

**Combination Fire/Smoke Damper** ▲ 1½ Hour Rated ▲ Single Thickness Blades ▲ Leakage Class I ▲ 250°F or 350°F Rated ▲ Out-of-Barrier ▲ Galvanized Steel

### STANDARD MATERIALS AND CONSTRUCTION

- FRAME:** 5½" x 7⁄8" x 16 GA. galvanized steel hat channel.  
**BLADES:** 16 GA. galvanized steel single thickness, parallel action.  
**AXLES:** Square plated solid steel stub.  
**BEARINGS:** Oil impregnated bronze.  
**LINKAGE:** Plated steel angle and crank plates with stainless steel pivots, in-jamb type.  
**STOPS:** 20 GA. galvanized steel angles at head and sill.  
**BLADE SEALS:** Silicone.  
**JAMB SEALS:** Stainless steel.  
**SLEEVE:** 20-GA galvanized steel by 15" long (1½" grille clearance) or 17" long (3½" grill clearance) with 13⁄16" front flange  
**INSULATION:** Factory installed 0.2" thick intumescent insulation on top and both sides (vertical mount) or all four sides (horizontal mount).  
**CAULKING:** Hardcast irongrip 601 or UL-listed equivalent.  
**ACTUATOR:** Electric with heat response device (EHRD) or pneumatic with response device (PHRD). Factory-installed for Power-Open/Spring-Close (fail close) operation. Internally mounted and accessible from grille side, or mounted externally or internally for continuous duct applications.  
**FINISH:** Mill.

### OPTIONS

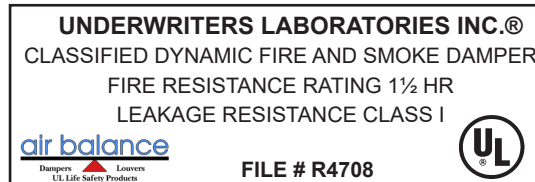
Integral dual position indication (IDPI) switches  
 Sensotherm re-openable heat response device (ESOT) for electric actuator  
 Sensotherm re-openable heat response device (ESOP) for pneumatic actuator  
 Model SM-501 flow-rated smoke detector  
 - Shipped loose  
 Model 2D51 no-flow smoke detector (14" minimum damper height)  
 Tab-lock retaining angles  
 Stainless steel bearings  
 Copper tubing (for pneumatic actuators)  
 Sleeves of various gauge thicknesses  
 Round or oval transitions  
 Short-width (< 16") and/or Short-height (< 10") Transitions

### NOTES

1. Damper frames are provided approximately ¼" undersized. The addition of a sleeve and insulation will increase the size of the assembly. See SI-FAGM or SI-FACD for sizing openings.
2. Dampers smaller than minimum frame size require a transition. Refer to SD-TRFS. When transitioned on one-side only (which will be a damper supplied with a transition on the non-jackshafted side only), the grille size should be selected to match the damper frame size, not the transition collar size.
3. Damper with smoke detector must have a minimum sleeve of 16" (1½" setback) or 18" (3" setback).
4. Dampers for horizontal installation can only be mounted in a fire barrier constructed of masonry/concrete materials.

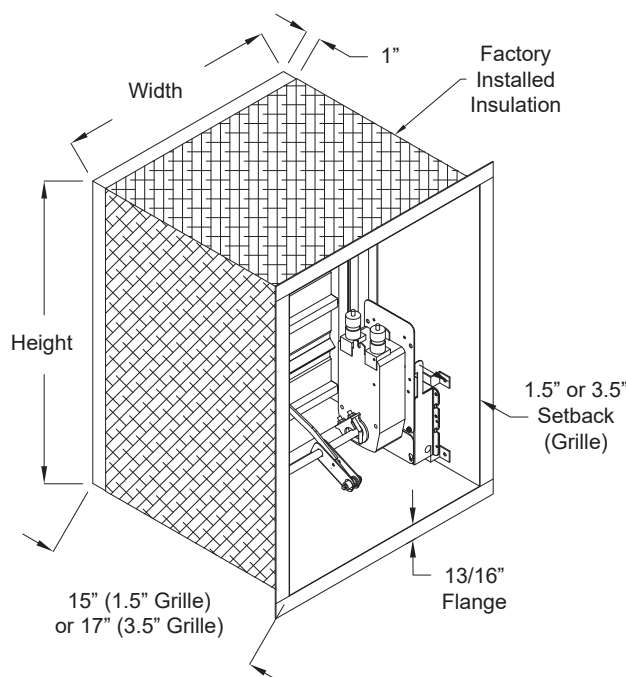
### DAMPER SIZES

2000 fpm, 4 in.wg			
Orientation	Hor & Vert	Horizontal	Vertical
Panel	Min Panel	Max Panel	Max Panel
Rectangular	10"W x 10"H (16"W x 10"H frame)	36"W x 42"H	36"W x 42"H
Round	8" dia. (16"W x 10"H frame)	34" dia.	34" dia.
Oval	8"W x 8"H (16"W x 10"H frame)	34"W x 40"H	34"W x 40"H



This combination fire/smoke damper meets the construction and performance requirements of:

- Underwriters Laboratories Inc. Standards 555 and 555S
- National Fire Protection Association Standards 80, 90A, 92, 101, 105
- ICC's International Building Code
- New York City MEA Listing #111-99-M
- California State Fire Marshal Listing #3225-1328:119
- Underwriters Laboratories Inc. Approved for dual direction airflow and dynamic conditions.
- Underwriters Laboratories Inc. Classified for use in fire resistive ratings of less than 3 hours.
- Underwriters Laboratories Inc. Classified for use in smoke control systems for Leakage Class I and 250°F or 350°F.
- Actuators must be arranged to operate automatically, must fail closed upon loss of power, and must be controlled by a smoke detection system.



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### OPERATIONAL RATINGS

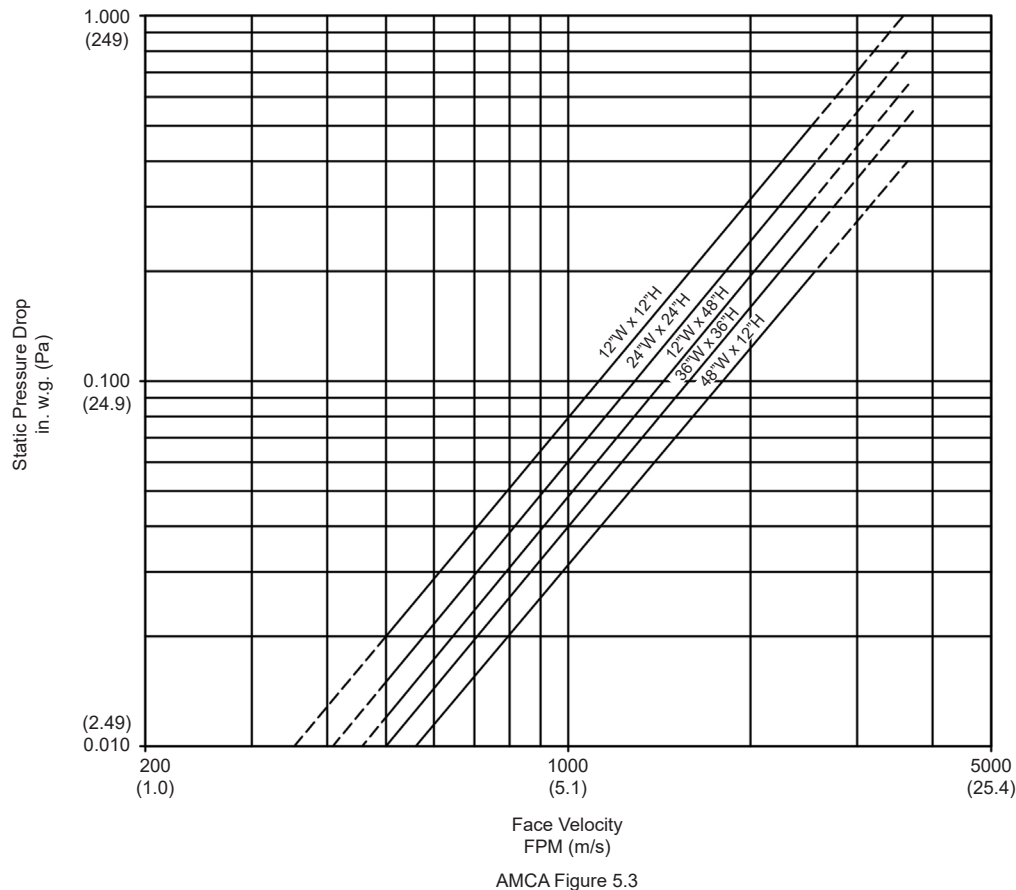
Maximum Differential Pressure: 4 in. w.g.  
Maximum Face Velocity: 2000 fpm

### LEAKAGE RATINGS

UL Leakage Class I  
8 cfm per sq.ft. maximum @ 4 in.wg

### PRESSURE DROP


The pressure drop data shown below is based on laboratory conditions. The test setup does not take into account elbows or other duct fittings that are part of every actual duct system. The configuration of the actual duct system immediately upstream and downstream of the damper often contributes more pressure loss than the damper itself.



This product was tested  
in accordance with AMCA  
Standard 511, Figure 5.3.

Intake air converted to  
standard air density.

Sizes listed on this chart exceed  
the size limitations of the FS1G.  
These sizes are based on the  
model FS1 data.

										
Item #	Qty	Damper Size	Horizontal	Vertical	250°F	350°F	Velocity	Pressure		
			Orientation		Temp. Rating		Operational Rating		Union Made	
Arch. / Eng.:					EDR:		ECN:		Job:	
Contractor:										
Project:					Date:		DWN:		DWG:	

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## INSTALLATION CONFIGURATIONS

<u>FS</u>	<u>1</u>	<u>G</u>	<u>2</u>
I	II	III	IV

### I. Base Model

FA = Airfoil Blade Fire-Smoke Damper  
 FS = Single-Thickness Blade Fire-Smoke Damper  
 MA19 = Airfoil Blade Fire Damper  
 MD19 = Single-Thickness Blade Fire Damper

### II. Leakage Class (Fire-Smoke Dampers Only)

1 = UL Class-I Leakage  
 2 = UL Class-II Leakage  
 Blank = Leakage Class Not Applicable (Fire Dampers)

### III. Installation Configuration

D = Out-of-barrier Horizontal Grille Application, 3½" Grille Clearance  
 E = Out-of-barrier Horizontal Grille Application, 1½" Grille Clearance  
 F = Out-of-barrier Vertical Grille Application, 3½" Grille Clearance  
 G = Out-of-barrier Vertical Grille Application, 1½" Grille Clearance  
 J = Out-of-barrier Horizontal, Continuous Duct  
 K = Out-of-barrier Vertical, Continuous Duct

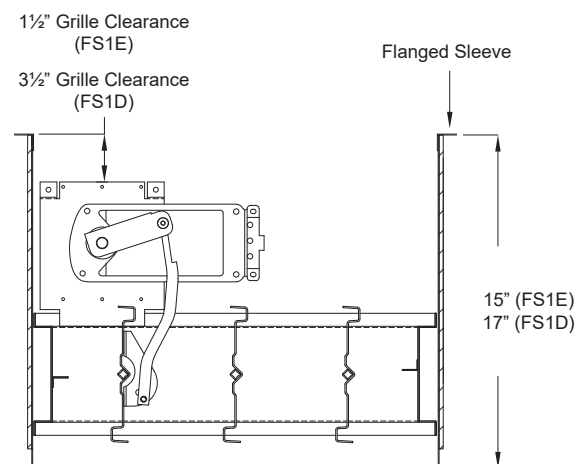
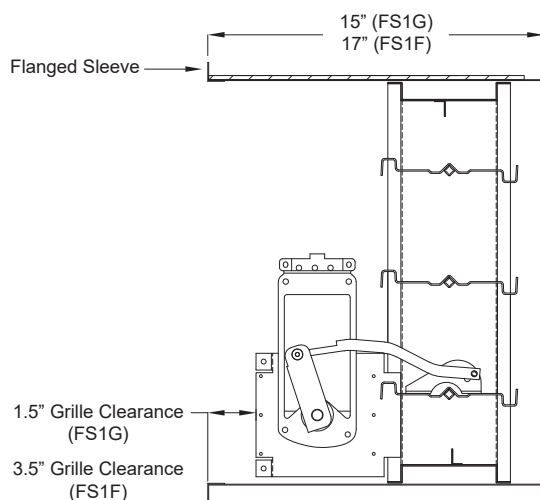
### IV. Temperature Rating (Fire-Smoke Dampers Only)

2 = 250°F  
 3 = 350°F  
 Blank = Temperature Rating Not Applicable (Fire Dampers)

## NOTE

- All Installations must be in accordance with SI-FAGM or SI-FACD
- Horizontal installations are only approved for masonry/concrete.

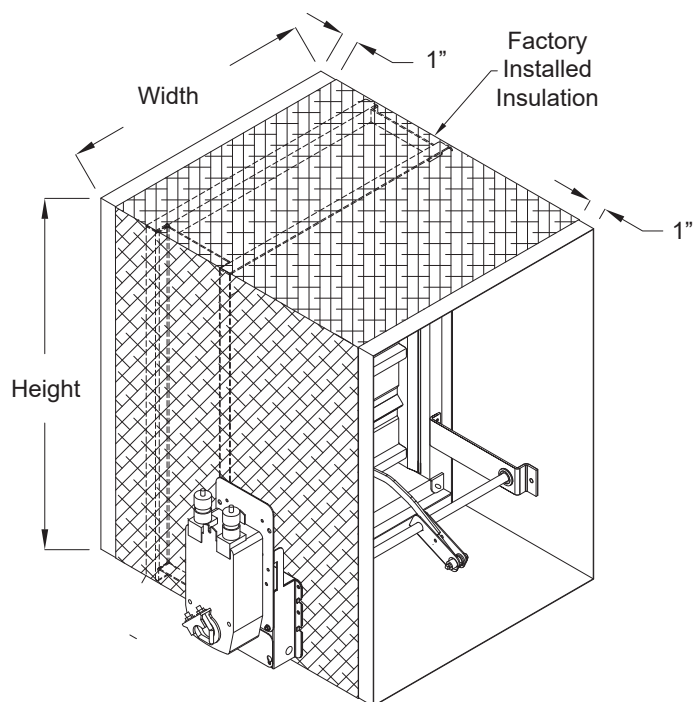
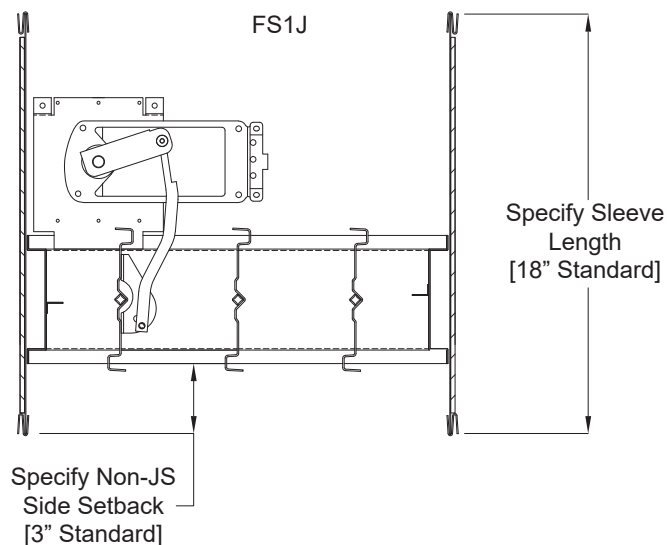
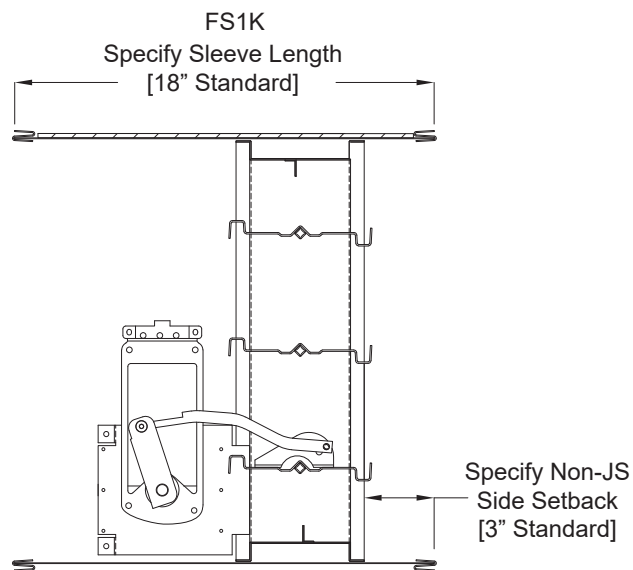
## GRILLE ACCESS APPLICATIONS



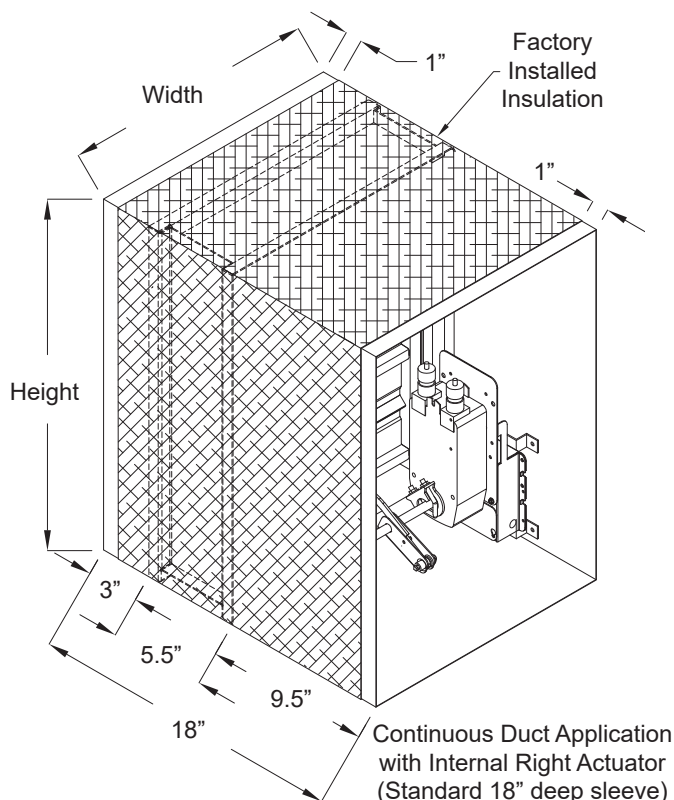
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**CONTINUOUS DUCT APPLICATIONS**

Continuous Duct Application  
with External Left Actuator



Continuous Duct Application  
with Internal Right Actuator  
(Standard 18" deep sleeve)