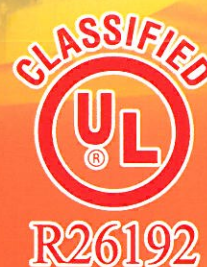




FSD Series

Fire & Smoke Dampers





FLOWTECH CO., LTD. certifies that the FSD11 shown herein are 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 Programs. The AMCA Certified Ratings Seal applies to air Leakage and air performance ratings only.



R26192 UL 555 listing: R26192



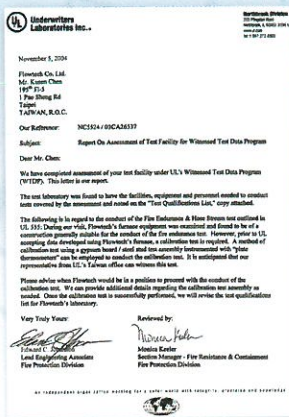
FSD Series

Fire & Smoke Dampers

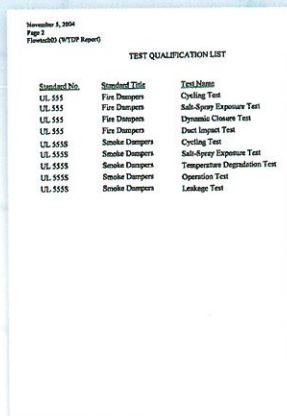


Ventilation Performance and Smoke management Laboratory

Any series of ventilation products such as fans, dampers required performance and quality requirements, can be provided by the laboratory for a full range of testing services. Technical requirements with an independent and impartial implementation for each test was supervision under by TAF, hence, all the domestic public works and fire safety related with ventilation products, do not have to shift the products to oversea for testing, and those owners and consultants would not have the trouble for witnessed commuting to foreign countries any more, this even saving more time and costs.



The only UL certification LAB. in ASIA.



TUV certificates



TAF LAB certificates



Fan Performance Testing Facility

Standards

- AMCA 210
- BS 848-1
- ISO 5801
- DIN 24163-2

Smoke Damper Leakage Testing Facility

Standards

- AMCA 500
- ISO 10294
- UL 555S
- GB 15930

Louver Pressure Drop Testing Facility

Standards

- AMCA 500

Silencer / Acoustical Louver Testing Facility

Standards

- ASTM-E477
- ISO 7235

Jet Fan Thrust Testing Facility

Standards

- ISO 13350
- BS 848-10

Fire Damper Testing Facility

Standards

- UL 555

Standards

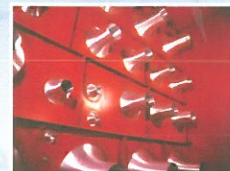
- AMCA 210
- AMCA 300
- AMCA 500
- AS 4429
- ASTM-E477
- ASHRAE 149
- DIN 24163-2
- BS 7346-2
- BS 848-1
- BS 848-2
- BS 848-10
- GA 211
- GB 15930
- EN 12101-3
- ISO 5801
- ISO 7235
- ISO 10294
- ISO 13350
- UL 555
- UL 555S



Exhaust Duct exit of Reverberant



Multiple Nozzles for Flow Measurement



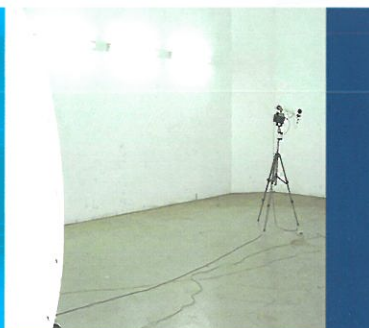
Reverberant Room
360°Routing Microphone in Reverberant



Flow Straightener

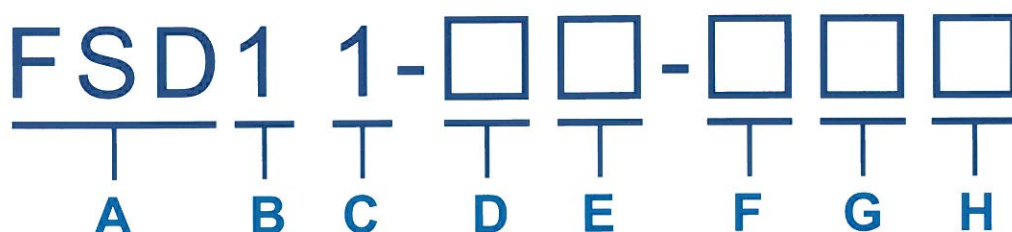


Silencer in Exhaust Duct

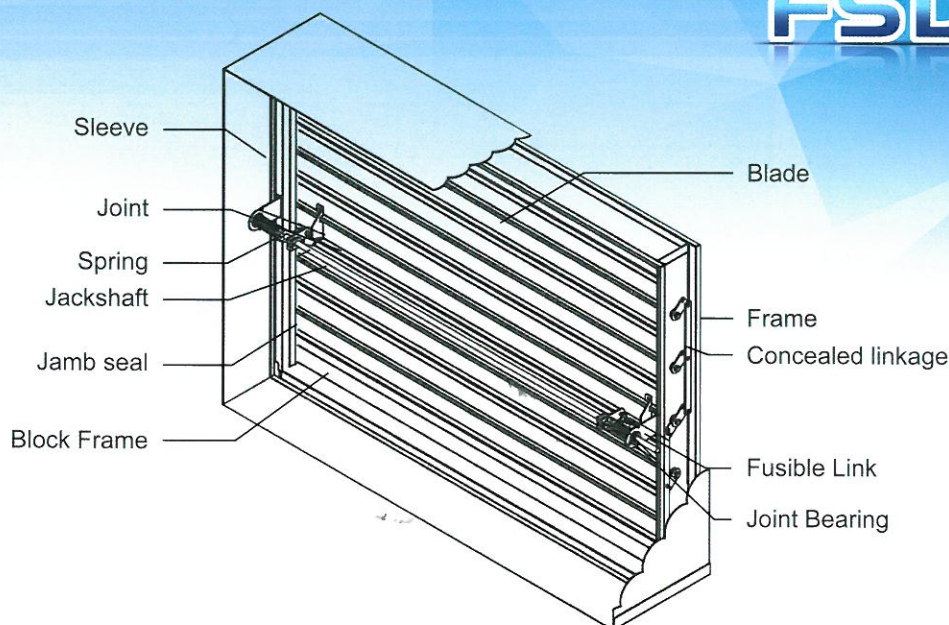


Application and design

The FSD11 Fire & Smoke Dampers employs triple-V blades and hat channel frame for point-of origin control of fire and smoke in static and dynamic smoke management systems. The Maximum Velocity Rating is 2000 ft/min (10.2 m/s), the Static Pressure Rating is 6 in-Wg (1.5kPa) in the duct, the Fire Resistance Rating is 3 hr, and the air leakage is Class I level. It may be used for the fire wall, dividing wall (the brick wall or the gypsum board) and the floor with the vertical mounting.



A. Product Type		F. Max Velocity (For UL Recognize)	
FSD	Fire & Smoke Damper	1	10.2 m/s (2000 fpm)
B. Blade Type		2	15.2 m/s (3000 fpm)
0	None	3	20.2 m/s (4000 fpm)
1	Triple Vee Blade	G. Max Pressure (For UL Recognize)	
C. Air Leakage		A.	0.5 kPa (2 in-Wg)
1	Class I	B.	1.0 kPa (4 in-Wg)
2	Class II	C.	1.5 kPa (6 in-Wg)
3	Class III	H. Temperature (For UL Recognize)	
D. Fire Rating (For UL Recognize)		A	74 °C (165°F) Operating
0	None	B	100 °C (212°F) Operating
E. Mounting (For UL Recognize)		C	121 °C (250°F) Operating
V	Vertical	D	141 °C (285°F) Operating
H	Horizontal	E	177 °C (350°F) Operating



Standard construction

Frame: 5"×1" (123mm×23mm) galvanized steel hat channel with interlocking corner gusset.

Blades: 6"×16 gauge (153mm×1.6mm) galvanized steel-triple-V.

Side-Plate: 12"×16 gauge (300mm×1.6mm) galvanized steel.

Jackshaft: 1/2" (12.5mm) diameter plated steel hex.

Linkage: Concealed in frame.

Bearings: Stainless steel oilite, sleeve-type.

Spring: Stainless steel.

Seals: Silicone blade edge seals and flexible metal mount.

Minimum Size: 12"×12" (305mm×305mm)

Maximum Size: 48"×36" (1220mm×914mm)

Multiple Size: 96"×72" (2440mm×1828mm)

For UL Certification

Ratings

UL 555 Fire Resistance Rating: 3 hour (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 UL555S Rated Pressure:

6 in.wg. (1.5 kPa)

Temperature: 160~350°F (71~177°C)

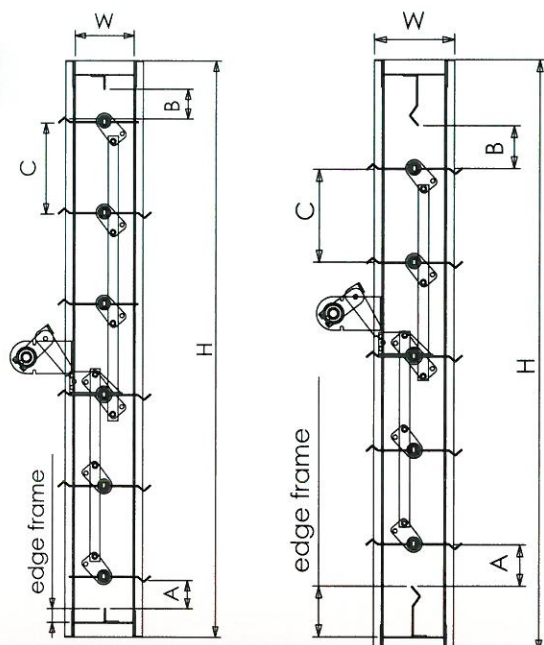
Listings

UL 555 and 555S listing: R26192

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

Minimum Size: 12"×8" (305×203mm)

Maximum Size: 24"×36" (610×914mm)

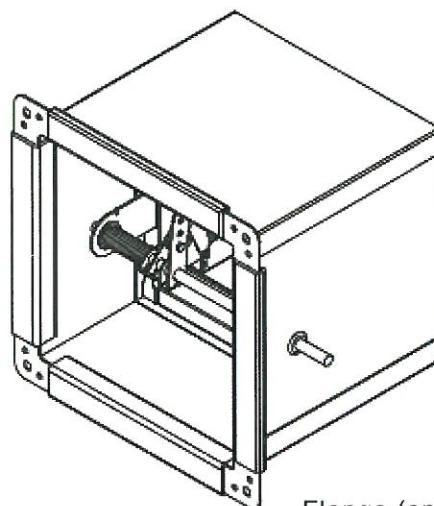


Type 1 ≤ 914mm×914mm

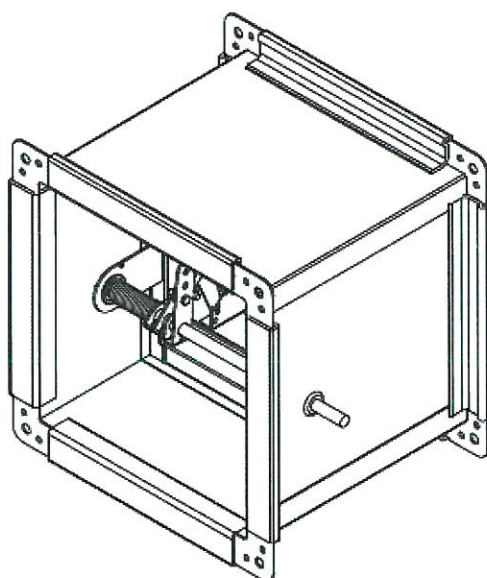
Type 2 > 914mm×914mm

Options

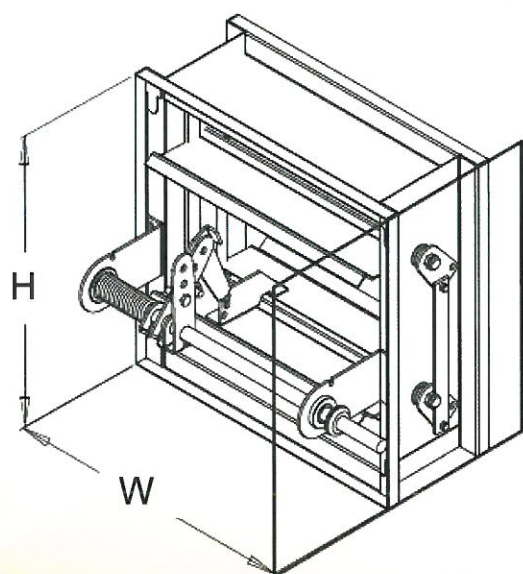
- ☐ Alternate actuator
 - ☐ 24 VDC ☐ 110 VAC ☐ 220 V AC
 - ☐ 7 N-m ☐ 13 N-m ☐ 20 N-m ☐ Other
- ☐ Factory installed sleeve:
 - Gauge: ☐ 19# (1.2mm) ☐ 16# (1.6mm)
 - Length: ☐ 12" (305mm) ☐ 16" (406mm)
- ☐ Factory installed:
 - ☐ Side plate (Standard) ☐ Flange
 - ☐ Double Flange ☐ Sleeve



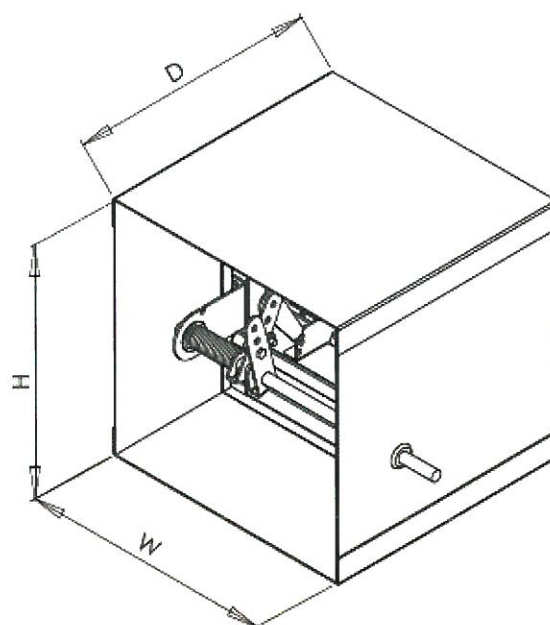
Flange (optional)



Double Flange (optional)



Side Plate (Standard)



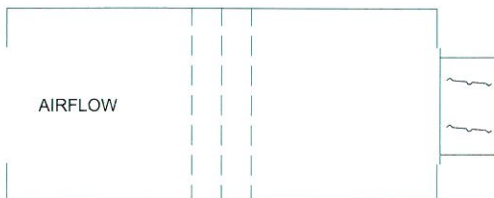
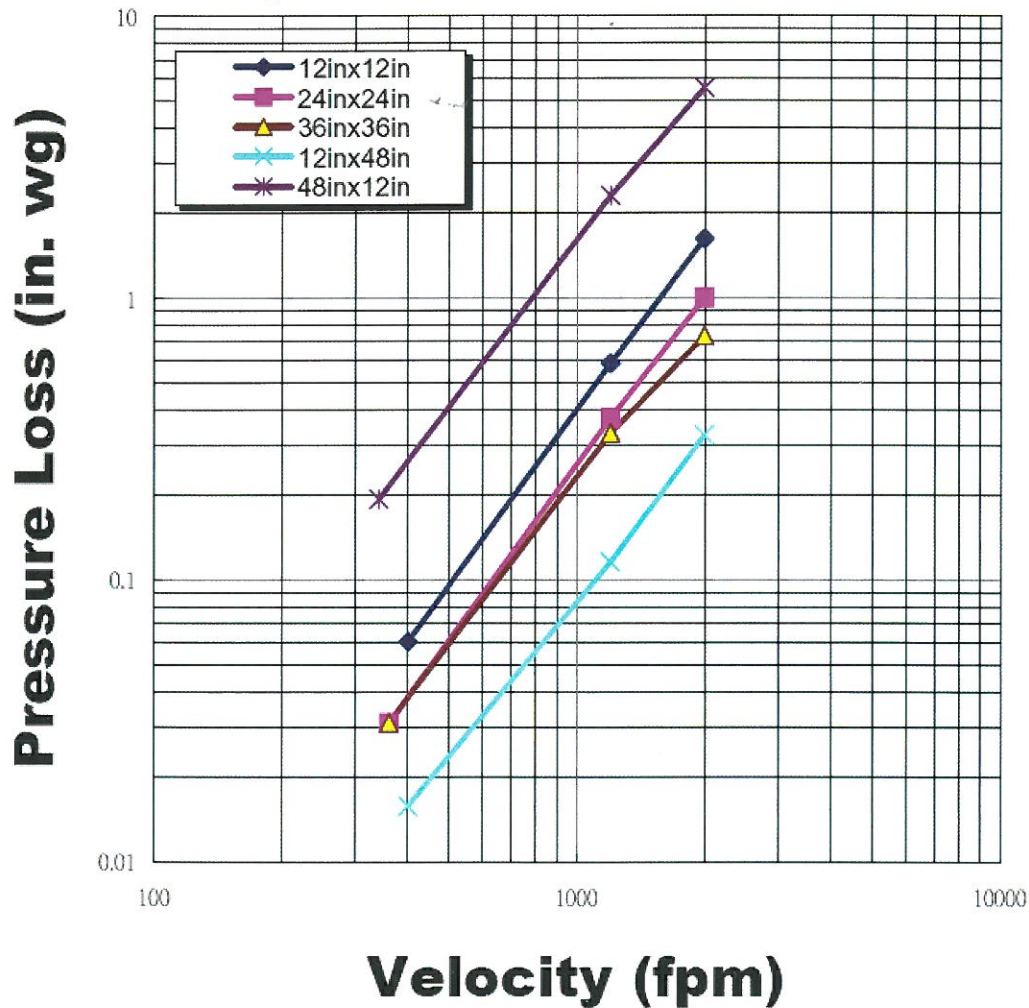
Sleeve (optional)

Performance Data

Pressure Loss

Figure 5.5

Setup Test with Inlet chamber



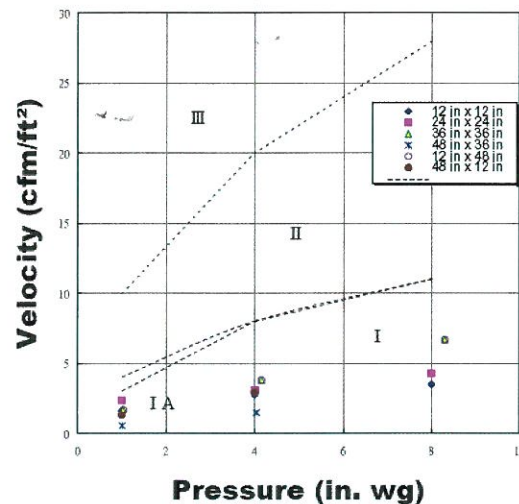
Plenum Mount

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.

Application and design

FSD11 series dampers had pass AMCA Certification, the damper can to fit class I leakage under 1 kPa and 2 kPa pressure conditions. Besides, the FSD11 require to ultra low leakage (class I A) under the 250Pa pressure.

Leakage Test

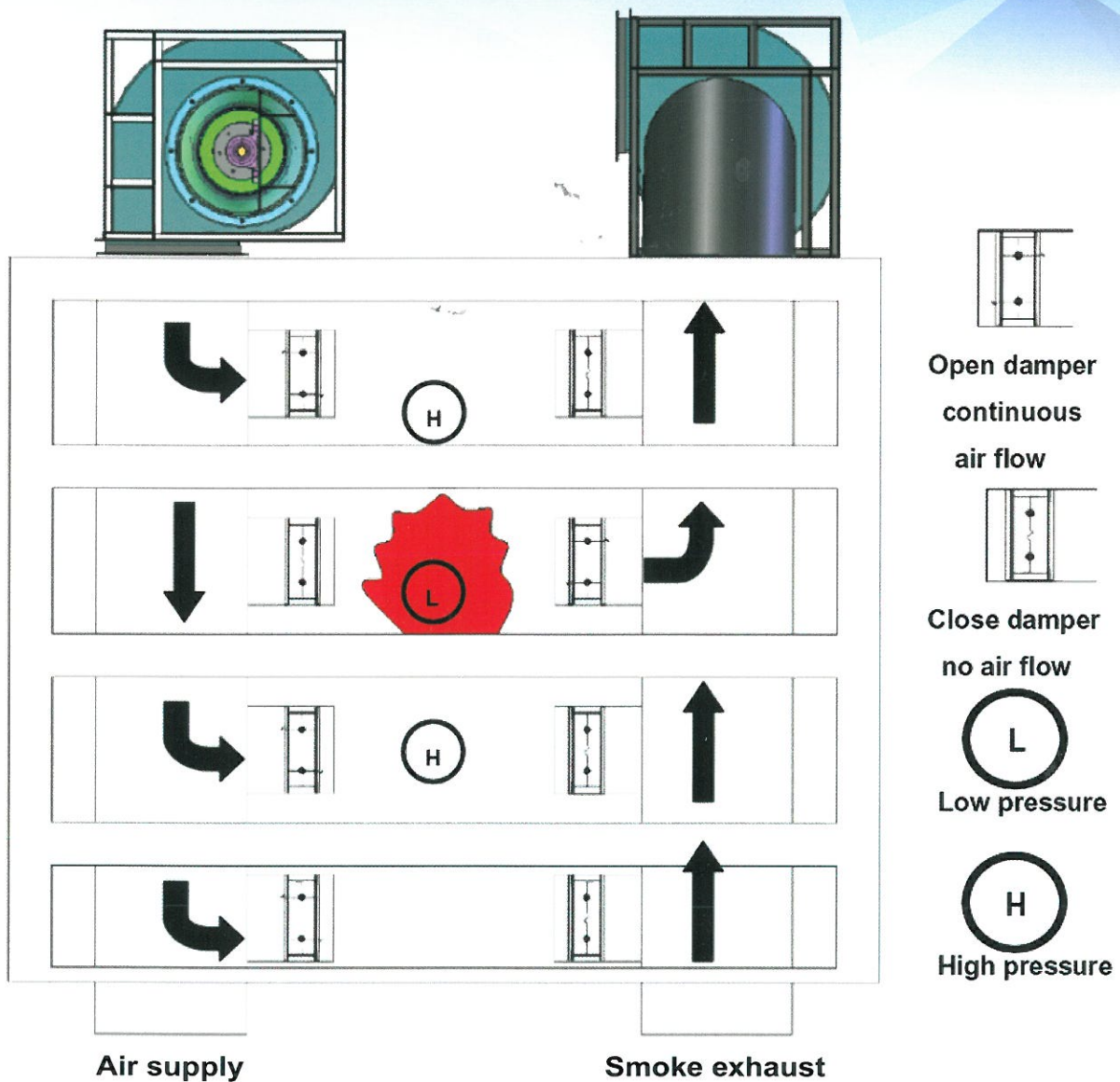


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- * Tested for air leakage in accordance with ANSI/AMCA Standard 500-D, Figure 5.6b.
- * Air leakage is based on operation between 10°C - 40°C (50°F - 104°F).
- * Data are based on a torque of 12.1 N-m/m² (10 lb-in/ft²) applied to close and seat the damper during the test.

Damper Size	Leakage Class Test Results	Leakage Class Test Results	Leakage Class Test Results
Damper Width mm (in.) x Height	250 Pa (1 in. wg) Class	1kPa (4 in. wg) Class	2kPa (8 in. wg) Class
305 (12) x 305 (12)	I A	I	I
610 (24) x 610 (24)	I A	I	I
914 (36) x 914 (36)	I A	I	N/A
305 (12) x 1220 (48)	I A	I	I
1220 (48) x 305 (12)	I A	I	N/A
1220 (48) x 914 (36)	I A	I	N/A

Damper Leakage Class	Damper Leakage Class	Damper Leakage Class
250 Pa (1 in. wg)	1kPa (4 in. wg)	2kPa (8 in. wg)
I A	I	I

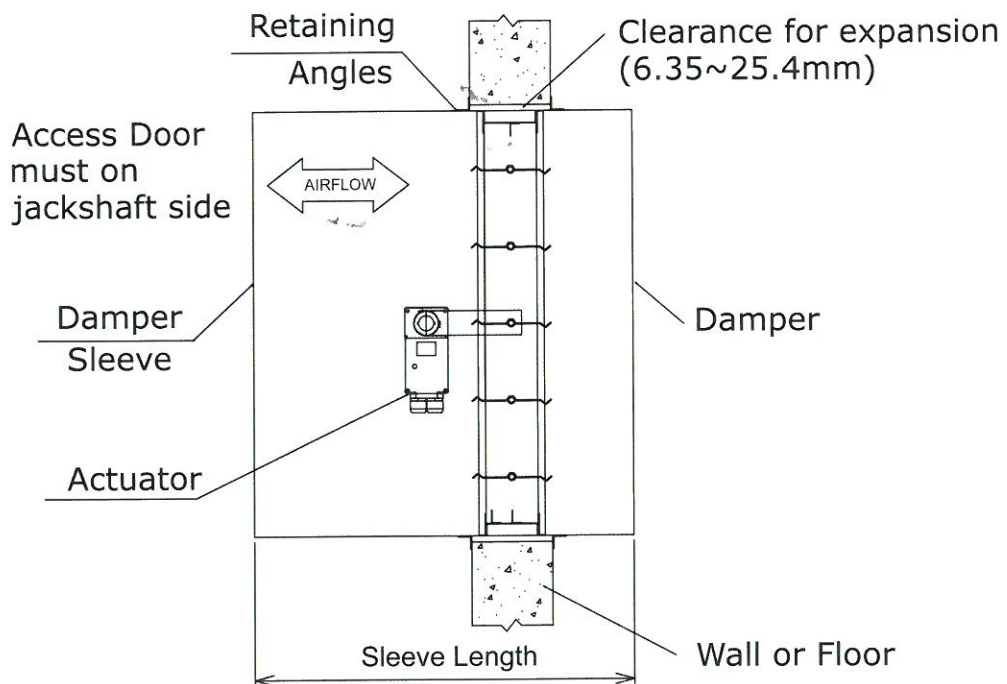


Damper Installation

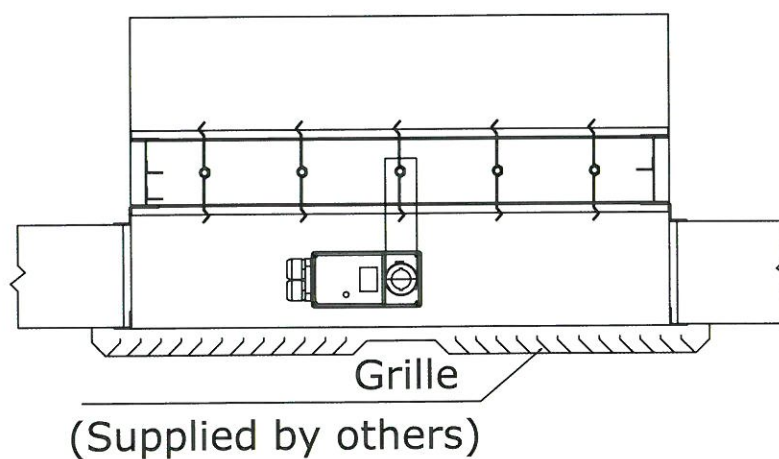
(1) Smoke Damper may be vertical the installment or the level installment.

Damper in vertical installs when should not surpass the partition wall 24" (610mm) °
 Damper installs in the level when should not be lower than the ceiling 31.5" (800mm)
 or installment in duct when should not surpass the duct base.

Vertical installation

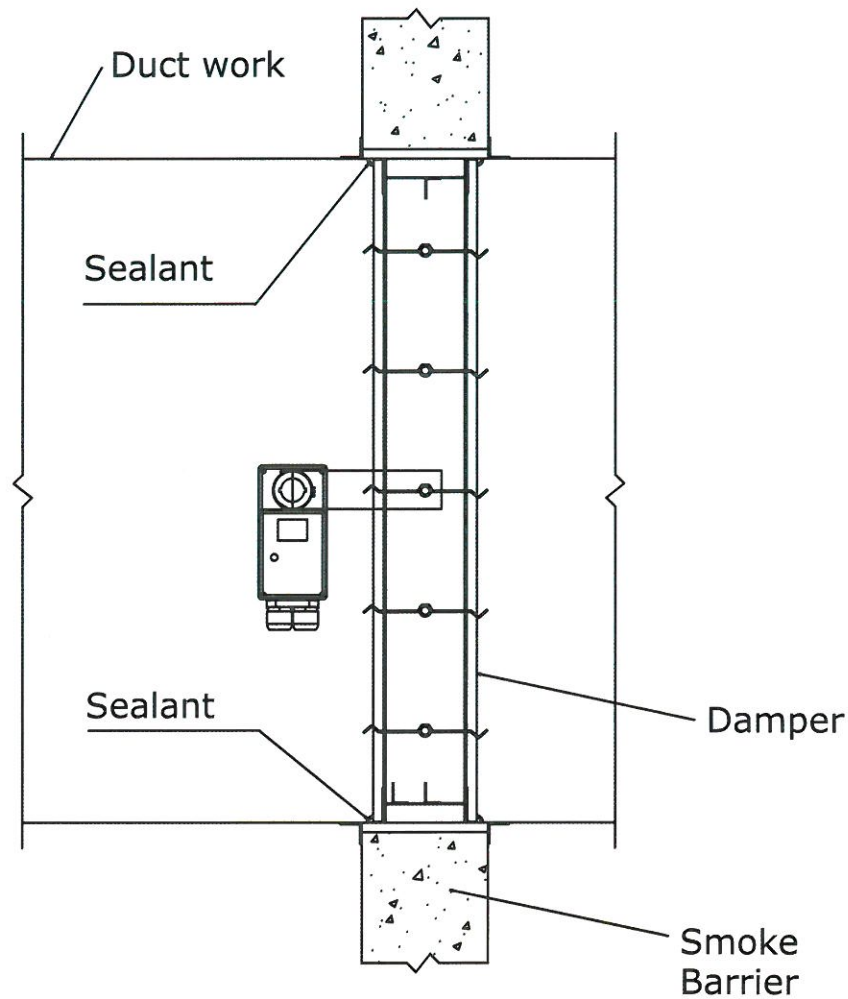


Horizontal installation

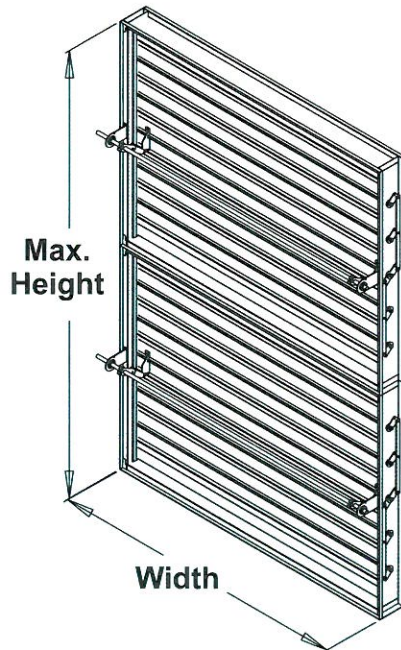


(2) SEALING THE INSTALLATION

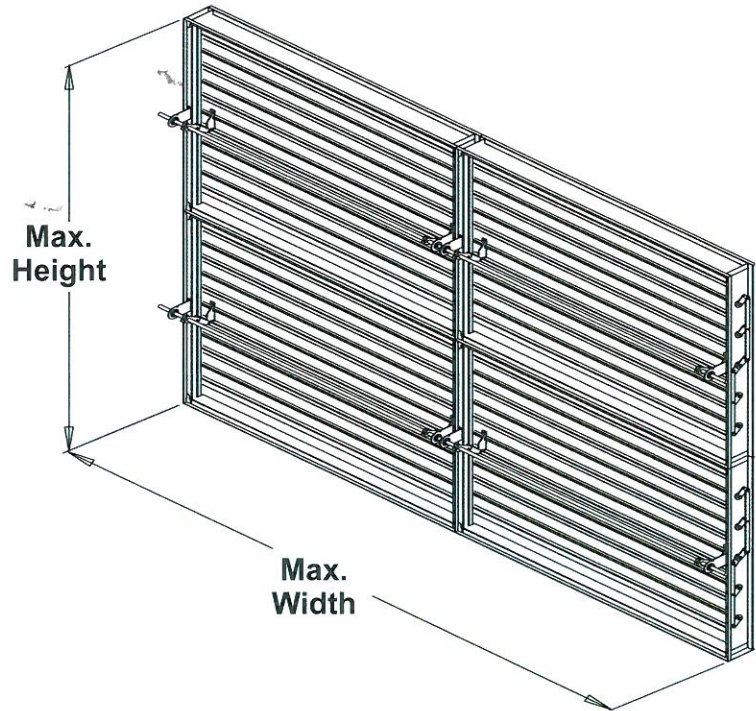
After installing the damper in ductwork, seal the joint between the damper frame and the duct using GE1200 Silicone Construction Sealant or Dow Corning RTV732 Sealant. Make sure to press the Sealant into the joint to guarantee proper seal. Use minimum amount of material required to completely seal the joint. Figure as follows,



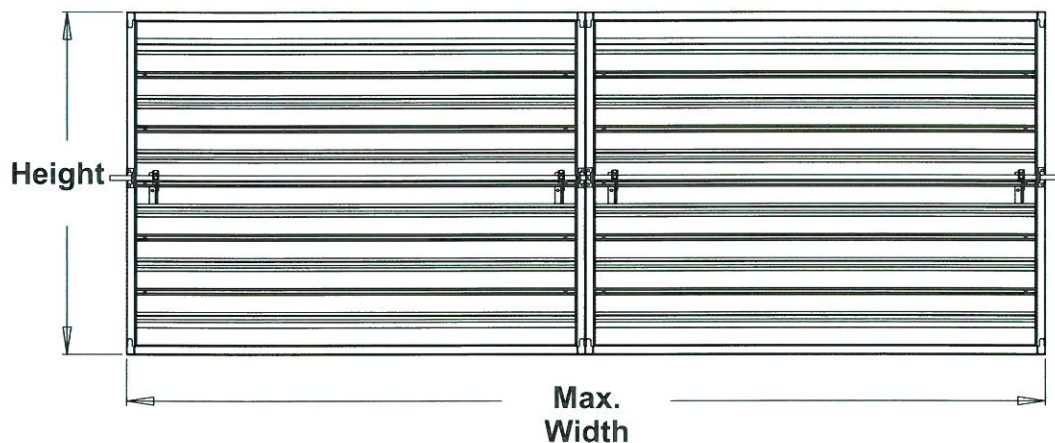
Max Height × Width (optional)



Max Height × Max Width (optional)



Height × Max Width (optional)



(3) Assembly damper installation

If the size of area surpasses the sole damper size (48"×36" or 1220mm×914mm) , shall be to use assembly damper. In the each of sole damper size, do not bigger than the product size specification (48"×36" or 1220mm×914mm) , and to install individual actuator. During assembly damper linking should by steel rivet, quick lock contact, spot welding, attacks screw, bolt or welds fixedly.



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CNo. : FSD11(E) August 2014

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