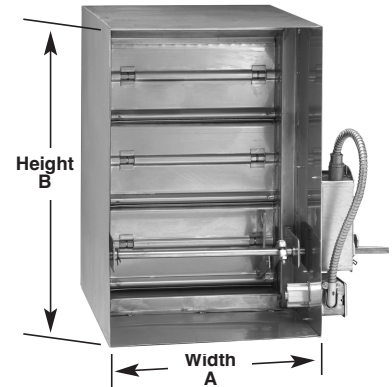


FSD35SS STAINLESS STEEL COMBINATION FIRE AND SMOKE DAMPER 1½ HOUR UL555 RATED, UL555S LEAKAGE CLASS 3 FOR USE IN DYNAMIC AND STATIC SYSTEMS

APPLICATION

The FSD35SS stainless steel combination fire and smoke damper is used in corrosive applications where normal galvanized steel dampers may not be suitable. It is designed with triple V-groove blades and controlled closure technology that provides point-of-origin fire containment and operational flexibility in static and dynamic smoke management systems.

The FSD35SS is designed to be installed vertically in walls or horizontally in masonry floors in HVAC systems with velocities to 2,000 fpm and pressures to 4" w.g.



STANDARD CONSTRUCTION	
Description	FSD35SS
Frame	5" x 16 gauge (127 x 1.6) 304 or 316 stainless steel, hat-shaped channel.
Blades	6" (152) wide, 16 (1.6) ga. 304 or 316 stainless steel. Triple V-groove shaped approximately 6" (152) on center.
Bearings	Stainless steel sleeve type, pressed into frame.
Linkage	Concealed in frame.

MAXIMUM OPERATIONAL RATINGS	
Description	FSD35SS
UL555S Leakage Rating	Class III
UL555 Hourly Rating	1½ Hour
Maximum Velocity	2000 FPM (20.3 m/s)
Maximum Pressure	4 in. wg (2kPa)
Temperature	250°F (177°C)

DAMPER SIZES

MINIMUM SIZE VERTICAL OR HORIZONTAL
8"w x 6"h (203 x 152).

MAXIMUM SIZE VERTICAL OR HORIZONTAL
90"w x 48"h (2286 x 1219).

CONTROLLED CLOSURE DEVICE (HEAT-ACTUATED)

EFL (Electric Fuse Link) - 165°F (74°C) standard. 212°F (100°C) or 250°F (121°C) available.

PFL (Pneumatic Fuse Link) - 165°F (74°C) standard. 212°F (100°C) available.

NOTES

- Damper are furnished approximately 1/4" (6) smaller than given opening dimensions.
- Dimensions shown in parentheses () indicate millimeters.

OPTIONS

- DTS** (Damper Test Switch) test switch for cycle testing.
- TS150** for reopenable operation in dynamic smoke management systems.
- DSDF/DSDN Duct Smoke Detector** (Flow rated or No-Flow).
- SP100 Switch Package** to allow remote indication of damper blade position.
- MCP** control panels for testing or monitoring purposes or smoke management systems.
- Factory Sleeves** of various lengths and gauges to ensure field compliance with UL installation requirements.

UL CLASSIFIED

UL555 Listing R5531, UL555S Listing R5531

The FSD35SS meets the requirements for fire, smoke and combination fire/smoke dampers established by:

- National Fire Protection Association** NFPA Standards 80, 90A, 92A, 92B, 101 and 105.
- ICC International Building Codes**
- CSFM California State Fire Marshal** Listing (#3235-0245:0125).
- New York City** (MEA 252-05-E)

AMCA LICENSED AIR PERFORMANCE DATA



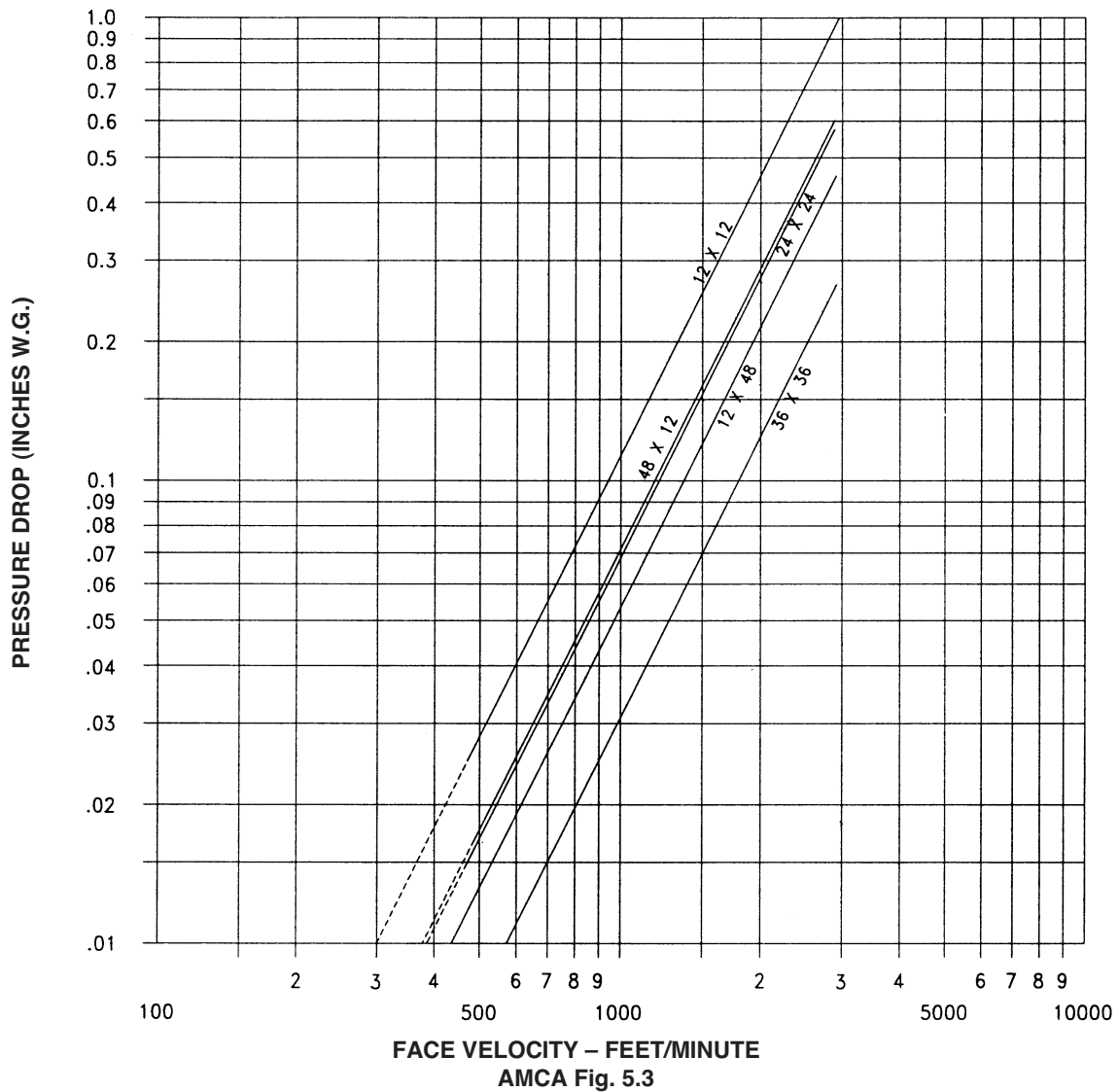
Ruskin Thailand Co. Ltd. certifies that the FSD35SS shown hereon is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance for the FSD35SS.

To determine the AMCA Licensed air performance:

Locate the applicable feet per minute face velocity on the bottom of the velocity vs. pressure drop chart below. Move up the chart to the most appropriate size damper line. From the intersection point, move left to determine the pressure drop on the left side of the chart.

For other damper sizes refer to **Air Performance Data For All Fire and Smoke Dampers** spec sheet.

VELOCITY vs. PRESSURE DROP

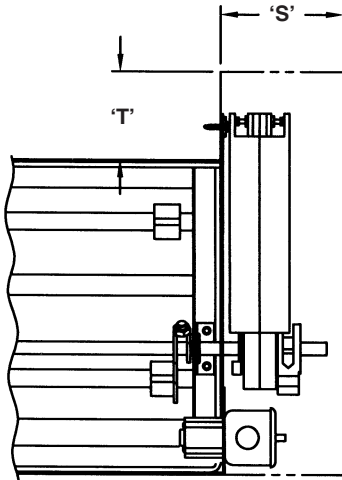


ACTUATOR and ACCESSORIES SPACE ENVELOPE

Ruskin's standard for combination fire/smoke dampers is external mount actuators and accessories. Also available is internal mount or a combination of external and internal mounted actuator and accessories.

Externally mounted actuators require space outside the damper sleeve. The "S" dimension is the "side" clearance, the "T" dimension is the "top" clearance required for the various actuators

approved for use with Ruskin fire/smoke dampers. Actuators and accessories are factory mounted. Ruskin's standard mount is on the right side of the damper as viewed from the jackshaft face of the damper. (NOTE: damper assemblies larger than single section may require actuators to be mounted on both the right hand and left hand sides). Ruskin fire/smoke dampers can be rotated 180° or turned over to accommodate the application as long as the blades are in the horizontal position.



ACTUATORS	S	T
FSLF, FSTF	4" (102)	0" (0)
FSNF, FSAF, MS4120	5" (127)	5" (127)
331-4827	5" (127)	5" (127)
331-2961	8" (203)	8" (203)
331-3060	9" (229)	11" (279)

NOTES:

1. The dimensions shown in the chart above are for dampers 14" (356) tall.
2. Dampers shorter than 14" (356) tall, increase the "T" dimension by 1" (25) for every 1" (25) the damper is less than 14" (356).
3. Dampers taller than 14" (356) high reduce the "T" dimension by 1" (25) for every 1" (25) the damper height is greater than 14" (356).

Example:

- a) 12" (305) tall damper with a FSLF actuator, "T" = 2" (52) and "S" = 4" (102).
- b) 18" (457) tall damper with a FSNF actuator, "T" = 1" (25) and "S" = 5" (127).

DAMPER SLEEVE DIMENSIONAL DATA

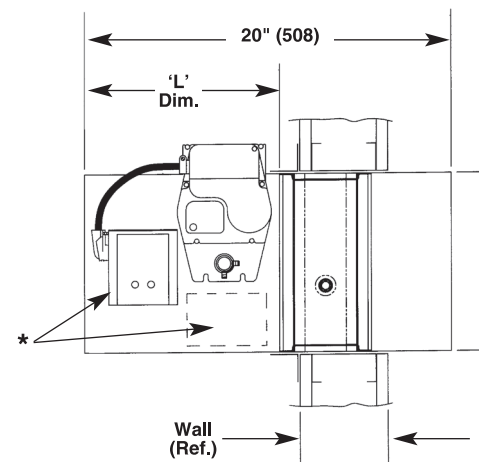
The 'L' dimension is the distance from the end of the sleeve to the damper. The standard damper location in the sleeve provides enough space for the actuator, controls, mounting angles and duct connection. The standard sleeve length for FSD's is 20" (508) long and the standard 'L' dimension is 10⁵/₈" (270). The standard 'L' dimension allows the end of the sleeve to be a minimum of 10⁵/₈" (270) to the wall/floor and up to a maximum of 12¹/₂" (318) to the wall/floor.

*The EFL, PFL, SP100 or TS150 location may be located above, below or on the side of the actuator depending upon the dampers height.

Optional 17" (432) long sleeve length available. Due to space limitations for actuators and controls with 17" (432) long sleeves, the damper height ('B' dimension) is restricted to the dimensions shown on the chart below. Consult Ruskin for other sleeve lengths.

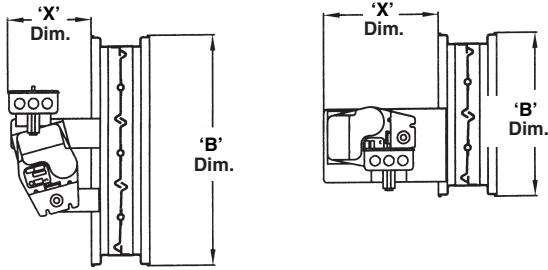
7 ¹ / ₈ " (181) 'L' Dim. for Sleeves Shorter than 20" (508) Long				
Without Accessories	Without Accessories (TS150, SP100 or DTS)			
Electric or Pneumatic Actuators	Electric Actuators	Pneumatic Actuators		
		331-4827	331-2961	331-3060
Over 10" (250) 'B' Dim.	Over 21" (533) 'B' Dim.	Over 28" (711) 'B' Dim.	Over 32" (813) 'B' Dim.	Over 40" (1016) 'B' Dim.

Note: The 21" (4533) dimension becomes 32" (813) when the MS4120, FSNF, FSAF and GGD series are utilized.



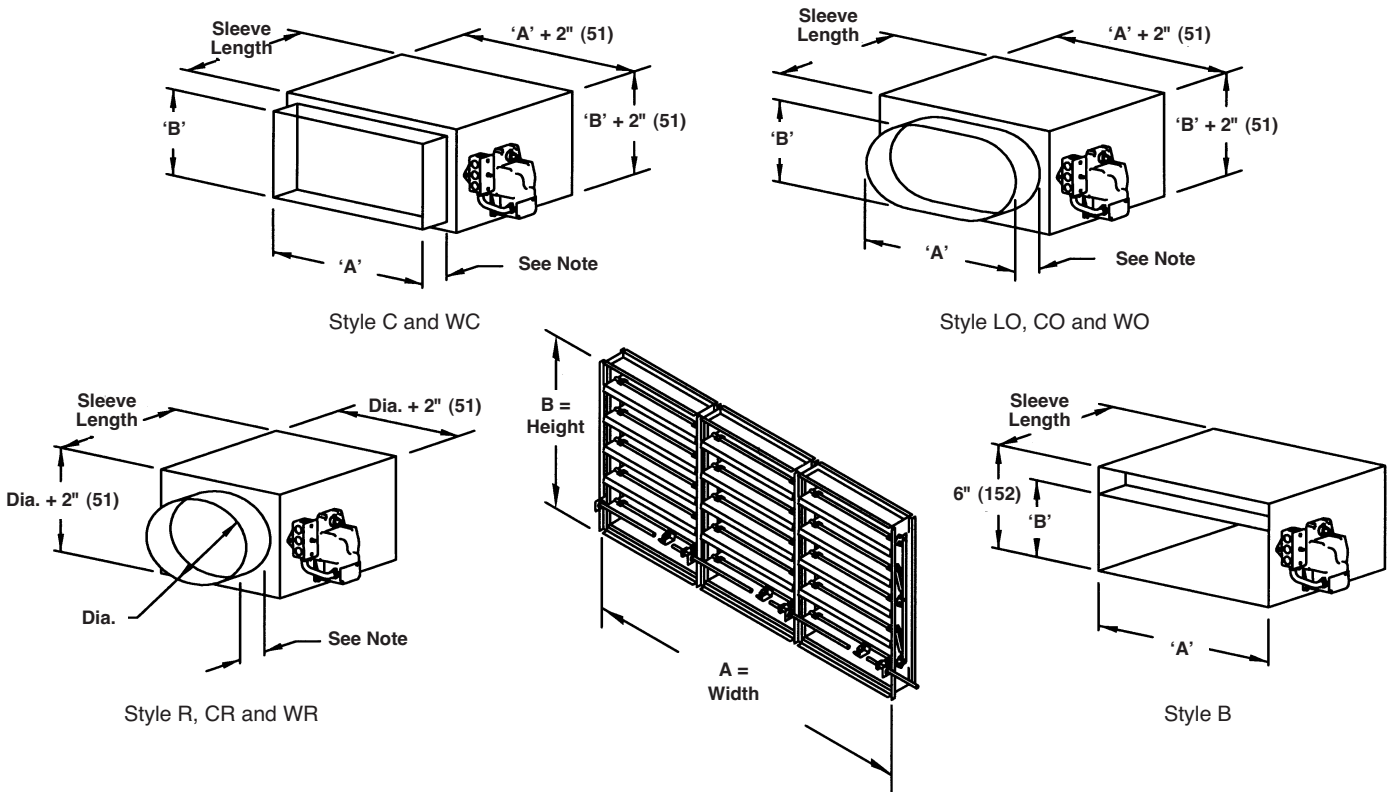
FSD35SS INTERNAL MOUNT ACTUATOR DIMENSION

Ruskin model FSD35SS has been tested for internal mount actuators and accessories. These applications may be preferred where space is limited on the outside of the damper. Internally mounted actuators do not require the damper to have a factory installed sleeve or side plate.



ACTUATORS	B Dim and Above		B Dim and Above	
	B	X	B	X
FSLF, FSTF	10" (154)	10" (154)	18" (457)	7 1/2" (191)
FSNF, FSAF, MS4120	12" (305)	12 3/4" (324)	21" (533)	5 1/2" (533)
331-4827	16" (406)	15" (381)	21" (533)	7 1/2" (191)
331-2961	16" (406)	17" (432)	24" (610)	7 1/2" (191)
331-3060	20" (508)	19" (483)	26" (660)	9" (229)

DIMENSIONAL INFORMATION



DUCT TRANSITION CONNECTIONS

FSD35SS dampers may be supplied with Round, Oval and Rectangular duct connections.

Style	Description
B	Units Under 6" Tall
R	Round Non-Sealed (Low Pressure)
CR	Round Sealed (Medium Pressure)
WR	Round Welded (High Pressure)
C	Rectangular Sealed (Low and Medium Pressure)
WC	Rectangular Welded (High Pressure)
LO	Oval Non-Sealed (Low Pressure)
CO	Oval Sealed (Medium Pressure)
WO	Oval Welded (High Pressure)

The square damper size will be 2" (51) larger in width and height than the round, oval or rectangular duct size ordered.

MINIMUM and MAXIMUM SIZES

Round Transitions

Minimum 6" (152) diameter
Maximum 46" (1168) diameter

Rectangular and Oval Transitions

Minimum 6"w x 4"h (152 x 102)
Maximum 88"w x 46"h (2235 x 1168) in diameter

'B' Style Transitions

Minimum height 4" (102) 'B' style transitions are utilized on units where the damper height is less than 6" (152).

Consult Ruskin for other available styles and sizes.

Note: For medium pressure units (Styles CR, C and CO) the collar extends 1 1/2" (38) beyond the sleeve length and for low pressure and high pressure units (Styles R, WR, WC and LO) the collar extends 2 1/2" (64) beyond the sleeve length.

Approximate damper assembly weight: 17 lbs. per sq. ft. for Style A

SPECIFICATION

Stainless steel combination fire smoke dampers meeting or exceeding the following specifications shall be furnished and installed at locations shown on plans or as described in schedules. Dampers shall meet the requirements of NFPA80, 90A, 92A, 92B, 101 and 105. Dampers shall have a fire rating of 1½ hours in accordance with the latest edition of UL555 and shall be classified as Leakage Class 3 Smoke Dampers in accordance with the latest version of UL555S. Dampers shall be warranted to be free from defects in material and workmanship for a period of 5 years after date of shipment.

In addition the dampers and their actuators shall have a UL555S elevated temperature rating of 250°F (121°C). Appropriate electric or pneumatic actuators shall be installed by the damper manufacturer at time of damper fabrication. Electric actuators shall have been energized hold open tested for a period of at least 1 year with no spring return failures.

Each fire smoke damper shall be equipped with a "controlled closure" quick detect heat-actuated release device to prevent duct and HVAC component damage. Instantaneous damper closure through the use of fusible links is unacceptable.

Damper frame shall be minimum 16 gauge (1.0) 304 stainless steel formed in to a structural hat channel, reinforced at the corners. Damper blades shall be single skin 16 gauge (1.0) 304 stainless steel reinforced with minimum three longitudinal grooves. Bearings shall be stainless steel turning in an extruded hole in the frame. Blade edge seals shall be silicone rubber and stainless steel mechanically locked in to the blade edge (adhesive type seals are not acceptable). Each damper shall be supplied with a factory mounted sleeve of 20" (508) minimum length. Dampers shall be Ruskin model FSD35SS.

(Consult Ruskin for detailed CSI *MasterFormat* Specification).