

GPY+ Associates Engineering Inc.

## MECHANICAL SHOP DRAWINGS

**PROJECT:** Lullaboo Daycare  
Two Storey Daycare Addition  
5329 Ninth Line,  
Mississauga, On,

**PROJECT NO.:** 27876

Reviewed ☐ Reviewed as Modified ☒  
Not Reviewed ☐ Revise and Resubmit ☐

This review is for conformance with the general design intent only and does not change the intent of the Contract Documents. Responsibility for errors or omissions in the shop drawings, details, co-ordination and dimensioning remains solely with the Contractor.

GPY+ Associates Engineering Inc.

Name: Rinest Rumano

Date: December 20, 2024

**Shop Drawing No.:** M-1 (HVAC Equipment)

**Product:**

1. Typ 'A' – Square plaque diffuser c/w fire blanket and fire stop flap
2. Wood truss ceiling fire dampers / flaps
3. Type 'B' – Double deflection supply air grille c/w balancing damper
4. Type 'C' – Single deflection return air grille c/w balancing damper
5. Type 'D' – Eggcrate return air grille
6. Type 'F' – Fire rated door grille
7. Lifebreath ERV-1, ERV-2 & ERV-3 unit
8. Lifebreath ERV-4 unit
9. Digital programmable timer
10. Electric force flow heater
11. Louvers
12. Fire dampers
13. Backdraft dampers
14. Combined fire volume damper
15. Combination fire & smoke damper

This review by VENCHIARUTTI GAGLIARDI ARCHITECT INC. is for the sole purpose of ascertaining conformance with the general design concept for architectural features only and does not in any way constitute review of the design of engineering elements which form part of the contract documents prepared by others. This review does not mean that VENCHIARUTTI GAGLIARDI ARCHITECT INC. approves the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of this responsibility for errors or omissions for meeting all requirements of the Contract Documents. The Contractor is responsible for dimensions to be confirmed and correlated at the job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all trades.

X	REVIEWED	NOT REVIEWED	
	REVIEWED AS NOTED	REVISE & RE-SUBMIT	
By: <u>ET</u> Date: <u>Jan.08.25</u>			
<b>VGA</b> Venchiarutti Gagliardi Architect Inc.			

**Supplier:** Airex

**Specification Section:** ----

**Comments:**

1. Type 'A' fire rated plaque square diffusers product submitted is acceptable.
2. Wood truss ceiling fire damper / flap product is acceptable.
3. Type 'B' double deflection supply air grille product is acceptable. Ensure that opposed bladed damper is provided as per diffuser schedule. Double deflection grille and the wood truss fire damper / flap are to be installed together where indicated on the floor plan.
4. Louvered grille product submitted is acceptable.
5. Eggcrate grille product submitted is acceptable. **Ensure that proper frame is provided for the eggcrate grille.**
6. Fire rated door grille product submitted is acceptable.
7. ERV-1, ERV-2 & ERV-3 product submitted is acceptable. Ensure that ERV unit is interlocked to the digital programmable timer.
8. ERV-4 product submitted is acceptable. Ensure that ERV unit is interlocked to the digital

programmable timer.

9. Digital programmable timer product submitted is acceptable.
10. Electric force flow heater product submitted is acceptable.
11. Louver product submitted is acceptable. Site verify louver dimensions and size louver to handle the required airflow based on the beginning of water penetration. **We recommend to maintain the velocities at 550 FPM for the intake and exhaust louvers based on the product submitted.**
12. Fire damper product submitted is acceptable. **Ensure that dynamic spring loaded fire dampers type is used for the fire dampers installed at the ducts penetrating floor.**
13. Backdraft damper product submitted is acceptable.
14. Combination fire and volume damper product is acceptable, and can be used at locations as determined by the site conditions or at the main duct branches passing through a fire rated wall, to minimize the amount of access fire rated doors. **Applicable where site conditions require it. Coordinate work on site prior to order.**
15. **Revise and resubmit the combination fire and smoke damper to include the duct mounted smoke sensor. Smoke sensor shall activate damper when smoke is detected. Combination fire & smoke damper is not required to be connected to the fire alarm system.**
16. **We recommend that the ERV-1, ERV-2, ERV-3, ERV-4, and electric FFH shop drawings are reviewed by the electrical consultant for comments on the electrical data.**
17. **We recommend that ERV-1, ERV-2, ERV-3 & ERV-4 shop drawing are reviewed by structural consultant to confirm weight and other physical data.**
18. **We recommend that the louver shop drawing and the electric force flow heater finish is reviewed by the architect to select the desired finishes that meets the architectural design intent.**



5 Sandhill Court, Unit C  
Brampton, ON L6T 5J5  
tel (905) 790-8667  
fax (905)790-3710  
www.airex.ca

SHOP DRAWING PACKAGE COVER

Date: DECEMBER 4 2024

Project Name: TWO STOREY DAY CARE - LULLABOO

Project Address: 5329 NINTH LINE  
MISSISSAUGA, ONTARIO

Contractor: CONSULT MECHANICAL

Engineer: GPY & ASSOCIATES

Attention: MOHAMMED LODHI

Enclosed are the submittal drawings for the above referenced project.  
Please return one approved or corrected copy of each drawing.

Number of copies: 1

Airex Contact: Ed Morson

ed.morson@airex.ca

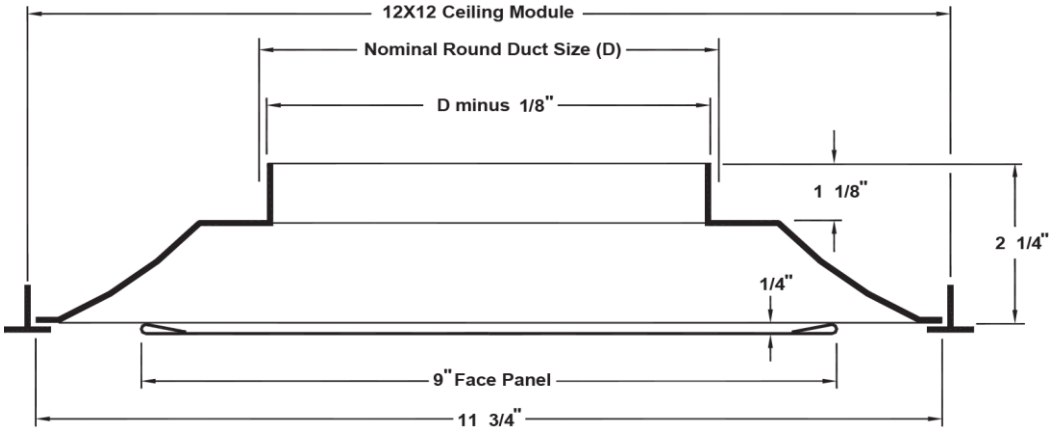
- ☐ For record only
- ☐ Order returned in the original format received from the client
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OMNI

Ar C D  
Square Cone • Plaque Face  
Round Neck • Steel

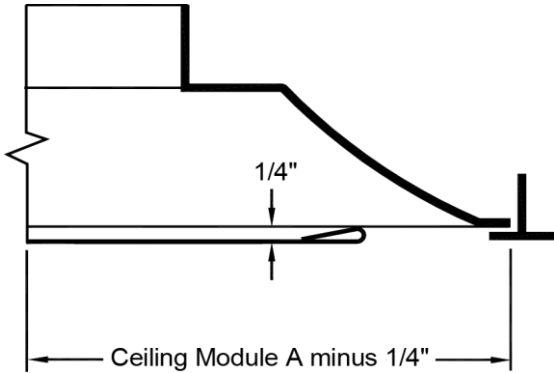
Main Product OMNI-1

OMNI



Nominal Duct Size (D)	Neck Size
1/2" D	5 1/2" D

Lay-in:





## General Description

OMNI-1

- The TITUS OMNI diffuser is designed to satisfy architectural as well as engineering criteria. Its strong, clean, curved backpan works with the formed edges of the face panel to deliver a 360 tight horizontal air pattern.
- The curvature of the OMNI backpan works with the formed edges of the face panel to deliver a 360 tight horizontal air pattern.
- The OMNI diffuser is an excellent choice for variable volume systems. The air pattern remains tight and horizontal.
- The edges of the face panel are formed to a radius for solid, crisp appearance. The formed edges also stiffen the panel.
- The panel can be removed from backpan for easy access to an optional damper.

## Option Schedule

OMNI-1

ID	Quantity	Tag	DIM 1 NECK SIZE
1	3	A	1" DIAMETER
2	1	A	1" DIAMETER

C/W FIRE BLANKET & FIRE STOP FLAP

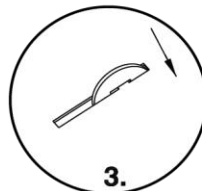
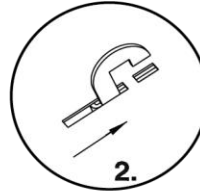
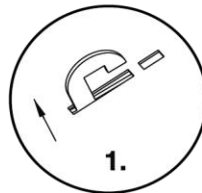
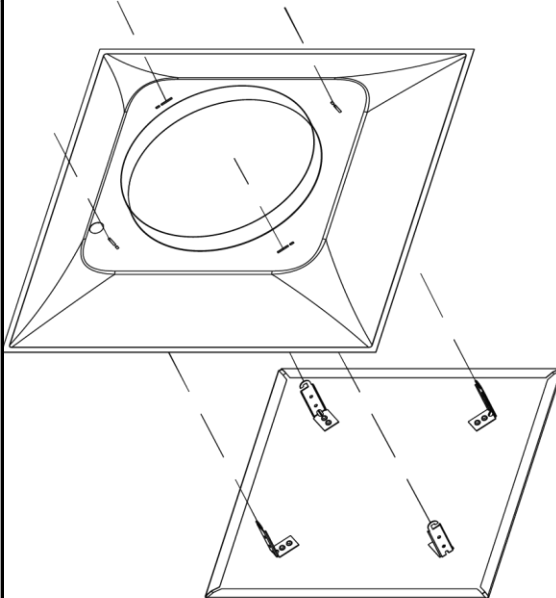
MODULE SIZE 2x2  
 BORDER 3 LAYIN  
 FINISH 2 WHITE  
 DAMPER MODEL NONE

ACCESSORY 1 NONE  
 ACCESSORY 2 NONE  
 ACCESSORY 3 NONE

## Accessories

OMNI-1

### Installing and Removing Face Panel



### Installing Face Panel

1. Insert the hook brackets into the slots in the backpan.
2. Rotate the face panel clockwise until...
3. the hooks positively engage in the secondary slots in the backpan.

### Removing Face Panel

1. Lift the faceplate towards the backpan to disengage the hook brackets from the backpan slots
2. Rotate the faceplate counter-clockwise
3. Lower the faceplate away from the backpan.

### Adjusting Optional Damper

1. Remove face panel as above.
2. Use flat blade screwdriver to turn operator shaft at center of damper.
3. Replace face panel.

## CFD(R)2, CFD(R)3 and CFD(R) 3.5 CEILING FIRE DAMPERS

### UL Classified Radiation Dampers

#### APPLICATION

UL Fire Rated Floor/Ceiling Assemblies and Roof/Ceiling Assemblies require specially tested and classified Ceiling Dampers (also called Ceiling Fire Dampers or Radiation Dampers) to provide fire and heat protection where HVAC components penetrate the ceiling membrane. **Standard, 1½ and 3 hr. primary fire dampers DO NOT provide the necessary protection.**

Ruskin CFD(R)2 and CFD(R)3 are UL Classified to provide protection to HVAC penetrations of up to 324 sq. in. (2090) maximum opening size through UL fire rated assemblies with fire resistance ratings of 3 hours or less. Penetrations larger than 324 sq. in. (2090) and up to 576 sq. in. (3716) require model CFD4. The quantity and frequency of permissible HVAC ceiling penetrations are described in the UL Fire Resistance Directory.

#### STANDARD CONSTRUCTION

##### FRAME

24 gage (.7) galvanized steel. Frame depths are as shown in following chart.

DAMPER MODEL	FRAME STYLE	B DIMENSION OR D DIAMETER	FRAME DEPTH
CFD2 CFD3 CFD3.5	Standard	All sizes	3" (76)
	Extended	4" to 10" (102 to 254)	6 <sup>3</sup> / <sub>8</sub> " (162)
		11" to 14" (279 to 356)	8 <sup>7</sup> / <sub>16</sub> " (208)
		15" to 24" (381 to 607)	11 <sup>3</sup> / <sub>16</sub> " (284)
CFDR2 CFDR3 CFD(R)3.5	Standard	All sizes	3 <sup>5</sup> / <sub>8</sub> " (92)
	Extended	5" to 10" (127 to 254)	6 <sup>3</sup> / <sub>4</sub> " (171)
		11" to 14" (279 to 356)	6 <sup>3</sup> / <sub>4</sub> " (171)
		15" to 20" (381 to 508)	11 <sup>3</sup> / <sub>4</sub> " (298)

##### BLADE

24 gage (.7) galvanized steel, with UL Classified insulation as required.

##### FUSIBLE LINK

165°F (74°C) is standard. 212°F (100°C) is available at no additional cost.

##### MINIMUM SIZE (Damper Sizes)

CFD2/CFD3 – 5"w x 4"h (127 x 102).  
CFDR2 – 12" (305) diameter.  
CFDR3/3.5 – 5" (127) diameter.

##### MAXIMUM SIZE (Damper Sizes)

CFD3 – 70 sq. in. (452) maximum.  
CFD2 – 324 sq. in. (2090) with height or width dimensions not greater than 24" (607).  
CFDR2 – 20" (508) diameter.  
CFDR3/3.5 – 10" (254) diameter.

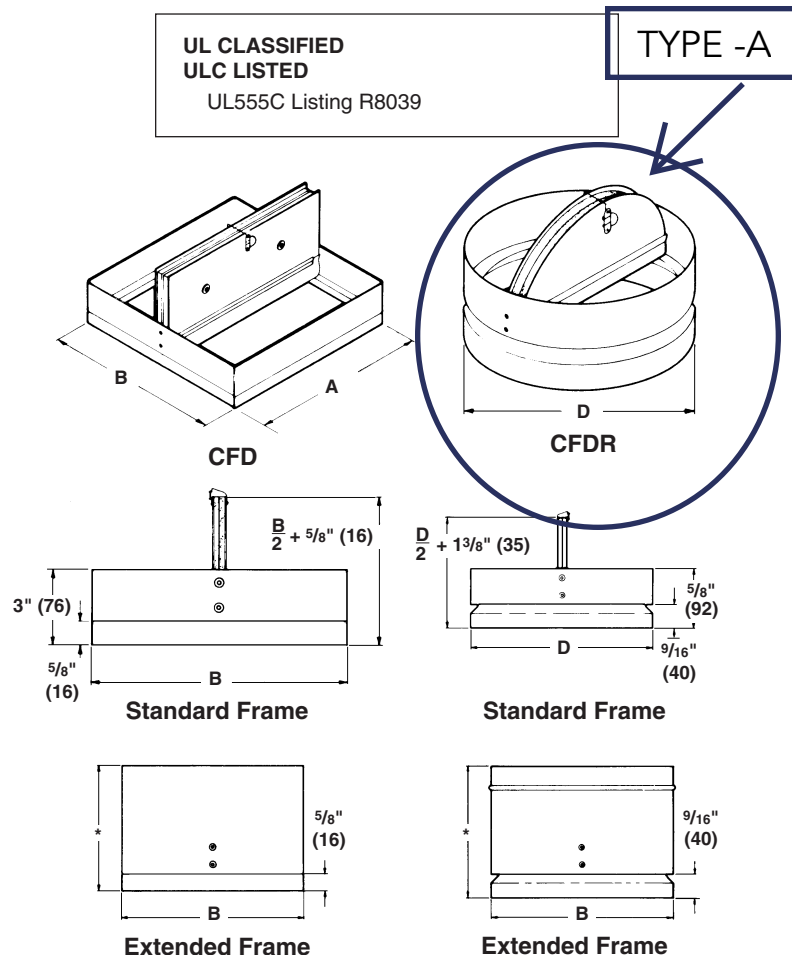
#### OPTIONS

- VA Volume Adjust to balance airflow.

Dimensions shown in parentheses ( ) indicate millimeters.

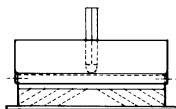
#### WOOD TRUSS CEILING APPLICATION

The Ruskin CFD7T ceiling fire damper is the ceiling fire damper to use if the application is a wood truss ceiling. The CFD7T is UL approved for use in wood truss ceiling design L586 which is similar to wood truss ceiling designs like L528, L521, L534, L546, L550, etc.



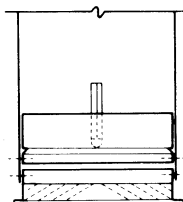
## CFD(R)2, CFD(R)3 and CFD(R)3.5 CEILING FIRE DAMPERS

### HOW TO ORDER



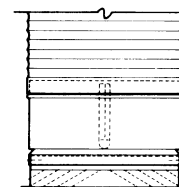
#### Ductless Installation

Order "actual size" with **standard** frame. Damper installs over diffuser neck.



#### Steel Duct Installation

Order "deduct 1/4" (6)" with **standard** frame. Damper installs inside duct.

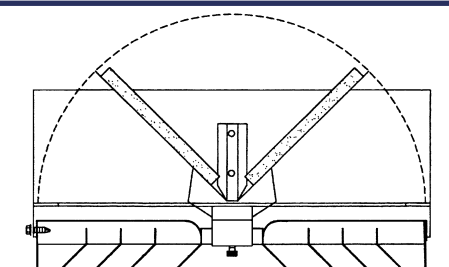


#### Flex Duct Installation

Order "actual size" with **extended** frame. Damper installs over diffuser neck; flex duct installs over damper.

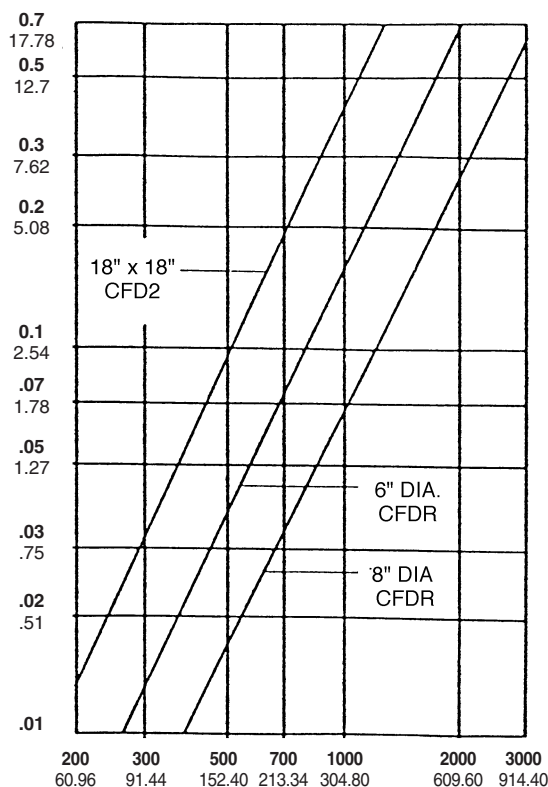
### UL Listed Fusible Volume Adjustment Option

The standard, fusible link can be replaced with a simple mechanism that permits adjustment of damper blades to balance airflow. A standard 3/16" (5) hex (Allen) wrench is used for adjustment. In fire conditions, the damper closes regardless of volume setting. This feature must be added to the damper at fabrication. 165°F or 212°F (74°C or 100°C) (specify temperature) fusible volume adjustment options are available. **Caution: Volume Adjust hangs below a rectangular damper 1 1/8" (29). Volume Adjust hangs below a round damper 3/8" (10).**



CFD(R)2, 3, 3.5 with Fusible Volume Adjustment

### Pressure Drop – Damper Open (Size as noted)



Air Velocity in FEET and METERS per minute through FACE AREA.  
Tested per AMCA Std. 500, Fig. 5.2, ductwork upstream.

# RUSKIN®

3900 Dr. Greaves Rd.  
Kansas City, MO 64030  
(816) 761-7476  
FAX (816) 765-8955  
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Project 2203 TWO STOREYDAY  
 Architect  
 Engineer  
 Contractor  
 Designation B



Date 2/4/24  
 Office ARI  
 Preparer MOHAMMED  
 Version 20405

Option Schedule					300RL-1
ID	Quantity	Tag	WIDTH IN INCHES	HEIGHT IN INCHES	
1	1	B	1	1	
2	1	B	1	1	
3	5	B	2	2	
4	42	B	1	1	

MODULE SIZE NONE  
 BORDER 1 SURFACE MOUNT  
 FINISH 2 WHITE  
 FASTENING A SCREW HOLES

DAMPER MODEL A 5 STEEL OBD  
 ACCESSORY 1 NONE  
 ACCESSORY 2 NONE  
 ACCESSORY 3 NONE

Accessories	300RL-1
Damper: AG-15 common drawing, see above for material and finish	





Project 2203 TWO STOREYDAY  
Architect  
Engineer  
Contractor  
Designation



Date 2/4/24  
Office ARI  
Preparer MOHAMMED  
Version 2405

Option Schedule					50F-1
ID	Quantity	Tag	WIDTH IN INCHES	HEIGHT IN INCHES	
		D	2	2	
2	4	D	24	24	
<div><div><div>MODULE SIZE NONE</div><div>BORDER CORE ONLY</div><div>FINISH 2 WHITE</div><div>FASTENING N NO SCREW HOLES</div></div><div><div>DAMPER MODEL NONE</div><div>EGGCRATE CORE CORE A BORDER</div><div>ACCESSORY 2 NONE</div><div>ACCESSORY 3 NONE</div></div></div>					



L14



# FIRE-RATED ADJUSTABLE Z-BLADE LOUVER: 1900A REV B

This Adjustable Z-Blade Louver with Fusible Link is Ideal for Use in Fire Doors up to 1-1/2 Hour Rating.  
Ideal for Installation in Existing Door Cutouts.

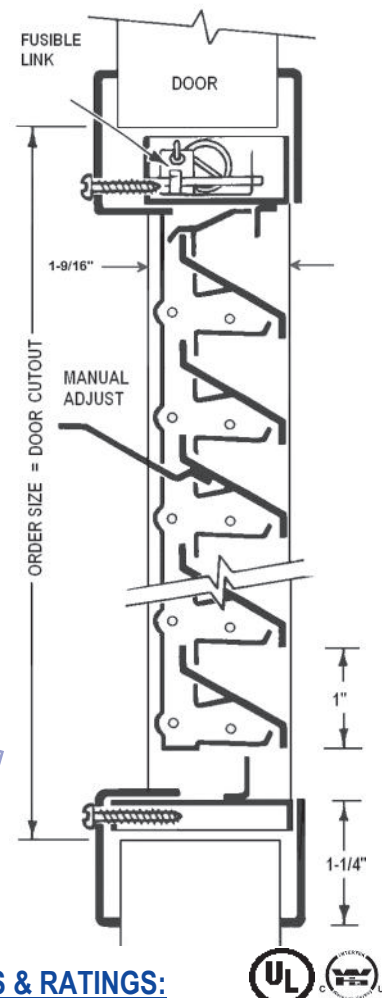
TYPE - F



## SPECIFICATIONS:

<b>Material:</b>	16 gauge CRS frame and louver blades. Min size 10" x 6", Max 24" x 24".
<b>Construction:</b>	<b>Louver:</b> Z-blade louvers riveted to operating bar and frame at 1" intervals to welded 1-9/16" deep frame. Mechanical stop holds blades open. <b>Frame:</b> Mitered and welded corners; screws fastened through prepared frame into louver core leaving corridor side of frame free of fasteners.
<b>Operation:</b>	Adjustable blades of 16 gauge CRS pivot on cadmium-plated steel rivets. The blades are operated by a manual adjusting lever. A spring loaded fusible link mechanism is incorporated into the design. Upon melting of the link at 165° F, the action bar is actuated, thereby closing and locking all of the blades.
<b>Door :</b>	For 1-3/4" door. <b>Door cutout = order size.</b>
<b>Fasteners:</b>	#8 x 3/4" Phillips flathead screws to match finish.
<b>Powder Coat Finishes:</b>	<input type="checkbox"/> (B) Mineral Bronze (standard color) <input type="checkbox"/> (G) Gray <input type="checkbox"/> (BK) Black <input type="checkbox"/> (FBK) Flat Black <input type="checkbox"/> (W) White <input type="checkbox"/> (SB) SC Beige <input type="checkbox"/> (SI) Silver <input type="checkbox"/> (S) Sand <input type="checkbox"/> (AB) AMS Beige <input type="checkbox"/> (R) Red <input type="checkbox"/> (GH) Gray Hammettone <b>Color Samples Online</b>
<b>Free Flow Area:</b>	45% free area.

SELF-  
ATTACHING  
FRAME



## OPTIONAL FEATURES AT AN ADDITIONAL COST:

<b>Finishes &amp; Materials:</b>	<input type="checkbox"/> (S) 18 gauge stainless steel—#4 finish. <input type="checkbox"/> (E) Electro Galvanized for corrosion resistance & exterior use. <input type="checkbox"/> Special order colors. Please provide color chip.
<b>Fasteners:</b>	<input type="checkbox"/> Torx <input type="checkbox"/> Other: _____
<b>Screen:</b>	<input type="checkbox"/> Insect or Bird Screen.
<b>Door:</b>	<input type="checkbox"/> 1-3/8" Door
<b>Custom:</b>	Custom sizes, other door thickness. Contact Customer Service

**Order Format:** 1900A 1PCS 18" X 12" B  
**Example:** 1900A 1212SA Option S,E W H Color

## LISTINGS & RATINGS:

**Fire Ratings with UL & WHI Classification Marks**  
 Tested & Listed for UL10B & C, and classified in accordance with UBC7-2, ASTM E152, CAN/ULC S104, NFPA 252, NFPA80.

**Model 1900A** is Rated for use in fire doors up to 1-1/2 hour rating. Louver size shall not exceed maximum of 576 sq. inches, 24"W and 24" H. The minimum width and height shall not be less than 10" and 6", respectively. Louvers may be provided for classified hollow metal type and composite type fire doors.

Consult with the Local Authority Having Jurisdiction (AHJ) to determine appropriate standards. Louver frame will be labeled with Listing mark.

**STOCK ITEM— SEVERAL SIZES OF 1900A IN STOCK FOR NEXT DAY SHIPMENT FROM MANY OF OUR WAREHOUSES**



**Distributor:**

**Width:** \_\_\_\_\_ **x Height:** \_\_\_\_\_

**Architect:**

**Quantity:**

**Contractor:**

**Model:**

**Project:**

**Date:**

**Version:** ALPDS0313

800-554-6077

[QUOTES@ACTIVARCPG.COM](mailto:QUOTES@ACTIVARCPG.COM)

[ORDERS@ACTIVARCPG.COM](mailto:ORDERS@ACTIVARCPG.COM)

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Fax: 952-835-2218

VISIT [WWW.ACTIVARCPG.COM](http://WWW.ACTIVARCPG.COM) FOR THE MOST UPDATED PRODUCT INFORMATION • AN ACTIVAR CONSTRUCTION PRODUCTS COMPANY

MFG: COMMERCE CA, BLOOMINGTON, MN • WAREHOUSES: LANCASTER PA, ATLANTA GA, CHICAGO IL, SEATTLE WA, FORT MYERS FL, DALLAS TX

## ENGINEERING DATA

### TOTAL RECOVERY CORES

The cross-flow energy recovery cores transfer heat and water vapor between the two air streams. They are easily removed for cleaning or service.

### MOTORS

Two PSC, 3 speed double shafted, 120 VAC, 9.4 Amps each (18.8 total on high speed). HP- 1/2, 1625 RPM. MCA: 23.5 MOP: 30 Watts - total on high speed - 2256.

### FILTERS

2" pleated MERV 8 filters in supply and exhaust air streams.

### BLOWERS

Slide in / out easily of unit. Centrifugal type rated at 1200 CFM (566 L/s) free air delivery. Each air stream has one single shafted motor driving a centrifugal blower.

**CONNECTION DUCT SIZES** - Four - 20" x 8" (508 mm x 200 mm).

### MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus (brackets and rods not provided).

### CABINET

Unit has front and back access doors and electrical panel can be switched to either side giving installer flexibility in duct direction. 20 gauge pre-painted galvanized steel (G60) for superior corrosion resistance. Insulated with foil faced insulation where required to prevent exterior condensation.

### ELECTRONICS

Integrated microprocessor circuit board. Built-in interlock contacts. Automatic Self Test. Optional remote speed control.

### FROST PREVENTION

Temperature sensor activated, periodically shuts down supply motor. Drains not required.

**WEIGHT** 285 LBS (130 KG) **SHIPPING WEIGHT** 335 LBS. (152 KG)  
**OPTIONAL CONTROLS**

**99-500 3 Speed Control** - 3 Speed Fan setting (Low/Medium/High) (4 wire) 20 gauge wire (minimum)

**99-BC-01 Ventilation Control** - 2 Speed Fan setting (Low/High) - Dehumidistat (3 wire) 20 gauge wire (minimum)

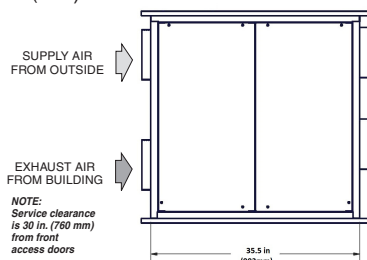
### OPTIONAL TIMERS

**99-DET01 20/40/60 Minute Timer** - Initiates high speed ventilation for 20, 40, 60 minutes. (3 wire) 20 gauge wire (minimum)

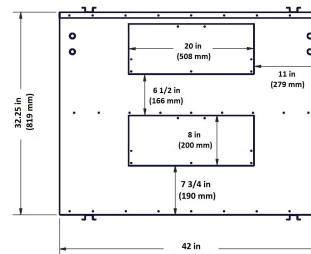
## DIMENSIONS inches (mm)

### NOTE:

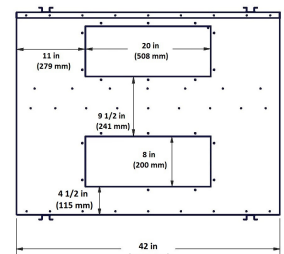
The 1230ERV model may easily be reversed in the field. Refer to page 18 for installation instructions.



FRONT VIEW



DISCHARGE SIDE



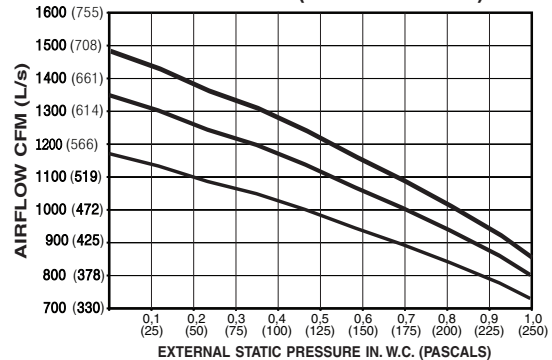
INLET SIDE

Date: \_\_\_\_\_  
 Tag: **HRV1,2,3** Qty: **3PCS**  
 Project: \_\_\_\_\_  
 Engineer: \_\_\_\_\_

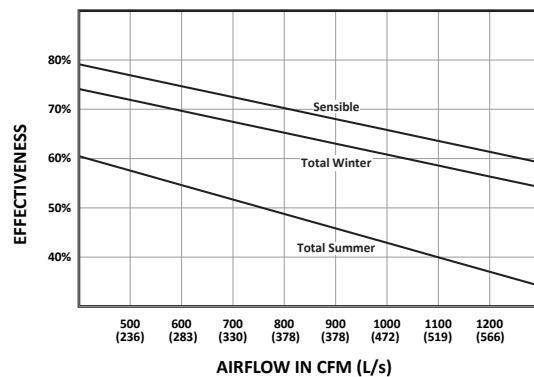
Contractor: \_\_\_\_\_  
 Supplier: \_\_\_\_\_  
 Quote#: \_\_\_\_\_  
 Submitted by: \_\_\_\_\_

## PERFORMANCE

### AIRFLOWS (Each Air Stream)



### TOTAL EFFECTIVENESS



**AHRI 1060 Certified Core:**  
 Contains three 68-280

## WARRANTY

All units carry a 10 year warranty on the heat recovery cores and a 5 year replacement parts warranty.

NOTE: All specifications are subject to change without notice



## SPECIFICATIONS

### AIRFLOW

1500 cfm (705 L/s) at 1.0"wg ESP.

### PERFORMANCE

65% effective at 1500 cfm (705 L/s).

### CORES

Six patented aluminum heat recovery cores arranged for efficient cross-flow ventilation.

### MOTORS

Two single shaft ECM variable speed, 240V, 9.1 A, 1 ph, 1 hp. (18.2 a total) MCA: 22.8 MOP: 30

### BLOWERS

Two direct drive centrifugal blowers, one per airstream.

### FILTERS

Two - 20" x 16" x 2" (508 mm x 406 mm x 50 mm) pleated filters in each airstream. MERV6 efficiency 60% @ 4.69 microns.

### CONNECTION DUCT SIZES

Four 18" x 18" (457 mm x 457 mm)

### CABINET

20 gauge powder coated steel 1" (25 mm) thick Elastomeric insulation.

### DRAIN

Two powder coated galvanized steel drain pans with 1/2" (12 mm) O.D. drain connections.

### MOUNTING

Unit to be set on support brackets hung by threaded rod type apparatus. Brackets and rod not included.

### ELECTRONICS

Integrated microprocessor circuit board. Three (3) independently adjustable motor speeds.

### CONTROL OPTIONS

#### 99-BC02 Lifebreath Ventilation Control

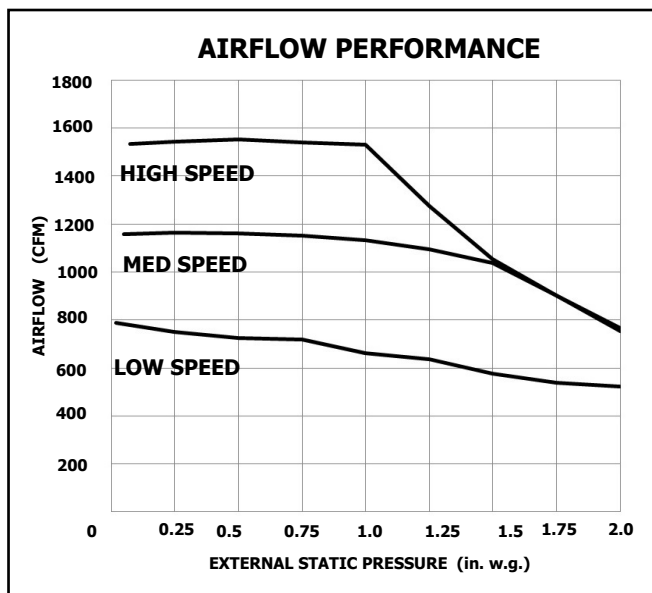
- 2 speed fan setting (Low/High)
- Humidity control through adjustable Dehumidistat
- Compatible with 99-DET02 Wireless Timers
- 3 wire connection; 20 gauge wire (minimum)

#### 99-500 3 Speed Control

- 3 Speed Fan setting (Low/Medium/High)
- 4 wire connection; 20 gauge wire (minimum)

#### 99-DH01 Lifebreath Dehumidistat

- Humidity control through adjustable Dehumidistat
- 3 wire connection; 20 gauge wire (minimum)



### DEFROST

Factory set defrost time. Supply motor is shut off while exhaust air defrosts core.

**WEIGHT** 460 lbs (210 kg) **SHIPPING WEIGHT** 580 lbs (260 kg)

### TIMER OPTIONS

#### 99-DET01 Lifebreath 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- 3 wire connection; 20 gauge wire (minimum)

#### 99-DET02 Lifebreath WIRELESS 20/40/60 Minute Timer

- Initiates high speed Ventilation for 20, 40 or 60 minutes
- Wirelessly connects to main control for ease of installation
- 40' approximate range

#### 99-RX02 Lifebreath WIRELESS Repeater

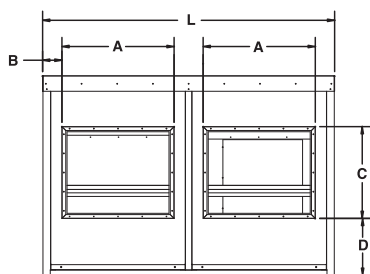
- Used to extend range of 99-DET02 Wireless Timers when Timers are out of range
- Plugs into 120V power outlet and wirelessly connects to main control and 99-DET02

### WARRANTY

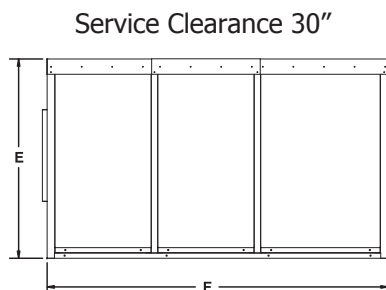
Units carry a 15 year warranty on the HRV core and a 2 year replacement parts warranty.

## DIMENSIONS 1500I-ECM (in inches)

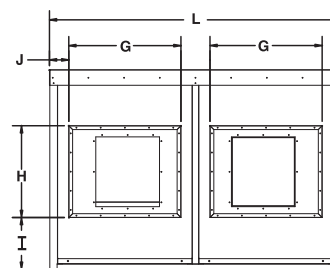
	A	B	C	D	E	F	G	H	I	J	L
ECM inches	18	2.5	18	12	37	66.75	18	18	10.25	2.5	44
ECM mm	457	64	457	305	940	1695	457	457	260	64	1118



INLET END VIEW



SIDE VIEW



OUTLET END VIEW

NOTE: All specifications are subject to change without notice.

All units conform to CSA and UL standards.

Date: \_\_\_\_\_  
 Tag: HRV-4 Qty: 1PC  
 Project: \_\_\_\_\_  
 Engineer: \_\_\_\_\_

Contractor: \_\_\_\_\_  
 Supplier: \_\_\_\_\_  
 Quote#: \_\_\_\_\_  
 Submitted by: \_\_\_\_\_

## In-Wall Timer - 7-Day Heavy-Duty Programmable Timer, 120-277 VAC, 15A, White

Item ST01



TAG - HRV1,2,3,4

### PRODUCT DESCRIPTION

Highly versatile Heavy-Duty Timers are ideal for any application that requires a simple or complex ON/OFF schedule, regardless of load. No neutral connection is required. \*NOTE: Not for use with sunlamps, saunas, or loads that could cause personal injury if timed incorrectly.

### FEATURES

- ▶ Versatile 7-day programmable schedules with up to 40 ON/OFF events
- ▶ Astronomic clock feature determines dawn and dusk times
- ▶ Automatic Daylight Saving Time (DST) adjustment
- ▶ Random mode varies ON/OFF schedule to provide a "lived-in" appearance
- ▶ Single or 3-way switch compatible installation
- ▶ Incandescent/fluorescent/CFL/LED compatible
- ▶ Isolated switch allows timer to be used with any load type, including AC and DC loads
- ▶ Replaceable CR2 lithium battery provides up to three years of operation
- ▶ No neutral wire connection enables easy retrofitting and quicker installation
- ▶ Decorator switch plate not included

### APPLICATIONS

- ▶ Indoor Lighting Control
- ▶ Air Movement & Ventilation
- ▶ Outdoor Lighting Control

### TECHNICAL DATA

#### General

Model Number	ST01
Description	7-Day Heavy-Duty Programmable Timer, 120-277 VAC, 15A, White
UPC Code	078275127562
Brand	Intermatic
Country of Origin (Intermatic)	CHINA
Warranty Period	1-Year limited

#### Control Specifications

Minimum ON/OFF Times	1 min
Maximum ON/OFF Operations	40
Operation Mode	24 hour
Operation Features	Astronomic; Daylight Saving Time
Mechanism Type	Digital/Electrical
Backup Type	Battery
Backup Protection Time	3 Years
Battery Type	CR2 Lithium
Battery Service Type	Replaceable
Application Compatibilities	Incandescent; Fluorescent; CFL; LED

#### Mechanical Specifications

Wall Plate Configurations	Single-Gang
---------------------------	-------------

**Dimensions**

Product Dimensions (H x W x D) in	4.125 x 1.75 x 1.8125 in
-----------------------------------	--------------------------

**Material Specifications**

Color	White
-------	-------

**Load Ratings**

Resistive Heater	15 A, 1800-4155 W, 120-277 VAC
Tungsten (Incandescent) Range(s)	1800 W, 120 VAC; 1248-1662 W, 208-277 VAC
DC loads	4 A, 12 VDC; 2 A, 28 VDC
Motor Load Ratings Ranges	1 HP, 120 VAC; 2 HP, 240 VAC
Max Load Handling Capability	15 A
Inductive Load Ratings Ranges	8 A, 120 VAC, 50/60 Hz; 4 A, 208-277 VAC, 50/60 Hz

**Electrical Specifications**

Input Voltage Range(s)	120-277 VAC, 50/60 Hz
Wiring Configurations	Single; 3-Way

**Environmental Specifications**

Temperature (operation)	32 - 104 °F / 0 - 40 °C
-------------------------	-------------------------

**Packaging**

Shipping Weight (lbs)	0.4
Unit Carton Dimensions (H x W x D) in	4.625 x 2.125 x 2.875 in

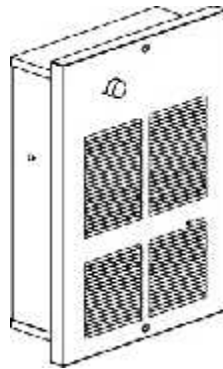
**Standards and Certifications**

CSA Certification	cCSAus
Other Certifications and Compatibilities	Title 20
California Proposition 65	DEHP

Series

# OAC

## Commercial Wall Fan Heater



## Features

Color

[illegible]

## Finish

☐ C ☐☐☐☐☐ ☐r ☐☐☐☐☐☐☐☐ ☐r ☐☐☐☐☐☐☐☐

☐ S ☐☐☐d ☐rd ☐☐☐☐☐☐☐☐/☐☐☐☐☐☐☐r ☐☐☐d ☐r ☐☐☐☐☐☐

## Voltage

$$\square \square 2 \square \vee \square 2 \square \vee \square 24 \square / 2 \square \vee \square 2 \square \vee \square 34 \square \vee \square 4 \square \vee \square \square \vee \square \square \square r 3 \square \square \square \square \square \square$$

## Construction

□ □

Fan

□ B □ □ □ □ □

□ r □ □ □ □ □ □ □

[illegible]

Condorr d'or

55 dBA 2 5 dBA

3    □    □□    □□□    □□□    r    □□□□    □□□□□□    dBA    □□

Heating element

□ F □ □ d □ □ □ □ □ r □ □ □ □ □ r □ □ r □ □ d □ □ □ □ □ □ □ □

Control

**D**

B u d d r

[illegible]

*Note: Thermostat is not included in heater with factory installed relay.*

*Any remote thermostat or relay must be connected to the heater control terminal block.*

## Installation

[illegible]

Admission to the program is by application and interview.

## Warranty

3 r r d

## Application

[illegible]



3 A L Q R 2C CANADA 4 3 43 4 24 3 4 F 2 4 24





OAC04004-T		4□□□	4□□□	2□□	□2□	□□□□
OAC04804-T		4□□□	4□□□	2□□	□2□	□□□□
OAC06004-T		4□□□	□□□□	5□□	22□	d□□□□
OAC08004-T		4□□□	□□□□	5□□	22□	d□□□□
OAC12004-T		4□□□	□2□□□	□□□	4□□	r□□□□
OAC12034-T		4□□3□	□2□□□	□□□	4□□	r□□□□
OAC01506-T		□□□□	□5□□	2□□	□2□	□□□□
OAC02006-T		□□□□	2□□□	2□□	□2□	□□□□
OAC03006-T		□□□□	3□□□	2□□	□2□	□□□□
OAC04006-T		□□□□	4□□□	2□□	□2□	□□□□
OAC04806-T		□□□□	4□□□	2□□	□2□	□□□□
OAC06006-T		□□□□	□□□□	5□□	22□	d□□□□
OAC06036-T		□□□3□	□□□□	□□□	4□□	r□□□□
OAC08006-T		□□□□	□□□□	5□□	22□	d□□□□
OAC09036-T <sup>1</sup>		□□□3□	□□□□	□□□	4□□	r□□□□
OAC12006-T <sup>1</sup>		□□□□	□2□□□	□□□	4□□	r□□□□
OAC12036-T <sup>1</sup>		□□□3□	□2□□□	□□□	4□□	r□□□□

## Options

Product # Kit	Product # Factory installed*	Description	Qty
KIT-OAC-BS1	-	Standard 1 channel 1000Watt OAC kit	
KIT-OAC-BS2	-	Standard 2 channel 1000Watt OAC kit	
KIT-OAC-BS3	-	Standard 3 channel 1000Watt OAC kit	
KIT-OAC-DIS20 <sup>3</sup>	DIS20 <sup>3</sup>	Distributed 2 channel 2000Watt 20A @200V and 1000Watt	
KIT-OAC-DIS40 <sup>3</sup>	DIS40 <sup>3</sup>	Distributed 4 channel 4000Watt 40A @200V 1000Watt	
KIT-OAC-DIS80 <sup>3</sup>	DIS80 <sup>3</sup>	Distributed 8 channel 8000Watt 80A @200V 1000Watt	
-	IV	Fan 1000Watt	
-	OO	Oil/Solid 1000Watt 1000Watt	
-	R <sup>4</sup>	24V 1000Watt 1000Watt 1000Watt 1000Watt	
-	RT <sup>4</sup>	24V 1000Watt 1000Watt 1000Watt 1000Watt	

\* For factory installed options, add the option number to the product number. See the **Product Code** section inside the front cover.

<sup>1</sup> Built-in thermostat included with control knob or tamperproof.

<sup>2</sup> 208V = 75% of wattage at 240V.

<sup>3</sup> For the U.S. only: The nominal current of the unit must not exceed 80% of the capacity of the disconnect.

<sup>4</sup> If the built-in thermostat is not required with the 24V control relay, remove the "-T" from the product number (E.g.: OAC04006-RT).

Add "BL" for white, "AM" for almond. Upcharge available for optional colors shown in the color chart section.



**277V available upon request.**


## Others

Type	Quantity	Model et description Complementary informations	Volts	Phase	Watts	Length mm/in.	Informations Color/installation
FFH1	2	OAC04008BL-T	208	1	4000		C/W OTL221 STAT
2							



[illegible]

	# Product	Range	Description	Qty
	T87K1015	□□ °C □ 35 °C	M□□□□□□□□L□□ □□□□□ □□r□ □□□□r□□□d	
	T822K1034	□□ °C □ 32 °C	M□□□□□□□□L□□ □□□□□ □□r□ □□□□r□□□□□□□□r□C□□□□□	

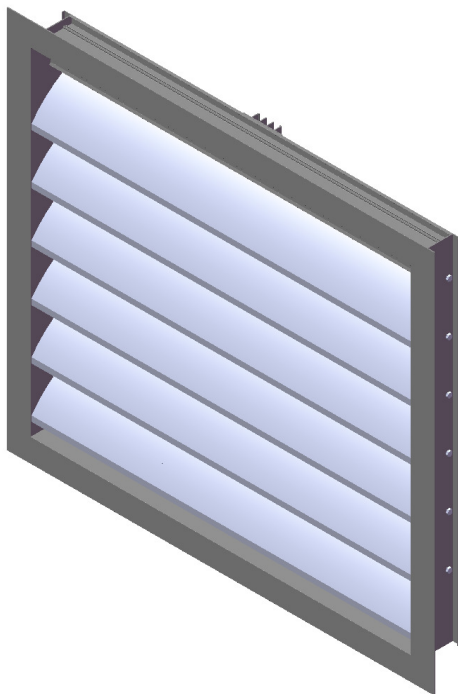
	Product #	Amp.	Volts	Description	Qty
	TH140-28-01-B	5A 2A	24/24	5A 24VDC 2P 2W 10kVA 100% Duty Cycle	

Specifications may change without prior notice <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
C <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> E <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>		

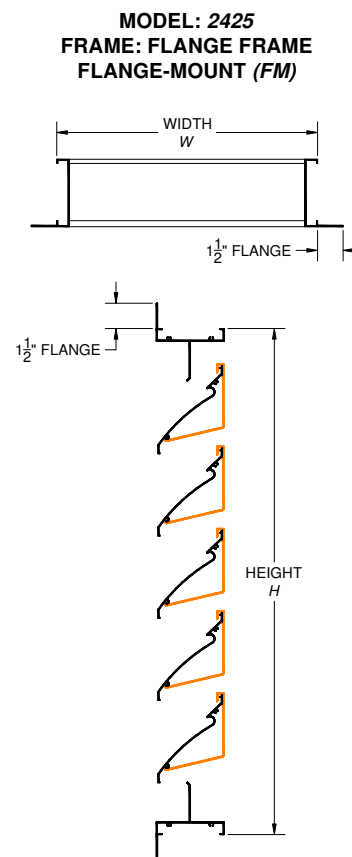
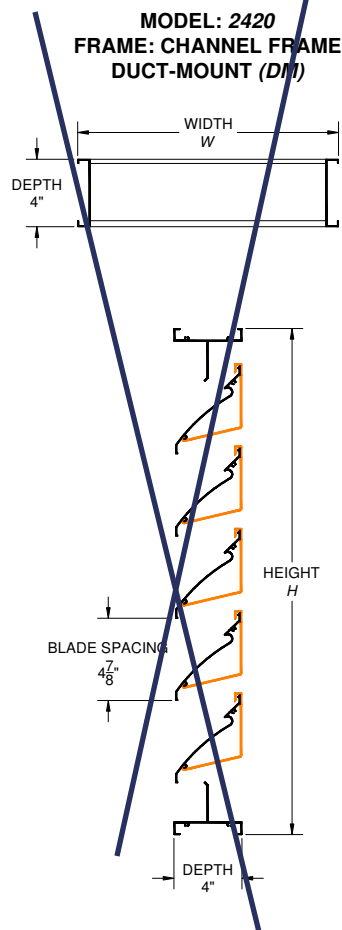


LOUVERS & BACK DRAFT DAMPERS

**2420 / 2425**  
4" DEEP STORMPROOF LOUVER



PERFORMANCE			
LOUVER UNIT SIZE	TOTAL AREA	FREE AREA	FREE AREA
48" x 48"	16 ft <sup>2</sup>	8.0 ft <sup>2</sup>	<b>50.0%</b>
(1219 x 1219 mm)	(1.49 m <sup>2</sup> )	(0.74 m <sup>2</sup> )	
BEGINNING POINT OF WATER PENETRATION AT 0.01 oz./ft <sup>2</sup> FREE AREA:			<b>638 FPM</b>



#### STANDARD CONSTRUCTION

<b>DEPTH:</b>	4" (102 mm)
<b>MATERIAL:</b>	EXTRUDED ALUMINUM - 6063-T5 ALLOY
<b>FRAME THICKNESS:</b>	0.081" (2.06 mm)
<b>BLADE THICKNESS:</b>	0.081" (2.06 mm)
<b>BLADE ANGLE:</b>	45°
<b>BLADE CENTRES:</b>	4.875" (124 mm)
<b>BIRDSCREEN:</b>	19 GA. GALVANIZED BIRDSCREEN - 1/2" x 1/2" OPENINGS
<b>FINISH:</b>	MILL

#### SIZE LIMITATIONS: SINGLE SECTION LOUVER

	MINIMUM	MAXIMUM
<b>WIDTH</b>	12" (305 mm)	72" (1829 mm)
<b>HEIGHT</b>	12" (305 mm)	120" (3048 mm)
<b>AREA</b>	1 ft <sup>2</sup> (0.09 m <sup>2</sup> )	60 ft <sup>2</sup> (5.57 m <sup>2</sup> )

\*LOUVER WILL BE MANUFACTURED 1/4" (6.4 mm) SMALLER (SINGLE SECTION) AND 1/2" (12.7 mm) SMALLER (MULTIPLE SECTION) THAN GIVEN OPENING DIMENSIONS UNLESS OTHERWISE SPECIFIED

#### AVAILABLE ACCESSORIES

##### FINISH:

- BAKED ENAMEL FINISH
- DURANAR FINISH
- ANODIZED FINISH
  - CLEAR ANODIZED
  - LIGHT BRONZE
  - MEDIUM BRONZE
  - DARK BRONZE
  - BLACK ANODIZED
- EXTENDED SILLS
- SECURITY BARS
- FILTER RACKS
- STAINLESS STEEL FASTENERS
- HINGED ACCESS DOORS
- ALL WELDED CONSTRUCTION
- CUSTOM GEOMETRIC SHAPES
- MONUMENTAL CONSTRUCTION WITH HEAVY GAUGE MATERIAL
- CONTINUOUS LINE CONSTRUCTION WITH HIDDEN MULLIONS TO PROVIDE AN UNINTERRUPTED APPEARANCE

##### SCREENS:

- BIRDSCREEN
  - 1/2" x 1/2" INTER CRIMPED ALUMINUM
  - ALUMINUM BIRDSCREEN WITH FRAME
- INSECT SCREEN
  - 18 x 14 MESH

##### BLANK-OFF PANELS (ALUMINUM): VARIOUS GAUGES

- NON-INSULATED BLANK-OFF PANELS
- INSULATED BLANK-OFF PANELS
  - 1" (25.4 mm) INSULATION
  - 2" (50.8 mm) INSULATION

4PCS - LOUVRES CONFIRM SIZES & COLOUR

DWG. 2420 / 2425

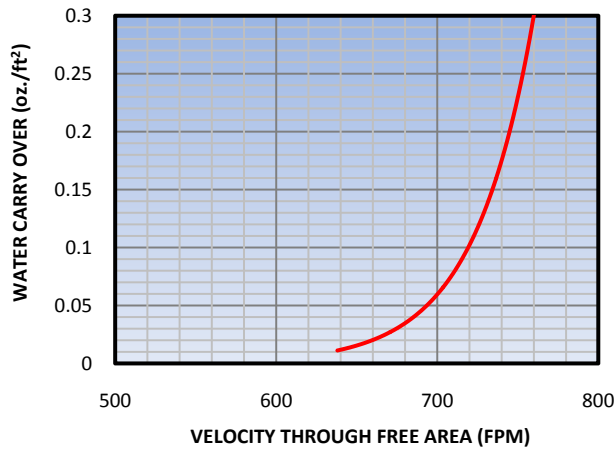
AUGUST 2009

### FREE AREA (Sq. Ft.)

	WIDTH (INCHES)															
	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72
HEIGHT (INCHES)	12	0.24	0.33	0.42	0.51	0.60	0.69	0.78	0.87	0.96	1.05	1.14	1.23	1.32	1.41	1.50
	16	0.42	0.58	0.74	0.90	1.06	1.21	1.37	1.53	1.69	1.85	2.01	2.17	2.33	2.49	2.65
	20	0.59	0.81	1.04	1.26	1.48	1.71	1.93	2.16	2.38	2.61	2.83	3.05	3.28	3.50	3.73
	24	0.76	1.06	1.35	1.64	1.93	2.22	2.51	2.80	3.09	3.39	3.68	3.97	4.26	4.55	4.84
	28	0.93	1.29	1.64	2.00	2.36	2.71	3.07	3.42	3.78	4.13	4.49	4.85	5.20	5.56	5.91
	32	1.09	1.50	1.92	2.33	2.75	3.16	3.58	3.99	4.41	4.82	5.24	5.65	6.07	6.48	6.90
	36	1.25	1.73	2.20	2.68	3.15	3.63	4.11	4.58	5.06	5.53	6.01	6.49	6.96	7.44	7.91
	40	1.44	1.99	2.54	3.09	3.64	4.19	4.74	5.29	5.84	6.39	6.94	7.49	8.04	8.59	9.14
	44	1.61	2.22	2.84	3.45	4.06	4.67	5.29	5.90	6.51	7.13	7.74	8.35	8.97	9.58	10.19
	48	2.00	2.67	3.33	4.01	4.67	5.33	6.02	6.67	7.33	8.00	8.67	9.33	10.01	10.67	11.34
	52	1.95	2.70	3.44	4.19	4.93	5.68	6.42	7.17	7.91	8.66	9.40	10.15	10.89	11.64	12.38
	56	2.11	2.92	3.72	4.53	5.33	6.13	6.94	7.74	8.55	9.35	10.16	10.96	11.77	12.57	13.38
	60	2.29	3.16	4.04	4.91	5.78	6.65	7.53	8.40	9.27	10.15	11.02	11.89	12.76	13.64	14.51
	64	2.46	3.40	4.34	5.27	6.21	7.15	8.09	9.02	9.96	10.90	11.84	12.77	13.71	14.65	15.59
	68	2.64	3.64	4.64	5.65	6.65	7.66	8.66	9.66	10.67	11.67	12.68	13.68	14.68	15.69	16.69
	72	2.81	3.88	4.95	6.02	7.09	8.16	9.23	10.30	11.37	12.44	13.51	14.58	15.65	16.72	17.79
	76	2.96	4.09	5.22	6.35	7.48	8.61	9.74	10.87	12.00	13.13	14.26	15.39	16.51	17.64	18.77
	80	3.12	4.31	5.50	6.69	7.88	9.07	10.26	11.45	12.63	13.82	15.01	16.20	17.39	18.58	19.77
	84	3.31	4.57	5.83	7.09	8.35	9.61	10.87	12.13	13.39	14.65	15.91	17.17	18.43	19.69	20.95
	88	3.48	4.81	6.13	7.46	8.78	10.11	11.43	12.76	14.09	15.41	16.74	18.06	19.39	20.71	22.04
	92	3.66	5.05	6.45	7.84	9.24	10.63	12.03	13.42	14.81	16.21	17.60	19.00	20.39	21.78	23.18
	96	3.83	5.29	6.75	8.21	9.67	11.13	12.58	14.04	15.50	16.96	18.42	19.88	21.34	22.80	24.26
	100	3.99	5.51	7.03	8.54	10.06	11.58	13.10	14.62	16.14	17.66	19.18	20.70	22.22	23.73	25.25
	104	4.16	5.75	7.34	8.92	10.51	12.09	13.68	15.27	16.85	18.44	20.02	21.61	23.20	24.78	26.37
	108	4.33	5.98	7.64	9.29	10.94	12.59	14.24	15.89	17.54	19.19	20.84	22.49	24.14	25.79	27.45
	112	4.51	6.22	7.94	9.66	11.38	13.09	14.81	16.53	18.25	19.96	21.68	23.40	25.11	26.83	28.55
	116	4.69	6.48	8.27	10.06	11.84	13.63	15.42	17.21	18.99	20.78	22.57	24.36	26.14	27.93	29.72
	120	4.84	6.68	8.53	10.37	12.21	14.06	15.90	17.74	19.59	21.43	23.28	25.12	26.96	28.81	30.65

### WATER PENETRATION - 2420 / 2425

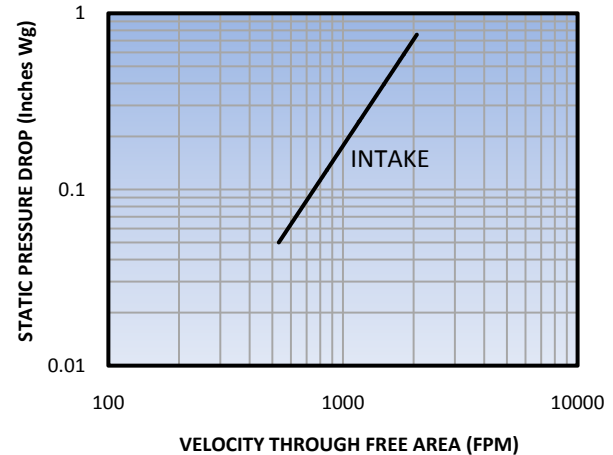
15 MINUTE DURATION, TEST SIZE 48" x 48"



BEGINNING POINT OF WATER PENETRATION AT 0.01 oz./ft² FREE AREA IS 638 FPM

### PRESSURE DROP - 2420 / 2425

FIGURE 5.5, TEST SIZE 48" x 48"



\*TEST RESULTS DO NOT INCLUDE THE EFFECTS OF BIRDSCREEN

### RECOMMENDED SPECIFICATION

Furnish and install stationary louver models 2420 / 2425 as manufactured by Ventex Inc., Bolton, Ontario. Louvers must be licensed to bear the AMCA seal. Louvers shall be 4" (102 mm) deep. Blades shall be 0.081" (2.06 mm) extruded 6063-T5 aluminum alloy and frame shall be 0.081" (2.06 mm) extruded 6063-T5 aluminum alloy. Louvers shall have 19 gauge galvanized ½" x ½" birdscreen. All materials shall be factory finished after assembly with Polyester Power Coat in a color selected from the Ventex Color Chart.

### CERTIFIED RATINGS

Ventex Inc. certifies that the models 2420 / 2425 shown here are 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 Certified Ratings Seal applies to air performance and water penetration ratings.





**IMPORTANT DISCLAIMER: THIS ON-LINE COLOUR CHART IS FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR FINAL COLOUR MATCHING! COLOURS AND SHADES MAY VARY FROM ACTUAL COLOURS DUE TO COLOUR SETTINGS AND RESOLUTION OF YOUR COMPUTER SCREEN AND PRINTER OUTPUT. CONTACT VENTEX FOR ACTUAL COLOUR CHART OR COLOUR MATCHING.**

## COLOUR CHART

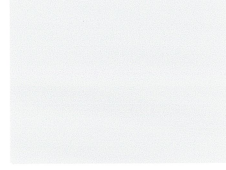
Powder Coat Finish  
For Louvers & Penthouses



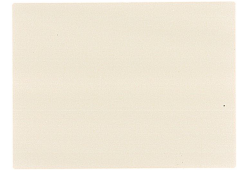
NORTHERN GOLD  
V1155



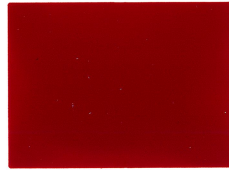
DRIFTWOOD WHITE  
V1161



WHITE ICE  
V1124



IVORY  
V1020



BRICK RED  
V1158



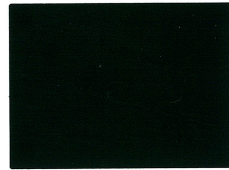
COCOA BROWN  
V1287



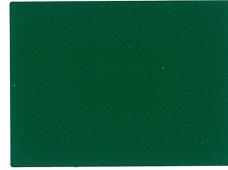
RAW HIDE  
V1134



NATURAL BRICK  
V1176



HARTFORD GREEN  
V1197



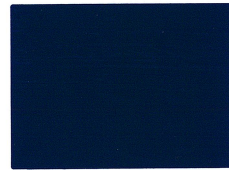
FOREST GREEN  
V1137



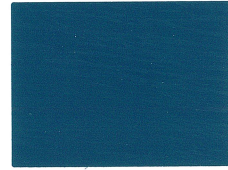
COMMERCIAL BROWN  
V1145



PACIFIC TURQUOISE  
V1156



HERON BLUE  
V1183



SLATE BLUE  
V1141



STONE GREY  
V1031



REGENT GREY  
V1118



CHARCOAL  
V1022



METRO BROWN  
V1119



TAUPE  
V1130



BEIGE  
V1117

Colours shown may vary slightly from actual painted product.

In addition to the colours shown above, Ventex standard colours include standard RAL colours as well as the following (samples available upon request):

Clear Anodized	V1187
Light Bronze	V1180
Medium Bronze	V1178
Dark Bronze	V1395
Standard White	V1164
Standard Black	V1193

Above are powder coat finishes, not anodized.

Custom colours and colour matching available at extra cost.

## VENTEX INC.

195 Healey Road, Bolton, ON L7E 5B2

PHONE: 905.857.4700 FAX: 905.857.4730

TOLL FREE PHONE: 1.800.668.7214

TOLL FREE FAX: 1.888.891.6504

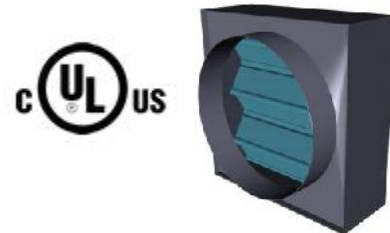
**[www.ventexinc.com](http://www.ventexinc.com)**



• UL 555 & CAN/ULC-S112 Classified Static Fire Damper, 1½ Hr. Label (File # R25565).

• NFPA 80, 90A & 101 compliant.

• NBC and IBC building codes compliant.



#### STANDARD CONSTRUCTION

**DEPTH:** 4 ¼" (108).

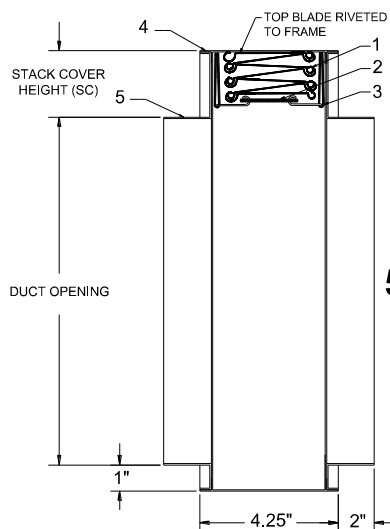
**FRAME:** Roll formed 20 Ga. galvanized steel with hemmed edge.

**BLADE:** Roll formed 22 Ga. galvanized steel.  
Interlocking curtain type blade.

**FUSIBLE LINK:** 165°F (74 C).

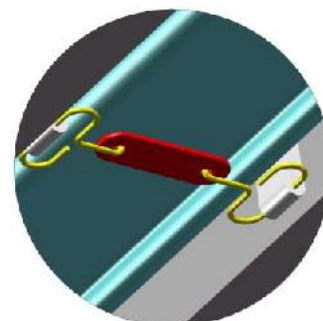
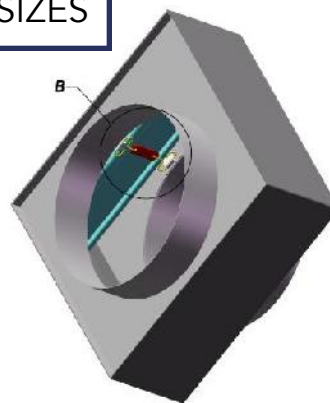
#### OPTIONAL CONSTRUCTION

- ☐ Factory supplied Sleeve (Required for all multiple section sizes; collars will be fastened to sleeve ends).
- ☐ Access Door factory mounted in a common sleeve.
- ☐ 212°F (100 C) Fusible Link.
- ☐ 1 ½" x 1 ½" Retaining Angles.
- ☐ Sealed for medium/high pressure (up to 6"w.g./1.5 kPa).



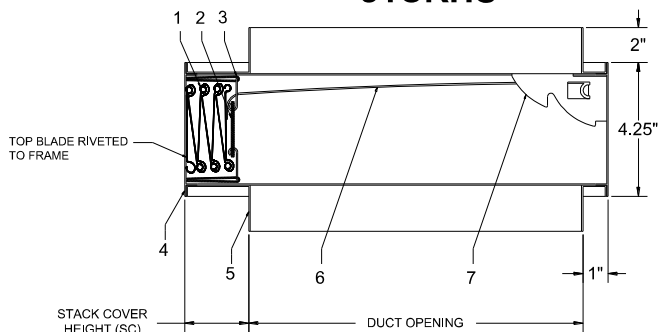
**51CRVS**

CONFIRM SIZES



**DETAIL B**

**51CRHS**



#### FIRE DAMPER COMPONENTS

- |                          |                          |
|--------------------------|--------------------------|
| 1. Blade                 | 5. Round Collar          |
| 2. Fusible Link Assembly | 6. Lock Ramp             |
| 3. Link Strap            | 7. Constant Force Spring |
| 4. Frame                 |                          |

#### MAINTENANCE RECOMMENDATIONS:

NFPA 80 advises that fire dampers be inspected and tested 1 year after installation, then every 4 years minimum. More frequent inspections may be required due to system use and air conditions, or applicable local codes.

#### NOTES:

These static dampers are UL/ULC approved for use in HVAC systems where the fans automatically shut down in the event of a fire alarm. 1½ hr. labeled fire dampers are suitable for use in fire separations with a fire resistance rating of 2 hours or less.

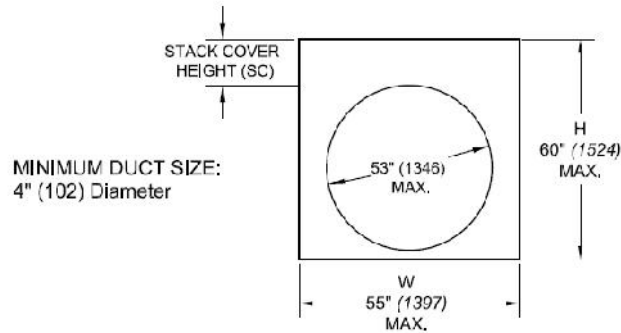
**Fire dampers must be installed in accordance with manufacturer's instructions. Refer to Alumavent installation instructions for details.**

Dimensions are shown in inches (mm).

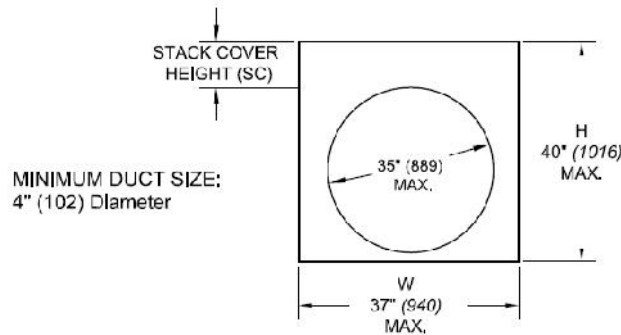
DUCT Ø	W x H
4 (102)	6 x 6 (152 X152)
5 (127)	7 x 7 (178 X 178)
6 (152)	8 x 8 (203 X 203)
7 (178)	9 x 9 (229 X 229)
8 (203)	10 x 11 (254 x 279)
9 (229)	11 x 12 (279 x 305)
10 (254)	12 x 13 (305 x 330)
11 (279)	13 x 14 (330 x 356)
12 (305)	14 x 15 (356 x 381)
13 (330)	15 x 16 (381 x 406)
14 (356)	16 x 17 (406 x 432)
15 (381)	17 x 18 (432 x 457)
16 (406)	18 x 20 (457 x 508)
17 (432)	19 x 21 (483 x 533)
18 (457)	20 x 22 (508 x 559)
19 (483)	21 x 23 (533 x 584)
20 (508)	22 x 24 (559 x 610)
21 (533)	23 x 25 (584 x 635)
22 (559)	24 x 26 (610 x 660)
23 (584)	25 x 27 (635 x 686)
24 (610)	26 x 28 (660 x 711)
25 (635)	27 x 29 (686 x 737)
26 (660)	28 x 30 (711 x 762)
27 (686)	29 x 32 (737 x 813)
28 (711)	30 x 33 (762 x 838)
29 (737)	31 x 34 (787 x 864)
30 (762)	32 x 35 (813 x 889)
31 (787)	33 x 36 (838 x 914)
32 (813)	34 x 37 (864 x 940)
33 (838)	35 x 38 (889 x 965)
34 (864)	36 x 39 (914 x 991)
35 (889)	37 x 40 (940 x 1016)
36 (914)	38 x 42 (965 x 1067)
37 (940)	39 x 43 (991 x 1092)
38 (965)	40 x 44 (1016 x 1118)
39 (991)	41 x 45 (1041 x 1143)
40 (1016)	42 x 46 (1067 x 1168)
41 (1041)	43 x 47 (1092 x 1194)
42 (1067)	44 x 48 (1118 x 1219)
43 (1092)	45 x 49 (1143 x 1245)
44 (1118)	46 x 50 (1168 x 1270)
45 (1143)	47 x 52 (1194 x 1321)
46 (1168)	48 x 53 (1219 x 1346)
47 (1194)	49 x 54 (1245 x 1372)
48 (1219)	50 x 55 (1270 x 1397)
49 (1245)	51 x 56 (1295 x 1422)
50 (1270)	52 x 57 (1321 x 1448)
51 (1295)	53 x 58 (1346 X 1473)
52 (1321)	54 x 59 (1372 X 1499)
53 (1346)	55 x 60 (1397 X 1524)

UNITS: INCHES (MM)

### VERTICAL



### HORIZONTAL



**NOTE: All multiple section sizes require a factory sleeve. Collars will be fastened to sleeve ends.**

REF. #	QTY.	DUCT DIAMETER (Ø)	MOUNT (V/H)	ACCESSORIES

DAMPER WILL BE MANUFACTURED APPROXIMATELY ¼" (6) SMALLER THAN GIVEN DIMENSIONS.

PROJECT NAME:

ENGINEER:

CONTRACTOR:

SUBMITTAL DATE:

- UL 555 & CAN/ULC-S112 Classified Static Fire Damper, 1½ Hr. Label (File # R25565).
- NFPA 80, 90A & 101 compliant.
- NBC and IBC building codes compliant.

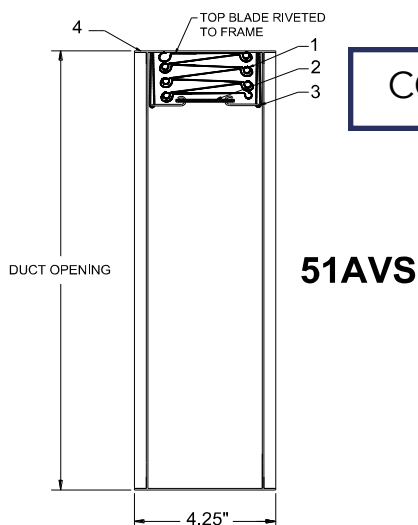


### STANDARD CONSTRUCTION

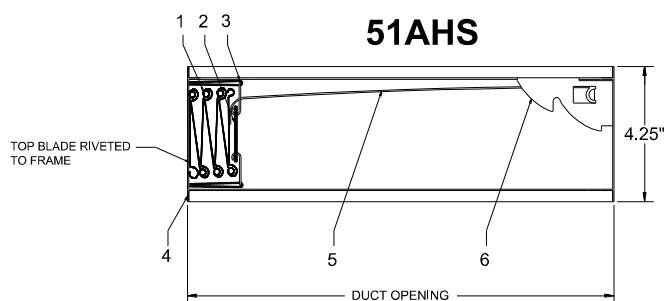
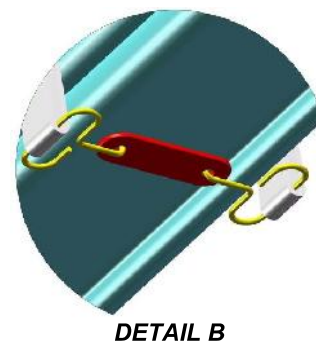
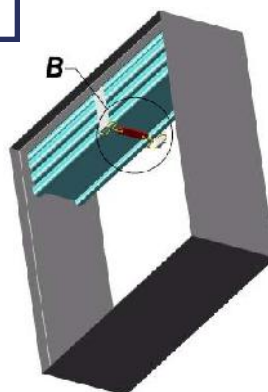
**DEPTH:** 4 ¼" (108).  
**FRAME:** Roll formed 20 Ga. galvanized steel with hemmed edge.  
**BLADE:** Roll formed 22 Ga. galvanized steel.  
 Interlocking curtain type blade.  
**FUSIBLE LINK:** 165°F (74 C).

### OPTIONAL CONSTRUCTION

- ☐ Factory supplied Sleeve – 22, 20, 18 or 16 Ga.  
\*Sleeve length required.
- ☐ Round Transitions (See Model 51CR).
- ☐ Access Door factory mounted in a common sleeve.
- ☐ 212°F (100 C) Fusible Link.
- ☐ 1 ½" x 1 ½" Retaining Angles.



CONFIRM SIZES



### FIRE DAMPER COMPONENTS

- |                          |                          |
|--------------------------|--------------------------|
| 1. Blade                 | 5. Constant Force Spring |
| 2. Fusible Link Assembly | 6. Lock Ramp             |
| 3. Link Strap            |                          |
| 4. Frame                 |                          |

### MAINTENANCE RECOMMENDATIONS:

NFPA 80 advises that fire dampers be inspected and tested 1 year after installation, then every 4 years minimum (6 years for hospitals). More frequent inspections may be required due to system use and air conditions, or applicable local codes.

### NOTES:

Dampers are furnished approximately ¼" (6) smaller than the given duct dimensions.

These static dampers are UL/ULC approved for use in HVAC systems where the fans automatically shut down in the event of a fire alarm.

1½ hr. labeled fire dampers are suitable for use in fire separations with a fire resistance rating of 2 hours or less.

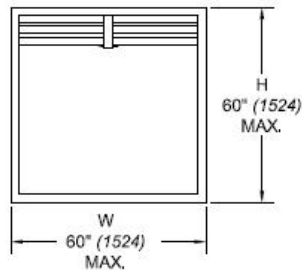
**Fire dampers must be installed in accordance with manufacturer's instructions. Refer to Alumavent installation instructions for details.**

Dimensions are shown in inches (mm).

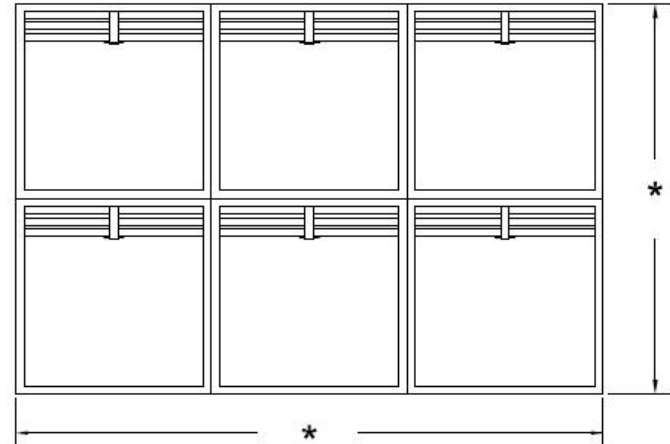
### VERTICAL

SINGLE SECTION DAMPER

MINIMUM SIZE:  
4" x 4"(102 x 102)



MULTIPLE SECTION DAMPER

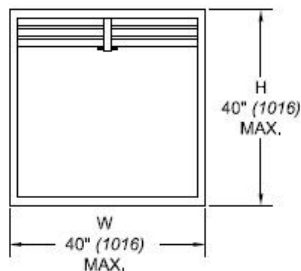


\* MAXIMUM SIZE 120"w x 80"h (3048 x 2032) (40"x 40" MAXIMUM SECTION SIZE) OR 108"x 96" (2743 x 2438) (36"x48" MAXIMUM SECTION SIZE)

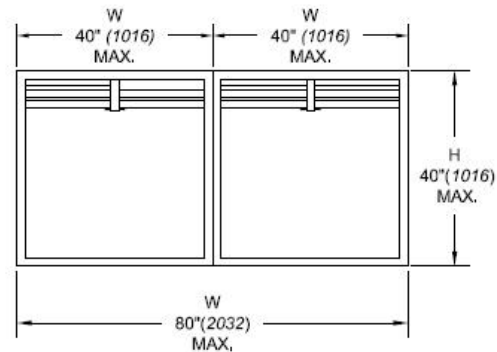
### HORIZONTAL

SINGLE SECTION DAMPER

MINIMUM SIZE:  
4" x 6"(102 x 152)



MULTIPLE SECTION DAMPER



REF. #	QTY.	DUCT WIDTH (W)	DUCT HEIGHT (H)	MOUNT (V/H)	ACCESSORIES

\*DAMPER WILL BE MANUFACTURED APPROXIMATELY 1/4" (6) SMALLER THAN GIVEN DUCT DIMENSIONS.

PROJECT NAME:

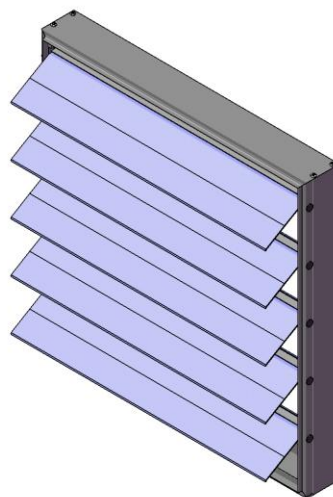
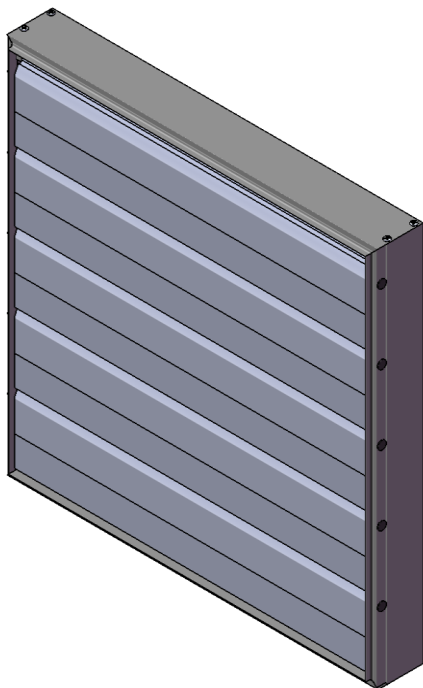
CONTRACTOR:

ENGINEER:

SUBMITTAL DATE:



The Ventex 1200 Series is a superior concept in backdraft dampers. This unique, all extruded aluminum product eliminates the shortcomings of previous designs on the market. Pivot pins that quickly wear out or rust, or rivets that shake loose and pull through the blade are no longer a problem. The extruded blades are engineered to combine strength and durability with smooth operation by virtue of their aerodynamic design.



MODEL 1200 (DUCT MOUNT) SHOWN

### STANDARD CONSTRUCTION

<b>MATERIAL:</b>	EXTRUDED ALUMINUM - 6063-T5 ALLOY
<b>FRAME STYLE:</b>	SPECIFY <b>1200</b> FOR DUCT MOUNT FRAME SPECIFY <b>1205</b> FOR FLANGE FRAME (1 1/2" FLANGE) SPECIFY <b>1207</b> FOR FRONT FLANGE FRAME
<b>DEPTH (BLADES CLOSED):</b>	2.75" (70 mm)
<b>DEPTH (BLADES OPEN):</b>	5.625" (143 mm)
<b>FRAME THICKNESS:</b>	0.062" (1.57 mm)
<b>BLADE THICKNESS:</b>	0.062" (1.57 mm)
<b>BLADE CENTRES:</b>	3.75" (95 mm)
<b>SEALS:</b>	VINYL BLADE SEAL
<b>OPERATION METHOD:</b>	GRAVITY
<b>FINISH:</b>	MILL FINISH

### SIZE LIMITATIONS

	MINIMUM	MAXIMUM
<b>WIDTH</b>	8" (203 mm)	60" (1524 mm)
<b>HEIGHT</b>	8" (203 mm)	60" (1524 mm)
<b>AREA</b>	0.44 ft <sup>2</sup> (0.04 m <sup>2</sup> )	25 ft <sup>2</sup> (2.32 m <sup>2</sup> )

MODELS 1200 AND 1207 DAMPERS WILL BE MANUFACTURED 1/4" (6 mm) SMALLER THAN GIVEN OPENING DIMENSIONS UNLESS OTHERWISE SPECIFIED.  
MODEL 1205 DAMPERS WILL BE MANUFACTURED TO THE EXACT SIZE OF GIVEN OPENING DIMENSIONS UNLESS OTHERWISE SPECIFIED.

### AVAILABLE ACCESSORIES

#### SCREENS:

- BIRDSCREEN
  - 1/2" x 1/2" 19 GA. GALVANIZED
  - 1/2" x 1/2" INTER CRIMPED ALUMINUM
- INSECT SCREEN - 18 x 14 MESH

#### OTHER:

- COUNTER BALANCING WITHOUT SPRINGS
- CONDUIT HOLE
- MANUAL OPERATION COMPLETE WITH 6 FT. OF CHAIN
- FOR MOTORIZED OPERATION SEE MODEL SERIES 1300

TAG	QTY.	OPENING WIDTH	OPENING HEIGHT	FRAME STYLE	ACCESSORIES

CONFIRM SIZES

PROJECT NAME:

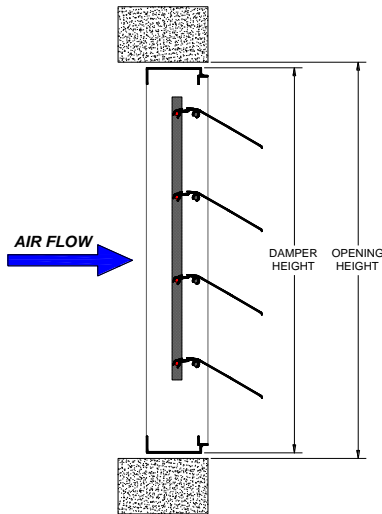
CONTRACTOR:

ENGINEER:

SUBMITTAL DATE:

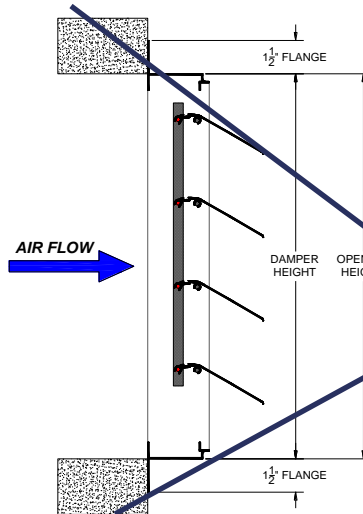
### FRAME STYLE

**MODEL 1200**  
DUCT MOUNT



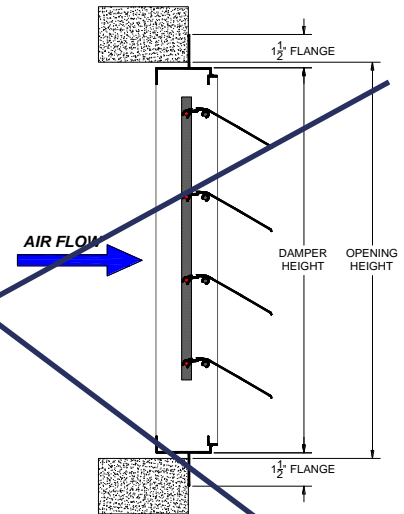
DAMPER SIZE = OPENING SIZE - 1/4"

**MODEL 1205**  
FLANGE MOUNT



DAMPER SIZE = OPENING SIZE

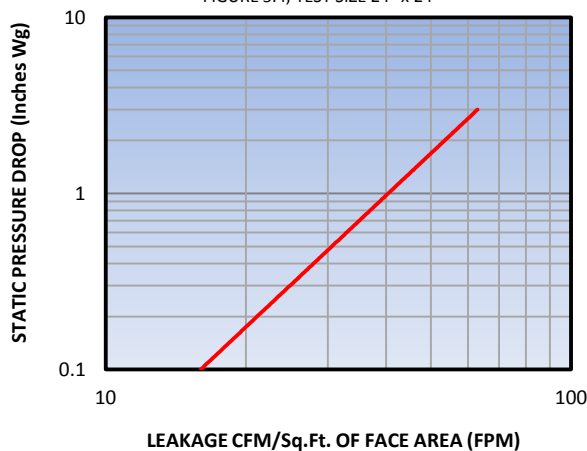
**MODEL 1207**  
FRONT FLANGE MOUNT



\*FFM DAMPER SIZE = OPENING SIZE - 1/4"

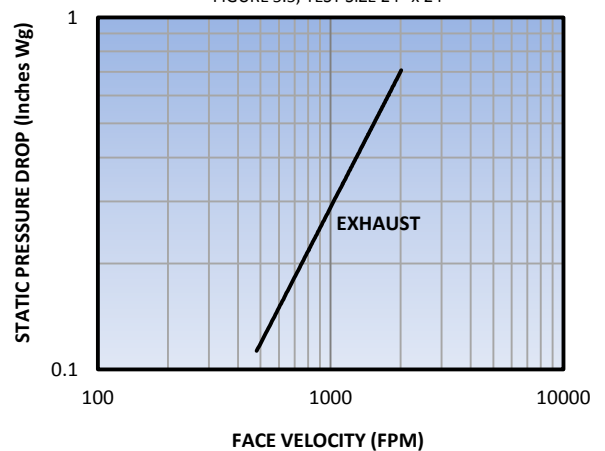
### AIR LEAKAGE - BDD

FIGURE 5.4, TEST SIZE 24" x 24"



### PRESSURE DROP - BDD

FIGURE 5.5, TEST SIZE 24" x 24"



\*AIR LEAKAGE IS BASED UPON OPERATION BETWEEN 0°C – 49°C (32°F – 120°F)

\*TEST RESULTS DO NOT INCLUDE THE EFFECTS OF BIRDSCREEN

### RECOMMENDED SPECIFICATION

Furnish and install backdraft damper model 1200 (In-Duct Mounting)/1205 (Flange Frame)/1207 (Front Flange Frame) as required for application, as manufactured by Ventex Inc, Bolton, Ontario. Dampers must be licensed to bear the AMCA seal. Dampers shall be 2.75" (70 mm) deep when the blades are closed and 5.625" (143 mm) when the blades are open. Blades shall be 0.062" (1.57 mm) extruded 6063-T5 aluminum alloy and frame shall be 0.062" (1.57 mm) extruded 6063-T5 aluminum alloy. The blades must have vinyl edge seals integral to each blade. Linkage is to be concealed from the front view of the damper and cannot be mechanically fastened to the damper blades.

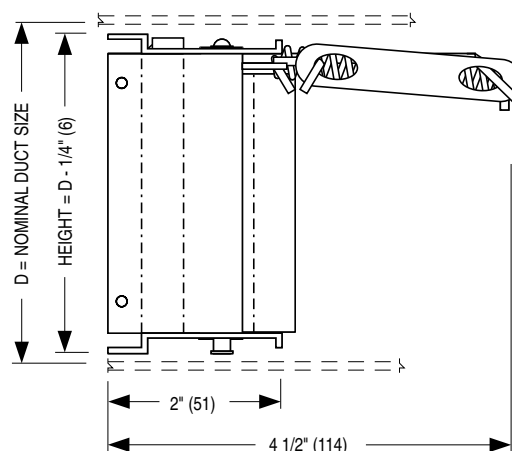
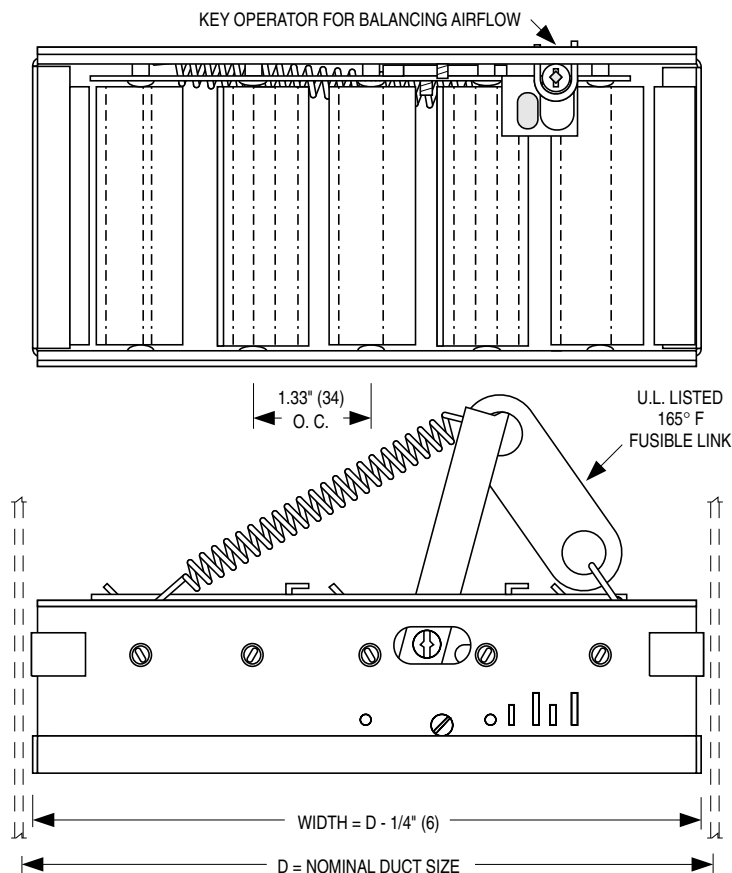
### CERTIFIED RATINGS


Ventex Inc. certifies that the 1200 Series Backdraft Damper shown here 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 Certified Ratings Seal applies to air performance and air leakage ratings.



DWG. 1200 AUGUST 2013

**1 1/2 HOUR RATING FOR USE IN FIRE SEPARATIONS OF UP TO 2 HOURS. TESTED IN ACCORDANCE WITH ULC S112/UL 555. APPROVED FOR INSTALLATION WITH OR WITHOUT STEEL GRILLE.**



	<b>LISTED FIRE DAMPER - 1 1/2 HR. RATING</b> TESTED IN ACCORDANCE WITH ULC S112/UL 555	
	<b>WH-</b>	DO NOT REMOVE OR COVER LABEL. NE PAS ENLEVER OU COUVRIR LETIQUETTE.
FOR INSTALLATION IN VERTICAL OR HORIZONTAL POSITION, WITH OR WITHOUT STEEL REGISTER.		

**NAILOR  
INDUSTRIES INC.**  
TORONTO, ONTARIO  
HOUSTON, TEXAS

#### DESCRIPTION:

The 907FL is a dual purpose heavy gauge opposed blade damper designed primarily for use as an air balancing device behind supply or return air grilles (or in branch ducts) and a 1 1/2 hour labeled fire damper. Where the building code requires the protection of a ductwork penetration in a wall or floor required to have a fire resistance rating, and the ductwork terminates at a grille, the 907FL provides the solution. Rather than using a register and separate curtain type fire damper, the 907FL functions as both, saving on both installation cost and space. The unique 907FL is the only listed fire damper that may be installed directly attached to the back of a steel grille as it was successfully tested this way. Other manufacturers' products require the damper to be installed independently in the duct behind the grille, so adding to the cost and also complicating the installation.

#### SPECIFICATION:

1. Material: Minimum 20 ga. (0.91) steel blade and frame.
2. Bronze blade pivot bushings.
3. UL listed fusible link 165°F (74°C) standard.
4. Finish: BK Black baked enamel.

#### NOTES:

1. Minimum size: 6" x 4" (152 x 102)  
Maximum size: 24" x 12" (610 x 305) single section.  
24" x 24" (610 x 610) or  
48" x 12" (1219 x 305) as a factory assembled multiple section.
2. Refer to drawing 907FL-2 for installation instructions.

#### SCHEDULE TYPE:

#### PROJECT:

#### ENGINEER:

#### CONTRACTOR:

Dimensions are in inches (mm).

DATE

C SERIES

SUPERSEDES

DRAWING NO.

28 - 7 - 99R

ACC. GR.

11 - 94

ACC.907FL-1



120 Orenda Rd, Brampton,  
ON L6W 1W2

905-450-2272

csr@airvacind.com

905-455-3562

www.airvacind.com

# Fire and Smoke Damper

## AVI 10

### UL Classified - 1½ Hour Rating

Leakage Class - I, II, III  
Vertical and Horizontal Installation  
Temperature Ratings - 250° and 350° F  
Opposed Blades  
Maximum Velocity: 2000 FPM (4" WG)  
Rated for both Upstream and Downstream

### Standard Construction:

Frame: 16 Ga galvanized steel  
Blades: 16 Ga galvanized steel triple crimped, 6" centers  
Seals: Silicone blade and stainless jamb  
Linkage: concealed in jamb  
Bearings: ½" oilite bronze  
Axles: 1/2" plated hex  
Control Shaft: 1/2" round  
Thermal Disc: 212°F standard / 165°F optional

### Options:

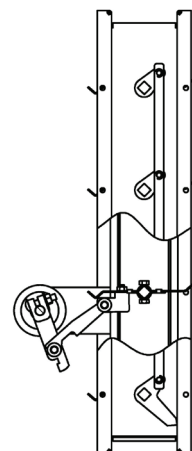
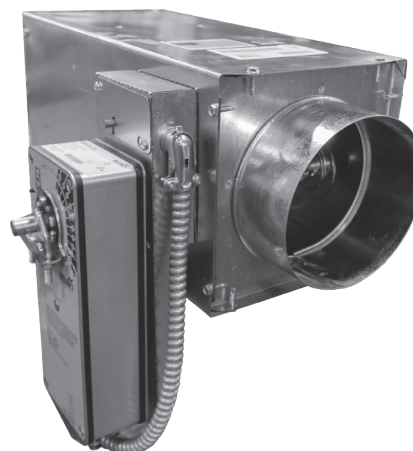
Sleeves: 16" to 30"  
Actuator Mounting: External or Internal, Right or Left  
Actuator Voltage: 24V, 120V, 115V, 230V  
Actuator Type: Belimo, Siemens  
Reopenable Operator (TTD or STD)  
Blade Indicator Package (BIP)

### Sizes:

Minimum: 8" x 8"  
Maximum – Single Section: 36"W x 36"H  
*\* duct sizes less than 8" height will have angle transition on sleeve*

### Models:

Type A with side plate/no sleeve  
Type A with sleeve  
Type C, square transition  
Type CR, round transition  
Type CO, oval transition



This product meets the requirements  
for fire/smoke dampers established by:

UL Standards 555 and 555S  
NFPA Standard 90A and 92  
NFPA Bulletin 80  
ICC Building Codes

Qty.	Leakage Class	Damper Size		Link Temperature	Actuator Voltage	Sleeve Length	Temperature Rating	Actuator Options
		W	H					

## Part Number Format

**1 2 V 4 E 2 4 1 0 G 2 N 1 7 N**

**MODEL:**  
SERIES 10 1½ Hour

**LEAKAGE CLASS:**  
1 = Class I, Ultra Low Leakage  
2 = Class II, Low Leakage  
3 = Class III, Leakage

**BLADE TYPE:**  
C = Opposed Crimped  
F = Opposed Airfoil

**DAMPER WIDTH**

**DAMPER HEIGHT**

3 = 350°  
2 = 250°

E = Belimo External  
I = Belimo Internal  
A = Siemens External  
B = Siemens Internal  
C = Honeywell External  
D = Honeywell Internal

G = Galvanized, w/ 165° F TRD  
H = Galvanized, w/ 212° F TRD

**TRANSITIONS:**  
C = 100% Free Rectangular  
B = Angle Transition for less than 8 x 8 (This is Type B)  
O = 100% Free Oval  
R = 100% Free Round  
N = No Transition  
W = Out of Wall

**SLEEVE LENGTH:**  
SP = No Sleeve/Side Plate (This is Type A)  
16 = 16" Sleeve  
XX = XX" Sleeve  
30 = 30" Sleeve

**ACTUATOR - TYPE/LOCATION:**  
1 = 120v RF  
2 = 240v RF  
3 = 24v RF  
4 = 120v LF  
5 = 240v LF  
6 = 24v LF

N = 2 Position No End Switch  
F = Modulating With End Switch  
M = Modulating No End Switch  
E = 2 Position With End Switch



120 Orenda Rd, Brampton,  
ON L6W 1W2

905-450-2272

905-455-3562

csr@airvacind.com

www.airvacind.com