



Commercial
Grilles, Registers & Diffusers
Edition 13



Thousands of HVAC products ready to ship.



heatfab.



Residential Vent & Chimney

Vent:

Standard efficiency b-vent, high efficiency polypropylene, special gas vent for condensing, near-condensing, and non-condensing vent systems. Stock residential diameters and system components available in 3" – 14". Additional sizes available up to 30". Direct vent systems also available. Premium quality materials and designs backed by UL standards.

Chimney:

All fuel chimney systems for venting wood, coal, oil, or gas. Available in residential diameters 4" – 8". Additional sizes available up to 24". Pellet venting systems for gas, wood pellet, and bio-fuels. Stainless steel inner and outer materials. Variety of installer friendly components backed by UL standards.

Chimney Liner:

Aluminum and stainless steel. Lengths available up to 50'. Standard diameters available up to 8". Variety of installer friendly components backed by UL standards.



Grilles, Registers, & Diffusers

A full line for residential and commercial applications. Offered in steel, aluminum and plastic. Many sizes in stock for quick shipment.



Flexible Air Duct

Flexible air duct systems UL Greenguard Gold certified for residential and commercial applications. Complete line of R-4.2, R-6.0, and R-8.0 available in many outer jacket and core combinations from 3" - 24" diameters and 25' - 50' lengths. Flexible aluminum, duct, duct sleeves and uninsulated flex duct also available.

MILCOR.

Interior Access Doors

Access Doors – High quality and affordable interior access doors for all types of requirements. In stock or custom.



Roof Top Products

New construction and retrofit drain systems, flashings, expansion joint covers, equipment rails and curbs, duct supports and pipe mounting pedestals. In stock, or made to order.

WARD[®]
INDUSTRIES

Duct Components

Components and accessories for the residential and commercial HVAC and sheet metal industries including flange, rail, corners, hangers & strapping, and duct access doors.



Filters

A complete line of Multi-Pleat or Commercial & Industrial Disposable panel filters, available in fiberglass and polyester.



VAV Boxes

The SDV, single duct air terminal, features a primary inlet with an integral damper and a discharge plenum sized to fit standard Hart & Cooley hot water coils.

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LIGHT COMMERCIAL

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LIGHT COMMERCIAL

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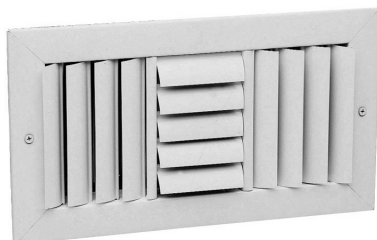
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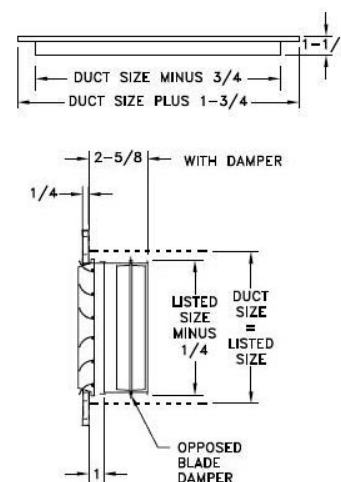
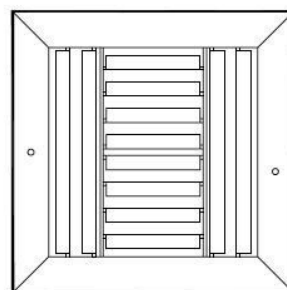


800 Series

- Steel construction
- Curved Blade design
- 1 - 4-way or 2-way corner air diffusion
- Available with or without damper
- Damper options: Multi-Shutter or Opposed Blade
- Individually adjustable bars for easy positive setting
- Opposed Blade damper is screwdriver operated
- Bright White finish

800 Series Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
28	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
32	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
34	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
36	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

x Available in



- 811 one-way no damper
- 811MS one-way with multi-shutter damper
- 811OB one-way with opposed blade damper

- 812 two-way no damper
- 812MS two-way with multi-shutter damper
- 812OB two-way with opposed blade damper

- 812C two-way corner no damper
- 812CMS two-way corner with multi-shutter damper
- 812COB two-way corner with opposed blade damper

- 813 three-way no damper
- 813MS three-way with multi-shutter damper
- 813OB three-way with opposed blade damper

- 814 four-way no damper
- 814MS four-way with multi-shutter damper
- 814OB four-way with opposed blade damper

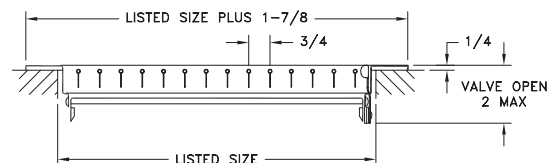
Registers & Grilles - Steel



821

- All-steel construction
- Vertical adjustable face bars
- Horizontal multi-shutter valve
- Bright White finish

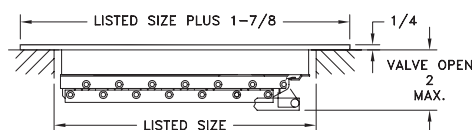
821 Available Sizes (in.)											
HT	WIDTH										
	6	8	10	12	14	16	18	20	24	30	36
4	X	X	X	X	X	X	X	X	X	X	
5			X	X	X						
6	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X
16						X	X	X	X	X	
18							X	X	X	X	
20								X			
24									X		



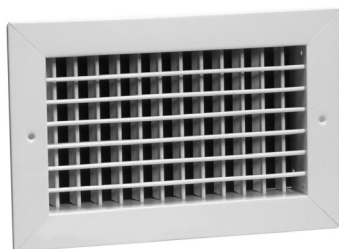
831

- All-steel construction
- Horizontal adjustable face bars
- Vertical valve
- Adjustable multi-shutter valve
- Bright White finish
- 3/4" fin spacing

831 Available Sizes (in.)											
HT	WIDTH										
	8	10	12	14	16	20	24	30	32	36	
4	X	X	X	X							
6	X	X	X	X	X	X	X	X			
8		X	X	X	X	X	X	X			
10			X			X	X				
12							X			X	
14						X			X		

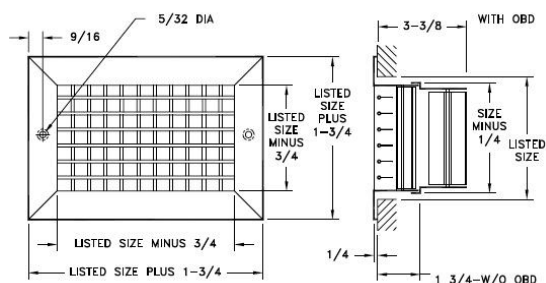


Note: Screw hole location details start on page 131
Engineering Data on Page 77-78

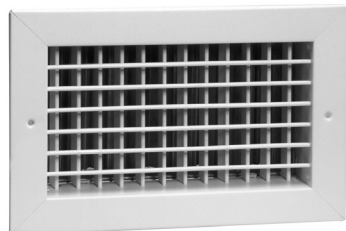


92HVO Register

- All-steel construction
- Adjustable face bars may be set to any desired deflection
- Horizontal front bars
- Vertical second bars
- Larger sizes available in multiple-piece construction
- Bright White finish

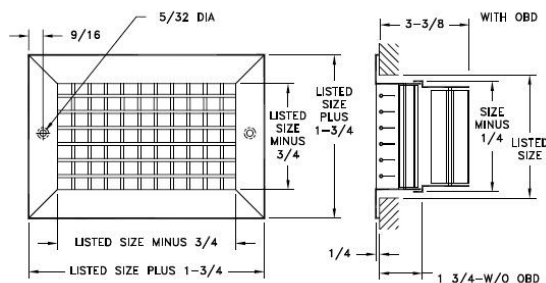


92HVO Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X



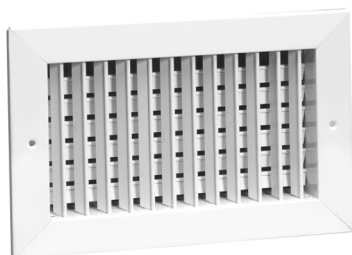
92HVV Register

- All-steel construction
- Horizontal front bars
- Vertical second bars
- Opposed-blade damper
- Adjustable face bars may be set to any desired deflection
- Larger sizes available in multiple-piece construction
- Bright White finish



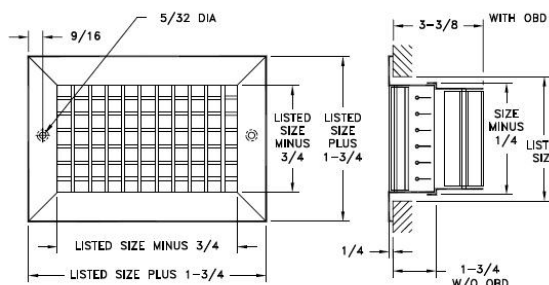
92HVV Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X

Registers & Grilles - Steel

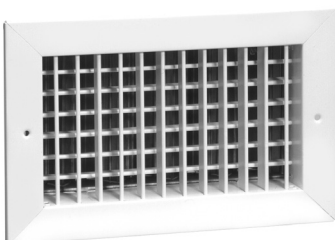


92VHO Register

- All-steel construction
- Vertical front bars
- Horizontal second bars
- Adjustable face bars may be set to any desired deflection
- Larger sizes available in multiple-piece construction
- Bright White finish

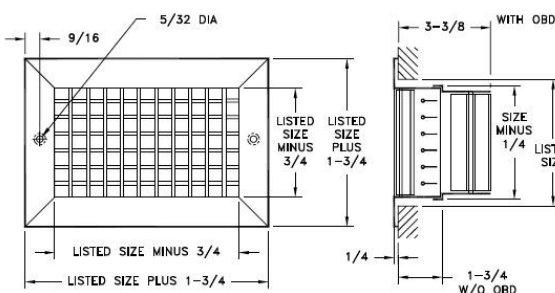


92VHO Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X



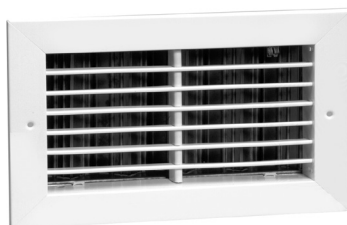
92VHV Register

- All-steel construction
- Vertical front bars
- Horizontal second bars
- Adjustable face bars may be set to any desired deflection
- Opposed-blade damper
- Larger sizes available in multiple-piece construction
- Bright White finish



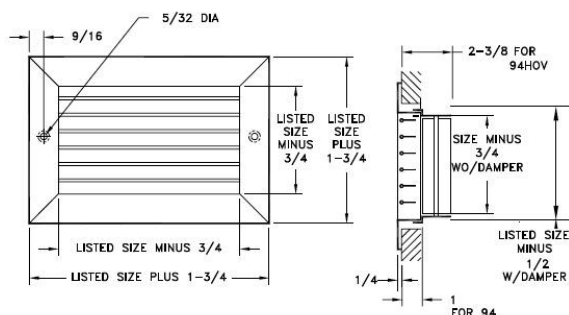
92VHV Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X

Note: Screw hole location details start on page 131
Engineering Data on Page 79-85



94HOV Register

- All-steel construction
- Horizontal face bars set straight
- Face bars permanently fixed into a heavy steel frame at 90-degree angle from face
- Opposed-blade damper
- Larger sizes available in multiple-piece construction
- Bright White finish

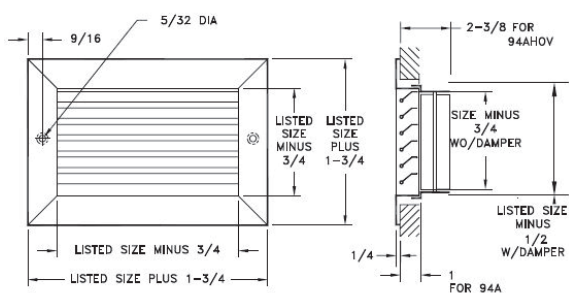


94HOV Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X



94A Grille (No Damper)

- All-steel construction
- 3/4" spaced fins set at 35°, horizontal face bars set at 35°
- Larger sizes available in multiple-piece construction
- Also available as 94AT T-Bar Return Grille (see page 57)
- Bright White finish



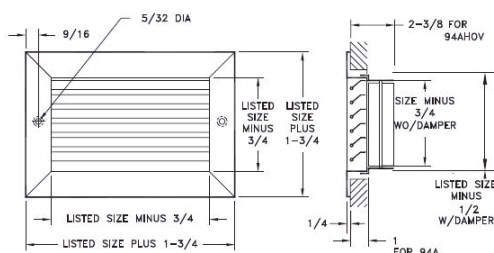
94A Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X
26											X	X	X	X	X	X
28												X	X	X	X	X
30													X	X	X	X
32														X	X	X
34															X	X
36																X

Registers & Grilles - Steel



94AHOV Register

- All-steel construction
- $\frac{3}{4}$ " spaced fins set at 35° , horizontal face bars set at 35°
- Opposed-blade damper
- Larger sizes available in multiple-piece construction
- Bright White finish

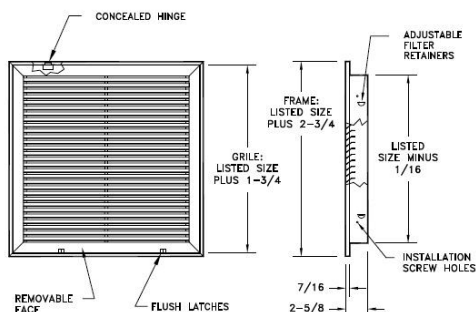


94AHOV Available Sizes (in.)															
HT	WIDTH														
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X
24										X	X	X	X	X	X
26											X	X	X	X	X
28												X	X	X	X
30													X	X	X
32														X	X
34															X
36															X



96AFB Fixed-Bar Filter Grille

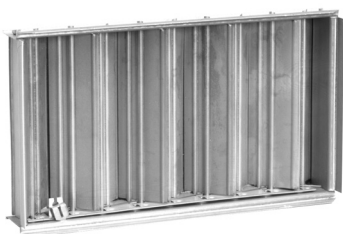
- Steel construction
- Simplifies contractor installation
- Flush, removable face with concealed hinges
- Uses nominal 1" thick disposable filters (not included)
- 96AFB2 uses 2" thick disposable filters and is available by special order
- Equipped with adjustable filter retainers
- $\frac{3}{4}$ " spaced fins set at 35°
- Also available as 96AFBT T-Bar Fixed Bar Filter Grille (see page 54)
- Bright White finish



96AFB Standard Sizes (in.)										
HT	WIDTH									
	10	12	14	16	18	20	24	25	30	36
10						X	X		X	
12		X			X	X	X		X	
14			X			X	X	X	X	
16				X		X	X	X		
18					X	X	X		X	
20	X	X	X	X		X	X	X	X	
24		X	X		X		X		X	X
25			X	X		X		X		
30			X			X	X		X	X
36										X

Note: Screw hole location details start on page 131
Engineering Data on Page 86-89

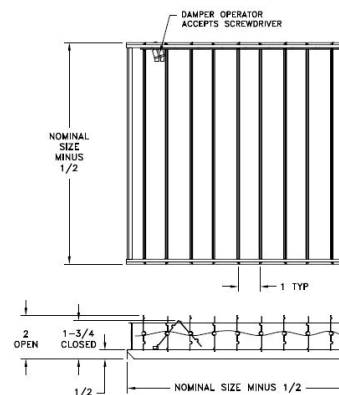
Registers & Grilles - Steel



9200V Damper

- Steel construction
- Opposed-blade damper
- Controls the air volume from full flow to shut-off
- Mill finish
- For use with:
 - 92
 - 94
 - RE5
 - PFG

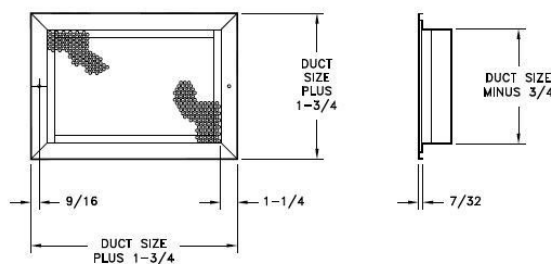
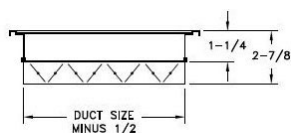
9200V Available Sizes (in.)	
Minimum:	6" x 4"
Maximum:	24" x 24" One Piece

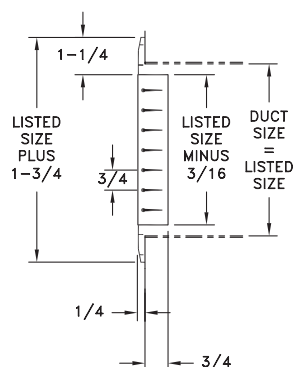


PFG Perforated Face Grille

- All steel construction
- Perforated face
- Optional opposed blade damper
- Optional T-Bar lay-in frames
- Bright white finish

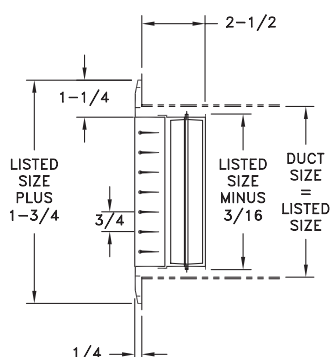
PFG Available Sizes (in.)	
Minimum:	6" x 4"
Maximum:	48" x 48" One Piece





HX Grille

- Extruded aluminum construction
- Horizontal front bars
- Single row of individually adjustable horizontal face bars
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

[illegible]

HD Register

- Extruded aluminum construction
- Single row of individually adjustable horizontal face bars
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

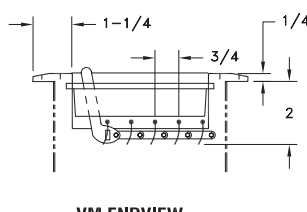
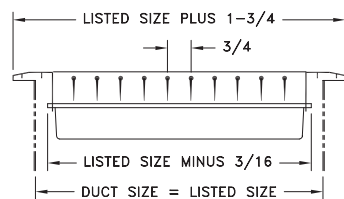
[illegible]

*Note: Screw hole location details start on page 131
Engineering Data on Page 91-92*

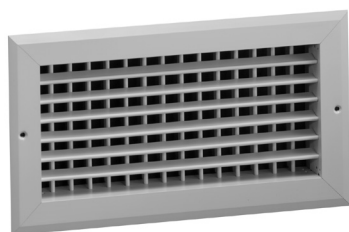


HM Register

- Extruded aluminum construction
- Single row of individually adjustable horizontal face bars
- Pivoted bars for easy positive setting
- Lever-operated, multi-shutter valve
- Bright White or Satin Anodized finish

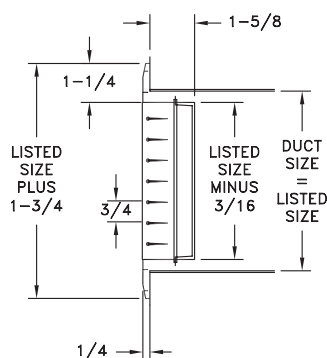


HM Available Sizes (in.)	
HT	WIDTH
	6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36
4	X X X X X X X X X X X X X X X X
5	X X X X X X X X X X X X X X X X
6	X X X X X X X X X X X X X X X X
8	X X X X X X X X X X X X X X X X
10	X X X X X X X X X X X X X X X X
12	X X X X X X X X X X X X X X X X
14	X X X X X X X X X X X X X X X X
16	X X X X X X X X X X X X X X X X
18	X X X X X X X X X X X X X X X X
20	X X X X X X X X X X X X X X X X
22	X X X X X X X X X X X X X X X X
24	X X X X X X X X X X X X X X X X
26	X X X X X X X X X X X X X X X X
28	X X X X X X X X X X X X X X X X
30	X X X X X X X X X X X X X X X X
32	X X X X X X X X X X X X X X X X
34	X X X X X X X X X X X X X X X X
36	X X X X X X X X X X X X X X X X

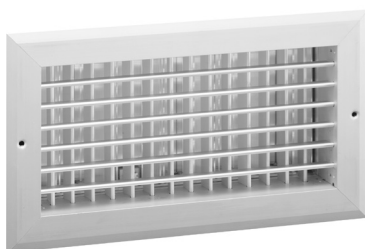


HV Register

- Extruded aluminum construction
- Horizontal front bars
- Vertical second bars
- Two rows of individually adjustable face bars for horizontal and vertical deflection
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

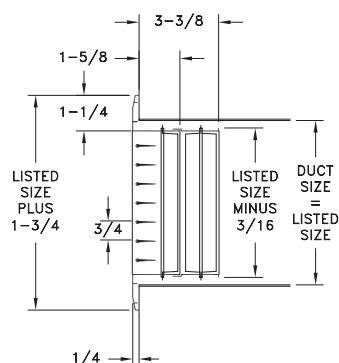
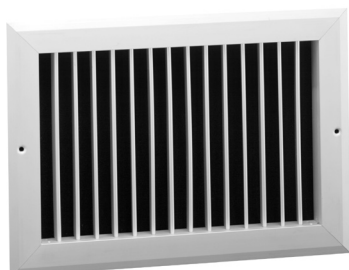


HV Available Sizes (in.)	
HT	WIDTH
	6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48
4	X X
5	X X
6	X X
8	X X
10	X X
12	X X
14	X X
16	X X
18	X X
20	X X
22	X X
24	X X
26	X X
28	X X
30	X X
32	X X
34	X X
36	X X
38	X X
40	X X
42	X X
44	X X
46	X X
48	X X



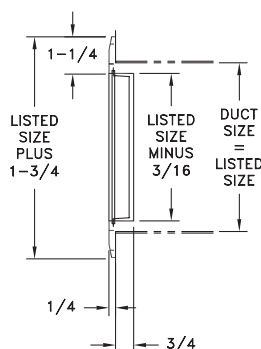
HVD Register

- Extruded aluminum construction
- Two rows of individually adjustable face bars for horizontal and vertical deflection
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

[illegible]

VX Grille

- Extruded aluminum construction
- Vertical front bars
- Single row of individually adjustable face bars
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

[illegible]

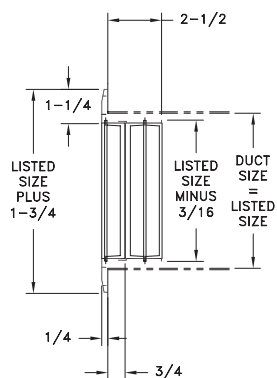
*Note: Screw hole location details start on page 131
Engineering Data on Page 91-92*

Registers & Grilles - Aluminum



VD Register

- Extruded aluminum construction
- Vertical front bars
- Single row of individually adjustable face bars
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

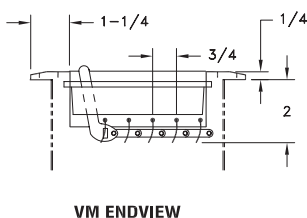
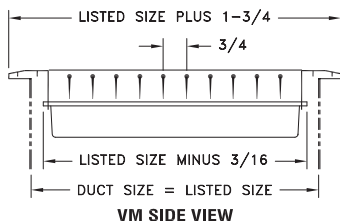


VD Available Sizes (in.)																									
HT	WIDTH																								
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48			
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
14					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
16						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
18							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
20								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
22									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
24										X	X	X	X	X	X	X	X	X	X	X	X	X	X		
26											X	X	X	X	X	X	X	X	X	X	X	X	X		
28												X	X	X	X	X	X	X	X	X	X	X	X		
30													X	X	X	X	X	X	X	X	X	X	X		
32														X	X	X	X	X	X	X	X	X	X		
34															X	X	X	X	X	X	X	X	X		
36																X	X	X	X	X	X	X	X		
38																	X	X	X	X	X	X	X		
40																		X	X	X	X	X	X		
42																			X	X	X	X	X		
44																				X	X	X	X		
46																					X	X	X		
48																						X	X		

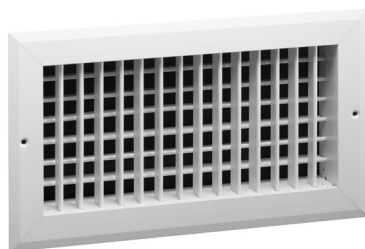


VM Register

- Extruded aluminum construction
- Vertical front bars
- Pivoted bars for easy positive setting
- Lever-operated, multi-shutter valve
- Single row of individually adjustable face bars
- Horizontal valve blades
- Bright White or Satin Anodized finish

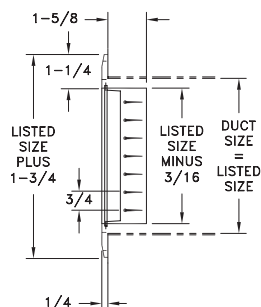
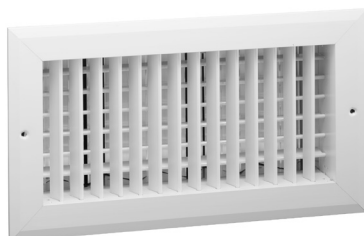


		VM Available Sizes (in.)															
		WIDTH															
HT		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X	X	X	X	X
20								X	X	X	X	X	X	X	X	X	X
22									X	X	X	X	X	X	X	X	X
24										X	X	X	X	X	X	X	X
26											X	X	X	X	X	X	X
28												X	X	X	X	X	X
30													X	X	X	X	X
32														X	X	X	X
34															X	X	X
36																X	X



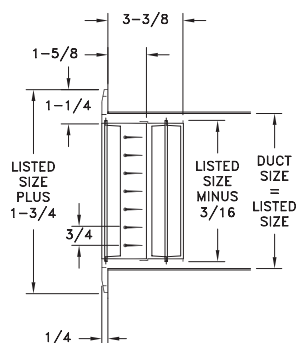
VH Register

- Extruded aluminum construction
- Vertical front bars
- Horizontal second bars
- Two rows of individually adjustable face bars for horizontal and vertical deflection
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

[illegible]

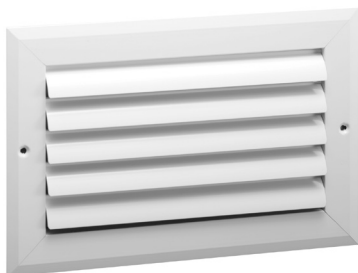
VHD Register

- Extruded aluminum construction
- Vertical front bars
- Horizontal second bars
- Two rows of individually adjustable face bars for horizontal and vertical deflection
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

[illegible]

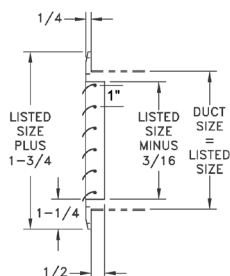
*Note: Screw hole location details start on page 131
Engineering Data on Page 91-92*

Registers & Grilles - Aluminum

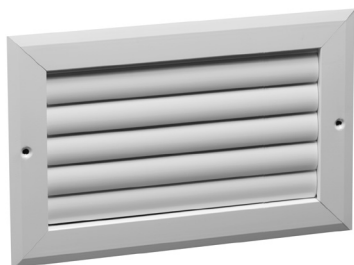


CH1 Grille

- Extruded aluminum construction
- One-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

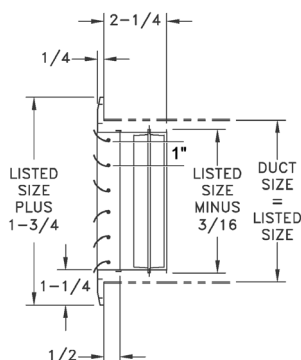


CH1 Available Sizes (in.)																	
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	
26											X	X	X	X	X	X	
28												X	X	X	X	X	
30													X	X	X	X	
32														X	X	X	
34															X	X	
36																X	



CHD1 Register

- Extruded aluminum construction
- One-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

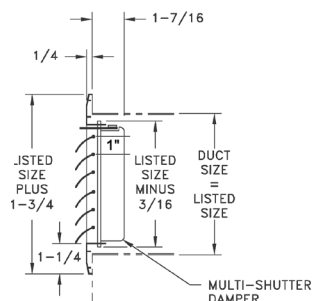


CHD1 Available Sizes (in.)																	
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	
26											X	X	X	X	X	X	
28												X	X	X	X	X	
30													X	X	X	X	
32														X	X	X	
34															X	X	
36																X	



CHM1 Register

- Extruded aluminum construction
- One-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Multi-shutter valve
- Bright White or Satin Anodized finish



CHM1 Available Sizes (in.)																	
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	
26											X	X	X	X	X	X	
28												X	X	X	X	X	
30													X	X	X	X	
32														X	X	X	
34															X	X	
36																X	

Note: Screw hole location details start on page 131
Engineering Data on Page 93-94

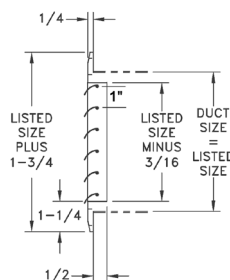
Registers & Grilles - Aluminum



CH2 Grille

- Extruded aluminum construction
- Two-way deflection
- Individually adjustable curved-face bars

- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish



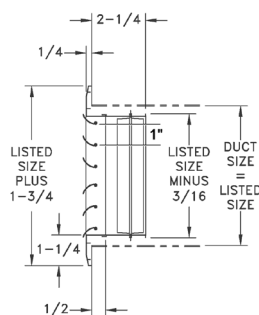
		CH2 Available Sizes (in.)																
HT	WIDTH																	
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	X	
26											X	X	X	X	X	X	X	
28												X	X	X	X	X	X	
30													X	X	X	X	X	
32														X	X	X	X	
34															X	X	X	
36																X	X	



CHD2 Register

- Extruded aluminum construction
- Two-way deflection
- Individually adjustable curved-face bars

- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish



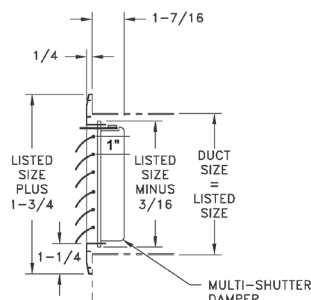
		CHD2 Available Sizes (in.)																
HT	WIDTH																	
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12				X	X	X	X	X	X	X	X	X	X	X	X	X		
14					X	X	X	X	X	X	X	X	X	X	X	X		
16						X	X	X	X	X	X	X	X	X	X	X		
18							X	X	X	X	X	X	X	X	X	X		
20								X	X	X	X	X	X	X	X	X		
22									X	X	X	X	X	X	X	X		
24										X	X	X	X	X	X	X		
26											X	X	X	X	X	X		
28												X	X	X	X	X		
30													X	X	X	X		
32														X	X	X		
34															X	X		
36																X		



CHM2 Register

- Extruded aluminum construction
- Two-way deflection
- Individually adjustable curved-face bars

- Pivoted bars for easy positive setting
- Multi-shutter valve
- Bright White or Satin Anodized finish



CHM2 Available Sizes (in.)																		
HT	WIDTH																	
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12				X	X	X	X	X	X	X	X	X	X	X	X	X		
14					X	X	X	X	X	X	X	X	X	X	X	X		
16						X	X	X	X	X	X	X	X	X	X	X		
18							X	X	X	X	X	X	X	X	X	X		
20								X	X	X	X	X	X	X	X	X		
22									X	X	X	X	X	X	X	X		
24										X	X	X	X	X	X	X		
26											X	X	X	X	X	X		
28												X	X	X	X	X		
30													X	X	X	X		
32														X	X	X		
34															X	X		
36																X		

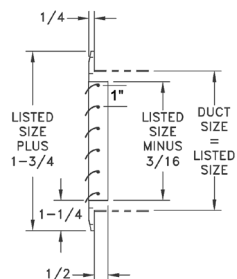
Note: Screw hole location details start on page 131
Engineering Data on Page 93-94

Registers & Grilles - Aluminum

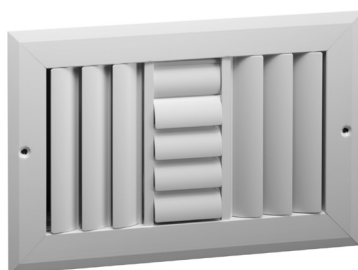


C3 Grille

- Extruded aluminum construction
- Three-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish

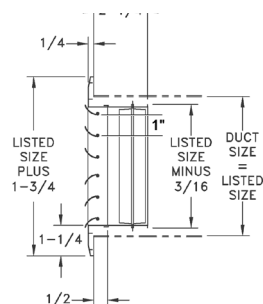


		C3 Available Sizes (in.)																
HT	WIDTH																	
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12				X	X	X	X	X	X	X	X	X	X	X	X	X		
14					X	X	X	X	X	X	X	X	X	X	X	X		
16						X	X	X	X	X	X	X	X	X	X	X		
18							X	X	X	X	X	X	X	X	X	X		
20								X	X	X	X	X	X	X	X	X		
22									X	X	X	X	X	X	X	X		
24										X	X	X	X	X	X	X		
26											X	X	X	X	X	X		
28												X	X	X	X	X		
30													X	X	X	X		
32														X	X	X		
34															X	X		
36																X		



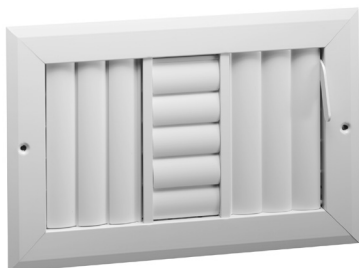
CD3 Register

- Extruded aluminum construction
- Three-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish



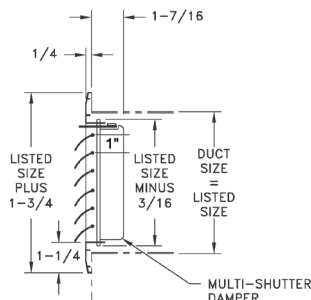
		CD3 Available Sizes (in.)																
HT		WIDTH																
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10				X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12					X	X	X	X	X	X	X	X	X	X	X	X	X	
14						X	X	X	X	X	X	X	X	X	X	X	X	
16							X	X	X	X	X	X	X	X	X	X	X	
18								X	X	X	X	X	X	X	X	X	X	
20									X	X	X	X	X	X	X	X	X	
22										X	X	X	X	X	X	X	X	
24											X	X	X	X	X	X	X	
26												X	X	X	X	X	X	
28													X	X	X	X	X	
30														X	X	X	X	
32															X	X	X	
34																X	X	
36																	X	

Registers & Grilles - Aluminum

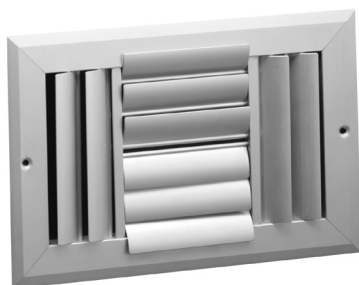


CM3 Register

- Extruded aluminum construction
- Three-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Multi-shutter valve
- Bright White or Satin Anodized finish

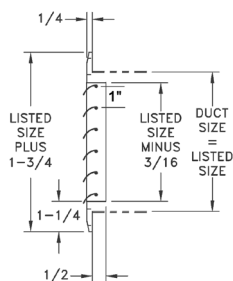


CM3 Available Sizes (in.)																		
HT	WIDTH																	
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12				X	X	X	X	X	X	X	X	X	X	X	X	X		
14					X	X	X	X	X	X	X	X	X	X	X	X		
16						X	X	X	X	X	X	X	X	X	X	X		
18							X	X	X	X	X	X	X	X	X	X		
20								X	X	X	X	X	X	X	X	X		
22									X	X	X	X	X	X	X	X		
24										X	X	X	X	X	X	X		
26											X	X	X	X	X	X		
28												X	X	X	X	X		
30													X	X	X	X		
32														X	X	X		
34															X	X		
36																X		



C4 Grille

- Extruded aluminum construction
- Four-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Bright White or Satin Anodized finish



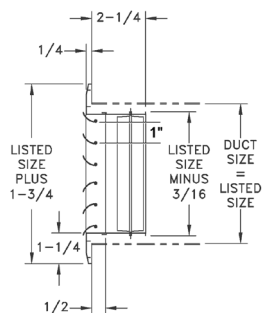
		CH2 Available Sizes (in.)																
HT		WIDTH																
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	X	
26											X	X	X	X	X	X	X	
28												X	X	X	X	X	X	
30													X	X	X	X	X	
32														X	X	X	X	
34															X	X	X	
36																X	X	

Registers & Grilles - Aluminum

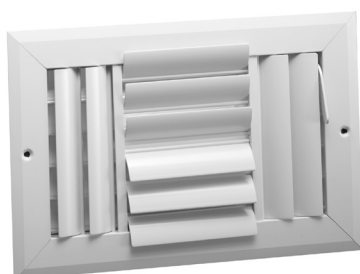


CD4 Register

- Extruded aluminum construction
- Four-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Opposed-blade damper
- Bright White or Satin Anodized finish

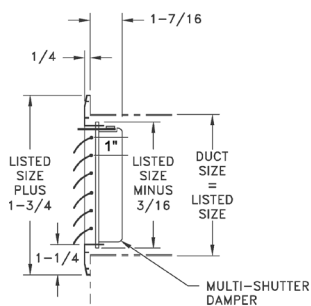


CHD2 Available Sizes (in.)																	
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	
26											X	X	X	X	X	X	
28												X	X	X	X	X	
30													X	X	X	X	
32														X	X	X	
34															X	X	
36																X	

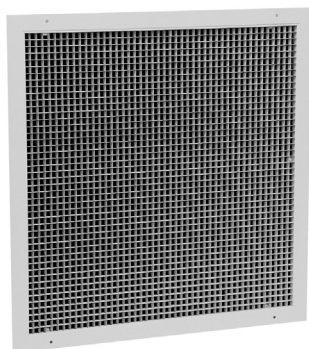


CM4 Register

- Extruded aluminum construction
- Four-way deflection
- Individually adjustable curved-face bars
- Pivoted bars for easy positive setting
- Multi-shutter valve
- Bright White or Satin Anodized finish

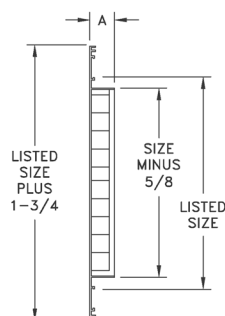


CHM2 Available Sizes (in.)																	
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X	X	X	X	X	X	X	X	X	X	X	
14					X	X	X	X	X	X	X	X	X	X	X	X	
16						X	X	X	X	X	X	X	X	X	X	X	
18							X	X	X	X	X	X	X	X	X	X	
20								X	X	X	X	X	X	X	X	X	
22									X	X	X	X	X	X	X	X	
24										X	X	X	X	X	X	X	
26											X	X	X	X	X	X	
28												X	X	X	X	X	
30													X	X	X	X	
32														X	X	X	
34															X	X	
36																X	



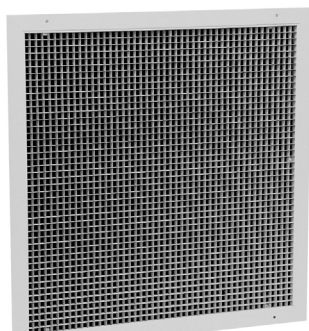
RE5 Grille

- All-aluminum construction
- Grid core $1/2" \times 1/2" \times 1/2"$
- Square core design with extruded aluminum frame
- Bright White or Mill finish



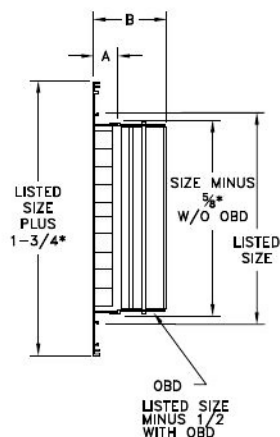
MODEL	GRID CORE DIMENSIONS	A
RE5	$1/2 \times 1/2 \times 1/2$	1-1/16
RE510	$1/2 \times 1/2 \times 1$	1-9/16
RE1	$1 \times 1 \times 1$	1-9/16

		RE5 Available Sizes (in.)																					
HT		WIDTH																					
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26										X	X	X	X	X	X	X	X	X	X	X	X	X	X
28											X	X	X	X	X	X	X	X	X	X	X	X	X
30												X	X	X	X	X	X	X	X	X	X	X	X
32													X	X	X	X	X	X	X	X	X	X	X
34														X	X	X	X	X	X	X	X	X	X
36															X	X	X	X	X	X	X	X	X
38																X	X	X	X	X	X	X	X
40																	X	X	X	X	X	X	X
42																		X	X	X	X	X	X
44																			X	X	X	X	X
46																				X	X	X	X
48																						X	X



RED5 Register

- Aluminum construction
- Opposed-blade, galvanized damper
- Square core design with extruded aluminum construction
- Bright White or Mill finish

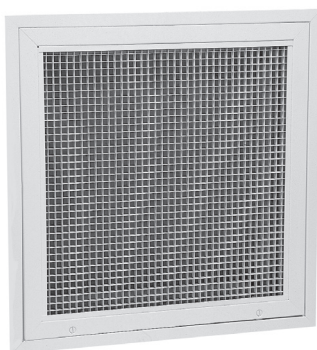


RED5 REGISTER

		RED5 Available Sizes (in.)																					
HT		WIDTH																					
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
14				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
16					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
18						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
20							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
22								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
24									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
26										X	X	X	X	X	X	X	X	X	X	X	X	X	X
28											X	X	X	X	X	X	X	X	X	X	X	X	X
30												X	X	X	X	X	X	X	X	X	X	X	X
32													X	X	X	X	X	X	X	X	X	X	X
34														X	X	X	X	X	X	X	X	X	X
36															X	X	X	X	X	X	X	X	X
38																X	X	X	X	X	X	X	X
40																	X	X	X	X	X	X	X
42																		X	X	X	X	X	X
44																			X	X	X	X	X
46																				X	X	X	X
48																						X	X

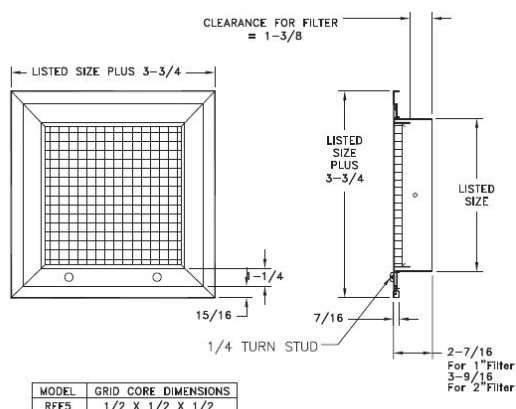
MODEL	GRID CORE DIMENSIONS	A	B
RE5	$1/2 \times 1/2 \times 1/2$	1-1/4	2-1/2
RE510	$1/2 \times 1/2 \times 1$	1-1/4	2-15/16
RE1	$1 \times 1 \times 1$	1-1/4	2-15/16

Registers & Grilles - Aluminum



REF5 Filter Grille, Grid Core

- All-aluminum construction
- 1/2" x 1/2" x 1/2" square core design
- Accommodates standard 1" thick disposable filter (not included)
- Filter grilles equipped with quarter turn fasteners
- Bright White or Mill finish
- Specify REF52 for 2" filter



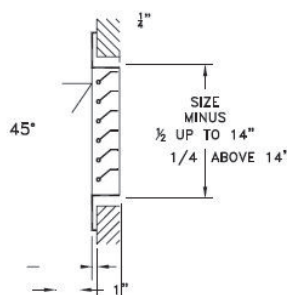
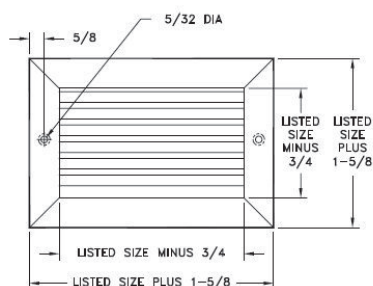
		REF5 Available Sizes (in.)																		
HT		WIDTH																		
		6	8	10	12	14	16	18	20	22	24	25	26	28	30	32	34	36		
4		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
5		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
6		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
8			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
10				X	X	X	X	X	X	X	X		X	X	X	X	X	X		
12					X	X	X	X	X	X	X		X	X	X	X	X	X		
14						X	X	X	X	X	X		X	X	X	X	X	X		
16							X	X	X	X	X		X	X	X	X	X	X		
18								X	X	X	X		X	X	X	X	X	X		
20									X	X	X		X	X	X	X	X	X		
22										X	X		X	X	X	X	X	X		
24											X		X	X	X	X	X	X		
25												X								
26													X	X	X	X	X	X		
28														X	X	X	X	X		
30															X	X	X	X		
32																X	X	X		
34																	X	X		
36																		X		



ER45 Return Air Grille

- Extruded aluminum construction
- Horizontal louvers fixed at 45 degree deflection
- Available in aluminum or white paint
- Minimum size - 4x4, Maximum size - 48x60
- One piece construction
- An economical choice for your light commercial needs

ER45 Available Sizes (in.)
Min Size 4x4, Max Size 48x60

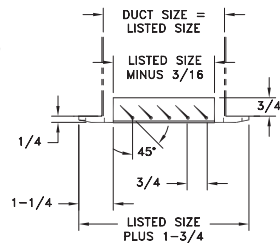




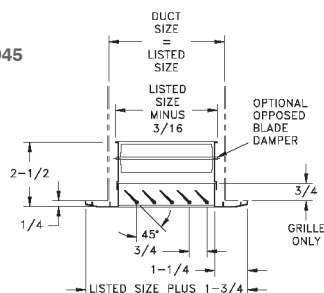
RH45 Grille RHD45 Register

- Extruded aluminum construction
- Horizontal bars at 45 degrees
- Face bars permanently fixed into heavy aluminum frames at a 45-degree angle
- Opposed-blade damper on RHD45
- Bright White or Satin Anodized finish

RH45



RHD45



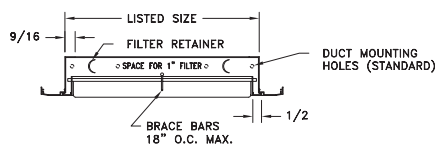
		RH45 Available Sizes (in.)																							
HT		WIDTH																							
		4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
20										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
22											X	X	X	X	X	X	X	X	X	X	X	X	X	X	
24												X	X	X	X	X	X	X	X	X	X	X	X	X	
26													X	X	X	X	X	X	X	X	X	X	X	X	
28														X	X	X	X	X	X	X	X	X	X	X	
30															X	X	X	X	X	X	X	X	X	X	
32																X	X	X	X	X	X	X	X	X	
34																	X	X	X	X	X	X	X	X	
36																		X	X	X	X	X	X	X	
38																			X	X	X	X	X	X	
40																				X	X	X	X	X	
42																					X	X	X	X	
44																						X	X	X	
46																							X	X	
48																								X	



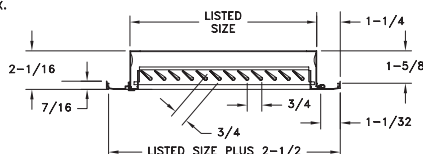
RHF45 Filter Grille

- Extruded aluminum construction
- Horizontal bars at 45 degrees
- Hinged on the bottom edge, face is removable
- Accommodates standard 1" thick disposable filter (not included)
- Filter grilles equipped with plastic slide latch
- Bright White or Satin Anodized finish
- RHF452 - Accepts 2" filter
- RHF454 - Accepts 4" filter

Note: CFM capacity is equal to the filter capacity rating of two CFM per square inch of gross filter area.



RHF45 END VIEW



RHF45 SIDE VIEW

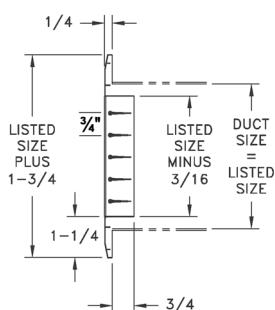
		RHF45 Available Sizes (in.)																							
HT		WIDTH																							
		6	8	10	12	14	16	18	20	22	24	25	26	28	30	32	34	36	38	40	42	44	46	48	
6		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
8			X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
10				X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
12					X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
14						X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
16							X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
18								X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
20									X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	
22										X	X		X	X	X	X	X	X	X	X	X	X	X	X	
24											X		X	X	X	X	X	X	X	X	X	X	X	X	
25												X													
26													X	X	X	X	X	X	X	X	X	X	X	X	
28														X	X	X	X	X	X	X	X	X	X	X	
30															X	X	X	X	X	X	X	X	X	X	
32																X	X	X	X	X	X	X	X	X	
34																	X	X	X	X	X	X	X	X	
36																		X	X	X	X	X	X	X	
38																			X	X	X	X	X	X	
40																				X	X	X	X	X	
42																					X	X	X	X	
44																						X	X	X	
46																							X	X	
48																								X	

Registers & Grilles - Aluminum

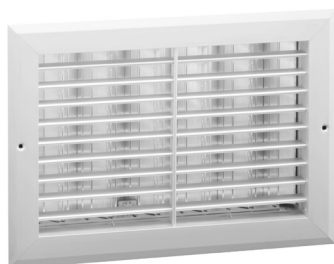


RH90 Grille

- Extruded aluminum construction
- Face bars permanently fixed into heavy aluminum frames at a 90-degree angle from face
- Bright White or Satin Anodized finish

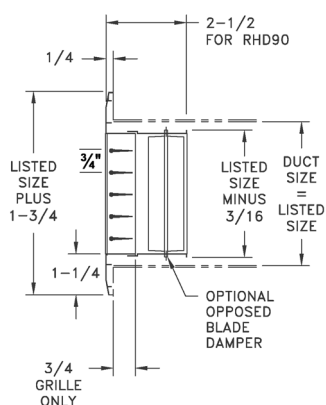


RH90 Available Sizes (in.)																											
HT	WIDTH																										
	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	50			
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
14							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
16								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
18									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
20										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
22											X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
24												X	X	X	X	X	X	X	X	X	X	X	X	X	X		
26													X	X	X	X	X	X	X	X	X	X	X	X	X		
28														X	X	X	X	X	X	X	X	X	X	X	X		
30															X	X	X	X	X	X	X	X	X	X	X		
32																X	X	X	X	X	X	X	X	X	X		
34																	X	X	X	X	X	X	X	X	X		
36																		X	X	X	X	X	X	X	X		
38																			X	X	X	X	X	X	X		
40																				X	X	X	X	X	X		
42																					X	X	X	X	X		
44																						X	X	X	X		
46																							X	X	X		
48																								X	X		



RHD90 Register

- Extruded aluminum construction
- Face bars permanently fixed into heavy aluminum frames at a 90-degree angle from face
- Opposed-blade damper
- Bright White or Satin Anodized finish



		RHD90 Available Sizes (in.)																							
HT		WIDTH																							
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48		
4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
5		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
8			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
10				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
12					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
14						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
16							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
18								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
20									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
22										X	X	X	X	X	X	X	X	X	X	X	X	X	X		
24											X	X	X	X	X	X	X	X	X	X	X	X	X		
26												X	X	X	X	X	X	X	X	X	X	X	X		
28													X	X	X	X	X	X	X	X	X	X	X		
30														X	X	X	X	X	X	X	X	X	X		
32															X	X	X	X	X	X	X	X	X		
34																X	X	X	X	X	X	X	X		
36																	X	X	X	X	X	X	X		
38																		X	X	X	X	X	X		
40																			X	X	X	X	X		
42																				X	X	X	X		
44																					X	X	X		
46																						X	X		
48																							X		

Registers & Grilles - Aluminum



TG Transfer Grille

- Extruded aluminum construction
- Vision proof
- Inverted “Y” type grille bar for best vision proof quality and airflow
- Excellent for installation in doors or partitions
- Bright White or Satin Anodized finish

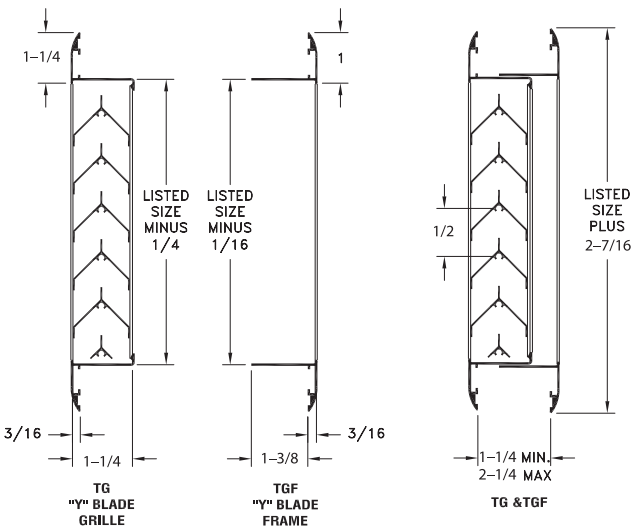


TGF Transfer Grille Frame

- Extruded aluminum construction

Note: When framing both sides of the door or partition opening, use the TGF frame with the TG Grille. Adjustable from 1 1/4" to 2 1/4" door thickness.

TG/TGF Transfer Grille with Transfer Grille Frame



TG/TGF Available Sizes (in.)													
HT	WIDTH												
	6	8	10	12	14	16	18	20	22	24	26	28	30
6	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X	X	X
16						X	X	X	X	X	X	X	X
18							X	X	X	X	X	X	X
20								X	X	X	X	X	X
22									X	X	X	X	X
24										X	X	X	X
26											X	X	X
28												X	X
30													X

Ceiling Diffusers - Steel

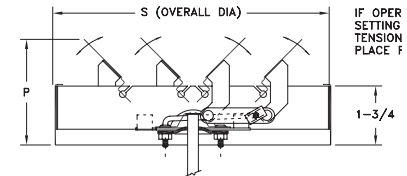


19 Damper

- Steel construction
- Opposed-blade damper
- Bright White finish
- Duct-mount only

19 Damper Listed Sizes (in.)								
Damper	6	8	10	12	14	15	16	18
S	5 ¹⁵ / ₁₆	7 ¹⁵ / ₁₆	9 ¹⁵ / ₁₆	11 ¹⁵ / ₁₆	13 ¹⁵ / ₁₆	14 ¹⁵ / ₁₆	15 ¹⁵ / ₁₆	17 ¹⁵ / ₁₆
P	3	3 ¹ / ₂	4 ⁹ / ₁₆	4 ⁹ / ₁₆	4 ⁹ / ₁₆	4 ⁹ / ₁₆	4 ⁹ / ₁₆	4 ⁹ / ₁₆

Note: 3/16" Hex Damper handle (by others) will lock into position if inserted too far into damper



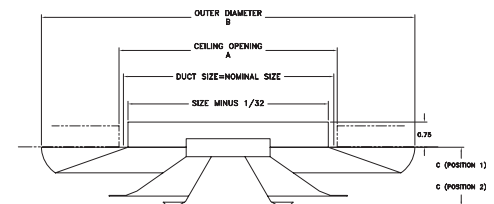
CROSS SECTION WITH VALVES PARTLY OPEN
SHOWING OPPOSED-BLADE OPERATION



20 Round Diffuser

- Steel construction
- For ceiling or exposed duct installation
- Five-step positioning of air pattern adjustment
- 360-degree pattern, horizontal to vertical pattern change
- Removable center core
- Diffuser outer shell fastens directly to duct; margins fit tight to ceiling for optimum ceiling appearance
- Optional #19 damper; duct-mount only
- Bright White finish

Listed Size	A	B	C Pos. 1	C Pos. 2
6	6-1/2	11-1/8	1-1/8	1-3/4
8	8-1/2	14-3/4	1-1/2	2-1/8
10	10-1/2	18-1/4	2-1/8	2-7/8
12	12-1/2	22	2-3/8	3-1/8
14	14-1/2	26	2-5/8	3-3/8
16	16-1/2	29	3-1/4	4
18	18-1/2	33-1/2	3-7/8	4-3/4



Ceiling Diffusers - Steel



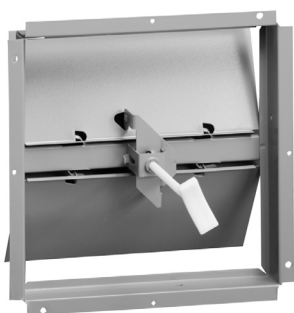
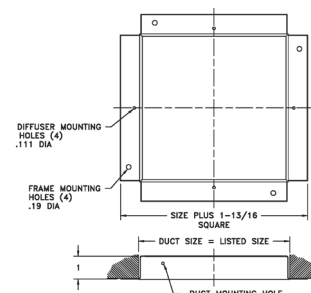
21 Installation Frame

- All-steel construction
- Golden Sand enamel finish
- Used but not furnished with #24 ceiling diffusers.

Not required when using 22 Butterfly Damper or 23 Opposed Blade Damper.

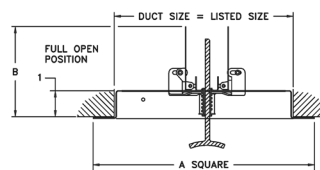
Cannot be used with SD or SDD.

21 Available Sizes (in.)	
6, 8, 10, 12, 14, 16, 18, 20, 22, 24	



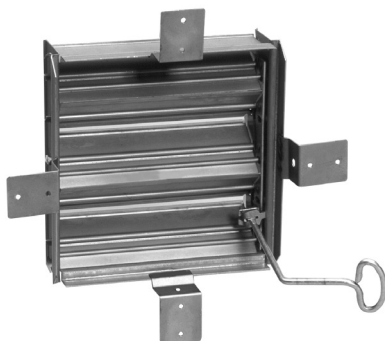
22 Butterfly Damper

- All-steel construction
- Used with #24 Ceiling Diffuser
- Knob control for quick adjustment (removable)
- Installation flange included
- Golden Sand enamel finish



22 Available Sizes (in.)		
Size	A	B
6	6 ³ / ₁₆	3 ¹¹ / ₁₆
8	8 ³ / ₁₆	4 ¹¹ / ₁₆
10	10 ³ / ₁₆	5 ¹¹ / ₁₆
12	12 ³ / ₁₆	6 ¹¹ / ₁₆
14	14 ³ / ₁₆	7 ¹¹ / ₁₆

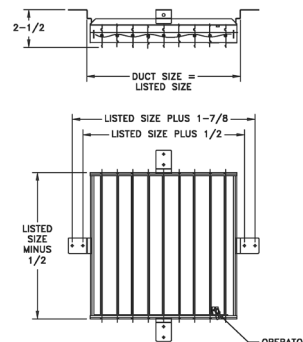
Only available in sizes shown.



23 Opposed-Blade Damper

- All-steel construction
- Used with #24 Ceiling Diffuser
- Controls air volume over entire diffuser
- Key operated
- Mill finish

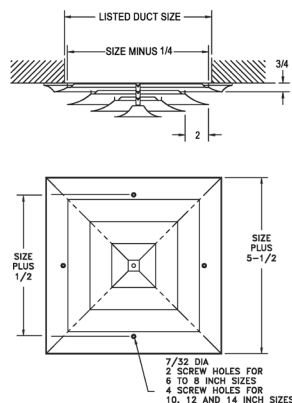
23 Available Sizes (in.)	
6, 8, 10, 12, 14, 16, 18, 20, 22, 24	



24 Square Ceiling Diffuser

- All-steel construction
- Step-down face deflects air stream 360 degrees
- Bright White finish

Only available in sizes shown.



24 Ceiling Diffuser (in.)		
Size	Free Area Sq. Inches	No. of Cones
6	41	3
8	65	3
10	84	3
12	123	4
14	152	4
16	199	5
18	236	5
20	293	6
22	338	6
24	404	7

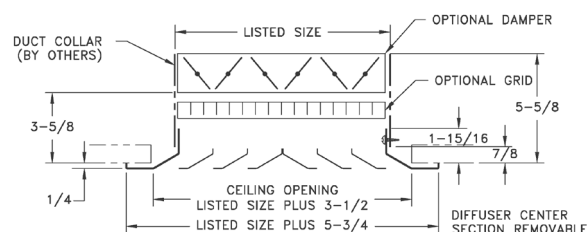
Ceiling Diffusers - Steel



SRE Diffuser

- Steel construction
- Removable core
- Flat margin style
- Optional opposed blade damper available for field installation (see SR7 damper)
- Bright White enamel finish

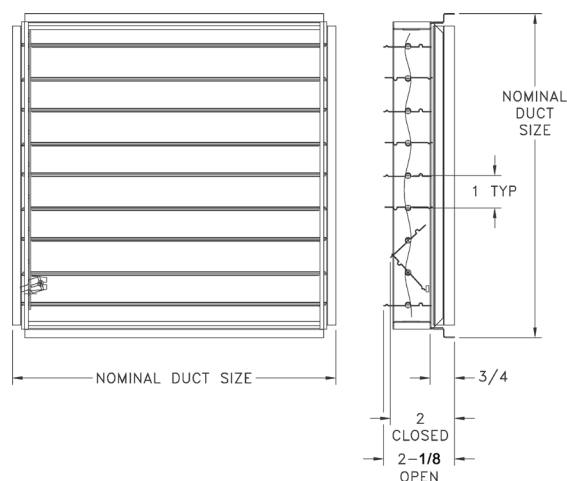
SRE Available Sizes (in.)							
HT	WIDTH						
	6	9	12	15	18	21	24
6	X	X	X	X	X	X	X
9		X	X	X	X	X	X
12			X	X	X	X	X
15				X	X	X	X
18					X	X	X
21						X	X
24							X



SR7 Volume Damper

- Steel construction
- Used to control airflow at the diffuser
- Mill finish
- Field installed for use with SRE, SRS or SRT diffusers

SR7 Available Sizes (in.)							
HT	WIDTH						
	6	9	12	15	18	21	24
6	X	X	X	X	X	X	X
9		X	X	X	X	X	X
12			X	X	X	X	X
15				X	X	X	X
18					X	X	X
21						X	X
24							X





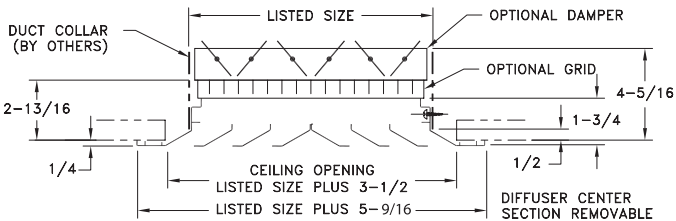
ARE Diffuser

- Extruded aluminum construction
- Removable core
- Flat margin style
- Optional factory-mounted aluminum opposed-blade damper available as ARED
- Bright White or Satin Anodized finish

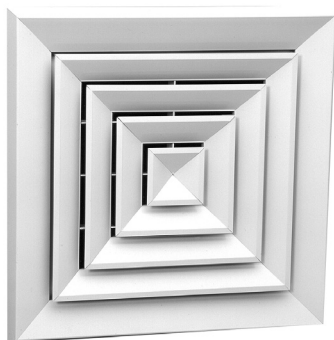
See page 33 for available air patterns.

HT	ARE Available Sizes (in.)										
	WIDTH										
	6	9	12	15	18	21	24	27	30	33	36
6	X	X	X	X	X	X	X	X	X	X	X
9		X	X	X	X	X	X	X	X	X	X
12			X	X	X	X	X	X	X	X	X
15				X	X	X	X	X	X	X	X
18					X	X	X	X	X	X	X
21						X	X	X	X	X	X
24							X	X	X	X	X
27								X	X	X	X
30									X	X	X
33										X	X
36											X

Note: Number of cones varies by size of diffuser



Ceiling Diffusers - Aluminum



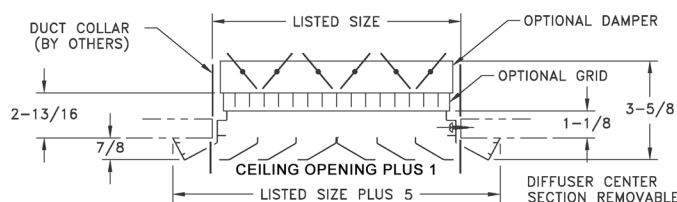
ARS Diffuser

- Extruded aluminum construction
- Removable core
- Beveled (step-down) margin style
- Optional factory-mounted, aluminum, opposed-blade damper available as ARSD
- Bright White or Satin Anodized finish

ARS Available Sizes (in.)	
HT	WIDTH
	6 9 12 15 18 21 24 27 30 33 36
6	X X X X X X X X X X X
9	X X X X X X X X X X X
12	X X X X X X X X X X X
15	X X X X X X X X X X X
18	X X X X X X X X X X X
21	X X X X X X X X X X X
24	X X X X X X X X X X X
27	X X X X X X X X X X X
30	X X X X X X X X X X X
33	X X X X X X X X X X X
36	X X X X X X X X X X X

See page 33 for available air patterns.

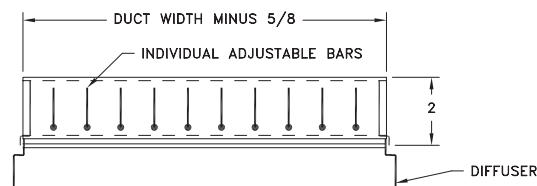
Note: Number of cones varies by size of diffuser



AR6 Control Grid

- Extruded aluminum construction
- Mounts on diffuser hanger bracket
- Provides uniform airflow in diffuser collar
- Mill finish

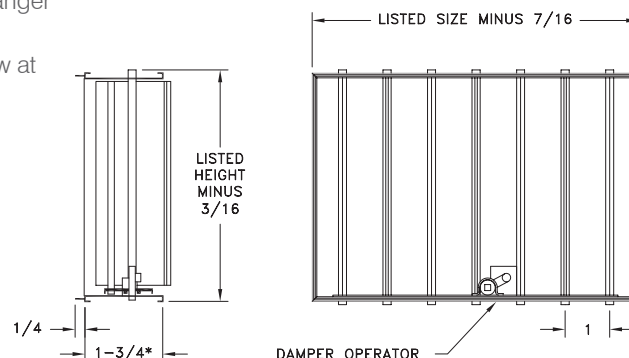
AR6 Available Sizes (in.)
Minimum: 6" x 6"
Maximum: 36" x 36" (in multiple sections)



AR7 Damper

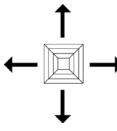
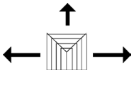
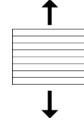
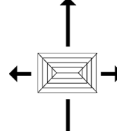
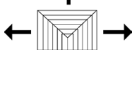
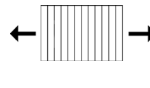
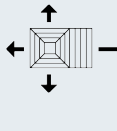
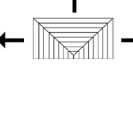
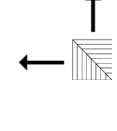
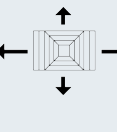
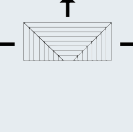
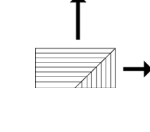
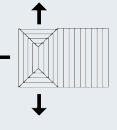
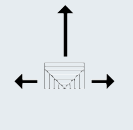
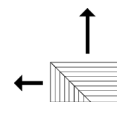
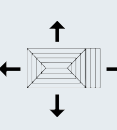
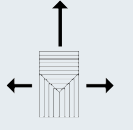
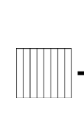
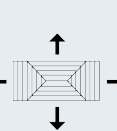
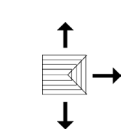
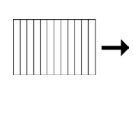
- Extruded aluminum construction
- Mounts on diffuser hanger bracket
- Used to control airflow at the diffuser
- Mill finish

AR7 Available Sizes (in.)
Minimum: 6" x 6"
Maximum: 36" x 36" (in multiple sections)



Ceiling Diffusers - Steel/Aluminum

Neck View Type SR & AR Air Patterns

Style	Listed Sizes	Style	Listed Sizes	Style	Listed Sizes
 STYLE 4	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21 24 x 24 Max. in Steel	 STYLE 3	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21 24 x 24 Max. in Steel	 STYLE 2L	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel
 STYLE 4	9x6 to 45x6 24x21 to 45x21 12x9 to 45x9 27x24 to 45x24 15x12 to 45x12 30x27 to 45x27 18x15 to 45x15 33x30 to 45x30 21x18 to 45x18 36x33 to 45x33 24 x 21 Max. in Steel	 STYLE 3S	9x6 24x21 to 36x21 12x9 27x24 to 42x24 15x9 30x27 to 42x27 15x12 to 21x12 33x30 to 42x30 18x15 to 27x15 36x33 21x18 to 33x18 24 x 21 Max. in Steel	 STYLE 2S	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel
 STYLE 41	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33	 STYLE 3S	12x6 18x9 24x12 30x15 36x18	 STYLE 2C	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21
 STYLE 42	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33	 STYLE 3S	15x6 to 36x6 21x9 to 36x9 27x12 to 36x12 33x15 36x15	 STYLE 2CR	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel
 STYLE 41L	9x9 to 36x9 24x24 to 36x24 12x12 to 36x12 27x27 to 36x27 15x15 to 36x15 30x30 to 36x30 18x18 to 36x18 33x33 to 36x33 21x21 to 36x21 36x36	 STYLE 31S	6x6 to 9x6 24x24 to 36x24 9x9 to 15x9 27x27 to 36x27 12x12 to 21x12 30x30 to 36x30 15x15 to 27x15 33x33 to 36x33 18x18 to 33x18 36x36 21x21 to 36x21	 STYLE 2CL	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel
 STYLE 41S	12x6 to 36x6 27x21 to 36x21 15x9 to 36x9 30x24 to 36x24 18x12 to 36x12 33x27 to 36x27 21x15 to 36x15 36x30 24x18 to 36x18	 STYLE 31L	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33	 STYLE 1	6x6 27x27 9x9 30x30 12x12 33x33 15x15 36x36 18x18 39x39 21x21 42x42 24x24 24 x 24 Max. in Steel
 STYLE 42S	12x6 to 36x6 27x21 to 36x21 15x9 to 36x9 30x24 to 36x24 18x12 to 36x12 33x27 to 36x27 21x15 to 36x15 36x30 24x18 to 36x18	 STYLE 3L	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel	 STYLE 1L	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel
		 STYLE 2	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21 24 x 24 Max. in Steel	 STYLE 1S	9x6 to 36x6 24x21 to 36x21 12x9 to 36x9 27x24 to 36x24 15x12 to 36x12 30x27 to 36x27 18x15 to 36x15 33x30 to 36x30 21x18 to 36x18 36x33 24 x 21 Max. in Steel

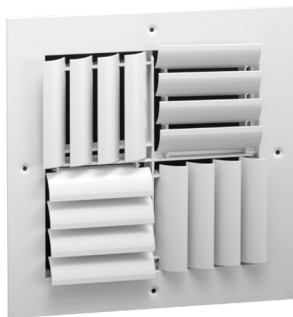
 Aluminum Only

SR Sizes:

6x6 to 24x24 in 3" Increments (see page 30)

AR Sizes:

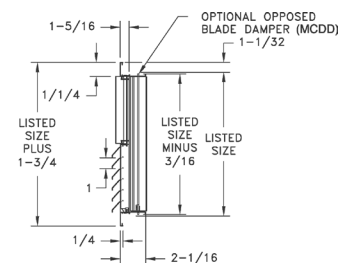
6x6 to 36x36 in 3" Increments (see page 32)



MCD Adjustable Modular Diffuser

- Extruded aluminum construction
- Four modular cores provide variable pattern adjustments of four-way, three-way, two-way, or one-way horizontal air patterns
- Flat margin
- Fixed fins
- Bright White finish

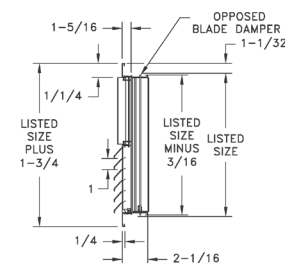
MCD Available Sizes (in.)
6" x 6", 8" x 8", 10" x 10", 12" x 12", 14" x 14", 16" x 16", 18" x 18", 20" x 20", 22" x 22"



MCDD Adjustable Modular Diffuser

- Extruded aluminum construction
- Opposed-blade damper
- Four modular cores provide variable pattern adjustments of four-way, three-way, two-way, or one-way horizontal air patterns
- Removable modules provide easy access to damper
- Flat margin
- Fixed fins
- Bright White finish

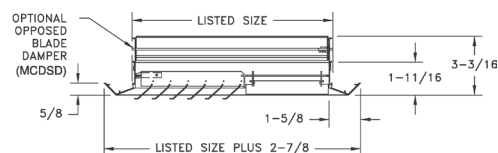
MCDD Available Sizes (in.)
6" x 6", 8" x 8", 10" x 10", 12" x 12", 14" x 14", 16" x 16", 18" x 18", 20" x 20", 22" x 22"



MCDS Adjustable Modular Diffuser

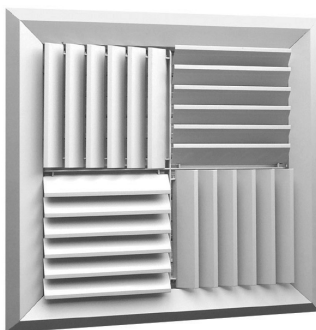
- Extruded aluminum construction
- Step-down (beveled) margin
- Four modular cores provide variable pattern adjustments of four-way, three-way, two-way, or one-way horizontal air patterns
- Fixed fins
- Bright White finish

MCDS Available Sizes (in.)
6" x 6", 8" x 8", 10" x 10", 12" x 12", 14" x 14", 16" x 16", 18" x 18", 20" x 20", 22" x 22"



For T-Bar application, see page 71

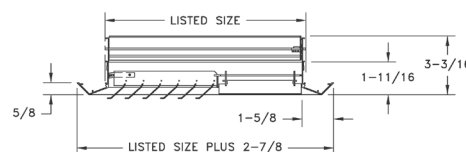
Ceiling Diffusers - Aluminum



MCDSD Adjustable Modular Diffuser

- Extruded aluminum construction
- Opposed-blade damper
- Step-down (beveled) margin
- Four modular cores provide variable pattern adjustments of four-way, three-way, two-way, or one-way horizontal air patterns
- Removable modules provide easy access to damper
- Fixed fins
- Bright White finish

MCDSD Available Sizes (in.)	
6" x 6"	8" x 8", 10" x 10", 12" x 12", 14" x 14",
16" x 16"	18" x 18", 20" x 20", 22" x 22"



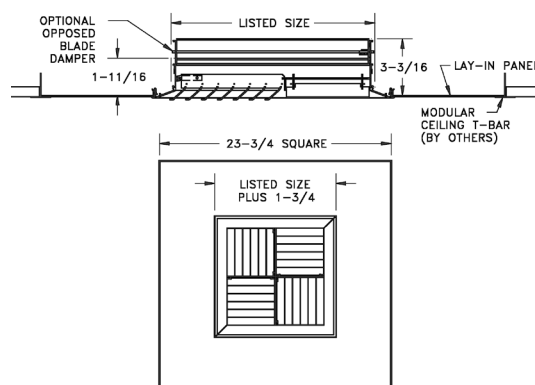
For T-Bar application, see page 71.



Modular T-Bar Panel

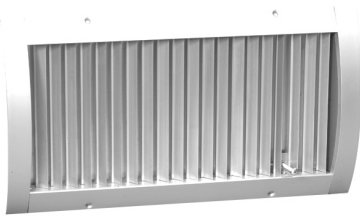
- Steel construction (aluminum optional)
- Adapts MCD and MCDD for T-Bar installation
- Bright White finish

Modular T-Bar Panel Available Sizes	
Opening 6" - 20"	
Overall 23-3/4" x 23-3/4"	



Note: Aluminum panel for factory-mounted, step-down margin. Available as Models MCDST and MCSDT.

Spiral Diffusers

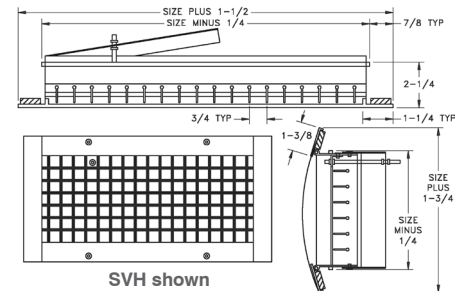


(Shown with scoop)
Size restrictions apply.
See price list for sizes and ordering information.

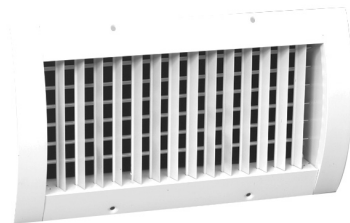
SV Single-Deflection Diffuser

- Extruded aluminum construction
- Single row of individually adjustable vertical blades for horizontal air-deflection control
- Available as diffuser only or diffuser with air scoop (SV3)
- Optional face adjustable scoop to direct airflow
- Counter-sunk screw holes
- Available sizes: 10x3 to 36x12 for 6" to 50" ducts
- Bright White and Satin Anodized finishes

SV Available Sizes (in.)
10" x 3" to 36" x 12"



SVH shown

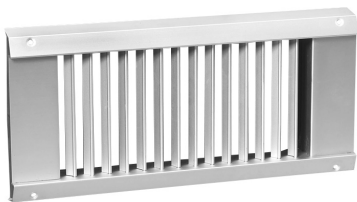
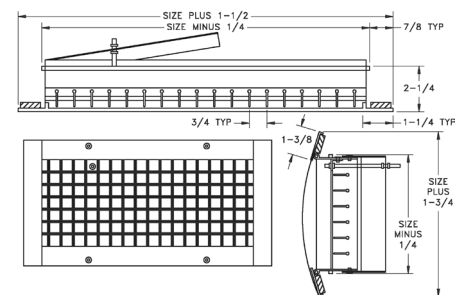


Size restrictions apply.
See price list for sizes and ordering information.

SVH Double-Deflection Diffuser

- Extruded aluminum construction
- Two rows of individually adjustable blades for horizontal and vertical deflection control
- Optional face adjustable scoop to direct airflow
- Counter-sunk screw holes
- Available sizes: 10x3 to 36x12 for 6" to 50" ducts
- Bright White and Satin Anodized finishes

SVH Available Sizes (in.)
10" x 3" to 36" x 12"

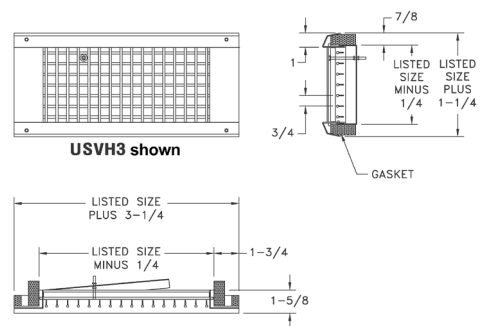


Size restrictions apply.
See price list for sizes and ordering information.

USV Single-Deflection Universal Diffuser

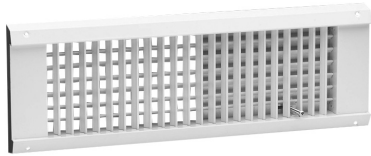
- Extruded aluminum construction
- Single row of individually adjustable vertical blades for horizontal air deflection control
- Optional face adjustable scoop to direct airflow
- Counter-sunk screw holes
- Available sizes: 10x3 to 36x12
- Fits duct sizes 6" on up, based on diffuser height
- Bright White and Satin Anodized finishes

USV Available Sizes (in.)
10" x 3" to 36" x 12"



USVH3 shown

Spiral Diffusers



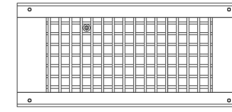
Size restrictions apply.
See price list for sizes and ordering information.

USVH Double-Deflection Universal Diffuser

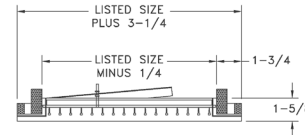
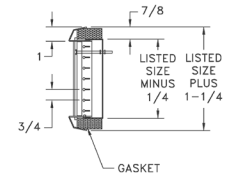
- Extruded aluminum construction
- Two rows of individually adjustable blades for horizontal and vertical deflection control
- Optional face adjustable scoop to direct airflow
- Counter-sunk screw holes
- Available sizes: 10x3 to 36x12
- Fits duct sizes 6" on up, based on diffuser height
- Bright White and Satin Anodized finishes

USVH Available Sizes (in.)

10" x 3" to 36" x 12"



USVH3 shown



For Models SV and SVH
Minimum Duct Diameter per listed size

		Width								
		10	12	14	16	18	20	24	30	36
Height	3	5	5	5	5	5	5	5	5	5
	4	6	6	6	6	6	6	6	6	6
	6	8	8	8	8	8	8	8	8	8
	8	10	10	10	10	10	10	10	10	10
	10		12	12	12	12	12	12	12	12
	12			14	14	14	14	14	14	14

Maximum duct diameter for all sizes is 36".

For Models USV and USVH
Minimum Duct Diameter

		Width								
		10	12	14	16	18	20	24	30	36
Height	3	6	6	6	6	6	6	6	6	6
	4	10	10	10	10	10	10	10	10	10
	6	12	12	12	12	12	12	12	12	12
	8	20	20	20	20	20	20	20	20	20
	10			24	24	24	24	24	24	24
	12					30	30	30	30	30

Linear Bar Diffusers



Minimum width 1-1/2"
Sizes under 4" not available

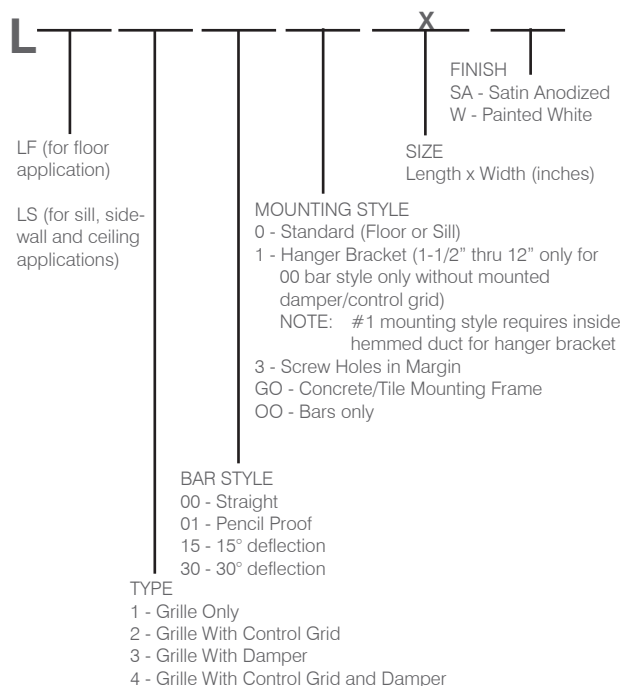
Note: Floor application must be ordered as "LF." Eight-inch maximum width for constant traffic; 12" maximum width for occasional traffic; maximum length 72".

* Control grids start at 4" and above

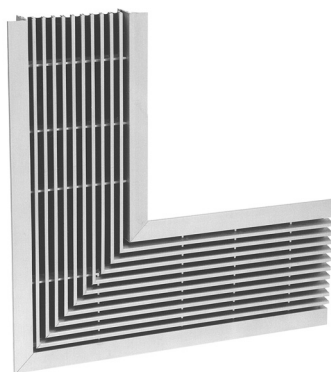
LS/LF Series Diffuser

- Extruded aluminum construction
- Ceiling, sidewall, sill or floor applications
- Available in 0, 15, or 30 degrees and pencil proof bar deflections
- Four mounting styles—standard, hanger bracket, and screw holes in margin
- Maximum one-piece length 72", width 24" (1/2" width increments)
- Lengths over 72" made in multiple units with keyway splices to form even continuous lengths
- Bright White or Satin Anodized finish

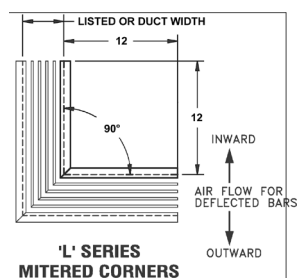
HOW TO ORDER



See following page for dimensional data.



Mitered Corner Sections furnished as shown.
Blank off baffles available upon request.

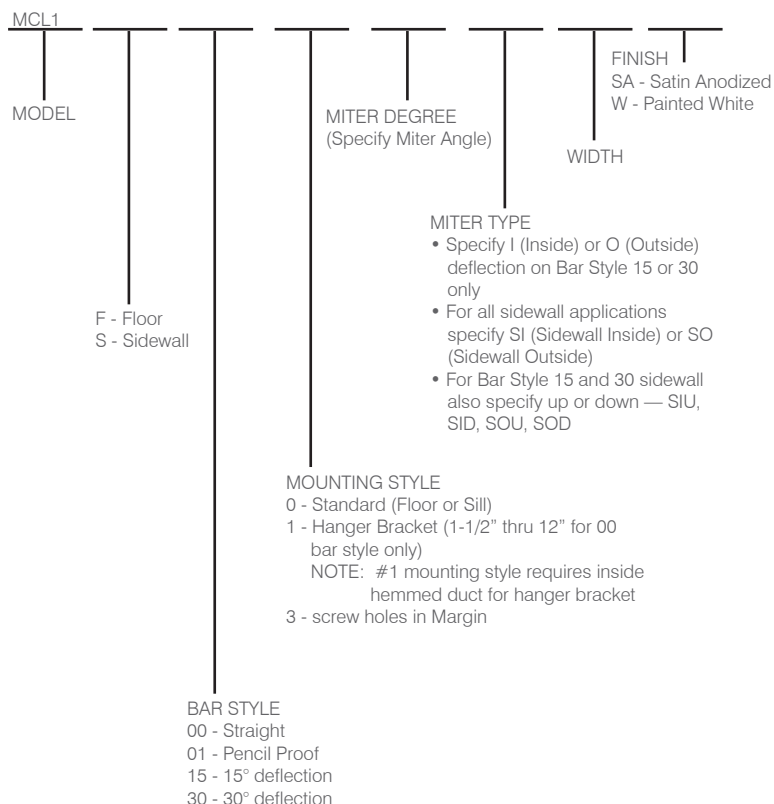


See page 47 for distribution plenums.

L Series Mitered Corners

Mitered corner sections furnished as shown.

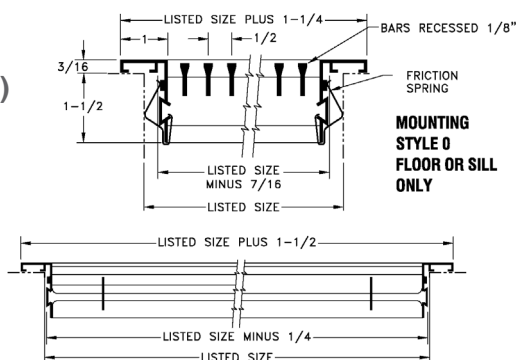
HOW TO ORDER



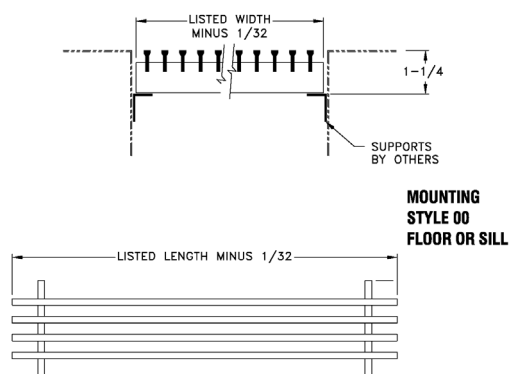
Linear Bar Diffusers

L Series - Dimensional Data

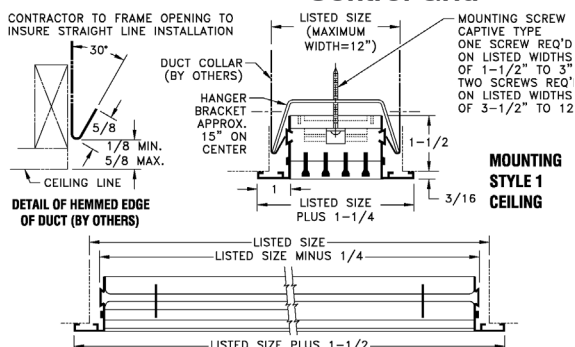
Mounting Style 0 (Floor/Sill) LF



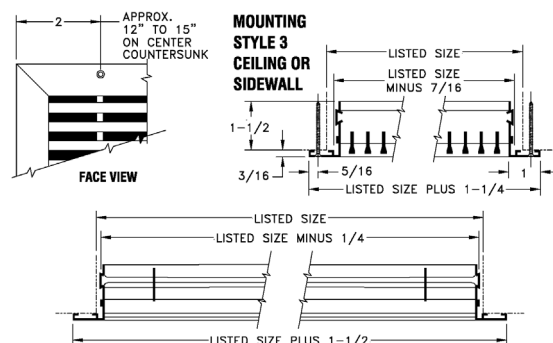
Mounting Style 00 (Bars Only)



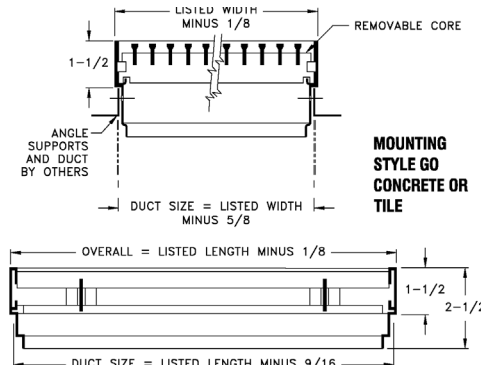
Mounting Style 1 (Ceiling) LS



Mounting Style 3 (Ceiling/Sidewall) LS



Mounting Style GO (Concrete/Tile) LF



BAR STYLES			
15° 5/16" 3/16"		30° 5/16" 3/16"	
3/32" TYP. 5/16" 3/16"		1/4" 1/4"	
SYMBOL 15		SYMBOL 30	
SYMBOL 00		SYMBOL 01	

Bars on 1/2" Centers

Note: Quantity of bars = 2 x listed width minus 2.

Example: 4" listed width = 4" x 2 = 8 minus 2 = 6 bars.



L Series Single-Leaf Damper Option

- Aluminum construction
- Leaf type for sizes 1 1/2" to 3"

Note: Order with desired diffuser for attachment at factory.

Cannot be used with hanger brackets.



L Series G Grid Option

- Aluminum construction
- Individual adjustable blades
- Cannot be used with hanger brackets

Note: G Grid blades are assembled parallel to short dimension. Order with desired diffuser for factory fitting.

Control grids start at 4" and above.

Sizes under 4" not available



L Series D Damper Option

- Extruded aluminum construction
- Controls the air volume from full flow to shut-off
- Fits widths of 3 1/2" and wider

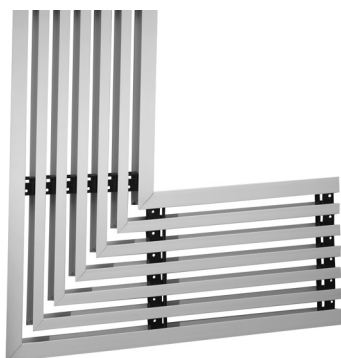
Note: Order with desired diffuser for attachment at factory.

Must be ordered separately and duct-mounted if mounting style #1 is used.

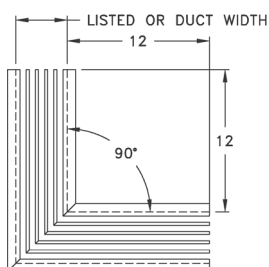
D Available Sizes (in.)

3 1/2" and wider

Linear Bar Diffusers



**S SERIES
MITERED CORNERS**



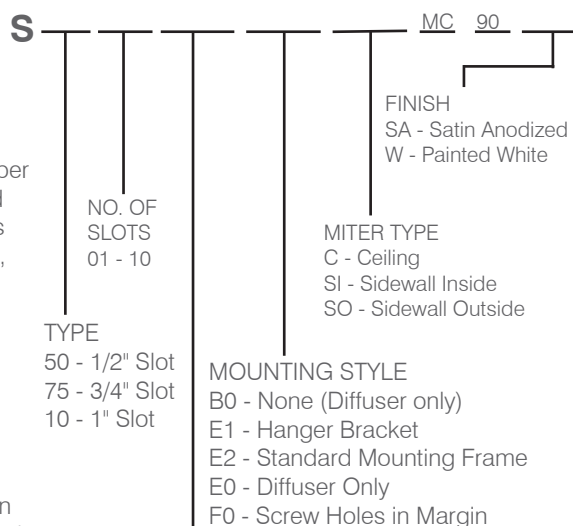
S Series Miter Corners

90-degree mitered corners are available as factory-fabricated section. Precise factory cutting and assembly reduces field fabrication time and assures proper fit. Corner sections are furnished and blanked off. Corner sections butt to adjacent straight sections, which are spliced together with aligning pins.

Mitered corners are furnished in style E2. When viewed from the room side, the mitered corner section appears identical to the butting straight sections.

Plaster frame mitered corners can be specified with the outlet mitered corner.

Mitered Corner Sections Order as:



Note: Margins ordered without mounting frame may require hanger brackets and inside hemmed duct for installation.

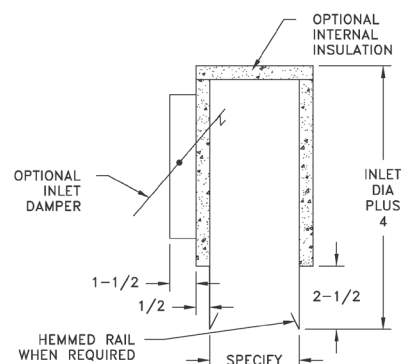


DP Distribution Plenum

- Galvannealed steel construction
- For L and S Series Linears and Slots
- Available in insulated or noninsulated designs

DP Available Sizes

12", 24", 36", 48", 60", 72" lengths



DP

I - Internally insulated
N - Noninsulated

Number of slots for slot diffuser. Listed width in inches for linear bar grilles

S - Slots for slot diffusers
W - Listed width for linear bar grilles

Inlet size
5" to 12"

N - No Inlet
O - Oval Inlet
R - Round Inlet

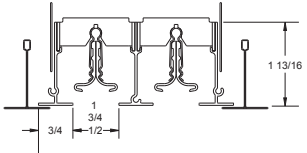
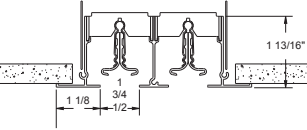
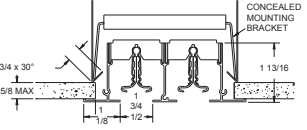
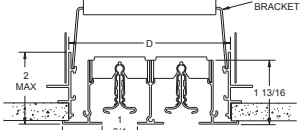
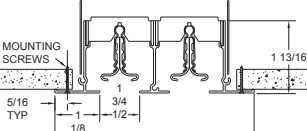
D - Inlet Damper
N - No Damper

H - Hemmed rail for E1 mounting style hanger brackets - Do not use with mounting frames
S - Straight sides - Use with all mounting frames, except E1

Nominal Length - 12" to 72"

B0, E0, E1, F1 - order plenums 1" less than actual length
E2, L-series - order plenums actual length

S Series Slot Diffusers

MARGIN STYLE	SLOT	DIFFUSER ONLY Mounting Style 0	with Hanger Bracket Mounting Style 1	with No. 2 Standard Mounting Plaster Frame
	 1"  3/4"  1/2"	B0 		
	 1"  3/4"  1/2"	E0 	E1 	E2 
	 1"  3/4"  1/2"	F0 	HOW TO ORDER S TYPE STYLE NO OF** SLOTS MOUNTING STYLES END CAPS LENGTH FINISH 01 to 08 1 - Diffuser Only 2 - Diffuser w/Pattern Controller E1 - One End E2 - Both Ends 00 - None B0 - T-Bar Layin - Diuser only E1 - Hanger Bracket* E2 - Standard Mounting Frame E0 - Diffuser Only F0 - Screw Holes in Margin 50 - 1/2" Slot 75 - 3/4" Slot 10 - 1" Slot	

- Extruded aluminum construction
- Three slot sizes: 1/2" slot, 3/4" slot, 1" slot
- One to eight slots wide for air volume of 10-350 cfm per foot
- Adjustable pattern controller
- Maximum one-piece length 72", lengths over 72" made in multiple units with pin splices for even continuous lengths.

See page 42 for distribution plenums.

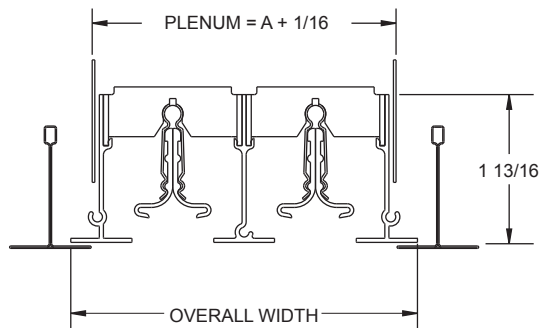
****Note:** The width dimension is determined by the slot width and the number of slots.

Linear Slot Diffusers

STYLE B0

Also for
T-Bar
applications

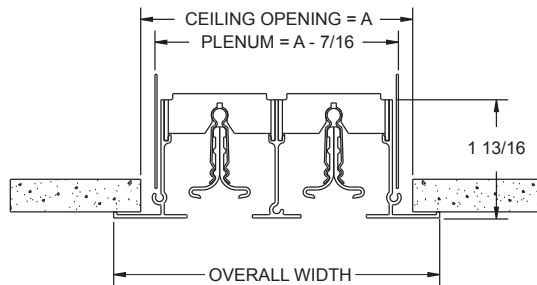
Order 22³/₄" or
46³/₄" lengths
with End Caps.



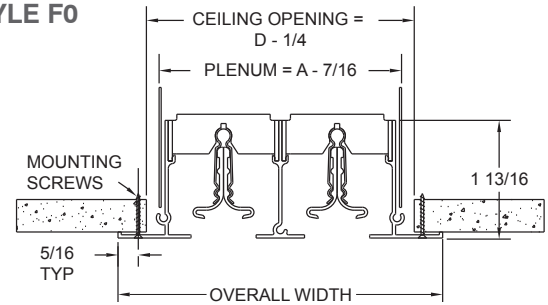
STYLE E0

Also for
T-Bar
applications

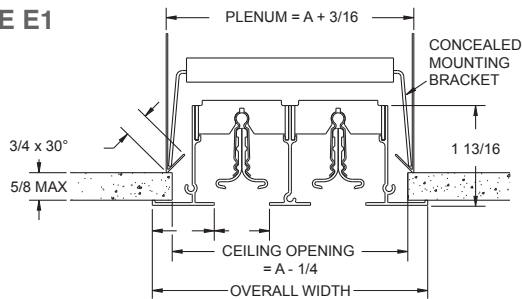
For E0, order 22"
and 46" lengths
with End Caps.



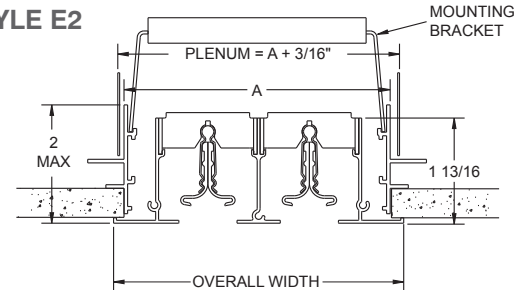
STYLE F0



STYLE E1



STYLE E2



Style B0

Dimension	Type	Number of Slots								Duct Width	Overall Width
		1	2	3	4	5	6	7	8		
A	50	1 3/8	2 5/8	3 7/8	5 1/8	6 3/8	7 5/8	8 7/8	10 1/8	A + 1/16	A + 5/8
	75	1 5/8	3 1/8	4 5/8	6 1/8	7 5/8	9 1/8	10 5/8	12 1/8	A + 1/16	A + 5/8
	10	1 7/8	3 5/8	5 3/8	7 1/8	8 7/8	10 5/8	12 3/8	14 1/8	A + 1/16	A + 5/8

Style E0/F0

Dimension	Type	Number of Slots								Duct Width	Overall Width
		1	2	3	4	5	6	7	8		
A	50	1 7/8	3 1/8	4 3/8	5 5/8	6 7/8	8 1/8	9 3/8	10 5/8	A - 7/16	A + 7/8
	75	2 1/8	3 5/8	5 1/8	6 5/8	8 1/8	9 5/8	11 1/8	12 5/8	A - 7/16	A + 7/8
	10	2 3/8	4 1/8	5 7/8	7 5/8	9 3/8	11 1/8	12 7/8	14 5/8	A - 7/16	A + 7/8

Style E1/E2

Dimension	Type	Number of Slots								Overall Width
		1	2	3	4	5	6	7	8	
A	50	2	3 1/4	4 1/2	5 3/4	7	8 1/8	9 1/2	10 3/4	A + 3/4
	75	2 1/4	3 3/4	5 1/4	6 3/4	8 1/4	9 3/4	11 1/4	12 3/4	A + 3/4
	10	2 1/2	4 1/4	6	7 3/4	9 1/2	11 1/4	13	14 3/4	A + 3/4



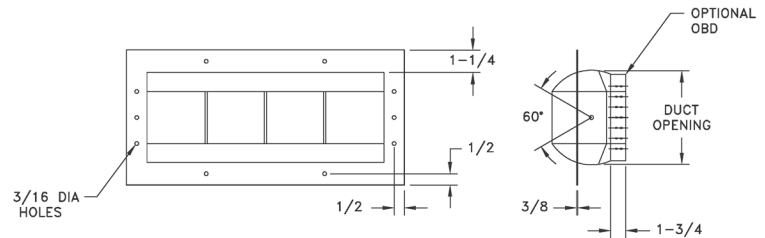
DL Drum Louver

- All-aluminum construction
- Horizontal and vertical air stream control
- Galvanized, opposed-blade damper (optional)
- Adjustable drum and vane design
- White or Mill finish

Drum Louver Available Sizes

6" x 12", 6" x 18", 6" x 24", 6" x 30", 6" x 36", 6" x 48", 6" x 60"
10" x 20", 10" x 25", 10" x 30", 10" x 35", 10" x 40", 10" x 50"
12" x 30", 12" x 40", 12" x 50", 12" x 70"
15" x 30", 15" x 50", 15" x 60", 15" x 70"

Order H x W



Duct Opening Sizing

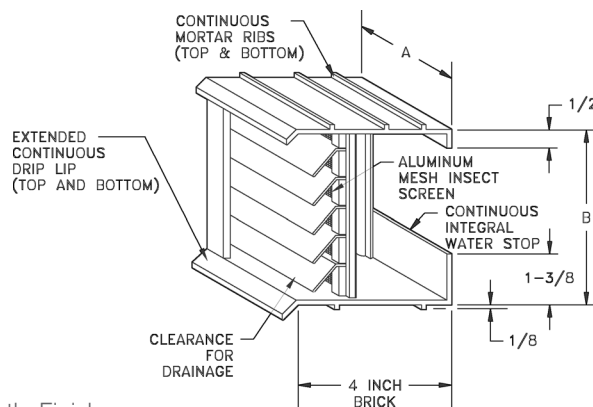
Listed Height Size	Duct Opening Height	Duct Opening Width
6	Listed Size Plus $\frac{5}{8}$	Listed Size Plus $1\frac{1}{8}$
10	Listed Size Plus $\frac{3}{8}$	Listed Size Plus $1\frac{1}{8}$
12	Listed Size Plus $\frac{3}{8}$	Listed Size Plus $1\frac{1}{8}$
15	Listed Size Plus $\frac{3}{8}$	Listed Size Plus $1\frac{1}{8}$

Other sizes not available.



BV Brick/Block Vent

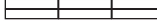
- Extruded aluminum construction
- Standard masonry size
- Maximum water protection
- 6063-T5 extruded aluminum alloy
- 18 x 16 mesh aluminum insect screen standard
- 4" standard depth
- Satin Anodized finish



Note: To order specify Model, Depth, Finish

Example: BV168 4 SA

DIMENSIONS/FREE AREA

	BV Model	Masonry Opening Size	A Width Inches	B Height Inches	Free Area Sq. Ft.
STANDARD BRICK	802	ONE BRICK 	8	2 ¹ / ₂	.01
	805	TWO BRICK 	8	4 ³ / ₄	.06
	162	TWO BRICK 	16 ³ / ₈	2 ¹ / ₂	.02
	808	THREE BRICK 	8	7 ¹ / ₂	.13
	242	THREE BRICK 	24 ³ / ₄	2 ¹ / ₂	.04
	165	FOUR BRICK 	16 ³ / ₈	4 ³ / ₄	.14
	168	SIX BRICK 	16 ³ / ₈	7 ¹ / ₂	.30
	245	SIX BRICK 	24 ³ / ₄	4 ³ / ₄	.23
	248	NINE BRICK 	24 ³ / ₄	7 ¹ / ₂	.50
JUMBO BRICK	122	ONE JUMBO 	11 ⁵ / ₈	2 ¹ / ₂	.02
	125	TWO JUMBO 	11 ⁵ / ₈	4 ³ / ₄	.10
	128	THREE JUMBO 	11 ⁵ / ₈	7 ¹ / ₂	.21
MODULAR BLOCK	158	STANDARD BLOCK 	15 ¹ / ₂	7 ¹ / ₂	.30
	318	TWO STANDARD BLOCK 	31 ³ / ₈	7 ¹ / ₂	.66
	168	JUMBO BLOCK 	16 ³ / ₈	7 ¹ / ₂	.30

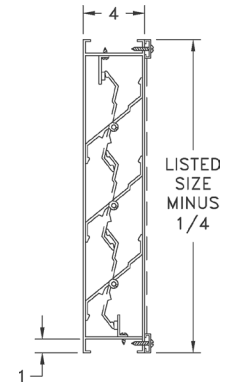
Notes:

1. Brick/Block vent depths are identical with or without the optional opposed-blade damper.
2. Contact factory regarding applications requiring custom size widths and/or heights.
3. Masonry opening sizes listed are representative of the blocks or bricks shown. Field dimensions must be verified to guarantee fit.



4ABC Adjustable Louver

- Extruded aluminum construction
- Adjustable baffle blades on 4" centers
- 4" louver depth
- Channel frame
- Max. one-piece size 60" W x 72" H
- Mill finish standard
- Lever activated, manually
- Blades open to 45°; closes fully



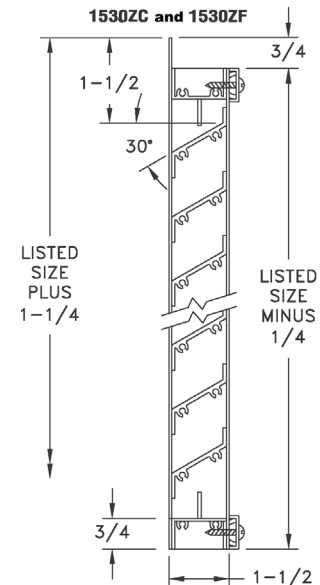
1530ZC Shown

1530ZC Stationary Louver

- Extruded aluminum construction
- Fixed Z blade louver
- Blades at 30-degree angle
- 1 1/2" louver depth
- Channel frame
- Available with bird screen or insect screen
- Mill finish standard

1530ZF Stationary Louver

- Extruded aluminum construction
- Fixed Z blade louver
- Blades at 30-degree angle
- 1 1/2" louver depth
- Flange frame
- Available with bird screen or insect screen
- Mill finish standard



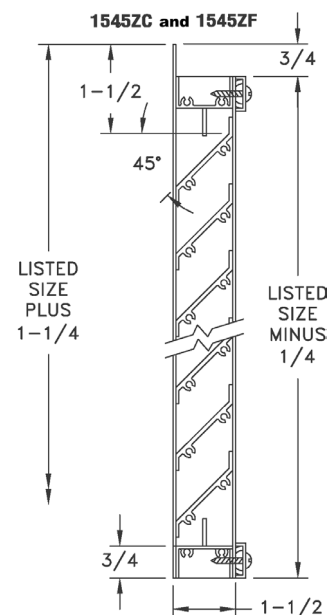
1545ZF Shown

1545ZC Stationary Louver

- Extruded aluminum construction
- Fixed Z blade louver
- Blades at 45-degree angle
- 1 1/2" louver depth
- Channel frame
- Available with bird screen or insect screen
- Mill finish standard

1545ZF Stationary Louver

- Extruded aluminum construction
- Fixed Z blade louver
- Blades at 45-degree angle
- 1 1/2" louver depth
- Flange frame
- Available with bird screen or insect screen
- Mill finish standard



Louvers



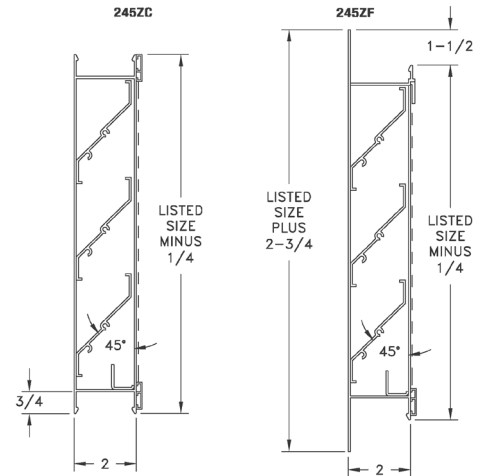
245ZF Shown

245ZC Stationary Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 2" louver depth
- Channel frame
- Available with bird screen or insect screen
- Mill finish standard

245ZF Stationary Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 2" louver depth
- Flange frame
- Available with bird screen or insect screen
- Mill finish standard



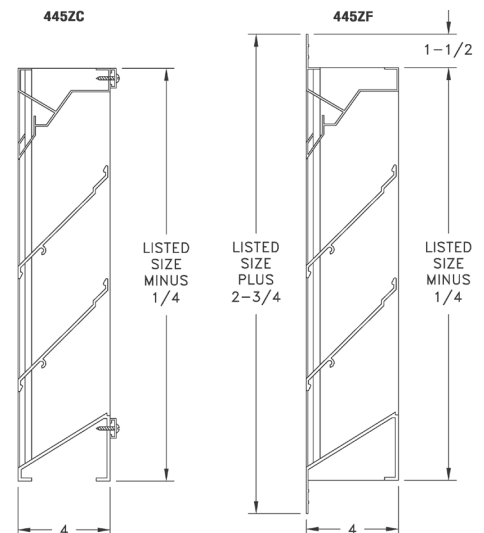
445ZF Shown

445ZC Stationary Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 4" louver depth
- Channel frame
- Available with bird screen or insect screen
- Mill finish standard

445ZF Stationary Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 4" louver depth
- Flange frame
- Available with bird screen or insect screen
- Mill finish standard



645ZC Shown

645ZC Fixed Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 6" louver depth
- Channel frame
- Available with bird screen or insect screen
- Mill finish standard

645ZF Fixed Louver

- Extruded aluminum construction
- Fixed-blade louver
- Blades at 45-degree angle
- 6" louver depth
- Flange frame
- Available with bird screen or insect screen
- Mill finish standard

T-Bar Construction Features



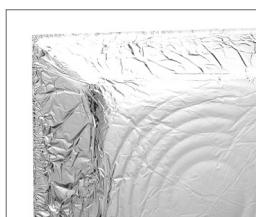
Our popular supply and return products for T-Bar ceilings are an innovative response to the challenge of creating a better indoor environment. T-Bar products combine clean appearance with installation ease, and include critical design details to ensure consistent performance. Glass fiber insulation minimizes condensation, and the aluminum foil vapor barrier protects the insulation from moisture, if condensation occurs.

Patented adjustable deflectors permit a variety of directional patterns and minimizes static pressure loss.

A unique modular collar system provides a standard collar and damper unit, which can be shared between a number of different T-Bar products. In addition, Hart & Cooley offers specialty T-Bar products to meet specific design demands. Surfaire® diffusers feature deflector apertures that enhance mixing of conditioned air.

T-Bar products are offered in lanced, perforated, louvered and fixed-bar face styles, with steel or molded fiberglass backs. They include a choice of easy mounting systems and adjustable damper designs.

T-Bar Return-Air Filter Grilles



See page 54 for fiberglass specifications.

659T

Steel

Lanced Filter Grille

- Steel construction
- Lanced-face design with $\frac{1}{3}$ " blade spacing
- Flush, removable face with concealed latches and hinges can be installed in any direction
- Uses standard 1" disposable filters (not furnished)
- Bright White finish

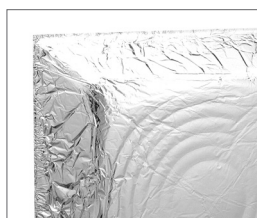
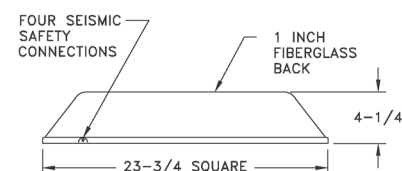
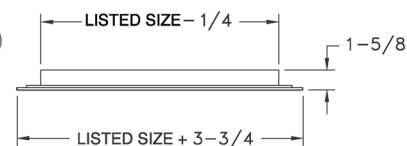
659TI With Insulated Back

Includes these features

- Molded fiberglass back R4.2, R6 (see information on page 54)
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections

659T / 659TI Available Sizes

- | |
|--|
| 20" x 20" with extended frame (overall $23\frac{3}{4}$ " x $23\frac{3}{4}$ ")
for 24" x 24" openings |
| 44" x 20" with extended frame (overall $47\frac{3}{4}$ " x $23\frac{3}{4}$ ")
for 48"x24" opening (659T only) |



673T

Steel

Filter Grille

- Steel construction
- Lanced-face design with $\frac{1}{2}$ " blade spacing
- Flush, removable face with concealed latches and hinges can be installed in any direction
- Uses standard 1" disposable filters (not furnished)
- Bright White finish

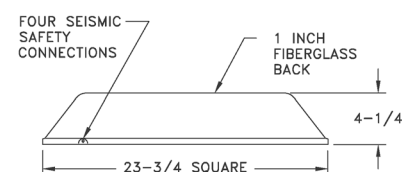
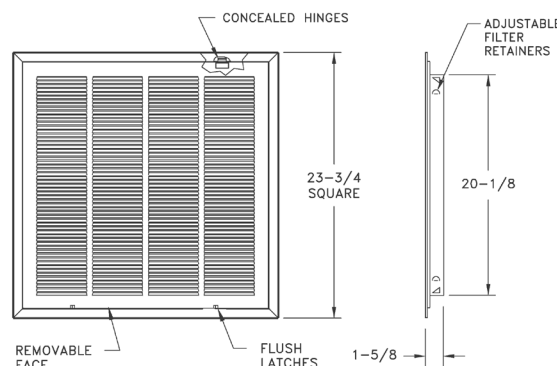
673TI With Insulated Back

Includes these features

- Molded fiberglass back R4.2, R6 (see information on page 54)
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections

673T/673TI Available Size

- | |
|--|
| 20" x 20", overall $23\frac{3}{4}$ " x $23\frac{3}{4}$ " |
|--|



T-Bar Return-Air Filter Grilles



673TPI R6

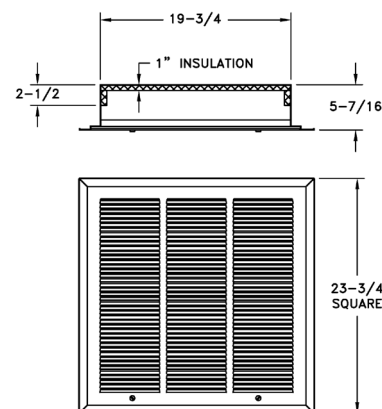
Steel

Filter Grille

- Steel construction
- Lanced-face design with 1/2" blade spacing
- Flush, face with screwdriver latches and piano hinges can be installed in any direction
- Plenum box with R6 insulated ductboard
- Uses standard 1" disposable filters (not furnished)
- Bright White finish

673TPI R6 Available Size

20" x 20", overall 23³/₄" x 23³/₄"



Molded Fiberglass Back R4.2, R6 & R8

- These fiberglass backs are sold separately for field installation. (Glue or double sided tape recommended)
- Available in 4.2, 6.0 and 8.0 "R" values
- Recommended for T-bar diffusers without steel back panel
- Accepts 6"-14" tab collars (6400 series) or 6"-18" snap in collar (5400 & 5400PP Series)
- Accepts standard spin-in collar

- Bonded foil vapor barrier minimizes condensation
- Fiberglass back meets or exceeds the following tests and ratings:
Meets 25/50 tested in accordance with A.S.T.M. E84 (UL723)
UL181 Erosion and Impact Test, and will not support microbial growth

Note: Attachment of molded fiberglass back and 5400 collar requires 5400PP (push pins).



96AFBT

Steel

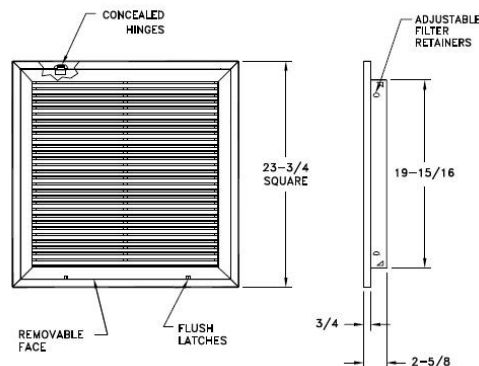
Fixed-Bar Filter Grille

- All-steel construction
- Bar-style face design
- Flush, removable face with concealed latches and hinges, can be installed in any direction
- Uses standard 1" disposable filters (not furnished)
- Bright White finish
- Specify 96AFBT2 for 2" filters

96AFBT Available Sizes

20" x 20", overall 23³/₄" x 23³/₄"

44" x 20", overall 47³/₄" x 23³/₄"



T-Bar Return-Air Filter Grilles



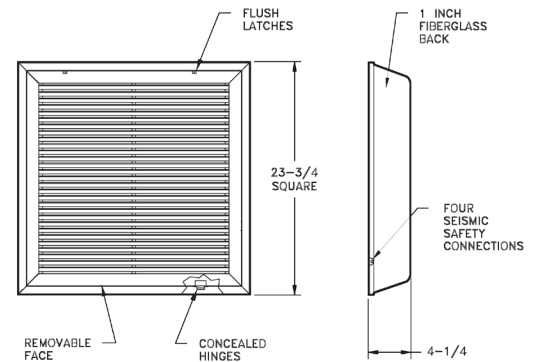
See page 54 for fiberglass specifications.

96AFBTI Steel Fixed-Bar Filter Grille with Fiberglass Back

- Steel construction
- Bar-style face design
- Flush, removable face with concealed latches and hinges, can be installed in any direction
- R4.2 molded fiberglass back
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections
- Uses standard 1" disposable filters (not furnished)
- Bright White finish

96AFBTI Available Size

20" x 20", overall 23³/₄" x 23³/₄"

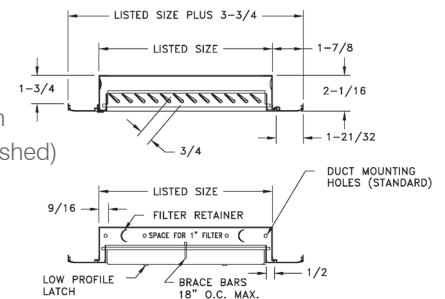


RHF45T Aluminum Bar-Style Filter Grille

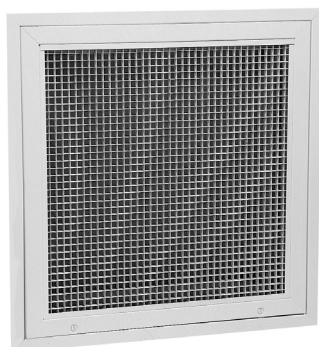
- Extruded aluminum construction
- Bar-style face
- Hinged to filter frame, removable face
- Mounts flush with T-Bar ceilings
- Filter grilles equipped with plastic slide latch
- Uses standard 1" disposable filter (not furnished)
- Bright White or Satin Anodized finish
- Specify RHF45T2 for 2" filters

RHF45T Available Sizes

20" x 20" with extended frame
(overall 23 ³/₄" x 23 ³/₄" for 24" x 24" openings
44" x 20" with extended frame
(overall 47 ³/₄" x 23 ³/₄" for 48" x 24" openings



T-Bar Return-Air Filter Grilles



REF5T/REF5TI Aluminum Egg Crate Filter Grille

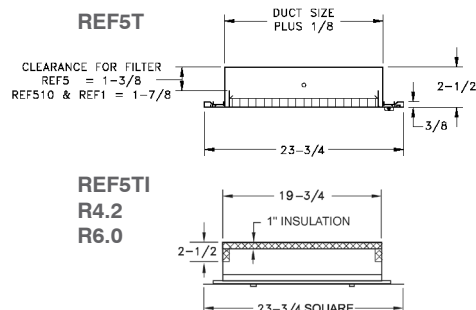
- Aluminum and steel construction
- Egg crate style face
- Non-removable face, hinged to filter frame
- Mount flush with T-Bar ceilings
- REF5T with thumb screw fasteners, REF5TI with cam lock
- Uses standard 1" disposable filter (not furnished)
- Bright White or Mill Aluminum finish
- Specify REF5T2 for 2" filters

REF5T/
REF5TI

REF5T
only

Available Sizes

20" x 20" with extended frame (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
44" x 20" with extended frame (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings

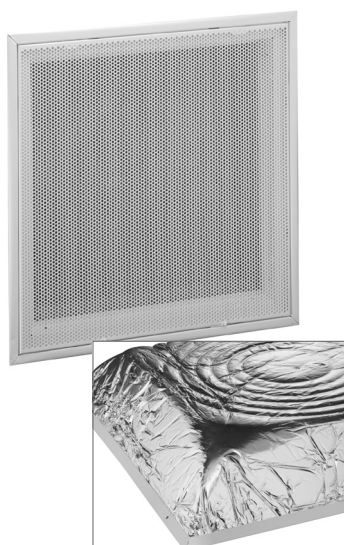
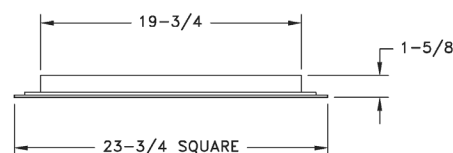


PFT Steel Perforated Filter Grille

- Steel construction
- Perforated face design
- Flush, removable face with concealed latches and hinges, can be installed in any direction
- Uses standard 1" disposable filter (not furnished)
- Bright White finish

PFT Available Size

20" x 20", overall 23³/₄" x 23³/₄"

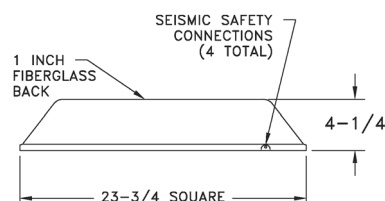


PFTI Steel Perforated Filter Grille with Insulated Back

- Steel construction
- Perforated face design
- Flush, removable face with concealed latches and hinges, can be installed in any direction
- Molded fiberglass back, available in R4.2 or R6
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections
- Uses standard 1" disposable filters (not furnished)
- Bright White finish

PFTI Available Size

20" x 20", overall 23³/₄" x 23³/₄"



See page 54 for fiberglass specifications.

T-Bar Return-Air Grilles

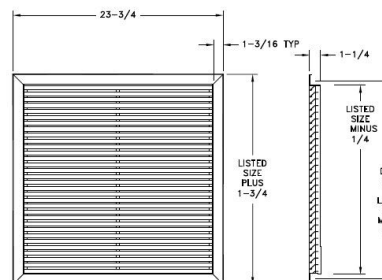


94AT Steel Bar-Style Return Grille

- Steel construction
- Mount flush with T-Bar ceilings
- Bright White finish

94AT Available Sizes

22" x 22" (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
46" x 22" (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings

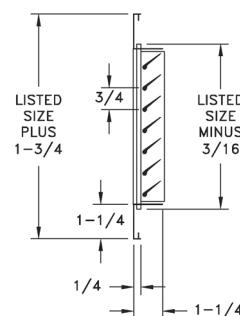


RH45T Aluminum Bar-Style Return Grille

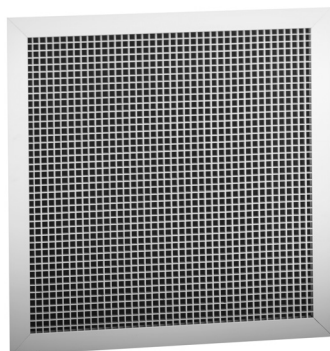
- Extruded aluminum construction
- Horizontal bars at 45 degree
- Mount flush with T-Bar ceilings
- Bright White or Satin Anodized finish

RH45T Available Sizes

22" x 22" (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
46" x 22" (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings



T-Bar Return-Air Grilles

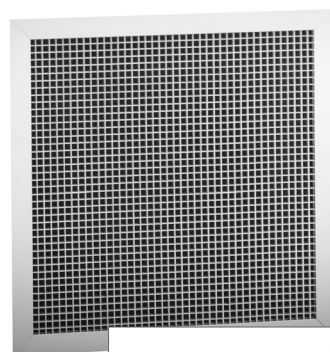
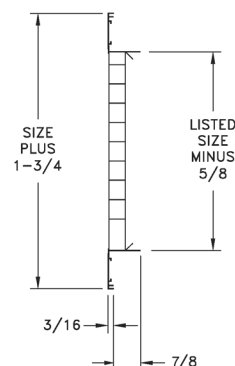


RE5T Aluminum Egg Crate Return Grille

- All aluminum construction
- Egg crate style face
- Mount flush with T-Bar ceilings
- Bright White or Mill Aluminum finish

RE5T Available Sizes

22" x 22" (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
22" x 46" (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings

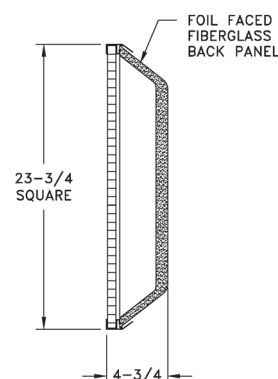


RE5TI Aluminum Egg Crate Return Grille with Insu- lated Back

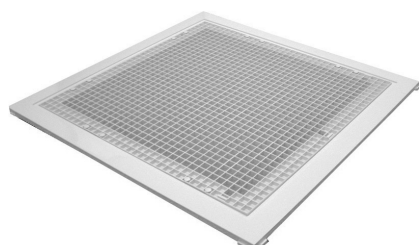
- All aluminum construction
- Egg crate style face
- R4.2 molded fiberglass back
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Bright White finish
- No steel, great for MRI rooms

RE5TI Available Size

grid core face 1¹/₂" x 1¹/₂" x 1¹/₂"



See page 54 for fiberglass specifications.

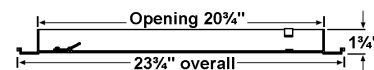


Rezzin Plastic T-Bar Egg- Crate Filter Grille

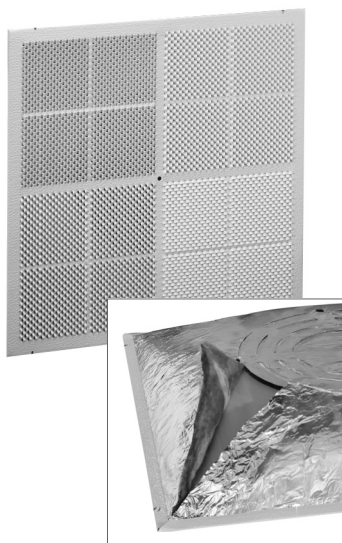
- Egg crate style face, 1¹/₂" x 1¹/₂" x 1¹/₂" grid pattern
- Face is hinged to filter frame
- Mounts flush with T-bar ceilings
- Uses Rezzin back panel or standard fiberglass back
- Uses standard 1" disposable filters
- Bright white finish
- Contains metal screws

Available Size

20" x 20", overall 23³/₄" x 23³/₄"



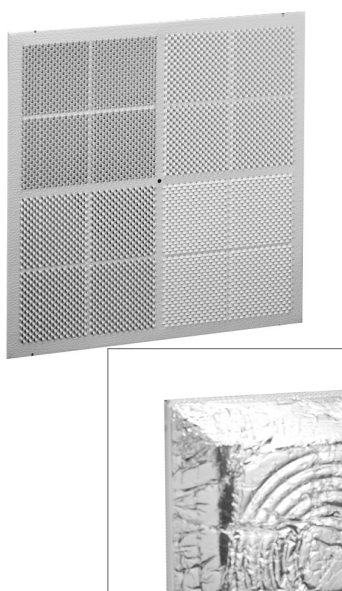
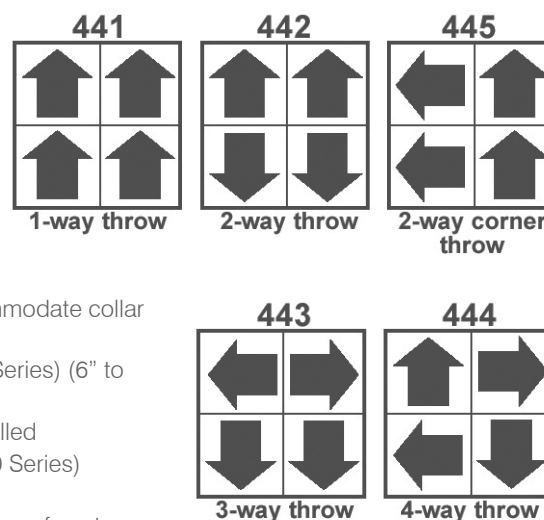
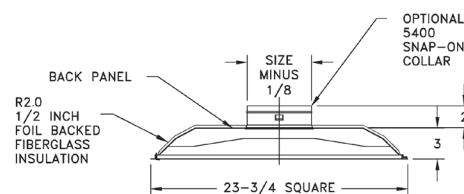
T-Bar Surfaire/Renovator Diffusers



444 SurfAire® Aluminum Face Renovator Series Diffuser

- Aluminum face
- Unique deflector apertures
- Air distributed in thin layers along ceiling surface allowing optimum mixing of conditioned air
- Formed galvanized steel back panel
- Frame includes four seismic safety connections
- Back plate covered with glass fiber insulation to reduce condensation
- Aluminum foil vapor barrier protects insulation from harmful effects of condensation
- Insulation prescored to accommodate collar size desired
- Accepts snap-in collar (5400 Series) (6" to 12")
- 444 - 14" collar is factory-installed
- Utilizes butterfly damper (3800 Series) inserted in collar
- Damper adjusted through diffuser face to allow proper air balancing
- Bright White finish

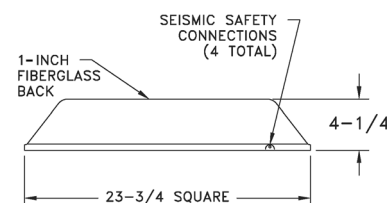
444 Available Size
overall size 23 ³ / ₄ " x 23 ³ / ₄ "



REN4 Aluminum Face Renovator Series Diffuser with Insulated Back

- Aluminum face
- Unique deflector apertures
- Molded fiberglass back panel, available in R4.2 or R6
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections
- Bright White finish

REN4 Available Size
20" x 20", overall 23 ³ / ₄ " x 23 ³ / ₄ "



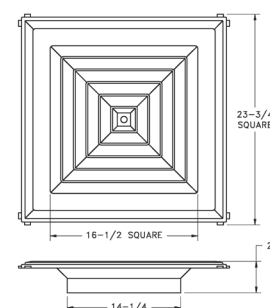
See page 54 for fiberglass specifications.



4-Way Rezzin T-Bar Diffuser

- Engineered polymer construction
- Four-way deflection
- Available with Rezzin square-to-round, ordered separately
- Bright White finish
- Contains metal screws

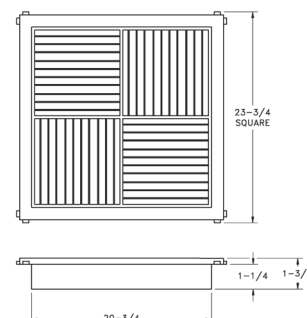
4-Way Diffuser Available Size (in.)
24 x 24



Rezzin T-Bar Modular Core Diffuser

- Engineered polymer construction
- Modular cores provide one, two, three, or four-way horizontal air patterns
- Removable modules provide easy access to accessories
- Available with Rezzin back panel, ordered separately
- Bright White finish

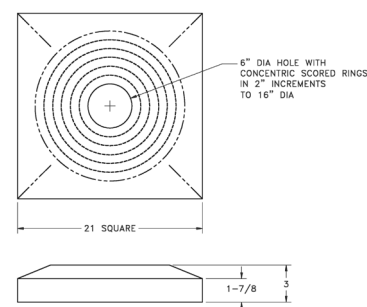
Modular Core Available Size (in.)
24 x 24



Rezzin Back Panel

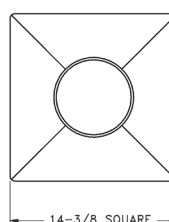
- Engineered polymer construction
- Use 6400 Series Tab Collar
- Bright White finish
- Use with Rezzin Modular Core and Rezzin Egg Crate diffuser

Back Panel Available Size (in.)
24 x 24

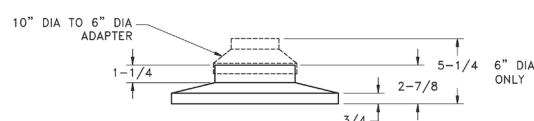


Rezzin Square-to-Round Transition

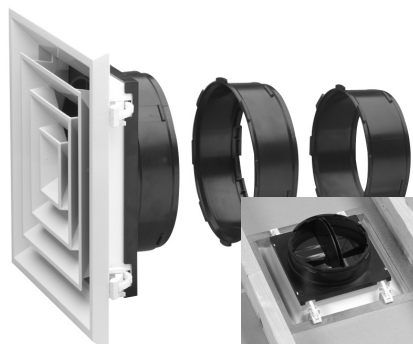
- Engineered polymer construction
- Allows flex duct installation for 4-Way Rezzin Diffuser
- Black finish
- Contains metal screws/clips
- Can use RD damper



Sq to Rd Available Sizes (in.)	
Square Size	Round Neck
14 x 14	6
14 x 14	8
14 x 14	10
14 x 14	12
14 x 14	14



T-Bar Rezzin Diffusers



Rezzin Square Ceiling Diffuser

- Engineered polymer construction
- 12"x12" face
- 6", 7" and 8" collars included
- Ratcheting cam lock—install without screws
- Removable core and integral damper
- Available in 4-way, 3-way and 2-way corner
- Bright White finish
- Contains metal parts

T-Bar Backer Plate or Rafter Rough-In Plate Available



3-Way

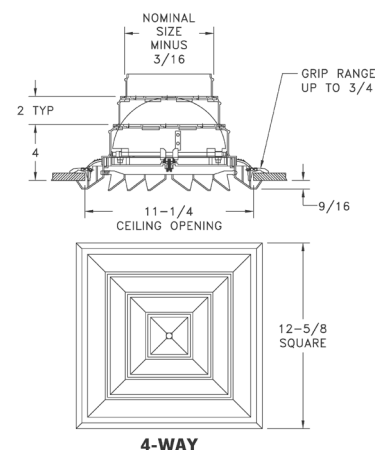


4-Way



2-Way Corner

Square Available Size (in.)
12 x 12

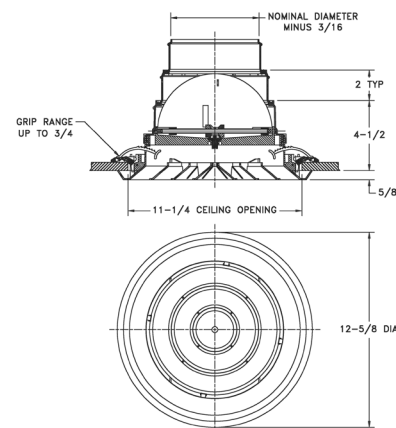


T-Bar Backer Plate or Rafter Rough-In Plate Available

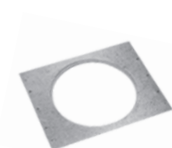
Rezzin Plastic Round Ceiling Diffuser

- Engineered polymer construction
- 12" round face
- 6", 7" and 8" collars included
- Ratcheting cam lock—install without screws
- Removable core and integral damper
- Bright White finish
- Contains metal parts

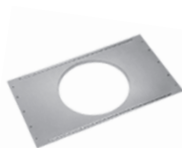
Round Available Size (in.)
12"



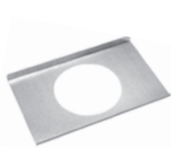
Rezzin Rough-In Plates



16" O.C.



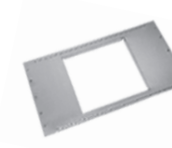
24" O.C.



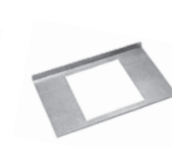
T-Bar



16" O.C.

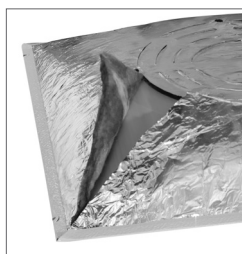
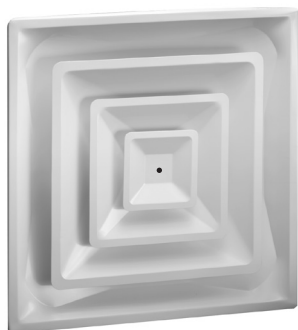


24" O.C.



T-Bar

T-Bar Fixed-Pattern Diffusers

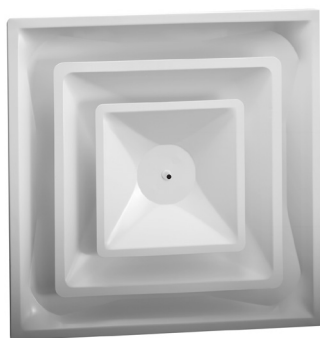
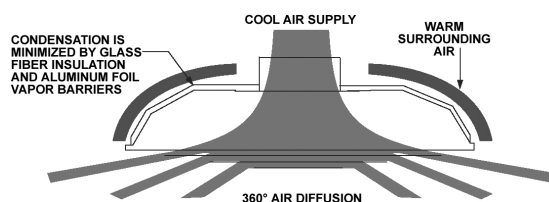
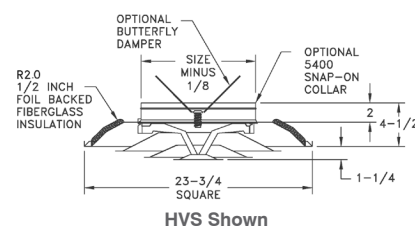


HVS/HVS R6 Steel/ High-Volume Supply

- Steel construction
- Provides high air volume delivery
- 360-degree air diffusion
- Formed back panel
- Fixed core
- Fiberglass insulation blanket with foil vapor barrier to minimize condensation on HVS
- Insulation prescored to accommodate collar size desired
- R6 molded fiberglass back on HVS R6; use 5400 with 5400PP
- Accepts unique 2" high snap-in collar (5400 series) (6" to 12")
- Utilizes butterfly damper (3800 Series) inserted in collar
- Bright White finish
- HVS14-14" collar factory-installed

HVS Available Size

Overall Size 23³/₄" x 23³/₄"

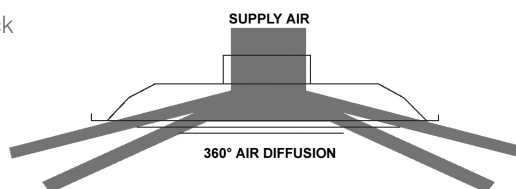
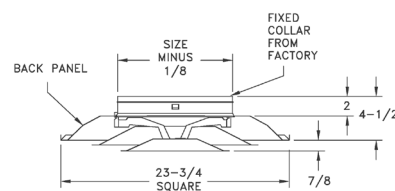


FPD/FPD R6 AFPD Steel/Aluminum Fixed-Pattern Diffuser

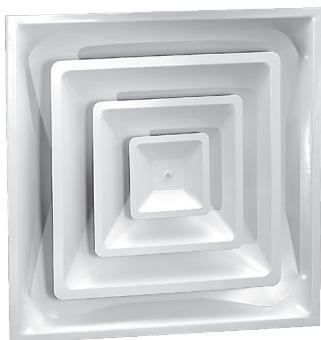
- Steel construction - FPD
- Aluminum construction - AFPD
- Provides high air volume delivery
- 360-degree air diffusion
- Two-cone fixed core
- Fixed collar 6" to 14"
- Unique 2" high collar permits easy flex connections
- Utilizes butterfly damper (3800 Series) inserted in collar; order separately
- Damper adjustable through face
- Formed back panel
- Bright White finish
- FPD R6 features insulated back

FPD T-Bar Available Size

Overall Size 23³/₄" x 23³/₄"



T-Bar Fixed-Pattern Diffusers

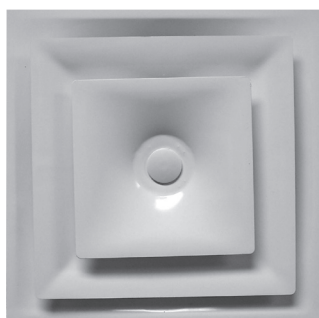
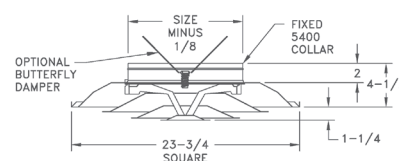
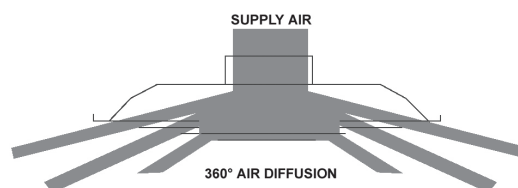


FPD3/FPD3 R6 Steel Fixed-Pattern Diffuser

- Steel construction
- Provides high air volume delivery
- 360-degree air diffusion
- Three cone fixed core
- Fixed collar 6" to 14"
- Unique 2" high collar permits easy flex connections
- Utilizes butterfly damper (3800 Series) inserted in collar—order separately
- Damper adjustable thru face
- Formed steel back panel
- Bright White finish
- FPD3 R6 features insulated back

FPD3 T-Bar Available Size

Overall Size 23³/₄" x 23³/₄"

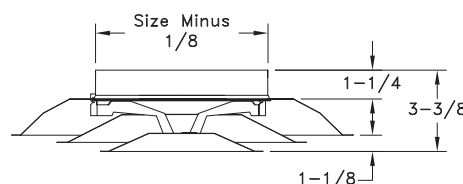


FPD12 Steel Fixed Pattern Diffuser

- Steel construction
- 360-degree air diffusion
- Two-cone fixed core
- Fixed collar
- Removable plug for damper
- Used with SMF (page 74) for surface-mount applications
- Bright White finish
- Accepts Model RD Radial Damper

FPD12 Available Size

Overall Size 11-3/4" x 11-3/4"



T-Bar Fixed-Pattern Diffusers



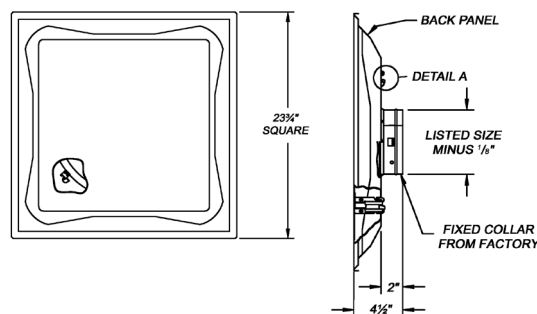
DPD/DPD R6

Steel

T-Bar Plate Diffuser

- Aesthetically appealing, single-face plate design
- 360° air diffusion pattern
- Detachable face plate
- 2" fixed collar
- Optional R6 insulated back (DPD R6)
- White finish

DPD/DPD R6 Available Sizes				
6"	8"	10"	12"	14"



Removing Face Plate

1. Remove black push pins from hook.
2. Push the face plate towards the back panel. This will disengage the hooks from the backside panel slots (*Detail A*).
3. Rotate the face plate counterclockwise, and pull plate away from back panel and hooks through the slots.



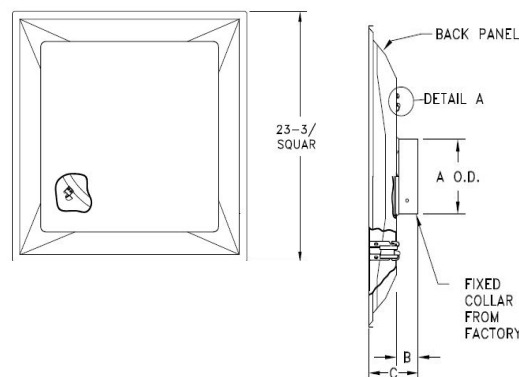
ADPD

Aluminum

T-Bar Plate Diffuser

- Aesthetically appealing, single-face plate design
- 360° air diffusion pattern
- Detachable face plate
- 2" fixed collar
- Constructed of 100% aluminum allowing for MRI applications
- Can be used with SMF 24 x 24 W surface mount frames for drywall applications
- White finish

Tbar grid	round duct size	B	C
12 x 12	6, 7	1-1/8"	2-1/4"
	8	1-1/4"	2-3/8"
24 x 24	6,8	1-1/4"	3-3/4"
	10,12,14	1-3/8"	3-7/8"



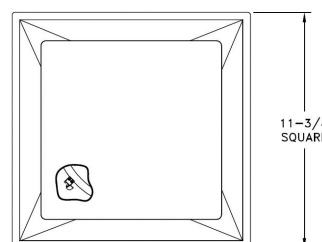
DPD12

Steel

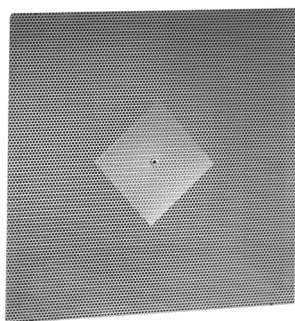
T-Bar Plate Diffuser

- Aesthetically appealing, single-face plate design
- 360° air diffusion pattern
- Detachable face plate
- Constructed of heavy gauge steel for 1' x 1' Tbar grids
- Can be used with SMF 12 x 12 W surface mount frames for drywall applications
- White finish

Tbar grid	round duct size	B	C
12 x 12	6, 7	1-1/8"	2-1/4"
	8	1-1/4"	2-3/8"
24 x 24	6,8	1-1/4"	3-3/4"
	10,12,14	1-3/8"	3-7/8"



T-Bar Fixed-Pattern Perforated Supply Diffusers



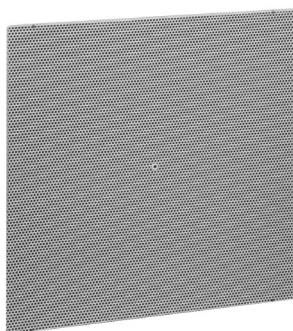
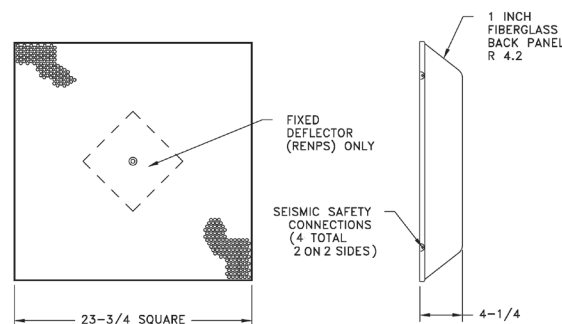
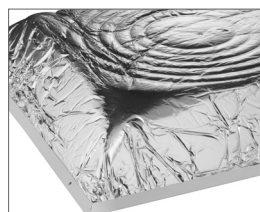
RENPS/ARENPS RENPS R6 Steel/Aluminum

RENPS Available Size
Overall 23 ³ / ₄ " x 23 ³ / ₄ "

Perforated Supply Diffuser with Insulated Back

- Perforated steel face with deflector
- Molded fiberglass back panel, available in R4.2 or R6
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- ARENPS constructed with aluminum face
- Bright White finish

See page 54
for fiberglass
specifica-
tions.

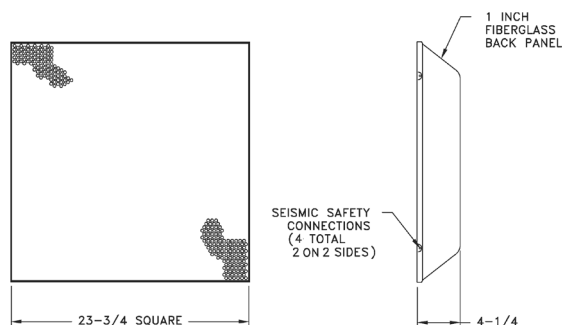
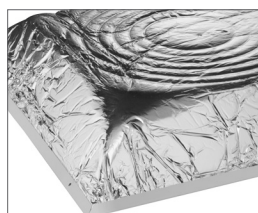


RENP Steel Perforated Return with Insulated Back

RENP Available Size
Overall 23 ³ / ₄ " x 23 ³ / ₄ "

- Perforated steel face
- R4.2 molded fiberglass back panel
- Accepts 6" to 14" unique tab collar (6400 series) or 6"-16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Bright White finish

See page 54
for fiberglass
specifica-
tions.



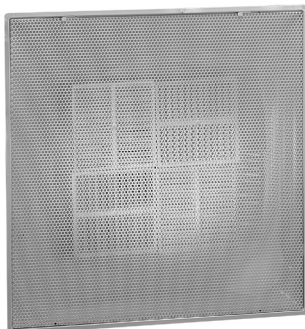
T-Bar Perforated Supply/Return



**CBPS Curved-Blade
Perforated Supply**



**CBPR Curved-Blade
Perforated Return**



CBPS/CBPR

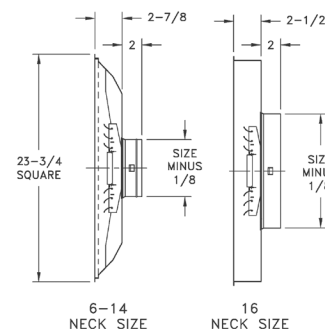
Steel

Curved-Blade Perforated Supply/Return

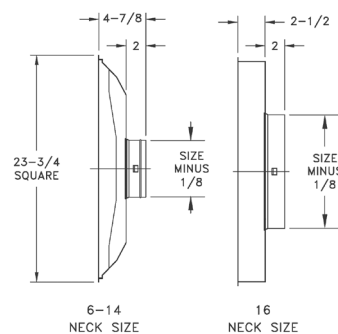
- Steel construction
- Removable, hinged face allows for easy access to air pattern control core
- Individually adjustable pattern deflectors factory-set at 4-way deflection; can be field-adjusted for 1, 2, 3-way air patterns
- Available in 6", 8", 10", 12", 14" and 16" diameter necks
- Unique 2" high collar permits easy flex connections
- Accepts 3800 Series butterfly damper (order separately)
- For 16", use T19
- Bright White finish

CBPS/CBPR Available Size

Overall Size $23\frac{3}{4}" \times 23\frac{3}{4}"$



CBPS



CBPR

SBP

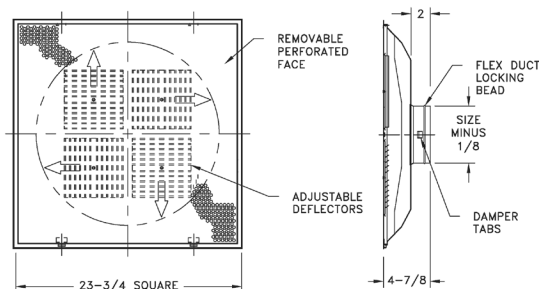
Steel

Shallow Back Per- forated Supply

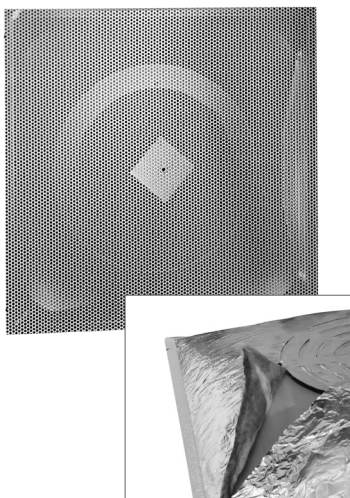
- Steel construction
- Available in 6" to 14" collar sizes
- Face-mounted, adjustable deflectors
- Removable perforated face
- Hinged/latched face for easy access to deflector and damper
- Bright White finish

SBP Available Size

Overall Size $23\frac{3}{4}" \times 23\frac{3}{4}"$



T-Bar Perforated Supply/Return



PDS

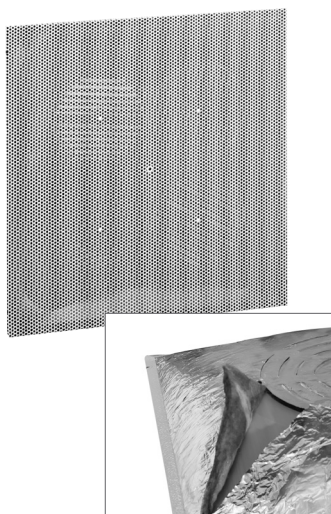
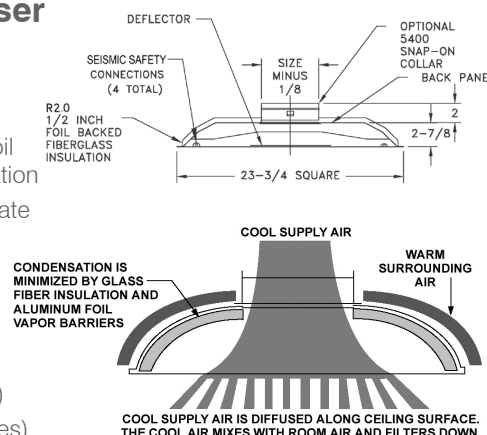
Steel

Perforated Supply Diffuser (with fixed deflector)

- Perforated steel face
- Formed steel, black back panel
- Fiberglass insulation blanket with foil vapor barrier to minimize condensation
- Insulation prescored to accommodate collar size desired
- Accepts unique snap-in collar (5400 Series) 6" to 12" – order separately
- Available in 14" fixed collar (PDS14)
- Utilizes butterfly damper (3800 Series) inserted in collar
- Damper adjusted through diffuser face to allow proper air balancing
- Bright White finish

PDS Available Size

Overall Size 23³/₄" x 23³/₄"



PDSD

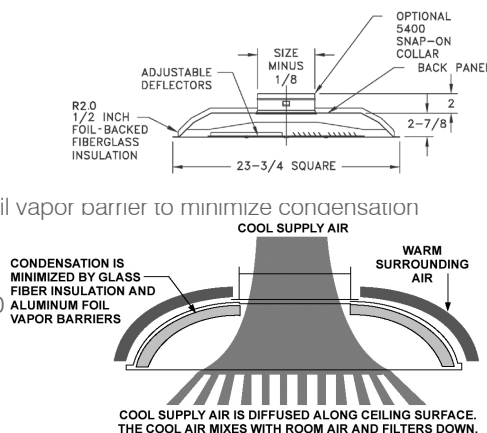
Steel

Perforated Diffuser Supply (with adjustable deflector)

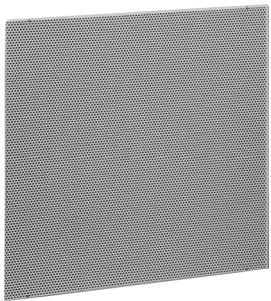
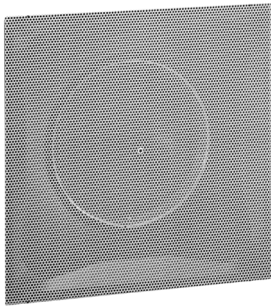
- Perforated steel face
- Face adjustable deflectors
- Formed steel, black back panel
- Fiberglass insulation blanket with foil vapor barrier to minimize condensation
- Insulation prescored to accommodate collar size desired
- Accepts unique snap-in collar (5400 Series) 6" to 12" – order separately
- Available in 14" fixed collar (PDSD14)
- Utilizes butterfly damper (3800 Series) inserted in collar
- Damper adjusted through diffuser face to allow proper air balancing
- Bright White finish

PDSD Available Size

Overall Size 23³/₄" x 23³/₄"



T-Bar Perforated Supply/Return

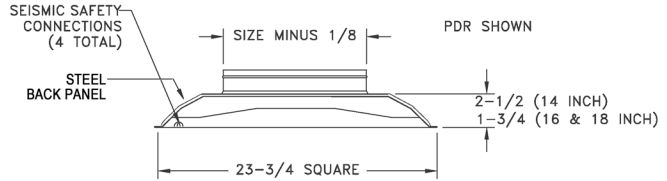


PDR

Steel

Perforated Return Grille

- 51% net free area
- Available with 14", 16", or 18" fixed collars
- Formed steel, black back panel
- White finish



PDR Available Size
Overall Size 23 ³ / ₄ " x 23 ³ / ₄ "

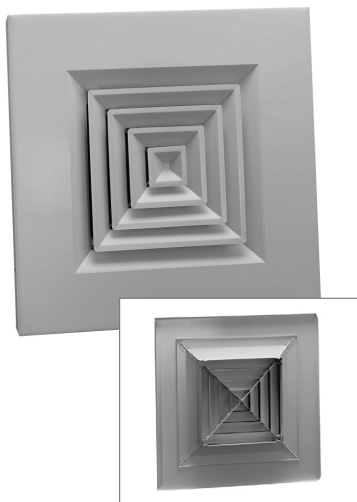
PD

Steel

Perforated Return Face Only—No Back

- Face only return for plenum ceilings
- Available in 24" x 12", 24" x 24" and 48" x 24" sizes
- White finish

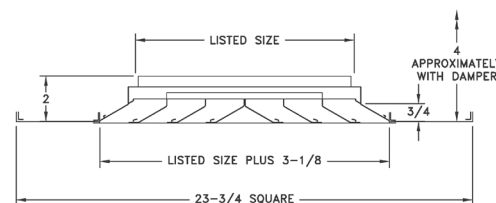
T-Bar Directional/Modular Diffuser



ART Aluminum Square and Rectangular T-Bar Diffusers

- Aluminum construction
- Available in one, two, three and four-way deflections
- Removable core
- Bright White or Satin Anodized finish

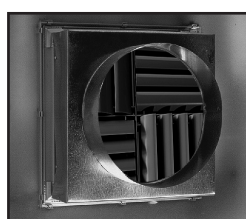
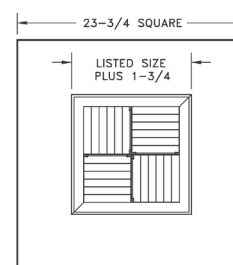
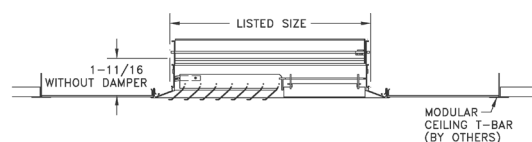
ART Available Sizes
6" x 6", 9" x 9", 12" x 12", 15" x 15", 21" x 21"
Note: For 18" x 18" neck, order ARE 18" x 18".



MCDST Aluminum Modular Core Diffuser

- Extruded aluminum diffuser in aluminum panel
- Modular cores provide one, two, three, and four-way air patterns
- Removable modules provide easy access to duct-mounted damper
- Available in 6" to 20"
- Available as MCDSTSR w/ square-to-round transition attached
- Bright White finish

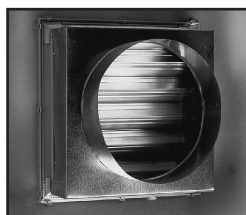
MCDST/MCDSTSR Available Sizes
6" x 6", 8" x 8", 10" x 10", 12" x 12", 14" x 14", 16" x 16", 18" x 18", 20" x 20"



MCDSTSR



MCDSDT



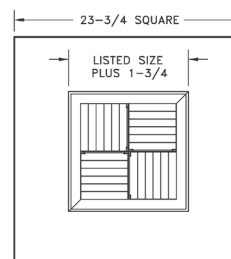
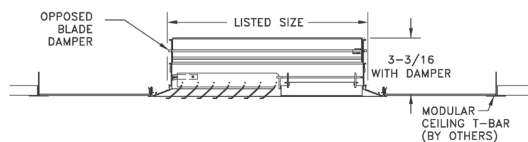
MCDSDTSR

MCDSDT *Aluminum* **Modular Core** **Diffuser with Damper**

- Extruded aluminum diffuser in aluminum panel
- Modular cores provide one two, three, and four-way air patterns
- Removable modules provide easy access to damper
- Aluminum opposed-blade damper
- Available in 6" to 20"
- Available as MCDSDTSR with square-to-round transition attached
- Bright White finish

MCDSDT/MCDSDTSR Available Sizes

6" x 6", 8" x 8", 10" x 10", 12" x 12", 14" x 14",
16" x 16", 18" x 18", 20" x 20"



T-Bar Directional/Modular Diffuser



A501MS/A501OB
One-way deflection



A502MS/A502OB
Two-way deflection



A503MS/A503OB
Three-way deflection



A504MS/A504OB
Four-way deflection



A505MS/A505OB
Two-way corner deflection

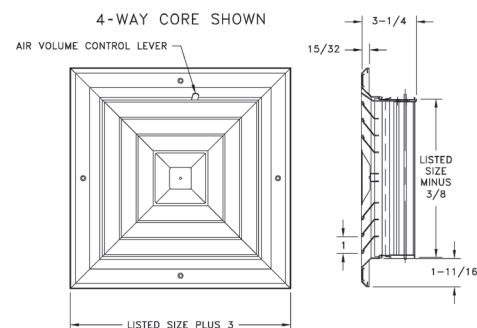
A500 Series Diffusers

- Extruded aluminum construction
- Cores flush with margin
- One-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright white finish

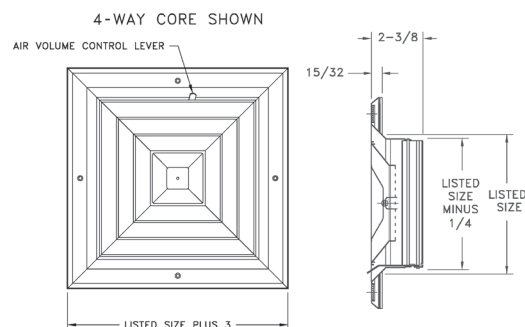
A500 Series Available Sizes

6"x6"	8"x8"	10"x10"	12"x12"	14"x14"
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OB Damper



MS Damper

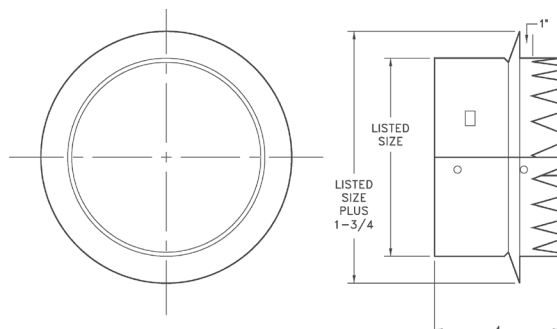




6400 Tab Collar

- Galvanized steel construction
- For use with fiberglass-backed ceiling diffusers
- Tabbed for easy installation
- Accepts 3800 Series damper

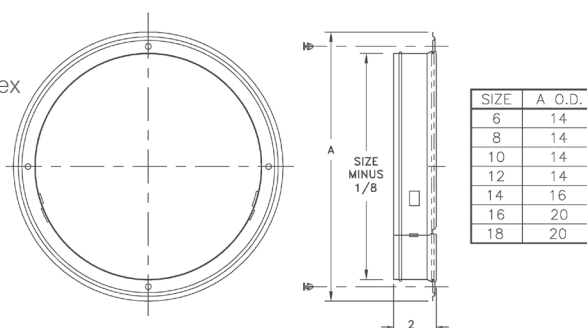
6400 Series Available Sizes					
6"	8"	10"	12"	14"	



5400 Series Collar Ring*

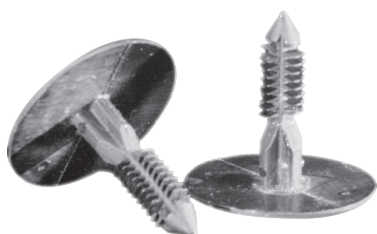
- Unique snap-in design for easy installation
- 2" high collar permits easy flex connections
- Bead on collar improves the strength and provides retention for flexible duct connections

5400 Series Available Sizes										
6"	7"	8"	9"	10"	12"	14"	*	16"	18"	



*14" collar is mounted to diffuser at factory for steel back panels only.

Note: Uses 5400PP (black push pins) with insulated back panels (non-steel).



5400PP Push Pins

- Attaches 5400 collar to molded fiberglass back for the following products:

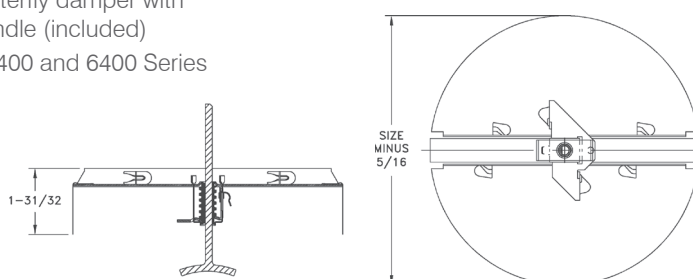
659TI 1 1/4" long
PFTI 1 1/4" diameter head
RENPS
RENPS/RENPS R6
RE5TI
96AFBTI
REN4
HVS R6
SRET/SRET R6



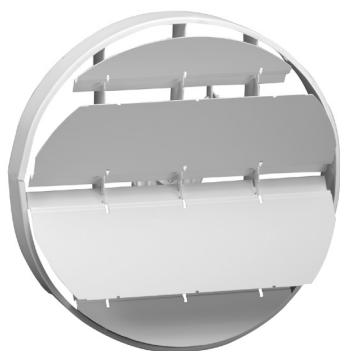
3800 Series Damper

- Adjustable butterfly damper with removable handle (included)
- For use with 5400 and 6400 Series collars
- Golden Sand finish

3800 Series Available Sizes							
6"	7"	8"	9"	10"	12"	14"	



T-Bar Accessories

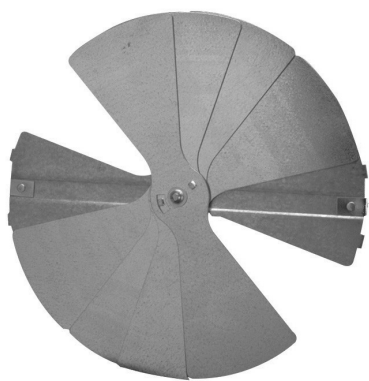
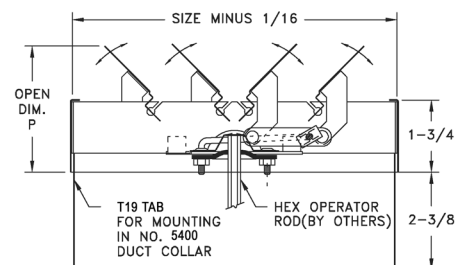


T19 Series Damper

- Multi-blade damper
- Tabs for easy installation
- For use with 5400 Series collar
- Bright White finish

Note: $\frac{3}{16}$ hex operator by others

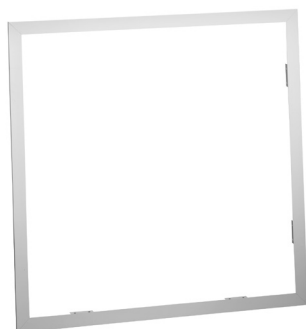
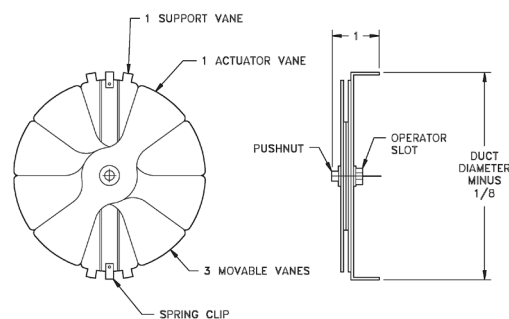
19 Series Available Sizes					
6"	8"	10"	12"	14"	16"



RD Radial Damper

- Galvanized steel construction
- Face-adjustable
- For use with round neck diffusers
- Mill finish

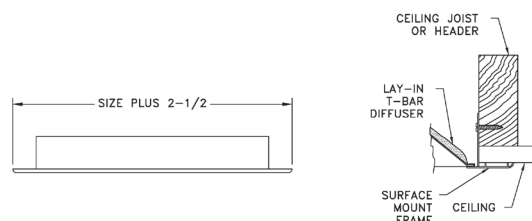
RD Available Sizes				
6"	8"	10"	12"	14"



SMF Aluminum Surface Mount Frame

- Aluminum construction
- Permits installation of standard T-Bar diffusers in a plaster ceiling
- Accepts standard T-Bar diffusers
- Bright White finish

SMF Available Sizes	
12" x 12", 24" x 12", 24" x 24", 24" x 48"	





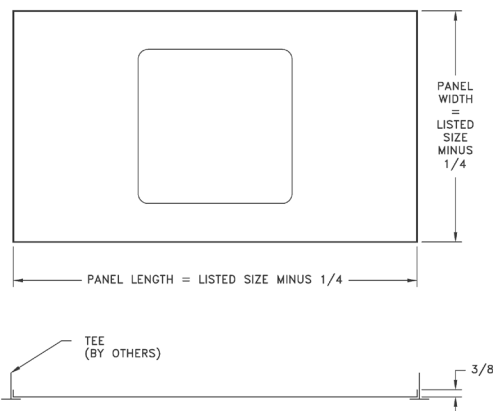
P Filler Panel

- Steel or aluminum construction
- Available in 9 sizes from 12" x 12" to 36" x 36" in 12" increments
- Bright White finish

Diffusers are factory-installed (must order with diffuser).

P Filler Panel Available Sizes

12" x 12", 24" x 12", 36" x 12",
48" x 12", 24" x 24", 36" x 24",
48" x 24", 36" x 36"

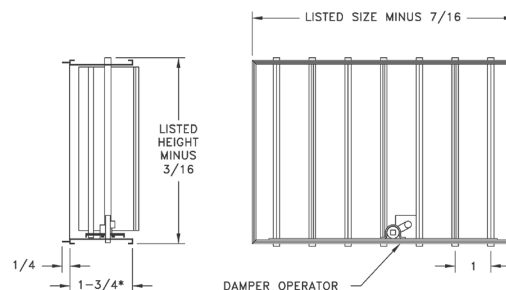


AD Aluminum Opposed-Blade Damper

- Extruded aluminum construction
- Opposed-blade damper
- Controls the air volume from full flow to shut-off

AD Available Sizes

Minimum: 6" x 4", 1 3/4" x 4"
Maximum: 24" x 24" One-Piece

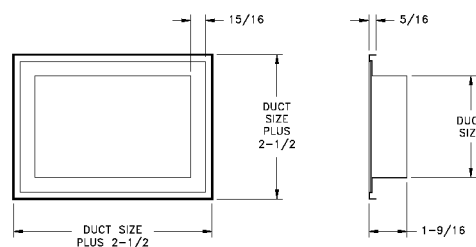


APF Aluminum Plaster Frame

- Aluminum construction
- Provides attractive appearance for registers and grilles around plaster
- Bright White finish

APF Available Sizes

Minimum: 6" x 4"
Maximum: 48" x 48"



Suggested Specifications



Surfaire® T-Bar Diffusers

Furnish and install Hart & Cooley SurfAire® insulated ceiling diffusers as shown on the plans. The diffuser shall be a 2'x2' T-Bar lay-in. Face shall be stucco embossed aluminum with off-white baked enamel finish for ceiling aesthetics, corrosion protection and ease of cleaning. Face will have formed deflector apertures which distribute air in thin layers along the ceiling surface and which provide for optimum dispersion in one, two, three, four-way or two-way corner patterns.

Back panel shall be formed galvanized steel covered with glass fiber insulation and an aluminum foil vapor barrier. Insulation is held securely in place by face margin edge fold over. Insulation will be prescored to accept specified collar sizes.

5400 Series collars will be supplied providing efficient, tight attachment with bayonet fasteners to mating prepunched holes in back panel. Collars will provide flex duct locking tabs and damper mounting slots. Collar damper slots provide for damper attachment or removal at any time.

3800 Series, fully adjustable, butterfly dampers shall be supplied (if specified). Damper adjustment handle is inserted before or after damper is mounted and is removable at any time.

Perforated Insulated T-Bar Diffusers and Return Grilles

Contractor shall furnish and install Hart & Cooley PDS perforated diffuser or PDS-D perforated diffuser with deflectors as indicated on the plans. Perforated diffusers shall be 2'x2' T-Bar lay-in. Exposed face will have a minimum 51% free area and be coated with off-white baked enamel finish. Deflectors (if specified) shall be fully adjustable, externally providing one, two, three, four-way or two-way corner air diffusion capability.

Back panel shall be black pre-coated formed steel covered with glass fiber insulation and an aluminum foil vapor barrier. Insulation is held securely in place by face margin edge fold over. Insulation is prescored to accept specified collar sizes.

5400 Series collars will be supplied providing efficient, tight attachment with bayonet fasteners to mating pre-punched holes in back panel. Collars will provide flex duct locking tabs and damper mounting slots. Collar damper slots provide for damper attachment or removal at any time.

3800 Series fully adjustable butterfly dampers shall be supplied (if specified). Damper adjustment handle is inserted before or after damper is mounted and is removable at any time.

Matching Hart & Cooley PDR perforated return air grilles shall be furnished according to the plans.

Removable Face Perforated T-Bar Diffusers and Return Grilles

Contractor shall furnish and install Hart & Cooley RFPS series perforated diffusers as indicated on the plans. Exposed face will be of a removable hinged style with a minimum 51% free area and be coated with white baked enamel finish. Deflectors are to be the patented,

directable deflector to ensure proper adjustable air deflection. Back panel shall be black, pre-coated, formed steel to minimize sight into diffuser.

5400 Series collars will be supplied providing efficient, tight attachment with bayonet fasteners to mating pre-punched holes in back panel. Collars will provide flex duct locking tabs and damper mounting slots. Collar damper slots provide for damper attachment or removal at any time.

3800 Series fully adjustable butterfly dampers shall be supplied (if specified). Damper adjustment handle is inserted before or after damper is mounted and is removable at any time.

Matching Hart & Cooley RFPR perforated return air grilles shall be furnished according to the plans.

High Volume Supply T-Bar Diffuser

Contractor shall furnish and install Hart & Cooley HVS high volume supply 2'x2' T-Bar lay-in diffuser as shown on the plans. This diffuser will consist of a formed back panel and three stepdown formed elements, all made of heavy gauge steel. Finish shall be an off-white baked enamel. Interior air diffusion elements are easily removable at any time without tools for access to damper control rod. The air diffusion pattern shall be a full 360°.

The back panel shall be fully insulated with fiberglass having an aluminum foil vapor barrier. Insulation is held rigidly in place with adhesive and will be prescored to accept specified collar sizes.

5400 Series collars will be supplied providing efficient, tight attachment with bayonet fasteners to mating pre-punched holes in back panel. Collars will provide flex duct locking tabs and damper mounting slots. Collar damper slots provide for damper attachment or removal at any time.

3800 Series fully adjustable butterfly dampers shall be supplied (if specified). Damper adjustment handle is inserted before or after damper is mounted and is removable at any time.

Fixed Pattern T-Bar Diffuser

Contractor shall furnish and install Hart & Cooley FPD fixed pattern diffuser 2'x2' T-Bar lay-in as shown on the plans. This diffuser will consist of a formed back panel and two stepdown formed elements, all made of heavy gauge steel. Finish shall be an off-white baked enamel. Interior air diffusion elements are easily removable at any time without tools for access to damper or neck. The air diffusion pattern shall be a full 360°.

3800 Series fully adjustable butterfly dampers shall be supplied (if specified) and can be adjustable through the face.

Ceiling or Wall Effect

The tendency of an air stream moving along a wall or ceiling surface to remain in contact with that surface.

Core Area

The total plane area of that portion of a grille, face, or register bounded by a line tangent to the outer opening through which air can pass. The core area is less than the register size. Example, a 14-in. x 8-in. register may have a core that is 1 in. less than the listed size; so, the core area is 13 in. x 7 in. — 91 sq. in.

Diffuser

An outlet discharging supply air in a spreading pattern.

Diffusion

Distribution of air within a space by an outlet discharging supply air in a spreading pattern.

Drop

The vertical distance between the base of the outlet and the bottom of the air stream at the end of the horizontal throw.

Effective Area, Ak (Sq. Ft.)

The calculated area of an outlet based on the average measured velocity between the fins.

Envelope

The outer boundary of an air stream moving at a specific velocity (for example, a 50 fpm envelope).

Free Area

The total minimum area of the openings in the air outlet or inlet through which air can pass.

Grille

A louvered covering for an opening through which air passes.

Induction

The process of drawing room air into the projected air stream due to the velocity of the projected air stream (sometimes called aspiration).

Jet Velocity, Fpm (Face Velocity)

The average measured velocity of air passing between the fins.

Natural Convection Currents

Air currents created by a buoyancy effect caused by the difference in temperature between the room air and the air in contact with a warm or cold surface.

Outlet

Any opening through which air is delivered to condition a space.

Outlet Velocity, Fpm

The average velocity of the supply air, measured as it passes through the plane of the opening in the supply outlet.

Pressure Loss, WG

Indicates how much total pressure is required to move air through a register.

Primary Air

The mixture of supply air from the outlet and room air within the 1 50 fpm envelope.

Recommended Noise Criteria and Face Velocity Ranges are on page 75

Radius of Diffusion, Ft.

The horizontal distance (throw) from a ceiling diffuser to the point of terminal velocity.

Register

A grille which is equipped with a damper or control valve, and which directs air in a nonspreading jet.

Return

Any opening through which air is removed from a conditioned space.

Spread, Ft.

The maximum width of the total air stream at the point of terminal velocity.

Static Pressure, PS

The outward force of air within a duct measured in inches of water.

Stratification Boundary

The boundary between room air currents moving faster than 1 5 fpm and the stratification zone.

Stratified Zone

A region in which room air velocity is less than 1 5 fpm.

Temperature Differential

The temperature difference between the primary and the room air.

Temperature Variation (ΔT)

The temperature difference between points within the same space.

Terminal Velocity, Fpm

When the velocity of total air drops to 50 or 75 fpm, depending on the particular application, it reaches terminal velocity. Terminal velocity is not sharply defined for all applications.

Throw (Blow), Ft.

The horizontal distance an air stream travels after leaving a horizontal sidewall outlet before maximum velocity is reduced to terminal velocity. For a perimeter outlet, throw is the vertical distance the air stream travels before maximum velocity is reduced to terminal velocity.

Total Air

The mixture of projected air and room air set in motion by the supply air.

Total Pressure, Pt

The sum of the velocity and static pressures measured in inches of water.

Vane Ratio

The ratio showing depth of vane to minimum width between two adjacent vanes.

Velocity Pressure, Pv

The forward-moving force of air within a duct measured in inches of water.

NC Noise Criteria

A single number noise rating system that indicates what Broad Band, continuous sounds are reasonably acceptable.

Product Information

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