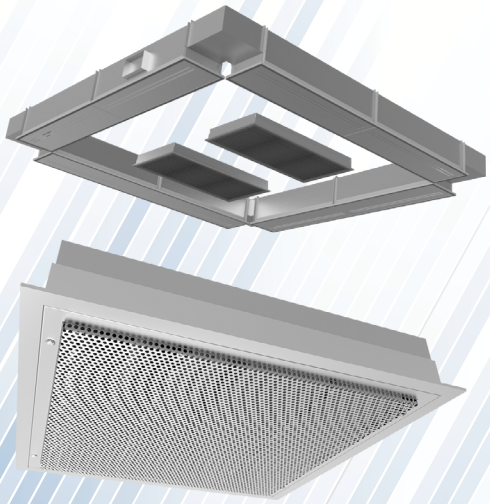
METALAIRE™

GRD PRODUCT CATALOG



CRITICAL ENVIRONMENT PRODUCTS

METALAIRE™

CRITICAL ENVIRONMENT PRODUCTS

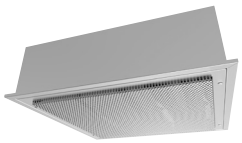
METALAIRE offers a complete line of critical environment products designed for clean rooms, hospital operating rooms, patient isolation rooms as well as laboratories and manufacturing facilities.

Laminar Flow Diffusers have been engineered to provide a vertical projection of low velocity supply air. The laminar flow diffuser introduces clean supply air without the entrainment of contaminated air in the space due to its low velocity.

PAGE 2

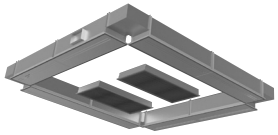
Directional Flow Diffusers are specifically engineered to improve patient comfort in critical health care applications such as isolation rooms and trauma centers.

PAGE 16



Radial Flow Diffusers are an effective method of air distribution for clean room applications such as laboratories where a high volume of air is required. The air pattern design produces a uniform pattern to prevent dead spots where contaminants can remain.

PAGE 22



Periflow Operating Room System is custom designed and precisely fabricated to accommodate the specialized medical, mechanical, and electrical considerations of today's operating room environments.

PAGE 40

METALAIRE™

LAMINAR FLOW DIFFUSERS

Model HPL-CL laminar flow diffuser is engineered for supply air distribution in critical environments such as hospital operating rooms and clean rooms. The diffusers are engineered to supply a low velocity vertical "piston" of conditioned air.

PAGE 3

Model HPL-HA laminar flow diffuser has the same features as the HPL-CL and is designed with a gasket type HEPA filter cell accessible from the face of the diffuser.

PAGE 7

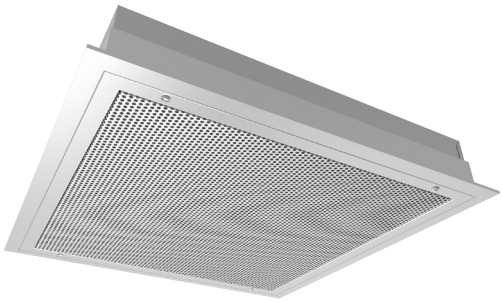
Model HPL-GS is an excellent choice for critical care environments when the application calls for the use of a HEPA filter in the supply diffuser. The GS series has an airtight filter housing to accommodate a gel seal HEPA filter and provides exceptional performance.

PAGE 13

METALAIRE™

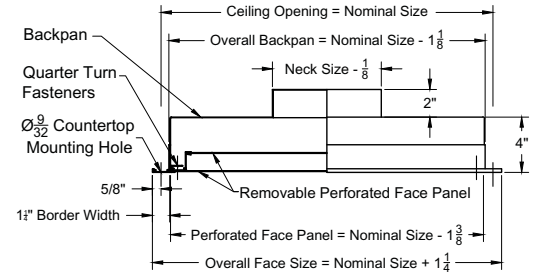
SERIES HPL-CL

HPL-CL Laminar Flow Diffuser is engineered for supply air distribution in critical environments such as hospital operating rooms and clean rooms. The diffusers are engineered to supply a low velocity vertical "piston" of conditioned air. The diffuser by design is easy to clean and sterilize. The face and core assembly can be removed from the face for cleaning.



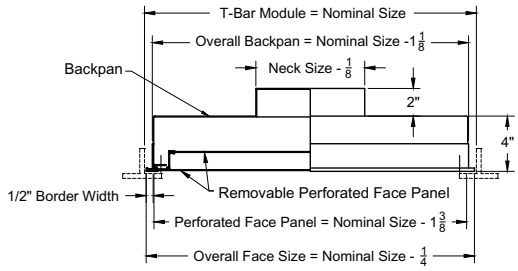
- Low velocity vertical air pattern
- Easily removable face to allow cleaning and sterilization
- Choice of all aluminum, stainless steel face and aluminum backpan or all stainless steel construction
- Choice of 23%, 40% and standard 51% free area for the perforated face
- Available in Surface Mount, T-bar or Metric T-bar frame styles
- Optional inlet damper
- Stainless steel safety chains are standard

Model: HPL-CL-AL Border 1 (Surface Mount)

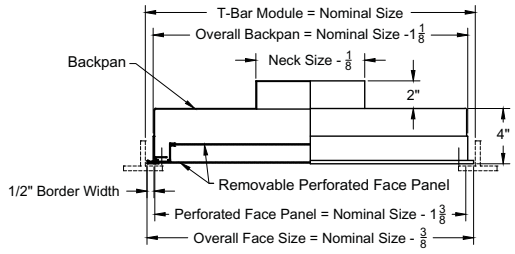


Nominal Size	Overall Face Size (L x W)		
(L x W)	Border 1	Border 6	Border 6M
24 x 12	25 1/4 x 13 1/4	23 3/4 x 11 3/4	23 5/8 x 11 5/8
36 x 12	37 1/4 x 13 1/4	35 3/4 x 11 3/4	35 5/8 x 11 5/8
48 x 12	49 1/4 x 13 1/4	47 3/4 x 11 3/4	47 5/8 x 11 5/8
24 x 24	25 1/4 x 25 1/4	23 3/4 x 23 3/4	23 5/8 x 23 5/8
36 x 24	37 1/4 x 25 1/4	35 3/4 x 23 3/4	35 5/8 x 23 5/8
48 x 24	49 1/4 x 25 1/4	47 3/4 x 23 3/4	47 5/8 x 23 5/8

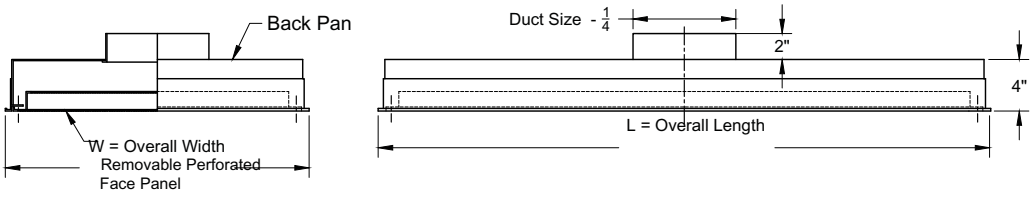
Model: HPL-CL-AL Border 6 (Standard Lay-In T-Bar)



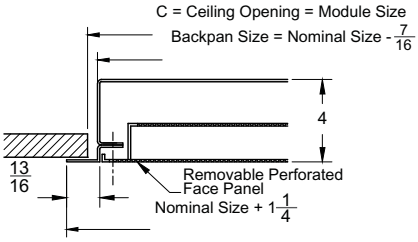
Model: HPL-CL-AL Border 6M (Lay-In T-Bar) Metric Sizing



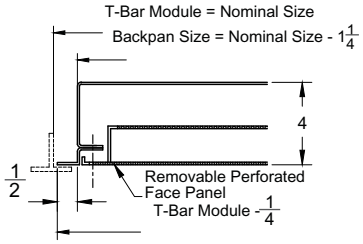
Models: • HPL - CL - SA (Stainless Steel Face & Aluminum Backpan)



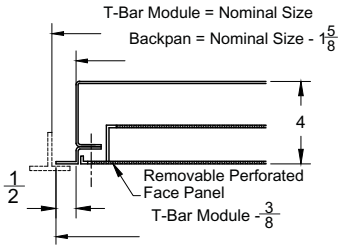
Model: HPL-CL-SA Border 1 (Surface Mount)



Model: HPL-CL-SA Border 6 (Standard Lay-In T-Bar)

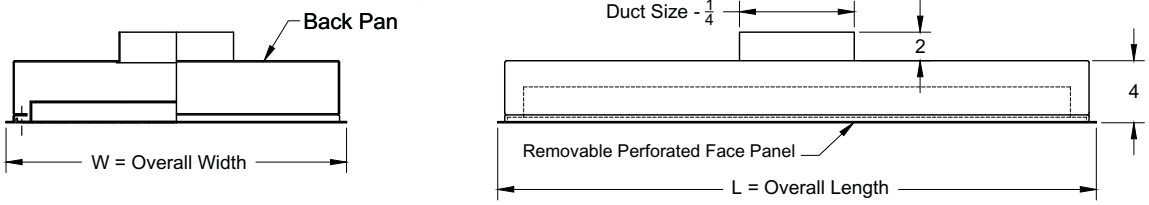


Model: HPL-CL-SA Border 6M Lay-In T-Bar Metric

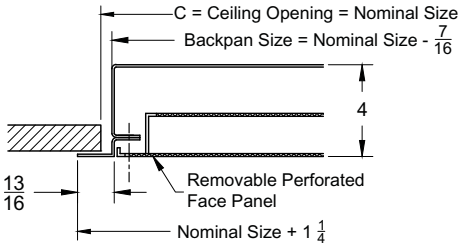


Nominal Size	C	Frame 1		Frame 6F		Frame 6M	
		W	L	W	L	W	L
36 x 12	12 x 36	13 1/4	37 1/4	11 3/4	35 3/4	11 5/8	35 5/8
48 x 12	12 x 48	13 1/4	49 1/4	11 3/4	47 3/4	11 5/8	47 5/8
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
48 x 24	24 x 48	25 1/4	49 1/4	23 3/4	47 3/4	23 5/8	47 5/8

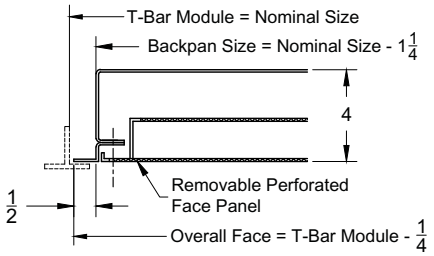
Models: • HPL-CL-SS (Stainless Steel Backpan & Face)



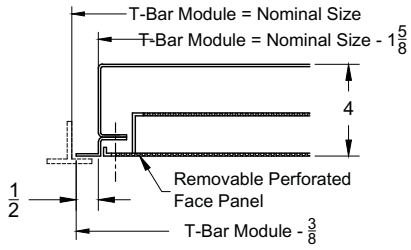
Model: HPL-CL-SS Border 1 (Surface Mount)



Model: HPL-CL-SS Border 6 (Standard Lay-In T-Bar)



Model: HPL-CL-SS Border 6M Lay-In T-Bar Metric



Nominal Size	C	Frame 1		Frame 6F		Frame 6M	
		L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
48 x 24	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8
48 x 12	48 x 12	49 1/4	13 1/4	47 3/4	11 3/4	47 5/8	11 5/8
24 x 12	24 x 12	25 1/4	13 1/4	23 3/4	11 3/4	23 5/8	11 5/8

SERIES HPL-CL SPECIFICATIONS

LAMINAR FLOW DIFFUSER — ALUMINUM/ STAINLESS STEEL — MODEL HPL-CL-AL / HPL-CL-SA / HPL-CL-SS

- Air outlets shall be model HPL-CL-AL (aluminum), HPL-CL-SA (stainless steel face/aluminum backpan) or HPL-CL-SS (stainless steel) manufactured by METALAIRE. Diffuser shall include an upper and lower pressure chamber and shall generate a low velocity, vertical piston of discharge air.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a 51% free area, a 40% free area or a 23% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.

Performance Specification

The manufacturer shall provide published performance data. Data shall be tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE product's ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min.

SERIES HPL-CL MODEL NUMBER SPECIFICATION

LAMINAR FLOW DIFFUSER

Model		Neck Size	Module	Available Finishes	
HPL-CL-AL-1	Aluminum Surface Mount		24 x 12	Standard	
HPL-CL-SA-1	Stainless Steel Face/Aluminum Backpan Surface Mount	6	36 x 12	01	White
HPL-CL-SS-1	Stainless Steel Surface Mount	7	48 x 12	Stainless Steel Units Only	
HPL-CL-AL-6	Aluminum T-bar	8	60 x 12	23	Satin Polish
HPL-CL-SA-6	Stainless Steel Face/Aluminum Backpan T-bar		72 x 12		
HPL-CL-SS-6	Stainless Steel T-bar	6	24 x 24	Available Accessories	
HPL-CL-AL-6M	Aluminum T-bar Metric	7	36 x 24	D3	Aluminum Radial Opposed Blade Damper
HPL-CL-SA-6M	Stainless Steel Face/Aluminum Backpan T-bar Metric	8	48 x 24	BDSS	Stainless Steel Butterfly Damper
HPL-CL-SS-6M	Stainless Steel T-bar Metric	9		EI	External Insulation
		10			
		12			
		14			

SERIES HPL-CL PERFORMANCE DATA

HPL-CL

CFM Per Square Foot	23% Free Area		40% Free Area		51% Free Area	
	Ps	NC	Ps	NC	Ps	NC
20	.010	<15	.005	<15	.004	<15
30	.021	<15	.011	<15	.010	<15
40	.038	18	.020	<15	.017	<15
50	.060	21	.031	21	.027	18
60	.086	29	.045	25	.038	22
70	.117	35	.061	31	.052	24
80	.152	38	.080	34	.068	30
90	.193	40	.101	39	.086	35
100	-	-	-	-	.107	39

PERFORMANCE NOTES FOR SERIES HPL-CL

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS

Ps *Static pressure loss through the diffuser and does not include velocity pressure*

NC *Based on Lw re: 10^{-12} watt, includes 10dB room attenuation and a maximum inlet velocity of 500fpm*

CFM *Cubic Feet per Minute (air)*

fpm *Velocity of air stream in Feet per Minute*

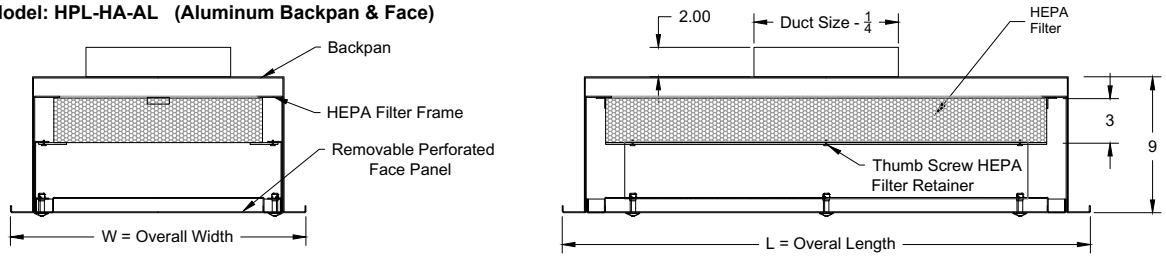
METALAIRE™

SERIES HPL-HA

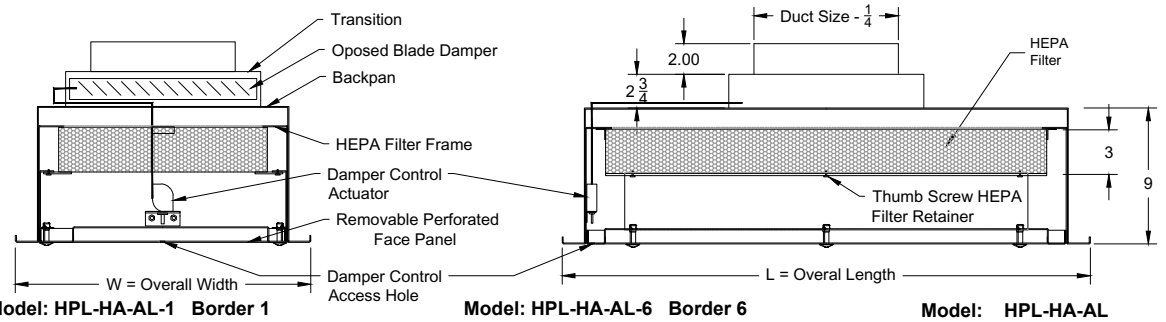
The HPL-HA laminar flow diffuser design integrates a HEPA filter rack accessible from the face of the diffuser. The HPL-HA is engineered for supply air distribution in critical environments such as hospital operating rooms, laboratories and clean rooms. The diffusers are engineered to supply a low velocity piston of air.

- Face and core assembly is easily removable for cleaning and sterilization
- Choice of 23%, 40% and standard 51% free area for the perforated face
- Optional gasket HEPA filter available
- Stainless steel safety chains are standard
- Available in all aluminum, stainless steel face/aluminum backpan, or all stainless steel construction

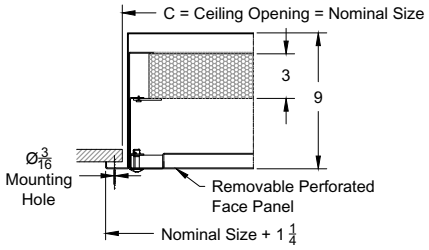
Model: HPL-HA-AL (Aluminum Backpan & Face)



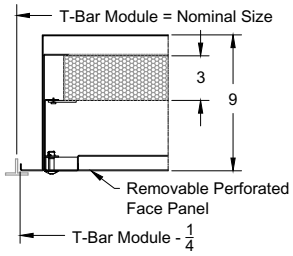
Option: HPL-HA-AL With Optional Remote Operated Opposed Blade Damper - Aluminum Backpan & Face



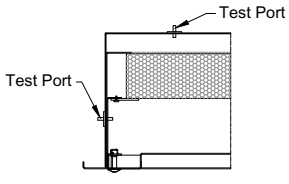
Model: HPL-HA-AL-1 Border 1 (Surface Mount)



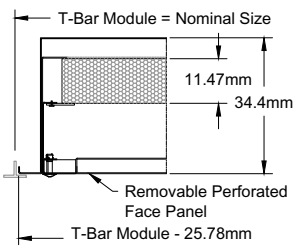
Model: HPL-HA-AL-6 Border 6 (Standard Lay In T-Bar)



Model: HPL-HA-AL With Test Port



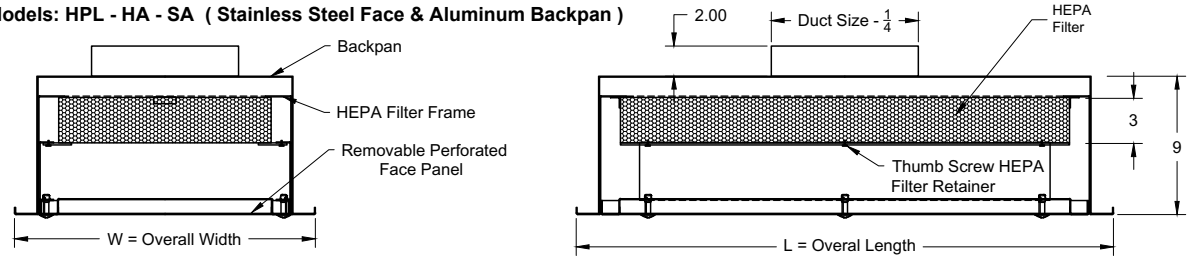
Model: HPL-HA-AL-6M Border 6M



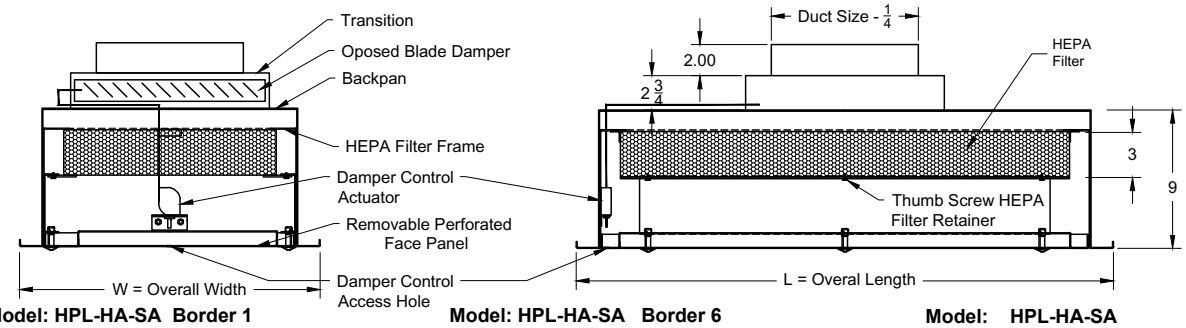
Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8

NOTE: Units Are Provided With Zinc Coated Non Painted Quarter Turn Fasteners.

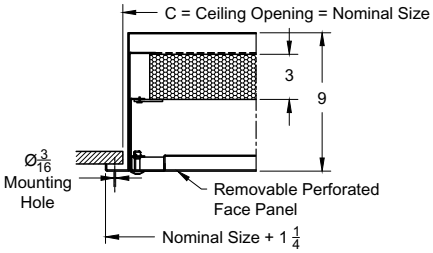
Models: HPL - HA - SA (Stainless Steel Face & Aluminum Backpan)



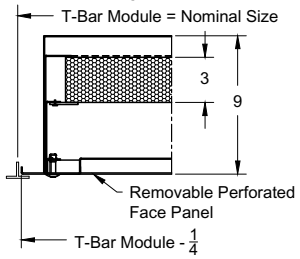
Options: HPL - HA - SA With Optional Remote Operated Opposed Blade Damper (Stainless Steel Face & Aluminum Backpan)



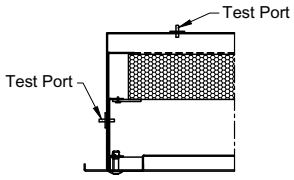
Model: HPL-HA-SA Border 1 (Surface Mount)



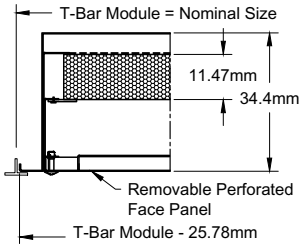
Model: HPL-HA-SA Border 6 (Standard Lay-In T-Bar)



Model: HPL-HA-SA With Test Port



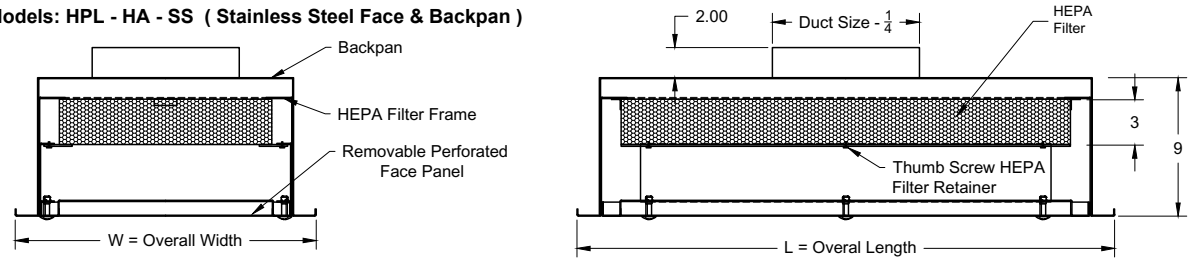
Model: HPL-HA-SA Border 6M



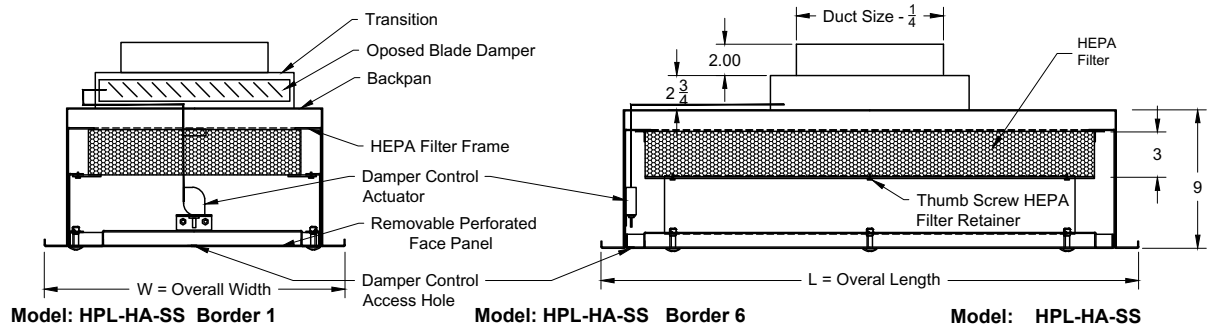
Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8

NOTE: Units Are Provided With Zinc Coated Non Painted Quarter Turn Fasteners.

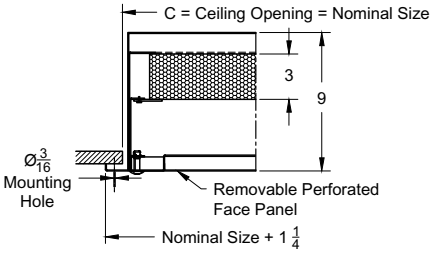
Models: HPL - HA - SS (Stainless Steel Face & Backpan)



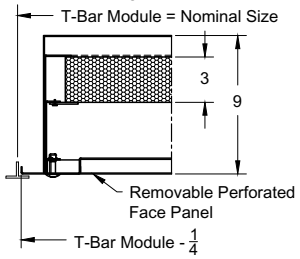
Options: HPL - HA - SS With Optional Remote Operated Opposed Blade Damper (Stainless Steel Face & Backpan)



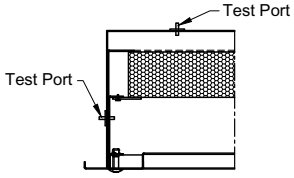
Model: HPL-HA-SS Border 1 (Surface Mount)



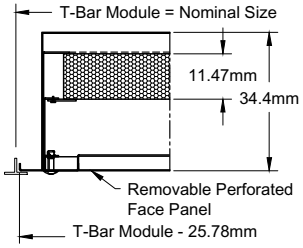
Model: HPL-HA-SS Border 6 (Standard Lay-In T-Bar)



Model: HPL-HA-SS With Test Port



Model: HPL-HA-SS Border 6M



Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8

NOTE: Units Are Provided With Zinc Coated Non Painted Quarter Turn Fasteners.

SERIES HPL-HA SPECIFICATIONS

LAMINAR FLOW DIFFUSER WITH FILTER RACK — ALUMINUM/STAINLESS STEEL — MODEL HPL-HA-AL / HPL-HA-SA / HPL-HA-SS

- Air outlets shall be model HPL-HA-AL (aluminum), HPL-HA-SA (stainless steel face/aluminum backpan) or HPL-HA-SS (stainless steel) manufactured by METALAIRE. Diffuser shall generate a low velocity, vertical piston of discharge air. Unit shall also include an integral filter section to allow for installation of a gasket type HEPA filter. Unit shall accept 3" pleated filter held in place using a trapeze hanger system.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning with the core assembly removed.
- The perforated face shall have a 51% free area, a 40% free area or a 23% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.
- Optional 3" thick, 99.99% efficient filter on .3 microns.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

SERIES HPL-HA MODEL NUMBER SPECIFICATION

LAMINAR FLOW DIFFUSER

Model		Neck Size	Module
HPL-HA-AL-1	Aluminum Surface Mount	6	24 x 24
HPL-HA-SA-1	Stainless Steel Face/Aluminum Backpan Surface Mount	7	36 x 24
HPL-HA-SS-1	Stainless Steel Surface Mount	8	48 x 24
HPL-HA-AL-6	Aluminum T-bar	9	
HPL-HA-SA-6	Stainless Steel Face/Aluminum Backpan T-bar	10	
HPL-HA-SS-6	Stainless Steel T-bar	12	
HPL-HA-AL-6M	Aluminum T-bar Metric	14	
HPL-HA-SA-6M	Stainless Steel Face/Aluminum Backpan T-bar Metric		
HPL-HA-SS-6M	Stainless Steel T-bar Metric		

Available Finishes	
Standard	
01	White
Stainless Steel Units Only	
23	Satin Polish

Available Accessories	
CD-AL	Aluminum Cable Operated Damper
CD-SS	Stainless Steel Cable Operated Damper
HEPA	Gasket Type HEPA Filter
TP	Test Port
EI	External Insulation

SERIES HPL-HA PERFORMANCE DATA

HPL-HA WITHOUT HEPA FILTER

CFM Per Square Foot	23% Free Area		40% Free Area		51% Free Area	
	Ps	NC	Ps	NC	Ps	NC
20	.010	<15	.005	<15	.004	<15
30	.021	<15	.011	<15	.010	<15
40	.038	18	.020	<15	.017	<15
50	.060	21	.031	21	.027	18
60	.086	29	.045	25	.038	22
70	.117	35	.061	31	.052	24
80	.152	38	.080	34	.068	30
90	.193	40	.101	39	.086	35
100	-	-	-	-	.107	39

HPL-HA WITH 3" HEPA FILTER

CFM Per Square Foot	23% Free Area		40% Free Area		51% Free Area	
	Ps	NC	Ps	NC	Ps	NC
20	.150	20	.140	<20	.130	<20
30	.240	24	.230	24	.210	23
40	.340	29	.320	27	.300	26
50	.450	32	.430	32	.400	32
60	.545	36	.540	35	.480	34
70	.656	40	.650	39	.580	39
80	-	-	.740	42	.690	42
90	-	-	-	-	.800	44
100	-	-	-	-	-	-

PERFORMANCE NOTES FOR SERIES HPL-HA

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS

Ps *Static pressure loss through the diffuser and does not include velocity pressure*

NC *Based on Lw re:10^{-12} watt, includes 10dB room attenuation and a maximum inlet velocity of 500fpm*
HEPA filter is a 3" deep filter, with an efficiency of 99.97% on D-3 micron particles

CFM *Cubic Feet per Minute (air)*

fpm *Velocity of air stream in Feet per Minute*

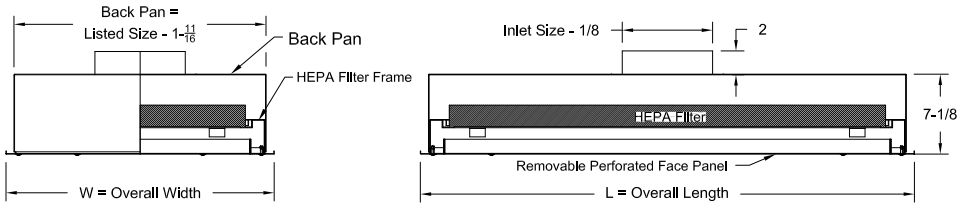
METALAIRE™

SERIES HPL-GS

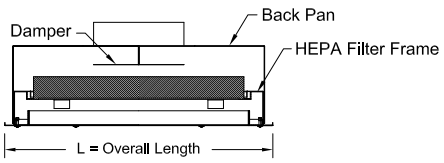
HPL-GS Laminar Flow Diffuser is engineered to supply air in critical environments such as clean rooms, laboratories, hospital operating rooms, and patient isolation rooms. The diffuser provides a means of controlling particle contamination within the room by providing a unidirectional vertical "piston" of conditioned air. The HPL-GS utilizes a 3" thick, pleated filter element, which enables the overall diffuser housing to be a maximum of 7" high.

- Tested in accordance with IEST-RP-CC-034 and Alkermes SOP 110-03147
  The standard gel seal HEPA filter is scan tested to meet an efficiency rating of 99.99%
- Knife Edge Flange penetrates the HEPA filter (silicone) gel seal to provide a leak proof seal between the filter and the housing
- Airtight Filter Housing construction at all joints and corners
- Flush Appearance with 1/4" turn fasteners to allow easy removal of perforated face
- Thumb Wheel Retainers hold the filter in housing and allow for easy room-side removal of filter
- Available in aluminum, cold-rolled steel or stainless steel construction

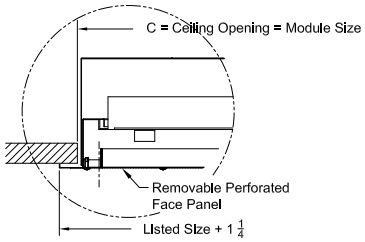
Model: HPL-GS



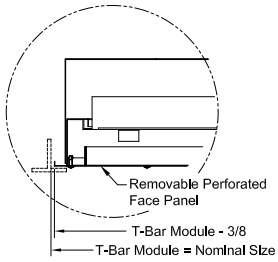
Option: HPL-GS With Damper

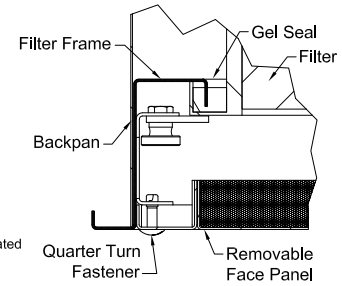


Model: HPL-GS Border 1 (Surface Mount)

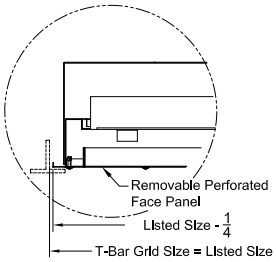


Model: HPL-GS Border 6M (Standard Lay-In T-Bar)





Model: HPL-GS Border 6 (Standard Lay-In T-Bar)



Inlet Size
6
8
10
12
14

Nominal Size	Frame 1			Frame 6		Frame 6M		Filter Size	
	C	L	W	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8	20 1/8	20 1/8
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8	20 1/8	44 1/8

SERIES HPL-GS SPECIFICATIONS

LAMINAR FLOW DIFFUSER WITH FILTER RACK — ALUMINUM/COLD-ROLLED STEEL/STAINLESS STEEL MODEL HPL-GS-AL / HPL-GS-ST / HPL-GS-SS

- Air outlets shall be model HPL-GS-AL (aluminum), HPL-GS-ST (cold-rolled steel) or HPL-GS-SS (stainless steel) manufactured by METALAIRE. Diffuser shall generate a low velocity, vertical piston of discharge air. Unit shall also include an internal filter section to allow the installation and removal of a gel seal HEPA filter. Unit shall accept 3" HEPA with filter held in place using thumb wheel retaining clips.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a 51% free area, a 40% free area or a 23% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.
- Optional 3" thick, 99.99% efficient filter on .3 microns.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

METALAIRE™

SERIES HPL-GS MODEL NUMBER SPECIFICATION

LAMINAR FLOW DIFFUSER

Model		Neck Size	Module
HPL-GS-AL-1	Aluminum Surface Mount	6	24 x 24
HPL-GS-ST-1	Cold Rolled Steel Surface Mount	7	48 x 24
HPL-GS-SS-1	Stainless Steel Surface Mount	8	
HPL-GS-AL-6	Aluminum T-bar	9	
HPL-GS-ST-6	Cold Rolled Steel T-bar	10	
HPL-GS-SS-6	Stainless Steel T-bar	12	
HPL-GS-AL-6M	Aluminum T-bar Metric	14	
HPL-GS-ST-6M	Cold Rolled Steel T-bar Metric		
HPL-GS-SS-6M	Stainless Steel T-bar Metric		

Available Finishes		Available Accessories	
Standard		HEPA GS	Gel Seal Hepa Filter
01	White	TP	Test Port
Stainless Steel Units Only		EI	External Insulation
23	Satin Polish	D	Round disc damper

SERIES HPL-GS PERFORMANCE DATA

HPL-GS WITHOUT HEPA FILTER

CFM Per Square Foot	23% Free Area		40% Free Area		51% Free Area	
	Ps	NC	Ps	NC	Ps	NC
20	.010	<15	.008	<15	.008	<15
30	.024	<15	.019	<15	.018	<15
40	.042	19	.033	21	.033	20
50	.060	21	.051	27	.050	24
60	.076	29	.072	33	.070	30
70	.101	35	.096	38	.090	35

HPL-GS WITH GEL SEAL HEPA FILTER

CFM Per Square Foot	23% Free Area		40% Free Area		51% Free Area	
	Ps	NC	Ps	NC	Ps	NC
40	.300	18	.285	18	.290	18
60	.449	20	.440	20	.423	20
80	.632	26	.604	26	.595	26
100	.792	30	.768	30	.750	30

PERFORMANCE NOTES FOR SERIES HPL-GS

All data is tested in accordance with ANSI/ASHRAE 70-2006

DEFINITION OF UNITS

Ps *Static pressure loss through the diffuser and does not include velocity pressure*

NC *Based on Lw re: 10^{-12} watt, includes 10dB room attenuation and a maximum inlet velocity of 500fpm*
HEPA filter is a 3" deep filter, with an efficiency of 99.97% on D-3 micron particles

CFM *Cubic Feet per Minute (air)*

fpm *Velocity of air stream in Feet per Minute*

METALAIRE™

DIRECTIONAL FLOW DIFFUSERS

Model HPL-PR is specifically engineered to improve patient comfort in critical health care applications such as isolation rooms and trauma centers. The unique design provides a “tent” of conditioned air around the patient.

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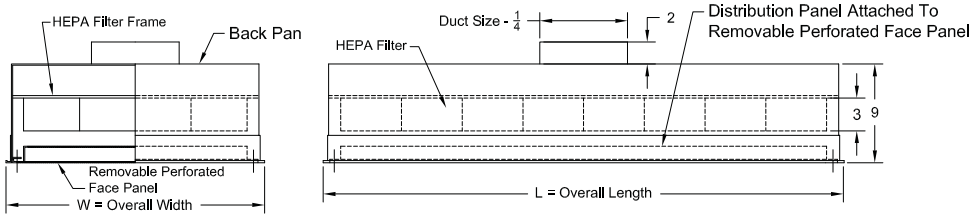
SERIES HPL-PR

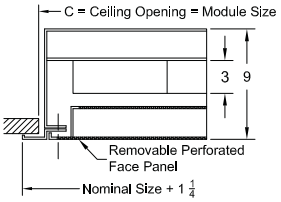
The HPL-PR is specifically engineered to improve patient comfort in critical health care applications such as isolation rooms and trauma centers. The unique design surrounds the patient with a "tent" of conditioned air while minimizing the impact of the air velocities. The HPL-PR includes a HEPA filter rack.

- Face and core assembly is easily removable for cleaning and sterilization
- Choice of 23%, 40% and standard 51% free area for the perforated face
- Optional gasket type HEPA filter available
- Stainless steel safety chains are standard
- Available in all aluminum, stainless steel face/aluminum backpan, or all stainless steel construction

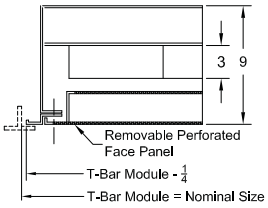
Models: HPL - PR - AL (Aluminum Backpan & Face)



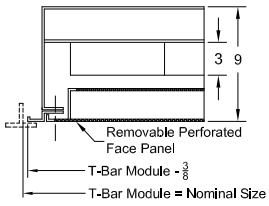
Model: HPL-PR-AL Border 1 (Surface Mount)



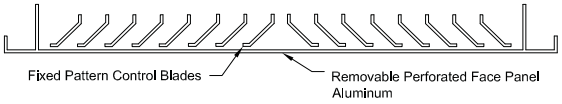
Model: HPL-PR-AL Border 6 (Standard Lay-In T-Bar)



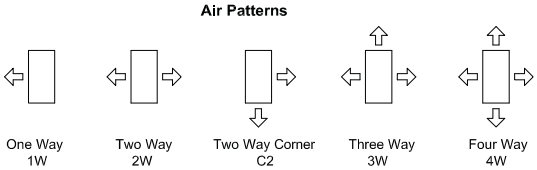
Model: HPL-PR-AL Border 6M (1 1/2 Inch Lay-In T-Bar)



Cross Section: Diffuser Face

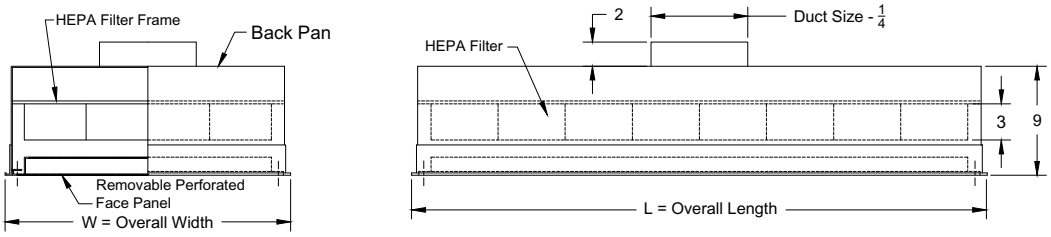


Air Patterns

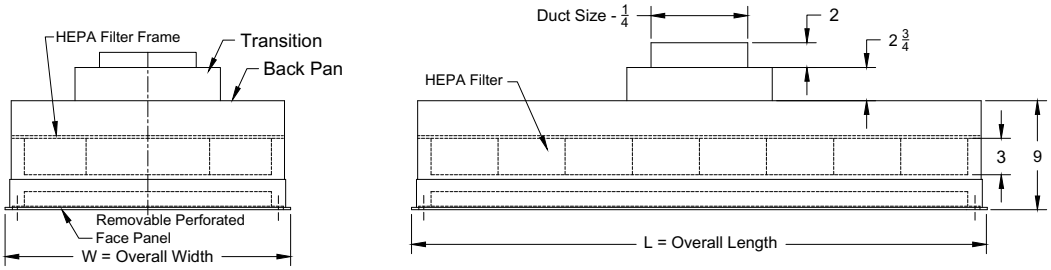


Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
12 x 36	12 x 36	37 1/8	13 1/8	35 3/4	11 3/4	35 3/4	11 3/4
12 x 48	12 x 48	49 1/8	13 1/8	47 3/4	11 3/4	47 3/4	11 3/4
24 x 24	24 x 24	25 1/8	25 1/8	23 3/4	23 3/4	23 3/4	23 3/4
24 x 36	24 x 36	37 1/8	25 1/8	35 3/4	23 3/4	35 3/4	23 3/4
24 x 48	24 x 48	49 1/8	25 1/8	47 3/4	23 3/4	47 3/4	23 3/4

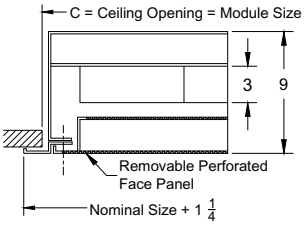
Models: HPL - PR - SA (Stainless Steel Face & Aluminum Backpan)



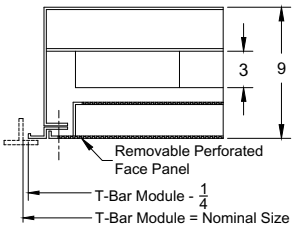
Options: HPL - PR - SA With Optional Remote Operated Opposed Blade Damper (Stainless Steel Face & Aluminum Backpan)



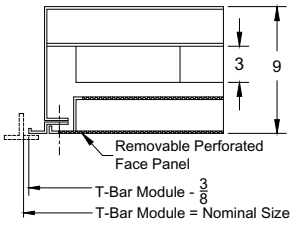
Model: HPL - PR - SA Border 1 (Surface Mount)



Model: HPL - PR - SA Border 6 (Standard Lay-In T-Bar)

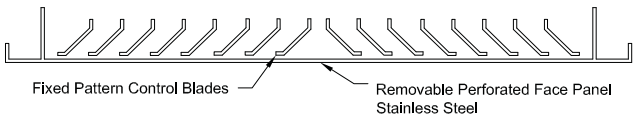


Model: HPL - PR - SA Border 6M (1 1/2 Inch Lay-In T-Bar)

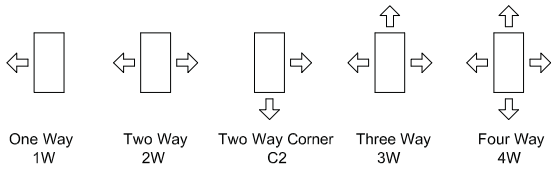


Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/8	25 1/8	23 3/4	23 3/4	23 3/4	23 3/4
24 x 36	24 x 36	37 1/8	25 1/8	35 3/4	23 3/4	35 3/4	23 3/4
24 x 48	24 x 48	49 1/8	25 1/8	47 3/4	23 3/4	47 3/4	23 3/4

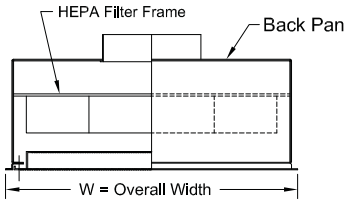
Cross Section: Diffuser Face

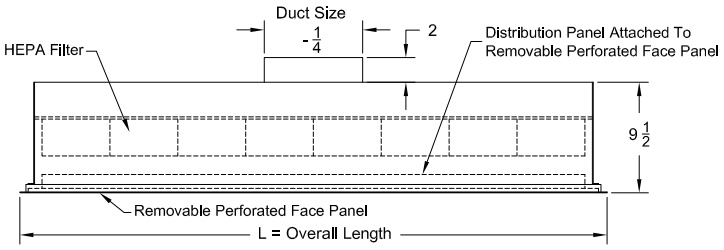


Air Patterns

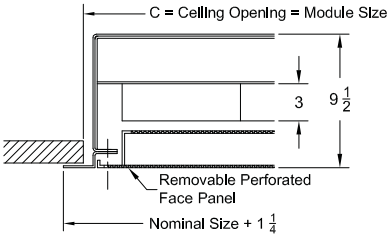


Models: **HPL - PR - SS (Stainless Steel Face & Backpan)**

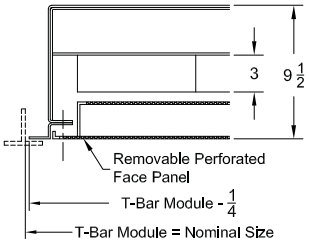




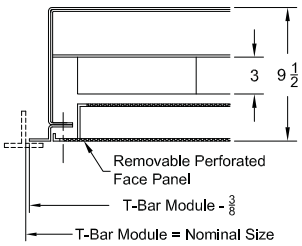
Model: HPL-PR-SS Border 1 (Surface Mount)



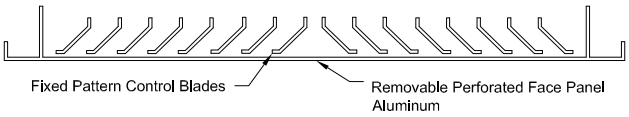
Model: HPL-PR-SS Border 6 (Standard Lay-In T-Bar)



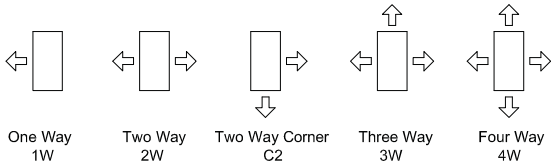
Model: HPL-PR-SS Border 6M (1 1/2 Inch Lay-In T-Bar)



Cross Section: Diffuser Face



Air Patterns



Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/8	25 1/8	23 3/4	23 3/4	23 3/4	23 3/4
24 x 36	24 x 36	37 1/8	25 1/8	35 3/4	23 3/4	35 3/4	23 3/4
24 x 48	24 x 48	49 1/8	25 1/8	47 3/4	23 3/4	47 3/4	23 3/4

SERIES HPL-PR SPECIFICATIONS

LAMINAR FLOW PATIENT ISOLATION DIFFUSER — ALUMINUM/STAINLESS STEEL MODEL HPL-PR-AL / HPL-PR-SA / HPL-PR-SS

- Air outlets shall be model HPL-PR-AL (aluminum), HPL-PR-SA (stainless steel face/aluminum backpan) or HPL-PR-SS (stainless steel) manufactured by METALAIRE. Diffuser shall generate a low velocity, directional air pattern. Units shall be available in 1-, 2-, 3- or 4-way fixed air pattern.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a 51% free area, a 40% free area or a 23% free area .
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.
- Optional 3" thick, 99.99% efficient filter on .3 microns.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

SERIES HPL-PR MODEL NUMBER SPECIFICATION

DIRECTIONAL FLOW DIFFUSER

Model		Neck Size	Module
HPL-PR-AL-1	Aluminum Surface Mount		
HPL-PR-SA-1	Stainless Steel Face/Aluminum Backpan Surface Mount	6	
HPL-PR-SS-1	Stainless Steel Surface Mount	7	
HPL-PR-AL-6	Aluminum T-bar	8	
HPL-PR-SA-6	Stainless Steel Face/Aluminum Backpan T-bar		
HPL-PR-SS-6	Stainless Steel T-bar	6	24 x 24
HPL-PR-AL-6M	Aluminum T-bar Metric	7	36 x 24
HPL-PR-SA-6M	Stainless Steel Face/Aluminum Backpan T-bar Metric	8	48 x 24
HPL-PR-SS-6M	Stainless Steel T-bar Metric	9	
		10	
		12	
		14	

Available Finishes	
Standard	
01	White
Stainless Steel Units Only	
23	Satin Polish

Air Patterns	
1W	1-Way
2W	2-Way
3W	3-Way
4W	4-Way

Available Accessories	
CD-AL	Aluminum Cable Operated Damper
CD-SS	Stainless Steel Cable Operated Damper
HEPA	Gasket Type HEPA Filter
TP	Test Port
EI	External Insulation

SERIES HPL-PR PERFORMANCE DATA

HPL-PR WITHOUT HEPA FILTER

CFM per Sq. Ft.	20	30	40	50	60	70	80	90	100
Ps	.003	.007	.013	.020	.028	.039	.051	.064	.079
NC	<17	<17	17	21	<28	34	37	40	41
Throw	1-1-3	1-1-4	1-2-6	1-3-8	2-4-10	2-5-11	3-6-13	5-8-16	6-10-20

HPL-PR WITH HEPA FILTER

CFM per Sq. Ft.	20	30	40	50	60	70	80	90	100
Ps	.150	.240	.334	.425	.523	.625	.730	.820	-
NC	<24	<24	29	32	35	39	42	45	-
Throw	1-1-3	1-1-4	1-2-6	1-3-8	2-4-10	2-5-11	3-6-13	5-8-16	-

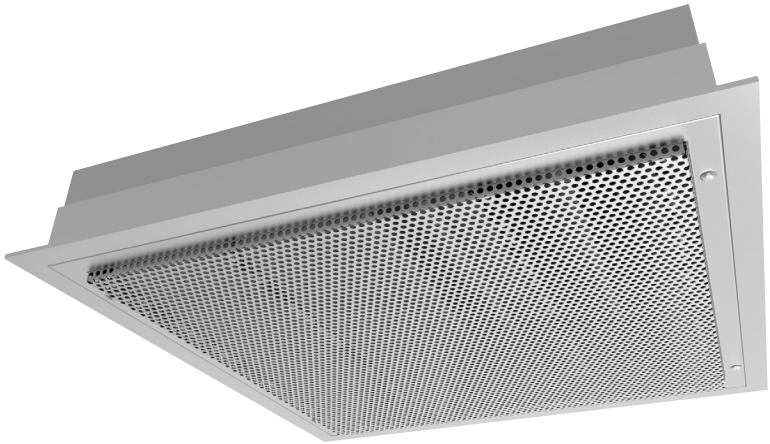
PERFORMANCE NOTES FOR SERIES HPL-PR

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS

Ps *Static pressure loss through the diffuser and does not include velocity pressure*

NC *Based on Lw re: 10^{-12} watt, includes 10dB room attenuation and a maximum inlet velocity of 500fpm*
HEPA filter is a 3" deep filter, with an efficiency of 99.97% on D-3 micron particles



RADIAL FLOW DIFFUSERS

Model HRD-CL radial discharge pattern diffusers are engineered to handle large volumes of air in confined spaces with maximum comfort and low room air velocities. The HRD-CL is an excellent choice for clean rooms and laboratories. PAGE 23

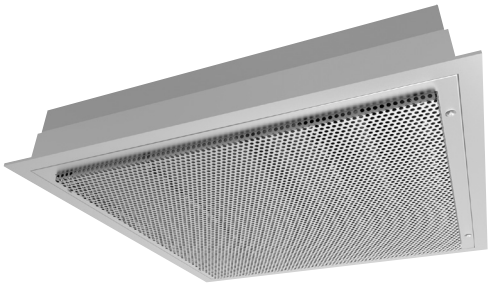
Model HRD-HA radial flow diffusers have many of the same features as the HRD-CL and are designed with a HEPA filter rack accessible from the face of the diffuser. The gasket type HEPA filter is optional. PAGE 30

Model HRD-GS is an excellent choice for critical environments such as clean rooms and laboratories when the application calls for the use of a HEPA filter in the supply diffuser. The GS has an airtight filter housing and knife edge flange that penetrates a gel seal HEPA filter, providing a leak proof seal between the filter and the housing. The gel seal type HEPA filter is optional. PAGE 37

METALAIRE™

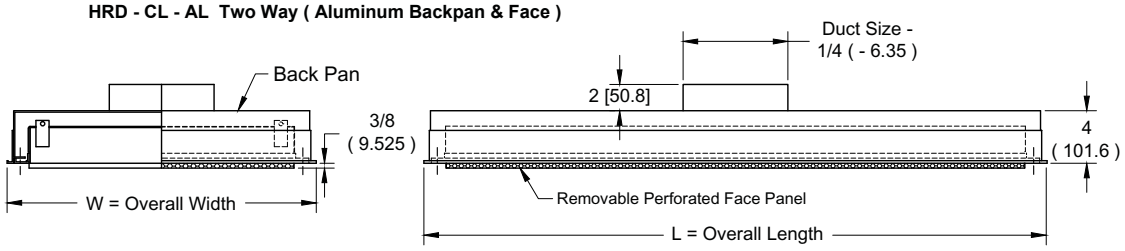
SERIES HRD-CL

HRD-CL radial discharge pattern diffusers are engineered for supply air distribution in critical environments such as chemistry labs and clean rooms. The diffusers are engineered to supply a low velocity of conditioned air in a radial pattern from the ceiling.



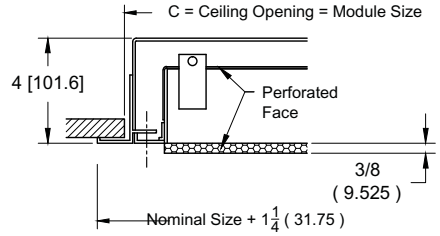
- Low velocity radial air pattern
- Available in 90° or 180° throw
- Easily removable face to allow ease of cleaning and sterilization
- Choice of all aluminum, stainless steel face and aluminum backpan, or all stainless steel construction
- Available in Surface Mount or T-bar frame styles
- Optional inlet damper

Models: HRD - CL - AL One Way (Aluminum Backpan & Face)
HRD - CL - AL Two Way (Aluminum Backpan & Face)

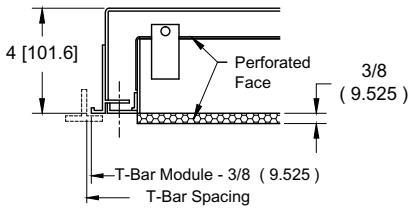


Note: Damper Adjustment Thru $\frac{1}{2}$" Hole In Face Plate Without Removing Face.

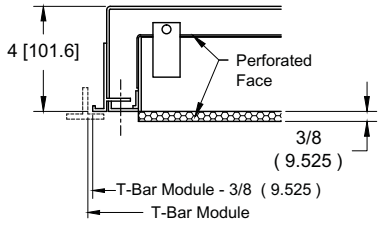
Model: HRD-CL-AL Border 1 (Surface Mount)



Model: HRD-CL-AL Border 6 (Standard Lay-In T-Bar)

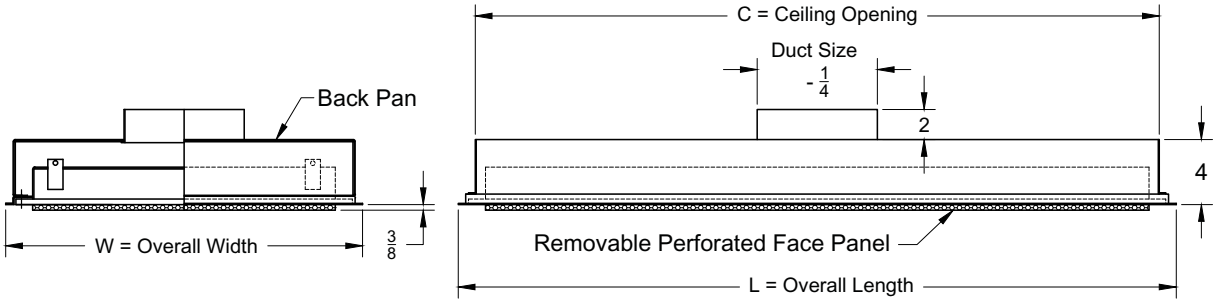


Model: HRD-CL-AL
Border 6M (1 1/2 Inch Lay-In T-Bar)

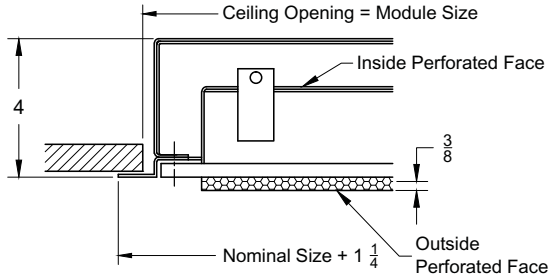


Nominal Size	Frame 1			Frame 6		Frame 6M			
						L		W	
	C	L	W	L	W	in	mm	in	mm
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	600.075	23.63	600.075
48 x 24	48 x 24	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	1209.675	23.63	600.075
48 x 12	48 x 12	49 1/4	12 1/4	47 3/4	11 3/4	47 5/8	1209.675	11.63	295.275

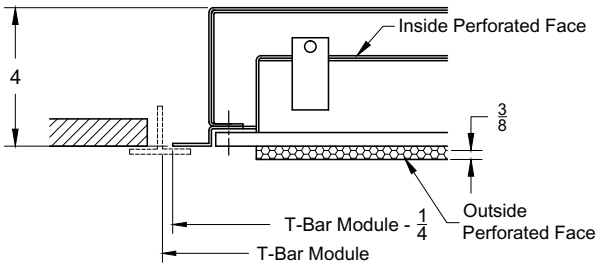
Models: HRD-CL-SA One Way (Stainless Steel Face & Aluminum Backpan)
HRD-CL-SA Two Way (Stainless Steel Face & Aluminum Backpan)



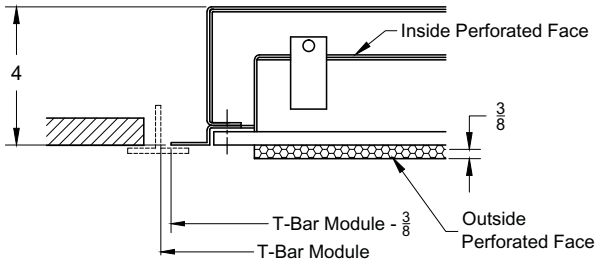
Model: HRD-CL-SA Border 1 (Surface Mount)



Model: HRD-CL-SA Border 6 (Standard Lay-In T-Bar)

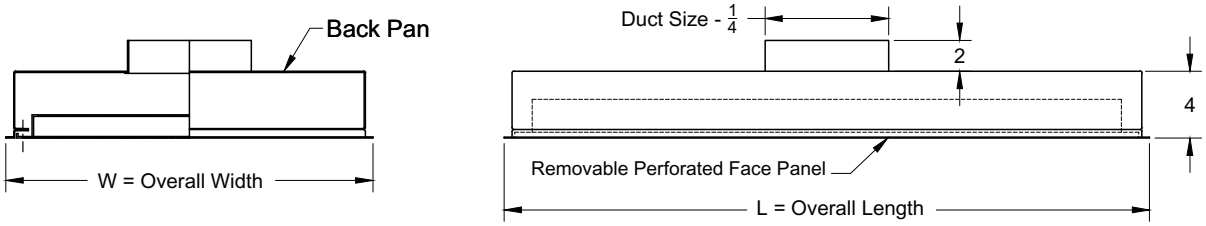


Model: HRD-CL-SA Border 6M
(1 1/2 Inch Lay-In T-Bar) metric Sizing

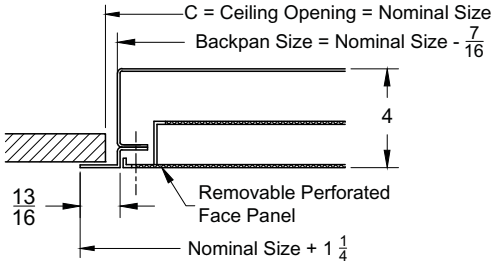


Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
48 x 24	48 x 24	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8

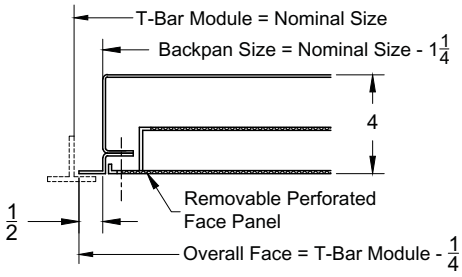
Models: HPL-CL-SS (Stainless Steel Backpan & Face)



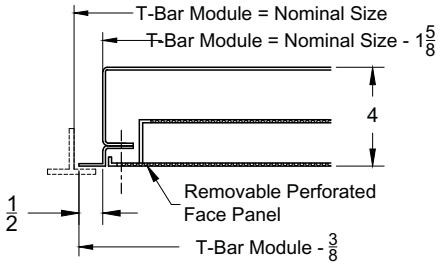
Model: HPL-CL-SS Border 1 (Surface Mount)



Model: HPL-CL-SS Border 6 (Standard Lay-In T-Bar)



Model: HPL-CL-SS Border 6M
(1 1/2 Inch Lay-In T-Bar) Metric Sizing



Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8
48 x 24	48 x 24	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8
48 x 12	48 x 12	49 1/4	13 1/4	47 3/4	11 3/4	47 5/8	11 5/8
24 x 12	24 x 12	25 1/4	13 1/4	23 3/4	11 3/4	23 5/8	11 5/8

SERIES HRD-CL SPECIFICATIONS

RADIAL FLOW DIFFUSER — ALUMINUM/ STAINLESS STEEL — MODEL HRD-CL-AL / HRD-CL-SA / HRD-CL-SS

- Air outlets shall be model HRD-CL-AL (aluminum), HRD-CL-SA (stainless steel face/aluminum backpan) or HRD-CL-SS (stainless steel) manufactured by METALAIRE. Diffuser shall include an upper and lower pressure chamber and shall generate a 180° (two-way) or 90° (one-way) low velocity discharge pattern.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a 51% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

SERIES HRD-CL MODEL NUMBER SPECIFICATION

RADIAL FLOW DIFFUSER

Model		Neck Size
HRD-CL-AL-1	Aluminum Surface Mount	6
HRD-CL-SA-1	Stainless Steel Face/Aluminum Backpan Surface Mount	7
HRD-CL-SS-1	Stainless Steel Surface Mount	8
HRD-CL-AL-6	Aluminum T-bar	9
HRD-CL-SA-6	Stainless Steel Face/Aluminum Backpan T-bar	10
HRD-CL-SS-6	Stainless Steel T-bar	12
HRD-CL-AL-6M	Aluminum T-bar Metric	14
HRD-CL-SA-6M	Stainless Steel Face/Aluminum Backpan T-bar Metric	
HRD-CL-SS-6M	Stainless Steel T-bar Metric	

Module
24 x 12
36 x 12
48 x 12
24 x 24
36 x 24
48 x 24

Available Finishes	
Standard	
01	White
Stainless Steel Units Only	
23	Satin Polish

Available Accessories	
D3	Aluminum Radial Opposed Blade Damper
BDSS	Stainless Steel Butterfly Damper
EI	External Insulation

SERIES HRD-CL PERFORMANCE

HRD-CL — 1-WAY PATTERN

Module Size and Inlet Size	2-Way Pattern				Horizontal Spread (feet)			Vertical Throw (feet)								
					10 Deg dT			10 Deg dT			15 Deg dT			20 Deg dT		
	CFM	Ps	Pt	NC	100	75	50	100	75	50	100	75	50	100	75	50
24 x 24 8	150	.019	.030	<15	0	1	3	0	1	2	0	1	2	0	1	4
	200	.033	.054	<15	1	1	2	0	1	2	0	1	2	0	1	3
	250	.052	.084	18	1	2	5	1	2	4	1	2	5	1	3	6
	300	.075	.121	23	1	3	5	1	2	4	1	2	5	2	4	6
	400	.132	.214	32	2	4	6	2	3	5	2	4	6	3	5	7
	500	.207	.335	39	3	5	7	2	4	5	3	5	7	4	6	8
24 x 24 10	250	.019	.034	<15	1	2	5	0	0	1	1	1	3	1	1	3
	325	.033	.057	<15	1	3	6	0	1	2	1	2	4	1	1	4
	400	.052	.087	21	2	4	7	0	1	4	2	2	5	1	2	5
	475	.075	.122	27	3	5	8	1	1	4	2	3	5	1	3	5
	550	.132	.164	33	3	5	8	1	2	5	2	3	6	2	3	6
	625	.207	.212	37	4	6	9	1	2	5	2	4	7	2	4	7
48 x 24 10	300	.019	.049	<15	1	2	6	0	0	2	1	2	3	0	1	3
	400	.033	.087	19	2	4	7	0	1	3	1	2	5	1	1	5
	500	.052	.135	28	3	5	7	1	1	4	2	3	6	1	2	6
	600	.075	.196	34	4	6	8	1	2	5	2	3	7	1	3	7
	800	.132	.347	40	5	7	9	1	3	6	3	5	8	2	5	10
	900	.207	.439	41	6	7	10	2	3	7	3	5	9	3	6	10
48 x 24 12	500	.019	.074	19	1	2	5	1	1	4	1	1	6	1	3	6
	600	.033	.106	25	1	3	6	1	2	5	1	2	7	2	4	7
	700	.052	.145	30	2	3	7	1	3	6	1	3	8	2	4	9
	800	.075	.189	33	2	4	8	2	3	6	2	4	9	3	5	10
	900	.132	.239	39	3	4	8	2	4	7	2	5	10	4	5	11
	1000	.207	.295	42	3	5	9	3	4	8	3	6	10	4	6	11

SERIES HRD-CL PERFORMANCE

HRD-CL — 2-WAY PATTERN

Module Size and Inlet Size	2-Way Pattern				Horizontal Spread (feet)			Vertical Throw (feet)								
					10 Deg dT			10 Deg dT			15 Deg dT			20 Deg dT		
	CFM	Ps	Pt	NC	100	75	50	100	75	50	100	75	50	100	75	50
24 x 24 8	150	.019	.030	<15	0	1	3	0	1	2	0	1	2	0	1	4
	200	.033	.054	15	1	1	4	0	1	3	0	1	4	1	2	5
	250	.052	.084	19	1	2	5	1	2	4	1	2	5	1	3	6
	300	.075	.121	23	1	3	5	1	2	4	1	2	5	2	4	6
	400	.132	.214	31	2	4	6	2	3	6	2	4	6	3	5	7
	500	.207	.335	39	3	5	7	2	4	6	3	5	7	4	6	8
24 x 24 10	250	.023	.036	<15	1	2	5	0	0	1	1	1	3	0	1	3
	325	.039	.061	<15	1	3	6	0	1	2	1	2	4	1	1	4
	400	.092	.145	29	3	5	10	1	1	4	2	3	6	1	3	6
	475	.133	.208	36	4	6	11	1	2	5	2	3	7	2	3	7
	550	.181	.284	41	5	7	12	1	3	6	3	4	7	2	4	8
	625	.299	.469	45	6	9	14	2	4	8	3	5	8	3	5	9
48 x 24 10	300	.017	.030	<15	1	2	5	0	0	1	0	1	2	0	1	2
	400	.028	.050	<15	1	3	6	0	0	2	1	2	3	0	1	3
	500	.067	.119	26	3	5	10	1	1	4	2	2	5	1	2	5
	600	.096	.172	33	4	6	11	1	2	4	2	3	6	1	3	6
	800	.131	.234	38	5	7	12	1	2	5	2	3	6	2	3	7
	900	.217	.387	42	6	9	14	2	3	6	3	4	7	3	4	8
48 x 24 12	500	.067	.092	19	3	5	10	1	1	4	1	1	5	1	3	6
	600	.096	.133	25	4	6	11	1	2	4	1	2	6	2	3	7
	700	.131	.181	30	5	7	12	1	3	5	1	3	7	2	4	8
	800	.171	.236	33	5	8	13	2	3	7	2	4	7	3	5	9
	900	.217	.299	39	6	9	14	2	3	7	2	4	8	3	5	9
	1000	.268	.369	42	3	5	10	2	4	7	3	5	8	4	6	10

PERFORMANCE NOTES FOR SERIES HRD-CL

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS

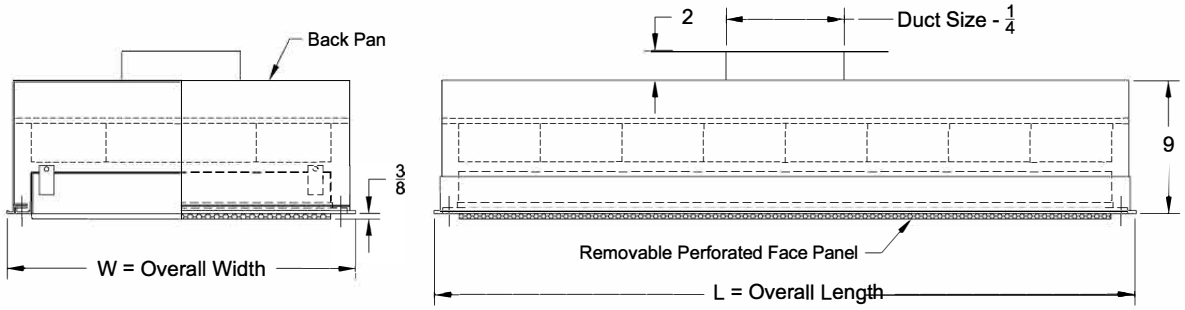
CFM *Cubic Feet per Minute (air)*
Pv *Velocity pressure (inches of water column)*
Pt *Total pressure (inches of water column)*
Ps *Static pressure = Pt–Pv (inches of water column)*
Throw *Non-isothermal horizontal throw (supply air temperature 15°F colder than average room temperature); values are for 150, 100 and 50fpm velocities*
NC *Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands*

SERIES HRD-HA

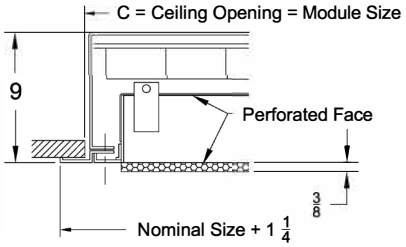
The HRD-HA radial flow diffuser design includes a gasket-type HEPA filter rack accessible from the face of the diffuser. The HRD-HA is engineered to provide low velocity air in a radial pattern from the ceiling. The air flow is designed to produce a uniform pattern preventing stagnant zones where contaminants can linger.

- Face and core assembly is easily removable for cleaning and sterilization
- Choice of 23%, 40% and standard 51% free area for the perforated face
- Optional gasket type HEPA filter available
- Stainless steel safety chains are standard
- Available in all aluminum, stainless steel face/aluminum backpan or all stainless steel
- Available with 90° or 180° throw

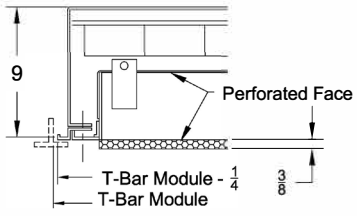
Models: HRD - HA - AL 1W (Aluminum Backpan & Face)
HRD - HA - AL 2W (Aluminum Backpan & Face)



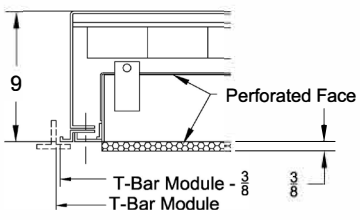
Model: HRD-HA-AL Border 1 (Surface Mount)



Model: HRD-HA-AL Border 6 (Standard Lay-In T-Bar)



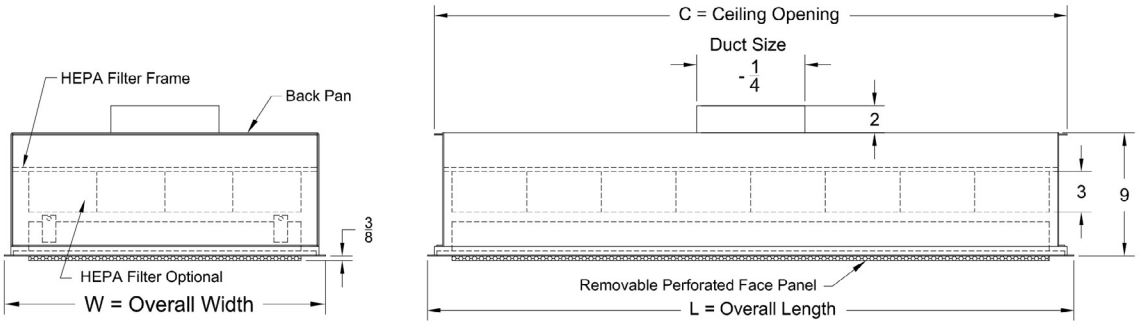
Model: HRD-HA-AL Border 6M (T-bar Lay-in Metric Sizing)



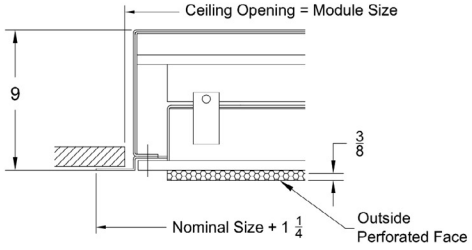
Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 3/4	23 3/4
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 3/4	23 3/4

Submittal Number HRD-HA-AL

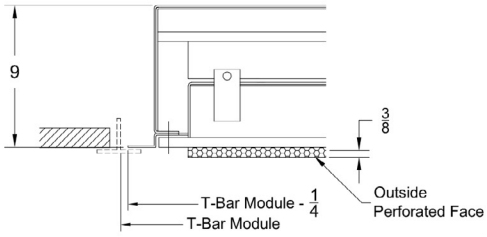
Models: **HRD - HA - SA 1W (Stainless Steel Backpan & Face)**
HRD - HA - SA 2W (Stainless Steel Backpan & Face)



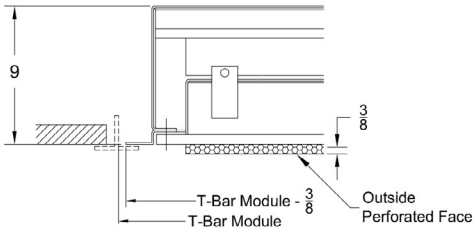
Model: HRD-HA-SA Border 1 (Surface Mount)



Model: HRD-HA-SA Border 6 (Standard Lay-In T-Bar)



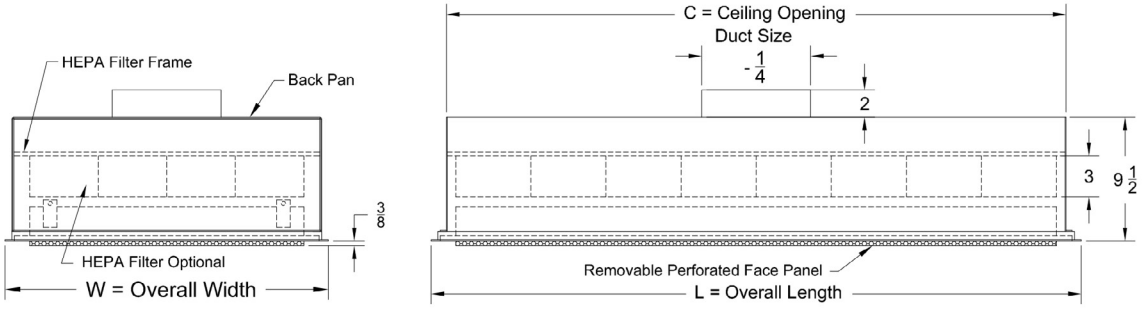
Model: HRD-HA-SA Border 6M (T-bar Lay-in Metric Sizing)



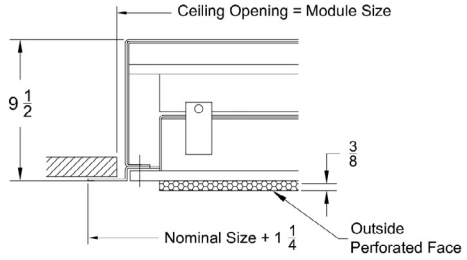
Submittal Number HRD-HA-SA

Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 3/4	23 3/4
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 3/4	23 3/4

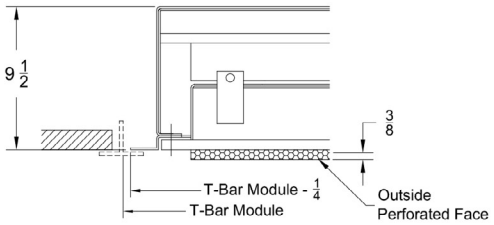
Models: **HRD - HA - SS 1W (Stainless Steel Backpan & Face)**
HRD - HA - SS 2W (Stainless Steel Backpan & Face)



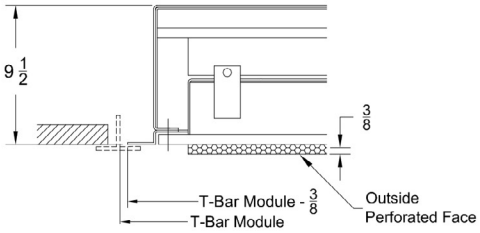
Model: HRD-HA-SS Border 1 (Surface Mount)



Model: HRD-HA-SS Border 6 (Standard Lay-In T-Bar)



Model: HRD-HA-SS Border 6M (T-bar Lay-in Metric Sizing)



Nominal Size	Frame 1			Frame 6		Frame 6M	
	C	L	W	L	W	L	W
24 x 24	24 x 24	25 1/8	25 1/8	23 3/4v	23 3/4	23 3/4	23 3/4
48 x 24	48 x 24	49 1/8	25 1/8	47 3/4	23 3/4	47 3/4	23 3/4

Submittal Number HRD-HA-SS

SERIES HRD-HA SPECIFICATIONS

RADIAL FLOW DIFFUSER WITH FILTER RACK — ALUMINUM/STAINLESS STEEL — MODEL HRD-HA-AL / HRD-HA-SA / HRD-HA-SS

- Air outlets shall be model HRD-HA-AL (aluminum), HRD-HA-SA (stainless steel face/aluminum backpan) or HRD-HA-SS (stainless steel) manufactured by METALAIRE. Diffuser shall generate a low velocity, vertical piston of discharge air. Unit shall also include an integral filter section to allow for installation of a gasket type HEPA filter. Unit shall accept 3" pleated filter held in place using a trapeze hanger system.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a 51% free area, a 40% free area or a 23% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.
- Optional 3" thick, 99.99% efficient filter on .30 microns.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

SERIES HRD-HA MODEL NUMBER SPECIFICATION

LAMINAR FLOW DIFFUSER

Model		Neck Size
HRD-HA-AL-1	Aluminum Surface Mount	
HRD-HA-SA-1	Stainless Steel Face/Aluminum Backpan Surface Mount	6
HRD-HA-SS-1	Stainless Steel Surface Mount	7
HRD-HA-AL-6	Aluminum T-bar	8
HRD-HA-SA-6	Stainless Steel Face/Aluminum Backpan T-bar	
HRD-HA-SS-6	Stainless Steel T-bar	6
HRD-HA-AL-6M	Aluminum T-bar Metric	7
HRD-HA-SA-6M	Stainless Steel Face/Aluminum Backpan T-bar Metric	8
HRD-HA-SS-6M	Stainless Steel T-bar Metric	9
		10
		12
		14

Module
24 x 12
36 x 12
48 x 12
24 x 24
36 x 24
48 x 24

Available Finishes	
Standard	
01	White
Stainless Steel Units Only	
23	Satin Polish

Air Pattern	
90deg	90 Degree
180deg	180 Degree

Available Accessories	
CD-AL	Aluminum Cable Operated Damper
CD-SS	Stainless Steel Cable Operated Damper
HEPA	Gasket Type HEPA Filter
TP	Test Port
EI	External Insulation

SERIES HRD-HA PERFORMANCE DATA

HRD-HA — 1-WAY PATTERN WITHOUT HEPA FILTER

Module Size and Inlet Size	1-Way Pattern				Horizontal Spread (feet)			Vertical Throw (feet)								
					10 Deg dT			10 Deg dT			15 Deg dT			20 Deg dT		
	CFM	Ps	Pt	NC	100	75	50	100	75	50	100	75	50	100	75	50
24 x 24 8	150	.019	.030	<15	0	1	3	0	1	2	0	1	2	0	1	4
	200	.033	.054	<15	0	1	2	0	1	2	0	1	2	0	1	3
	250	.052	.084	18	1	2	5	1	2	4	1	2	5	1	3	6
	300	.075	.121	23	1	3	5	1	2	4	1	2	5	2	4	6
	400	.133	.215	32	2	4	6	2	3	5	2	4	6	3	5	7
	500	.207	.335	39	3	5	7	2	4	5	3	5	7	4	6	8
24 x 24 10	250	.021	.034	<15	1	2	5	0	0	1	1	1	3	0	1	3
	325	.035	.057	<15	1	3	6	0	1	2	1	2	4	1	1	4
	400	.053	.087	21	2	4	7	0	1	4	2	2	5	1	2	5
	475	.075	.122	27	3	5	8	1	1	4	2	3	5	1	3	5
	550	.100	.164	33	3	5	8	1	2	5	2	3	6	2	3	6
	625	.130	.212	37	4	6	9	1	2	5	2	4	7	2	4	7
48 x 24 10	300	.030	.049	<15	1	2	6	0	0	2	1	2	3	0	1	3
	400	.053	.087	19	2	4	7	0	1	3	1	2	5	1	1	5
	500	.083	.135	28	3	5	7	1	1	4	2	3	6	1	2	6
	600	.012	.185	34	4	6	8	1	2	5	2	3	7	1	3	7
	800	.212	.347	40	5	7	9	1	3	6	3	5	8	2	5	10
	900	.269	.439	40	6	7	10	2	3	7	3	5	9	3	6	10
48 x 24 12	500	.048	.074	19	1	2	5	1	1	4	1	1	6	1	3	6
	600	.070	.106	25	1	3	6	1	2	5	1	2	7	2	4	7
	700	.095	.145	30	2	3	7	1	3	6	1	3	8	2	4	9
	800	.124	.189	33	2	4	8	2	3	6	2	4	9	3	5	10
	900	.157	.239	39	3	4	8	2	4	7	2	5	10	4	5	11
	1000	.194	.295	42	3	5	9	3	4	8	3	6	10	4	6	11

SERIES HRD-HA PERFORMANCE DATA

HRD-HA — 2-WAY PATTERN WITHOUT HEPA FILTER

Module Size and Inlet Size	2-Way Pattern				Horizontal Spread (feet)			Vertical Throw (feet)								
					10 Deg dT			10 Deg dT			15 Deg dT			20 Deg dT		
	CFM	Ps	Pt	NC	100	75	50	100	75	50	100	75	50	100	75	50
24 x 24 8	150	.019	.030	<15	0	1	3	0	1	2	0	1	2	0	1	4
	200	.033	.054	15	1	1	4	0	1	3	0	1	4	1	2	5
	250	.052	.084	19	1	2	5	1	2	4	1	2	5	1	3	6
	300	.075	.121	23	1	3	5	1	2	4	1	2	5	2	4	6
	400	.132	.214	31	2	4	6	2	3	6	2	4	6	3	5	7
	500	.207	.335	39	3	5	7	2	4	6	3	5	7	4	6	8
24 x 24 10	250	.023	.036	<15	1	2	5	0	0	1	1	1	3	0	1	3
	325	.039	.061	<15	1	3	6	0	1	2	1	2	4	1	1	4
	400	.092	.145	29	3	5	10	1	1	4	2	3	6	1	3	6
	475	.133	.208	36	4	6	11	1	2	5	2	3	7	2	3	7
	550	.181	.284	41	5	7	12	1	3	6	3	4	7	2	4	8
	625	.299	.469	45	6	9	14	2	4	8	3	5	8	3	5	9
48 x 24 10	300	.017	.030	<15	1	2	5	0	0	1	0	1	2	0	1	2
	400	.028	.050	<15	1	3	6	0	0	2	1	2	3	0	1	3
	500	.067	.119	26	3	5	10	1	1	4	2	2	5	1	2	5
	600	.096	.172	33	4	6	11	1	2	4	2	3	6	1	3	6
	800	.131	.234	38	5	7	12	1	2	5	2	3	6	2	3	7
	900	.217	.387	42	6	9	14	2	3	6	3	4	7	3	4	8
48 x 24 12	500	.067	.092	19	3	5	10	1	1	4	1	1	5	1	3	6
	600	.096	.133	25	4	6	11	1	2	4	1	2	6	2	3	7
	700	.131	.181	30	5	7	12	1	3	5	1	3	7	2	4	8
	800	.171	.236	33	5	8	13	2	3	7	2	4	7	3	5	9
	900	.217	.299	39	6	9	14	2	3	7	2	4	8	3	5	9
	1000	.268	.369	42	3	5	10	2	4	7	3	5	8	4	6	10

PERFORMANCE NOTES FOR SERIES HRD-HA

All data is tested in accordance with ANSI/ASHRAE 70-2006.

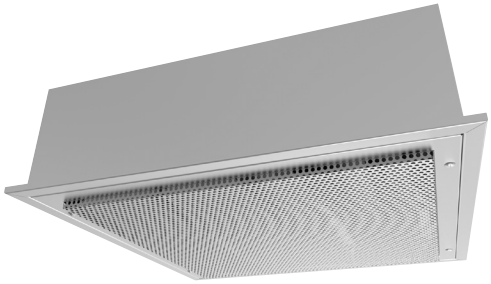
DEFINITION OF UNITS

CFM *Cubic Feet per Minute (air)*
Pv *Velocity pressure (inches of water column)*
Pt *Total pressure (inches of water column)*
Ps *Static pressure = Pt–Pv (inches of water column)*
Throw *Non-isothermal horizontal throw (supply air temperature 15°F colder than average room temperature); values are for 150, 100 and 50fpm velocities*
NC *Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands*

METALAIRE™

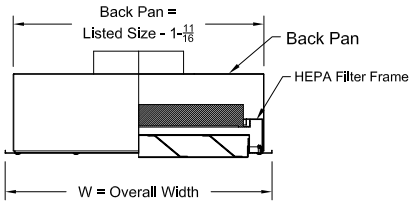
SERIES HRD-GS

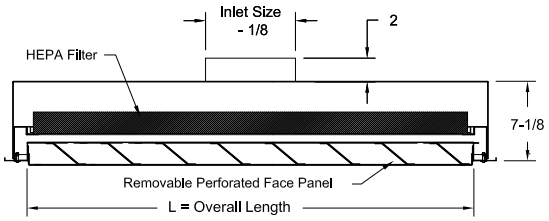
HRD-GS radial discharge pattern diffuser includes a gel seal HEPA filter rack and is engineered for supply air distribution in critical environments such as chemistry labs and clean rooms. The diffusers are engineered to supply a low velocity of conditioned air in a radial pattern from the ceiling



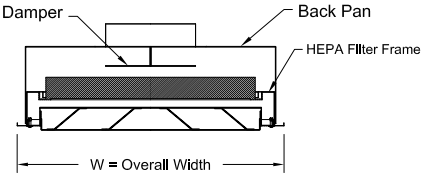
- Low velocity radial air pattern
- Available in 90° or 180° throw
- Removable face to allow ease of cleaning and sterilization
- Choice of all aluminum, all cold-rolled steel or all stainless steel construction
- Standard 23% free area
- Optional 40% free area or 51% free area
- Optional gel seal type HEPA filter
- Available in Surface Mount or T-bar Lay-in frame styles

Model: HRD-GS

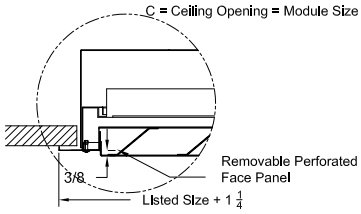




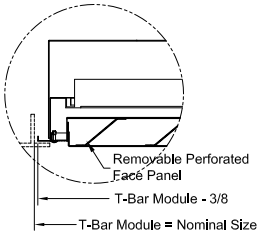
Option: HRD-GS With Damper

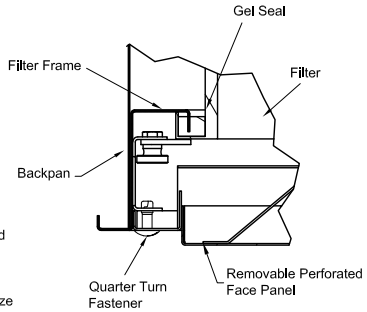


Model: HRD-GS Border 1 (Surface Mount)

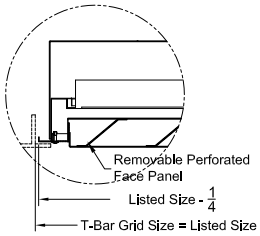


Model: HRD-GS Border 6M (Standard Lay-In T-Bar)





Model: HRD-GS Border 6 (Standard Lay-In T-Bar)



Inlet Size
6
8
10
12
14

Nominal Size	Frame 1			Frame 6		Frame 6M		Filter Size	
	C	L	W	L	W	L	W	L	W
24 x 24	24 x 24	25 1/4	25 1/4	23 3/4	23 3/4	23 5/8	23 5/8	20 1/8	20 1/8
24 x 48	24 x 48	49 1/4	25 1/4	47 3/4	23 3/4	47 5/8	23 5/8	20 1/8	44 1/8

SERIES HRD-GS SPECIFICATIONS

RADIAL FLOW DIFFUSER WITH FILTER RACK — ALUMINUM/COLD-ROLLED STEEL/STAINLESS STEEL MODEL HRD-GS-AL / HRD-GS-ST / HRD-GS-SS

- Air outlets shall be model HRD-GS-AL (aluminum), HRD-GS-ST (cold-rolled steel) or HRD-GS-SS (stainless steel) manufactured by METALAIRE. Diffuser shall generate a low velocity, vertical piston of discharge air. Unit shall also include an internal filter rack to allow the installation and removal of a gel seal type HEPA filter. Unit shall accept 3" gel seal type HEPA with filter held in place using thumb wheel retaining clips.
- Diffuser shall be constructed of a one-piece perforated face and core assembly that is removable from the backpan with 1/4" turn fasteners accessible from the face. Face and core assembly mounted with internal spring clips or other mechanical fastening devices are not acceptable. Units shall include stainless steel safety chains attaching the face assembly to the backpan.
- Core and face assembly shall be removable to allow sanitizing and allow access to the backpan for cleaning. The face shall be flush with the ceiling surface.
- The perforated face shall have a standard 23% free area with optional 40% free area or 51% free area.
- Units shall have round inlets. Units shall be designed to integrate into the specified ceiling system. The units shall be the size and quantity as outlined in the plans and specifications.
- Optional 3" thick, 99.99% efficient filter on .30 microns.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min

SERIES HRD-GS MODEL NUMBER SPECIFICATION

RADIAL FLOW DIFFUSER

Model		Neck Size	Module
HRD-GS-AL-1	Aluminum Surface Mount	6	24 x 24 48 x 24
HRD-GS-ST-1	Cold Rolled Steel Surface Mount	7	
HRD-GS-SS-1	Stainless Steel Surface Mount	8	
HRD-GS-AL-6	Aluminum T-bar	9	
HRD-GS-ST-6	Cold Rolled Steel T-bar	10	
HRD-GS-SS-6	Stainless Steel T-bar	12	
HRD-GS-AL-6M	Aluminum T-bar Metric	14	
HRD-GS-ST-6M	Cold Rolled Steel T-bar Metric		
HRD-GS-SS-6M	Stainless Steel T-bar Metric		

Available Finishes	
Standard	
01	White
Stainless Steel Units Only	
23	Satin Polish

Available Accessories	
HEPA GS	Gel Seal Hepa Filter
TP	Test Port
EI	External Insulation
D	Round disc damper

SERIES HRD-GS PERFORMANCE DATA

HRD-GS – 1-WAY PATTERN WITHOUT HEPA FILTER

Module Size and Inlet Size	1-Way Pattern				Vertical Throw (feet)			Horizontal Spread (feet)		
	CFM	Ps	Pt	NC	100	75	50	100	75	50
24 x 24	250	.058	.089	19	1	2	3	2	3	5
	400	.130	.211	32	2	3	4	4	5	7
	500	.210	.340	39	2	3	4	6	7	8
48 x 24	250	.024	.037	<15	0	0	1	3	4	6
	400	.054	.088	22	0	1	2	6	7	9
	550	.100	.163	33	2	3	4	8	9	10

HRD-GS – 2-WAY PATTERN WITHOUT HEPA FILTER

Module Size and Inlet Size	2-Way Pattern				Vertical Throw (feet)			Horizontal Spread (feet)		
	CFM	Ps	Pt	NC	100	75	50	100	75	50
24 x 24	250	.056	.088	19	1	2	4	1	3	5
	400	.143	.225	32	2	3	4	5	6	7
	500	.212	.340	39	2	4	5	6	7	8
48 x 24	250	.023	.036	<15	1	1.5	2	0	3.5	5
	500	.087	.139	29	1	1.5	2.5	5	7	10
	700	.145	.248	38	1	1.5	2.5	6	8	10

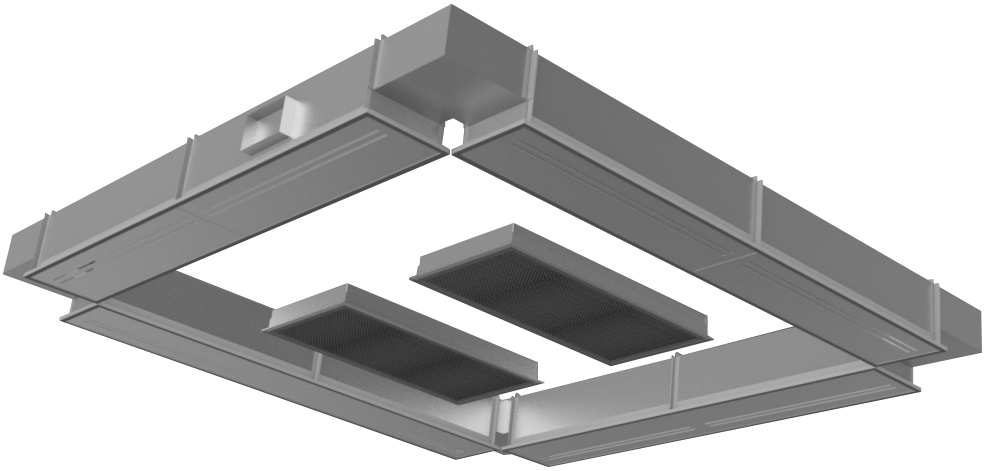
PERFORMANCE NOTES FOR SERIES HRD-GS

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS

CFM *Cubic Feet per Minute (air)*
Pv *Velocity pressure (inches of water column)*
Pt *Total pressure (inches of water column)*
Ps *Static pressure = Pt–Pv (inches of water column)*
Throw *Non-isothermal horizontal throw (supply air temperature 15°F colder than average room temperature); values are for 150, 100 and 50fpm velocities*
NC *Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands*

METALAIRE™



OPERATING ROOM SYSTEM

The METALAIRE **Periflow System** is intended for use in hospital operating rooms. The compact yet efficient design provides control over particulate matter within the operating room environment. The fully integrated system includes all of the air devices mounted in the operating room ceiling.

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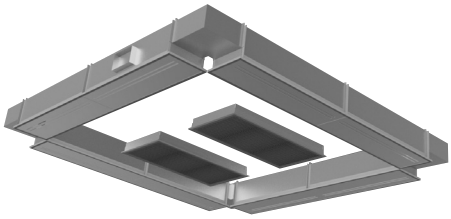
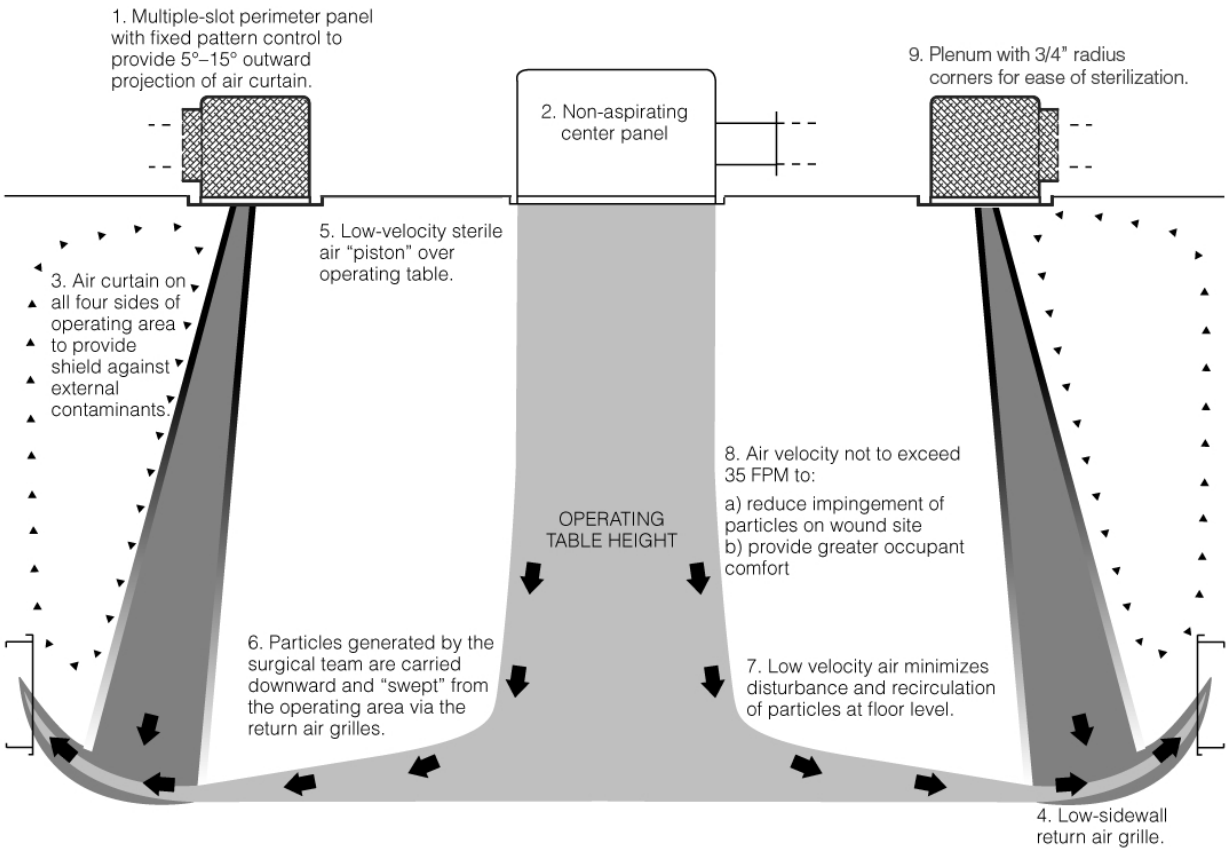
METALAIRE™

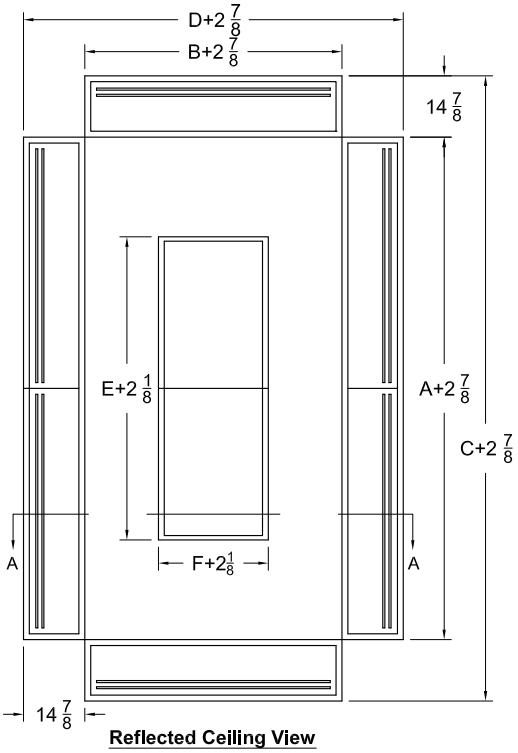
PERIFLOW SYSTEM



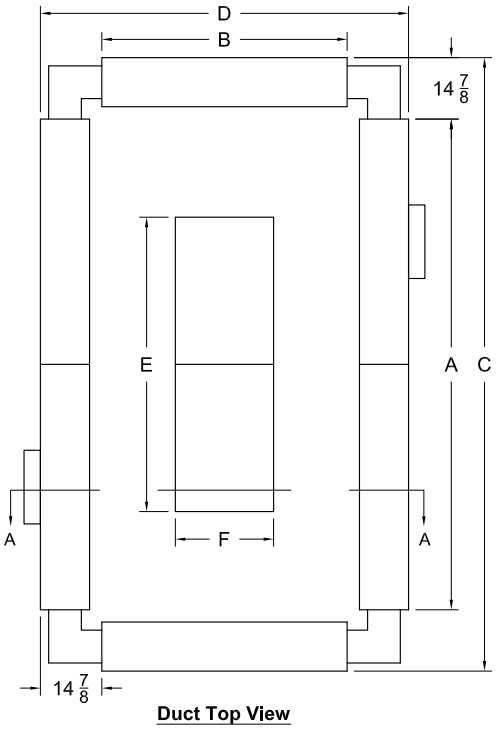
The Periflow Operating Room System provides control over particulate matter within the operating room environment. This system provides the highest standard of air cleanliness for patients undergoing minor procedures to major surgeries.

- Custom Design — each system is custom designed and precisely fabricated to accommodate the specialized mechanical needs of today's operating room environments
- Compact Design — by its compact yet efficient design, the Periflow system allows the designer the flexibility to properly provide for all the various components competing for space above the operating room ceiling
- Self-balancing — the unique loop system design is self-balancing and eliminates the need to re-calibrate after the system is set up, thus reducing startup costs
- Available in all aluminum, stainless steel face and aluminum backpan and all stainless steel construction
- Tested in accordance with the guidelines set forth by the Committee on Operating Room Environments of the American College of Surgeons as published in the January, 1976 Bulletin, and meets Class 1 Microbiological Air Cleanliness guidelines

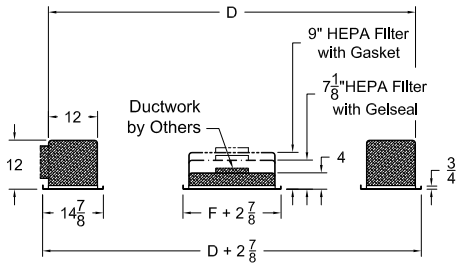




Reflected Ceiling View

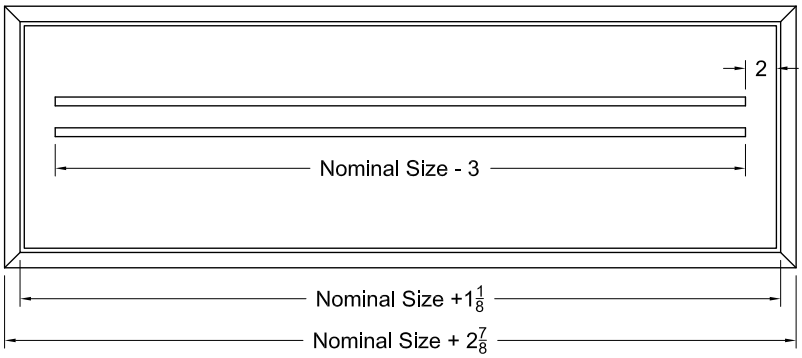


Duct Top View

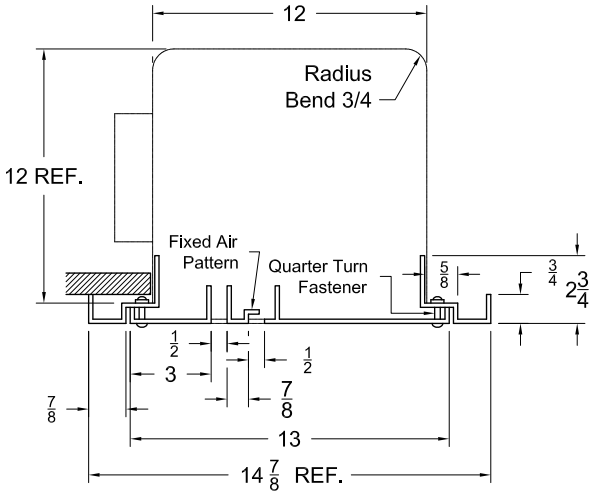


Typical Section A-A View

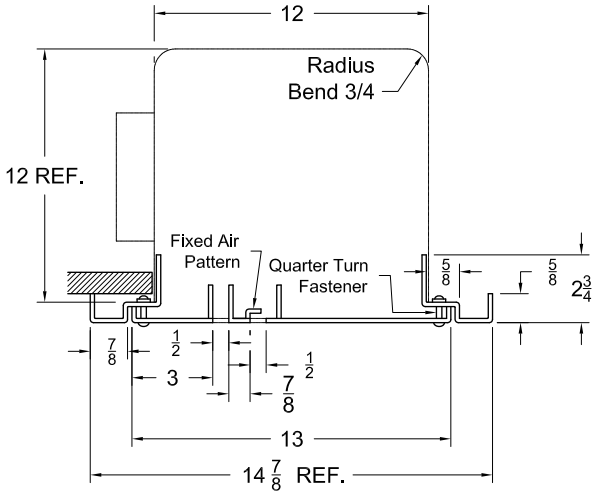
Model	Nominal Plenum Size		Overall Foot Print		Center Diffusers				System CFM Range	
					Over All		Qty	Size		
	A	B	C	D	E	F			Minimum	Maximum
84	96	48	A + 30	B + 30	60	24	1	60 x 24	900	1620
104	120	48			72	24	2	36 x 24	1050	1890
124	144	48			96	24	2	48 x 24	1200	2160
85	96	60			60	24	1	60 x 24	980	1760
105	120	60			96	24	2	48 x 24	1130	2030
125	144	60			96	24	2	48 x 24	1280	2300
66	72	72			48	36	2	36 x 24	900	1620
86	96	72			48	48	2	48 x 24	1050	1890
106	120	72			48	48	2	48 x 24	1200	2160
126	144	72			96	24	2	48 x 24	1350	2430
88	96	96			48	48	2	48 x 24	1200	2160
108	120	96			96	24	2	48 x 24	1350	2430
128	144	96			72	48	3	48 x 24	1500	2700
148	168	96			72	48	3	48 x 24	1650	2970
1010	120	120			72	48	3	48 x 24	1500	2700
1210	144	120			72	48	3	48 x 24	1650	2970



Face View (Both Models)



End View (AL)



End View (SS)

PERIFLOW SYSTEM SPECIFICATIONS

HOSPITAL OPERATING ROOM AIR DISTRIBUTION SYSTEM — ALUMINUM, STAINLESS STEEL, MODEL PERIFLOW

- Air outlets shall be model Periflow manufactured by METALAIRE. The air distribution and particle control for the operation room shall consist of a non-aspirating center diffuser providing air supply over the operating table. The air velocity from the center diffuser shall not exceed 40 fpm at operating table height. An air curtain shall be provided from fixed, nonadjustable multiple slot panels surrounding the operating table. The air curtain shall not exceed 60 fpm and shall project air outward at not less than a 5% angle, but no more than a 15%angle, from the operating table. Systems that do not contain an air curtain as an inherent part of their design shall not be acceptable.
- All components of the system shall be of all aluminum, stainless steel face and aluminum backpan or all stainless steel construction.
- **Aluminum** — factory supplied plenums, center and perimeter panels shall be aluminum construction. All exposed surfaces shall be supplied with a 01 white finish. An unpainted finish shall not be acceptable.
- **Stainless steel face and aluminum backpan** — factory supplied plenums shall be aluminum construction and the faces and perimeter panels shall be stainless steel construction. All exposed surfaces shall be supplied with a #23 satin polish. A painted or coated finish is not recommended.
- **Stainless steel** — factory supplied plenums, center and perimeter panels shall be stainless steel construction. All exposed surfaces shall be supplied with a #23 satin polish. A painted or coated finish is not recommended.
- Each center diffuser shall be provided with a single inlet and the perimeter plenum system shall be supplied with two connections. Systems utilizing more than two connections to the perimeter plenum shall not be acceptable.

A perforated baffle supplied by the system manufacturer shall be permanently attached to both the center and perimeter panels to provide equal air distribution over the diffuser face. Both center diffuser faces and perimeter panel faces shall be retained by 1/4 turn fasteners for ease of removal and sterilization. The manufacturer shall supply clip-on safety cables to retain the faces after the 1/4 turn fasteners are released.

- All systems shall have been tested in accordance with the "Recommended Procedure for the Determination of Microbiological Air Cleanliness," as published by the Committee on Operating Room Environments of the American College of Surgeons (January, 1976 Bulletin) by an independent Microbiological Testing Laboratory. The proposed system shall have met the requirements for Class 1 Microbiological Air Cleanliness as set forth in this procedure. Copies of the Independent Laboratory's test report shall be provided to the engineer for prior approval. The manufacturer shall submit a listing of 25 or more systems of the setup as shown.

Performance Specification

The manufacturer shall provide published performance data. Data has been tested in accordance to ANSI/ ASHRAE Standard 70-2006.

Paint Specification

METALAIRE 01 paint finish is an anodic electro-deposition Melamine cross linking thermo set acrylic enamel finish, conforming to no less than 9 specific ASTM testing requirements covering a full range of physical properties. The 01 finish has been tested to exceed ASTM D4752 Double MFK minimum 100 rubs. This test demonstrates METALAIRE products' ability to withstand continuous cleaning with harsh cleaners and disinfectants. Following are the ASTM specifications for physical properties.

ASTM D523-89	Gloss 60 Degree	70-80
ASTM D3363-92A	Pencil Hardness	HB-H
ASTM D3395-95	Crosshatch	4B-5B
ASTM D2794-93	Direct Impact	100 in.lb.min.
ASTM D2794-93	Reverse Impact	60 in.lb.min.
ASTM B177-100	Salt Spray	100 hours
ASTM D1735-92	Humidity	500 hours
ASTM D870-92	Water Soak	250 hours
ASTM D4752	Double MEK rubs	100

PERIFLOW SYSTEM PERFORMANCE DATA
CENTER PANEL

CFM per sq. ft.	10	20	30	40	50	60	70	80
Ps	0.06	0.13	0.21	0.30	0.40	0.48	0.58	0.69
NC	< 20	< 20	23	26	32	34	39	42
Velocity at 6-ft (single panel)	20	35	50	65	70	80	90	100
Velocity at 6-ft (multi-panels 1)	20	35	50	70	80	90	100	110
Velocity at 6-ft (multi-panels 2)	25	40	60	80	100	110	120	130

PERFORMANCE NOTES FOR PERIFLOW SYSTEM — CENTER PANEL

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS
CFM Cubic Feet per Minute (air)
Ps Static pressure = Pt–Pv (inches of water column)
Throw vertical throw at a 50 fpm terminal velocity and temperature differential of 15°
NC Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands maximum inlet velocity of 500 fpm. NC based on center panel area of 4 square feet. To calculate NC for other panel areas, add the result of the following equation to the NC value from table above: NC adjustment = 10 x Log (multi-panel area / 4)
Multi-panels 1 - Average velocity at 6 feet for adjacent panels totaling 15 to 30 square feet
Multi-panels 2 - Average velocity at 6 feet for adjacent panels totaling more than 30 square feet

PERIFLOW SYSTEM PERFORMANCE DATA
PERIMETER PANEL

CFM per linear ft.	20	30	40	50	60	70	80	80
Ps	0.02	0.03	0.06	0.09	0.13	0.18	0.23	0.69
Throw (ft)	5	6	7	8	9	10	11	42
NC	< 15	< 15	< 15	< 15	18	21	25	130

PERFORMANCE NOTES FOR PERIFLOW SYSTEM — PERIMETER PANEL

All data is tested in accordance with ANSI/ASHRAE 70-2006.

DEFINITION OF UNITS
CFM Cubic Feet per Minute (air)
Ps Static pressure = Pt–Pv (inches of water column)
Throw vertical throw at a 50 fpm terminal velocity and temperature differential of 15°
NC Noise criterion, sound pressure level NC ratings are based on sound power level (Lw) re: 10^{-12} watts minus a 10dB room attenuation in all octave bands maximum inlet velocity of 500 fpm. NC based on center panel area of 4 square feet. To calculate NC for other panel areas, add the result of the following equation to the NC value from table above: NC adjustment = 10 x Log (multi-panel area / 4)