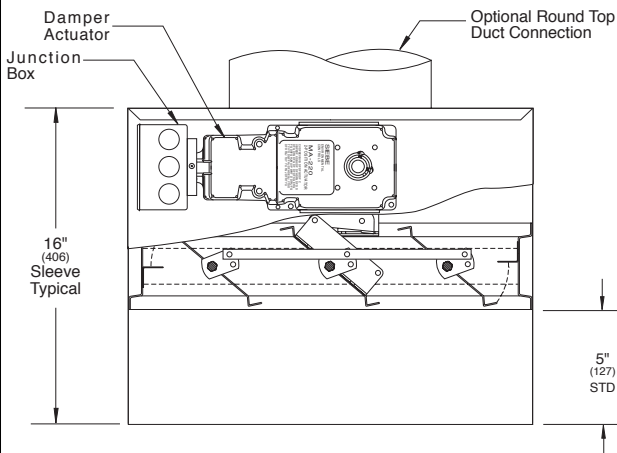
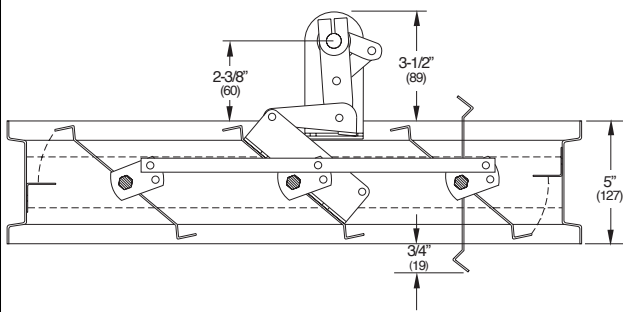


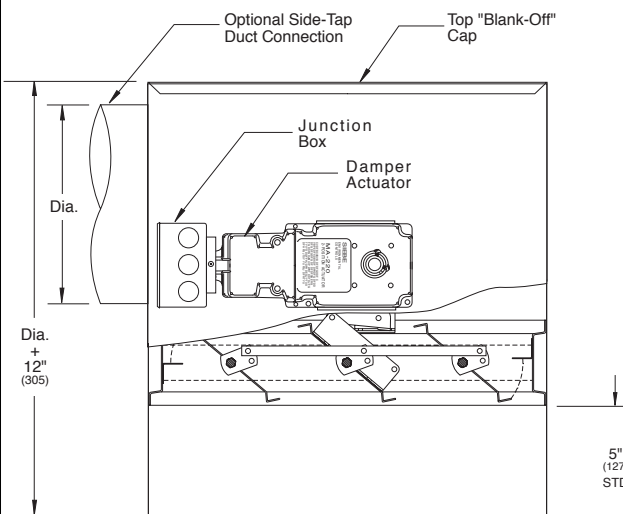


# MODEL FSD-132

1 hour rated corridor damper  
1-1/2 hour rated fire/smoke damper



**Model FSD-132 Typical Assembly Side View**  
**Model FSD-132-AR1 Shown**



**Model FSD-132 Typical Assembly With Side Tap**  
**Side View**  
**Model FSD-132-SC2 Shown**

CLASSIFIED  
**UL**  
SEE DETAILS ON UL CLASSIFICATION MARKING ON ENCLOSED PRODUCT  
CLASSIFIED  
**UL**  
TESTED PER U.L. 555 AND 555S



- UL 555 1-1/2 hour rated for use in 1 hour or 2 hour partitions
- UL 555 1 hour rated for use in 1 hour tunnel-type corridor ceilings.
- Note:** Ceiling construction types are limited. Refer to installation instructions for ceiling construction and framing.
- UL 555S Class II, 350°F (177°C) Leakage Rating.
- Underwriters Laboratories file #R14981
- CSFM file #3225-1404:105 & 3230-1404:106
- Vertical and Horizontal mounting available.
- UL listed for use in dynamic or static systems for bi-directional air flow with velocities up to 2000 fpm and pressures to 4" w.g.
- Meets NFPA90A and NFPA92A for fire and smoke dampers.

## SPECIFICATIONS

- 5" (127) galvanized steel hat channel frame with interlocking corner gusset. (Equivalent to a 13 (2.3) gauge channel frame.)
- 6" x 16 gauge (152 x 1.5) galvanized steel interconnected blades.
- Linkage concealed in frame.
- Stainless steel oilite bearings.
- Compressable stainless steel jamb seals.
- Silicone blade edge seals.
- Plated steel hexagonal axle.
- UL approved one-temperature manually resettable fire closure device, 165°F (75°C), standard (HS-10 for electric actuator or PFV for pneumatic actuator).
- Maximum horizontal section 24" x 24" (610 x 610) .
- Maximum vertical section 24" x 24" (610 x 610) .
- Minimum size 6" x 6" (152 x 152).
- Frame O.D. is approximately 1/4" (6) under nominal size. Units supplied with factory sleeves are supplied 1/8" (3) under nominal size.

## OPTIONS

- Stainless steel construction (304).
- Factory mounted electric actuator.
  - 120 VAC:  Power Open  Power Closed
  - 24 VAC:  Power Open  Power Closed
- Factory mounted pneumatic actuator.
  - Power Open  Power Closed
- Accessories
  - DRS-30 - Two temperature remotely resettable fire closure device. (Dual position indicator switch included with package)
  - PI-50 - Dual position indicator switch.
  - EP-30 - Electric/pneumatic switch for pneumatic actuators.
    - 120 VAC  24 VAC
- Smoke detectors factory mounted and wired
  - Duct smoke detector (100-3,000 fpm) (photoelectric)
  - 2151 - "No flow" (0-3,000 fpm) duct smoke detector (photoelectric)
- Factory mounted sleeve end treatments.
- Round duct connection:
  - Top Side (FSD-172-AR1)  Top/Bottom(FSD-172-AR)
  - Side Tap (FSD-172-SC2)  1" (25) mounting flange
- Factory supplied damper retaining angles.
- Alternate high temperature fire closure devices.
  - 212°F (100°C)  250°F (121°C)  350°F (177°C)

Information is correct at time of printing. However, we reserve the right to make changes without notice.

**NOTE:** Dimensions in parentheses ( ) are millimeters.

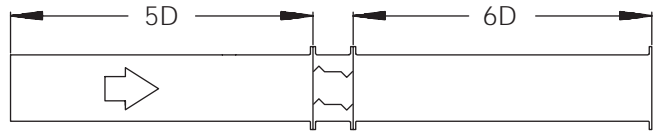
FIRE / SMOKE DAMPERS FSD132 August 2004

## Pressure Drop Data

Pressure drop testing was performed in accordance with AMCA Standard 500 using figure 5.3 as shown below. All data has been corrected to represent standard air at a density of 0.075 lb/ft. Actual pressure drop in any ducted HVAC system is a combination of many elements. This information along with analysis of other system influences should be used to estimate actual pressure losses for a damper installed in a given HVAC system.

### Fully Ducted System

AMCA test Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of AMCA three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.



### Pressure Loss Coefficient (C<sub>p</sub>)

		Width							
		8	12	16	20	24	28	32	36
Height	8	5.83	3.96	3.96	2.41	2.22	2.22	2.22	1.55
	12	3.66	1.16	1.10	1.06	0.95	0.88	0.88	0.88
	16	2.67	1.47	1.23	1.00	1.00	0.88	0.88	0.88
	20	2.61	1.44	1.21	1.00	0.90	0.88	0.88	0.88
	24	1.79	1.18	0.97	0.83	0.76	0.70	0.70	0.70
	28	1.75	1.15	0.96	0.82	0.76	0.70	0.70	0.70
	32	1.75	0.94	0.81	0.70	0.70	0.70	0.70	0.63
	36	1.34	0.92	0.70	0.70	0.70	0.63	0.63	0.58
	40	1.32	0.90	0.70	0.68	0.54	0.54	0.54	0.54
	44	1.28	0.74	0.70	0.68	0.54	0.44	0.4	0.44
48	1.24	0.71	0.70	0.68	0.54	0.44	0.42	0.42	

### Calculation

As explained in Chapter 32 of the 1997 ASHRAE fundamentals handbook, pressure drop is a function of pressure velocity and the pressure loss coefficient (C<sub>p</sub>).

$$\Delta P = C_p \left( \frac{V}{4005} \right)^2$$

Example:

Damper size — 24" × 24" damper

$$\Delta P = 0.76 * \left( \frac{1500}{4005} \right)^2$$

$$\Delta P = 0.107 \text{ In. Wg.}$$

ΔP = Pressure Drop (Inches W.G.)

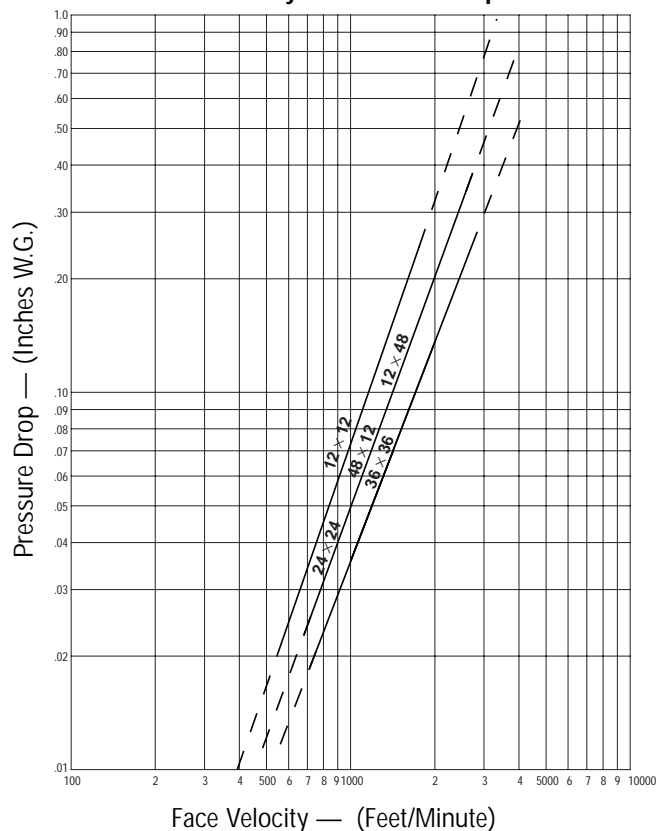
C<sub>p</sub> = Pressure Drop Coefficient

V = Duct Velocity (FPM)

### NOTE:

Using the *Velocity vs. Pressure Drop* chart locate the applicable face velocity, in *Feet/Minute* along the bottom of the chart. Move up the chart to the most appropriate size damper. From that intersection point, move left to determine the pressure drop.

### Velocity vs. Pressure Drop



Face Velocity — (Feet/Minute)

Figure 5.3