

FSD60M COMBINATION FIRE SMOKE DAMPER AND VOLUME CONTROL DAMPER 1½ HOUR UL555 RATED, UL555S LEAKAGE CLASS 1

APPLICATION

The FSD60M is a combination fire and smoke damper designed with airfoil blades (for lowest pressure drop) and equipped with a modulating electric actuator so it can also be used as a volume control damper. It can be installed vertically in walls or horizontally in concrete floors in HVAC systems with velocities to 2,000 fpm and pressures to 4" w.g.

STANDARD CONSTRUCTION	
Description	FSD60M
Frame	5" x 16 gauge (127 x 1.6) galvanized, single piece, hat-shaped channel, structurally superior to 13 (2.4) gauge channel frame.
Blades	One-piece airfoil, nominal 6" (152) wide and 14 (2.0) gauge galvanized steel equivalent strength. Blades are approximately 6" (152) on center.
Bearings	Stainless steel sleeve type, 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) mechanically fastened to the blade edge.
Linkage	Concealed in frame.

DAMPER SIZES

(Refer to page 4 for specific damper/actuator sizes.)

MINIMUM SIZE

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

MAXIMUM SIZE

Single Section – 32"w x 48"h (813 x 1219)

Multiple Section

Vertical/Horizontal Installation – 120"w x 48"h (3048 x 1219) or 64w" x 96"h (1626 x 2438).

ACTUATOR

Electric

24VAC/VDC - FSAF24-SR

24VAC/VDC - FSAF24-SR-S

CONTROLLED CLOSURE DEVICE (HEAT-ACTUATED)

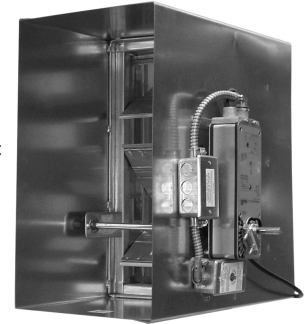
EFL (Electric Fuse Link) - 165°F (74°C) standard. 212°F (100°C) and 250°F (121°C) available.

NOTES

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



Height



Width

MAXIMUM OPERATIONAL RATINGS	
Description	FSD60M
UL555S Leakage Rating	Class I
UL555 Hourly Rating	1½ Hour
Maximum Velocity	2000 FPM (10.2 m/s)
Maximum Pressure	4 in. wg (2kPa)
Temperature	250°F (121°C)

OPTIONS

- 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.
- FAST Angle** factory supplied for labor saving angle one-side installation. Other angles of various sizes and gauges also available for one-side or two-side installation.
- Stainless Steel Linkage** – 304 stainless steel.

UL CLASSIFIED

UL555 Listing R5531, UL555S Listing R5531

Model FSD60M meets the requirements for fire, smoke and combination fire and 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 Fire Damper Listing** (#3235-0245:1026)
- New York City (MEA 252-05-E)**

AMCA LICENSED AIR PERFORMANCE DATA



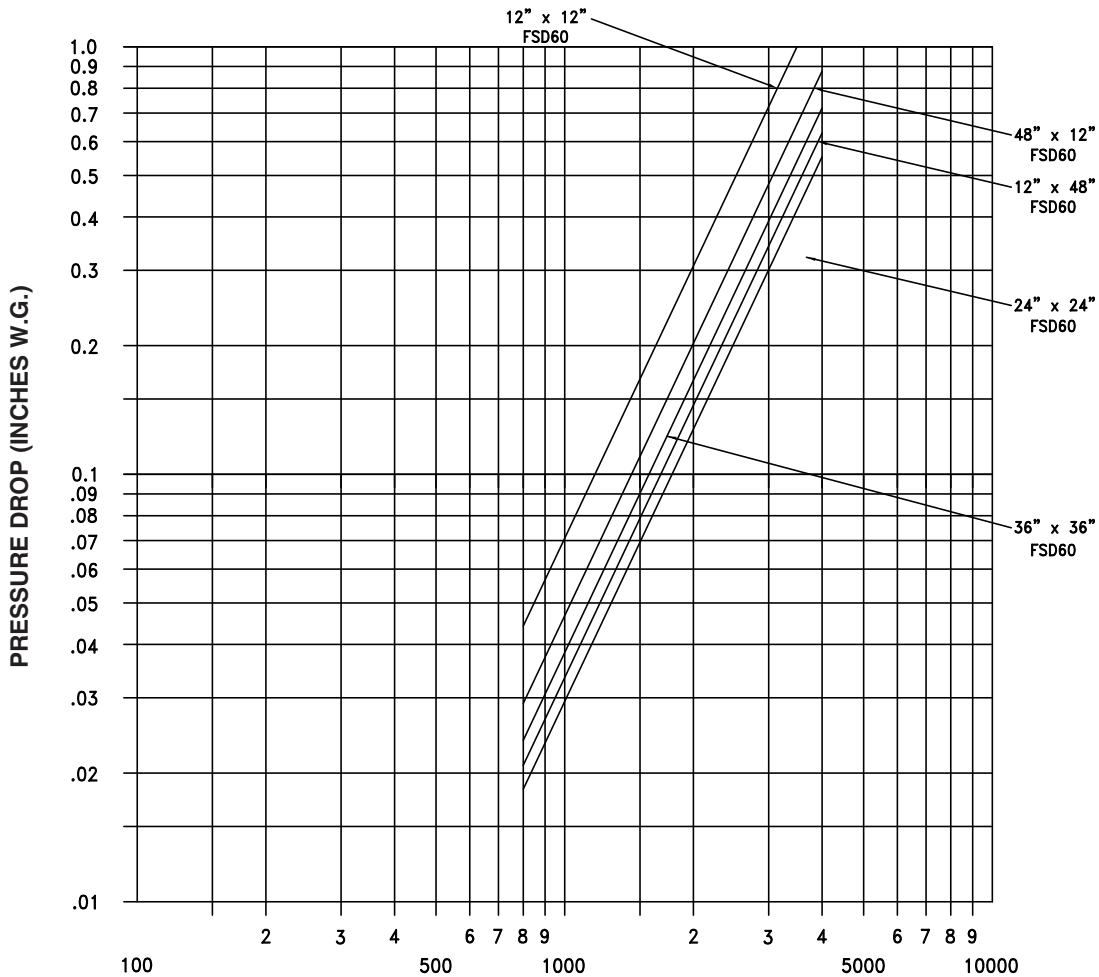
Ruskin Company certifies that the FSD60M shown hereon is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance for the FSD60M.

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.

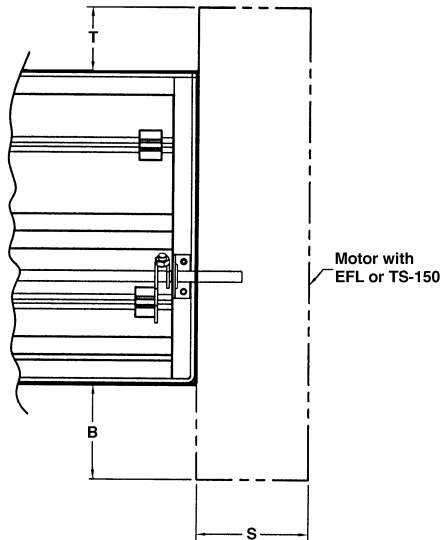
For other damper sizes refer to **Air Performance Data For All Fire and Smoke Dampers** spec sheet.

VELOCITY vs. PRESSURE DROP



FACE VELOCITY - FEET/MINUTE
AMCA Fig. 5.3

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 or floor. Ruskin fire/smoke dampers can be rotated or turned over to accommodate the application.

ACTUATORS	H (Damper Height)	S	T	B
FSAFB24-SR	17" (432)	5" (127)	0" (0)	N/A

NOTES:

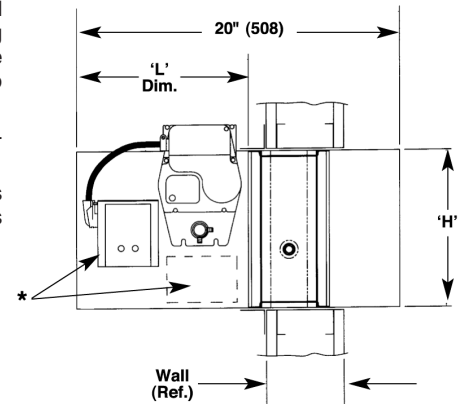
- The "H" dimension represents the required height to encompass the actuator/enclosure and accessories with nothing protruding above or below the damper.

FSD60M 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.

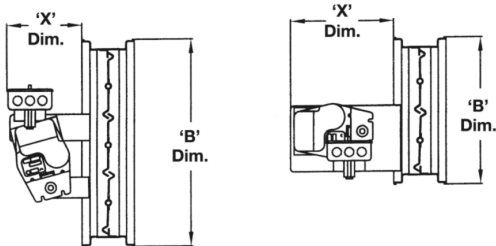
*The EFL, PFL, SP100 or TS150 location may be located above, below or on the side of the actuator depending upon the dampers height.

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	With Accessories (TS150 or SP100)
Electric Actuators	Electric Actuators
Over 10" (250) 'B' Dim.	Over 32" (813) 'B' Dim.

FSD60M INTERNAL MOUNT ACTUATOR DIMENSION

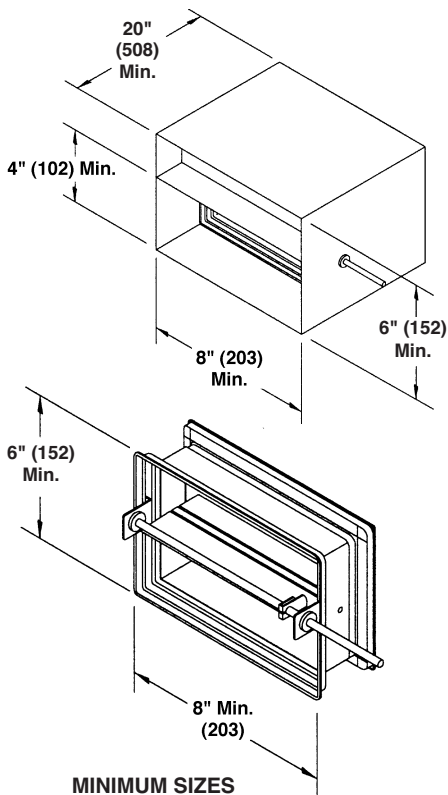


ACTUATORS	B Dim and Above		B Dim and Above	
	B	X	B	X
FSAFB	12" (305)	12 ³ / ₄ " (324)	21" (533)	5 ¹ / ₂ " (533)

DAMPER/ACTUATOR SIZES

Actuator Model	Maximum Damper Size	Quantity of Actuators
FSAFB24-SR	32"w (813) & 48"h (1219)	1
	120"w (3048) & 48"h (1219)	4
	64"w (1626) & 96"h (2438)	4

DIMENSIONAL INFORMATION

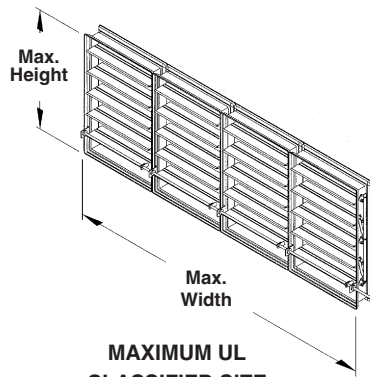


MINIMUM SIZES

Nominal – 8" w x 6" h (203 x 152).

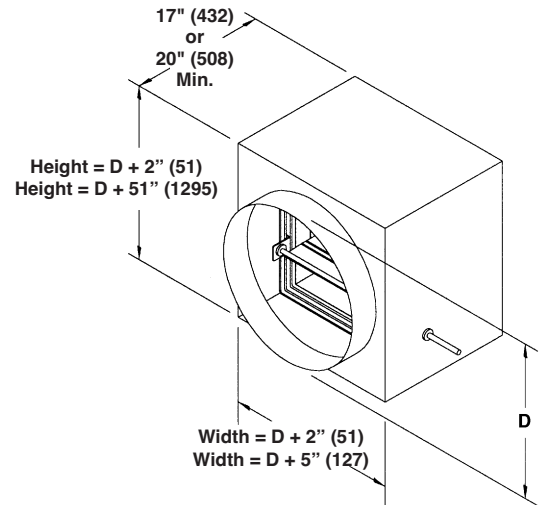
Actual – 7³/₄" w x 5³/₄" h (197 x 146).

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



MAXIMUM UL CLASSIFIED SIZE

Single Section:
32" w x 48" h (813 x 1219)
Multiple Section Assembly:
See sizes listed below.



ROUND, OVAL OR RECTANGULAR DUCT TRANSITION CONNECTION

FSD60M 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.

FSD60M dampers supplied with rectangular or oval connections (C, CO, LO for low to medium pressure or WC, WO welded for high pressure) are:

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

Maximum 118" w x 46" h (2997 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.

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

SPECIFICATION

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 1¹/₂ hours in accordance with the latest edition of UL555 and shall be classified as Leakage Class I 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.

Each fire smoke damper shall be AMCA licensed and shall bear the AMCA Certified Ratings Seal for air performance. AMCA certified testing shall verify pressure drop does not exceed .03" w.g. at a face velocity of 1,000 fpm on a 24" x 24" damper.

In addition the dampers and their actuators shall have a UL555S elevated temperature rating of 250°F (121°C). Appropriate modulating electric or pneumatic actuators shall be installed by the damper manufacturer at time of damper fabrication.

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 (when size permits) shall be constructed using the UniFrame Design Concept (UDC) and shall be a roll-formed structural hat channel, reinforced at the corners, formed from a single piece of minimum 16 gauge (1.6) galvanized steel. Damper blades shall be airfoil shaped with 13 gauge (2.3) equivalent thickness formed from a single piece of galvanized steel. Bearings shall be stainless steel turning in an extruded hole in the frame. Blade edge seals shall be silicone rubber and galvanized 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 FSD60M. (Consult Ruskin for detailed CSI *MasterFormat* Specification).



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