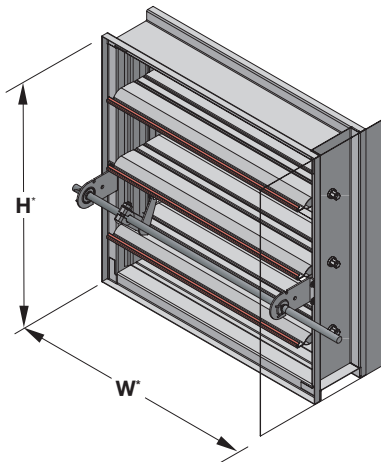




SD-181
(standard)

*Damper dimensions furnished approximately 1/4" (6) undersize.
(sleeve thickness not included)

Options

- **Alternate actuator:** (Power-open, spring return)
 - Internal Mount (actuator in air-stream)
 - 24 VAC ▪ 230 VAC ▪ Pneumatic
 - 24V Modulating**
 - Opposed Blade ▪ Parallel Blade†
- **Alternate power-close, spring-open position**
 - Internal Mount (actuator in air-stream)
 - 24 VAC ▪ 230 VAC
- **PI-50 — Dual-position indicator switch package**
- **Factory-installed sleeve:**
 - Type: ▪ A (Std.) ▪ C
 - Gauge: ▪ 20 (1.0) ▪ 18 (1.3) ▪ 16 (1.6)
 - 14 (2.0) ▪ 10 (3.4)
 - Length: ▪ 12" (305) ▪ 16" (406) ▪ 24" (610)
 - Other_____
- **Transitions (sleeved required):**
 - Flanged ▪ Round ▪ Oval
 - Duct connections: ▪ 1" (25) S-clip ▪ S & Drive ▪ Ward
 - DM25 ▪ DM35 ▪ DM45
- **Retaining angle systems:**
 - Gauge: ▪ 20 (1.0) ▪ 16 (1.6)
 - Picture frame: ▪ SSPF (single-side) ▪ DSPF (2-sided)
 - Individual angle sets: ▪ SS (single-side) ▪ DS (2-sided)
- **Duct smoke detector factory mounted and wired:**
 - D4120 (100-4,000 fpm [0.5-20.3 m/s])
 - 2151 (0-3,000 fpm [0-15.2 m/s])
- **Duct access door factory mounted in common sleeve**
- **Burglar Bars**
- **Remote control stations:**
 - RCP-1 (single) ▪ RCP-1K (single, key controlled)
 - RCP-1M (single, momentary switch) ▪ RCP-1M-NL
- **Remote Light Panel**

The SD-181 smoke damper employs airfoil blades for point-of-origin control of smoke in static and dynamic smoke management systems. The SD-181 is qualified to 4,000 ft/min (20.3 m/s) and 8 in.wg. (2.0 kPa) and may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies.

Ratings

- UL 555S Leakage Class:** 1 [8 cfm/sq.ft. @ 4 in.wg.]
[0.04 m³/s/m² @ 1.0 kPa]
- Maximum Dynamic Closure Velocity**:** 4,000 fpm (20.3 m/s)
- Maximum UL555S Rated Pressure:** 8 in.wg. (1.0 kPa)
- Maximum Temperature:** 350°F (177°C)

Listings

UL 555S listing: R14981

CAN/ULC S112.1 listing: R14981

CSFM listing: 3230-1404:108

New York City MEA listing: 295-98-E

Meets NFPA Standards: 90A, 92A, 92B and 101

Meets Building Code Standards: IBC, NBC, NFPA, SBC and UBC



Standard Construction

- Frame:** 5" x 1" (127 x 25) galvanized steel hat channel with interlocking corner gusset. Equivalent to 13 gauge (2.4) channel frame. Low profile head and sill are used on sizes less than 13" (330) high.
- Blades:** 6" x 14 gauge (152 x 2.0) galvanized steel — steel airfoil.
- Side-Plate:** 12" x 20 gauge (305 x 1.0) galvanized steel
- Axles:** 1/2" (13) diameter plated steel hex
- Linkage:** Concealed in frame
- Bearings:** Stainless steel oilite, sleeve-type
- Seals:** Silicone blade edge seals integrally rolled and mechanically fastened to blades. Flexible metal jamb seals
- Actuator:** 120 VAC, power-open, spring-close, external mount
- Minimum Size:** 8" x 6" (203 x 152)
Type C: 6" x 4" (152 x 102)
- Maximum Size:** Single section: 36" x 48" (914 x 1219)
Type C: 34" x 46" (864 x 1168)
Multiple section: 144" x 96" (3658 x 2438)
288" x 48" (7315 x 1219)

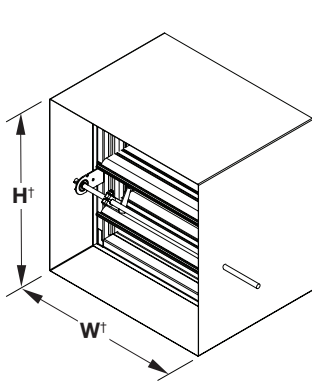
NOTE: Dimensions in parentheses () are millimeters.
Information is subject to change without notice or obligation.

Actuator and Sleeve Dimensional Data

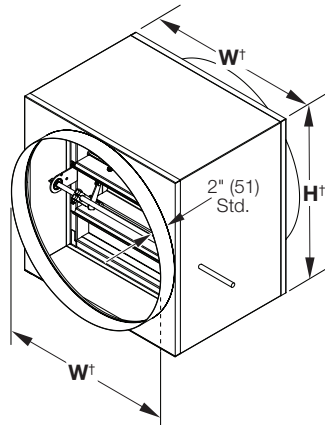
SD-181

UL Class 1

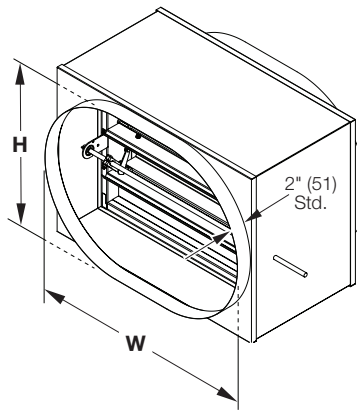
Smoke Damper • Airfoil Blade



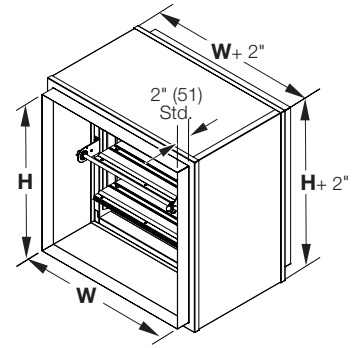
Sleeve (Optional)



Type R (Optional)
Round duct transitions are standard with $D=W=H$.
(available with $D<W$ and H)



Type O (Optional)
Oval duct transitions are standard with W and H equal to damper width and height dimensions. (available with W and H smaller than damper width and height)



Type C (Optional)
Damper is oversized and uses rectangular transitions to remove damper frame from airstream

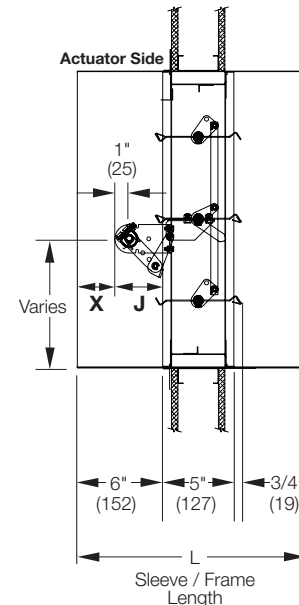
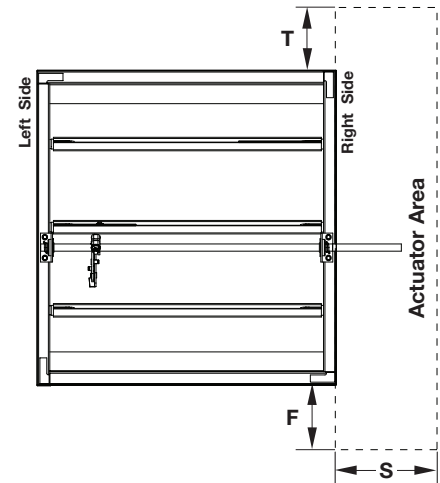
*Damper dimensions furnished approximately 1/4" (6) undersize.
(sleeve thickness not included)

The drawings and corresponding table illustrate the position of the damper and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining plates and duct connections.

Actuator Model								
	Damper Height	FSLF120 FSLF24	FSNF120 FSNF24	GGD221 GGD121	ML4115 ML8115	ML4120 ML8120	331-4826	331-2998
T	8"-9"	4"	7"	8"	4"	8"	8"	12"
	10"-11"	1"	4"	6"	1"	5"	5"	9"
	12"-13"	0"	3"	5"	0"	4"	4"	8"
	14"	0"	2"	4"	0"	3"	4"	8"
	15"-16"	0"	1"	3"	0"	2"	3"	7"
	17"	0"	3"	5"	0"	4"	5"	9"
	18" and 23"	0"	0"	0"	0"	0"	0"	3"
	19"- 20" and 25"	0"	0"	0"	0"	0"	0"	2"
	21"- 22" and 24"	0"	0"	0"	0"	0"	0"	0"
	26"-27"	0"	0"	0"	0"	0"	0"	1"
S	>27"	0"	0"	0"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"	4"	3"	3"
	7" and 11"- 12"	2"	2"	2"	2"	3"	2"	2"
	8", 13", -14" and 21"	1"	1"	1"	1"	2"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"	0"	0"	0"
	18"- 19"	0"	1"	1"	0"	2"	1"	1"
	22"-23"and >24"	0"	0"	0"	0"	0"	0"	0"
	24"	0"	0"	0"	0"	0"	0"	1"
	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"	4-1/2"	5"	7-1/4"
	<8"	4"	4"	4"	4"	4"	4"	4"
X	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"
J	<8"	2"	2"	2"	2"	2"	2"	2"
	≥8"	3-3/8"	3-3/8"	3-3/8"	3-3/8"	3-3/8"	3-3/8"	3-3/8"

- NOTE:** 1. Sleeve length "L" = wall/floor thickness + 10" (254). Standard sleeve length "L" = 16" (406)
2. Damper may be rotated 180° to position actuator area on the left side.
3. The entire damper frame is not required to be installed within the wall, partition or floor. However, the closed plane of the damper blades must be inside the wall, partition or floor.
4. Dimensions for FSLF120 apply to FSTF120.
5. Dimensions for FSNF120/FSNF24 apply to FSAF120/FSAF24.
6. Dimensions for ML4115/ML8115 apply to MS4209/MS8209.
7. For dimensions on actuators not shown above, contact factory.

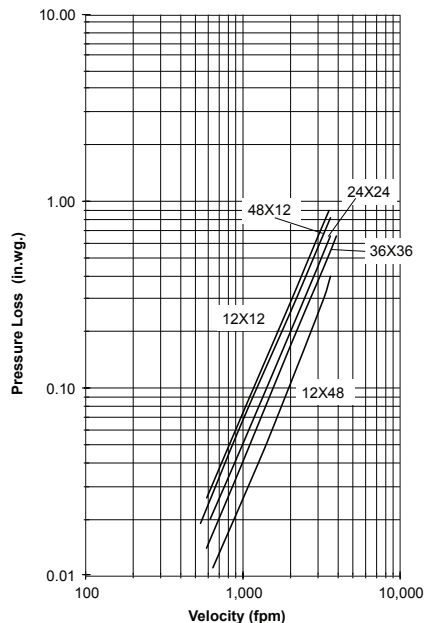
**Special Sizing	Power Close Option	24V Modulating Option 4 in.wg.	24V Modulating Option 8 in.wg.
Maximum Single Section	36" x 36" (914 x 914)	36" x 24" (914 x 610)	24" x 22" (610 x 559)
Maximum Multiple Section	288" x 36" (7315 x 914)	144" x 48" or 288" x 24" (3658 x 1219 or 7315 x 610)	96" x 44" or 120" x 22" (2438 x 1118 or 3048 x 559)
Maximum Dynamic Closure Velocity	2,000 fpm (10.2 m/s)	2,000 fpm (10.2 m/s)	4,000 fpm (20.4 m/s)
Maximum Temperature	250°F (121°C)	250°F (121°C)	250°F (121°C)



Pressure Drop Performance Data

Pressure Loss vs. Velocity

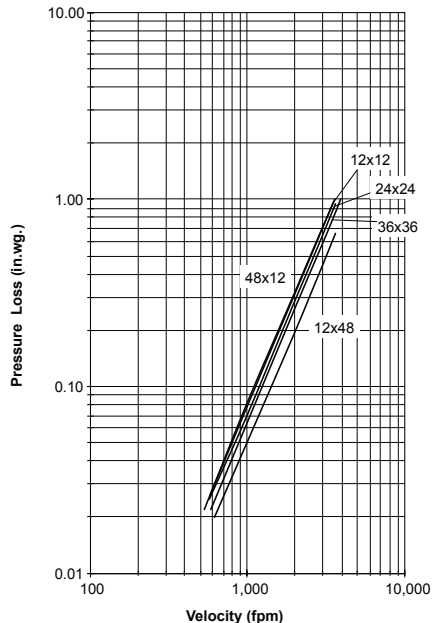
Figure 5.3 — Ducted Inlet and Outlet



Ducted Inlet and Outlet

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

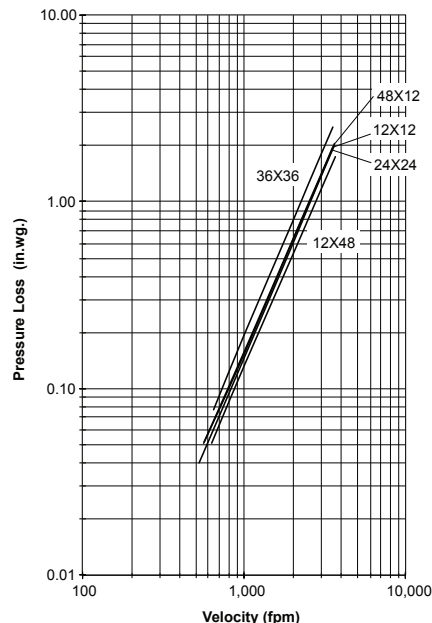
Figure 5.2 — Ducted Inlet



Ducted Inlet

AMCA Figure 5.2 illustrates a ducted damper exhausting air into an open area. This configuration has a lower pressure drop than Figure 5.5 because entrance losses are minimized by a straight duct run upstream of the damper.

Figure 5.5 — Plenum Mount



Plenum Mount

AMCA Figure 5.5 illustrates a plenum mounted damper. This configuration has the highest pressure drop because of extremely high entrance and exit losses due to the sudden changes of area in the system.

Pressure drop testing was performed in accordance with AMCA Standard 500-D using the configuration shown. All data has been corrected to represent air 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.