

Model DFD-110 Types A & B

Narrowline Construction

1 1/2 Hour Fire Resistance Rating

APPLICATION

Model DFD-110 is approved for use in walls, floors and partitions with fire resistance ratings less than 3 hours. This model carries a 1 1/2 hour UL fire damper label. UL 555 classifies dynamic rated fire dampers for use in HVAC systems that are operational in the event of fire.

CONSTRUCTION

Galvanized steel (in gauges required by UL listing R-13317)

INSTALLATION

All fire damper installations require the use of sleeves, angles and methods described in Greenheck Fire Damper Installation Instructions #452763, included with every damper shipment. Sleeves can be field fabricated or factory furnished as a complete damper/sleeve assembly. See Factory Sleeve Option below for details.

Model DFD-110 meets the requirements for fire dampers established by:

National Fire Protection Association
(NFPA Standards 90A & 101)

Underwriters Laboratories Standard 555 (Listing #R-13317)

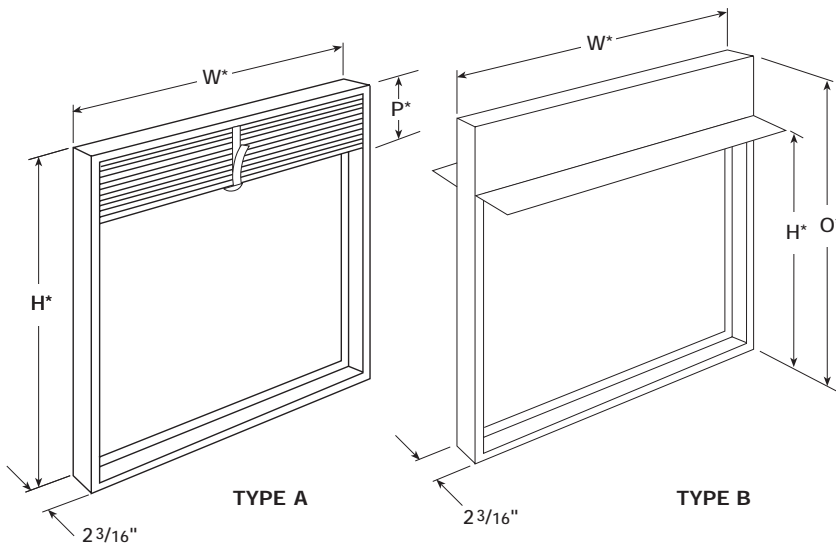
BOCA National Building Codes

ICBO Uniform Building Codes (UBC Standard 43-7)

SBCCI Standard Building Codes

New York City (MEA listing #260-91-M)

California State Fire Marshall
(Listing #3225-981:102 for use in walls)



Features:

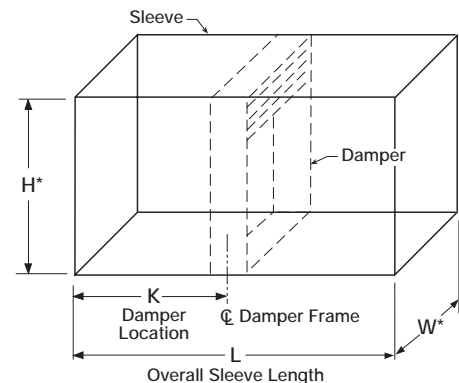
- Stainless steel closure springs
- Fusible links (165° standard, 212° available)
- Can be mounted horizontally or vertically.

* These dimensions are furnished approximately 1/4" undersize

FACTORY SLEEVE OPTION

DFD-110 Fire Dampers are available in factory furnished sleeves. Sleeves are galvanized steel and are available in 10 thru 20 ga. thicknesses and lengths up to 36".

"K" dimension specifies location of damper within the sleeve. Minimum is 4", maximum is "L" less 4", which allows for mounting angle installation and duct connection at each end of sleeve. If "K" dimension is not specified, it will be provided as one half of "L" dimension (damper centered in sleeve).



Qty.	Type A B	Damper Size		Fusible Link Temp (165°F std.)	Factory Sleeve Option				
		W*	H*		Dimensions		Gauge	Material	
					L	K			
Project					Location				
Contractor					Design Specifier				

Dynamic Rated Fire Damper Application

Airflow ratings for dynamic fire dampers vary depending on the type of installation. UL Standard 555 provides for testing and dynamic rating of fire dampers in the six installations illustrated. Use the following steps to verify that a fire damper is properly rated for the application intended:

1. Check the maximum pressure that can occur with damper fully closed. **Model DFD dampers are rated to close against 8 in. w.g.**
2. Select the Installation and Airflow Velocity Table that approximates the installation being considered.
For example: Ducted installation with vertical damper, horizontal airflow would use Table D.
3. Using the W x H damper dimensions (see page 1) determine the maximum velocity rating in fpm from the proper Airflow Velocity Table.
For example: Using Table D for a ducted vertical damper installation with horizontal airflow, the maximum velocity through a 30"x12" Type A damper is 3523 fpm. Maximum airflow velocity through a 30"x12" Type B damper with the same installation is 3963 fpm.

Maximum Airflow Velocity Ratings (FPM) for *Unducted* Installations Model DFD-110 Types A&B

Vertical Damper Installation Horizontal Airflow

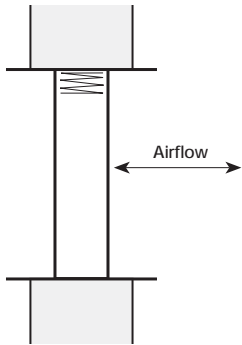


Table A (Type A)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
12	A-6765 1 section	A-6013 1 section	A-4800 1 section
24			
36			

Table A (Type B)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
10	B-8118 1 section	B-6872 1 section	B-5401 1 section
21			
32			

Horizontal Damper Installation Airflow Down

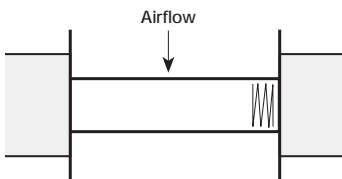


Table B (Type A)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
12	A-6929 1 section	A-3654 1 section	A-1493 1 section
24			
36			

Table B (Type B)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
10	B-8314 1 section	B-4176 1 section	B-1679 1 section
21			
32			

Horizontal Damper Installation Airflow Up

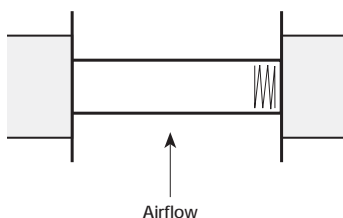


Table C (Type A)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
12	A-7138 1 section	A-5050 1 section	A-2172 1 section
24			
36			

Table C (Type B)

Damper Height (H) inches	Damper Width (W) inches		
	10	22	36
10	B-8565 1 section	B-5772 1 section	B-2444 1 section
21			
32			

Maximum Airflow Velocity Ratings (FPM) for *Ducted* Installations Model DFD-110 Types A & B

**Vertical Damper Installation
Horizontal Airflow**

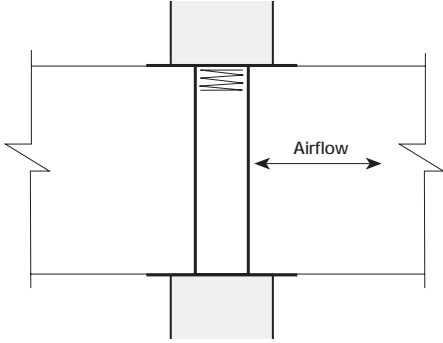


Table D (Type A)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	12	A-5037 1 section		
	24	A-4004 1 section		
	36	A-3523 1 section		

Table D (Type B)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	10	B-6044 1 section		
	21	B-4576 1 section		
	32	B-3963 1 section		

**Horizontal Damper Installation
Airflow Down**

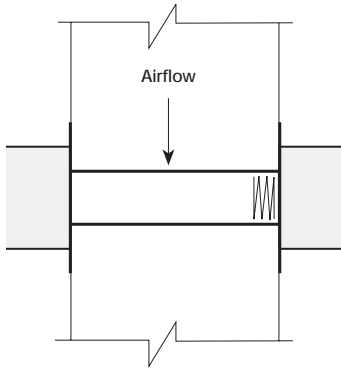


Table E (Type A)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	12	A-5829 1 section		
	24	A-2545 1 section		
	36	A-1004 1 section		

Table E (Type B)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	10	B-6994 1 section		
	21	B-2909 1 section		
	32	B-1129 1 section		

**Horizontal Damper Installation
Airflow Up**

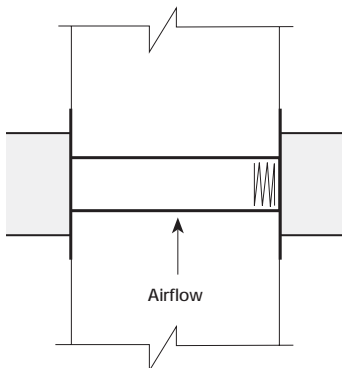


Table E (Type A)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	12	A-4322 1 section		
	24	A-3039 1 section		
	36	A-1253 1 section		

Table E (Type B)

		Damper Width (W) inches		
		10	22	36
Damper Height (H) inches	10	B-5186 1 section		
	21	B-3473 1 section		
	32	B-1409 1 section		

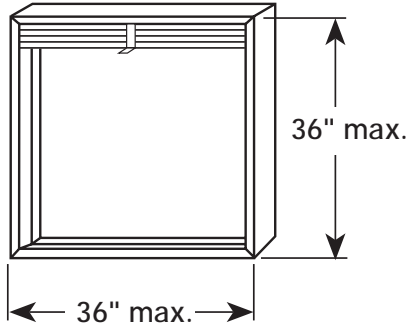
DFD-110 Types A & B

Narrowline DFD-110 models are normally supplied in single section sizes only.

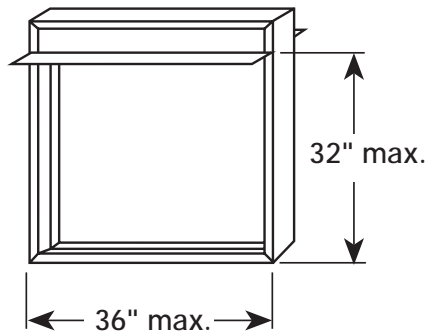
SIZE LIMITATIONS

Vertical or Horizontal Mount		
	Type A	Type B
Minimum	4" x 4"	4" x 3"
Maximum	36" x 36"	36" x 32"

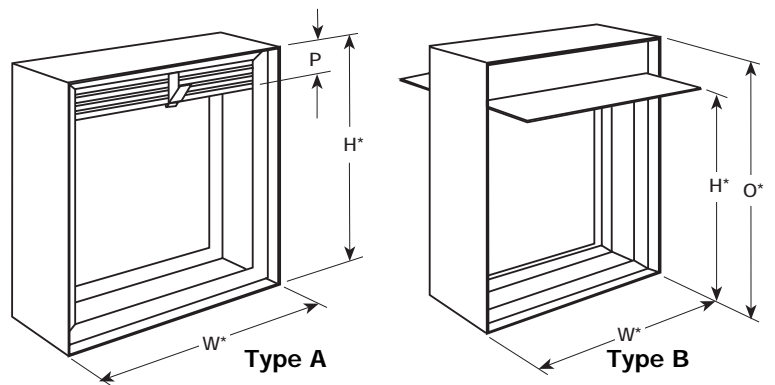
Max Type A Dimensions



Max Type B Dimensions



Overall Damper and Blade Stack Dimensions



H*	P	O*
3"	-	5"
4	0.8"	6
5	0.8	7
6	0.9	8
7	1.1	9
8	1.2	10
9	1.3	11
10	1.3	12
11	1.4	13
12	1.6	14
13	1.7	15
14	1.8	16
15	1.8	18
16	2.0	19
17	2.1	20
18	2.2	21
19	2.3	22
20	2.4	23
21	2.6	24
22	2.6	26
23	2.7	27
24	2.9	28
25	3.1	29
26	3.2	30
27	3.2	31
28	3.3	32
29	3.4	33
30	3.6	34
31	3.7	35
32	3.7	36
33	3.9	-
34	3.9	-
35	4.1	-
36	4.2	-

* These dimensions are furnished approximately 1/4" undersize