



Commercial

Grilles, Registers & Diffusers



LIGHT COMMERCIAL

		Product Information
REGISTERS & GRILLES—STEEL		
811-814	(800 Series) Curved Blade Steel, One-Way Through Four-Way	5
821	Vertical Single Deflection, w/MS	6
831	Horizontal Single Deflection, w/MS	6
92HVO	Double Deflection Horizontal Face	7
92HVV	Double Deflection Horizontal Face, w/OB	7
92VHO	Double Deflection Vertical Face	8
92VHV	Double Deflection Vertical Face, w/OB	8
94HOV	Return Horizontal, w/OB	9
94A	Return Horizontal Deflected	9
94AHOV	Return Horizontal Deflected, w/OB	10
96AFB	Steel Fixed-Bar Filter Grille	10
9200V	Opposed-Blade Damper	11
PFG	Steel Perforated Face Grille	11
REGISTERS & GRILLES—ALUMINUM		
HX	Horizontal Single Deflection	12
HD	Horizontal Single Deflection, w/OB	12
HM	Horizontal Single Deflection, w/MS	12
HV	Double Deflection Horizontal Face	13
HVD	Double Deflection Horizontal Face, w/OB	13
VH	Double Deflection Vertical Face	13
VHD	Double Deflection Vertical Face, w/OB	13
VX	Vertical Single Deflection	14
VD	Vertical Single Deflection, w/OB	14
VM	Vertical Single Deflection, w/MS	14
CH1	Curved Blade One-Way Horizontal	15
CHD1	Curved Blade One-Way Horizontal, w/OB	15
CHM1	Curved Blade One-Way Horizontal, w/MS	15
CH2	Curved Blade Two-Way Horizontal	16
CHD2	Curved Blade Two-Way Horizontal, w/OB	16
CHM2	Curved Blade Two-Way Horizontal, w/MS	16
C3	Curved Blade Three-Way Horizontal	17
CD3	Curved Blade Three-Way Horizontal, w/OB	17
CM3	Curved Blade Three-Way Horizontal, w/MS	17
C4	Curved Blade Four-Way Horizontal	18
CD4	Curved Blade Four-Way Horizontal, w/OB	18
CM4	Curved Blade Four-Way Horizontal, w/MS	18
RE5	1/2" Grid Core Return	19
RED5	1/2" Grid Core Return, w/OB	19
REF5	1/2" Grid Filter Grille	20
RH90	Fixed Horizontal Return Grille	20
RH45	Grille, 45-degree Fixed Blade	21
RH45LF	Fixed Horizontal Deflected	21
RHD45LF	Fixed Horizontal Deflected, w/OB	21
RHF45LF	Fixed Horizontal Deflected Filter Grille	22
TG/TGF	Transfer Grille and Frame	23

LIGHT COMMERCIAL
**Product
Information**
CEILING DIFFUSERS—STEEL

19	Round OB Damper	24
20	Round Adjustable.....	24
21	Steel Square Mounting Frame.....	25
22	Steel Butterfly Damper with Mounting Frame.....	25
23	Steel Opposed Blade Damper	25
24	Steel Square (Ceiling) Diffuser.....	25
SRE	Directional, Flat Frame.....	26
SR7	OB Damper.....	26
SR/AR	Air Patterns and Listed Sizes.....	29

CEILING DIFFUSERS—ALUMINUM

ARE	Directional, Flat Frame.....	27
ARS	Directional, Step Frame	28
AR7	OB Damper.....	28
SR/AR	Air Patterns and Listed Sizes.....	29
MCD	Modular Diffuser, Flat Frame.....	30
MCDS	Modular Diffuser, Step Frame	30

SPIRAL DIFFUSERS

SV	Single-Deflection Diffuser	31
SVH	Double-Deflection Diffuser.....	31
USV	Single-Deflection Universal Diffuser.....	32
USVH	Double-Deflection Universal Diffuser.....	32

LINEAR & SLOT DIFFUSERS

L, S	L Series, S Series	33-38
DP	Distribution Plenum.....	36

LOUVERS

DL	Drum Louver.....	39
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T-BAR GRILLES & DIFFUSERS

	Product Information
T-BAR RETURN AIR FILTER GRILLES	
	T-Bar Construction Features..... 40
659T	Steel—Lanced Face 41
659TI	Steel—Lanced Face with Fiberglass Back..... 41
673T	Steel—Filter Grille 41
673TI	Steel—Filter Grille with Fiberglass Back 41
673TPI R6	Steel—Filter Grille with Steel Plenum, R6 Insulation 42
R4/R6/R8	Molded Fiberglass Back Features..... 42
96AFBT	Steel—Fixed-Bar Face..... 42
96AFBTI	Steel—Fixed-Bar Face with Fiberglass Back 43
RHF45T	Extruded Aluminum—Fixed Bar Face..... 43
REF5T	Extruded Aluminum—½" Core Grid Face..... 44
REF5TI	Extruded Aluminum—½" Core Grid Face with Insulation..... 44
PFT	Steel—Perforated Face..... 44
PFTI	Steel—Perforated Face with Fiberglass Back 44
T-BAR RETURN AIR GRILLES	
94AT	Steel—Fixed-Bar Face..... 45
RH45T	Extruded Aluminum—Fixed-Bar Face 45
Egg Crate Panel	Aluminum— Core Grid 45
RE5T	Extruded Aluminum—½" Core Grid Face..... 46
RE5TI	Extruded Aluminum—½" Core Grid Face with Fiberglass Back 46
T-BAR SURFAIRE/RENOVATOR DIFFUSER	
444	(441-445) Aluminum—One-Piece Stamped Face..... 47
REN4	Aluminum—One-Piece Stamped Face with Fiberglass Back 47
REZZIN™ DIFFUSERS	
4-Way T-Bar	Rezzin™ Plastic T-Bar Directional Diffuser 48
Mod Core	Rezzin™ Plastic T-Bar Modular Core Diffuser..... 48
Back Panel	Rezzin™ Plastic Back Panel..... 48
Sq to Rd	Rezzin™ Plastic Square-to-Round Back Panel 48
RZ-Square	Rezzin™ Plastic Square Ceiling Diffuser 49
RZ-Round	Rezzin™ Plastic Round Ceiling Diffuser 49
Egg Crate	Rezzin™ Plastic T-Bar Egg Crate Filter Grille 45
Rough-In	Rezzin™ Rough-In Plates..... 49
T-BAR FIXED-PATTERN DIFFUSER	
HVS	Steel—Square Three-Core Face with Insulation Options..... 50
FPD	Steel—Square Two-Core Face, Fixed Collar, R6 Insulation and Universal Option 50
AFPD	Aluminum—Square Two-Core Face, Fixed Collar, R6 Insulation Option 50
FPD12	Steel—Square Two-Core Face, Fixed Collar for 1 x 1 Tbar 51
FPD3	Steel—Square Three-Core Face, Fixed Collar, R6 Insulation Option..... 51
DPD	Steel—Detachable Plate Diffuser, Fixed Collar, R6 Insulation and Universal Option..... 52
ADPD	Aluminum—Detachable Plate Diffuser, Fixed Collar 52
DPD12	Steel—Detachable Plate Diffuser for 1' x 1'..... 52
T-BAR PERFORATED SUPPLY/RETURN	
RENPS	Steel—Perforated Face with Deflector, R6 Insulation Option 53
ARENPS	Aluminum—Perforated Face with Fiberglass Back 53
RENP	Steel—Perforated Face..... 53
CBPS	Steel—Perforated Face with Curved Blade Deflection 54
CBPR	Steel—Perforated Face 54
SBP	Steel—Perforated Face Shallow Back..... 54

Note: Screw hole location found in engineering data catalog

T-BAR GRILLES & DIFFUSERS

		Product Information
PDS	Steel—Perforated Face with Fixed Deflector	55
PDSD	Steel—Perforated Face with Adjustable Deflector	55
PDR	Steel—Perforated Face	56
PD	Perforated Face Only	56
T-BAR DIRECTIONAL/MODULAR DIFFUSER		
ART	Extruded Aluminum—Square Neck	57
MCDST	Extruded Aluminum—Curved-Blade Face	57
A500	Steel—Panel Extruded Aluminum Face	58
T-BAR ACCESSORIES		
6400	Tab Collar	59
5400	Snap-In Collar Ring	59
5400PP	Push Pins	59
3800	Adjustable Butterfly Damper	59
T19	Steel—Multi-Blade Damper	60
RD	Radial Blade Damper	60
SMF	Extruded Aluminum—Surface Mount Frame	60
MISCELLANEOUS		
P Panel	Filler Panel	61
AD	Damper	61
APF	Aluminum Plaster Frame	61

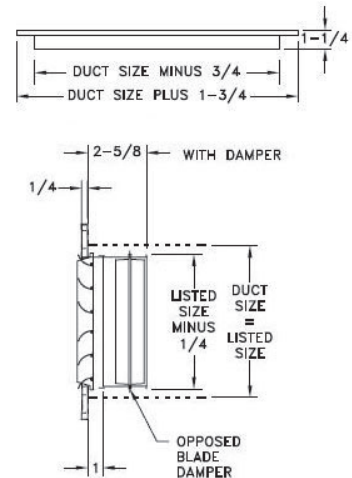
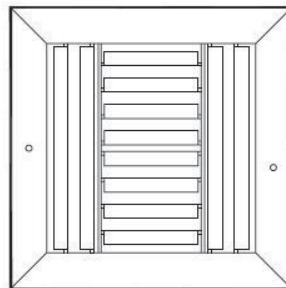


800 Series

- 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.)																
		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
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 one-way only



- 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

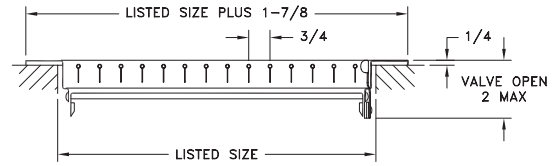
Registers & Grilles - Steel



821

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

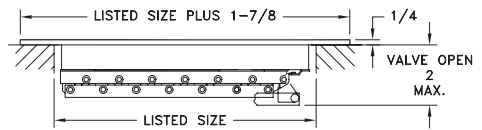
821 Available Sizes (in.)											
HT	WIDTH										
	6	8	10	12	14	16	18	20	24	30	36
4	X	X	X	X	X	X	X	X	X	X	
5			X	X	X						
6	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X	X	X
14					X	X	X	X	X	X	X
16						X	X	X	X	X	
18							X	X	X	X	
20								X			
24						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

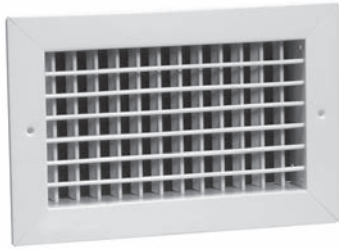


831

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

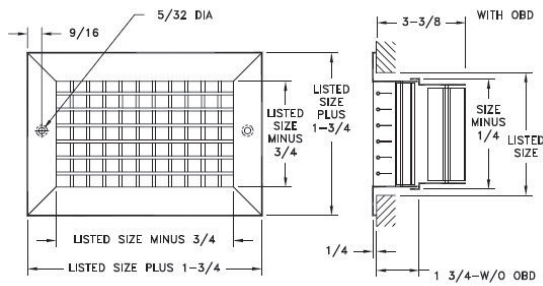
831 Available Sizes (in.)										
HT	WIDTH									
	8	10	12	14	16	20	24	30	32	36
4	X	X	X	X						
6	X	X	X	X	X	X	X	X		
8		X	X	X	X	X	X	X		
10			X			X	X			
12							X			X
14						X			X	





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

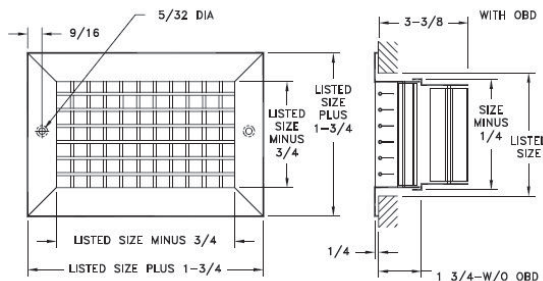


		92HVO Available Sizes (in.)															
		WIDTH															
HT		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10				X	X	X	X	X	X	X	X	X	X	X	X	X	X
12					X	X	X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



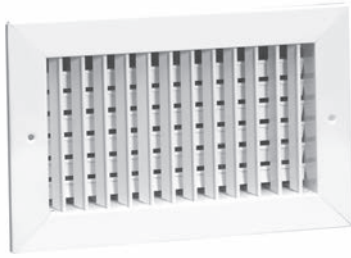
92HVV Register

- 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



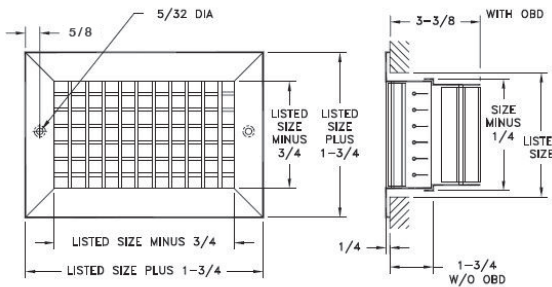
		92HVV Available Sizes (in.)															
		WIDTH															
HT		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10				X	X	X	X	X	X	X	X	X	X	X	X	X	X
12					X	X	X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

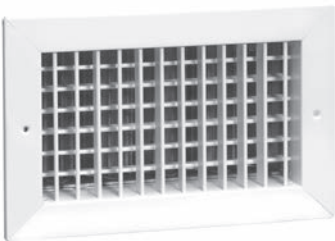


92VHO Register

- 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

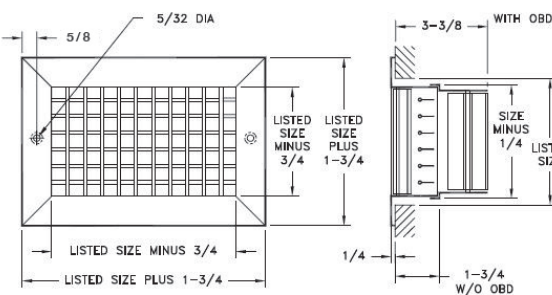


		92VHO Available Sizes (in.)															
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X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

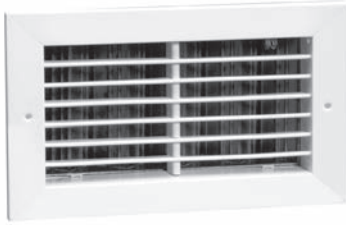


92VHV Register

- 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

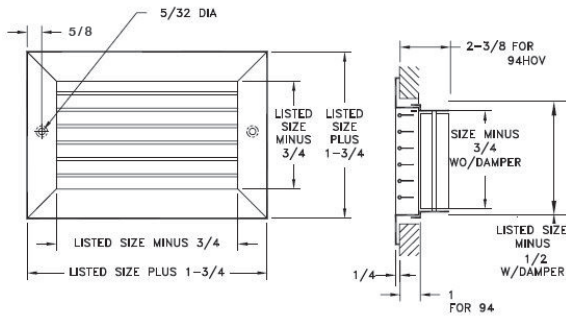


		92VHV Available Sizes (in.)															
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12				X	X	X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



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

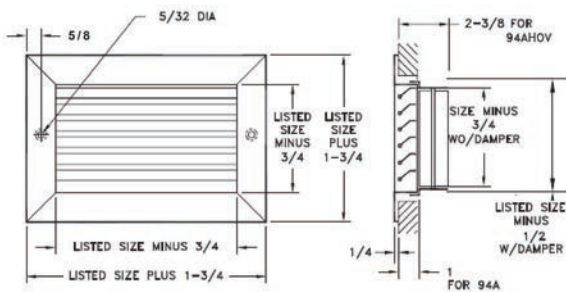


		94HOV Available Sizes (in.)															
		WIDTH															
HT	WIDTH																
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
10			X	X	X	X	X	X	X	X	X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

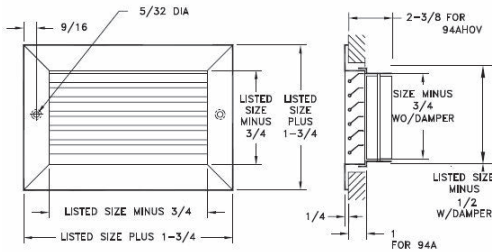
Registers & Grilles - Steel



94AHOV Register

- All-steel construction
- 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

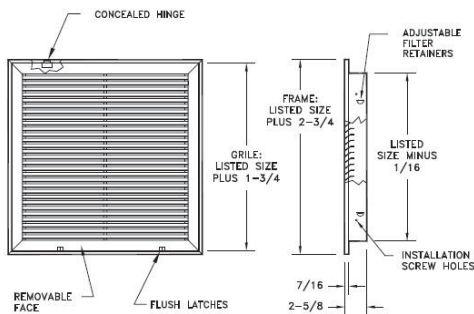
94AHOV Available Sizes (in.)																
HT	WIDTH															
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10			X	X	X	X	X	X	X	X	X	X	X	X	X	X
12				X	X	X	X	X	X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

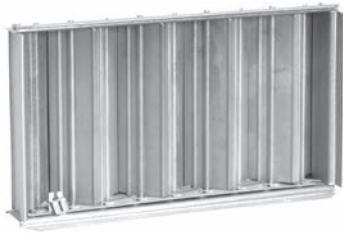


96AFB Fixed-Bar Filter Grille

- Steel construction
- Simplifies contractor installation
- Flush, removable face with concealed hinges
- Uses nominal 1" thick disposable filters (not included)
- Can use filters up to 5"
- 96AFB2 uses 2" thick disposable filters and is available by special order
- Equipped with adjustable filter retainers
- 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

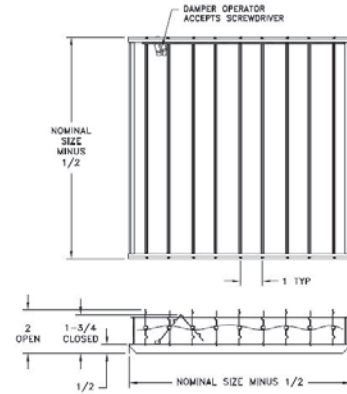




9200V Damper

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

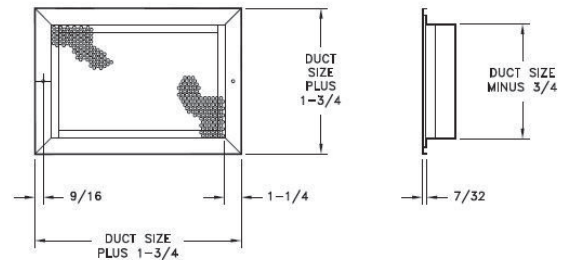
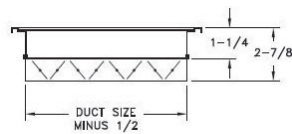
9200V Available Sizes (in.)
Minimum: 6" x 4"
Maximum: 24" x 24" One Piece



PFG Perforated Face Grille

- All steel construction
- Perforated face
- Optional opposed blade damper
- Bright white finish

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



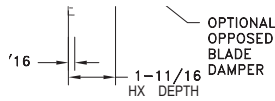
Registers & Grilles - Aluminum



Flat Frame
(Standard)



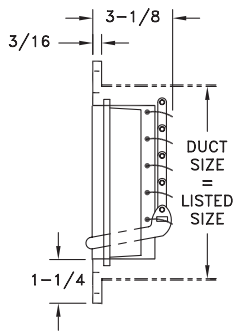
Z-Border
(Special order)
Add Z to the
front of SKU



HX Grille HD Register with Opposed-Blade Damper

- 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

		HX/HD Available Sizes (in.)																						
		WIDTH																						
HT		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
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



HM Register with Multi-Shutter Valve

- Horizontal valve blades

		HM 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
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

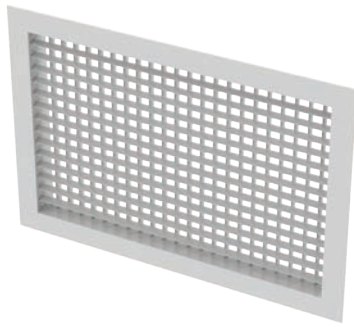
Registers & Grilles - Aluminum



Flat Frame
(Standard)

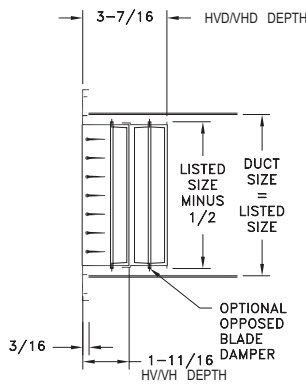


Z-Border
(Special order)
Add Z to the front of SKU

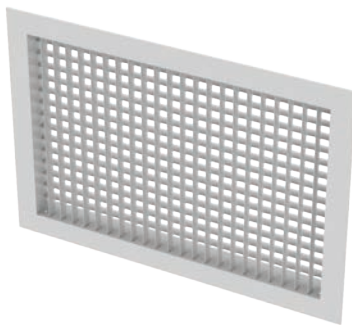


HV Register HVD Register with Opposed-Blade Damper

- 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

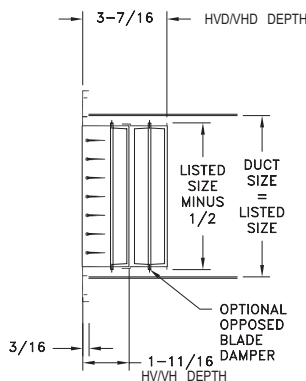


		HV/HVD Available Sizes (in.)																				
		WIDTH																				
HT	WIDTH																					
	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X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



VH Register VHD Register with Opposed-Blade Damper

- 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



		VH/VHD Available Sizes (in.)																				
		WIDTH																				
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

Note: Screw hole location found in engineering data catalog

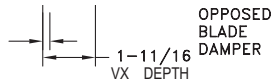
Registers & Grilles - Aluminum



Flat Frame
(Standard)



Z-Border
(Special order)
Add Z to the
front of SKU

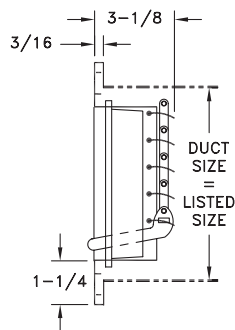


VX Grille

VD Register with Opposed-Blade Damper

- 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

		VX/VD Available Sizes (in.)																					
		WIDTH																					
HT	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
48																							X



VM Register with Multi-Shutter Valve

- Lever-operated, multi-shutter valve

		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
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

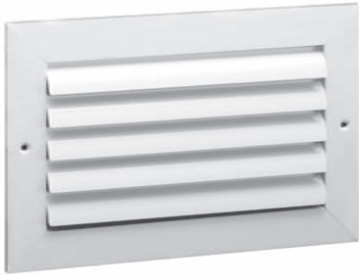
Registers & Grilles - Aluminum



Flat Frame
(Standard)

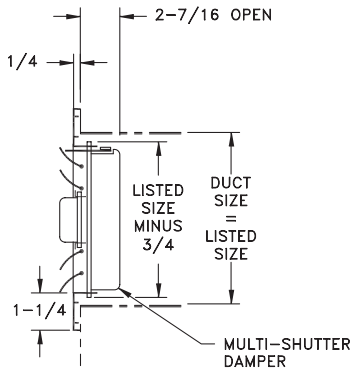
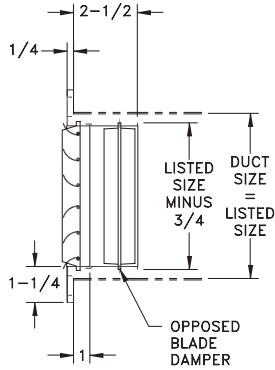


Z-Border
(Special order) Add Z to the front of SKU



CH1 Grille CHD1 Register with Opposed-Blade Damper CHM1 Register with Multi-Shutter Valve

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



		CH1, CHD1, CHM1 Available Sizes (in.)																	
HT	WIDTH																		
	4	5	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	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

Registers & Grilles - Aluminum



Flat Frame
(Standard)

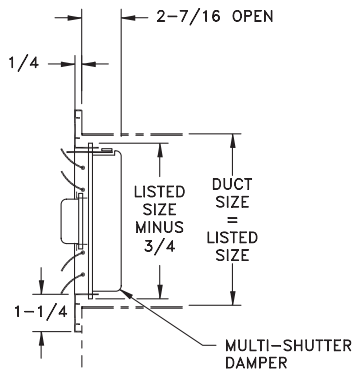
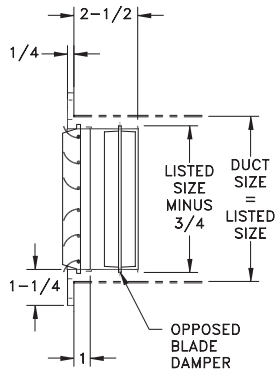


Z-Border
(Special order) Add Z to the front of SKU



CH2 Grille CHD2 Register with Opposed-Blade Damper CHM2 Register with Multi-Shutter Valve

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



		CH2, CHD2, CHM2 Available Sizes (in.)																	
HT	WIDTH																		
	4	5	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	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

Registers & Grilles - Aluminum



Flat Frame
(Standard)

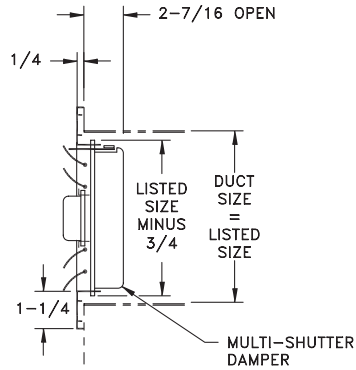
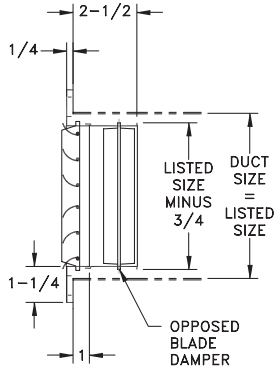


Z-Border
(Special order) Add Z to the front of SKU



C3 Grille CD3 Register with Opposed-Blade Damper CM3 Register with Multi-Shutter Valve

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



C3, CD3, 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
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 found in engineering data catalog

Registers & Grilles - Aluminum



Flat Frame
(Standard)

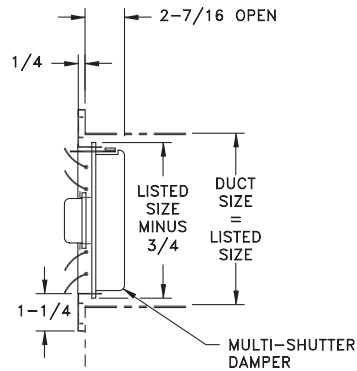
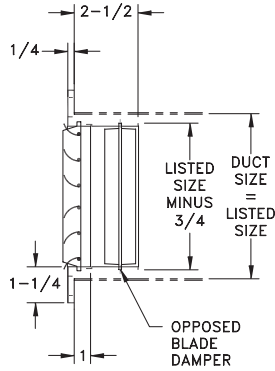


Z-Border
(Special order) Add Z to the front of SKU

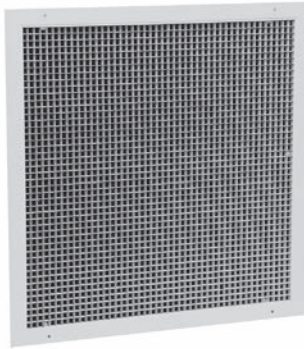


C4 Grille CD4 Register with Opposed-Blade Damper CM4 Register with Multi-Shutter Valve

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

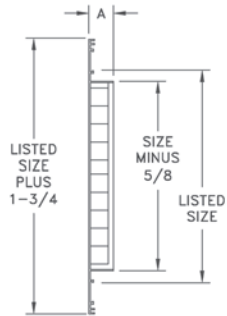


		CH2, CHD2, CHM2 Available Sizes (in.)																	
		WIDTH																	
HT		4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36
6		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
10						X	X	X	X	X	X	X	X	X	X	X	X	X	X
12							X	X	X	X	X	X	X	X	X	X	X	X	X
14								X	X	X	X	X	X	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



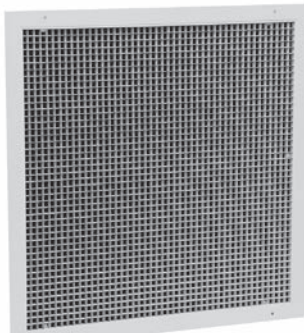
RE5 Grille

- All-aluminum construction
- Grid core $\frac{1}{2}$ " x $\frac{1}{2}$ " x $\frac{1}{2}$ "
- Square core design with extruded aluminum frame
- Bright White or Mill finish



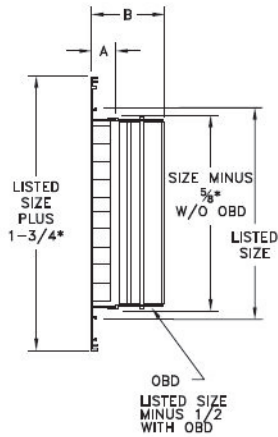
MODEL	GRID CORE DIMENSIONS	A
RE5	$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	1-1/16
RE510	$\frac{1}{2}$ x $\frac{1}{2}$ x 1	1-9/16
RE1	1 x 1 x 1	1-9/16

		RE5 Available Sizes (in.)																					
		WIDTH																					
HT	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	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



RED5 Register

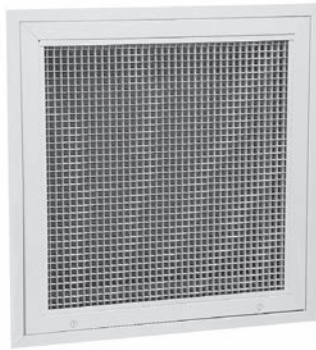
- Aluminum construction
- Opposed-blade, galvanized damper
- Square core design with extruded aluminum construction
- Bright White or Mill finish



RED5 REGISTER

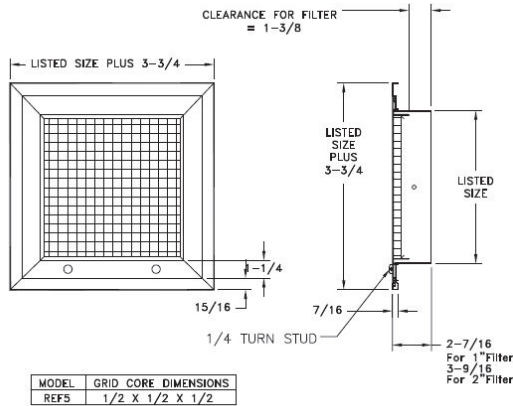
		RED5 Available Sizes (in.)																					
		WIDTH																					
HT	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
	4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X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

MODEL	GRID CORE DIMENSIONS	A	B
RE5	1/2x1/2x1/2	1-1/4	2-1/2
RE510	1/2x1/2x1	1-1/4	2-15/16
RE1	1x1x1	1-1/4	2-15/16



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

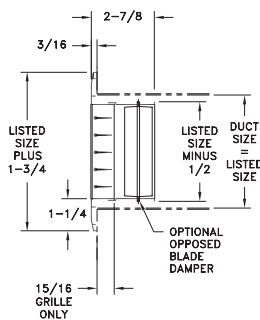


REF5 Available Sizes (in.)																			
HT	WIDTH																		
	6	8	10	12	14	16	18	20	22	24	25	26	28	30	32	34	36		
4	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
5	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
6	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
8		X	X	X	X	X	X	X	X	X		X	X	X	X	X	X		
10			X	X	X	X	X	X	X	X		X	X	X	X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



RH90 Grille

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



RH90 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	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



RH45 Grille, 45-degree Fixed Blade

- Fixed 45-degree blades
- 1-1/2" beveled frame
- Extruded Aluminum Construction
- Available in White (W) or Painted Aluminum (AL)



Flat Frame
(Standard)

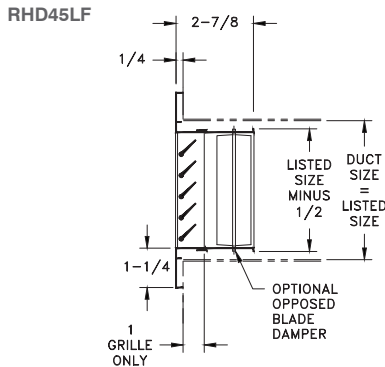


Z-Border
(Special order) Add Z to the front of SKU



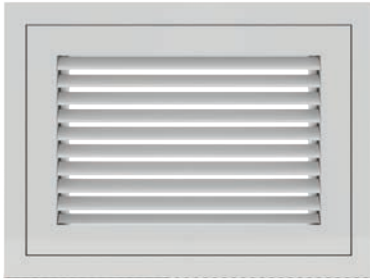
RH45LF Grille RHD45LF Register with Opposed-Blade Damper

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



RH45, RHD45 Available Sizes (in.)		WIDTH																						
		6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48	
HT	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	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
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
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	X

Registers & Grilles - Aluminum



RHF45LF Filter Grille – 1" Filter RHF452LF Filter Grille – 2" Filter

- 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
- Slide latch comes standard
- Add WTS to end of description RHF45/RHF452 for thumb screw
- No Z-Boarder available

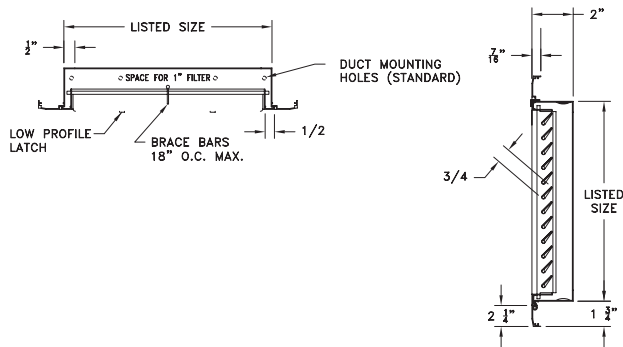


Thumb Screw (WTS)



Slide Latch

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



		RHF45/RHF452 Available Sizes (in.)																						
		WIDTH																						
HT	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	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
25											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



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

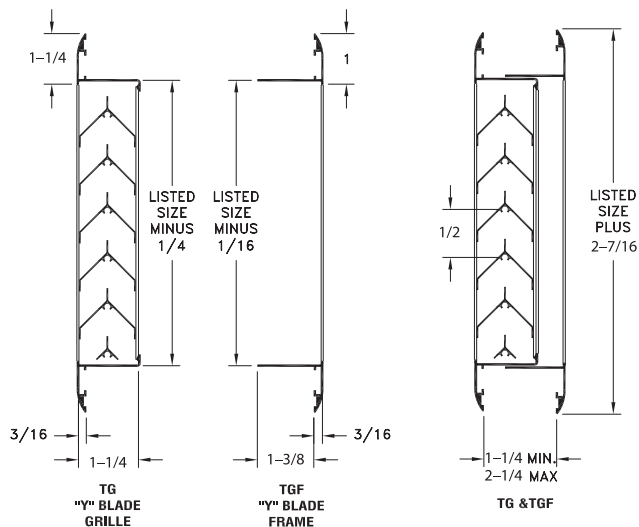


TGF Transfer Grille Frame

- 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.)												
		WIDTH												
HT	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

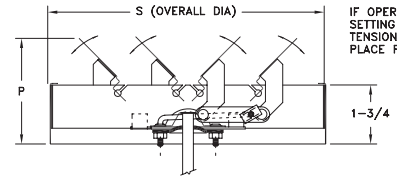


19 Damper

- 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



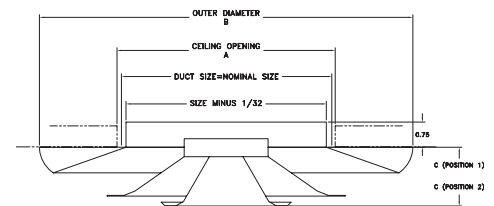
CROSS SECTION WITH VALVES PARTLY OPEN SHOWING OPPOSED-BLADE OPERATION



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





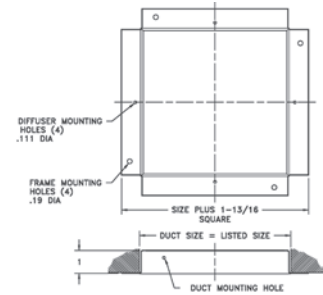
21 Installation Frame

- 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.

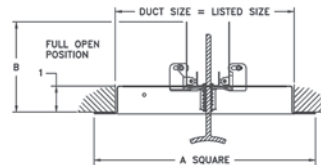
21 Available Sizes (in.)	
6, 8, 10, 12, 14, 16, 18, 20, 22, 24	



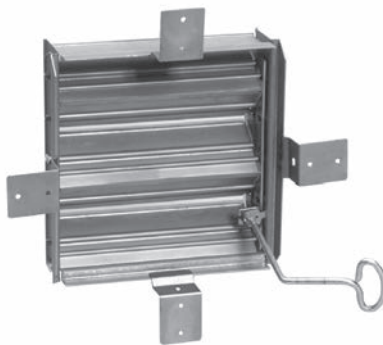
22 Butterfly Damper

- 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



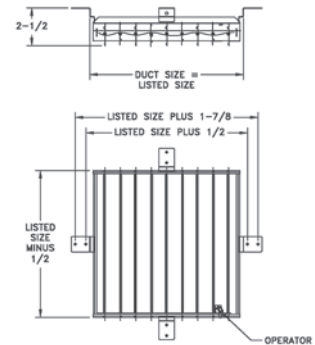
Only available in sizes shown.



23 Opposed-Blade Damper

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

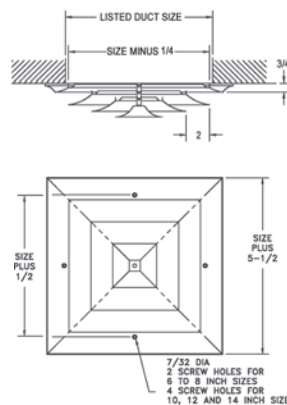
23 Available Sizes (in.)	
6, 8, 10, 12, 14, 16, 18, 20, 22, 24	



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

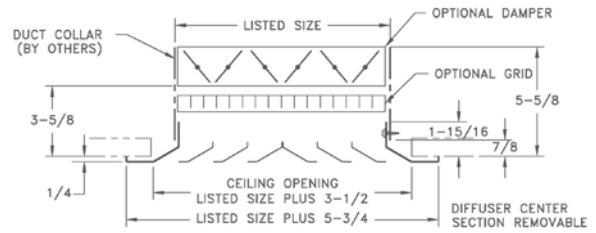
Ceiling Diffusers - Steel



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

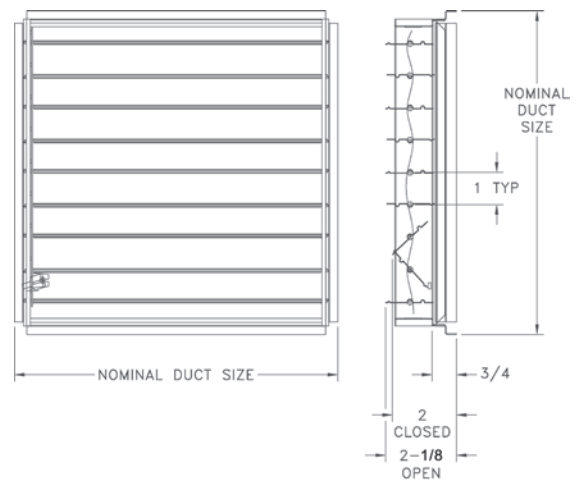


SR7 Available Sizes (in.)
Minimum 6" x 6"
Maximum 36" x 36" (multiple sections)



SR7 Volume Damper

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



Ceiling Diffusers - Aluminum



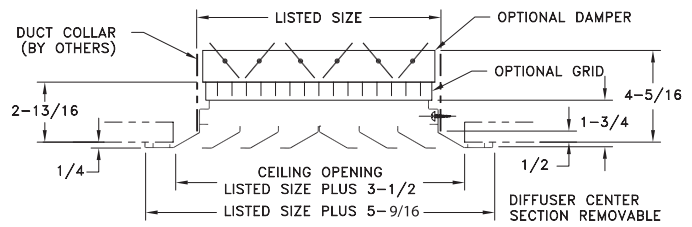
ARE Diffuser

- Extruded aluminum construction
- Removable core
- Flat margin style
- Optional factory-mounted aluminum opposed-blade damper available as ARED
- Bright White (W) or Aluminum (AL) finish

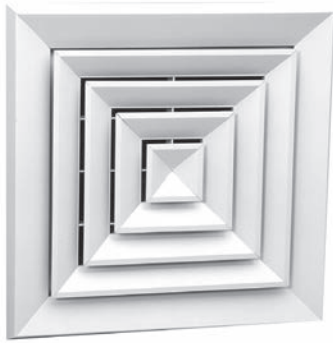
See page 29 for available air patterns.

		ARE Available Sizes (in.)										
		WIDTH										
HT	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



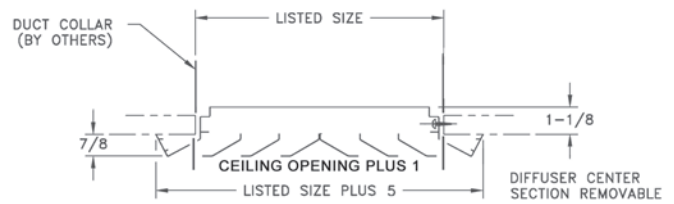
ARS Diffuser

- Extruded aluminum construction
- Removable core
- Beveled (step-down) margin style
- Bright White (W) or Aluminum (AL) finish

See page 29 for available air patterns.

		ARS Available Sizes (in.)									
		WIDTH									
HT	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

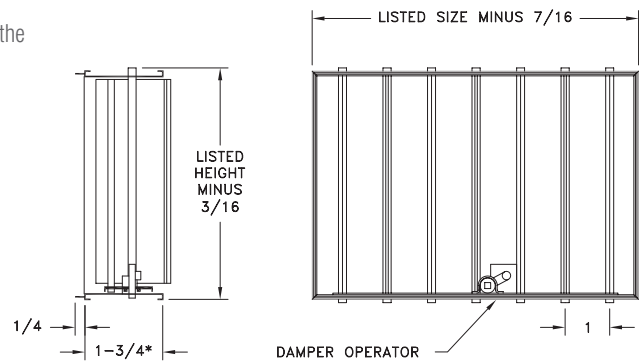
Note: Number of cones varies by size of diffuser



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)	



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	 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 3S	12x6 18x9 24x12 30x15 36x18	 STYLE 2C	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21
		 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 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 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 1	6x6 27x27 9x9 30x30 12x12 33x33 15x15 36x36 18x18 39x39 21x21 42x42 24x24 24 x 24 Max. in Steel
		 STYLE 2	6x6 24x24 9x9 27x27 12x12 30x30 15x15 33x33 18x18 36x36 21x21 24 x 24 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 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:

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

AR Sizes:

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

Note: Screw hole location found in engineering data catalog

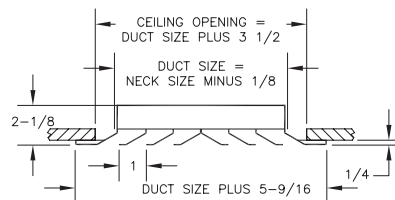
Ceiling Diffusers - Aluminum



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", 24" x 24"



Add SR7 or AR7 for damper control



MCDS Adjustable Modular Diffuser

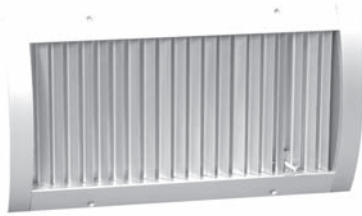
- Extruded aluminum construction
- Step-down (beveled) margin
- Four modular cores provide variable pattern adjustments of four-way, three-way, two-way, or one-way horizontal air patterns
- Fixed fins
- Bright White finish

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", 24" x 24"



Add SR7 or AR7 for damper control

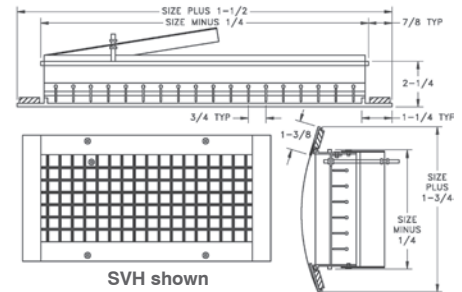
Spiral Diffusers



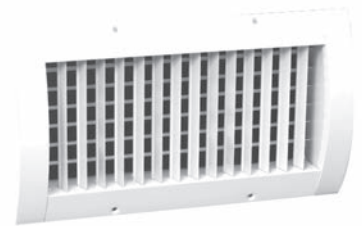
SV Single-Deflection Diffuser

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

- 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 36" ducts. (Even increments only)
- Bright White and Satin Anodized finishes



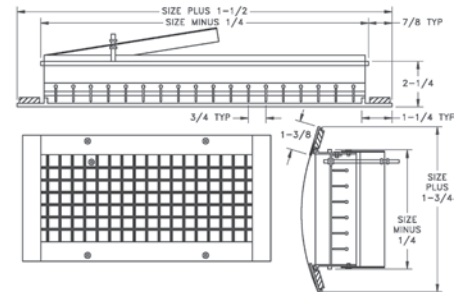
(Shown with scoop)
Size restrictions apply.
See price list for sizes and ordering information.



SVH Double-Deflection Diffuser

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

- 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 36" ducts. (Even increments only)
- Bright White and Satin Anodized finishes



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

For Models SV and SVH						
Duct Diameter for all sizes are available in even increments only up to maximum 36".						
Height of Register	3"	4"	6"	8"	10"	12"
Min : Max Duct Diameter	6" : 36"	8" : 36"	10" : 36"	12" : 36"	14" : 36"	16" : 36"

(NOTE: Spiral diameter must be 4" greater than the height of the diffuser; 3" can be made on a 6" spiral pipe.)

Spiral Diffusers

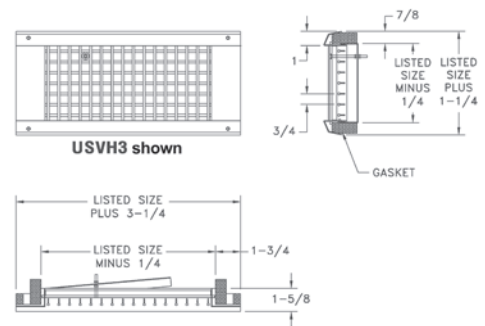


USV Single-Deflection Universal Diffuser

- 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

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

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

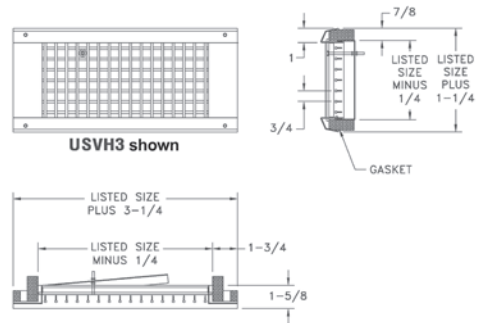


USVH Double-Deflection Universal Diffuser

- Extruded aluminum construction
- Two rows of individually adjustable blades for horizontal and vertical deflection control
- Optional face adjustable half scoop (USVH3) or full scoop (USVH4) 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

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

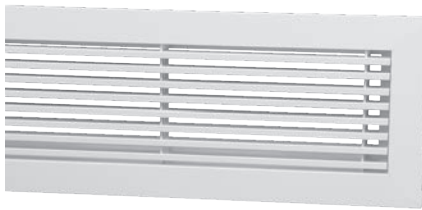
USVH Available Sizes (in.) 10" x 3" to 36" x 12"



For Models USV and USVH					
Maximum Duct Diameter for all sizes is 36"					
Height of Register	3"	4"	6"	8"	10"
Min : Max Duct Diameter	6" : 36"	10" : 36"	12" : 36"	20" : 36"	24" : 36"

(NOTE: Spiral diameter must be 4" greater than the height of the diffuser; 3" can be made on a 6" spiral pipe.)

Linear Bar Diffusers



LS/LF Series Diffuser

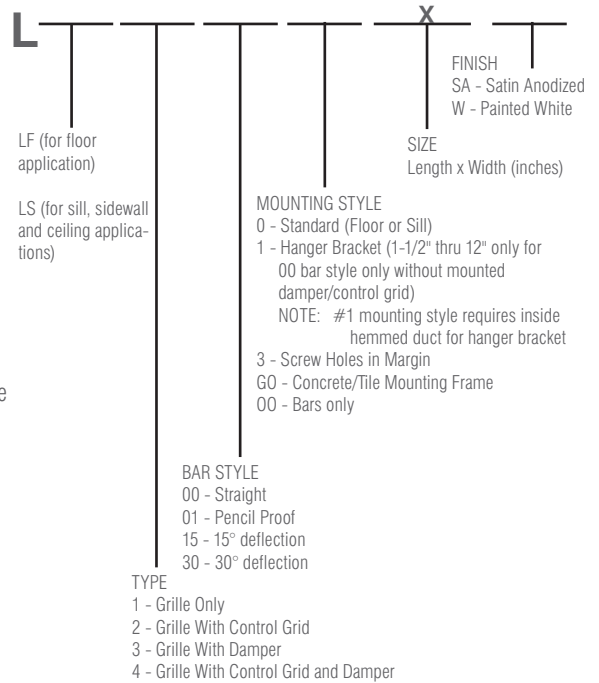
- Extruded aluminum construction
- Ceiling, sidewall, sill or floor applications
- Available in 0, 15, or 30 degrees and pencil proof bar deflections
- Four mounting styles-standard, hanger bracket, and screw holes in margin
- Maximum one-piece length 72", width 24" (1/2" width increments)
- Lengths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

Minimum width 2"
Sizes under 4" not available

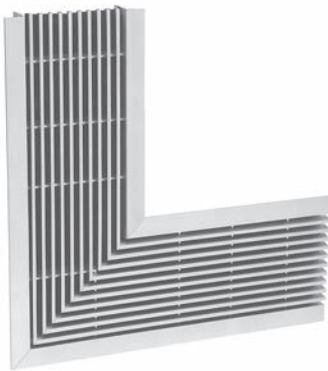
Note: Floor application must be ordered as "LF." Eight-inch maximum width for constant traffic; 12" maximum width for occasional traffic; maximum length 72".

* Control grids start at 4" and above

HOW TO ORDER



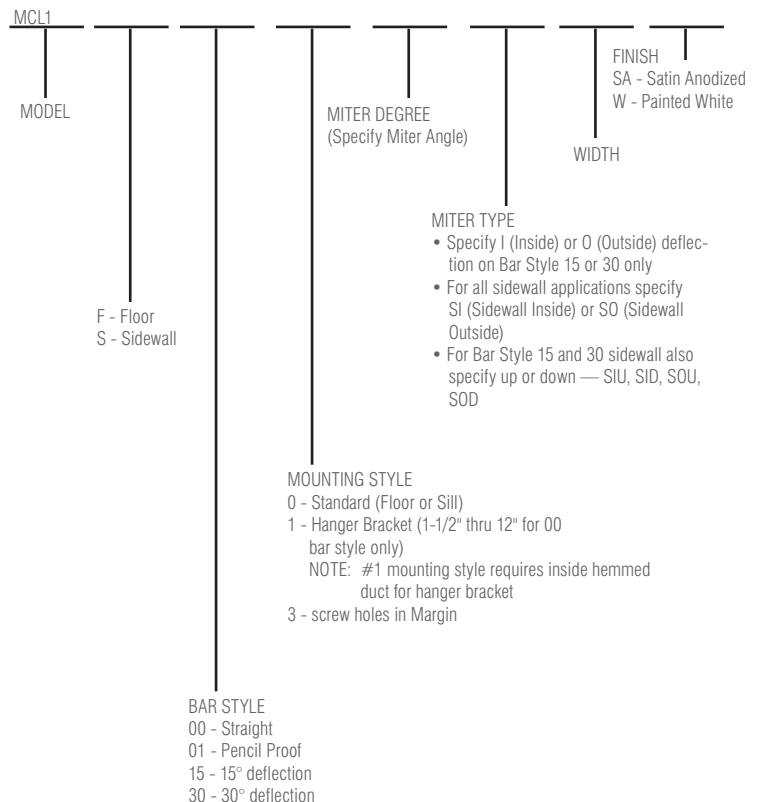
See following page for dimensional data.



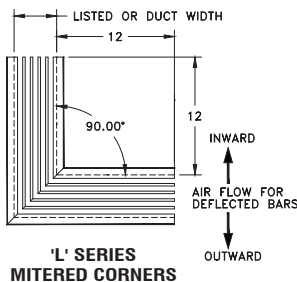
L Series Mitered Corners

Mitered corner sections furnished as shown.

HOW TO ORDER



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



- MITER TYPE**
- SPECIFY I (INSIDE) OR O (OUTSIDE) DEFLECTION ON 15° OR 30° ONLY
 - FOR ALL SIDEWALL APPLICATIONS SPECIFY SI (SIDEWALL INSIDE) OR SO (SIDEWALL OUTSIDE)
 - FOR 15° OR 30° SIDEWALL ALSO SPECIFY UP OR DOWN SIU, SID, SOU, SOD

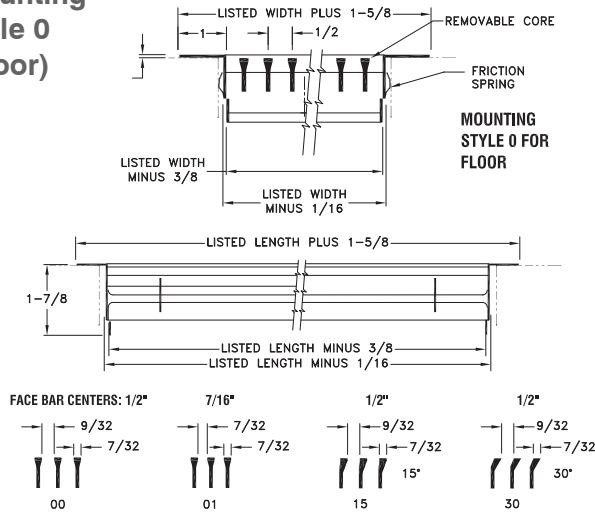
See page 42 for distribution plenums.

Linear Bar Diffusers

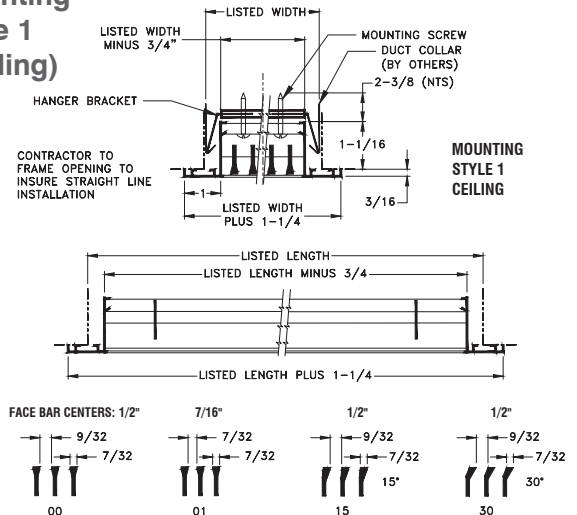


L Series - Dimensional Data

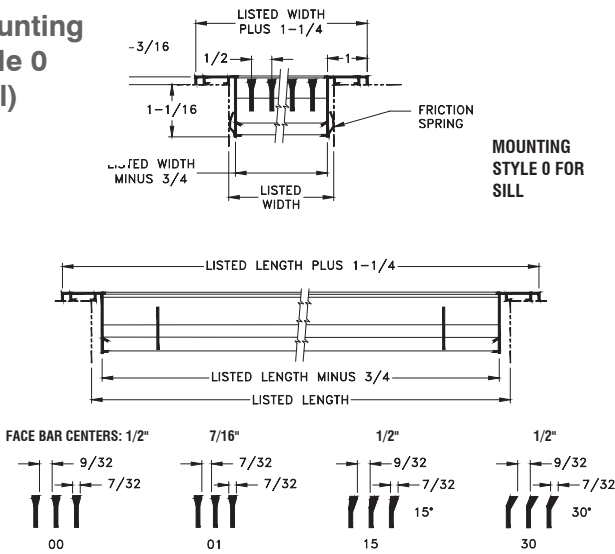
Mounting Style 0 (Floor) LF



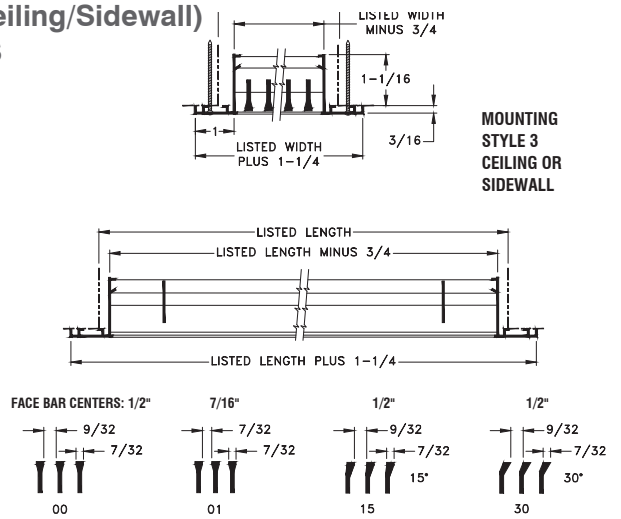
Mounting Style 1 (Ceiling) LS



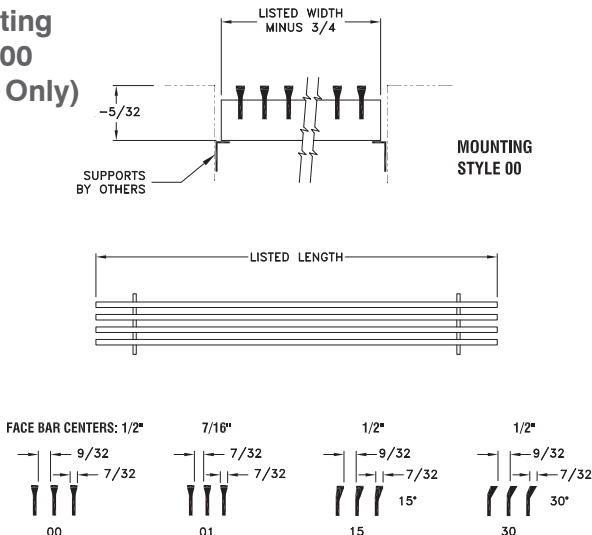
Mounting Style 0 (Sill) LS



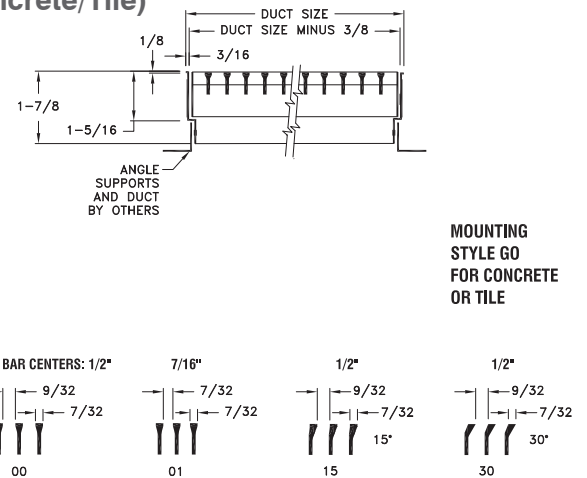
Mounting Style 3 (Ceiling/Sidewall) LS



Mounting Style 00 (Bars Only)



Mounting Style GO (Concrete/Tile) LF

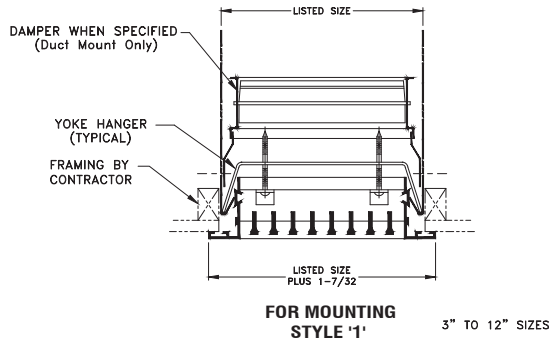


Note: Quantity of bars = 2 x listed width minus 2.

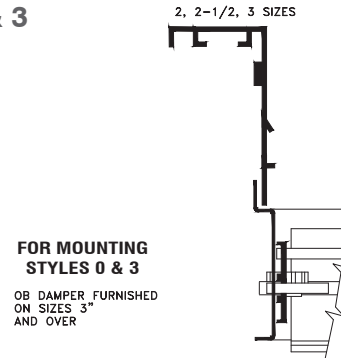
Example: 4" listed width = 4" x 2 = 8 minus 2 = 6 bars.

L Series - Damper Details

Mounting Style 1



Mounting Style 0 & 3



L Series Single-Leaf Damper Option

- Aluminum construction
- Leaf type for sizes 1½" 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.

Sizes under 4" not available

Control grids start at 4" and above.



L Series D Damper Option

- Extruded aluminum construction
- Controls the air volume from full flow to shut-off
- Fits widths of 3½" 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.)
3½" and wider

Linear Bar Diffusers



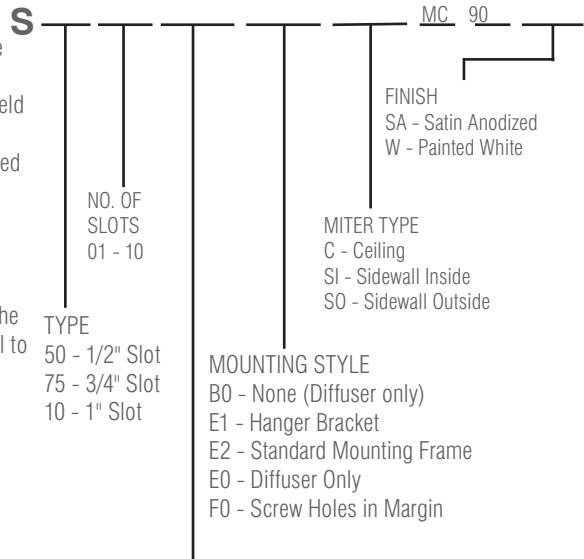
S Series Miter Corners

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.

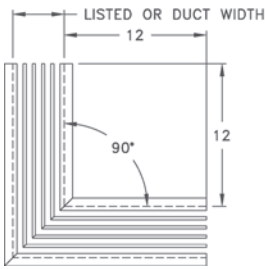
Plaster frame mitered corners can be specified with the outlet mitered corner.

Mitered Corner Sections Order as:



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

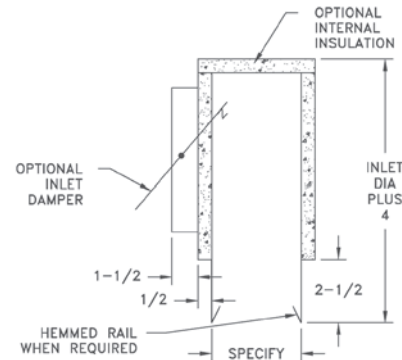
S SERIES MITERED CORNERS



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 - Linear bar grilles

Inlet size 5" to 12"

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

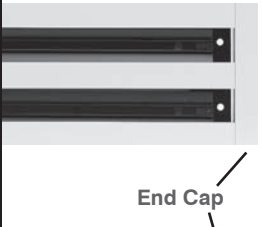
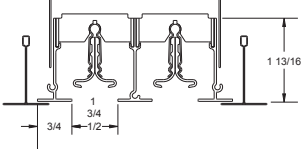

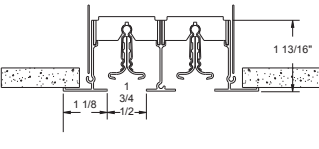
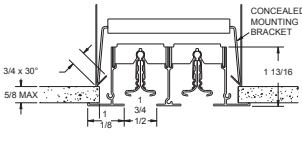
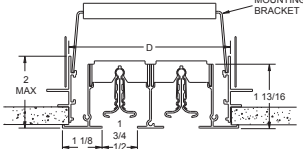
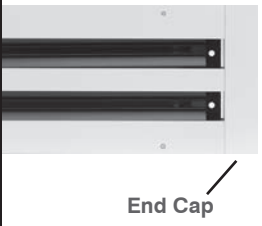
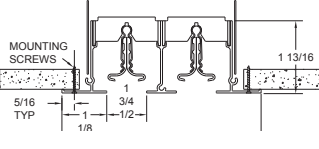
- D - Inlet Damper
- N - No Damper

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"

Order plenums actual size

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
 End Cap	1" 3/4" 1/2"	B0 		
 End Cap	1" 3/4" 1/2"	E0 	E1 	E2 
 End Cap	1" 3/4" 1/2"	F0 	<p>HOW TO ORDER</p> <p>S TYPE STYLE NO OF** SLOTS MOUNTING STYLES END CAPS LENGTH FINISH</p> <p>01 to 08 (SA, W)</p> <p>1 - Diffuser Only 2 - Diffuser w/Pattern Controller</p> <p>12" min 999" max</p> <p>E1 - One End E2 - Both Ends 00 - None</p> <p>B0 - T-Bar Lay-in - Diffuser only E1 - Hanger Bracket* E2 - Standard Mounting Frame E0 - Diffuser Only F0 - Screw Holes in Margin</p> <p>50 - 1/2" Slot 75 - 3/4" Slot 10 - 1" Slot</p> <p>*Note: E1 requires inside hemmed duct for installation.</p> <p>**Note: The width dimension is determined by the slot width and the number of slots.</p>	

- 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 36 for distribution plenums.

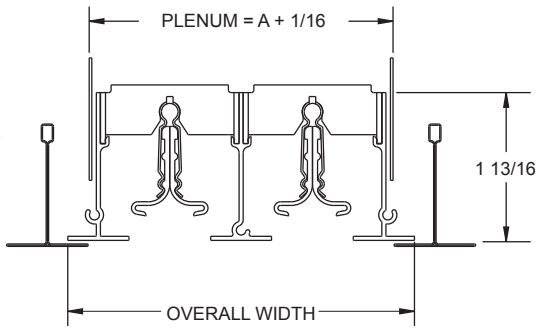
Linear Slot Diffusers



STYLE B0

Also for T-Bar applications

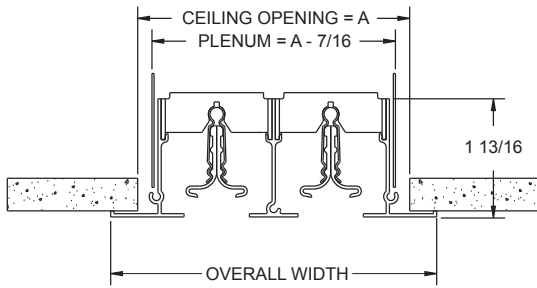
Order 23³/₄" or 47³/₄" lengths with End Caps.



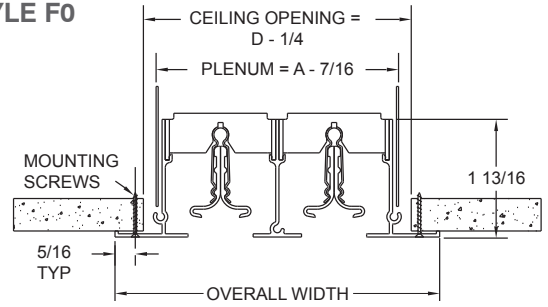
STYLE E0

Also for T-Bar applications

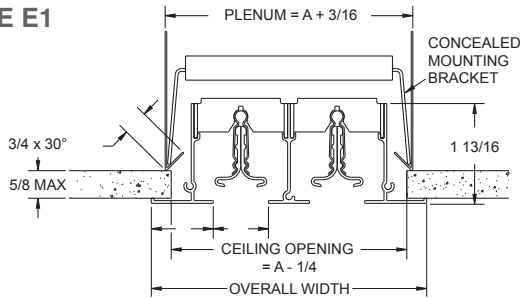
Order 23³/₄" or 47³/₄" lengths with End Caps.



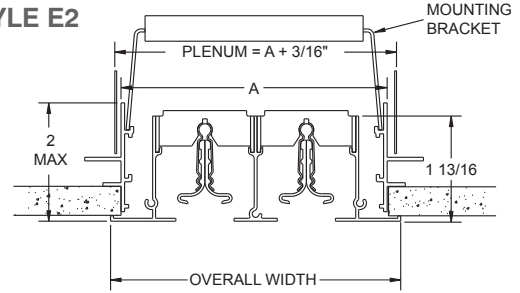
STYLE F0



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

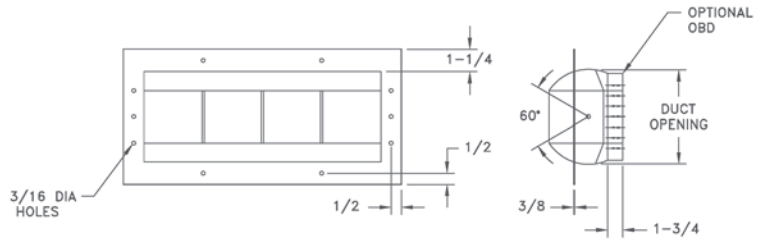


DL Drum Louver

- 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 5/8	Listed Size Plus 1 1/8
10	Listed Size Plus 3/8	Listed Size Plus 1 1/8
12	Listed Size Plus 3/8	Listed Size Plus 1 1/8
15	Listed Size Plus 3/8	Listed Size Plus 1 1/8

Other sizes not available.

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.

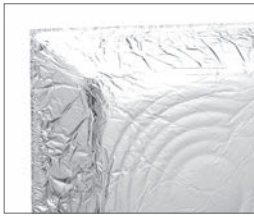
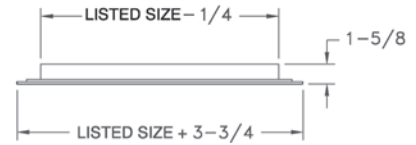
T-Bar products are offered in lanced, perforated, louvered and fixed-bar face styles, with steel or molded fiberglass backs. They include a choice of easy mounting systems and adjustable damper designs.



659T
Steel
Lanced Filter Grille

- Steel construction
- Lanced-face design with 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

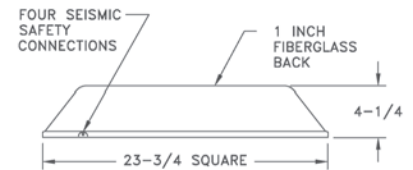
659T / 659TI Available Sizes
20" x 20" with extended frame (overall 23 ³ / ₄ " x 23 ³ / ₄ " for 24" x 24" openings
44" x 20" with extended frame (overall 47 ³ / ₄ " x 23 ³ / ₄ " for 48" x 24" opening (659T only)



659TI With Insulated Back

Includes these features

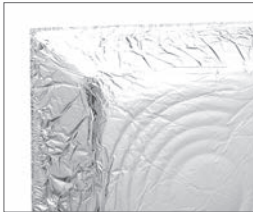
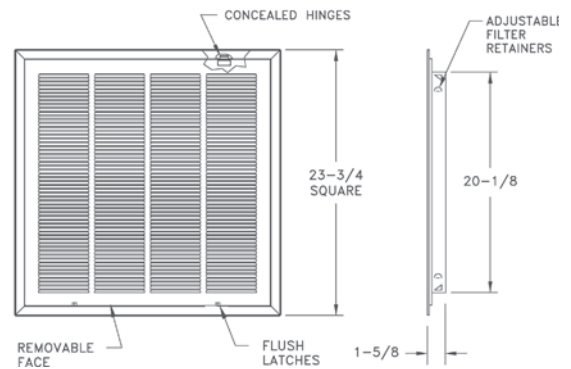
- Molded fiberglass back R4.2, R6
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- Frame includes four seismic safety connections



673T
Steel
Filter Grille

- Steel construction
- Lanced-face design with 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

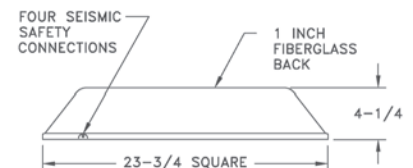
673T/673TI Available Size
20" x 20", overall 23 ³ / ₄ " x 23 ³ / ₄ "



673TI With Insulated Back

Includes these features

- Molded fiberglass back R4.2, 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



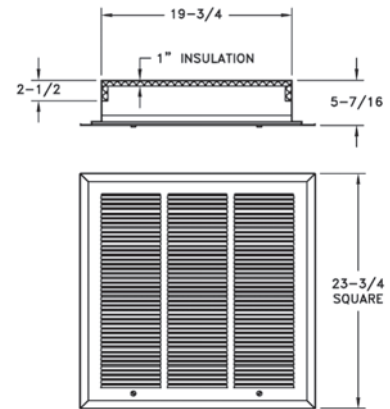
T-Bar Return-Air Filter Grilles



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 23 ³ / ₄ " x 23 ³ / 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

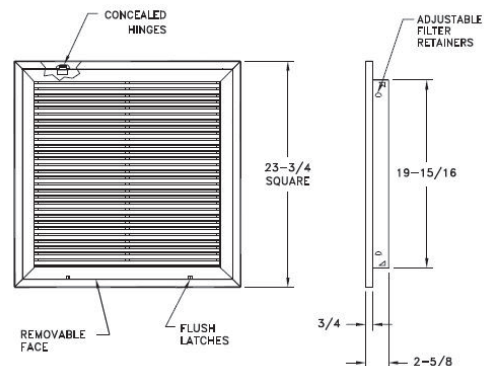
Note: Attachment of molded fiberglass back and 5400 collar requires 5400PP (push pins).



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 23 ³ / ₄ " x 23 ³ / ₄ "
44" x 20", overall 47 ³ / ₄ " x 23 ³ / ₄ "



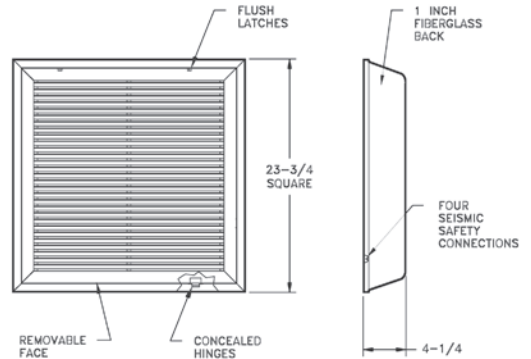


See page 47 for fiberglass specifications.

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 (64C 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

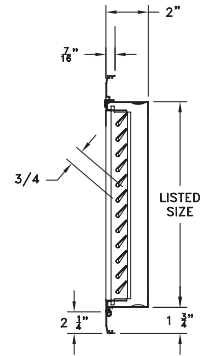
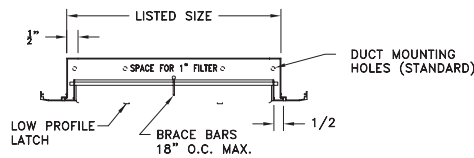
96AFBTI Available Size
20" x 20", overall 23 ³ / ₄ " x 23 ³ / ₄ "



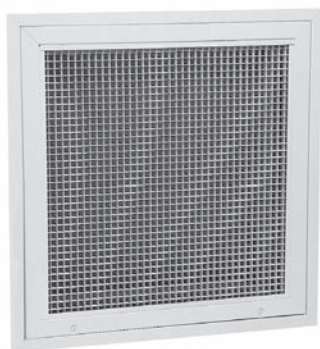
RHF45T
Aluminum
Bar-Style Filter Grille

- 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



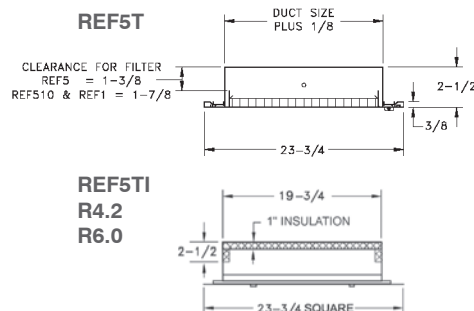
T-Bar Return-Air Filter Grilles



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

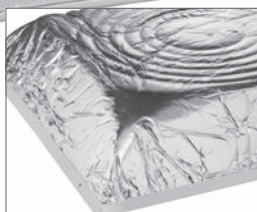
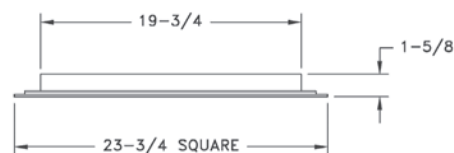
	Available Sizes
REF5T/ REF5TI	20" x 20" with extended frame (overall 23 ³ / ₄ " x 23 ³ / ₄ " for 24" x 24" openings)
REF5T only	44" x 20" with extended frame (overall 47 ³ / ₄ " x 23 ³ / ₄ " for 48" x 24" openings)



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 filters (not furnished)
- Bright White finish

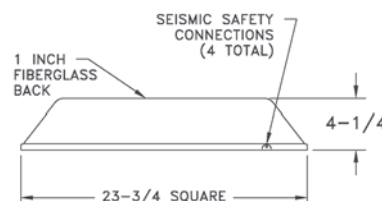
PFT Available Size
20" x 20", overall 23 ³ / ₄ " x 23 ³ / ₄ "



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 23 ³ / ₄ " x 23 ³ / ₄ "



See page 47 for fiberglass specifications.

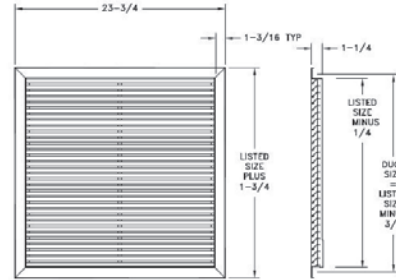
T-Bar Return-Air Grilles



94AT
Steel
Bar-Style
Return Grille

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

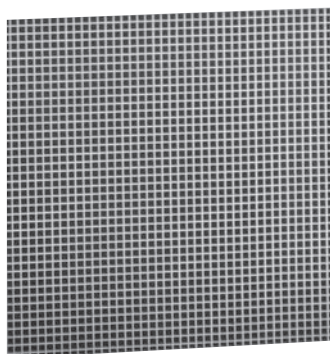
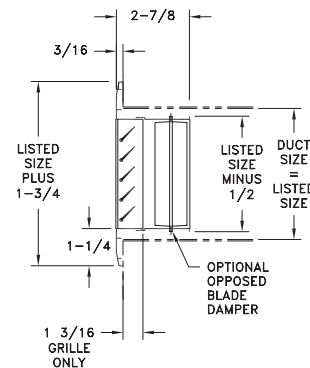
94AT Available Sizes
22" x 22" (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
46" x 22" (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings



RH45T
Aluminum
Bar-Style
Return Grille

- Extruded aluminum construction
- Horizontal bars at 45 degrees
- 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

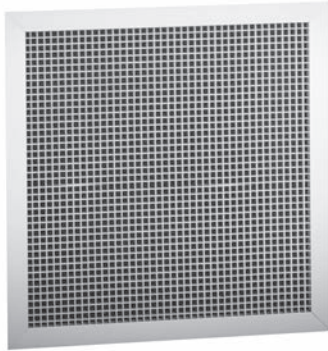


EGG CRATE PANEL
Aluminum
Grid Core
T-Bar Lay-in

- Aluminum construction
- Fits Standard T-Bar ceilings
- Bright White or Mill finish

EGG CRATE PANEL Available Sizes
48" x 24", overall 47 ³ / ₄ " x 23 ³ / ₄ "
24" x 24", overall 23 ³ / ₄ " x 23 ³ / ₄ "
24" x 12", overall 23 ³ / ₄ " x 11 ³ / ₄ "
24" x 6", overall 23 ³ / ₄ " x 5 ³ / ₄ "

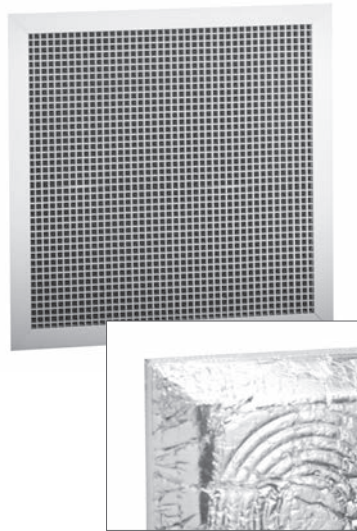
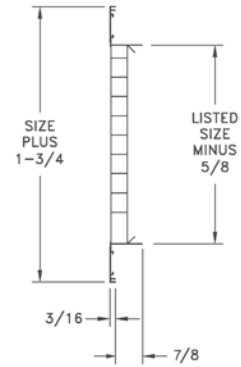
T-Bar Return-Air Grilles



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

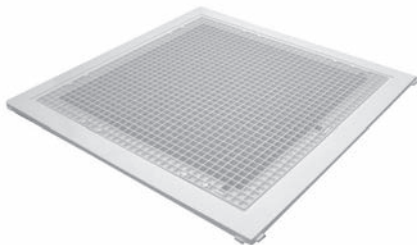
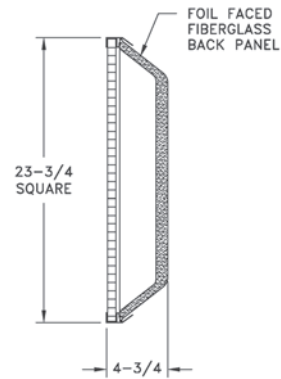
RE5T Available Sizes
22" x 22" (overall 23 ³ / ₄ " x 23 ³ / ₄ ") for 24" x 24" openings
22" x 46" (overall 47 ³ / ₄ " x 23 ³ / ₄ ") for 48" x 24" openings



RE5TI
Aluminum
Egg Crate
Return Grille with
Insulated 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

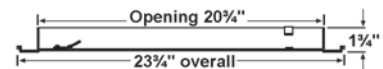
RE5TI Available Size
grid core face 1/2" x 1/2" x 1/2"

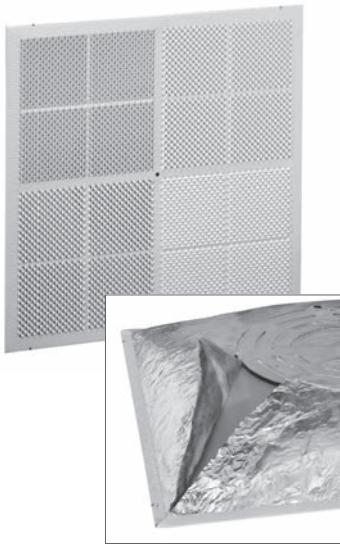


Rezzin Plastic T-Bar
Egg-Crate Filter Grille

- Egg crate style face, 1/2" x 1/2" x 1/2" 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 23 ³ / ₄ " x 23 ³ / ₄ "

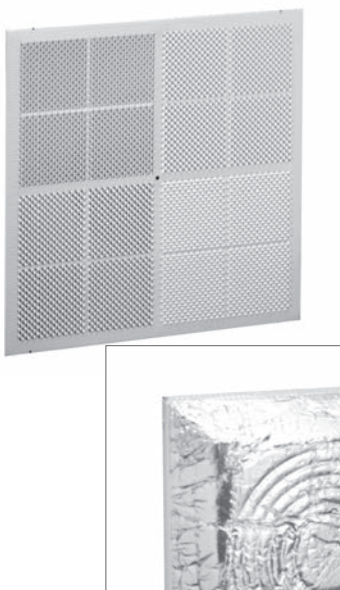
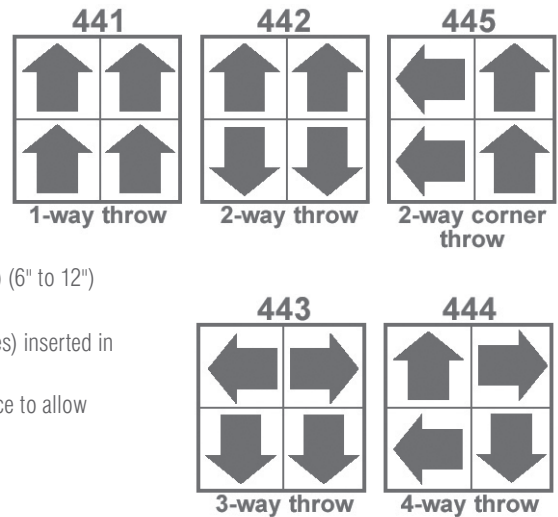
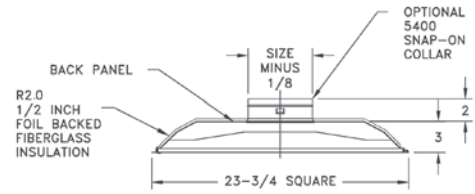




444 SurfAire® Aluminum Face Renovator Series Diffuser

- 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

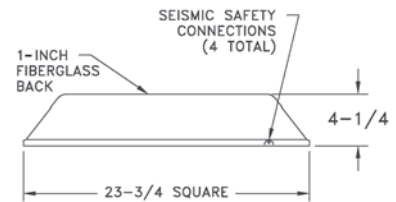
444 Available Size
overall size 23 ³ / ₄ " x 23 ³ / ₄ "



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 "



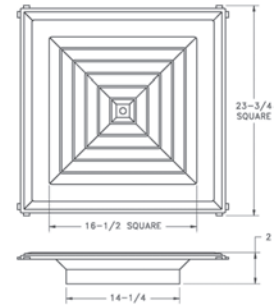
T-Bar Rezzin Diffusers



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

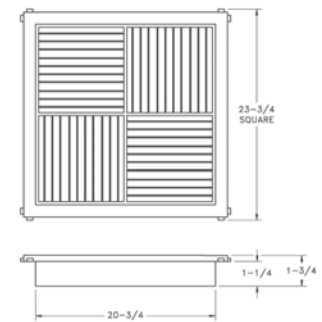
4-Way Diffuser Available Size (in)
24" x 24"



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

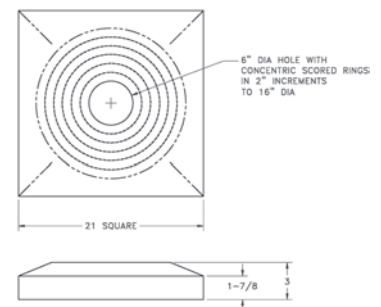
Modular Core Available Size (in)
24" x 24"



Rezzin Back Panel

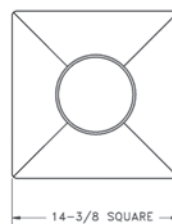
- Engineered polymer construction
- Use 6400 Series Tab Collar
- Bright White finish
- Use with Rezzin Modular Core and Rezzin Egg Crate diffuser

Back Panel Available Size (in)
24" x 24"

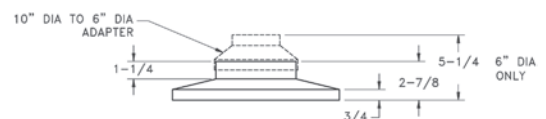


Rezzin Square-to-Round Transition

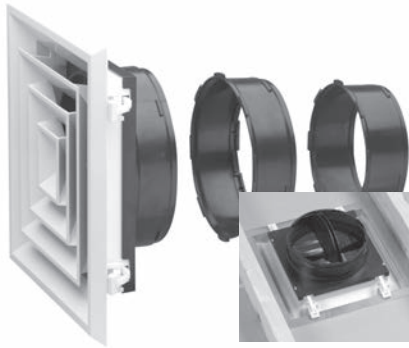
- Engineered polymer construction
- Allows flex duct installation for 4-Way Rezzin Diffuser
- Black finish
- Contains metal screws/clips
- Can use RD damper



Sq to Rd Available Size (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"



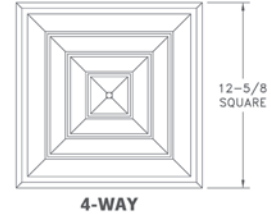
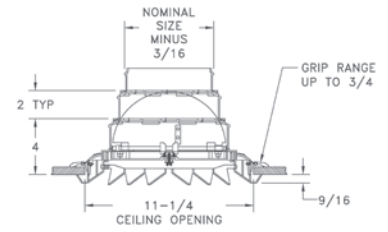
T-Bar Rezzin Diffusers



Rezzin Square Ceiling Diffuser

- Engineered polymer construction
- 12" x 12" 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

Square Available Size (in)
12" x 12"



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



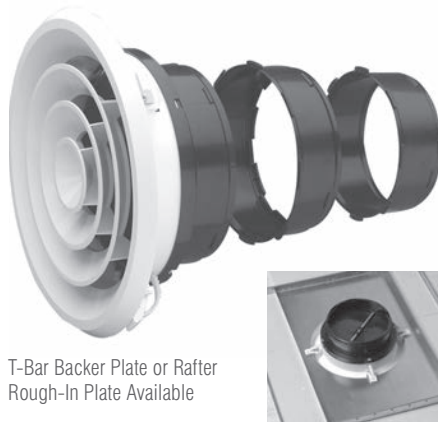
3-Way



4-Way



2-Way Corner

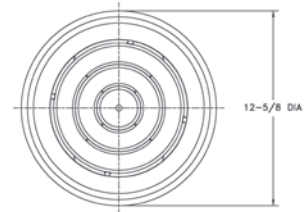
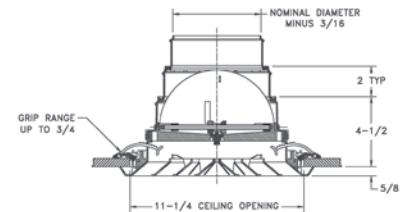


T-Bar Backer Plate or Rafter Rough-In Plate Available

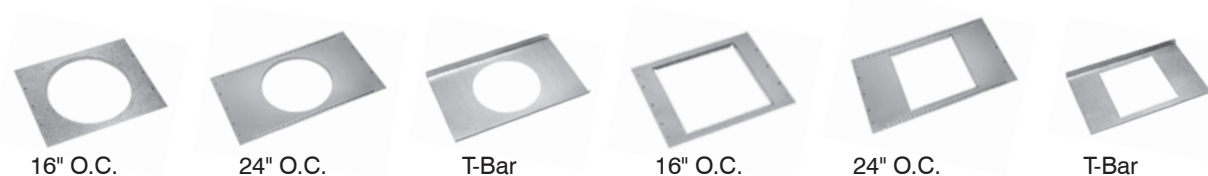
Rezzin Plastic Round Ceiling Diffuser

- 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.

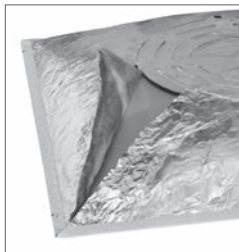
T-Bar

16" O.C.

24" O.C.

T-Bar

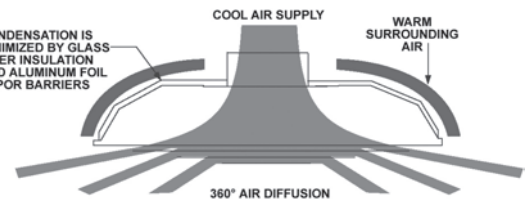
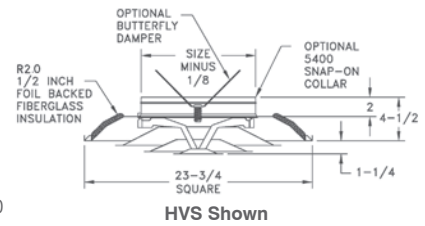
T-Bar Fixed-Pattern Diffusers



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

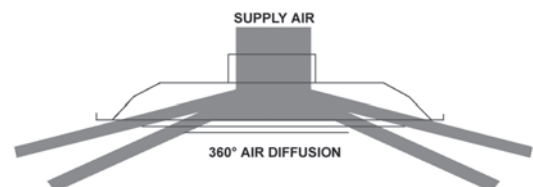
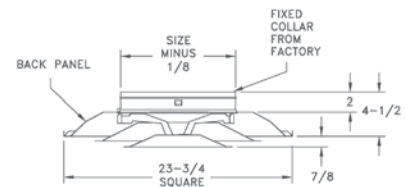
HVS Available Size
Overall Size 23³/₄" x 23³/₄"



FPD/FPD R6 AFPD/FPD-U R6 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"



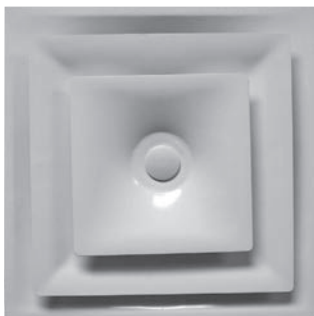
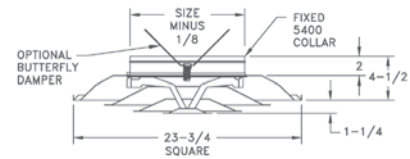
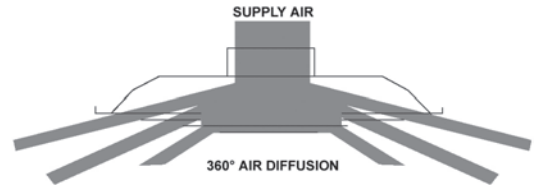
T-Bar Fixed-Pattern Diffusers



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

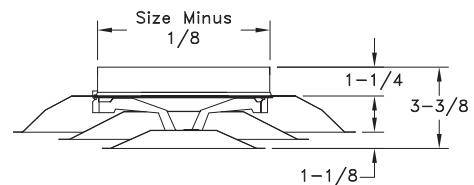
FPD3 T-Bar Available Size
Overall Size 23 ³ / ₄ " x 23 ³ / ₄ "



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 DPD-U R6

Steel

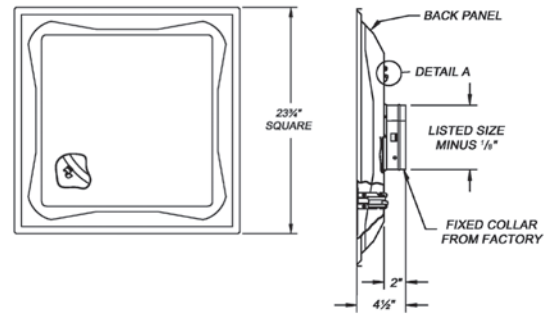
T-Bar Plate Diffuser

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

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.

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



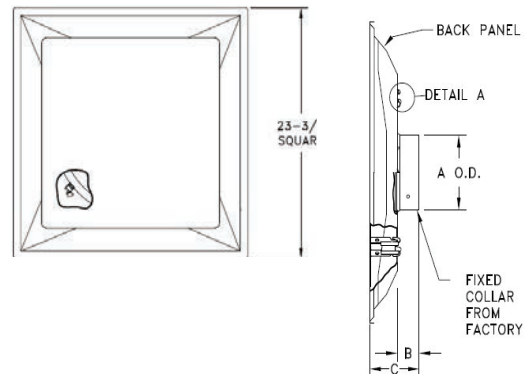
ADPD

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
24 x 24	6,8	1-1/4"	3-3/4"
	10,12,14	1-3/8"	3-7/8"



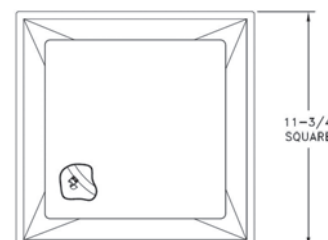
DPD12

Steel

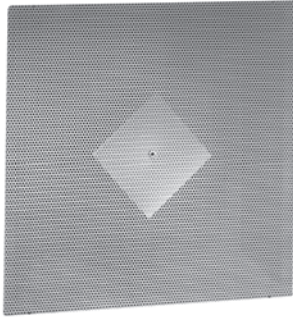
T-Bar Plate Diffuser

- 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"



T-Bar Fixed-Pattern Perforated Supply Diffusers

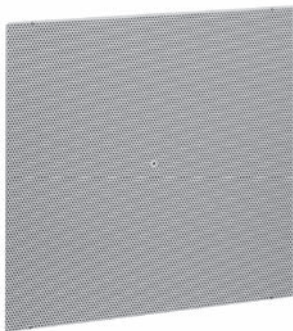
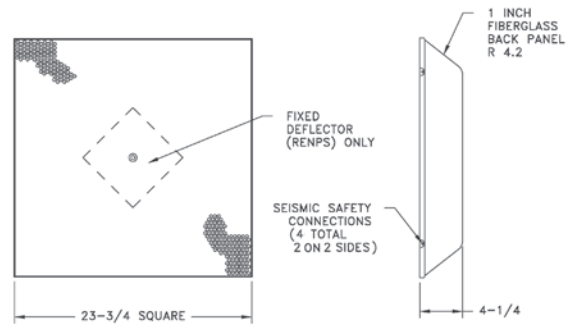
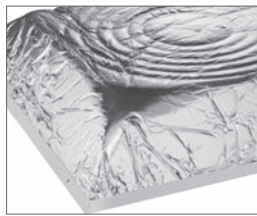


RENPS/ARENPS RENPS R6 Steel/Aluminum

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

Perforated Supply Diffuser with Insulated Back

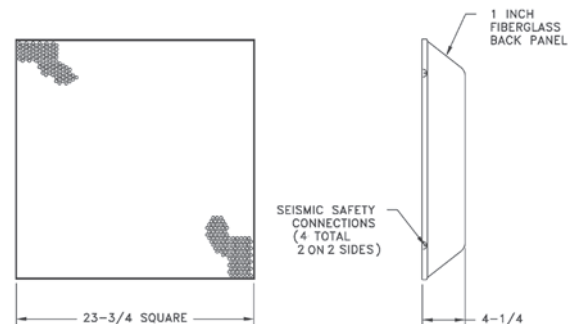
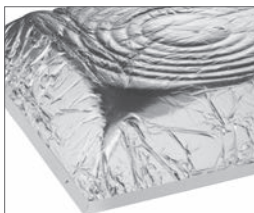
- Perforated steel face with deflector
- Molded fiberglass back panel, available in R4.2 or R6
- Accepts 6" to 14" unique tab collar (6400 series) or 6" to 16" unique snap-in collar (5400 and 5400PP series); also accepts standard spin-in collar
- ARENPS constructed with aluminum face
- Bright White finish



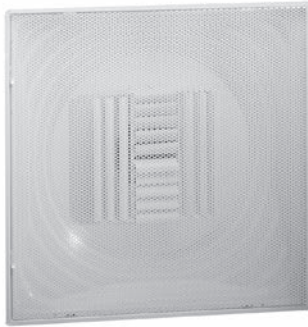
RENP Steel Perforated Return with Insulated Back

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



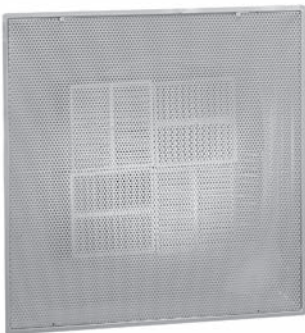
T-Bar Perforated Supply/Return



CBPS Curved-Blade Perforated Supply



CBPR Curved-Blade Perforated Return



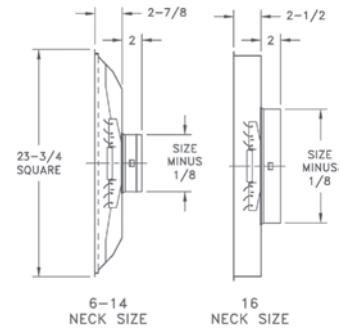
CBPS/CBPR

Steel

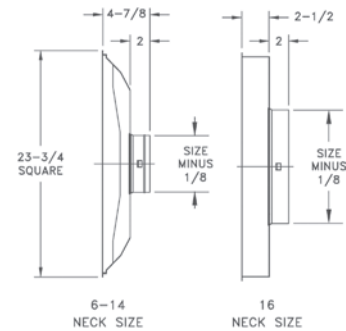
Curved-Blade Perforated Supply/Return

- 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 ³ / ₄ " x 23 ³ / ₄ "



CBPS



CBPR

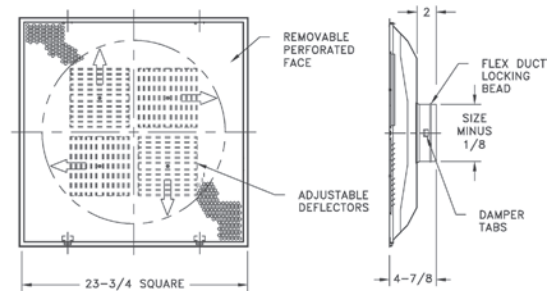
SBP

Steel

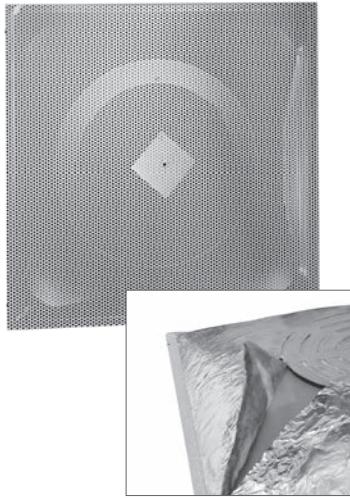
Shallow Back Perforated Supply

- 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 ³ / ₄ " x 23 ³ / ₄ "



T-Bar Perforated Supply/Return

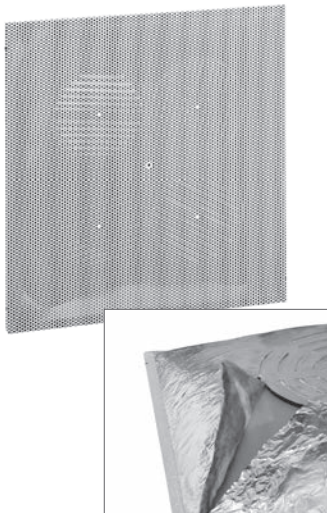
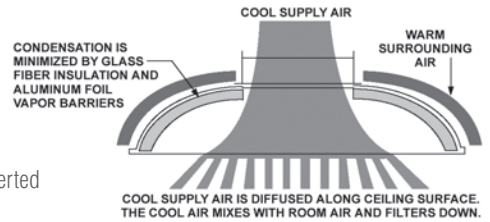
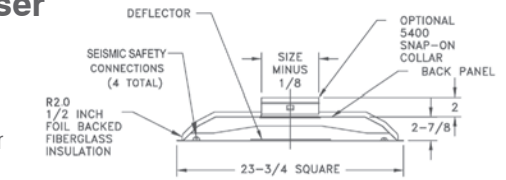


PDS Steel

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 23 ³ / ₄ " x 23 ³ / ₄ "

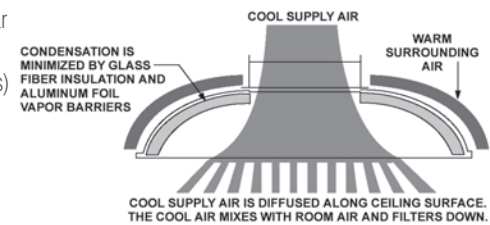
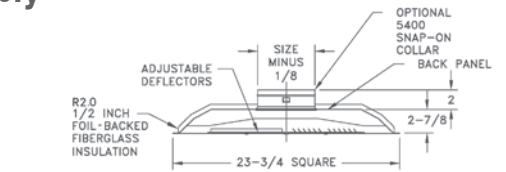


PDS Steel

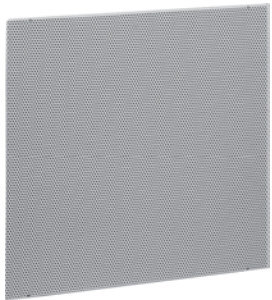
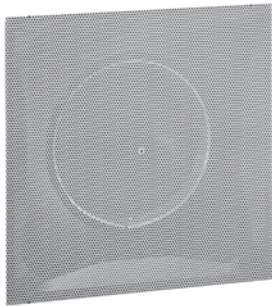
Perforated Diffuser Supply (with adjustable deflector)

- 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 (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 23 ³ / ₄ " x 23 ³ / ₄ "



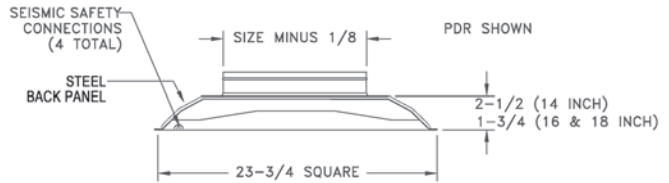
T-Bar Perforated Supply/Return



PDR
Steel
Perforated Return Grille

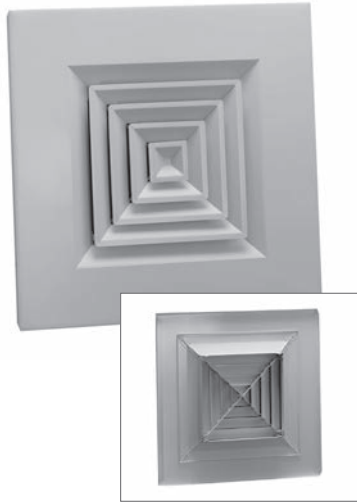
- 51% net free area
- Available with 14", 16", or 18" fixed collars
- Formed steel, black back panel
- White finish

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



PD
Steel
Perforated Return Face Only—No Back

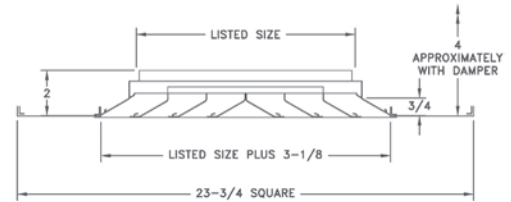
- Face only return for plenum ceilings
- Available in 24" x 12", 24" x 24" and 48" x 24" sizes
- White finish



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

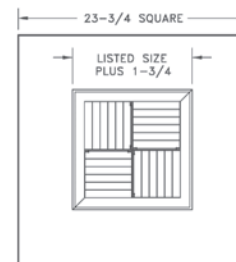
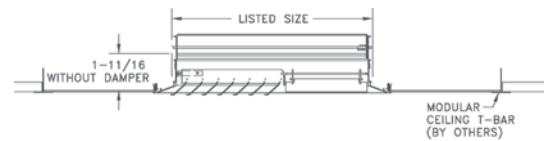
ART Available Sizes
6" x 6", 9" x 9", 12" x 12", 15" x 15", 21" x 21"
Note: For 18" x 18" neck, order ARE 18" x 18".



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 MCDSTR with square-to-round transition attached
- Bright White finish

MCDST/MCDSTR 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"



Add SR7 or AR7 for damper control

T-Bar Directional/Modular Diffuser



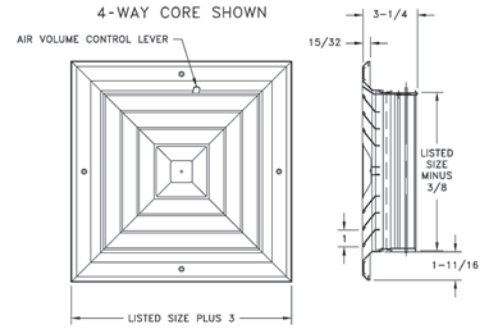
A501MS/A501OB
One-way deflection

A500 Series Diffusers

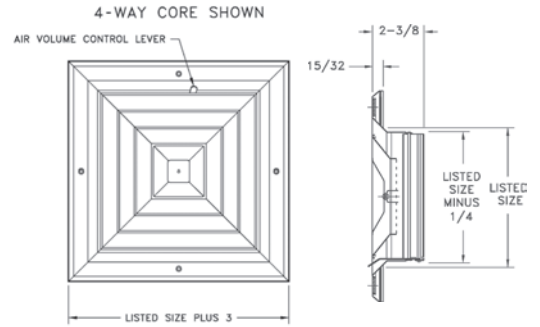
- Extruded aluminum construction
- Cores flush with margin
- One-way air diffusion
- Face mount for easy installation
- For sidewall or ceiling application
- Multi-shutter or opposed-blade dampers - aluminum
- Inconspicuous fingertip lever for air volume control
- Bright white finish

A500 Series Available Sizes				
6"x6"	8"x8"	10"x10"	12"x12"	14"x14"

OB Damper



MS Damper



A502MS/A502OB
Two-way deflection



A503MS/A503OB
Three-way deflection



A504MS/A504OB
Four-way deflection



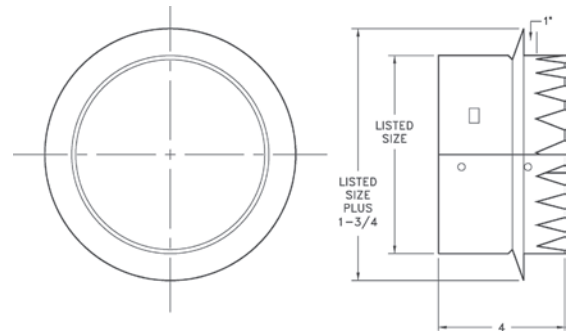
A505MS/A505OB
Two-way corner deflection



6400 Tab Collar

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

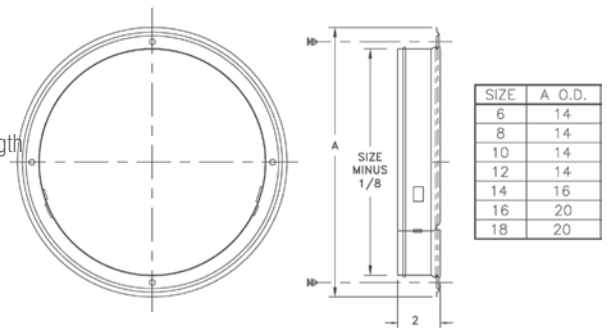
6400 Series Available Sizes				
6"	8"	10"	12"	14"



5400 Series Collar Ring*

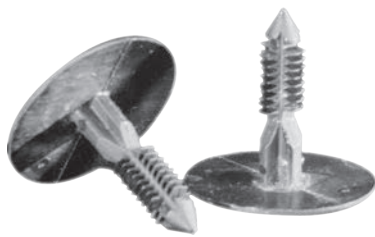
- Unique snap-in design for easy installation
- 2" high collar permits easy flex connections
- Bead on collar improves the strength and provides retention for flexible duct connections

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.



5400PP Push Pins

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

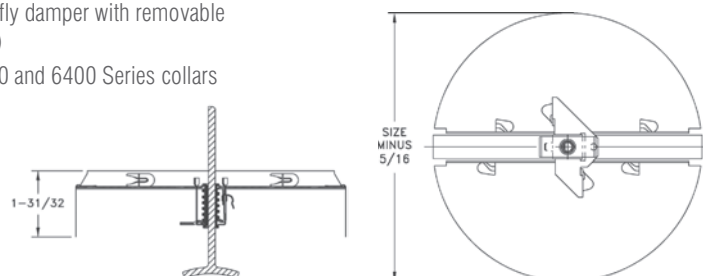
- 659TI 1 1/4" long
- PFTI 1 1/4" diameter head
- REN
- RENPS/RENPS R6
- RE5TI
- 96AFBTI
- REN4
- HVS R6
- SRET/SRET R6



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"	



Note: Screw hole location found in engineering data catalog

T-Bar Accessories

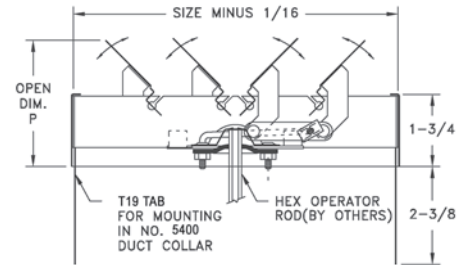


T19 Series Damper

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

Note: 3/16 hex operator by others

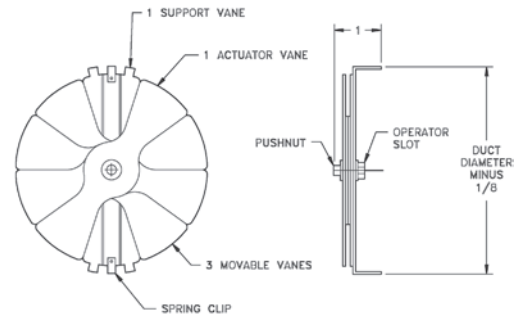
19 Series Available Sizes					
6"	8"	10"	12"	14"	16"



RD Radial Damper

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

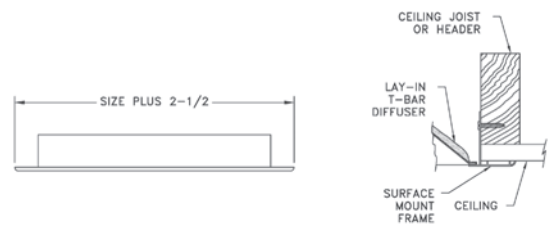
RD Available Sizes				
6"	8"	10"	12"	14"



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"



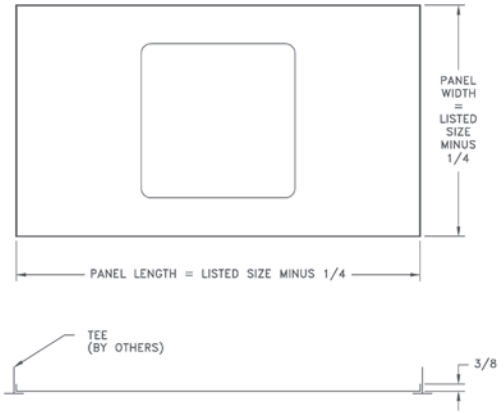


P Filler Panel

- 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).

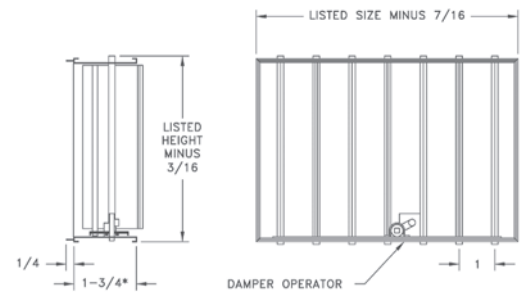
P Filler Panel Available Sizes
12" x 12", 24" x 12", 36" x 12", 48" x 12", 24" x 24", 36" x 24", 48" x 24", 36" x 36"



AD Aluminum Opposed-Blade Damper

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

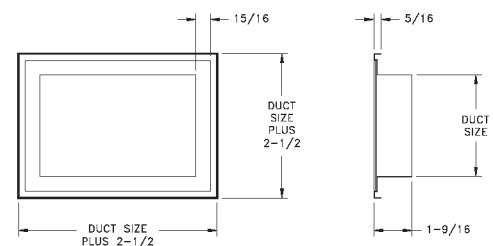
AD Available Sizes
Minimum: 6" x 4", 1 3/4" x 4"
Maximum: 24" x 24" One-Piece



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"



Note: Screw hole location found in engineering data catalog

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 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 amper 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 amper 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.

Glossary of Terms

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 13in. x 7in. – 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.

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.



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