

## SD35 SMOKE DAMPER UL555S Leakage Class 3 Classified

### APPLICATION

The SD35 is a low leakage rated smoke damper used in ducts that penetrate smoke rated barriers. The SD35 damper is constructed with triple V-groove blades for velocities up to 2,000 fpm (10.2 m/s) and 4" w.g. (1kPa). The SD35 may be installed vertically (with blades running horizontal) or horizontally and is rated for airflow and leakage in either direction.

STANDARD CONSTRUCTION	
Description	SD35
Frame	5" x 16 gauge (127 x 1.6) galvanized, single piece, hat-shaped channel frame.
Blades	16 (1.6) gauge thick galvanized steel, triple V-groove shaped. Blades are approximately 6" (152) on center. Blade may be up to 7 <sup>1</sup> / <sub>2</sub> " (191) on selected size to increase the damper free area.
Bearings	Stainless steel sleeve type, pressed into frame.
Jamb Seals	Stainless steel, flexible metal compression type.
Linkage	Concealed in frame.

### OPERATION OPTIONS

Fail Position: Closed

### DAMPER SIZES

#### MINIMUM SIZE

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

#### MAXIMUM SIZE

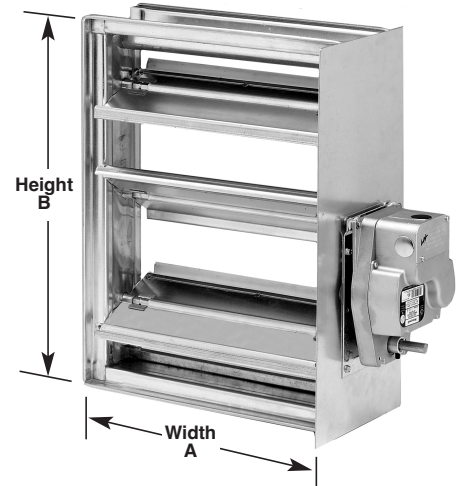
Single Section  
36"w x 72"h (914 x 1829).

Multiple Section  
144"w x 96"h (3658 x 2438), 288"w x 148"h (7315 x 1219) or  
72"w x 192"h (1829 x 4877).

\*Multiple section assemblies consist of 36" x 48" (914 x 1219) max single section sizes.

### NOTES

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



MAXIMUM OPERATIONAL RATINGS	
Description	SD35
UL555S Leakage Rating	Class III
Maximum Velocity	2000 FPM (10.2 m/s)
Maximum Pressure	4 in. wg (1 kPa)
Temperature	350°F (177°C)

### OPTIONS

- **FM Approvals** as Specification Tested Product.
- **DSDP/DSDN Smoke Detector** (Flow rated or No-Flow)
- **DTS-SD** (Damper Test Switch) test switch for cycle testing.
- **SP100 Switch Package** to allow remote indication damper of damper blade position.
- **Factory Sleeves** of various lengths and gauges to ensure field compliance with UL installation requirements.
- **MCP** control panels for test purposes or smoke management systems.

Model SD35 meets the requirements for 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 (#3230-0245:0132)
- **New York City** (MEA 252-05-E)



**FM Approvals**  
Specification Tested Product  
(Option)

# AMCA LICENSED AIR PERFORMANCE DATA



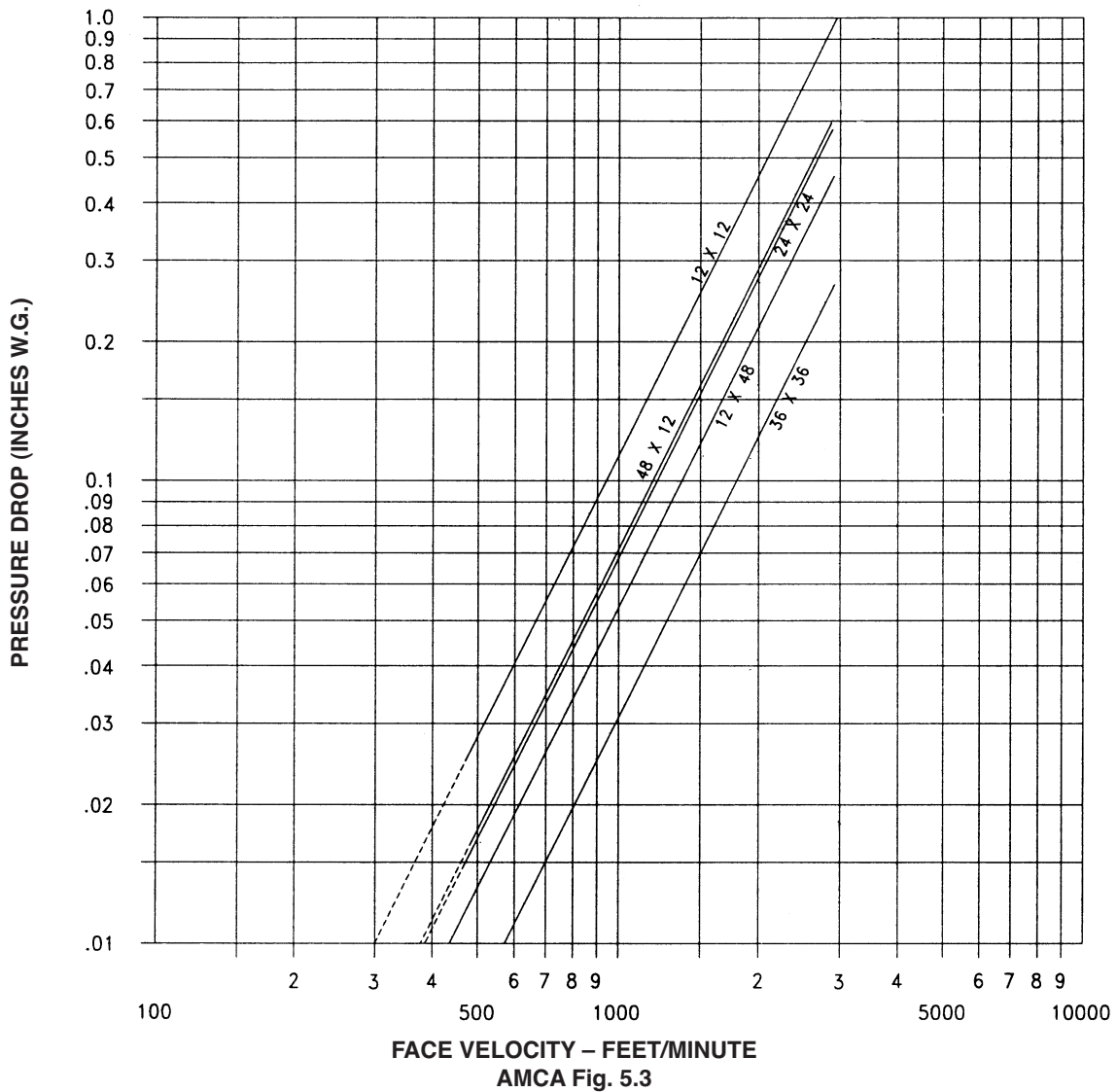
Ruskin Company certifies that the SD35 shown hereon is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance for the SD35.

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 Smoke Dampers** spec sheet.

## VELOCITY vs. PRESSURE DROP



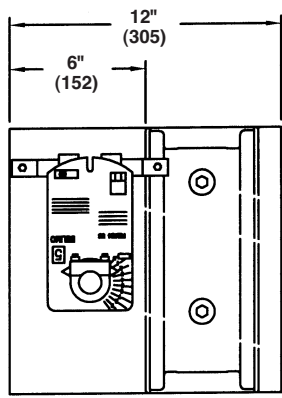
## OPERATIONAL RATINGS

### EXTENDED RATINGS FOR FAIL CLOSE

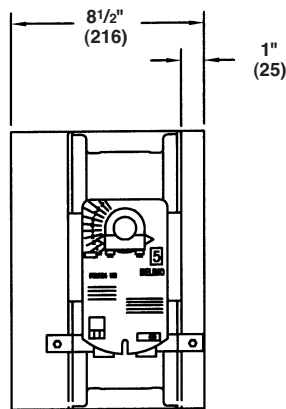
SIZE	STATIC PRESSURE	TEMPERATURE
<b>2,000 FPM (10.2 m/s)</b>		
144" x 96" (3658 x 2438) 288" x 48" (7315 x 1219) 72" x 192" (1829 x 4877)	4" (102) w.g. (1 kPa)	350°F (177°C)
180" x 64" (4572 x 1625) 360" x 32" (9144 x 813) 90" x 128" (2286 x 3251)		250°F (121°C)

The UL555S Test Standard requires all smoke dampers to prove their operation (Close to Open and Open to Close) against heated air flow with minimum temperature of 250°F (121°C), minimum velocity of 2,000 feet per minute (10.2 m/s) and minimum static pressure of 4 inches of water (1 kPa). UL555S extended ratings allow the temperature to be increased at 100°F (37.8°C), 2 inches of water (0.5 kPa) and 1000 feet per minute (5.1 m/s) increments. The SD35 smoke damper exceeds the minimum UL555S requirements on selected sizes. See chart for sizes and ratings. **Consult Ruskin for the appropriate actuator model and quantities.**

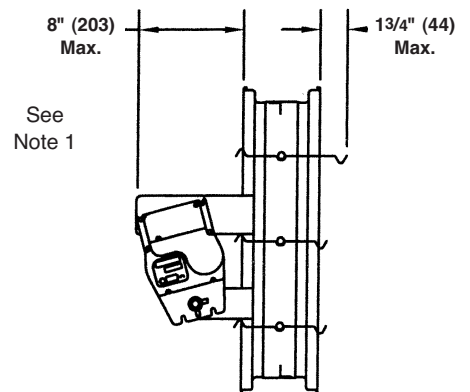
## TYPICAL ACTUATOR MOUNTING



Multiple Section with Side Plate



Single Section with Side Plate



Typical Internal Mount

### NOTES:

- 8" (203) actuator depth shown varies upon the damper height and actuator selection.
- External mount actuators may extend above or below the damper height.

## ACTUATOR REQUIREMENTS

- UL555S requires that all smoke dampers have factory mounted actuators in order to bear the UL label.
- Smoke dampers larger than single section may require multiple actuators. See "Smoke Damper Multiple Section Detail" spec sheet for details.
- Ruskin's smoke dampers are UL555S labeled with either electric or pneumatic actuators mount internal (in air stream) or external (out of air stream).
- Smoke dampers utilizing multiple actuators must have all actuators **field** wired to a common point for simultaneous closure. All field wiring shall be in accordance with applicable codes, ordinances and regulations.

# SLEEVE TRANSITION DIMENSIONAL INFORMATION

## DUCT TRANSITION CONNECTIONS

SD35 dampers may be supplied with Round, Oval and Rectangular duct connections.

Style	Description
CR	Round Sealed (Medium Pressure)
WR	Round Welded (High Pressure)
C	Rectangular Sealed (Low and Medium Pressure)
WC	Rectangular Welded (High 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

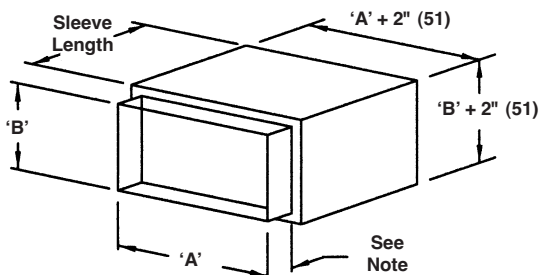
Minimum 4" (102) diameter  
Maximum – 94" (2388) diameter

### Rectangular and Oval Transitions

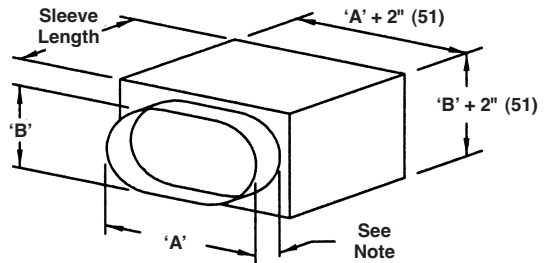
Minimum 6"w x 4"h (152 x 102)  
Maximum – 142" x 94" (3607 x 2388)

Consult Ruskin for other available styles and sizes.

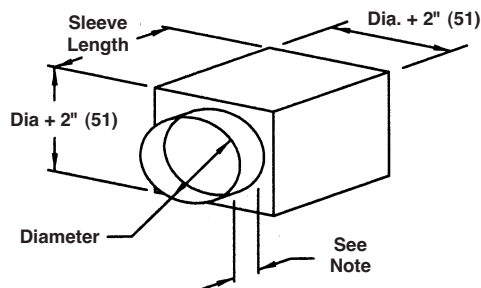
**Note:** For medium pressure units (Styles CR, C and CO) the collar extends 1 1/2" (38) beyond the sleeve length and for low pressure and high pressure units (Styles R, WR, WC and LO) the collar extends 2 1/2" (64) beyond the sleeve length.



Style C and WC



Style LO, CO and WO



Style R, CR and WR

## SUGGESTED SPECIFICATION

Smoke dampers meeting or exceeding the following specifications shall be furnished and installed at locations shown on plans or as described in schedules. AMCA Certified smoke dampers shall meet the requirements of NFPA80, 90A, 92A, 92B, 101 and 105 and shall be classified as Smoke Dampers in accordance with the latest version of UL555S. The leakage rating under UL555S shall be Leakage Class 3. Smoke dampers shall be produced in an ISO 9001 certified factory and warranted to be free from defects in material and workmanship for a period of 5 years after date of shipment.

Damper frame, where size permits, shall be constructed using the UniFrame Design Concept (UDC) and shall be minimum 16 (1.6) gauge galvanized steel formed into a structural hat channel. Top and bottom frame members on dampers less than 13" (330) high shall be low profile design to maximize the free area of these smaller dampers. Damper blades shall be single skin galvanized steel 16 (1.6) gauge minimum with three longitudinal grooves for reinforcement. Bearings shall be stainless steel, permanently lubricated sleeve type turning in an extruded hole in the frame for maximum life. Jamb seals shall be stainless steel compression type.

Smoke dampers and their actuators shall be qualified in accordance with UL555S to an elevated temperature of 250°F (121°C) or 350°F (177°C). Appropriate electric or pneumatic actuators (**specifier select one**) shall be installed by the damper manufacturer at time of damper fabrication. Electric actuators, factory installed on dampers, shall have been tested for prolonged periods of holding (minimum 1 year with no evidence of reduced spring return performance). Each damper shall be rated for leakage and airflow in either direction through the damper. In addition to the leakage ratings already specified, the dampers shall be AMCA licensed for Air Performance.

<Optional FM Approvals Specification>

Each smoke damper shall be listed in Factory Mutual (FM) Approvals Specification Tested Product and labeled accordingly.

Smoke dampers shall be Ruskin model SD35.

(Consult [www.Ruskin.com](http://www.Ruskin.com) for electronic version of this "Quick" spec as well as for complete 3-part CSI *MasterFormat* Specification).

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