

Reference:

Client:

Project:

Consultant:

Location:

Contractor:

Date:

Submitted by: BM



**BADR and ASFOUR**  
Engineering & Metal Industries

### Model FD

Static Curtain Fire Damper  
1-½ or 3 Hour, UL555 Classified

### Application:

The BAS/CVS model FD fire damper utilizes a curtain style blade to prevent the spread of fire through a penetration in a fire rated barrier made by an HVAC duct or transfer. The FD can be installed vertically or horizontally and is meant for static HVAC systems (fans turn off in a fire) only.

### Standard Construction:

	Standard	Optional
<b>Frame Material</b>	22 Gauge Galvanized Roll-formed Steel	20 Gauge Galvanized (For integral Sleeve only)
<b>Blade Material and Type</b>	22 Gauge Galvanized Roll-formed Steel	-----
<b>Frame Depth</b>	3-11/16" (94)	2-3/8" (55) [see Model FD-SL] 1-½" (38) [see Model FD-USL]
<b>Dimensions</b>	Actual - 1/4" (6)	Actual
<b>Closure Spring</b>	Stainless Steel (Horizontal)	Stainless Steel (Vertical)
<b>Fusible Link</b>	165° (74°C)	212° (100°C)
<b>Mounting</b>	Vertical	Horizontal
<b>UL Hour Rating</b>	1-1/2 Hour	3 Hour

All dimensions shown in inches, parentheses ( ) indicate millimeters.

### Optional Construction:

#### 3-Hour Rating

#### 212° Fusible Link

#### Factory Installed External Sleeve:

Length: 12 (305) 16 (406) 24 (610) Other: \_\_\_\_\_

Gauge: 20 (1.0) 18 (1.2) 16 (1.5) 14 (2.0) Other:.....

Location in Sleeve: Standard Offset: \_\_\_\_\_ inches

#### Factory Installed Integral Sleeve:

Length: 12 (305) 14 (356) 16 (406)

Gauge: 20 (1.0) 18 (1.2)

#### Flanged Sleeve (requires factory installed external sleeve):

3/4" (19) 1" (25)

#### Framed Retaining Angles - 16 ga. x 1½ x 1½ (1.5x38x38)

Single Side Dual Side

### Other Options:

- Dynamic models (see Model FDD)
- Multi-Blade models (see Model FD-MB)
- Slimline and Ultra Slimline models (see Models FD-SL and FD-USL)
- Out-of-wall models (see Model FD-OW)
- True Round models (see Model FD-RD)



### LISTINGS:

UL 555 Listing: R27700(UAE), R41135(KSA), R40068(Qatar), R41122(Egypt)

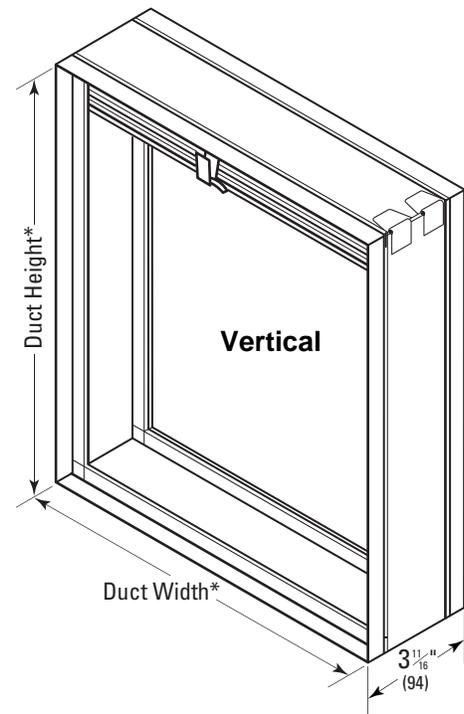


### STANDARDS MET:

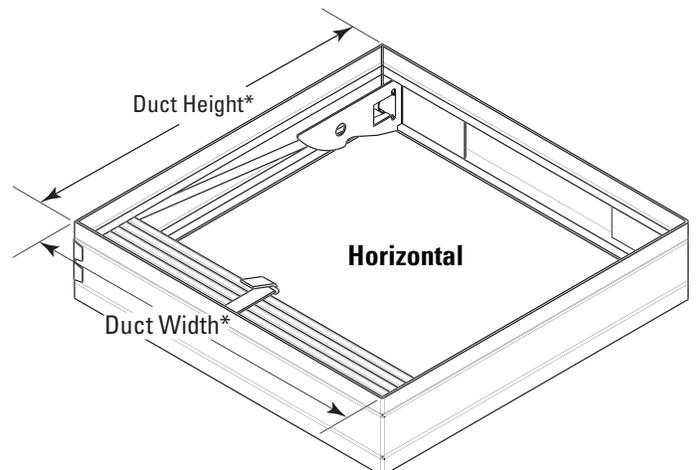
NFPA Standards: 80, 90A, 92A, 92B and 101

Building Code Standard:

ICC International Building Code



\*Damper width and height will be undercut 1/4" (6).



As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

**Type A Static Curtain Fire Damper**

- For use in static HVAC systems (fans off)
- Frame and blade stack in air stream
- Approximately 75-85% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-A Minimum & Maximum Sizes:**

Type A Model	Minimum Size		Max. Single Section		Max. Multi-Section	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-A (Vertical)</b>	4x4 (102x102)		60x60 (1524x1524)	48x48 (1219x1219)	120x120 (3048x3048)	80x40 (2032x1016)
<b>FD-A (Horizontal)</b>			40x40 (1016x1016) or 48x48 (1219x1219)	40x40 (1016x1016)	120x40 (3048x1016) or 96x48 (2438x1219)	80x40 (2032x1016)

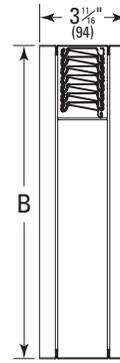
All dimensions shown in inches, parentheses ( ) indicate millimeters.

A Dimension = Duct Width

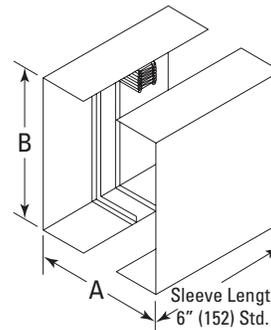
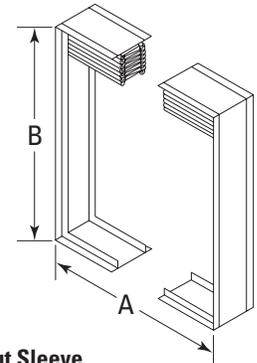
B Dimension = Duct Height

**Notes:**

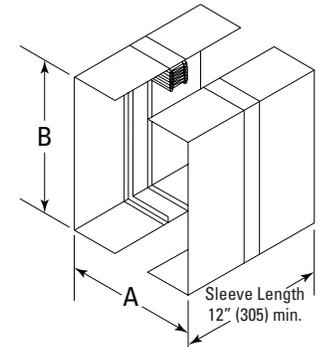
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.



**Type A without Sleeve**



**Type A with External Sleeve**



**Type A with Integral Sleeve<sup>1</sup>**

**Type B Static Curtain Fire Damper**

- For use in static HVAC systems (fans off)
- Blade stack out of airstream
- Approximately 80-90% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-B Minimum & Maximum Sizes:**

Type B Model	Minimum Size		Max. Single Section		Max. Multi-Section <sup>2</sup>	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-B (Vertical)</b>	4x3 (102x76)		60x55 (1524x1397)	48x43 (1219x1092)	120x115 (3048x2921)	80x36 (2032x914)
<b>FD-B (Horizontal)</b>			40x36 (1016x914) or 48x43 (1219x1092)	40x36 (1016x914)	120x36 (3048x914) or 96x43 (2438x1092)	80x36 (2032x914)

All dimensions shown in inches, parentheses ( ) indicate millimeters.

A Dimension = Duct Width

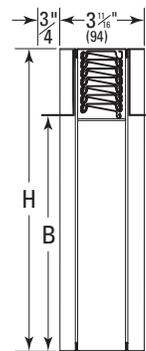
B Dimension = Duct Height

X Dimension = Height of Blade Stack

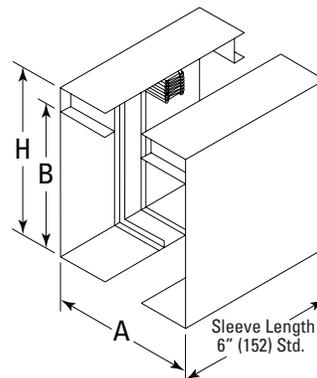
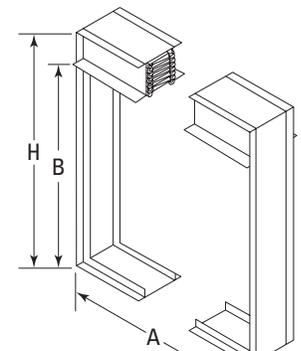
H Dimension = Overall Damper Height (B+X)

**Notes:**

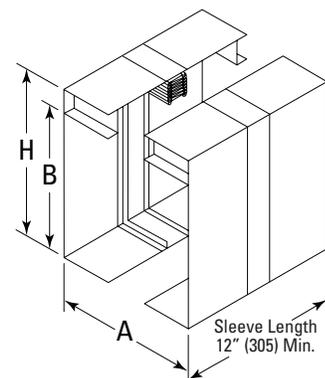
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.
2. Multi-section dampers will have frame in the airstream, and blades for vertical models more than one damper high.



**Type B without Sleeve**



**Type B with External Sleeve**



**Type B with Integral Sleeve<sup>1</sup>**

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

**Submittal**

**Type C-S/R Static Curtain Fire Damper**  
Square or Rectangular Transition

- For use in static HVAC systems (fans off)
- Frame and blade stack out of airstream
- Approximately 95-100% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-C-S/R Minimum & Maximum Sizes:**

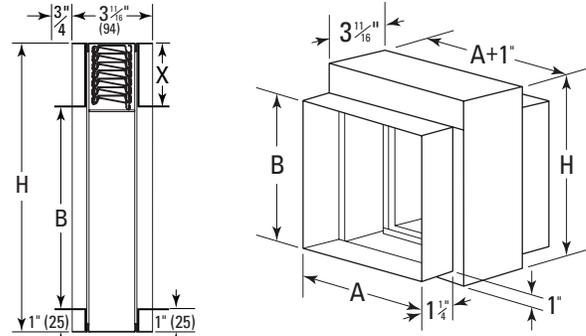
Rect./ Square Transition Type C Model	Minimum Size		Max. Single Section		Max. Multi-Section <sup>2</sup>	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-C-S/R (Vertical)</b>	3x3 (76x76)		59x54 (1499x1372)	47x42 (1194x1067)	119x114 (3023x2896)	79x35 (2007x889)
<b>FD-C-S/R (Horizontal)</b>			47x42 (1194x1067)	39x35 (991x889)	119x35 (3023x889) or 90x42 (2286x1067)	79x35 (2007x889)

All dimensions shown in inches, parentheses ( ) indicate millimeters.

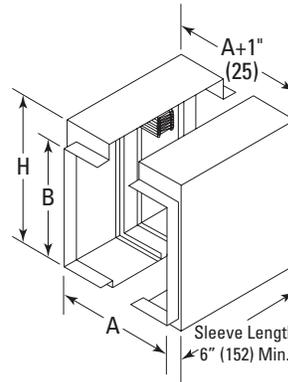
- A Dimension = Duct Width
- B Dimension = Duct Height
- X Dimension = Height of Blade Stack
- H Dimension = Overall Damper Height (B+X+1")

**Notes:**

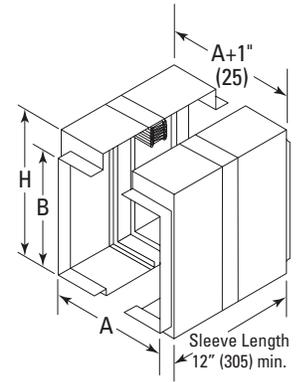
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.
2. Multi-section dampers will have frame in the airstream, and blades for vertical models more than one damper high.



Type C-S/R without Sleeve



Type C-S/R with External Sleeve



Type C-S/R with Integral Sleeve<sup>1</sup>

**Type C-OV Static Curtain Fire Damper**  
Oval Transition

- For use in static HVAC systems (fans off)
- Frame and blade stack out of airstream
- Approximately 95-100% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-C-OV Minimum & Maximum Sizes:**

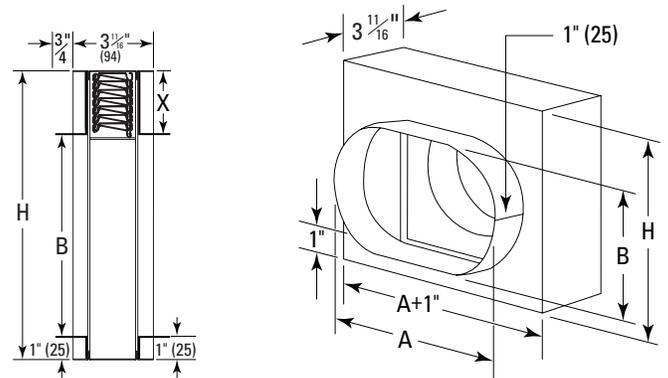
Oval Transition Type C Model	Minimum Size		Max. Single Section		Max. Multi-Section <sup>2</sup>	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-C-OV (Vertical)</b>	3x3 (76x76)		59x54 (1499x1372)	47x42 (1194x1067)	119x114 (3023x2896)	79x35 (2007x889)
<b>FD-C-OV (Horizontal)</b>			47x42 (1194x1067)	39x35 (991x889)	119x35 (3023x889) or 90x42 (2286x1067)	79x35 (2007x889)

All dimensions shown in inches, parentheses ( ) indicate millimeters.

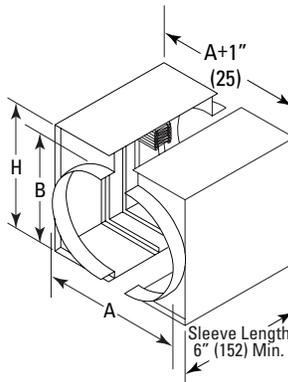
- W Dimension = Duct Width
- H Dimension = Duct Height
- X Dimension = Height of Blade Stack
- H Dimension = Overall Damper Height (B+X+1")

**Notes:**

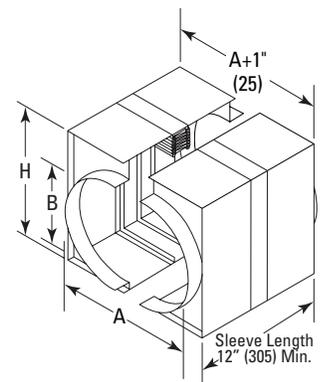
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.
2. Multi-section dampers will have frame in the airstream, and blades for vertical models more than one damper high.



Type C-OV without Sleeve



Type C-OV with External Sleeve



Type C-OV with Integral Sleeve<sup>1</sup>

**Type C-R Static Curtain Fire Damper**

**Round Transition**

- For use in static HVAC systems (fans off)
- Frame and blade stack out of airstream
- Approximately 95-100% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-C-R Minimum & Maximum Sizes:**

Round Transition Type C-R Model	Minimum Size		Max. Single Section		Max. Multi-Section <sup>2</sup>	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-C-R (Vertical)</b>	3" Dia. (76)		54" Dia. (1372)	42" Dia. (1067)	114" Dia. (2896)	35" Dia. (889)
<b>FD-C-R (Horizontal)</b>			42" Dia. (1067)	35" Dia. (889)	42" Dia. (1067)	

All dimensions shown in inches, parentheses ( ) indicate millimeters.

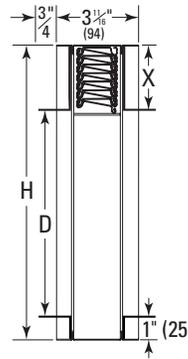
X Dimension = Height of Blade Stack

H Dimension = Overall Damper Height (D+X+1")

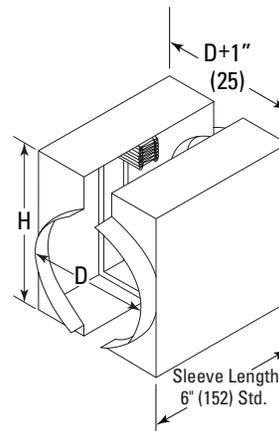
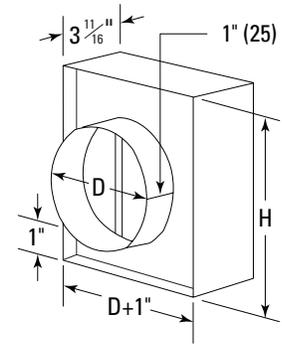
D Dimension = Diameter

**Notes:**

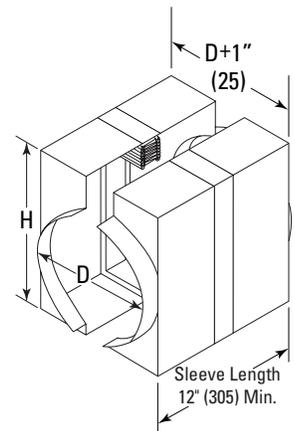
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.
2. Multi-section dampers will have frame in the airstream, and blades for vertical models more than one damper high.



**Type C-R without Sleeve**



**Type C-R with External Sleeve**



**Type C-R with Integral Sleeve<sup>1</sup>**

**Type AR Static Curtain Fire Damper**

**Round Transition**

- For use in static HVAC systems (fans off)
- Blade stack in the airstream
- Approximately 75-85% Free Area
- Sleeve optional (Factory external or Integral)
- 1-1/2 or 3 Hour Fire Rated

**FD-AR Minimum & Maximum Sizes:**

Round Transition Type AR Model	Minimum Size		Max. Single Section		Max. Multi-Section <sup>2</sup>	
	1.5 Hour	3 Hour	1.5 Hour	3 Hour	1.5 Hour	3 Hour
<b>FD-AR (Vertical)</b>	4" Dia. (102)		58" Dia. (1473)	46" Dia. (1168)	118" Dia. (2997)	38" Dia. (965)
<b>FD-AR (Horizontal)</b>			46" Dia. (1168)	38" Dia. (965)	46" Dia. (1168)	38" Dia. (965)

All dimensions shown in inches, parentheses ( ) indicate millimeters.

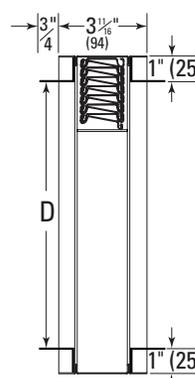
X Dimension = Height of Blade Stack

H Dimension = Overall Damper Height (D+2")

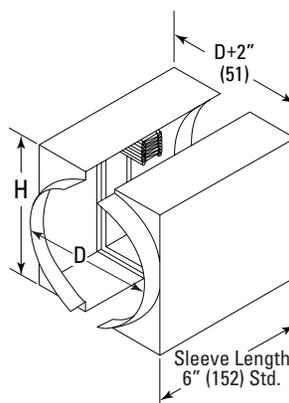
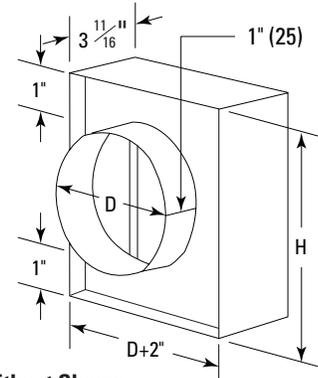
D Dimension = Diameter

**Notes:**

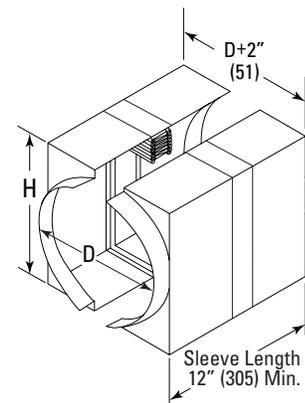
1. Integral sleeves are only offered in 20 gauge and in 12" (305), 14" (356) and 16" (406) lengths.
2. Multi-section dampers will have frame in the airstream, and blades for vertical models more than one damper high.



**Type AR without Sleeve**

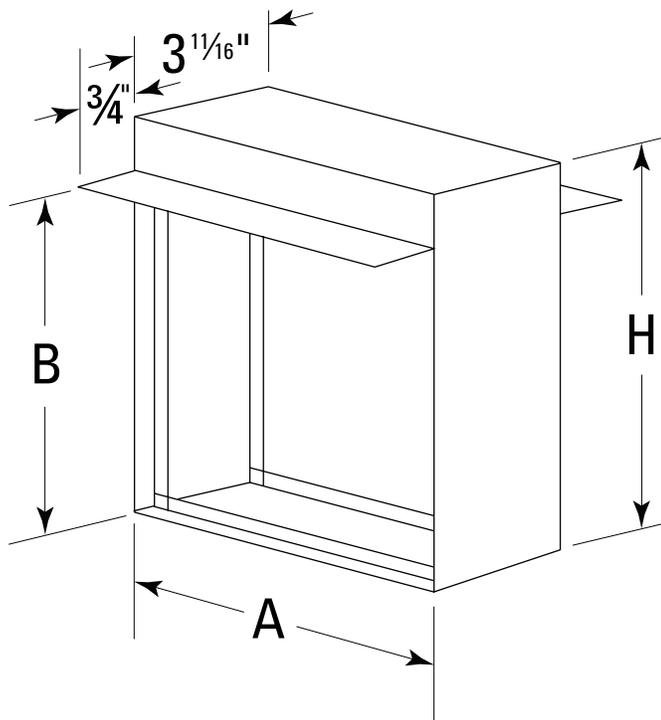


**Type AR with External Sleeve**



**Type AR with Integral Sleeve<sup>1</sup>**

## Type B Fire Damper

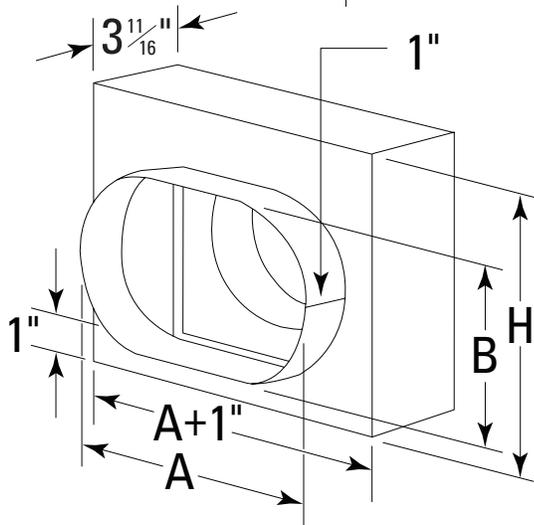
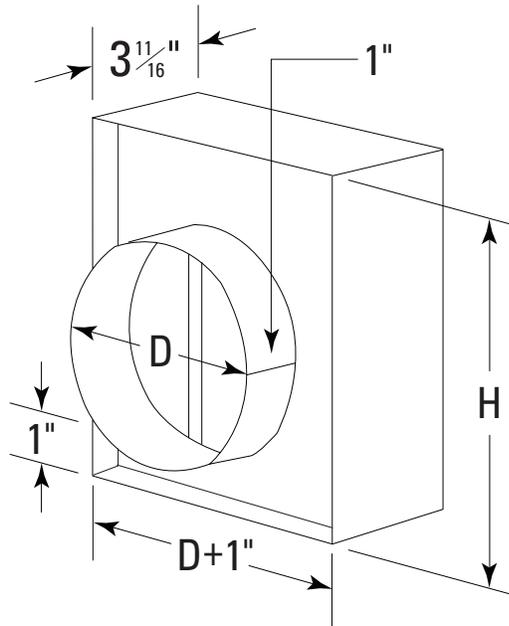
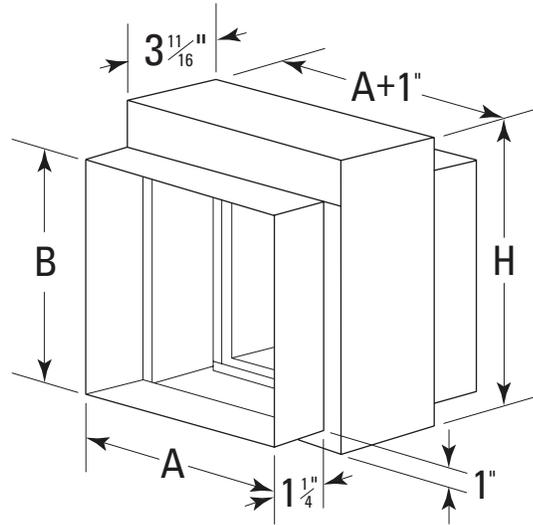


Duct Height (B)	Type B Damper Height (H)
Inches	Inches
3	5
4	6
5	7
6	8
7	9
8	10
9	11
10	12
11	13
12	14
13	15
14	16
15	17
16	18
17	19
18	20
19	21
20	22
21	24
22	25
23	26
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97	102
98	103
99	104
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103	108
104	109
105	110
106	111
107	112
108	113
109	114
110	115
111	116
113	118
114	119
115	120

### Type C-S/R Fire Damper



Duct Height (B)	Type C-S/R, C-R, C-OV Damper Height (H)				
Inches	Inches				
3	6	37	42	76	81
4	7	38	43	77	82
5	8	39	44	78	83
6	9	40	45	79	84
7	10	41	46	80	85
8	11	42	47	81	86
9	12	43	49	82	87
10	13	44	50	83	88
11	14	45	51	84	89
12	15	46	52	85	91
13	16	47	53	86	92
14	17	48	54	87	93
15	18	49	55	88	94
16	19	50	56	89	95
17	20	51	57	90	96
18	21	52	58	91	97
19	22	53	59	92	98
20	23	54	60	93	99
21	25	55	59	94	100
22	26	56	60	95	101
23	27	57	61	96	102
24	28	58	62	97	103
25	29	59	63	98	104
26	30	60	64	99	105
27	31	61	65	100	106
28	32	62	66	101	107
29	33	63	67	102	108
30	34	64	68	103	109
31	35	65	70	104	110
32	37	66	71	105	111
33	38	67	72	106	112
34	39	68	73	107	113
35	40	69	74	108	114
36	41	70	75	109	115
		71	76	110	116
		72	77	111	117
		73	78	112	118
		74	79	113	119
		75	80	114	120

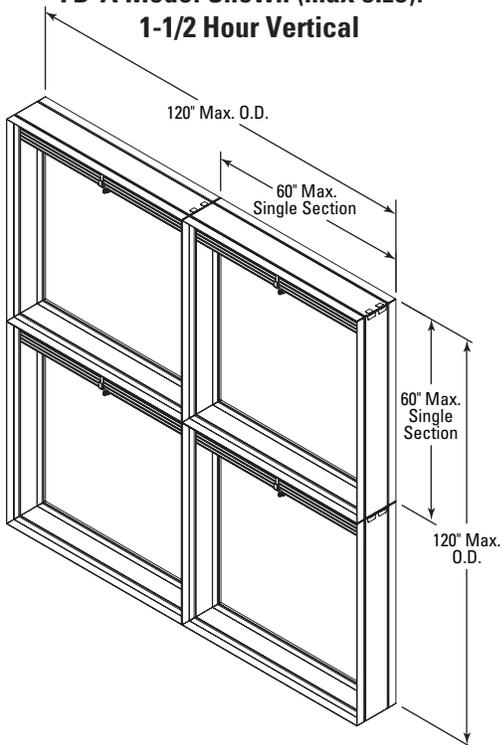
As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal

**Multiple section damper assemblies** are shipped in individual sections from the factory unless a factory supplied and installed sleeve is required. When a multiple section damper is ordered with a sleeve, it is usually shipped as a complete assembly. The following drawings are of different maximum size multiple section FD models and are for reference purposes (not all options are shown).

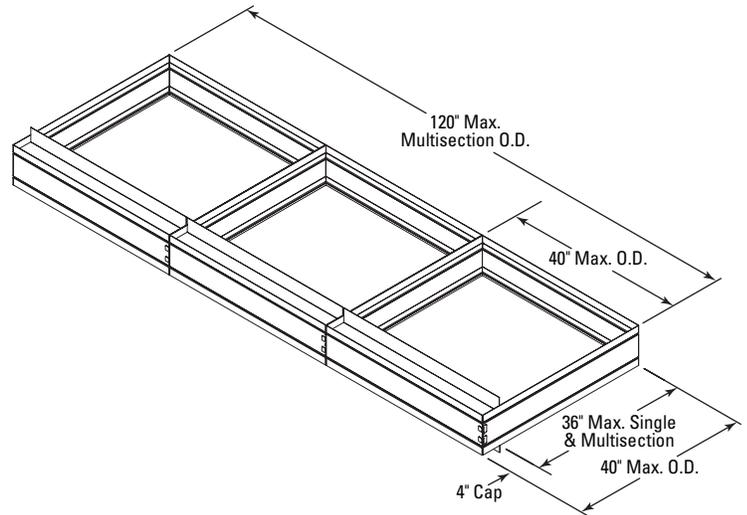
**Type A Multi-Section Assembly**

**FD-A Model Shown (max size):  
1-1/2 Hour Vertical**



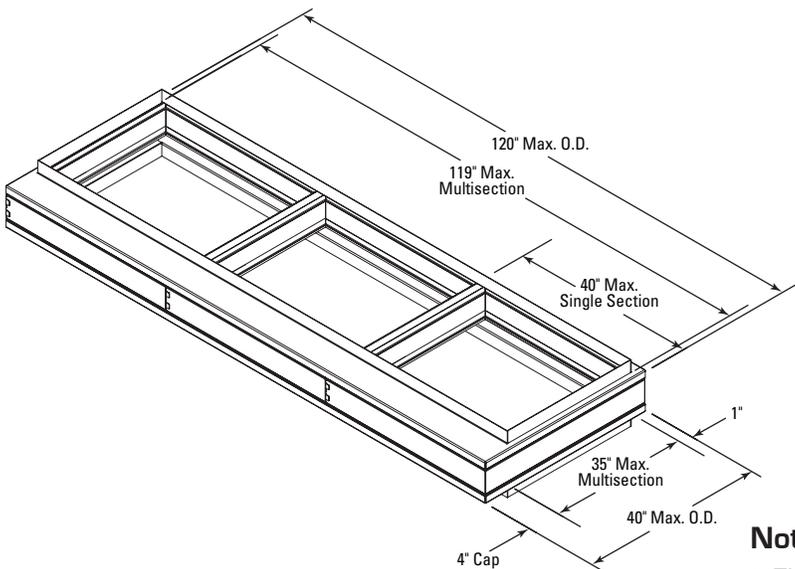
**Type B Multi-Section Assembly**

**FD-B Model Shown (max size):  
1-1/2 and 3 Hour Horizontal**



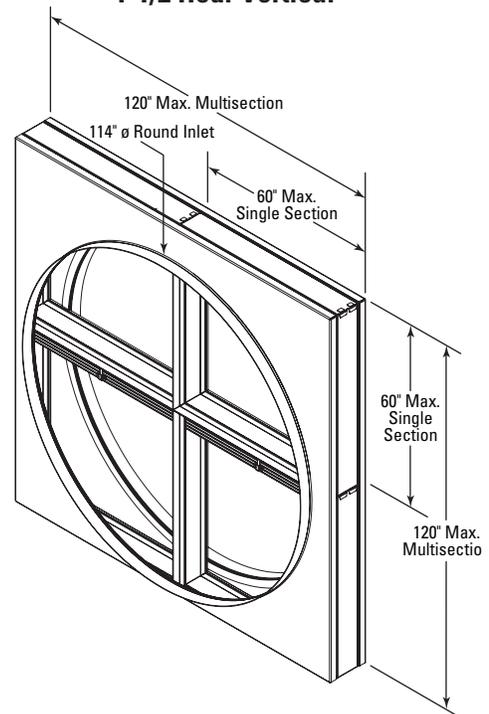
**Type C Multi-Section Assembly**

**FD-C-S/R Model Shown (max. size):  
1-1/2 Hour Horizontal**



**Type C Multi-Section Assembly**

**FD-C-R Model Shown (max. size):  
1-1/2 Hour Vertical**



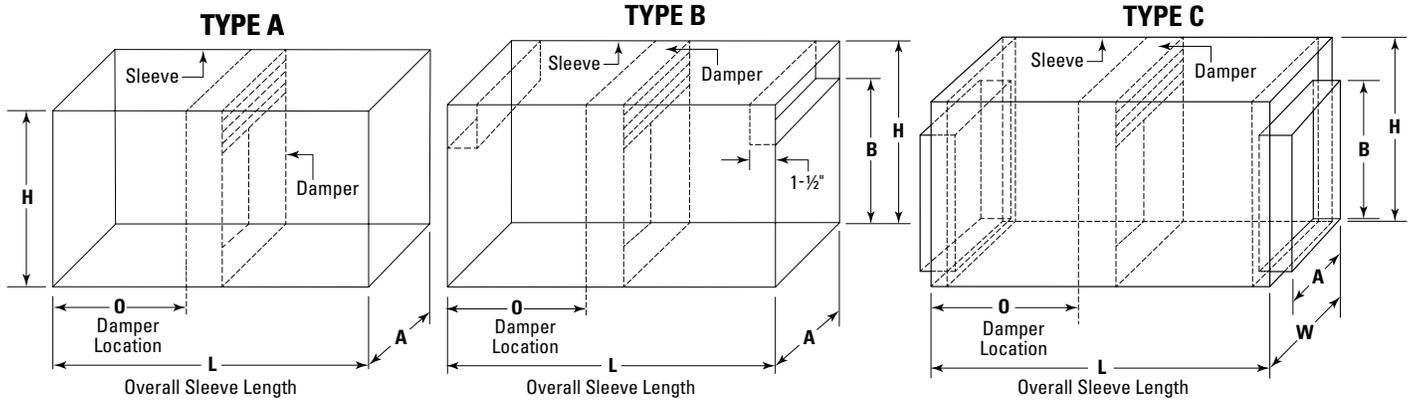
**Notes:**

1. These diagrams are for reference purposes only
2. Not all FD Model options are shown

Below are diagrams showing the location of the Type A, B and C fire dampers with factory installed external sleeve. Integral sleeves (where the sleeve acts as the frame of the damper) are also available.

**Sleeve Dimensions**

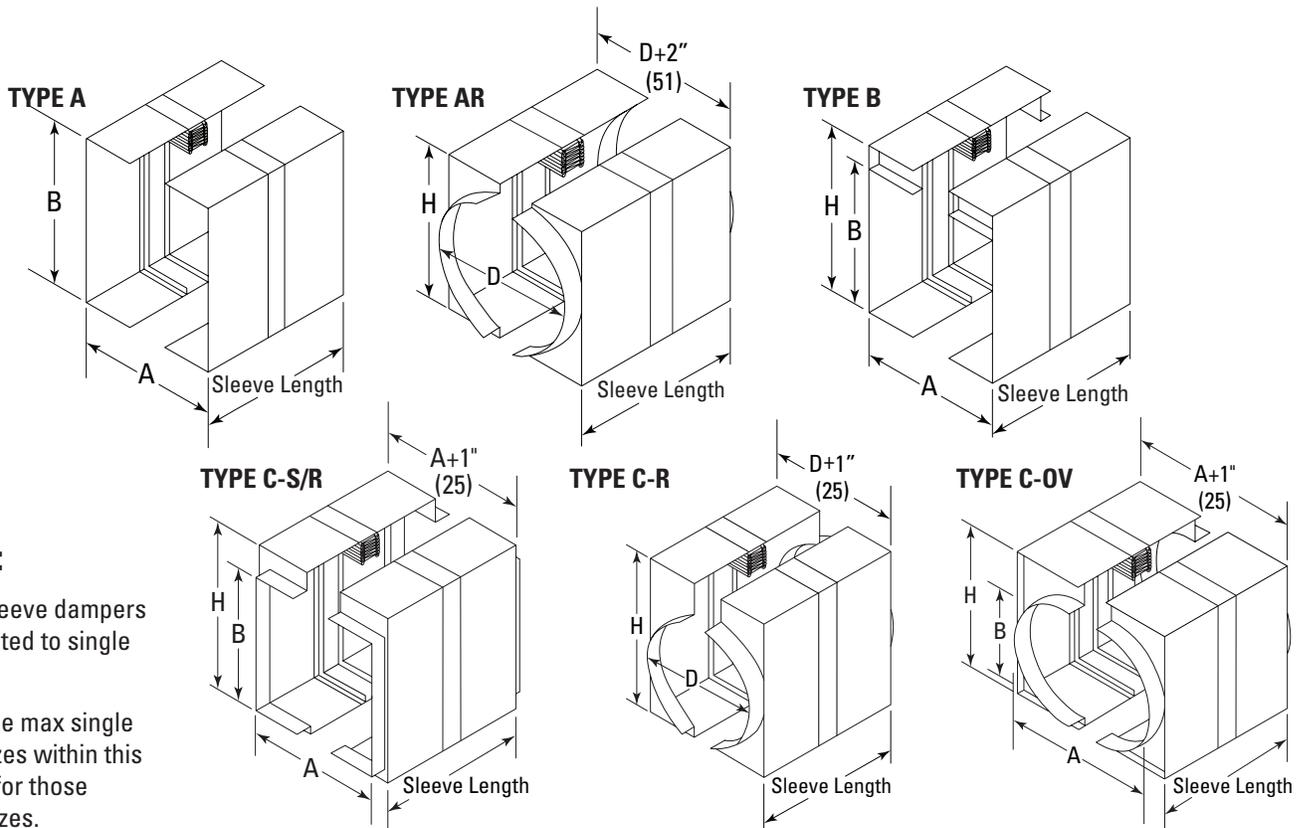
- H** = Overall damper height
- W** = Overall damper width (always the length of the blades)
- A** = Duct width
- B** = Duct height
- O** = The offset from one end of the sleeve to the beginning of the damper frame (can be altered as a construction option)
- L** = Overall length of sleeve



**OPTIONAL INTEGRAL SLEEVE INFORMATION**

CVS offers the cost and time saving option of having the sleeve be integral to the fire damper. It is offered on any of the fire damper types mentioned in this submittal (A, AR, B, C-S/R, C-R, and C-OV). On an integral sleeve fire damper, the sleeve acts as both the sleeve and the frame. Integral sleeve fire dampers are available in 20 gauge galvanized steel only and in lengths of 12" (305), 14" (356) or 16" (406).

**Integral sleeve fire dampers are less expensive than factory installed external sleeves.**



**Notes:**

Integral sleeve dampers are restricted to single sections.

Refer to the max single section sizes within this submittal for those specific sizes.

As part of our continuous improvement program, we reserve the right to make further improvements without notice.

Submittal