

# SD50V-M

Aluminum Airfoil Vertical Blade Modulating Smoke Damper  
UL555S Leakage Class II Classified



## APPLICATION

The SD50V is an vertical blade low leakage rated volume control smoke damper used in ducts that penetrate smoke rated barriers. It is approved for installation with blades running either horizontally or vertically and is the best performing damper in the industry on sizes over 32" (813) wide. The SD50V-M is the perfect choice for applications where ducts run side by side and there is no room for actuators on the side of the damper. One-piece extruded aluminum airfoil blades insure lowest resistance to airflow with velocities up to 4000 fpm (20.3 m/s) and 8 in. w.g. (2 kPa). The SD50 may be installed vertically (with blades running horizontal) or horizontally and is rated for airflow and leakage in either direction.

SD60M is equipped with a 24VSC/VDC electric modulating actuator.

## STANDARD CONSTRUCTION

|             |                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------|
| Frame       | 5" x 1" (127 x 25) 6063T6 extruded aluminum, hat shaped channel, .125" (3) minimum wall thickness             |
| Blades      | One-piece 6063T6 extruded aluminum, airfoil shape, 6" (152) wide. 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) mechanically fastened to the blade edge                    |
| Linkage     | Concealed in frame                                                                                            |

## OPERATION OPTIONS

|               |        |
|---------------|--------|
| Fail Position | Closed |
|---------------|--------|

## DAMPER SIZES

Sizes listed below are for ratings of 2000 fpm (10.2 m/s) and 4 in. wg (1 kPa). See page 3 for extended operational ratings.

|              |                                                                                                                      |
|--------------|----------------------------------------------------------------------------------------------------------------------|
| Minimum size | 6" w x 12" h (152 x 308)                                                                                             |
| Maximum size | <b>Single Section</b><br>48" w x 36" h (1219 x 914)                                                                  |
|              | <b>Multiple Section</b><br>192" w x 72" h (4877 x 1829), 384" w x 36" h (9754 x 914) or 96" w x 144" h (2438 x 3658) |

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

## MAXIMUM OPERATIONAL RATINGS

|                       |                     |
|-----------------------|---------------------|
| UL555S Leakage Rating | Class II            |
| Maximum Velocity      | 2000 FPM (10.2 m/s) |
| Maximum Pressure      | 4 in. wg (1kPa)     |
| Temperature           | 250°F (121°C)       |

### NOTE:

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



## OPTIONS

**DSDF/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 thicknesses to ensure field compliance with UL installation requirements

**MCP** control panels for test purposes or smoke management systems

**Model SD50V-M meets the requirements for smoke dampers established by:**

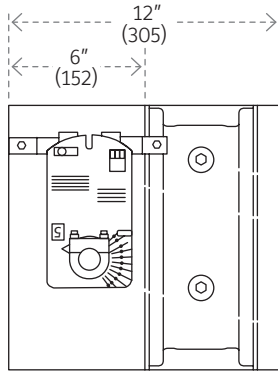
- ▶ National Fire Protection Association NFPA Standards 80, 90A, 92A, 92B, 101 and 105
- ▶ ICC International Building Codes



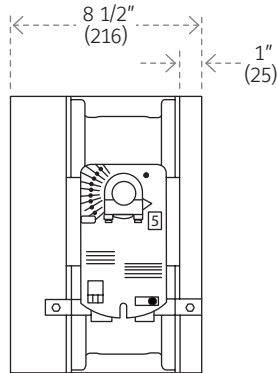
SEE COMPLETE  
MARKING  
ON PRODUCT

UL555S Classification R5531

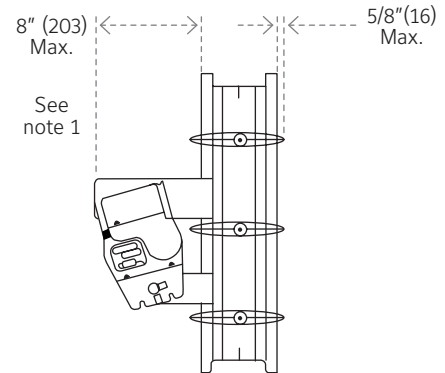
## TYPICAL ACTUATOR MOUNTING



Multiple Section with Side Plate



Single Section with Side Plate



Typical Internal Mount

**NOTE:**

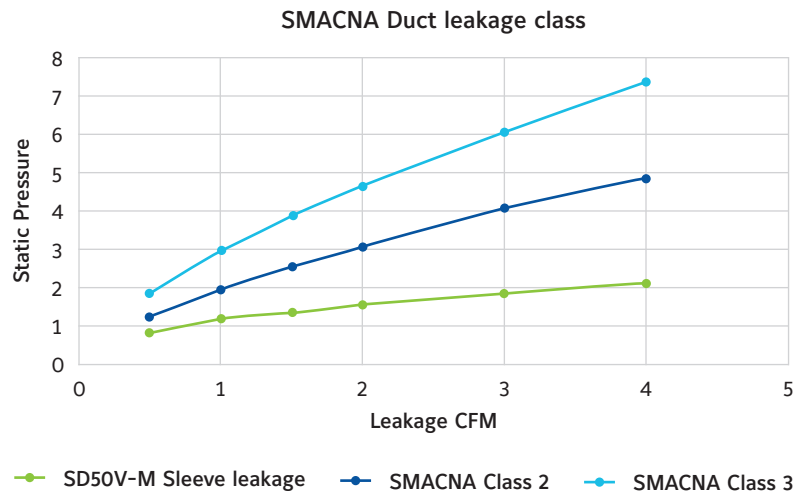
1. 8" (203) actuator depth shown varies upon the damper height and actuator selection.
2. External mount actuators may extend above or below the damper height.

## 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 mounted 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.

## DAMPER LEAKAGE TO ATMOSPHERE

When Ruskin's Smoke Dampers are supplied with a factory installed damper sleeve, the sealed sleeve meets the lowest duct leakage requirements set fourth by SMACNA. See Details Below



## SLEEVE TRANSITION DIMENSIONAL INFORMATION

### DUCT TRANSITION CONNECTIONS

SD50V-M dampers may be supplied with Round, Oval and Rectangular duct connections.

| Style     | Description                                  |
|-----------|----------------------------------------------|
| <b>CR</b> | Round Sealed (Medium Pressure)               |
| <b>WR</b> | Round Welded (High Pressure)                 |
| <b>C</b>  | Rectangular Sealed (Low and Medium Pressure) |
| <b>WC</b> | Rectangular Welded (High Pressure)           |
| <b>CO</b> | Oval Sealed (Medium Pressure)                |
| <b>WO</b> | 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 – 72" (1829) diameter

#### Rectangular and Oval Transitions

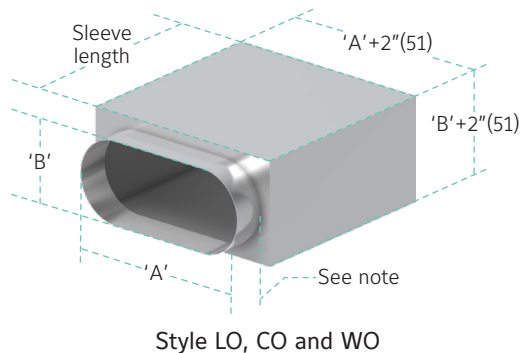
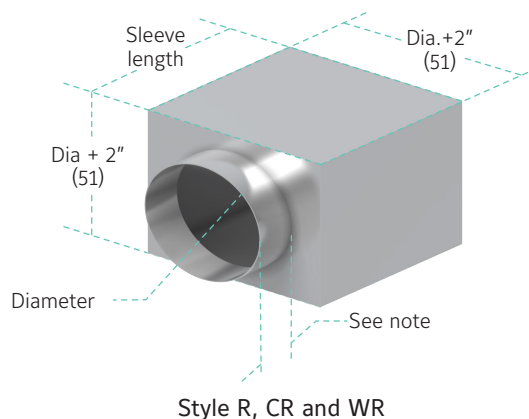
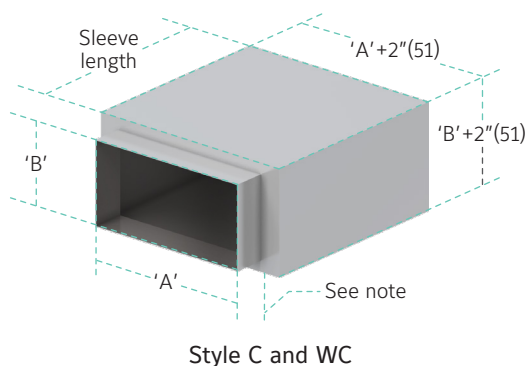
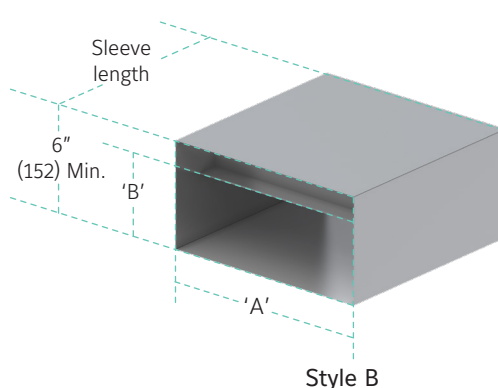
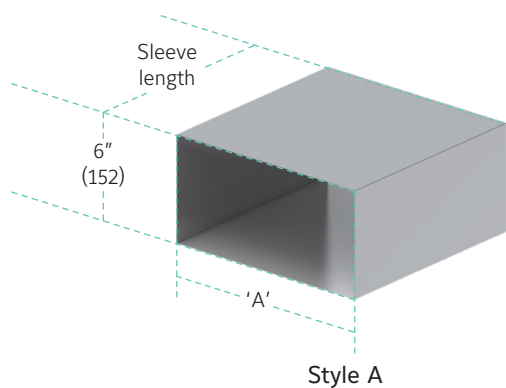
Minimum – 6"w x 4"h (152 x 102)

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.



## 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 1. Smoke dampers shall be produced in an ISO 9001 certified factory and warrantied to be free from defects in material and workmanship for a period of 5 years after date of shipment.

Damper frame shall be 5" x 1" x .125" (minimum thickness) (127 x 25 x 3.2) 6063T6 extruded aluminum hat channel with hat mounting flanges on both sides of the frame. Each corner shall be reinforced with two die formed internal braces and machine staked for maximum rigidity.

Blades shall be airfoil type extruded aluminum (maximum 6" [152] depth) with integral structural reinforcing tube running full length of each blade. Blade edge seals shall be silicone extruded double edge design with inflatable pocket which enables air pressure from either direction to assist in blade to blade seal off. Adhesive or clipon type blade seals are not acceptable. Jamb seals shall be stainless steel compression type. Bearings shall be stainless steel, permanently lubricated sleeve type.

Smoke dampers and their actuators shall be qualified in accordance with UL555S to an elevated temperature of 250°F (121°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.

Smoke dampers shall be Ruskin model SD50V-M.

(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).

### LINKS TO IMPORTANT DOCUMENTS

| Document Number  | Document Title                         |
|------------------|----------------------------------------|
| II-SD-118        | Smoke Damper Installation              |
| FSD O-and-M_0120 | Operation and Maintenance Instructions |
| FSD60-MSD-319    | FSD/SD Multiple Section Details        |



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