

Application

Model CFSD-211 is a combination fire smoke damper that is UL classified 1 hour fire rated corridor ceiling penetrations. It can also be used as a 1½ hour fire rated combination fire smoke damper when installed in rated walls and floors.

This model has an operational rating of 2,000 fpm (10.2 m/s) and 6 in. wg (1.5 kPa) far exceeding the air flows and pressure differences normally encountered when installed above grilles or diffusers in corridor ceilings - providing an extra measure of safety. CFSD-211 is rated for airflow and leakage in either direction.

Ratings

UL 555 Fire Resistance Rating

Fire Rating: 1 hour in corridor ceilings (1½ hours when installed in rated walls and floors)

Dynamic Closure Rating: Actual ratings are size dependent

Velocity: Up to 2000 fpm (10.2 m/s)

Pressure: Up to 4 in. wg (1 kPa)

UL 555S Leakage Rating

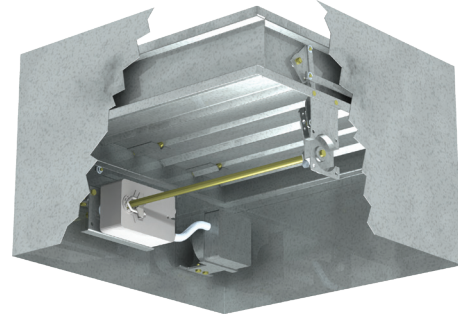
Leakage Class: I

Operational Rating: Actual ratings are size dependent

Velocity: Up to 2000 fpm (10.2 m/s)

Pressure: Up to 6 in. wg (1.5 kPa)

Temperature: Up to 350°F (177°C) - depending upon the actuator



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



See complete marking on product.

UL 555 and UL 555S
Classification R13317

Model CFSD-211 meets the requirements for corridor ceiling, smoke, and combination fire smoke dampers established by:

- National Fire Protection Association
NFPA Standards 80/ 90A, 92, 101, and 105
- International Building Codes (IBC)
- CSFM California State Fire Marshal
Leakage (Smoke) Listing
(#3230-0981:0105 and 3225-0981:106)

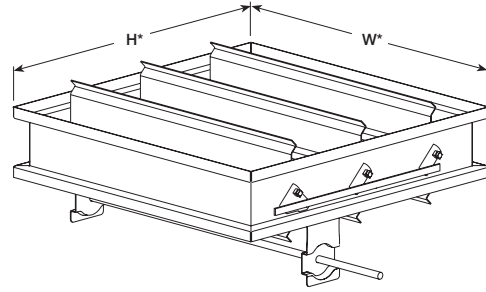
Size Limitations

W x H	Minimum Size			Maximum Size
	Configuration 1	Configuration 2	Configuration 3	Single Section
Inches	8 x 8	6 x 6*	6 x 6*	24 x 24
mm	203 x 203	152 x 152	152 x 152	610 x 610

* Overall damper size is 8 in. x 6 in. (203 mm x 152 mm).

Construction

	Standard	Optional
Frame Material	Galvanized steel	-
Frame Material Thickness	16 ga. (1.5mm)	-
Frame Type	5 in. x 1 in. (127mm x 25mm) hat channel	-
Blade Action	Parallel	-
Blade Material	Galvanized steel	-
Blade Material Thickness	16 ga. (1.5mm)	-
Blade Type	3V	-
Blade Orientation	Horizontal	-
Linkage	Plated steel out of airstream, concealed in jamb	-
Axle Bearings	316SS	-
Axle Material	Plated steel	-
Blade Seals	Silicone	-
Jamb Seals	Stainless Steel	-
Closure Device	RRL	RRL/OCI, TOR, Fusible Link
Closure Temperature	165°F (74°C)	212°F (100°C), 250°F (121°C) 286°F (141°C)* 350°F (177°C)
Mounting	Horizontal	Vertical



*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](#)
- [BACnet test module - 24V](#)
- Breakaway connections
- Clean wrap
- [Greenheck test switches \(GTS\)](#)
- [Grille Tabs](#)
- [Momentary test switch](#)
- [OCI \(Open Closed Indicator switch\)](#) - available when fusible link selected
- [Retaining angles](#)
- Sealed transitions and sleeves
- [Smoke detector - No flow](#)
- [Smoke detector - low flow](#)
- Transitions: C, O, R

AMCA Pressure Drop

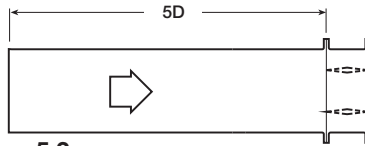


Figure 5.2

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.04
1000	0.14
1500	0.31
2000	0.55
2500	0.86
3000	1.24
3500	1.69
4000	2.20

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.02
1000	0.07
1500	0.16
2000	0.29
2500	0.45
3000	0.65
3500	0.89
4000	1.16

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.09
2000	0.16
2500	0.25
3000	0.36
3500	0.49
4000	0.64

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.06
1500	0.13
2000	0.23
2500	0.36
3000	0.52
3500	0.70
4000	0.92

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.10
1500	0.23
2000	0.41
2500	0.63
3000	0.91
3500	1.24
4000	1.62

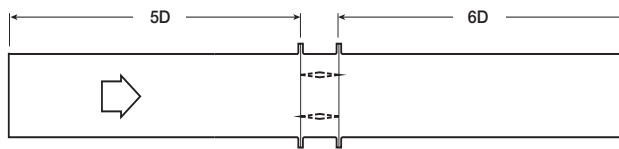


Figure 5.3

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.02
1000	0.09
1500	0.20
2000	0.36
2500	0.56
3000	0.81
3500	1.10
4000	1.44

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.09
2000	0.16
2500	0.25
3000	0.35
3500	0.48
4000	0.63

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.03
1500	0.06
2000	0.11
2500	0.17
3000	0.24
3500	0.33
4000	0.42

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.01
1000	0.04
1500	0.10
2000	0.17
2500	0.27
3000	0.39
3500	0.53
4000	0.70

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.02
1000	0.07
1500	0.16
2000	0.29
2500	0.45
3000	0.64
3500	0.88
4000	1.14

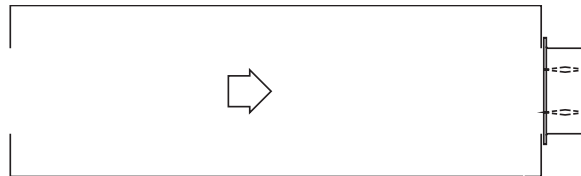


Figure 5.5

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.06
1000	0.22
1500	0.50
2000	0.89
2500	1.39
3000	2.00
3500	2.72
4000	3.55

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.14
1500	0.31
2000	0.54
2500	0.85
3000	1.22
3500	1.66
4000	2.17

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.12
1500	0.26
2000	0.46
2500	0.73
3000	1.05
3500	1.42
4000	1.86

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.03
1000	0.13
1500	0.30
2000	0.53
2500	0.83
3000	1.19
3500	1.62
4000	2.11

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

Velocity (fpm)	Pressure Drop (in. wg)
500	0.04
1000	0.17
1500	0.38
2000	0.67
2500	1.04
3000	1.50
3500	2.05
4000	2.67

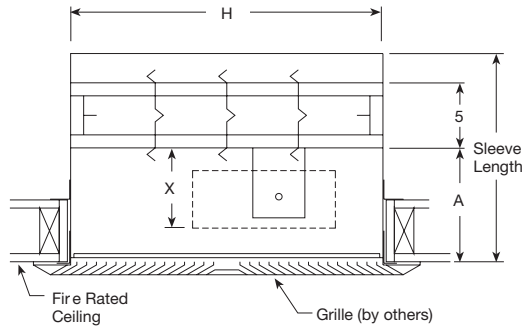


Greenheck Fan Corporation certifies that the model CFSD-211 shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Programs. The AMCA Certified Ratings Seal applies to air performance ratings only.

Configuration Space Envelopes

CFSD-211 is available in 3 different configurations to accommodate a variety of installation and access requirements. Drawings below illustrate these different configurations and their associated dimensions.

Configuration #1 – Fire Rated Ceiling Is The Finished Ceiling: Actuator (Internal Only) Accessible Through The Grille



'A' Dimension Standard

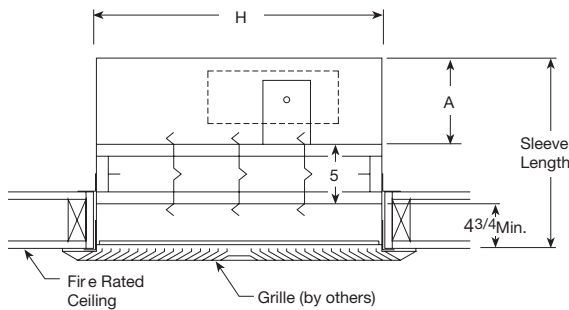
If damper height is less than 11 in. (279mm) then,

$$A = 12 + \text{grille depth} + \text{OBD}$$

If damper height is greater than or equal to 11 in. (279mm) then,

$$A = 7.188 + \text{grille depth} + \text{OBD}$$

Configuration #2 – Fire Rated Ceiling Is The Finished Ceiling: Actuator (Internal or External) Accessible Above Finished Ceiling



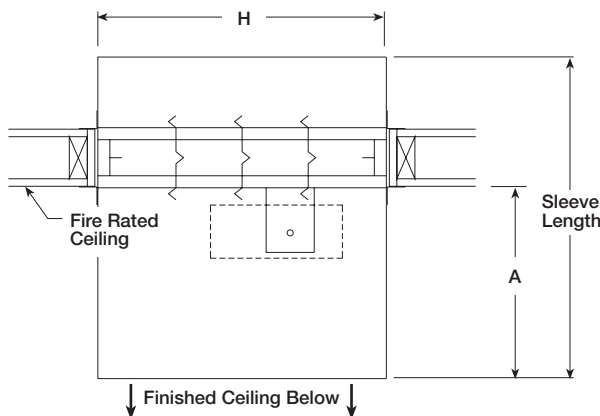
Configuration #2 is for applications where the fire rated ceiling is the finished ceiling but where access to the damper actuator is available from above the finished ceiling. Actuators can be mounted internally or externally. Clearance must be maintained between damper and grille for proper operation.

All dimensions shown are in inches (mm)

	'A' Dimension Standard	Minimum Sleeve Length
When OCI, RRL, or TOR, H dimension less than 11 in. (279mm)	12 (305)	21 (533)
All other dampers	7 3/16 (182)	16 (406)

Minimum Size Internal: 12 in. x 12 in. (305mm x 305mm)

Configuration #3 – Fire Rated Ceiling Is Above The Finished Ceiling: Actuator (Internal or External) Accessible Through Finished Ceiling



Configuration #3 is for applications where the fire rated ceiling is above the finished ceiling. Actuators can be mounted internally or externally.

All dimensions shown are in inches (mm)

	'A' Dimension Standard	Minimum Sleeve Length
When OCI, RRL, or TOR, H dimension less than 11 in. (279mm)	12 (305)	21 (533)
All other dampers	7 3/16 (182)	16 (406)

Minimum Size Internal: 12 in. x 12 in. (305mm x 305mm)



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