mm                | 3-7/16" - 87.4 mm               |
|                     | F | 53/64" - 21 mm                  | 1-5/32" - 29.4 mm               |

FLOOR DRAINS



**GRATE & FLANGE KITS (sold separately)**

| Grate Kit - Components |  |                        |
|------------------------|--|------------------------|
|                        |  |                        |
| Patent pending         |  |                        |
| Includes               | Description  | Quantity               |
| 1) Grate Assembly      | a) For stainless steel and aluminum grates<br>b) For tileable covering support | 1                      |
| 2) KERDI-KERECK-F      | Preformed waterproofing corners  | 4 inside and 2 outside |
| 3) KERDI-SEAL-PS       | Pipe seal (3/4" - 20 mm)   | 1                      |
| 4) KERDI-SEAL-MV       | Mixing valve seal  | 1                      |

| Flange Kit - Components              |          |
|--------------------------------------|----------|
|                                      |          |
| Includes                             | Quantity |
| Drain with integrated bonding flange | 1        |

| Grate Kits                               |             |
|--|-------------|
| Finish                                   | Item No.    |
| <b>4" (100 mm) Square Grate</b>          |             |
| Tileable covering support (ECS)*         | KD2/ECS/GR  |
| Stainless steel (E)                      | KD2/E/GR    |
| Oil-rubbed bronze stainless steel (EOB)  | KD2/EOB/GR  |
| Brushed brass anod. alu. (AMGB)          | KD2/AMGB/GR |
| Brushed copper/ bronze anod. alu. (AKGB) | KD2/AKGB/GR |
| Brushed nickel anod. alu. (ATGB)         | KD2/ATGB/GR |
| <b>6" (150 mm) Square or Round Grate</b> |             |
| Square grate stainless steel (6E)        | KD2/6E/GR   |
| Round grate stainless steel (6RE)        | KD2/6RE/GR  |
| <b>6" (150 mm) Square or Round Cover</b> |             |
| Square cover stainless steel (6CE)       | KD-GR6C-E   |
| Round cover stainless steel (6RCE)       | KD-GR6RC-E  |

| Flange Kits                    |            |
|--------------------------------|------------|
| Material                       | Item No.   |
| <b>2" (50 mm) Drain Outlet</b> |            |
| ABS                            | KD2/ABS/FL |
| PVC                            | KD2/PVC/FL |
| Stainless Steel                | KD2/E/FL   |
| <b>3" (75 mm) Drain Outlet</b> |            |
| ABS                            | KD3/ABS/FL |
| PVC                            | KD3/PVC/FL |
| Stainless Steel                | KD3/E/FL   |

**i**

Please note that flanges with 3" outlets are intended for use with 6" grates as these combinations have listings and certifications while flanges with 3" outlet combined with 4" grates do not. Please refer to the table below.

**Note:** 6" square and round covers do not include the seals and corners.  
\* Patent pending



**DRAIN ADAPTOR KIT FOR USE WITH RESIDENTIAL CLAMPING RING DRAINS - ABS**

| Schluter®-KERDI-DRAIN with residential adaptor ring and ABS flange |                  |  |                        |
|--|------------------|--|------------------------|
|  | Includes         | Description  | Quantity               |
|  | ① KERDI-DRAIN    | Drain, with integrated bonding flange and grate assembly | 1                      |
|  | ② Adaptor ring*  | For residential clamping ring drains                     | 1                      |
|  | ③ KERDI-KERECK-F | Preformed waterproofing corners                          | 4 inside and 2 outside |
|  | ④ KERDI-SEAL-PS  | Pipe seal (3/4" - 20 mm)                                 | 1                      |
|  | ⑤ KERDI-SEAL-MV  | Mixing valve seal  | 1                      |
|  | ⑥ KERDI-FIX      | Sealing and bonding compound (66 ml)                     | 1                      |

\* ① Schluter-Systems LP., U.S. patent No. D593,641, other patents pending

| Residential Adaptor Kits - ABS Flange    |                    |
|--|--------------------|
|  | ABS bonding flange |
| 4" (100 mm) Square Grate                 |                    |
| Stainless steel (E)                      | KDAR/ABS/E         |
| Oil-rubbed bronze stainless steel (EOB)  | KDAR/ABS/EOB       |
| Brushed brass anod. alu. (AMGB)          | KDAR/ABS/AMGB      |
| Brushed copper/ bronze anod. alu. (AKGB) | KDAR/ABS/AKGB      |
| Brushed nickel anod. alu. (ATGB)         | KDAR/ABS/ATGB      |

| Flange and adaptor ring measurements - Residential |          |                    |
|--|----------|--------------------|
| ABS  |          |                    |
|  | Standard |                    |
|  | A        | 11-13/16" - 300 mm |
|  | B        | 2-13/32" - 60.7 mm |
|  | C        | 2.73" - 69.3 mm    |
|  | D        | 5-1/4" - 133.4 mm  |
|  | E        | 2-29/32" - 74 mm   |
|  | F        | 1-1/64" - 25.9 mm  |
|  | G        | 2-1/16" - 52.6 mm  |

FLOOR DRAINS



**DRAIN ADAPTOR KIT FOR USE WITH COMMERCIAL CLAMPING RING DRAINS - ABS**

| Schluter® KERDI-DRAIN with commercial adaptor ring and ABS flange |                                      |  |          |
|---|--------------------------------------|--|----------|
|   | Includes                             | Description  | Quantity |
|   | ① KERDI-DRAIN                        | Drain, with integrated bonding flange and grate assembly | 1        |
|   | ② Adaptor ring                       | For commercial clamping ring drains                      |          |
| ③ KERDI-FIX   | Sealing and bonding compound (66 ml) |  |          |

\* ① Schluter-Systems L.P., U.S. patent No. D593,641, other patents pending





| Commercial Adaptor Kits - ABS Flange     |                             |                             |
|--|-----------------------------|-----------------------------|
|  | Standard ABS bonding flange | Extended ABS bonding flange |
| <b>4" (100 mm) Square Grate</b>          |                             |                             |
| Tileable covering support (ECS)*         | KDA/ABS/ECS                 | KDA/ABSL/ECS                |
| Stainless steel (E)                      | KDA/ABS/E                   | KDA/ABSL/E                  |
| Oil-rubbed bronze stainless steel (EOB)  | KDA/ABS/EOB                 | KDA/ABSL/EOB                |
| Brushed brass anod. alu. (AMGB)          | KDA/ABS/AMGB                | KDA/ABSL/AMGB               |
| Brushed copper/ bronze anod. alu. (AKGB) | KDA/ABS/AKGB                | KDA/ABSL/AKGB               |
| Brushed nickel anod. alu. (ATGB)         | KDA/ABS/ATGB                | KDA/ABSL/ATGB               |
| <b>6" (150 mm) Square or Round Grate</b> |                             |                             |
| Square grate stainless steel (6E)        | KDA/ABS/6E                  | KDA/ABSL/6E                 |
| Round grate stainless steel (6RE)        | KDA/ABS/6RE                 | KDA/ABSL/6RE                |


\* Patent pending

| Flange and adaptor ring measurements - Commercial |          |                     |                     |
|---|----------|---------------------|---------------------|
| ABS   |          |                     |                     |
|   | Standard | Extended            |                     |
|   | A        | 11-13/16" - 300 mm  | 11-13/16" - 300 mm  |
|   | B        | 4-13/32" - 111.8 mm | 4-13/32" - 111.8 mm |
|   | C        | 4-11/16" - 118.9 mm | 4-11/16" - 118.9 mm |
|   | D        | 7-1/2" - 191 mm     | 7-1/2" - 191 mm     |
|   | E        | 5-7/64" - 130 mm    | 5-7/64" - 130 mm    |
|   | F        | 1-9/16" - 39.7 mm   | 3-1/16" - 77.8 mm   |
|   | G        | 2-9/64" - 54.3 mm   | 3-41/64" - 92.4 mm  |



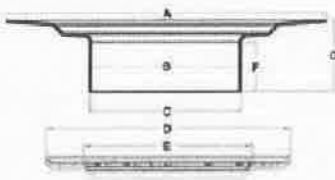
**DRAIN ADAPTOR KIT FOR USE WITH COMMERCIAL CLAMPING RING DRAINS - STAINLESS STEEL**

| Schluter®-KERDI-DRAIN with commercial adaptor ring and stainless steel flange     |  |  |          |
|---|--|--|----------|
|  | Includes   | Description  | Quantity |
|  |  KERDI-DRAIN  | Drain, with integrated bonding flange and grate assembly | 1        |
|   |  Adaptor ring | For commercial clamping ring drains                      |          |
|   |  KERDI-FIX    | Sealing and bonding compound (66 ml)                     |          |

\*  Schluter-Systems L.P., U.S. patent No. D593,841, other patents pending

| Commercial Adaptor Kits - Stainless Steel Flange |                                |
|--|--------------------------------|
|  | Stainless steel bonding flange |
| <b>4" (100 mm) Square Grate</b>                  |                                |
| Tileable covering support (ECS)*                 | KDA/E/ECS                      |
| Stainless steel (E)                              | KDA/E/E                        |
| Oil-rubbed bronze stainless steel (EOB)          | KDA/E/EOB                      |
| Brushed brass anod. alu. (AMGB)                  | KDA/E/AMGB                     |
| Brushed copper/ bronze anod. alu. (AKGB)         | KDA/E/AKGB                     |
| Brushed nickel anod. alu. (ATGB)                 | KDA/E/ATGB                     |
| <b>6" (150 mm) Square or Round Grate</b>         |                                |
| Square grate stainless steel (6E)                | KDA/E/6E                       |
| Round grate stainless steel (6RE)                | KDA/E/6RE                      |

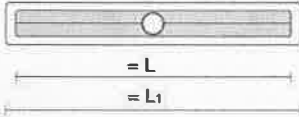
\* Patent pending

| Flange and adaptor ring measurements - Commercial                                   |          |                     |
|---|----------|---------------------|
| Stainless steel   |          |                     |
|  | Standard |                     |
|   | A        | 9-27/32" - 250 mm   |
|   | B        | 4-9/16" - 115.7 mm  |
|   | C        | 4-11/16" - 118.7 mm |
|   | D        | 7-1/2" - 191 mm     |
|   | E        | 5-7/64" - 130 mm    |
|   | F        | 1-9/16" - 39.7 mm   |
|   | G        | 2-3/16" - 56.5 mm   |

FLOOR DRAINS

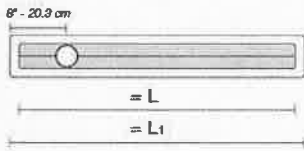


**Note:** There are multiple selections to be made for this product. Start by selecting the appropriate flange length then proceed to grate selection accordingly, keeping in mind there are two frame heights with two grate options (A or B), and a frameless option (D).



**8.7 Schluter®-KERDI-LINE** Bonding flange - stainless steel - center outlet

| L =<br>in. - cm | L <sub>1</sub> =<br>in. - cm | Item No.     |
|-----------------|------------------------------|--------------|
| 20 - 50         | 22 - 55                      | KLV 60 E 50  |
| 24 - 60         | 26 - 65                      | KLV 60 E 60  |
| 28 - 70         | 30 - 75                      | KLV 60 E 70  |
| 32 - 80         | 34 - 85                      | KLV 60 E 80  |
| 36 - 90         | 38 - 95                      | KLV 60 E 90  |
| 40 - 100        | 42 - 105                     | KLV 60 E 100 |
| 44 - 110        | 46 - 115                     | KLV 60 E 110 |
| 48 - 120        | 50 - 125                     | KLV 60 E 120 |
| 52 - 130        | 54 - 135                     | KLV 60 E 130 |
| 56 - 140        | 58 - 145                     | KLV 60 E 140 |
| 60 - 150        | 62 - 155                     | KLV 60 E 150 |
| 64 - 160        | 66 - 165                     | KLV 60 E 160 |
| 68 - 170        | 70 - 175                     | KLV 60 E 170 |
| 72 - 180        | 74 - 185                     | KLV 60 E 180 |



**8.7 Schluter®-KERDI-LINE** Bonding flange - stainless steel - off-center outlet

| L =<br>in. - cm | L <sub>1</sub> =<br>in. - cm | Item No.      |
|-----------------|------------------------------|---------------|
| 28 - 70         | 30 - 75                      | KLVO 60 E 70  |
| 32 - 80         | 34 - 85                      | KLVO 60 E 80  |
| 36 - 90         | 38 - 95                      | KLVO 60 E 90  |
| 40 - 100        | 42 - 105                     | KLVO 60 E 100 |
| 44 - 110        | 46 - 115                     | KLVO 60 E 110 |
| 48 - 120        | 50 - 125                     | KLVO 60 E 120 |

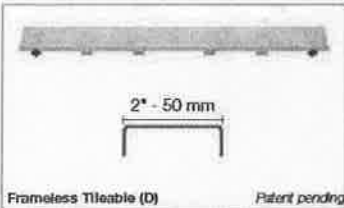
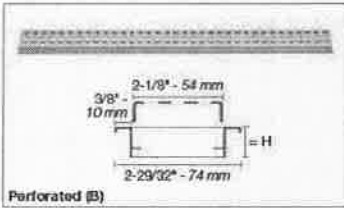
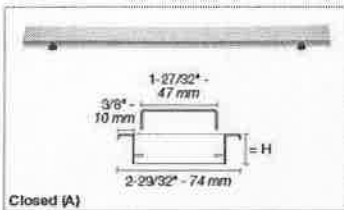
**Note :** Please see page 14 for listings and certifications.



**14.1 Schluter®-KERDI-LINE-FC** Cover plate

| Item No.    | Width          |
|-------------|----------------|
| V / KLEB 35 | 1-3/8" - 35 mm |





**3.7 Schluter®-KERDI-LINE** Grate assemblies

| Length =<br>in. - cm  | Item No.       |                | Item No.                                |                |
|---|----------------|----------------|---|----------------|
|   | Closed (A)     | Perforated (B) | Frameless Tileable (D) - Patent pending |                |
|   |                |                | Center outlet                           | Off-set outlet |
| <b>3/4" - 19 mm frame height for 1/8" to 9/16" - 3 mm to 15 mm -thick coverings</b> |                |                |   |                |
| 20 - 50   | KLAR 19 EB 50  | KLB 19 EB 50   | KLDRE 50                                | -              |
| 24 - 60   | KLAR 19 EB 60  | KLB 19 EB 60   | KLDRE 60                                | -              |
| 28 - 70   | KLAR 19 EB 70  | KLB 19 EB 70   | KLDRE 70                                | KLDRO E 70     |
| 32 - 80   | KLAR 19 EB 80  | KLB 19 EB 80   | KLDRE 80                                | KLDRO E 80     |
| 36 - 90   | KLAR 19 EB 90  | KLB 19 EB 90   | KLDRE 90                                | KLDRO E 90     |
| 40 - 100  | KLAR 19 EB 100 | KLB 19 EB 100  | KLDRE 100                               | KLDRO E 100    |
| 44 - 110  | KLAR 19 EB 110 | KLB 19 EB 110  | KLDRE 110                               | KLDRO E 110    |
| 48 - 120  | KLAR 19 EB 120 | KLB 19 EB 120  | KLDRE 120                               | KLDRO E 120    |
| 52 - 130  | KLAR 19 EB 130 | KLB 19 EB 130  | KLDRE 130                               | -              |
| 56 - 140  | KLAR 19 EB 140 | KLB 19 EB 140  | KLDRE 140                               | -              |
| 60 - 150  | KLAR 19 EB 150 | KLB 19 EB 150  | KLDRE 150                               | -              |
| 64 - 160  | KLAR 19 EB 160 | KLB 19 EB 160  | KLDRE 160                               | -              |
| 68 - 170  | KLAR 19 EB 170 | KLB 19 EB 170  | KLDRE 170                               | -              |
| 72 - 180  | KLAR 19 EB 180 | KLB 19 EB 180  | KLDRE 180                               | -              |

| <b>1-1/8" - 30 mm frame height for 1/2" to 1" - 13 mm to 25 mm -thick coverings</b> |                |               |          |          |
|---|----------------|---------------|----------|----------|
| Length  | Item No.       | Item No.      | Item No. | Item No. |
| 20 - 50   | KLAR 30 EB 50  | KLB 30 EB 50  |          |          |
| 24 - 60   | KLAR 30 EB 60  | KLB 30 EB 60  |          |          |
| 28 - 70   | KLAR 30 EB 70  | KLB 30 EB 70  |          |          |
| 32 - 80   | KLAR 30 EB 80  | KLB 30 EB 80  |          |          |
| 36 - 90   | KLAR 30 EB 90  | KLB 30 EB 90  |          |          |
| 40 - 100  | KLAR 30 EB 100 | KLB 30 EB 100 |          |          |
| 44 - 110  | KLAR 30 EB 110 | KLB 30 EB 110 |          |          |
| 48 - 120  | KLAR 30 EB 120 | KLB 30 EB 120 |          |          |

**Note:** The perforated grate (B) is also available with a locking mechanism to prevent removal of the grate, for more info contact customer service at 1-800-472-4588 (US) or 1-800-667-8746 (CANADA).

**Product Listings and Certifications Table**

| <b>Schluter®-KERDI-DRAIN</b>                |                     |     |      |      |      |      |                     |     |     |      |
|---|---------------------|-----|------|------|------|------|---------------------|-----|-----|------|
| Bonding Flange 2" (50 mm) Outlet            | Grate - 4" (100 mm) |     |      |      |      |      | Grate - 6" (150 mm) |     |     |      |
|   | E                   | EOB | AMGB | AKGB | ATGB | ECS* | 6E                  | 6RE | 6CE | 6RCE |
| ABS / PVC                                   | 1                   | -   | 1    | 1    | 1    | 2    | 1                   | 1   | 3   | 3    |
| Stainless steel                             | 1                   | -   | 1    | 1    | 1    | 2    | 1                   | 1   | 3   | 3    |
| Bonding Flange 3" (75 mm) Outlet            | Grate - 6" (150 mm) |     |      |      |      |      |                     |     |     |      |
|   | 6E                  |     | 6RE  |      | 6CE  |      | 6RCE                |     |     |      |
| ABS / PVC                                   | 1                   |     | 1    |      | 3    |      | 3                   |     |     |      |
| Stainless steel                             | 1                   |     | 1    |      | 3    |      | 3                   |     |     |      |
| <b>Schluter®-KERDI-LINE</b>                 |                     |     |      |      |      |      |                     |     |     |      |
| Bonding Flange                              | Grate               |     |      |      |      |      |                     |     |     |      |
|   | A                   |     | B    |      | D*   |      |                     |     |     |      |
| Center outlet - 20" - 48" (50 cm - 120 cm)  | 1                   |     | 1    |      | 1    |      |                     |     |     |      |
| Center outlet - 52" - 72" (130 cm - 180 cm) | 2                   |     | 2    |      | 2    |      |                     |     |     |      |
| Off-set outlet - 28" - 48" (70 cm - 120 cm) | 2                   |     | 2    |      | 2    |      |                     |     |     |      |

Various configurations of KERDI-DRAIN and KERDI-LINE are listed by UPC®, CSA, ICC-ES PMG, and NSF as shown in the table above.

- 1 - Listed by UPC®, CSA, NSF, and ICC-ES PMG
- 2 - Listed by CSA, NSF, and ICC-ES PMG. UPC® listing in progress.
- 3 - Listed by CSA

\* Patent pending

For copies of these documents, please contact Schluter®-Systems at 800-472-4588 (USA) or 800-667-8746 (Canada) or by email at [info@schluter.com](mailto:info@schluter.com). Links to the documents can also be accessed at [www.schluter.com](http://www.schluter.com).



## Schluter®-Systems Floor Drains 10-Year Limited Warranty

**COVERAGE AND CONDITIONS:** Subject to the conditions and limitations as stated hereinafter, Schluter Systems® warrants that Schluter®-KERDI-DRAIN or Schluter®-KERDI-LINE (the "Product") will be free from manufacturing defects, and will not rot, deteriorate or break down under normal use for a period of ten (10) years from the date of purchase only when the Product is used and installed in accordance with the terms and conditions of the Schluter®-Systems Floor Drains Technical Data Sheet and industry standard guidelines that are not in conflict with the Data Sheet in effect at the time of installation. It is the responsibility of the owner/ builder/ installer to ensure the suitability of all building materials and all associated building materials for the owner's intended use. It is recommended that the owner consult with an experienced and professional installer.

**RESOLUTION:** If the Product fails to meet this warranty, then the owner's exclusive remedy and the sole obligation of Schluter-Systems, at its election, shall be to a) replace the failed Product or b) pay an amount not to exceed the original cost of the Product verified to be defective. When Schluter®-KERDI-DRAIN or Schluter®-KERDI-LINE is installed in conjunction with Schluter®-DITRA or Schluter®-KERDI, the assembly qualifies for the Schluter®-DITRA & Schluter®-DITRA-XL 10-Year Limited Warranty, Schluter®-KERDI & Schluter®-KERDI-DS 10-Year Limited Warranty, or Schluter®-Shower System 10-Year Limited Warranty. The warranties referenced above cover the entire covering assembly. Refer to the Schluter®-DITRA Installation Handbook, Schluter®-Waterproofing Membranes Technical Data Sheet, and Schluter®-Shower System Installation Handbook for details and applicable warranty information.

**DISCLAIMER:** THERE ARE NO WARRANTIES BEYOND THIS EXPRESSED WARRANTY AS STATED ABOVE. ALL OTHER WARRANTIES, REPRESENTATIONS OR CONDITIONS, EXPRESSED OR IMPLIED, ARE DISCLAIMED AND EXCLUDED, INCLUDING WARRANTIES, REPRESENTATIONS OR CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARISING BY STATUTE OR OTHERWISE BY LAW OR FROM A COURSE OF DEALING OR USAGE OF TRADE. SCHLUTER-SYSTEMS EXCLUDES AND IN NO EVENT SHALL HAVE ANY LIABILITY FOR LOST PROFITS OR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES, ARISING OUT OF OR OTHERWISE CONNECTED TO FAILURE OF THE PRODUCT OR TILE ASSEMBLY OF WHICH IT IS PART, NOR MISUSE OF THE PRODUCT OR TILE ASSEMBLY, REGARDLESS OF ANY STRICT LIABILITY, ACTIVE OR PASSIVE NEGLIGENCE OF SCHLUTER-SYSTEMS, AND REGARDLESS OF THE LEGAL THEORY (CONTRACT OR TORT OR EXTRA-CONTRACTUAL OR OTHER), NOR FROM ACTS OF WAR, TERRORISM, FAULTY AND NEGLIGENT PENETRATION OF THE SYSTEM, FIRES, EXPLOSIONS, ACTS OF GOD, INTENTIONAL ACTS OF DESTRUCTION OR ANY LOSSES DUE TO STRUCTURAL FAILURE OR OTHER CAUSES UNRELATED TO THE PRODUCT OR DELAYS, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS WARRANTY IS GIVEN IN LIEU OF ANY OTHER WARRANTY EXPRESSED OR IMPLIED. THE REMEDIES CONTAINED HEREIN ARE THE ONLY REMEDIES AVAILABLE FOR BREACH OF THIS WARRANTY. THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS; SOME STATES AND PROVINCES DO NOT ALLOW DISCLAIMERS OR OTHER RESTRICTIONS OF IMPLIED WARRANTIES, SO SOME OF THE ABOVE DISCLAIMERS MAY NOT APPLY TO YOU.

**TRANSFERABILITY:** This Limited Warranty extends ONLY to the original end user (defined as original intended owner and user of the property/unit in which the installation is incorporated - herein referred to as "Owner") and is not transferable or assignable, unless approved in writing by the Technical Director or an Officer of Schluter-Systems or otherwise prohibited by specific state or provincial law.

**MODIFICATIONS TO WARRANTY:** No changes or modification of any terms or conditions of this warranty are allowed unless authorized by written agreement and signed by the Technical Director or an Officer of Schluter-Systems.

**EFFECTIVE DATE:** This warranty shall supersede and replace any and all prior oral or written warranties, agreements, or other such representations made by or on behalf of Schluter-Systems relative to the Product or the application of the Product and shall apply to any installation occurring on or after January 1, 2013.

**CLAIMS ON THIS LIMITED WARRANTY:** To make a claim under this Limited Warranty, the Owner must provide Schluter-Systems with written notice within 30 days of any alleged defect in the Product covered by this Limited Warranty, together with date and proof of purchase of the Product, proof of the costs of the original installation and name and address of all installers, failing which this Limited Warranty shall be of no legal effect. Schluter-Systems reserves the right at its election and as a condition of this Limited Warranty to inspect the alleged failed and defective condition.

All U.S. Claims shall be sent to:

Schluter Systems L.P.  
Attn: Warranty Claims Dept.  
194 Pleasant Ridge Road  
Plattsburgh, NY 12901-5841

All Canadian Claims shall be sent to:

Schluter Systems (Canada), Inc.  
Attn: Warranty Claims Dept.  
21100 chemin Ste-Marie  
Ste-Anne-de-Bellevue, QC H9X 3Y8

\*For the purpose of this warranty Schluter Systems, L.P. shall provide the warranty for all products for end users located in the United States, and Schluter Systems (Canada) Inc. shall provide the warranty for all products for end users located in Canada. This warranty is limited to sales of the Product made in and intended for use in the United States and Canada.







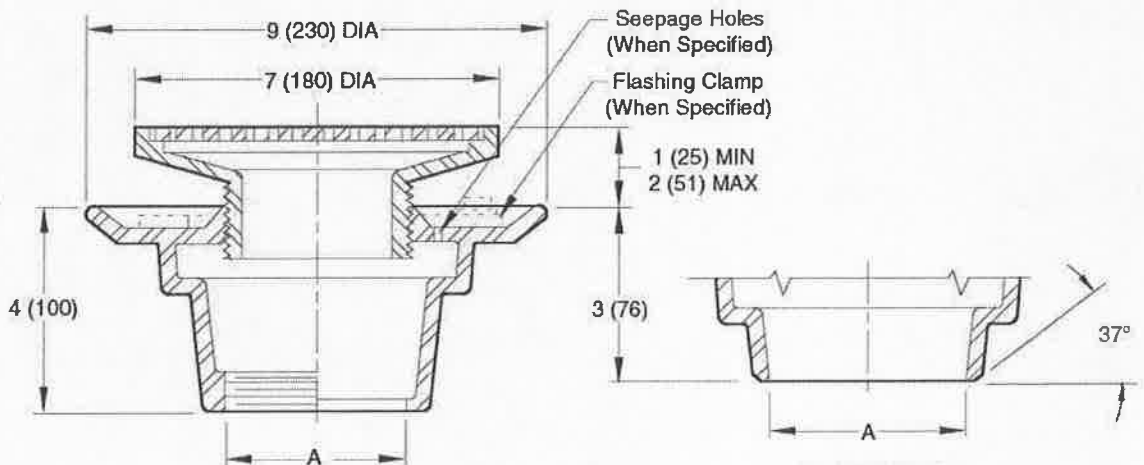
Schluter Systems L.P. • 194 Pleasant Ridge Road, Plattsburgh, NY 12901-5841 • Tel.: 800-472-4588 • Fax: 800-477-9783  
Schluter Systems (Canada) Inc. • 21100 chemin Ste-Marie, Ste-Anne-de-Bellevue, QC H9X 3Y8 • Tel.: 800-667-8746 • Fax: 877-667-2410  
info@schluter.com

[www.schluter.com](http://www.schluter.com)

All product names are registered trademarks of Schluter Systems K.G. and licensed to Schluter Systems L.P.

© 2013 Schluter Systems L.P.

555873 10/2013

|                      |   |   |  |                         |                      |                  |                      |                                  |
|----------------------|---|---|--|-------------------------|----------------------|------------------|----------------------|----------------------------------|
| <b>K</b>             |  |      | <b>LOCATION</b><br><br>SIZE & OUTLET SPECIFIED<br>WHEN ORDERING            |                         |                      |                  |                      |                                  |
|                      | DRAWING NUMBER<br>S9700   | <h2 style="margin: 0;">FLOOR DRAINS</h2> <h3 style="margin: 0;">STAINLESS STEEL - CARBON STEEL</h3> <h4 style="margin: 0;">ADJUSTABLE STRAINER HEAD</h4> <p style="margin: 5px 0;"><b>FUNCTION:</b> General service floor drain for use in finished areas where a corrosion resistant drain is required.</p>  |  |                         |                      |                  |                      |                                  |
| <b>A</b>             | SCALE:<br>NONE  | <p>Free Area<br/>12.50 SQ IN<br/>(81) SQ CM</p>    |  |                         |                      |                  |                      |                                  |
| <b>TD</b>            | DATE:<br>11-12-84   | <p>A (Pipe Size) = 02(50), 03(75) or 04(100)</p> <p><input type="checkbox"/> Fig. 9700C . . . . CAULK OUTLET<br/> <input type="checkbox"/> Fig. 9700T . . . . THREADED OUTLET</p>   |  |                         |                      |                  |                      |                                  |
| <b>VGD</b>           | APPROVED BY:<br>CHECKED BY:   | <p><b>Design Pressures and Temperatures</b></p> <ol style="list-style-type: none"> <li>1. With proper outlet connection, shall be watertight up to 10 ft. of water column (4.34 psig).</li> <li>2. When exposed to effluent appropriate for drain material, the drain shall withstand effluent temperatures of 180 degrees F at ambient pressure.</li> </ol>  |  |                         |                      |                  |                      |                                  |
| <b>PJ</b>            | DRAWN BY:<br>PJ   | <p><b>REGULARLY FURNISHED:</b> CF8 (Equivalent to Type 304) Rough Finish Stainless Steel Body and Round Adjustable Strainer Head with Satin Finished Top.</p> <p><b>VARIATIONS:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Flashing Clamp with Seepage Holes -C</li> <li><input checked="" type="checkbox"/> Seepage Holes -WSH</li> <li><input checked="" type="checkbox"/> Solid Cover -SC</li> <li><input checked="" type="checkbox"/> Vandal Proof Grate -U</li> <li><input type="checkbox"/> 4(100) or 6*(150) Dia. Funnel (Specify Fig. 9703)</li> <li><input type="checkbox"/> 8 3/4(220) x 3 3/4*(95) Funnel (Specify Fig. 9704)</li> <li><input type="checkbox"/> 90° Outlet (Specify Fig. 9759)</li> <li><input type="checkbox"/> BW Butt Weld Outlet (Specify Schedule -S05, -S10 or -S40)</li> </ul> <p><b>OPTIONAL MATERIALS:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A-27 Carbon Steel -A27</li> <li><input type="checkbox"/> CF8M (Equivalent To Type 316) Stainless Steel -316</li> <li><input type="checkbox"/> Nickel Bronze Strainer -NB</li> </ul> <p><b>NOTE:</b> Dimensions shown in parentheses are in millimeters.</p> |  |                         |                      |                  |                      |                                  |
| <b>9700</b>          | DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE       |   |  |                         |                      |                  |                      |                                  |
| <b>REV.</b>          | DATE  | DESCRIPTION   | BY   | CKD. BY                 |                      |                  |                      |                                  |
| <b>FIGURE NUMBER</b> | K<br>J<br>H<br>G  | 10-17-11<br>9-19-11<br>4-28-06<br>11-2-05   | Added Note<br>Revised Function, Text<br>Revised Variations<br>Removed Note | TBW<br>TBW<br>RN<br>TBW | CL<br>CL<br>CL<br>CL | WEIGHT<br>POUNDS | VOLUME<br>CUBIC FEET | FIGURE NUMBER<br><br><b>9700</b> |

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3037  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8230 FAX: 334-272-7306 www.jrsmith.com

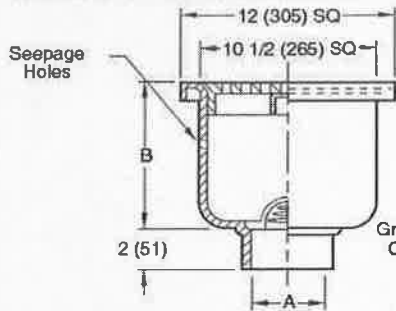


LOCATION

SIZE & OUTLET SPECIFIED  
 WHEN ORDERING

**SANI-CEPTOR® STAINLESS STEEL FLOOR, AREA & INDIRECT WASTE DRAINS WITH 12" (304) STAINLESS STEEL SQUARE TOPS**

**FUNCTION:** Used in all locations where superior sanitation, corrosion resistance, durability and longevity are required. Essential in restaurants, kitchens and all types of food handling areas for ultimate sanitation. Ideal for breweries, dairies, creameries and similar processing plants where sanitation is paramount. Also suitable for use in nuclear and fossil fuel power stations, chemical plants, laboratories and other areas where the corrosion-resistance of type 304 stainless steel is satisfactory for the intended service.

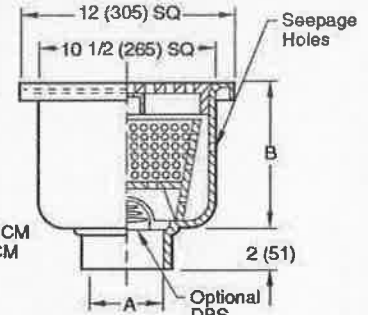


WITH DOME BOTTOM STRAINER

| W/Dome Strainer | *B* DIM | Approx Wt. Lbs. | W/Sediment Bucket |
|-----------------|---------|-----------------|-------------------|
| 3001            | 4(100)  | 14              | 3006              |
| 3002            | 6(150)  | 17              | 3007              |
| 3003            | 8(205)  | 20              | 3008              |
| 3004            | 10(255) | 23              | 3009              |

Grates w/1/2" (13) holes - Free Area 34 SQ IN (219) SQ CM  
 Optional Grates w/1/4" (6) holes - 18 SQ IN (116) SQ CM

A (Pipe Size) = 02(50), 03(80) or 04(100)  
 Y NO-HUB Outlet



WITH SEDIMENT BUCKET

**FEATURES, OPTIONS AND ORDERING INFORMATION**

**REGULARLY FURNISHED:** 14 Gauge Type 304 SS Receptor Body with Seepage Control Holes, Cast Type 316 SS Ribbed Non-Tilt Loose Set Grate with 1/2" (13) Square Holes. Perforated SS Dome Bottom Strainer or Sediment Bucket as indicated by Figure Number. Body Rim and Grate are polished to No. 4 finish.

- VARIATIONS:**
- BW Butt Weld Outlet (Specify Schedule -S05, -S10 or -S40)
  - Less Seepage Control Holes -LSH
  - T Male Threaded Connection
  - Trap Primer Connection -P050 1/2"(13) & -P075 3/4"(19)
  - \*With Anchor Flange -F
  - \*With Flange and Flashing Clamp -F-C

- Bucket Models Only:**
- With SS Dome Bottom Strainer -DBS
  - With SS Solid Bottom Ported Bucket -SBP

- OPTIONAL MATERIALS:**
- Drains: Fabricated from Type 316 Stainless Steel
  - Funnel: Type 304 Stainless Steel
  - Funnel: Type 316 Stainless Steel

**NOTE:** When determining location of this drain, consideration must be given to traffic loading factors. When used in areas where the drain is subjected to any traffic loading heavier than pedestrian foot traffic, the location, load and description of load shall be submitted to Jay R. Smith's Sales Engineering Department for evaluation and selection of proper grate.

**NOTE:** Dimensions shown in parentheses are in millimeters.

**OPTIONAL TOP GRATES AND COVERS**

- | SUFFIX                       | DESCRIPTION   |
|------------------------------|---|
| <input type="checkbox"/> -10 | Less SS Grate   |
| <input type="checkbox"/> -12 | With SS 1/2 Grate   |
| <input type="checkbox"/> -13 | With SS 3/4 Grate   |
| <input type="checkbox"/> -14 | With SS 2 1/2" (64) SQ Center Hole Grate                                    |
| <input type="checkbox"/> -15 | With SS Recessed Grate with Handle  |
| <input type="checkbox"/> -18 | With NB Rim and Angle Grate   |
| <input type="checkbox"/> -21 | With SS Grate with 4" (100) DIA NB Funnel                                   |
| <input type="checkbox"/> -22 | With SS Grate with 6" (150) DIA NB Funnel                                   |
| <input type="checkbox"/> -25 | With SS Grate with 8 1/4(210) x 3 1/4(83) x 4 1/2"(115) High Oval NB Funnel |
| <input type="checkbox"/> -26 | With SS Grate with 6(150) x 2 1/2(64) x 1"(25) High Oval NB Funnel          |
| <input type="checkbox"/> -41 | With SS Solid Cover   |
| <input type="checkbox"/> -42 | With SS 1/2 Solid Cover   |
| <input type="checkbox"/> -43 | With SS 3/4 Solid Cover   |
| <input type="checkbox"/> -44 | With SS 2 1/2" (64) SQ Center Hole Solid Cover                              |

- | SUFFIX                       | DESCRIPTION  |
|------------------------------|--|
| <input type="checkbox"/> -61 | With SS Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4" (6) SQ Holes.                     |
| <input type="checkbox"/> -63 | With SS Medium Duty Heel-Proof Ribbed Non-Tilt Loose Set Grate with 1/4" (6) SQ Holes.         |
| <input type="checkbox"/> -64 | With SS Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2" (13) SQ Holes.                    |
| <input type="checkbox"/> -66 | With SS Extra Heavy Duty Ribbed Non-Tilt Loose Set Grate with 1/2" (13) SQ Holes.              |
| <input type="checkbox"/> -68 | With SS Extra Heavy Duty Ribbed Non-Tilt Loose Set 3/4 Grate with 1/2" (13) SQ Holes.          |
| <input type="checkbox"/> -69 | With 1" (25) Thick Underbolted NB Rim and Extra Heavy Duty Cast Stainless Steel Secured Grate. |

\*Flange is Located 2" (51) from Top of Drain 3" (76) When Specified

| REV. | DATE     | DESCRIPTION                 | BY | CKD. BY | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER      |
|------|----------|-----------------------------|----|---------|---------------|-------------------|--------------------|
| S    | 7-10-09  | Revised Regularly Furnished | RN | CL      |               |                   | <b>3001-Series</b> |
| R    | 12-13-06 | Revised Variations          | RN | CL      |               |                   |                    |
| Q    | 4-28-06  | Chg'd Variations            | RN | CL      |               |                   |                    |
| P    | 5-30-03  | Chg'd (305) SS to (304) SS  | RN | AM      |               |                   |                    |

DRAWING NUMBER: S3001  
 SIZE: A  
 SCALE: NONE  
 DATE: 5-4-82  
 APPROVED BY: JM  
 CHECKED BY: KH  
 DRAWN BY: CR  
**3001-Series**  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE  
 WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA



**JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7298 www.jrsmith.com

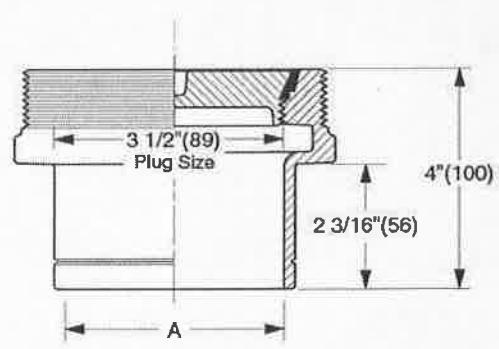


LOCATION

## FLOOR CLEANOUTS FOR UNFINISHED FLOORS

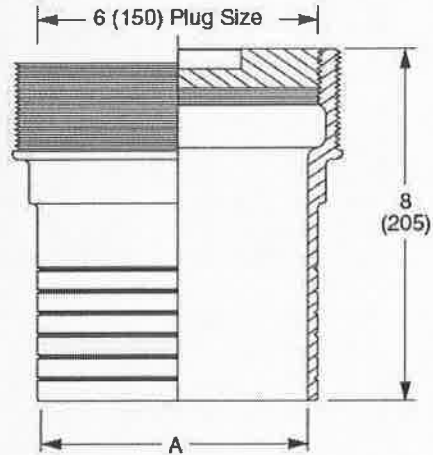
### CLEANOUT BODIES WITH CLOSURE PLUG

**FUNCTION:** Used where extension type cleanout is required. Not recommended for installation in floors or areas subjected to traffic unless access cover is provided.



NO-HUB OUTLET

\*A" (Pipe Size) = 02(50), 03(75), 04(100) or 05(125)



SPIGOT OUTLET ▲

\*A" (Pipe Size) = 06(150) & 08(200)

▲ Sized for Service Weight and/or NO-HUB.

**NO-HUB OUTLET**

- Fig. 4280S.....Gasket Seal - ABS Plug
- Fig. 4281S.....Gasket Seal - Bronze Plug
- Fig. 4283S.....Taper Thread - Bronze Plug
- Fig. 4284S.....Taper Thread - ABS Plug

**SPIGOT OUTLET ▲**

- Fig. 4283S.....Taper Thread - Bronze Plug

**REGULARLY FURNISHED:**  
 Duco Cast Iron Cleanout with Closure Plug Type as Indicated by Figure Number Selected.





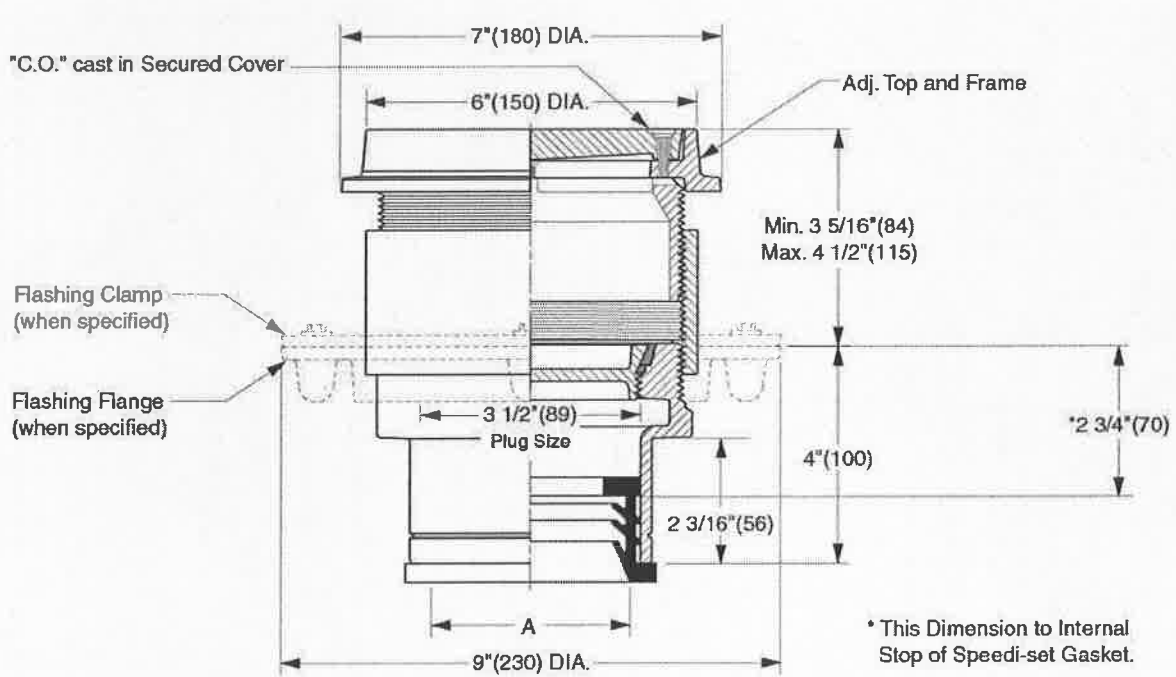
- VARIATIONS:**
- Flashing Flange -F
  - Flange with Flashing Clamp -F-C

- OPTIONAL MATERIALS:**
- Galvanized Cast Iron -G

**NOTE:** Dimensions shown in parentheses are in millimeters.

C  
 DRAWING NUMBER S4280  
 SIZE A  
 SCALE: NONE  
 DATE: 01/31/01  
 APPROVED BY:  
 CHECKED BY: BS  
 DRAWN BY: JJ  
**4280 SERIES**  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|      |          |                    |    |         |               |                   |                    |
|------|----------|--------------------|----|---------|---------------|-------------------|--------------------|
| REV. | DATE     | DESCRIPTION        | BY | CKD. BY | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER      |
| C    | 5-5-06   | Revised Dwg.       | RN | CL      |               |                   | <b>4280 SERIES</b> |
| B    | 6/24/02  | Revised Dwg.       | RN | CL      |               |                   |                    |
| A    | 05/07/01 | Edited Outlet Text | JJ | CL      |               |                   |                    |

|  |   |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
|--|---|---|------------------------------|---|---|---|-------------------|---------------|---|----------|-------------------------------|----|----|--|--|-------------|---|----------|--------------------------|----|----|---|----------|------------|----|----|------|------|-------------|----|---------|--|--|--|--|--|--|--|--|--|--|
| N  |    |    | LOCATION                     |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| DRAWING NUMBER<br>S4231  | <h2 style="margin: 0;">FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR®"<br/>ADJUSTABLE TOPS FOR UNFINISHED AREAS</h2>  |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| SIZE<br>A  | <h3 style="margin: 0;">ROUND EXTRA HEAVY DUTY CAST IRON TOP</h3>  |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| SCALE:<br>NONE   | <p style="margin: 0;"><b>FUNCTION:</b> Used in hospitals, schools, institutional and industrial buildings where floors are subject to heavy load traffic.</p>   |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| DATE:<br>2-16-70   |    |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| APPROVED BY:<br>JM   | <p style="margin: 0;">* This Dimension to Internal Stop of Speedi-set Gasket.</p>   |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| CHECKED BY:<br>BH  | <p style="margin: 0;">*A* (Pipe Size) = 02(50), 03(75) or 04(100)</p>   |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| DRAWN BY:<br>RK  | <table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> <input type="checkbox"/> Fig. 4231L.....Gasket Seal - ABS Plug<br/> <input checked="" type="checkbox"/> Fig. 4232L.....Gasket Seal - Bronze Plug<br/> <input type="checkbox"/> Fig. 4233L.....Taper Thread - Bronze Plug<br/> <input type="checkbox"/> Fig. 4234L.....Taper Thread - ABS Plug                 </td> <td style="width:50%; border: none;"> <p style="margin: 0;">(Twis-to-Floor® design shown with gasketed plug.)</p> <p style="margin: 0;">NOTE: Dimensions shown in parentheses are in millimeters.</p> </td> </tr> </table>   |   |                              | <input type="checkbox"/> Fig. 4231L.....Gasket Seal - ABS Plug<br><input checked="" type="checkbox"/> Fig. 4232L.....Gasket Seal - Bronze Plug<br><input type="checkbox"/> Fig. 4233L.....Taper Thread - Bronze Plug<br><input type="checkbox"/> Fig. 4234L.....Taper Thread - ABS Plug | <p style="margin: 0;">(Twis-to-Floor® design shown with gasketed plug.)</p> <p style="margin: 0;">NOTE: Dimensions shown in parentheses are in millimeters.</p>   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| <input type="checkbox"/> Fig. 4231L.....Gasket Seal - ABS Plug<br><input checked="" type="checkbox"/> Fig. 4232L.....Gasket Seal - Bronze Plug<br><input type="checkbox"/> Fig. 4233L.....Taper Thread - Bronze Plug<br><input type="checkbox"/> Fig. 4234L.....Taper Thread - ABS Plug  | <p style="margin: 0;">(Twis-to-Floor® design shown with gasketed plug.)</p> <p style="margin: 0;">NOTE: Dimensions shown in parentheses are in millimeters.</p>   |   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| <div style="display: flex; flex-direction: column; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-weight: bold; font-size: 2em;">4231 SERIES</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); font-size: 0.8em;">DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE</div> </div>  | <table style="width:100%; border: none;"> <tr> <td style="width:33%; border: none;"> <p style="margin: 0;"><b>REGULARLY FURNISHED:</b><br/>Ducto Cast Iron Cleanout with Round Adjustable Scoriated Secured Cast Iron Top. Closure Plug Type as Indicated By Figure Number Selected.</p> </td> <td style="width:33%; border: none;"> <p style="margin: 0;"><b>VARIATIONS:</b></p> <input type="checkbox"/> Flashing Flange -F<br/> <input type="checkbox"/> Flange with Flashing Clamp -F-C<br/> <input type="checkbox"/> Vandal Proof Top -U<br/> <p style="margin: 0;">▲ Available in Extra Heavy, Service Weight or NO-HUB.</p> </td> <td style="width:33%; border: none;"> <p style="margin: 0;"><b>OPTIONAL MATERIALS:</b></p> <input type="checkbox"/> Galvanized Cast Iron -G<br/> <input type="checkbox"/> Ductile Iron Cover -M                 </td> </tr> </table> |   |                              | <p style="margin: 0;"><b>REGULARLY FURNISHED:</b><br/>Ducto Cast Iron Cleanout with Round Adjustable Scoriated Secured Cast Iron Top. Closure Plug Type as Indicated By Figure Number Selected.</p>   | <p style="margin: 0;"><b>VARIATIONS:</b></p> <input type="checkbox"/> Flashing Flange -F<br><input type="checkbox"/> Flange with Flashing Clamp -F-C<br><input type="checkbox"/> Vandal Proof Top -U<br><p style="margin: 0;">▲ Available in Extra Heavy, Service Weight or NO-HUB.</p> | <p style="margin: 0;"><b>OPTIONAL MATERIALS:</b></p> <input type="checkbox"/> Galvanized Cast Iron -G<br><input type="checkbox"/> Ductile Iron Cover -M |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| <p style="margin: 0;"><b>REGULARLY FURNISHED:</b><br/>Ducto Cast Iron Cleanout with Round Adjustable Scoriated Secured Cast Iron Top. Closure Plug Type as Indicated By Figure Number Selected.</p>  | <p style="margin: 0;"><b>VARIATIONS:</b></p> <input type="checkbox"/> Flashing Flange -F<br><input type="checkbox"/> Flange with Flashing Clamp -F-C<br><input type="checkbox"/> Vandal Proof Top -U<br><p style="margin: 0;">▲ Available in Extra Heavy, Service Weight or NO-HUB.</p>   | <p style="margin: 0;"><b>OPTIONAL MATERIALS:</b></p> <input type="checkbox"/> Galvanized Cast Iron -G<br><input type="checkbox"/> Ductile Iron Cover -M   |                              |   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:5%; text-align: center;">N</td> <td style="width:15%;">12/17/04</td> <td style="width:35%;">Added Width Dimension at Top</td> <td style="width:5%; text-align: center;">JJ</td> <td style="width:5%; text-align: center;">CL</td> <td style="width:15%;">WEIGHT POUNDS</td> <td style="width:10%;">VOLUME CUBIC FEET</td> <td style="width:20%; text-align: center;">FIGURE NUMBER</td> </tr> <tr> <td style="text-align: center;">M</td> <td>07/29/02</td> <td>Corrected Clamp &amp; Flange view</td> <td style="text-align: center;">JJ</td> <td style="text-align: center;">CL</td> <td rowspan="3"></td> <td rowspan="3"></td> <td rowspan="3" style="text-align: center; font-size: 1.5em; font-weight: bold;">4231 SERIES</td> </tr> <tr> <td style="text-align: center;">L</td> <td>04/12/01</td> <td>Added dimension and note</td> <td style="text-align: center;">JJ</td> <td style="text-align: center;">CL</td> </tr> <tr> <td style="text-align: center;">K</td> <td>10/27/00</td> <td>New design</td> <td style="text-align: center;">JJ</td> <td style="text-align: center;">BS</td> </tr> <tr> <td style="text-align: center;">REV.</td> <td style="text-align: center;">DATE</td> <td style="text-align: center;">DESCRIPTION</td> <td style="text-align: center;">BY</td> <td style="text-align: center;">CKD. BY</td> <td colspan="3"></td> </tr> </table> | N   | 12/17/04  | Added Width Dimension at Top | JJ  | CL  | WEIGHT POUNDS   | VOLUME CUBIC FEET | FIGURE NUMBER | M | 07/29/02 | Corrected Clamp & Flange view | JJ | CL |  |  | 4231 SERIES | L | 04/12/01 | Added dimension and note | JJ | CL | K | 10/27/00 | New design | JJ | BS | REV. | DATE | DESCRIPTION | BY | CKD. BY |  |  |  |  |  |  |  |  |  |  |
| N  | 12/17/04  | Added Width Dimension at Top  | JJ                           | CL  | WEIGHT POUNDS   | VOLUME CUBIC FEET   | FIGURE NUMBER     |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| M  | 07/29/02  | Corrected Clamp & Flange view   | JJ                           | CL  |   |   | 4231 SERIES       |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| L  | 04/12/01  | Added dimension and note  | JJ                           | CL  |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| K  | 10/27/00  | New design  | JJ                           | BS  |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |
| REV.   | DATE  | DESCRIPTION   | BY                           | CKD. BY   |   |   |                   |               |   |          |                               |    |    |  |  |             |   |          |                          |    |    |   |          |            |    |    |      |      |             |    |         |  |  |  |  |  |  |  |  |  |  |



**JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3037  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com

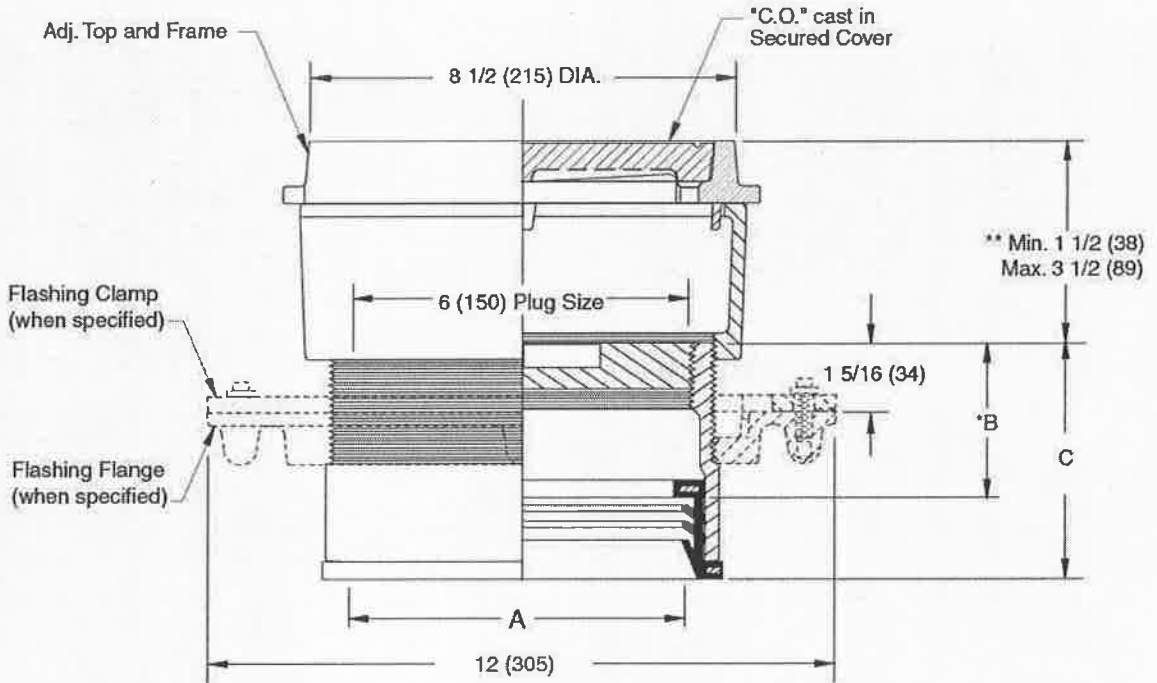


LOCATION

## FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR®" ADJUSTABLE TOPS FOR UNFINISHED AREAS

### ROUND EXTRA HEAVY DUTY CAST IRON TOP

**FUNCTION:** Used in floors and areas where appearance of Cast Iron is satisfactory. Will withstand heavy load traffic.



**SPEEDI-SET OUTLET ▲**

\*"A" (Pipe Size) = 06(150) & 08(200)

| A SIZE  | B          | C            |
|---------|------------|--------------|
| 06(150) | *3(76)     | 4 9/16(117)  |
| 08(200) | *3 1/4(83) | 4 13/16(121) |

- ▲ Available in "L" Service Weight, "LXH" Extra Heavy or "LPVC" PVC or ABS.
- \*LPVC" applicable to 06(150) Pipe Size only.
- \* This Dimension to Internal Stop of Speedi-Set Gasket.
- \*\* When Flange-F is specified Min. 1 1/2 (38) becomes 2 (51)

**"TWIS-TO-FLOOR®" ADJUSTMENT**

**SPEEDI-SET OUTLET ▲**

Fig. 4233L.....Taper Thread - Bronze Plug

**REGULARLY FURNISHED:**  
 Duco Cast Iron Cleanout with Taper Thread Bronze Plug and Round Adjustable Scoriated Secured Cast Iron Top.

- VARIATIONS:**
- Flashing Flange -F
  - Flange with Flashing Clamp -F-C
  - Vandal Proof Top -U

- OPTIONAL MATERIALS:**
- Galvanized Cast Iron -G
  - Ductile Iron Cover-M

NOTE: Dimensions shown in parentheses are in millimeters.

DRAWING NUMBER  
S4231BS

SIZE  
A

SCALE  
NONE

DATE  
5-5-06

APPROVED BY:  
CEL

CHECKED BY:  
CL

DRAWN BY:  
RN

FIGURE NUMBER  
**4233**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

| REV. | DATE | DESCRIPTION | BY | CKD. BY |
|------|------|-------------|----|---------|
|      |      |             |    |         |

WEIGHT POUNDS

VOLUME CUBIC FEET

FIGURE NUMBER  
**4233**

|   |   |   |                               |      |          |   |  |   |
|---|---|---|-------------------------------|------|----------|---|--|---|
| D   | SMITH® JAY R. SMITH MFG. CO.®<br>DIVISION OF SMITH INDUSTRIES, INC.<br>POST OFFICE BOX 3237<br>MONTGOMERY, ALABAMA 36109-0237 (USA)<br>TEL: 334-277-6520 FAX: 334-272-7305 www.jrsmith.com  | ASPE<br>MEMBER OF:  | ASPE                          | ASPE | LOCATION |   |  |   |
| DRAWING NUMBER<br>S4031 (-X)  | <b>FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR"®<br/>ADJUSTABLE TOPS AND CARPET CLAMPING FRAME</b>  |   |                               |      |          |   |  |   |
| SIZE<br>A   | <b>ROUND NICKEL BRONZE TOP</b>  |   |                               |      |          |   |  |   |
| SCALE:<br>NONE  | FUNCTION: For use in carpeted floors bearing foot and medium load wheeled traffic. Allows for easy carpet level adjustment.   |   |                               |      |          |   |  |   |
| DATE:<br>04/13/89   |   |   |                               |      |          |   |  |   |
| APPROVED BY:<br>TD  | TWIS-TO-FLOOR® ADJUSTMENT   |   |                               |      |          |   |  |   |
| CHECKED BY:<br>CR   | SPEEDI-SET OUTLET ▲   |   |                               |      |          |   |  |   |
| DRAWN BY:<br>EMB  | *A* (Pipe Size) = 02(50), 03(75) or 04(100)   |   |                               |      |          |   |  |   |
| <b>4031 (-X) SERIES</b>   | <table style="width:100%; border: none;"> <tr> <td style="width:33%; border: none;"> <input type="checkbox"/> Fig. 4031L (-X).....Gasket Seal - ABS Plug<br/> <input checked="" type="checkbox"/> Fig. 4032L (-X).....Gasket Seal - Bronze Plug<br/> <input type="checkbox"/> Fig. 4033L (-X).....Taper Thread - Bronze Plug<br/> <input type="checkbox"/> Fig. 4034L (-X).....Taper Thread - ABS Plug                 </td> <td style="width:33%; border: none;">                     (Twis-to-Floor® design shown with gasketed plug.)<br/>                     ▲ Available in Extra Heavy, Service Weight or NO-HUB.                 </td> <td style="width:33%; border: none;"> <b>OPTIONAL MATERIALS:</b><br/> <input type="checkbox"/> Galvanized Cast Iron -G<br/> <input type="checkbox"/> Polished Bronze Top -PB<br/><br/>                     NOTE: Dimensions shown in parentheses are in millimeters.                 </td> </tr> </table> |   |                               |      |          | <input type="checkbox"/> Fig. 4031L (-X).....Gasket Seal - ABS Plug<br><input checked="" type="checkbox"/> Fig. 4032L (-X).....Gasket Seal - Bronze Plug<br><input type="checkbox"/> Fig. 4033L (-X).....Taper Thread - Bronze Plug<br><input type="checkbox"/> Fig. 4034L (-X).....Taper Thread - ABS Plug | (Twis-to-Floor® design shown with gasketed plug.)<br>▲ Available in Extra Heavy, Service Weight or NO-HUB.   | <b>OPTIONAL MATERIALS:</b><br><input type="checkbox"/> Galvanized Cast Iron -G<br><input type="checkbox"/> Polished Bronze Top -PB<br><br>NOTE: Dimensions shown in parentheses are in millimeters. |
| <input type="checkbox"/> Fig. 4031L (-X).....Gasket Seal - ABS Plug<br><input checked="" type="checkbox"/> Fig. 4032L (-X).....Gasket Seal - Bronze Plug<br><input type="checkbox"/> Fig. 4033L (-X).....Taper Thread - Bronze Plug<br><input type="checkbox"/> Fig. 4034L (-X).....Taper Thread - ABS Plug | (Twis-to-Floor® design shown with gasketed plug.)<br>▲ Available in Extra Heavy, Service Weight or NO-HUB.  | <b>OPTIONAL MATERIALS:</b><br><input type="checkbox"/> Galvanized Cast Iron -G<br><input type="checkbox"/> Polished Bronze Top -PB<br><br>NOTE: Dimensions shown in parentheses are in millimeters. |                               |      |          |   |  |   |
| DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE   | <table style="width:100%; border: none;"> <tr> <td style="width:33%; border: none;"> <b>REGULARLY FURNISHED:</b><br/>                     Duco Cast Iron Cleanout with Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame. Closure Plug Type as Indicated By Figure Number Selected.                 </td> <td style="width:33%; border: none;"> <b>VARIATIONS:</b><br/> <input type="checkbox"/> Flashing Flange -F<br/> <input type="checkbox"/> Flange with Flashing Clamp -F-C<br/> <input type="checkbox"/> Carpet Marker Type -Y<br/> <input type="checkbox"/> Vandal Proof Top -U<br/> <input type="checkbox"/> Wide Flange (DX)                 </td> <td style="width:33%; border: none;"></td> </tr> </table>   |   |                               |      |          | <b>REGULARLY FURNISHED:</b><br>Duco Cast Iron Cleanout with Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame. Closure Plug Type as Indicated By Figure Number Selected.   | <b>VARIATIONS:</b><br><input type="checkbox"/> Flashing Flange -F<br><input type="checkbox"/> Flange with Flashing Clamp -F-C<br><input type="checkbox"/> Carpet Marker Type -Y<br><input type="checkbox"/> Vandal Proof Top -U<br><input type="checkbox"/> Wide Flange (DX) |   |
| <b>REGULARLY FURNISHED:</b><br>Duco Cast Iron Cleanout with Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame. Closure Plug Type as Indicated By Figure Number Selected.   | <b>VARIATIONS:</b><br><input type="checkbox"/> Flashing Flange -F<br><input type="checkbox"/> Flange with Flashing Clamp -F-C<br><input type="checkbox"/> Carpet Marker Type -Y<br><input type="checkbox"/> Vandal Proof Top -U<br><input type="checkbox"/> Wide Flange (DX)  |   |                               |      |          |   |  |   |
| FIGURE NUMBER   | REV.  | DATE  | DESCRIPTION                   | BY   | CKD. BY  | WEIGHT POUNDS   | VOLUME CUBIC FEET  | FIGURE NUMBER   |
| 4031 (-X) SERIES  |   |   |                               |      |          |   |  | <b>4031 (-X) SERIES</b>   |
| D   |   | 07/26/02  | Corrected Clamp & Flange view | JJ   | CL       |   |  |   |
| C   |   | 04/12/01  | Added dimension and note      | JJ   | CL       |   |  |   |
| B   |   | 01/17/01  | New design                    | JJ   | BS       |   |  |   |

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-6520 FAX: 334-272-7396 www.jrsmith.com

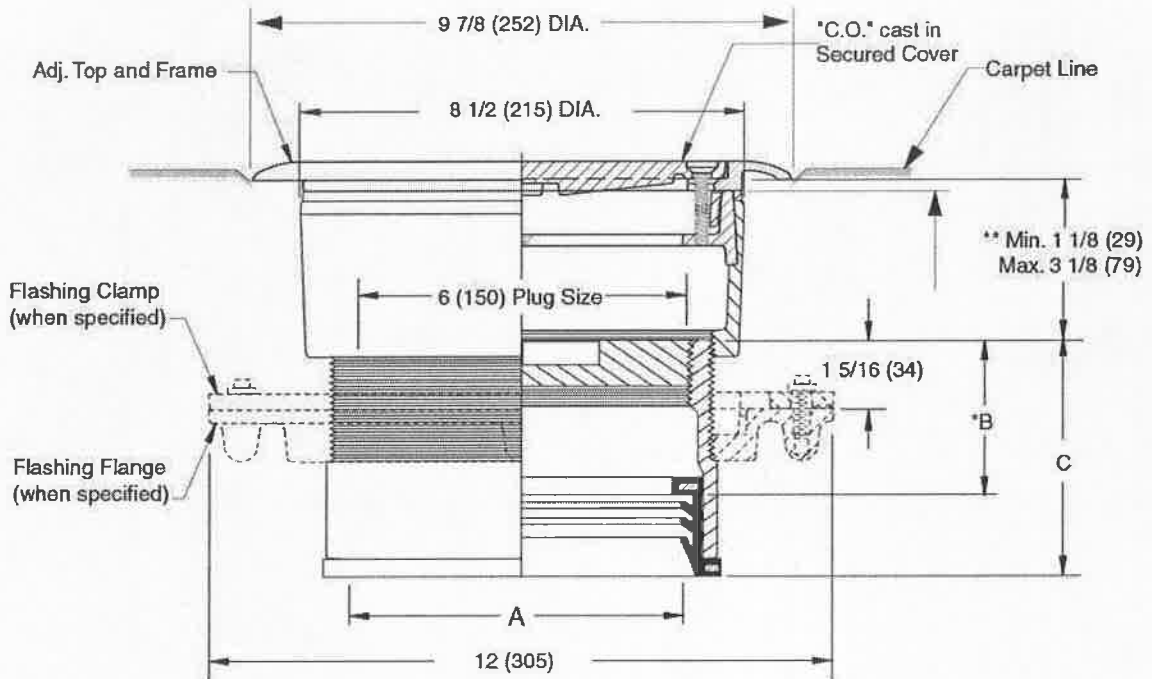


LOCATION

**FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR®" ADJUSTABLE TOP AND CARPET CLAMPING FRAME**

**ROUND NICKEL BRONZE TOP**

**FUNCTION:** For use in carpeted floors bearing foot and medium load wheeled traffic. Allows for easy carpet level adjustment.



**SPEEDI-SET OUTLET ▲**  
 \*A\* (Pipe Size) = 06(150) & 08(200)

| A SIZE  | B          | C            |
|---------|------------|--------------|
| 06(150) | *3(76)     | 4 9/16(117)  |
| 08(200) | *3 1/4(83) | 4 13/16(121) |

- ▲ Available in "L" Service Weight, "LXH" Extra Heavy or "LPVC" PVC or ABS. "LPVC" applicable to 06(150) Pipe Size only.
- \* This Dimension to Internal Stop of Speedi-Set Gasket.
- \*\* When Flange-F is specified Min. 1 1/8 (29) becomes 1 5/8 (41)

**"TWIS-TO-FLOOR®" ADJUSTMENT**

**SPEEDI-SET OUTLET ▲**

Fig. 4033L (-X).....Taper Thread - Bronze Plug

**REGULARLY FURNISHED:**

Duco Cast Iron Cleanout with Taper Thread Bronze Plug and Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame.

**VARIATIONS:**

- Flashing Flange -F
- Flange with Flashing Clamp -F-C
- Vandal Proof Top -U

**OPTIONAL MATERIALS:**

- Galvanized Cast Iron -G
- Polished Bronze Top -PB

NOTE: Dimensions shown in parentheses are in millimeters.

DRAWING NUMBER  
S4031(-X)BS

SIZE  
A

SCALE:  
NONE

DATE:  
7-26-06

APPROVED BY:  
CEL

CHECKED BY:  
CL

DRAWN BY:  
TBW

**4033 (-X)**

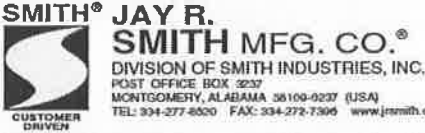



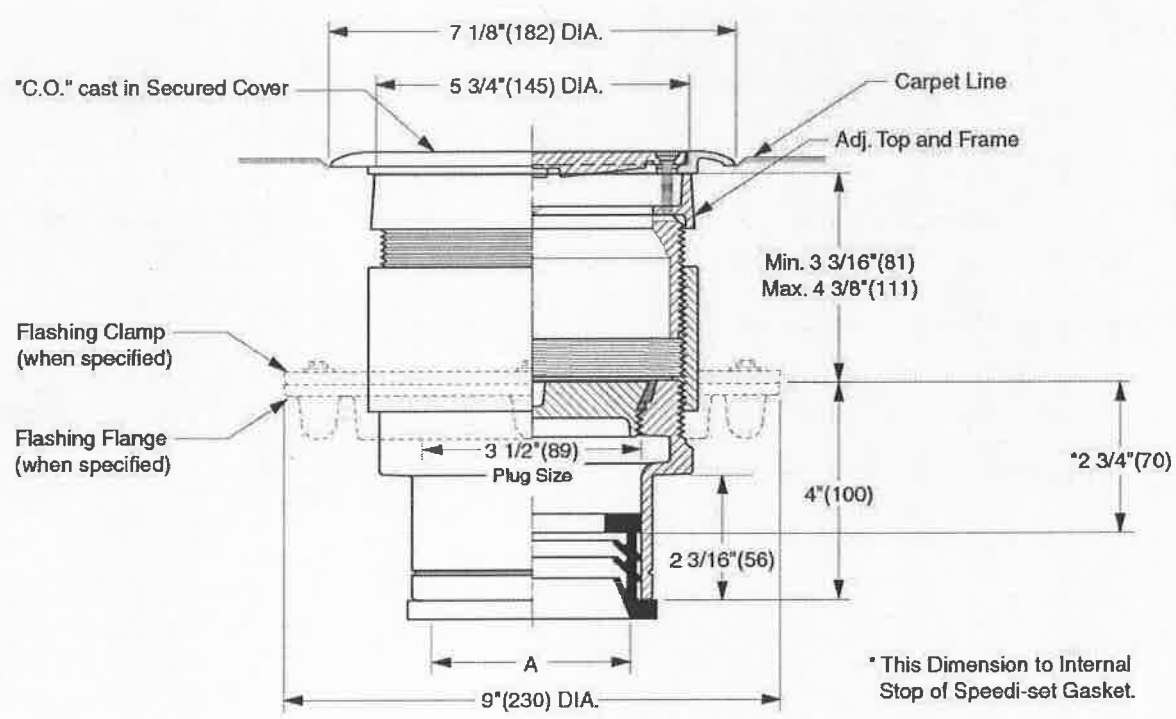
WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV. | DATE | DESCRIPTION | BY | CKD. BY |
|------|------|-------------|----|---------|
|      |      |             |    |         |

|               |                   |
|---------------|-------------------|
| WEIGHT POUNDS | VOLUME CUBIC FEET |
|               |                   |

|                                   |
|-----------------------------------|
| FIGURE NUMBER<br><b>4033 (-X)</b> |
|-----------------------------------|

|  |  |   |                   |
|--|--|---|-------------------|
| D  |   |      | LOCATION          |
| DRAWING NUMBER<br>S4031 (-X)   | SIZE<br>A  | SCALE:<br>NONE  | DATE:<br>04/13/89 |
| APPROVED BY:<br>TD   | CHECKED BY:<br>CR  | WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA  |                   |
| DRAWN BY:<br>EMB   | DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE  |   |                   |
| FIGURE NUMBER<br>4031 (-X) SERIES  | <h2 style="margin: 0;">FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR®"<br/>ADJUSTABLE TOPS AND CARPET CLAMPING FRAME</h2> <h3 style="margin: 0;">ROUND NICKEL BRONZE TOP</h3> <p style="margin: 0;"><b>FUNCTION:</b> For use in carpeted floors bearing foot and medium load wheeled traffic. Allows for easy carpet level adjustment.</p> |   |                   |
|  <p style="text-align: center;"><b>TWIS-TO-FLOOR® ADJUSTMENT</b></p> <p style="text-align: center;"><b>SPEEDI-SET OUTLET ▲</b></p> <p style="text-align: center;">*A* (Pipe Size) = 02(50), 03(75) or 04(100)</p>                           |  |   |                   |
| <p><input type="checkbox"/> Fig. 4031L (-X).....Gasket Seal - ABS Plug</p> <p><input checked="" type="checkbox"/> Fig. 4032L (-X).....Gasket Seal - Bronze Plug</p> <p><input type="checkbox"/> Fig. 4033L (-X).....Taper Thread - Bronze Plug</p> <p><input type="checkbox"/> Fig. 4034L (-X).....Taper Thread - ABS Plug</p> |  | <p>(Twis-to-Floor® design shown with gasketed plug.)</p> <p>▲ Available in Extra Heavy, Service Weight or NO-HUB.</p>   |                   |
| <p><b>REGULARLY FURNISHED:</b><br/>Duct Cast Iron Cleanout with Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame. Closure Plug Type as Indicated By Figure Number Selected.</p>  |  | <p><b>VARIATIONS:</b></p> <p><input type="checkbox"/> Flashing Flange -F</p> <p><input type="checkbox"/> Flange with Flashing Clamp -F-C</p> <p><input type="checkbox"/> Carpet Marker Type -Y</p> <p><input type="checkbox"/> Vandal Proof Top -U</p> <p><input type="checkbox"/> Wide Flange (DX)</p> |                   |
|  |  | <p><b>OPTIONAL MATERIALS:</b></p> <p><input type="checkbox"/> Galvanized Cast Iron -G</p> <p><input type="checkbox"/> Polished Bronze Top -PB</p> <p>NOTE: Dimensions shown in parentheses are in millimeters.</p>  |                   |
| REV.   | DATE   | DESCRIPTION   | BY                |
| D<br>C<br>B  | 07/26/02<br>04/12/01<br>01/17/01   | Corrected Clamp & Flange view<br>Added dimension and note<br>New design   | JJ<br>JJ<br>JJ    |
|  |  |   | CL<br>CL<br>BS    |
|  |  | WEIGHT POUNDS   | VOLUME CUBIC FEET |
|  |  | FIGURE NUMBER   |                   |
|  |  | <b>4031 (-X) SERIES</b>   |                   |

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7366 www.jrsmith.com

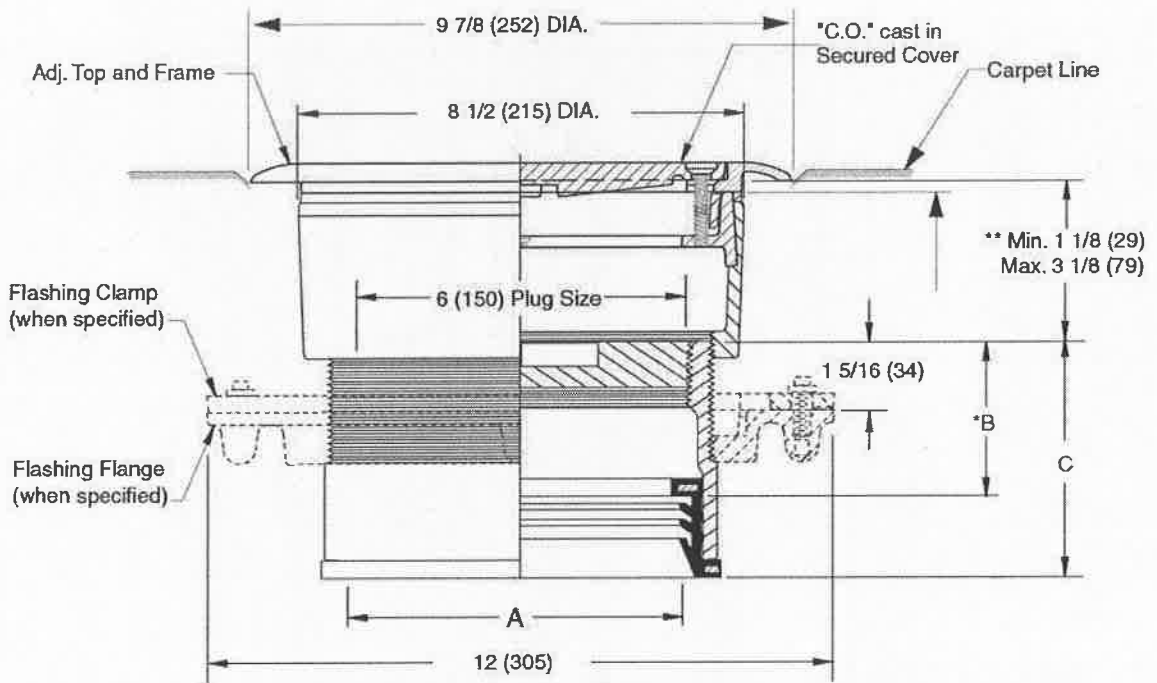


LOCATION

**FLOOR CLEANOUTS WITH "TWIS-TO-FLOOR®" ADJUSTABLE TOP AND CARPET CLAMPING FRAME**

**ROUND NICKEL BRONZE TOP**

**FUNCTION:** For use in carpeted floors bearing foot and medium load wheeled traffic. Allows for easy carpet level adjustment.



**SPEEDI-SET OUTLET ▲**  
 "A" (Pipe Size) = 06(150) & 08(200)

| A SIZE  | B          | C            |
|---------|------------|--------------|
| 06(150) | *3(76)     | 4 9/16(117)  |
| 08(200) | *3 1/4(83) | 4 13/16(121) |

- ▲ Available in "L" Service Weight, "LXH" Extra Heavy or "LPVC" PVC or ABS. "LPVC" applicable to 06(150) Pipe Size only.
- \* This Dimension to Internal Stop of Speedi-Set Gasket.
- \*\* When Flange-F is specified Min. 1 1/8 (29) becomes 1 5/8 (41)

**"TWIS-TO-FLOOR®" ADJUSTMENT**

**SPEEDI-SET OUTLET ▲**

Fig. 4033L (-X).....Taper Thread - Bronze Plug

**REGULARLY FURNISHED:**

Duct Cast Iron Cleanout with Taper Thread Bronze Plug and Round Adjustable Scoriated Secured Nickel Bronze Top and Carpet Clamping Frame.

**VARIATIONS:**

- Flashing Flange -F
- Flange with Flashing Clamp -F-C
- Vandal Proof Top -U

**OPTIONAL MATERIALS:**

- Galvanized Cast Iron -G
- Polished Bronze Top -PB

NOTE: Dimensions shown in parentheses are in millimeters.

DRAWING NUMBER  
S4031(-X)BS

SIZE  
A

SCALE:  
NONE

DATE:  
7-26-06

APPROVED BY:  
CEL

CHECKED BY:  
CL

DRAWN BY:  
TBW

**4033 (-X)**





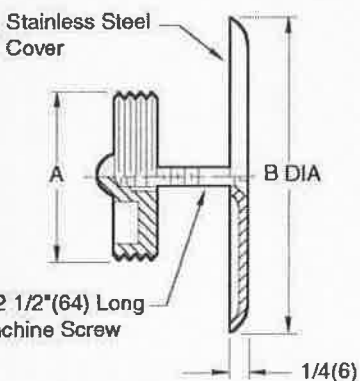
WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV. | DATE | DESCRIPTION | BY | CKD. BY |
|------|------|-------------|----|---------|
|      |      |             |    |         |

|               |                   |
|---------------|-------------------|
| WEIGHT POUNDS | VOLUME CUBIC FEET |
|               |                   |

**FIGURE NUMBER**  
**4033 (-X)**

| E   |  <b>JAY R. SMITH MFG. CO.</b><br>DIVISION OF SMITH INDUSTRIES, INC.<br>POST OFFICE BOX 3237<br>MONTGOMERY, ALABAMA 36100-0237 (USA)<br>TEL: 334-277-8320 FAX: 334-272-7395 www.jrsmith.com   |    | LOCATION                 |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
|---|---|---|--------------------------|----------------------|---------------|----------------------------|---------------|---------------------------|------------|---------|--------|---------|------------|------------------|-------------|
| DRAWING NUMBER<br>S4470   | CLEANOUT PLUGS AND COVERS   |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| SIZE<br>A   | <b>TAPER THREAD PLUG WITH ROUND COVER</b>   |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| SCALE<br>NONE   | <p><b>FUNCTION:</b> Used in Female Pipe Size openings in Drainage piping where a cleanout is required. Countersunk plugs have slot sized to receive 1/2"(13) thick steel bar stock. Face-of-wall cover is desirable on finished walls.</p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| DATE<br>2-16-70   |    |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| APPROVED BY:<br>JM  | <p style="text-align:center;"><b>COUNTERSUNK PLUG</b></p> <p> <input type="checkbox"/> Fig. 4470T ..... LESS COVER AND SCREW<br/> <input checked="" type="checkbox"/> Fig. 4472T ..... WITH COVER AND SCREW                 </p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| CHECKED BY:<br>BH   | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>A SIZE</th> <th>B DIA</th> </tr> </thead> <tbody> <tr> <td>0150(40), 02(50), 0250(65)</td> <td>4 1/4(110)</td> </tr> <tr> <td>03(80), 0350(90), 04(100)</td> <td>5 1/2(140)</td> </tr> <tr> <td>05(125)</td> <td>7(180)</td> </tr> <tr> <td>06(150)</td> <td>9 1/4(235)</td> </tr> <tr> <td>08(200), 10(250)</td> <td>11 1/4(285)</td> </tr> </tbody> </table> |   |                          | A SIZE               | B DIA         | 0150(40), 02(50), 0250(65) | 4 1/4(110)    | 03(80), 0350(90), 04(100) | 5 1/2(140) | 05(125) | 7(180) | 06(150) | 9 1/4(235) | 08(200), 10(250) | 11 1/4(285) |
| A SIZE  | B DIA   |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 0150(40), 02(50), 0250(65)  | 4 1/4(110)  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 03(80), 0350(90), 04(100)   | 5 1/2(140)  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 05(125)   | 7(180)  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 06(150)   | 9 1/4(235)  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 08(200), 10(250)  | 11 1/4(285)   |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| DRAWN BY:<br>RK   | <p style="text-align:right;">NOTE: Dimensions shown in parentheses are in millimeters.</p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| 4470, 4472  | <p><b>REGULARLY FURNISHED:</b><br/>Cast Bronze Taper Thread Plug with Stainless Steel Round Cover and Screw as indicated by Figure Number.</p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE | <p><b>VARIATIONS:</b></p> <p> <input type="checkbox"/> Longer Screw (Specify Length)<br/> <input type="checkbox"/> *T* Handle Plug -TP<br/>                     Plug tapped 1/4"(6) - 20 Thread<br/> <input type="checkbox"/> Vandal Proof Screw -U                 </p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| FIGURE NUMBER   | <p><b>OPTIONAL MATERIALS:</b></p> <p> <input type="checkbox"/> Polished Bronze Cover -PB<br/> <input type="checkbox"/> Prime Coated Steel Cover -PC<br/> <input type="checkbox"/> Stainless Steel Plug<br/>                 (See Fig. 9775)             </p>  |   |                          |                      |               |                            |               |                           |            |         |        |         |            |                  |             |
| REV.  | DATE  | DESCRIPTION   | BY                       | CKD. BY              | WEIGHT POUNDS | VOLUME CUBIC FEET          | FIGURE NUMBER |                           |            |         |        |         |            |                  |             |
| E<br>D<br>C<br>B  | 1-11-96<br>7-27-94<br>6-15-94<br>7-30-93  | Added Millimeters<br>Submittal Update<br>Chg'd Title<br>Redrawn, Chg Var & update form  | EMB<br>EMB<br>EMB<br>TWK | BS<br>BS<br>BS<br>BS |               |                            | 4470, 4472    |                           |            |         |        |         |            |                  |             |



# Anti-Siphon Wall Faucets

## Model 24/B24/Y24

The Model 24 and B24 are anti-siphon, vacuum breaker protected wall faucets designed for irrigation purposes in mild climate areas. The Model B24 is enclosed in a flush mounted wall box. Both models are designed to blend with modern architecture for installation on or in homes, service stations, churches, motels, drive-in restaurants, etc. The Model Y24 is designed to be used on a stand pipe in the lawn and garden, etc.

**SPECIFICATIONS:**

**VACUUM BREAKER - ANTI-SIPHON:**

- NIDEL® Model 34HF with 3/4 inch male hose thread
- ASSE Standard 1011 approved
- IAPMO® listed
- Canadian Standards Association

**EPDM PACKING:** Prevents leaking.

**PACKING NUT:** Adjustable brass nut with deep stem guard.

**VALVE SEAT:** Standard "O" size washer.

**HANDLES:** Furnished with polycarbonate wheel handle and loose tee key.

Optional: Metal wheel handle.

**INLETS:** Model 24 as shown below.  
 Model B24: 24P- 1/2" or 24P 3/4" only.  
 Model Y24: 3/4" FPT.

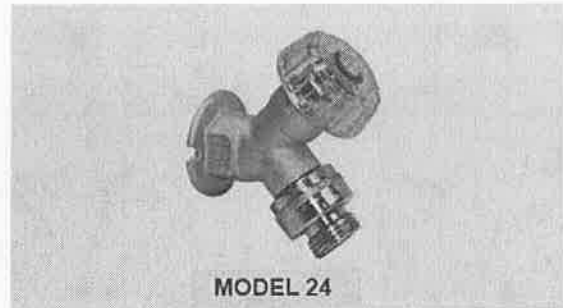
**MAX PRESSURE:** 125 p.s.i.

**MAX TEMPERATURE:** 120° F

**SHIPPING WEIGHT:** (per unit)

MODEL 24 & Y24: 1 lb

MODEL B24: 13 lbs (brass or chrome box)  
 6 lbs (aluminum box)



**MODEL 24**

**Exterior Finish:**

Standard - Chrome (CH)

Optional- Rough Brass (BR) or Polished Chrome (PC)

**SPECIFY FINISH WHEN ORDERING**



**MODEL B24**

**Exterior Finish:**

Standard - Chrome (CH)

Optional- Rough Brass (BR) or Polished Brass (PB)

Other Options: Anodized Aluminum Box (AL)



**MODEL Y24**

**Exterior Finish:**

Standard - Chrome (CH)

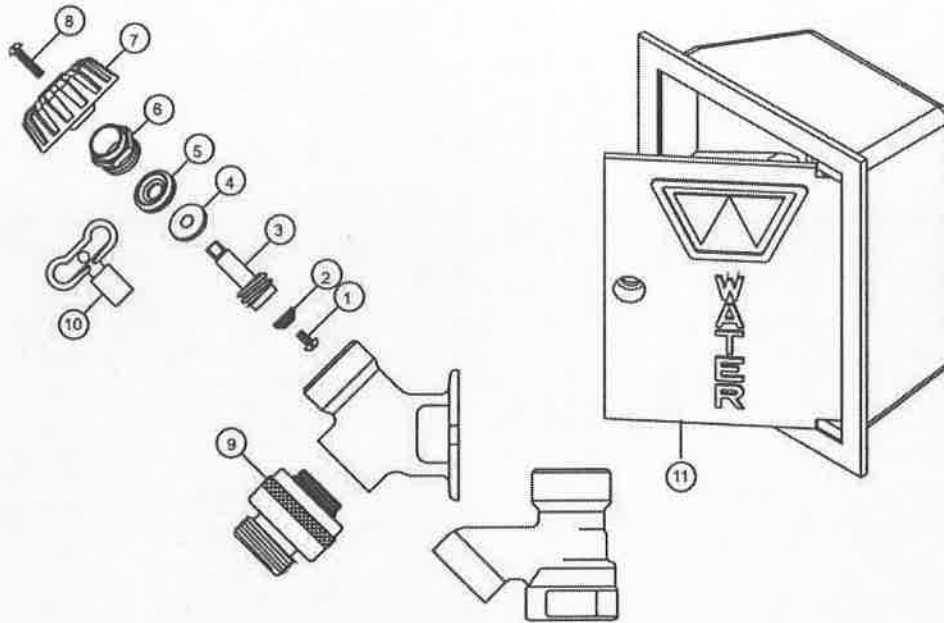
Optional- Rough Brass (BR) or Polished Chrome (PC)

**Inlet Descriptions**

|   |  |
|---|--|
| <p><b>MODEL 24/B24</b><br/>                 P-1/2" Inlet<br/>                 1/2" FPT<br/>                 P-3/4" Inlet<br/>                 3/4" FPT</p>            |  |
| <p><b>MODEL 24 ONLY</b><br/>                 CP Inlet<br/>                 COMBINATION<br/>                 1/2" COPPER TUBE<br/>                 1/2" MPT</p>        |  |
| <p><b>MODEL 24 ONLY</b><br/>                 C Inlet<br/>                 COMBINATION<br/>                 1/2" COPPER TUBE<br/>                 3/4" COPPER TUBE</p> |  |

*For Installation / Troubleshooting Instructions go to [www.woodfordmfg.com](http://www.woodfordmfg.com) or call 1-800-621-6032*

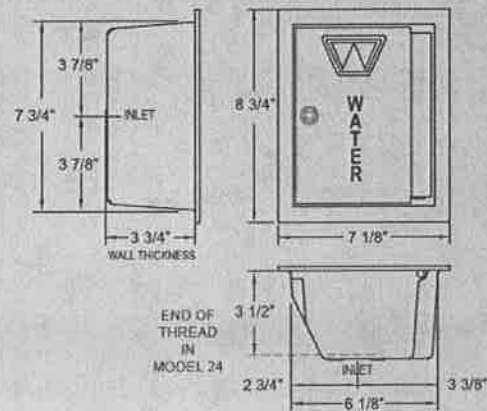
WOODFORD



**MODEL 24/B24/Y24 PARTS LIST**

| ITEM | PART#    | DESCRIPTION                            |
|------|----------|--|
| 1    | 30009    | Washer Screw                           |
| 2    | 30008    | Washer                                 |
| 3    | 30104    | Operating Stem                         |
| 4    | 30105    | Packing Support Washer                 |
| 5    | 30247    | EPDM Packing                           |
| 6    | 30109    | Packing Nut - Chrome                   |
|      | 30107    | Packing Nut - Brass                    |
| 7    | 30120    | Wheel Handle - Clear                   |
|      | 30233    | Wheel Handle - Tan                     |
| 8    | 30121    | Handle Screw - Nickel                  |
|      | 30002    | Handle Screw - Brass                   |
| 9    | 34HF-CH  | 34HF Vacuum Breaker - Chrome           |
|      | 34HF-BR  | 34HF Vacuum Breaker - Brass            |
| 10   | 50009    | Tee Key                                |
| 11   | B24BX    | Box/Door Assembly - Chrome             |
|      | B24BX-BR | Box/Door Assembly - Brass              |
|      | B24BX-PB | Box/Door Assembly - Polished Brass     |
|      | B24BX-AL | Box/Door Assembly - Anodized Aluminum  |
|      | RK-24    | Chrome Repair Kit (Includes items 1-8) |
|      | RK-H34   | Brass Repair Kit (Includes items 1-8)  |

**MODEL B24  
Rough-In Dimensions**



Manufactured under one or more of the following patents: U.S. Patents: 3,414,001; 3,543,786; 4,178,956; 4,316,481; D216,790; D216,791; D277,365; D277,366; Canada Patents: 822,458; 852,529; 865,995.

For more information contact...

**WOODFORD MANUFACTURING COMPANY**

2121 Waynoka Road, Colorado Springs, Colorado 80915 • Phone: (800) 621-6032 • Fax: (800) 765-4115

To view our complete product line visit: [www.woodfordmfg.com](http://www.woodfordmfg.com) or email: [sales@woodfordmfg.com](mailto:sales@woodfordmfg.com)

A Division Of WCM Industries, Inc.

**For Commercial Applications**

Job Name \_\_\_\_\_ Item Designation \_\_\_\_\_

Job Location \_\_\_\_\_ Contractor \_\_\_\_\_

Engineer \_\_\_\_\_ Representative \_\_\_\_\_

→ **SPECIFY WALL THICKNESS WHEN ORDERING**

Wall Thickness: \_\_\_\_\_ Inlet: P\_✓C\_ (P1\_\_ EP\_\_ *MADE TO ORDER, NO RETURN*) Finish: CH\_\_ BR\_\_ PB\_\_ AL\_\_

# Woodford

## Model B65 Box Type

### Anti-Siphon Protected Freezeless Wall Hydrant

The Model B65 is an automatic draining, freezeless wall hydrant with hose connection Anti-Siphon Vacuum Breaker and housed in a tamper resistant brass box. The hydrant drains as handle is shut off, *even if hose is attached*. The Model B65 is designed to blend in with modern architecture for installation on restaurants, schools, office buildings, churches, apartments, motels, stores, shopping centers and industrial buildings.

**Sizes:** 4" - 24" (in 2" increments)  
CC (Close Coupled) for non-freezing climates

**Features:**

- Red Brass head, box and door
  - Optional: Flat Door (F) brass or chrome only
  - Optional: Anodized Aluminum (AL) box and door
- One piece box construction
- 3/8" solid brass operating rod
- Copper casing tubes
- Hardened stainless steel operating stem
- One piece valve plunger
- 4 inlet options
- Loose tee key operation
- No Lead Solder - All joints
- Supplied with adjustable wall clamp

**Specifications:**

- Hydrant plus vacuum breaker is ASSE Standard 1019-B approved.
- **HOSE CONNECTION VACUUM BREAKER:**
  - NIDEL® Model 34HA with 3/4 inch male hose thread
  - ASSE Standard 1011 approved
  - IAPMO® listed
  - Meets Government Specification WW-P-54 1b
  - Single check valve
- **Maximum Working Pressure:** 125 p.s.i.
- **Maximum Temperature:** 120° F

**Specify as follows:**

Wall hydrant shall be a box type Woodford Model B65, automatic draining with single check vacuum breaker. ASSE Standard 1019-B approved. 3/4" inlet and outlet (specify type of inlet). Hardened stainless steel operating stem and one-piece valve plunger to control both flow and drain functions. Exterior finish to be Chrome Plated (options: Rough Brass, Polished Brass or Anodized Aluminum). Loose tee key to be furnished with each hydrant. Wall thickness to be \_\_\_\_\_ inches.

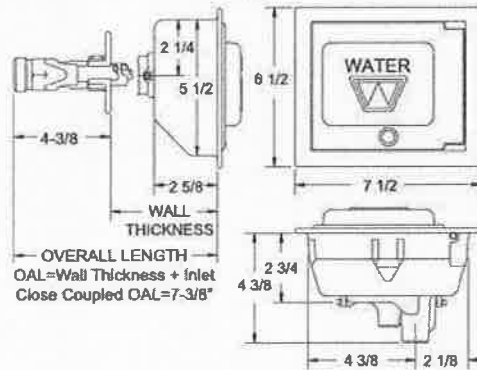


**Exterior Finish:**

- Standard - Chrome (CH)
- Optional - Brass (BR) Polished Brass (PB)
- Anodized Aluminum (AL)

Fits two standard modular brick course or one course of facing tile.

**Rough-In**



**Inlet Options**

- 
- P - 3/4" Female Pipe Thread
  - P1 - 1" Male Pipe Thread
  - C - 3/4" Copper Water Tube
  - EP - Union Elbow with 3/4" Male Pipe Thread



**WOODFORD MANUFACTURING COMPANY**  
2121 WAYNOKA ROAD  
COLORADO SPRINGS, CO 80915  
Phone (800) 621-6032 Fax (800) 765-4115  
Website: [www.woodfordmfg.com](http://www.woodfordmfg.com)  
Email: [sales@woodfordmfg.com](mailto:sales@woodfordmfg.com)

**For Health Hazard Applications**

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

**Series 009**  
**Reduced Pressure Zone Assemblies**

Sizes: 1/4" - 3" (8 - 80mm)

Series 009 Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross connections in piping systems or for containment at the service line entrance.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes 1/4" - 1" (8 - 25mm) shutoffs have tee handles.

**Features**

- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability 1/4" - 2" (8 - 50mm)
- Fused epoxy coated cast iron body 2 1/2" and 3" (65 and 80mm)
- Ball valve test cocks — screwdriver slotted 1/4" - 2" (8 - 50mm)
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing

**Specifications**

A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the water-way exposed to line fluids. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC Manual 8th Edition†; ASSE Std. 1013; AWWA Std. C511; CSA B64.4. Shall be a Watts Regulator Co. Series 009.

†Does not indicate approval status. Refer to Page 2 for approved sizes & models.

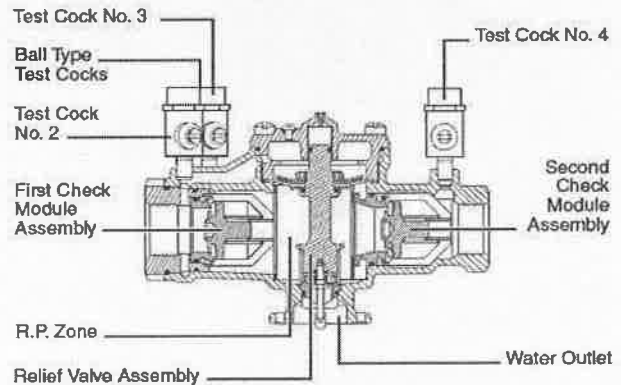
Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



1/2" (15mm) 009QT



2" (50mm) 009M2QTHC



**Now Available**  
**WattsBox Insulated Enclosures.**  
 For more information, send for literature ES-WB.

**IMPORTANT: INQUIRE WITH GOVERNING AUTHORITIES FOR LOCAL INSTALLATION REQUIREMENTS**

**Available Models: 1/4" – 2" (8 – 50mm)**

**Suffix:**

- QT – quarter-turn ball valves
- S – bronze strainer
- LF – without shutoff valves
- AQT – elbow fittings for 360° rotation  
3/4" – 2" (20 – 50mm) only
- PC – internal Polymer Coating
- LH – locking handle ball valves (open position)
- SH – stainless steel ball valve handles
- HC – 2 1/2" inlet/outlet fire hydrant fitting (2" valve)

**Prefix:**

- C – clean and check strainer  
3/4" – 1" (20 – 25mm) only
- U – union connections (see ES-U009)

**Available Models: 2 1/2" – 3" (65 – 80mm)**

**Suffix:**

- NRS – non-rising stem resilient seated gate valves
- OSY – UL/FM outside stem and yoke resilient seated gate valves
- S-FDA – FDA epoxy coated strainer
- QT-FDA – FDA epoxy coated quarter-turn ball valve shutoffs
- LF – without shutoff valves
- S – cast iron strainer

**Note:** The installation of a drain line is recommended. When installing a drain line, an air gap is necessary (see ES-AG).

**Materials: 1/4" – 2" (8 – 50mm)**

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable stainless steel relief valve seat. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (1/2" – 2" (15 – 50mm)). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

**Materials: 2 1/2" and 3" (65 – 80mm)**

- (FDA approved) Epoxy coated cast iron unibody with bronze seats
- Relief valve with stainless steel seat and trim
- Bronze body ball valve test cocks

**Pressure / Temperature**

**Series 009 1/4" – 2" (8 – 50mm)** Suitable for supply pressure up to 175psi (12 bar). Water temperature: 33°F – 180°F (0.5°C – 75°C).

**Sizes 2 1/2" and 3" (65 and 80mm)** are suitable for supply pressures up to 175psi (12.1 bar) and water temperature at 110°F (43°C) continuous, 140°F (60°C) intermittent.

**Standards**

- USC Manual 8th Edition†
- ASSE No. 1013
- AWWA C511-92
- CSA B64.4
- IAPMO File No. 1563.

†Does not indicate approval status. See below for approved models.



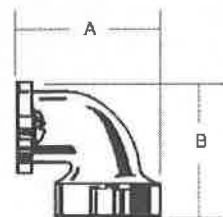
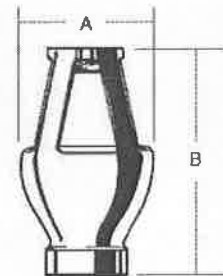
**Approvals**

ASSE, AWWA, CSA, IAPMO  
Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Approval models QT, AQT, PC, NRS, OSY.  
UL Classified 3/4" – 2" (20 – 50mm)  
(LF models only except 009M3LF)  
2 1/2" and 3" (65 and 80mm) with OSY gate valves.

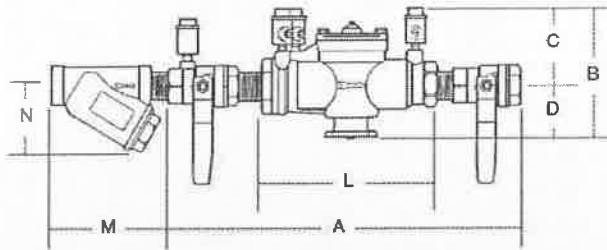
**Air Gaps and Elbows**

| MODEL                 | for 909, 009 and 993 sizes                              | DRAIN OUTLET |     | DIMENSIONS |     |        |     | WEIGHT |      |
|-----------------------|---|--------------|-----|------------|-----|--------|-----|--------|------|
|                       |   | in.          | mm  | A          |     | B      |     | lbs.   | kgs. |
| 909AG-A               | 1/4"-1/2" 009, 3/4" 009M2/M3                            | 1/2          | 13  | 2 3/8      | 60  | 3 1/8  | 79  | .625   | .28  |
| 909AG-C               | 3/4"-1" 009/909, 1"-1 1/2" 009M2                        | 1            | 25  | 3 1/4      | 83  | 4 1/8  | 124 | 1.50   | .68  |
| 909AG-F               | 1 1/4"-2" 009M1, 1 1/4"-3" 009/909, 2" 009M2, 4"-6" 993 | 2            | 51  | 4 3/8      | 111 | 6 3/4  | 171 | 3.25   | 1.47 |
| 909AG-K               | 4"-6" 909, 8"-10" 909M1                                 | 3            | 76  | 6 3/8      | 162 | 9 5/8  | 243 | 6.25   | 2.83 |
| 909AG-M               | 8"-10" 909  | 4            | 102 | 7 3/8      | 187 | 11 1/4 | 394 | 15.50  | 7.03 |
| 909EL-A               | 1/4"-1/2" 009, 3/4" 009M2/M3                            | -            | -   | -          | -   | -      | -   | -      | -    |
| 909EL-C               | 3/4"-1" 009/909   | -            | -   | 2 3/8      | 60  | 2 3/8  | 60  | .38    | .17  |
| * 909EL-F             | 1 1/4"-2" 009M1, 1 1/4"-2" 009/909, 2" 009M2, 4"-6" 993 | -            | -   | 3 3/8      | 92  | 3 3/8  | 92  | 2      | .91  |
| * 909EL-H<br>Vertical | 2 1/2"-3" 009/909                                       | -            | -   | -          | -   | -      | -   | -      | -    |



221006 PLUMBING PIPING SPECIALTIES

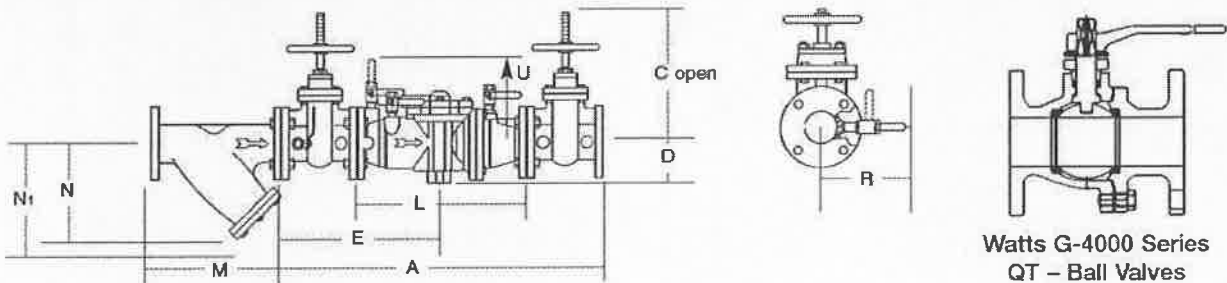
Dimensions and Weight: 1/4" - 2" (8 - 50mm) 009



Suffix HC - Fire Hydrant Fittings dimension 'A' = 25" (637mm)  
009 1/4" - 2"

| SIZE (DN) |    | DIMENSIONS (APPROX.) |     |       |     |       |     |       |    | STRAINER DIMENSIONS |     |         |     | WEIGHT |     |      |      |
|-----------|----|----------------------|-----|-------|-----|-------|-----|-------|----|---------------------|-----|---------|-----|--------|-----|------|------|
| in.       | mm | A                    |     | B     |     | C     |     | D     |    | L                   |     | M       |     | N      |     | lbs. | kgs. |
| 1/4       | 8  | 10                   | 250 | 4 5/8 | 117 | 3 3/8 | 86  | 1 1/4 | 32 | 5 1/2               | 140 | 2 3/8   | 60  | 2 1/2  | 64  | 5    | 2    |
| 3/8       | 10 | 10                   | 250 | 4 5/8 | 117 | 3 3/8 | 86  | 1 1/4 | 32 | 5 1/2               | 140 | 2 3/8   | 60  | 2 1/2  | 64  | 5    | 2    |
| 1/2       | 15 | 10                   | 250 | 4 5/8 | 117 | 3 3/8 | 86  | 1 1/4 | 32 | 5 1/2               | 140 | 2 3/8   | 70  | 2 1/4  | 57  | 5    | 2    |
| 3/4       | 20 | 10 3/4               | 273 | 5     | 127 | 3 1/2 | 89  | 1 1/2 | 38 | 6 3/4               | 171 | 3 3/16  | 81  | 2 3/4  | 70  | 6    | 3    |
| 1         | 25 | 14 1/2               | 368 | 5 1/2 | 140 | 3     | 76  | 2 1/2 | 64 | 9 1/2               | 241 | 3 3/4   | 95  | 3      | 76  | 12   | 5    |
| 1 1/4     | 32 | 17 3/8               | 441 | 6     | 150 | 3 1/2 | 89  | 2 1/2 | 64 | 11 3/8              | 289 | 4 1/16  | 113 | 3 1/2  | 89  | 15   | 6    |
| 1 1/2     | 40 | 17 3/8               | 454 | 6     | 150 | 3 1/2 | 89  | 2 1/2 | 64 | 11 3/8              | 283 | 4 1/8   | 124 | 4      | 102 | 16   | 7    |
| 2         | 50 | 21 3/8               | 543 | 7 1/4 | 197 | 4 1/2 | 114 | 3 1/4 | 83 | 13 1/2              | 343 | 5 15/16 | 151 | 5      | 127 | 30   | 13   |

Dimensions and Weight: 2 1/2" and 3" (65 and 80mm) 009



Watts G-4000 Series  
QT - Ball Valves

| STRAINER SIZE |    | DIMENSIONS (approx.) |     |       |     |       |     | WEIGHT |      |
|---------------|----|----------------------|-----|-------|-----|-------|-----|--------|------|
| in.           | mm | M                    |     | N     |     | N1†   |     | lbs.   | kgs. |
| 2 1/2         | 65 | 10                   | 254 | 6 1/2 | 165 | 9 3/4 | 248 | 28     | 12.7 |
| 3             | 80 | 10 1/2               | 257 | 7     | 178 | 10    | 254 | 34     | 15.4 |

†Clearance for servicing

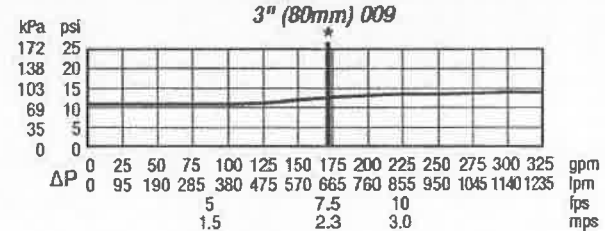
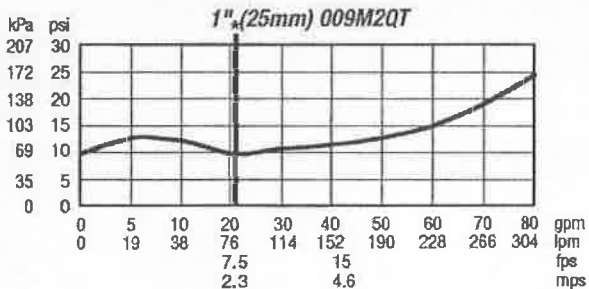
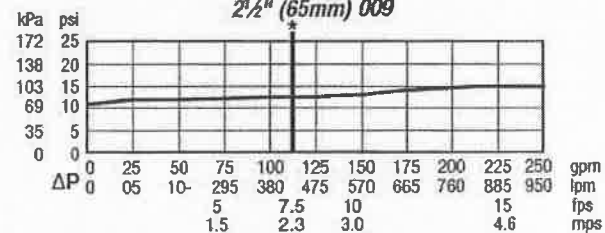
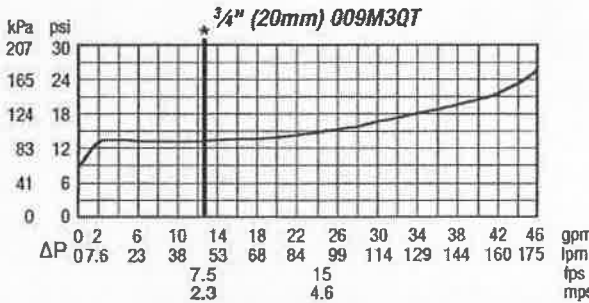
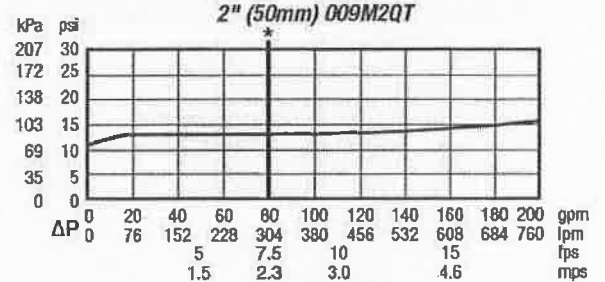
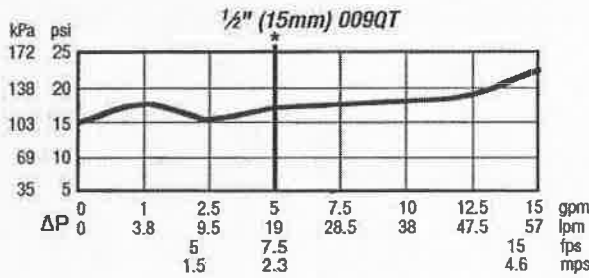
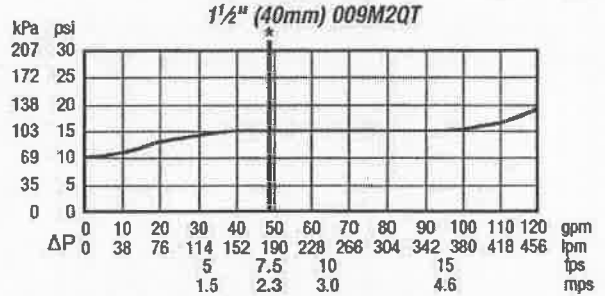
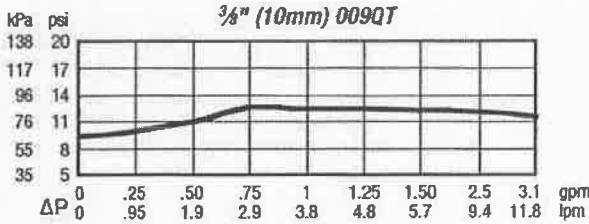
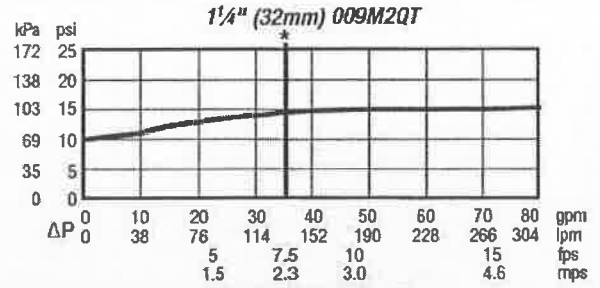
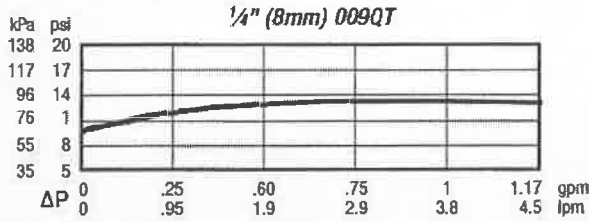
| MODEL  | SIZE DN |    | DIMENSIONS (APPROX.) |     |        |     |       |     |        |     |        |     |       |     | WEIGHT |     |      |      |
|--------|---------|----|----------------------|-----|--------|-----|-------|-----|--------|-----|--------|-----|-------|-----|--------|-----|------|------|
|        | in.     | mm | A                    |     | C      |     | D     |     | E      |     | L      |     | R     |     | U      |     | lbs. | kgs. |
| 009LF  | 2 1/2   | 65 | —                    | —   | —      | —   | 4 1/2 | 114 | —      | —   | 18 1/2 | 460 | —     | —   | 10 5/8 | 270 | 76   | 34.5 |
| 0090SY | 2 1/2   | 65 | 3 3/4                | 845 | 15 1/2 | 403 | 4 1/2 | 114 | 16 3/8 | 416 | 18 1/2 | 460 | 7 3/4 | 197 | 10 5/8 | 270 | 166  | 75.3 |
| 009NRS | 2 1/2   | 65 | 3 3/4                | 845 | 11 3/8 | 289 | 4 1/2 | 114 | 16 3/8 | 416 | 18 1/2 | 460 | 7 3/4 | 197 | 10 5/8 | 270 | 161  | 73.0 |
| 0090T  | 2 1/2   | 65 | 3 3/4                | 845 | 6      | 152 | 4 1/2 | 114 | 16 3/8 | 416 | 18 1/2 | 460 | 7 3/4 | 197 | 10 5/8 | 270 | 150  | 68.0 |
| 009LF  | 3       | 80 | —                    | —   | —      | —   | 4 1/2 | 114 | —      | —   | 18 1/2 | 460 | —     | —   | 10 5/8 | 270 | 76   | 34.5 |
| 0090SY | 3       | 80 | 3 4/4                | 870 | 18 1/2 | 470 | 4 1/2 | 114 | 16 3/8 | 422 | 18 1/2 | 460 | 8 3/4 | 222 | 10 5/8 | 270 | 198  | 89.8 |
| 009NRS | 3       | 80 | 3 4/4                | 870 | 12 3/4 | 324 | 4 1/2 | 114 | 16 3/8 | 422 | 18 1/2 | 460 | 8 3/4 | 222 | 10 5/8 | 270 | 191  | 86.6 |
| 0090T  | 3       | 80 | 3 4/4                | 870 | 7      | 178 | 4 1/2 | 114 | 16 3/8 | 422 | 18 1/2 | 460 | 8 3/4 | 222 | 10 5/8 | 270 | 158  | 71.7 |

221006 PLUMBING PIPING SPECIALTIES

Capacity

Performance as established by an independent testing laboratory.

\*Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)



A Watts Water Technologies Company



ISO 9001-2008 CERTIFIED

USA: No. Andover, MA • Tel. (978) 688-1811 • Fax: (978) 794-1848 • www.watts.com  
 Canada: Burlington, ONT. • (905) 332-4090 • Fax: (905) 332-7068 • www.wattscanada.ca



# WATER HAMMER ARRESTERS

650 & 660 series Hydra-Rester™ & Mini-Rester™

## SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

## MATERIALS

- arrestor body*: type L copper tube
- piston*: poly piston with two EPDM o-rings
- male thread fitting*: brass MIP thread
- piston lubrication*: Dow-Corning, 111 FDA approved silicone compound

## WORKING LIMITS\*

- max working temperature*: 250°F
- max working pressure*: 350 PSIG
- burst tested*: to 2,900 PSIG

\* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

## INSTALLATION

- angle*: May be installed at any angle
- access panels*: No access panels required

## SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

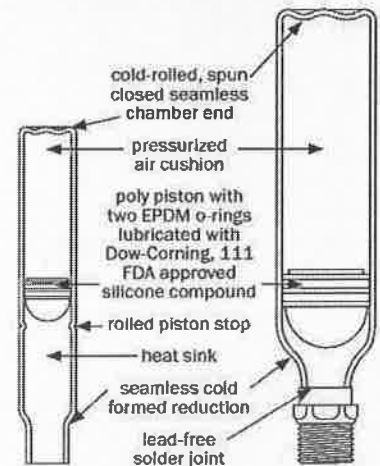
## CERTIFICATIONS/APPROVALS

- 650 series: Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series: Certified by ASSE to the ANSI/ASSE 1010 standard

## DIMENSIONS

| Arrestor size    | AA                              | A                               | B                               | C                                | D                                | E                                | F                                |
|------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Overall height   |                                 |                                 |                                 |                                  |                                  |                                  |                                  |
| male sweat       | 3 <sup>3</sup> / <sub>8</sub> " | 6 <sup>1</sup> / <sub>2</sub> " | 10"                             | 12 <sup>1</sup> / <sub>2</sub> " | 11"                              | 13 <sup>1</sup> / <sub>2</sub> " | 16"                              |
| male thread      | 3 <sup>3</sup> / <sub>8</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | 10 <sup>1</sup> / <sub>8</sub> " | 12 <sup>5</sup> / <sub>8</sub> " | 15 <sup>1</sup> / <sub>8</sub> " |
| CPVC             | 4 <sup>1</sup> / <sub>4</sub> " | 7 <sup>1</sup> / <sub>2</sub> " | 9 <sup>1</sup> / <sub>2</sub> " | 12"                              | —                                | —                                | —                                |
| PEX crimp        | 4 <sup>1</sup> / <sub>4</sub> " | 6 <sup>3</sup> / <sub>2</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | —                                | —                                | —                                |
| Chamber width    | 7 <sup>8</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  |
| Connection size  | 1/2"                            | 1/2"                            | 3/4"                            | 1"                               | 1"                               | 1"                               | 1"                               |
| Volume (cu. in.) | 1.4                             | 5                               | 7                               | 11                               | 20                               | 29                               | 36                               |
| Fixture units    | 1-4                             | 4-11                            | 12-32                           | 33-60                            | 61-113                           | 114-154                          | 155-330                          |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |  |   |   |
|--|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP         | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP    |
| <input type="checkbox"/> 660-SB AA size, sweat       | <input type="checkbox"/> 653-BS B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat |
| <input type="checkbox"/> 660-V82B AA size, male CPVC | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP    |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp  | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat |
| <input type="checkbox"/> 652-A A size, MIP           | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP    |
| <input type="checkbox"/> 652-AS A size, sweat        | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat |
| <input type="checkbox"/> 652-AC A size, CPVC socket  | <input type="checkbox"/> 654-CC C size, CPVC socket |   |
| <input type="checkbox"/> 652-AX A size, PEX crimp    | <input type="checkbox"/> 654-CX C size, PEX crimp   |   |



Sioux Chief Manufacturing Company • tel: 1-800-821-3944 • www.siouxchief.com • fax: 1-800-758-5950

12-08

# WATER HAMMER ARRESTERS

650 & 660 series

Hydra-Rester™ & Mini-Rester™

## SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

## MATERIALS

- arrestor body:* type L copper tube
- piston:* poly piston with two EPDM o-rings
- male thread fitting:* no-lead brass MIP thread
- piston lubrication:* Dow-Corning, 111. FDA approved silicone compound

## WORKING LIMITS\*

- max working temperature:* 250°F
- max working pressure:* 350 PSIG
- burst tested:* to 2,900 PSIG

\* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

## INSTALLATION

- angle:* May be installed at any angle
- access panels:* No access panels required

## SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

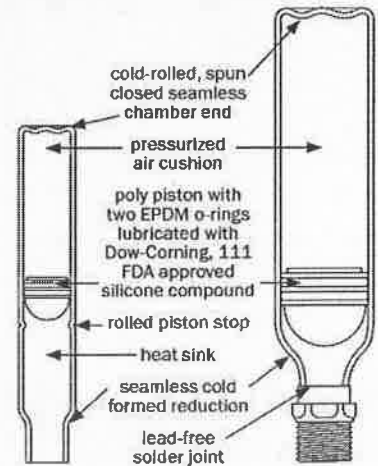
## CERTIFICATIONS/APPROVALS

- 650 series:* Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series:* Certified by ASSE to the ANSI/ASSE 1010 standard

## DIMENSIONS

| Arrestor size    | AA                              | A                               | B                               | C                                | D                                | E                                | F                                |
|------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Overall height   |                                 |                                 |                                 |                                  |                                  |                                  |                                  |
| male sweat       | 3 <sup>3</sup> / <sub>8</sub> " | 6 <sup>1</sup> / <sub>2</sub> " | 10"                             | 12 <sup>1</sup> / <sub>2</sub> " | 11"                              | 13 <sup>1</sup> / <sub>2</sub> " | 16"                              |
| male thread      | 3 <sup>3</sup> / <sub>8</sub> " | 8 <sup>1</sup> / <sub>4</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | 10 <sup>1</sup> / <sub>8</sub> " | 12 <sup>5</sup> / <sub>8</sub> " | 15 <sup>1</sup> / <sub>8</sub> " |
| CPVC             | 4 <sup>1</sup> / <sub>4</sub> " | 7 <sup>1</sup> / <sub>2</sub> " | 9 <sup>1</sup> / <sub>2</sub> " | 12"                              | —                                | —                                | —                                |
| PEX crimp        | 4 <sup>1</sup> / <sub>4</sub> " | 6 <sup>1</sup> / <sub>2</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | —                                | —                                | —                                |
| Chamber width    | 7 <sup>8</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  |
| Connection size  | 1/2"                            | 1/2"                            | 3/4"                            | 1"                               | 1"                               | 1"                               | 1"                               |
| Volume (cu. in.) | 1.4                             | 5                               | 7                               | 11                               | 20                               | 29                               | 36                               |
| Fixture units    | 1-4                             | 4-11                            | 12-32                           | 33-60                            | 61-113                           | 114-154                          | 155-330                          |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP          | <input type="checkbox"/> 652-AX A size, PEX crimp   | <input type="checkbox"/> 654-CX C size, PEX crimp |
| <input type="checkbox"/> 660-SB AA size, sweat        | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP        |
| <input type="checkbox"/> 660-V82B AA size, male CPVC  | <input type="checkbox"/> 653-BS B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat     |
| <input type="checkbox"/> 660-V2B AA size, CPVC socket | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP        |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp   | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat     |
| <input type="checkbox"/> 652-A A size, MIP            | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP        |
| <input type="checkbox"/> 652-AS A size, sweat         | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat     |
| <input type="checkbox"/> 652-AC A size, CPVC socket   | <input type="checkbox"/> 654-CC C size, CPVC socket |   |



Sioux Chief Manufacturing Company • tel: 1-800-821-3944 • www.siouxchief.com • fax: 1-800-758-5950

1-11

## WATER HAMMER ARRESTERS

650 & 660 series

Hydra-Rester™ & Mini-Rester™

### SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

### MATERIALS

- arrestor body: type L copper tube
- piston: poly piston with two EPDM o-rings
- male thread fitting: no-lead brass MIP thread
- piston lubrication: Dow-Corning, 111 FDA approved silicone compound

### WORKING LIMITS\*

- max working temperature: 250°F
- max working pressure: 350 PSIG
- burst tested: to 2,900 PSIG

\* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

### INSTALLATION

- angle: May be installed at any angle
- access panels: No access panels required

### SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

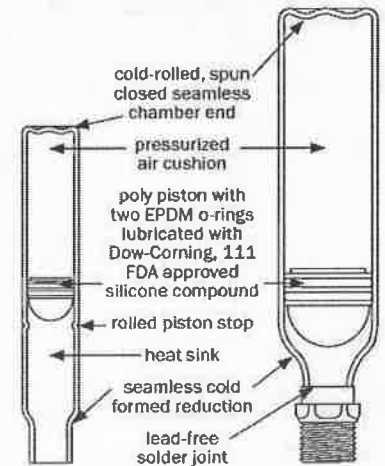
### CERTIFICATIONS/APPROVALS

- 650 series: Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series: Certified by ASSE to the ANSI/ASSE 1010 standard

### DIMENSIONS

| Arrestor size    | AA                              | A                               | B                               | C                                | D                                | E                                | F                                |
|------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Overall height   |                                 |                                 |                                 |                                  |                                  |                                  |                                  |
| male sweat       | 3 <sup>3</sup> / <sub>8</sub> " | 6 <sup>1</sup> / <sub>2</sub> " | 10"                             | 12 <sup>1</sup> / <sub>2</sub> " | 11"                              | 13 <sup>1</sup> / <sub>2</sub> " | 16"                              |
| male thread      | 3 <sup>3</sup> / <sub>8</sub> " | 8 <sup>1</sup> / <sub>4</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | 10 <sup>1</sup> / <sub>8</sub> " | 12 <sup>5</sup> / <sub>8</sub> " | 15 <sup>1</sup> / <sub>8</sub> " |
| CPVC             | 4 <sup>1</sup> / <sub>4</sub> " | 7 <sup>1</sup> / <sub>2</sub> " | 9 <sup>1</sup> / <sub>2</sub> " | 12"                              | —                                | —                                | —                                |
| PEX crimp        | 4 <sup>1</sup> / <sub>4</sub> " | 6 <sup>1</sup> / <sub>2</sub> " | 8 <sup>3</sup> / <sub>4</sub> " | 11"                              | —                                | —                                | —                                |
| Chamber width    | 7 <sup>8</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> " | 1 <sup>3</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  | 2 <sup>1</sup> / <sub>8</sub> "  |
| Connection size  | 1/2"                            | 1/2"                            | 3/4"                            | 1"                               | 1"                               | 1"                               | 1"                               |
| Volume (cu. in.) | 1.4                             | 5                               | 7                               | 11                               | 20                               | 29                               | 36                               |
| Fixture units    | 1-4                             | 4-11                            | 12-32                           | 33-60                            | 61-113                           | 114-154                          | 155-330                          |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP          | <input type="checkbox"/> 652-AX A size, PEX crimp   | <input type="checkbox"/> 654-CX C size, PEX crimp |
| <input type="checkbox"/> 660-SB AA size, sweat        | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP        |
| <input type="checkbox"/> 660-V82B AA size, male CPVC  | <input type="checkbox"/> 653-BB B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat     |
| <input type="checkbox"/> 660-V2B AA size, CPVC socket | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP        |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp   | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat     |
| <input type="checkbox"/> 652-A A size, MIP            | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP        |
| <input type="checkbox"/> 652-AS A size, sweat         | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat     |
| <input type="checkbox"/> 652-AC A size, CPVC socket   | <input type="checkbox"/> 654-CC C size, CPVC socket |   |



# WATER HAMMER ARRESTERS

650 & 660 series Hydra-Rester™ & Mini-Rester™

## SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

## MATERIALS

- arrestor body: type L copper tube
- piston: poly piston with two EPDM o-rings
- male thread fitting: no-lead brass MIP thread
- piston lubrication: Dow-Corning, 111 FDA approved silicone compound

## WORKING LIMITS\*

- max working temperature: 250°F
- max working pressure: 350 PSIG
- burst tested: to 2,900 PSIG

\* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

## INSTALLATION

- angle: May be installed at any angle
- access panels: No access panels required

## SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

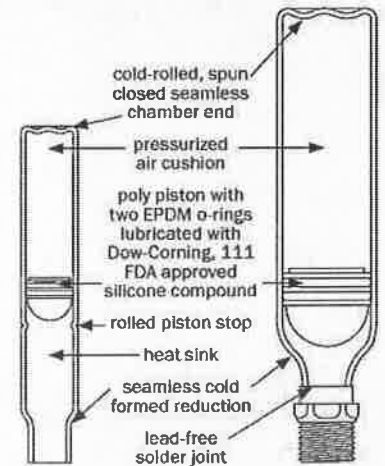
## CERTIFICATIONS/APPROVALS

- 650 series: Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series: Certified by ASSE to the ANSI/ASSE 1010 standard

## DIMENSIONS

| Arrestor size    | AA   | A    | B     | C     | D      | E       | F       |
|------------------|------|------|-------|-------|--------|---------|---------|
| Overall height   |      |      |       |       |        |         |         |
| male sweat       | 3¾"  | 6½"  | 10"   | 12½"  | 11"    | 13½"    | 16"     |
| male thread      | 3¾"  | 8¼"  | 8¾"   | 11"   | 10½"   | 12½"    | 15½"    |
| CPVC             | 4¼"  | 7½"  | 9½"   | 12"   | —      | —       | —       |
| PEX crimp        | 4¼"  | 6½"  | 8¾"   | 11"   | —      | —       | —       |
| Chamber width    | 7⁄8" | 1¾"  | 1¾"   | 1¾"   | 2¼"    | 2¼"     | 2¼"     |
| Connection size  | ½"   | ½"   | ¾"    | 1"    | 1"     | 1"      | 1"      |
| Volume (cu. in.) | 1.4  | 5    | 7     | 11    | 20     | 29      | 36      |
| Fixture units    | 1-4  | 4-11 | 12-32 | 33-60 | 61-113 | 114-154 | 155-330 |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP          | <input type="checkbox"/> 652-AX A size, PEX crimp   | <input type="checkbox"/> 654-CX C size, PEX crimp |
| <input type="checkbox"/> 660-SB AA size, sweat        | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP        |
| <input type="checkbox"/> 660-V82B AA size, male CPVC  | <input type="checkbox"/> 653-BS B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat     |
| <input type="checkbox"/> 660-V2B AA size, CPVC socket | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP        |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp   | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat     |
| <input type="checkbox"/> 652-A A size, MIP            | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP        |
| <input type="checkbox"/> 652-AS A size, sweat         | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat     |
| <input type="checkbox"/> 652-AC A size, CPVC socket   | <input type="checkbox"/> 654-CC C size, CPVC socket |   |



Sioux Chief Manufacturing Company • tel: 1-800-821-3944 • www.siouxchief.com • fax: 1-800-758-5950

1-11

# WATER HAMMER ARRESTERS

650 & 660 series Hydra-Rester™ & Mini-Rester™

## SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

## MATERIALS

- arrestor body*: type L copper tube
- piston*: poly piston with two EPDM o-rings
- male thread fitting*: no-lead brass MIP thread
- piston lubrication*: Dow-Corning, 111 FDA approved silicone compound

## WORKING LIMITS\*

- max working temperature*: 250°F
- max working pressure*: 350 PSIG
- burst tested*: to 2,900 PSIG
- \* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

## INSTALLATION

- angle*: May be installed at any angle
- access panels*: No access panels required

## SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

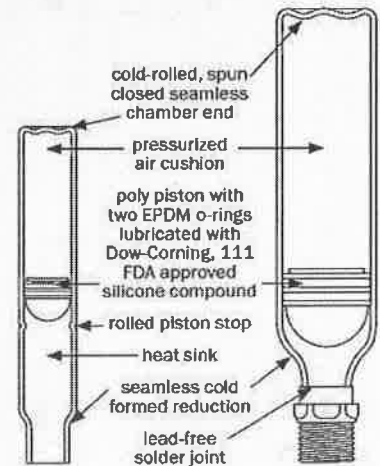
## CERTIFICATIONS/APPROVALS

- 650 series: Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series: Certified by ASSE to the ANSI/ASSE 1010 standard

## DIMENSIONS

| Arrestor size    | AA   | A    | B     | C     | D      | E       | F       |
|------------------|------|------|-------|-------|--------|---------|---------|
| Overall height   |      |      |       |       |        |         |         |
| male sweat       | 3¾"  | 6½"  | 10"   | 12½"  | 11"    | 13½"    | 16"     |
| male thread      | 3¾"  | 8¼"  | 8¾"   | 11"   | 10½"   | 12½"    | 15½"    |
| CPVC             | 4¼"  | 7½"  | 9½"   | 12"   | —      | —       | —       |
| PEX crimp        | 4¼"  | 6½"  | 8¾"   | 11"   | —      | —       | —       |
| Chamber width    | 7⁄8" | 1¾"  | 1¾"   | 1¾"   | 2¼"    | 2¼"     | 2¼"     |
| Connection size  | ½"   | ½"   | ¾"    | 1"    | 1"     | 1"      | 1"      |
| Volume (cu. in.) | 1.4  | 5    | 7     | 11    | 20     | 29      | 36      |
| Fixture units    | 1-4  | 4-11 | 12-32 | 33-60 | 61-113 | 114-154 | 155-330 |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP          | <input type="checkbox"/> 652-AX A size, PEX crimp   | <input type="checkbox"/> 654-CX C size, PEX crimp |
| <input type="checkbox"/> 660-SB AA size, sweat        | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP        |
| <input type="checkbox"/> 660-V82B AA size, male CPVC  | <input type="checkbox"/> 653-BS B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat     |
| <input type="checkbox"/> 660-V2B AA size, CPVC socket | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP        |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp   | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat     |
| <input type="checkbox"/> 652-A A size, MIP            | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP        |
| <input type="checkbox"/> 652-AS A size, sweat         | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat     |
| <input type="checkbox"/> 652-AC A size, CPVC socket   | <input type="checkbox"/> 654-CC C size, CPVC socket |   |



Sioux Chief Manufacturing Company • tel: 1-800-821-3944 • www.siouxchief.com • fax: 1-800-758-5950

1-11

# WATER HAMMER ARRESTERS

650 & 660 series Hydra-Rester™ & Mini-Rester™

## SPECIFICATION

Sioux Chief 650/660 Series piston-type water hammer arresters shall be required in piping systems. Water hammer arresters shall have sufficient volume of air to dissipate the calculated kinetic energy generated in the piping system. Arresters shall be effective when installed at any angle. Arresters shall be approved for installation with no access panel required. Water hammer arresters shall be ANSI/ASSE 1010 2004 certified. Arresters shall be sized and placed per manufacturer's instructions.

## MATERIALS

- arrestor body:* type L copper tube
- piston:* poly piston with two EPDM o-rings
- male thread fitting:* no-lead brass MIP thread
- piston lubrication:* Dow-Corning, 111 FDA approved silicone compound

## WORKING LIMITS\*

- max working temperature:* 250°F
- max working pressure:* 350 PSIG
- burst tested:* to 2,900 PSIG

\* PEX and CPVC connection specifications are limited to those called out in their respective ASTM Standards for Fittings (CPVC D2846, PEX F1807).

## INSTALLATION

- angle:* May be installed at any angle
- access panels:* No access panels required

## SIZING & PLACEMENT

Refer to instructions on product package or in catalog.

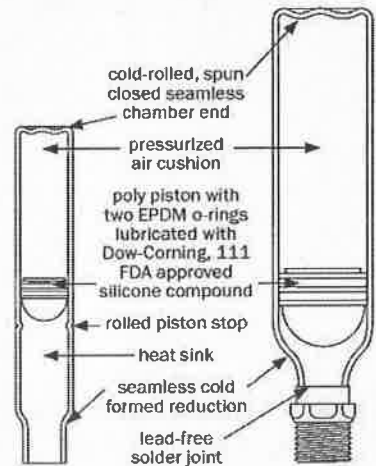
## CERTIFICATIONS/APPROVALS

- 650 series:* Certified by ASSE to the ANSI/ASSE 1010 standard
- 660 series:* Certified by ASSE to the ANSI/ASSE 1010 standard

## DIMENSIONS

| Arrestor size    | AA   | A    | B     | C     | D      | E       | F       |
|------------------|------|------|-------|-------|--------|---------|---------|
| Overall height   |      |      |       |       |        |         |         |
| male sweat       | 3¾"  | 6½"  | 10"   | 12½"  | 11"    | 13½"    | 16"     |
| male thread      | 3¾"  | 8¼"  | 8¾"   | 11"   | 10½"   | 12½"    | 15½"    |
| CPVC             | 4¼"  | 7½"  | 9½"   | 12"   | —      | —       | —       |
| PEX crimp        | 4¼"  | 6½"  | 8¾"   | 11"   | —      | —       | —       |
| Chamber width    | 7⁄8" | 1¾"  | 1¾"   | 1¾"   | 2¼"    | 2¼"     | 2¼"     |
| Connection size  | ½"   | ½"   | ¾"    | 1"    | 1"     | 1"      | 1"      |
| Volume (cu. in.) | 1.4  | 5    | 7     | 11    | 20     | 29      | 36      |
| Fixture units    | 1-4  | 4-11 | 12-32 | 33-60 | 61-113 | 114-154 | 155-330 |

|                  |                 |
|------------------|-----------------|
| Item # Submitted | _____           |
| Job Name         | _____           |
| Location         | _____           |
| Engineer         | _____           |
| Contractor       | _____           |
| PO#              | _____ TAG _____ |



- |   |   |   |
|---|---|---|
| <input type="checkbox"/> 660-2B AA size, MIP          | <input type="checkbox"/> 652-AX A size, PEX crimp   | <input type="checkbox"/> 654-CX C size, PEX crimp |
| <input type="checkbox"/> 660-SB AA size, sweat        | <input type="checkbox"/> 653-B B size, MIP          | <input type="checkbox"/> 655-D D size, MIP        |
| <input type="checkbox"/> 660-V82B AA size, male CPVC  | <input type="checkbox"/> 653-BS B size, sweat       | <input type="checkbox"/> 655-DS D size, sweat     |
| <input type="checkbox"/> 660-V2B AA size, CPVC socket | <input type="checkbox"/> 653-BC B size, CPVC socket | <input type="checkbox"/> 656-E E size, MIP        |
| <input type="checkbox"/> 660-X2B AA size, PEX crimp   | <input type="checkbox"/> 653-BX B size, PEX crimp   | <input type="checkbox"/> 656-ES E size, sweat     |
| <input type="checkbox"/> 652-A A size, MIP            | <input type="checkbox"/> 654-C C size, MIP          | <input type="checkbox"/> 657-F F size, MIP        |
| <input type="checkbox"/> 652-AS A size, sweat         | <input type="checkbox"/> 654-CS C size, sweat       | <input type="checkbox"/> 657-FS F size, sweat     |
| <input type="checkbox"/> 652-AC A size, CPVC socket   | <input type="checkbox"/> 654-CC C size, CPVC socket |   |



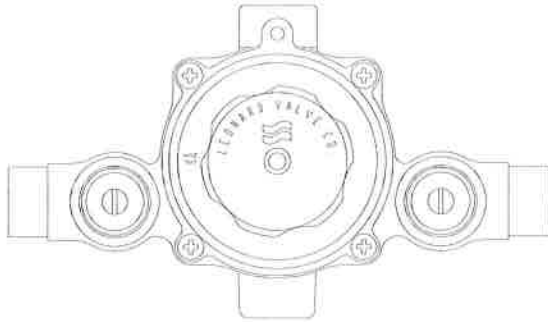
Sioux Chief Manufacturing Company • tel: 1-800-821-3944 • www.siouxchief.com • fax: 1-800-758-5950

1-11



# Thermostatic MIXING VALVES

*ECO-MIX*™



TM-20-LF-E-RF, TM-26-LF-E-RF

## SWEAT CONNECTIONS ONLY

This product is certified to meet Low Lead requirements of wetted surface area containing less than 0.25% lead by weight

|                            |                  |
|----------------------------|------------------|
| <b>Engineer's Approval</b> | Job # _____      |
|                            | Arch/Eng. _____  |
|                            | Contractor _____ |

© 2012 Leonard Valve Company  
Printed in USA

Submittal Data Sheet S-1200-LF  
August 2013

## TYPE TM

TM-20-LF-E-RF \_\_\_\_\_

TM-26-LF-E-RF \_\_\_\_\_

### TM-20-LF-E-RF

- Thermostatic water mixing valve
- DURA-trol® solid bimetal thermostat directly linked to valve porting to control the intake of hot and cold water and compensate for supply temperature or pressure fluctuations. DURA-trol® is highly responsive and cannot be damaged by extremes in temperature.
- ¾" Sweat inlets and outlet
- 1 GPM (3.7 l/m) minimum flow capacity
- Integral combination checkstops
- Internal parts of lead free bronze, lead free brass, and stainless steel
- Integral wall support
- Color-coded dial, HOT-COLD with directional indicators
- Maximum operating pressure 125 PSI (860 KPA)
- Adjustable high temperature limit stop set for 120° F (49° C)
- See Flow Capacity Chart, reverse side, to select correct size
- Locking temperature adjustment knob

Valve is ASSE 1017 Certified 

### TM-26-LF-E-RF

- Thermostatic water mixing valve
- ¾" Sweat inlets and outlet
- 1 GPM (3.7 l/m) minimum flow capacity
- Same as TM-20-LF above
- See Flow Capacity Chart, reverse side, to select correct size

Valve is ASSE 1017 Certified 

### OPTIONS

- \_\_\_ SUFFIX BDT – Ball valve with dial thermometer
- \_\_\_ SUFFIX IT – Inlet thermometers (ship loose)
- \_\_\_ SUFFIX LWS - Less Wall support

**NOTE: CP option is NOT available**

Note: Leonard Valve Company reserves the right of product, or design modifications without notice or obligation.

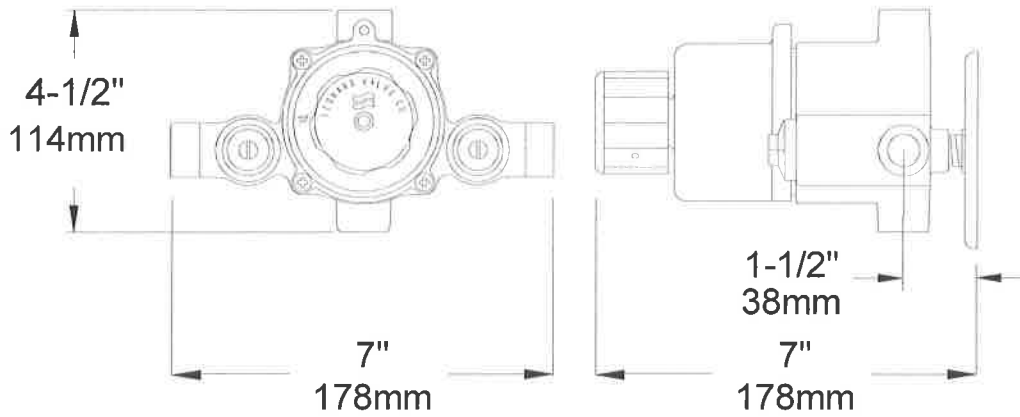


1360 Elmwood Avenue, Cranston, RI 02910 USA

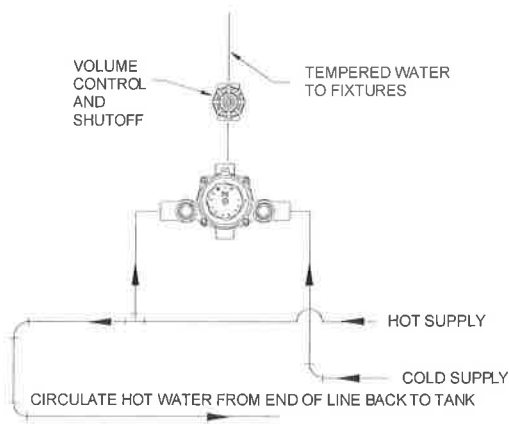
Phone: 401.461.1200 Fax: 401.941.5310

Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)

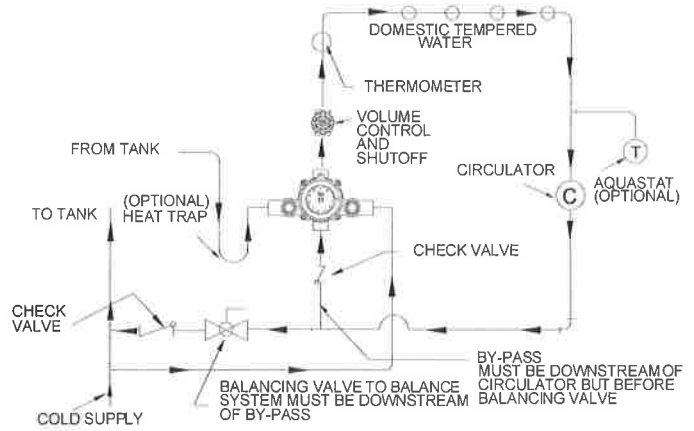
Web Site: <http://www.leonardvalve.com>



REQUIRED PIPING  
METHOD #1



REQUIRED PIPING  
METHOD #2



| MODEL      | IN   | OUT  | MINIMUM FLOW (GPM)<br>(l/min) | SYSTEM PRESSURE DROP (PSIG) |     |     |     |     |     |     |     |     |     |       |
|------------|------|------|-------------------------------|-----------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
|            |      |      |                               | 5                           | 10  | 15  | 20  | 25  | 30  | 35  | 40  | 45  | 50  | PSI   |
|            |      |      |                               | ,3                          | ,7  | .97 | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 | 3.1 | 3.4 | BAR   |
| TM-20-LF-E | 3/4" | 3/4" | 1.0                           | 5                           | 7.3 | 9   | 11  | 13  | 14  | 15  | 16  | 17  | 18  | GPM   |
|            |      |      | 3.7                           | 19                          | 28  | 34  | 42  | 49  | 53  | 57  | 60  | 64  | 68  | l/min |
| TM-26-LF-E | 3/4" | 3/4" | 1.0                           | 7                           | 10  | 13  | 15  | 17  | 19  | 21  | 23  | 25  | 26  | GPM   |
|            |      |      | 3.7                           | 26                          | 38  | 49  | 57  | 64  | 72  | 80  | 87  | 95  | 98  | l/min |



1360 Elmwood Avenue, Cranston, RI 02910 USA

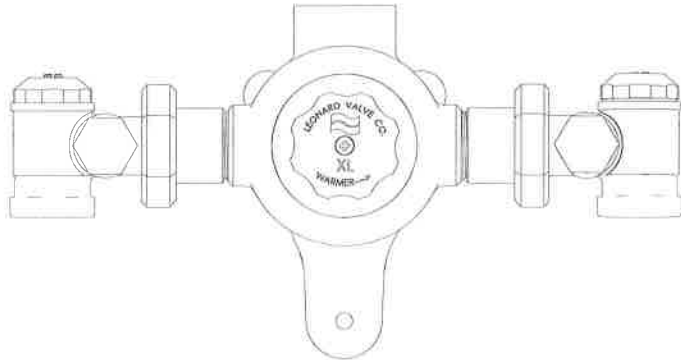
Phone: 401.461.1200 Fax: 401.941.5310

Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)

Web Site: <http://www.leonardvalve.com>

# HIGH LOW THERMOSTATIC MIXING VALVES

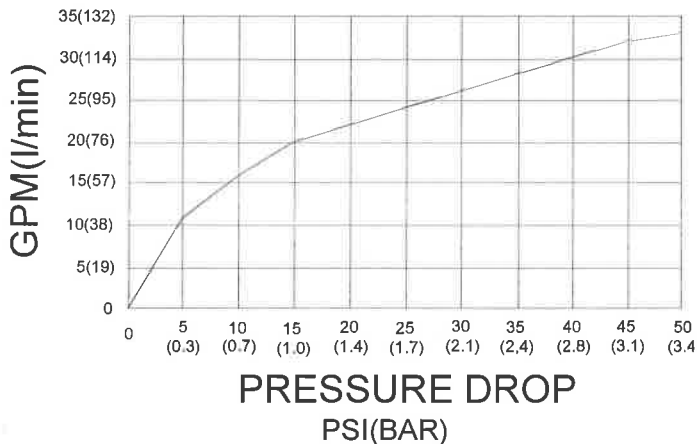
## ECO-MIX™ XL-32-LF \_\_\_\_\_ 1-32 GPM (3.8-121 l/min)



| SYSTEM PRESSURE DROP |     |     |    |     |     |     |     |     |     |     |       |
|----------------------|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|-------|
| MIN+ FLOW            | 5   | 10  | 15 | 20  | 25  | 30  | 35  | 40  | 45  | 50  | PSI   |
|                      | 0.3 | 0.7 | 1  | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 | 3.1 | 3.4 | BAR   |
| 1                    | 11  | 16  | 20 | 22  | 24  | 26  | 28  | 30  | 32  | 33  | GPM   |
| 3.8                  | 42  | 61  | 76 | 83  | 91  | 98  | 106 | 114 | 121 | 125 | l/min |

- High Low Thermostatic Water Mixing Valve with 1 GPM (3.7 l/min) minimum flow capacity
- 3/4" inlets, 3/4" outlet (19mm x 19mm)
- Integral combination checkstops with strainers and wall support
- 125 PSI (8.6 BAR) maximum operating pressure
- Copper encapsulated thermostatic assembly with Teflon coated stainless steel shuttle
- Locking temperature regulating handle set for 120°F(49°C)\*
- Top or bottom inlet connections
- Temperature adjustment range, 90-140°F (32-60°C) \*\*
- Internal parts of stainless steel
- Integral wall support for easy mounting
- Rough Bronze Finish

### FLOW RATE



### OPTIONS

- \_\_\_ SUFFIX **IT** Inlet thermometers
- \_\_\_ SUFFIX **LWS** Less wall support
- \_\_\_ SUFFIX **BDT** Ball valve with dial thermometer

NOTE: Leonard Valve Company reserves the right of product or design modification without notice or obligation

ASSE 1017 CERTIFIED

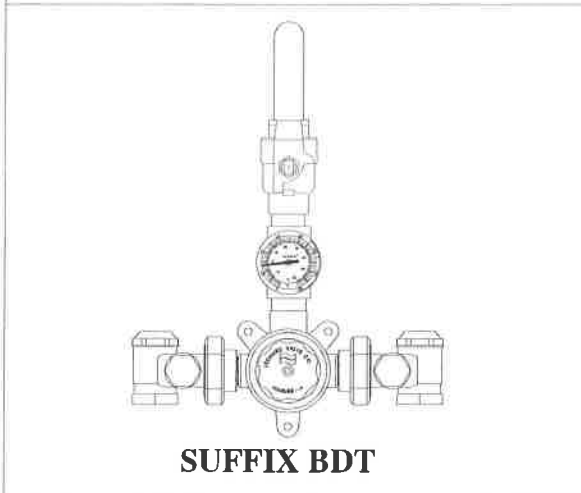
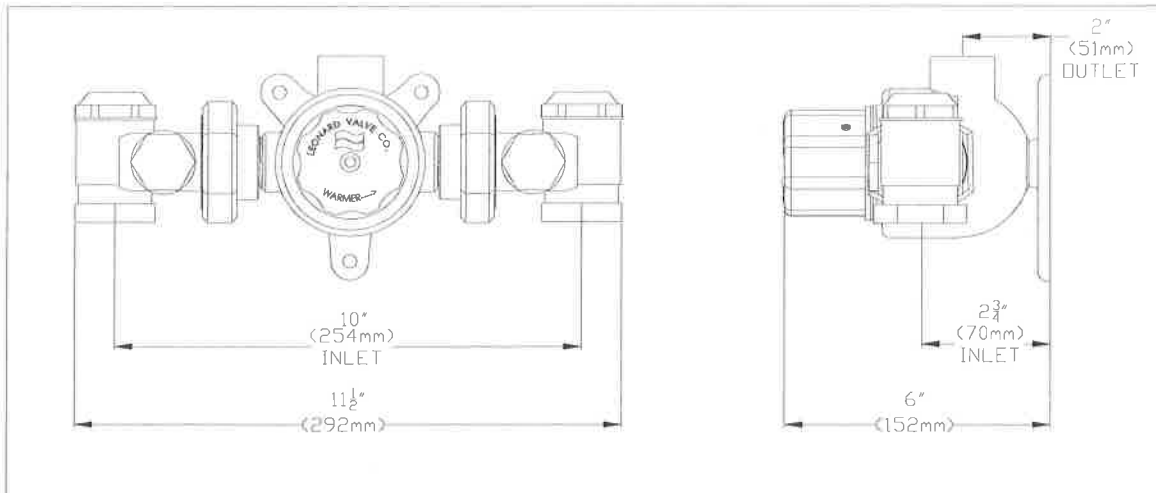


This product is certified to meet Low Lead requirements of wetted surface area containing less than 0.25% lead by weight

\*\*NOTE: For temperatures outside of this valve's stated range, please see our line of bi-metal valves.

+NOTE: The valve will maintain temperature with 0.5GPM flow from the domestic hot water loop when properly installed near the hot water source with a continuously operating recirculation pump.

\*NOTE: A locking temperature regulator set for 120°F (49°C), is simply a mechanical setting to prevent unauthorized temperature set point changes. If incoming water is hotter than 150°F (65.5°C), the temperature of the factory test, the valve may deliver in excess of 120°F. MUST BE RESET BY THE INSTALLER

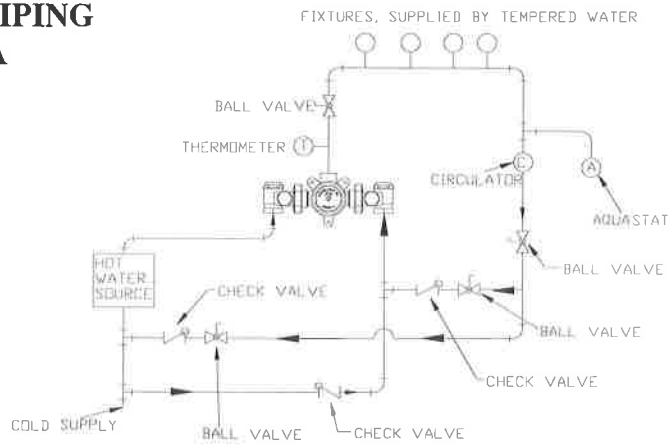


**SUFFIX BDT**



**SUFFIX IT**

**REQUIRED PIPING  
METHOD #2A**



**CAUTION!** All thermostatic water mixing valves have limitations. They will NOT provide the desired accuracy outside of their flow capacity range. Consult the Flow Capacity Chart and DO NOT OVERSIZE. Minimum flow must be no less than as indicated.

PRINTED IN THE U.S.A.



1360 Elmwood Avenue, Cranston, RI 02910 USA

Phone: 401.461.1200 Fax: 401.941.5310

Email: [info@leonardvalve.com](mailto:info@leonardvalve.com)

Web Site: <http://www.leonardvalve.com>



## PRIME-RITE TRAP PRIMER VALVE

### PRIME-RITE

"...Automatically maintains a constant water seal in floor drain traps."

**Just the facts:**

This innovative trap priming system automatically primes up to two floor drain traps using our patented water distribution system. The PRIME-RITE requires no adjustment but must be installed on a cold water line of 1 1/2" (38 mm) diameter or less. The priming valve is automatically activated when it senses a pressure drop of 10 PSIG (70 kpa). The valve's operating range is 20 to 80 PSIG (138 to 552 kpa).

**NO Adjustment Required**

PART NO: PR-500/PR-500AUS



#### PRIME-RITE TRAP PRIMING VALVE SPECIFICATIONS

- > PPP Model # PR-500 AUS is machined from DZR corrosion resistant brass.
- > PPP Model #PR-500AUS approved to Australian Standards Lic #IP92.
- > This priming valve contains: NO springs, diaphragms, or plastic parts and uses #60 mesh stainless steel screen.



Patent No. 4,497,337

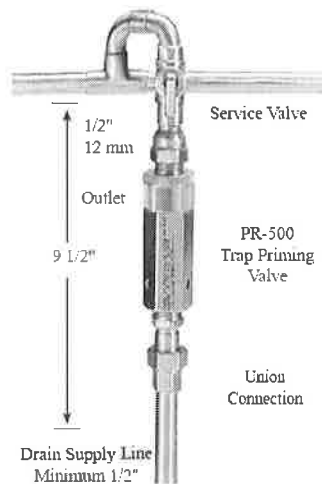
### TRAP PRIMER DISTRIBUTION UNITS

#### FLOOR DRAIN TRAP PRIMER DISTRIBUTION CHART

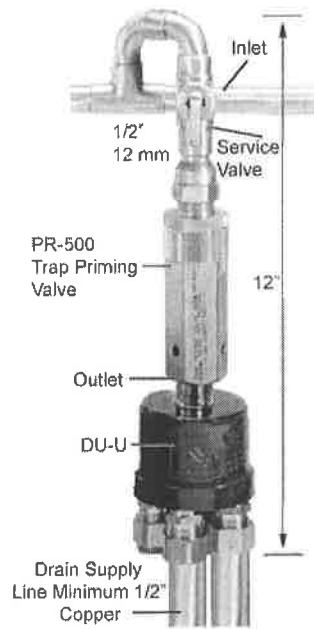
| No. of Drains | Distribution Units |
|---------------|--------------------|
| 1             | N/A                |
| 2             | DU-4/DU-U          |

> MAX WATER DELIVERY: Based upon pressure drop.  
> PRIMER MODEL: PR-500 PRIME-RITE

### Single Drain Installation



### Multipule Drain Installation

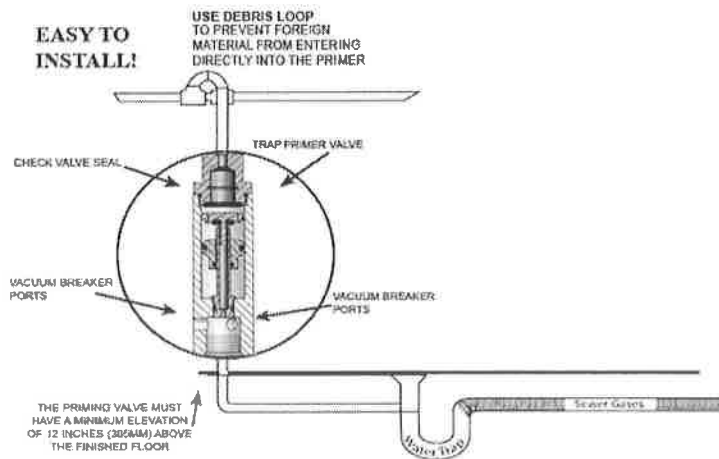


**SPECIFICATIONS:**

**DISTRIBUTION UNITS DU-4 & DU-U.**  
 A metered amount of water from the floor drain trap primer is distributed to as many as two (2) floor drain traps by means of the patented distribution unit.  
 The priming valve must have a minimum elevation of 12" inches (305 mm) above the finished floor.

**DISTRIBUTION UNIT INSTALLATION:**

- > Must be installed level.
- > Must be installed with clear plastic cover.
- > Must be installed with access for periodic inspection.
- > Do not subject trap primer to rough-in pressure test.
- > Use debris loop to prevent foreign material from entering directly into the Primer.
- > For further detail see information sheet specific for the distribution units.



"Specify with confidence - Install with pride"

**Related Documents**  
 Prime Rite - PDF Plugin Required

*Thank You!* Be sure to fill out our SURVEY! Tell us how we rank!

**Recently Visited Documents**  
 Home Page  
 Precision Plumbing Products internet home page



## PRIME-RITE TRAP PRIMER VALVE

### PRIME-RITE

"...Automatically maintains a constant water seal in floor drain traps."

**Just the facts:**

This innovative trap priming system automatically primes up to two floor drain traps using our patented water distribution system. The PRIME-RITE requires no adjustment but must be installed on a cold water line of 1 1/2" (38 mm) diameter or less. The priming valve is automatically activated when it senses a pressure drop of 10 PSIG (70 kpa). The valve's operating range is 20 to 80 PSIG (138 to 552 kpa).

**NO Adjustment Required**

PART NO: PR-500/PR-500ALS



### PRIME-RITE TRAP PRIMING VALVE SPECIFICATIONS

- > PPP Model # PR-500 AUS is machined from DZR corrosion resistant brass.
- > PPP Model #PR-500AUS approved to Australian Standards Lic. #IP92.
- > This priming valve contains: NO springs, diaphragms, or plastic parts and uses #60 mesh stainless steel screen.



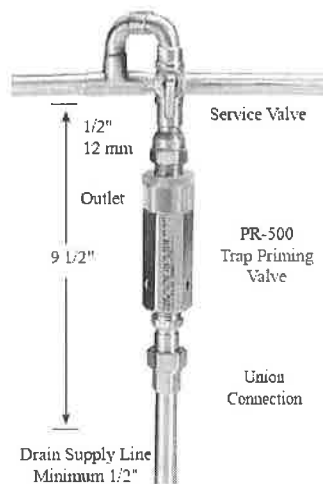
### TRAP PRIMER DISTRIBUTION UNITS

#### FLOOR DRAIN TRAP PRIMER DISTRIBUTION CHART

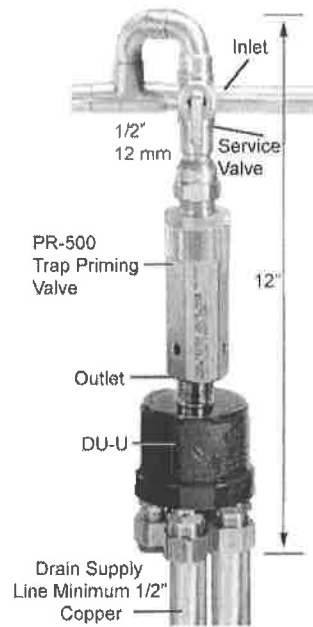
| No. of Drains | Distribution Units |
|---------------|--------------------|
| 1             | N/A                |
| 2             | DU-4/DU-U          |

> MAX WATER DELIVERY: Based upon pressure drop.  
> PRIMER MODEL: PR-500 PRIME-RITE

### Single Drain Installation



### Multipule Drain Installation

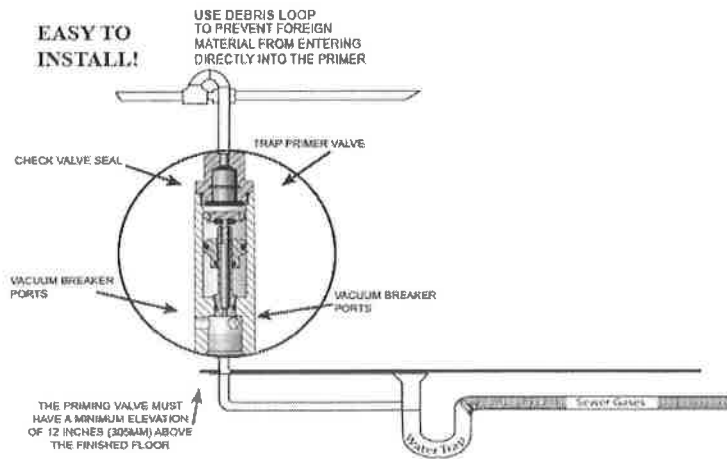


**SPECIFICATIONS:**

**DISTRIBUTION UNITS DU-4 & DU-U.**  
 A metered amount of water from the floor drain trap primer is distributed to as many as two (2) floor drain traps by means of the patented distribution unit.  
 The priming valve must have a minimum elevation of 12" inches (305 mm) above the finished floor.

**DISTRIBUTION UNIT INSTALLATION:**

- > Must be installed level.
- > Must be installed with clear plastic cover.
- > Must be installed with access for periodic inspection.
- > Do not subject trap primer to rough-in pressure test.
- > Use debris loop to prevent foreign material from entering directly into the Primer.
- > For further detail see information sheet specific for the distribution units.



"Specify with confidence - Install with pride"

**Related Documents**  
 Prime-Rite - HDI Primer Manual

*Thank You!* Be sure to fill out our SURVEY! Tell us how we rank!

**Recently Visited Documents**  
 Home Page  
 Precision Plumbing Products internet home page



## FLOOR DRAIN TRAP PRIMER FRESH WATER DISTRIBUTION SYSTEMS

### FLOOR DRAIN TRAP PRIMER FRESH WATER DISTRIBUTION SYSTEMS

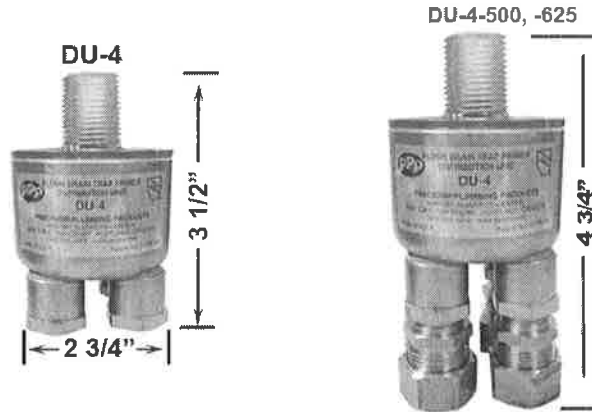
"Specify with confidence - Install with pride".

**JUST THE FACTS:**

The Trap Priming Distribution Systems are patented designs that incorporate both copper and PVC materials.

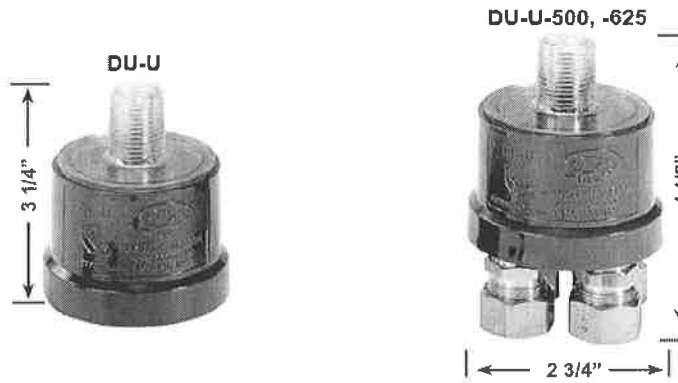
These designs give the installer a simple and positive means to prime multiple floor drains using only one Precision Plumbing Trap Priming Valve.

It is our recommendation that the distribution unit be mounted level. The fresh water supply line, running from the distribution unit to the trap, must be a minimum of 1/2" O.D. copper tube.



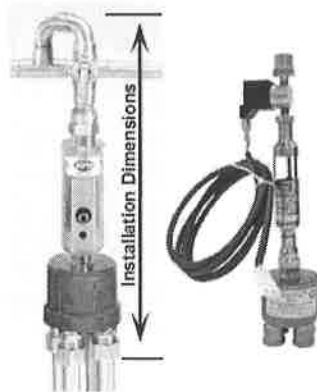
DU-4 is a copper body distribution unit with 1/2" male NPT composite inlet.

UNIVERSAL DISTRIBUTION UNIT



DU-U is a PVC body distribution unit with 1/2" male NPT composite inlet.

UNIVERSAL DISTRIBUTION UNIT



**INSTALLATION DIMENSION**

| PRIMER MODEL | DU-4    | DU-4-500/625 | DU-U    | DU-U-500/625 |
|--------------|---------|--------------|---------|--------------|
| P-1          | 12 1/2" | 12 3/4"      | 12"     | 12 1/4"      |
| P-2          | 12 1/2" | 12 3/4"      | 12"     | 13 1/4"      |
| PRIME-RITE   | 12 1/2" | 12 3/4"      | 12"     | 13 1/4"      |
| OREGON #1    | 14 1/2" | 14 3/4"      | 13 1/2" | 14 3/4"      |
| CPO-500      | 14 1/2" | 14 3/4"      | 13 1/2" | 14 3/4"      |
| SP-500       | 12"     | 12 3/4"      | 11 1/2" | 12 3/4"      |
| MP-500       | 12"     | 12 3/4"      | 11 1/2" | 12 3/4"      |
| MPB-500      | 17 3/4" | 19"          | 17 1/2" | 18 3/4"      |
| PRO1-500     | 6 1/2"  | 7 3/4"       | 6 1/8"  | 7 1/4"       |



PATENT NUMBERS 3,776,269 - 6,325,091

**Related Documents**

 Distribution unit Specifications - PDF Plug in Required

*Thank You!* **Be sure to fill out our SURVEY! Tell us how we rank!**

**Recently Visited Documents**

Home Page  
Precision Plumbing Products Internet home page

DUALFLOW CPO-500  
Floor Drain, Trap Primer Valve, Trap Priming, Multiple drain traps, automatic floor drain trap,

PR-500 Primer Valve  
trap priming, trap primer, floor drain, priming manifold, plumbing, piping,

© Copyright 2006 - All Rights Reserved

## For Health Hazard Applications

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

## Series 8 Hose Connection Vacuum Breakers

**Size:** 3/4" (20mm) hose thread

Series 8 is a line of unique vacuum breakers specially made to permit the attachment of portable hoses to hose thread faucets. Designed to prevent the flow of contaminated water back into the potable water supply, these devices require no plumbing changes, and screw directly onto a sill cock.

Series 8 can be used on a wide variety of installations, such as service sinks, swimming pools, photo developing tanks, laundry tubs, wash racks, dairy barns, marinas and general outside gardening uses.

### Features

- Brass body (all models except 8P)
- Stainless steel working parts for longevity
- Durable rubber diaphragm and disc for consistent positive seating

### Models

**8A** - Furnished with exclusive "Non-Removable" feature and standardly equipped to allow sill cock to be drained.

**Note:** Device should only be installed on approved sill cocks containing at least four full threads. Non-removable once installed.

**8** - Similar to the 8A except it is furnished without the "Non-Removable" or draining feature. Secured with Allen head set screw.

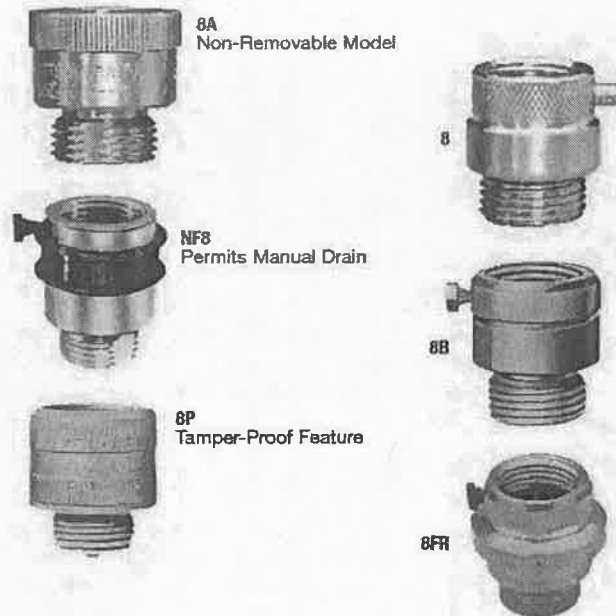
**8B** - Furnished with break-away set screw to provide a tamper-resistant installation. Standardly equipped to allow sill cock to be drained.

**NF8** - Especially made for wall and yard hydrants. Permits manual draining for freezing conditions.

**8P** - Furnished with exclusive patented "Non-Removable" feature. Standardly equipped to allow sill cock to be drained. Constructed of durable, corrosion-resistant, reinforced thermoplastic. Tamper-proof feature.

**8AC, 8C, 8BC or NF8C** - Same as above but furnished with chrome finish.

**8FR** - With freeze relief feature. Protects the 8FR from freeze damage.



### IMPORTANT NOTE:

Series 8 is tested and certified under ANSI A112.1.3 (ASSE 1011), which precludes use under continuous pressure.

**This valve should only be used in areas where spillage of water will not cause damage.**

**Inlet Connection:** 3/4" (20mm) standard female hose thread

**Outlet Connection:** 3/4" (20mm) standard male hose thread

**Maximum Pressure:** 125psi (8.6 bar)

**Maximum Temperature:** 180°F (82°C)

For backflow preventers for tub and shower hand spray sets, request literature ES-S8.

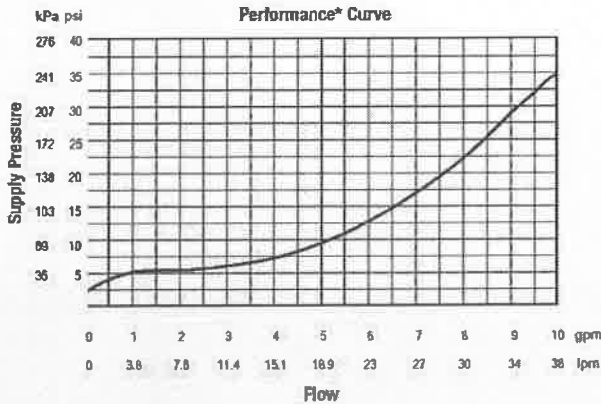
### Specifications

A hose connection type anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the back-siphonage of contaminated water. This device is not to be used under continuous pressure or where there is a possibility that a backpressure condition may develop. This device shall meet the requirements of ANSI A112.1.3, ASSE Standard 1011. Vacuum breaker shall be a Watts Series 8.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

**WATTS®**

Capacity



\*Performance as established by an independent testing laboratory.

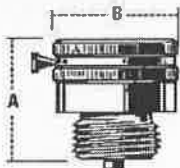
Approvals



Series 8, 8A, 8B, 8P, 8FR and NF8 are listed by IAPMO.

**IMPORTANT:** Inquire with governing authorities for local installation requirements.

Dimensions – Weights

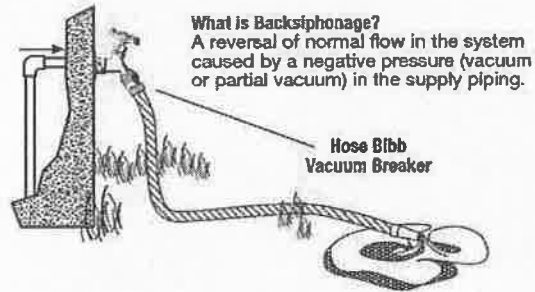
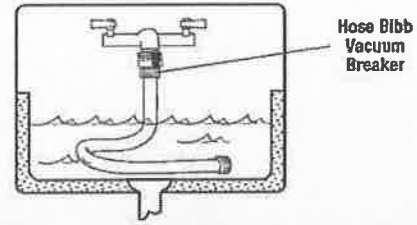


| MODEL          | SIZE (DN) |    | DIMENSIONS |    |       |    | WEIGHT |       |
|----------------|-----------|----|------------|----|-------|----|--------|-------|
|                | in.       | mm | A          |    | B     |    | oz.    | gm.   |
| 8, 8C, 8B, 8BC | 1/4 HT    | 20 | 1 1/2      | 38 | 1 3/8 | 35 | 4.0    | 113.4 |
| 8A, 8AC        | 1/4 HT    | 20 | 1 1/2      | 38 | 1 1/2 | 38 | 4.0    | 113.4 |
| NF8, NF8C      | 1/4 HT    | 20 | 2          | 51 | 1 1/2 | 38 | 5.3    | 151.2 |
| 8P             | 1/4 HT    | 20 | 1 3/4      | 38 | 1 3/8 | 35 | 1.5    | 42.5  |
| 8FR            | 1/4 HT    | 20 | 1 3/4      | 38 | 1 3/4 | 38 | 7.0    | 200.0 |

Installations

For Inside or Outside Use

Installation - Inside Service Sink



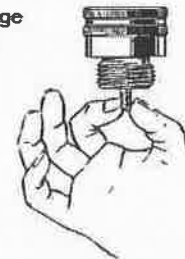
**What is Backsiphonage?**  
A reversal of normal flow in the system caused by a negative pressure (vacuum or partial vacuum) in the supply piping.

Drainage Features to Prevent Freezing

Models 8A, 8B, 8FR and 8P hose connection vacuum breakers are constructed to allow sill cocks to be drained. Simply remove hose coupling and lightly pull knurled tip of stem at outlet of valve to allow drainage of collected water.

**Note:** Do not use Models 8, 8A, 8B, 8P, 8FR Hose Bibb Vacuum Breakers on frost-free hydrants. Specify Model NF8.

Do not use where discharge of water is objectionable.



A Watts Water Technologies Company



USA: 815 Chestnut St., No. Andover, MA 01845-6098; www.watts.com  
Canada: 5435 North Service Rd., Burlington, ONT. L7L 5H7; www.wattscanada.ca



## For Health Hazard Applications

Job Name \_\_\_\_\_  
 Job Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Approval \_\_\_\_\_

Contractor \_\_\_\_\_  
 Approval \_\_\_\_\_  
 Contractor's P.O. No. \_\_\_\_\_  
 Representative \_\_\_\_\_

# LEAD FREE\*

## Series LF8 Hose Connection Vacuum Breakers

Size: 3/4" hose thread

Series LF8 is a line of unique vacuum breakers specially made to permit the attachment of portable hoses to hose thread faucets. Designed to prevent the flow of contaminated water back into the potable water supply, these devices require no plumbing changes and screw directly onto sill cocks. The Series LF8 features Lead Free\* construction to comply with Lead Free\* installation requirements.

Series LF8 can be used on a wide variety of installations, such as service sinks, swimming pools, photo developing tanks, laundry tubs, wash racks, dairy barns, marinas and general outside gardening uses.

### Features

- Copper sillon alloy body (all models except 8P, which is plastic)
- Stainless steel working parts for longevity
- Durable rubber diaphragm and disc for consistent positive seating

### Models

LF8A - Furnished with exclusive "Non-Removable" feature and standardly equipped to allow sill cock to be drained.

#### NOTICE

Device should only be installed on approved sill cocks containing at least four full threads. Non-removable once installed.

LF8 - Similar to the 8A except it is furnished without the "Non-Removable" or draining feature. Secured with Allen head set screw.

LF8B - Furnished with break-away set screw to provide a tamper-resistant installation. Standardly equipped to allow sill cock to be drained.

LFNF8 - Especially made for wall and yard hydrants. Permits manual draining for freezing conditions.

8P - Furnished with exclusive patented "Non-Removable" feature. Standardly equipped to allow sill cock to be drained. Constructed of durable, corrosion-resistant, reinforced thermoplastic. Tamper-proof feature.

LF8AC, LF8C or LF8BC - Same as above but furnished with chrome finish.

LF8FR - With freeze relief feature.



#### NOTICE

Series LF8 is tested and certified under ANSI A112.1.3 (ASSE 1011), which precludes use under continuous pressure. This valve should only be used in areas where spillage of water will not cause damage.

Inlet Connection: 3/4" standard female hose thread

Outlet Connection: 3/4" standard male hose thread

Maximum Pressure: 125psi (8.6 bar)

Maximum Temperature: 180°F (82°C)

For backflow preventers for tub and shower hand spray sets, request literature ES-S8.

### Specifications

A hose connection type anti-siphon vacuum breaker shall be installed where indicated on the plans to prevent the backsiphonage of contaminated water. Lead Free\* hose connection vacuum breaker shall be constructed using Lead Free\* materials. Lead Free vacuum breaker shall comply with state codes and standards, where applicable, requiring reduced lead content. This device is not to be used under continuous pressure or where there is a possibility that a backpressure condition may develop. This device shall meet the requirements of ANSI A112.1.3, ASSE Standard 1011. Vacuum breaker shall be a Watts Series LF8.

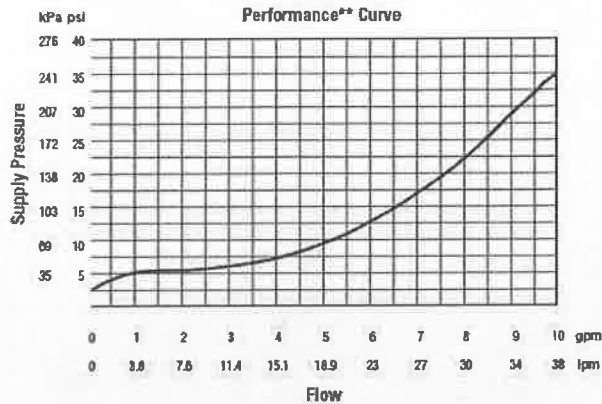
\*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

# WATTS®

221006-2.12 VACUUM BREAKER FOR HOSE CONNECTION

Capacity



\*\*Performance as established by an independent testing laboratory.

Approvals

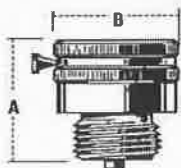


Series LF8, LF8A, LF8B, 8P, LF8FR and LFNF8 are listed by IAPMO.

**NOTICE**

Inquire with governing authorities for local installation requirements

Dimensions – Weights

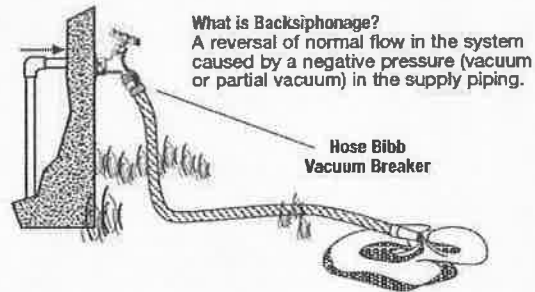
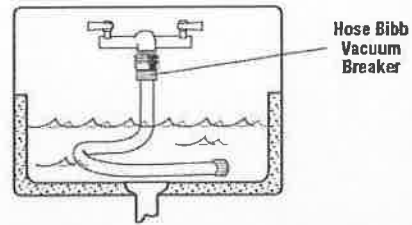


| MODEL                  | SIZE   | DIMENSIONS |    |       |    | WEIGHT |       |
|------------------------|--------|------------|----|-------|----|--------|-------|
|                        |        | A          |    | B     |    | oz.    | gm.   |
|                        | in.    | in.        | mm | in.   | mm |        |       |
| LF8, LF8C, LF8B, LF8BC | 3/4 HT | 1 1/2      | 38 | 1 3/8 | 35 | 4.0    | 113.4 |
| LF8A, LF8AC            | 3/4 HT | 1 1/2      | 38 | 1 1/2 | 38 | 4.0    | 113.4 |
| LFNF8                  | 3/4 HT | 2          | 51 | 1 1/2 | 38 | 5.3    | 151.2 |
| 8P                     | 3/4 HT | 1 3/4      | 38 | 1 3/8 | 35 | 1.5    | 42.5  |
| LF8FR                  | 3/4 HT | 1 3/4      | 38 | 1 3/4 | 38 | 7.0    | 200.0 |

Installations

For Inside or Outside Use

Installation - Inside Service Sink



**What is Back-siphonage?**  
A reversal of normal flow in the system caused by a negative pressure (vacuum or partial vacuum) in the supply piping.

**Drainage Features to Prevent Freezing**  
Models LF8A, LF8B, LF8FR and 8P hose connection vacuum breakers are constructed to allow sill cocks to be drained. Simply remove hose coupling and lightly pull knurled tip of stem at outlet of valve to allow drainage of collected water.

**NOTICE**

Do not use Models LF8, LF8A, LF8B, 8P, LF8FR Hose Bibb Vacuum Breakers on frost-free hydrants. Specify Model LFNF8.

Do not use where discharge of water is objectionable.



A Watts Water Technologies Company



ISO 9001-2008 CERTIFIED

USA: Tel: (978) 688-1811 • Fax: (978) 794-1848 • www.watts.com  
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • www.watts.ca

ES-LF8 1331

© 2013 Watts

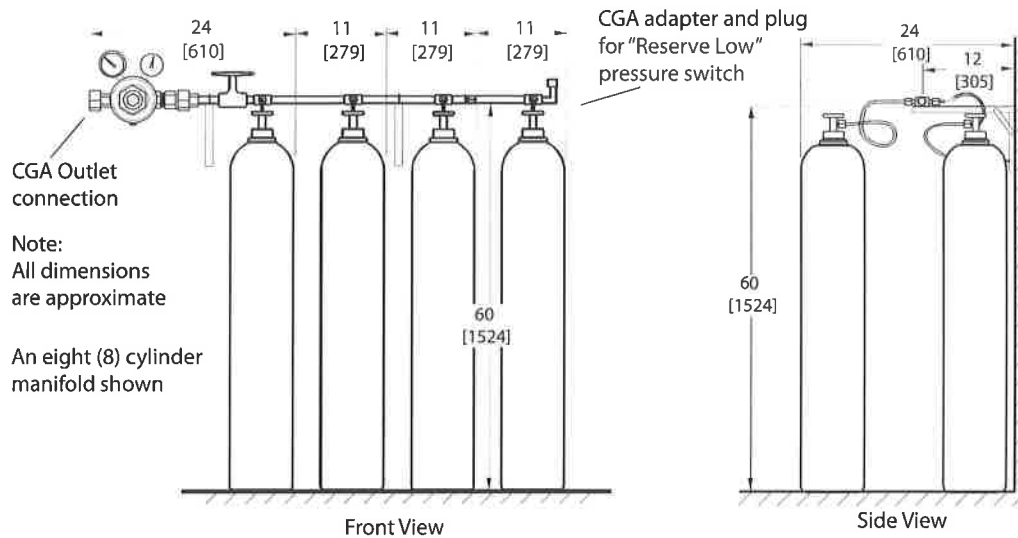


# Simplex Manifold

## Reserve Manifold



Inch  
[mm]



### Features:

- Rigid copper pigtails with check valve
- 3000 psi working pressure
- CGA adapter port for pressure switch installation
- Wall mounted bracket included
- Staggard type for maximizing wall space
- High pressure master isolation valve
- High flow capacity regulator
- Cleaned for oxygen service
- Simplex Manifold complies with NFPA-99

## Model Numbers

### M-SIMP-E-XX-GAS

Simplex reserve manifold.

Replace XX with the total amount of cylinders.  
Replace GAS with the appropriate gas.

For example: 10 Cylinder Medical Air = M-SIMP-E-10-AIR

| Cylinders | Overall Manifold Length |                |
|-----------|-------------------------|----------------|
| 2         | 26 [660]                |                |
| 4         | 39 [991]                |                |
| 6         | 52 [1321]               | Medical Air    |
| 8         | 65 [1651]               | Oxygen         |
| 10        | 78 [1981]               | Carbon Dioxide |
| 12        | 91 [2311]               | Nitrous Oxide  |
| 14        | 104 [2642]              | Nitrogen       |
| 16        | 117 [2972]              |                |
| 18        | 130 [3302]              |                |
| 20        | 143 [3632]              |                |

M-PRSW-RES  
Pressure Switch set @ 1,100 psi decreasing pressure.



Amico Corporation 85 Fulton Way, Richmond Hill, ON L4B 2N4, Canada | 71 East Industry Court, Deer Park, NY 11729, USA  
Toll Free Tel: 1.877.462.6426 | Toll Free Fax: 1.866.440.4986 | Tel: 905.764.0800 | Fax: 905.764.0862

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Plumbing Equipment

SPECIFICATION REFERENCES: 223000

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

Date: January 17, 2014

By: *Sh A Dohy*

(signed)

Steven A Dohy

(printed)

INSTALLER: Gainesville Mechanical

Date: January 17, 2014

By: *Sh A Dohy*

(signed)

Steven A Dohy

(printed)

OTHER: \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_

(signed)

(printed)

END OF FORM

**223000 PLUMBING EQUIPMENT**

**STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW**

**AO SMITH    2.1A    DURA POWER ELEC WATER HTR**

**AO SMITH    2.1B    DURA POWER III ELEC WATER  
HEATER**

223000-2.2A TIME CLOCK

TORK 2.2A TIME CLOCK

P22300 2.3A DIAPHRAGM TYPE COMP TANKS

AMTROL AST20VC 8G THERM X TROL EXP

TANK WHTR

223000-2.4A CIRC PUMP

GRUNDFOS G96806130 LF 3/4 NPT ISO VLV KIT



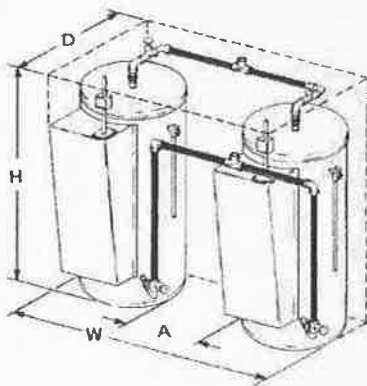
# Commercial Electric Water Heaters

## Dura-Power MANIFOLD KITS

### MODELS DVE-52, 80, 120 AND DRE-52, 80, 120, AND DSE-65, 80, 100, 120

Precision cut type "L" all copper tube manifold kits assure water flow balance of all units. Without this balance, the full water heating and storage potential of the system cannot be achieved. All tubing, elbows and valves required for manifold construction as illustrated are contained in the kit.

Dimensions shown are for minimum space occupied by complete assemblies. Service space in front of the units must be added. The manifold kits are provided with gate valves to isolate units for servicing.

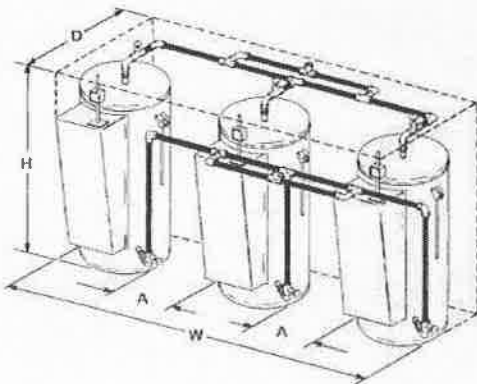


#### ALL DIMENSIONS IN INCHES

##### TWO HEATERS

| Model       | Part Number | H      | W      | D      | A      |
|-------------|-------------|--------|--------|--------|--------|
| DRE/DVE-52  | 9003429205  | 66-1/4 | 56-3/4 | 27-1/4 | 13-1/4 |
| DRE/DVE-80  |             | 70-1/2 | 60-1/4 | 31-1/4 | 9-3/4  |
| DRE/DVE-120 |             | 73-1/4 | 64-1/2 | 35-3/4 | 5-1/2  |
| DSE-6       |             | 61-1/2 | 59-1/2 | 30-1/4 | 10-1/2 |
| DSE-80      |             | 60-1/4 | 61-1/2 | 32-1/4 | 8-1/2  |
| DSE-100     |             | 69-1/4 | 61-1/2 | 32-1/4 | 8-1/2  |
| DSE-120     |             | 74-1/4 | 63     | 33-3/4 | 7      |

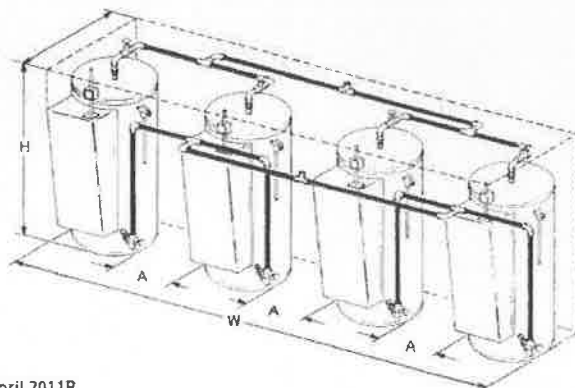
Inlet and Outlet Size - 1-1/2



##### THREE HEATERS

| Model       | Part Number | H      | W      | D      | A      |
|-------------|-------------|--------|--------|--------|--------|
| DRE/DVE-52  | 9003430205  | 66-1/4 | 91-3/4 | 27-1/4 | 13-1/4 |
| DRE/DVE-80  |             | 70-1/2 | 95-1/4 | 31-1/4 | 9-3/4  |
| DRE/DVE-120 |             | 73-1/4 | 99-1/2 | 35-3/4 | 5-1/2  |
| DSE-65      |             | 61-1/2 | 94-1/2 | 30-1/4 | 10-1/2 |
| DSE-80      |             | 60-1/4 | 96-1/2 | 32-1/4 | 8-1/2  |
| DSE-100     |             | 69-1/4 | 96-1/2 | 32-1/4 | 8-1/2  |
| DSE-120     |             | 74-1/4 | 98     | 33-3/4 | 7      |

Inlet and Outlet Size - 2-1/2



##### FOUR HEATERS

| Model       | Part Number | H      | W       | D      | A      |
|-------------|-------------|--------|---------|--------|--------|
| DRE/DVE-52  | 9003431205  | 66-1/4 | 126-3/4 | 27-1/4 | 13-1/4 |
| DRE/DVE-80  |             | 70-1/2 | 130-1/4 | 31-1/4 | 9-3/4  |
| DRE/DVE-120 |             | 73-1/4 | 134-1/2 | 35-3/4 | 5-1/2  |
| DSE-65      |             | 61-1/2 | 129-1/2 | 30-1/4 | 10-1/2 |
| DSE-80      |             | 60-1/4 | 131-1/2 | 32-1/4 | 8-1/2  |
| DSE-100     |             | 69-1/4 | 131-1/2 | 32-1/4 | 8-1/2  |
| DSE-120     |             | 74-1/4 | 133     | 33-3/4 | 7      |

Inlet and Outlet Size - 2-1/2



# Commercial Electric Water Heaters

**COMMERCIAL ELECTRIC WATER HEATER COMPARISON TABLE**

| Model <sup>1</sup><br>A. O. Smith      | Approvals                        | Max. KW          | Element Operation <sup>3</sup> |                |     |                |     |     | Element Operation <sup>3</sup> | Tank Work Press.                                    | Maximum Thermostat Setting (°F) | Separate Control Circuit Has Contactor(s) | Application Notes <sup>6</sup>   |   |
|--|----------------------------------|------------------|--------------------------------|----------------|-----|----------------|-----|-----|--------------------------------|---|---------------------------------|---|--|---|
|  |                                  |                  | 208                            |                | 240 |                | 277 |     |                                |   |                                 |   |  | 480   |
|  |                                  |                  | 1                              | 2              | 1   | 3              | 1   | 3   | 1                              | 3   |                                 |   |  |   |
| DEL/DEN-30                             | UL                               | 12               |                                |                |     |                |     |     |                                |   |                                 |   | Interlocking circuit figure recovery of one element only. Simultaneous circuit figure upper element recovery at 1/3 capacity and lower element at full capacity. |   |
| DEL/DEN-40                             | ASHRAE                           | 12               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DEL/DEN-50                             | 90A-1980                         | 12               |                                | X <sup>2</sup> |     | X <sup>2</sup> |     |     |                                | X <sup>2</sup>                                      |                                 |   |  |   |
| DEN-66                                 |                                  | 12               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DEN-80                                 |                                  | 12               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DEN-120                                |                                  | 12               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DRE-52                                 | UL NSF                           | 36               | X +                            | X +            | X + | X +            | X + | X + | X +                            | X +   |                                 |   | 2/3/4 heater manifold kits with valves available.  |   |
| DRE-80                                 | ASHRAE                           | 54               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DRE-120                                | 90A-1980 CSA                     | 54               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-5                                  | UL NSF ASME NB ASHRAE 90.1b/1992 | 3                |                                |                |     |                |     |     |                                |   | 180                             | X (120 Volts)                             |  |   |
| DSE-10                                 |                                  | 6                |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-20                                 |                                  | 18               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-30                                 |                                  | 24               | X +                            | X              | X + | X              | X   | X + | X                              |   |                                 |   |  |   |
| DSE-40                                 |                                  | 36               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-50                                 |                                  | 90               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-65                                 |                                  | 90               | X +                            |                |     |                |     |     |                                |   |                                 |   | 2/3/4 heater manifold kits with valves available.  |   |
| DSE-80                                 |                                  | 90 to 75 kw max. |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-100                                |                                  |                  |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DSE-120                                |                                  |                  |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| CMC (5 gallons)                        | UL NSF NB ASME CSA               | 54               | X +                            | X <sup>5</sup> | X + | X <sup>5</sup> | X   | X + | X                              | Simultaneous  | 150                             | 194                                       | X (120 Volts)  | Primarily booster heaters for dishwasher rinse. |
| (20 gallons)                           |                                  | 54               | X +                            | X              | X + | X              | X   | X + | X                              | Simultaneous  | 150                             | 194                                       |  |   |
| DVE-52                                 | UL NSF                           | 54               |                                |                |     |                |     |     |                                |   |                                 |   | 2/3/4 heater manifold kits with valves available.  |   |
| DVE-80                                 | ASHRAE                           | 54               | X +                            | X +            | X + | X +            | X   | X + | X +                            | Simultaneous or optional thermostat "step" control. | 150                             | 180                                       |  | X (120 Volts)                                   |
| DVE-120                                | 90A-1980 CSA 8                   | 54               |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DVE-125                                | UL ASME NB ASHRAE 90.1b-1992     | 120              |                                |                |     |                |     |     |                                |   | 180                             | X (120 Volts)                             | "DHE" models for horizontal installation 200 gallons and above.  |   |
| DVE-150 or 15L                         |                                  | 150              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 200                                    |                                  | 180              | X                              | XN             | X   |                |     |     |                                |   |                                 |   |  |   |
| 250                                    |                                  | 240              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DVE-300                                |                                  | 300              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| DHE-350                                |                                  | 390              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 400                                    |                                  | 390              |                                |                |     |                |     | X   | X                              |   |                                 |   |  |   |
| 500                                    |                                  | 480              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 600                                    |                                  | 600              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 700                                    |                                  | 660              |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 800                                    | 720                              |                  |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| 1000                                   | 990                              |                  |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
| Larger units available. (See catalog). |                                  |                  |                                |                |     |                |     |     |                                |   |                                 |   |  |   |
|  |                                  |                  | 208                            |                | 240 |                | 277 |     | 480                            |   | 600                             |   |  |   |
|  |                                  |                  | 1                              | 3              | 1   | 3              | 1   | 3   | 1                              | 3   |                                 |   |  |   |

- <sup>1</sup> The model number indicates the normal tank size in U.S. gallons. Exceptions: 120 which is listed as 119 gallons.
- <sup>2</sup> Unbalanced 3 Ø - convertible to 1 Ø.
- <sup>3</sup> Recovery based on full kw operation for one hour. Figured at 1 kw 4.1 gallons @ 100°F rise.
- <sup>4</sup> + Convertible to 1 Ø or 3 Ø.  
• Convertible to 3 Ø.
- <sup>5</sup> Condition phase convertability, see spec. sheet.
- <sup>6</sup> All are for general purpose hot water and can be used for dishwasher rinse (except DEL/DEN), also check Approvals column if NSF is required. Only special application notes are listed.
- <sup>7</sup> Y connected elements operate at 277 volts 1 Ø in 480 volt 3 Ø circuit.
- <sup>8</sup> CM model CSA listed only.

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.





## Commercial Electric Water Heaters

# Dura-Power® Xi

DVE-150 THRU 10,000  
DHE-200 THRU 10,000

### STANDARD FEATURES

#### ADVANCED ELECTRONIC CONTROL (All Models 150kW and Down)

A. O. Smith's new propriety electronic water heater control, provides precise + or - 1°F temperature control, that is ideal for industrial and food service applications where exact temperatures of hot water are needed.

- Plain Text – Animated icons display detailed operational and diagnostic information. Fault or Alert messages appear if an operational issue occurs.
- Low Water Cut Off – Factory standard on board low water cut-off uses a remote electronic immersion type probe to prevent energizing of the elements in the event of low water condition and eliminates accidental dry firing.
- Progressive Modulating – Sizes the input of available elements to match current load conditions. Rotates and lead lags element loads to provide long life and equal wear .
- Economy Mode Operation – Control system automatically lowers the operating set point by a programmed value during user defined time periods. Seven-day clock may be programmed for night set back and or weekend shutdown to reduce operating cost and save money.
- iCOMM™ Compatible - Units can be monitored from remote locations. Call 1.888.WATER02 for more information.



Note: Units over 150KW use analog controls.

#### SOLID STATE MODULATING STEP CONTROL (All Models 180kW and up) –

Solid state electronic control device that modulates input to match load through progressive sequencing of steps (up to 20 steps with maximum of one per contactor).

#### GLASSLINED TANK –

Tank interior is coated with glass specially developed for use in water heaters. Tanks rated at 125 psi working pressure; 150 psi or 160 psi working pressure is optional. Vermin proof fiber glass insulation reduces costly heat loss. Constructed to Section IV of ASME code, and UL standards. Tanks have channel skid base. A 4" x 6" handhole is furnished on 500, 600 and 700-gallon models; 11" x 15" manhole is furnished on 800-gallon and larger sizes.

**INCOLOY IMMERSION HEATERS** – Heavy-duty medium watt density elements (three/immersion heater) have incoloy sheathing; provide excellent protection against oxidation and scaling. The input ranges from 15KW to 3000KW (see accompanying chart).

**FUSING** – Control and power circuit fusing to meet N.E.C.

**COMPLIANCE** – Meets the standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1.

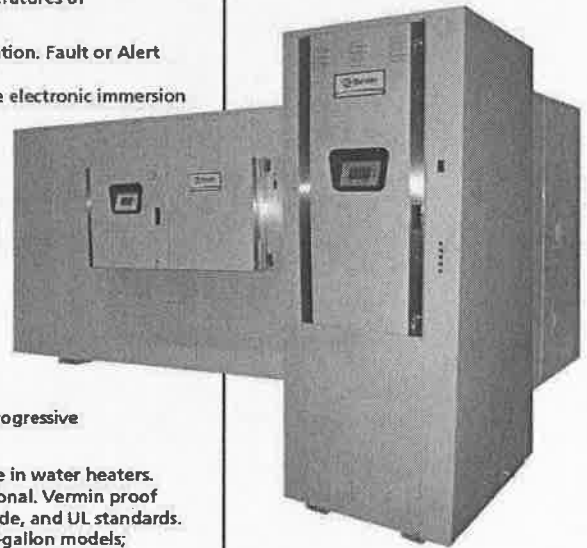
**MAGNETIC CONTACTOR(S)** – Heavy duty UL rated for 100,000 cycles.

### OTHER STANDARD FEATURES

- Color-coded circuitry for easier servicing
- Anode rods for maximum corrosion protection
- Standard voltages include 208, 240, 480, 600 volt single or three-phase.
- For other voltages consult factory.
- Factory-installed terminal block(s)
- Cabinet has baked enamel finish
- Prewired element terminal leads
- Temperature and pressure relief valve
- 2" dial temperature gauge

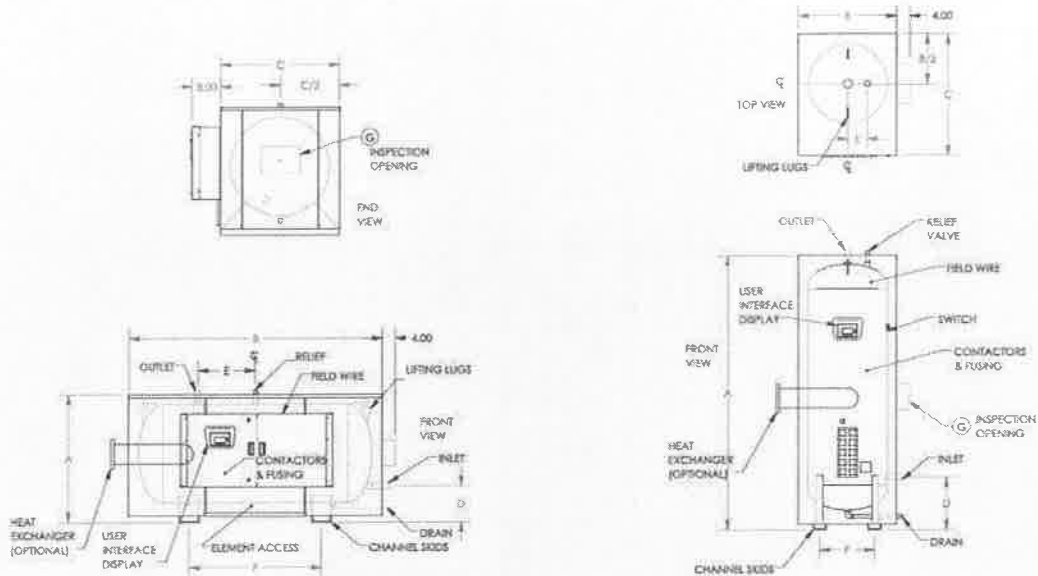
**OPTIONAL DUAL-ENERGY SOURCE CAPABILITY** – Provides emergency back up energy source or winter/summer boiler operation. Can be specified with optional water to water or steam to water heat exchangers. Both single and double-wall heat exchangers are available. Complete control packages can be factory-installed for hook-up and run capability.

**LIMITED WARRANTY OUTLINE** – If the tank should leak any time during the first three years, under the terms of the warranty, A. O. Smith will repair or replace the heater; installation, labor, handling repair or replace the heater; installation, labor, handling and local delivery extra. THIS OUTLINE IS NOT A WARRANTY. For complete information, consult the written warranty or A. O. Smith. Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.





# Commercial Electric Water Heaters



| A. O. Smith Model                         | Nominal Gallon Capacity | Maximum kW Input | Height A | Width (Length) B | Depth C | D      | E       | Skid Spacing F | Inspection Opening G | Inlet Outlet Opening | Drain Opening | Relief Valve Opening** |
|---|-------------------------|------------------|----------|------------------|---------|--------|---------|----------------|----------------------|----------------------|---------------|------------------------|
| <b>HORIZONTAL ELECTRIC STORAGE HEATER</b> |                         |                  |          |                  |         |        |         |                |                      |                      |               |                        |
| DHE-200                                   | 200                     | 180              | 38-1/2   | 77               | 36      | 10-1/2 | 17-1/2  | 31             | Optional             | 1-1/2                | 3/4           | 3/4                    |
| DHE-250                                   | 250                     | 240              | 38-1/2   | 91               | 36      | 10-1/2 | 24      | 48             |                      | 1-1/2                | 3/4           | 1                      |
| DHE-300                                   | 300                     | 300              | 44-1/2   | 81               | 42      | 8-1/4  | 17      | 36             |                      | 2                    | 3/4           | 1                      |
| DHE-350                                   | 350                     | 330              | 44-1/2   | 93               | 42      | 8-1/4  | 23      | 48             |                      | 2                    | 3/4           | 1                      |
| DHE-400                                   | 400                     | 390              | 44-1/2   | 100              | 42      | 8-1/4  | 26-1/2  | 55             |                      | 2                    | 3/4           | 1                      |
| DHE-500                                   | 500                     | 480              | 51       | 94               | 48      | 14     | 24      | 48             | 4" x 6" Handhole     | 2                    | 1-1/4         | 1                      |
| DHE-600                                   | 600                     | 600              | 51       | 109              | 48      | 14     | 32      | 64             |                      | 2                    | 1-1/4         | 1                      |
| DHE-700                                   | 700                     | 690              | 51       | 121              | 48      | 14     | 38      | 76             |                      | 2                    | 1-1/4         | 1                      |
| DHE-800                                   | 800                     | 780              | 57       | 111              | 54      | 16-1/2 | 32      | 64             | 11" x 15" Manhole    | 2                    | 1-1/2         | 1                      |
| DHE-1000                                  | 1000                    | 990              | 61       | 111              | 60      | 16-1/2 | 29-1/2  | 59             |                      | 3                    | 1-1/2         | 1                      |
| DHE-1250                                  | 1250                    | 1200             | 61       | 138              | 60      | 16-1/2 | 43      | 86             |                      | 3                    | 1-1/2         | 1                      |
| DHE-1500                                  | 1500                    | 1500             | 61       | 150              | 60      | 16-1/2 | 50      | 98             |                      | 3                    | 1-1/2         | 1                      |
| DHE-2000                                  | 2000                    | 1980             | 70       | 177              | 66      | 20     | 60      | 120            |                      | 3                    | 2             | 1-1/4                  |
| DHE-3000                                  | 3000                    | 3000             | 78       | 211              | 72      | 20     | 72-1/2  | 131            | 3                    | 2                    | 1-1/2         |                        |
| DHE-5000                                  | 5000                    | 3000             | 82       | 296              | 78      | 20-1/2 | 113-1/2 | 195            | 3                    | 2                    | 1-1/2         |                        |
| DHE-7500                                  | 7500                    | 3000             | 94       | 317              | 90      | 21-1/2 | 121     | 218            | 4                    | 2                    | 1-1/2         |                        |
| DHE-10,000                                | 10,000                  | 3000             | 106      | 345              | 102     | 22     | 132     | 220            | 4                    | 2                    | 1-1/2         |                        |
| <b>VERTICAL ELECTRIC STORAGE HEATER</b>   |                         |                  |          |                  |         |        |         |                |                      |                      |               |                        |
| DVE-140                                   | 140                     | 150              | 83-1/2   | 30               | 37      | 16     | 6       | 17             | Optional             | 1-1/4                | 3/4           | 3/4                    |
| DVE-150                                   | 150                     | 150              | 83-1/2   | 30               | 37      | 16     | 6       | 17             |                      | 1-1/4                | 3/4           | 3/4                    |
| DVE-150L                                  | 150                     | 150              | 59-1/2   | 38               | 43      | 17-1/2 | 6       | 21             |                      | 1-1/4                | 3/4           | 3/4                    |
| DVE-200                                   | 200                     | 180              | 79-1/2   | 38               | 43      | 17-1/2 | 6       | 21             |                      | 1-1/2                | 3/4           | 3/4                    |
| DVE-250                                   | 250                     | 240              | 93       | 38               | 43      | 17-1/2 | 6       | 21             |                      | 1-1/2                | 3/4           | 1                      |
| DVE-300                                   | 300                     | 300              | 83-1/2   | 42               | 49      | 19     | 6       | 25-1/2         | 2                    | 3/4                  | 1             |                        |
| DVE-350                                   | 350                     | 330              | 95-1/2   | 42               | 49      | 19     | 6       | 25-1/2         | 2                    | 3/4                  | 1             |                        |
| DVE-400                                   | 400                     | 390              | 102-1/2  | 42               | 49      | 19     | 6       | 25-1/2         | 2                    | 3/4                  | 1             |                        |
| DVE-500                                   | 500                     | 480              | 97       | 48               | 55      | 21     | 6       | 30             | 4" x 8" Handhole     | 2                    | 1-1/4         | 1                      |
| DVE-600                                   | 600                     | 600              | 112      | 48               | 55      | 21     | 6       | 30             |                      | 2                    | 1-1/4         | 1                      |
| DVE-700                                   | 700                     | 690              | 124      | 48               | 55      | 21     | 6       | 30             |                      | 2                    | 1-1/4         | 1                      |
| DVE-800                                   | 800                     | 780              | 116      | 54               | 61      | 23     | 8       | 34             | 11" x 15" Manhole    | 2                    | 1-1/2         | 1                      |
| DVE-1000                                  | 1000                    | 990              | 116      | 60               | 67      | 24-1/2 | 10      | 38             |                      | 3                    | 1-1/2         | 1                      |
| DVE-1250                                  | 1250                    | 1200             | 143      | 60               | 67      | 24-1/2 | 10      | 38             |                      | 3                    | 1-1/2         | 1                      |
| DVE-1500                                  | 1500                    | 1500             | 155      | 60               | 67      | 24-1/2 | 10      | 38             |                      | 3                    | 1-1/2         | 1                      |
| DVE-2000                                  | 2000                    | 1980             | 183      | 66               | 73      | 25     | 12      | 42-1/2         |                      | 3                    | 2             | 1                      |
| DVE-3000                                  | 3000                    | 3000             | 217      | 72               | 79      | 27-1/2 | 14      | 47             | 3                    | 2                    | 1-1/2         |                        |
| DVE-5000                                  | 5000                    | 3000             | 309      | 78               | 85      | 30     | 14      | 51             | 3                    | 2                    | 1-1/2         |                        |
| DVE-7500                                  | 7500                    | 3000             | 330      | 90               | 97      | 30     | 14      | 59-1/2         | 4                    | 2                    | 1-1/2         |                        |
| DVE-10,000                                | 10,000                  | 3000             | 358      | 102              | 109     | 30     | 14      | 66             | 4                    | 2                    | 1-1/2         |                        |

\*Complete Model Number includes the desired kW at end, e.g.: DVE-500-120 when kW = 120.  
 \*\*Size may vary according to kW input.  
 Minimum installation clearances required, 30" from front, 12" from top, and 24" from right side.

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith reserves the right to make product changes or improvements without prior notice.





# Commercial Electric Water Heaters

| STANDARD KW RATINGS             | NUMBER OF IMMERSION HEATERS | BTU INPUT & OUTPUT | GPH RECOVER 100°F RISE | NUMBER OF 50A CONTACTORS |            | AMPERAGE DRAW |       |       |       |
|---------------------------------|-----------------------------|--------------------|------------------------|--------------------------|------------|---------------|-------|-------|-------|
|                                 |                             |                    |                        | THREE-PHASE              |            | THREE-PHASE   |       |       |       |
|                                 |                             |                    |                        | 208V, 240V               | 480V, 600V | 208V          | 240V  | 480V  | 600V  |
| <b>XI ON/OFF</b>                |                             |                    |                        |                          |            |               |       |       |       |
| 15                              | 1-15kW                      | 51,195             | 61                     | 1                        | 1          | 42            | 37    | 19    | 15    |
| <b>XI PROGRESSIVE</b>           |                             |                    |                        |                          |            |               |       |       |       |
| 24                              | 2-12kW                      | 81,912             | 98                     | 2                        | 1          | 67            | 58    | 27    | 23    |
| 30                              | 2-15kW                      | 102,390            | 123                    | 2                        | 1          | 83            | 72    | 36    | 29    |
| 36                              | 3-12kW                      | 122,868            | 147                    | 3                        | 1          | 100           | 87    | 43    | 35    |
| 45                              | 3-15kW                      | 153,585            | 184                    | 3                        | 2          | 126           | 109   | 54    | 44    |
| 60                              | 4-15kW                      | 204,720            | 246                    | 4                        | 2          | 167           | 145   | 72    | 58    |
| 75                              | 5-15kW                      | 255,975            | 307                    | 5                        | 3          | 208           | 181   | 90    | 72    |
| 90                              | 6-15kW                      | 307,170            | 369                    | 6                        | 3          | 250           | 217   | 109   | 87    |
| 105                             | 7-15kW                      | 358,365            | 430                    | 7                        | 4          | 292           | 253   | 127   | 101   |
| 120                             | 8-15kW                      | 409,560            | 492                    | 8                        | 4          | 333           | 289   | 145   | 115   |
| 150                             | 10-15kW                     | 511,950            | 615                    | 10                       | 5          | 416           | 361   | 180   | 144   |
| <b>SOLID STATE STEP CONTROL</b> |                             |                    |                        |                          |            |               |       |       |       |
| 180                             | 12-15kW                     | 614,340            | 738                    | 12                       | 6          | 499           | 433   | 217   | 173   |
| 210                             | 14-15kW                     | 716,730            | 861                    | 14                       | 7          | 583           | 505   | 253   | 202   |
| 240                             | 16-15kW                     | 819,120            | 984                    | 16                       | 8          | 666           | 577   | 289   | 231   |
| 270                             | 18-15kW                     | 921,510            | 1,107                  | 18                       | 9          | 750           | 650   | 325   | 260   |
| 300                             | 20-15kW                     | 1,023,900          | 1,230                  | 20                       | 10         | 832           | 722   | 361   | 289   |
| 330                             | 22-15kW                     | 1,126,290          | 1,353                  | 22                       | 11         | 916           | 794   | 397   | 318   |
| 360                             | 24-15kW                     | 1,228,680          | 1,476                  | 24                       | 12         | 999           | 866   | 433   | 346   |
| 390                             | 26-15kW                     | 1,331,070          | 1,599                  | 26                       | 13         | 1,083         | 938   | 469   | 375   |
| 420                             | 28-15kW                     | 1,433,460          | 1,722                  | 28                       | 14         | 1,166         | 1,010 | 505   | 404   |
| 450                             | 30-15kW                     | 1,535,850          | 1,845                  | 30                       | 15         | 1,249         | 1,083 | 542   | 433   |
| 480                             | 32-15kW                     | 1,638,240          | 1,968                  | 32                       | 16         | 1,332         | 1,155 | 578   | 462   |
| 510                             | 34-15kW                     | 1,740,630          | 2,091                  | 34                       | 17         | 1,416         | 1,227 | 613   | 491   |
| 540                             | 36-15kW                     | 1,843,020          | 2,214                  | 36                       | 18         | 1,499         | 1,299 | 650   | 520   |
| 570                             | 38-15kW                     | 1,945,410          | 2,337                  | 38                       | 19         | 1,582         | 1,371 | 686   | 548   |
| 600                             | 40-15kW                     | 2,047,800          | 2,460                  | 40                       | 20         | 1,664         | 1,443 | 722   | 577   |
| 630                             | 42-15kW                     | 2,150,190          | 2,583                  |                          | 21         |               |       | 758   | 606   |
| 660                             | 44-15kW                     | 2,252,580          | 2,706                  |                          | 22         |               |       | 794   | 635   |
| 690                             | 46-15kW                     | 2,345,970          | 2,829                  |                          | 23         |               |       | 830   | 664   |
| 720                             | 48-15kW                     | 2,457,360          | 2,952                  |                          | 24         |               |       | 866   | 693   |
| 810                             | 54-15kW                     | 2,764,530          | 3,321                  |                          | 27         |               |       | 974   | 779   |
| 900                             | 60-15kW                     | 3,071,700          | 3,690                  |                          | 30         |               |       | 1,083 | 866   |
| 990                             | 66-15kW                     | 3,378,870          | 4,059                  |                          | 33         |               |       | 830   | 953   |
| 1080                            | 72-15kW                     | 3,686,040          | 4,428                  |                          | 36         |               |       | 866   | 1,039 |
| 1170                            | 78-15kW                     | 3,993,210          | 4,797                  |                          | 39         |               |       | 974   | 1,126 |
| 1260                            | 84-15kW                     | 4,300,380          | 5,166                  |                          | 42         |               |       | 1,083 | 1,213 |
| 1350                            | 90-15kW                     | 4,607,550          | 5,535                  |                          | 45         |               |       | 1,191 | 1,300 |
| 1440                            | 96-15kW                     | 4,914,720          | 5,904                  |                          | 48         |               |       | 1,299 | 1,386 |
| 1530                            | 102-15kW                    | 5,221,890          | 6,273                  |                          | 51         |               |       | 1,408 | 1,473 |
| 1620                            | 108-15kW                    | 5,529,060          | 6,642                  |                          | 54         |               |       | 1,516 | 1,559 |
| 1800                            | 120-15kW                    | 6,141,600          | 7,380                  |                          | 60         |               |       | 1,624 | 1,732 |
| 1980                            | 132-15kW                    | 6,757,740          | 8,118                  |                          | 66         |               |       | 1,732 | 1,905 |
| 2040                            | 136-15kW                    | 6,962,520          | 8,364                  |                          | 68         |               |       | 1,841 | 1,963 |
| 2220                            | 148-15kW                    | 7,576,860          | 9,102                  |                          | 74         |               |       | 1,949 | 2,136 |
| 2250                            | 150-15kW                    | 7,679,250          | 9,225                  |                          | 75         |               |       | 2,707 | 2,165 |
| 2400                            | 160-15kW                    | 8,188,800          | 9,840                  |                          | 80         |               |       | 2,887 | 2,310 |
| 2540                            | 176-15kW                    | 9,010,320          | 10,824                 |                          | 88         |               |       | 3,175 | 2,540 |
| 2820                            | 188-15kW                    | 9,624,660          | 11,562                 |                          | 94         |               |       | 3,392 | 2,714 |
| 3000                            | 200-15kW                    | 10,236,000         | 12,300                 |                          | 100        |               |       | 3,608 | 2,887 |

Not Recommended

Not Recommended

**SAMPLE SPECIFICATIONS**

The heater(s) shall be A. O. Smith Commercial Electric Model Number DVE150T45480 or an approved equal. Heater(s) shall be rated at 15 kW, 480 V, 3 phase, 60 cycle AC. The heater shall be for (vertical/horizontal) installation with lifting lugs and channel skid base. Vessel shall be constructed to Section IV of the ASME Code for 125 psi working pressure. Vessel shall be glass-lined with anodic protection. Entire vessel and electrical controls are to be enclosed in a rectangular sheet metal enclosure with baked enamel finish. Tank to be insulated with fiberglass insulation. Separate 2" dial type temperature gauge will be mounted on the front of the enclosure. Enclosure to have hinged locking door over electric controls. There shall be 3 individually replaceable \_\_\_\_\_ kW, 4 bolt flange mounted, incoloy sheathed heating elements each complete with prewired terminal leads. These elements will be switched by magnetic contactors which are operated by a 120V fused control circuit protected by manual reset high limit. Control circuit is activated by a master pilot switch and electronic low water cutoff. The thermostatic control of the contacts shall be in \_\_\_\_\_ stages through solid state modulating step control which will balance the water heating input to the demand. This control shall prevent the entire electrical load from being switched on instantaneously. The control shall have even load progressive sequencing which utilizes the "first on, first off" principle thereby equalizing the operating time of heating elements and contactors. Each magnetic contactor and heating element circuit will be protected by a maximum of 60 amp cartridge type fuses with a minimum of 100,000 amp interrupting capacity. The entire water heating package shall be prewired to solderless terminal lugs, factory tested, complete with a CSA Certified and ASME Rated T&P relief valve and bear the Underwriters' Laboratories label. Heater(s) shall have a 3-year limited warranty as outlined in the written warranty. Fully illustrated Instruction manual included. Water heater units 150kW standard ratings and below should incorporate the iCOMM™ system for remote monitoring, leak detection and fault alert.

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith reserves the right to make product changes or improvements without prior notice.





## Commercial Electric Water Heaters

### OPTIONS

#### TANK LININGS

**CEMENT** – A special formulation of cement providing excellent corrosion protection. Available on 200 gallon and larger tanks.

**EPOXY** – A solventless two component epoxy lining applied to a minimum ten-mil (.010") dry thickness. Available on 200 gallon and larger tanks.

**GOLDENROD® ELEMENTS** – Available with Optional Goldenrod® Elements - All DVE/DHE models are available with the Goldenrod® 24K gold plated elements (patent pending). Goldenrod® Elements provide long-life and five times the scaling resistance of standard incoloy elements. Goldenrod® Elements carry a three-year warranty against failure due to scale buildup.

#### SPECIAL CONSTRUCTION

**SILICON BRONZE VESSELS** – Are available for special applications or very corrosive water conditions. Consult factory for specific sizes.

**STAINLESS STEEL VESSELS** – Are available for deionized water. Built with stainless steel under rules of Section IV of the ASME Boiler and Pressure Vessel Code for operation on deionized water having a minimum specific resistivity of 10 megohm/cm.

**150 OR 160 PSI WORKING PRESSURE** – Must be specified at time of order.

#### OTHER OPTIONAL FEATURES

**TEMPERATURE AND PRESSURE RELIEF VALVES** – For working pressures other than standard; consult factory.

**HORIZONTAL OR VERTICAL** – See specifications, most gallon capacities may be obtained in vertical or horizontal construction.

**CIRCULATING PUMP PACKAGE** – Circulating pump and piping sized to turn over entire storage capacity of tank once each hour. Recommended to optimize available water at temperature in horizontal tanks particularly where low draw conditions are anticipated.

**OPTIONAL INTERNATIONAL VOLTAGES** – 380 and 415 volts three-phase.

**3-1/2" DIAL-TYPE PRESSURE GAUGE** – Factory-installed.

**3-1/2" DIAL-TYPE TEMPERATURE GAUGE** – Factory-installed.

**11" x 15" MANHOLE** – Available as option on tanks 700 gallons or smaller.

### CONTROL OPTIONS

**COPPER TUBE TANK HEATER** – Double wall copper tube tank heaters are designed for heating potable water with both potable or non-potable liquids or steam, and are specifically engineered for installation in models DVE and DHE for dual-energy applications. Tank heaters have a positive fail-safe means of leak detection in the event of either tube failure to prevent mixture of heating medium and potable water. Singlewall heat exchangers are also available.

**TERMINAL BLOCKS** – Allows for remote connection to building demand limiter or other functions.

**AUTOMATIC RESET HIGH LIMIT** – A control that in the event of high temperature, interrupts power, de-energizing elements, automatic reset. (Standard with modulating step control).

**INDICATING LIGHTS** – Denotes heating stage(s) in operation. Up to one light per contactor is available.

**OVERRIDE SWITCHES** – A simple means of load control allows all or part of unit input to be controlled manually. Up to one switch per contactor is available.

**SAFETY DOOR INTERLOCK** – Prevents opening of control panel door when heater power supply is on. NOTE: Once door is opened heater may be energized if necessary for service diagnosis.

**SHUNT TRIP CIRCUIT BREAKER** – A safety device (circuit breaker) which disconnects power to heater in the event of over-current, high temperature or low water level, breaker must be manually reset.

**CIRCUIT BREAKER** – A safety device which disconnects power to the heater in the event of overcurrent.

For Technical Information and Automated Fax Service, call 800-527-1953. A. O. Smith reserves the right to make product changes or improvements without prior notice.



**SPECIFICATION SHEET**

**DTS SERIES  
365/7 DAY ADVANCE  
MULTIPURPOSE CONTROLS  
1,2 OR 4 CHANNEL**

**APPLICATIONS**

- Indoor and outdoor lighting
- Heating and air conditioning
- Security Systems
- Horns and bells
- Low voltage lighting
- Misting and spraying
- Roof cooling
- Clock correction systems
- Process functions



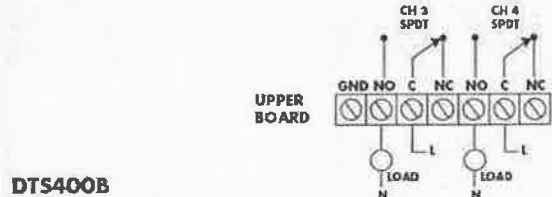
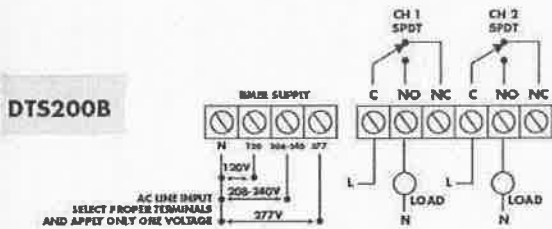
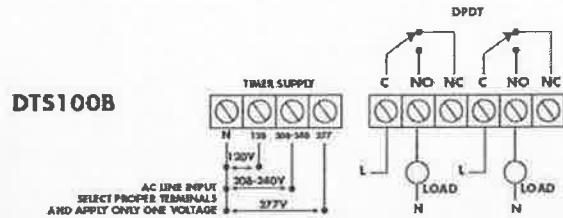
**FEATURES**

**SCHEDULING:** 99 ON & OFF set points allow individual programs for each day of the week at a minimum 1 minute apart.  
**SEASONS:** 1 to 4 with different daily schedules which can wrap around into the new year.  
**HOLIDAYS:** 1 to 24 individual dates  
**SIGNAL/PULSE DURATION:** 2 different settings per channel: each 1-99 seconds.  
**DAYLIGHT SAVING:** Automatic adjustment (can be omitted)  
**LEAP YEAR:** Automatic Compensation  
**MANUAL OVERRIDE:** Until the next regularly scheduled ON or OFF, automatic operation then resumes. In signal mode, activates pulse.  
**CLOCK FORMAT:** AM/PM or Military time  
**POWER OUTAGE BACKUP:** Permanent schedule retention. Supercapacitor provides 4 days of real time back up.

**SPECIFICATIONS**

**TIMING ACCURACY:** Line frequency  
**TERMINAL RANGE:**  
 #14-#16AWG for line input.  
 #12-#16AWG load outputs.  
**OPERATING TEMPERATURE:** -40° to 158°F (-40° to +70°C)  
**POWER CONSUMPTION:**  
 5VA Max : DTS100/200B  
 6VA Max : DTS400B  
**ENCLOSURE:** Noryk® Indoor/Outdoor NEMA 3R is standard.  
**DIMENSIONS:**  
 9 1/8" x 5" x 4 1/2"

**WIRING DIAGRAMS**



| CATALOG NO. | UPC CODE | TIMER SUPPLY (VAC) 50/60Hz | NO. OF CHANNELS | DRY CONTACTS (UNPOWERED) |
|-------------|----------|----------------------------|-----------------|--------------------------|
| DTS100B     | 82185    | 120/208-240/277            | 1               | DPDT                     |
| DTS200B     | 82186    | 120/208-240/277            | 2               | SPDT                     |
| DTS400B     | 82187    | 120/208-240/277            | 4               | SPDT                     |

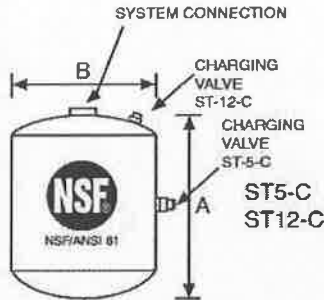
| TYPE            | DTS100B, DTS200B |        |       | DTS400B    |        |       |
|-----------------|------------------|--------|-------|------------|--------|-------|
|                 | VOLTAGE          | RATING |       | VOLTAGE    | RATING |       |
|                 |                  | NO     | NC    |            | NO     | NC    |
| General Purpose | 24-277VAC        | 30A    | 30A   | 24-277VAC  | 20A    | 20A   |
| Ballast         | 120VAC           | 30A    | 10A   | 120-277VAC | 13A    |       |
|                 | 277VAC           | 20A    | 10A   |            |        |       |
| Tungsten        | 120-277VAC       | 15A    | 2A    | 120VAC     | 8A     |       |
| Pilot Duty      | 120-277VAC       | 720VA  | 720VA | 12-277VAC  | 720VA  | 720VA |
| Motor Load      | 120VAC           | 1HP    | 1HP   | 120-277VAC | 1HP    | 1HP   |
|                 | 208-277VAC       | 2HP    | 2HP   |            |        |       |
| Resistive       | 28VDC            | 30A    | 30A   |            |        |       |

A DIVISION OF **NSI** NSI INDUSTRIES, LLC



# THERM-X-TROL®

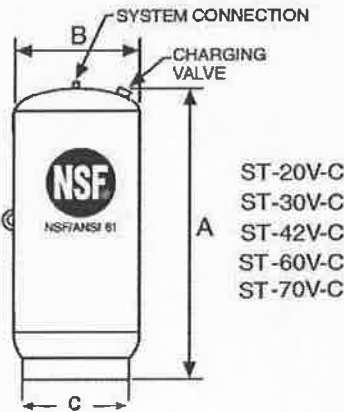
Thermal Expansion Absorbers, ST-C Series (ASME) 150 PSIG Working Pressure



### In-Line Models

| Model No. | Tank Vol. |      | Max. Recomm. Accept. Vol. |      | A Height |                                | B Diameter |      | Sys. Conn. | Ship Wt. |      |
|-----------|-----------|------|---------------------------|------|----------|--------------------------------|------------|------|------------|----------|------|
|           | Lit.      | Gal. | Lit.                      | Gal. | mm       | ins.                           | mm         | ins. | ins.       | kg       | lbs. |
| ST-5-C    | 8         | 2.1  | 3.44                      | .9   | 264      | 10 <sup>3</sup> / <sub>8</sub> | 254        | 10   | 3/4 NPTF   | 9        | 19.7 |
| ST-12-C   | 24        | 6.4  | 12.0                      | 3.2  | 340      | 13 <sup>3</sup> / <sub>8</sub> | 305        | 12   | 3/4 NPTF   | 15       | 33.8 |

### Stand Models



| Model No. | Tank Vol. |      | Max. Recomm. Accept. Vol. |      | A Height |                                 | B Diameter |                                | C Dia. |                                | Sys. Conn.                         | Ship Wt. |      |
|-----------|-----------|------|---------------------------|------|----------|---------------------------------|------------|--------------------------------|--------|--------------------------------|------------------------------------|----------|------|
|           | Lit.      | Gal. | Lit.                      | Gal. | mm       | ins.                            | mm         | ins.                           | mm     | ins.                           | ins.                               | kg       | lbs. |
| ST-20V-C  | 30        | 8.0  | 12.0                      | 3.2  | 510      | 20 <sup>1</sup> / <sub>16</sub> | 305        | 12                             | 273    | 10 <sup>3</sup> / <sub>4</sub> | 3/4 NPTF                           | 19       | 41   |
| ST-30V-C  | 53        | 14.0 | 33.9                      | 8.96 | 491      | 19 <sup>5</sup> / <sub>16</sub> | 419        | 16 <sup>1</sup> / <sub>4</sub> | 324    | 12 <sup>3</sup> / <sub>4</sub> | 3/4 NPTF                           | 27       | 59   |
| ST-42V-C  | 66        | 17.5 | 42.9                      | 11.4 | 640      | 25 <sup>3</sup> / <sub>16</sub> | 419        | 16 <sup>1</sup> / <sub>4</sub> | 324    | 12 <sup>3</sup> / <sub>4</sub> | 3/4 NPTF                           | 32       | 71   |
| ST-60V-C  | 95        | 25.0 | 42.9                      | 11.4 | 864      | 34                              | 419        | 16 <sup>1</sup> / <sub>4</sub> | 324    | 12 <sup>3</sup> / <sub>4</sub> | 3/4 NPTF                           | 39       | 85   |
| ST-70V-C  | 129       | 34.0 | 42.9                      | 11.4 | 1076     | 42 <sup>3</sup> / <sub>8</sub>  | 419        | 16 <sup>1</sup> / <sub>4</sub> | 324    | 12 <sup>3</sup> / <sub>4</sub> | 3/4 NPTF                           | 45       | 99   |
| ST-80V-C  | 200       | 53.0 | 130                       | 34   | 1029     | 40 <sup>1</sup> / <sub>2</sub>  | 610        | 24                             | 406    | 16                             | 1 <sup>1</sup> / <sub>4</sub> NPTF | 102      | 224  |
| ST-120V-C | 250       | 66   | 130                       | 34   | 1213     | 47 <sup>3</sup> / <sub>4</sub>  | 610        | 24                             | 406    | 16                             | 1 <sup>1</sup> / <sub>4</sub> NPTF | 121      | 266  |
| ST-180V-C | 292       | 77.0 | 130                       | 34   | 1337     | 52 <sup>5</sup> / <sub>8</sub>  | 610        | 24                             | 406    | 16                             | 1 <sup>1</sup> / <sub>4</sub> NPTF | 129      | 285  |
| ST-210V-C | 341       | 90.0 | 130                       | 34   | 1524     | 60                              | 610        | 24                             | 406    | 16                             | 1 <sup>1</sup> / <sub>4</sub> NPTF | 145      | 319  |

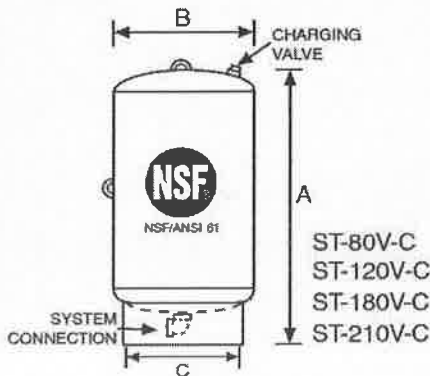
### Maximum Operating Conditions

|                       |                     |
|-----------------------|---------------------|
| Operating Temperature | 200°F (93°C)        |
| Working Pressure      | 150 PSIG (10.5 bar) |

### Specifications

| Description                 | Standard Construction        |
|-----------------------------|------------------------------|
| Standard Factory Pre-charge | 55 PSIG (3.9 bar)            |
| System Connection           | Stainless Steel              |
| Diaphragm                   | Heavy Duty Butyl NSF/ANSI 61 |
| Liner Material              | Polypropylene                |
| Shell                       | Steel                        |
| Finish                      | Red Oxide Primer             |

Constructed per ASME Code Section VIII, Division 1.  
All dimensions and weights are approximate.  
Complies with Low Lead Plumbing Law



Job Name \_\_\_\_\_  
 Location \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 Engineer \_\_\_\_\_

Contractor \_\_\_\_\_  
 Contractor P.O. No. \_\_\_\_\_  
 Sales Representative \_\_\_\_\_  
 Model No. Ordered \_\_\_\_\_







Company name: -  
 Created by: -  
 Phone: -  
 Fax: -  
 Date: -

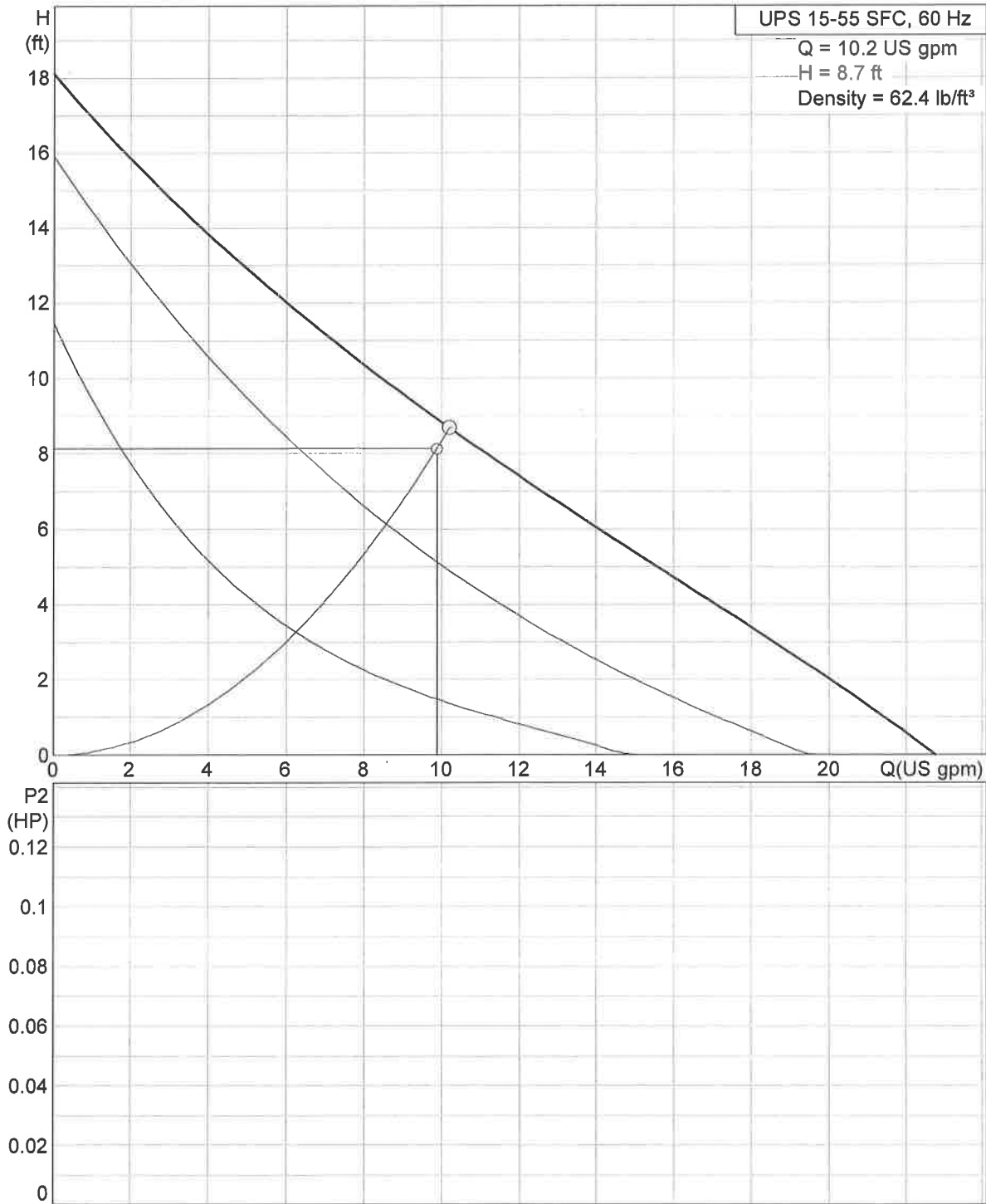
| Position | Count | Description   | Unit price |
|----------|-------|---|------------|
|          |       | Number of poles: 2<br>Power input in speed 1: 58 W<br>Power input in speed 2: 77 W<br>Max. power input: 87 W<br>Rated power - P2: 0,6/0,07/0,09 kW<br>Main frequency: 60 Hz<br>Rated voltage: 1 x 115 V<br>Current in speed 1: 0.53 A<br>Current in speed 2: 0.69 A<br>Current in speed 3: 0.75 A<br>Capacitor size - run: 10 µF/180 V<br>Insulation class (IEC 85): F<br><br>Others:<br>Gross weight: 6 lb |            |

**GRUNDFOS**



Company name: -  
Created by: -  
Phone: -  
Fax: -  
Date: -

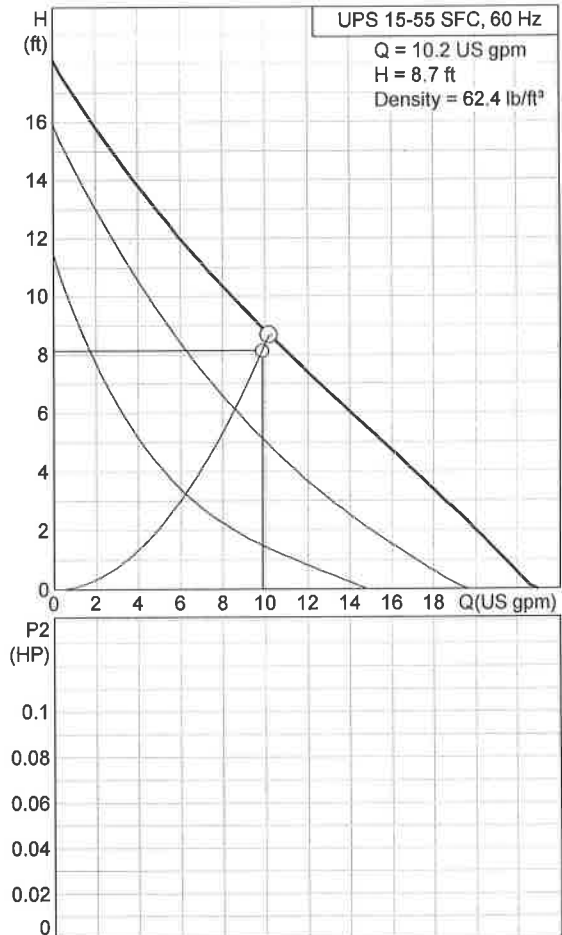
**59896773 UPS 15-55 SFC 60 Hz**



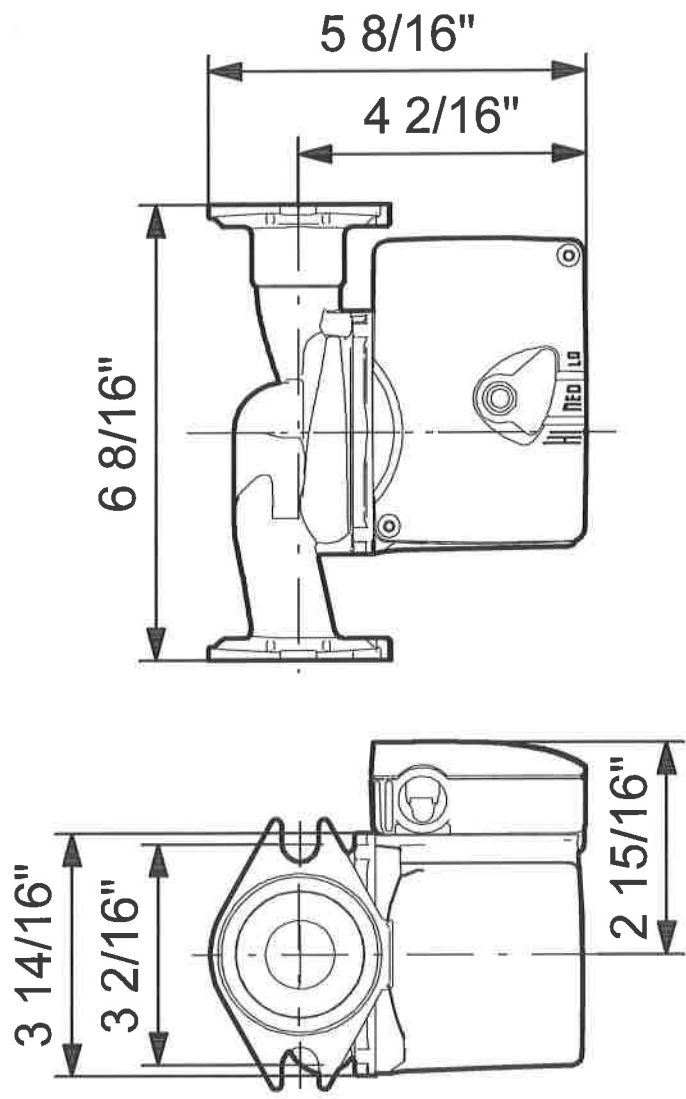


Company name: -  
 Created by: -  
 Phone: -  
 Fax: -  
 Date: -

| Description                  | Value  |
|------------------------------|--|
| Product name:                | UPS 15-55 SFC                                    |
| Product Number:              | 59896773   |
| EAN number:                  | 5700837414449                                    |
| <b>Technical:</b>            |  |
| Speed Number:                | 3  |
| Max flow:                    | 25.1 US gpm                                      |
| Head max:                    | 18 ft  |
| Maximum operating pressure:  | 145 psi  |
| Approvals on nameplate:      | UL, CSA  |
| Valve:                       | Y  |
| <b>Materials:</b>            |  |
| Pump housing:                | Stainless steel<br>DIN W.-Nr. 1.4301<br>AISI 304 |
| Impeller:                    | Composite, PES                                   |
| <b>Installation:</b>         |  |
| Maximum ambient temperature: | 104 °F   |
| Ambient max at 176°F liquid: | 176 °F   |
| Maximum operating pressure:  | 145 psi  |
| Flange standard:             | USA Oval   |
| Type of connection:          | S.S. Flange                                      |
| Pipe connection:             | 2 - Bolt Flange                                  |
| Pressure stage:              | 10   |
| Port-to-port length:         | 6 1/2 in   |
| <b>Liquid:</b>               |  |
| Liquid temperature range:    | 35.6 .. 230 °F                                   |
| <b>Electrical data:</b>      |  |
| Number of poles:             | 2  |
| Power input in speed 1:      | 58 W   |
| Power input in speed 2:      | 77 W   |
| Max. power input:            | 87 W   |
| Rated power - P2:            | 0,6/0,07/0,09 kW                                 |
| Main frequency:              | 60 Hz  |
| Rated voltage:               | 1 x 115 V  |
| Current in speed 1:          | 0.53 A   |
| Current in speed 2:          | 0.69 A   |
| Current in speed 3:          | 0.75 A   |
| Capacitor size - run:        | 10 µF/180 V                                      |
| Insulation class (IEC 85):   | F  |
| Motor protection:            | CONTACT  |
| Thermal protec:              | Internal   |
| <b>Controls:</b>             |  |
| Pos term box:                | 9H   |
| <b>Others:</b>               |  |
| Gross weight:                | 6 lb   |



59896773 UPS 15-55 SFC 60 Hz

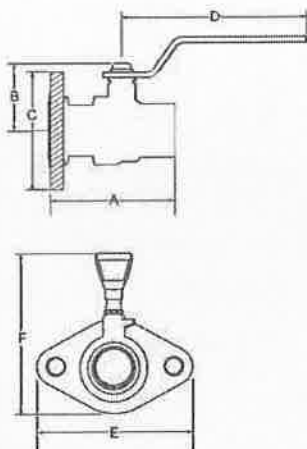


Note! All units are in [mm] unless others are stated.  
Disclaimer: This simplified dimensional drawing does not show all details.

# Accessories

UP Series

## Packaged dielectric isolation valve sets



TM04 9909 0311



TM03 7901 0307

| Pump connection | Pipe connection type and size |        | Material number | Approx. shipping weight<br>[lb/oz.]<br>1 kit | Face to face [A*] | Center of port to top [B*] | Flange diameter [C*] | Center of valve to handle end [D*] |
|-----------------|-------------------------------|--------|-----------------|--|-------------------|----------------------------|----------------------|------------------------------------|
|                 | NPT                           | Solder |                 |  | [inch]            | [mm / inch]                | [inch]               | [inch]                             |
| GF 15/26 flange | Bronze                        | 1/2"   | 96806129        | 2 / 13                                       | 2 27/32           | 51 / 2                     | 4 3/16               | 3 29/64                            |
|                 |                               | 3/4"   | 96806130        | 3 / 2  | 3 3/8             | 57 / 2 1/4                 | 4 3/16               | 3 3/4                              |
|                 |                               | 1"     | 96806131        | 4 / 8  | 3 35/64           | 67 / 2 21/32               | 4 3/16               | 4 17/32                            |
|                 |                               | 1-1/4" | 96806132        | 4 / 13                                       | 4 1/32            | 75 / 2 31/32               | 4 3/16               | 4 35/64                            |
|                 |                               | 1-1/2" | 96806133        | 4 / 14                                       | 4 7/64            | 75 / 2 31/32               | 4 3/16               | 4 5/8                              |
|                 |                               | 1/2"   | 96806134        | 2 / 12                                       | 2 49/64           | 51 / 2                     | 4 3/16               | 3 15/32                            |
|                 |                               | 3/4"   | 96806135        | 3 / 4  | 3 1/4             | 57 / 2 1/4                 | 4 3/16               | 3 47/64                            |
|                 |                               | 1"     | 96806136        | 4 / 8  | 3 55/64           | 67 / 2 21/32               | 4 3/16               | 4 1/2                              |
|                 |                               | 1-1/4" | 96806137        | 4 / 13                                       | 4 1/2             | 75 / 2 31/32               | 4 3/16               | 4 35/64                            |
|                 |                               | 1-1/2" | 96806138        | 4 / 15                                       | 4 37/64           | 75 / 2 31/32               | 4 3/16               | 4 9/16                             |

Note: Each set contains  
 2 each - rotating flanges, lever-handled full-ported ball valve, EPDM gaskets, dielectric sleeves.  
 4 each - 7/16" X 1-3/4" bolts with nuts.  
 Dimensions in inches unless otherwise noted.

| Materials of construction |                     |
|---------------------------|---------------------|
| Flange                    | Chrome plated steel |
| Valve body                | Brass               |
| Valve ball                | Chrome plated brass |
| Valve seat                | PTFE                |
| Dielectric sleeve         | Composite           |
| Bolt                      | Chrome plated steel |
| Nut                       | Chrome plated steel |
| Gaskets                   | EPDM                |
| Maximum temperature       | 230 °F (110 °C)     |
| Maximum pressure          | 150 psi             |

Approvals  
 IAPMO - #6591

SEPTEMBER 25, 2013

SECTION 013300 - 9

GEORGIA BIOSCIENCE TRAINING CENTER - 20120254  
TCSG PROJECT NO. TCSG-300

SUBMITTAL PROCEDURES

**STATEMENT OF MANUFACTURER'S REVIEW**

PROJECT: Georgia Bioscience Training Center  
LOCATION: Social Circle, Georgia

Owner: Technical College System of Georgia  
and Georgia State Financing and  
Investment Commission  
270 Washington Street  
Atlanta, Georgia 30334-1450

Design Professional: COOPER CARRY  
191 Peachtree Street, NE  
Suite 2400  
Atlanta, Georgia 30303-1770

SUBJECT: Plumbing Fixtures

SPECIFICATION REFERENCES: 224010

STATEMENT: The Undersigned hereby state that the Contract Documents, the shop drawings, and the product data have been reviewed with qualified representative(s) of the materials manufacturers and all of the parties are in agreement that the selected materials and systems are proper and adequate for the applications shown, especially with respect to compatibility with adjacent systems and materials.

EXCEPTIONS: (Agreed upon with the Owner and the Design Professional prior to installation.)

CONTRACTOR: Gainesville Mechanical

Date: January 17, 2014

By: 

(signed)



(printed)

INSTALLER: Gainesville Mechanical

Date: January 17, 2014

By: 

(signed)



(printed)

OTHER: \_\_\_\_\_

Date: \_\_\_\_\_

By: \_\_\_\_\_

(signed)

(printed)

**END OF FORM**

**224010 2.1 WC-1 WATER CLOSET**

**SLOAN S2102059 TOP SPUD WATER CLOSET**

**SLOAN S0310083 J212A PIPE SUPP 5 C/E YK SLD**

**BEMIS B1655SSCT000 EB BOWL OF PLAS CLST**

**SEAT LC WHIT**



**Model**  
**ST-2059-A Universal Closet**  
 Top Spud Vitreous China Elongated Water Closet

**DESCRIPTION**

Complete vitreous china water closet.

**Flush Cycle**

Model ST-2059-A Universal Closet  
 (1.1 to 1.6 gpf/4.2 to 6.0 Lpf)

Code: 2102059

Flush volume is determined by the flushometer used with closet.



\* Please note that this model is fully interchangeable with Models: ST-2050-A, ST-2052-A, ST-2053-A and matches all dimensional and performance parameters.

\*\* This model meets the requirements for a High Efficiency Toilet when used with a high efficiency flushometer (1.28 gpf/4.8 Lpf or 1.1/1.6 gpf-4.2/6.0 Lpf dual-flush).



Meets the American Disabilities Guidelines and ANSI A117.1 requirements when installed according to these requirements.

**NOTE:**

Plumbing System Requirements

- ✓ Minimum Flowing Pressure: 25 PSI
- ✓ Maximum Static Pressure: 80 PSI
- ✓ Minimum Flow Rate: 18 gpm

|  |          |
|--|----------|
| This space for Architect/Engineer approval |          |
| Job Name                                   | Date     |
| Model Specified                            | Quantity |
| Variations Specified                       |          |
| Customer/Wholesaler                        |          |
| Contractor                                 |          |
| Architect                                  |          |

The information contained in this document is subject to change without notice.

**SPECIFICATIONS**

**Water Closet**

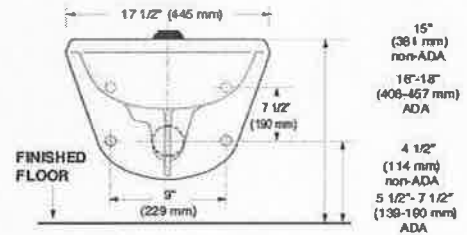
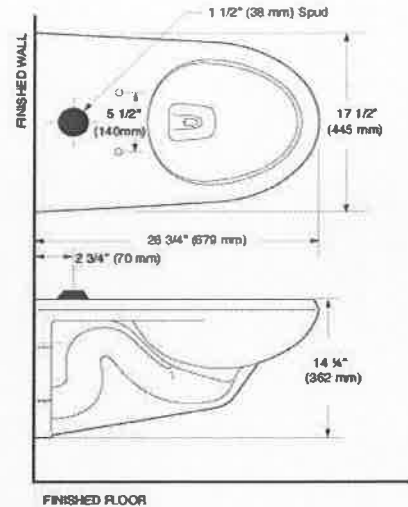
- Wall hung vitreous china elongated bowl
- Siphon jet flushing action
- 1-1/2" LP.S. top spud inlet
- 2-1/8" fully glazed trapway diameter
- Mounting hardware, carrier and toilet seat not included
- Integral flushing rim
- Water spot area 9 1/2" x 8 1/4"
- ASME A112.19.2/CSA B45.1

**Colors/Finishes**

- White

**Recommended Seats**

- Bemis - 1955CT/1955SSCT & 2155CT/2155SSCT
- Church - 295CT/295SSCT & 2155CT/2155SSCT



Designed to Meet ADA standards when bowl is 17" - 19" high including seat

NOTE: All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.

**Product Specification**

Elongated water closet shall be made of vitreous china with a 1-1/2" top spud inlet. Bowl shall be ADA compliant when installed at required height of 17"-19" from floor to top of fixture (including seat). Water Closet shall be Sloan Model ST-2059-A.

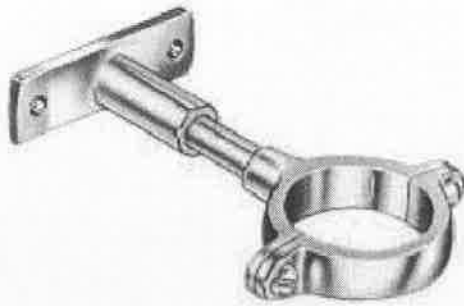


**SLOAN.**

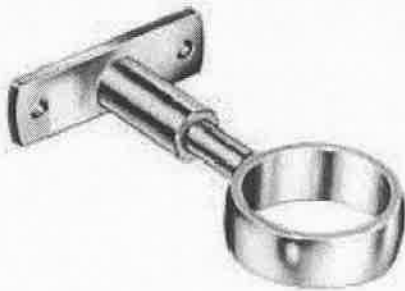
Sloan  
 10500 Seymour Avenue  
 Franklin Park, IL 60131  
 Phone: 1-800-982-5839  
 Fax: 1-800-447-8329  
 www.sloanvalve.com

© 2013 Sloan Valve Company  
 ST-2059 10-13

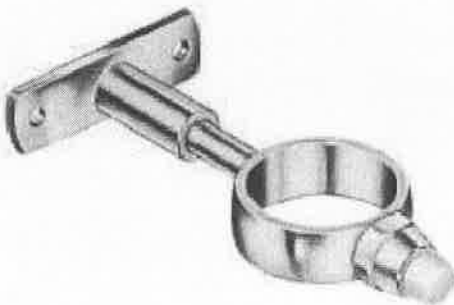
**A C C E S S O R I E S**



**Split Ring Pipe Support J-312-A**



**Solid Ring Pipe Support J-212-A**



**Solid Ring Pipe Support with Seat Bumper J-112-A**

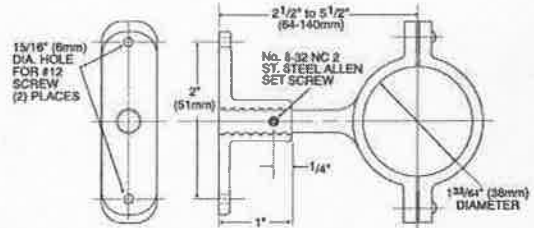
**Pipe Supports**

Pipe supports can be used with Sloan Flushometers to help secure the installation. Ideal for use in high vandalism installations, particularly when high rough-in valves have been installed. Pipe supports are designed to accommodate a 1½" diameter tube (when used with a urinal Flushometer Model, install at the top of the Vacuum Breaker Tube).

► **Split Ring Pipe Support J-312-A**

□ YJ Variation

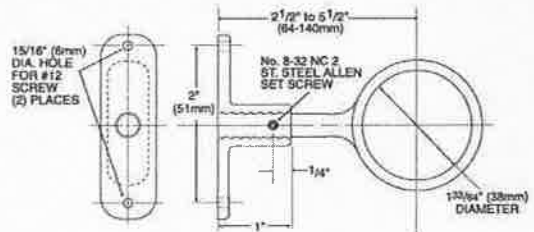
Chrome Plated, Split Ring Pipe Support with adjustable telescoping feature for accurate installation. For existing as well as new Flushometers.



► **Solid Ring Pipe Support J-212-A**

□ YK Variation

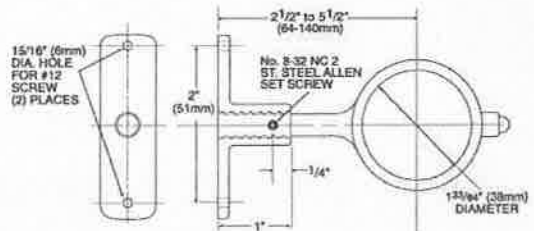
Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. For new Flushometers.



► **Solid Ring Pipe Support with Seat Bumper J-112-A**

□ YL Variation

Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. Seat Bumper protects flush tube as well as toilet seat.



This space for Architect/Engineer approval

The information contained in this document is subject to change without notice.

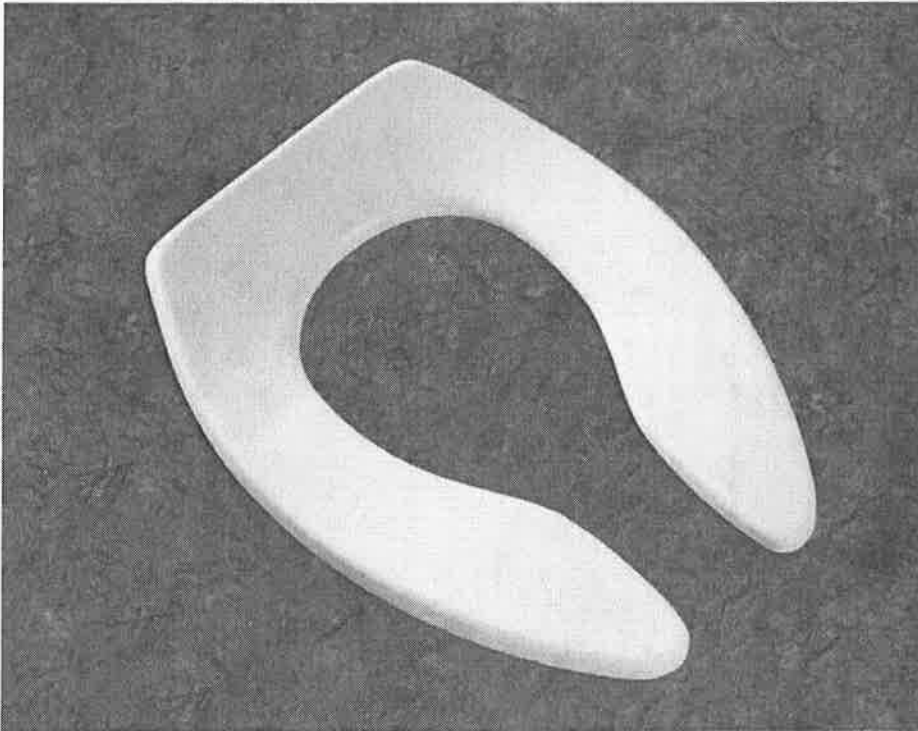
**SLOAN.**

Made in the U.S.A.  
 SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL 60131  
 Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax 1-800-447-8329 or 1-847-671-4380  
<http://www.sloanvalve.com>

Accessories Pipe Support S.S. — Rev. 1 (12/01)  
 Copyright © 2001 SLOAN VALVE COMPANY Printed in the U.S.A.



COMMERCIAL PLASTIC SEATS



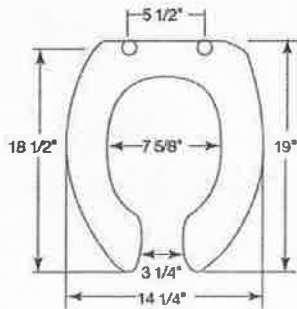
# 1655CT

Seats shall be No. \_\_\_\_\_ as manufactured by Bemis Manufacturing Co. Seats shall be extra heavy weight and injection molded of solid plastic. Seats shall be open front less cover for elongated bowl and feature large molded-in bumpers. Seats shall have STA-TITE®, Commercial Fastening System™, featuring external check hinges with 300 Series stainless steel posts and pintles that stop seat 11 degrees beyond vertical.

Color to be \_\_\_\_\_.  
(Specify white or fixture manufacturer's color.)

Hinges shall be 1655CT / 1655SSCT.  
(Circle model based on description below.)

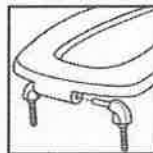
1655CT External check hinge stops seat 11° beyond vertical.  
1655SSCT Stainless steel, self-sustaining and external check hinge holds seat in any raised position up to 11° beyond vertical.



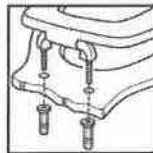
Ring thickness is 1"  
Ring thickness including the bumper is 1-3/16"

\*\* ANSI Z124.5 section 5.1.2 Tests have shown that this product will support weights up to 500 pounds.\*\* (Contact Bemis Mfg. Co., for test data)

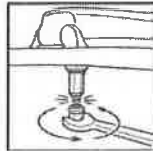
## STA-TITE®



Assemble hinges.



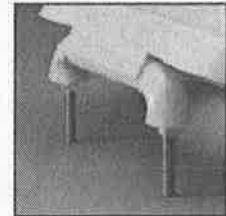
Finger-tighten fastening nuts.



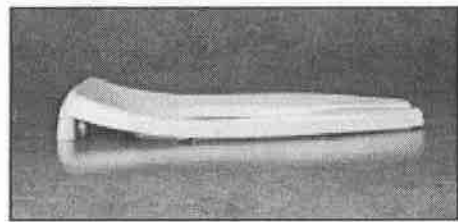
Using wrench, tighten until lower portion shears off.



STA-TITE®, COMMERCIAL FASTENING SYSTEM™, ONE-PIECE INTEGRATED NUT AND WASHER



CONCEALED CHECK HINGE



CONTOURED SEAT

Bemis Manufacturing Co., Sheboygan Falls, WI 53085  
www.BemisSeats.com

Phone: 920-467-4621 800-558-7651 Fax: 920-467-8573

©2007 08701 2108



**224010 2.1 WC-2 WATER CLOSET - ADA**

**SLOAN S2102059 TOP SPUD UNIVERSAL WC**

**SLOAN S0310083 J212A PIPE SUPP 5 C/E YK SLD**

**BEMIS B1655SSCT000 EB BOWL OF PLAS CLST**

**SEAT LC WHIT**



Efficiency Series

Model  
**ST-2059-A Universal Closet**  
Top Spud Vitreous China Elongated Water Closet

**DESCRIPTION**

Complete vitreous china water closet.

**Flush Cycle**

Model ST-2059-A Universal Closet  
(1.1 to 1.6 gpf/4.2 to 6.0 Lpf)

Code: 2102059

Flush volume is determined by the flushometer used with closet.



**SPECIFICATIONS**

**Water Closet**

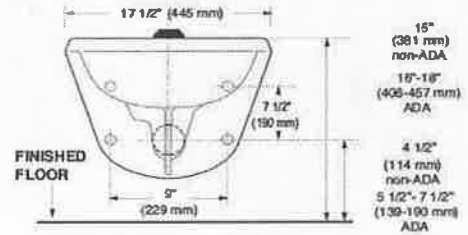
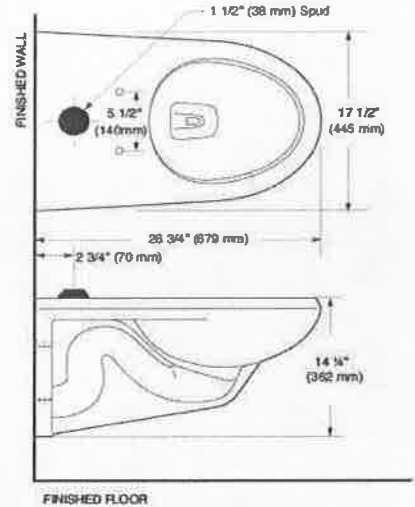
- Wall hung vitreous china elongated bowl
- Siphon jet flushing action
- 1-1/2" LP.S. top spud inlet
- 2-1/8" fully glazed trapway diameter
- Mounting hardware, carrier and toilet seat not included
- Integral flushing rim
- Water spot area 9 1/2" x 8 1/4"
- ASME A112.19.2/CSA B45.1

**Colors/Finishes**

- White

**Recommended Seats**

- Bemis - 1955CT/1955SSCT & 2155CT/2155SSCT
- Church - 295CT/295SSCT & 2155CT/2155SSCT



Designed to Meet ADA standards when bowl is 17" - 19" high including seat

\* Please note that this model is fully interchangeable with Models: ST-2050-A, ST-2052-A, ST-2053-A and matches all dimensional and performance parameters.

\*\* This model meets the requirements for a High Efficiency Toilet when used with a high efficiency flushometer (1.28 gpf/4.8 Lpf or 1.1/1.6 gpf-4.2/6.0 Lpf dual-flush).



Meets the American Disabilities Guidelines and ANSI A117.1 requirements when installed according to these requirements.

**NOTE:**

**Plumbing System Requirements**

- ✓ Minimum Flowing Pressure: 25 PSI
- ✓ Maximum Static Pressure: 80 PSI
- ✓ Minimum Flow Rate: 18 gpm

|  |          |
|--|----------|
| This space for Architect/Engineer approval |          |
| Job Name                                   | Date     |
| Model Specified                            | Quantity |
| Variations Specified                       |          |
| Customer/Wholesaler                        |          |
| Contractor                                 |          |
| Architect                                  |          |

The information contained in this document is subject to change without notice.

NOTE: All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.

**Product Specification**

Elongated water closet shall be made of vitreous china with a 1-1/2" top spud inlet. Bowl shall be ADA compliant when installed at required height of 17"-19" from floor to top of fixture (including seat). Water Closet shall be Sloan Model ST-2059-A.

GREEN \*\*

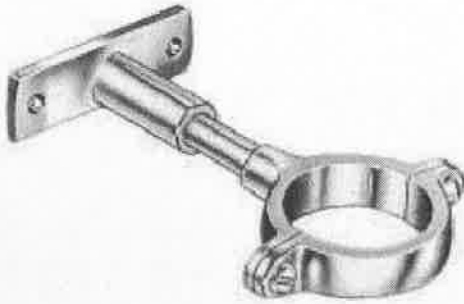


**SLOAN.**

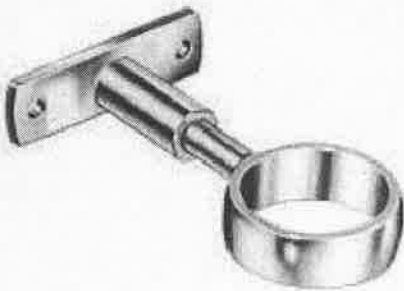
Sloan  
10500 Seymour Avenue  
Franklin Park, IL 60131  
Phone: 1-800-982-5839  
Fax: 1-800-447-8329  
www.sloanvalve.com

© 2013 Sloan Valve Company  
ST-2059 10-13

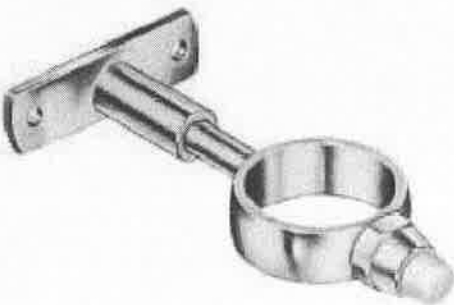
**A C C E S S O R I E S**



**Split Ring Pipe Support J-312-A**



**Solid Ring Pipe Support J-212-A**



**Solid Ring Pipe Support with Seat Bumper J-112-A**

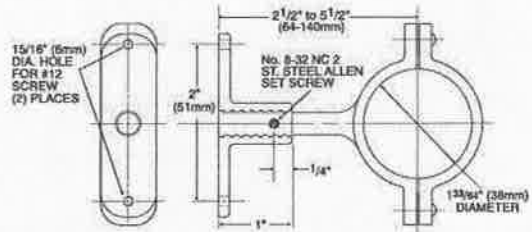
**Pipe Supports**

Pipe supports can be used with Sloan Flushometers to help secure the installation. Ideal for use in high vandalism installations, particularly when high rough-in valves have been installed. Pipe supports are designed to accommodate a 1½" diameter tube (when used with a urinal Flushometer Model, install at the top of the Vacuum Breaker Tube).

▶ **Split Ring Pipe Support J-312-A**

□ YJ Variation

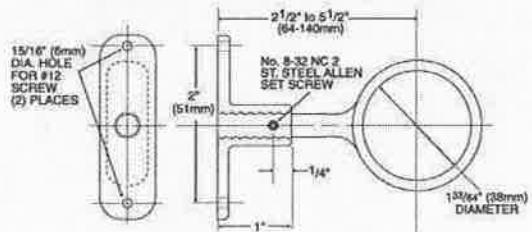
Chrome Plated, Split Ring Pipe Support with adjustable telescoping feature for accurate installation. For existing as well as new Flushometers.



▶ **Solid Ring Pipe Support J-212-A**

□ YK Variation

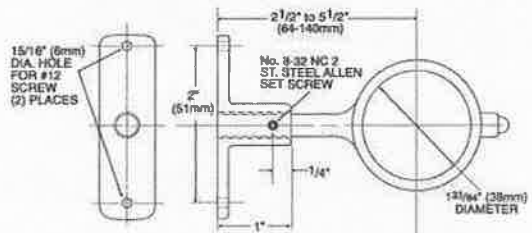
Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. For new Flushometers.



▶ **Solid Ring Pipe Support with Seat Bumper J-112-A**

□ YL Variation

Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. Seat Bumper protects flush tube as well as toilet seat.



This space for Architect/Engineer approval

The information contained in this document is subject to change without notice.

**SLOAN**

Made in the U.S.A.

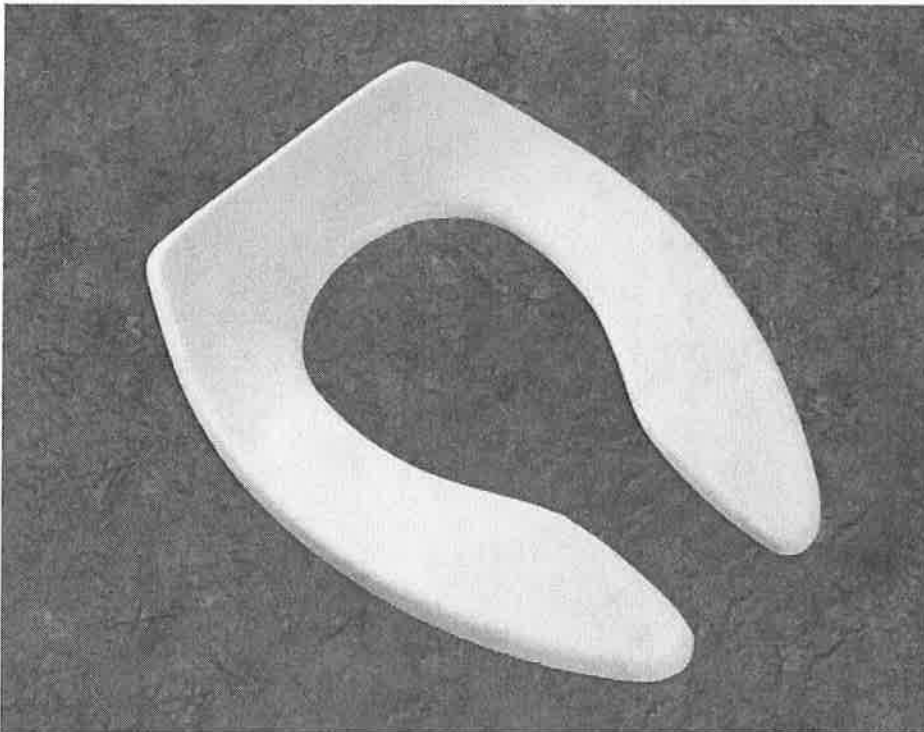
SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL. 60131  
Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380

<http://www.sloanvalve.com>

Accessories Pipe Support S.S. — Rev. 1 (12/01)  
Copyright © 2001 SLOAN VALVE COMPANY Printed in the U.S.A.



COMMERCIAL PLASTIC SEATS



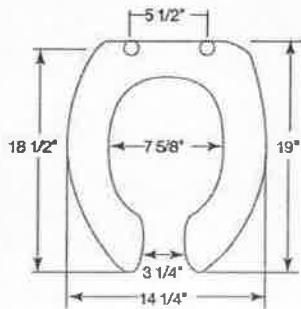
**1655CT**

Seats shall be No. \_\_\_\_\_ as manufactured by Bemis Manufacturing Co. Seats shall be extra heavy weight and injection molded of solid plastic. Seats shall be open front less cover for elongated bowl and feature large molded-in bumpers. Seats shall have STA-TITE®, Commercial Fastening System™, featuring external check hinges with 300 Series stainless steel posts and pintles that stop seat 11 degrees beyond vertical.

Color to be \_\_\_\_\_.  
(Specify white or fixture manufacturer's color.)

Hinges shall be 1655CT / 1655SSCT.  
(Circle model based on description below.)

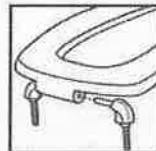
1655CT External check hinge stops seat 11° beyond vertical.  
1655SSCT Stainless steel, self-sustaining and external check hinge holds seat in any raised position up to 11° beyond vertical.



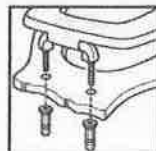
Ring thickness is 1"  
Ring thickness including the bumper is 1-3/16"

\*\* ANSI Z124.5 section 5.1.2 Tests have shown that this product will support weights up to 500 pounds.\*\* (Contact Bemis Mfg. Co., for test data)

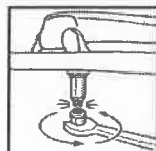
**STA-TITE®**



Assemble hinges.



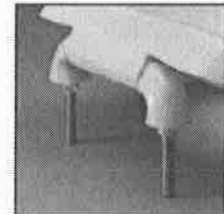
Finger-tighten fastening nuts.



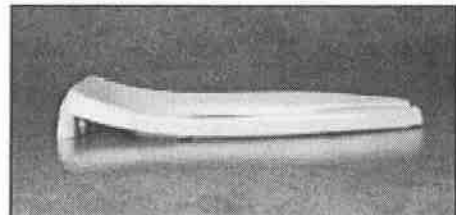
Using wrench, tighten until lower portion shears off.



STA-TITE®, COMMERCIAL FASTENING SYSTEM™, ONE-PIECE INTEGRATED NUT AND WASHER



CONCEALED CHECK HINGE



CONTOURED SEAT

Bemis Manufacturing Co., Sheboygan Falls, WI 53085  
www.BemisSeats.com

Phone: 920-467-4621 800-558-7651 Fax: 920-467-8573

©2007 08701 2106



224010 2.2A UR-1 URINAL

SLOAN S1107009 HE URINAL

SLOAN S0310083 J212A PIPE SUPP 5 C/E YK SLD



Model  
**SU-7009-A Universal High Efficiency Urinal**  
 Top Spud Vitreous China Wash Down Urinal

**DESCRIPTION**

Complete vitreous china top spud small urinal.

**FLUSH CYCLE**

- ✓ SU-7009-A Universal High-Efficiency (0.125 to 0.5 gpf/0.5 to 1.9 Lpf)

Code: 1107009

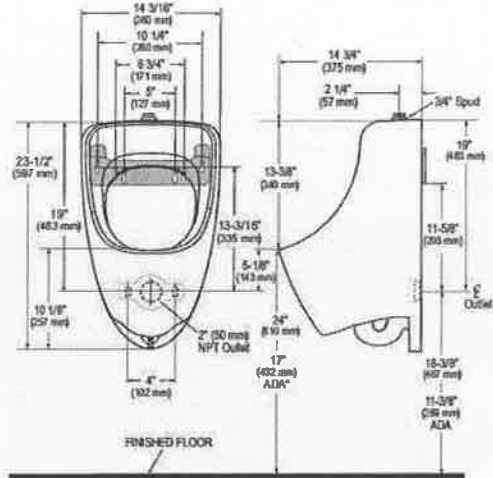
Flush volume is determined by the flushometer used with the urinal.



**SPECIFICATIONS**

**Urinal**

- Wall hung vitreous china
- Washdown flushing action
- 3/4" I.P.S. top spud inlet
- 2" NPT outlet flange included
- All mounting hardware included
- Integral flushing rim
- 100% factory flush tested
- Carrier not included
- Vandal resistant strainer assembly included
- Compliant to the applicable sections of ASME A112.19.2/CSA B45.1



**NOTE:** All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.

**Product Specification**

Washdown urinal shall be made of vitreous china with a 3/4" top spud. Urinal shall have a 14 3/4" rim from finished wall. Urinal shall include a vandal resistant strainer, inlet spud, and hanger. Urinal shall be Sloan Model SU-7009-A-0.125 to 0.5 gpf (0.5 to 1.9 Lpf).



This fixture meets or exceeds the following specifications:  
 The American Disabilities Guidelines and ANSI A117.1 when installed according to these requirements.



**NOTE: Plumbing System Requirements**

- ✓ Minimum **Flowing** Pressure: 25 PSI
- ✓ Maximum Static Pressure: 80 PSI

|  |          |
|--|----------|
| This space for Architect/Engineer approval |          |
| Job Name                                   | Date     |
| Model Specified                            | Quantity |
| Variations Specified                       |          |
| Customer/Wholesaler                        |          |
| Contractor                                 |          |
| Architect                                  |          |

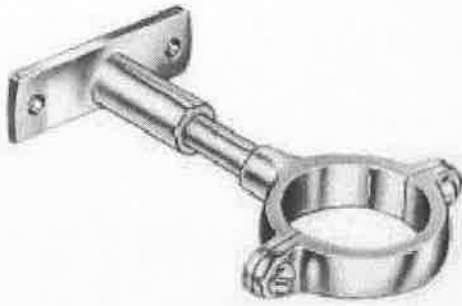


Sloan Headquarters  
 10500 Seymour Avenue  
 Franklin Park, IL 60131  
 Phone: 1-800-9-VALVE-9  
 Fax: 1-800-447-8329  
 www.sloanvalve.com

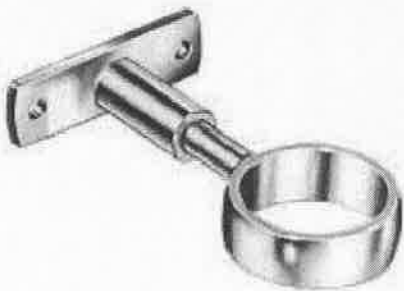
© 2013 Sloan Valve Company  
 SU-7009 09-13

The information contained in this document is subject to change without notice.

**A C C E S S O R I E S**



**Split Ring Pipe Support J-312-A**



**Solid Ring Pipe Support J-212-A**



**Solid Ring Pipe Support with Seat Bumper J-112-A**

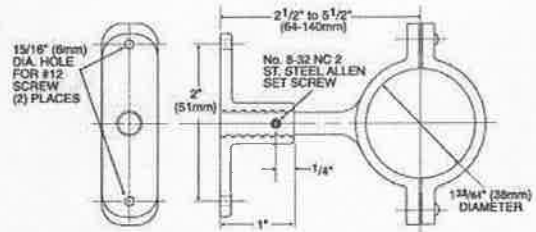
**Pipe Supports**

Pipe supports can be used with Sloan Flushometers to help secure the installation. Ideal for use in high vandalism installations, particularly when high rough-in valves have been installed. Pipe supports are designed to accommodate a 1½" diameter tube (when used with a urinal Flushometer Model, install at the top of the Vacuum Breaker Tube).

► **Split Ring Pipe Support J-312-A**

□ YJ Variation

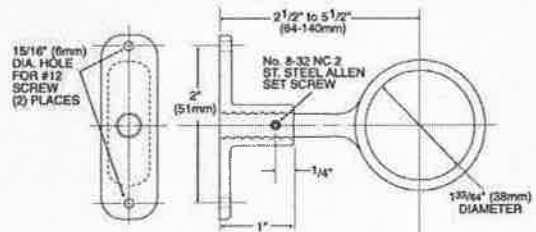
Chrome Plated, Split Ring Pipe Support with adjustable telescoping feature for accurate installation. For existing as well as new Flushometers.



► **Solid Ring Pipe Support J-212-A**

□ YK Variation

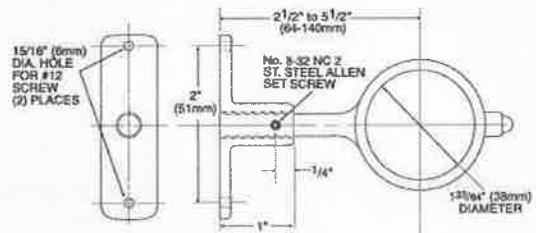
Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. For new Flushometers.



► **Solid Ring Pipe Support with Seat Bumper J-112-A**

□ YL Variation

Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. Seat Bumper protects flush tube as well as toilet seat.



This space for Architect/Engineer approval

The information contained in this document is subject to change without notice

**SLOAN.**

Made in the U.S.A.  
 SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL. 60131  
 Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380  
<http://www.sloanvalve.com>

224010 2.2B UR-2 URINAL - ADA

SLOAN S1107009 HE URINAL

SLOAN S0310083 J212A PIPE SUPP 5 C/E YK SLD



Model  
**SU-7009-A Universal High Efficiency Urinal**  
 Top Spud Vitreous China Wash Down Urinal

**DESCRIPTION**

Complete vitreous china top spud small urinal.

**FLUSH CYCLE**

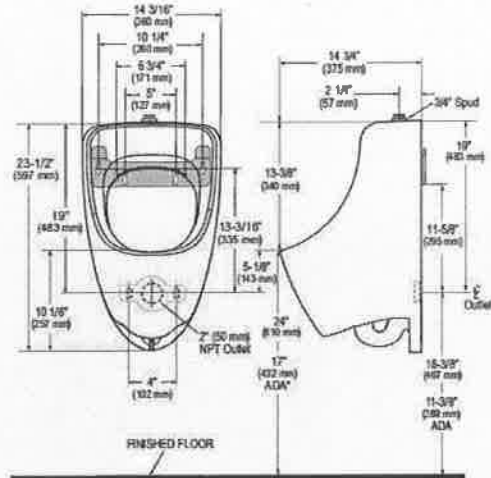
- ✓ SU-7009-A Universal High-Efficiency (0.125 to 0.5 gpf/0.5 to 1.9 Lpf)  
 Code: 1107009

Flush volume is determined by the flushometer used with the urinal.



**SPECIFICATIONS**

- Urinal**
- Wall hung vitreous china
  - Washdown flushing action
  - 3/4" I.P.S. top spud inlet
  - 2" NPT outlet flange included
  - All mounting hardware included
  - Integral flushing rim
  - 100% factory flush tested
  - Carrier not included
  - Vandal resistant strainer assembly included
  - Compliant to the applicable sections of ASME A112.19.2/CSA B45.1



**NOTE:** All vitreous china dimensions shown in these drawings are nominal. Dimensions can vary within the tolerances established in the governing ASME A112.19.2/CSA B45.1 standard. Please take this into consideration when planning rough-in and plumbing layouts.

**Product Specification**

Washdown urinal shall be made of vitreous china with a 3/4" top spud. Urinal shall have a 14 3/4" rim from finished wall. Urinal shall include a vandal resistant strainer, inlet spud, and hanger. Urinal shall be Sloan Model SU-7009-A-0.125 to 0.5 gpf (0.5 to 1.9 Lpf).



This fixture meets or exceeds the following specifications:  
 The American Disabilities Guidelines and ANSI A117.1 when installed according to these requirements.

**NOTE: Plumbing System Requirements**

- ✓ Minimum **Flowing** Pressure: 25 PSI
- ✓ Maximum **Static** Pressure: 80 PSI

|  |          |
|--|----------|
| This space for Architect/Engineer approval |          |
| Job Name                                   | Date     |
| Model Specified                            | Quantity |
| Variations Specified                       |          |
| Customer/Wholesaler                        |          |
| Contractor                                 |          |
| Architect                                  |          |

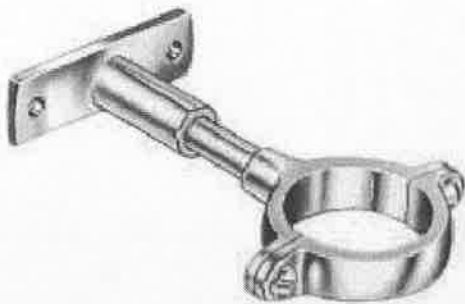
The information contained in this document is subject to change without notice.



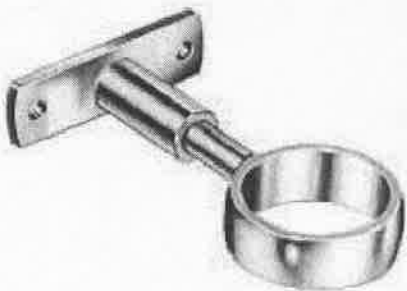
Sloan Headquarters  
 10500 Seymour Avenue  
 Franklin Park, IL 60131  
 Phone: 1-800-9-VALVE-9  
 Fax: 1-800-447-8329  
 www.sloanvalve.com

© 2013 Sloan Valve Company  
 SU-7009 09-13

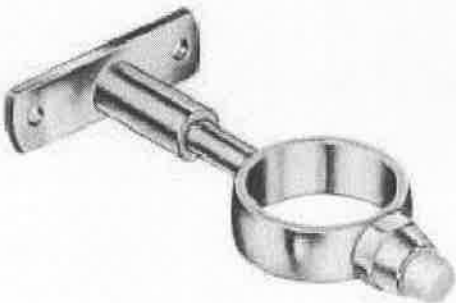
**A C C E S S O R I E S**



Split Ring Pipe Support J-312-A



Solid Ring Pipe Support J-212-A



Solid Ring Pipe Support with Seat Bumper J-112-A

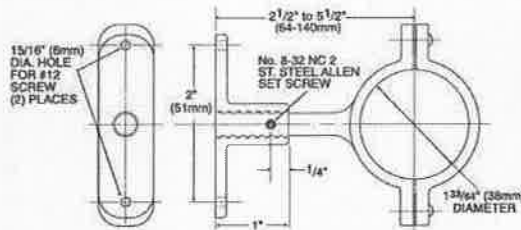
**Pipe Supports**

Pipe supports can be used with Sloan Flushometers to help secure the installation. Ideal for use in high vandalism installations, particularly when high rough-in valves have been installed. Pipe supports are designed to accommodate a 1½" diameter tube (when used with a urinal Flushometer Model, install at the top of the Vacuum Breaker Tube).

► **Split Ring Pipe Support J-312-A**

□ YJ Variation

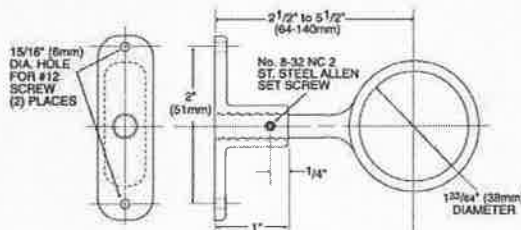
Chrome Plated, Split Ring Pipe Support with adjustable telescoping feature for accurate installation. For existing as well as new Flushometers.



► **Solid Ring Pipe Support J-212-A**

□ YK Variation

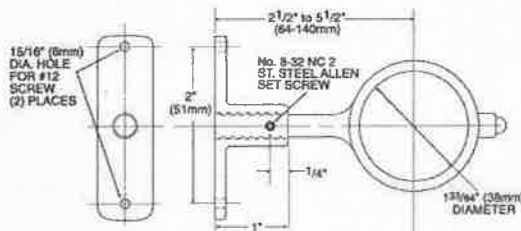
Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. For new Flushometers.



► **Solid Ring Pipe Support with Seat Bumper J-112-A**

□ YL Variation

Chrome Plated, Solid Ring Pipe Support with adjustable telescoping feature for accurate installation. Seat Bumper protects flush tube as well as toilet seat.



This space for Architect/Engineer approval

The information contained in this document is subject to change without notice.

**SLOAN.**

Made in the U.S.A.

SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL. 60131  
 Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380  
<http://www.sloanvalve.com>

224010 2.3 LV-1 LAVATORY - ADA

COUNTERTOP WITH INTEGRAL BOWL

PROVIDED BY OTHERS

MCGUIRE M155WC CP OFFSET DRN

CHICAGO C1016ABCP LF ANG STOP FTG CP

MCGUIRE M8872C 1-1/4X1-1/4 CP SEMI CAST P

TRAP

PROFLO PF203WH WHIT CVR F/ P TRAP SPLY

TLPC

**INTEGRAL BOWL - PROVIDED BY OTHERS**



**McGUIRE MFG. CO., INC.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax 203-699-1813  
 www.mcguiremfg.com

**Product Specification**

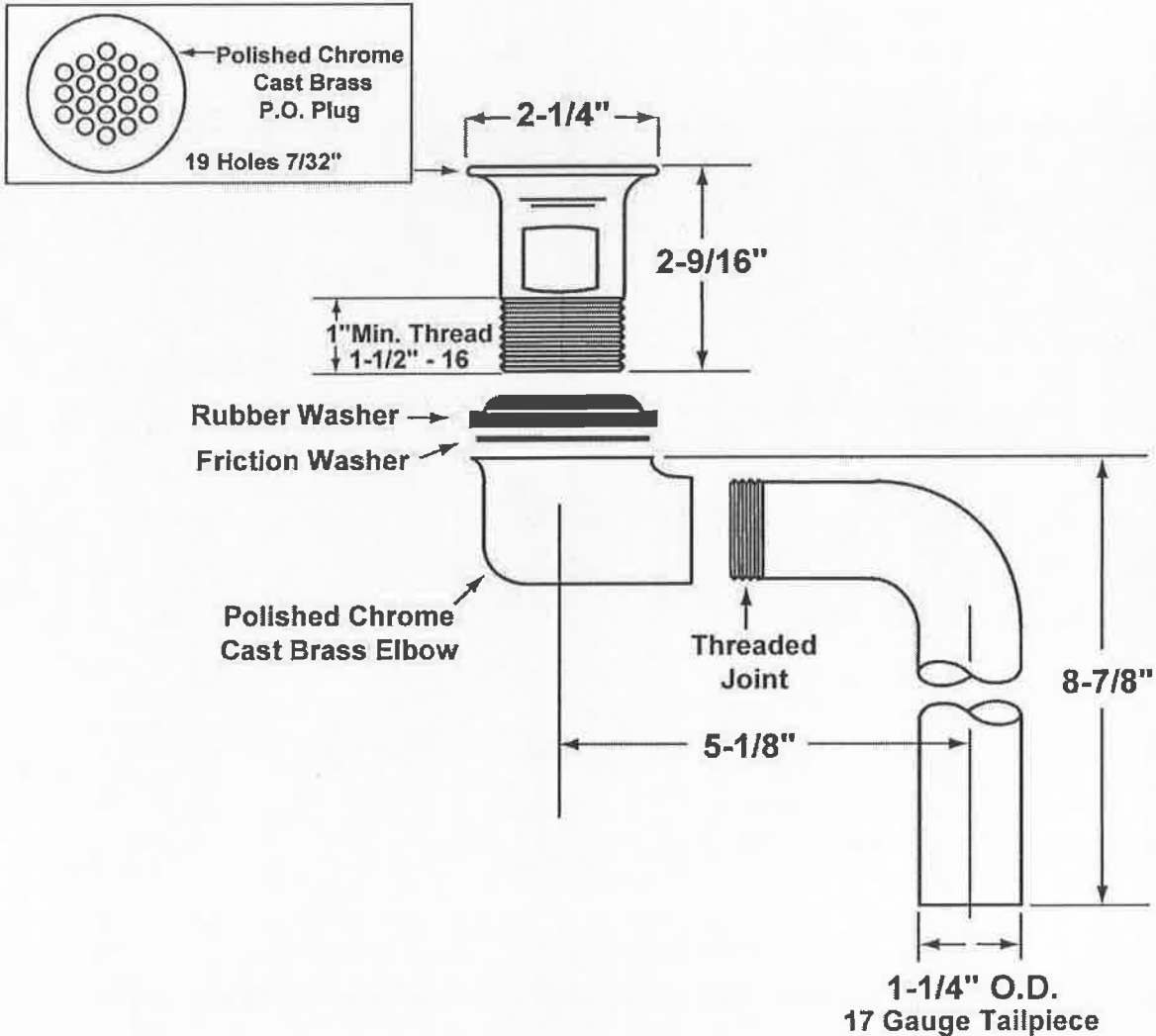
**Part No.**

**155WC**

**Offset Lavatory  
 Grid Strainer**

**Job Name:**

**Submittal Number:**



A.D.A.



Certified

See options and accessories section for details on product variations.

**Specifications:**

Cast Brass Chrome Plated Offset Wheelchair Strainer with polished chrome cast brass elbow, 17 gauge 1-1/4 inch seamless brass offset tailpiece, heavy rubber basin washer and fiber friction washer. Offset lavatory strainer shall be in compliance with CSA or other recognized testing authority and bear both manufacturer and testing mark.

# ECAST® MANUAL FAUCETS

## 1016-ABCP



### Angle Stop Fitting with Supply Tube

#### Product Type

Angle Stop Fitting with Supply Tube

#### Features & Specifications

- 3/8" O.D. x 12" Flexible Supply Riser
- 2 1/4" Metal Loose Key Tee Handle
- Slow Compression Operating Cartridge
- 3/8" NPT Female Thread Inlet
- Slip Wall Flange
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average

#### Performance Specification

- Rating Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

#### Warranty

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

#### Codes & Standards

- ASME A112.18.1M
- CSA B125.1
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

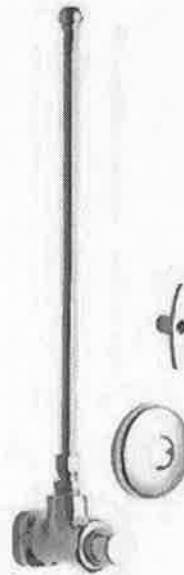
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_



#### ECAST

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



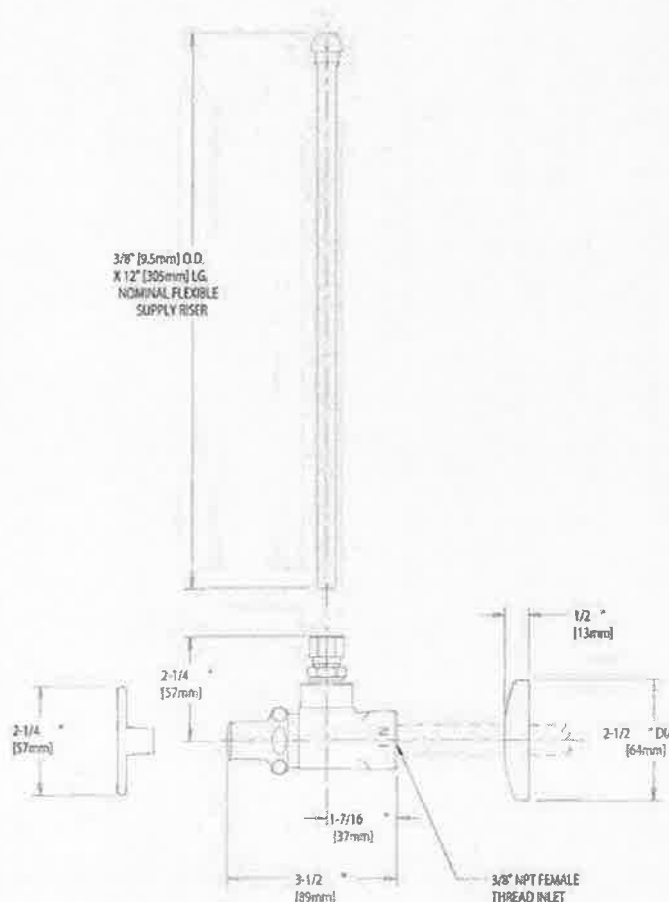
2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
www.chicagofaucets.com

**1016-ABCP****Angle Stop Fitting with Supply Tube****CHICAGO  
FAUCETS**

a Geberit company

**Architect/Engineer Specification**

Chicago Faucets No. 1016-ABCP, polished chrome plated solid brass body construction. ECAST® construction with less than 0.25% lead content by weighted average. 2-1/4" loose key handle. Slow compression renewable cartridge designed to close with water pressure, with square tapered broach feature to help facilitate handle removal. 3/8" NPT female inlet. 3/8" O.D. x 12" flexible supply riser. This product is tested and certified to industry standards: ASME A112.18.1M, CSA B125.1, California Health and Safety Code 116875 (AB1953-2006), and Vermont Bill S.152.

**Operation and Maintenance**

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



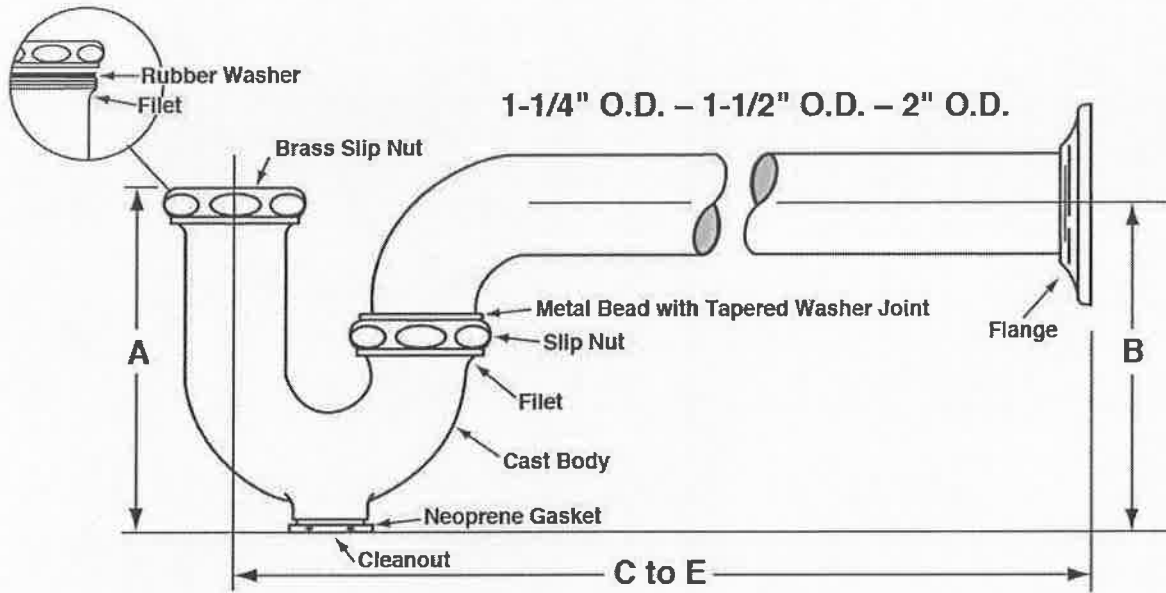
2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**McGuire Manufacturing Co., Inc.**  
 60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com  
**PRODUCT SPECIFICATION**

**Part No.**  
 8872, 8902, 8912,  
 8903, 8904  
**Cast Body P-Trap  
 With Cleanout**

**Job Name:** \_\_\_\_\_ **Submittal Number:** \_\_\_\_\_



**PROFESSIONAL LINE**

| ROUGHING MEASUREMENTS |                 |        |    |        |        |
|-----------------------|-----------------|--------|----|--------|--------|
| NO.                   | TRAP DIMENSIONS |        | A  | B      | C to E |
|                       | INLET           | OUTLET |    |        |        |
| 8872                  | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902                  | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912                  | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903                  | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904                  | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.



# LAV GUARD<sup>2</sup>

FAST FIT UNDERSINK PIPING COVERS

All New  
E-Z Series

ADA-compliant undersink protection



## Submittal Sheet

### General Description:

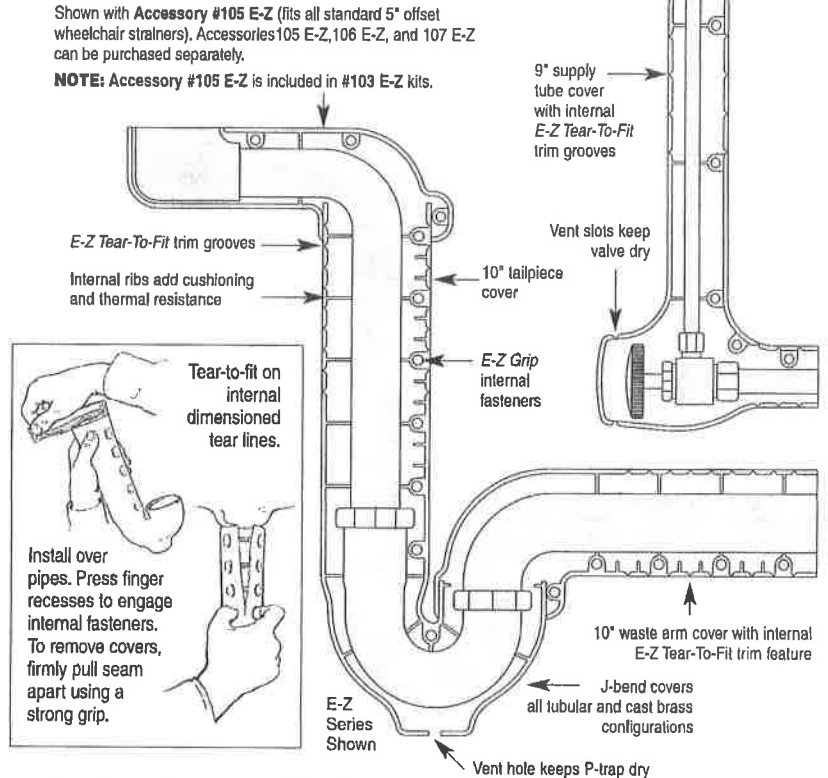
LAV GUARD<sup>2</sup> E-Z Series waste and supply piping covers satisfy ADA compliance requirements. Built-in E-Z Grip internal fasteners and internal, E-Z Tear-To-Fit trimming feature allow for fast installation without tools. Series #100 E-Z kits are designed to fit on all tubular and cast brass P-trap assemblies. Series #400 kits are the "original" LAV GUARD design and fit schedule 40 ABS and PVC P-trap assemblies — regardless of their geometry or rotational offset. Valve cover completely encloses angle valve and supply tube for both handled and keyed type water stops.

|                                       |   |
|---------------------------------------|---|
| Material                              | Molded vinyl                                |
| Nominal Wall                          | 1/8" constant                               |
| Durometer                             | 70-80 - Shore A                             |
| UV Protection                         | Will not fade or discolor                   |
| Durability                            | Virtually indestructible                    |
| Trimming (E-Z Series)                 | Internal, E-Z Tear-To-Fit trim feature      |
| Fasteners (E-Z Series)                | Internal E-Z Grip fasteners (reusable)      |
| Color                                 | China white                                 |
| Paintability                          | Apply Latex paint                           |
| Burning Characteristics<br>ASTM D-635 | Self extinguished<br>0 sec (ATB) 0 mm (AEB) |
| Bacteria/Fungus<br>Resistance         | ASTM G21 and G22/<br>Result: 0 growth       |
| Maintenance                           | Use common detergents                       |

Manufactured under one or more of the following U.S. or Canadian patents.  
Other patents pending.  
5,303,730 5,360,031 5,524,669 5,564,463 5,678,598 5,699,828 5,915,412  
5,915,413 5,901,739 5,960,820 2,075,324 2,119,427 2,136,027 2,158,083

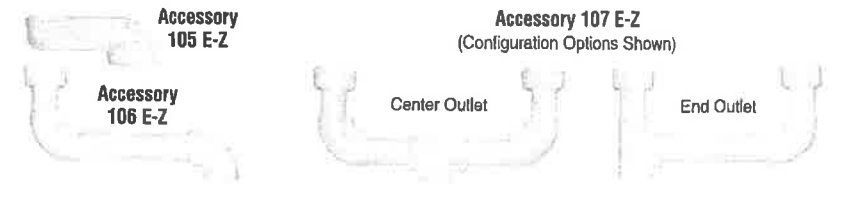


IPS Corporation, 202 Industrial Park Lane, Collierville, TN 38017  
(901) 853-5001 (800) 340-5969 FAX: (901) 853-5008  
e-mail: info@truebro.com Internet: http://www.truebro.com



#100 E-Z Series (shown above right) for tubular and cast brass P-trap assemblies.  
#400W\* Series (original design) for schedule 40 P-trap assemblies.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> <b>Model #99 E-Z</b><br>One angle valve and supply cover         | <input type="checkbox"/> <b>Model #102 E-Z</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #105-K</b><br>Kohler 6" offset   |
| <input type="checkbox"/> <b>Model #100 E-Z</b><br>One P-trap cover                        | <input type="checkbox"/> <b>Model #402W*</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #106 E-Z</b><br>One basket strainer cover and offset waste cover (adjustable to 18")         |
| <input type="checkbox"/> <b>Model #400W*</b><br>One P-trap cover                          | <input type="checkbox"/> <b>Model #103 E-Z</b><br>One P-trap cover, two angle valves and supply covers, one 5" offset tailpiece wheelchair strainer cover | <input type="checkbox"/> <b>Accessory #107 E-Z</b><br>Two basket strainer covers and center or end outlet waste cover (adjustable) |
| <input type="checkbox"/> <b>Model #101 E-Z</b><br>One P-trap cover, one angle valve cover | <input type="checkbox"/> <b>Accessory #105 E-Z</b><br>One 5" offset tailpiece wheelchair strainer assembly  | <input type="checkbox"/> <b>Accessory #Ex99 E-Z</b><br>One 16" extension for water supply  |
| <input type="checkbox"/> <b>Model #401W*</b><br>One P-trap cover, one angle valve cover   | <p>*All #400W series items are the "original" LAV GUARD<sup>2</sup> design and construction. Specifications may change without notice.</p>                |  |



Job/Location \_\_\_\_\_  
Designer \_\_\_\_\_



## Z5340

20" x 18" Wall Hung Lavatory

TAG \_\_\_\_\_



### Z5340 Series

#### Suffix Options:

- \_\_\_ -PED Vitreous china half pedestal  
(for use with Z5341 & Z5344 Only)
- \_\_\_ -LS Left Side Soap Hole.
- \_\_\_ -RS Right Side Soap Hole.

#### Recommended Trim:

- Z8743-PC Grid Strainer.
- Z8700 Series P-Trap.
- Z8800 Series Stop with Flexible Supplies.
- Z8946-1-NT ADA Trap, Stop, and Supply Protectors.

#### Optional Trim:

- Z8746-PC ADA Grid Strainer.
- Z8946-3-NT ADA Trap, Stop, and Supply Protectors for Offset Grid Strainers.

*These dimensions and specifications are subject to change without notice.*

*Fixture dimensions meet ANSI/ASME standard A112.19.2 and CAN/CSA B45 requirements.*

*Meets the American Disabilities Guidelines and ANSI A117.1 requirements when lavatory is installed 34" [864mm] from finished floor.*



ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION  
5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330  
Phone: 1-800-997-3876 ♦ Fax: 919-775-3541  
www.zurn.com  
In Canada: ZURN INDUSTRIES LIMITED  
3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2  
Phone: 905-405-8272 Fax: 905-405-1292

### Z5340 Series

- 20" [508 mm] x 18" [457 mm]
- Vitreous china
- Faucet holes for single, 4", or 8" centers
- Available with right or left side soap hole punching (Single or 4" centers only)
- Wall hung lavatory provided with wall hanger or for use with concealed arm carrier systems
- Front overflow
- Waste: 1-1/4" O.D.
- Depth: 6-3/8"
- Shipping Weight: 42 lbs.

#### Engineering Specification:

- Z5341 20" x 18" vitreous china wall hung lavatory with single faucet hole. Provided with hanger plate and holes for concealed arm carrier systems.
- Z5344 20" x 18" vitreous china wall hung lavatory with 4" center faucet hole. Provided with hanger plate and holes for concealed arm carrier systems.
- Z5348 20" x 18" vitreous china wall hung lavatory with 8" center faucet hole. Provided with hanger plate and holes for concealed arm carrier systems. (Not available with the -LS or -RS)

Architectural/Engineering Approval

The information contained in this document is subject to change without notice.  
Please contact Zurn for most up to date information.

See Zurn One Systems for suggested packages.

Rev. G  
Dwg. No. 80550

Date: 8/20/12  
Product No. Z5340



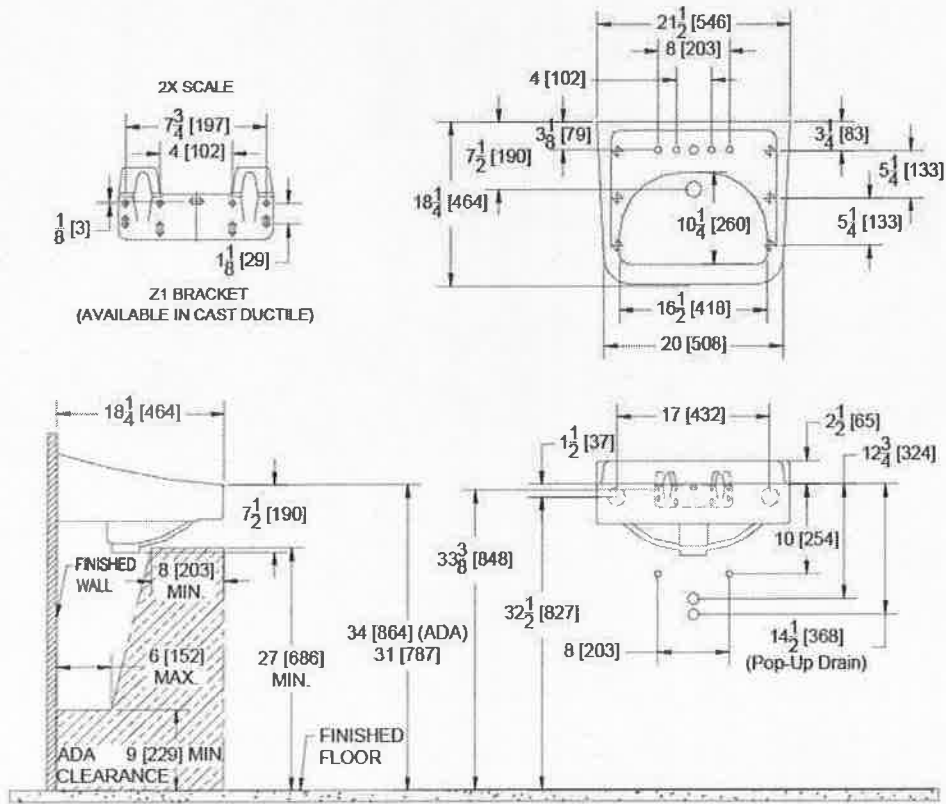
# Z5340

20" x 18" Wall Hung Lavatory

TAG \_\_\_\_\_

**Rough-in dimensions for Z5340 Series**

- Z5341 Lavatory with single faucet hole
- Z5344 Lavatory with 4" center faucet holes
- Z5348 Lavatory with 8" center faucet holes



Note: Rough-in for concealed arm carrier, see Zurn Z-1231 Rough-in sheet.

These dimensions and specifications are subject to change without notice.

Fixture dimensions meet ANS/ASME standard A112.19.2 and CAN/CSA B45 requirements.

Meets the American Disabilities Guidelines and ANSI A117.1 requirements when lavatory is installed 34" [864mm] from finished floor.



ZURN INDUSTRIES, LLC. ♦ COMMERCIAL BRASS OPERATION  
 5900 ELWIN BUCHANAN DRIVE ♦ SANFORD NC 27330  
 Phone: 1-800-997-3876 ♦ Fax: 919-775-3541  
 www.zurn.com  
 In Canada: ZURN INDUSTRIES LIMITED  
 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2  
 Phone: 905-405-8272 Fax: 905-405-1292

Rev. G  
 Dwg. No. 80550

Date: 8/20/12  
 Product No. Z5340



**McGUIRE MFG. CO., INC.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax 203-699-1813  
 www.mcguiremfg.com

**Product Specification**

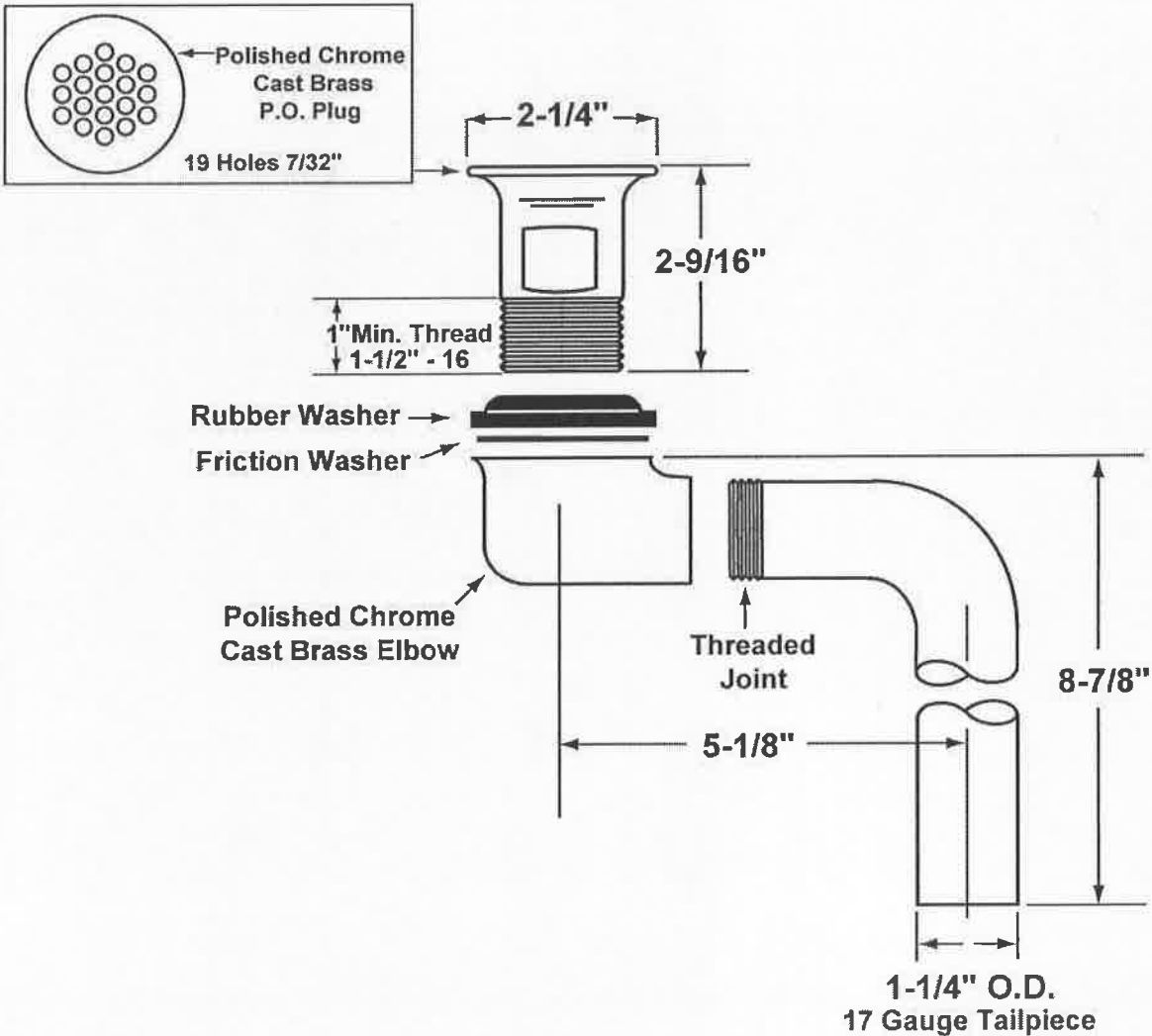
**Part No.**

**155WC**

**Offset Lavatory  
 Grid Strainer**

**Job Name:**

**Submittal Number:**



A.D.A.



Certified

See options and accessories section for details on product variations.

**Specifications:**

Cast Brass Chrome Plated Offset Wheelchair Strainer with polished chrome cast brass elbow, 17 gauge 1-1/4 inch seamless brass offset tailpiece, heavy rubber basin washer and fiber friction washer. Offset lavatory strainer shall be in compliance with CSA or other recognized testing authority and bear both manufacturer and testing mark.

# ECAST® MANUAL FAUCETS

## 1016-ABCP

### Angle Stop Fitting with Supply Tube



**Product Type**

Angle Stop Fitting with Supply Tube

**Features & Specifications**

- 3/8" O.D. x 12" Flexible Supply Riser
- 2 1/4" Metal Loose Key Tee Handle
- Slow Compression Operating Cartridge
- 3/8" NPT Female Thread Inlet
- Slip Wall Flange
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average

**Performance Specification**

- Rating Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1M
- CSA B125.1
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

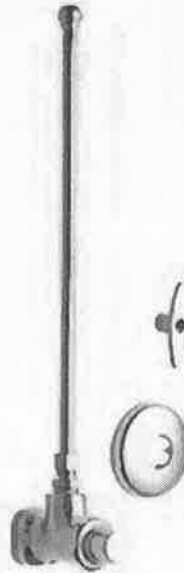
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_



**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



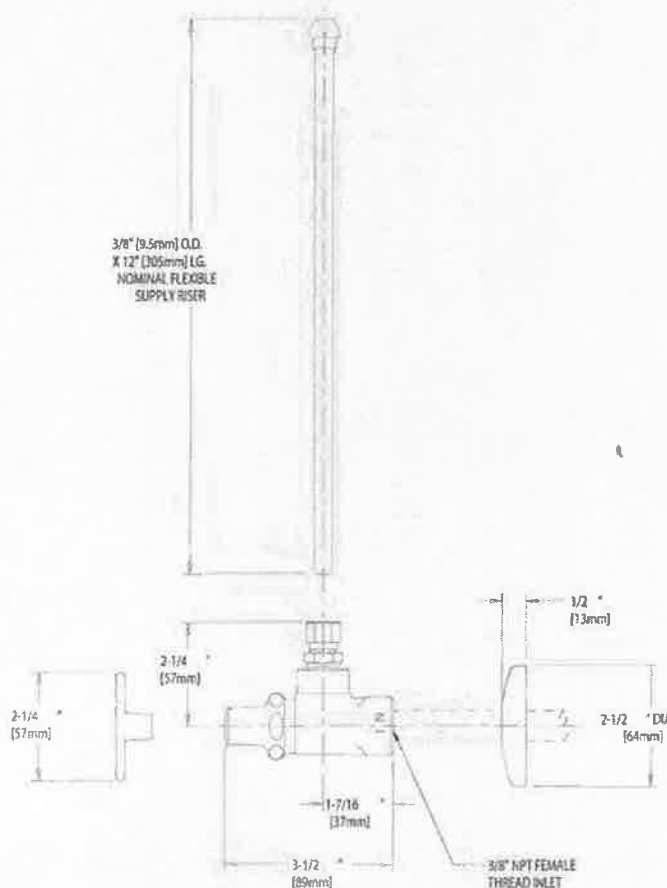
2100 South Clearwater Drive  
 Des Plaines, IL  
 P: 847/803-5000  
 F: 847/803-5454  
 Technical: 800/TEC-TRUE  
 www.chicagofaucets.com

**1016-ABCP****Angle Stop Fitting with Supply Tube****CHICAGO  
FAUCETS**

a Geberit company

**Architect/Engineer Specification**

Chicago Faucets No. 1016-ABCP, polished chrome plated solid brass body construction. ECAST® construction with less than 0.25% lead content by weighted average. 2-1/4" loose key handle. Slow compression renewable cartridge designed to close with water pressure, with square tapered broach feature to help facilitate handle removal. 3/8" NPT female inlet. 3/8" O.D. x 12" flexible supply riser. This product is tested and certified to industry standards: ASME A112.18.1M, CSA B125.1, California Health and Safety Code 116875 (AB1953-2006), and Vermont Bill S.152.

**Operation and Maintenance**

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

5/11 Product specifications subject to change without notice

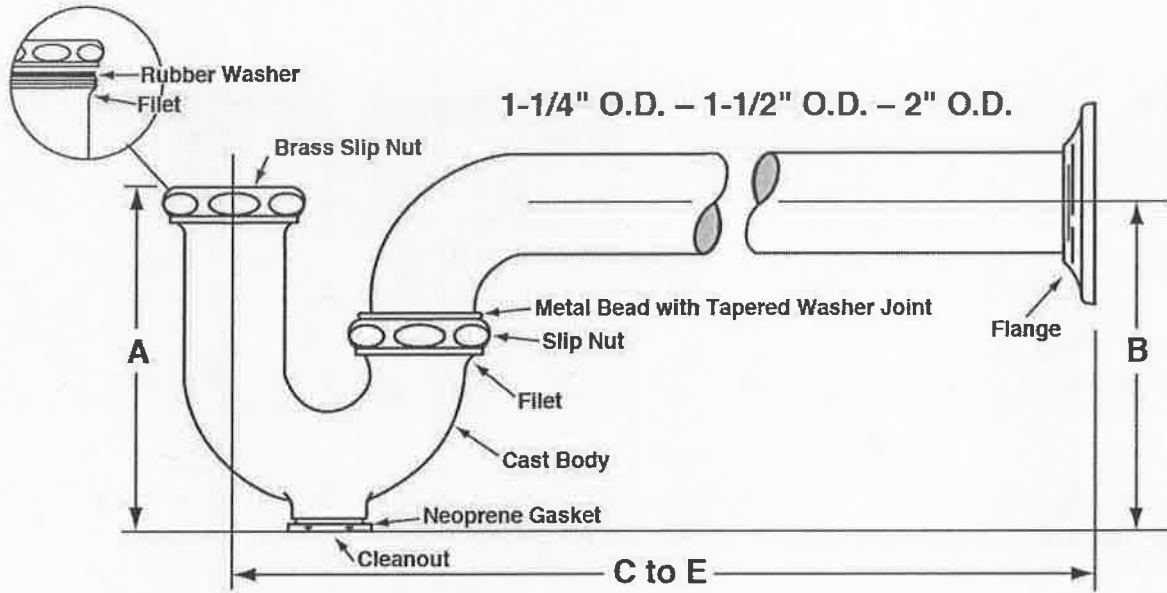




**McGuire Manufacturing Co., Inc.**  
 60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com  
**PRODUCT SPECIFICATION**

**Part No.**  
 8872, 8902, 8912,  
 8903, 8904  
**Cast Body P-Trap  
 With Cleanout**

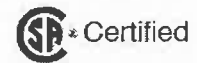
**Job Name:** \_\_\_\_\_ **Submittal Number:** \_\_\_\_\_



**PROFESSIONAL LINE**

| ROUGHING MEASUREMENTS |                 |        |    |        |        |
|-----------------------|-----------------|--------|----|--------|--------|
| NO.                   | TRAP DIMENSIONS |        | A  | B      | C to E |
|                       | INLET           | OUTLET |    |        |        |
| 8872                  | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902                  | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912                  | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903                  | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904                  | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
**CAST BRASS P TRAP**  
**MINIMUM SEAL 2"**



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.



# LAV GUARD<sup>2</sup>

FAST FIT UNDERSINK PIPING COVERS

All New  
E-Z Series

ADA-compliant undersink protection



## Submittal Sheet

### General Description:

LAV GUARD<sup>2</sup> E-Z Series waste and supply piping covers satisfy ADA compliance requirements. Built-in E-Z Grip internal fasteners and internal, E-Z Tear-To-Fit trimming feature allow for fast installation without tools. Series #100 E-Z kits are designed to fit on all tubular and cast brass P-trap assemblies. Series #400 kits are the "original" LAV GUARD design and fit schedule 40 ABS and PVC P-trap assemblies — regardless of their geometry or rotational offset. Valve cover completely encloses angle valve and supply tube for both handled and keyed type water stops.

|                                       |   |
|---------------------------------------|---|
| Material                              | Molded vinyl                                |
| Nominal Wall                          | 1/8" constant                               |
| Durometer                             | 70-80 - Shore A                             |
| UV Protection                         | Will not fade or discolor                   |
| Durability                            | Virtually indestructible                    |
| Trimming (E-Z Series)                 | Internal, E-Z Tear-To-Fit trim feature      |
| Fasteners (E-Z Series)                | Internal E-Z Grip fasteners (reusable)      |
| Color                                 | China white                                 |
| Paintability                          | Apply Latex paint                           |
| Burning Characteristics<br>ASTM D-635 | Self extinguished<br>0 sec (ATB) 0 mm (AEB) |
| Bacteria/Fungus<br>Resistance         | ASTM G21 and G22/<br>Result: 0 growth       |
| Maintenance                           | Use common detergents                       |

Manufactured under one or more of the following U.S. or Canadian patents. Other patents pending.  
5,303,730 5,360,031 5,524,669 5,564,463 5,678,598 5,699,828 5,915,412  
5,915,413 5,901,739 5,960,820 2,075,324 2,119,427 2,136,027 2,158,083

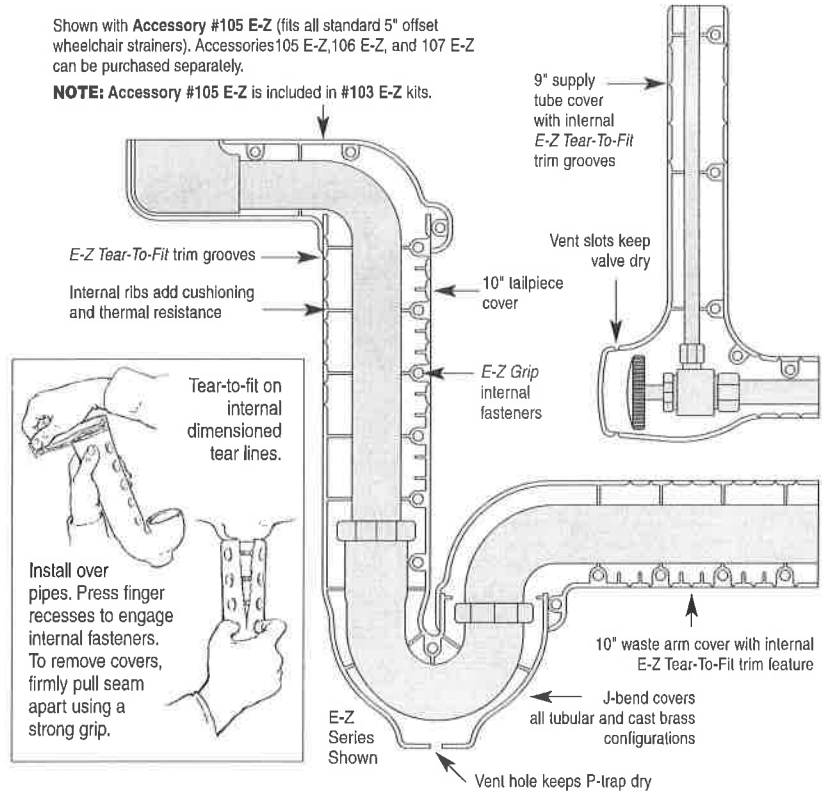


IPS Corporation, 202 Industrial Park Lane, Collierville, TN 38017  
(901) 853-5001 (800) 340-5969 FAX: (901) 853-5008  
e-mail: info@truebro.com Internet: http://www.truebro.com



Shown with Accessory #105 E-Z (fits all standard 5" offset wheelchair strainers). Accessories 105 E-Z, 106 E-Z, and 107 E-Z can be purchased separately.

**NOTE:** Accessory #105 E-Z is included in #103 E-Z kits.



#100 E-Z Series (shown above right) for tubular and cast brass P-trap assemblies.

#400W\* Series (original design) for schedule 40 P-trap assemblies.

**Model #99 E-Z**  
One angle valve and supply cover

**Model #100 E-Z**  
One P-trap cover

**Model #400W\***  
One P-trap cover

**Model #101 E-Z**  
One P-trap cover, one angle valve cover

**Model #401W\***  
One P-trap cover, one angle valve cover

**Model #102 E-Z**  
One P-trap cover, two angle valves and covers

**Model #402W\***  
One P-trap cover, two angle valves and covers

**Model #103 E-Z**  
One P-trap cover, two angle valves and supply covers, one 5" offset tailpiece wheelchair strainer cover

**Accessory #105 E-Z**  
One 5" offset tailpiece wheelchair strainer assembly

**Accessory #105-K**  
Kohler 6" offset

**Accessory #106 E-Z**  
One basket strainer cover and offset waste cover (adjustable to 18")

**Accessory #107 E-Z**  
Two basket strainer covers and center or end outlet waste cover (adjustable)

**Accessory #Ex99 E-Z**  
One 16" extension for water supply

**Accessory #Ex100 E-Z**  
One 16" extension for drain waste arm or tailpiece

\*All #400W series items are the "original" LAV GUARD<sup>2</sup> design and construction. Specifications may change without notice.



Job/Location \_\_\_\_\_

Designer \_\_\_\_\_

TRUEBRO reserves the right to make product and material changes at any time without notice.

# ELKAY<sup>®</sup>

## SPECIFICATIONS

### Lustertone<sup>®</sup> Single Bowl Sink Models LRAD and LRADQ Series – A.D.A. Compliant

**GENERAL**

Highest quality sink seamlessly formed of #18 gauge, type 304 (18-8) nickel bearing stainless steel. Self-rimming.

**DESIGN FEATURES**

LRAD(Q) Bowl Depth: 4", 4-1/2", 5", 5-1/2", 6" or 6-1/2".

Coved Corners: 1-3/4" vertical and horizontal radius.

Bowl and Faucet Deck Recess: 3/16" below outside edge of sink.

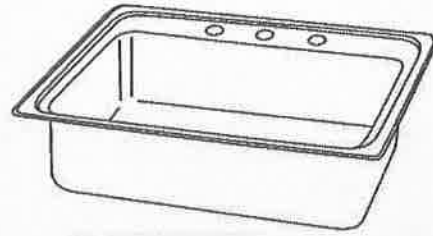
Finish: Exposed surfaces are hand blended to a lustrous high-lighted satin finish.

Underside: Fully undercoated to dampen sound and prevent condensation.

**OTHER**

Drain Opening: 3-1/2" (see back for locations).

NOTE: Unless otherwise specified, models with one, two, three or OS4 faucet hole option are furnished with 3 faucet holes as shown; models with choice of one, two, three, four or five faucet hole option are furnished with 4 faucet holes standard.



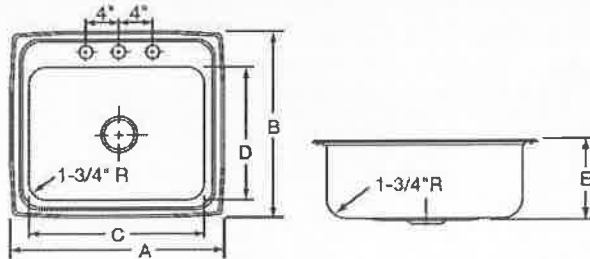
Model LRAD(Q)2521653

**SINK DIMENSIONS (INCHES)\***

| U-Channel Model Number | Quick-Clip <sup>®</sup> Model Number | Overall |        | Inside Bowl |        |    | Cutout in Countertop (1 1/2" Radius Corners) |        | No. of 1 1/2" Dia. Faucet Holes 4" Center | 3 1/2" Drain Opening (see back for details) | Minimum Cabinet Size | Shlp. Wt. Lbs. |
|------------------------|--------------------------------------|---------|--------|-------------|--------|----|--|--------|---|---|----------------------|----------------|
|                        |                                      | L       | W      | L           | W      | D  | L  | W      |   |   |                      |                |
|                        |                                      | A       | B      | C           | D      | E  | L  | W      |   |   |                      |                |
| LRAD1316               | LRADQ1316                            | 13      | 16     | 10          | 10     | ** | 12 3/8                                       | 15 3/8 | 1, 2, MR2 or 3                            | Centered                                    | 18                   | 9 1/2          |
| LRAD1517               | LRADQ1517                            | 15      | 17 1/2 | 12          | 12     | ** | 14 3/8                                       | 16 7/8 | 1, 2, MR2 or 3                            | Centered                                    | 18                   | 9 3/4          |
| LRAD1522               | LRADQ1522                            | 15      | 22     | 11 1/2      | 16     | ** | 14 3/8                                       | 21 3/8 | 1, 2, MR2 or 3                            | Off-Centered Rear                           | 18                   | 12             |
| LRAD1716               | LRADQ1716                            | 17      | 16     | 14          | 10     | ** | 16 3/8                                       | 15 3/8 | 1, 2, MR2, 3 or OS4                       | Centered                                    | 21                   | 8 1/2          |
| LRAD1720               | LRADQ1720                            | 17      | 20     | 14          | 14     | ** | 16 3/8                                       | 19 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Rear                           | 21                   | 12             |
| LRAD1722               | LRADQ1722                            | 17      | 22     | 13 1/2      | 16     | ** | 16 3/8                                       | 21 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Rear                           | 21                   | 13             |
| LRAD1918               | LRADQ1918                            | 19      | 18     | 16          | 11 1/2 | ** | 18 3/8                                       | 17 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Rear                           | 24                   | 10 1/2         |
| LRAD1916L              | LRADQ1916L                           | 19      | 18     | 16          | 11 1/2 | ** | 18 3/8                                       | 17 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Left                           | 24                   | 10 1/2         |
| LRAD1916R              | LRADQ1916R                           | 19      | 18     | 16          | 11 1/2 | ** | 18 3/8                                       | 17 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Right                          | 24                   | 10 1/2         |
| LRAD1919               | LRADQ1919                            | 19 1/2  | 19     | 16          | 13 1/2 | ** | 18 7/8                                       | 18 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Rear                           | 24                   | 13             |
| LRAD2022               | LRADQ2022                            | 19 1/2  | 22     | 16          | 16     | ** | 18 7/8                                       | 21 3/8 | 1, 2, MR2, 3 or OS4                       | Off-Centered Rear                           | 24                   | 14 1/2         |
| LRAD2219               | LRADQ2219                            | 22      | 19 1/2 | 18          | 14     | ** | 21 3/8                                       | 18 7/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Rear                           | 27                   | 13             |
| LRAD2219L              | LRADQ2219L                           | 22      | 19 1/2 | 18          | 14     | ** | 21 3/8                                       | 18 7/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Left                           | 27                   | 13             |
| LRAD2219R              | LRADQ2219R                           | 22      | 19 1/2 | 18          | 14     | ** | 21 3/8                                       | 18 7/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Right                          | 27                   | 13             |
| LRAD2222               | LRADQ2222                            | 22      | 22     | 19          | 16     | ** | 21 3/8                                       | 21 3/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Rear                           | 27                   | 14             |
| LRAD2521               | LRADQ2521                            | 25      | 21 1/4 | 21          | 15 3/4 | ** | 24 3/8                                       | 20 5/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Rear                           | 30                   | 15             |
| LRAD2521L              | LRADQ2521L                           | 25      | 21 1/4 | 21          | 15 3/4 | ** | 24 3/8                                       | 20 5/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Left                           | 30                   | 15             |
| LRAD2521R              | LRADQ2521R                           | 25      | 21 1/4 | 21          | 15 3/4 | ** | 24 3/8                                       | 20 5/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Right                          | 30                   | 15             |
| LRAD3122               | LRADQ3122                            | 31      | 22     | 28          | 16     | ** | 30 3/8                                       | 21 3/8 | 1, 2, MR2, 3, 4 or 5                      | Off-Centered Rear                           | 36                   | 19             |

\*Length is left to right. Width is front to back.

\*\*Available in 4", 4 1/2", 5", 5 1/2", 6" and 6 1/2" depths. Please consult your sales representative for other depths or modifications.



THIS PRODUCT, AS CONSTRUCTED IS SUBJECT TO INTERPRETATION OF A.D.A. REQUIREMENTS. THE UNOBSTRUCTED KNEE SPACE REQUIRED TO SATISFY A.D.A. STANDARDS MAY NOT BE DESIRABLE.

ALL DIMENSIONS IN INCHES, TO CONVERT TO MILLIMETERS MULTIPLY BY 25.4.

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice.

This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.

Elkay  
www.elkayusa.com

2222 Camden Court  
Oak Brook, IL 60523

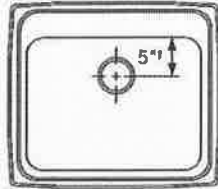
Printed in U.S.A.  
©2009 Elkay

(Rev. 12/09) 1-135G

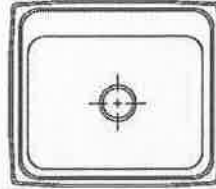
Lustertone® Single Bowl Sink  
 Models LRAD and LRADQ Series - A.D.A. Compliant

# ELKAY® SPECIFICATIONS

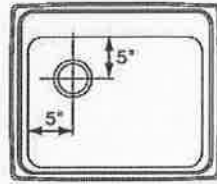
## DRAIN OPENING LOCATIONS



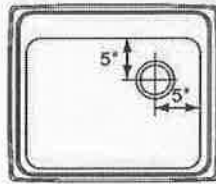
14-1/2" for LRAD(Q)1522  
 Off-Centered Rear



Centered



Off-Centered Left



Off-Centered Right

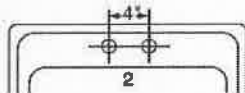
## HOLE DRILLING CONFIGURATIONS



1



4



2



OS4



MR2

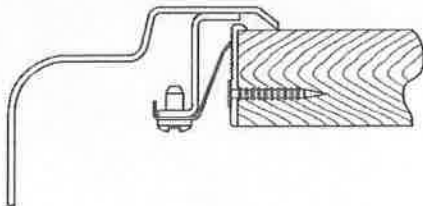


5

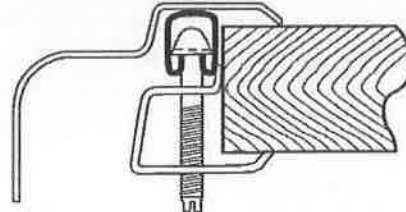


3

Quick-Clip® Mounting System



U-Channel Type Mounting System



Elkay

1-135G (Rev. 12/09)

2222 Camden Court  
 Oak Brook, IL 60523  
 www.elkayusa.com

Printed in U.S.A.  
 ©2009 Elkay

# ECAST® MANUAL FAUCETS

## 1016-ABCP



### Angle Stop Fitting with Supply Tube

**Product Type**

Angle Stop Fitting with Supply Tube

**Features & Specifications**

- 3/8" O.D. x 12" Flexible Supply Riser
- 2 1/4" Metal Loose Key Tee Handle
- Slow Compression Operating Cartridge
- 3/8" NPT Female Thread Inlet
- Slip Wall Flange
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average

**Performance Specification**

- Rating Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1M
- CSA B125.1
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

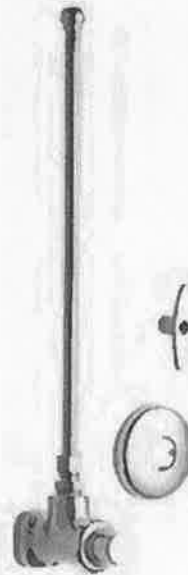
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_



**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



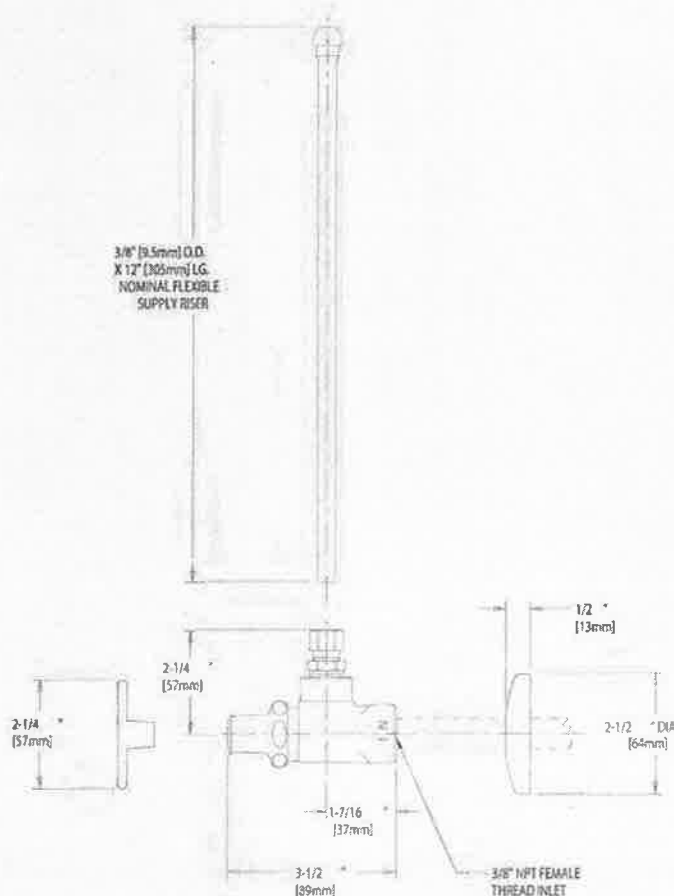
2100 South Clearwater Drive  
 Des Plaines, IL  
 P: 847/803-5000  
 F: 847/803-5454  
 Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

**1016-ABCP****Angle Stop Fitting with Supply Tube****CHICAGO  
FAUCETS**

a Geberit company

**Architect/Engineer Specification**

Chicago Faucets No. 1016-ABCP, polished chrome plated solid brass body construction. ECAST® construction with less than 0.25% lead content by weighted average. 2-1/4" loose key handle. Slow compression renewable cartridge designed to close with water pressure, with square tapered broach feature to help facilitate handle removal. 3/8" NPT female inlet. 3/8" O.D. x 12" flexible supply riser. This product is tested and certified to industry standards: ASME A112.18.1M, CSA B125.1, California Health and Safety Code 116875 (AB1953-2006), and Vermont Bill S.152.

**Operation and Maintenance**

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

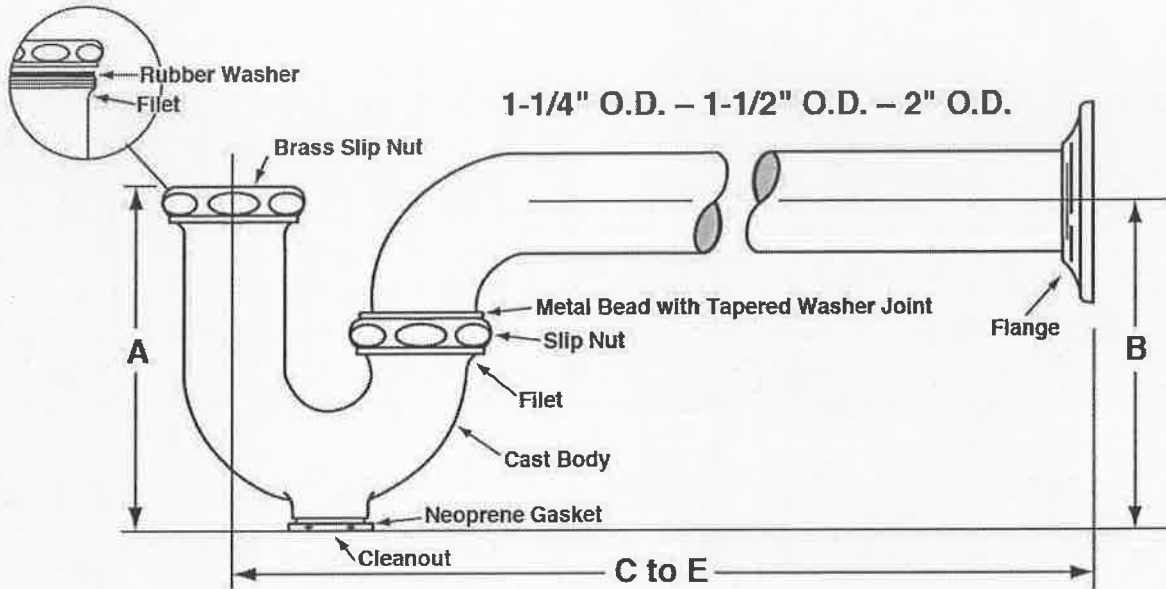
**Part No.**

8872, 8902, 8912,  
 8903, 8904

**Cast Body P-Trap  
 With Cleanout**

**Job Name:**

**Submittal Number:**

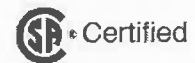


**PROFESSIONAL LINE**

**ROUGHING MEASUREMENTS**

| NO.  | TRAP DIMENSIONS |        | A  | B      | C to E |
|------|-----------------|--------|----|--------|--------|
|      | INLET           | OUTLET |    |        |        |
| 8872 | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902 | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912 | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903 | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904 | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.



# LAV GUARD<sup>2</sup>

FAST FIT UNDERSINK PIPING COVERS

All New  
E-Z Series

ADA-compliant undersink protection



## Submittal Sheet

### General Description:

LAV GUARD<sup>®</sup> 2 E-Z Series waste and supply piping covers satisfy ADA compliance requirements. Built-in *E-Z Grip* internal fasteners and internal, *E-Z Tear-To-Fit* trimming feature allow for fast installation without tools. *Series #100 E-Z* kits are designed to fit on all tubular and cast brass P-trap assemblies. *Series #400* kits are the "original" LAV GUARD design and fit schedule 40 ABS and PVC P-trap assemblies — regardless of their geometry or rotational offset. Valve cover completely encloses angle valve and supply tube for both handled and keyed type water stops.

|                                       |   |
|---------------------------------------|---|
| Material                              | Molded vinyl                                  |
| Nominal Wall                          | 1/8" constant                                 |
| Durometer                             | 70-80 - Shore A                               |
| UV Protection                         | Will not fade or discolor                     |
| Durability                            | Virtually indestructible                      |
| Trimming (E-Z Series)                 | Internal, <i>E-Z Tear-To-Fit</i> trim feature |
| Fasteners (E-Z Series)                | Internal <i>E-Z Grip</i> fasteners (reusable) |
| Color                                 | China white                                   |
| Paintability                          | Apply Latex paint                             |
| Burning Characteristics<br>ASTM D-635 | Self extinguished<br>0 sec (ATB) 0 mm (AEB)   |
| Bacteria/Fungus<br>Resistance         | ASTM G21 and G22/<br>Result: 0 growth         |
| Maintenance                           | Use common detergents                         |

Manufactured under one or more of the following U.S. or Canadian patents. Other patents pending.  
5,303,730 5,360,031 5,524,669 5,564,463 5,678,598 5,699,828 5,915,412 5,915,413 5,901,739 5,960,820 2,075,324 2,119,427 2,136,027 2,158,083

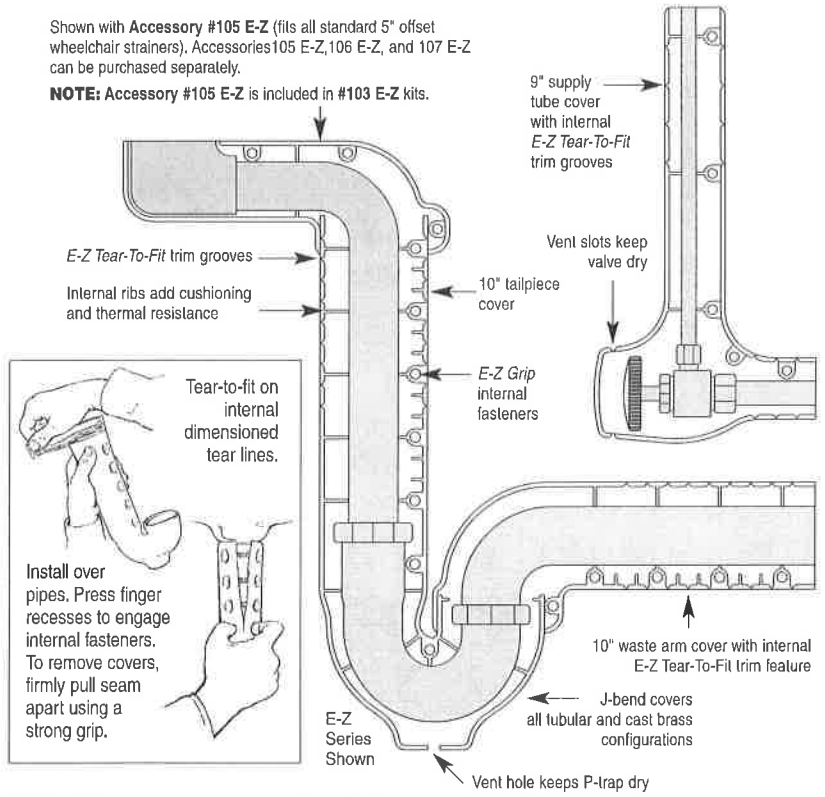


IPS Corporation, 202 Industrial Park Lane, Collierville, TN 38017  
(901) 853-5001 (800) 340-5969 FAX: (901) 853-5008  
e-mail: info@truebro.com Internet: http://www.truebro.com



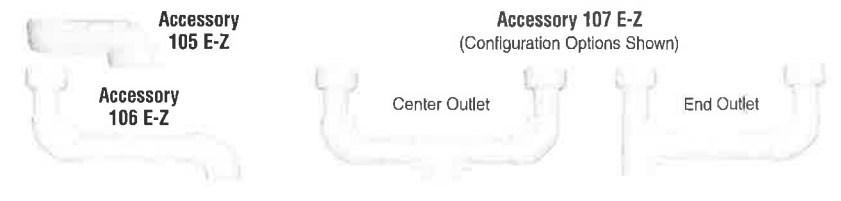
Shown with **Accessory #105 E-Z** (fits all standard 5" offset wheelchair strainers). Accessories 105 E-Z, 106 E-Z, and 107 E-Z can be purchased separately.

**NOTE:** Accessory #105 E-Z is included in #103 E-Z kits.



**#100 E-Z Series** (shown above right) for tubular and cast brass P-trap assemblies.  
**#400W\* Series** (original design) for schedule 40 P-trap assemblies.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> <b>Model #99 E-Z</b><br>One angle valve and supply cover         | <input type="checkbox"/> <b>Model #102 E-Z</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #105-K</b><br>Kohler 6" offset   |
| <input type="checkbox"/> <b>Model #100 E-Z</b><br>One P-trap cover                        | <input type="checkbox"/> <b>Model #402W*</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #106 E-Z</b><br>One basket strainer cover and offset waste cover (adjustable to 18")         |
| <input type="checkbox"/> <b>Model #400W*</b><br>One P-trap cover                          | <input type="checkbox"/> <b>Model #103 E-Z</b><br>One P-trap cover, two angle valves and supply covers, one 5" offset tailpiece wheelchair strainer cover | <input type="checkbox"/> <b>Accessory #107 E-Z</b><br>Two basket strainer covers and center or end outlet waste cover (adjustable) |
| <input type="checkbox"/> <b>Model #101 E-Z</b><br>One P-trap cover, one angle valve cover | <input type="checkbox"/> <b>Accessory #105 E-Z</b><br>One 5" offset tailpiece wheelchair strainer assembly  | <input type="checkbox"/> <b>Accessory #Ex99 E-Z</b><br>One 16" extension for water supply  |
| <input type="checkbox"/> <b>Model #401W*</b><br>One P-trap cover, one angle valve cover   | <p><small>*All #400W series items are the "original" LAV GUARD<sup>®</sup> design and construction. Specifications may change without notice.</small></p> |  |



Job/Location \_\_\_\_\_  
Designer \_\_\_\_\_

PROJECT: \_\_\_\_\_

ITEM NO.: \_\_\_\_\_



## LIGHT DUTY MODEL LC-50

### APPLICATION

Designed for light duty foodservice operation in:

- Convenience/grocery store deli's
- Fast food restaurants
- Church/office kitchens
- Bed and breakfast inns

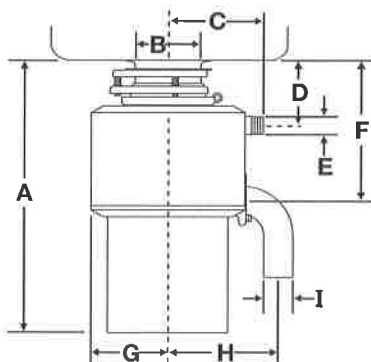
**IMPORTANT:** The model LC-50 is designed specifically for **light duty** foodservice use. Use of this disposer in applications other than those named above may void your warranty. If you are unsure of a potential application, call the factory at 1-800-845-8345.

### PRODUCT FEATURES & SPECIFICATIONS

- Foodservice design with the ease and flexibility of a household unit
- Disposer mounting included with unit. Mounting fits standard 3-1/2" – 4" (88.9 mm – 101.6 mm) sink opening. No welding required.
- Standard wall switch operates the disposer
- Automatic reversing motor for longer life and trouble-free operation
- Stainless steel grind chamber
- Cast nickel chrome cutting element
- 1-year full warranty from date of installation
- 35 lb. (15.9 kg) shipping weight
- 1/2 HP
- Continuous-duty commercial motor
- 1725 RPM
- 5.8 amps
- Single Phase



### DIMENSIONS



|   |                 |          |
|---|-----------------|----------|
| A | 14-1/4"         | 361.9 mm |
| B | 3-5/16" min. ID | 85.1 mm  |
| C | 4-15/16"        | 125.2 mm |
| D | 3-7/16"         | 86.8 mm  |
| E | 15/16" DIA      | 24.3 mm  |
| F | 7-3/8"          | 187.1 mm |
| G | 4"              | 101.6 mm |
| H | 5-3/4"          | 145.2 mm |
| I | 15/16" ID       | 33.0 mm  |

**NOTE:** Plumb 1-1/2" (38.1 mm) waste line to prevent standing water in disposer motor housing.

### ELECTRICAL SPECIFICATIONS

- LC50-11 – 120V, 60 Hz, 5.8 amps, UL/CUL
- LC50-12 – 230V, 50/60 Hz, 375 watts
- LC50-13 – 220-240V, 50 Hz, 375 watts, BEAB, supplied with shuko plug
- LC50-14 – 120V, 60 Hz, 5.8 amps, NOM

A complete collection of our product drawings is available for download at the **InSinkErator Revit/CAD Library**, which can be found at [www.insinkerator.com/foodservice](http://www.insinkerator.com/foodservice). Product information is also accessible on **The KCL CADalog**. More information is available from KCL at [www.kclcad.com](http://www.kclcad.com).



4700 21st STREET  
RACINE, WI 53406  
TEL: 800-845-8345  
FAX: 262 554-3620

[www.insinkerator.com/foodservice](http://www.insinkerator.com/foodservice)

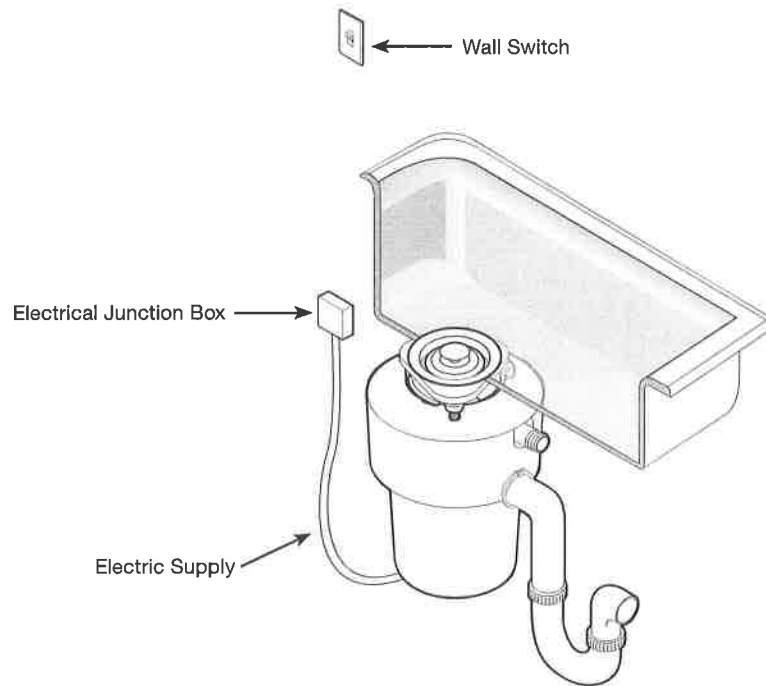


The Emerson logo is a trademark and a service mark of Emerson Electric Co.



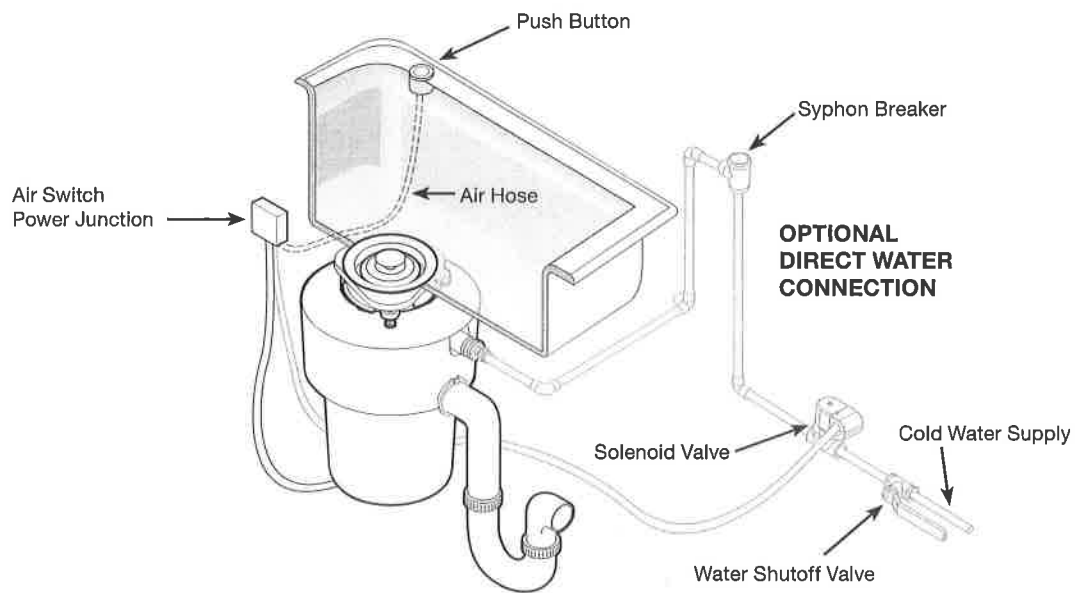
## INSTALLATION WITH WALL SWITCH

---



## INSTALLATION WITH REMOTE AIR SWITCH AND OPTIONAL DIRECT WATER CONNECTION

---



**NOTE:** InSinkErator Commercial Air Switch (Part No. 13754) is available for 120V model only.

224010 2.4B SK-2 LAB SINK

SINK, FAUCET & DRAIN SINK, FCT & DRN

PROVIDED BY OTHERS

CHICAGO C1017ABCP STOPS & SUPPLIES

ZURNCORROS ZZ9ABTGB112 1-1/2 GLASS BSE

**MECHANICAL FAUCETS****1017-ABCP****Stops and Supplies****Product Type**

Angle Stop Fitting with Supply Tube and Loose Key

**Features & Specifications**

- Stops with 1/2" Inlet
- 2-1/4" Tee Handle
- Slow Compression Operating Cartridge
- 1/2" NPT Female Thread Inlet
- 3/8" O.D. Female Compression Outlet
- Slip Wall Flange
- 3/8" O.D. x 12" Bullnose Flexible Supply Riser
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average
- CFNow! Item Ships in 5 Days

**Performance Specification**

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1/CSA B125.1
- Certified to NSF/ANSI 61, Section 9 by CSA
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152
- NSF/ANSI 372 Low Lead Content

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_

**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

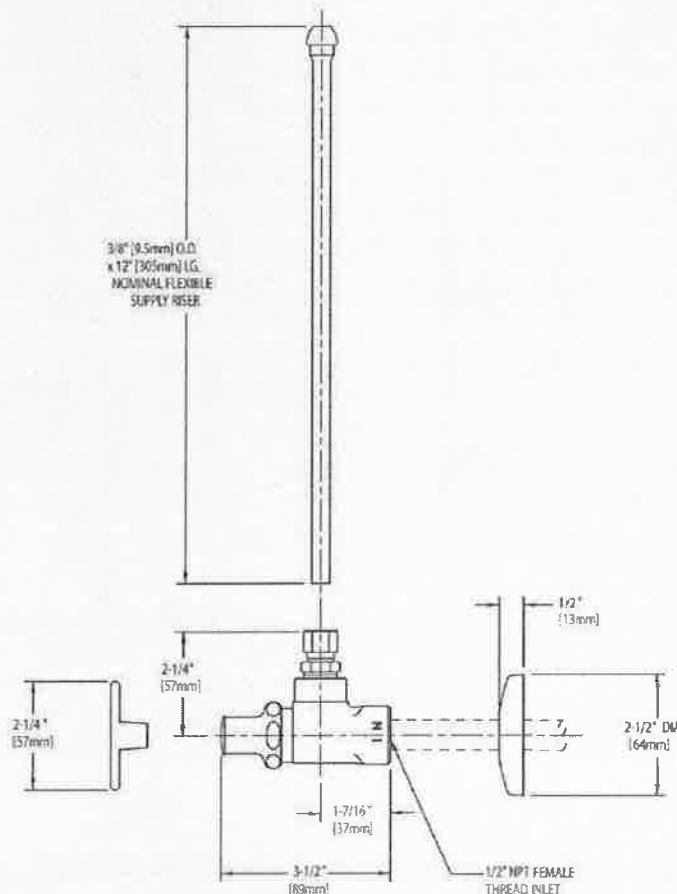
# 1017-ABCP

## Stops and Supplies



### Architect/Engineer Specification

Chicago Faucets No. 1017-ABCP, Angle Stop Fitting with Supply Tube and Loose Key, Chrome Plated solid brass construction. 2-1/4" Metal Tee handle(s) with Tapered Square. Slow compression rebuildable cartridge, opens and closes 360° for fine adjustment, closes with water pressure, features square tapered stem. 1/2" NPT Female Thread Inlet. 3/8" O.D. Female Compression Outlet. Slip Wall Flange. 3/8" O.D. x 12" Bullnose Flexible Supply Riser. ECAST® construction with less than 0.25% lead content by weighted average. This product is tested and certified to industry standards: ASME A112.18.1/CSA B125.1, Certified to NSF/ANSI 61, Section 9 by CSA, California Health and Safety Code 116875 (AB1953-2006), Vermont Bill S.152, and NSF/ANSI 372 Low Lead Content.



### Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



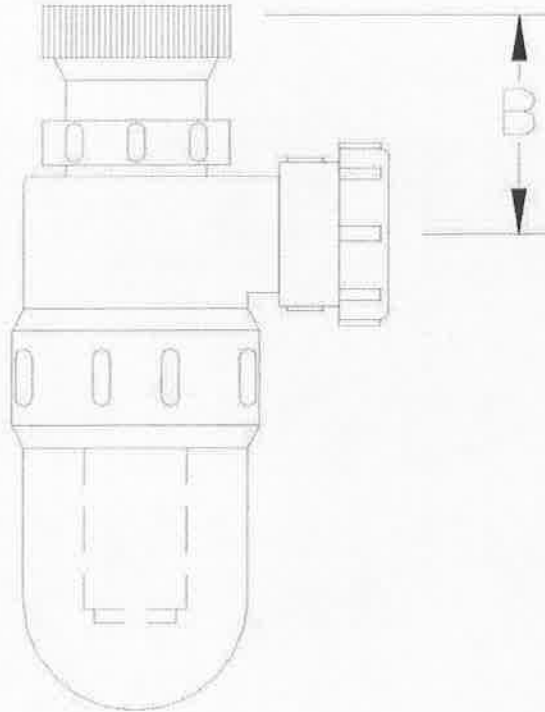
2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**Z9A-BTGB-112**  
**TRANSPARENT BASE BOTTLE TRAP**

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



| Dimensions in Inches |             |            |        |           |
|----------------------|-------------|------------|--------|-----------|
| Style                | Inlet       | Outlet     | B Min. | B Max.    |
| TRANSPARENT BASE     | 1.5[38] NPS | 1.5[38] MJ | 3[76]  | 7.25[184] |

**ENGINEERING SPECIFICATION:** ZURN Z9A-BTGB-112 Bottle Trap is constructed of a corrosion resistant polyolefin conforming to ASTM F1412-92. The trap is complete with an 1-1/2 [38] loose nut inlet, an adjustable tail piece, transparent base, and 1-1/2 [38] mechanical outlet.

**PIPE SIZE**  
 1-1/2[38] [Sch 40 + Sch 80]

(Specify size/type) **CONNECTION**  
 \_\_\_\_\_ -M Mechanical joint seal  
 \_\_\_\_\_ -F Fusion lock seal

|                |               |                          |
|----------------|---------------|--------------------------|
| REV. A         | DATE: 3/21/03 | C.N. NO. 90323           |
| DWG. NO. 63183 |               | PRODUCT NO. Z9A-BTGB-112 |

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

ZURN INDUSTRIES, INC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514  
 Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

224010 2.4C SK-3 CUP SINK

SINK, FAUCET & DRAIN SINK, FCT & DRN

PROVIDED BY OTHERS

CHICAGO C1017ABCP STOPS & SUPPLIES

ZURNCORROS ZZ9ABTGB112 1-1/2 GLASS BSE

**MECHANICAL FAUCETS****1017-ABCP****Stops and Supplies****CHICAGO  
FAUCETS**

a Geberit company

**Product Type**

Angle Stop Fitting with Supply Tube and Loose Key

**Features & Specifications**

- Stops with 1/2" Inlet
- 2-1/4" Tee Handle
- Slow Compression Operating Cartridge
- 1/2" NPT Female Thread Inlet
- 3/8" O.D. Female Compression Outlet
- Slip Wall Flange
- 3/8" O.D. x 12" Bullnose Flexible Supply Riser
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average
- CFNow! Item Ships in 5 Days

**Performance Specification**

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1/CSA B125.1
- Certified to NSF/ANSI 61, Section 9 by CSA
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152
- NSF/ANSI 372 Low Lead Content

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_

**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
www.chicagofaucets.com

## 1017-ABCP

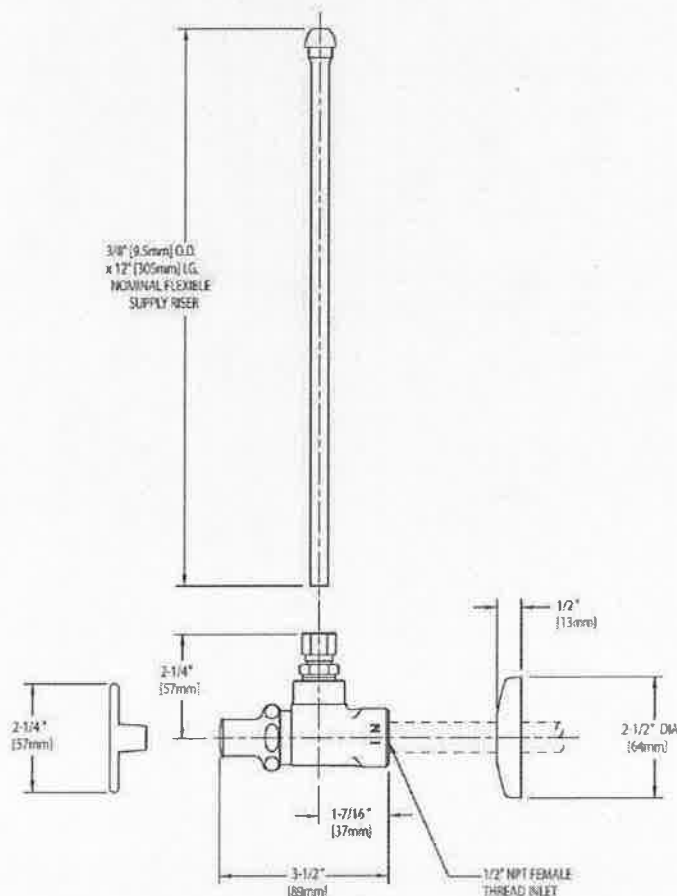
## Stops and Supplies



a Geberit company

## Architect/Engineer Specification

Chicago Faucets No. 1017-ABCP, Angle Stop Fitting with Supply Tube and Loose Key, Chrome Plated solid brass construction. 2-1/4" Metal Tee handle(s) with Tapered Square. Slow compression rebuildable cartridge, opens and closes 360° for fine adjustment, closes with water pressure, features square tapered stem. 1/2" NPT Female Thread Inlet. 3/8" O.D. Female Compression Outlet. Slip Wall Flange. 3/8" O.D. x 12" Bullnose Flexible Supply Riser. ECAST® construction with less than 0.25% lead content by weighted average. This product is tested and certified to industry standards: ASME A112.18.1/CSA B125.1, Certified to NSF/ANSI 61, Section 9 by CSA, California Health and Safety Code 116875 (AB1953-2006), Vermont Bill S.152, and NSF/ANSI 372 Low Lead Content.



## Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



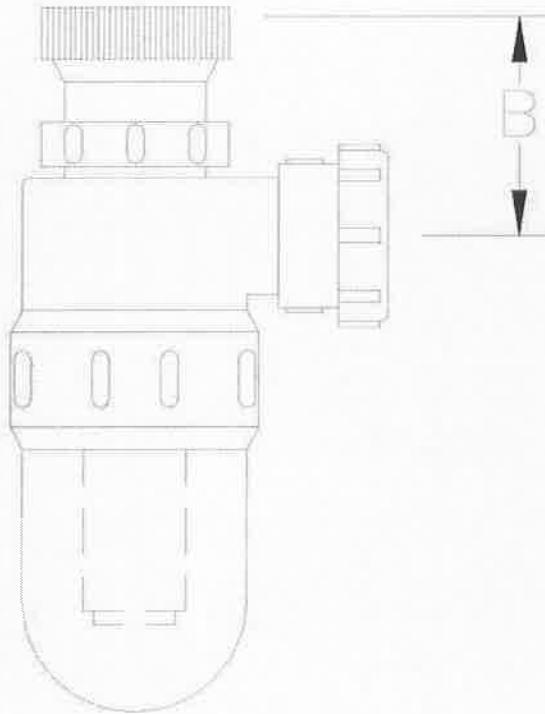
2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**Z9A-BTGB-112**  
**TRANSPARENT BASE BOTTLE TRAP**

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



| Dimensions in Inches |             |            |        |           |
|----------------------|-------------|------------|--------|-----------|
| Style                | Inlet       | Outlet     | B Min. | B Max.    |
| TRANSPARENT BASE     | 1.5[38] NPS | 1.5[38] MJ | 3[76]  | 7.25[184] |

**ENGINEERING SPECIFICATION:** ZURN Z9A-BTGB-112 Bottle Trap is constructed of a corrosion resistant polyolefin conforming to ASTM F1412-92. The trap is complete with an 1-1/2 [38] loose nut inlet, an adjustable tail piece, transparent base, and 1-1/2 [38] mechanical outlet.

**PIPE SIZE**  
 1-1/2[38] [Sch 40 + Sch 80]

(Specify size/type) **CONNECTION**  
 \_\_\_\_\_ -M Mechanical joint seal  
 \_\_\_\_\_ -F Fusion lock seal

|                |               |                          |
|----------------|---------------|--------------------------|
| REV. A         | DATE: 3/21/03 | C.N. NO. 90323           |
| DWG. NO. 63183 |               | PRODUCT NO. Z9A-BTGB-112 |

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

ZURN INDUSTRIES, INC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514  
 Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292



224010 2.5 MB-1 MOP BASIN

STERNWILL SMTB2424 24X24 MOP BASIN

ZURN ZZ843M1CSRC MOP SINK FAUCET

STERNWILL ST35 36 HOSE W/CP COUP & SS

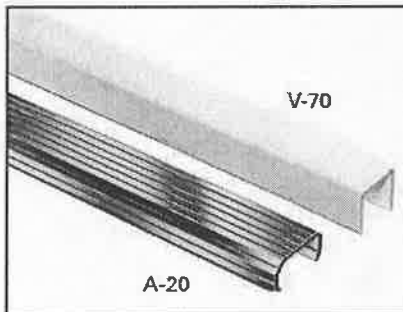
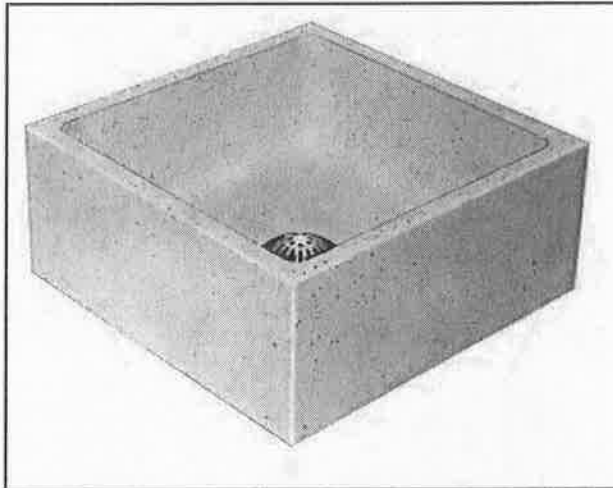
BRKT

224010 2.5 MB-1 MOP BASIN

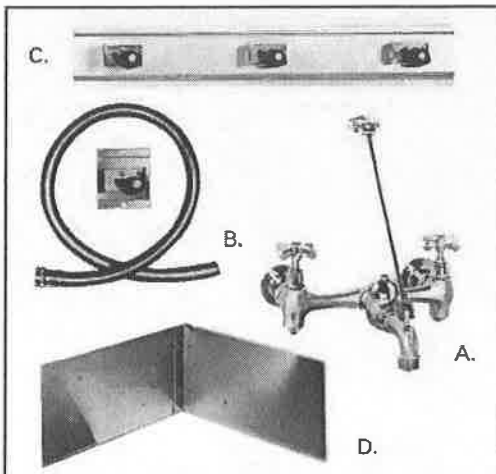
Model No. ( ) Size ( ), as manufactured by Stern-Williams Co., Inc. Shoulders shall not be less than 8" high inside measurement, and not less than 1-1/4" wide. Drain shall be cast brass with stainless steel strainer cast integral and shall provide for a caulked lead connection not less than 1" deep to a 3" pipe. Receptor composed of pearl grey marble chips and white Portland cement ground smooth, grouted and sealed to resist stains.

An optional anodized extruded aluminum or vinyl bumper guard is offered for exposed sides. Cap to be attached on the job.

**STERN**  
**WILLIAMS**  
**MTB®**  
**ARCHITECTURAL**  
**SPECIFICATIONS**



| MODEL                             | SIZE  | ALUMINUM OR VINYL CAP FOR EXPOSED SIDES  |
|-----------------------------------|---|--|
| <b>MTB SQUARE BASIN</b>           |   |  |
| <input type="checkbox"/> MTB-2424 | 24"x24"x10"   | <input type="checkbox"/> CAP ON 1 SIDE <input type="checkbox"/> CAP ON 2 SIDES <input type="checkbox"/> CAP ON 3 SIDES |
| <b>MTB RECTANGULAR BASIN</b>      |   |  |
| <input type="checkbox"/> MTB-3624 | 36"x24"x10"   | <input type="checkbox"/> CAP ON 1 SIDE <input type="checkbox"/> CAP ON 2 SIDES <input type="checkbox"/> CAP ON 3 SIDES |
| A-20                              | Aluminum bumper guards                                |  |
| V-70                              | Vinyl bumper guards                                   |  |
| -SS                               | Stainless steel caps, cast integral during production |  |

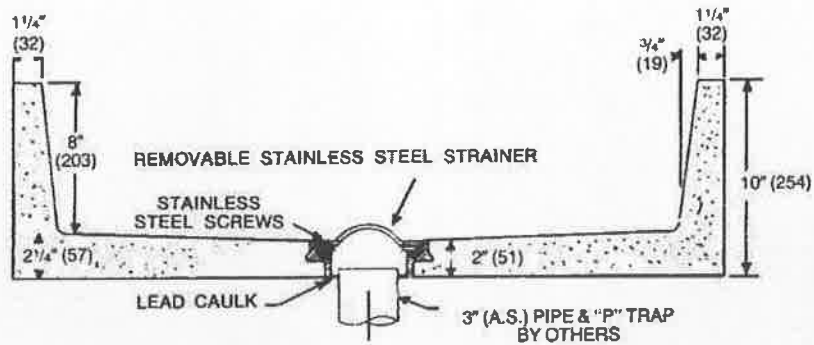


**QUALITY OPTIONAL FITTINGS**

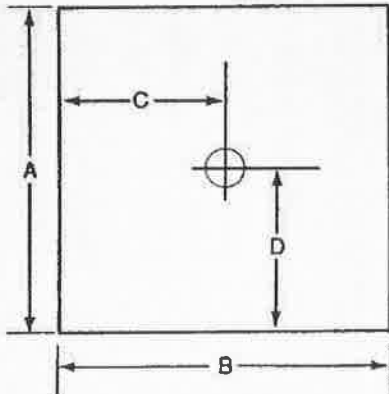
- A. **T-10-VB** Mop-Service sink fitting with vacuum breaker, adjustable top brace, 3/4" hose thread on spout with bucket hook inlets 8" on center, chrome finish.
- T-15 VB** same as above with polished chrome finish.
- B. **T-35** Hose and wall hook. Hose 36" long, with 3/4" chrome couplings. Wall bracket of stainless steel.
- C. **T-40** Stainless Steel Mop Hanger of stainless steel with #4 finish. . . 24" long, with 3 rubber spring loaded grips.
- D. **BP** Splash Catcher Panels of 20 ga. type 304 stainless steel.

**JOB** ARCHITECT  
**LOCATION** ENGINEER

### CROSS SECTION

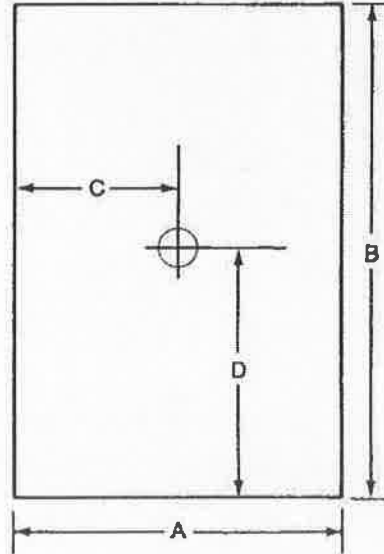


### ROUGH-IN



MTB SQUARE BASIN

| MODEL    | SIZE            | A   | B   | C   | D   |
|----------|-----------------|-----|-----|-----|-----|
| MTB-2424 | Inches 24x24x10 | 24  | 24  | 12  | 12  |
| MTB-2424 | MM 610x610x250  | 610 | 610 | 305 | 305 |



MTB RECTANGULAR BASIN

| MODEL    | SIZE            | A   | B   | C   | D   |
|----------|-----------------|-----|-----|-----|-----|
| MTB-3624 | Inches 36x24x10 | 24  | 36  | 12  | 18  |
| MTB-3624 | MM 915x610x250  | 610 | 915 | 305 | 457 |

Note: All dimensions subject to manufacturing variance of plus or minus 1/4" (6 MM).

STERN-WILLIAMS CO., INC. • P.O. Box 8004 • Shawnee Mission, Kansas 66208 USA  
 Telephone: (913) 362-5635 • Fax: (913) 362-6689 • Web address: www.sternwilliams.com

NO. MTB 9-02

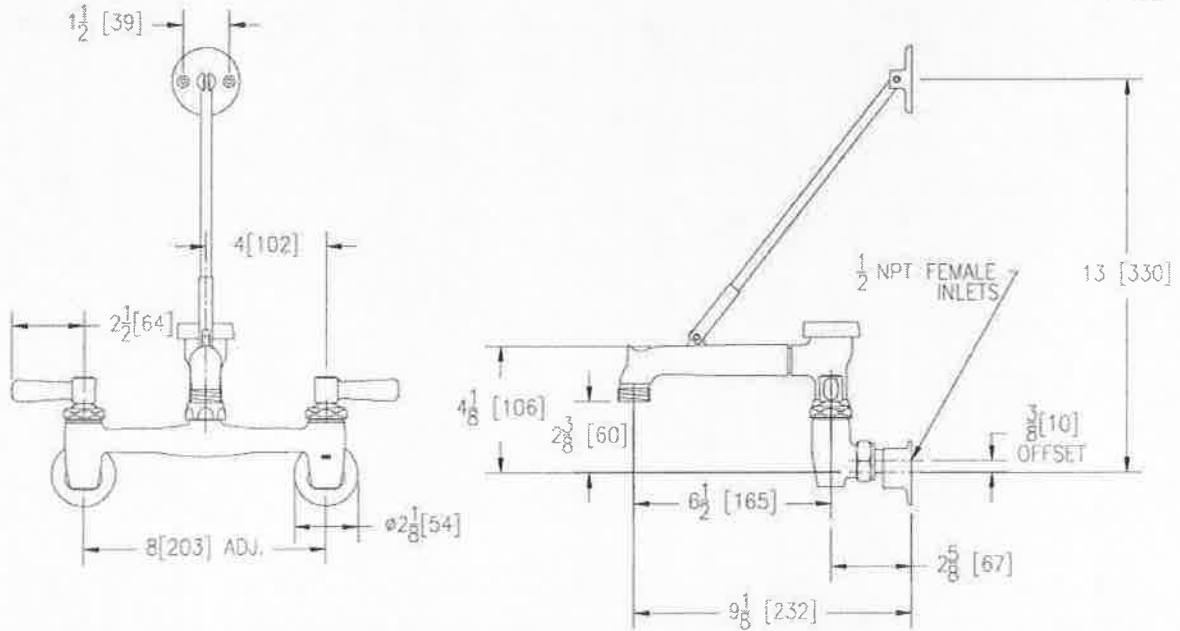


**SINK FAUCET**  
**Z843M1**

TAG \_\_\_\_\_



**Engineering Specifications: Zurn AquaSpec® Z843M1**  
Polished chrome-plated cast brass 8" [203mm] sink faucet with quarter turn ceramic disc cartridges, 3/8" [10mm] short swivel inlets providing adjustable centers from 7-1/4" [184mm] to 8-3/4" [222mm], integral service stops and a 6" [152mm] centerline cast brass spout with chemical resistant atmospheric vacuum breaker, 3/4" hose threaded outlet, pail hook and adjustable wall brace. Unit is furnished with 2-1/2" [64mm] vandal-resistant color-coded brass lever handles. Vacuum breaker is certified to the Uniform Plumbing Code®, ASSE 1001-2002 and CSA B64-01. (Note: Atmospheric vacuum breaker not intended for continuous pressure applications.)



Note: All dimensions are for reference only. Do not use for pre-plumbing

**OPTIONAL ACCESSORIES**

| Suffix  | Description                      |
|---------|----------------------------------|
| ✓-CS    | Check Stops                      |
| ___-HCT | Hot/Cold Text Indexes            |
| ___-LSI | 2-1/2" [64mm] Long Swivel Inlets |
| ✓RC     | Rough Chrome Plated              |
| ___-WHK | Wall Hook                        |
| ___-5H  | 5' [152cm] Vinyl Hose            |
| ___-6P  | Master Carton (Qty. 6)           |

ZURN INDUSTRIES, LLC ♦ COMMERCIAL BRASS OPERATION ♦ 2640 SOUTH WORK STREET ♦ FALCONER NY 14733  
Phone: 1-800-997-3876 ♦ Fax: 1-919-775-3541 ♦ www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

AquaSpec® is a registered trademark of Zurn Industries, LLC  
©2007 Zurn Industries, LLC

Rev. H  
Dwg. No. 69733

Date: 10/19/11

C.N. No. 128248  
Product No. Z843M1



## ACCESSORIES

### Optional Cap or Bumper Guard

For on-the-job attachment to the exposed sides.

**A-20** Anodized aluminum cap.

**V-70** Extruded vinyl bumper guard

### Quality Accessories

**T-10VB** Sink fitting with integral stops, lever handles and spring checks. Spout with bucket hook, 3/4" hose thread end. Vacuum breaker; adjustable top brace. Inlets 8" on centers. Chrome finish.

**T-15-VB** Same as T-10-VB with polished Chrome finish.

**T-35** Hose and wall hook. Hose 36" long, with 3/4" chrome couplings, Wall bracket of stainless steel.

**T-40** Stainless steel mop hanger of stainless steel with #4 finish...24" long, with 3 rubber spring loaded drips

**C-10** Silaprene Sealant, to close wall seams on receptors without flanges.

**BP** Back splash catcher panels of 20 ga. type 304 stainless steel.

### Speedi Drain Connectors

For use only with Stern-Williams receptors. For schedule 40 steel pipe, PVC, ABS AND C.I. pipe:

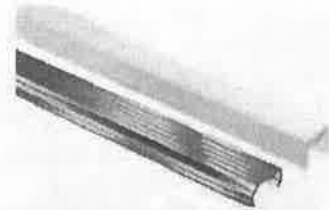
**TC-2** Shower drain gasket. 2".

### Mop Sink Drain Gaskets

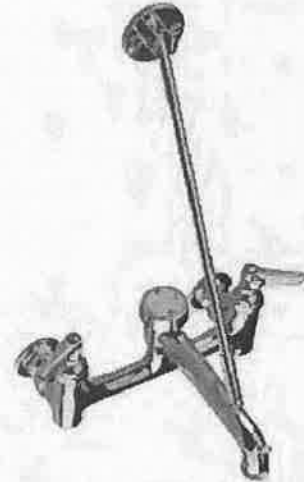
**TC-3** 3" for XHCI, plastic and steel pipe.

**TC-3-NH** 3" for SV and NHCI pipe.

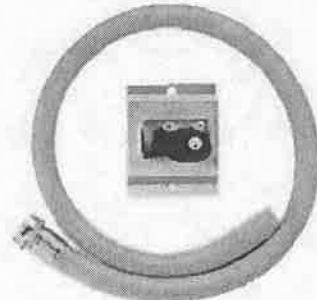
**TC-3-2** 3" reducer with 2" hole.



A-20 & V-70



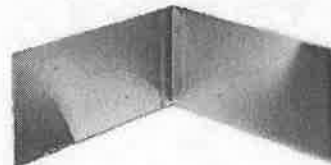
T-15VB



T-35



T-40



BP-2-24

224010 2.5 ADD FOLLOWING IF REQUIRED

STERNWILL ST40 24 SS MOP HGR

STERNWILL SBP224 24X24 PLUS CNR BRKT 2

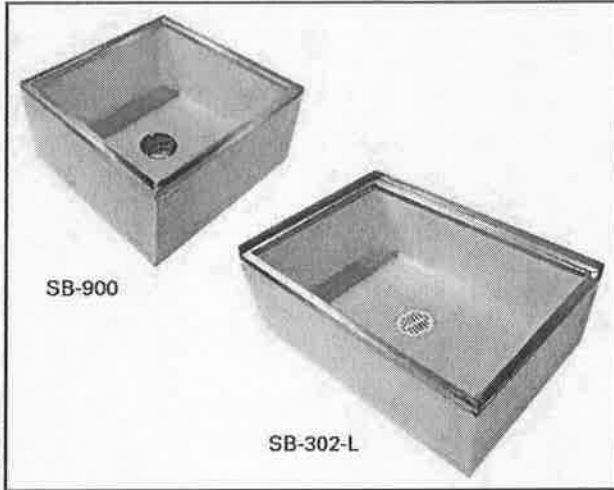
PNL

PROFLO PFC500CLR 10.1 OZ 100% SILI CAULK

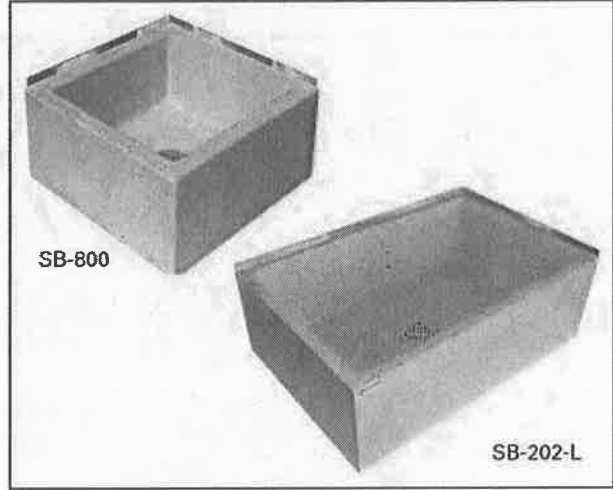
CLR

Model No. ( ) Size ( ), as manufactured by Stern-Williams Co., Inc. Shoulders shall not be less than 9-3/4" high inside measurement, and not less than 1-1/4" wide. Tiling flange, cast integral, shall extend 1" above shoulder on 1,2 or 3 sides ( as job required). Drain shall be cast brass with stainless steel strainer cast integral and shall provide for a caulked lead connection not less than 1" deep to a 3" pipe. Receptor composed of pearl grey marble chips and white Portland cement ground smooth, grouted and sealed to resist stains. Stainless steel cap of one piece 20 ga. 302 stainless steel cast integral on all four sides.

**STERN**  
**WILLIAMS**  
**SERVICEPTOR**  
 MOP SERVICE BASINS  
**ARCHITECTURAL**  
**SPECIFICATIONS**



**WITH STAINLESS STEEL CAP**



**WITHOUT STAINLESS STEEL CAP**

| MODEL           | FLANGES                  |
|-----------------|--------------------------|
| 24" X 24" x 12" |                          |
| SB-900          | without tiling flange    |
| SB-901          | w/tiling flange - 1 sd.  |
| SB-902          | w/tiling flange - 2 sds. |
| SB-903          | w/tiling flange - 3 sds. |
| 32" X 32" x 12" |                          |
| SB-700          | without tiling flange    |
| SB-701          | w/tiling flange - 1 sd.  |
| SB-702          | w/tiling flange - 2 sds. |
| SB-703          | w/tiling flange - 3 sds. |

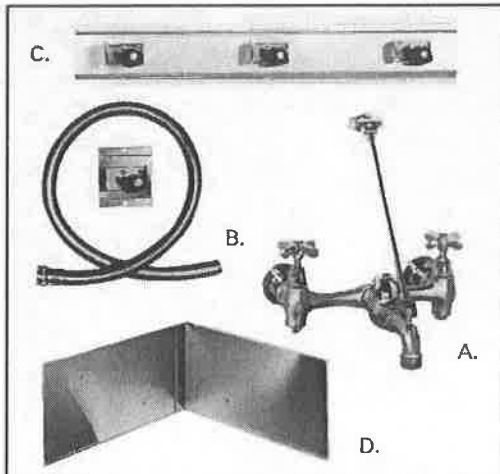
| MODEL           | FLANGES                  |
|-----------------|--------------------------|
| 36" X 36" x 12" |                          |
| SB-500          | without tiling flange    |
| SB-501          | w/tiling flange - 1 sd.  |
| SB-502          | w/tiling flange - 2 sds. |
| SB-503          | w/tiling flange - 3 sds. |
| 36" X 24" x 12" |                          |
| SB-300          | without tiling flange    |
| SB-301          | w/tiling flange - 1 sd.  |
| SB-302-L        | w/tiling flange - 2 sds. |
| SB-302-R        | w/tiling flange - 2 sds. |
| SB-303          | w/tiling flange - 3 sds. |

| MODEL           | FLANGES                  |
|-----------------|--------------------------|
| 24" X 24" x 12" |                          |
| SB-800          | without tiling flange    |
| SB-801          | w/tiling flange - 1 sd.  |
| SB-802          | w/tiling flange - 2 sds. |
| SB-803          | w/tiling flange - 3 sds. |
| 32" X 32" x 12" |                          |
| SB-600          | without tiling flange    |
| SB-601          | w/tiling flange - 1 sd.  |
| SB-602          | w/tiling flange - 2 sds. |
| SB-603          | w/tiling flange - 3 sds. |

| MODEL           | FLANGES                  |
|-----------------|--------------------------|
| 36" X 36" x 12" |                          |
| SB-400          | without tiling flange    |
| SB-401          | w/tiling flange - 1 sd.  |
| SB-402          | w/tiling flange - 2 sds. |
| SB-403          | w/tiling flange - 3 sds. |
| 36" X 24" x 12" |                          |
| SB-200          | without tiling flange    |
| SB-201          | w/tiling flange - 1 sd.  |
| SB-202-L        | w/tiling flange - 2 sds. |
| SB-202-R        | w/tiling flange - 2 sds. |
| SB-203          | w/tiling flange - 3 sds. |

\* Flange is across back and on LEFT side on model numbers ending in "L".

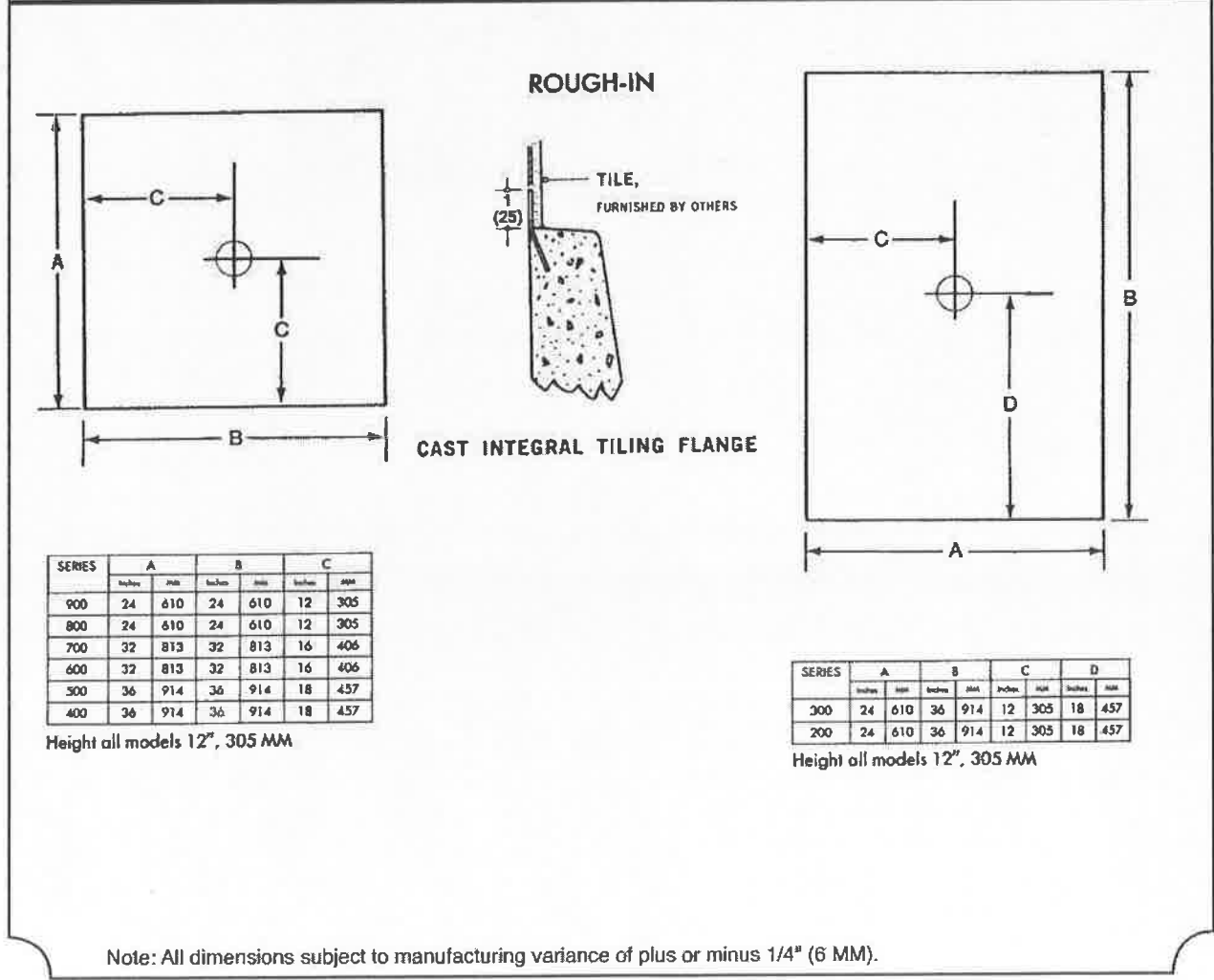
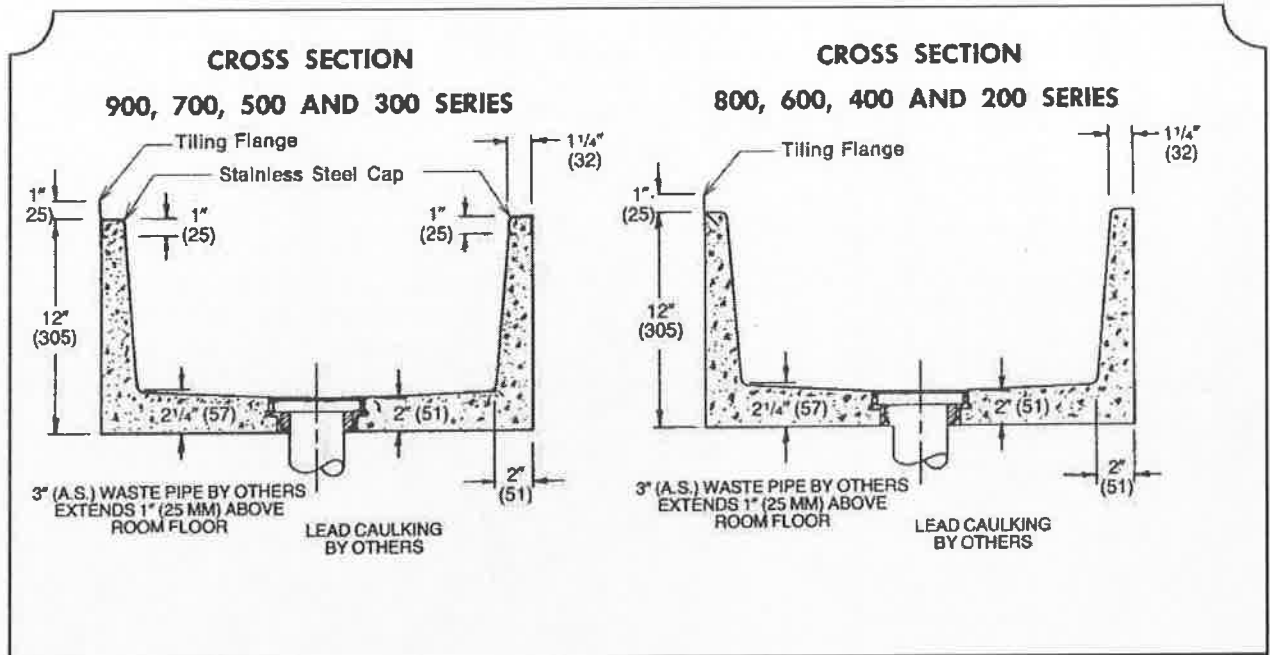
\* Flange is across back and on RIGHT side on model numbers ending in "R".



**QUALITY OPTIONAL FITTINGS**

- A. **T-10-VB** Mop-Service sink fitting with vacuum breaker, adjustable top brace, 3/4" hose thread on spout with bucket hook inlets B" on center, chrome finish.
- T-15 VB** same as above with polished chrome finish.
- B. **T-35** Hose and wall hook. Hose 36" long, with 3/4" chrome couplings. Wall bracket of stainless steel.
- C. **T-40** Stainless Steel Mop Hanger of stainless steel with #4 finish. . . 24" long, with 3 rubber spring loaded grips.
- D. **BP** Splash Catcher Panels of 20 ga. type 304 stainless steel.

**JOB** ARCHITECT  
**LOCATION** ENGINEER



| SERIES | A      |     | B      |     | C      |     |
|--------|--------|-----|--------|-----|--------|-----|
|        | inches | MM  | inches | MM  | inches | MM  |
| 900    | 24     | 610 | 24     | 610 | 12     | 305 |
| 800    | 24     | 610 | 24     | 610 | 12     | 305 |
| 700    | 32     | 813 | 32     | 813 | 16     | 406 |
| 600    | 32     | 813 | 32     | 813 | 16     | 406 |
| 500    | 36     | 914 | 36     | 914 | 18     | 457 |
| 400    | 36     | 914 | 36     | 914 | 18     | 457 |

Height all models 12", 305 MM

| SERIES | A      |     | B      |     | C      |     | D      |     |
|--------|--------|-----|--------|-----|--------|-----|--------|-----|
|        | inches | MM  | inches | MM  | inches | MM  | inches | MM  |
| 300    | 24     | 610 | 36     | 914 | 12     | 305 | 18     | 457 |
| 200    | 24     | 610 | 36     | 914 | 12     | 305 | 18     | 457 |

Height all models 12", 305 MM

Note: All dimensions subject to manufacturing variance of plus or minus 1/4" (6 MM).

STERN-WILLIAMS CO., INC. • P.O. Box 8004 • Shawnee Mission, Kansas 66208 USA  
 Telephone: (913) 362-5635 • Fax: (913) 362-6689 • Web address: www.sternwilliams.com

NO. S 5.97

224010 2.5 ADD FOLLOWING IF REQUIRED

**BP** Back splash catcher panels of 20 ga. type 304 stainless steel.

**Speedi Drain Connectors**

For use only with Stern-Williams receptors. For schedule 40 steel pipe, PVC, ABS AND C.I. pipe:

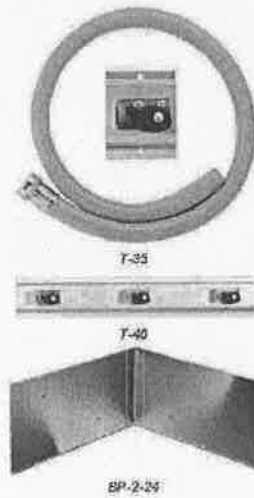
**TC-2** Shower drain gasket. 2".

**Mop Sink Drain Gaskets**

**TC-3** 3" for XHCl, plastic and steel pipe.

**TC-3-NH** 3" for SV and NHCl pipe.

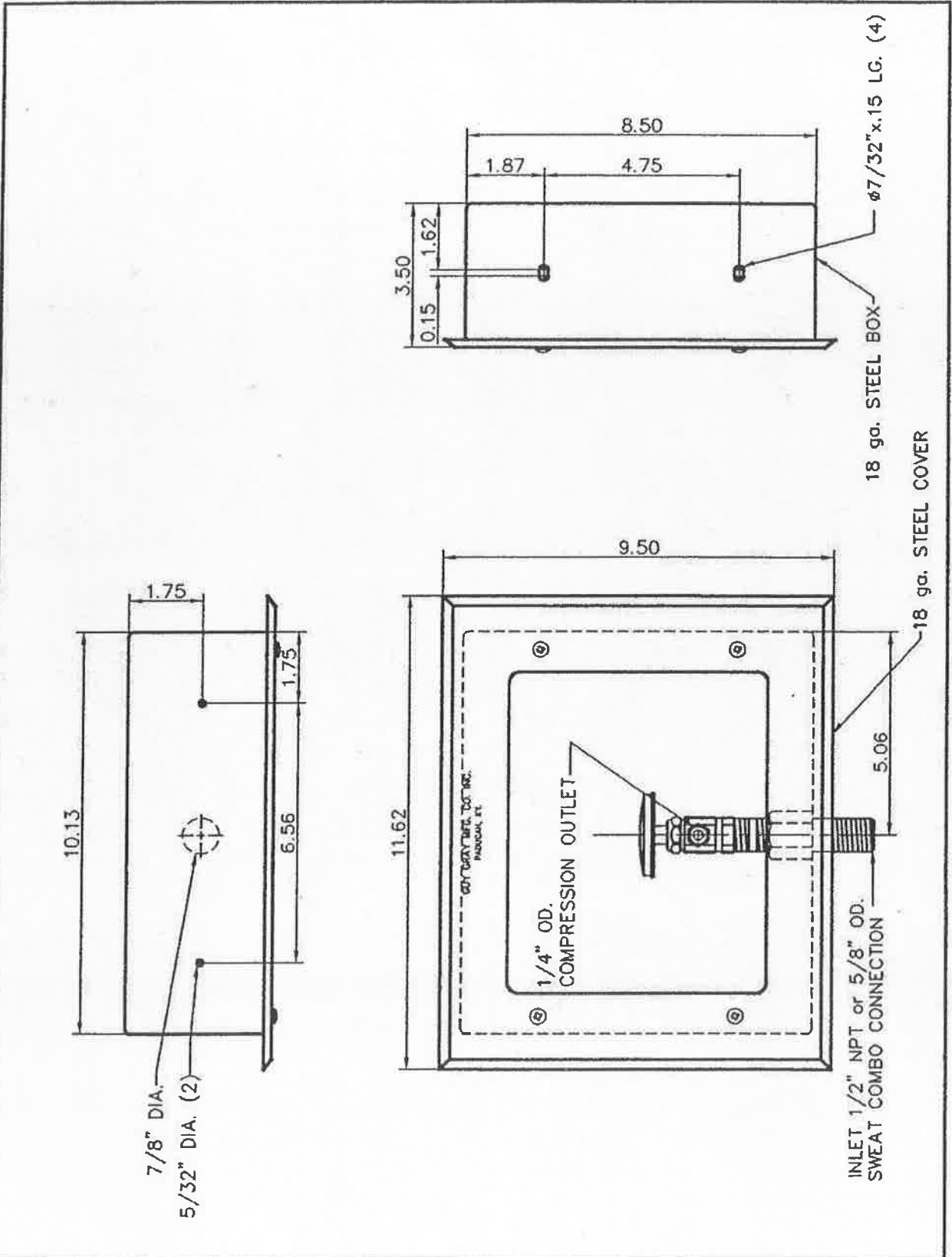
**TC-3-2** 3" reducer with 2" hole.



224010 2.6A IMB-1 ICEMAKER BOX

IPSWELDON 188158 LF 1/2 GALV MTL IM DOM

VLV



GUY GRAY MFG. CO. INC.  
 MODEL NO. BIM875

224010 2.6B WF-1 WASH FOUNTAIN

CHICAGO C1017ABCP STOPS & SUPPLIES

MCGUIRE M8912C 1-1/2X1-1/2 CP SEMI CAST P

TRAP



## Wash-Ware® 3543 Series

Semi-Circular Models - 3 or 4 Stations



3543-2-H

Fixture May Show Some Available Options

Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.

### Semi-Circular Models - 3 or 4 Stations

**Bowl and Sprayhead** are type 304 stainless steel with satin finish. Bowl is 38" wide, and has an integral backsplash and sprayhead. Heavy-duty S-clips securely anchor the backsplash to the wall. Sprayhead is 15" diameter x 5-1/4" high.

**Housing** is black vinylclad, galvanized steel. Base is stainless steel.

**Soap/Toiletry Tray** on top of sprayhead is standard. There are additional self-draining air circulating soap dishes on each side of the bowl.

**Sectional Control** is standard. One pushbutton or sensor actuates one station.

**Hand Pushbuttons** (suffix option -H) operate metering non-hold open Air-Control Valves and can be field set for flow ranging from 5 to 60 seconds.

**Electronic Sensor Operation** (suffix option -SO) includes individual solenoid valves activated by infrared sensors. A low voltage transformer is provided.

**Foot Pushbuttons** (suffix option -F) operate direct acting non-metering Air-Control Valves that permit the user to control the length of the washing cycle.

**Spray Nozzles** are vandal-resistant and provide a concentrated 0.5 GPM spray at each station.

**Hot & Cold Supplies** are blended in an ASSE 1070 compliant temperature/pressure balancing mixing valve with strainers and integral checks. A minimum of 30 PSI supply pressure is required.

**Waste Connection** for -2 Wall Outlet models is a 1-1/2" OD x 4" tailpiece. Waste connection for -3 Floor Outlet is 2" No Hub. No Hub connector by others.

**Retrofitting Existing Installations.** These fixtures are ideal for replacement of old style semi-circular washfountains, particularly where maintenance is excessive or when unsanitary conditions exist.

#### GUIDE SPECIFICATION

Provide and install Acorn Washfountain (specify model number and options) factory pre-assembled, with individual sectional control. Bowl shall be 14 gage stainless steel and shall have an integral backsplash. Sprayhead shall be 18 gage stainless steel. Spray nozzles shall be vandal-resistant type with 0.5 GPM flow controls. Provide self-draining, air-circulating type soap/toiletry tray on top of sprayhead, and soap dish on each side of bowl. Housing shall have stainless steel scuffguard base and black vinylclad galvanized steel panels. Fixtures shall have backsplash anchored to the wall and housing framework anchored to the floor. Provide an ASSE 1070 compliant temperature/pressure balancing mixing valve with strainers and integral checks in H & C supply and field set water temperature at 105 degrees Fahrenheit. When hand operated non-hold open metering valves are specified, timing cycle shall be field set for approximately (specify) seconds.



# Wash-Ware®: 3543 Semi-Circular Models - 3 or 4 Stations

## MODEL NUMBER AND OPTIONS SELECTION

### BASE MODEL NUMBERS (Must Specify)

- 3543 On-Floor, Semi-Circular, Three Station
- 3544 On-Floor, Semi-Circular, Four Station

### FIXTURE MOUNTING AND WASTE (Must Specify)

- 2 On-Floor, Wall Outlet (1-1/2" OD x 4" Long Waste Outlet Tailpiece)
- 3 On-Floor, Floor Outlet (Must Specify Supply & Vent)
  - BO Bottom Supply; Vent Off Drain
  - BT Bottom Supply; Vent Thru-Fixture
  - TO Top Supply; Vent Off Drain
  - TT Top Supply; Vent Thru-Fixture

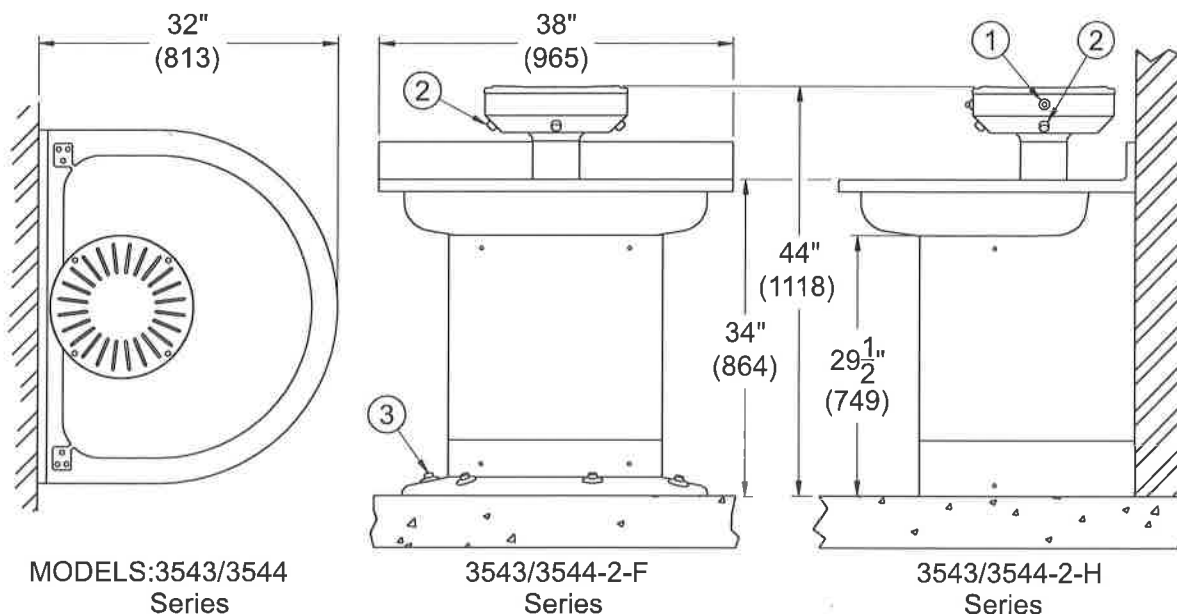
### OPERATION (Must Specify)

- F Foot Operation
- H Hand Operation
- PPZ Programmable Piezo Pushbutton Electronic Metering
- SO Sensor Operation
- SO-BAT Battery Operated (Batteries Not Included)

## PRODUCT OPTIONS (Must Specify)

- CB Column Braced to Backsplash
- DP Metering Powder Soap Dispenser
- DV Liquid / Lotion Soap Dispenser
- EG Enviro-Glaze Color, Bowl and Sprayhead  
Specify: \_\_\_\_\_
- HB Hose Bibb, Specify:  Left Side  Right Side
- JH31 31" Junior Rim Height
- LBS Less Backsplash
- PCB Pipe Column Brace (Pipe By Others.)
- PDM Metering Liquid Soap Dispenser (Not Available with -BT, -PCB, -SC, -TM, -TO, -TS, or -TT.)
- SC Supply / Vent Cover  
Specify Ceiling Height: \_\_\_\_\_
- SPX 16 Gage Stainless Steel Housing
- ST Single Temperature Valve
- TM C or Multi-Fold Paper Towel Dispenser
- TS Single-Fold Paper Towel Dispenser
- VP Vinylclad Housing Color:  Black (Standard)  Gray  White

Please visit [www.acorneng.com](http://www.acorneng.com) for most current specifications.



### NOTES:

- 1. -H Pushbutton.
- 2. Spray Nozzle.
- 3. -F Footbutton.

|  |  |
|--|--|
| <b>Important:</b> Installation Instructions and current rough-in are furnished with each fixture. Do not rough in without certified dimensions. Dimensions are subject to manufacturer's tolerance of plus or minus 1/4" and change without notice. Acorn assumes no responsibility for use of void or superseded data. © Copyright 2006 Acorn Engineering Company |  |
| <p style="text-align: center;">Selection Summary</p> <p>Model No. &amp; Option _____</p> <p>Quantity _____</p>   | <p style="text-align: center;">Approved for Manufacturing</p> <p>Company _____ Title _____</p> <p>Signature _____ Date _____</p> |

**MECHANICAL FAUCETS****1017-ABCP****Stops and Supplies****CHICAGO  
FAUCETS**

a Geberit company

**Product Type**

Angle Stop Fitting with Supply Tube and Loose Key

**Features & Specifications**

- Stops with 1/2" Inlet
- 2-1/4" Tee Handle
- Slow Compression Operating Cartridge
- 1/2" NPT Female Thread Inlet
- 3/8" O.D. Female Compression Outlet
- Slip Wall Flange
- 3/8" O.D. x 12" Bullnose Flexible Supply Riser
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average
- CFNow! Item Ships in 5 Days

**Performance Specification**

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1/CSA B125.1
- Certified to NSF/ANSI 61, Section 9 by CSA
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152
- NSF/ANSI 372 Low Lead Content

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

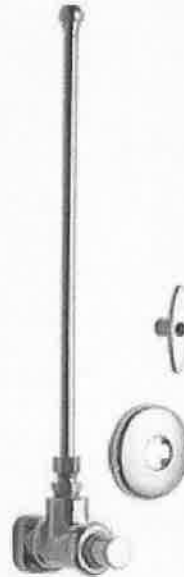
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

 Submitted as Shown  Submitted with Variations

Date \_\_\_\_\_

**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical 800/TEC-TRUE  
www.chicagofaucets.com

## 1017-ABCP

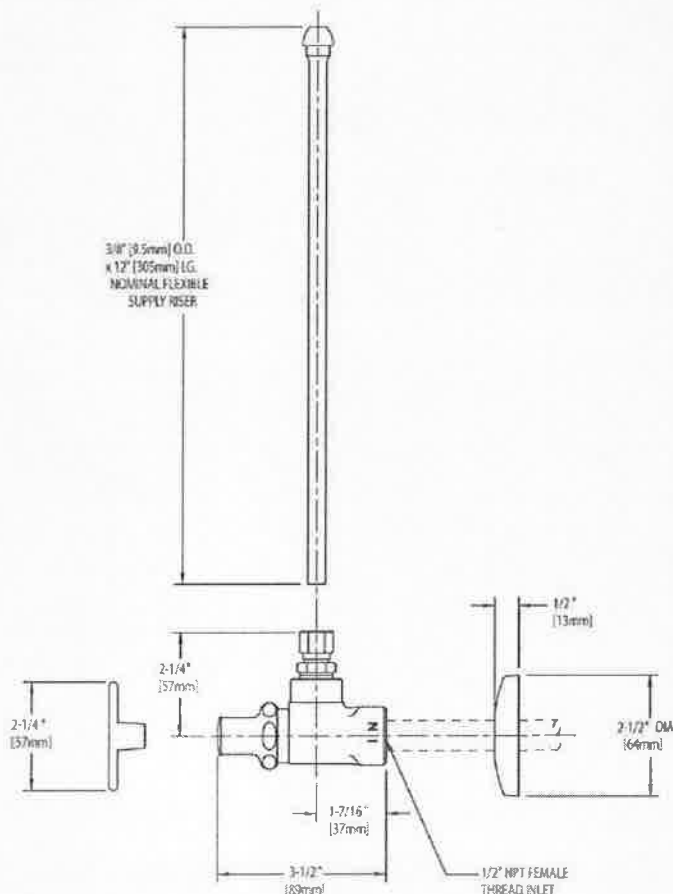
## Stops and Supplies



a Geberit company

## Architect/Engineer Specification

Chicago Faucets No. 1017-ABCP, Angle Stop Fitting with Supply Tube and Loose Key, Chrome Plated solid brass construction. 2-1/4" Metal Tee handle(s) with Tapered Square. Slow compression rebuildable cartridge, opens and closes 360° for fine adjustment, closes with water pressure, features square tapered stem. 1/2" NPT Female Thread Inlet. 3/8" O.D. Female Compression Outlet. Slip Wall Flange. 3/8" O.D. x 12" Bullnose Flexible Supply Riser. ECAST® construction with less than 0.25% lead content by weighted average. This product is tested and certified to industry standards: ASME A112.18.1/CSA B125.1, Certified to NSF/ANSI 61, Section 9 by CSA, California Health and Safety Code 116875 (AB1953-2006), Vermont Bill S.152, and NSF/ANSI 372 Low Lead Content.



## Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

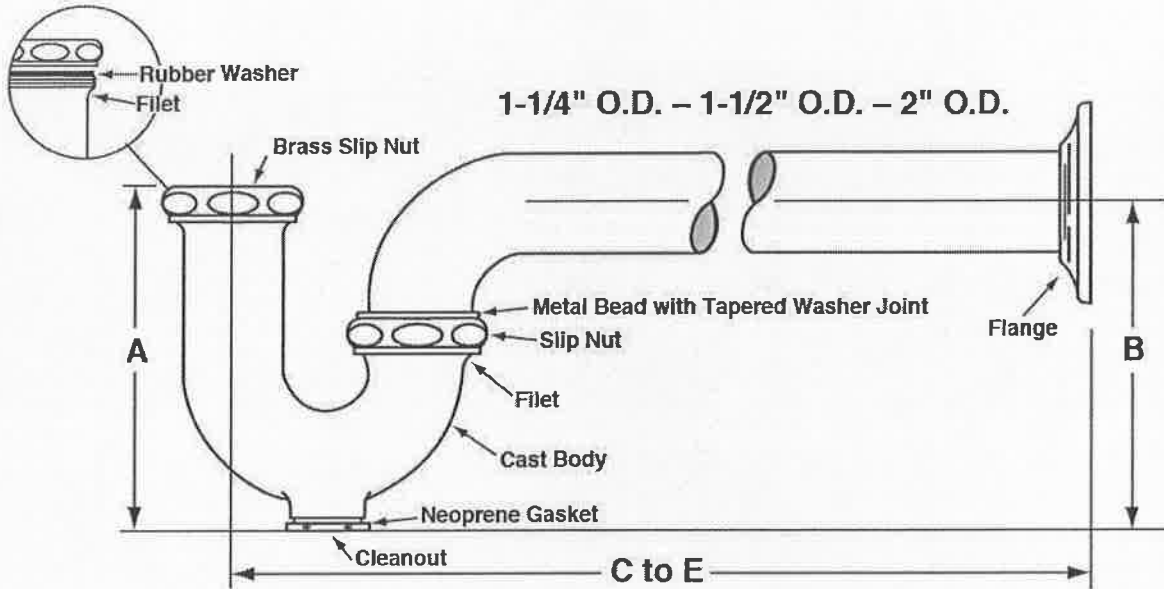
**Part No.**

8872, 8902, 8912,  
 8903, 8904

**Cast Body P-Trap  
 With Cleanout**

**Job Name:**

**Submittal Number:**



**PROFESSIONAL LINE**

**ROUGHING MEASUREMENTS**

| NO.  | TRAP DIMENSIONS |        | A  | B      | C to E |
|------|-----------------|--------|----|--------|--------|
|      | INLET           | OUTLET |    |        |        |
| 8872 | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902 | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912 | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903 | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904 | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.

224010 2.7 ESEW-1 EM SHOWER & EYEWASH

GUARDIAN GBF2160 EMERGENCY SHWR &  
EYE WASH

GUARDIAN GG3800 TEMPERING VLV 44GPM



# Guardian

## Recessed Laboratory Units

### ✓ GBF2160 Recessed Safety Station with Drain Pan, Recess Mounted Shower Head

**Application:** Recessed barrier-free eye/face wash and shower safety station with ceiling mounted concealed shower head and drain pan. Stainless steel cover provides attractive appearance and protects unit when not in use. When activated, cover serves as pan to collect waste water and return it into unit for drainage.

**ADA Compliance:** When installed at recommended mounting heights, unit complies with ADA requirements for accessibility by handicapped persons.

**Shower Head:** 10" diameter stainless steel with flange for flush mounting in ceiling.

**Shower Valve:** 1" IPS brass stay-open ball valve with stainless steel "panic bar" actuator.

**Cover/Drain Pan:** 16 gauge stainless steel combination cover and drain pan. Grasping "panic bar" handle and opening cover pulls spray head assembly down from vertical to horizontal position, activating water flow. While unit is in operation, waste water is collected in drain pan and returned into cabinet for drainage. Unit remains in operation until cover is returned to closed position.

**Eye/Face Wash Spray Head Assembly:** Two FS-Plus™ spray heads mounted on supply arms. Each spray head has individually adjustable flow control and filter to remove impurities from water.

**Eye/Face Wash Valve:** 1/2" IPS brass plug-type valve with O-ring seals. Furnished with in-line strainer to protect valve from debris and foreign matter.

**Mounting:** 16 gauge stainless steel cabinet with flanged rim for recessed mounting in wall. Unit fits in standard 3-5/8" deep wall.

**Supply:** 1" NPT female inlet.

**Waste:** 2" NPT female outlet.

**Sign:** Furnished with ANSI-compliant identification sign.

**Quality Assurance:** Unit is completely assembled and water tested prior to shipment.

**NOTE:** ANSI Z358.1-2009 specifies that shower heads be installed no more than 96" above the finished floor. This unit should therefore not be installed in ceilings over 8 feet. For higher ceiling heights, we recommend the GBF2150 or GBF2170 units.

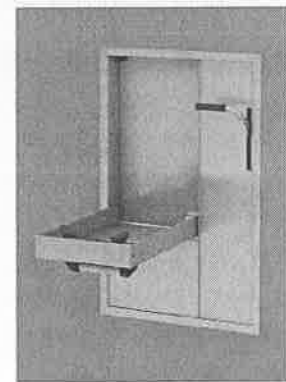
U.S. Patent 5,768,721

#### Available Options

- AP250-065 Modesty Curtain
- AP280-235 Electric Light and Alarm Horn
- TMV G3800 thermostatic mixing valve.



Note: Shown with optional AP280-235 electric light and alarm horn unit (sold separately).



Guardian Equipment 312 447 8100 TELEPHONE  
1140 N North Branch St 312 447 8101 FACSIMILE  
Chicago, IL 60642 gesafety.com

Listed 8116. Units have been tested to and comply with ANSI Z358.1-2009 and the Uniform Plumbing Code.



ETL Listed 101496. Units have been tested to and comply with ANSI Z358.1-2009.

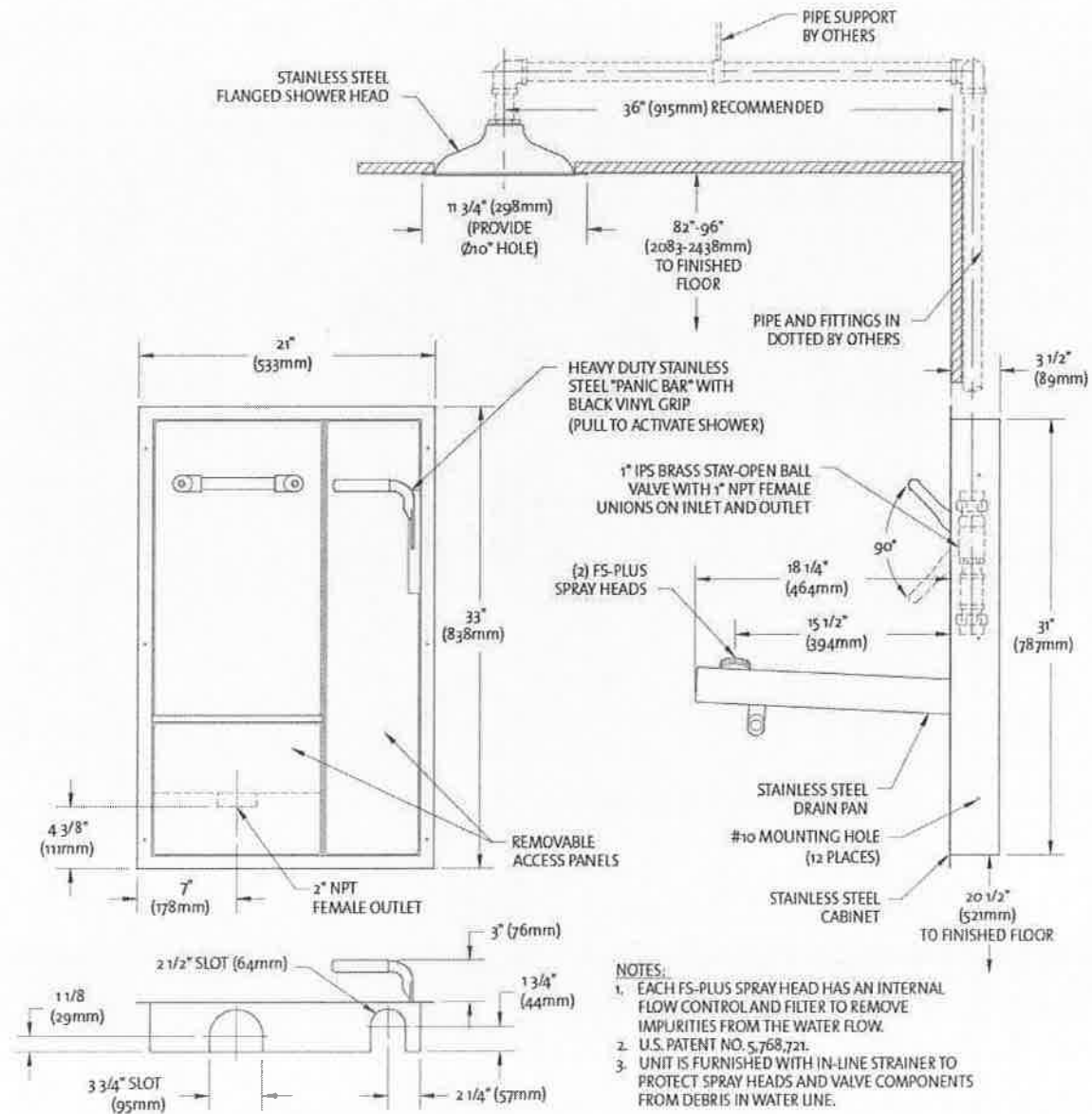




Guardian

Recessed Laboratory Units

○ **GBF2160** Recessed Safety Station with Drain Pan, Recess Mounted Shower Head



THIS SPACE FOR ARCHITECT/ENGINEER APPROVAL

Due to continuing product improvement, the information contained in this document is subject to change without notice. All dimensions are  $\pm 1/4"$  (6mm). rev. 0114

Sign Included



Guardian Equipment 312 447 8100 TELEPHONE  
 1140 N North Branch St 312 447 8101 FACSIMILE  
 Chicago, IL 60642 gesafety.com

Listed 8116. Units have been tested to and comply with ANSI Z358.1-2009 and the Uniform Plumbing Code.



ETL Listed 101496. Units have been tested to and comply with ANSI Z358.1-2009.





# Guardian

## Tempering Units

**G3800** Tempering Valve, 44 Gallon Capacity

**APPLICATION:** Tempering valve to blend hot and cold water to deliver tepid water. Valve has flow capacity of 3.0 to 44 gallons per minute (GPM). Valve can be used with single installation of emergency showers and safety stations, and with multiple installations of emergency shower, eyewash, eye/face wash, dual purpose eyewash/drench hose, drench hose and safety station units.

**TEMPERATURE CONTROL:** Valve has bimetallic thermostat that senses incoming water temperature and automatically blends water to 85°F (29°C). High temperature limit stop is set to 90°F (32°C). Valve has dial thermometer on outlet to monitor temperature of delivered water. *Note: Valve may need to be adjusted when installed based on incoming water temperature. Refer to "Installation Instructions" for further information.*

**FAIL SAFE:** In event of restriction or failure of hot water supply, internal bypass allows valve to deliver cold water to emergency unit. In bypass mode, valve will deliver 20 GPM of cold water at 30 PSI flow pressure. In event of loss of cold water supply, valve will close and not deliver water.

**FLOW CAPACITY:** Refer to chart below for flow capacity of valve at specified pressure drops:

|                            |    |    |    |    |    |    |    |    |
|----------------------------|----|----|----|----|----|----|----|----|
| System Pressure Drop (PSI) | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 |
| Flow Rate (GPM)            | 21 | 29 | 38 | 44 | 50 | 53 | 56 | 61 |

|                               |     |     |     |     |     |     |     |     |
|-------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| System Pressure Drop (Bar)    | 0.3 | 0.7 | 1.0 | 1.4 | 1.7 | 2.1 | 2.4 | 2.8 |
| Flow Rate (Liters per Minute) | 79  | 110 | 143 | 167 | 189 | 201 | 212 | 231 |

**SUPPLY PRESSURE:** 30 PSI minimum supply pressure is required for proper operation of valve. Maximum supply pressure is 125 PSI.

**MOUNTING:** Furnished with heavy duty mounting bracket for securing valve to panel or wall.

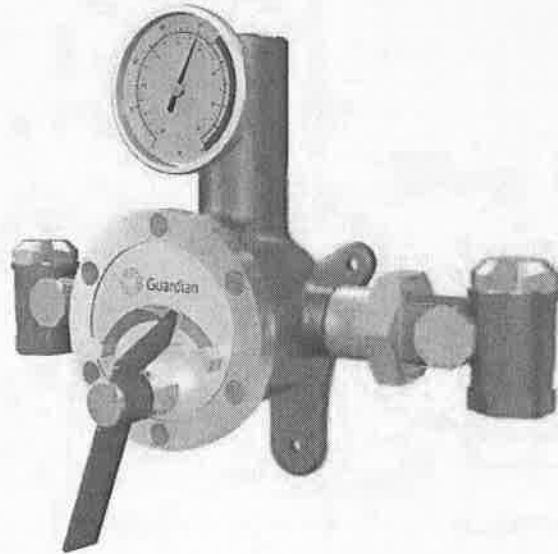
**INLETS:** 1" NPT female hot and cold water inlets. Inlets can be rotated 360 degrees for top or bottom supply. Each inlet has integral water strainer, check valve and supply stop.

**OUTLET:** 1 1/4" NPT female outlet.

**QUALITY ASSURANCE:** Valve is completely assembled and water tested prior to shipment. Valve is certified to ASSE 1071.

### Additional Models

- G3802** Same as above except valve is installed in surface mounted stainless steel cabinet.
- G3807** Same as above except valve is installed in recess mounted stainless steel cabinet.

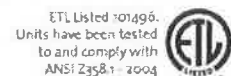


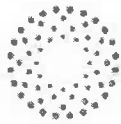
**IMPORTANT:** Pursuant to ANSI Z358.1-2004, the water delivered by emergency equipment should be "tepid". Tepid is defined as moderately warm or lukewarm, and is generally considered to be between 60°F (15°C) and 90°F (32°C). However, in certain circumstances, a chemical reaction may be accelerated or otherwise affected by the water temperature. Please consult with a medical advisor to determine the optimum delivered water temperature prior to specifying, installing or using a tempering valve.

Tempering valves will not deliver the appropriate water temperature if the system has not been sized correctly. Please refer to the flow capacities and supply pressure requirements listed above when designing the tempered water system and selecting tempering valves.

Tempering valves, like all emergency eyewash and shower equipment, must be installed in accordance with the manufacturer's instructions and maintained on a regular basis. Under ANSI Z358.1-2004, all emergency equipment should be activated weekly and inspected at least annually. Tempering valves should be treated the same and, in addition, must be regularly cleaned and cycled.

Guardian Equipment 312 447 8100 TELEPHONE  
 1140 N North Branch St 312 447 8101 FACSIMILE  
 Chicago, IL 60642 gesafety.com

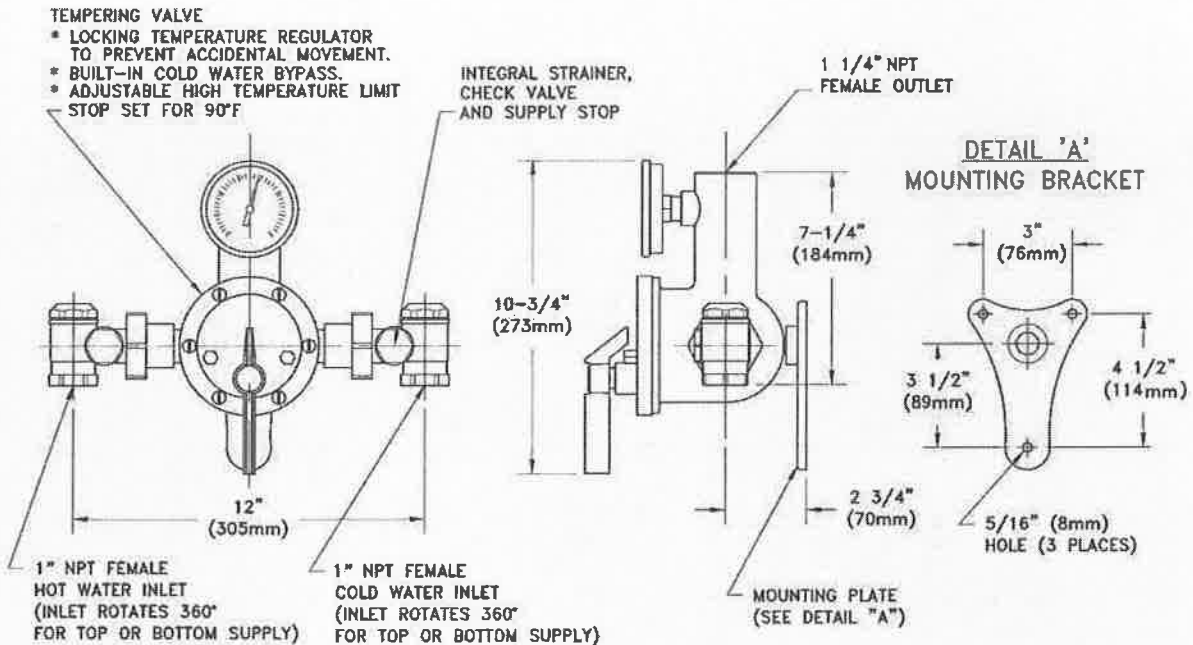




Guardian

Tempering Units

**G3800** Tempering Valve, 44 Gallon Capacity



- As with all plumbing devices and emergency equipment, thoroughly flush supply lines prior to and after installation.
- Install mounting bracket on panel or wall. Thread tempering valve securely onto mounting bracket. Valve must be installed in location where it is readily accessible for inspection, cleaning and maintenance.
- Connect hot and cold water supply lines to valve. Connect outlet line to valve and then to inlet of emergency equipment.
- Activate the water flow and check the temperature of the water delivered from the tempering valve and emergency equipment. Note that the temperature control knob on the tempering valve has been factory preset to deliver 85°F (29°C) tepid water and the high temperature limit stop has been factory preset at 90°F (32°C). These temperatures are based upon an incoming hot water supply at 135°F (57°C). If the incoming hot water temperature is higher than 135°F (57°C), the valve will deliver water that is warmer than 90°F (32°C). In this case, the high temperature limit stop must be reset by the installer.
- To reset the high temperature limit stop:
  - While the water is running, turn the adjusting knob counterclockwise to the maximum hot water position.
  - Remove the knob and retaining ring, loosen the set screw and remove the limit stop.
  - Replace the handle on the valve stem and rotate the valve stem until the desired outlet water temperature is reached. Confirm the outlet water temperature on the outlet thermometer.
  - Replace the limit stop on the valve stem, positioned so that the limit stop is against the web on the LEFT side of the valve cover (i.e. the valve stem cannot be turned any further counterclockwise).
  - Replace the retaining ring, tighten set screw and replace knob.

THIS SPACE FOR ARCHITECT/ENGINEER APPROVAL

Due to continuing product improvement, the information contained in this document is subject to change without notice. All dimensions are ± 1/4" (6mm) rev. 0308

Sign Included



Guardian Equipment 312 447 8100 TELEPHONE  
 1140 N North Branch St 312 447 8101 FACSIMILE  
 Chicago, IL 60642 gesafety.com



ETL Listed 101496. Units have been tested to and comply with ANSI Z358.1-2004



**224010 2.8 EWC-1 ELECTRIC WATER COOLER**

**ELKAY EERFPM28K 325W 7.5GPH DUAL WM**

**WTR COLR KIT**

**ELKAY EEWF172 KIT WTR FLTR (LEAD/CYST)**

**MCGUIRE MLFST09 LF 1/2 NOM COMPX3/8 OD**

**CP ANG ST WH**

**MCGUIRE M8872C 1-1/4X1-1/4 CP SEMI CAST P**

**TRAP**

# ELKAY®

## SPECIFICATIONS

### No Lead Two-Level Soft Sides® Water Cooler Wall Mount Barrier-Free Access Model ERFP28K

#### GENERAL

Two-level barrier-free stainless steel water cooler has recessed-in-the-wall refrigeration system and stainless steel grill. All stainless steel polished to a satin finish.

Fountain has contoured basin to minimize splashing. Flexi-Guard® safety bubbler and easy to operate, fully functional, vandal-resistant front push button. Patented\* valve and in-line flow regulators provide constant stream from 20 to 105 psi. Vandal resistant bottom cover plates included.

**NOTE:** Minimum 40 psi supply line pressure required in special circumstances where both sides of bi-level are in use simultaneously to ensure adequate stream height. Use of water filter in this situation is not recommended.

Energy efficient refrigeration system utilizes a combination tank continuous-tube type evaporator, refrigerant drier, and capillary tube.

**THIS WATER COOLER COMPLIES WITH THE REQUIREMENTS OF A.D.A. (AMERICANS WITH DISABILITIES ACT) WHEN PROPERLY INSTALLED. UNIT IS COMPLIANT IF INSTALLED IN AN ALCOVE AND IS ALSO COMPLIANT WHEN MOUNTED ON AN EXPOSED WALL IF A WING WALL IS LOCATED ON THE LEFT SIDE OR IF A 97258C APRON IS INSTALLED UNDER THE UPPER UNIT.**

#### NO LEAD DESIGN

**THIS WATER COOLER COMPLIES WITH THE LEAD-FREE DEFINITION IN THE SAFE DRINKING WATER ACT OF 1986 AND LEAD CONTAMINATION CONTROL ACT OF 1988.**

Elkay Water Coolers are manufactured with a waterway system utilizing copper components and completely lead-free material. These waterways have no lead because all lead materials, such as leaded brass, have been removed. All joints are brazed using silver solder only. No lead solder is permitted. A strainer with an easily cleanable screen is provided to allow trapping and convenient removal of water born particulate of 140 microns and larger prior to their entry into the water cooler.

This water cooler is certified to NSF/ANSI 61.

#### CAPACITIES CHART

| Model Number | Base Rate | **GPH of 50°F Drinking Water |      |      | Rated Watts | Full Load Amps | Glass Filler Option | Ship. Wt. Lbs. |
|--------------|-----------|------------------------------|------|------|-------------|----------------|---------------------|----------------|
|              |           | Room Temperature °F          |      |      |             |                |                     |                |
|              |           | 70°F                         | 80°F | 90°F |             |                |                     |                |
| ERFP28K      | 7.5       | 8.6                          | 8.1  | 7.5  | 370         | 4.0            | Yes                 | 136            |

\*\*Based on 80°F inlet water temperature.

†Glass filler available at extra cost. Requires factory preparation to receive glass filler. Order Model ERFP28FK. Glass filler LK1110 or LK1114 sold separately. Rated watts shown are based on operational (run) time, in compliance with ARI Standard 1010 conditions. Specific applications will determine the actual watts consumed per hour. Watts consumed will be based on number of people served per hour (usage), ambient temperatures, and inlet water temperature.

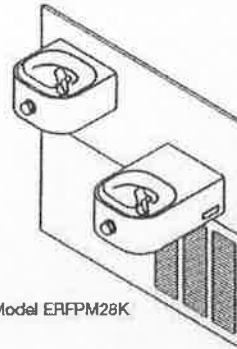
#### COOLING SYSTEM

**Motor Compressor:** Hermetically sealed, reciprocating type, 115V, 60 Hertz or 230V, 50 Hertz (International Model) single phase. Sealed in lifetime oil supply.

**Condenser:** Fan cooled, copper tube with aluminum fins. Fan motor is permanently lubricated.

**Cooling Unit:** Combination tube-tank type. Self cleansing. Tube portion is continuous coil of copper tubing. Tank is stainless steel. Fully insulated with EPS foam which meets Underwriters Laboratories Inc. requirements for self extinguishing material.

*In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice.*



Model ERFP28K

**Temperature Control:** Enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements.

**Refrigerant Control:** Refrigerant HFC-134a is controlled by accurately calibrated capillary tube for positively trouble free performance.

#### CONSTRUCTION

**Fountain Body:** #18 gauge, type 304 nickel bearing stainless steel polished to a lustrous satin finish with high shined outer edge. Contoured basin offers large strike area to minimize splashing. Fully functional front push buttons are easy to operate.

**Exclusive Flexi-Guard® Safety Bubbler\*:** Innovative design utilizes a pliable polyester elastomer to prevent accidental mouth injuries. Flexes on impact, then returns to original position. Strong. Abrasion-resistant. Anti-sweat. **Optional Vandal-Resistant Bubbler** available at extra cost. Heavy duty one-piece construction, chrome plated brass. **Order Model Number ERFPVR28K.** Both bubblers meet UL requirements and all sanitary codes and are keyed in location to prevent rotation.

**Front Panel Grill:** Made of type 304 stainless steel, polished to a uniform Elkay satin finish. Removable louvered ventilating grille encloses refrigeration unit and plumbing.

**Wall Mounting Frame:** MF200 frame furnished with each unit. Frame allows flush mounting to finished wall.

**Drain:** LK464 drain and trap assembly included.

**5 YEAR LIMITED WARRANTY** on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. Sample Certificate available on request.

Elkay Pressure-Type Water Coolers are designed to operate on 20 psi to 105 psi supply line pressure. If inlet pressure is above 105 psi, a pressure regulator must be installed in the supply line. Any damage caused by reason of connecting this product to supply line pressures lower than 20 psi or higher than 105 psi is not covered by the warranty.

#### STANDARDS

 Elkay Electric Air Cooled Water Coolers meet the requirements of NSF/ANSI 61. Unit complies with A.R.I. Standard 1010.

\* Patent #4,481,971

*This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producers' offerings, be certain these features are not overlooked.*

Elkay  
elkayusa.com

2222 Camden Court  
Oak Brook, IL 60523

Printed in U.S.A.  
©2006 Elkay

(Rev. 1/06) 12-15F

**No Lead Two-Level Soft Sides® Water Cooler  
Wall Mount Barrier-Free Access  
Model ERFPM28K**

**ELKAY®  
ROUGH-IN DIMENSIONS**

**IMPORTANT!**

**INSTALLER PLEASE NOTE:**

The grounding of electrical equipment such as telephone, computers, etc., to water lines is a common procedure. This grounding may be in the building or may occur away from the building. This grounding can cause electrical feedback into a water cooler, creating an electrolysis which causes a metallic taste or an increase in the metal content of the water. This condition is avoidable by using the proper materials as indicated below.

The drain fittings which are provided by the installer should also be plastic to electrically isolate the cooler from the building plumbing system.

**ERFPM28K MOUNTING FRAME INSTRUCTIONS**

1. Cut a square rectangular wall opening 37-1/2" (953mm) W x 37-3/4" (959mm) H and 4-1/2" (114mm) above the floor line. These dimensions are required to obtain proper rim and bubbler heights for compliance with ANSI standard A117.1. (See Figure 2)

2. Reinforce the wall opening on all sides so that it will adequately support the water fountain. This reinforcement must support up to 150 lbs static load and provide a means for securing the frame assembly in place.

**NOTE:** Building construction must allow for adequate air flow on both sides and top of remote chiller unit. Minimum of 4" (102mm) is required. (See Figures 1 & 2)

3. Install plumbing and electrical rough-ins. See Figure 1 for location of the supply water inlet to chiller and for the location of the waste water outlet. A junction box for a (3) wires, 10 amp branch circuit is provided on the inside of the chiller. (Standard 120 Volts, 60 Hz and single phase) See Figure 2 for the electrical inlet location.

4. Remove frame assembly and related hardware from packaging. Attach the two frames together thru the upright supports with (4) 5/16" x 3/4" (19mm) long bolts and nuts (not provided). Tighten securely.

**NOTE:** Frame with higher upper channel to be on left side.

5. Install the frame assembly squarely in wall opening with frame upright support edges flush with the finished wall face. Secure the frame to the wall thru holes with (12) 5/16" x 2" (51mm) long lag bolts or screws (not provided). Tighten securely.

**NOTE:** Be sure that frame is squared in location. Do not use less than required screw quantity and size.

6. Attach the chiller shelf support rods to the right side frame uprights at the second set of holes counting from the bottom and to the shelf at the (2) side holes. Line up the other shelf holes with the frame bottom holes and fasten the assembly to the wall using appropriately sized wood screws or bolts and nuts (not provided). (See Figure 2)

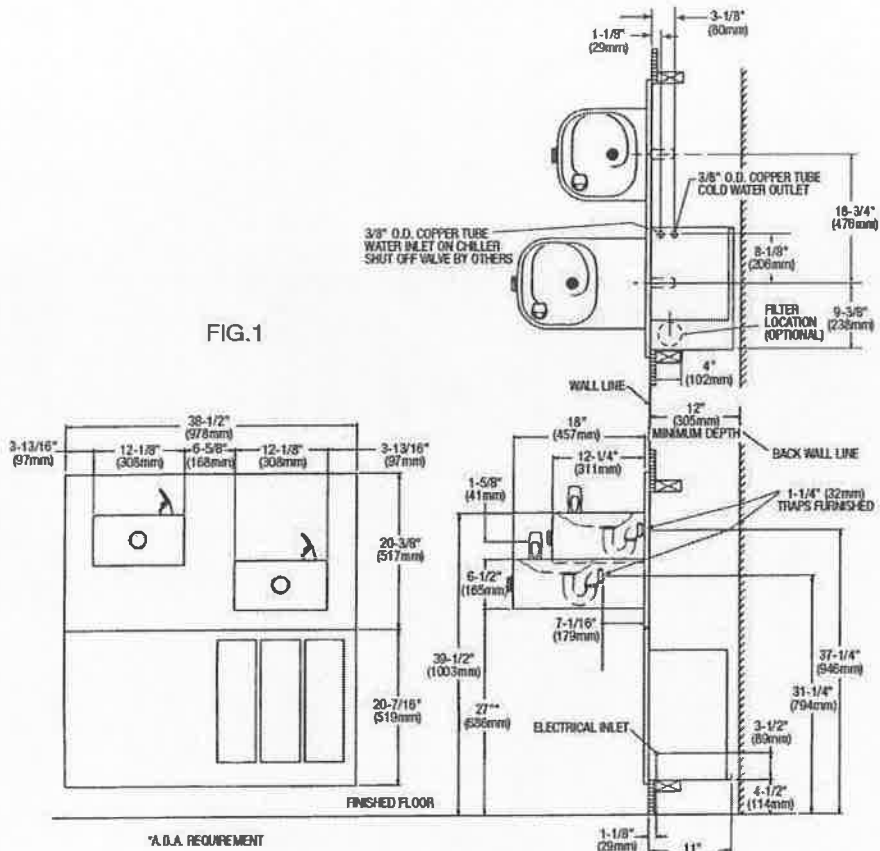
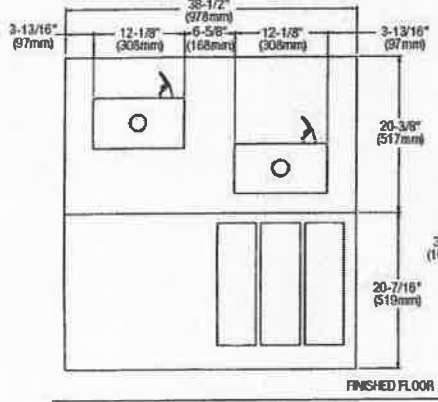
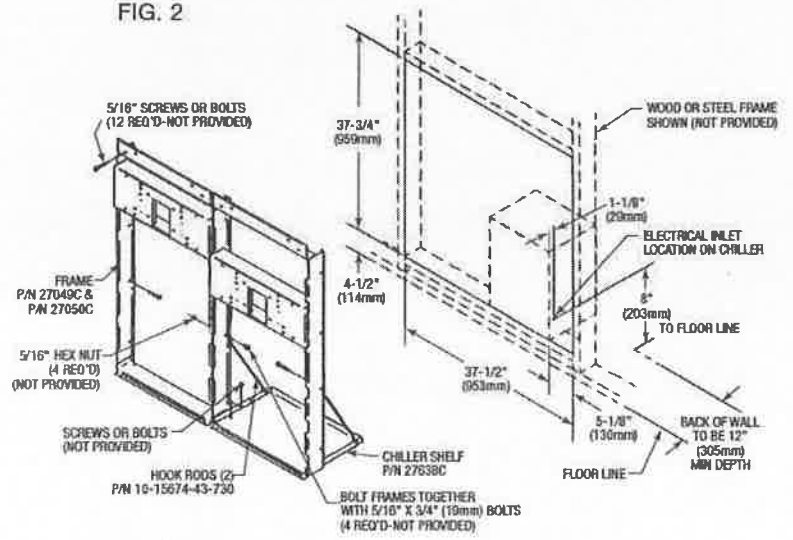
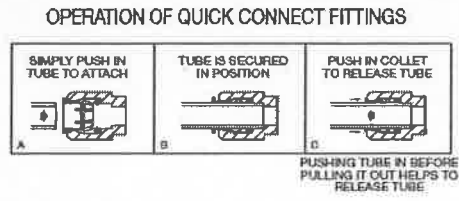
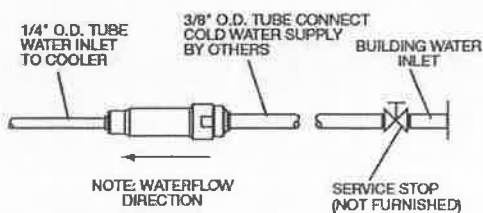


FIG. 1



\*O.A. REQUIREMENT

FIG. 2



Elkay

12-15F (Rev. 1/06)

2222 Camden Court  
Oak Brook, IL 60523  
elkayusa.com

Printed in U.S.A.  
©2006 Elkay

**WaterSentry® VII  
Cyst/Lead Reduction and  
Sediment-Taste-Odor Filter Kit  
Model EWF172**

**ELKAY®**

## SPECIFICATIONS

### GENERAL

Cyst & Lead Reduction Filter designed for use in Elkay water coolers, drinking fountains, classroom bubblers and instant hot and cold water dispensers. Designed to remove cysts such as cryptosporidium and giardia, lead particles and chlorine. Also reduces odors and discoloration from incoming water.

Features include Quick-Disconnect, 1/4 turn installation. Automatic inlet shut-off valve that closes when filter is removed. Hands never touch the actual filter media and, therefore, limit the potential for introduction of bacteria. Outer protective wrap. Spun Polypropylene prefilter mesh to prevent large, coarse sediment and particles from entering and clogging filter media. High-grade filter is made with activated carbon and patented ATS lead-removal media. Radial flow-thru design provides more surface area for untreated water while final filter mesh prevents loose carbon from entering water.

### DESIGN FEATURES

Size: 3-1/4" (82.6 mm) O.D. x 12-1/2" (317.5 mm) length.

Water Inlet Connection: 3/8" (9.5 mm) O.D. Tube.

Water Outlet Connection: 1/4" (6.4 mm) O.D. Tube.

### RECOMMENDED USE CONDITIONS

Filter Capacity: 1500 gal. (5678 L) or 1 year.

Maximum Flow Rate: 0.75 GPM (2.8 L/MIN.).

Water Temperature: 40-120°F (4-49°C).

Initial Pressure Drop: 2-5 PSI (14-34 KPa).

Maximum Line Pressure: 105 PSI (724 KPa).

Minimum Line Pressure: 20 PSI (138 KPa).

**Optional Filter Monitor (Part No. 92640C)** counts gallon usage and provides an audible alert when filter needs replacement. Alert is sounded only when water is being dispensed; beeping is not continuous. Requires 9VDC alkaline battery.

### REPLACEMENT FILTER CARTRIDGE

Order part number 51299C.

### WARRANTY

The WaterSentry VII is warranted to be free from defects in material and workmanship for a period of one year from date of installation. Warranty is limited to repair or replacement of defective component.

### STANDARDS



Tested and Certified by NSF International, the widely recognized and respected independent certification organization for public health safety. This filter has been tested to the following NSF International standards: ANSI/NSF Standard 42 Chlorine-Class 1, Particulate-Class 1, and Taste and Odor. ANSI/NSF Standard 53 for Reduction of Lead and Cyst.



Model EWF172 Kit

In keeping with our policy of continuing product improvement, Elkay reserves the right to change product specifications without notice.

Elkay Manufacturing Company  
www.elkay.com

2222 Camden Court  
Oak Brook, IL 60523

Printed in U.S.A.  
©2001 Elkay Mfg. Co.  
Rev. (7/01) 16-15B

**WaterSentry® VII**  
**Cyst/Lead Reduction and**  
**Sediment-Taste-Odor Filter Kit**  
**Model EWF172**

**ELKAY®**

**SPECIFICATIONS**

**INSTALLATION INSTRUCTIONS**

The filter must be installed in compliance with all state and local laws and regulations governing the installation and use of this product.

Disconnect electrical power and close water supply valve before proceeding.

The filter must be installed in the cold water line.

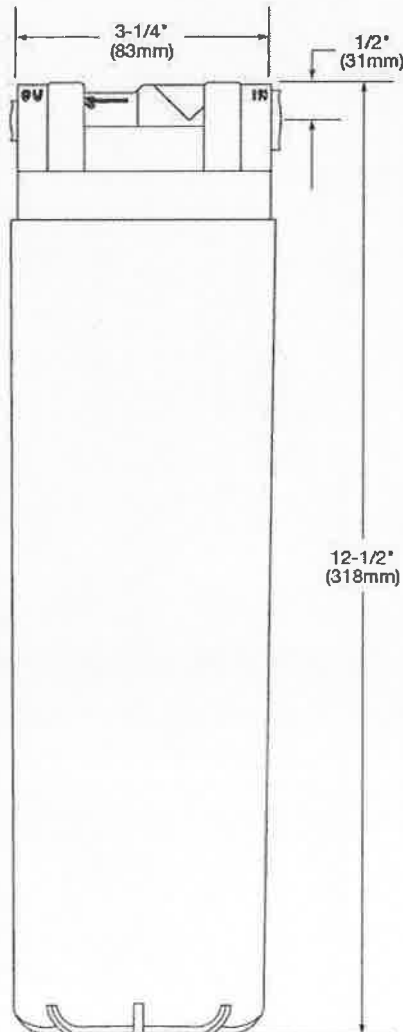
Flow indicator (arrow) on filter should point in the same direction as the water flow.

After installing new filter, open water supply valve and check for leaks. Reconnect electrical power supply. Flush system sufficiently (approximately 3 minutes) to effectively remove small residue of carbon fines.

NOTE: A water shutoff valve should be installed on the incoming water line to aid in future servicing of filter.

**CAUTION**

- Filter is designed to reduce lead from incoming water to levels below EPA requirements. Do not use with water that is microbiologically unsafe or with water of unknown quality without adequate disinfection before or after the system.
- Use on cold water line only. Do not allow installed filter to freeze. Do not attach hot water line to filter.
- Filter should be replaced every 1500 gallons (5678 liters), or approximately 1 year after installation.



Elkay Manufacturing Company

16-15B (Rev. 7/01)

2222 Camden Court  
 Oak Brook, IL 60523

Printed in U.S.A.  
 ©2001 Elkay Mfg. Co.



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746♣ Cheshire, CT 06410  
 203-699-1801♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

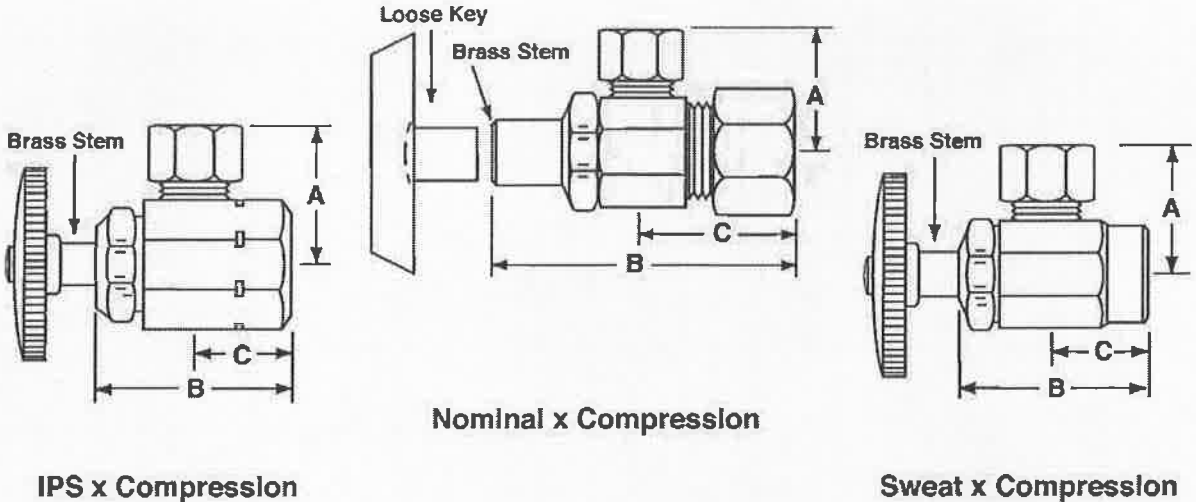
**Part No.**

LFST02, LFST02LK, LFST04,  
 LFST04LK, LFST07, LFST07LK,  
 LFST09, LFST09LK

**AB1953 Compliant  
 Lavatory Supply Stops**

**Job Name:**

**Submittal Number:**



**IPS x Compression**

**Nominal x Compression**

**Sweat x Compression**

| NO.      | DESCRIPTION                          | ROUGHING MEASUREMENTS |        |      |
|----------|--------------------------------------|-----------------------|--------|------|
|          |                                      | A                     | B      | C    |
| LFST02   | 1/2" IPS x 3/8" OD, Wheel Handle     | 1-3/16"               | 1-1/2" | 3/4" |
| LFST02LK | 1/2" IPS x 3/8" OD, Loose Key        | 1-3/16"               | 2-1/4" | 3/4" |
| LFST04   | 1/2" IPS x 1/2" OD, Wheel Handle     | 1-5/16"               | 1-1/2" | 3/4" |
| LFST04LK | 1/2" IPS x 1/2" OD, Loose Key        | 1-5/16"               | 2-1/4" | 3/4" |
| LFST07   | 1/2" Sweat x 3/8" OD, Wheel Handle   | 1"                    | 1-1/2" | 3/4" |
| LFST07LK | 1/2" Sweat x 3/8" OD, Loose Key      | 1"                    | 2-1/4" | 3/4" |
| LFST09   | 1/2" Nominal x 3/8" OD, Wheel Handle | 1"                    | 1-3/4" | 1"   |
| LFST09LK | 1/2" Nominal x 3/8" OD, Loose Key    | 1"                    | 2-3/8" | 1"   |

LK designates *Loose Key*  
 See options and accessories section for details on product variations.



**Specifications:**

Chrome plated brass, AB1953 compliant supply stop valve with full turn brass stem. Inlet shall be 1/2 inch (IPS, sweat, compression). Outlet shall be (3/8, 1/2) inch compression. Supply stop shall be McGuire \_\_\_\_\_. Supply stop shall be AB1953 certified by recognized authority and bear manufacturer and testing mark.



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

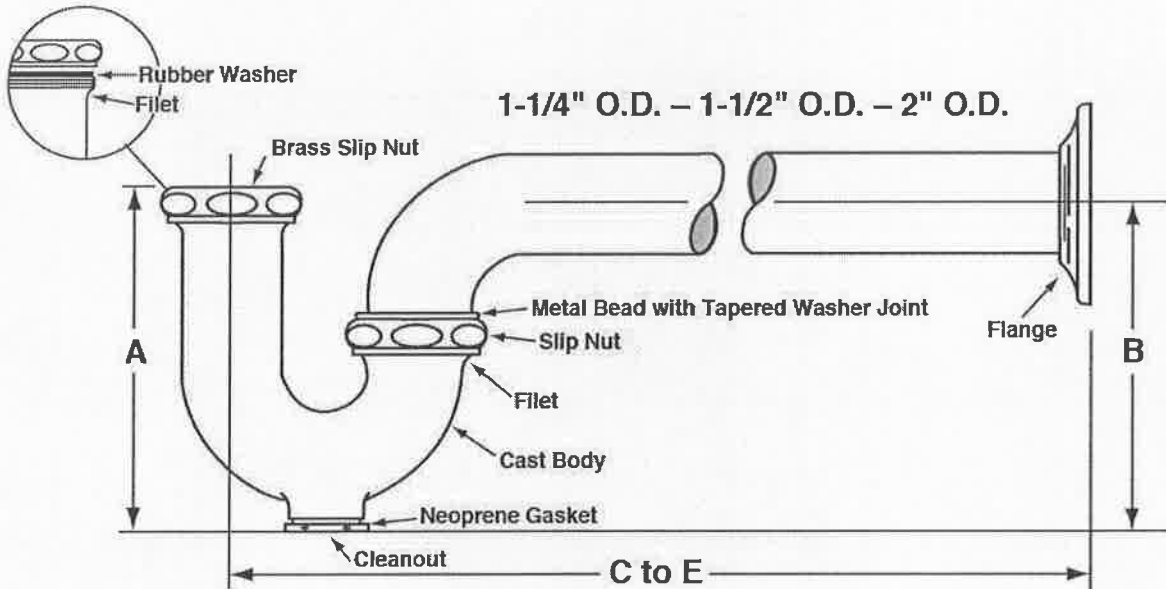
**Part No.**

8872, 8902, 8912,  
 8903, 8904

**Cast Body P-Trap  
 With Cleanout**

**Job Name:**

**Submittal Number:**

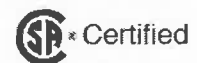


**PROFESSIONAL LINE**

**ROUGHING MEASUREMENTS**

| NO.  | TRAP DIMENSIONS |        | A  | B      | C to E |
|------|-----------------|--------|----|--------|--------|
|      | INLET           | OUTLET |    |        |        |
| 8872 | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902 | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912 | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903 | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904 | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.

224010 2.9 FIXTURE ACCESSORIES

STATEMENT OF MANF REVIEW      STATEMENT  
OF MANF REVIEW

SLOAN S3070021 GEM-2 111-1.28

SLOAN S3072624 GEM-2 186-1

BEMIS B1655SSCT000 EB BOWL OF PLAS CLST  
SEAT LC WHIT

SYMMMONS SLW3612 LF 2.2 WIDE SPREAD  
FAUCET

SYMMMONS S244LAMFR 2 HNDL LAV FAUCET  
ONLY

SYMMMONS S2302PD15 KITCHEN FAUCET

ZURN ZZ843M1CSRC MOP SINK FAUCET

STERNWILL ST35 36 HOSE W/CP COUP & SS  
BRKT

MCGUIRE M155WC CP OFFSET DRN

MCGUIRE 1149WC OFFSET GRID DRAIN

CHICAGO C1016ABCP LF ANG STOP FTG CP

CHICAGO C1017ABCP STOPS & SUPPLIES

CHICAGO C1016ABCP LF ANG STOP FTG CP

MCGUIRE M8872 1-1/4X1-1/4 CP SEMI CAST P  
TRAP

MCGUIRE M8912 1-1/2X1-1/2 CP SEMI CAST P  
TRAP

ZURNCORROS ZZ9ABTGB112 1-1/2 GLASS BSE

SMITH S210LY NH SGL LH HORZ CLST CARRIER

SMITH S0220DY NH HORZ ADJ DBL FIX CLOSET  
SUPP

Table Of Contents

SMITH S0240DY NH DBL SI VERT CLST CARRIER

SMITH S230Y NH SGL VERT CLST CARRIER

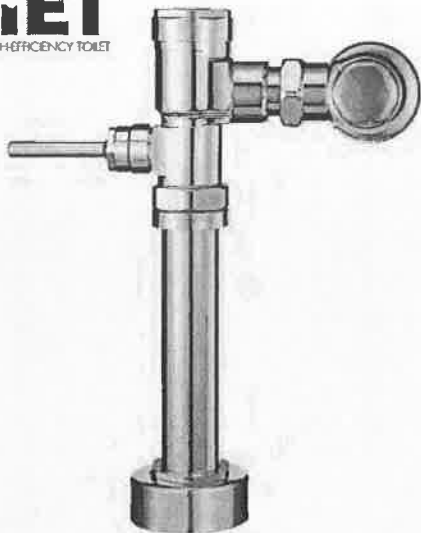
SMITH S0250Y SGL NH WTR CLST SUPP

SMITH S636M32 URN CARRIER

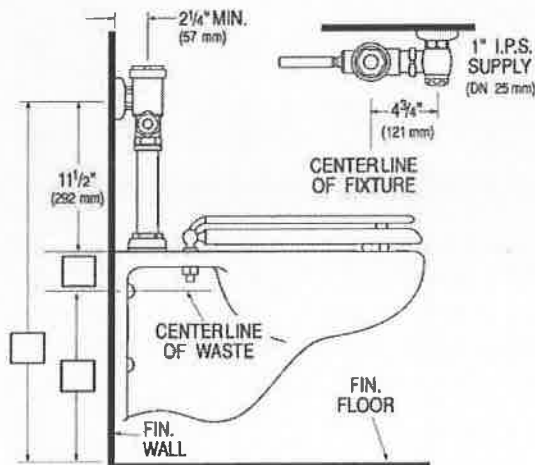
SMITH S70027M31 ADA LAV CARRIER

PROFLO PF202WH FIXTURE INSULATION

PROFLO PF202WH FIXTURE INSULATION



Listed by I.A.P.M.O.



# Gem•2® Model 111-1.28 Flushometer

- ▶ **Description**  
Exposed, Water Closet Flushometer for floor mounted or wall hung top spud bowls.
- ▶ **Flush Cycle**  
✓ Model 111-1.28 High Efficiency (1.28 gpf/4.8 Lpf)
- ▶ **Specifications**  
Quiet, Exposed, Piston Type, Chrome Plated Closet Flushometer with the following features:
  - Fixed Volume Piston with Filtered O-ring Bypass
  - ADA Compliant Metal Oscillating Non-Hold-Open Handle
  - 1" I.P.S. Screwdriver Bak-Chek® Angle Stop
  - Locking Vandal Resistant Stop Cap
  - Adjustable Tailpiece
  - Vacuum Breaker Flush Connection
  - Spud Coupling, Wall and Spud Flanges for 1 1/2" Top Spud
  - High Copper, Low Zinc Brass Castings for Dezincification Resistance
  - Non-Hold-Open Handle and No External Volume Adjustment to Ensure Water Conservation
  - Handle Packing, Stop Seat and Vacuum Breaker Molded from PERMEX™ Rubber Compound for Chloramine Resistance

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance to the applicable sections of ASSE 1037 and ANSVASME A112.19.2.

- ▶ **Variations**

|  |  |
|--|--|
| <input type="checkbox"/> U               | 1 1/4" Flush Connection and Spud Coupling              |
| <input type="checkbox"/> TP              | Trap Primer  |
| <input type="checkbox"/> XV              | Valve Less Vacuum Breaker                              |
| <input type="checkbox"/> YB              | Sweat Solder Adapter Kit                               |
| <input checked="" type="checkbox"/> YBYC | Sweat Solder Adapter & Cast Wall Flange with Set Screw |
| <input type="checkbox"/> YG              | Extended Bumper on Angle Stop (for seat with cover)    |
| <input type="checkbox"/> YJ              | Split Ring Pipe Support                                |
| <input type="checkbox"/> YK              | Solid Ring Pipe Support                                |
| <input type="checkbox"/> YO              | Bumper on Angle Stop                                   |

NOTE: Bak-Chek® Angle Stop available with 1" Whitworth Thread (please specify).

- ▶ **Accessories**  
See Accessories Section of the Sloan catalog for details on these and other Flushometer variations.
- ▶ **Fixtures**  
Consult Sloan for Sloan brand matching fixture options.

|  |                |
|--|----------------|
| This space for Architect/Engineer approval |                |
| Job Name _____                             | Date _____     |
| Model Specified _____                      | Quantity _____ |
| Variations Specified _____                 |                |
| Customer/Wholesaler _____                  |                |
| Contractor _____                           |                |
| Architect _____                            |                |

The information contained in this document is subject to change without notice.

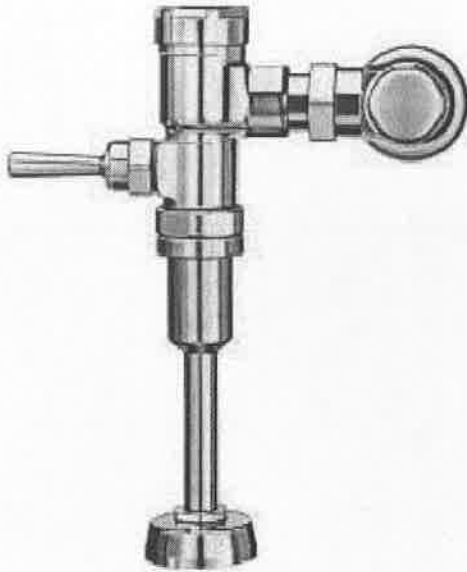
## SLOAN.



SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL 60131  
 Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380  
 Made in the U.S.A. www.sloanvalve.com

Gem•2 111-1.28 S.S. — Rev. 0 (11/09)  
 Copyright © 2009 SLOAN VALVE COMPANY Printed in the U.S.A.





**Gem•2®  
Model  
Flushometer**

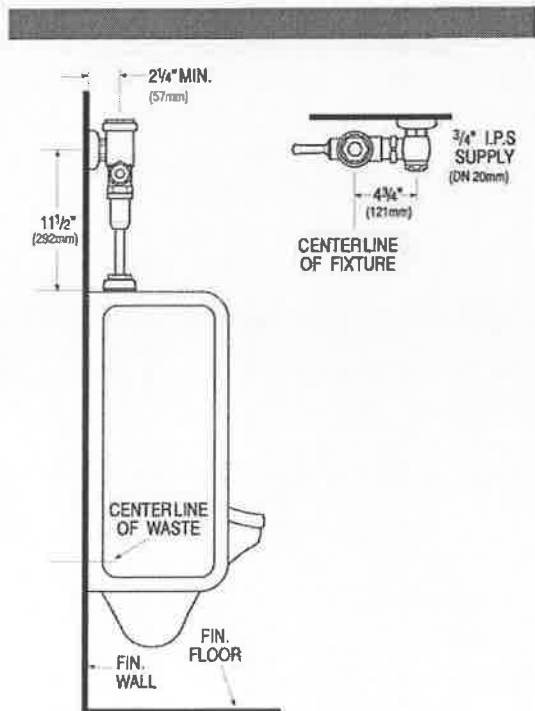
186  
186-1.0  
186-0.5

- ▶ **Description**  
Exposed, Urinal Flushometer, for 3/4" top spud urinals.
- ▶ **Flush Cycle**
  - Model 186 Water Saver (1.5 gpf/5.7 Lpf)
  - Model 186-1.0 Low Consumption (1.0 gpf/3.8 Lpf)
  - Model 186-0.5 (0.5 gpf/1.9 Lpf)
- ▶ **Specifications**  
Quiet, Exposed, Piston Type, Chrome Plated Urinal Flushometer with the following features:
  - Fixed Volume Piston with Filtered O-Ring By-Pass
  - ADA Compliant Metal Oscillating Handle
  - 3/4" I.P.S. Screwdriver Bak-Chek™ Angle Stop
  - Vandal Resistant Stop Cap
  - Adjustable Tailpiece
  - Vacuum Breaker Flush Connection
  - Spud Coupling, Wall and Spud Flange for 3/4" Top Spud
  - High Copper, Low Zinc Brass Castings for Dezincification Resistance
  - Non-Hold-Open Handle and No External Volume Adjustment to Ensure Water Conservation
  - Handle Packing, Stop Seat and Vacuum Breaker to be Molded from PERMEX™ Rubber Compound for Chloramine Resistance

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be in compliance to the applicable sections of ASSE 1037, ANSI/ASME 112.19.6, and Military Specification V-29193.

- ▶ **Variations**
  - XYV Less Vacuum Breaker
  - YB Sweat Solder Adapter Kit
  - YBYC Sweat Solder Adapter & Cast Set Screw Wall Flange

See Accessories Section of the Sloan catalog for details on these and other Flushometer variations.



 Certified
 
 Listed by I.A.P.M.O.

This space for Architect/Engineer approval

The information contained in this document is subject to change without notice.

**SLOAN.**

Made in the U.S.A.  
SLOAN VALVE COMPANY • 10500 SEYMOUR AVE. • FRANKLIN PARK, IL 60131  
Ph: 1-800-9-VALVE-9 or 1-847-671-4300 • Fax: 1-800-447-8329 or 1-847-671-4380  
<http://www.sloanvalve.com>

Gem•2 186 S.S. — Rev. 1 (06/01)  
Copyright © 2001 SLOAN VALVE COMPANY Printed in the U.S.A.



COMMERCIAL PLASTIC SEATS



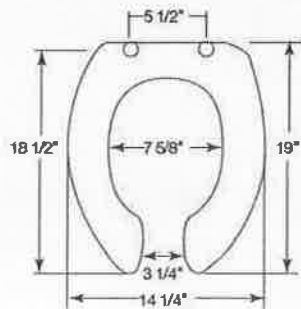
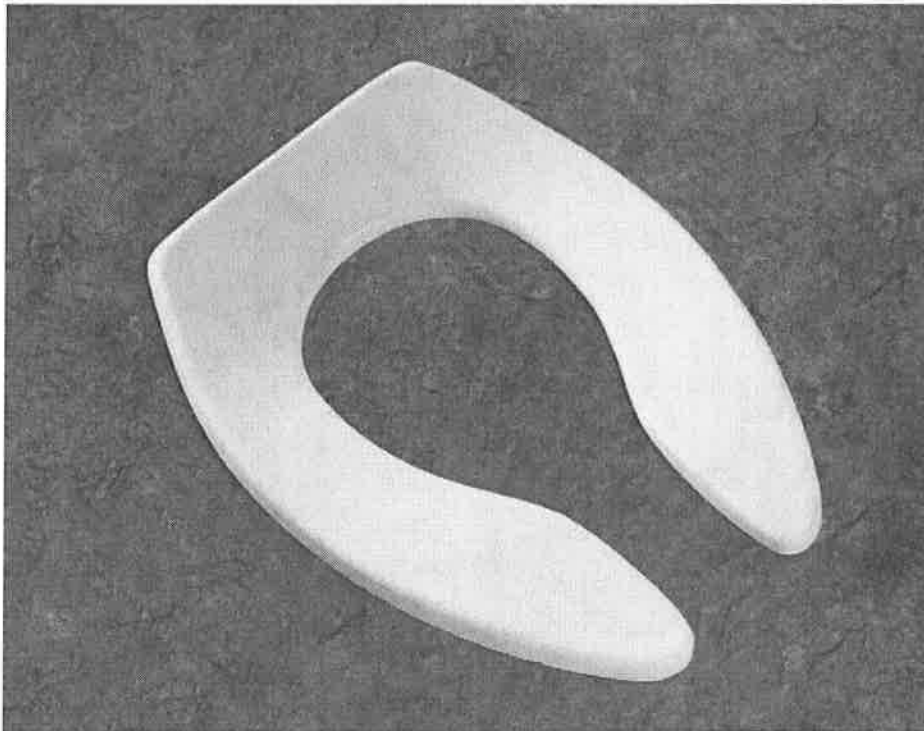
# 1655CT

Seats shall be No. **B1655SSCT**, as manufactured by Bemis Manufacturing Co. Seats shall be extra heavy weight and injection molded of solid plastic. Seats shall be open front less cover for elongated bowl and feature large molded-in bumpers. Seats shall have STA-TITE®, Commercial Fastening System™, featuring external check hinges with 300 Series stainless steel posts and pintles that stop seat 11 degrees beyond vertical.

Color to be \_\_\_\_\_  
(Specify white or fixture manufacturer's color.)

Hinges shall be **1655CT / 1655SSCT**.  
(Circle model based on description below.)

**1655CT** External check hinge stops seat 11° beyond vertical.  
**1655SSCT** Stainless steel, self-sustaining and external check hinge holds seat in any raised position up to 11° beyond vertical.



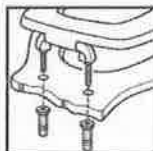
Ring thickness is 1"  
Ring thickness including the bumper is 1-3/16"

\*\* ANSI Z124.5 section 5.1.2 Tests have shown that this product will support weights up to 500 pounds.\*\* (Contact Bemis Mfg. Co., for test data)

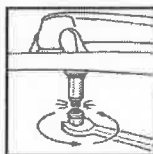
## STA-TITE®



Assemble hinges.



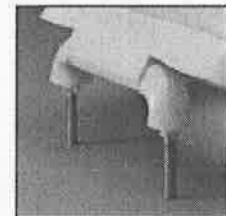
Finger-tighten fastening nuts.



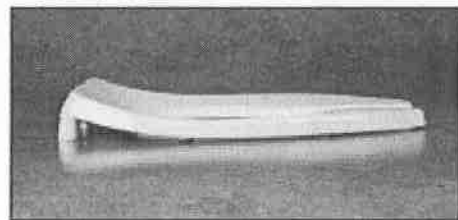
Using wrench, tighten until lower portion shears off.



STA-TITE®, COMMERCIAL FASTENING SYSTEM™, ONE-PIECE INTEGRATED NUT AND WASHER



CONCEALED CHECK HINGE



CONTOURED SEAT

Bemis Manufacturing Co., Sheboygan Falls, WI 53085  
www.BemisSeats.com

Phone: 920-467-4621 800-558-7651 Fax: 920-467-8573

©2007 08701 2106



Location:



# Widespread Lavatory Faucet SLW-3612

## Specification Submittal



### Model Numbers

- ✓ SLW-3612 Widespread Lavatory Faucet with pop-up drain assembly

### Options / Modifications

Append appropriate -suffix to model number

- 1.5 1.5 (5.7 L/min) Flow rate restrictor
- 1.0 1.0 (3.8 L/min) Flow rate restrictor

### Finish Options / Modifications

Append appropriate -suffix to model number

- STN Satin nickel
- Polished chrome (standard finish)

### Warranty

- Limited Lifetime - to the original end purchaser in residential/consumer installations
- 5 years - for commercial installations

### Feature Highlights

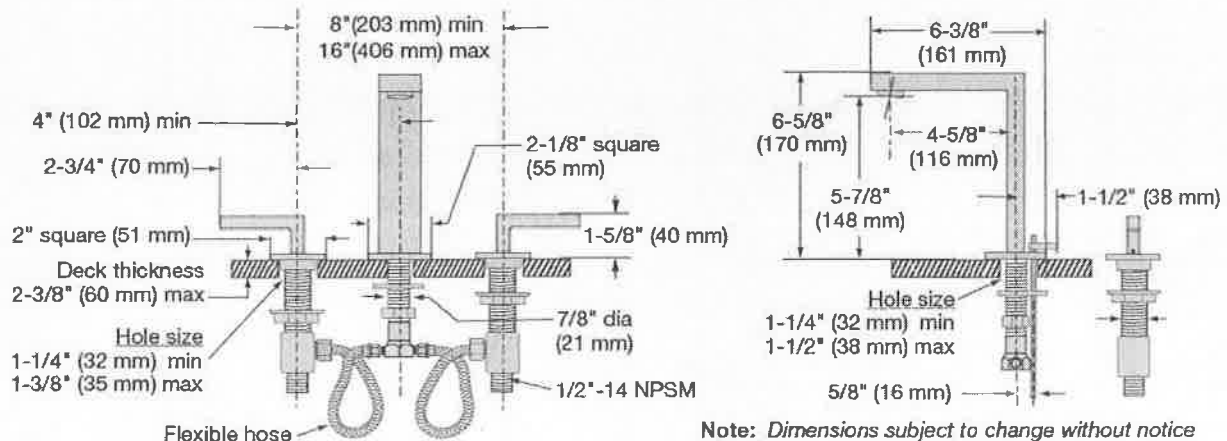
- Two handle Widespread Lavatory Faucet with quarter turn ceramic control components
- 8 - 16 inch centers for mounting
- Braided hoses
- Pop-up drain and lift rod assembly
- Polished chrome finish

### Standards / Certifications

- ASME A112.18.1/CSA B125.1
- Lever handles are ADA compliant
- NSF 372 (CA 116875)
- NSF 69.1
- US S.3874



### Dimensions Duro Widespread Lavatory Faucet, SLW-3612



Symmons Industries, Inc. 31 Brooks Drive ■ Braintree, MA 02184 ■ (800)796-6667, (781)848-2250 ■ Fax: (800)961-9621, (781)664-1300  
 ©2013 Symmons Industries, Inc. Printed in U.S.A. ■ www.symmons.com ■ customerservice@symmons.com ■ 111813

# SYMMETRIX® Two Handle Lavatory Faucet

- S-244-2-G: With grid strainer drain assembly
- S-244-2: With lift rod and pop-up drain assembly
- S-244-1: With lift rod only
- S-244: Faucet only

**Symmetrix** Two Handle Widespread Lavatory Faucet with quarter turn ceramic control components and blade handles with red/blue indicators. Aerator, 1/2" IPS shanks, 8" to 16" centers, metal construction, polished chrome finish.

**Modifications:**

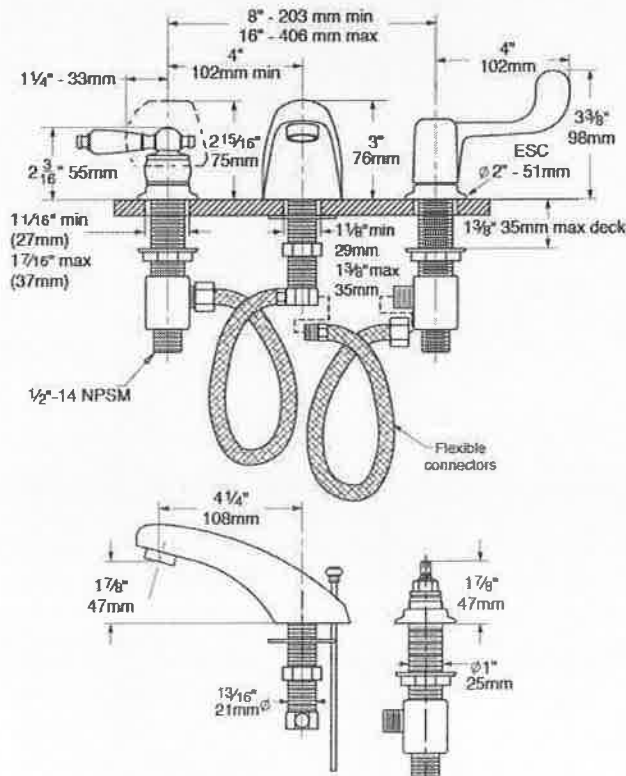
**Add:**

- Suffix FR: 0.5 gpm flow restrictor spray outlet (vandal resistant)
- Suffix VP: Vandal resistant aerator
- Suffix OFG: Offset grid strainer



S-244

SYMMONS PRODUCTS MEET  
ANSI A112.18.1M, EPA '92  
AND ALL KNOWN FLOW RATE  
REQUIREMENTS.  
Kitchen and Lavatory Faucets  
2.2 GPM (8.3 L/min)



Job/Location

Engineer

Contractor

For ADA compliance (Americans with Disabilities Act) consult ADAAG or your state regulations for proper product choice and mounting locations.

Symmons Industries, Inc. ■ 31 Brooks Drive ■ Braintree, MA 02184  
(800) 796-6667, (781) 848-2250 ■ Fax (800) 961-9621, (781) 843-3849  
Website: [www.symmons.com](http://www.symmons.com) ■ Email: [customerservice@symmons.com](mailto:customerservice@symmons.com)

©2003, 2008 Symmons Industries, Inc. Printed in U.S.A. ■ 050108



Location:

# SYMMONS® Sereno™

## Kitchen Faucet S-2302-PD Specification Submittal



### Model Number

- ✓ S-2302-PD Kitchen faucet

### Options / Modifications

Append appropriate -suffix to model number


- ✓  -1.5 1.5 (5.7 L/min) Flow rate restrictor

### Finish Options

Append appropriate -suffix to model number

- STS Stainless steel finish
- Polished chrome (standard finish)

### Feature Highlights

- Single handle kitchen faucet with pull-down handspray spout and retractable hose
- Two mode handspray; standard stream and wide spray
- Spout has 360 degree rotation
- Ceramic control components
- Standard flow rate is 2.2 gpm (8.3 L/min)  
Optional lower flow rate restrictor available 
- Braided hose water supply connections
- Single hole or 3 hole mount with deck plate (included)
- Metal construction, polished chrome finish (standard)

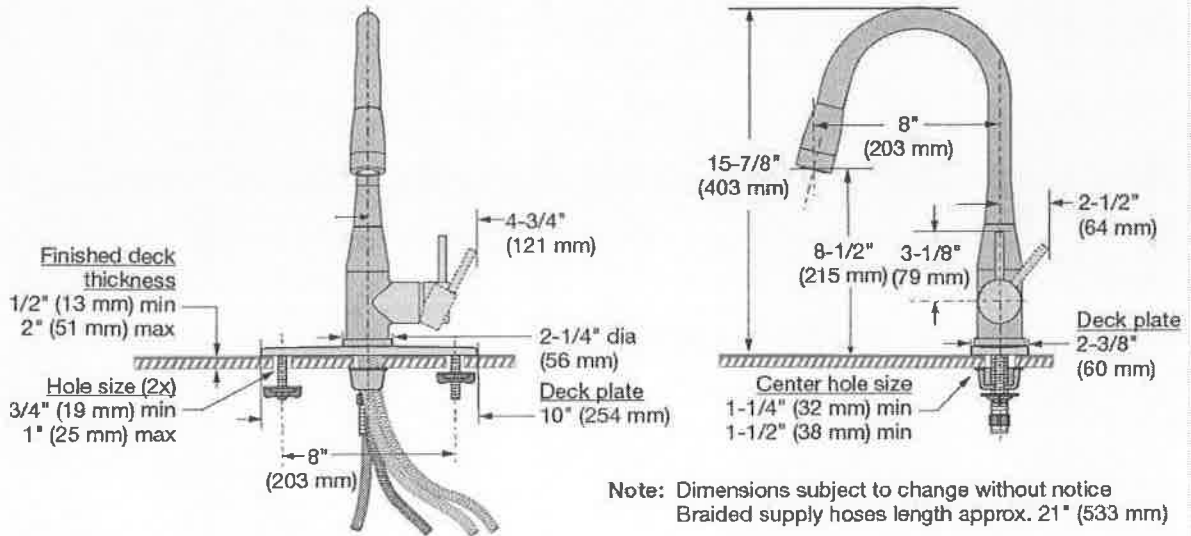
### Warranty

- Limited Lifetime - to the original end purchaser in consumer installations
- 5 years - for commercial installations

### Standards / Certifications

- ASME A112.18.1/ CSA B.125.1
- Low lead compliant, AB1953 / S.152 / S.3874
- ADA compliant for lever handle and swing spout

### Dimensions Sereno Kitchen Faucet, S-2302-PD



Symmons Industries, Inc. 31 Brooks Drive ■ Braintree, MA 02184 ■ (800)796-6667, (781)848-2250 ■ Fax: (800)961-9621, (781)664-1300  
©2013 Symmons Industries, Inc. Printed in U.S.A ■ www.symmons.com ■ customerservice@symmons.com ■ p/n KN-01664 ■ 121213

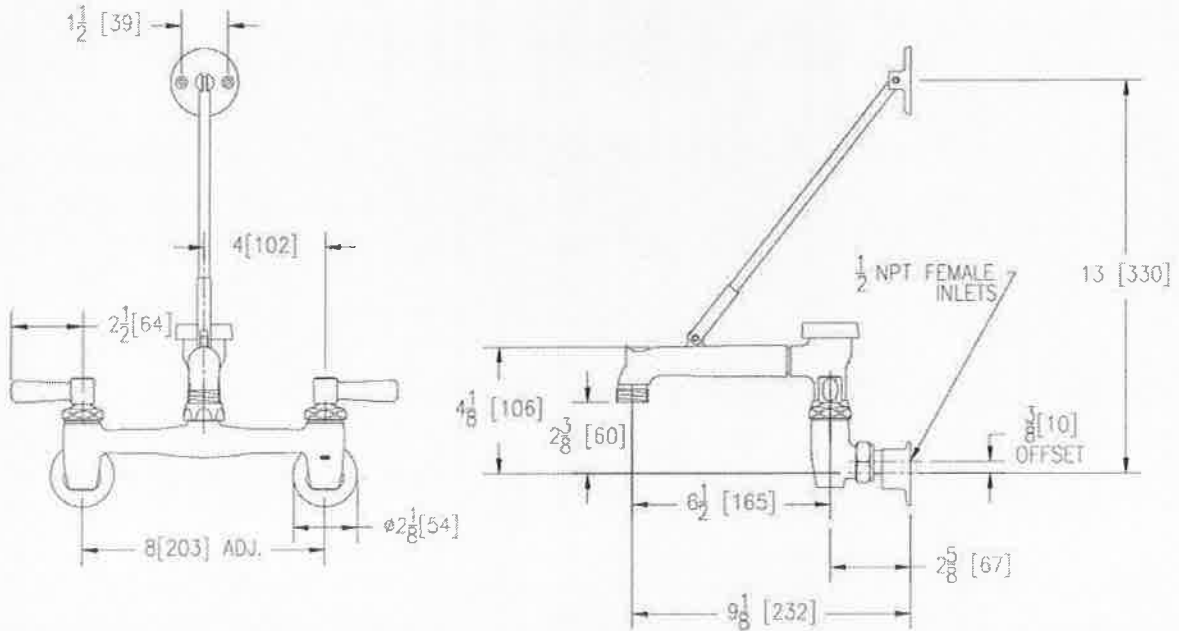


**SINK FAUCET  
Z843M1**

TAG \_\_\_\_\_



**Engineering Specifications: Zurn AquaSpec® Z843M1**  
 Polished chrome-plated cast brass 8" [203mm] sink faucet with quarter turn ceramic disc cartridges, 3/8" [10mm] short swivel inlets providing adjustable centers from 7-1/4" [184mm] to 8-3/4" [222mm], integral service stops and a 6" [152mm] centerline cast brass spout with chemical resistant atmospheric vacuum breaker, 3/4" hose threaded outlet, pail hook and adjustable wall brace. Unit is furnished with 2-1/2" [64mm] vandal-resistant color-coded brass lever handles. Vacuum breaker is certified to the Uniform Plumbing Code®, ASSE 1001-2002 and CSA B64-01. (Note: Atmospheric vacuum breaker not intended for continuous pressure applications.)



Note: All dimensions are for reference only. Do not use for pre-plumbing

**OPTIONAL ACCESSORIES**

| Suffix  | Description                      |
|---------|----------------------------------|
| ✓-CS    | Check Stops                      |
| ___-HCT | Hot/Cold Text Indexes            |
| ___-LSI | 2-1/2" [64mm] Long Swivel Inlets |
| ✓-RC    | Rough Chrome Plated              |
| ___-WHK | Wall Hook                        |
| ___-5H  | 5' [152cm] Vinyl Hose            |
| ___-6P  | Master Carton (Qty. 6)           |

ZURN INDUSTRIES, LLC ♦ COMMERCIAL BRASS OPERATION ♦ 2640 SOUTH WORK STREET ♦ FALCONER NY 14733  
 Phone: 1-800-997-3876 ♦ Fax: 1-919-775-3541 ♦ www.zurn.com  
 In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

AquaSpec® is a registered trademark of Zurn Industries, LLC  
 ©2007 Zurn Industries, LLC

Rev. H Date: 10/19/11 C.N. No. 128248  
 Dwg. No. 69733 Product No. Z843M1



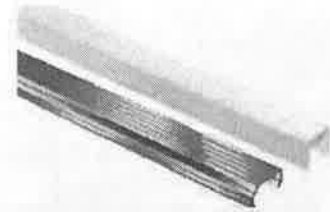
**ACCESSORIES**

**Optional Cap or Bumper Guard**

For on-the-job attachment to the exposed sides.

**A-20** Anodized aluminum cap.

**V-70** Extruded vinyl bumper guard



A-20 & V-70

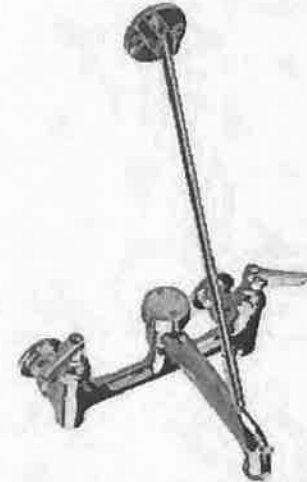
**Quality Accessories**

**T-10VB** Sink fitting with integral stops, lever handles and spring checks. Spout with bucket hook, 3/4" hose thread end. Vacuum breaker; adjustable top brace. Inlets 8" on centers. Chrome finish.

**T-15-VB** Same as T-10-VB with polished Chrome finish.

**T-35** Hose and wall hook. Hose 36" long, with 3/4" chrome couplings, Wall bracket of stainless steel.

**T-40** Stainless steel mop hanger of stainless steel with #4 finish...24" long, with 3 rubber spring loaded drips



T-15VB

**C-10** Silaprene Sealant, to close wall seams on receptors without flanges.

**BP** Back splash catcher panels of 20 ga. type 304 stainless steel.

**Speedi Drain Connectors**

For use only with Stern-Williams receptors. For schedule 40 steel pipe, PVC, ABS AND C.I. pipe:

**TC-2** Shower drain gasket. 2".

**Mop Sink Drain Gaskets**

**TC-3** 3" for XHCI, plastic and steel pipe.

**TC-3-NH** 3" for SV and NHCI pipe.

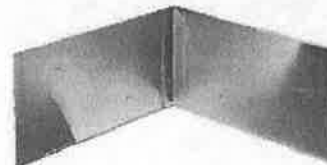
**TC-3-2** 3" reducer with 2" hole.



T-35



T-40



BP-2-24



**McGUIRE MFG. CO., INC.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax 203-699-1813  
 www.mcguiremfg.com

**Product Specification**

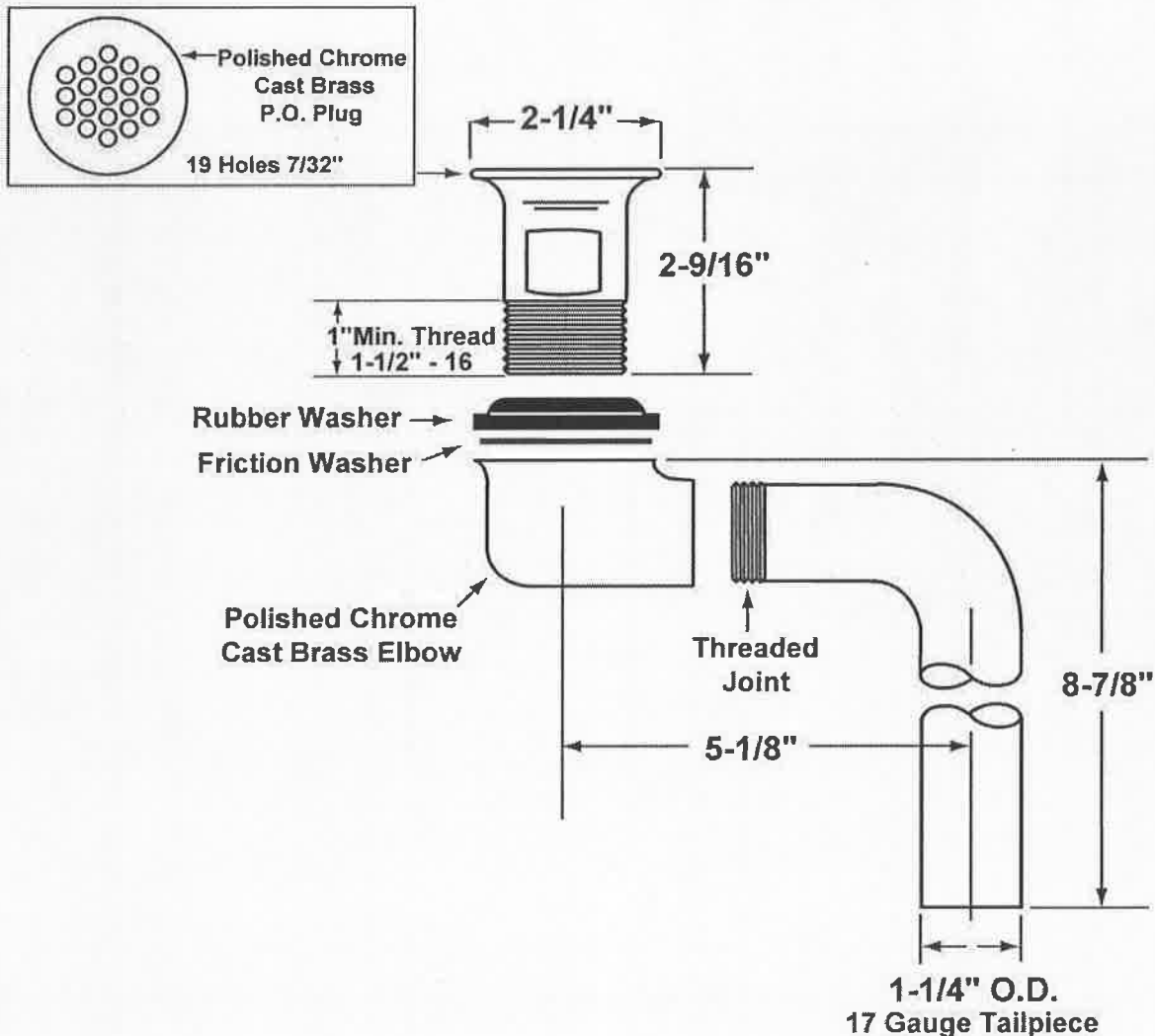
**Part No.**

**155WC**

**Offset Lavatory  
 Grid Strainer**

**Job Name:**

**Submittal Number:**



A.D.A.



Certified

See options and accessories section for details on product variations.

**Specifications:**

Cast Brass Chrome Plated Offset Wheelchair Strainer with polished chrome cast brass elbow, 17 gauge 1-1/4 inch seamless brass offset tailpiece, heavy rubber basin washer and fiber friction washer. Offset lavatory strainer shall be in compliance with CSA or other recognized testing authority and bear both manufacturer and testing mark.



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 • Cheshire, CT 06410  
 203-699-1801 • Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

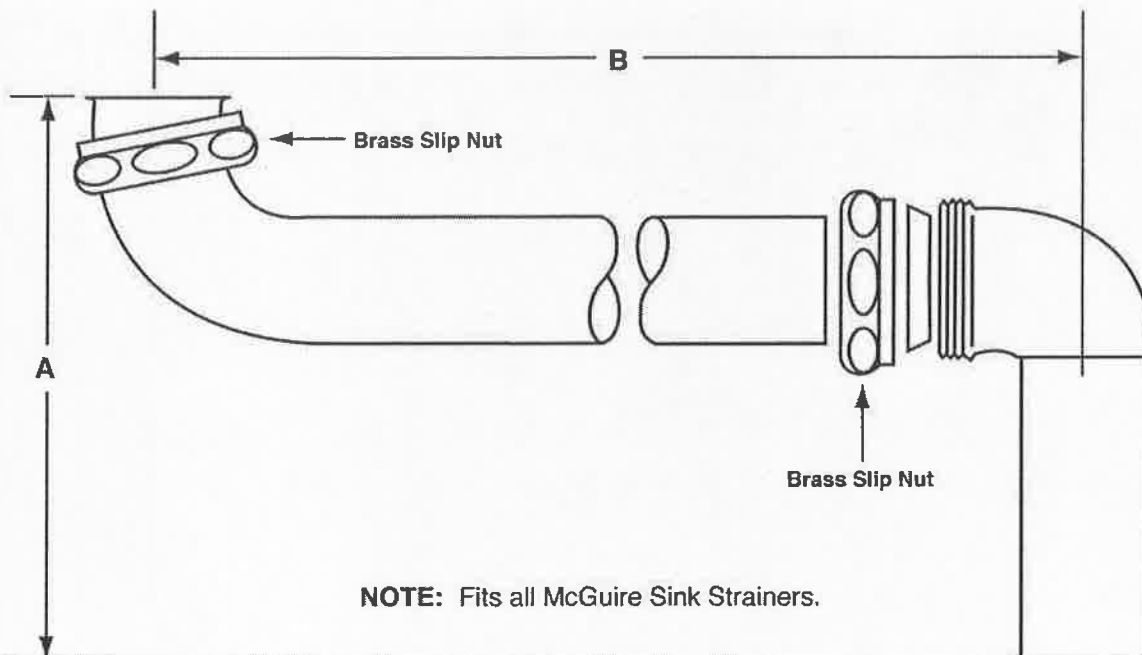
**Part No.**

**1000WC, 1151WC,  
 1151AWC, 1149WC, 1152WC**

**Offset Sink Strainer  
 ADA Compliant**

**Job Name:**

**Submittal Number:**



| MODEL NO. | DESCRIPTION                              | A  | B       |
|-----------|--|----|---------|
| 1000WC    | Offset Only                              | 7" | 12-3/4" |
| 1151WC    | Offset with 151 Brass Strainer           | 7" | 12-3/4" |
| 1151AWC   | Offset with 151A Stainless Strainer      | 7" | 12-3/4" |
| → 1149WC  | Offset with 149 Brass Flat Grid Strainer | 7" | 12-3/4" |
| 1152WC    | Offset with 152 Brass Strainer           | 7" | 12-3/4" |

A.D.A.



ASME A112.18.1-2011/CSA B125.1-11

**Specifications:**

Adjustable Offset Sink Strainer furnished with 17 gauge seamless brass wastearm, 17 gauge seamless brass tailpiece, cast brass slip nuts and heavy cast elbow. Sink strainer shall be in compliance with CSA or other recognized testing authority and bear both manufacturer and testing mark.

# ECAST® MANUAL FAUCETS

## 1016-ABCP

### Angle Stop Fitting with Supply Tube



a Geberit company

**Product Type**

Angle Stop Fitting with Supply Tube

**Features & Specifications**

- 3/8" O.D. x 12" Flexible Supply Riser
- 2 1/4" Metal Loose Key Tee Handle
- Slow Compression Operating Cartridge
- 3/8" NPT Female Thread Inlet
- Slip Wall Flange
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average

**Performance Specification**

- Rating Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1M
- CSA B125.1
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

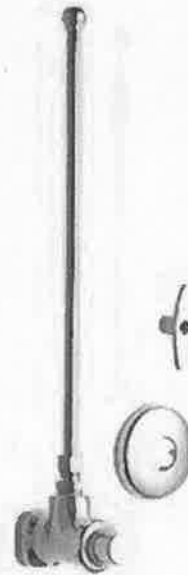
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_



**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



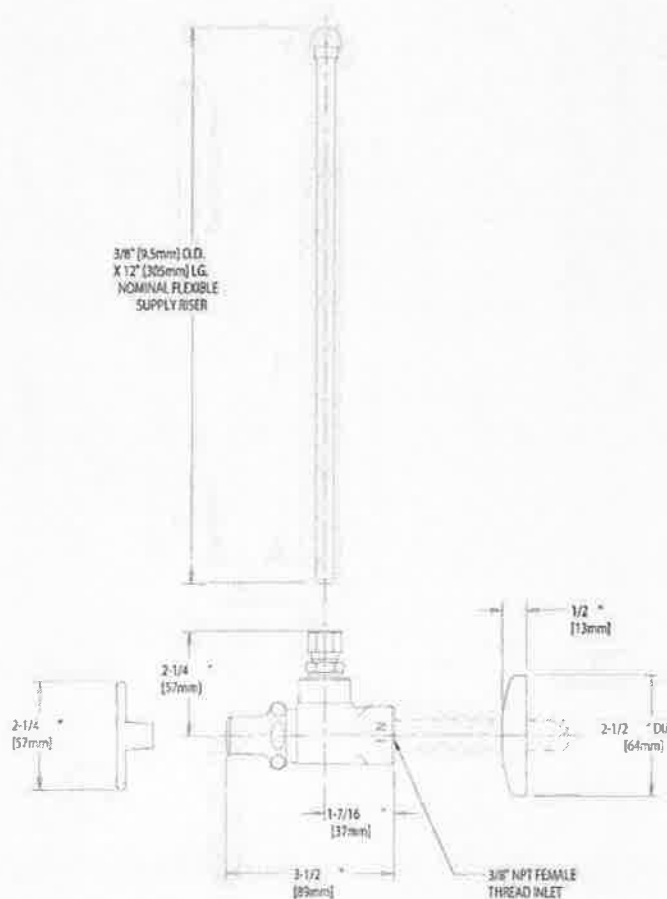
2100 South Clearwater Drive  
 Des Plaines, IL  
 P: 847/803-5000  
 F: 847/803-5454  
 Technical: 800/TEG-TRUE  
 www.chicagofaucets.com

**1016-ABCP****Angle Stop Fitting with Supply Tube****CHICAGO  
FAUCETS**

a Geberit company

**Architect/Engineer Specification**

Chicago Faucets No. 1016-ABCP, polished chrome plated solid brass body construction. ECAST® construction with less than 0.25% lead content by weighted average. 2-1/4" loose key handle. Slow compression renewable cartridge designed to close with water pressure, with square tapered broach feature to help facilitate handle removal. 3/8" NPT female inlet. 3/8" O.D. x 12" flexible supply riser. This product is tested and certified to industry standards: ASME A112.18.1M, CSA B125.1, California Health and Safety Code 116875 (AB1953-2006), and Vermont Bill S.152.

**Operation and Maintenance**

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

**MECHANICAL FAUCETS****1017-ABCP****Stops and Supplies****CHICAGO  
FAUCETS**

a Geberit company

**Product Type**

Angle Stop Fitting with Supply Tube and Loose Key

**Features & Specifications**

- Stops with 1/2" Inlet
- 2-1/4" Tee Handle
- Slow Compression Operating Cartridge
- 1/2" NPT Female Thread Inlet
- 3/8" O.D. Female Compression Outlet
- Slip Wall Flange
- 3/8" O.D. x 12" Bullnose Flexible Supply Riser
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average
- CFNow! Item Ships in 5 Days

**Performance Specification**

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1/CSA B125.1
- Certified to NSF/ANSI 61, Section 9 by CSA
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152
- NSF/ANSI 372 Low Lead Content

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

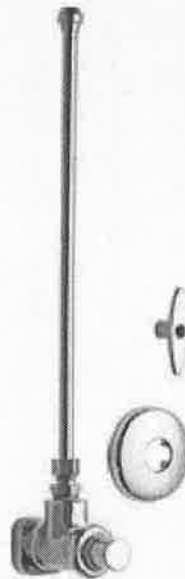
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_

**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
www.chicagofaucets.com

## 1017-ABCP

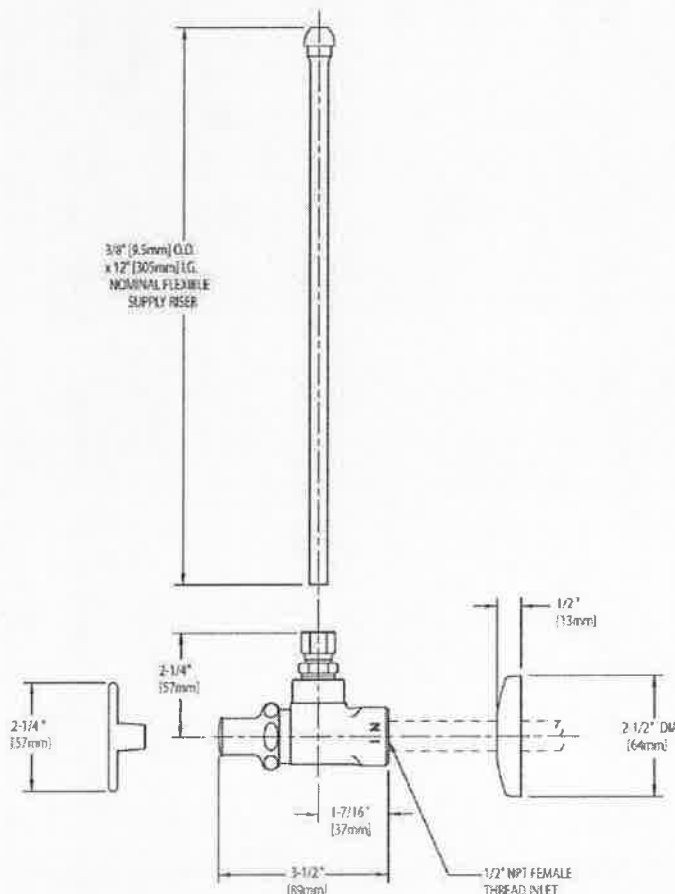
## Stops and Supplies



a Geberit company

## Architect/Engineer Specification

Chicago Faucets No. 1017-ABCP, Angle Stop Fitting with Supply Tube and Loose Key, Chrome Plated solid brass construction. 2-1/4" Metal Tee handle(s) with Tapered Square. Slow compression rebuildable cartridge, opens and closes 360° for fine adjustment, closes with water pressure, features square tapered stem. 1/2" NPT Female Thread Inlet. 3/8" O.D. Female Compression Outlet. Slip Wall Flange. 3/8" O.D. x 12" Bullnose Flexible Supply Riser. ECAST® construction with less than 0.25% lead content by weighted average. This product is tested and certified to industry standards: ASME A112.18.1/CSA B125.1, Certified to NSF/ANSI 61, Section 9 by CSA, California Health and Safety Code 116875 (AB1953-2006), Vermont Bill S.152, and NSF/ANSI 372 Low Lead Content.



## Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

# ECAST® MANUAL FAUCETS

## 1016-ABCP



### Angle Stop Fitting with Supply Tube

**Product Type**

Angle-Stop Fitting with Supply Tube

**Features & Specifications**

- 3/8" O.D. x 12" Flexible Supply Riser
- 2 1/4" Metal Loose Key Tee Handle
- Slow Compression Operating Cartridge
- 3/8" NPT Female Thread Inlet
- Slip Wall Flange
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average

**Performance Specification**

- Rating Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

**Warranty**

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

**Codes & Standards**

- ASME A112.18.1M
- CSA B125.1
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152

Job Name \_\_\_\_\_

Item Number \_\_\_\_\_

Section/Tag \_\_\_\_\_

Model Specified \_\_\_\_\_

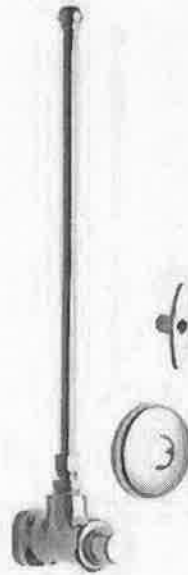
Architect \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor \_\_\_\_\_

Submitted as Shown       Submitted with Variations

Date \_\_\_\_\_



**ECAST**

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive  
 Des Plaines, IL  
 P: 847/803-5000  
 F: 847/803-5454  
 Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)

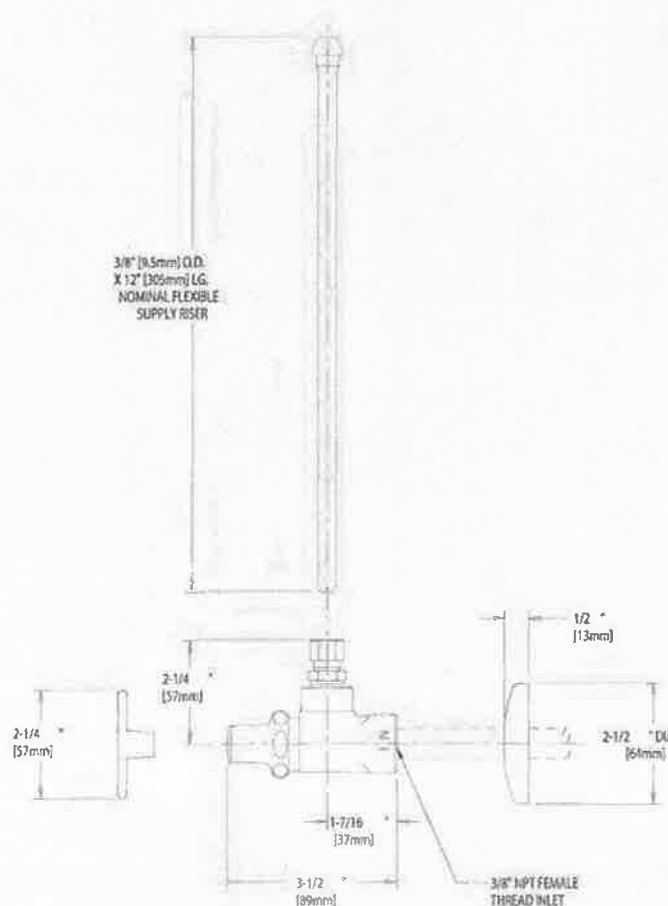


**1016-ABCP****Angle Stop Fitting with Supply Tube****CHICAGO  
FAUCETS**

a Geberit company

**Architect/Engineer Specification**

Chicago Faucets No. 1016-ABCP, polished chrome plated solid brass body construction. ECAST® construction with less than 0.25% lead content by weighted average. 2-1/4" loose key handle. Slow compression renewable cartridge designed to close with water pressure, with square tapered broach feature to help facilitate handle removal. 3/8" NPT female inlet. 3/8" O.D. x 12" flexible supply riser. This product is tested and certified to industry standards: ASME A112.18.1M, CSA B125.1, California Health and Safety Code 116875 (AB1953-2006), and Vermont Bill S.152.

**Operation and Maintenance**

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at [www.chicagofaucets.com](http://www.chicagofaucets.com).

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive  
Des Plaines, IL  
P: 847/803-5000  
F: 847/803-5454  
Technical: 800/TEC-TRUE  
[www.chicagofaucets.com](http://www.chicagofaucets.com)



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

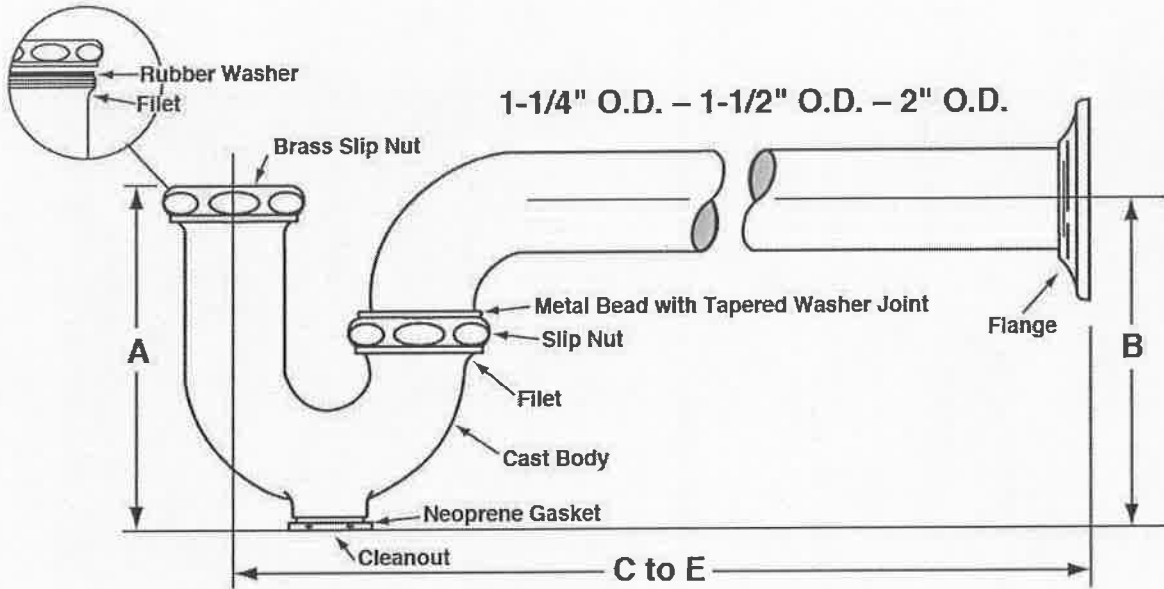
**Part No.**

8872, 8902, 8912,  
 8903, 8904

**Cast Body P-Trap  
 With Cleanout**

**Job Name:**

**Submittal Number:**



**PROFESSIONAL LINE**

**ROUGHING MEASUREMENTS**

| NO.    | TRAP DIMENSIONS |        | A  | B      | C to E |
|--------|-----------------|--------|----|--------|--------|
|        | INLET           | OUTLET |    |        |        |
| → 8872 | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902   | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912   | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903   | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904   | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.



**McGuire Manufacturing Co., Inc.**

60 Grandview Court  
 P.O. Box 746 ♣ Cheshire, CT 06410  
 203-699-1801 ♣ Fax: 203-699-1813  
 www.mcguiremfg.com

**PRODUCT SPECIFICATION**

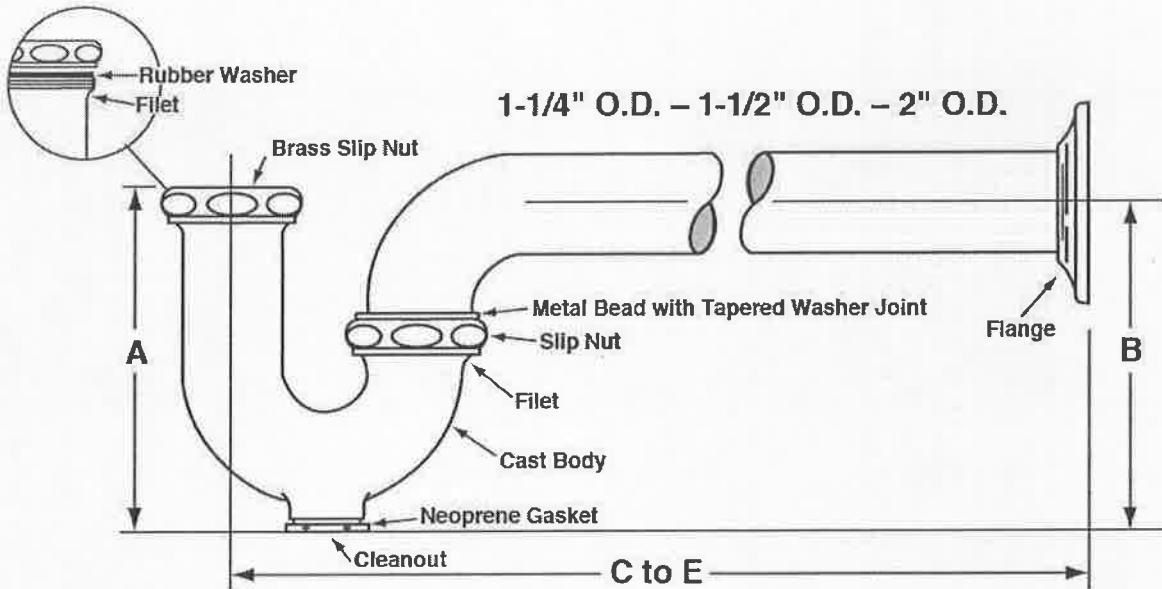
**Part No.**

8872, 8902, 8912,  
 8903, 8904

**Cast Body P-Trap  
 With Cleanout**

**Job Name:**

**Submittal Number:**



**PROFESSIONAL LINE**

**ROUGHING MEASUREMENTS**

| NO.  | TRAP DIMENSIONS |        | A  | B      | C to E |
|------|-----------------|--------|----|--------|--------|
|      | INLET           | OUTLET |    |        |        |
| 8872 | 1-1/4"          | 1-1/4" | 5" | 4-1/2" | 11"    |
| 8902 | 1-1/4"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8912 | 1-1/2"          | 1-1/2" | 5" | 4-1/2" | 12"    |
| 8903 | 1-1/2"          | 2"     | 5" | 6"     | 13"    |
| 8904 | 2"              | 2"     | 5" | 6"     | 13"    |

FED SPEC W.W.P. 541  
 CAST BRASS P TRAP  
 MINIMUM SEAL 2"



See options and accessories section for details on product variations.

**Specifications:**

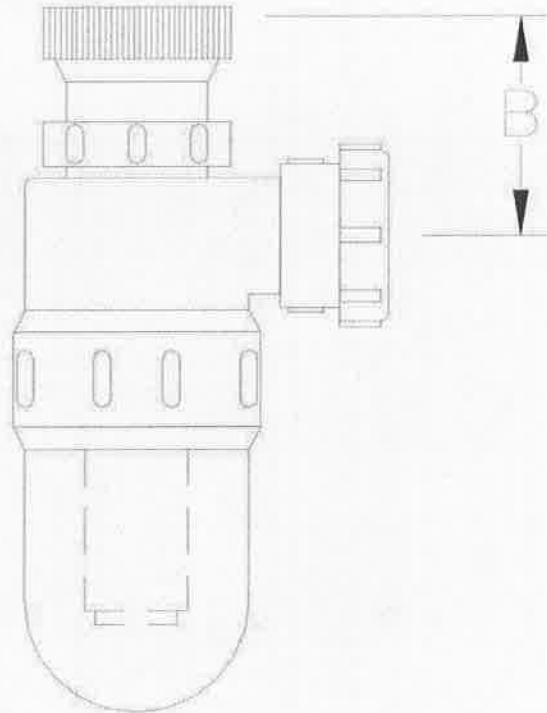
P-Trap shall be chrome plated cast brass body (with, without) cleanout, with 17 gauge seamless tubular wall bend, cast brass slip nuts. Reducing washers shall be used with reducing cast brass nut. With (shallow, deep, bell) (steel, brass) or (forged brass with set screw) flange. P-Trap shall be McGuire "Classic" Professional Line (8872C, 8902C, 8912C, 8903, 8904). Trap shall be certified by CSA or other recognized testing authority. P-Trap shall bear manufacturer and testing mark.



**Z9A-BTGB-112**  
**TRANSPARENT BASE BOTTLE TRAP**

TAG \_\_\_\_\_

Dimensional Data (inches and [ mm ]) are Subject to Manufacturing Tolerances and Change Without Notice



| Dimensions in Inches |             |            |        |           |
|----------------------|-------------|------------|--------|-----------|
| Style                | Inlet       | Outlet     | B Min. | B Max.    |
| TRANSPARENT BASE     | 1.5[38] NPS | 1.5[38] MJ | 3[76]  | 7.25[184] |

**ENGINEERING SPECIFICATION:** ZURN Z9A-BTGB-112 Bottle Trap is constructed of a corrosion resistant polyolefin conforming to ASTM F1412-92. The trap is complete with an 1-1/2 [38] loose nut inlet, an adjustable tail piece, transparent base, and 1-1/2 [38] mechanical outlet.

**PIPE SIZE**  
 1-1/2[38] [Sch 40 + Sch 80]

(Specify size/type) **CONNECTION**  
 \_\_\_\_\_ -M Mechanical joint seal  
 \_\_\_\_\_ -F Fusion lock seal

|                |                          |                |
|----------------|--------------------------|----------------|
| REV. A         | DATE: 3/21/03            | C.N. NO. 90323 |
| DWG. NO. 63183 | PRODUCT NO. Z9A-BTGB-112 |                |

\*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

ZURN INDUSTRIES, INC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514  
 Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com



LOCATION

SPECIFY LEFT HAND OR RIGHT HAND WHEN ORDERING

**ADJUSTABLE FIXTURE SUPPORTS**  
**FOR SIPHON JET WATER CLOSETS SHALLOW ROUGH-IN TYPE**

**NO-HUB HORIZONTAL FITTINGS**

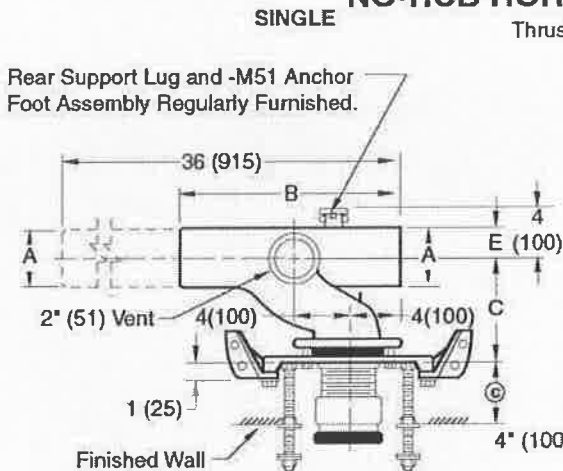


Fig. 0210RY  
Top View

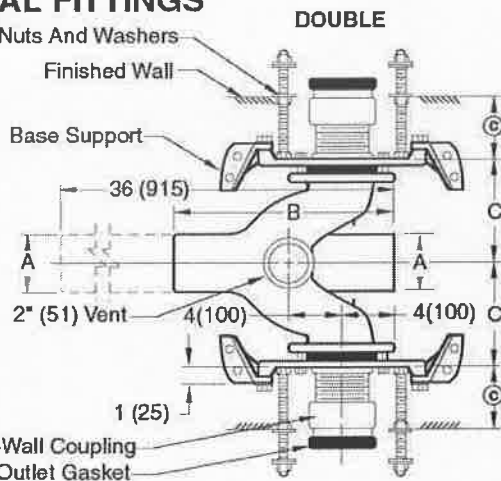
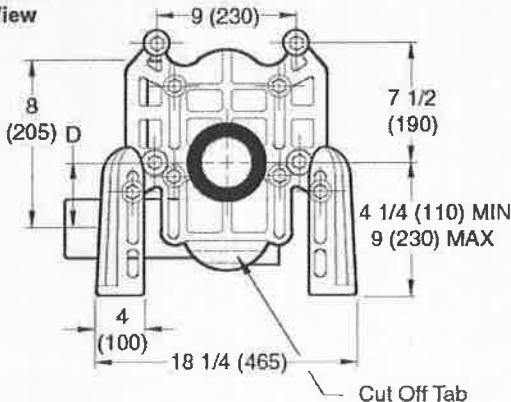


Fig. 0210DY  
Top View

NOTE: Base support must be securely anchored to floor (with four 1/2" (13) bolts provided by contractor).

NOTE: Dimensions shown in parentheses are in millimeters.



Front View

The water closet gasket regularly furnished is made of molded neoprene and designed to fit water closet outlet dimensions and configurations shown in ANSI Standard A112.19.2M-1995, Figure 13B. If gasket is not found to be compatible to fixture due to nonconformance of said fixture to ANSI A112.19.2M, then fixture manufacturer shall be consulted for a suitable gasket recommendation. Jay R. Smith assumes no liability for connections to fixtures which do not conform to these standards.

- Fig. 0210LY ... NO-HUB Left Hand
- Fig. 0210RY ... NO-HUB Right Hand
- Fig. 0210DY ... NO-HUB Double
- Fig. 0220LY ... NO-HUB Left Hand Long Barrel
- Fig. 0220RY ... NO-HUB Right Hand Long Barrel
- Fig. 0220DY ... NO-HUB Double Long Barrel

| A<br>SIZE | B            | C       | D        |            | E          |
|-----------|--------------|---------|----------|------------|------------|
|           |              |         | MIN      | MAX        |            |
| 4 (100)   | 14 (355)     | 7 (180) | 5/8 (16) | 3 3/8 (86) | 2 1/4 (57) |
| 5 (125)   | 15 5/8 (397) | 9 (230) | 5/8 (16) | 3 3/8 (86) | 2 3/4 (70) |

© dimension = 4" (100) (regularly furnished) consisting of nipple and Adjus-to-Wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

DRAWING NUMBER S0210Y,0220Y  
 SIZE A  
 SCALE: NONE  
 DATE: 2-28-86  
 APPROVED BY: CR  
 CHECKED BY: CR  
 DRAWN BY: CM  
**0210Y,0220Y**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

| REV. | DATE     | DESCRIPTION       | BY  | CKD. BY |
|------|----------|-------------------|-----|---------|
| JHG  | 10/09/99 | Deleted Note      | JJ  | BS      |
|      | 7-1-98   | Submittal Update  | ASL | BS      |
|      | 1-23-98  | Chg'd Callout     | EMB | BS      |
|      | 6-1-94   | Added Millimeters | EMB | BS      |

|                  |                      |
|------------------|----------------------|
| WEIGHT<br>POUNDS | VOLUME<br>CUBIC FEET |
|------------------|----------------------|

|                                     |
|-------------------------------------|
| FIGURE NUMBER<br><b>0210Y,0220Y</b> |
|-------------------------------------|

**SMITH® JAY R. SMITH MFG. CO.®**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3227  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8525 FAX: 334-272-7356 www.jrsmith.com



LOCATION

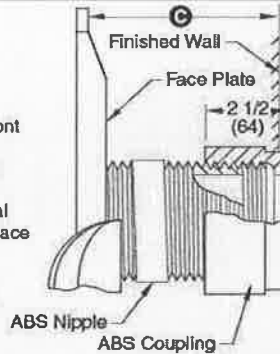
# MODIFICATIONS & VARIATIONS

## ⊙ DIMENSION - ADJUS-TO-WALL TYPE OUTLET CONNECTION

The Smith Adjus-to-Wall outlet connection provides adjustment at the face of the wall at the time the fixture is set; thus, compensating for wall construction variations. The ⊙ dimension is measured from the front of the face plate to the finished wall. To properly determine the length of nipple required, deduct 1" (25) from the ⊙ dimension. When the ⊙ dimension exceeds 7" (180), the -M40 Wide Pipe Chase Support is recommended. The Adjus-to-Wall coupling will provide 1/2" (13) horizontal adjustment in either direction with the coupling extended 5/16" (8) past face of the finished wall.

⊙ dimension = 4" (100) (regularly furnished) consisting of nipple and adjus-to-wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

\*ABS (Regularly Furnished) other length PVC.



### NIPPLE LENGTHS AVAILABLE

| LENGTH       | MIN          | ⊙            | MAX |
|--------------|--------------|--------------|-----|
| 2 1/2 (64)   | 2 1/4 (57)   | 3 1/4 (83)   |     |
| *3 1/4 (83)  | 3 (76)       | 4 (100)      |     |
| *8 1/4 (210) | 8 (205)      | 9 (230)      |     |
| 10 (255)     | 9 3/4 (250)  | 10 3/4 (275) |     |
| 12 (305)     | 11 3/4 (300) | 12 3/4 (325) |     |
| 15 (380)     | 14 3/4 (376) | 15 3/4 (400) |     |
| 18 (455)     | 17 3/4 (450) | 18 3/4 (475) |     |

NOTE: When nipple lengths between 3 1/4" (83) and 8 1/4" (210) are specified, the 8 1/4" (210) nipple will be supplied. Nipple must be cut to specified length by others.

## RECOMMENDED SETTING OF CLOSET OUTLET CONNECTION AND FIXTURE STUDS

Manufacturers have slight differences in the depth of the closet horn and flange thickness of their closets. Usually the fixture support closet connection should extend 5/16" (8) beyond face of finished wall (Dimension "R") and the fixture studs 2 1/4" (57) (Dimension "X"). For exact dimensions please use the formulas below.

**DETAIL A** Formula for "R" is:  $S + 1/16" (2) - D = R$ .

S = Depth of closet horn

1/16" (2) = Distance closet is to set away from finished wall.

D = 1/2" (13) for felt gasket and 3/8" (10) for neoprene gasket.

R = Distance coupling should extend beyond finished wall.

NOTE: When the fixture is installed, closet gasket must be compressed sufficiently to assure a gas and water-tight seal.

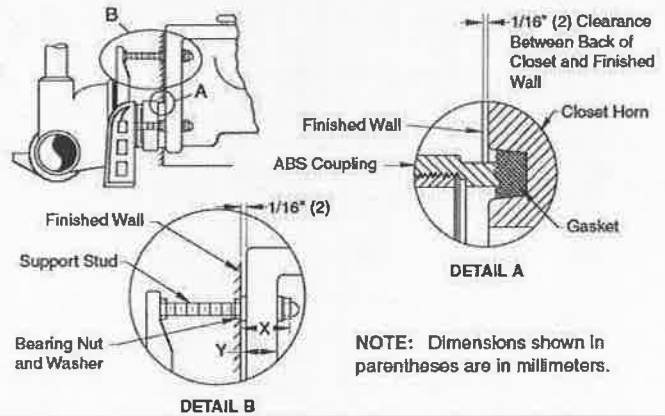
**DETAIL B** Formula for "X" is:  $Y + 1/16" (2) + 9/16" (14) = X$ .

Y = Thickness of closet wall flange.

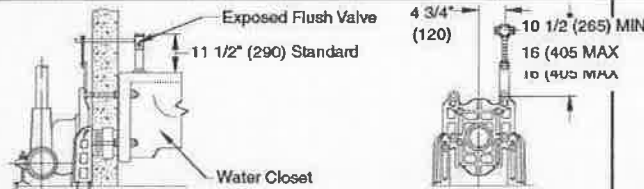
1/16" (2) = Distance closet is to set away from finished wall.

X = Distance supporting stud should extend beyond finished wall.

NOTE: Bearing nuts and washers must be set to take full loading from the fixture allowing 1/16" (2) clearance between fixture and wall.

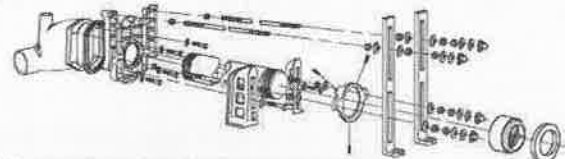


NOTE: Dimensions shown in parentheses are in millimeters.

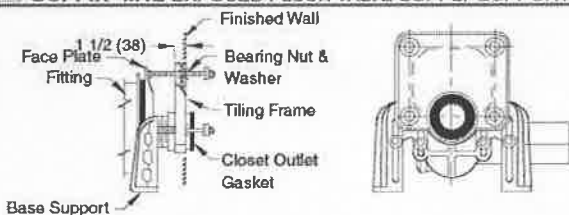


Provides support and alignment for the supply pipe to an exposed flush valve; must be specified for either 1" (25) copper tube or 1" (25) iron pipe.

SUFFIX -M12 EXPOSED FLUSH VALVE SUPPLY SUPPORT



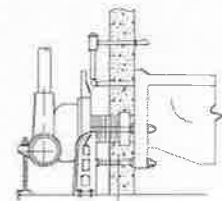
-M40 WATER CLOSET SUPPORT FOR WIDE PIPE CHASE (USE WHEN ⊙ DIMENSION EXCEEDS 7" (180))



SUFFIX -M13 TILING FRAME - POLYSTYRENE

## CONCEALED FLUSH VALVES

A concealed flush valve when used with a blowout water closet support will not clear the face plate. Therefore 4 1/2" (115) to 6 1/2" (165) is required from back of wall to face plate to permit the installation of the concealed flush valve piping.



C

DRAWING NUMBER  
S0200BS

SIZE  
A

SCALE  
NONE

DATE  
2-28-86

APPROVED BY  
JD

CHECKED BY  
CR

DRAWN BY  
VGD

FIGURE NUMBER  
0200/0300 Series Back Sheet

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA. DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE.

| REV. | DATE     | DESCRIPTION       | BY  | CKD. BY |
|------|----------|-------------------|-----|---------|
| C    | 12-10-03 | Revised Notes     | RN  | CL      |
| B    | 6-1-95   | Added Millimeters | EMB | BS      |
| A    | 7-1-93   | Submittal Update  | EMB | BS      |

WEIGHT POUNDS

VOLUME CUBIC FEET

FIGURE NUMBER

0200/0300 Series Back Sheet

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8526 FAX: 334-272-7396 www.jrsmith.com



LOCATION

## ADJUSTABLE FIXTURE SUPPORTS FOR SIPHON JET WATER CLOSETS SHALLOW ROUGH-IN TYPE

### NO-HUB HORIZONTAL FITTINGS

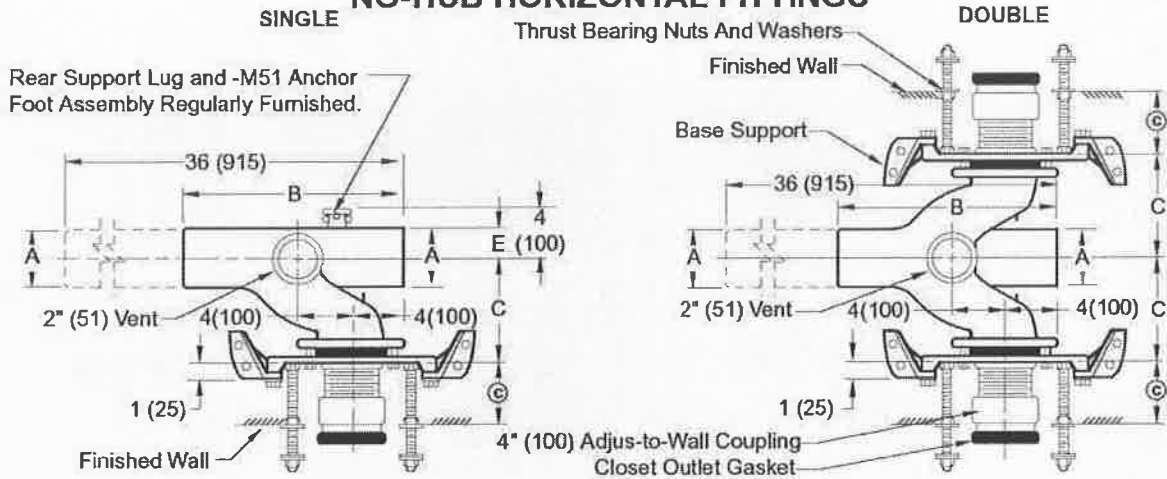
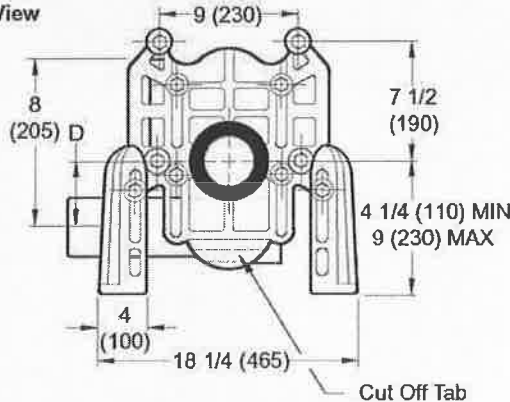


Fig. 0210RY  
Top View

Fig. 0210DY  
Top View



Front View

NOTE: Base support must be securely anchored to floor (with four 1/2" (13) bolts provided by contractor).

NOTE: Dimensions shown in parentheses are in millimeters.

The water closet gasket regularly furnished is made of molded neoprene and designed to fit water closet outlet dimensions and configurations shown in ANSI Standard A112.19.2M-1995, Figure 13B. If gasket is not found to be compatible to fixture due to nonconformance of said fixture to ANSI A112.19.2M, then fixture manufacturer shall be consulted for a suitable gasket recommendation. Jay R. Smith assumes no liability for connections to fixtures which do not conform to these standards.

- Fig. 0210LY ... NO-HUB Left Hand
- Fig. 0210RY ... NO-HUB Right Hand
- Fig. 0210DY ... NO-HUB Double
- Fig. 0220LY ... NO-HUB Left Hand Long Barrel
- Fig. 0220RY ... NO-HUB Right Hand Long Barrel
- Fig. 0220DY ... NO-HUB Double Long Barrel

Ⓢ dimension = 4" (100) (regularly furnished) consisting of nipple and Adjus-to-Wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

| A<br>SIZE | B            | C       | D        |            | E          |
|-----------|--------------|---------|----------|------------|------------|
|           |              |         | MIN      | MAX        |            |
| 4 (100)   | 14 (355)     | 7 (180) | 5/8 (16) | 3 3/8 (86) | 2 1/4 (57) |
| 5 (125)   | 15 5/8 (397) | 9 (230) | 5/8 (16) | 3 3/8 (86) | 2 3/4 (70) |

DRAWING NUMBER: S0210Y,0220Y  
 SIZE: A  
 SCALE: NONE  
 DATE: 2-28-86  
 APPROVED BY: CR  
 CHECKED BY: CR  
 DRAWN BY: CM  
**0210Y,0220Y**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|                  |   |  |                         |                      |                  |                      |                                     |
|------------------|---|--|-------------------------|----------------------|------------------|----------------------|-------------------------------------|
| J<br>H<br>G<br>F | 10/09/99<br>7-1-98<br>1-23-98<br>6-1-94 | Deleted Note<br>Submittal Update<br>Chg'd Callout<br>Added Millimeters | JJ<br>ASL<br>EMB<br>EMB | BS<br>BS<br>BS<br>BS | WEIGHT<br>POUNDS | VOLUME<br>CUBIC FEET | FIGURE NUMBER<br><b>0210Y,0220Y</b> |
| REV.             | DATE                                    | DESCRIPTION  | BY                      | CKD. BY              |                  |                      |                                     |

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com



LOCATION

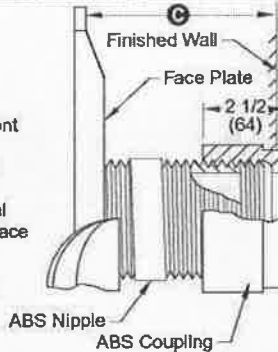
# MODIFICATIONS & VARIATIONS

## Ⓢ DIMENSION - ADJUS-TO-WALL TYPE OUTLET CONNECTION

The Smith Adjus-to-Wall outlet connection provides adjustment at the face of the wall at the time the fixture is set; thus, compensating for wall construction variations. The Ⓢ dimension is measured from the front of the face plate to the finished wall. To properly determine the length of nipple required, deduct 1" (25) from the Ⓢ dimension. When the Ⓢ dimension exceeds 7" (180), the -M40 Wide Pipe Chase Support is recommended. The Adjus-to-Wall coupling will provide 1/2" (13) horizontal adjustment in either direction with the coupling extended 5/16" (8) past face of the finished wall.

Ⓢ dimension = 4" (100) (regularly furnished) consisting of nipple and adjus-to-wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

\*ABS (Regularly Furnished) other length PVC.



### NIPPLE LENGTHS AVAILABLE

| LENGTH       | MIN          | Ⓢ            | MAX |
|--------------|--------------|--------------|-----|
| 2 1/2 (64)   | 2 1/4 (57)   | 3 1/4 (83)   |     |
| *3 1/4 (83)  | 3 (76)       | 4 (100)      |     |
| *8 1/4 (210) | 8 (205)      | 9 (230)      |     |
| 10 (255)     | 9 3/4 (250)  | 10 3/4 (275) |     |
| 12 (305)     | 11 3/4 (300) | 12 3/4 (325) |     |
| 15 (380)     | 14 3/4 (376) | 15 3/4 (400) |     |
| 18 (455)     | 17 3/4 (450) | 18 3/4 (475) |     |

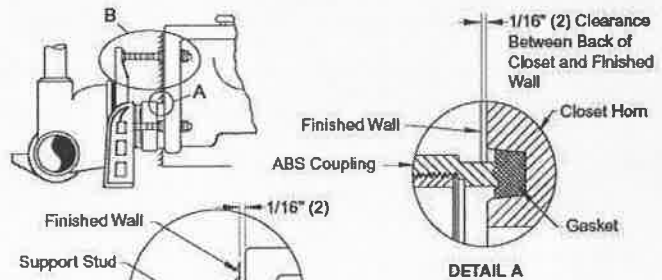
NOTE: When nipple lengths between 3 1/4" (83) and 8 1/4" (210) are specified, the 8 1/4" (210) nipple will be supplied. Nipple must be cut to specified length by others.

## RECOMMENDED SETTING OF CLOSET OUTLET CONNECTION AND FIXTURE STUDS

Manufacturers have slight differences in the depth of the closet horn and flange thickness of their closets. Usually the fixture support closet connection should extend 5/16" (8) beyond face of finished wall (Dimension "R") and the fixture studs 2 1/4" (57) (Dimension "X"). For exact dimensions please use the formulas below.

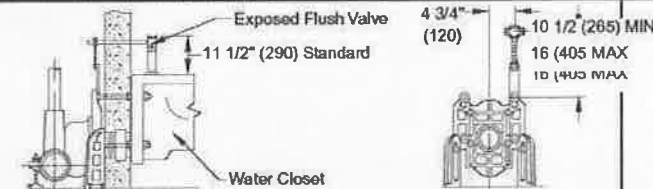
**DETAIL A** Formula for "R" is:  $S + 1/16" (2) - D = R$ .

S = Depth of closet horn  
 1/16" (2) = Distance closet is to set away from finished wall.  
 D = 1/2" (13) for felt gasket and 3/8" (10) for neoprene gasket.  
 R = Distance coupling should extend beyond finished wall.  
 NOTE: When the fixture is installed, closet gasket must be compressed sufficiently to assure a gas and water-tight seal.



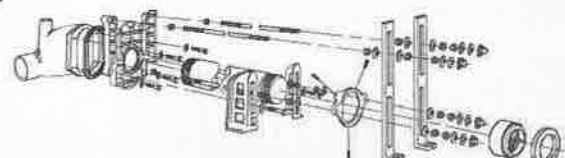
**DETAIL B** Formula for "X" is:  $Y + 1/16" (2) + 9/16" (14) = X$ .

Y = Thickness of closet wall flange.  
 1/16" (2) = Distance closet is to set away from finished wall.  
 X = Distance supporting stud should extend beyond finished wall.  
 NOTE: Bearing nuts and washers must be set to take full loading from the fixture allowing 1/16" (2) clearance between fixture and wall.

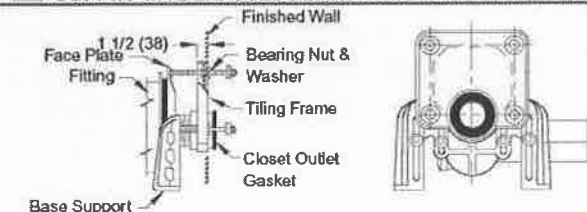


Provides support and alignment for the supply pipe to an exposed flush valve; must be specified for either 1" (25) copper tube or 1" (25) iron pipe.

SUFFIX -M12 EXPOSED FLUSH VALVE SUPPLY SUPPORT



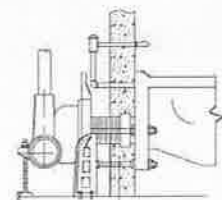
-M40 WATER CLOSET SUPPORT FOR WIDE PIPE CHASE (USE WHEN Ⓢ DIMENSION EXCEEDS 7" (180))



SUFFIX -M13 TILING FRAME - POLYSTYRENE

## CONCEALED FLUSH VALVES

A concealed flush valve when used with a blowout water closet support will not clear the face plate. Therefore 4 1/2" (115) to 6 1/2" (165) is required from back of wall to face plate to permit the installation of the concealed flush valve piping.



C  
 DRAWING NUMBER: S0200BS  
 SIZE: A  
 SCALE: NONE  
 DATE: 2-28-86  
 APPROVED BY: JD  
 CHECKED BY: CR  
 DRAWN BY: VGD  
 0200/0300 Series Back Sheet  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE  
 FIGURE NUMBER

| REV. | DATE     | DESCRIPTION       | BY  | CKD. BY | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER               |
|------|----------|-------------------|-----|---------|---------------|-------------------|-----------------------------|
| C    | 12-10-03 | Revised Notes     | RN  | CL      |               |                   | 0200/0300 Series Back Sheet |
| B    | 6-1-95   | Added Millimeters | EMB | BS      |               |                   |                             |
| A    | 7-1-93   | Submittal Update  | EMB | BS      |               |                   |                             |

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-2620 FAX: 334-272-7396 www.jrsmith.com

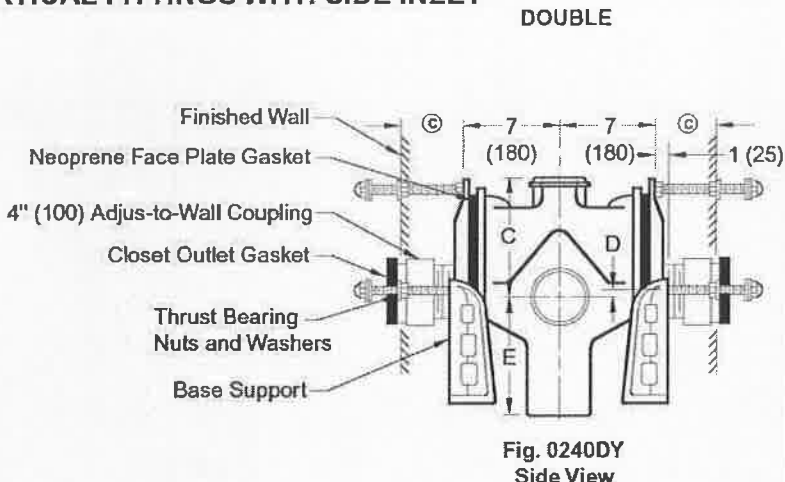
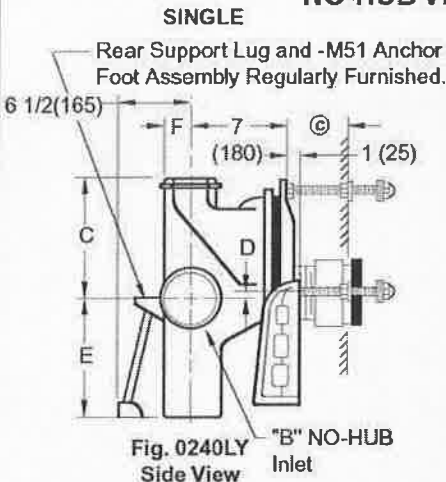


LOCATION

SPECIFY LEFT HAND OR RIGHT HAND WHEN ORDERING

## ADJUSTABLE FIXTURE SUPPORTS FOR SIPHON JET WATER CLOSETS - SHALLOW ROUGH-IN TYPE

### NO-HUB VERTICAL FITTINGS WITH SIDE INLET

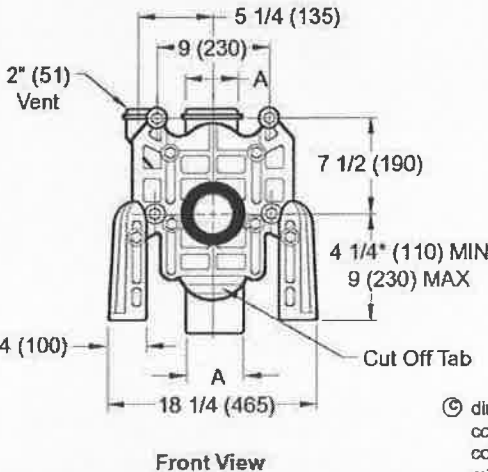


NOTE: Base support must be securely anchored to floor (with four 1/2" (13) bolts provided by contractor).

NOTE: Ⓞ of stack to end of NO-HUB side inlet in 5" (125).

NOTE: Dimensions shown in parentheses are in millimeters.

\*NOTE: 9" (230) core drilled hole is required for rough-in 4 1/4 (110) thru 6 1/2 (165).



The water closet gasket regularly furnished is made of moldad neoprene and designed to fit water closet outlet dimensions and configurations shown in ANSI Standard A112.19.2M-1995, Figure 13B. If gasket is not found to be compatible to fixture due to nonconformance of said fixture to ANSI A112.19.2M, then fixture manufacturer shall be consulted for a suitable gasket recommendation. Jay R. Smith assumes no liability for connections to fixtures which do not conform to these standards.

Ⓞ dimension = 4" (100) (regularly furnished) consisting of nipple and Adjus-to-Wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

- Fig. 0240LY ... NO-HUB Left Hand
- Fig. 0240RY ... NO-HUB Right Hand
- Fig. 0240DY ... NO-HUB Double

| A x B<br>Size     | C            | D          |             | E            | F          |
|-------------------|--------------|------------|-------------|--------------|------------|
|                   |              | MIN        | MAX         |              |            |
| 4 (100) x 4 (100) | 9 (230)      | 1 1/2 (38) | 4 1/4 (110) | 14 (355)     | 2 1/4 (57) |
| 5 (125) x 4 (100) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 2 3/4 (70) |
| 5 (125) x 5 (125) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 2 3/4 (70) |
| 6 (150) x 4 (100) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 3 1/4 (83) |
| 6 (150) x 5 (125) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 3 1/4 (83) |

DRAWING NUMBER  
S240Y

SIZE  
A

SCALE:  
NONE

DATE:  
2-28-86

APPROVED BY:  
JD

CHECKED BY:  
CR

DRAWN BY:  
CM

0240Y

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|                  |   |  |                         |                      |
|------------------|---|--|-------------------------|----------------------|
| H<br>G<br>T<br>E | 10/09/99<br>7-1-98<br>1-23-98<br>6-7-95 | Deleted Note<br>Submittal Update<br>Chg'd Callout<br>Added Millimeters | JJ<br>ASL<br>EMB<br>EMB | BS<br>BS<br>BS<br>BS |
| REV.             | DATE                                    | DESCRIPTION  | BY                      | CKD. BY              |

WEIGHT  
POUNDS

VOLUME  
CUBIC FEET

FIGURE NUMBER  
**0240Y**

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com



LOCATION

## ADJUSTABLE FIXTURE SUPPORTS

FOR SIPHON JET WATER CLOSETS - SHALLOW ROUGH-IN TYPE

### NO-HUB VERTICAL FITTINGS

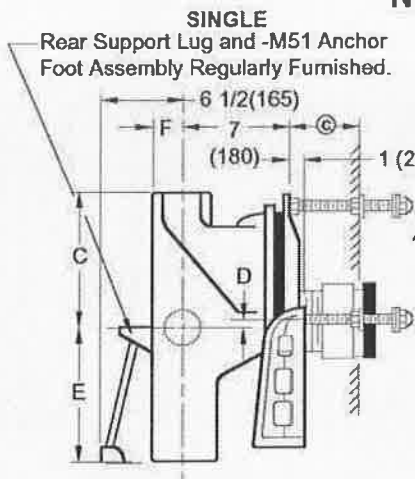


Fig. 0230Y  
Side View

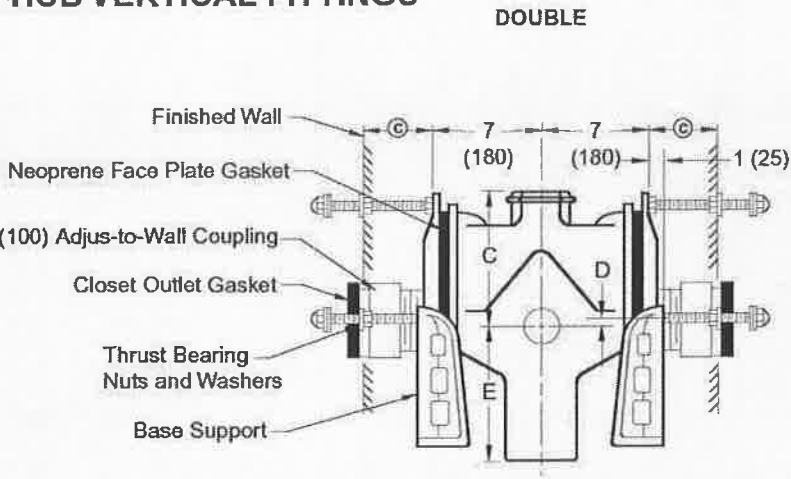
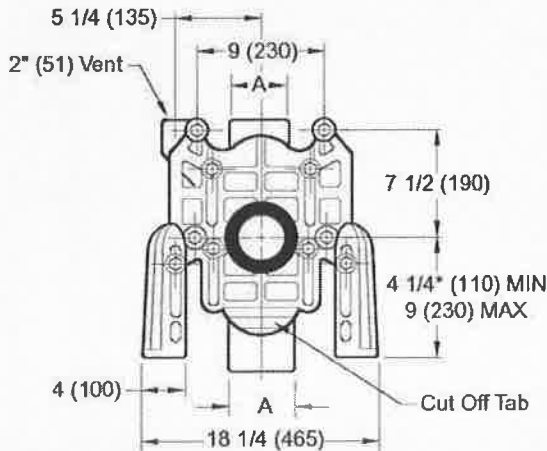


Fig. 0230DY  
Side View

NOTE: Base support must be securely anchored to floor (with four 1/2" (13) bolts provided by contractor).

NOTE: Dimensions shown in parentheses are in millimeters.  
 NOTE: 1 1/2" or 2" tapped inlet available.



Front View

The water closet gasket regularly furnished is made of molded neoprene and designed to fit water closet outlet dimensions and configurations shown in ANSI Standard A112.19.2M-1995, Figure 13B. If gasket is not found to be compatible to fixture due to nonconformance of said fixture to ANSI A112.19.2M, then fixture manufacturer shall be consulted for a suitable gasket recommendation. Jay R. Smith assumes no liability for connections to fixtures which do not conform to these standards.

\*NOTE:  
 9" (230) core drilled hole is required for rough-in 4 1/4 (110) thru 6 1/2 (165).

✓ Fig. 0230Y ... NO-HUB  
 Fig. 0230DY ... NO-HUB Double

⊙ dimension = 4" (100) (regularly furnished) consisting of nipple and Adjus-to-Wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

| A<br>SIZE | C            | D          |             | E            | F          |
|-----------|--------------|------------|-------------|--------------|------------|
|           |              | MIN        | MAX         |              |            |
| 4 (100)   | 9 (230)      | 1 1/2 (38) | 4 1/4 (110) | 14 (355)     | 2 1/4 (57) |
| 5 (125)   | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 2 3/4 (70) |
| 6 (150)   | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 3 1/4 (83) |

|   |          |                               |     |    |                  |                      |                                   |
|---|----------|-------------------------------|-----|----|------------------|----------------------|-----------------------------------|
| K | 5-3-02   | Added Note 1 1/2 or 2 tapped. | RN  | BS | WEIGHT<br>POUNDS | VOLUME<br>CUBIC FEET | FIGURE NUMBER<br><br><b>0230Y</b> |
| J | 10/09/99 | Deleted Note                  | JJ  | BS |                  |                      |                                   |
| H | 7-1-98   | Submittal Update              | ASL | BS |                  |                      |                                   |
| G | 1-23-98  | Chg'd Callout                 | EMB | BS |                  |                      |                                   |
| F | 6-1-95   | Added Millimeters             | EMB | BS |                  |                      |                                   |

| REV. | DATE | DESCRIPTION | BY | CKD. BY |
|------|------|-------------|----|---------|
|------|------|-------------|----|---------|

DRAWING NUMBER  
S0230Y

SIZE  
A

SCALE:  
NONE

DATE:  
2-28-86

APPROVED BY:

CHECKED BY:  
CR

DRAWN BY:  
CM

**0230Y**

FIGURE NUMBER

DIMENSIONS ARE SUBJECT TO MANUFACTURER'S TOLERANCE AND CHANGE WITHOUT NOTICE. WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA.

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jrsmith.com



LOCATION

DRAWING NUMBER: S0200BS  
 SIZE: A  
 SCALE: NONE  
 DATE: 2-28-86  
 APPROVED BY: JD  
 CHECKED BY: CR  
 DRAWN BY: VGD  
 0200/0300 Series Back Sheet  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE  
 WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

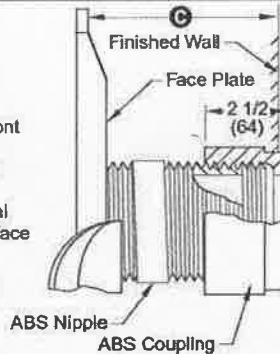
## MODIFICATIONS & VARIATIONS

### ⊕ DIMENSION - ADJUS-TO-WALL TYPE OUTLET CONNECTION

The Smith Adjus-to-Wall outlet connection provides adjustment at the face of the wall at the time the fixture is set; thus, compensating for wall construction variations. The ⊕ dimension is measured from the front of the face plate to the finished wall. To properly determine the length of nipple required, deduct 1" (25) from the ⊕ dimension. When the ⊕ dimension exceeds 7" (180), the -M40 Wide Pipe Chase Support is recommended. The Adjus-to-Wall coupling will provide 1/2" (13) horizontal adjustment in either direction with the coupling extended 5/16" (8) past face of the finished wall.

⊕ dimension = 4" (100) (regularly furnished) consisting of nipple and adjus-to-wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

\*ABS (Regularly Furnished) other length PVC.



### NIPPLE LENGTHS AVAILABLE

| LENGTH       | MIN          | ⊕            | MAX |
|--------------|--------------|--------------|-----|
| 2 1/2 (64)   | 2 1/4 (57)   | 3 1/4 (83)   |     |
| *3 1/4 (83)  | 3 (76)       | 4 (100)      |     |
| *8 1/4 (210) | 8 (205)      | 9 (230)      |     |
| 10 (255)     | 9 3/4 (250)  | 10 3/4 (275) |     |
| 12 (305)     | 11 3/4 (300) | 12 3/4 (325) |     |
| 15 (380)     | 14 3/4 (376) | 15 3/4 (400) |     |
| 18 (455)     | 17 3/4 (450) | 18 3/4 (475) |     |

NOTE: When nipple lengths between 3 1/4" (83) and 8 1/4" (210) are specified, the 8 1/4" (210) nipple will be supplied. Nipple must be cut to specified length by others.

### RECOMMENDED SETTING OF CLOSET OUTLET CONNECTION AND FIXTURE STUDS

Manufacturers have slight differences in the depth of the closet horn and flange thickness of their closets. Usually the fixture support closet connection should extend 5/16" (8) beyond face of finished wall (Dimension "R") and the fixture studs 2 1/4" (57) (Dimension "X"). For exact dimensions please use the formulas below.

**DETAIL A** Formula for "R" is:  $S + 1/16" (2) - D = R$ .

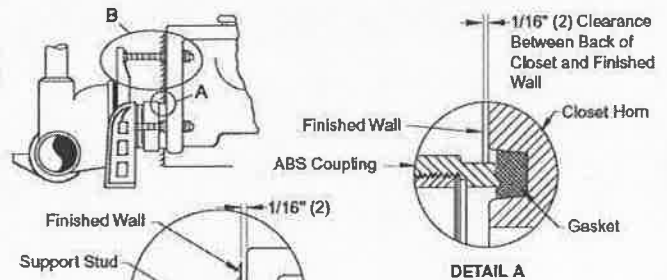
S = Depth of closet horn

1/16" (2) = Distance closet is to set away from finished wall.

D = 1/2" (13) for felt gasket and 3/8" (10) for neoprene gasket.

R = Distance coupling should extend beyond finished wall.

NOTE: When the fixture is installed, closet gasket must be compressed sufficiently to assure a gas and water-tight seal.



NOTE: Dimensions shown in parentheses are in millimeters.

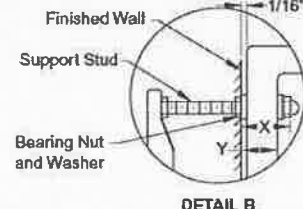
**DETAIL B** Formula for "X" is:  $Y + 1/16" (2) + 9/16" (14) = X$ .

Y = Thickness of closet wall flange.

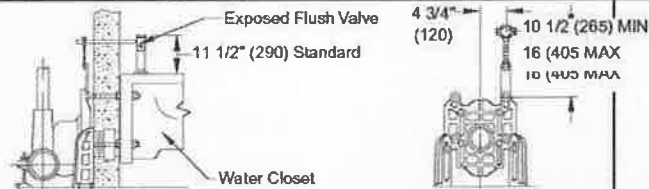
1/16" (2) = Distance closet is to set away from finished wall.

X = Distance supporting stud should extend beyond finished wall.

NOTE: Bearing nuts and washers must be set to take full loading from the fixture allowing 1/16" (2) clearance between fixture and wall.

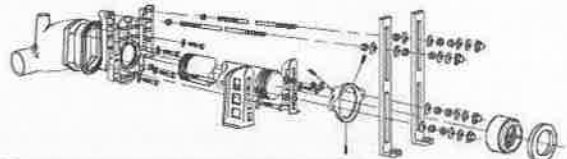


DETAIL B

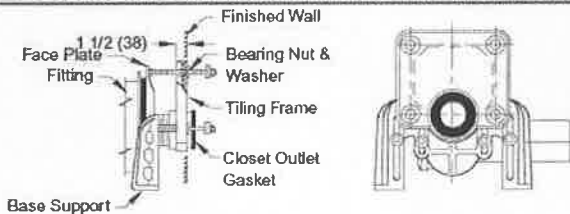


Provides support and alignment for the supply pipe to an exposed flush valve; must be specified for either 1" (25) copper tube or 1" (25) iron pipe.

SUFFIX -M12 EXPOSED FLUSH VALVE SUPPLY SUPPORT



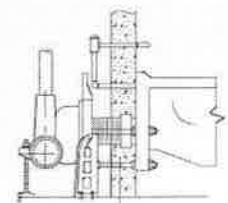
-M40 WATER CLOSET SUPPORT FOR WIDE PIPE CHASE (USE WHEN ⊕ DIMENSION EXCEEDS 7" (180))



SUFFIX -M13 TILING FRAME - POLYSTYRENE

### CONCEALED FLUSH VALVES

A concealed flush valve when used with a blowout water closet support will not clear the face plate. Therefore 4 1/2" (115) to 6 1/2" (165) is required from back of wall to face plate to permit the installation of the concealed flush valve piping.



| REV. | DATE     | DESCRIPTION       | BY  | CKD. BY |
|------|----------|-------------------|-----|---------|
| C    | 12-10-03 | Revised Notes     | RN  | CL      |
| B    | 6-1-95   | Added Millimeters | EMB | BS      |
| A    | 7-1-93   | Submittal Update  | EMB | BS      |

WEIGHT POUNDS

VOLUME CUBIC FEET

FIGURE NUMBER

**0200/0300 Series Back Sheet**

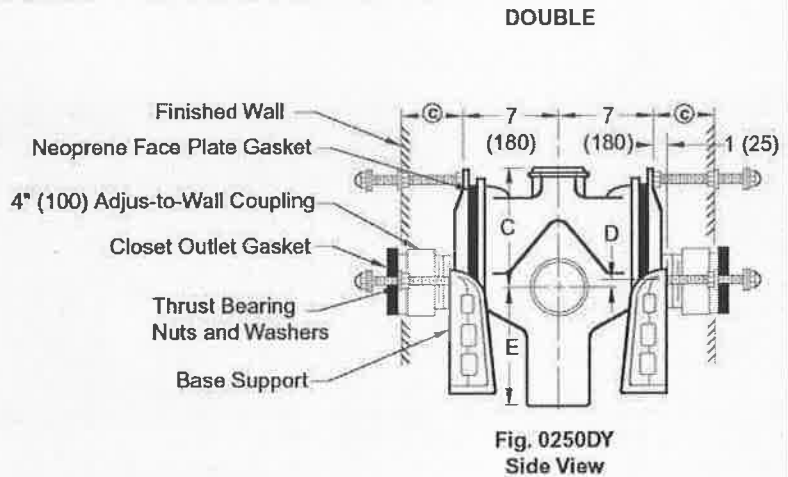
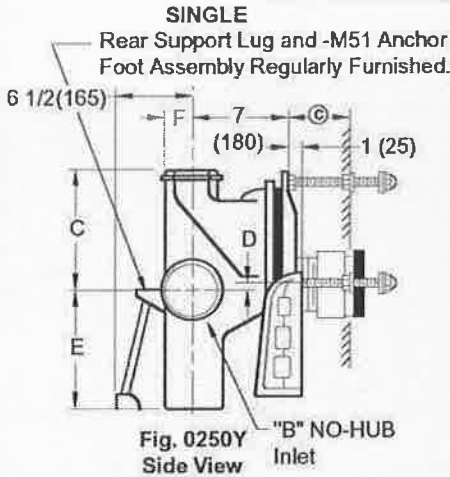
**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7398 www.jrsmith.com



LOCATION

**ADJUSTABLE FIXTURE SUPPORTS**  
 FOR SIPHON JET WATER CLOSETS - SHALLOW ROUGH-IN TYPE

**NO-HUB VERTICAL FITTINGS WITH TWO SIDE INLETS**

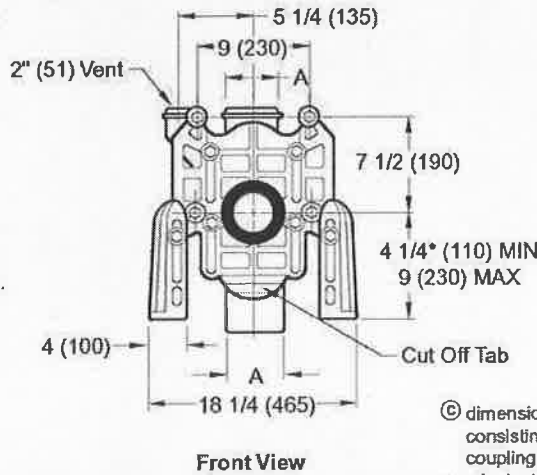


NOTE: Base support must be securely anchored to floor (with four 1/2" (13) bolts provided by contractor).

NOTE:  $\phi$  of stack to end of NO-HUB side inlet in 5" (125).

NOTE: Dimensions shown in parentheses are in millimeters.

\*NOTE: 9" (230) core drilled hole is required for rough-in 4 1/4 (110) thru 6 1/2 (165).



The water closet gasket regularly furnished is made of molded neoprene and designed to fit water closet outlet dimensions and configurations shown in ANSI Standard A112.19.2M-1995, Figure 13B. If gasket is not found to be compatible to fixture due to nonconformance of said fixture to ANSI A112.19.2M, then fixture manufacturer shall be consulted for a suitable gasket recommendation. Jay R. Smith assumes no liability for connections to fixtures which do not conform to these standards.

$\phi$  dimension = 4" (100) (regularly furnished) consisting of nipple and Adjus-to-Wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

Fig. 0250Y . . . NO-HUB  
 Fig. 0250DY . . . NO-HUB Double

| A x B Size        | C            | D          |             | E            | F          |
|-------------------|--------------|------------|-------------|--------------|------------|
|                   |              | MIN        | MAX         |              |            |
| 4 (100) x 4 (100) | 9 (230)      | 1 1/2 (38) | 4 1/4 (110) | 14 (355)     | 2 1/4 (57) |
| 5 (125) x 4 (100) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 2 3/4 (70) |
| 5 (125) x 5 (125) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 2 3/4 (70) |
| 6 (150) x 4 (100) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 3 1/4 (83) |
| 6 (150) x 5 (125) | 11 1/2 (290) | 1 1/2 (38) | 4 1/4 (110) | 11 1/2 (290) | 3 1/4 (83) |

DRAWING NUMBER  
S0250Y

SIZE  
A

SCALE  
NONE

DATE  
2-28-86

APPROVED BY  
JD

CHECKED BY  
CR

DRAWN BY  
CM

FIGURE NUMBER  
**0250Y**

WE CAN ASSUME NO RESPONSIBILITY FOR USE OF SUPERSEDED OR VOID DATA

DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE

|   |          |                  |
|---|----------|------------------|
| K | 10/09/99 | Deleted Note     |
| J | 7-1-98   | Submittal Update |
| H | 1-23-98  | Chg'd Callout    |
| G | 12-9-96  | Rev Table        |

|     |    |
|-----|----|
| JJ  | BS |
| ASL | BS |
| EMB | BS |
| EMB | BS |

WEIGHT  
POUNDS

VOLUME  
CUBIC FEET

FIGURE NUMBER

**0250Y**

| REV. | DATE | DESCRIPTION | BY | CKD. BY |
|------|------|-------------|----|---------|
|------|------|-------------|----|---------|

C  
 DRAWING NUMBER S0200BS  
 SIZE A  
 SCALE: NONE  
 DATE: 2-28-86  
 APPROVED BY: JD  
 CHECKED BY: CR  
 DRAWN BY: VGD  
 0200/0300 Series Back Sheet  
 DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE  
 FIGURE NUMBER

**SMITH® JAY R. SMITH MFG. CO.**  
 DIVISION OF SMITH INDUSTRIES, INC.  
 POST OFFICE BOX 3237  
 MONTGOMERY, ALABAMA 36109-0237 (USA)  
 TEL: 334-277-8520 FAX: 334-272-7396 www.jsmith.com

ASP®  
 MEMBER OF:

LOCATION

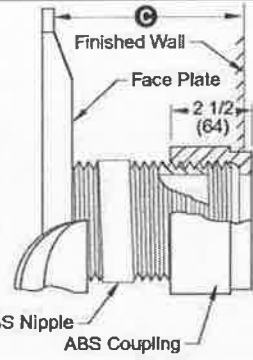
## MODIFICATIONS & VARIATIONS

**⊙ DIMENSION - ADJUS-TO-WALL TYPE OUTLET CONNECTION**

The Smith Adjus-to-Wall outlet connection provides adjustment at the face of the wall at the time the fixture is set; thus, compensating for wall construction variations. The ⊙ dimension is measured from the front of the face plate to the finished wall. To properly determine the length of nipple required, deduct 1" (25) from the ⊙ dimension. When the ⊙ dimension exceeds 7" (180), the -M40 Wide Pipe Chase Support is recommended. The Adjus-to-Wall coupling will provide 1/2" (13) horizontal adjustment in either direction with the coupling extended 5/16" (8) past face of the finished wall.

⊙ dimension = 4" (100) (regularly furnished) consisting of nipple and adjus-to-wall coupling permitting adjustment from 3" (76) min. to 4" (100) max.

\*ABS (Regularly Furnished) other length PVC.



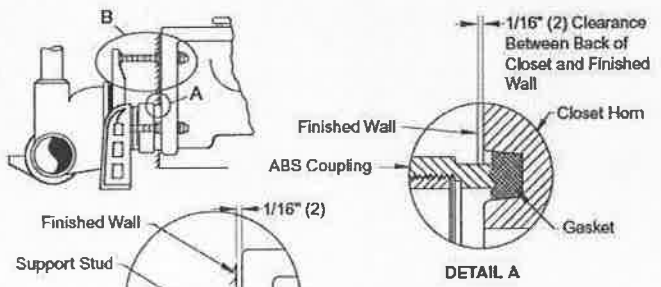
NIPPLE LENGTHS AVAILABLE

| LENGTH       | MIN          | ⊙            | MAX |
|--------------|--------------|--------------|-----|
| 2 1/2 (64)   | 2 1/4 (57)   | 3 1/4 (83)   |     |
| *3 1/4 (83)  | 3 (76)       | 4 (100)      |     |
| *8 1/4 (210) | 8 (205)      | 9 (230)      |     |
| 10 (255)     | 9 3/4 (250)  | 10 3/4 (275) |     |
| 12 (305)     | 11 3/4 (300) | 12 3/4 (325) |     |
| 15 (380)     | 14 3/4 (376) | 15 3/4 (400) |     |
| 18 (455)     | 17 3/4 (450) | 18 3/4 (475) |     |

NOTE: When nipple lengths between 3 1/4" (83) and 8 1/4" (210) are specified, the 8 1/4" (210) nipple will be supplied. Nipple must be cut to specified length by others.

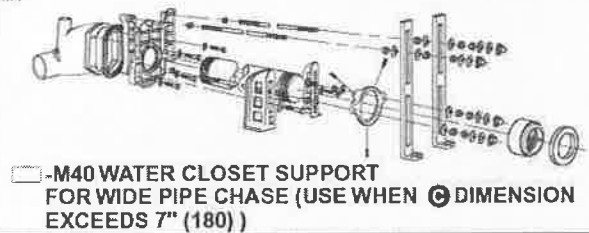
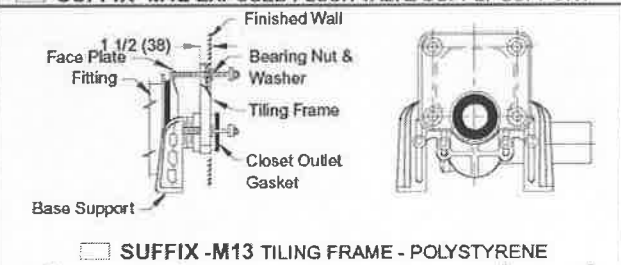
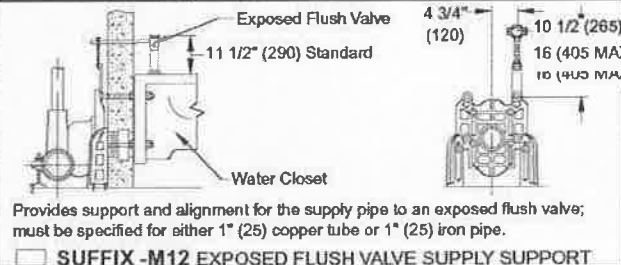
### RECOMMENDED SETTING OF CLOSET OUTLET CONNECTION AND FIXTURE STUDS

Manufacturers have slight differences in the depth of the closet horn and flange thickness of their closets. Usually the fixture support closet connection should extend 5/16" (8) beyond face of finished wall (Dimension "R") and the fixture studs 2 1/4" (57) (Dimension "X"). For exact dimensions please use the formulas below.



**DETAIL A** Formula for "R" is:  $S + 1/16" (2) - D = R$ .  
 S = Depth of closet horn  
 1/16" (2) = Distance closet is to set away from finished wall.  
 D = 1/2" (13) for felt gasket and 3/8" (10) for neoprene gasket.  
 R = Distance coupling should extend beyond finished wall.  
 NOTE: When the fixture is installed, closet gasket must be compressed sufficiently to assure a gas and water-tight seal.



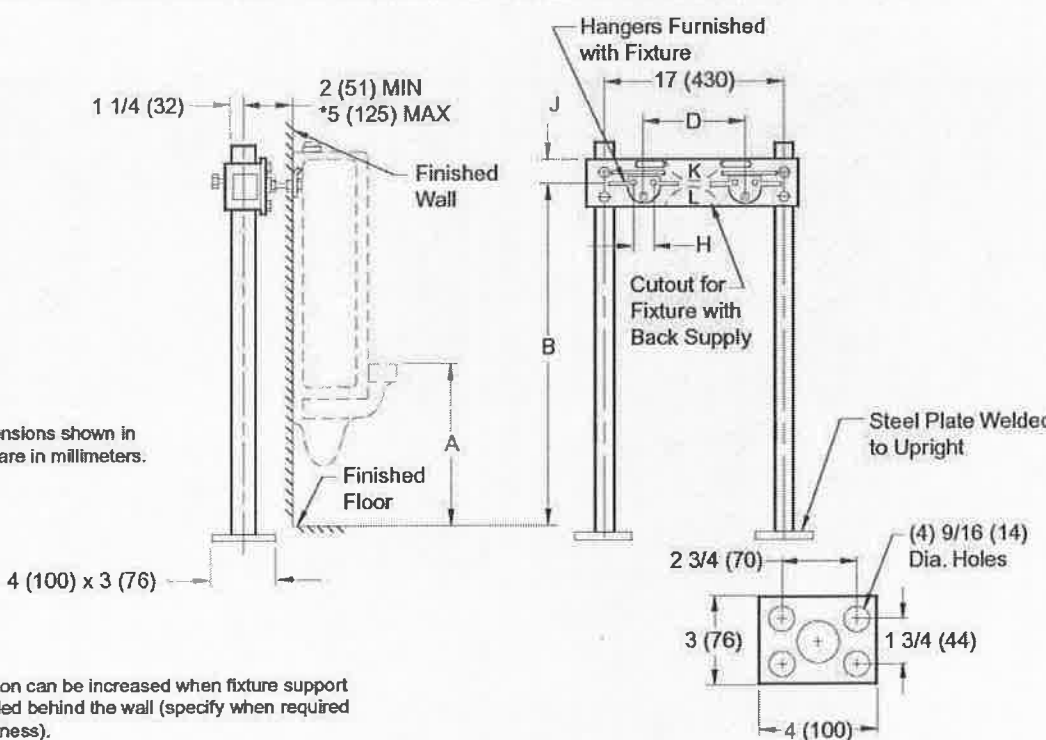
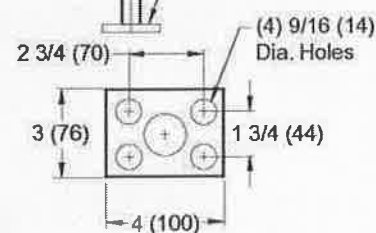
**DETAIL B** Formula for "X" is:  $Y + 1/16" (2) + 9/16" (14) = X$ .  
 Y = Thickness of closet wall flange.  
 1/16" (2) = Distance closet is to set away from finished wall.  
 X = Distance supporting stud should extend beyond finished wall.  
 NOTE: Bearing nuts and washers must be set to take full loading from the fixture allowing 1/16" (2) clearance between fixture and wall.





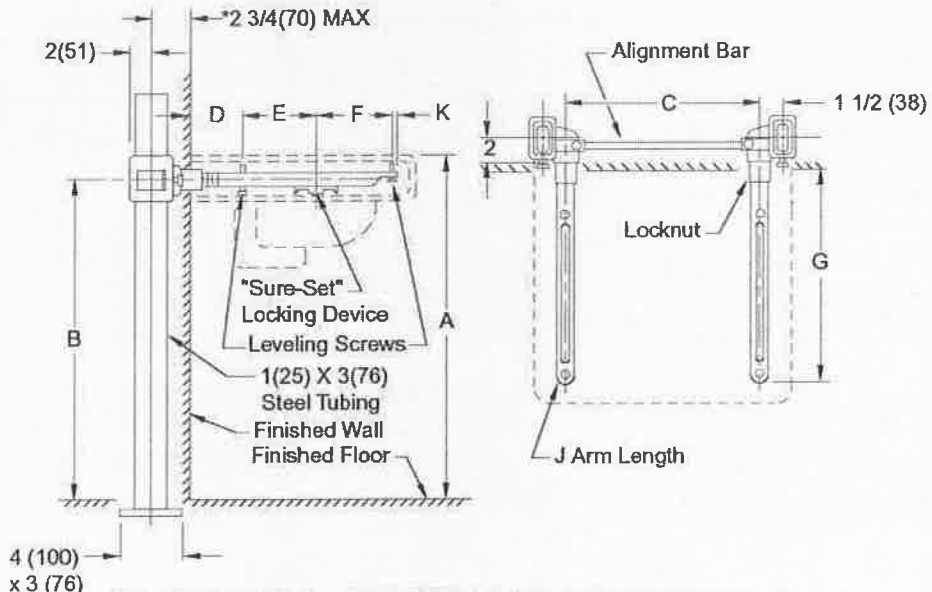
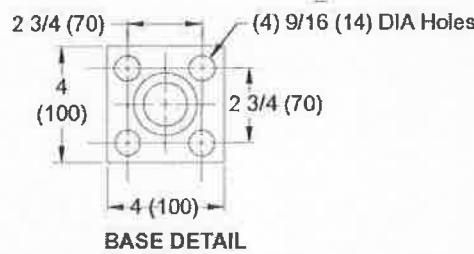


**CONCEALED FLUSH VALVES**

A concealed flush valve when used with a blowout water closet support will not clear the face plate. Therefore 4 1/2" (115) to 6 1/2" (165) is required from back of wall to face plate to permit the installation of the concealed flush valve piping.

| REV. | DATE     | DESCRIPTION       | BY  | CKD. BY | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER               |
|------|----------|-------------------|-----|---------|---------------|-------------------|-----------------------------|
| C    | 12-10-03 | Revised Notes     | RN  | CL      |               |                   | 0200/0300 Series Back Sheet |
| B    | 6-1-95   | Added Millimeters | EMB | BS      |               |                   |                             |
| A    | 7-1-93   | Submittal Update  | EMB | BS      |               |                   |                             |

| H                            |     |   |                               |                                  | LOCATION      |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
|------------------------------|---|---|-------------------------------|----------------------------------|---------------|-------------------|------------------------------|------|--------|---|---|---|---|---|---|---|----------|-----------|----------|----------|----------|--------------|-------------|--------|---|---|----------|-----------|----------|----------|----------|--------------|-------------|--------|---|---|----------|----------|----------|----------|-----------|--------------|-------------|--------|---|---|----------|----------|----------|----------|-----------|--------------|-------------|--------|---|---|----------|-----------|----------|----------|--------------|----------|-------------|--------|---|---|----------|-----------|----------|----------|--------------|----------|-------------|--------|---|---|----------|-----------|----------|----------|--------------|----------|-------------|--------|---|---|----------|-----------|----------|----------|--------------|----------|-------------|--------|---|---|-------|----------|-------------|----------|---------------|----------|--------|--------|---|---|-------|----------|--------------|----------|---------------|----------|--------|--------|---|---|-------|----------|-------------|--------------|--------------|-------------|--------|--------|---|---|-------|-------|--------------|----------|--------------|---------|--------|--------|---|---|--------|----------|------------|----------|-----------|----------|--------|--------|---|---|--------|----------|------------|----------|-----------|----------|--------|--------|---|---|--------|--------|------------|----------|---------------|----------|--------|--------|---|---|--------|----------|------------|----------|---------------|----------|--------|--------|---|---|--------|-------|------------|----------|--------------|---------|--------|------------|---|---|--------|--------|------------|----------|--------------|-------------|--------|--------|---|---|
| DRAWING NUMBER<br>S0636      | <h2 style="margin: 0;">URINAL SUPPORTS</h2> <h3 style="margin: 0;">FOR OFF-THE-FLOOR URINALS</h3> <p style="margin: 0;">WITH HANGER PLATE FOR BLOWOUT AND WASHOUT URINALS WITH WALL HANGERS</p>   |   |                               |                                  |               |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| SIZE<br>A                    |    |   |                               |                                  |               |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| SCALE:<br>NONE               | <p>NOTE: Dimensions shown in parentheses are in millimeters.</p> <p>*This dimension can be increased when fixture support is to be installed behind the wall (specify when required and wall thickness).</p>  |   |                               |                                  |               |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| DATE:<br>11-7-84             | <p><b>ROUGH-IN TABLE</b></p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>FIXTURE MFG.</th> <th>NAME</th> <th>NUMBER</th> <th>A</th> <th>B</th> <th>D</th> <th>H</th> <th>J</th> <th>K</th> <th>L</th> </tr> </thead> <tbody> <tr><td>Am. Std.</td><td>Washbrook</td><td>6501.010</td><td>24 (610)</td><td>39 (990)</td><td>13 1/2 (345)</td><td>1 3/16 (30)</td><td>2 (51)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Washbrook</td><td>6506.011</td><td>24 (610)</td><td>39 (990)</td><td>13 1/2 (345)</td><td>1 3/16 (30)</td><td>2 (51)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Lynbrook</td><td>6538.010</td><td>24 (610)</td><td>40 (1015)</td><td>13 1/2 (345)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Lynbrook</td><td>6531.019</td><td>24 (610)</td><td>40 (1015)</td><td>13 1/2 (345)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Trimbrook</td><td>6560.015</td><td>24 (610)</td><td>37 5/8 (955)</td><td>11 (280)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Trimbrook</td><td>6560.023</td><td>24 (610)</td><td>37 5/8 (955)</td><td>11 (280)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Trimbrook</td><td>6565.014</td><td>24 (610)</td><td>37 5/8 (955)</td><td>11 (280)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Am. Std.</td><td>Trimbrook</td><td>6565.022</td><td>24 (610)</td><td>37 5/8 (955)</td><td>11 (280)</td><td>1 3/16 (30)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Eljer</td><td>Correcto</td><td>161-1030,45</td><td>24 (610)</td><td>39 3/8 (1000)</td><td>12 (305)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Eljer</td><td>Correcto</td><td>161-1060, 75</td><td>24 (610)</td><td>39 3/8 (1000)</td><td>12 (305)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Eljer</td><td>Terminal</td><td>161-1100, 3</td><td>25 1/2 (650)</td><td>33 7/8 (860)</td><td>9 1/2 (240)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Eljer</td><td>Dover</td><td>161-1160, 75</td><td>24 (610)</td><td>32 3/8 (822)</td><td>6 (150)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Kohler</td><td>Stanwell</td><td>K-4970-T,R</td><td>24 (610)</td><td>40 (1015)</td><td>12 (305)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Kohler</td><td>Stanwell</td><td>K-4972-T,R</td><td>24 (610)</td><td>40 (1015)</td><td>12 (305)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Kohler</td><td>Bardon</td><td>K-4980-T,R</td><td>24 (610)</td><td>40 1/2 (1030)</td><td>12 (305)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> <tr><td>Kohler</td><td>Freshman</td><td>K-4985-T,R</td><td>24 (610)</td><td>35 7/16 (900)</td><td>10 (255)</td><td>1 (25)</td><td>2 (51)</td><td>-</td><td>-</td></tr> <tr><td>Kohler</td><td>Derry</td><td>K-5007-T,R</td><td>24 (610)</td><td>29 1/2 (750)</td><td>6 (150)</td><td>1 (25)</td><td>3 1/2 (89)</td><td>-</td><td>X</td></tr> <tr><td>Kohler</td><td>Dexter</td><td>K-5014-T,R</td><td>24 (610)</td><td>32 1/8 (816)</td><td>6 1/2 (165)</td><td>1 (25)</td><td>1 (25)</td><td>X</td><td>-</td></tr> </tbody> </table> |   |                               |                                  |               |                   | FIXTURE MFG.                 | NAME | NUMBER | A | B | D | H | J | K | L | Am. Std. | Washbrook | 6501.010 | 24 (610) | 39 (990) | 13 1/2 (345) | 1 3/16 (30) | 2 (51) | X | - | Am. Std. | Washbrook | 6506.011 | 24 (610) | 39 (990) | 13 1/2 (345) | 1 3/16 (30) | 2 (51) | X | - | Am. Std. | Lynbrook | 6538.010 | 24 (610) | 40 (1015) | 13 1/2 (345) | 1 3/16 (30) | 1 (25) | X | - | Am. Std. | Lynbrook | 6531.019 | 24 (610) | 40 (1015) | 13 1/2 (345) | 1 3/16 (30) | 1 (25) | X | - | Am. Std. | Trimbrook | 6560.015 | 24 (610) | 37 5/8 (955) | 11 (280) | 1 3/16 (30) | 1 (25) | X | - | Am. Std. | Trimbrook | 6560.023 | 24 (610) | 37 5/8 (955) | 11 (280) | 1 3/16 (30) | 1 (25) | X | - | Am. Std. | Trimbrook | 6565.014 | 24 (610) | 37 5/8 (955) | 11 (280) | 1 3/16 (30) | 1 (25) | X | - | Am. Std. | Trimbrook | 6565.022 | 24 (610) | 37 5/8 (955) | 11 (280) | 1 3/16 (30) | 1 (25) | X | - | Eljer | Correcto | 161-1030,45 | 24 (610) | 39 3/8 (1000) | 12 (305) | 1 (25) | 1 (25) | X | - | Eljer | Correcto | 161-1060, 75 | 24 (610) | 39 3/8 (1000) | 12 (305) | 1 (25) | 1 (25) | X | - | Eljer | Terminal | 161-1100, 3 | 25 1/2 (650) | 33 7/8 (860) | 9 1/2 (240) | 1 (25) | 1 (25) | X | - | Eljer | Dover | 161-1160, 75 | 24 (610) | 32 3/8 (822) | 6 (150) | 1 (25) | 1 (25) | X | - | Kohler | Stanwell | K-4970-T,R | 24 (610) | 40 (1015) | 12 (305) | 1 (25) | 1 (25) | X | - | Kohler | Stanwell | K-4972-T,R | 24 (610) | 40 (1015) | 12 (305) | 1 (25) | 1 (25) | X | - | Kohler | Bardon | K-4980-T,R | 24 (610) | 40 1/2 (1030) | 12 (305) | 1 (25) | 1 (25) | X | - | Kohler | Freshman | K-4985-T,R | 24 (610) | 35 7/16 (900) | 10 (255) | 1 (25) | 2 (51) | - | - | Kohler | Derry | K-5007-T,R | 24 (610) | 29 1/2 (750) | 6 (150) | 1 (25) | 3 1/2 (89) | - | X | Kohler | Dexter | K-5014-T,R | 24 (610) | 32 1/8 (816) | 6 1/2 (165) | 1 (25) | 1 (25) | X | - |
| FIXTURE MFG.                 | NAME  | NUMBER  | A                             | B                                | D             | H                 | J                            | K    | L      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Washbrook   | 6501.010  | 24 (610)                      | 39 (990)                         | 13 1/2 (345)  | 1 3/16 (30)       | 2 (51)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Washbrook   | 6506.011  | 24 (610)                      | 39 (990)                         | 13 1/2 (345)  | 1 3/16 (30)       | 2 (51)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Lynbrook  | 6538.010  | 24 (610)                      | 40 (1015)                        | 13 1/2 (345)  | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Lynbrook  | 6531.019  | 24 (610)                      | 40 (1015)                        | 13 1/2 (345)  | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Trimbrook   | 6560.015  | 24 (610)                      | 37 5/8 (955)                     | 11 (280)      | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Trimbrook   | 6560.023  | 24 (610)                      | 37 5/8 (955)                     | 11 (280)      | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Trimbrook   | 6565.014  | 24 (610)                      | 37 5/8 (955)                     | 11 (280)      | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Am. Std.                     | Trimbrook   | 6565.022  | 24 (610)                      | 37 5/8 (955)                     | 11 (280)      | 1 3/16 (30)       | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Eljer                        | Correcto  | 161-1030,45   | 24 (610)                      | 39 3/8 (1000)                    | 12 (305)      | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Eljer                        | Correcto  | 161-1060, 75  | 24 (610)                      | 39 3/8 (1000)                    | 12 (305)      | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Eljer                        | Terminal  | 161-1100, 3   | 25 1/2 (650)                  | 33 7/8 (860)                     | 9 1/2 (240)   | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Eljer                        | Dover   | 161-1160, 75  | 24 (610)                      | 32 3/8 (822)                     | 6 (150)       | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Stanwell  | K-4970-T,R  | 24 (610)                      | 40 (1015)                        | 12 (305)      | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Stanwell  | K-4972-T,R  | 24 (610)                      | 40 (1015)                        | 12 (305)      | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Bardon  | K-4980-T,R  | 24 (610)                      | 40 1/2 (1030)                    | 12 (305)      | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Freshman  | K-4985-T,R  | 24 (610)                      | 35 7/16 (900)                    | 10 (255)      | 1 (25)            | 2 (51)                       | -    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Derry   | K-5007-T,R  | 24 (610)                      | 29 1/2 (750)                     | 6 (150)       | 1 (25)            | 3 1/2 (89)                   | -    | X      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| Kohler                       | Dexter  | K-5014-T,R  | 24 (610)                      | 32 1/8 (816)                     | 6 1/2 (165)   | 1 (25)            | 1 (25)                       | X    | -      |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| APPROVED BY:<br>JD           | <p><b>BASE DETAIL</b></p>   |   |                               |                                  |               |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| CHECKED BY:<br>JD            | <p>Δ For Lavatory Use See Opposite Side</p>   |   |                               |                                  |               |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| DRAWN BY:<br>VGD             | DATE:<br>7-17-02<br>01/06/00<br>10/06/98<br>05/01/96  | DESCRIPTION:<br>Revised Table<br>Revised Base Plate<br>Added Fix. Mfg.<br>Revised | BY:<br>RN<br>JJ<br>CMD<br>EMB | CKD. BY:<br>MD<br>BS<br>BS<br>BS | WEIGHT POUNDS | VOLUME CUBIC FEET | FIGURE NUMBER<br><b>0636</b> |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |
| FIGURE NUMBER<br><b>0636</b> | REV.  | DATE  | DESCRIPTION                   | BY                               | CKD. BY       |                   |                              |      |        |   |   |   |   |   |   |   |          |           |          |          |          |              |             |        |   |   |          |           |          |          |          |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |          |          |          |           |              |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |          |           |          |          |              |          |             |        |   |   |       |          |             |          |               |          |        |        |   |   |       |          |              |          |               |          |        |        |   |   |       |          |             |              |              |             |        |        |   |   |       |       |              |          |              |         |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |          |            |          |           |          |        |        |   |   |        |        |            |          |               |          |        |        |   |   |        |          |            |          |               |          |        |        |   |   |        |       |            |          |              |         |        |            |   |   |        |        |            |          |              |             |        |        |   |   |

| C   |    |    | LOCATION          |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
|---|---|---|-------------------|---|---|--------|---|------|--|---|---|---|---|---|---|---|---|---|--|--|--|--|--|--|--|--|--|
| DRAWING NUMBER<br>S0700 (-27 -M31) (B)                                      | <h2 style="margin: 0;">LAVATORY SUPPORTS<br/>WITH CONCEALED ARMS</h2> <h3 style="margin: 0;">FLOOR MOUNTED WITH RECTANGULAR 1(25) X 3(76) "PRO-SET" UPRIGHTS</h3>   |   |                   |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| SCALE: NONE   |    |   |                   |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| DATE: 7-26-85   | <p><b>Fig. 0700 (-27 -M31) ... FOR WHEEL CHAIR LAVATORIES (shown)</b></p> <p><b>NOTE:</b> The rough-in dimensions listed on this drawing are based on current information available to Jay R. Smith by the fixture manufacturers. We recommend that you verify these dimensions with the fixture manufacturer. We will not accept responsibility for rough-in dimension changes by the fixture manufacturer.</p> <p><b>NOTE:</b> Dimensions shown in parentheses are in millimeters.</p>  |   |                   |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| APPROVED BY: BS   |  <p style="text-align: center;"><b>BASE DETAIL</b></p>  |   |                   |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| CHECKED BY: JD  | <p style="text-align: center;"><b>ROUGHING-IN TABLE</b></p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="2">FIXTURE NAME</th> <th colspan="2">NUMBER</th> <th colspan="2">SIZE</th> </tr> <tr> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>J</th> <th>K</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> <p><b>NOTE:</b> *This dimension includes wall thickness of 1/2"(13). For greater wall thickness, specify center-line of upright to finished wall dimension.</p> |   |                   | FIXTURE NAME                            |   | NUMBER |   | SIZE |  | A | B | C | D | E | F | G | J | K |  |  |  |  |  |  |  |  |  |
| FIXTURE NAME  |   | NUMBER  |                   | SIZE                                    |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| A   | B   | C   | D                 | E                                       | F | G      | J | K    |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
|   |   |   |                   |   |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| DRAWN BY: PL  | FIGURE NUMBER<br><b>0700 (-27 -M31)</b>   | WEIGHT POUNDS   | VOLUME CUBIC FEET | FIGURE NUMBER<br><b>0700 (-27 -M31)</b> |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| DIMENSIONS ARE SUBJECT TO MANUFACTURERS TOLERANCE AND CHANGE WITHOUT NOTICE | C   | 3-25-97   | Added Millimeters | EMB BS                                  |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |
| REV.  | DATE  | DESCRIPTION   | BY                | CKD. BY                                 |   |        |   |      |  |   |   |   |   |   |   |   |   |   |  |  |  |  |  |  |  |  |  |



# LAV GUARD<sup>®</sup>

FAST FIT UNDERSINK PIPING COVERS

All New  
E-Z Series

ADA-compliant undersink protection



## Submittal Sheet

### General Description:

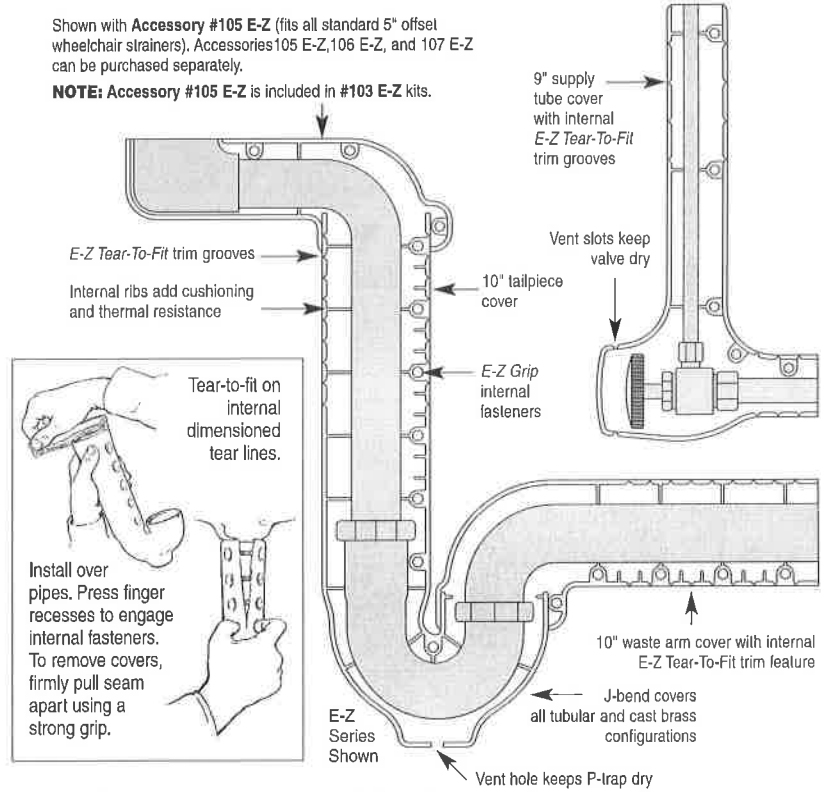
LAV GUARD<sup>®</sup> 2 E-Z Series waste and supply piping covers satisfy ADA compliance requirements. Built-in E-Z Grip internal fasteners and internal, E-Z Tear-To-Fit trimming feature allow for fast installation without tools. Series #100 E-Z kits are designed to fit on all tubular and cast brass P-trap assemblies. Series #400 kits are the "original" LAV GUARD design and fit schedule 40 ABS and PVC P-trap assemblies — regardless of their geometry or rotational offset. Valve cover completely encloses angle valve and supply tube for both handled and keyed type water stops.

|                                       |   |
|---------------------------------------|---|
| Material                              | Molded vinyl                                |
| Nominal Wall                          | 1/8" constant                               |
| Durometer                             | 70-80 - Shore A                             |
| UV Protection                         | Will not fade or discolor                   |
| Durability                            | Virtually indestructible                    |
| Trimming (E-Z Series)                 | Internal, E-Z Tear-To-Fit trim feature      |
| Fasteners (E-Z Series)                | Internal E-Z Grip fasteners (reusable)      |
| Color                                 | China white                                 |
| Paintability                          | Apply Latex paint                           |
| Burning Characteristics<br>ASTM D-635 | Self extinguished<br>0 sec (ATB) 0 mm (AEB) |
| Bacteria/Fungus<br>Resistance         | ASTM G21 and G22/<br>Result: 0 growth       |
| Maintenance                           | Use common detergents                       |

Manufactured under one or more of the following U.S. or Canadian patents. Other patents pending.  
5,303,730 5,360,031 5,524,669 5,564,463 5,678,598 5,699,828 5,915,412 5,915,413 5,901,739 5,960,820 2,075,324 2,119,427 2,136,027 2,158,063

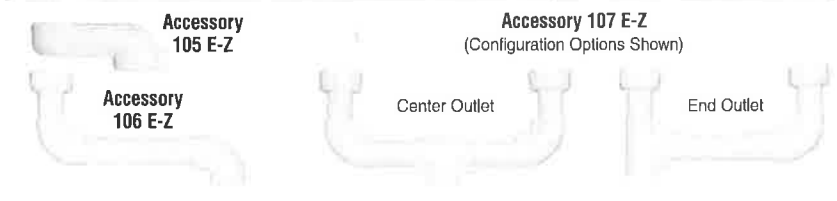


IPS Corporation, 202 Industrial Park Lane, Collierville, TN 38017  
(901) 853-5001 (800) 340-5969 FAX: (901) 853-5008  
e-mail: info@truebro.com Internet: http://www.truebro.com



#100 E-Z Series (shown above right) for tubular and cast brass P-trap assemblies.  
#400W\* Series (original design) for schedule 40 P-trap assemblies.

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> <b>Model #99 E-Z</b><br>One angle valve and supply cover         | <input type="checkbox"/> <b>Model #102 E-Z</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #105-K</b><br>Kohler 6" offset   |
| <input type="checkbox"/> <b>Model #100 E-Z</b><br>One P-trap cover                        | <input type="checkbox"/> <b>Model #402W*</b><br>One P-trap cover, two angle valves and covers   | <input type="checkbox"/> <b>Accessory #106 E-Z</b><br>One basket strainer cover and offset waste cover (adjustable to 18")         |
| <input type="checkbox"/> <b>Model #400W*</b><br>One P-trap cover                          | <input type="checkbox"/> <b>Model #103 E-Z</b><br>One P-trap cover, two angle valves and supply covers, one 5" offset tailpiece wheelchair strainer cover | <input type="checkbox"/> <b>Accessory #107 E-Z</b><br>Two basket strainer covers and center or end outlet waste cover (adjustable) |
| <input type="checkbox"/> <b>Model #101 E-Z</b><br>One P-trap cover, one angle valve cover | <input type="checkbox"/> <b>Accessory #105 E-Z</b><br>One 5" offset tailpiece wheelchair strainer assembly  | <input type="checkbox"/> <b>Accessory #Ex99 E-Z</b><br>One 16" extension for water supply  |
| <input type="checkbox"/> <b>Model #401W*</b><br>One P-trap cover, one angle valve cover   | *All #400W series items are the "original" LAV GUARD <sup>®</sup> design and construction. Specifications may change without notice.                      |  |



Job/Location \_\_\_\_\_  
Designer \_\_\_\_\_