



# Model OFSD-311

Out of Wall Combination Fire Smoke Damper  
 UL555S Leakage Class I  
 UL555 1½ Hour Fire Resistance Rating

## Application

Model OFSD-311 is an 'out of wall' high performance combination fire smoke damper with Class I leakage. The OFSD-311 is approved for use in walls, partitions, and floors with fire resistance ratings less than 3 hours. Removal of wall grille allows access to the actuator and other components. High strength airfoil blades insure the lowest resistance to airflow in HVAC systems with velocities up to 4,000 fpm (20.3 m/s) and pressures up to 8 in. wg (2 kPa). Model OFSD-311 shall be installed vertically (with blades running horizontal) or horizontally and rated for airflow and leakage in either direction.

## UL555 Fire Resistance Ratings

<b>Fire Rating</b>	1½ hours in walls
<b>Dynamic Closure</b>	Actual ratings are size dependent
<b>Maximum Velocity</b>	Up to 4,000 fpm (20.3 m/s)
<b>Maximum Pressure</b>	Up to 8 in. wg (2 kPa) - differential pressure

## UL555S Leakage Ratings

<b>Leakage Class</b>	I
<b>Operational Rating</b>	Actual ratings are size dependent
<b>Maximum Velocity</b>	Up to 4,000 fpm (20.3 m/s)
<b>Maximum Temperature</b>	350°F (177°C) - actuator dependent

## Size Limitations

WxH	Minimum Size	Maximum Size	
		Single Section	Multiple Section
Inches	8 x 8	32 x 30	36 x 36
mm	203 x 203	813 x 762	914 x 914



Grille is not provided.

W & H dimensions furnished approximately ¼ in. (6mm) undersize. Add blanket thickness (⅛ in. 3mm) and sleeve thickness for overall sleeved damper dimension.

Oversize wall opening as follows: Nominal damper size plus ⅜ in. (9.5mm).



See complete marking on product.

UL 555 and UL 555S  
 Classification R13317

Model OFSD-311 meets the requirements for fire dampers, smoke dampers and combination fire smoke dampers established by:

**National Fire Protection Association**  
 NFPA Standards 80, 90A, 92, 101 & 105

**IBC International Building Codes**

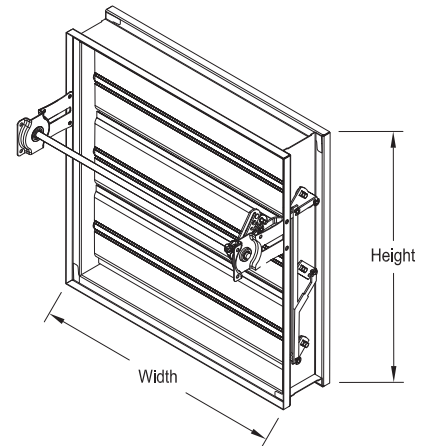
## Construction

	Standard	Optional
<b>Frame Material</b>	Galvanized Steel	-
<b>Frame Thickness</b>	16 ga. (1.5mm)	-
<b>Frame Type</b>	5 in. x 1 in. (127mm x 25mm) hat channel	-
<b>Blade Action</b>	Opposed	-
<b>Blade Material</b>	Galvanized Steel	-
<b>Blade Thickness</b>	14 ga. (2mm) equivalent	-
<b>Blade Type</b>	Airfoil	-
<b>Blade Orientation</b>	Horizontal	-
<b>Linkage</b>	Plated steel out of air-stream, concealed in jamb	316SS
<b>Axle Bearings</b>	316SS	-
<b>Axle Material</b>	Plated Steel	316SS
<b>Blade Seals</b>	Silicone	-
<b>Jamb Seals</b>	Stainless Steel	-
<b>Closure Device</b>	RRL	RRL/OCI, TOR, Fusible Link
<b>Closure Temperature</b>	165°F (74°C)	212°F (100°C), 250°F (121°C), 286°F (141°C)*, 350°F (177°C)
<b>Mounting</b>	Vertical	Horizontal

\* only available with fusible link

### Note:

The frames are constructed with reinforced corners. Low profile head and sill are used on sizes less than 17 in. (432 mm) high for lower pressure drop and improved damper performance.

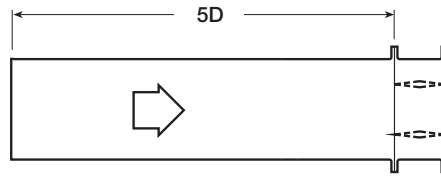


## Options

- BACnet test module - 120V or 24V
- Clean wrap
- GTS test switches
- Grille tabs
- Momentary test switch
- Retaining angles
- Sealed transitions and sleeves
- Smoke detector - no flow or low flow
- Transitions: R, C, O

# Pressure Drop

## AMCA Figure 5.2



12 in. x 12 in. (305mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.11
1500	0.24
2000	0.42
2500	0.66
3000	0.95
3500	1.30
4000	1.70

24 in. x 24 in. (610mm x 610mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.06
1500	0.12
2000	0.22
2500	0.34
3000	0.49
3500	0.67
4000	0.87

36in. x 36 in. (914mm x 914mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.05
1500	0.12
2000	0.21
2500	0.32
3000	0.47
3500	0.63
4000	0.83

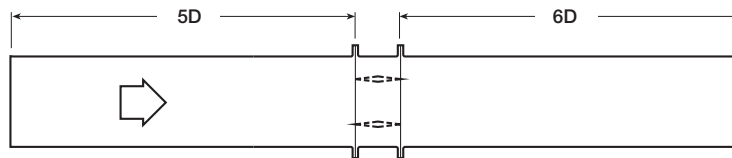
12in. X 48 in. (305mm x 1219mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.05
1500	0.12
2000	0.21
2500	0.33
3000	0.48
3500	0.65
4000	0.85

48 in. x 12 in. (1219mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.02
1000	0.08
1500	0.18
2000	0.33
2500	0.51
3000	0.74
3500	1.00
4000	1.31

## AMCA Figure 5.3



12 in. x 12 in. (305mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.06
1500	0.13
2000	0.23
2500	0.37
3000	0.53
3500	0.73
4000	0.95

24 in. x 24 in. (610mm x 610mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.02
1500	0.06
2000	0.10
2500	0.16
3000	0.23
3500	0.32
4000	0.42

36in. x 36 in. (914mm x 914mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.02
1500	0.05
2000	0.09
2500	0.14
3000	0.21
3500	0.29
4000	0.38

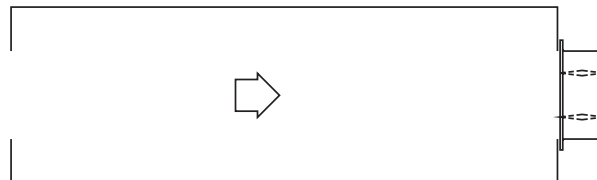
12in. X 48 in. (305mm x 1219mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.03
1500	0.06
2000	0.11
2500	0.18
3000	0.25
3500	0.34
4000	0.45

48 in. x 12 in. (1219mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.10
2000	0.18
2500	0.29
3000	0.42
3500	0.57
4000	0.74

## AMCA Figure 5.5



12 in. x 12 in. (305mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.04
1000	0.18
1500	0.42
2000	0.75
2500	1.17
3000	1.68
3500	2.29
4000	2.09

24 in. x 24 in. (610mm x 610mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.13
1500	0.29
2000	0.52
2500	0.81
3000	1.17
3500	1.60
4000	2.14

36in. x 36 in. (914mm x 914mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.12
1500	0.27
2000	0.48
2500	0.75
3000	1.08
3500	1.48
4000	1.93

12in. X 48 in. (305mm x 1219mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.12
1500	0.27
2000	0.49
2500	0.77
3000	1.11
3500	1.51
4000	1.97

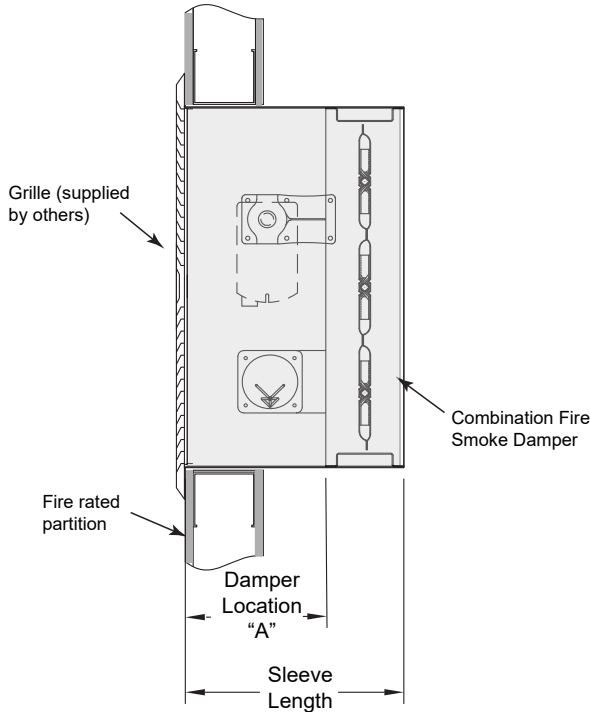
48 in. x 12 in. (1219mm x 305mm)

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.14
1500	0.32
2000	0.57
2500	0.89
3000	1.28
3500	1.75
4000	2.29

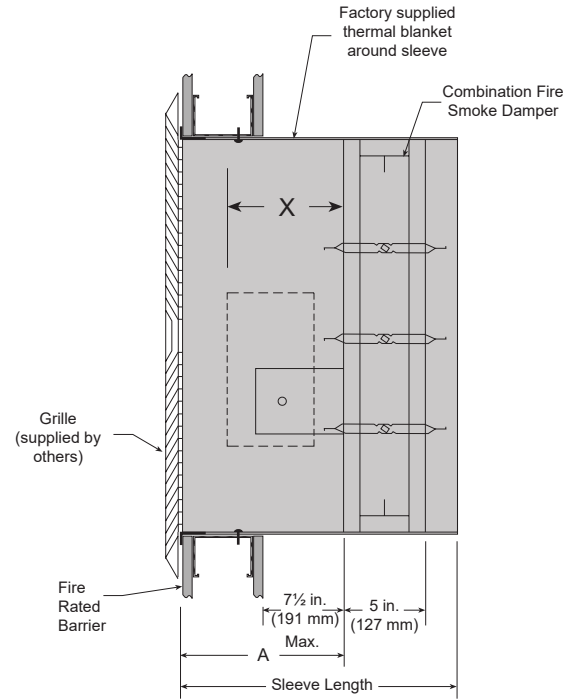
# Application Data

## Actuator Space Envelopes

The drawing below and corresponding table show the minimum dimensions required for internal actuator mounting on OFSD-311. The standard mounting locations provide enough space for the mounting of actuators and controls plus allowing space for a grille.



OFSD's that don't require a breakaway connection



OFSD's that require a breakaway connection

Actuator Type/Model	'X' Dimension
FSLF24-S, 120, 230-S Belimo	7½ in (191 mm)
FSNF24, 120, 230-S Belimo	7⅝ in. (187mm)
FSTF24, 120, 230-S Belimo	7⅞ in (181 mm)
MSXX09 Series Honeywell	7½ in (191 mm)
MSXX04 Series Honeywell	7½ in (191 mm)
MSXX20 Series Honeywell	7½ in (191 mm)

## Sleeve Information

Sleeve length is dependent on actuator, grille depth, OBD depth, and damper height and whether or not a breakaway connection is required on the side opposite the actuator.

'Sleeve Gauge' = 16 ga. or 20 ga. (1.5mm or 1mm)

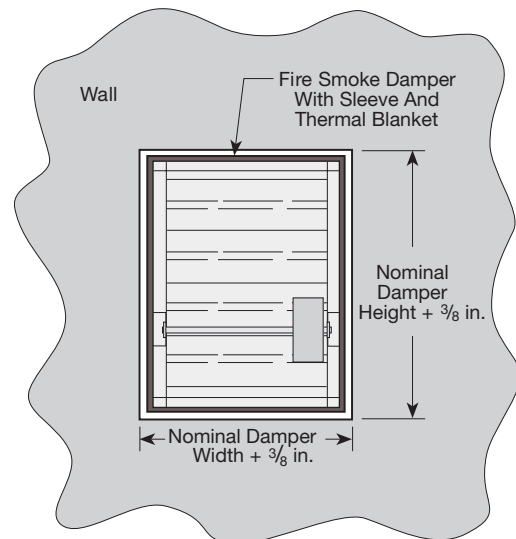
## Wall Opening Sizing

To accommodate for sleeve and thermal blanket thickness, the wall opening must be oversized by 3/8 in. (9.5mm) as shown.

For example:

If the nominal damper size required is 18 in. x 14 in. (457mm x 356mm), the wall opening size needs to be 18 3/8 in. x 14 3/8 in. (467mm x 365mm).

The damper itself is undersized a 1/4 in. (6mm) on each dimension for an actual size of 17 3/4 in. x 13 3/4 in. (451mm x 349mm). This is also the inside dimension of the sleeve (for grille considerations).



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