
ADDISON SMITH

Mechanical Contractor, Inc.

HPPG 89ki EXPANSION PROJECT

Air-Handling Equipment Submittal Data

Spec 15930



CUSTOM AIR HANDLING UNIT SUBMITTAL

Project: HONDA PRECISION PARTS OF
GEORGIA

Date of Original Submittal: Jan 3, 2014

Location: Tallapoosa, GA

Prepared By: MBP

Consultant:

Revision:

Sales Office: Atlanta

Salesperson: Blaine Terry

Internal Review By:

Date of Review:

Tagging: AHU-36

Approval Stamps:

If above space is filled, please stamp on reverse side.

Submittal approval dates are the basis for determining manufacturing lead times. Manufacturing will not begin and shipping dates will not be issued, until we receive approved, stamped submittal drawings. Performance, openings and dimensions may vary from contract documents. Return of approved drawings constitutes acceptance of these variances.

Trane 9900 Aire Circle, Fort Smith, AR 72916 Phone: (479) 648-7402 Fax: (479) 648-7499



HONDA PRECISION PARTS OF GEORGIA

- **Title Sheet**
- **Clarifications and Exceptions**
- **Air Handling Unit Data**
 - Unit Construction**
 - Air Unit Drawings**
 - Construction Details**
- **Fan and Motor**
 - Fan Schedule**
 - Fan Selection Data and Curves**
 - Motor Data**
 - Isolator Data**
- **Cooling Coil Data**
 - Cooling Coil Schedule**
 - Coil Selections and Drawings**
- **Electric Coil Data**
 - Electric Heating Coil Schedule**
 - Manufacturer's Data**
- **Dampers**
 - Damper Schedule**
 - Manufacturer's Data**
- **Filters**
 - Filter Schedule**
 - Gauge Information**
 - Manufacturer's Data**



CUSTOM AIR HANDLING UNIT REVISION LOG

Project: HONDA PRECISION PARTS OF GEORGIA

Date: Jan 3, 2014

Location: Tallapoosa, GA

Prepared By: MBP

Consultant:

Revision:

Sales Office: Atlanta

Salesman: Blaine Terry

Date	Description



CUSTOM AIR HANDLING UNIT CLARIFICATIONS AND EXCEPTIONS

Project: HONDA PRECISION PARTS OF
GEORGIA

Date: Jan 3, 2014

Location: Tallapoosa, GA

Prepared By: MBP

Consultant:

Revision:

Sales Office: Atlanta

Salesman: Blaine Terry

Clarifications and Exceptions:

1. Specification 15940, Paragraph 1.7.1. Trane standard 12/18 parts-only warranty applied. Additional or extended warranties must be purchased separately through Trane Extended Warranties in La Crosse.
2. Specification 15940, Paragraph 1.8.1. Supervision and startup provided by others.
3. Specification 15940, Paragraph 1.12.6. Some access doors are 18" wide in accordance with paragraph 2.1.10.B in lieu of 24" wide per this paragraph.
4. Specification 15940, Paragraph 2.1.5.C. Sound testing at the factory is not available and is not included. Manufacturer is providing sound level prediction with proposal.
5. Specification 15940, Paragraph 2.1.17.A. Fans balanced to BV-3 criteria in lieu of BV-5.
6. Specification 15940, Paragraph 2.1.19.A. Cooling coil manufactured by Heatcraft in lieu of specified manufacturers.

- Please confirm handing of doors, handing of coil connections and drains, and sizes and locations of all openings, or advise of any changes required.

Due to variability of local codes, it is the responsibility of the customer to verify compliance and identify specific requirements. Any correction necessary after shipment to satisfy local authorities shall be at the expense of the customer.



NOT INCLUDED

Condensate drain "P" traps (drain will be stubbed through unit for exterior traps).
Field assembly, field testing, pressure testing, balancing or start-up, field instruction.
Factory pressure testing.
Damper operators, controls, sensors, control transformers or control wiring.
Rigging or hoisting.
Piping, valves, control valves or accessories. All necessary pipe insulation is furnished and installed by others in the field.
Sales tax, special permits or duties.
Storage or protection of equipment while in storage.
Field electrical connections at section joints. Junction box is provided at each joint for field terminations.

Due to variability of local codes, it is the responsibility of the customer to verify compliance and identify specific requirements. Any correction necessary after shipment to satisfy local authorities shall be at the expense of the customer.



Job: HONDA PRECISION PARTS OF
 GEORGIA
 EQ Number: 17377
 Date: Jan 3, 2014
 Rev.:

UNIT CONSTRUCTION

BASE FRAME		<ul style="list-style-type: none"> - Carbon steel beam perimeter with removable lifting lugs. - Carbon steel structural intermediate supports installed a minimum 24" centers. - Galvanized grating provided over openings and dampers mounted in the floor. - Perimeter base frame is painted custom color to match unit.
CABINET	FLOOR	<ul style="list-style-type: none"> - Surface consists of continuous welded carbon steel tread plate. Floor is painted Trane Slate Gray - 20 ga, galvanized steel solid floor under-liner. - 1 1/2" stainless steel floor drains as indicated on the drawings. Drains are stubbed through the perimeter channel. All trapping is by others. - 2" turned up lip to create a water dam at the perimeter & all opening in the base.
	WALLS (exterior)	<ul style="list-style-type: none"> - 4" Class "A" thermal break panel construction. - 16 ga, galvaneal steel solid exterior. - 20 ga, galvanized steel solid inner liner. - 22 ga. galvanized steel perf inner liner in fan & supply air sections. - Internal tunnel walls (i.e. fan/damper/blender walls) are un-insulated, 16ga. galvanized steel single wall C-panels.
	ROOF	<ul style="list-style-type: none"> - 4" Class "A" thermal break panel construction - 16 ga, galvaneal steel solid exterior. - 20 ga, galvanized steel solid inner liner. - 22 ga. galvanized steel perf inner liner in fan & supply air sections. - AHU-36 is outdoor construction, roof is sloped for drainage. Minimum 1/8" per foot but no less than 1" slope. - Roof is sloped in one direction as indicated on the drawing. - 16 ga galvanized steel standing seam panels.
	SAFING	<ul style="list-style-type: none"> - All safing will be galvanized safing unless otherwise stated. - Cooling coil safing will be stainless steel - Filter rack safing will be galvanized steel
INSULATION		<ul style="list-style-type: none"> - 4 x 3 lbs. - cft., fiberglass insulation installed in walls and roof. - Insulation in compliance with NFPA90A - 4in., 3/4 lbs/sq.ft fiberglass insulation in base. - 4in., 3 lbs/sq.ft fiberglass insulation in base.
EXTERIOR PAINT		<ul style="list-style-type: none"> - AHU-36 painted customer selected custom color. - Paint system to meet 500hr salt spray requirements - Please provide color sample for color matching at time of submittal approval.
DRAIN PANS		<ul style="list-style-type: none"> - 16 ga. stainless steel, double-sloped insulated drain pans with 1-1/2in stainless steel MPT drain. All traps furnished and installed in field by others.



Job: HONDA PRECISION PARTS OF
GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

ACCESS DOORS

- Door thickness – 4"
- Exterior material – 16 gauge galvanized steel
- Interior material – 20 gauge galvanized steel
- Insulation – 2.25#/ft3 polyurethane foam insulation
- Handles – Ventlok 310 latches, Chrome
- Hinge – Multi-piece stainless steel piano hinge
- Windows – 8"x12" laminated, thermal pane in air tunnel
- Thermal break doors in air tunnel
- Non thermal break doors in electrical & pipe cabinets
- Options – N/A

ROOFCURB

- Roofcurb provided by others.
- Roofcurb submittal needs to be co-coordinated with onsite contractor and AHU manufacturer. Send roof curb drawing when available.

HOODS

- Hoods are shipped loose with the unit for field installation.
- Hoods are complete with bird screen.

UNIT SUPPORT REQUIREMENTS

- AHU-36 will ship in single sections.
- Unit requires full perimeter support.
- Installation co-ordination and AHU mounting details need to be made available to AHU manufacturer for review to ensure no interference issues occur at the jobsite. Installation contractor is responsible for providing these details to the AHU manufacturer. Contractor to work with local Trane office and AHU manufacturer.

PIPE CHASES AND ELECTRICAL CONNECTION IN CABINET

- Pipe chases and electrical connection are indicated on submittal drawing. Chase sizes and locations coordinated during the submittal approval process need to be reviewed and approved by the installation contractor to confirm the locations meet the needs of the project.

PIPE CONNECTIONS

- Cooling coil supply and return connections, plus the vent and drain, will be extended to the pipe enclosure for connection by others
- Pipe penetrations are sealed with Rubber grommets & sheet metal collars rings.
- Pipe extension material is Sch. 40 blk pipe
- Vent and drain material is Sch. 40 blk pipe
- All pipe insulation is by other.

SHIP LOOSE

- 2 sets of pre-filters provided
- Filter clips
- Intake hood



Job: HONDA PRECISION PARTS OF
GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

ELECTRICAL

- Units are ETL labeled
- See included electrical diagram
- Provided VFD is in a NEMA-1 enclosure.
- VFD is being provided, confirmation of the correct communication protocol is required at the time of submittal approval. Standard communication protocols are Modbus, Johnson's Metasys N2, Siemens Apogee FLN P1 & BacNet. If Lonwork is required, an additional cost could be incurred.
- Standard Raceway is EMT Conduit, Zinc Die-Cast Compression fittings (Rain-Tight), and Flexible Metal Conduit (FMC). Minimum of 1/2" Ø.
- Power wiring splices are connected with a power distribution block mounted in an enclosure(N1) located on the ceiling/sidewall of the unit. Control wiring splices are connected with MOLEX type connectors mounted in a NEMA 1 enclosure located on the ceiling/sidewall of the unit.
- Electrical enclosures (ceiling(N4)/sidewall(N3R)) downstream (2 feet) of the cooling coil and downstream of the humidifier grid are to be rated for 'damp location'.
- Provided Disconnects are Heavy Duty for 3Ø applications and General Duty for 1Ø, 120vac.
- Standard Lighting is provided with Single Pole 15A Switch (SPST), Marine Glass Globe with Wire Guard, 26W Compact Fluorescent Lamp, and 20A GFIC Receptacles.
- In order to provide a Harmonic Analysis Study, pertinent information (1-Line Diagram, Transformer Data, POCC, Cable distance/length, panel-board schedule and other ancillary loads) is required. After an analysis has been completed, any additional Harmonic Mitigation Devices would be an additional cost.

CONTROLS

- No factory provided controls

TESTING

- Vibration test will be performed on the fan/motor assembly. Vibration levels to meet .157 inch peak.
- Fans will be factory run and checked for proper operation/rotation and motor amp draw.

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104

FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: The Trane Co.
La Crosse, WI

Sound Transmission Loss Test
RAL™-TL06-041

ON: 4 Inch Steel Perforated Trane Custom Class A Panel

Page 1 of 3

CONDUCTED: 15 February 2006

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-04 and E413-04, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP Lab Code: 100227-0). A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as 4 inch steel perforated Trane Custom Class A Panel. The overall dimensions of the specimen as measured were nominally 1.21 m (47.75 in.) wide by 2.43 m (95.75 in.) high and 105 mm (4.125 in.) thick. The specimen was placed directly in the laboratory's 1.22 m (4 ft) by 2.44 m (8 ft) test opening and was sealed on the periphery (both sides) with a dense mastic.

The manufacturer's description of the specimen was as follows: The panel was a 4 inch thick Trane Custom Class A Panel with 18 gauge galvanized steel external sheet and a perforated 22 gauge galvanized steel interior sheet (23% open area) with 1.5 lbs/ft³ fiberglass insulation in the cavity. A visual inspection verified the manufacturer's description of the specimen.

The weight of the specimen as measured was 69.4 kg (153 lbs.), an average of 23.5 kg/m² (4.8 lbs/ft²). The transmission area used in the calculations was 3 m² (32 ft²). The source and receiving room temperatures at the time of the test were 20±1°C (69±1°F) and 53±2% relative humidity. The source and receive reverberation room volumes were 178 m³ (6,298 ft³) and 140 m³ (4,929 ft³), respectively.

This report shall not be reproduced except in full, without the written approval of RAL.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.

THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

RIVERBANK ACOUSTICAL LABORATORIES1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE**TEST REPORT**

The Trane Co.

RAL™-TL06-041

15 February 2006

Page 2 of 3TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data is within the limits set by the ASTM Standard E90-04.

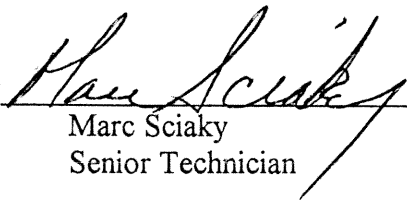
<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	22	0.96		800	43	0.13	
125	20	0.71	2	1000	47	0.19	
160	22	0.43	3	1250	49	0.16	
200	24	0.39	4	1600	51	0.13	
250	26	0.55	5	2000	53	0.13	
315	28	0.27	6	2500	55	0.14	
400	31	0.32	6	3150	57	0.09	
500	36	0.30	2	4000	57	0.13	
630	40	0.27		5000	57	0.08	

STC=38

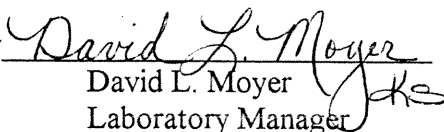
ABBREVIATION INDEX

FREQ. = FREQUENCY, HERTZ, (cps)
 T.L. = TRANSMISSION LOSS, dB
 C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
 DEF. = DEFICIENCIES, dB<STC CONTOUR (SUM OF DEF = 28)
 STC = SOUND TRANSMISSION CLASS

Tested by


 Marc Sciaky
 Senior Technician

Approved by


 David L. Moyer
 Laboratory Manager

This report shall not be reproduced except in full, without the written approval of RAL.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
 ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
 THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
 OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

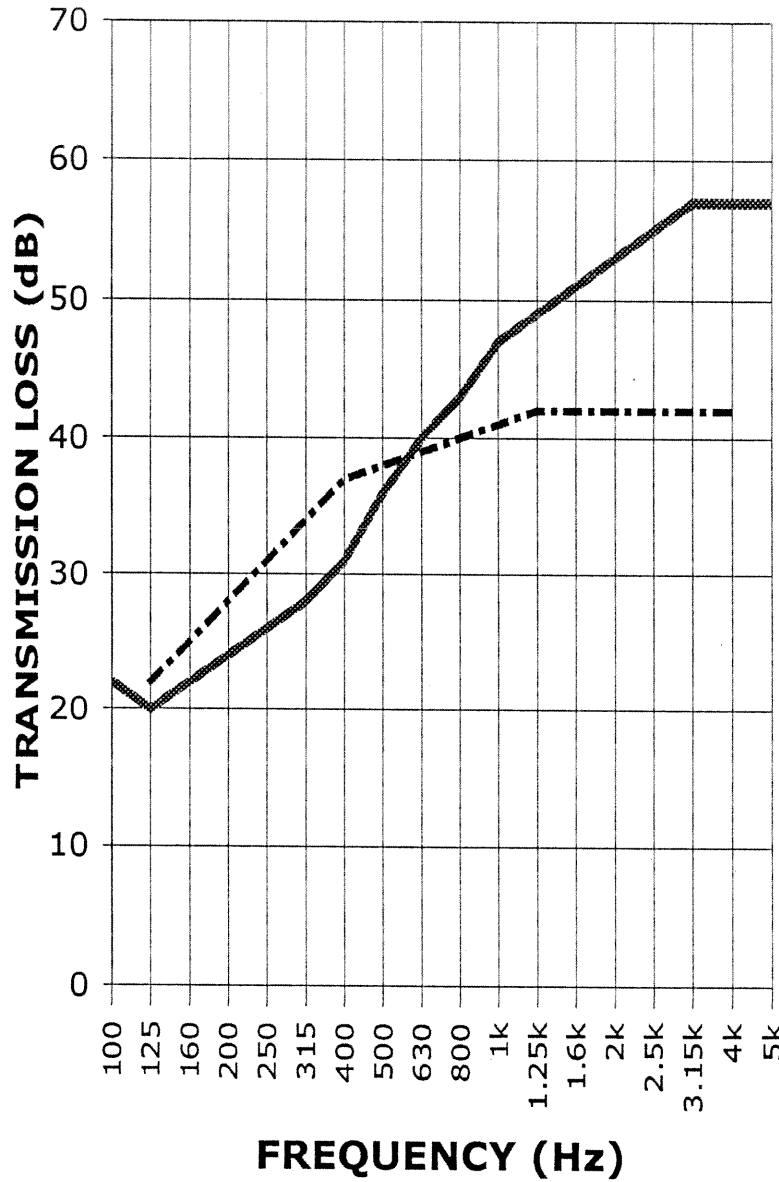
Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

SOUND TRANSMISSION REPORT
RAL - TL06-041

PAGE 3 OF 3



STC = 38



TRANSMISSION LOSS
SOUND TRANSMISSION LOSS CONTOUR

This report shall not be reproduced except in full, without the written approval of RAL.
THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

FOR: The Trane Co.
La Crosse, WI

Sound Absorption Test
RAL™-A06-055

ON: 4 Inch Thick Steel Perforated Trane Custom Class A Panel

Page 1 of 4

CONDUCTED: 15 February 2006

TEST METHOD

The test method conformed explicitly with the requirements of the ASTM Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method: ASTM C423-02a and E795-05. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure (NVLAP Lab Code: 100227). A description of the measuring procedure and room qualifications is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the manufacturer as 4 inch thick steel perforated Trane Custom Class A Panel. The overall dimensions of the specimen as measured were nominally 2.43 m (95.5 in.) wide by 2.43 m (95.75 in.) long and 105 mm (4.125 in.) thick. The specimen consisted of two (2) pieces. Each piece was 1.21 m (47.75 in.) wide by 2.43 m (95.75 in.) long. The specimen was tested in the laboratory's 292 m³ (10,311 ft³) test chamber.

The manufacturer's description of the specimen was as follows: The panel was a 4 inch thick Trane Custom Class A Panel with 18 gauge galvanized steel external sheet and a perforated 22 gauge galvanized steel interior sheet (23% open area) with 1.5 lbs/ft³ fiberglass insulation in the cavity. A visual inspection verified the manufacturer's description of the specimen.

The weight of the entire specimen as measured was 138.8 kg (306 lbs), an average of 23.5 kg/m² (4.8 lbs/ft²). The area used in the calculations was 5.9 m² (63.5 ft²). The room temperature at the time of the test was 20°C (68°F) and 61±1% relative humidity.

MOUNTING A

The test specimen was laid directly against the test surface. Perimeter edges were unsealed.

This report shall not be reproduced except in full, without the written approval of RAL.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST

RIVERBANK ACOUSTICAL LABORATORIES1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE**TEST REPORT**

The Trane Co.

RAL™-A06-055

15 February 2006

Page 2 of 4TEST RESULTS

1/3 Octave Center Frequency (Hz)	Absorption Coefficient	Total Absorption In Sabins
100	0.71	44.81
** 125	0.84	53.12
160	1.00	63.32
200	1.15	73.24
** 250	1.22	77.29
315	1.24	78.48
400	1.24	78.98
** 500	1.18	74.78
630	1.13	71.74
800	1.12	71.16
** 1000	1.07	68.11
1250	1.08	68.56
1600	1.04	65.75
** 2000	1.02	64.64
2500	0.98	62.04
3150	0.95	60.53
** 4000	0.93	59.03
5000	0.90	57.18

SAA = 1.12

NRC = 1.10

This report shall not be reproduced except in full, without the written approval of RAL.
THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

The Trane Co.

RAL™-A06-055

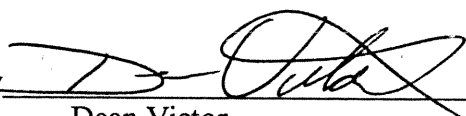
15 February 2006

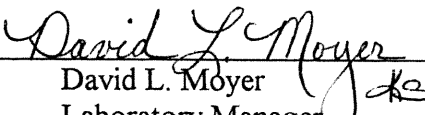
Page 3 of 4

TEST RESULTS (Continued)

The sound absorption average (SAA) is defined as a single number rating, the average, rounded to the nearest 0.01, of the sound absorption coefficient of a material for the twelve one-third octave bands from 200 through 2500 Hz, inclusive.

The noise reduction coefficient (NRC) is defined from previous versions of this same test method as the average of the coefficients at 250, 500, 1000, and 2000 Hz, expressed to the nearest integral multiple of 0.05.

Tested by 
Dean Victor
Senior Experimentalist

Approved by 
David L. Moyer
Laboratory Manager

This report shall not be reproduced except in full, without the written approval of RAL.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.

NVLAP

ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.

THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

Alion Science and Technology

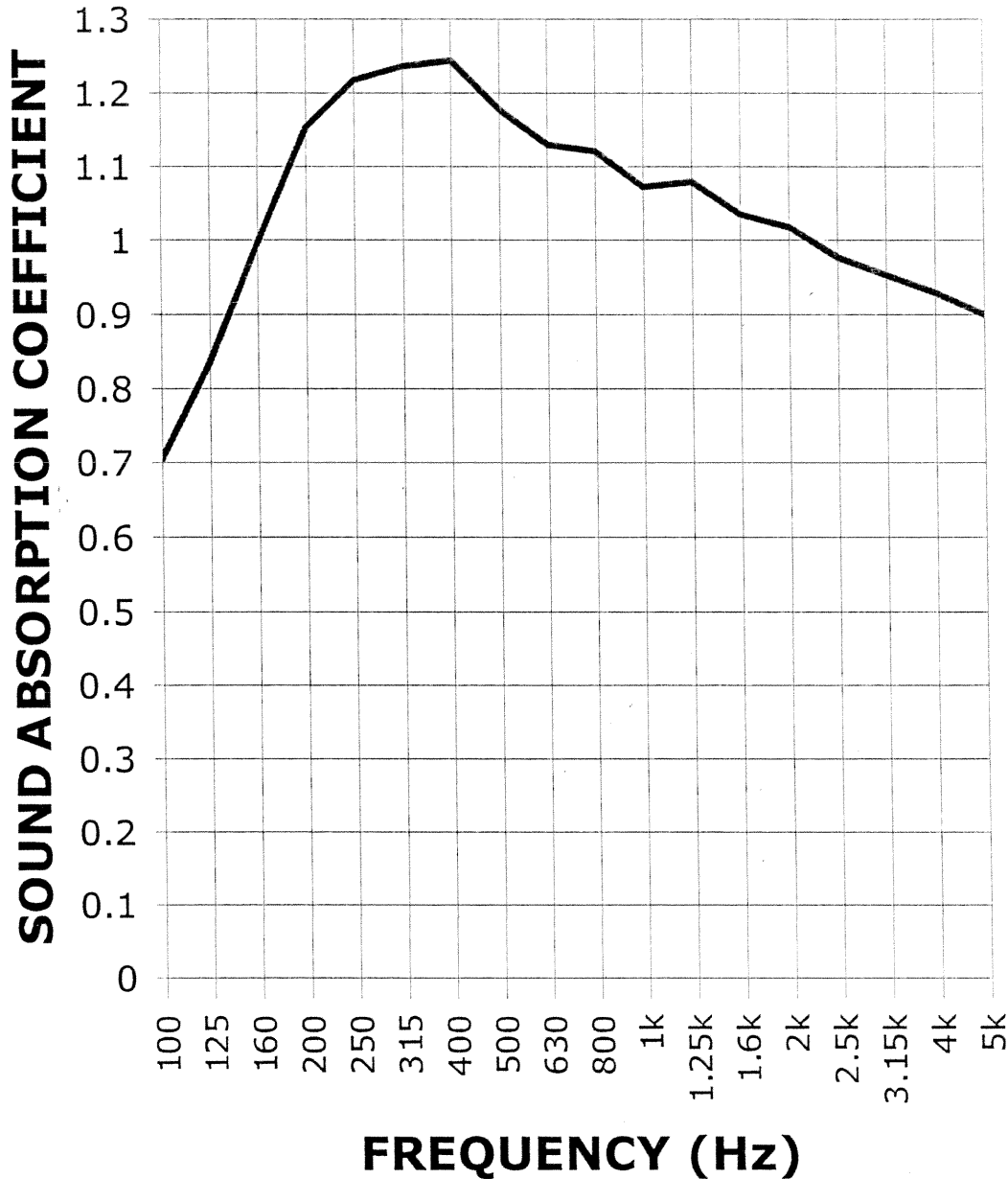
630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

TEST REPORT

SOUND ABSORPTION REPORT

RAL - A06-055

PAGE 4 OF 4



SAA = 1.12

NRC = 1.10

This report shall not be reproduced except in full, without the written approval of RAL.
THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES OR IMPLIES PRODUCT CERTIFICATION, APPROVAL, OR ENDORSEMENT BY NIST.

HONDA PRECISION PARTS OF GEORGIA**EQ # 17377****PREDICTED SOUND POWER**

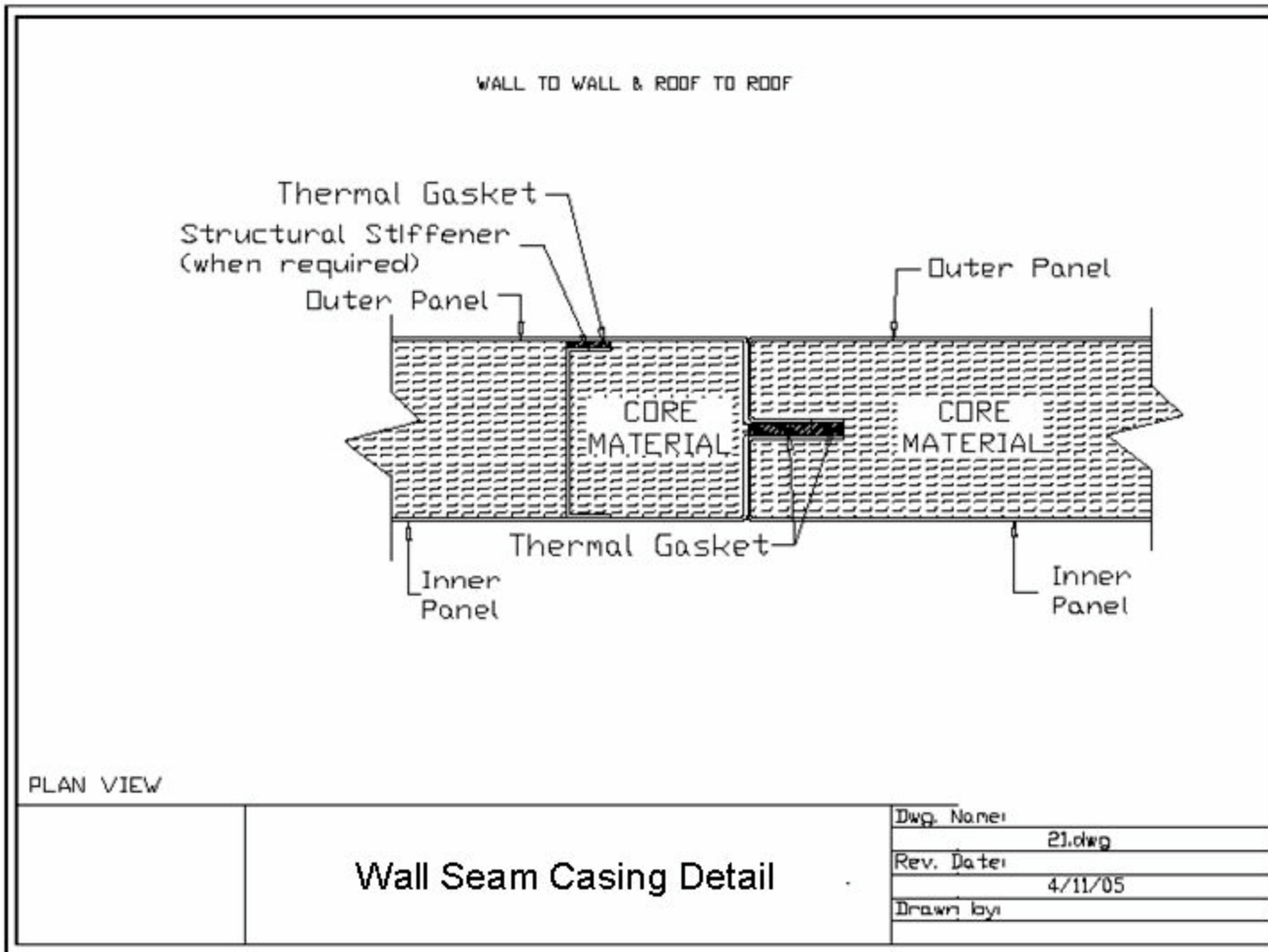
AHU-36 Overall	63	125	250	500	1K	2K	4K	8K
Discharge Lw	64	57	54	36	34	37	39	24
Ducted Inlet Lw	51	52	47	36	45	59	50	36
Casing Lw	64	55	49	35	23	18	3	5

Notes:

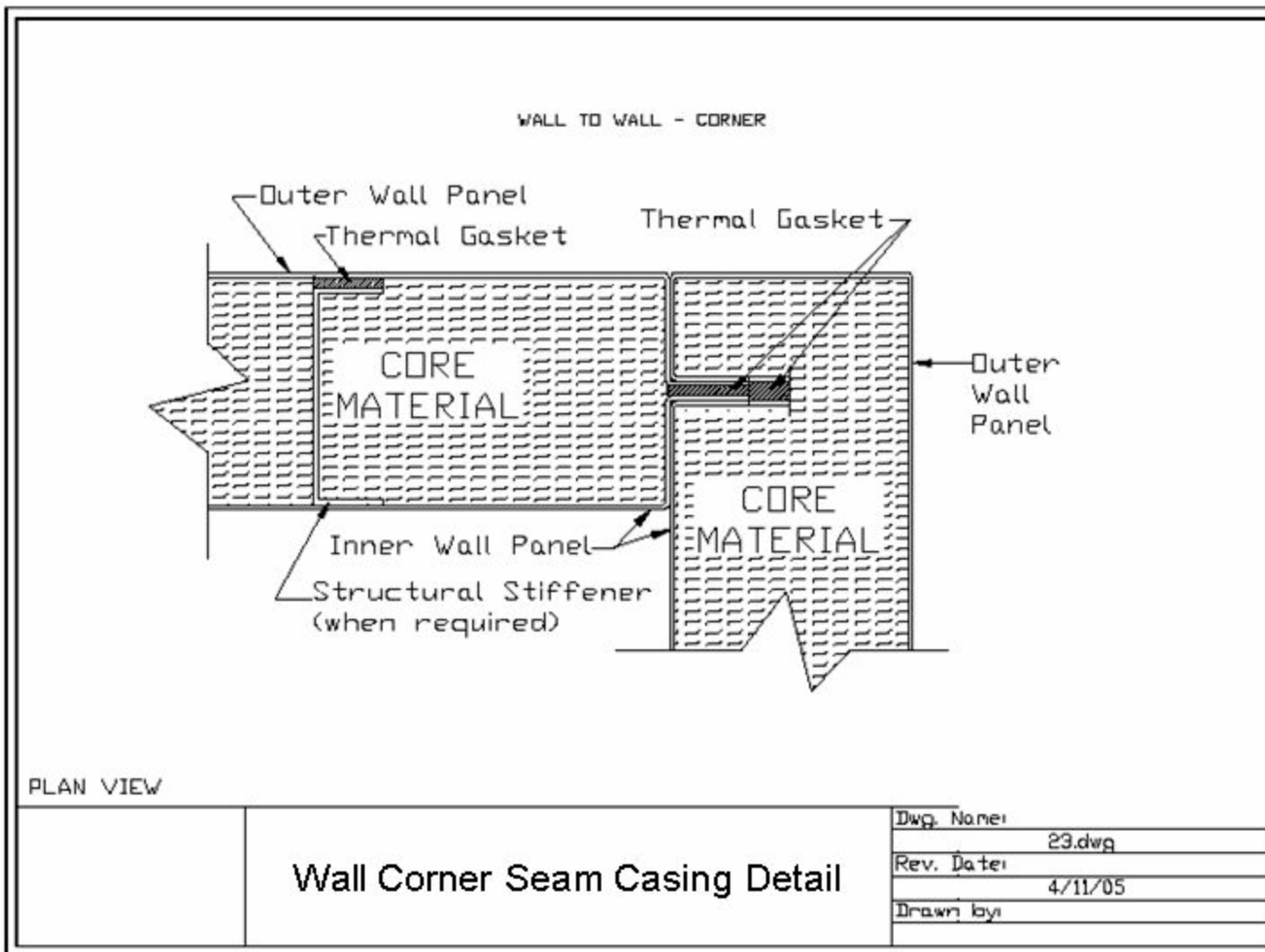
-The discharge, ducted inlet, and unducted inlet components are estimated based on calculated effects from tests of similar cabinets with similar fans that have been performed in-accordance with ARI-260.

-The casing radiated and inlet+casing components are estimated based on calculated effects from tests of similar cabinets with similar fans that have been performed in-accordance with ARI-260 adjusted with results of TL tests made per ASTM E90.

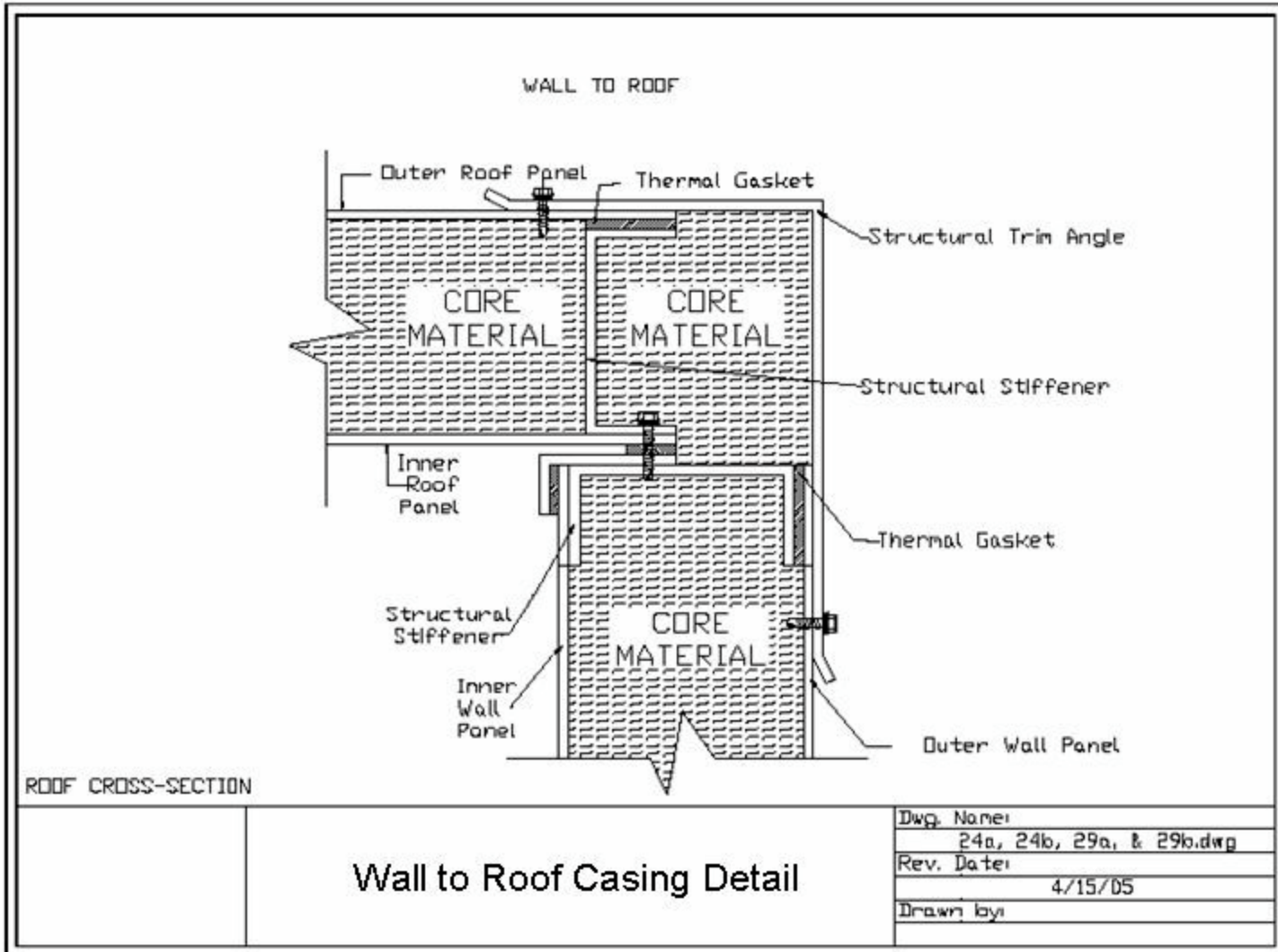
Trane custom class "a" thermal break

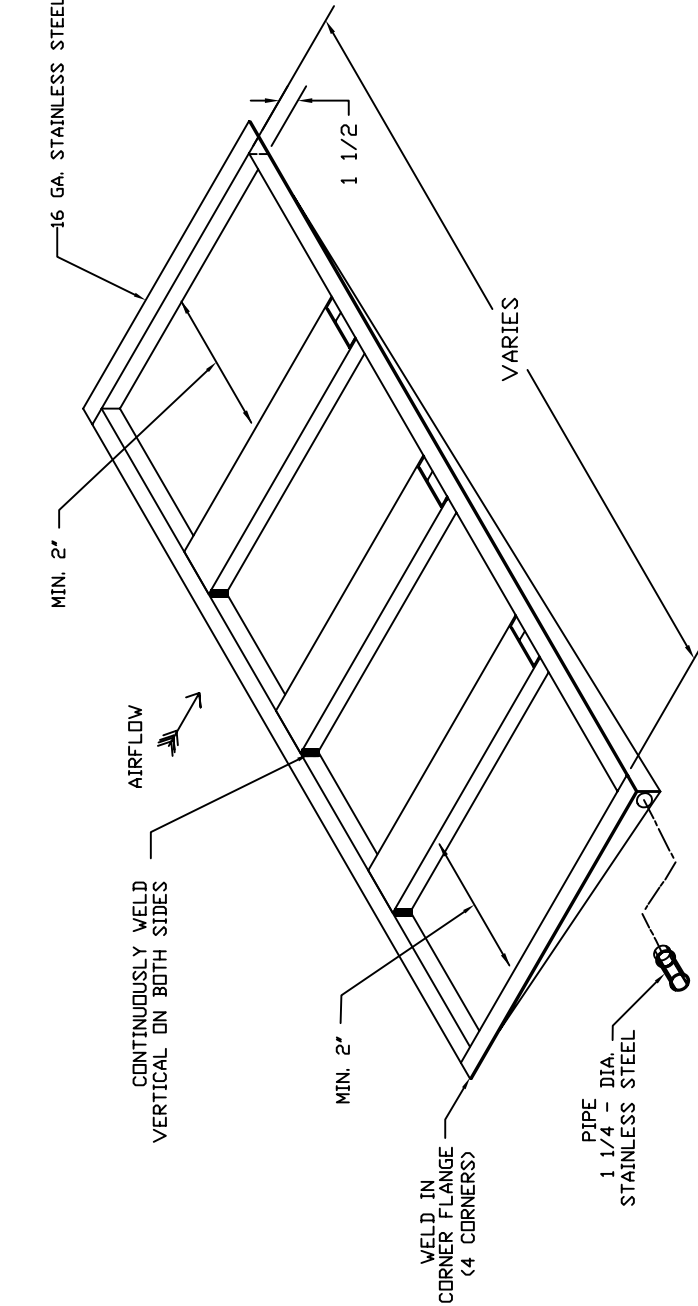
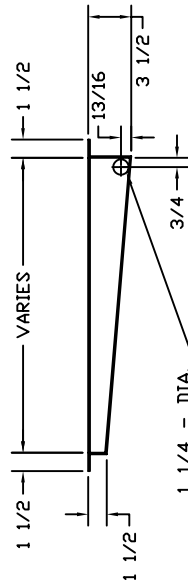
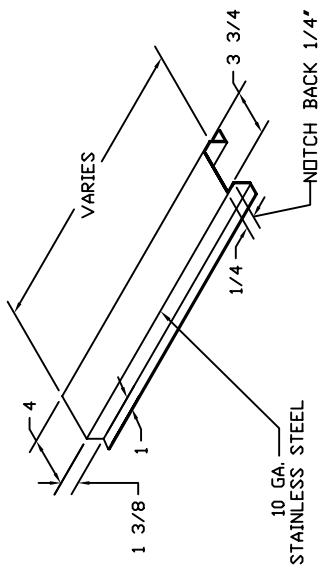


Trane custom class "a" thermal break



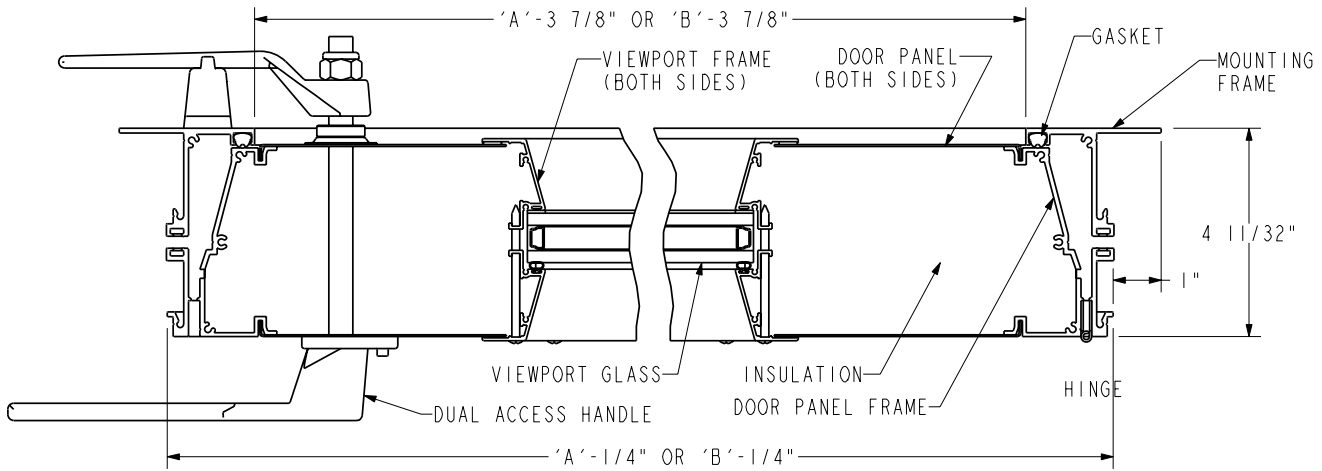
Trane custom class "a" thermal break





Drain Pan Construction

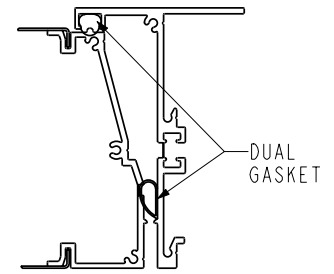
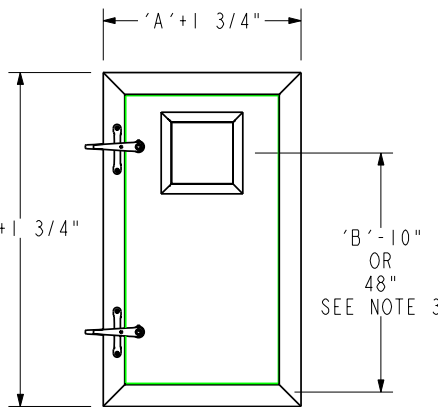
		Custom Air Handlers SHOP DRAWINGS		All dimensions are in inches unless otherwise noted.		Revision Number		Revision Description	
TITLE: RECESSED DRAIN PAN DETAILS		Job Number: N/A		Job Name: N/A		TAGGING: N/A		FILENAME: MS004	
Dwg. Name: DRAIN PAN DETAILS		Date: 08/08/08		Dwg. By: E.C.		Revision Number		Revision Description	
Dwg. No.:		Date:		Dwg. By:		Revision Number		Revision Description	



ALL MODEL DOORS ARE IN COMPLIANCE WITH UL 1995, 2nd EDITION, STANDARD FOR SAFETY HEATING AND COOLING EQUIPMENT, AND NFPA 90.

MODEL PA4VPTB (R/H) SHOWN

MODELS PA4PTB AND PA4VPTB ARE INWARD SWING DOORS DESIGNED FOR "BLOW THROUGH", POSITIVE PRESSURE APPLICATIONS



MODEL PA4(V)PTBS

CONFIDENTIAL

ITM4 RESERVES ALL PATENT, PROPRIETARY AND REPRODUCTION RIGHTS OF THE CONTENTS OF THIS DOCUMENT. THIS INFORMATION SHALL NOT BE USED OR DISCLOSED TO ANY PERSON WITHOUT WRITTEN AUTHORIZATION FROM AN ITM4 REPRESENTATIVE.

SCHEDULE

ITEM	QTY	MODEL					OPENING SIZE		IDENTIFICATION
		PA4	V	PTB	** C	S	*'A' WIDTH	*'B' HEIGHT	
		PA4	L/H R/H	PTB					
		PA4		PTB					
		PA4		PTB					
		PA4		PTB					
		PA4		PTB					

NOTES

- *1. UNLESS OTHERWISE SPECIFIED, DOOR WILL BE FABRICATED 1/4" UNDER LISTED WALL OPENING SIZE, ±1/16".
- 2. MIN. DOOR SIZE 12" WIDE X 12" HIGH, MAX. DOOR SIZE 48" WIDE X 96" HIGH. (WIDTH CANNOT EXCEED 3 X HEIGHT)
- 3. VIEWPORT LOCATION, AS DIM. ABOVE, IS 'B'-10" (±1") ON DOORS UP TO 60" HIGH, AND 48" (±1") ON DOORS OVER 60" HIGH.
- 4. (V) DESIGNATES MODEL DOOR WITH VIEWPORT, SPECIFY (L/H) LEFT HAND OR (R/H) RIGHT HAND, HINGE LOCATION WHEN VIEWING EXTERIOR SIDE OF DOOR.
- 5. HINGE ALWAYS FURNISHED ALONG 'B' DIMENSION, HEIGHT OF DOOR.
- 6. VIEWPORT IS NOT AVAILABLE ON DOORS UNDER 15" WIDE X 32" HIGH.
- 7. OPTIONAL MATERIALS AVAILABLE:
 DOOR PANELS-16 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
 -20 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
 -.063 SMOOTH ALUMINUM AND .050 EMBOSSED ALUMINUM
 VIEWPORT GLASS-DOUBLE THERMAL PANE, 1/4" TEMPER CLEAR
 HANDLE-CHROME PLATED
 ** HINGE-C INDICATES CONTINUOUS HINGE ALONG FULL HEIGHT
- 8. REFER TO INSTALLATION INSTRUCTION FOR MOUNTING OF HANDLES AND DOOR.

SPECIFICATIONS

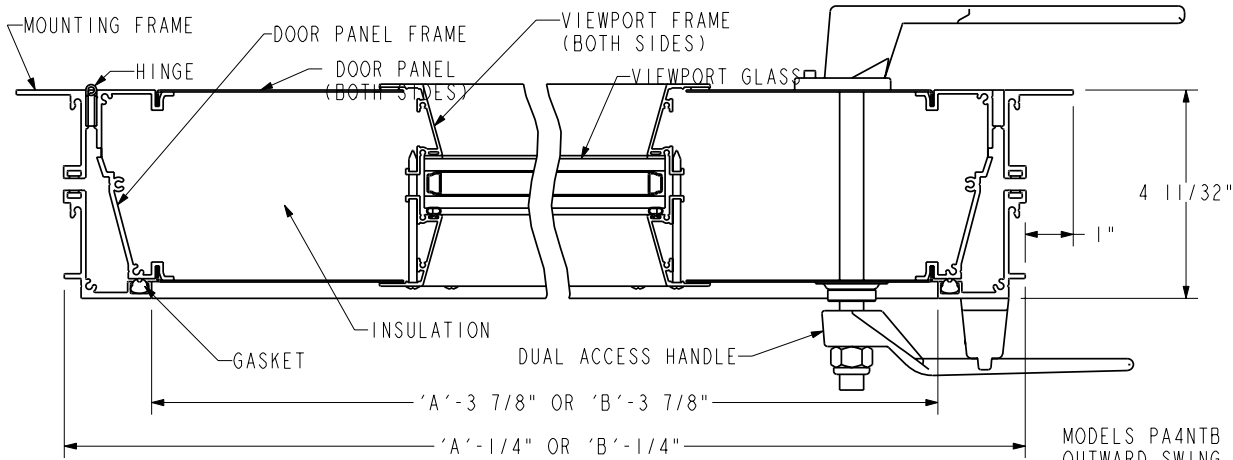
MOUNTING FRAME .100 6063-T5 EXTRUDED ALUMINUM NON-THROUGH METAL THERMAL BREAK	INSULATION 2-1/4# DENSITY, R26 POLYURETHANE FOAM	HINGE .050 STAINLESS STEEL 10" PIANO TYPE
DOOR PANEL FRAME .100 6063-T5 EXTRUDED ALUMINUM NON-THROUGH METAL THERMAL BREAK	HANDLES DUAL ACCESS ZINC DIE CAST	VIEWPORT FRAME .062 6063-T5 EXTRUDED ALUMINUM
DOOR PANELS 24 GA. GALVANIZED STEEL SHEET	GASKET ONE PIECE SANTOPRENE	VIEWPORT GLASS (DOUBLE THERMAL PANE) 1/4" TEMPER WIRE REINFORCED AND CLEAR (8"x8" VIEWING AREA)
		FINISH MILL

ITM4 Innovative Technology Marketing 4...

P.O. Box 5, 1713 Southgate Drive, Buffalo, MN 55313
Phone (763) 497-0842 Fax (763) 497-1481

PROJECT/LOCATION	ARCHITECT/ENGINEER
CONTRACTOR	SALES ENGINEER
DRAWN BY RCN	DATE 3-9-02
	DRAWING NO. 40570507

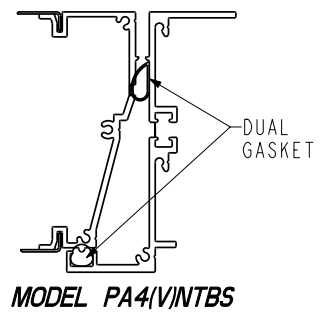
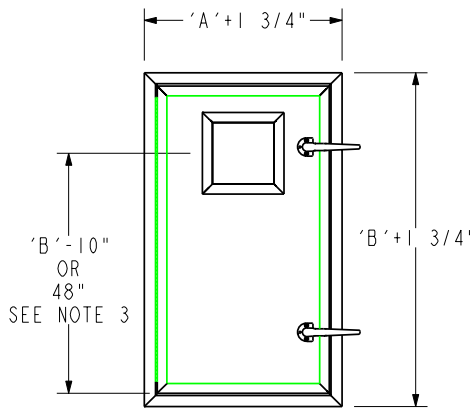
THERMAL BREAK DOOR - MODEL PA4(V)PTB(S)



MODELS PA4NTB AND PA4VNTB ARE OUTWARD SWING DOORS DESIGNED FOR "DRAW THROUGH", NEGATIVE PRESSURE APPLICATIONS

ALL MODEL DOORS ARE IN COMPLIANCE WITH UL 1995, 2nd EDITION, STANDARD FOR SAFETY HEATING AND COOLING EQUIPMENT, AND NFPA 90.

MODEL PA4VNTB (L/H) SHOWN



CONFIDENTIAL ITM4 RESERVES ALL PATENT, PROPRIETARY AND REPRODUCTION RIGHTS OF THE CONTENTS OF THIS DOCUMENT. THIS INFORMATION SHALL NOT BE USED OR DISCLOSED TO ANY PERSON WITHOUT WRITTEN AUTHORIZATION FROM AN ITM4 REPRESENTATIVE.

SCHEDULE

ITEM	QTY	MODEL					OPENING SIZE		IDENTIFICATION
		PA4	V		NTB	** C	S	*'A' WIDTH	
		PA4	L/H	R/H	NTB				
		PA4			NTB				
		PA4			NTB				
		PA4			NTB				
		PA4			NTB				

NOTES

- UNLESS OTHERWISE SPECIFIED, DOOR WILL BE FABRICATED 1/4" UNDER LISTED WALL OPENING SIZE, ±1/16".
- MIN. DOOR SIZE 12" WIDE X 12" HIGH, MAX. DOOR SIZE 48" WIDE X 96" HIGH. (WIDTH CANNOT EXCEED 3 X HEIGHT)
- VIEWPORT LOCATION, AS DIM. ABOVE, IS 'B'-10" (±1") ON DOORS UP TO 60" HIGH, AND 48" (±1") ON DOORS OVER 60" HIGH.
- (V) DESIGNATES MODEL DOOR WITH VIEWPORT, SPECIFY (L/H) LEFT HAND OR (R/H) RIGHT HAND, HINGE LOCATION WHEN VIEWING EXTERIOR SIDE OF DOOR.
- HINGE ALWAYS FURNISHED ALONG 'B' DIMENSION, HEIGHT OF DOOR.
- VIEWPORT IS NOT AVAILABLE ON DOORS UNDER 15" WIDE X 32" HIGH.
- OPTIONAL MATERIALS AVAILABLE:
DOOR PANELS-16 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
-20 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
- .063 SMOOTH ALUMINUM AND .050 EMBOSSED ALUMINUM
VIEWPORT GLASS-DOUBLE THERMAL PANE, 1/4" TEMPER CLEAR
HANDLE-CHROME PLATED
** HINGE-C INDICATES CONTINUOUS HINGE ALONG FULL HEIGHT
- REFER TO INSTALLATION INSTRUCTION FOR MOUNTING OF HANDLES AND DOOR.

SPECIFICATIONS

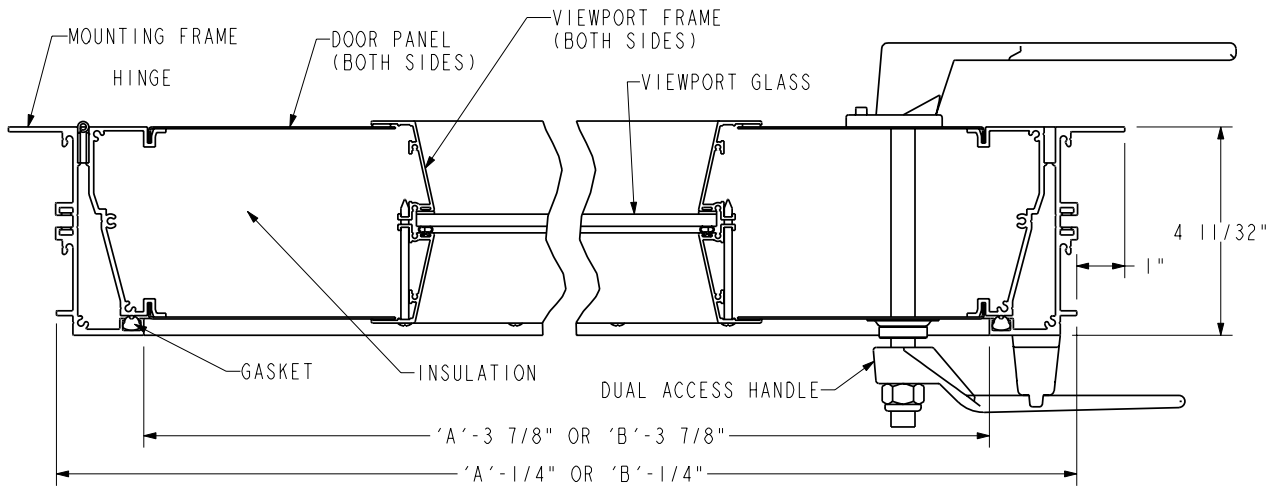
MOUNTING FRAME .100 6063-T5 EXTRUDED ALUMINUM NON-THROUGH METAL THERMAL BREAK	INSULATION 2-1/4# DENSITY, R26 POLYURETHANE FOAM	HINGE .050 STAINLESS STEEL 10" PIANO TYPE
DOOR PANEL FRAME .100 6063-T5 EXTRUDED ALUMINUM NON-THROUGH METAL THERMAL BREAK	HANDLES DUAL ACCESS ZINC DIE CAST	VIEWPORT FRAME .062 6063-T5 EXTRUDED ALUMINUM
DOOR PANELS 24 GA. GALVANIZED STEEL SHEET	GASKET ONE PIECE SANTOPRENE	VIEWPORT GLASS (DOUBLE THERMAL PANE) 1/4" TEMPER WIRE REINFORCED AND CLEAR (8"x8" VIEWING AREA)
		FINISH MILL

ITM4 Innovative Technology Marketing 4...

P.O. Box 5, 1713 Southgate Drive, Buffalo, MN 55313
Phone (763) 497-0842 Fax (763) 497-1481

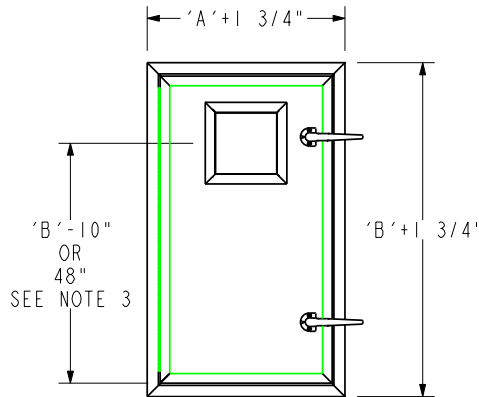
PROJECT/LOCATION	ARCHITECT/ENGINEER
CONTRACTOR	SALES ENGINEER
DRAWN BY RCN	DATE 3-9-02
	DRAWING NO. 40520507

THERMAL BREAK DOOR - MODEL PA4(V)NTB(S)



ALL MODEL DOORS ARE IN COMPLIANCE WITH UL 1995, 2nd EDITION, STANDARD FOR SAFETY HEATING AND COOLING EQUIPMENT, AND NFPA 90.

MODEL PA4VN (L/H) SHOWN



MODELS PA4N AND PA4VN ARE OUTWARD SWING DOORS DESIGNED FOR "DRAW THROUGH", NEGATIVE PRESSURE APPLICATIONS

CONFIDENTIAL ITM4 RESERVES ALL PATENT, PROPRIETARY AND REPRODUCTION RIGHTS OF THE CONTENTS OF THIS DOCUMENT. THIS INFORMATION SHALL NOT BE USED OR DISCLOSED TO ANY PERSON WITHOUT WRITTEN AUTHORIZATION FROM AN ITM4 REPRESENTATIVE.

SCHEDULE

ITEM	QTY	MODEL				OPENING SIZE		IDENTIFICATION
		PA4	V L/H R/H	N	** C	*'A' WIDTH	*'B' HEIGHT	
		PA4		N				
		PA4		N				
		PA4		N				
		PA4		N				

NOTES

- *1. UNLESS OTHERWISE SPECIFIED, DOOR WILL BE FABRICATED 1/4" UNDER LISTED WALL OPENING SIZE, ±1/16".
- 2. MIN. DOOR SIZE 12" WIDE X 12" HIGH, MAX. DOOR SIZE 48" WIDE X 96" HIGH. (WIDTH CANNOT EXCEED 3 X HEIGHT)
- 3. VIEWPORT LOCATION, AS DIM. ABOVE, IS 'B'-10" (±1") ON DOORS UP TO 60" HIGH, AND 48" (±1") ON DOORS OVER 60" HIGH.
- 4. (V) DESIGNATES MODEL DOOR WITH VIEWPORT, SPECIFY (L/H) LEFT HAND OR (R/H) RIGHT HAND, HINGE LOCATION WHEN VIEWING EXTERIOR SIDE OF DOOR.
- 5. HINGE ALWAYS FURNISHED ALONG 'B' DIMENSION, HEIGHT OF DOOR.
- 6. VIEWPORT IS NOT AVAILABLE ON DOORS UNDER 15" WIDE X 32" HIGH.
- 7. OPTIONAL MATERIALS AVAILABLE:
 DOOR PANELS-16 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
 -20 GA. GALVANNEALED, STAINLESS AND GALVANIZED STEEL
 -.063 SMOOTH ALUMINUM AND .050 EMBOSSED ALUMINUM
 VIEWPORT GLASS-SINGLE PANE, 1/4" TEMPER CLEAR OR PLEXIGLASS
 -DOUBLE THERMAL PANE, 1/4" TEMPERED WIRE AND CLEAR
 HANDLE-CHROME PLATED
 ** HINGE-C INDICATES CONTINUOUS HINGE ALONG FULL HEIGHT
- 8. REFER TO INSTALLATION INSTRUCTION FOR MOUNTING OF HANDLES AND DOOR.

SPECIFICATIONS

<u>MOUNTING FRAME</u> .100 6063-T5 EXTRUDED ALUMINUM	<u>INSULATION</u> 2-1/4# DENSITY, R26 POLYURETHANE FOAM	<u>HINGE</u> .050 STAINLESS STEEL 10" PIANO TYPE
<u>DOOR PANEL FRAME</u> .100 6063-T5 EXTRUDED ALUMINUM	<u>HANDLES</u> DUAL ACCESS ZINC DIE CAST	<u>VIEWPORT FRAME</u> .062 6063-T5 EXTRUDED ALUMINUM
<u>DOOR PANELS</u> 24 GA. GALVANIZED STEEL SHEET	<u>GASKET</u> ONE PIECE SANTOPRENE	<u>VIEWPORT GLASS (SINGLE PANE)</u> 1/4" TEMPER WIRE REINFORCED (8"x8" VIEWING AREA)
		<u>FINISH</u> MILL

ITM4 Innovative Technology Marketing 4...

P.O. Box 5, 1713 Southgate Drive, Buffalo, MN 55313
Phone (763) 497-0842 Fax (763) 497-1481

ACCESS DOOR - MODEL PA4(V)N

PROJECT/LOCATION		ARCHITECT/ENGINEER
CONTRACTOR		SALES ENGINEER
DRAWN BY RCN	DATE 3-10-02	DRAWING NO. 40470507

VENTLOK HEAVY-DUTY LATCH

310 VENTLOK LATCH

This latch is designed for use on large doors in high pressure installations. The heavy 7" front lever and the sturdy door-pull against which it operates guarantee a tight closure. When in the closed position the lever compresses the door by 1/32".

Included with each latch is a zinc plated shim made from 18 gauge steel. This shim, if desired, can be used under the bearing plate to raise the level of the handle. Additional shims can be purchased separately.

This latch is available with a 4" or 6 1/2" stud. *Weight per 100: 200 lbs.* Available in plain finish or chrome plated

310 DOOR PULLS ONLY

Although a 310 Door Pull regularly is furnished with each 310

Latch, extra door pulls are frequently needed and consequently they can be purchased separately.

Weight per 100: 36 lbs. Available in plain finish or chrome plated

310 DOOR PULLS ONLY WITH "STOP" REMOVED-CHROME PLATED ONLY

Some of our customers desire our 310 Door Pull with the protruding "STOP" removed.

Weight per 100: 36 lbs.

310 SHIMS ONLY

Extra shims are sometimes needed to vary the compression of the latch or to accommodate it to certain types of doors.

Weight per 100: 6 lbs.

310 VENTLOK LATCH

DOOR PULL 5 3/4" LONG

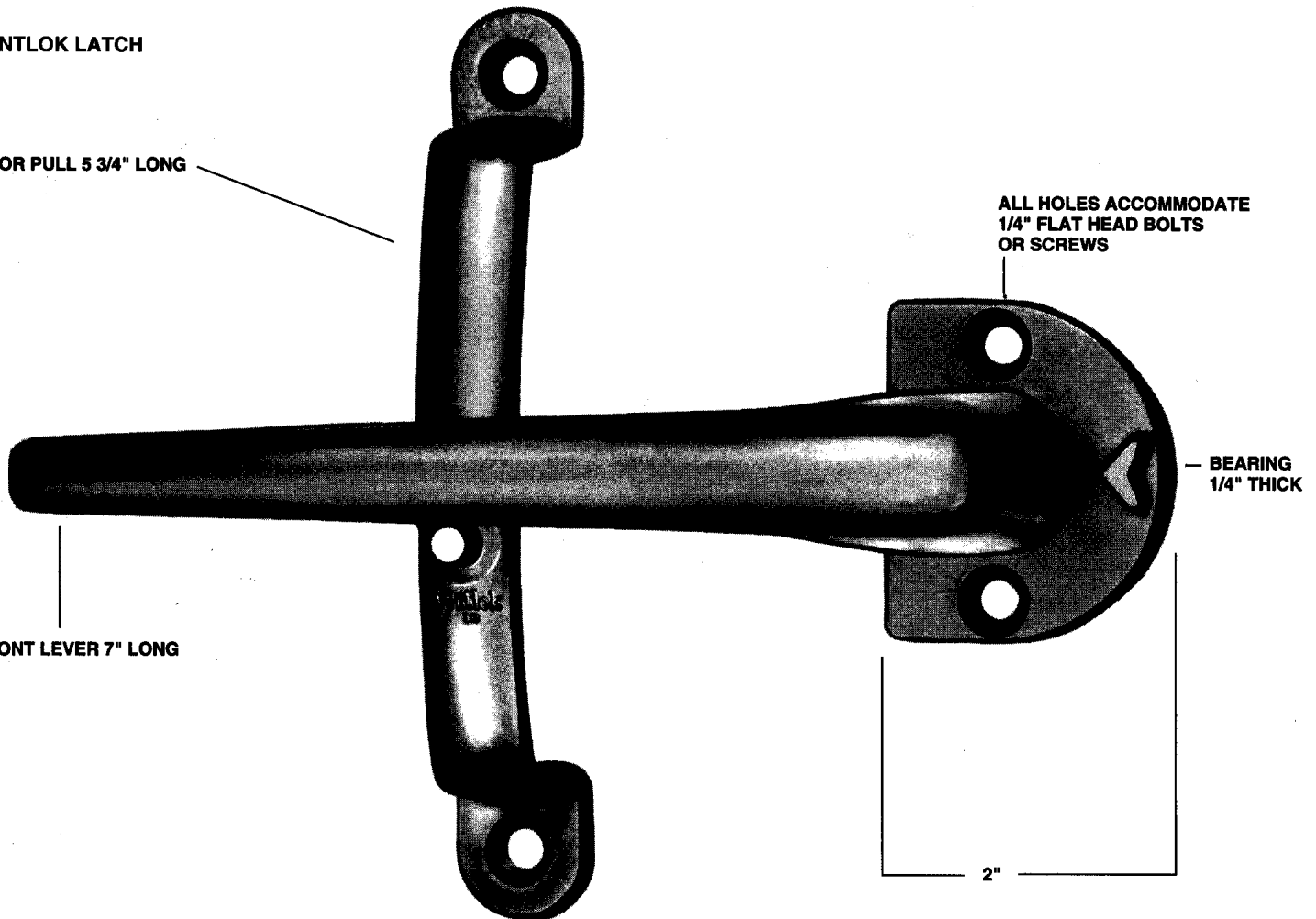
ALL HOLES ACCOMMODATE
1/4" FLAT HEAD BOLTS
OR SCREWS

BEARING
1/4" THICK

FRONT LEVER 7" LONG

2"

NOT ACTUAL SIZE





Job: HONDA PRECISION PARTS OF GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

Fan Schedule

Unit No.	Fan Tag	Service	Total CFM	Fan TSP	Motor Hz	RPM	BHP	MHP	AMCA Class	Manufacturer & Model	Fan Type	Size
AHU-36	AHU-36 SF	SUPPLY	1700	1.73	64.8	1902	0.73	1	I	Twin City EPFN	Plenum	150

Unit No.	Fan Tag	Motor Mfg.	Motor Model Number	Volts/PH/HZ	Motor Enclosure	NEMA Frame Size	Motor Efficiency	Bearings	Isolator Type	Feature Codes
AHU-36	AHU-36 SF	BALDOR	EM3116T-G	230 / 460 volt, 3 phase, 60 Hz. 460 volt wiring	ODP	143T	Premium	200k	AMSR-2D	IS EL WC TR PZ STD Direct Drive 100 %Dia. 105 %Width

Feature Codes

IS	Inlet Screen
EL	Extended Lube Fittings
WC	Wheel Cage
TR	Thrust Restraints
PZ	Piezometer
STD	Standard Paint



Twin City Fan & Blower

A Twin City Fan Company

5959 Trenton Lane · Minneapolis, MN 55442-3238
 Phone (763) 551-7600 · Fax (763) 551-7601 · www.tcf.com



Customer: W/A
 Job Name:
 Job ID:

January 03, 2014
 Page 1

Fan Description		Fan Performance	
Tag	AHU-36 SF	CFM	1,700
Type	EPFN	Operating SP (in.wg)	1.73
Size	150	Standard SP (in.wg)	1.73
Width	SWSI	RPM	1902
Class	I	Tip Speed (fpm)	6,971
Wheel diameter (in.)	14	Oper. BHP	0.73
Percentage width	105%	Standard BHP	0.73
Percentage diameter	100%	Outlet area (sq. ft)	1.61
		Outlet Velocity (fpm)	1,054
		Temperature (°F)	70
		Altitude (ft)	0
		Density (lb/ft³)	0.075
		Max RPM for Class	3006
		Static Efficiency	63.01
		Total Efficiency	65.53

Modifiers

% width: 105%

Sound

Sound Power Levels in dB re. 10⁻¹² Watts:

Octave Bands	1	2	3	4	5	6	7	8	LwA
Level at Inlet	71	75	79	70	64	68	65	60	75
Level at Outlet	72	77	81	76	74	75	71	67	81

Estimated sound pressure level in dBA (re: 0.0002 microbar) based on a single* ducted installation:

Distance in ft	1	3	5
dBA at Inlet	75	65	61
dBA at Outlet	81	71	67

*To estimate dBA level for ducted inlet and ducted outlet (into and out of the room) type installation, deduct 20 from the LwA value shown.

Using a directivity factor of 1.

Estimated Sound Pressure based on free field, spherical (Q = 1) radiation at the stated distance.

Definitions:

LwA The overall (single value) fan sound power level, 'A' weighted.

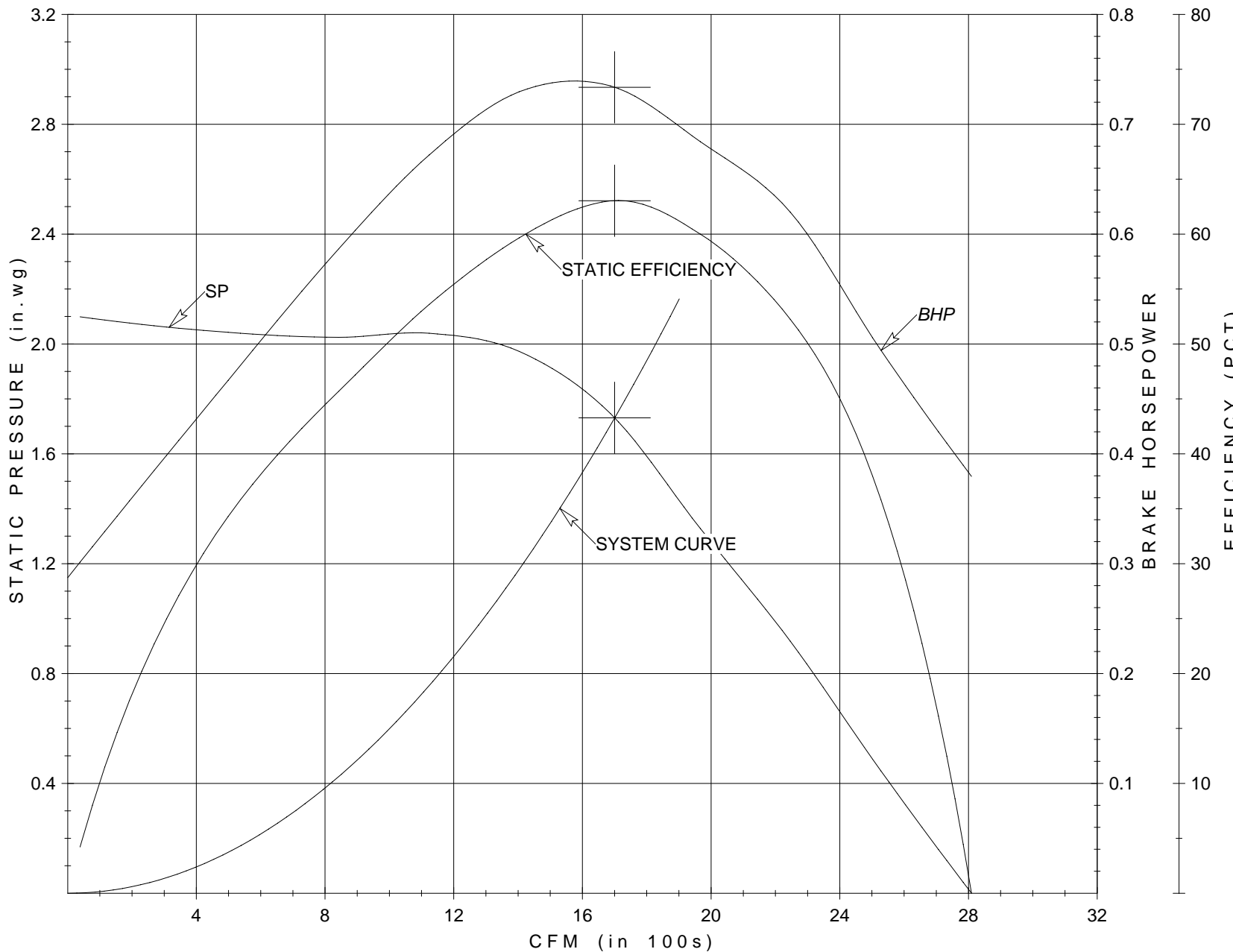
dBA The environment for each fan installation influences its measured sound value, therefore dBA levels cannot be guaranteed. Consult AMCA Publication 303 for further details.
 A fan's dBA is influenced by nearby reflective surfaces.



75

Customer: Honda Precision Parts of Georgia	Fan Tag: AHU-36 SF	CFM: _____ 1,700
Job ID: EQ # 17377	Model: 150 EPFN	SP: _____ 1.73 in.wg
Represented By: Twin City Fan Companies, Ltd. (763) 551-7600		RPM: _____ 1902

TWIN CITY FAN AND BLOWER PERFORMANCE CURVE



BHP: _____ 0.73
Outlet Velocity: .1,054
Density: _____ 0.075

Corrected for:
% width: 105%

Sound Power Level	
Octave	In/Out
1	71 / 72
2	75 / 77
3	79 / 81
4	70 / 76
5	64 / 74
6	68 / 75
7	65 / 71
8	60 / 67

in db re 10⁻¹² watts

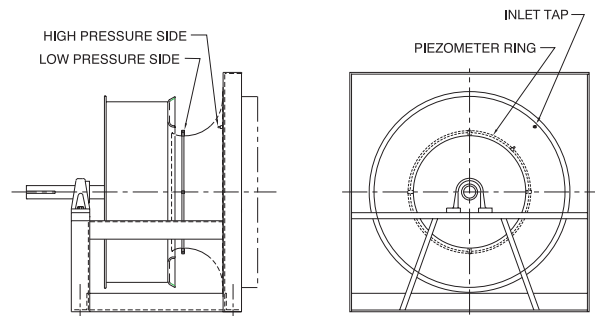
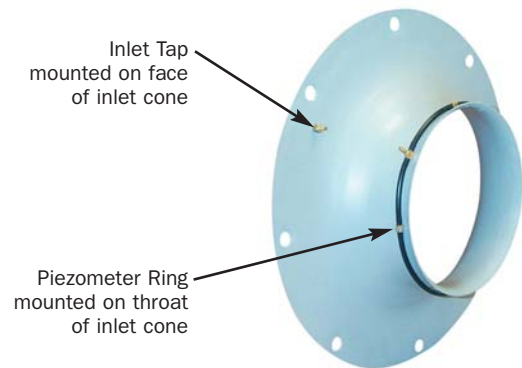
Piezometer Ring (Airflow Measuring System)

Twin City Fan is pleased to introduce The Piezometer Ring Airflow Measuring System, now available as an accessory for our housed and plenum fans. The system consists of a Piezometer ring mounted at the throat and a static pressure tap mounted on the face of the inlet cone. A differential pressure transducer and digital display can also be provided. Based on Twin City Fan laboratory tests, the system was determined to be accurate within +/-5%.

How it Works

The System is based on the principle of a flow nozzle. The inlet cone of the fan is used as the flow nozzle, and the flow can be calculated by measuring the static pressure drop through the inlet cone.

The pressure drop is measured from the tap located on the face of the inlet cone to the piezometer ring in the throat. The inlet tap is connected to the high-pressure side of the transducer and the piezometer ring is connected to the low-pressure side (see diagram at right).



Demonstration

Shown below is a Twin City Fan model 165 BCV fitted with a Piezometer Ring Airflow Measuring System, operating at 1100 RPM. With an unobstructed inlet, the digital display indicates the fan is producing 1713 CFM, which closely matches rated performance (see photo A). After placing an obstruction in the inlet, the airflow is reduced to 1597 CFM (see photo B).



A. Fan operating with unobstructed inlet produces 1713 CFM



B. Fan operating with obstructed inlet produces 1597 CFM





Twin City Fan & Blower

INSTALLATION, OPERATION & MAINTENANCE MANUAL

Airflow Measuring System Using Piezometer Ring

ENGINEERING SUPPLEMENT

ES-105

Issue Date: 1-1-05

Rev. Date: 9-1-05

Twin City Fan now offers an air measuring device as an option on centrifugal fans. It is based on the principle of a flow nozzle. The inlet cone of the fan is used as the flow nozzle. By measuring the pressure drop through the inlet cone, the flow can be calculated. The system consists of a piezometer ring mounted in the throat and a static pressure tap mounted on the face of the inlet cone. A differential pressure transducer and a digital display can be provided. The display must be capable of performing the square root function in order to read out in CFM directly. By testing fans in the laboratory,

Twin City Fan was able to determine flow coefficients for various fan types. The flow coefficients were combined to give the equations listed below by fan type. Based on testing performed in Twin City Fan's laboratory, the accuracy of the system was determined to be +/- 5%.

The pressure drop is measured from the tap located on the face of the funnel to the piezometer ring in the throat. The inlet tap is connected to the high-pressure side of the transducer and the piezometer ring is connected to the low-pressure side.

Measurement of Airflow

The equations below are accurate for flow estimation for flows from 40% to 100% of wide-open volume. According to testing done previously at Twin City Fan, several factors affect the accuracy of this method of determining flow. The equations below assume the following:

- There are no vanes or other obstructions in or near the inlet
- Even flow entering the funnel (no pre-swirl)
- Standard wheel to inlet cone overlap
- Accurate determination of air density at the inlet
- Free inlet (consult Twin City Fan for ducted inlet factors)

Non-Standard Density Method

One of the following equations is used to measure the flow:

$$ACFM = C1 * A * \sqrt{\Delta P / \rho}$$

where: A = Actual inlet funnel throat area (square feet) - from tables on page 2

ΔP = The differential in static pressure from the piezometer ring and the front pressure tap (inches w.g.)

ρ = Air density (pounds mass/cubic foot)

C1 = Value from Table 1 below

Standard Density Method

The equations can be simplified by assuming standard density and assuming funnel dimensions match drawing dimensions. The following tables show the factor (F) for each fan size and type. The equation then becomes the following:

For standard air ($\rho = 0.075$ lb/ft³):

$$ACFM = F \sqrt{\Delta P}$$

where: F = factor from tables on page 2

ΔP = The differential in static pressure from the piezometer ring and the front pressure tap (inches w.g.)

Table 1: C1 Values

Product	C1 Free Inlet	C1* Ducted Inlet
EPFN/EPQN (Arr. 1 or 4)	692.03	740.14
EPF/EPQ (Arr. 3)	667.52	713.93
APF/APQ	753.06	794.06
BC/BCS/BAF SWSI	735.42	786.56
BC/BCS/BAF DWDI	1470.84	1573.12
TSL	735.42	753.56
QSL	696.00	735.83
BAE-SW **	720.4	735.8
BAE-DW**	1440.8	1471.6

* Values for ducted C1 factors are based on duct diameter matching standard inlet collar diameter.

** BAE sizes smaller than 182 use BC\BCS\BAF Factors.

Table 2: EPF/EPQ (Arrangement 3) and EPFN/EPQN (Arrangement 1 & 4)

Size	EPF/EPQ Free Inlet F	EPFN/EPQN Free Inlet F	EPF/EPQ Ducted Inlet F	EPFN/EPQN Ducted Inlet F	A
122	792.17	821.25	847.24	878.35	0.325
150	1184.60	1228.09	1266.96	1313.47	0.486
165	1440.53	1493.42	1540.68	1597.24	0.591
182	1757.39	1821.92	1879.58	1948.58	0.721
200	2108.38	2185.80	2254.97	2337.76	0.865
222	2617.81	2713.93	2799.81	2902.60	1.074
245	3168.67	3285.02	3388.97	3513.39	1.300
270	3856.03	3997.61	4124.12	4275.53	1.582
300	4770.07	4945.21	5101.71	5289.01	1.957
330	5757.23	5968.62	6157.51	6383.56	2.362
365	7032.01	7290.21	7520.92	7797.03	2.885
402	8555.41	8869.55	9150.23	9486.16	3.510
445	10444.42	10827.92	11170.58	11580.68	4.285
490	12669.80	13135.01	13550.69	14048.16	5.198
542	15541.11	16111.75	16621.62	17231.84	6.376
600	19004.71	19702.52	20326.03	21072.24	7.797
660	22994.79	23839.12	24593.53	25496.41	9.434
730	28128.04	29160.84	30083.67	31188.11	11.54

Table 5: QSL

Size	Free Inlet F	Ducted Inlet F	A
150	1832.36	1937.23	0.721
165	2198.32	2324.14	0.865
182	2729.48	2885.70	1.074
200	3303.84	3492.93	1.300
222	4020.52	4250.63	1.582
245	4973.55	5258.21	1.957
270	6002.82	6346.39	2.362
300	7331.98	7751.62	2.885
330	8920.36	9430.92	3.510
365	10889.96	11513.24	4.285
402	13210.27	13966.36	5.198
445	16204.06	17131.49	6.376
490	19815.41	20949.54	7.797
542	23975.70	25347.94	9.434
600	29327.92	31006.49	11.54
660	35859.36	37911.75	14.11
730	43610.67	46106.71	17.16

Table 4: BC/BSC/BAF

Size	SWSI Free Inlet F	DWDI Free Inlet F	SWSI Ducted Inlet F	DWDI Ducted Inlet F	A
105	641.87	1283.74	686.51	1373.01	0.239
122	872.90	1745.81	933.61	1867.21	0.325
135	1058.21	2116.41	1131.79	2263.58	0.394
150	1305.20	2610.39	1395.96	2791.92	0.486
165	1587.21	3174.41	1697.58	3395.16	0.591
182	1936.99	3873.98	2071.69	4143.38	0.721
200	2321.58	4643.16	2483.02	4966.04	0.865
222	2883.02	5766.04	3083.50	6167.00	1.074
245	3491.62	6983.24	3734.42	7468.84	1.300
270	4247.77	8495.55	4543.16	9086.32	1.582
300	5254.03	10508.05	5619.38	11238.86	1.957
330	6342.73	12685.46	6783.80	13567.59	2.362
365	7747.97	15495.94	8286.75	16573.50	2.885
402	9426.99	18853.98	10082.53	20165.06	3.510
445	11507.43	23014.86	12307.64	24615.28	4.285
490	13957.43	27914.86	14928.01	29856.02	5.198
542	17121.05	34242.10	18311.62	36623.24	6.376
600	20938.50	41877.00	22394.53	44789.06	7.797
660	25334.37	50668.73	27096.08	54192.16	9.434
730	30991.88	61983.75	33147.00	66294.01	11.54
807	37901.44	75802.87	40537.05	81074.09	14.11
890	46079.00	92158.01	49283.27	98566.54	17.16
982	56192.01	112384.00	60099.52	120199.04	20.93

Table 6: TSL

Size	Free Inlet F	Ducted Inlet F	A
122	872.75	894.27	0.325
150	1305.09	1337.28	0.486
165	1587.06	1626.20	0.591
182	1936.15	1983.91	0.721
200	2322.85	2380.14	0.865
222	2884.09	2955.23	1.074
245	3490.99	3577.10	1.300
270	4248.26	4353.05	1.582
300	5255.28	5384.90	1.957
330	6342.85	6499.31	2.362
365	7747.30	7938.40	2.885
402	9425.66	9658.16	3.510
445	11506.83	11790.66	4.285
490	13958.57	14302.88	5.198
542	17121.95	17544.28	6.376
600	20937.86	21454.32	7.797
660	25333.82	25958.71	9.434
730	30989.22	31753.60	11.54
807	37890.63	38825.25	14.11
890	46081.02	47217.66	17.16

(Sizes smaller than 182 use Table 4: BC/BSC/BAF)

Table 7: BAE-SW/BAE-DW

Size	SWSI Free Inlet F	DWDI Free Inlet F	SWSI Ducted Inlet F	DWDI Ducted Inlet F	A
182	1896.61	3793.22	1937.16	3874.31	0.721
200	2275.41	4550.82	2324.05	4648.10	0.865
222	2825.19	5650.38	2885.58	5771.16	1.074
245	3419.69	6839.38	3492.79	6985.58	1.300
270	4161.50	8322.99	4250.46	8500.91	1.582
300	5147.95	10295.89	5257.99	10515.99	1.957
330	6213.31	12426.62	6346.13	12692.26	2.362
365	7589.08	15178.15	7751.31	15502.62	2.885
402	9233.16	18466.63	9430.53	18861.07	3.510
445	11271.82	22543.63	11512.77	23025.55	4.285
490	13673.49	27346.98	13965.79	27931.57	5.198
542	16772.25	33544.50	17130.79	34261.59	6.376
600	20510.23	41020.47	20948.68	41897.36	7.797
660	24816.41	49632.82	25346.91	50693.82	9.434
730	30356.30	60712.61	31005.23	62010.46	11.540
807	37116.76	74233.52	37910.21	75820.42	14.110
890	45139.88	90279.75	46104.83	92209.66	17.160
982	55056.97	110113.94	56233.92	112467.85	20.930

Table 3: APF/APQ

Size	Free Inlet F	Ducted Inlet F	A
121	944.92	996.36	0.344
141	1206.40	1272.08	0.439
161	1518.58	1601.26	0.552
181	1929.92	2035.00	0.702
201	2378.68	2508.19	0.865
221	2979.06	3141.26	1.083
251	3779.67	3985.45	1.375
281	4792.02	5052.92	1.743
321	6093.21	6424.95	2.216
351	7719.69	8139.98	2.807
391	9514.73	10032.75	3.460
441	11916.25	12565.02	4.334
491	14881.53	15691.74	5.412
551	18668.71	19685.12	6.789
631	24372.82	25699.79	8.864
711	30836.22	32515.09	11.21
791	38058.92	40131.02	13.84

Transducer Sizing for Piezometer Ring

Selecting a pressure transducer with the appropriate range is critical in order to get accurate measurements using the piezometer ring. Since most transducers list accuracy as a percent of full scale, if the range selected is too high, this can have a significant impact on the accuracy of the flow measurement. If the range is too low, there is risk of damaging the instrument and/or getting inaccurate readings or no reading at all.

The following steps are for sizing the pressure transducer for use with the piezometer ring flow measurement system:

1. Determine the maximum flow rate in CFM that the fan is expected to produce. This maximum should be the greater of normal, maximum, and/or emergency conditions.
2. Find the formula for calculating the actual flow rate from page 1 of this document for the corresponding size and type of fan being used.
3. Calculate the pressure drop corresponding to the maximum flow rate determined in Step 1.
4. Select the pressure transducer with the smallest range that includes the pressure drop calculated in Step 3.
5. Now take the maximum range from the pressure transducer selected in Step 4 and use that to calculate the maximum flow rate that could be measured with this transducer.
6. Determine an acceptable safety factor for sizing the transducer.
7. Multiply the maximum flow rate from Step 1 by the safety factor. If the maximum flow rate from Step 5 is less than the result, bump up the transducer to the next largest size. Otherwise, the transducer from Step 4 should be used.

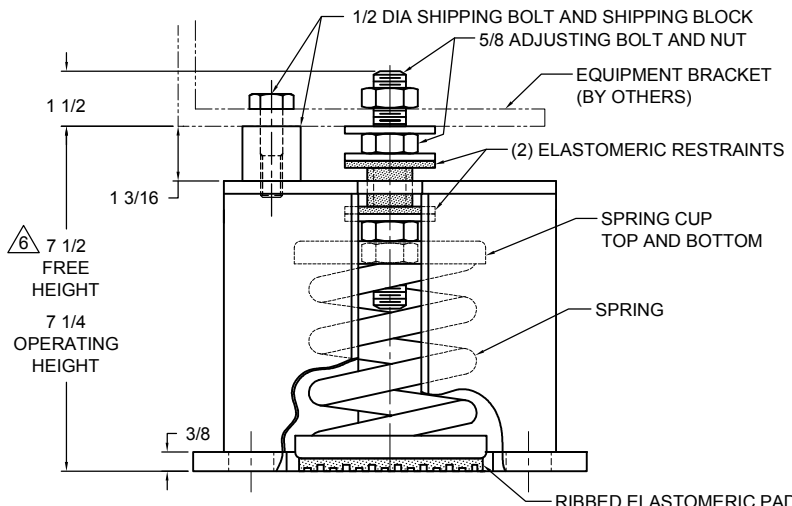
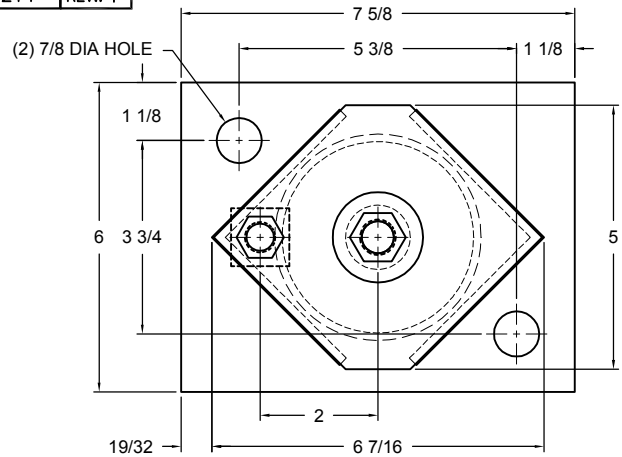
Example:

Company XYZ has a size 270 BC SWSI fan to be installed with design conditions of 12,000 CFM at 5 inches w.g. and standard density. What size transducer should be used?

1. After speaking to the design engineer, it was determined that 12,000 CFM is the actual maximum and most of the time the fan will be running closer to 10,000 CFM. Therefore, 12,000 CFM will be used for the calculations.
2. The calculation for this fan type and size is:
 $ACFM = 4247.77 * \sqrt{(\Delta P)}$ for standard density
 Note that if the density was other than standard air, the formula would be different.
3. By rearranging the formula in Step 2, the following formula is obtained:
 $\Delta P = (ACFM/4247.77)^2$
 so, $\Delta P = (12000/4247.77)^2 = 7.98$ inches w.g.
4. For the pressure transducer models being considered, the ranges are 0-3, 0-6, 0-10, and 0-20. Therefore, for this flow rate the transducer model is the 0-10 inches w.g. model.
5. The maximum for this transducer is 10 inches, which corresponds to the following flow rate:
 $ACFM = 4247.77 * \sqrt{(10)} = 13433$ CFM
6. Since 12,000 CFM is the maximum and normal operating conditions are 10,000 CFM, a 10% safety factor should be plenty for this application
7. From step 1, $12000 \text{ CFM} * 1.1 = 13200$ CFM. This is less than 13433 CFM, so the 0-10 inch pressure transducer is acceptable.

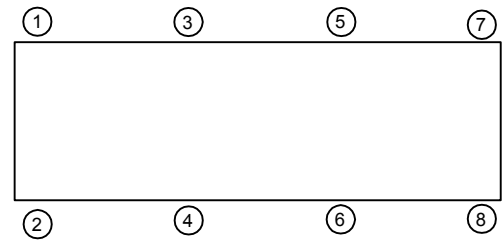
180R-102214 REV: 1

REV.	DESCRIPTION	DATE	BY



TYPE AMSR-2D-SB SEISMICALLY RESTRAINED SPRING VIBRATION ISOLATORS WITH SHIPPING BLOCK						
MODEL	RATED LOAD (LBS)	RATED DEFLECTION (IN)	SPRING RATE (LB/IN)	SPRING COLOR CODE	ALLOWABLE G RATING ²	
					HORIZONTAL	VERTICAL
AMSR-2D-75-SB	75	2.42	31	WHITE	18.7	24.7
AMSR-2D-160-SB	160	2.29	70	YELLOW	8.8	11.6
AMSR-2D-230-SB	230	2.30	100	GREEN	6.1	8.0
AMSR-2D-355-SB	355	2.15	165	DK BROWN	3.9	5.2
AMSR-2D-435-SB	435	1.89	230	RED	3.2	4.3
AMSR-2D-600N ¹ -SB	600	1.88	319	RED/ BLACK	2.3	3.1
AMSR-2D-725-SB	725	1.61	450	TAN	1.9	2.6
AMSR-2D-845-SB	845	1.69	570	PINK	1.7	2.2
AMSR-2D-1000N ¹ -SB	1000	1.52	659	PINK/ BLACK	1.4	1.9
AMSR-2D-1320N ¹ -SB	1320	1.42	927	PINK/GRAY	1.1	1.4
AMSR-2D-1435N ³ -SB	1435	1.54	1002	PINK/GRAY/ ORANGE	1.0	1.3
AMSR-2D-1640N ³ -SB	1640	1.54	1067	PINK/GRAY/ DK BROWN	0.88	1.1

- TABLE NOTES:**
- TWO NESTED SPRINGS YIELD THIS LOAD. THE COLOR CODE INDICATED IS FOR OUTER SPRING/ INNER SPRING.
 - ALL ALLOWABLE G RATINGS ARE BASED ON HILTI KWIKBOLT TZ WEDGE ANCHORS (OR EQUAL) IN STONE AND AGGREGATE CONCRETE (F_c=3000 PSI).
 - THREE NESTED SPRINGS YIELD THIS LOAD.



- NOTES**
- ALL DIMENSIONS ARE IN INCHES. INTERPRET PER ANSI Y-14.
 - FINISH: HOUSING- ONE COAT BLACK PAINT, SPRING- POWDER COAT, HARDWARE- ZINC ELECTROPLATE.
 - INNER NESTED SPRING, WHEN USED, NOT SHOWN. SEE TABLE NOTES 1 AND 3.
 - ALL SPRINGS DESIGNED WITH 50% OVER-TRAVEL.
 - REFER TO TABLE ABOVE FOR ALLOWABLE HORIZONTAL AND VERTICAL G RATINGS. SEE TABLE NOTE 2.
 - PRIOR TO MOUNTING EQUIPMENT, THE INTERNAL VERTICAL RESTRAINT WILL BE AGAINST THE HOUSING TOP PLATE AND THE ADJUSTING NUT WILL BE 1/4" ABOVE THE BLOCK AT THE "FREE HEIGHT." WHEN THE EQUIPMENT IS MOUNTED, THE SPRING WILL DEPRESS AND REST ON THE SHIM AT THE "OPERATING HEIGHT."

ISOLATOR SELECTIONS	
LOC 1:	LOC 2:
LOC 3:	LOC 4:
LOC 5:	LOC 6:
LOC 7:	LOC 8:
CUSTOMER EQPT. TAG:	

NOTE: MATERIAL SHOWN IS FOR (1) SET.

OTHER MATERIALS, COMPOUNDS, OR FINISHES WITH EQUAL OR SUPERIOR PROPERTIES MAY BE SUBSTITUTED AS THEY BECOME AVAILABLE.

CERTIFIED FOR:

JOB NAME: _____

CUSTOMER: _____

CUSTOMER P.O.: _____

SALES ORDER: _____

**TYPE AMSR-2D-()-SB
SEISMIC ISOLATORS
2" DEFLECTION
WITH SHIPPING BLOCK**



SCALE: NONE

SHEET: 1 OF 2

DRAWING NO.: _____

REVISION: _____

Member VISCMA

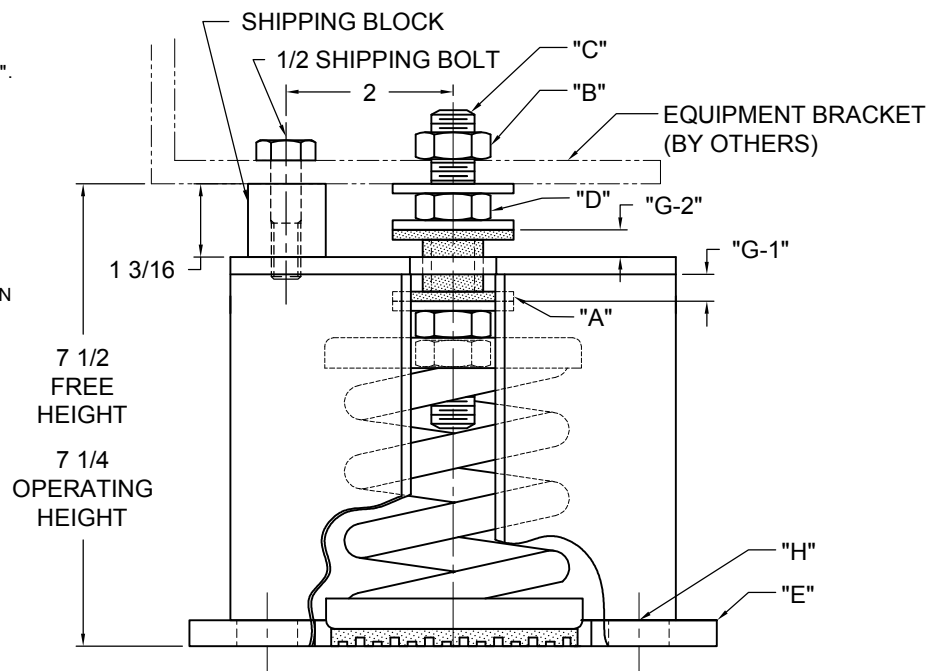
180R-102214 REV.: 1

REV.	DESCRIPTION	DATE	BY

READ INSTRUCTIONS IN THEIR ENTIRETY BEFORE BEGINNING.

FACTORY INSTRUCTIONS

- ISOLATORS ARE SHIPPED FULLY ASSEMBLED AND ARE TO BE SPACED AND ARRANGED IN ACCORDANCE WITH INSTALLATION DRAWINGS OR AS OTHERWISE RECOMMENDED.
- SET ISOLATORS ON FLOOR OR SUB-BASE, ENSURING THAT ALL ISOLATOR CENTERLINES MATCH THE EQUIPMENT MOUNTING HOLES OR SPACE AND ARRANGE ISOLATORS IN ACCORDANCE WITH THE INSTALLATION DRAWING. SHIM OR GROUT AS REQUIRED LEVELING ALL ISOLATOR BASE PLATES AT THE SAME ELEVATION (1/4" MAXIMUM DIFFERENCE IN ELEVATION CAN BE TOLERATED). ISOLATOR BASE MUST REST ON A FLAT SURFACE.
- PRIOR TO ANCHORING THE BASEPLATE, THE ISOLATOR HOUSING MAY BE ELEVATED SLIGHTLY ABOVE THE FINISHED FLOOR. ANCHOR DOWN ISOLATORS USING BASE PLATE THRU HOLES "H". PULL DOWN ISOLATOR HOUSING USING ANCHOR BOLTS UNTIL ISOLATOR BASE PLATE "E" IS FIRMLY AGAINST THE FLOOR. THIS WILL PRELOAD THE SPRING WITHIN THE HOUSING AND PUSH THE INTERNAL STOP "A" AGAINST THE HOUSING TOP PLATE.
- PRIOR TO MOUNTING EQUIPMENT, INTERNAL STOP "A" WILL BE AGAINST THE TOP PLATE AND WASHER "F" WILL BE APPROXIMATELY 1/4" ABOVE THE SHIPPING BLOCK AT THE "FREE HEIGHT."
- REMOVE SHIPPING BOLT, BUT LEAVE THE SHIPPING BLOCK IN PLACE.
- REMOVE EQUIPMENT ATTACHMENT NUT "B" ON ISOLATOR STUD "C" AND PLACE EQUIPMENT ON ISOLATOR WASHER "F". THE EQUIPMENT WEIGHT WILL COMPRESS THE SPRING INSIDE THE HOUSING AND EQUIPMENT BRACKET WILL REST ON THE SHIPPING BLOCK AT THE "OPERATING HEIGHT."
- TURN THE ADJUSTING NUT "D" UNDER THE WASHER COUNTER-CLOCKWISE TO COMPRESS THE SPRING. WHEN THE LOAD IS EQUALIZED, TURNING THE NUT WILL RAISE THE EQUIPMENT UNTIL THE INTERNAL GAP "G-1" IS APPROXIMATELY EQUAL TO THE EXTERNAL GAP "G-2". (I.E. THE EQUIPMENT CAN MOVE UP OR DOWN, THE SAME DISTANCE IN A SEISMIC EVENT).
- THE ADJUSTING PROCESS SHOULD BE DONE GRADUALLY ON ALL ISOLATORS UNTIL THE EQUIPMENT WEIGHT IS NO LONGER RESTING ON THE SHIPPING BLOCKS.
- REPLACE ISOLATOR ATTACHMENT NUTS "B" ON ADJUSTING BOLTS "C" TO SECURE MACHINE LEGS TO ISOLATORS. HAND TIGHTEN WHERE THERE IS FIRM CONTACT BETWEEN THE NUT AND EQUIPMENT. (HAND TOOLS MAY BE USED.) THEN TIGHTEN THE NUT AN ADDITIONAL 1/3 TURN. REPLACE SHIPPING BOLT AND HAND-TIGHTEN WHERE THERE IS FIRM CONTACT BETWEEN THE BOLT AND EQUIPMENT BRACKET. TOOLS MAY BE USED TO BRING THE BOLT AND METAL COMPONENTS INTO CONTACT. FOLLOWING CONTACT, TIGHTEN THE BOLT ANOTHER 1/3 TURN.



FIELD INSTRUCTIONS

- SHIPPING BLOCK FIXES THE EQUIPMENT AT THE OPERATING HEIGHT. AFTER EQUIPMENT IS INSTALLED AT ITS FINAL LOCATION, REMOVE SHIPPING BOLT. IF THE BLOCK WILL NOT SLIDE OUT, TURN ADJUSTING NUT COUNTER-CLOCKWISE UNTIL EQUIPMENT DEAD LOAD IS NO LONGER RESTING ON SHIPPING BLOCK. REMOVE SHIPPING BLOCK AND DISCARD.
- THRUST RESTRAINTS MUST BE ADDED TO THE FAN IF THE TOTAL FAN STATIC PRESSURE IS 2" W.G. OR GREATER.

OTHER MATERIALS, COMPOUNDS, OR FINISHES WITH EQUAL OR SUPERIOR PROPERTIES MAY BE SUBSTITUTED AS THEY BECOME AVAILABLE.

CERTIFIED FOR:

JOB NAME: _____
 CUSTOMER: _____
 CUSTOMER P.O.: _____
 SALES ORDER: _____

**TYPE AMSR-2D-()-SB
 SEISMIC ISOLATORS
 2" DEFLECTION
 WITH SHIPPING BLOCK**



THE VMC GROUP
 The Power of Together
 Bloomingdale, NJ 07403
 Houston, TX 77041

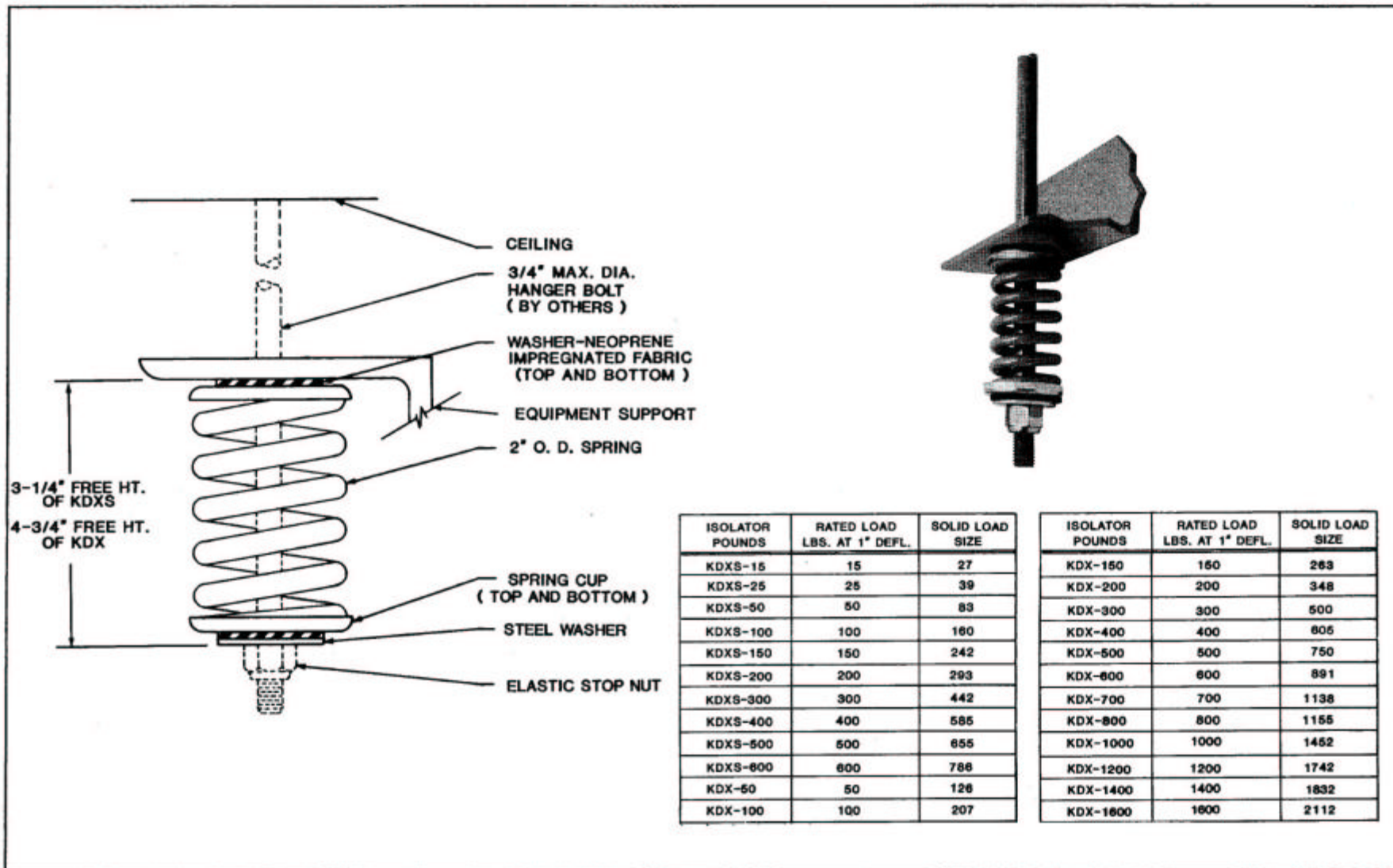
SCALE:
 NONE

SHEET:
 2 OF 2

DRAWING NO.:

REVISION





ISOLATOR POUNDS	RATED LOAD LBS. AT 1" DEFL.	SOLID LOAD SIZE
KDXS-15	15	27
KDXS-25	25	39
KDXS-50	50	63
KDXS-100	100	100
KDXS-150	150	242
KDXS-200	200	293
KDXS-300	300	442
KDXS-400	400	585
KDXS-500	500	655
KDXS-600	600	786
KDX-50	50	126
KDX-100	100	207

ISOLATOR POUNDS	RATED LOAD LBS. AT 1" DEFL.	SOLID LOAD SIZE
KDX-150	150	263
KDX-200	200	348
KDX-300	300	500
KDX-400	400	605
KDX-500	500	750
KDX-600	600	891
KDX-700	700	1138
KDX-800	800	1155
KDX-1000	1000	1452
KDX-1200	1200	1742
KDX-1400	1400	1832
KDX-1600	1600	2112

CERTIFIED FOR

PURCHASER _____

ORDER NO. _____

PROJECT _____

Thrust Restraint

TYPE KDXS AND KDX
VIBRATION ISOLATORS
FOR 1" DEFLECTION

AMBER/BOOTH COMPANY, INC.
HOUSTON, TEXAS

SCALE	NONE	DWG. NO.	REV.
DATE	8-6-85	H-1030	2

Premium Efficient Super-E® Motors

BALDOR • RELIANCE®

**Three Phase,
Totally Enclosed,
Foot Mounted**

1/2 thru 200 Hp

NEMA 56 thru 447T

Applications: Energy saving applications where continuous or frequent duty is required. Suitable for use with inverter drives for variable torque and constant torque ratings as shown on page 193. NEMA Premium® efficiency, Inverter Ready per NEMA standard MG1 Part 31.4.4.2. I

Features: Super-E® / XE motors have Class F insulation, 1.15 service factor, low-loss electrical grade lamination steel, NEMA Premium® efficiency and 3 year warranty.



Hp	RPM	NEMA Frame	Enclosure	Catalog Number	List Price	Mult. Sym.	"C" Dim.	Aprx. Wt. (lb)	Full Load Efficiency	Voltage	Full Load Amps	Notes (a)
1/2	1800	56	TEFC	EM3538	444	K	11.24	26	84	230/460	0.85	1
		56	TEFC	↳P56X1313	444	K	12.23	28	80	230/460	0.85	19,30
1	3600	56	TEFC	EM3545	494	K	12.25	30	84	230/460	1.4	1,30
		56	TENV	↳P56X1318	494	K	11.14	29	87.5	230/460	1.35	30
	1800	56	TEFC	EM3546	497	K	13.23	36	87.5	208-230/460	1.5	1
		56	TEFC	↳P56X1319	497	K	13.23	39	86.5	230/460	1.4	30
		143T	TEFC	EM3546T	550	LS	13.31	37	87.5	230/460	1.5	1,30
		143T	TEFC	↳P14X1543	550	LS	13.31	33	87.5	230/460	1.5	30
		143T	TEFC	EM3581T	705	L1	12.53	54	87.5	230/460	1.5	1,30
		143T	TEFC	↳P14G7803	705	L1	12.53	64	86.5	230/460	1.4	30
	1200	56	TEFC	EM3556	648	K	13.23	39	82.5	208-230/460	1.8	1
		56	TEFC	↳P56X1512	648	K	14.10	47	84	230/460	1.7	30
145T		TEFC	EM3582T	789	L1	12.55	56	82.5	230/460	1.8	1,30	
145T		TEFC	↳P14G7804	789	L1	12.75	67	82.5	230/460	1.8	30	

General Information

Single Phase Motors

General Purpose Industrial Motors

Premium Efficient Super-E® Motors

Severe Duty Motors

AEGIS SGR™ Bearing Protection Ring Kit for NEMA & IEC Motors

- *Protects motors from catastrophic failure*
- *Safely channels harmful VFD induced shaft currents to ground*
- *Easy to order and install for any NEMA or IEC frame size*



PROBLEM:

VFD Induced Shaft Voltages Damage Bearings

The use of variable frequency drives (VFD) with AC motors induce electrical voltages on the motor shaft. Once they exceed the resistance of the bearing lubricant, these voltages discharge to ground (typically the motor housing), causing fusion craters in the bearings. Over time, these craters increase in size and number, resulting in frosting, pitting, fluting, and eventually bearing failure. This type of premature bearing failure can cost thousands of dollars in increased maintenance and lost production.

SOLUTION:

AEGIS SGR™ - Electrical Bearing Damage Protection

The new AEGIS SGR Conductive MicroFiber™ Bearing Protection Ring™ prevents electrical damage to motor bearings by safely channeling harmful currents to ground. Using proprietary Electron Transport Technology, the conductive microfibers inside the AEGIS SGR provide the path of least resistance for damaging bearing currents, preventing electrical damage to motor bearings and dramatically extending motor life.



Easy to install on motor end bell

- Clears any slinger, shaft shoulder or protrusion
- Adjustable slots adapt to most end bells
- Rigid mounting plate ensures alignment
- Slim design, uses less than 1/2" usable shaft length





BALDOR® • RELIANCE

Product Information Packet

EM3116T-G

1HP,1760RPM,3PH,60HZ,143T,3519M,OPSB,F1

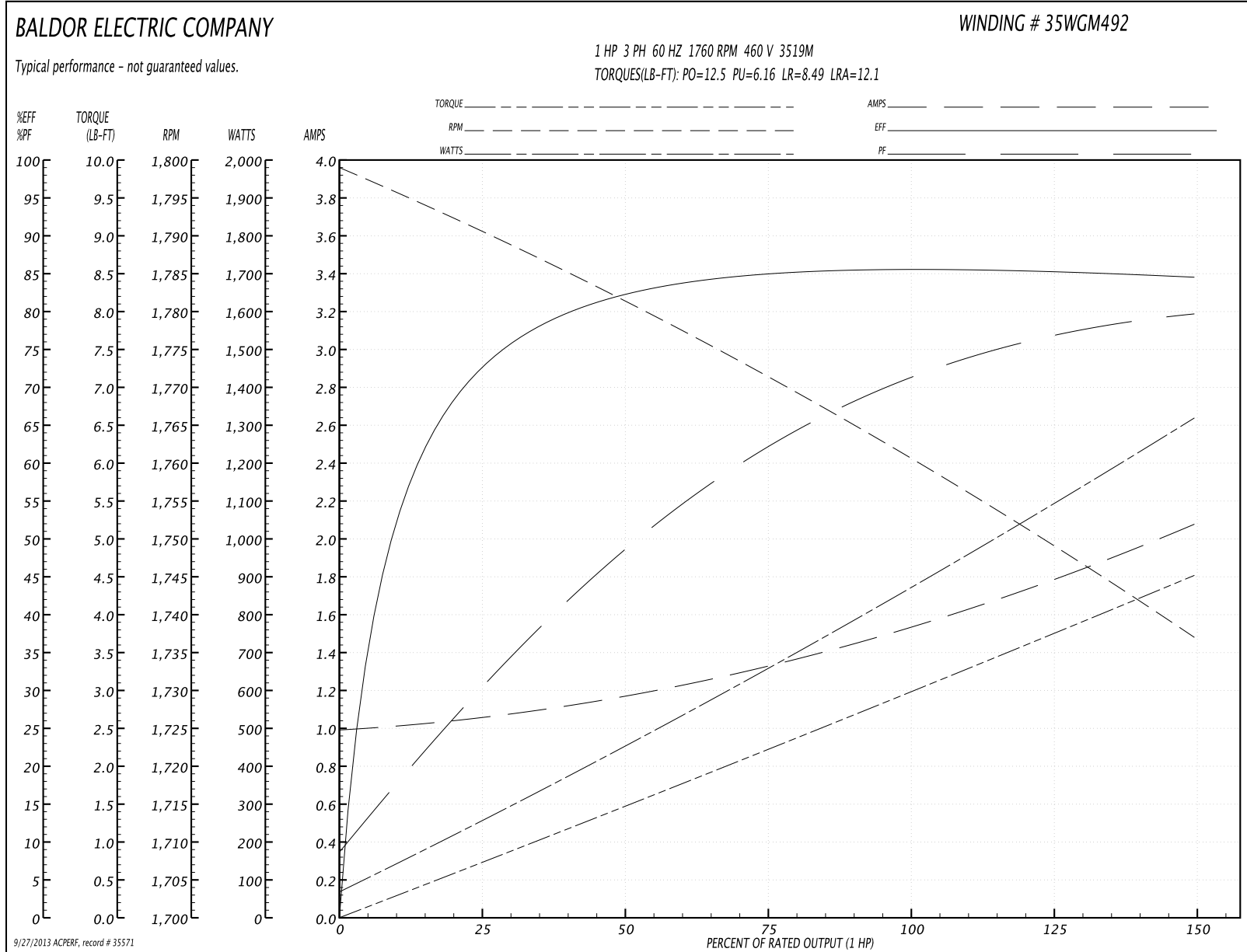
BALDOR • RELIANCE Product Information Packet: EM3116T-G - 1HP,1760RPM,3PH,60HZ,143T,3519M,OPSB,F1

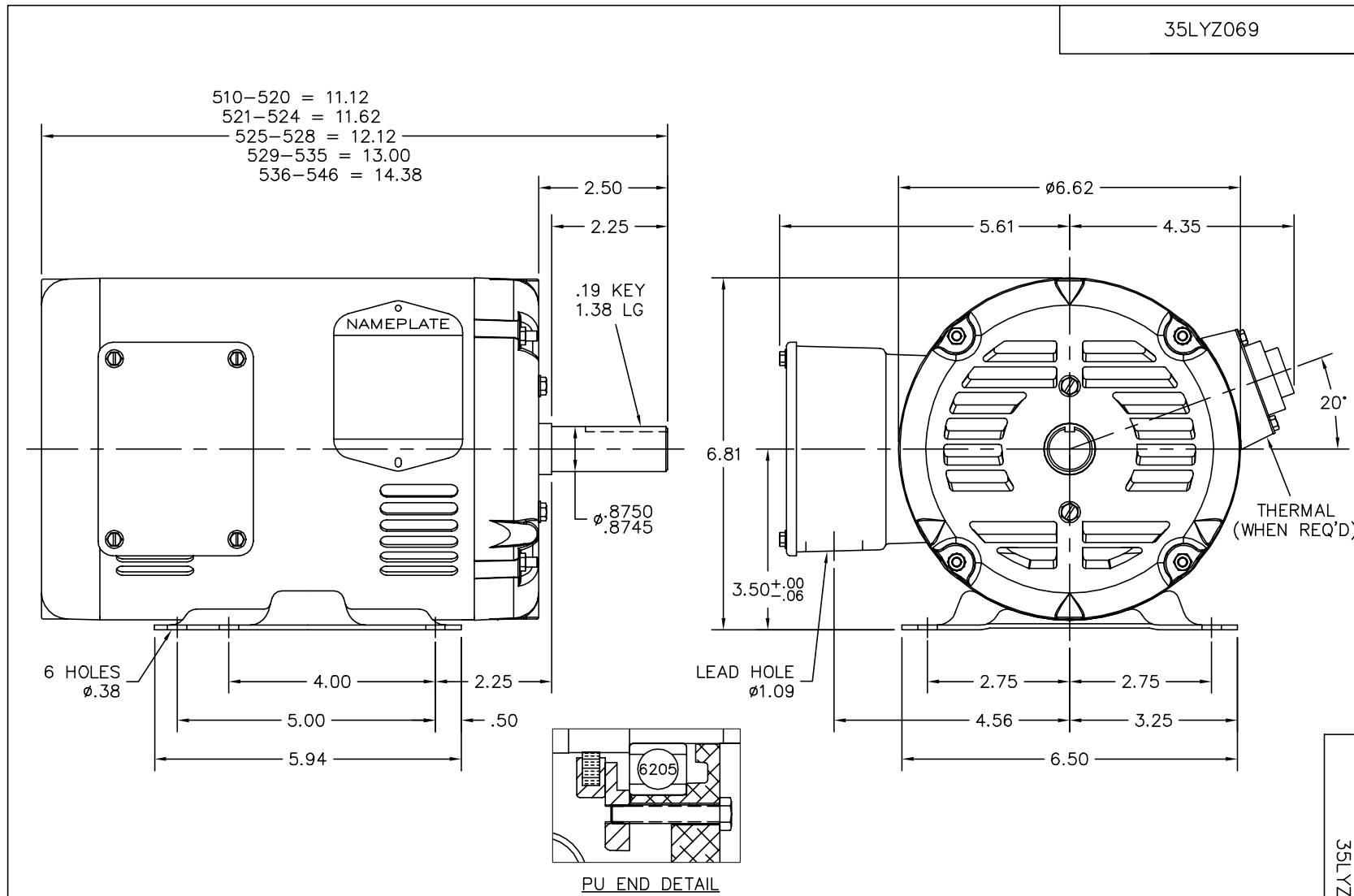
Part Detail										
Revision:	F	Status:	PRD/A	Change #:		Proprietary:	No			
Type:	AC	Prod. Type:	3519M	Elec. Spec:	35WGM492	CD Diagram:				
Enclosure:	OPSB	Mfg Plant:		Mech. Spec:	35Z069	Layout:				
Frame:	143T	Mounting:	F1	Poles:	04	Created Date:	08-25-2010			
Base:	RG	Rotation:	R	Insulation:	H	Eff. Date:	02-05-2013			
Leads:	9#18	Literature:		Elec. Diagram:		Replaced By:				
Nameplate NP1259L										
CAT.NO.	EM3116T-G									
SPEC.	35Z069M492G1									
HP	1									
VOLTS	208-230/460									
AMP	3.1-3/1.5									
RPM	1760									
FRAME	143T	HZ				60	PH	3		
SER.F.	1.15	CODE				L	DES	B	CL	H
NEMA-NOM-EFF	85.5	PF				71				
RATING	40C AMB-CONT									
CC	010A	USABLE AT 208V				3.1				
DE	6205	ODE				6203				
ENCL	OPSB	SN								

Performance Data at 460V, 60Hz, 1.0HP (Typical performance - Not guaranteed values)

General Characteristics							
Full Load Torque:	2.97 LB-FT			Start Configuration:	DOL		
No-Load Current:	1.0 Amps			Break-Down Torque:	12.5 LB-FT		
Line-line Res. @ 25°C.:	16.3 Ohms A Ph / 0.0 Ohms B Ph			Pull-Up Torque:	6.16 LB-FT		
Temp. Rise @ Rated Load:	36 C			Locked-Rotor Torque:	8.49 LB-FT		
Temp. Rise @ S.F. Load:	42 C			Starting Current:	12.1 Amps		
Load Characteristics							
% of Rated Load	25	50	75	100	125	150	S.F.
Power Factor:	30.0	49.0	62.0	71.0	76.0	80.0	74.0
Efficiency:	72.0	81.9	84.8	85.8	85.4	84.5	85.6
Speed:	1791.0	1781.0	1772.0	1761.0	1749.0	1737.0	1754.0
Line Amperes:	1.05	1.15	1.33	1.54	1.79	2.07	1.69

Performance Graph at 460V, 60Hz, 1.0HP Typical performance - Not guaranteed values





CUSTOMER IS RESPONSIBLE FOR DETERMINING THAT BALDOR'S PRODUCT WILL PERFORM SUITABLY IN THE INTENDED APPLICATION.

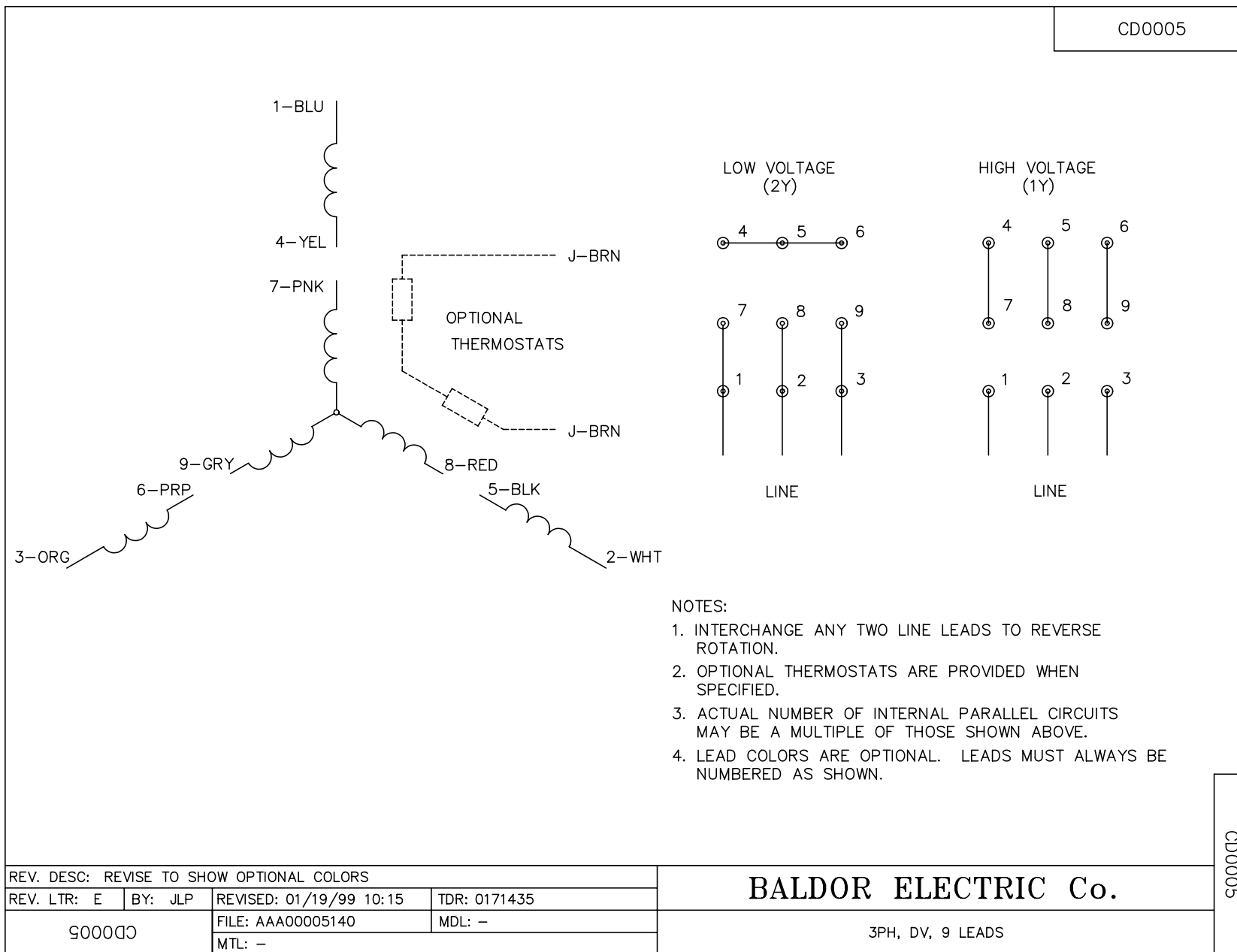
REV. DESC: CHG RET RING; CORRECT BAFFLE DIRECTION		
REV. LTR: C	VERSION: 03	TDR: 000000580747
FILE: \AAA\00174\501	REVISED: 01:58:46 02/10/2011	
MTL: -	BY: ENWINBO	

BALDOR

HOR 143-5T OPSB M, AEGIS INT SHAFT GND

SH 1 of 1

35LYZ069



CD0005



Job: HONDA PRECISION PARTS OF GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

Cooling Coil Schedule

Unit No.	Coil Tag	Air Flow (CFM)	Face Velocity (FPM)	No. Coils	Size H x L Each	Rows	Fins per in.	Sensible Cooling	Total Cooling	Mfg.	Model	Fin Design	* Handing
AHU-36	CC-36	1700	242	1	37.5x27	4	9	37.3	43.6	Heatcraft	5WQ0904B	B	Right

Unit No.	Coil Tag	Ent Temp (Air) DB (F)	Ent Temp (Air) WB (F)	Lvg Temp (Air) DB (F)	Lvg Temp (Air) WB (F)	Ent Temp Fluid (F)	Lvg Temp Fluid (F)	Flow Rate (GPM)	Fluid Press Drop (Ft H ₂ O)	Air Press Drop (in H ₂ O)	Fluid	Turbulators
AHU-36	CC-36	77.0	64.0	56.9	55.5	42.0	60.8	4.63	0.81	0.12	Water	Not Included

Unit No.	Coil Tag	Fin Material	Tube Material	Casing Material	Intermediate Drain	Coating	Flange Size
AHU-36	CC-36	Copper Extra Heavy (.0095" thickness)	5/8 Copper extra heavy wall (.035 thickness)	Stainless Steel	No	None	3/4"

* Heatcraft – Hand is determined by facing the coil with air hitting in back of head.

Customer: Date: 1/3/2014
 Contact: From:
 Telephone: Company:
 Cell: Return Tel:
 Fax: Return Fax:
 Job:
 Quote #:

Construction

Item: AHU-36 CC
 Coils Per Bank: 1
 Allow Opp. End: No
 Tube OD IN: 5/8
 Coil Duty: Cool-Standard
 Fins Per Inch: 9
 Rows: 4
 Fin Surface: Optimize ABC
 Fin Height (IN): 37.50
 Finned Length (IN): 27.00
 Tubing Mat. (IN): 0.035 Copper
 TurboSpirals: No
 Fin Mat. (IN): 0.0095 Aluminum
 Conn Qty/Size (IN): 1 / Optimize
 Circuiting: Quarter
 Face Area (SQ FT): 7.03

Air Side

Air Flow (Sft³/min) 1700.0
 Altitude FT: 0.00
 Ent. Air DB/WB °F: 77.00 / 64.00
 Lvg. Air DB/WB °F: 57.00 / 57.00
 Total / Sensible MBH: 0.00 / 0.00
 Max Air PD "H2O: 0.00

Fluid Side

Fluid Type: Water
 Ent. Fluid : 42.00
 Lvg. Fluid : 58.00
 Fluid Flow gal/min: 0.00
 Max FPD FT H2O: 0.00

OUTPUT DATA		Most Economical			Specified Coil		
		Coil 1	Coil 2	Coil 3	Coil 4	Coil 5 ✓	Coil 6
Model Number:						5WQ0904B	
Air Velocity:	(Sft/min)					241.8	
Total Capacity:	MBH					43.57	
Sens. Capacity:	MBH					37.31	
Lvg. Air DB:	°F					56.93	
Lvg. Air WB:	°F					55.47	
Standard APD	"H2O					0.12	
Lvg. Fluid:	°F					60.76	
Fluid Flow:	gal/min					4.63	
Fluid PD:	FT H2O					0.81	
Fluid Vel.:	ft/s					0.93	
Conn Size:	IN					(1) 1.500	
Internal Volume:	in ³					1031.4	
Weight (Dry):	lbm					142.9	
Weight (w/Fluid):	lbm					180.6	
Notes:						AL	
Price Each:							
Total Cost (1):							

Notes:

A) AHRI Certified And Rated In Accordance With AHRI Standard 410. L) Coil rating valid for Heatcraft coils only.

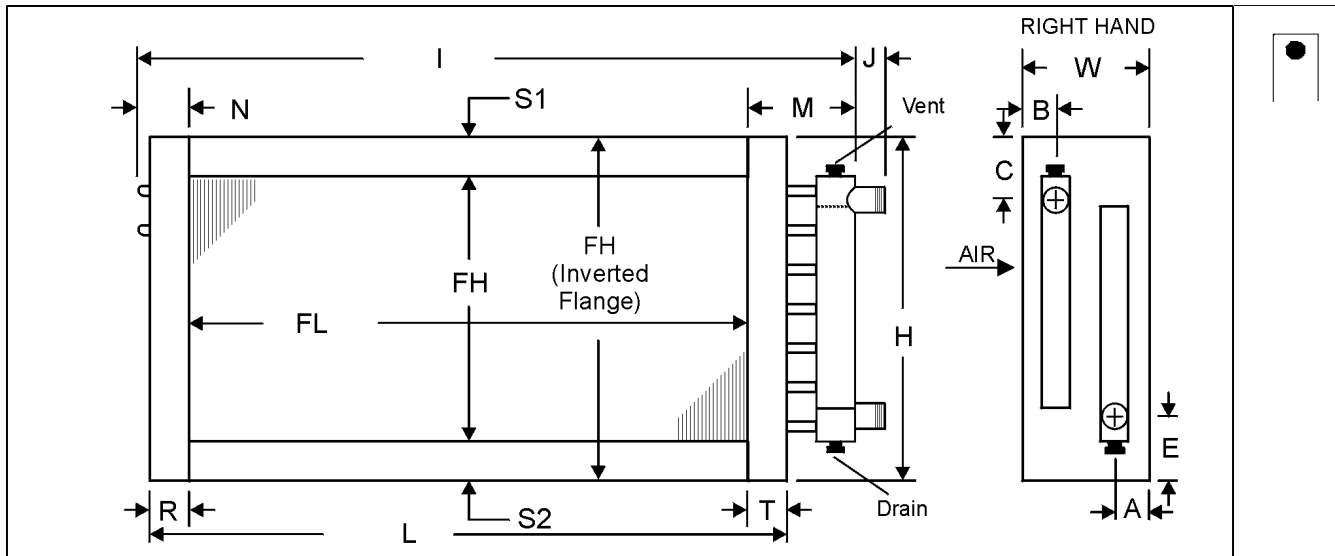
Customer:
Contact:
Telephone:
Cell:
Fax:
Job:
Quote #:

Date: 1/3/2014
From:
Company:
Return Tel:
Return Fax:

ITEM	QTY	MODEL NUMBER						HAND
		TYPE	FPI	ROWS	FIN	FH (IN)	FL (IN)	
AHU-36 CC	1	5WQ	09	04	B	37.50	27.00	Right

MATERIALS OF CONSTRUCTION		OPTIONS				
Fins	0.0095 Aluminum	Coating	None		TurboSpirals	No
 Tubes	0.035 Copper	Casing Type	Flanged		Moisture Eliminator	No
Casing	304L S/S	Vent & Drain	.50 FPT on Face		Mounting Holes	No
Conn. Material	Carbon Steel				Label Kit	Yes
Conn. Type	MPT				Drain Headers	No
Conn. Size	1.50				Tube Ferrules	No
Weight (LBS)	143.0					

Vent/Drain Location



DIMENSIONAL DATA(IN)																
A	B	C	D	E	F	H	I	J	L	M	N	R	S1	S2	T	W
1.80	1.80	12.00	0.00	12.00	0.00	39.00	34.00	9.00	30.00	4.50	2.50	1.50	0.75	0.75	1.50	7.50

NOTES:

GENERAL NOTES:

1. All dimensions are in (in)
2. Manually verifying dimensions is highly recommended.
3. The supply line should be connected to the lower connection on the leaving air side for counterflow operation.
4. Coils will vent and drain through factory-installed vent and drain fittings when mounted level for horizontal flow.
5. Connection location other than standard could affect vent and drain locations. Consult factory.



Job: HONDA PRECISION PARTS OF GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

Electric Heater Schedule

Unit No.	Mfg.	Control Box Location	Heater KW	Stages	Duct Width	Duct Height	Voltage	Phase	Hertz	Heating Element	Enclosure Type	Control Type	Control Input Signal
AHU-36	Thermolec	Inside	13.4	1	36	46	460	3	60	Open Coil	NEMA 4X	SCR Horizontal Airflow	1-10 VDC



2060 LUCIEN-THIMENS STREET, ST-LAURENT, QUEBEC, CANADA, H4R 1L1
 TEL: (514) 336-9130 www.thermolec.com
 FAX: (514) 336-3270

IMPERIAL SYSTEM

METRIC SYSTEM

CSA-NRTL/C APPROVED # LR-30551

F/M

DATE Y^M/O^D/03

ATTENTION QUOTE

QUOTE # 485033

01/06/2014

*** QUOTATION ONLY ***
 CUSTOMER NAME : TRANE ARKANSAS
 CONSULTING ENG.:
 PROJECT :
 CONTRACTOR :

ELECTRIC HEATER		DIMENSIONS			ELECTRICAL DATA					BUILT-IN CONTROLS	
ITEM	TAG	QUANTITY	W	H	KW	VOLT/PH	AMPS	CFM	ST/KW	OPTIONS	SYMBOLS ARE EXPLAINED BELOW
			TYPE							CONTR VOLTS	
1		1	25.00 SC	43.00	13.40	480/3	16.08 1700	1700	1/ 228	13.40 24	C2CACNT0P6B1A1X6SCGA LWDXXM4

REMARKS:

OPTIONS:

C2 MAGNETIC CONTACTOR FULL BREAK MX 304 S.S. NEMA 4X CONTROL BOX
 CA AUTOMATIC CUT-OUT M4 RECESSED ENCLOSURE, BLANK FRAME
 CN MANUAL CUT-OUT
 T0 TRANSF.C/W FUSIBLE LINK
 P6 BUILT-IN AIR FLOW SENSOR
 B1 S.C.R. BY THERMOLEC
 A1 INPUT 0-10V
 X6 DOOR INTERLOCK DISC. SWITCH
 SC SLIP-IN DUCT HEATER
 GA 80/20 NICKEL CHROMIUM ELEMENTS
 LW LOW WATTS DENSITY ELEMENTS
 DX DUCT DIMENS. TO BE CONFIRMED

Mech.48



THERMOLEC FEATURES

Standard ●

Optional □

MERCURY CONTACTORS □

Used to power individual stages of heating. They allow a silent operation and are exceptionally reliable.

AUTOMATIC RESET CUT-OUT ●

The automatic reset thermal cut-out is a fail-safe, fixed temperature, disc type safety device that opens the circuit when it's set point is reached. It automatically resets and returns the heater to operating conditions.

TUBULAR INCOLOY ELEMENT ●

DISCONNECT SWITCH □

A built-in disconnect switch allows user to disconnect heaters individually in order to safely perform maintenance tasks.

AIRFLOW SWITCH ●

Used to prevent a heater from operating if there is no airflow. Provided with a pitot tube which, when installed into the duct, makes it sensitive to velocity pressure as well as to static pressure.

FUSES □

Used to protect the total load or individual stages.

TRANSFORMER ●

Built-in control transformer supplies 24 volts to the control circuit.

HIGHEST GRADE OPEN COIL ●

SOLID STATE RELAY □

Electronic contactor used to silently and proportionally control the heater in response to a pulsed signal.

MAGNETIC CONTACTORS ●

Used to power individual stages of heating or as back-up for safety switches.

SCR CONTROLLER □

The SCR is a time proportioning type controller that modulates the heater and supplies the exact amount of power to match the heat demand. It is compatible with thermistor thermostat (RT or DT), 0-10 Vdc, 4-20 mA, 0-135 ohms input signals.

All Thermolec Heaters are CSA and NRTL/C approved.

The NR TL/C indicator adjacent to the CSA Mark signifies that the product has been evaluated to the applicable ANSI/UL and CSA Standards, for use in the U.S. and Canada. NRTL, i.e. Nationally Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.



Job: HONDA PRECISION PARTS OF GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

Damper Schedule

Unit No.	Qty.	Service	Damper WXH (in)	CFM	Velocity (FPM)	Blade Action	Torque (in-lbs)	Manufacturer	Model	Actuators Provided?	Feature Codes
AHU-36	1	Outside Air	24x16	1700	638	Opposed Blade	19	Ruskin	CD-50	No	RF
AHU-36	1	Return	24x12	1700	850	Opposed Blade	14	Ruskin	CD-50	No	FF

Feature Codes

FF	Front Flange
RF	Rear Flange

RUSKIN®

AMCA LICENSED
See Page 2

3900 Dr. Greaves Rd. • Kansas City, MO 64030 • (816) 761-7476 • FAX (816) 765-8955

CD50 LOW LEAKAGE CONTROL DAMPER

High Performance Extruded Aluminum Airfoil
Class 1A Leakage Rated

APPLICATION

The CD50 is a low leak, extruded aluminum damper designed with airfoil blades for higher velocity and pressure HVAC systems. It meets the leakage requirements of the International Energy Conservation Code by leaking less than 3 cfm/sq. ft. at 1" of static pressure and is AMCA licensed as a Class 1A damper.

STANDARD CONSTRUCTION

FRAME

5" x 1" x 6063T5 extruded aluminum hat channel with .125" minimum wall thickness (127 x 25 x 3.2). Low profile, 5" x 1/2" (127 x 13) top and bottom frames on dampers 12" (305) high and less. Mounting flanges on both sides of frame.

BLADES

6" (152) wide, 6063T5 heavy gage extruded aluminum, airfoil shape.

SEALS

Ruskiprene blade edge seals and flexible metal compressible jamb seals.

BEARINGS

Molded synthetic.

LINKAGE

Concealed in frame.

AXLES

1/2" (13) plated steel hex.

MAXIMUM SIZE

Single section – 60"w x 72"h (1524 x 1829).
Multiple section assembly – Unlimited size.

MINIMUM SIZE

Single blade – 6"w x 5"h (152 x 127).
Two blades, parallel or opposed action: 6"w x 9"h (152 x 229).

TEMPERATURE LIMITS

-72°F (-58°C) and +275°F (+135°C) .

FEATURES

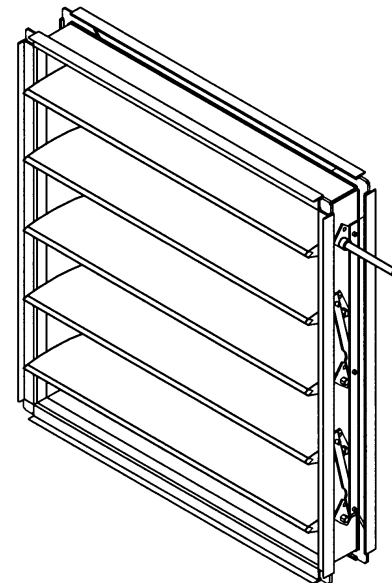
- Airfoil blade design for low pressure drop and less noise generation.
- Positive lock axles, noncorrosive bearings and shake proof linkage for low maintenance operation.
- Blade edge seals mechanically lock into the blade for superior sealing.

OPTIONS

- Factory-installed, pneumatic and electric actuators.
- Enamel and epoxy finishes.
- SP100 Switch Package to remotely indicate damper blade position.
- 16 gage galvanized steel hat channel frame.
- Front, rear or double flange frame with or without bolt holes.
- Face and bypass configurations.

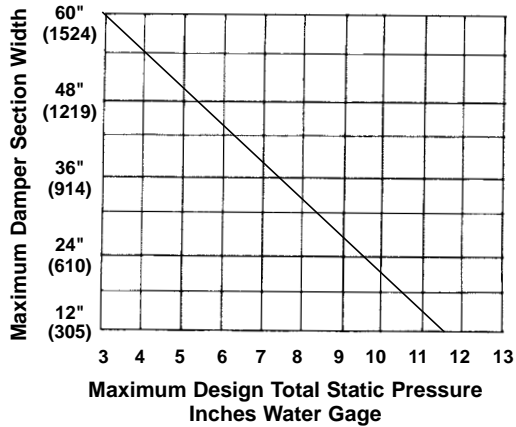
NOTE: Dimensions shown in parenthesis () indicate millimeters.

*Units furnished approximately 1/4" (6) smaller than given opening dimensions.



CD50 AMCA LICENSED PERFORMANCE DATA

CD50 PRESSURE LIMITATIONS



The CD50 may be used in systems with total pressures exceeding 3.5" by reducing damper section width as indicated. Example: Maximum design total pressure of 8.5" w.g. would require CD50 damper with maximum section width of 36" (914).

Pressure limitations shown above allow maximum blade deflection of 1/180 of span on 60" (1524) damper widths. Deflections in other damper widths (less than 48" [1219]) at higher pressures shown will result in blade deflection substantially less than 1/180 of span.



Ruskin Company certifies that the CD50 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA International Certified Ratings Seal applies to Air Performance and Air Leakage.

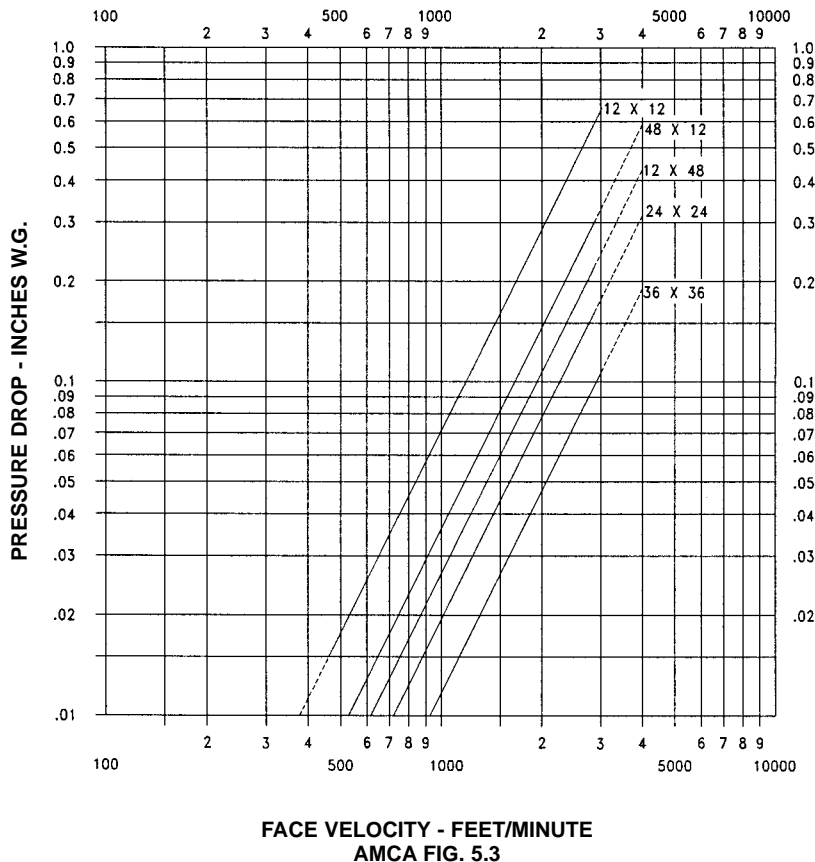
Pressure/Class	Leakage, L/s/m ² (ft ³ /min/ft ²)			
	Required Rating		Extended Ranges (Opt.)	
	1" (0.25 kPa)	4" (1.0 kPa)	8" (2.0 kPa)	12" (3.0 kPa)
1A	3 (15.2)	N/A	N/A	N/A
1	4 (20.3)	8 (40.6)	11 (55.9)	14 (71.1)
2	10 (50.8)	20 (102)	28 (142)	35 (178)
3	40 (203)	80 (406)	112 (569)	140 (711)

DAMPER WIDTH (INCHES)	1 IN. W.G.	4 IN. W.G.	8 IN. W.G.
12" (305)	IA	I	II
24" (610)	IA	I	II
36" (914)	IA	I	NA
48" (1219)	IA	I	NA
60" (1524)	IA	I	NA

Leakage testing conducted in accordance with AMCA Standard 500-D-98. Torque applied holding damper closed, 5 in. lbs./sq. ft. on opposed blade dampers and 7 in. lbs./sq. ft. on parallel blade

dampers. Air leakage is based on operation between 50°F to 104°F. All data corrected to represent standard air density 0.075 lbs/ft³.

VELOCITY VS. PRESSURE DROP



FACE VELOCITY - FEET/MINUTE
AMCA FIG. 5.3

CD50 sizes 12 x 12, 24 x 24, 48 x 12, 12 x 48, 36 x 36 (305 x 305, 610 x 610, 1219 x 305, 305 x 1219, 914 x 914)

All data corrected to represent standard air at a density of 0.075 lbs/ft³.

SOUND RATINGS

CD50 SOUND RATINGS

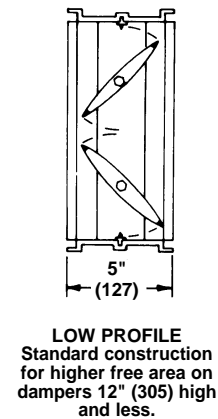
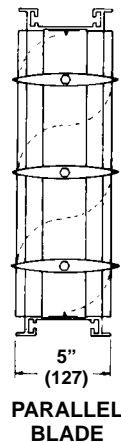
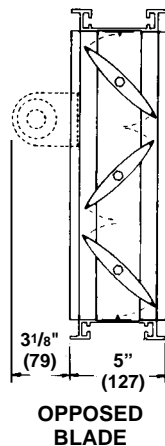
Damper Size	Damper Full Open		Damper 75% Open		Damper 50% Open		Damper 25% Open	
	CFM	NC	CFM	NC	CFM	NC	CFM	NC
12 x 12 (305 x 305)	2000	17	1500	11	1000	11	500	*
	3000	28	2250	22	1500	19	750	*
	4000	35	3000	29	2000	24	1000	*
18 x 18 (457 x 457)	2250	17	1688	10	1125	21	563	*
	4500	33	3375	26	2250	32	1125	*
	6750	43	5063	37	3375	40	1688	15
24 x 24 (610 x 610)	4000	11	3000	10	2000	26	1000	*
	8000	32	6000	30	4000	38	2000	21
	12000	43	9000	42	6000	46	3000	31

NC = Noise criteria in Decibels is based on 10db room effect and 10db of room attenuation.

* = Less than 10 NC

See ASHRAE Handbook (1977 Fundamentals, Chapter 7) for explanation of NC Ratings.

DIMENSIONAL INFORMATION



CD50 SUGGESTED SPECIFICATION

Furnish and install, at locations shown on plans, or in accordance with schedules, Low leakage dampers shall meet the following minimum construction standards: Frames shall be 5" x 1" x .125" (minimum thickness) (127 x 25 x 3.2) 6063T5 extruded aluminum hat channel with hat mounting flanges on both sides of the frame. Each corner shall be reinforced with two die formed internal braces and machine staked for maximum rigidity. Blades shall be airfoil type extruded aluminum (maximum 6" [152] depth) with integral structural reinforcing tube running full length of each blade.

Blade edge seals shall be extruded double edge design with inflatable pocket which enables air pressure from either direction to

assist in blade to blade seal off. Blades seals shall be mechanically locked in extruded blade slots, yet shall be easily replaceable in field. Adhesive or clip-on type blade seals are not acceptable. Bearings shall be non-corrosive molded synthetic. Axles shall be hexagonal (round not acceptable) to provide positive locking connection to blades and linkage. Linkage shall be concealed in frame. Submittal must include leakage, maximum air flow and maximum pressure ratings based on AMCA Publication 500. Damper shall be tested and licensed in accordance with AMCA 511 for Air Performance and Air Leakage. Damper widths from 12" to 60" (305 to 1524) wide shall not leak any greater than 8 cfm sq. ft. @ 4" w.g. and a maximum of 3 CFM sq. ft. @ 1" w.g. Dampers shall be in all respects equivalent to Ruskin Model CD50.



Job: HONDA PRECISION PARTS OF GEORGIA

EQ Number: 17377

Date: Jan 3, 2014

Rev.:

Pre-Filter Schedule

Unit No.	Filter Type	UL Class	CFM	Face Velocity (FPM)	Filter Qty & Size	Fastener Type	Frame Type	Mfg.	Filter Model	Gauge	Access	No. of Sets
AHU-36	Pleated Filters	UL Standard 900	1700	213	(1) 24x24 (2) 24x12	C-70	Galv. Type8	AAF	PerfectPleat 2" MERV8	Dwyer Magnehelic 2001	Upstream	2



AmericanAirFilter®
PerfectPleat® M8
PerfectPleat®

*1" and 2" Extended Surface,
Pleated Filter with
Process-Controlled Quality*

With DuraFlex® Media

AmericanAirFilter®

PerfectPleat® M8 -MERV 8 PerfectPleat® -MERV 7

Extended Surface, Pleated Filter with Process-Controlled Quality

- **Mechanical efficiency** — does not rely on electret charge technology
- **Form and fit unlike any other pleat available today**
- **Self-supporting DuraFlex® media made from virgin fiber; no wire support needed**
- **Consistent media with controlled fiber size and blend**
- **High capacity model, PerfectPleat M8, available for applications where higher efficiencies, airflow, and longer life are important**
- **Available in 1", 2" and *4" models**
- **Patented media, filter design, and manufacturing process. Patents covered under one or more of the following US 6398839 B2; US 6254653 B1; US 6159318; US 6165242; US 6387140 B1 (1" model only)**

The Air Filtration Leader

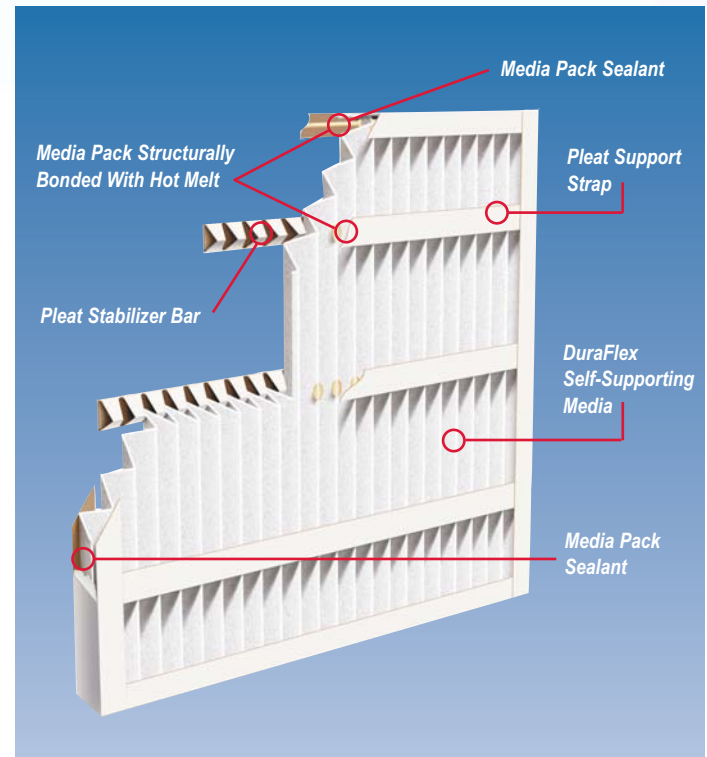
AAF International, one of the world's largest manufacturers of air filtration products, is known for technical innovation and excellence. Designed, developed, and patented by AAF, the PerfectPleat is a product with form and fit unlike any other pleated filter in the marketplace today. In addition, the PerfectPleat has the filtering efficiency you need and expect.

Superior Design and Construction

Drawing on years of experience in manufacturing quality air filters, AAF has created a state-of-the-art process for producing pleated filters. The extremely high quality of these filters is a result of three unique innovations: a new, automated manufacturing process; a unique, self-supporting media; and a filter construction that provides incredible strength without wire support.

Since their introduction, pleated filters have become a larger and more important segment of the filtration marketplace. However, conventional design and process are not conducive to the manufacture of consistently pleated media packs or finished filters. Inconsistency in pleat arrangement, variations in media, improper bonding of media to frame, along with antiquated manufacturing techniques, have a negative impact on efficiency, resistance, durability, and strength. The automated and controlled process AAF has developed for the PerfectPleat eliminates these inconsistencies and irregularities. Our automated manufacturing process offers consistency unmatched by conventionally manufactured pleats.

* See brochure AFP-1-206 for 4" model.



PerfectPleat 2" Construction

DuraFlex® Media - Patented Media Design

Uniform size virgin fibers are assembled in closely controlled blends to create a media that is both self-supporting and remarkably consistent in performance. When pleated, DuraFlex will hold its shape without the wire support characteristic of conventional pleated filters. That means no potential for the formation of rust and safer handling - no nicks or cuts for the installer or handler.

With the superior resiliency of DuraFlex media and no need for wire support, the PerfectPleat can sustain significant abuse and maintain its shape and pleat spacing. The absence of the wire also makes the filter totally incinerable, which simplifies disposal. The PerfectPleat meets or exceeds all current expectations for service life.



As a result of its unique design, PerfectPleat can withstand significant damage.



DuraFlex media has "memory" which allows PerfectPleat to remain functional, even when the frame has been compromised.

Increasing Efficiency — Throughout Life of the Filter

PerfectPleat is designed to consistently increase its efficiency throughout the service life of the filter. Competitive pleated panel filters, manufactured using an electret charge to obtain the MERV 8 rating, perform with declining efficiency over time. PerfectPleat M8 and PerfectPleat have initial MERV 8 and MERV 7 ratings respectively, but the efficiency increases significantly when dust loading begins.

Applications

PerfectPleat's self-supporting characteristics allow a pleating pattern that promotes airflow and maximizes dust holding capacity (DHC). The PerfectPleat M8 is ideal for applications where pleated filters are currently in use and higher efficiencies are required or desired. PerfectPleat is best suited for standard capacity pleated filter applications. Heavy Duty (HD) PerfectPleat is available for applications where extremely low temperature and high airflow are present. See Brochure AFP-1-201. Every PerfectPleat offers superior durability and performance when properly installed and maintained.



Environmentally Responsible Air Filtration Solutions

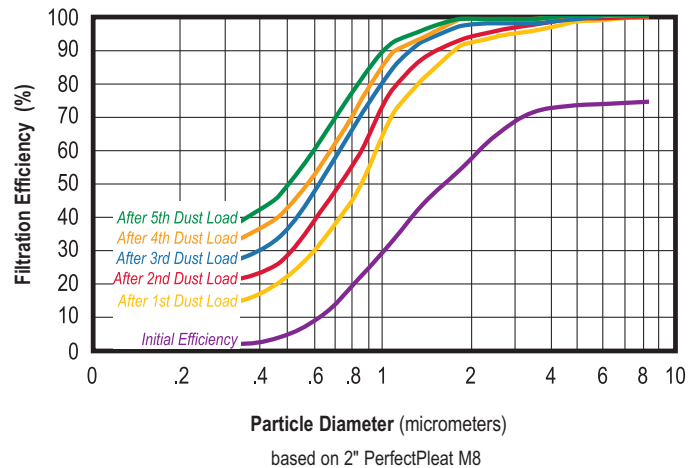
AAF International is committed to operating with a goal of sustainability. We have implemented several initiatives to work and manufacture in an environmentally responsible manner and contribute more to protecting our planet by using fewer natural resources and reducing our carbon footprint. AAF's PerfectPleat product design minimizes base raw material consumption and meets our "Green" product development standards. The PerfectPleat product line is totally incinerable and the absence of support wire simplifies disposal. Used during construction, PerfectPleat M8 may contribute to LEED® certification points under IEQ categories.

2" PerfectPleat — Heavy Duty Frame

The perimeter frame of the PerfectPleat M8 and PerfectPleat is constructed from the highest wet-strength 28 pt. beverage carrier board available, securely bonded to the media pack. The 28 pt. thickness improves filter strength and helps resist damage.

Uniquely designed pleat stabilizers are bonded to the media on the air leaving side to ensure uniform pleat spacing and provide additional strength. On the air-entering side, support straps add to the PerfectPleat's rigidity. The support straps and pleat stabilizers ensure integrity against turbulent airflow and provide excellent lateral stability for installation in side-access systems.

Particle Size Efficiency Curves



1" PerfectPleat — Strength and Durability

The 1" PerfectPleat M8 and PerfectPleat have the same durability and performance as the 2" models. Both are made using DuraFlex media encased in a 28 pt. beverage carrier board frame. PerfectPleat 1" models feature a perimeter frame, with three supporting straps on the air entering and air leaving sides of the filter. Both models resist crushing and abuse and can be used in any application where 1" filters are currently in place. PerfectPleat M8 is rated MERV 8 and PerfectPleat rates MERV 7.



PerfectPleat M8, 1" thick, air leaving side. A blue stripe designates PerfectPleat M8 media.

AmericanAirFilter®

PerfectPleat® M8 -MERV 8

PerfectPleat® -MERV 7

Product Information Standard Sizes

Nominal Sizes (Inches) (W x H x D)	Actual Sizes (Inches) (W x H x D)	Rated Airflow Capacity (SCFM)			Pleats Per Filter			
		300 FPM	500 FPM	625 FPM	PerfectPleat M8 1"	PerfectPleat 1"	PerfectPleat M8 2"	PerfectPleat 2"
10 x 10 x 1	9½ x 9½ x ¾	200	350		11	11		
10 x 20 x 1	9½ x 19½ x ¾	400	700		11	11		
12 x 12 x 1	11½ x 11½ x ¾	300	500		14	14		
12 x 20 x 1	11½ x 19½ x ¾	500	850		14	14		
12 x 24 x 1	11¾ x 23¾ x ¾	600	1000		14	14		
14 x 20 x 1	13½ x 19½ x ¾	600	1000		16	16		
14 x 25 x 1	13½ x 24½ x ¾	750	1200		16	16		
15 x 20 x 1	14½ x 19½ x ¾	650	1050		17	17		
16 x 16 x 1	15½ x 15½ x ¾	550	900		19	19		
16 x 20 x 1	15½ x 19½ x ¾	650	1100		19	19		
16 x 25 x 1	15½ x 24½ x ¾	850	1400		19	19		
18 x 20 x 1	17½ x 19½ x ¾	750	1250		21	21		
18 x 24 x 1	17¾ x 23¾ x ¾	900	1500		21	21		
18 x 25 x 1	17½ x 24½ x ¾	950	1550		21	21		
20 x 20 x 1	19½ x 19½ x ¾	850	1400		24	24		
20 x 25 x 1	19½ x 24½ x ¾	1050	1750		24	24		
24 x 24 x 1	23¾ x 23¾ x ¾	1200	2000		29	29		
25 x 25 x 1	24½ x 24½ x ¾	1300	2200		30	30		
10 x 20 x 2	9½ x 19½ x 1¾	400	700	850			11	8
12 x 20 x 2	11½ x 19½ x 1¾	500	850	1050			14	10
12 x 24 x 2	11¾ x 23¾ x 1¾	600	1000	1250			14	10
14 x 25 x 2	13½ x 24½ x 1¾	750	1200	1500			16	11
15 x 20 x 2	14½ x 19½ x 1¾	650	1050	1300			17	12
15 x 25 x 2	14½ x 24½ x 1¾	800	1300	1650			17	12
16 x 16 x 2	15½ x 15½ x 1¾	550	900	1100			19	13
16 x 20 x 2	15½ x 19½ x 1¾	650	1100	1400			19	13
16 x 24 x 2	15¾ x 23¾ x 1¾	800	1350	1650			19	13
16 x 25 x 2	15½ x 24½ x 1¾	850	1400	1750			19	13
18 x 25 x 2	17½ x 24½ x 1¾	950	1550	1950			21	15
18 x 24 x 2	17¾ x 23¾ x 1¾	900	1500	1900			21	15
20 x 20 x 2	19½ x 19½ x 1¾	850	1400	1750			24	17
20 x 24 x 2	19¾ x 23¾ x 1¾	1000	1650	2100			24	17
20 x 25 x 2	19½ x 24½ x 1¾	1050	1750	2150			24	17
24 x 24 x 2	23¾ x 23¾ x 1¾	1200	2000	2500			29	20
25 x 25 x 2	24½ x 24½ x 1¾	1300	2150	2700			30	21

PerfectPleat and PerfectPleat M8 filters are classified UL Class 2. Testing was performed according to UL Standard 900 and CAN 4-S111.

Performance Data

Filter	Pleats Per Lineal Foot	Rated Initial Resistance (in. w.g.)			Recommended Final Resistance (in. w.g.)	ASHRAE 52.2 MERV	Continuous Operating Temperature Limits	
		300 FPM	500 FPM	625 FPM			°F	°C
PerfectPleat M8 2"	15.0	.16	.33	.43	1.0	8	170°	77°
PerfectPleat 2"	10.0	.14	.30	.45	1.0	7	170°	77°
PerfectPleat M8 1"	15.0	.31	.62	----	1.0	8	170°	77°
PerfectPleat 1"	15.0	.20	.48	----	1.0	7	170°	77°

AAF® 10300 Ormsby Park Place Suite 600
Louisville, Kentucky 40223-6169
www.aafintl.com
Customer Service 888.AAF.2003
Fax 888.223.6500



AAF has a policy of continuous product research and improvement and reserves the right to change design and specifications without notice.

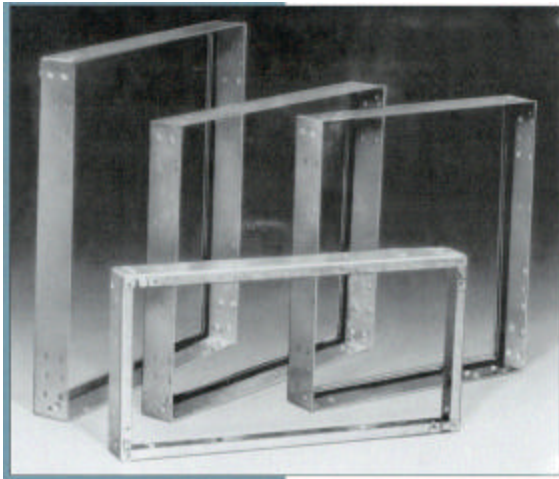
ISO Certified 9001:2000

©2008 AAF International

The USGBC Member logo is a trademark owned by the U.S. Green Building Council and is used by permission.



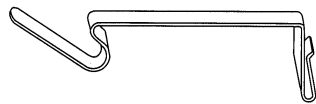
FILTER FRAMES and FASTENERS



Specifications:

Type 8 Universal Holding Frames

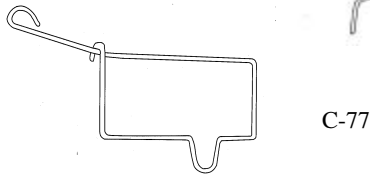
Universal holding frames shall be constructed of not less than 16-gauge galvanized steel. They shall be equipped with polyurethane foam gaskets, fasteners, and filter centering dimples. The four sealing flange corners shall be flush mitered and secured in order to form a uniform sealing and gasketing surface. The in line depth shall not be less than 2.69" in order to effect adequate bearing surface for built-up filter banks. Filter fasteners shall be capable of being installed without the requirements of tools, nuts, or bolts. The holding frames shall be universal in that they shall be designed to accommodate standard size filters. Frames shall be equal to Farr Type 8.



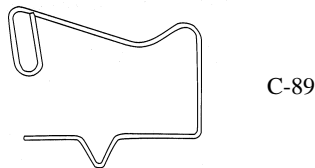
C-79 Series



C-80



C-77



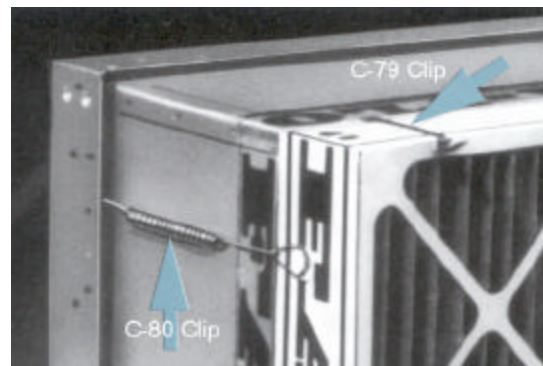
C-89



C-70

Fasteners:

2" Pre-filter -	C-70
4" Pre-filter	C-77
2" Pre-filter on 12" cartridge	VP-2
4" Pre-filter on 12" cartridge	VP-4
2" Pre-filter with bag filter	C-70
4" Pre-filter with bag filter	C-89
12" cartridge	C-80
6" cartridge	C-90

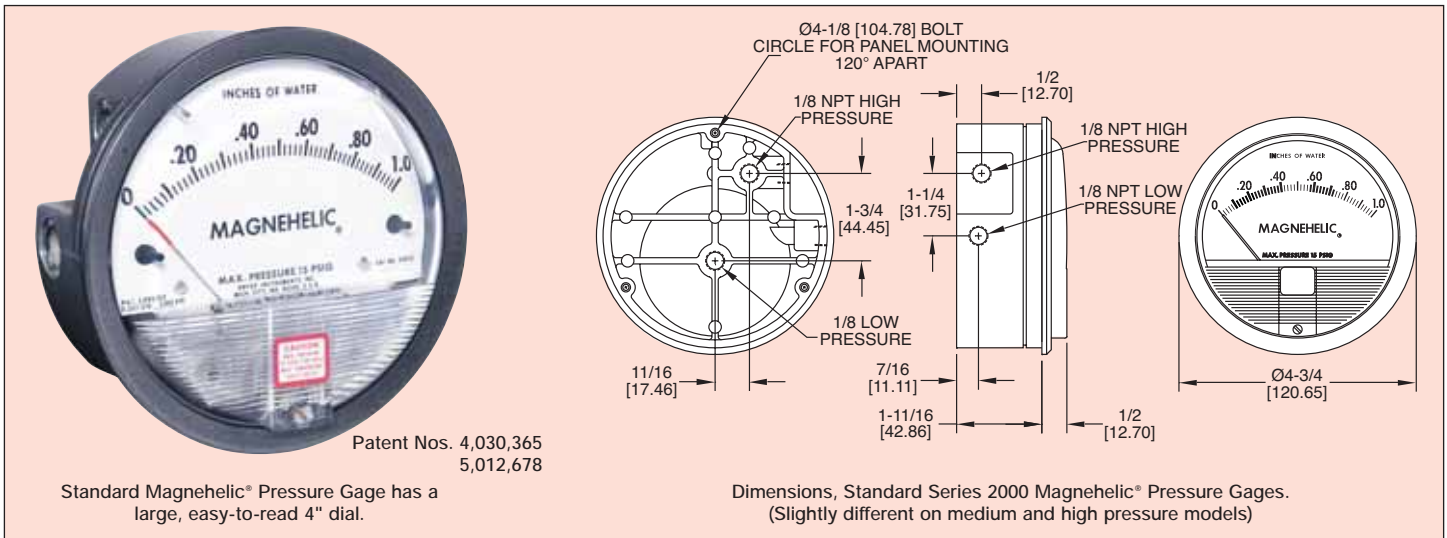


Pre-filter is clipped to 12" cartridge filter with the C-79 clip.

Series
2000

Magnehelic® Differential Pressure Gages

Indicate Positive, Negative or Differential, Accurate within 2%



Select the Dwyer® Magnehelic® gage for high accuracy – guaranteed within 2% of full scale – and for the wide choice of 81 models available to suit your needs precisely. Using Dwyer's simple, frictionless Magnehelic® gage movement, it quickly indicates low air or non-corrosive gas pressures – either positive, negative (vacuum) or differential. The design resists shock, vibration and over-pressures. No manometer fluid to evaporate, freeze or cause toxic or leveling problems. It's inexpensive, too.

The Magnehelic® gage is the industry standard to measure fan and blower pressures, filter resistance, air velocity, furnace draft, pressure drop across orifice plates, liquid levels with bubbler systems and pressures in fluid amplifier or fluidic systems. It also checks gas-air ratio controls and automatic valves, and monitors blood and respiratory pressures in medical care equipment.

Note: May be used with Hydrogen. When ordering a Buna-N diaphragm pressures must be less than 35 psi.

MOUNTING. A single case size is used for most models of Magnehelic® gages. They can be flush or surface mounted with standard hardware supplied. With the optional A-610



Flush ...Surface...or Pipe Mounted

Pipe Mounting Kit they may be conveniently installed on horizontal or vertical 1/4" - 2" pipe. Although calibrated for vertical position, many ranges above 1" may be used at any angle by simply re-zeroing. However, for maximum accuracy, they must be calibrated in the same position in which they are used. These characteristics make Magnehelic® gages ideal for both stationary and portable applications. A 4% hole is required for flush panel mounting. Complete mounting and connection fittings plus instructions are furnished with each instrument.

VENT VALVES

In applications where pressure is continuous and the Magnehelic® gage is connected by metal or plastic tubing which cannot be easily removed, we suggest using Dwyer A-310A vent valves to connect gage. Pressure can then be removed to check or re-zero the gage.

HIGH AND MEDIUM PRESSURE MODELS

Installation is similar to standard gages except that a 4 13/16" hole is needed for flush mounting. The medium pressure construction is rated for internal pressures up to 35 psig and the high pressure up to 80 psig. Available for all models. Because of larger case, the medium pressure and high pressure models will not fit in a portable case size. Installation of the A-321 safety relief valve on standard Magnehelic® gages often provides adequate protection against infrequent overpressure.

SPECIFICATIONS

Service: Air and non-combustible, compatible gases. (Natural Gas option available.)

Wetted Materials: Consult factory.

Housing: Die cast aluminum case and bezel, with acrylic cover. Exterior finish is coated gray to withstand 168 hour salt spray corrosion test.

Accuracy: ±2% of full scale (±3% on -0, -100 Pa, -125 Pa, 10MM and ±4% on -00, -60 Pa, -6MM ranges), throughout range at 70°F (21.1°C).

Pressure Limits: -20" Hg. to 15 psig.† (-0.677 bar to 1.034 bar); MP option: 35 psig (2.41 bar), HP option: 80 psig (5.52 bar).

Overpressure: Relief plug opens at approximately 25 psig (1.72 bar), standard gages only.

Temperature Limits: 20 to 140°F.* (-6.67 to 60°C).

Size: 4" (101.6 mm) Diameter dial face.

Mounting Orientation: Diaphragm in vertical position. Consult factory for other position orientations.

Process Connections: 1/8" female NPT duplicate high and low pressure taps - one pair side and one pair back.

Weight: 1 lb 2 oz (510 g), MP & HP 2 lb 2 oz (963 g).

Standard Accessories: Two 1/8" NPT plugs for duplicate pressure taps, two 1/8" pipe thread to rubber tubing adapter and three flush mounting adapters with screws. (Mounting and snap ring retainer substituted for 3 adapters in MP & HP gage accessories.)

*Low temperature models available as special option.

†For applications with high cycle rate within gage total pressure rating, next higher rating is recommended. See Medium and High pressure options at lower left.

OPTIONS AND ACCESSORIES

Transparent Overlays

Furnished in red and green to highlight and emphasize critical pressures.



Adjustable Signal Flag

Integral with plastic gage cover. Available for most models except those with medium or high pressure construction. Can be ordered with gage or separate.



LED Setpoint Indicator

Bright red LED on right of scale shows when setpoint is reached. Field adjustable from gage face, unit operates on 12-24 VDC. Requires MP or HP style cover and bezel.

Portable Units

Combine carrying case with any Magnehelic® gage of standard range, except high pressure connection. Includes 9 ft. (2.7 m) of 3/8" I.D. rubber tubing, standhang bracket and terminal tube with holder.



Air Filter Gage Accessory Package

Adapts any standard Magnehelic® gage for use as an air filter gage. Includes aluminum surface mounting bracket with screws, two 5 ft. (1.5 m) lengths of 1/4" aluminum tubing two static pressure tips and two molded plastic vent valves, integral compression fittings on both tips and valves.



Quality design and construction features

Bezel provides flange for flush mounting in panel.

Clear plastic face is highly resistant to breakage. Provides undistorted viewing of pointer and scale.

Precision litho-printed scale is accurate and easy to read.

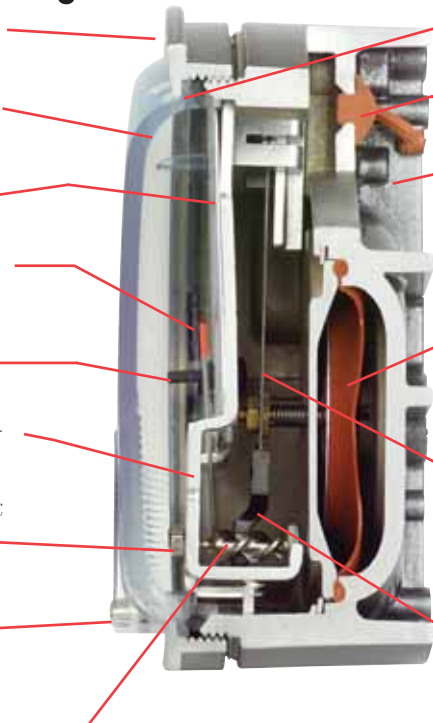
Red tipped pointer of heat treated aluminum tubing is easy to see. It is rigidly mounted on the helix shaft.

Pointer stops of molded rubber prevent pointer over-travel without damage.

“Wishbone” assembly provides mounting for helix, helix bearings and pointer shaft.

Jeweled bearings are shock-resistant mounted; provide virtually friction-free motion for helix. Motion damped with high viscosity silicone fluid.

Zero adjustment screw is conveniently located in the plastic cover, and is accessible without removing cover. O-ring seal provides pressure tightness.



O-ring seal for cover assures pressure integrity of case.

Blowout plug of silicone rubber protects against overpressure on 15 psig rated models. Opens at approximately 25 psig.

Die cast aluminum case is precision made and iridite-dipped to withstand 168 hour salt spray corrosion test. Exterior finished in baked dark gray hammerloid. One case size is used for all standard pressure options, and for both surface and flush mounting.

Silicone rubber diaphragm with integrally molded O-ring is supported by front and rear plates. It is locked and sealed in position with a sealing plate and retaining ring. Diaphragm motion is restricted to prevent damage due to overpressures.

Calibrated range spring is flat spring steel. Small amplitude of motion assures consistency and long life. It reacts to pressure on diaphragm. Live length adjustable for calibration.

Samarium Cobalt magnet mounted at one end of range spring rotates helix without mechanical linkages.

Helix is precision made from an alloy of high magnetic permeability. Mounted in jeweled bearings, it turns freely, following the magnetic field to move the pointer across the scale.

SERIES 2000 MAGNEHELIC® GAGE — MODELS AND RANGES

The models below will fulfill most requirements. Page V also shows examples of special models built for OEM customers. For special scales furnished in ounces per square inch, inches of mercury, metric units, etc., contact the factory.

Dual Scale English/Metric Models		
Model Number	Range, In. W.C.	Range, Pa or kPa
2000-0D	0-0.5	0-125 Pa
2001D	0-1.0	0-250 Pa
2002D	0-2.0	0-500 Pa
2003D	0-3.0	0-750 Pa
2004D	0-4.0	0-1.0 kPa
2006D	0-6.0	0-1.5 kPa
2008D	0-8.0	0-2.0 kPa
2010D	0-10	0-2.5 kPa

Model Number	Range Inches of Water	Model Number	Range Zero Center Inches of Water	Dual Scale Air Velocity Units		Model Number	Range, CM of Water	Model Number	Range, Pascals
				Model Number	Range in W.C. Velocity, F.P.M.				
2000-00N†••	.05-0-.2	2300-0†•	.25-0-.25	2000-00AV†••	0-.25/300-2000	2000-15CM	0-15	Zero Center Ranges	
2000-00†••	0-.25	2301	.5-0-.5	2000-00V†••	0-.50/500-2800	2000-20CM	0-20	2300-60PA	30-0-30
2000-01†•	0-.50	2302	1-0-1	2001AV	0-1.0/500-4000	2000-25CM	0-25	2300-100PA	50-0-50
2001	0-1.0	2304	2-0-2	2002AV	0-2.0/1000-5600	2000-50CM	0-50	2300-120PA	60-0-60
2002	0-2.0	2310	5-0-5	2010AV	0-10/2000-12500	2000-80CM	0-80	2300-250PA	125-0-125
2003	0-3.0	2320	10-0-10	For use with pitot tube.		2000-100CM	0-100	2300-500PA	250-0-250
2004	0-4.0	2330	15-0-15			2000-150CM	0-150		
2005	0-5.0					2000-200CM	0-200		
2006	0-6.0	Model Number	Range PSI	Model Number	Range MM of Water	2000-250CM	0-250		
2008	0-8.0					2000-300CM	0-300		
2010	0-10	2201	0-1	2000-6MM†••	0-6	Zero Center Ranges		Model Number	Range, Kilopascals
2015	0-15	2202	0-2	2000-10MM†••	0-10	2300-4CM	2-0-2	2000-1KPA	0-1
2020	0-20	2203	0-3	2000-25MM†••	0-25	2300-10CM	5-0-5	2000-1.5KPA	0-1.5
2025	0-25	2204	0-4	2000-50MM†••	0-50	2300-30CM	15-0-15	2000-2KPA	0-2
2030	0-30	2205	0-5	2000-80MM†••	0-80			2000-3KPA	0-3
2040	0-40	2210*	0-10	2000-100MM†••	0-100			2000-4KPA	0-4
2050	0-50	2215*	0-15	Zero Center Ranges				2000-5KPA	0-5
2060	0-60	2220*	0-20	2300-20MM†	10-0-10	Model Number	Range, Pascals	2000-8KPA	0-8
2080	0-80	2230**	0-30			2000-60PA†••	0-60	2000-10KPA	0-10
2100	0-100					2000-100PA†••	0-100	2000-15KPA	0-15
2150	0-150					2000-125PA†••	0-125	2000-20KPA	0-20
						2000-250PA	0-250	2000-25KPA	0-25
						2000-300PA	0-300	2000-30KPA	0-30
						2000-500PA	0-500	Zero Center Ranges	
						2000-750PA	0-750	2300-1KPA	.5-0-.5
								2300-3KPA	1.5-0-1.5

Accessories

- A-299, Surface Mounting Bracket
- A-300, Flat Flush Mounting Bracket
- A-310A, 3-Way Vent Valve
- A-321, Safety Relief Valve
- A-432, Portable Kit
- A-605, Air Filter Kit
- A-610, Pipe Mount Kit

Options — To order, add suffix: I.E. 2001-ASF
 ASF (Adjustable Signal Flag)
 HP (High Pressure Option)
 LT (Low Temperatures to -20°F)
 MP (Med. Pressure Option)
 SP (Setpoint Indicator)

Scale Overlays — Red, Green, Mirrored or Combination, Specify Locations

†These ranges calibrated for vertical scale position.
 • Accuracy +/-3%. •• Accuracy +/-4%