

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 dampers 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 may be installed vertically in walls and is designed for use in systems with airflow in either direction with velocities to 2,000 fpm and pressures to 4" w.g.

STANDARD CONSTRUCTION

FRAME

5" x 16 ga. (127 x 1.6) 304 stainless steel, hat-shaped channel.

BLADES

6" (152) wide, 16 (1.6) gage 304 stainless steel. Triple V-groove shaped approximately 6" (152) on center.

BEARINGS

Stainless steel sleeve pressed into frame.

JAMB SEALS

Stainless steel, flexible metal compression type.

BLADE SEALS

Silicone edge type for smoke seal to 450°F (232°C) and galvanized steel for flame seal to 1900°F (1038°C).

LINKAGE

Stainless steel concealed in frame.

AXLES

1/2" (13) stainless steel hex.

CONTROLLED CLOSURE DEVICE

(HEAT-ACTUATED)

165°F (74°C) standard. 212°F (100°) or 250°F (121°C).

DAMPER SIZES

MINIMUM SIZE VERTICAL

8"w x 6"h (203 x 152)

MAXIMUM SIZE VERTICAL

90"w x 48"h (2286 x 1219)

OPTIONS

- **FM Approved** as Specification Tested Product.
- **TS150 Firestat** for reopenable operation in dynamic smoke management systems.
- **DSDf/DSDN Duct Smoke Detector** (Flow rated or No-Flow).
- **SP100 Switch Package** to remotely indicate damper blade position.
- **Stainless Steel Sleeves** of various lengths and gages to insure field compliance with UL installation requirements.
- **MCP** control panels for test purposes or smoke management systems.

Notes:

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

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

- **National Fire Protection Association NFPA Standards** 90A, 92A, 92B and 101.
- **BOCA National Building Codes**
- **ICBO Uniform Building Codes**
- **SBCI Standard Building Codes**
- **ICC International Building Codes**
- **CSFM California State Fire Marshal Smoke Damper Listing** (#3230-245:109).
- **New York City** (BSA Listing #176-82-SM)

UL CLASSIFIED

UL555 Listing R5531, UL555S Listing R5531



SEE COMPLETE
MARKING
ON PRODUCT

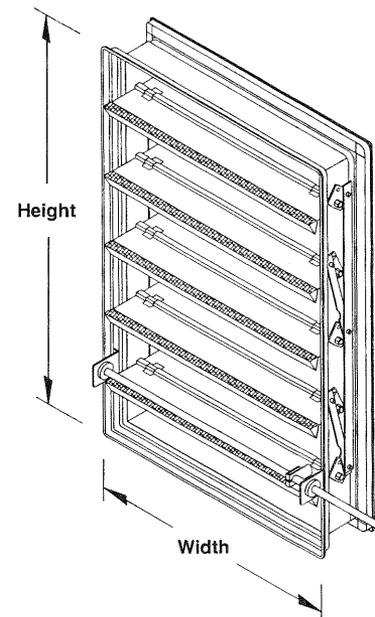


SPECIFICATION
TESTED PRODUCT
(OPTION)

FEATURES

The FSD35SS offers:

- EFL (Electric Fuse Link) or PFL (Pneumatic Fuse Link) heat-actuated release devices permit controlled (rather than instantaneous) closure through the damper actuator. The EFL and PFL allow the damper to automatically reopen after a test, smoke detection or power failure condition.
- EFL is standard on dampers with electric actuators.
- PFL is standard on dampers with pneumatic actuators.
- EFL's may be ordered on dampers with pneumatic actuators but require an additional EP switch.



AMCA LICENSED AIR PERFORMANCE DATA



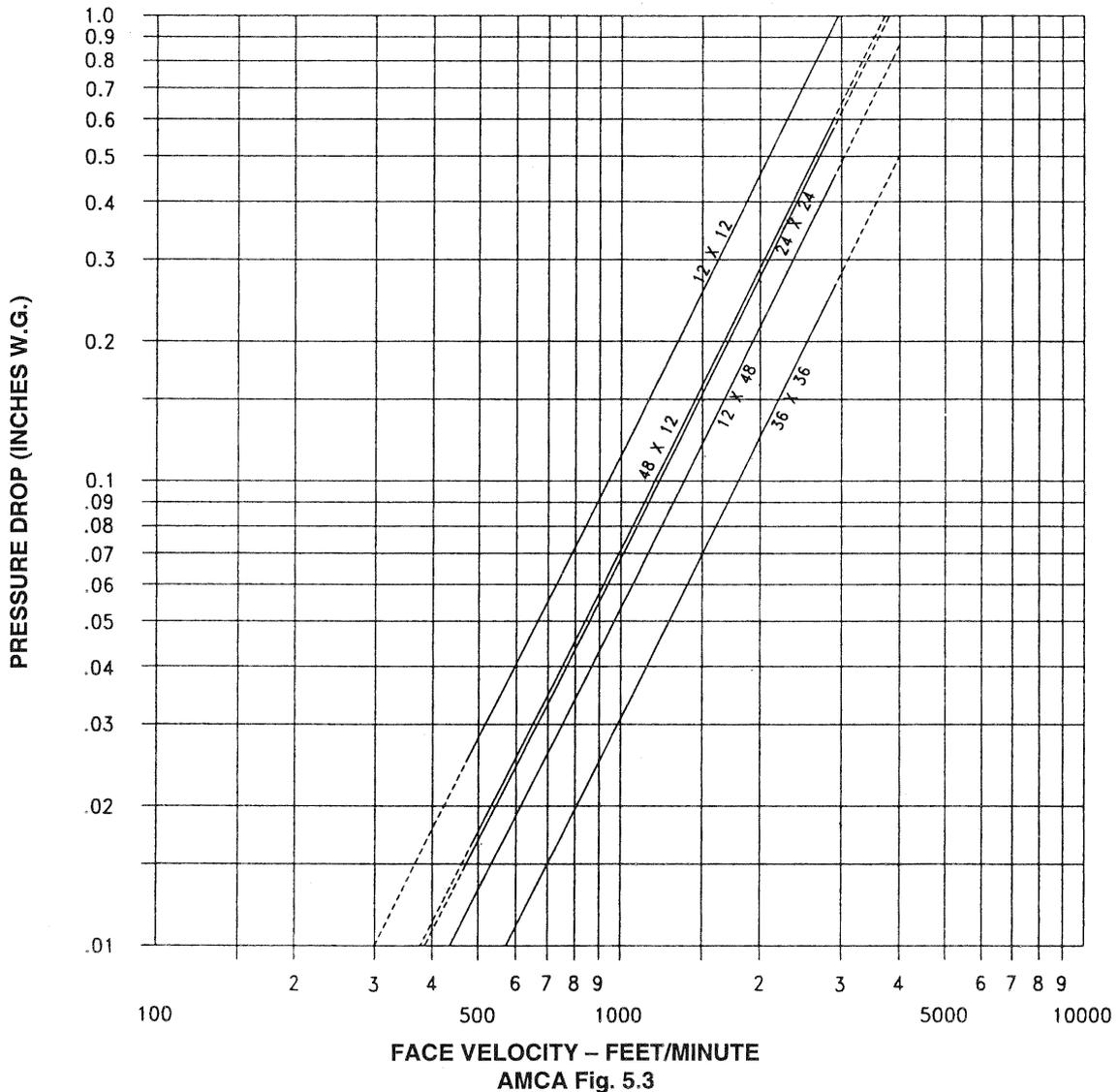
Ruskin Company certifies that the FSD35SS shown hereon is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies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

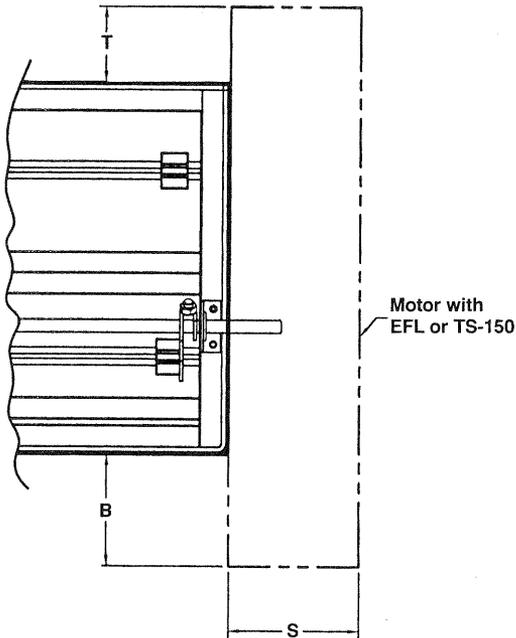
VELOCITY vs. PRESSURE DROP



SPACE ENVELOPE

Externally mounted actuators require space outside the damper sleeve. The "S" dimension is the "side" clearance, the "T" dimension is the "top" clearance and the "B" dimension is the "bottom" clearance required for the various actuators approved for use with Ruskin fire/smoke dampers. Actuators and accessories are factory mounted on the right side when viewed from the actuator side of the wall. Ruskin fire/smoke dampers can be rotated or turned over to accommodate the application.

The most commonly used electric actuators are shown in the table below. Refer to the **Actuators And Accessories Space Envelopes For All Fire and Smoke Dampers** data sheet for actuators and space information not shown.



ACTUATORS	S	T	B
ML4204, ML8202 H/2000, H2024 MS4209, MS8209	4" (102)	0" (0)	N/A
MS4120, MS8120 FSNF120, FSNF24	5" (127)	2" (51)	N/A
331-4827	5" (127)	5" (127)	N/A
331-2961	8" (203)	8" (203)	N/A
331-3060	9" (229)	11" (279)	N/A

NOTES:

- The dimensions shown in the chart above are for dampers 15" (381) tall.
- Dampers shorter than 15" (381) increase the "T" dimension by 1" (25) for every 1" (25) the damper height is less than 15" (381). For example, the "T" dimension would be 1" (25) on 14" (356) tall damper utilizing an H2000 actuator.
- Dampers taller 15" (381): Reduce the "T" dimension by 1" (25) for every 1" (25) the damper height is greater than 15" (381). For example, the "T" dimension would be 1" (25) on 16" (406) tall damper utilizing an MS4120 actuator.

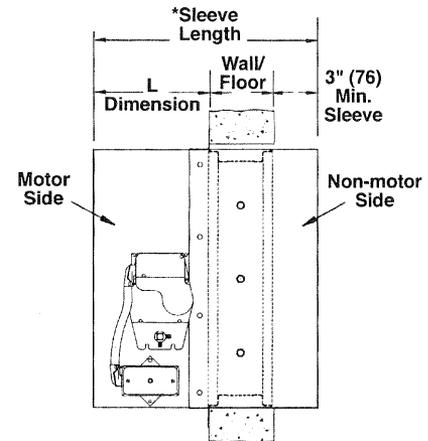
DAMPER SLEEVE DIMENSIONAL DATA

The drawing and corresponding table show the position of the damper when mounted in a factory sleeve. The standard mounting locations provide enough space for the mounting of actuators, controls and allow space for installation of retaining angles and duct connections. The minimum factory sleeve length is 17" (432). Consult Ruskin for shorter sleeve lengths.

The standard location of a damper mounted in a factory sleeve ("L" dimension) is shown at right.

NOTE:

The entire damper frame is not required to be installed within the wall. The damper blades, when closed should be contained within the wall.



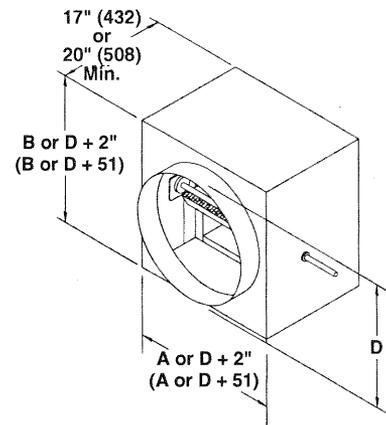
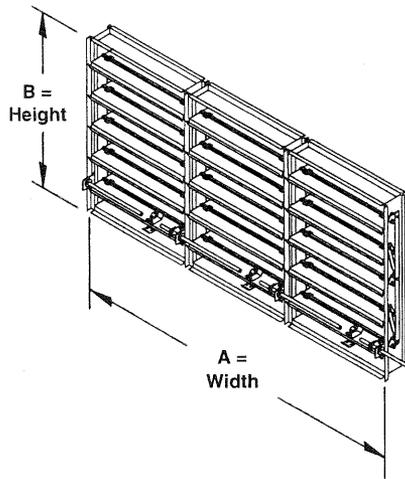
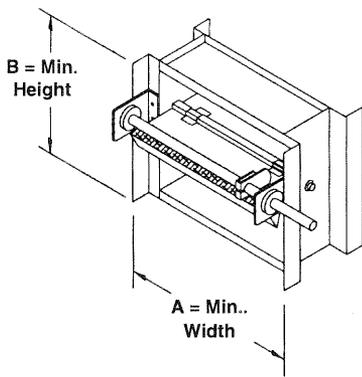
Note: See basic UL Installation Instructions for complete installation requirements.

***Minimum Sleeve Length Formula:**
 Sleeve Length = "L" dimension + wall/floor thickness + 3" sleeve non-motor side

	All dampers with EFL or PFL		All dampers with TS150 or SP100							
			Electric Actuators				Pneumatic Actuators			
	Over 10" (254) High	10" (254) High and Under	Over 21" (533) High (see note)	21" (533) High and Under (see note)	331-4827(P)		331-2961(P)		331-3060(P)	
					Over 28" (711) High	28" (711) High & Under	Over 32" (813) High	32" (813) High & Under	Over 40" (1016) High	40" (1016) High & Under
"L"	7 1/8" (181)	10 5/8" (270)	7 1/8" (181)	10 5/8" (270)	7 1/8" (181)	10 5/8" (270)	7 1/8" (181)	10 5/8" (270)	7 1/8" (181)	10 5/8" (270)

Note: The 21" (533) dimension becomes 32" (813) when the MS4120, MS8120, GGD221 or FSNF120 are utilized.

DIMENSIONAL INFORMATION



ROUND, OVAL OR RECTANGULAR DUCT TRANSITION CONNECTION

FSD35SS dampers supplied with round connections (R for low pressure, CR for medium pressure or WR welded for high pressure) are:

Minimum 4" (102) in diameter

Maximum 46" (1168) in diameter

The square size of the damper will be 2" (51) larger than the diameter dimension ordered.

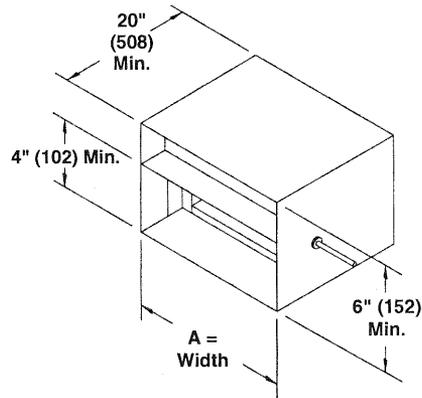
FSD35SS dampers supplied with rectangular connections (C for low to medium pressure or WC welded for high pressure) are:

Minimum 6"w x 4"h (152 x 102)

Maximum 88"w x 46"h (2235 x 1168)

The square size of the damper will be 2" (51) larger than the width and height of the damper A x B dimensions.

FSD35SS dampers supplied with oval connections (LO for low pressure, CO for medium pressure or WO welded for high pressure) will be the same size as rectangular connections above.



MAXIMUM UL CLASSIFIED SIZE

Single Section Vertical:

30"w x 48"h (762 x 1219)

Multiple Section Assembly Vertical:

90"w x 48"h (2286 x 1219)

For dampers exceeding these dimensions consult Ruskin.

MINIMUM SIZES

Note: See page 1.

Dampers with heights (B dimension) less than 6" (152) require Style B transitions and a sleeve. The damper itself remains 6" (152) high.

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 or NFPA90A, 92A and 92B. Dampers shall have a fire rating of 1 1/2 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 gage (1.0) 304 stainless steel formed in to a structural hat channel, reinforced at the corners. Damper blades shall be single skin 16 gage (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 17" (432) minimum length. Dampers shall be Ruskin model FSD35SS.

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

RUSKIN®

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