

Excelair Fire Safety Dampers

Triple-V blade

EXCELAIR

Fire Dampers

Since 1982

EFSD-141 Combination Fire smoke Damper

1.5 Hour - UL Class 1 - triple-V blade

Application

The EFSD-141 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-141 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions, or horizontally in floors or assemblies with fire resistance ratings up to 2 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and
Stainless Steel jamb seals

Fire Closure Device:

HS-10 (electric actuators)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open,
spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section
36" x 48" (914 x 1219)
Vertical Mount
144" x 96" (3658 x 2438)
Horizontal Mount
108" x 48" (2743 x 1219)

Options

Alternate actuator:

- ☐ 24 VAC
- ☐ 120 VAC

Alternate Factory installed sleeve Gauge:

- ☐ 18 (1.3) ☐ 16 (1.6)
- ☐ 14 (2.0) ☐ 10 (3.5)
- Length: ☐ 20" (508) ☐ 24" (610)

Retaining angle systems:

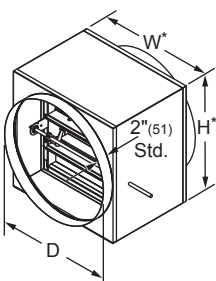
- Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

Transitions:

- ☐ Round ☐ Oval

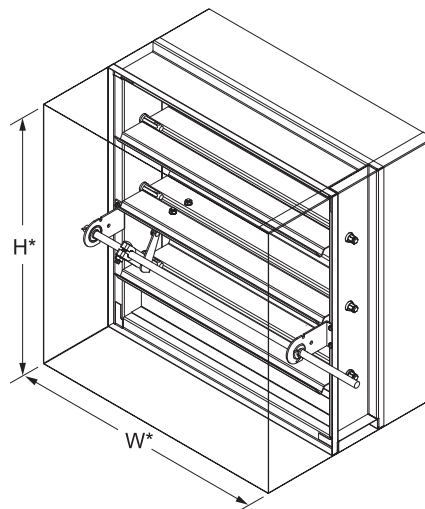
Alternate fire closure temperature:

- ☐ 212°F (100°C) ☐ 250°F (121°C)
- ☐ 350°F (177°C)



Type R (optional)

Round duct transitions are standard with D-W and H.



EFSD-141 (standard)

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

Ratings



UL 555 Fire Resistance Rating:

1 1/2 hour (vertical and horizontal)

UL 555S Leakage Class: 1 [8 cfm/sq.ft.

@ 4 in.wg.] [(0.04 m3/s/m2 @ 1.0 kPa)]

Maximum Dynamic Closure Velocity:

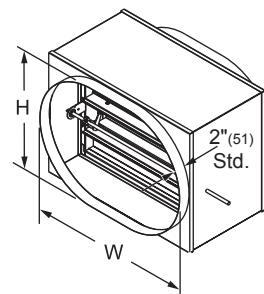
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

Maximum Temperature:

350°F (177°C)



Type O (optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

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



Air Performance

Century Mechanical Systems Factory LLC certifies that the model EFSD-141 shown herein 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 ratings only

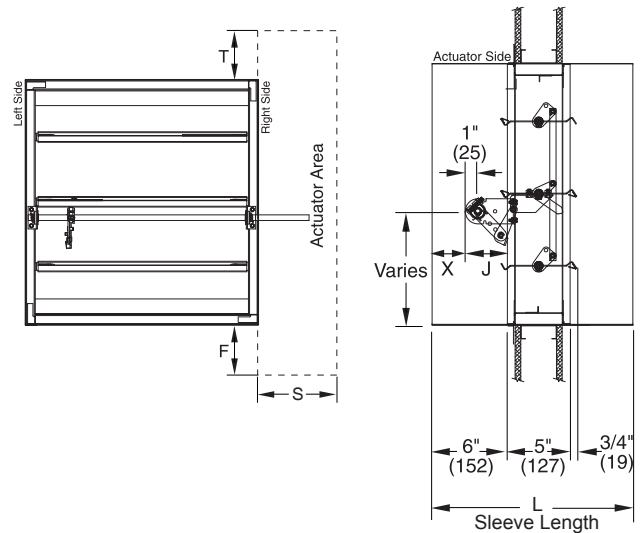
Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
S	9", 15"-17", and 20"	0"	0"	0"	0"
	18"-19"	0"	1"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
X	<8"	4"	4"	4"	4"
J	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"

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. For dimensions on actuators not shown above and other UL approved actuators, contact factory.



Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

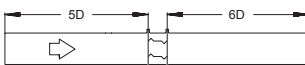
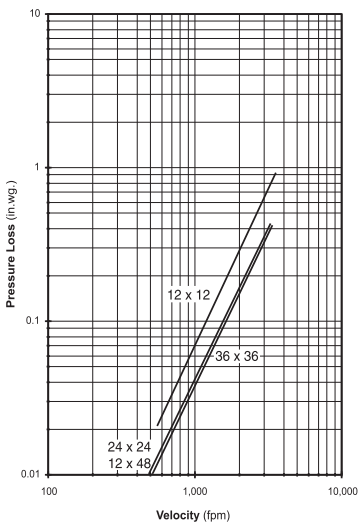


Figure 5.2 — Ducted Inlet

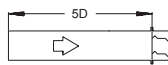
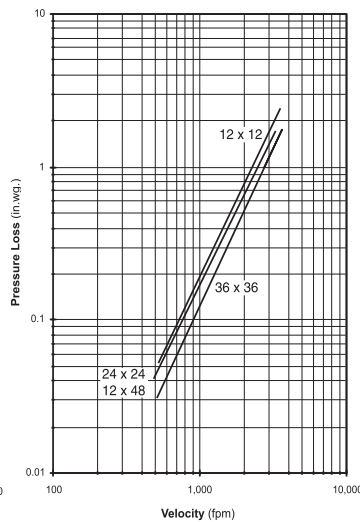
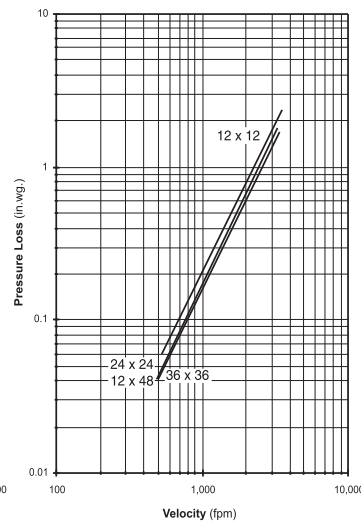


Figure 5.5 Plenum Mount



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 run upstream and downstream of the damper.

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.

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.



Air Performance

Century Mechanical Systems Factory LLC certifies that the model EFSD-141 shown herein 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 ratings only.

EFD-140 Fire Damper

1.5 hour — Fire damper Triple-V blade

Application

The EFD-140 fire damper employs triple-V blades for point-of-origin control of fire in static and dynamic HVAC systems. The EFD-140 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions, or horizontally in floors or assemblies with fire resistance ratings up to 2 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

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:

Flexible metal jamb seals.

Fire Closure Device:

Fusible link.

Fire Closure Temperature:

165°F (75°C).

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Selection: 36"x48" (914x1219)

Vertical mount: 108"x96" (2743x2438)

Horizontal Mount: 108"x48" (2743x1219)

Stainless Steel (Vert/Horiz):

36"x48" (914x1219)

72"x48" (1828x1219)

Options

Factory installed sleeve

Gauge:

☐ 20 (1.0) ☐ 18 (1.3) ☐ 16 (1.6)

☐ 14 (2.0) ☐ 10 (3.5)

Length:

☐ 16" (406) ☐ 24" (610)

Transitions (sleeve required):

☐ Round ☐ Oval

Retaining angle systems:

Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

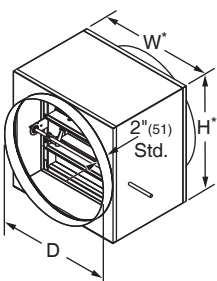
Alternate fire closure temperature:

☐ 212°F (100°C)

Actuator

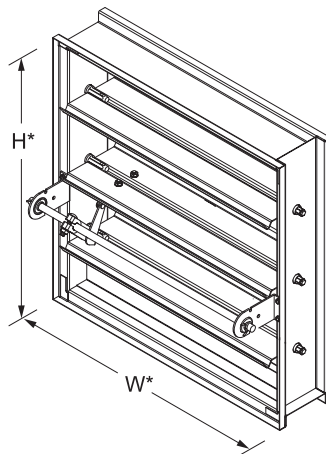
☐ 230V ☐ 24V

Type-304 stainless steel construction.



Type R (optional)

Round duct transitions are standard with D-W and H



EFD-140

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

Ratings



UL 555 Fire Resistance Rating:

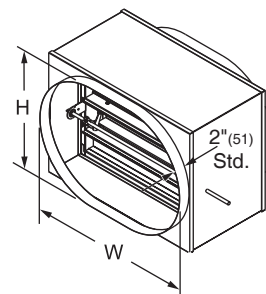
1 1/2 hour (vertical and horizontal)

Maximum Dynamic Closure Velocity:

2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)



Type O (optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

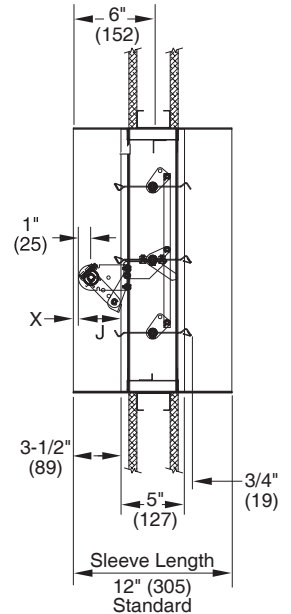
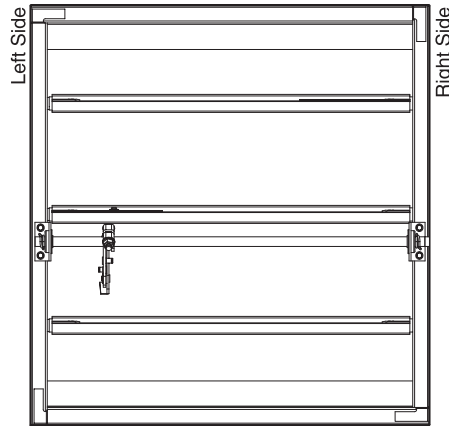
Typical Damper Dimensional Data

The drawings and corresponding table show the position of the damper when mounted in a factory sleeve. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

Damper Height	J	X
< 8"	2"	1-1/2"
≥ 8"	3-3/8"	1/8"

NOTE:

1. 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.



Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

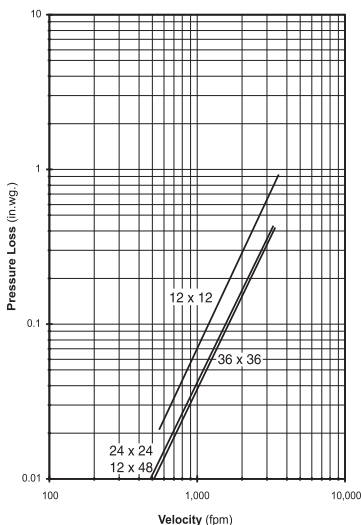


Figure 5.2 — Ducted Inlet

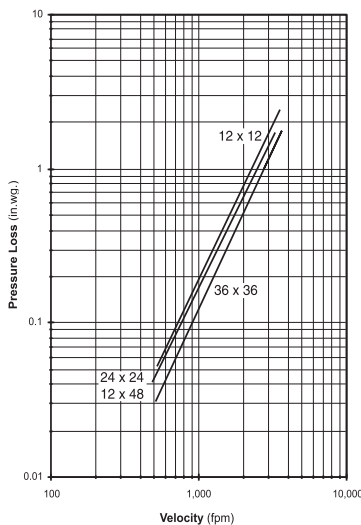
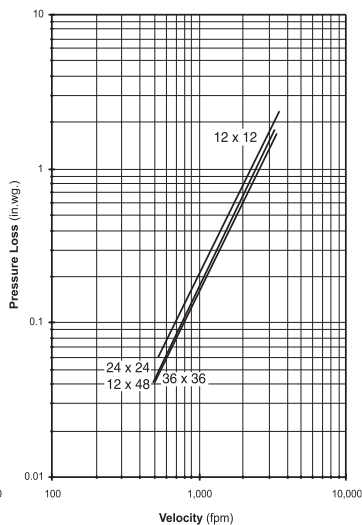


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

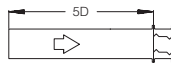
AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

Plenum Mount

AMCA Figure 5.5 illustrates 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.



ESD-141 Smoke Damper

UL class 1 - Triple V Blade

Application

The ESD-141 smoke damper employs triple-V blades for point-of-origin control of smoke in static and dynamic smoke management systems. The ESD-141 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section:
36" x 48" (914 x 1219)

Multiple Section:

144" x 96" (3658 x 2438)
288" x 48" (7315 x 1219)

Options

Alternate actuator:

☐ 24 VAC ☐ 120 VAC

Alternate factory installed sleeve

Gauge: ☐ 8 (1.3) ☐ 16 (1.6) ☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Side-Plate:

☐ 12" x 20 gauge (305 x 1.0) galvanized steel

Transitions

☐ Round ☐ Oval

Retaining angle systems:

Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

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:

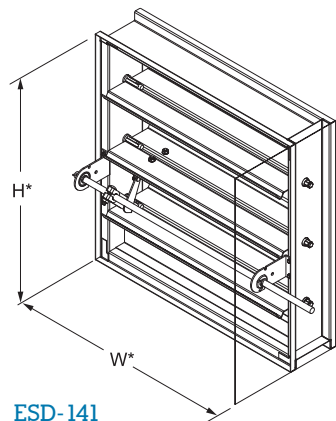
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

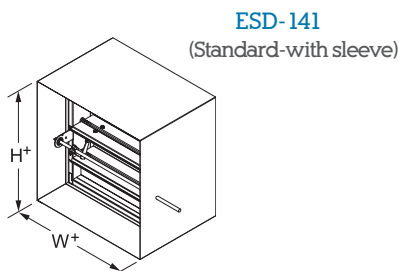
Maximum Temperature:

350°F (177°C)

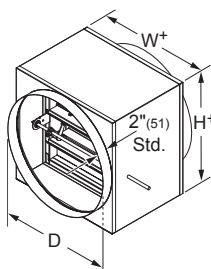


ESD-141
(with side plate)

*Damper dimensions furnished approximately 1/4" (6) undersize.

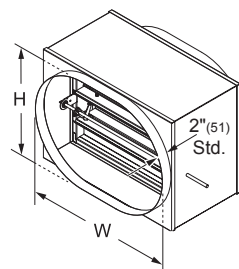


ESD-141
(Standard-with sleeve)



Type R
(optional)

Round duct transitions are standard with D-W and H.



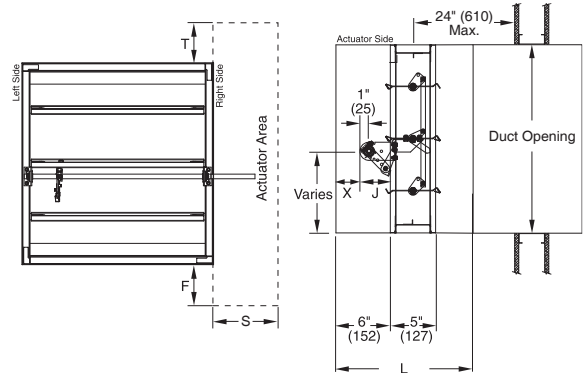
Type O
(optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	7"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
T	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"
	18"-19"	0"	1"	1"	0"
S	22"-23" and >24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
X	All	4"	4-1/2"	4-1/2"	4-1/2"
J	<8"	4"	4"	4"	4"
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"
J	<8"	2"	2"	2"	2"
	≥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 within 24" (610) of the wall, partition or floor.
 4. For dimensions on actuators not shown above and UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

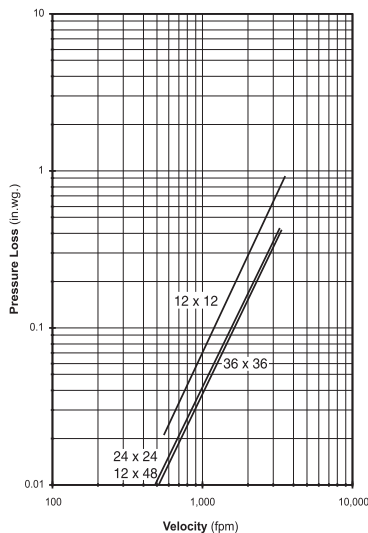


Figure 5.2 — Ducted Inlet

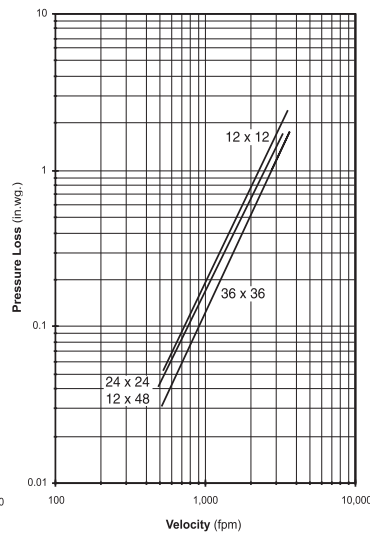
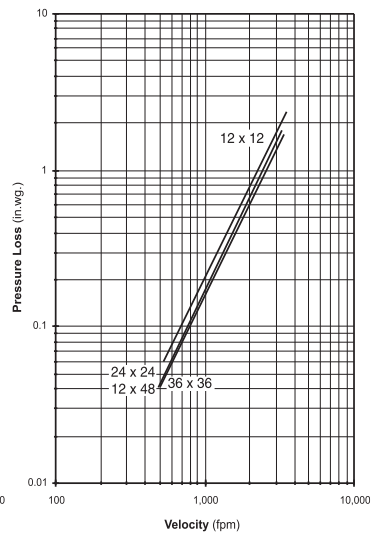


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

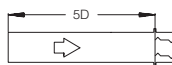
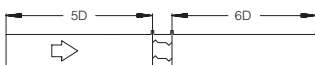
AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



EFSD-341 | Combination Fire Smoke Damper

Triple-V blade | UL class 1

Application

The EFSD-341 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-341 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions with fire resistance ratings up to 4 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Fire Closure Device:

Electric actuators(HS-10)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open, spring-close external mount

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single section: 36" x 48" (914 x 1219)
Multiple section: 108" x 96"
(2743 x 2438)

Options

Alternate actuator:

- ☐ 24 VAC
- ☐ 120 VAC

Alternate factory installed sleeve

Gauge:

- ☐ 18 (1.3) ☐ 16 (1.6)
- ☐ 14 (2.0) ☐ 10 (3.5)

Length: ☐ 20" (508) ☐ 24" (610)

Transitions:

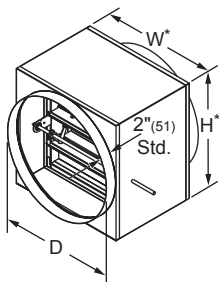
- ☐ Round ☐ Oval

Retaining angle systems:

1 1/2" x 1 1/2" x 16ga (38x38x1.6) angle

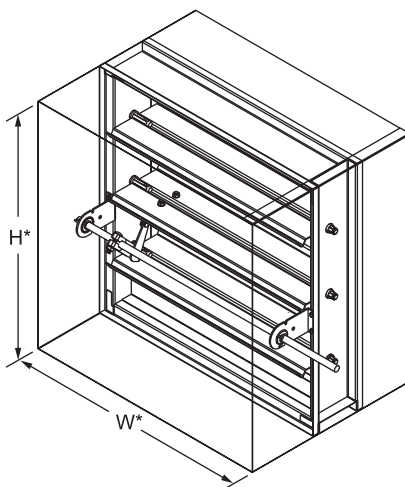
Alternate fire closure temperature:

- ☐ 212°F (100°C) ☐ 250°F (121°C)
- ☐ 350°F (177°C)



Type R (optional)

Round duct transitions are standard with D-W and H.



EFSD-341 (Standard)

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

Ratings



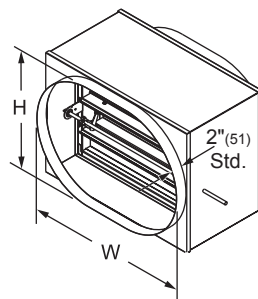
UL 555 Fire Resistance Rating:
3 hours (vertical)

UL 555S Leakage Class: 1 [8 cfm/sq.ft.
@ 4 in.wg.](0.04 m3/s/m2 @ 1.0 kPa)]

Maximum Dynamic Closure Velocity:
2,000 fpm (10.2 m/s)

Maximum Pressure: 4 in.wg. (1.0 kPa)

Maximum Temperature: 350°F (177°C)



Type O (optional)

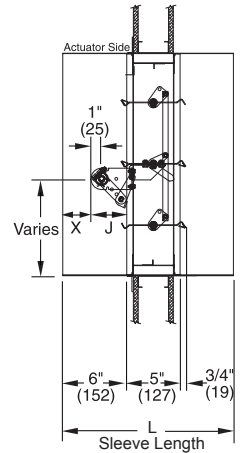
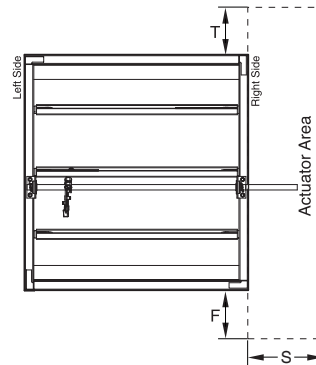
Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

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

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

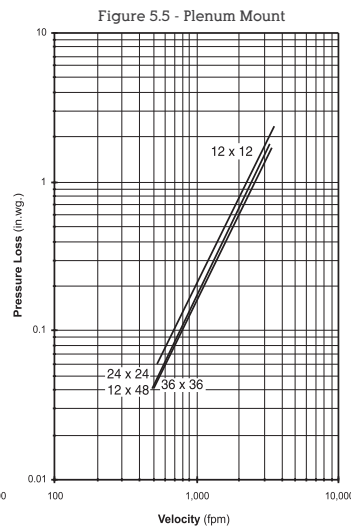
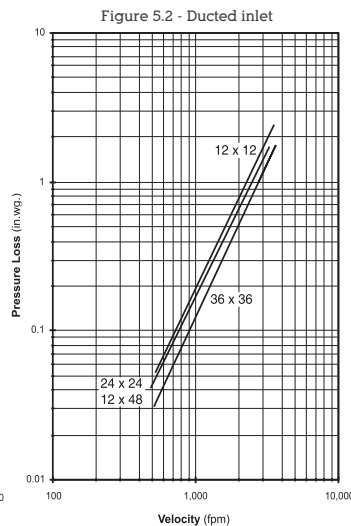
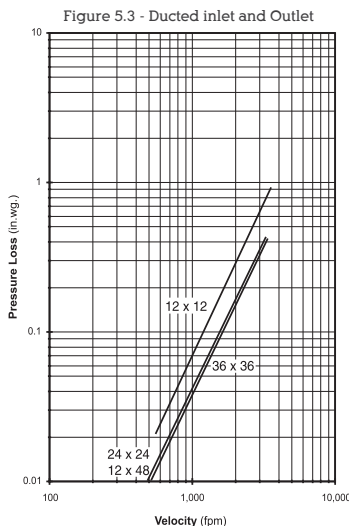
	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"
S	18"-19"	0"	1"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
X	<8"	4"	4"	4"	4"
J	<8"	2"	2"	2"	2"
	≥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. For dimensions on actuators not shown above and UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)



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.

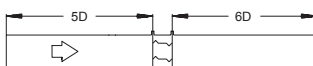
Ducted Inlet

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.

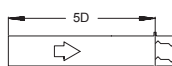
Plenum Mount

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.

Ducted Inlet and Outlet



Ducted Inlet



Plenum Mount



EFD-340 Fire Damper

3 hour fire damper with triple V blade

Application

The EFD-340 fire damper employs triple-V blades for point-of- origin control of fire in static and dynamic HVAC systems. The EFD-340 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions with fire resistance ratings up to 4 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

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:

Flexible metal jamb seals.

Fire Closure Device:

Fusible link.

Fire Closure Temperature:

165°F (75°C).

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section: 36" x 48" (914 x 1219)
Multiple Section: 108" x 96" (2743 x 2438)

Stainless Steel 36" x 48" (914 x 1219)

Options

Factory installed sleeve

Gauge:

☐ 20 (1.0) ☐ 18 (1.3) ☐ 16 (1.6)
☐ 14 (2.0) ☐ 10 (3.5)

Length:

☐ 16" (406) ☐ 24" (610)

Transitions (sleeve required):

☐ Round ☐ Oval

Retaining angle systems:

☐ 16 ga (1.6)

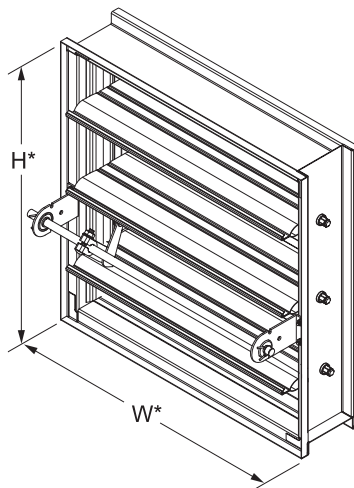
Alternate fire closure temperature:

☐ 212°F (100°C)

Actuators

☐ 230V ☐ 24V

Type-304 stainless steel construction.



EFD-150

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

Ratings



UL 555 Fire Resistance Rating:

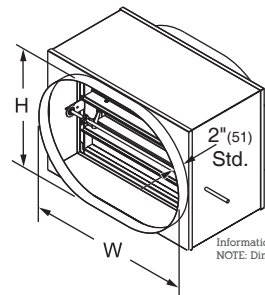
3 hour (vertical)

Maximum Dynamic Closure Velocity:

2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

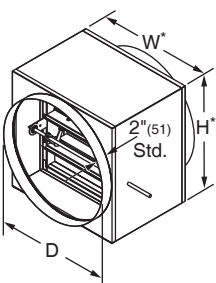
4 in.wg. (1.0 kPa)



Type O (optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

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



Type R (optional)

Round duct transitions are standard with D-W and H.

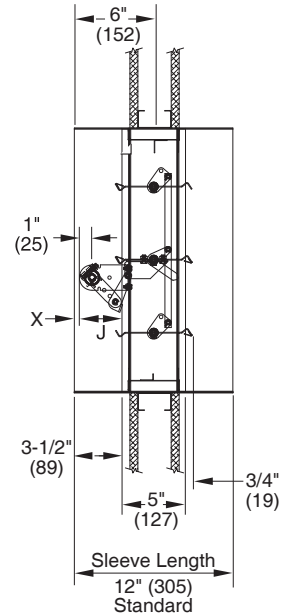
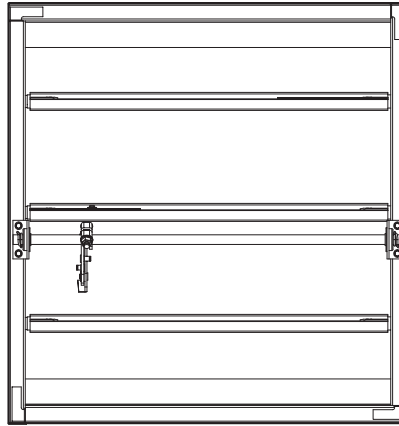
Typical Damper Dimensional Data

The drawings and corresponding table show the position of the damper when mounted in a factory sleeve. The standard mounting locations provide enough space for installation of retaining angles and duct connections

Damper Height	J	X
< 8"	2"	1-1/2"
≥ 8"	3-3/8"	1/8"

NOTE:

1. 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.



Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

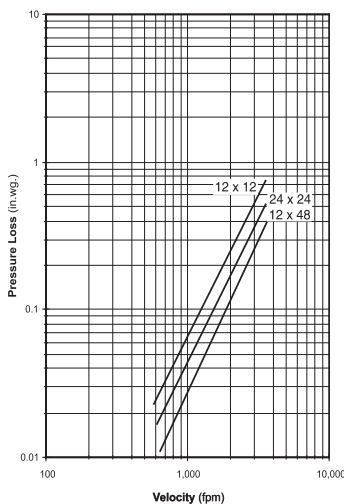


Figure 5.2 — Ducted Inlet

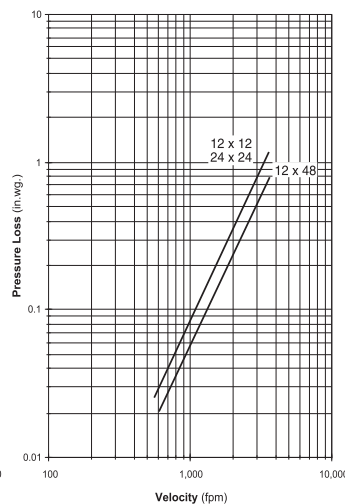
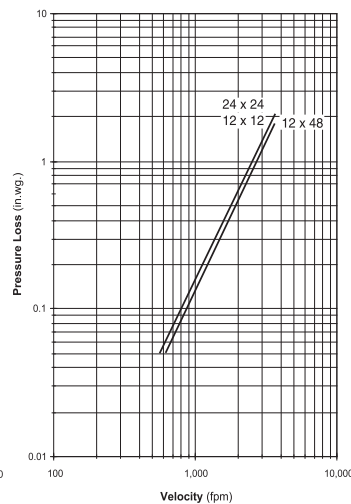


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

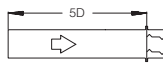
AMCA Figure 5.3 Illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



EFSD-142 Combination Fire smoke Damper

1.5 Hour - UL Class 2 - triple-V blade

Application

The EFSD-142 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-142 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions, or horizontally in floors or assemblies with fire resistance ratings up to 2 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and Flexible metal jamb seals

Fire Closure Device:

HS-10 (electric actuators)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section:

36" x 48" (914 x 1219)

Vertical Mount:

144" x 96" (3658 x 2438)

Horizontal Mount:

108" x 48" (2743 x 1219)

Stainless Steel (vertical/horizontal):

36" x 48" (914 x 1219)

Options

Alternate actuator:

- ☐ 24 VAC
☐ 120 VAC

Alternate Factory installed sleeve

- Gauge: ☐ 18 (1.3) ☐ 16 (1.6)
☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Retaining angle systems:

- Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

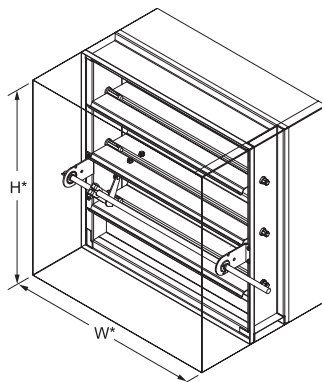
Transitions:

- ☐ Round ☐ Oval

Alternate fire closure temperature:

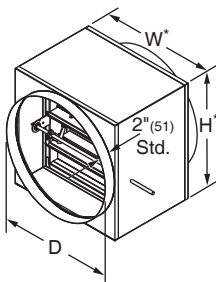
- ☐ 212°F (100°C) ☐ 250°F (121°C)
☐ 350°F (177°C)

- ☐ Type-304 stainless steel construction.



EFSD-142(standard)

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



Type R
(optional)

Round duct transitions are standard with D-W and H.

Ratings



UL 555 Fire Resistance Rating:

1 1/2 hour (vertical and horizontal)

UL 555S Leakage Class: 2 [20 cfm/sq.ft.

@ 4 in.wg.] [0.10 m3/s/m2 @ 1.0 kPa]

Maximum Dynamic Closure Velocity:

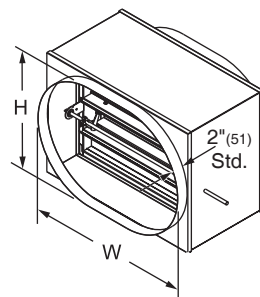
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

Maximum Temperature:

350°F (177°C)



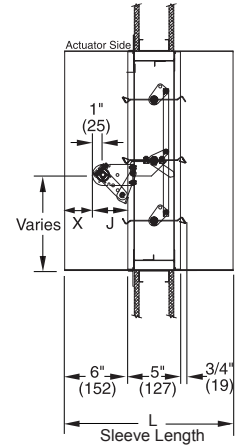
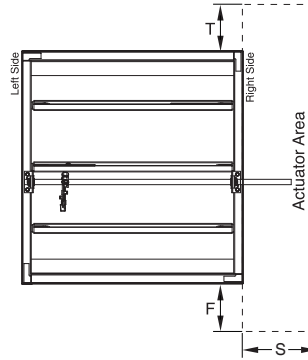
Type O
(optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
S	9", 15"-17", and 20"	0"	0"	0"	0"
	18"-19"	0"	0"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
X	<8"	4"-1/2"	4"-1/2"	4"-1/2"	4"-1/2"
J	≥8"	2"-5/8"	2"-5/8"	2"-5/8"	2"-5/8"



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. For dimensions on actuators not shown above and other UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

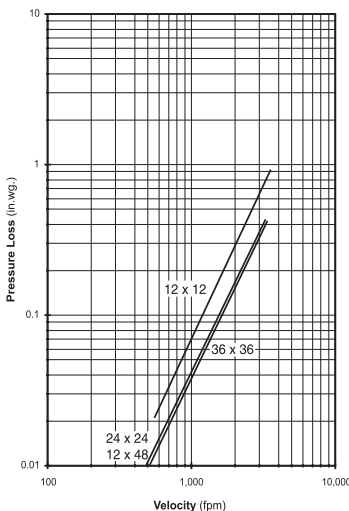


Figure 5.2 — Ducted Inlet

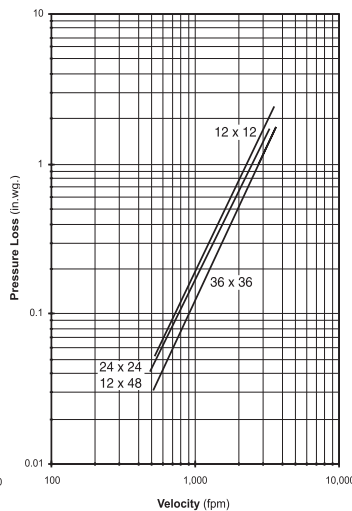
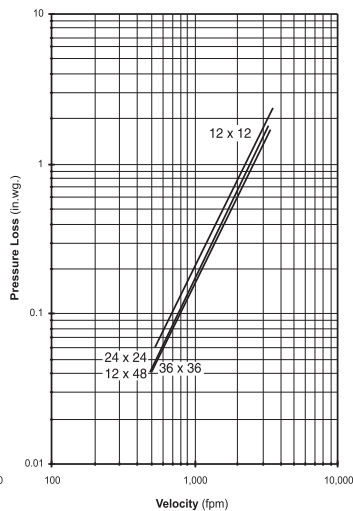


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

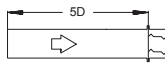
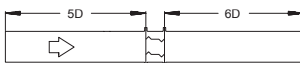
AMCA Figure 5.3 Illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



EFSD-143 Combination Fire smoke Damper

1.5 Hour - UL Class 3 - triple-V blade

Application

The EFSD-143 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-143 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions, or horizontally in floors or assemblies with fire resistance ratings up to 2 hours.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and Flexible metal jamb seals

Fire Closure Device:

HS-10 (electric actuators)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section:

36" x 48" (914 x 1219)

Vertical Mount:

144" x 96" (3658 x 2438)

Horizontal Mount:

108" x 48" (2743 x 1219)

Stainless Steel (vertical/horizontal):

72" x 48" (1829 x 1219)

Options

Alternate actuator:

☐ 24 VAC

☐ 120 VAC

Alternate Factory installed sleeve

Gauge: ☐ 18 (1.3) ☐ 16 (1.6)

☐ 14 (2.0) ☐ 10 (3.5)

Length: ☐ 20" (508) ☐ 24" (610)

Retaining angle systems:

Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

Transitions:

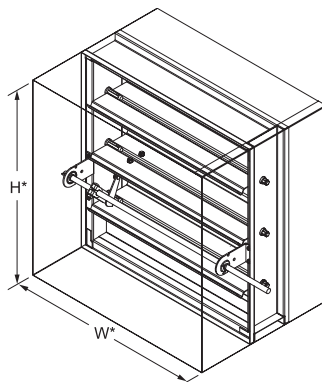
☐ Round ☐ Oval

Alternate fire closure temperature:

☐ 212°F (100°C) ☐ 250°F (121°C)

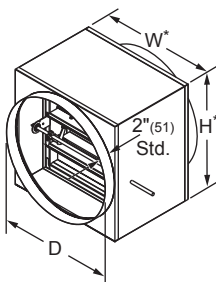
☐ 350°F (177°C)

☐ Type-304 stainless steel construction.



EFSD-143(standard)

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



Type R
(optional)

Round duct transitions are standard with D-W and H.

Ratings



UL 555 Fire Resistance Rating:

1 1/2 hour (vertical and horizontal)

UL 555S Leakage Class: 3 [80 cfm/sq.ft.

@ 4 in.wg.] [0.41 m3/s/m2 @ 1.0 kPa]

Maximum Dynamic Closure Velocity:

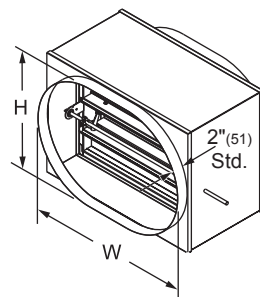
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

Maximum Temperature:

350°F (177°C)



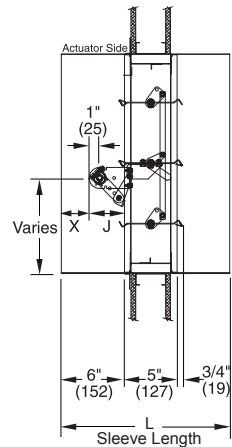
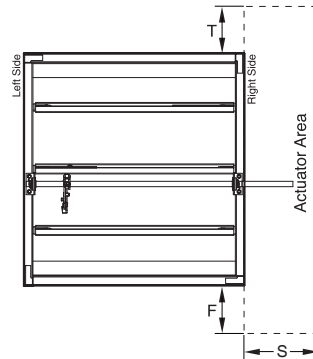
Type O
(optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"
S	18"-19"	0"	1"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
X	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"
J	<8"	4"	4"	4"	4"
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"



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. For dimensions on actuators not shown above and other UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

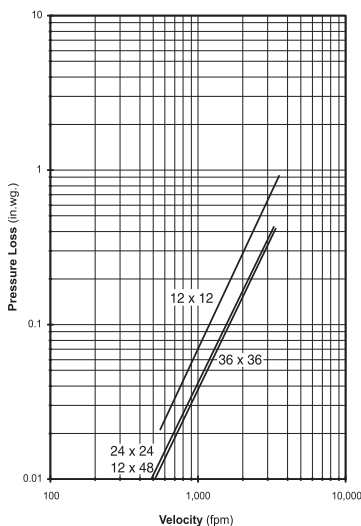


Figure 5.2 — Ducted Inlet

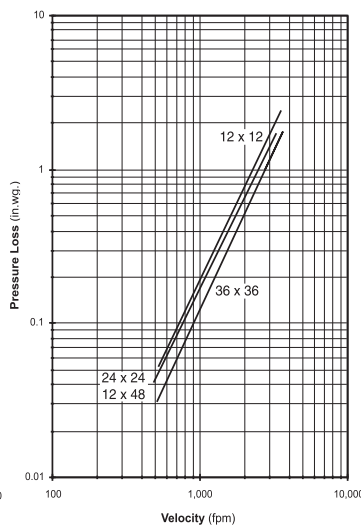
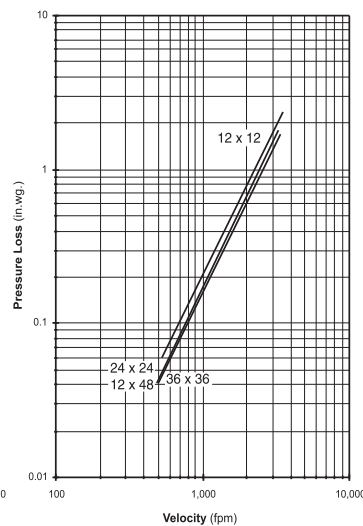


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

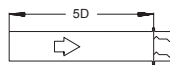
AMCA Figure 5.3 illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



EFSD-342 Combination Fire smoke Damper

3 hour - UL Class 2 - triple-V blade

Application

The EFSD-342 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-342 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions with fire resistance ratings up to 4 hours.

Standard Construction

Frame:

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Fire Closure Device:

HS-10 (electric actuators)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section:
36" x 48" (914 x 1219)

Multiple Section
108" x 96" (2743 x 2438)
Stainless Steel
36" x 48" (914 x 1219)

Options

Alternate actuator:

☐ 24 VAC ☐ 120 VAC

Alternate factory installed sleeve

Gauge: ☐ 8 (1.3) ☐ 16 (1.6) ☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Transitions

☐ Round ☐ Oval

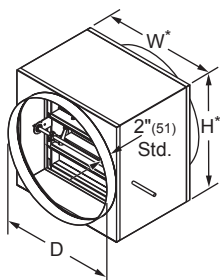
Retaining angle systems:

11/2" x 11/2" x 16 ga. (38 x 38 x 1.6)

Alternate fire closure temperature:

☐ 212°F (100°C) ☐ 250°F (121°C) ☐ 350°F (177°C)

Type-304 stainless steel construction.



Type R (optional)

Round duct transitions are standard with D-W and H.

EFSD-342 (standard)

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

Ratings



UL 555 Fire Resistance Rating:

3 hour (vertical)

UL 555S Leakage Class: 2 [20 cfm/sq.ft.

@ 4 in.wg. | (0.10 m3/s/m2 @ 1.0 kPa)]

Maximum Dynamic Closure Velocity:

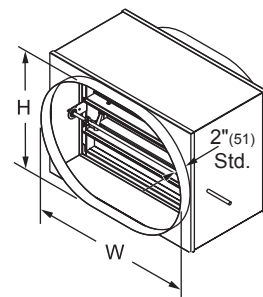
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

Maximum Temperature:

350°F (177°C)



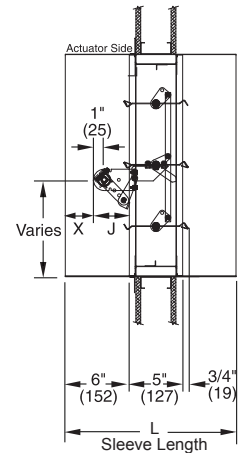
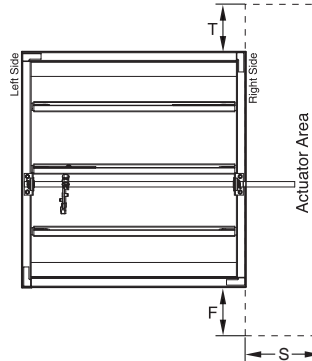
Type O (optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	1"
	17"	0"	0"	0"	0"
	18" and 23"	0"	0"	0"	0"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"
	18"-19"	0"	0"	0"	0"
	22"-23" and >24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
S	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"
X	<8"	4"	4"	4"	4"
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"
J	<8"	2"	2"	2"	2"
	≥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. For dimensions on actuators not shown above and UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

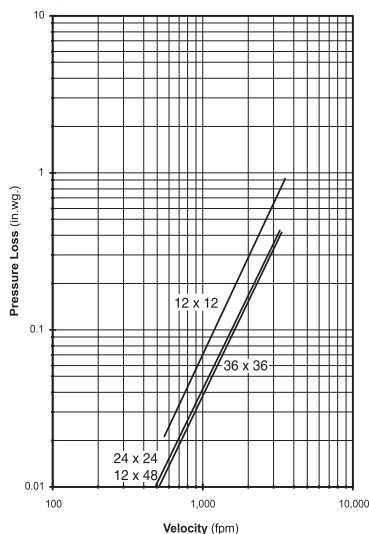


Figure 5.2 — Ducted Inlet

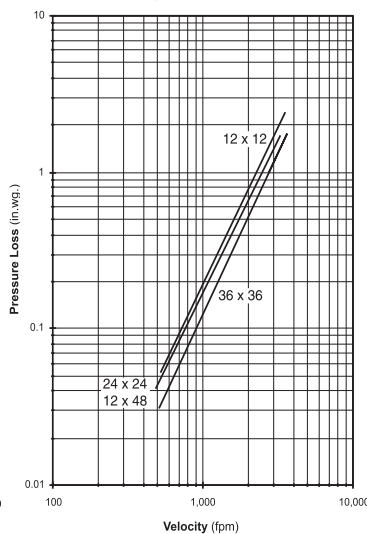
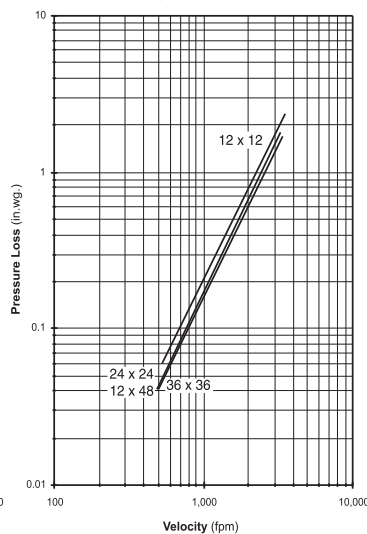


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

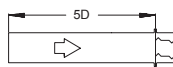
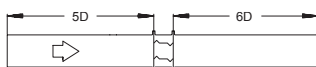
AMCA Figure 5.3 Illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



EFSD-343 Combination Fire smoke Damper

3 hour - UL class 3 - Triple-V blade

Application

The EFSD-343 combination fire smoke damper employs triple-V blades for point-of-origin control of fire and smoke in static and dynamic smoke management systems. The EFSD-343 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in vertical walls or partitions with fire resistance ratings up to 4 hours.

Standard Construction

Frame:

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Fire Closure Device:

HS-10 (electric actuators)

Fire Closure Temperature:

165°F (75°C).

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single Section:
36" x 48" (914 x 1219)

Multiple Section
108" x 96" (2743 x 2438)
Stainless Steel
36" x 48" (914 x 1219)

Options

Alternate actuator:

☐ 24 VAC ☐ 230 VAC

Alternate factory installed sleeve

Gauge: ☐ 8 (1.3) ☐ 16 (1.6) ☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Transitions

☐ Round ☐ Oval

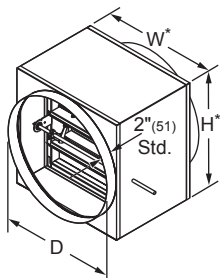
Retaining angle systems:

1 1/2" x 1 1/2" x 16 ga. (38 x 38 x 1.6)

Alternate fire closure temperature:

☐ 212°F (100°C) ☐ 250°F (121°C) ☐ 350°F (177°C)

Type-304 stainless steel construction.

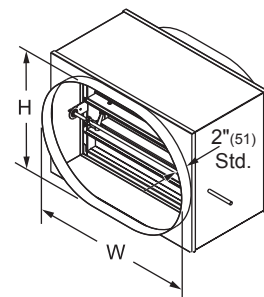


Type R (optional)

Round duct transitions are standard with D-W and H.

EFSD-343 (standard)

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



Type O (optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Ratings



UL 555 Fire Resistance Rating:
3 hour (vertical)

UL 555S Leakage Class: 3 [80 cfm/sq.ft. @ 4 in.wg.] [0.41 m3/s/m2 @ 1.0 kPa]

Maximum Dynamic Closure Velocity:
2,000 fpm (10.2 m/s)

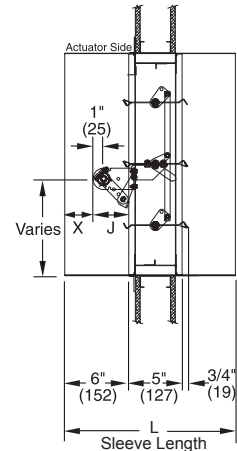
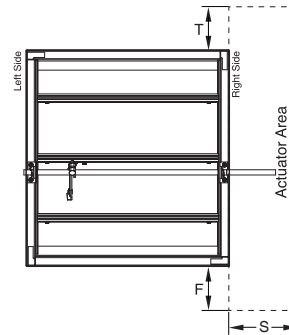
Maximum UL555S Rated Pressure:
4 in.wg. (1.0 kPa)

Maximum Temperature:
350°F (177°C)

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model				
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109	
F	6"-7"	5"	7"	9"	7"	
	8"-9"	4"	7"	8"	6"	
	10"-11"	1"	4"	6"	4"	
	12"-13"	0"	3"	5"	3"	
	14"	0"	2"	4"	2"	
	15"-16"	0"	1"	3"	2"	
	17"	0"	3"	5"	1"	
	18" and 23"	0"	0"	0"	0"	
	19"-20" and 25"	0"	0"	0"	0"	
	21"-22" and 24"	0"	0"	0"	0"	
T	26"-27"	0"	0"	0"	0"	
	>27"	0"	0"	0"	0"	
	6" and 10"	3"	3"	3"	3"	
	7" and 11"-12"	2"	2"	2"	2"	
	8", 13"-14" and 21"	1"	1"	1"	1"	
S	9", 15"-17" and 20"	0"	0"	0"	0"	
	18"-19"	0"	1"	1"	0"	
	22"-23" and >24"	0"	0"	0"	0"	
	24"	0"	0"	0"	0"	
X	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"	
J	<8"	4"	4"	4"	4"	
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"	
	<8"	2"	2"	2"	2"	
	≥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. For dimensions on actuators not shown above and UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

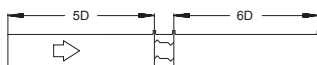
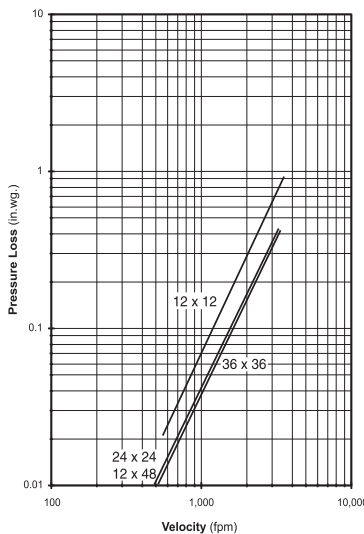


Figure 5.2 — Ducted Inlet

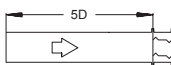
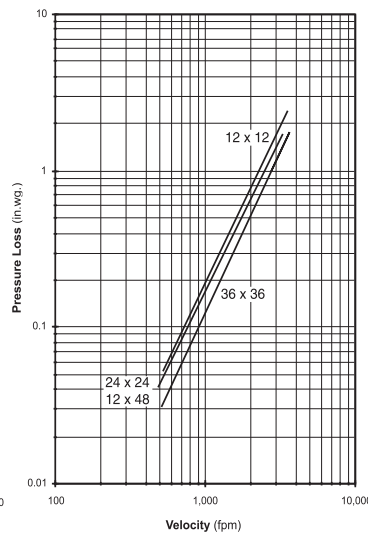
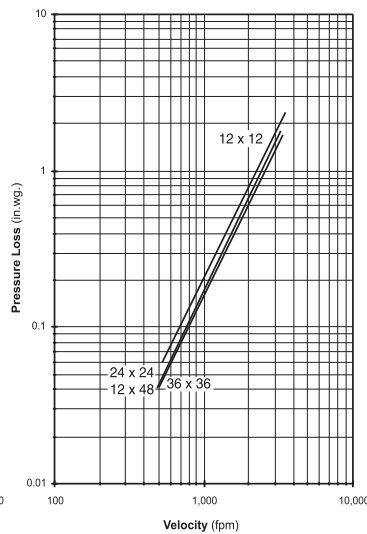


Figure 5.5 Plenum Mount



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.

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.

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.

ESD-142 Smoke Damper

UL class 2 - Triple V Blade

Application

The ESD-142 smoke damper employs triple-V blades for point-of- origin control of smoke in static and dynamic smoke management systems. The ESD-142 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single section:
36" x 48" (914 x 1219)

Multiple Section:

144" x 96" (3658 x 2438) or
288" x 48" (7315 x 1219)

Stainless Steel: 36" x 48" (914x1219)

Options

Alternate actuator:

☐ 24 VAC ☐ 120 VAC

Alternate factory installed sleeve:

Gauge: ☐ 8 (1.3) ☐ 16 (1.6) ☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Side-Plate:

☐ 12" x 20 gauge (305 x 1.0) galvanized steel

Transitions

☐ Round ☐ Oval

Retaining angle systems:

Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

Type-304 stainless steel construction.

Ratings



UL 555S Leakage Class: 2

[20 cfm/sq.ft. @ 4 in.wg.]
[0.10 m3/s/m2 @ 1.0 kPa]

Maximum Dynamic Closure Velocity:

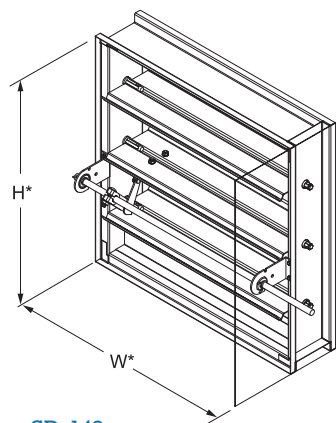
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

4 in.wg. (1.0 kPa)

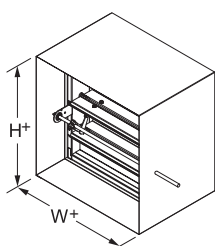
Maximum Temperature:

350°F (177°C)

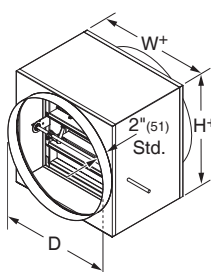


SD-142
(with side plate)

*Damper dimensions furnished approximately 1/4" (6) undersize.

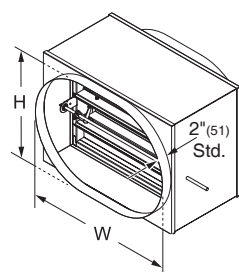


SD-142
(with sleeve)



Type R
(optional)

Round duct transitions are standard with D-W and H.



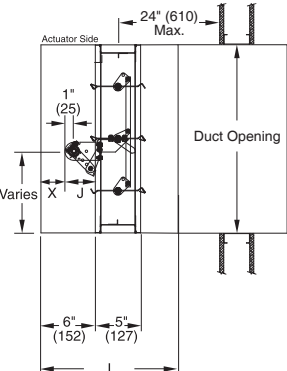
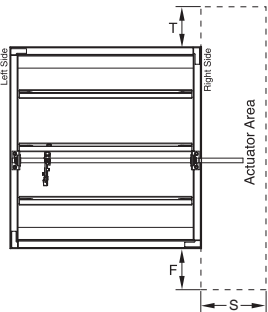
Type O
(optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

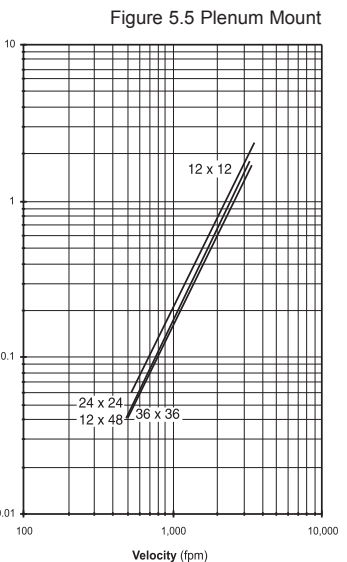
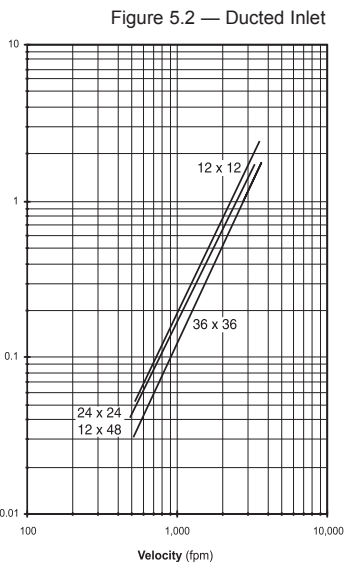
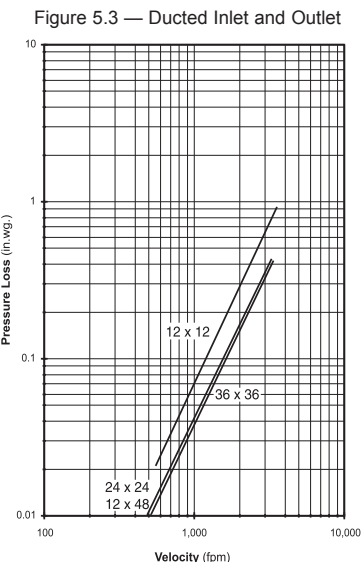
The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	1"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
	9", 15"-17" and 20"	0"	0"	0"	0"
S	18"-19"	0"	1"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
X	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"
J	<8"	4"	4"	4"	4"
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"
	<8"	2"	2"	2"	2"
	≥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 within 24" (610) of the wall, partition or floor.
 4. For dimensions on actuators not shown above and UL approved actuators, contact factory.

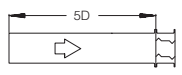
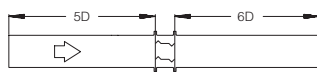
Airflow Performance Data (Pressure Loss vs. Velocity)



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.

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.

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.



ESD-143 Smoke Damper

UL class 3 - Triple V Blade

Application

The ESD-143 smoke damper employs triple-V blades for point-of- origin control of smoke in static and dynamic smoke management systems. The ESD-143 is qualified to 2,000 ft/min (10.2 m/s) and 4 in.wg. (1.0 kPa) and may be installed in, or adjacent to vertical walls or partitions, or horizontally in, or adjacent to floors or assemblies.

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 16 gauge (152 x 1.6) galvanized steel — triple-V.

Sleeve:

16" x 20 gauge (406 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 and flexible metal jamb seals.

Actuator:

230 VAC, power-open, spring-close, external mount.

Minimum Size:

6" x 6" (152 x 152)

Maximum Size:

Single section:
36" x 48" (914 x 1219)

Multiple Section:
144" x 96" (3658 x 2438) or
288" x 48" (7315 x 1219)

Options

Alternate actuator:

☐ 24 VAC ☐ 120 VAC

Alternate factory installed sleeve

Gauge: ☐ 8 (1.3) ☐ 16 (1.6) ☐ 14 (2.0) ☐ 10 (3.5)
Length: ☐ 20" (508) ☐ 24" (610)

Side-Plate:

☐ 12" x 20 gauge (305 x 1.0) galvanized steel

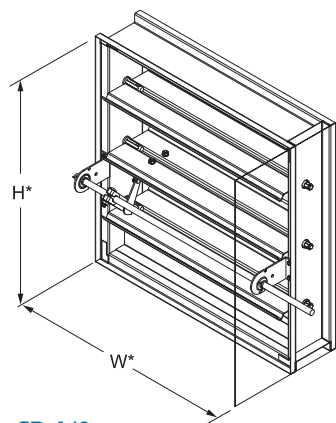
Transitions

☐ Round ☐ Oval

Retaining angle systems:

Gauge: ☐ 20 (1.0) ☐ 16 (1.6)

Type-304 stainless steel construction.



SD-143
(with side plate)
*Damper dimensions furnished approximately 1/4" (6) undersize.

Ratings



UL 555S Leakage Class: 3

[80 cfm/sq.ft. @ 4 in.wg.]
[0.41 m3/s/m2 @ 1.0 kPa]

Maximum Dynamic Closure Velocity:

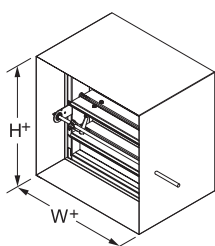
2,000 fpm (10.2 m/s)

Maximum UL555S Rated Pressure:

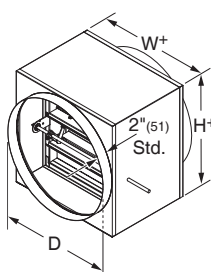
4 in.wg. (1.0 kPa)

Maximum Temperature:

350°F (177°C)

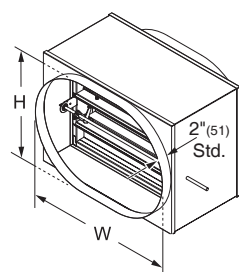


SD-143
(with sleeve)



Type R
(optional)

Round duct transitions are standard with D-W and H.



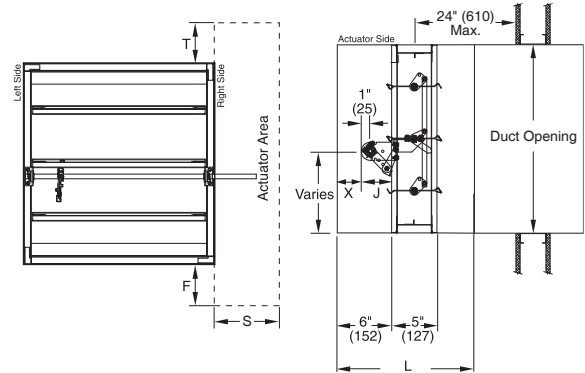
Type O
(optional)

Oval duct transitions are standard with W and H smaller than damper width and height dimensions.

Actuator and Sleeve Dimensional Data

The drawings and corresponding table illustrate the position of the damper when mounted in a factory sleeve and the relative space required for a given actuator. The standard mounting locations provide enough space for installation of retaining angles and duct connections.

	Damper Height	Actuator Model			
		FSLF230 FSLF24	FSNF230 FSNF24	GGD321 GGD121	MS4609 MS8109
F	6"-7"	5"	7"	9"	7"
	8"-9"	4"	7"	8"	6"
	10"-11"	1"	4"	6"	4"
	12"-13"	0"	3"	5"	3"
	14"	0"	2"	4"	2"
	15"-16"	0"	1"	3"	2"
	17"	0"	3"	5"	1"
	18" and 23"	0"	0"	0"	0"
	19"-20" and 25"	0"	0"	0"	0"
	21"-22" and 24"	0"	0"	0"	0"
T	26"-27"	0"	0"	0"	0"
	>27"	0"	0"	0"	0"
	6" and 10"	3"	3"	3"	3"
	7" and 11"-12"	2"	2"	2"	2"
	8", 13"-14" and 21"	1"	1"	1"	1"
S	9", 15"-17" and 20"	0"	0"	0"	0"
	18"-19"	0"	1"	1"	0"
	22"-23" and >24"	0"	0"	0"	0"
	24"	0"	0"	0"	0"
X	All	4-1/2"	4-1/2"	4-1/2"	4-1/2"
J	<8"	4"	4"	4"	4"
	≥8"	2-5/8"	2-5/8"	2-5/8"	2-5/8"
	<8"	2"	2"	2"	2"
	≥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 within 24" (610) of the wall, partition or floor.
 4. For dimensions on actuators not shown above and UL approved actuators, contact factory.

Airflow Performance Data (Pressure Loss vs. Velocity)

Figure 5.3 — Ducted Inlet and Outlet

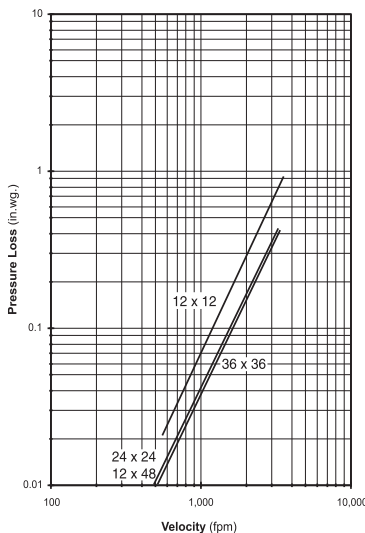


Figure 5.2 — Ducted Inlet

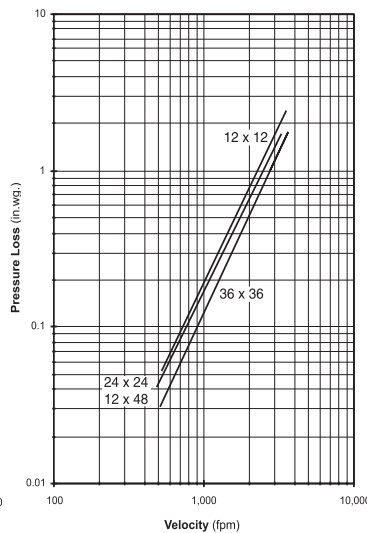
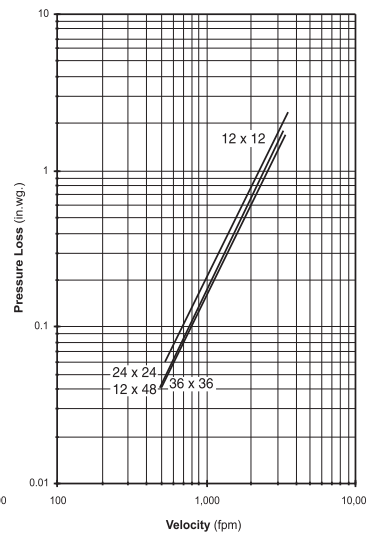


Figure 5.5 Plenum Mount



Ducted Inlet and Outlet

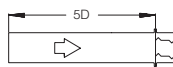
AMCA Figure 5.3 Illustrates a fully ducted damper. This configuration represents the lowest pressure drop of the three test configurations because entrance and exit losses are minimized by straight duct runs upstream and downstream of the damper.

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.

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.



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