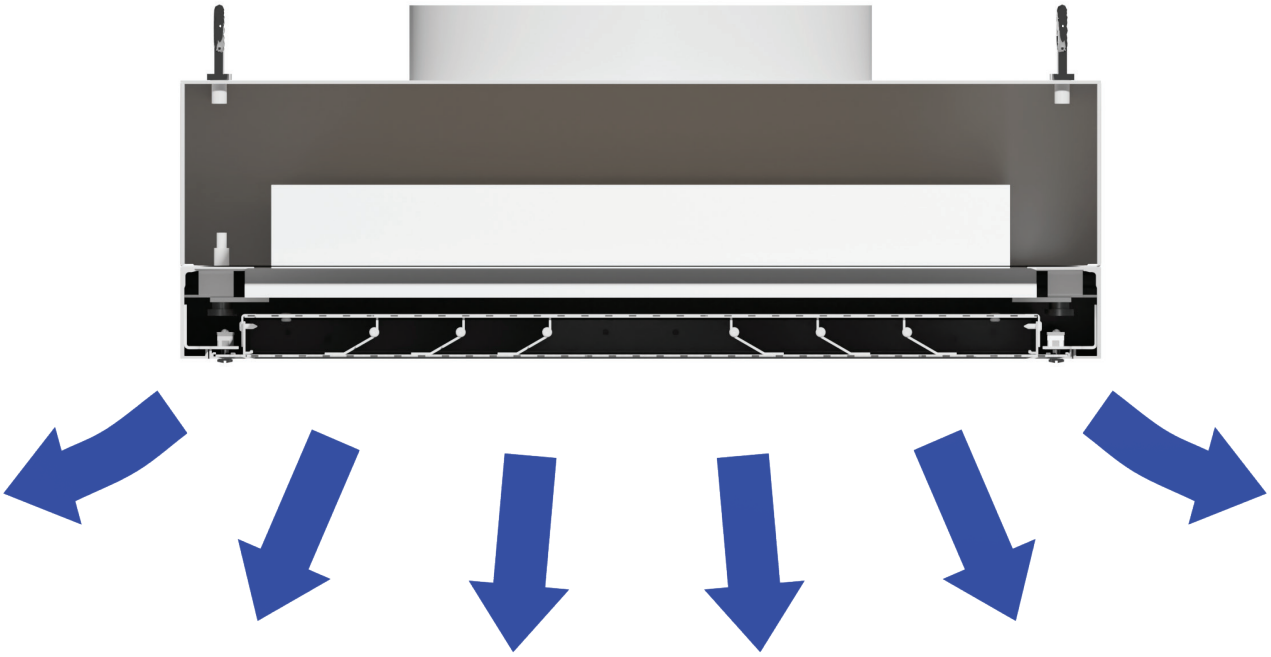
FRFDC

FLUSH FACE RADIAL FLOW DIFFUSER WITH HEPA FILTER

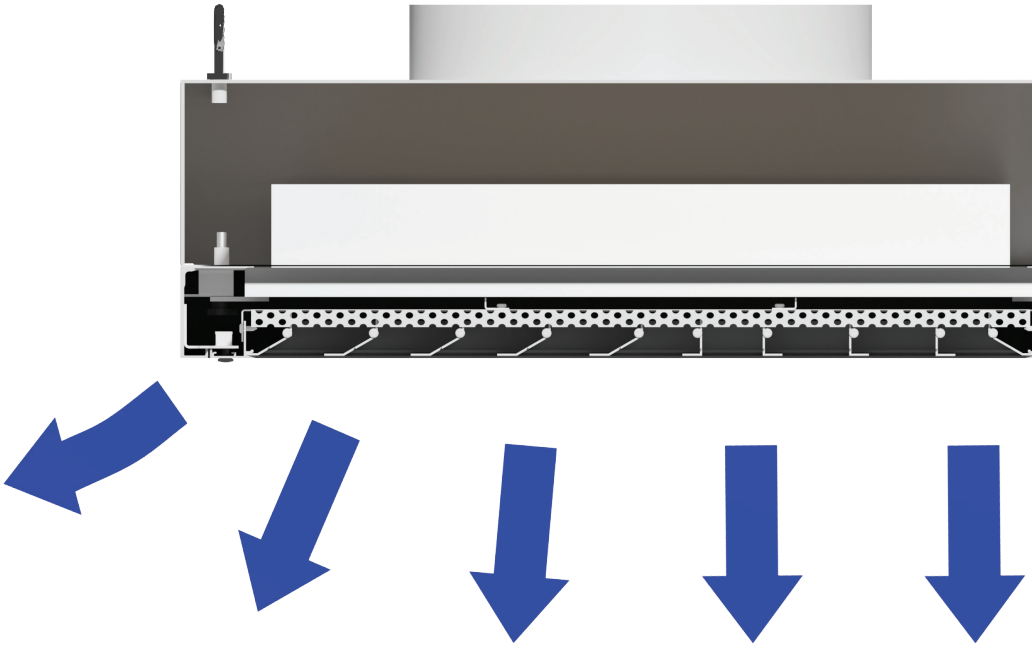
price | CRITICAL ENVIRONMENTS

FRFDC
Flush Face Radial Flow Diffuser with HEPA Filter

The Flush Face Radial Flow Diffuser with HEPA filter (FRFDC) is designed to maximize comfort while handling large volumes of filtered air in confined spaces at low room air velocities. Typically mounted in the ceiling with a full radial air pattern, FRFDCs produce a low initial face velocity and minimizes entrainment of room air.



FRFDC with perforated face and 2-way radial airflow pattern
(cutaway end view)



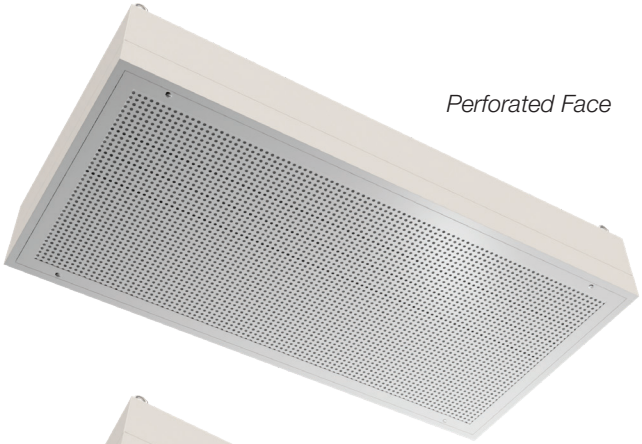
FRFDC with Louvered Face and 1-way half radial airflow pattern
(cutaway end view)

AIRFLOW PATTERN

+ Availible with fixed airflow pattern:
  - Fixed pattern is available as 1-way half radial or 2-way full radial airflow.

VERSATILE FACE OPTIONS

+ The flush face design prevents interference with ceiling equipment such as sprinklers, while maintaining a superior architectural appeal.
+ Further architectural flexibility is available with the choice between a perforated face and angled deflector vanes.



Perforated Face

Angled deflector vanes

TYPICAL APPLICATIONS

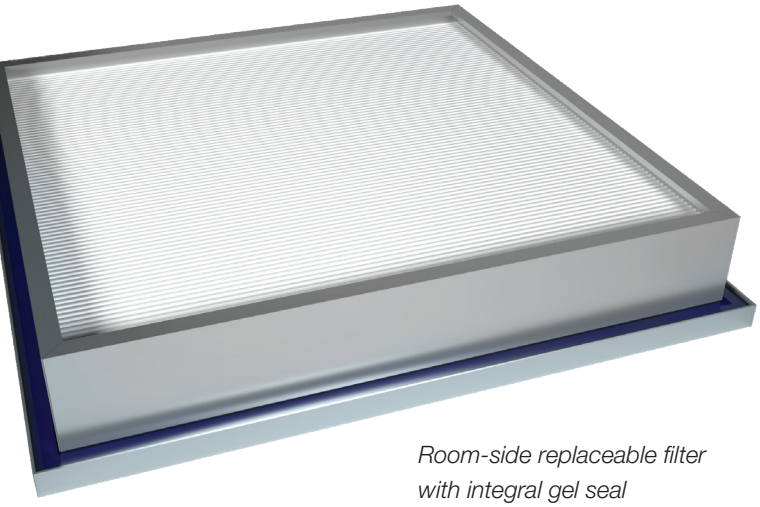
FRFDC flush face radial flow diffusers are commonly used in laboratories and airborne infectious isolation rooms where short throw and high capacity, filtered airflow are required. These diffusers provide a high level of dilution while maintaining occupant comfort with a minimal number of diffusers. The FRFDC is a combination of ASHRAE group A and group E diffusers and meets ASHRAE 170 requirements for ventilation of healthcare facilities.

CONSTRUCTION

+ Material
  - Aluminum
  - Stainless steel
+ Style
  - 1-Way Perforated Face
  - 2-Way Perforated Face
  - 1-Way Face with Flush Angled Deflector Vanes
  - 2-Way Face with Flush Angled Deflector Vanes
+ Options
  - External insulation
  - LED filter status indicator
  - Room-side adjustable damper
  - Aerosol test system

CLEANING & MAINTENANCE

+ FRFDC units satisfy all ASHRAE 170 requirements for diffuser cleaning and maintenance.
+ Powder coat paint finish is formulated for routine exposure to hospital grade cleaning solutions and disinfectants.
+ Stainless steel 1/4 turn fasteners and retainer cables provide straightforward and convenient access to the filter and knife-edge frame.
+ Filters are easily removable for full access to the diffuser plenum for cleaning.



Room-side replaceable filter with integral gel seal

ROOM-SIDE REPLACEABLE FILTER

+ Optional factory supplied HEPA filter removes 99.99% of particulate.
+ Convenient access from the room-side for periodic filter replacement.
+ Gel seal filter frame and diffuser “knife edge” flange create a reliable seal to prevent filter bypass.

FACTORY LEAK TESTING AND CERTIFICATION

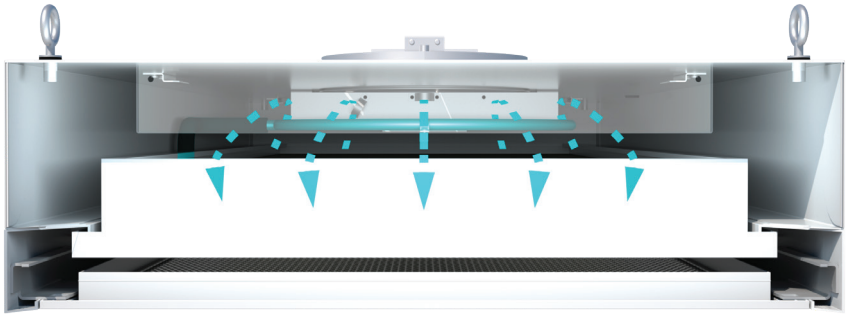
+ Every FRFDC is factory tested and certified leak-free in accordance with IEST-RP-CC034.

LED FILTER STATUS INDICATOR

+ An optional LED filter status light, visible from the room-side, changes from green to yellow when the filter is loaded and due for replacement.
+ The LED light is factory calibrated to trigger once the filter pressure drop has increased by 50% above that of an unloaded filter and can be adjusted in the field to suit facility preferences.

AEROSOL TEST SYSTEM

+ Unique and convenient option when upstream aerosol injection during field commissioning is impractical.
+ The barbed aerosol injection port for 1/2 in. ID tubing and aerosol sample and static pressure port facilitate the complete room-side aerosol challenge of the diffuser.
+ Stainless steel aerosol dispersion ring for equalized aerosol challenge across the entire active filter area.

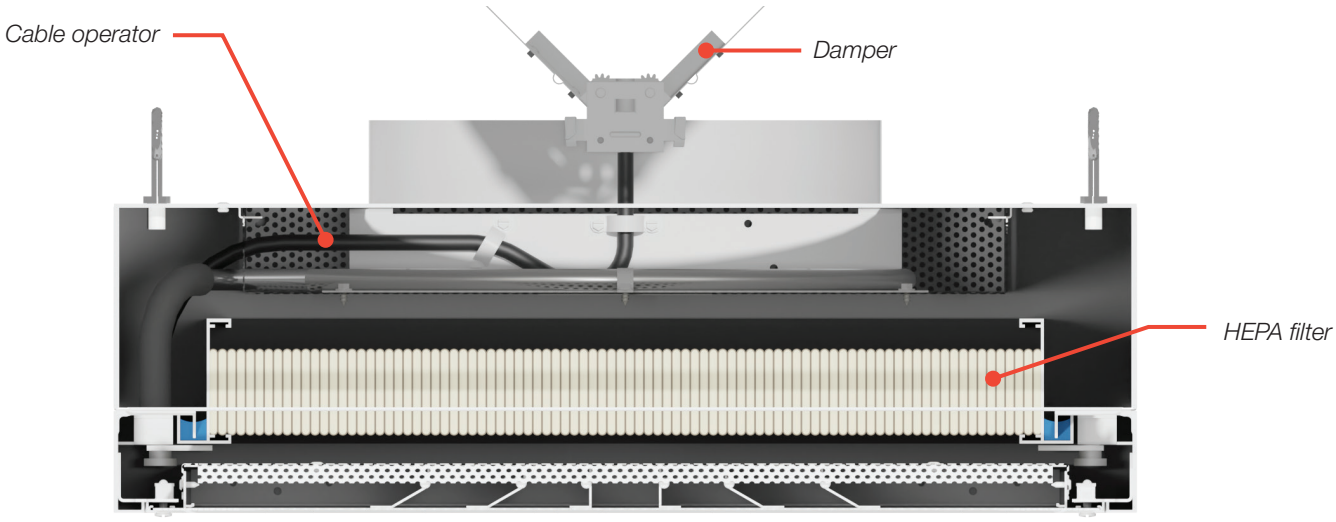


AEROSOL SAMPLE & STATIC PRESSURE PORT

+ Used for room-side field measurement of static pressure and challenge aerosol concentrations upstream of the filter during the commissioning process.

ROOM-SIDE ADJUSTABLE INLET DAMPER

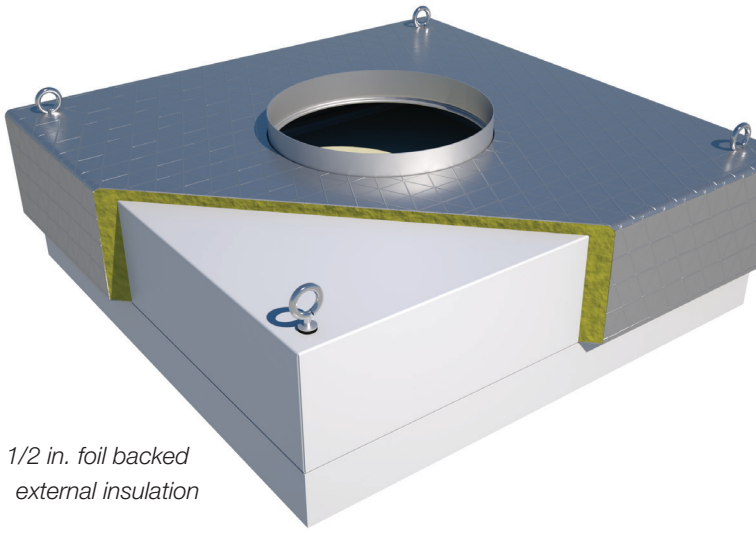
+ A remote cable operator allows adjustment of the damper with the filter in place using a standard screwdriver.
+ Locating the damper operator outside of the filter maximizes filter area, leading to a larger airflow capacity and less pressure drop.



Room-side adjustable damper cross sectional view

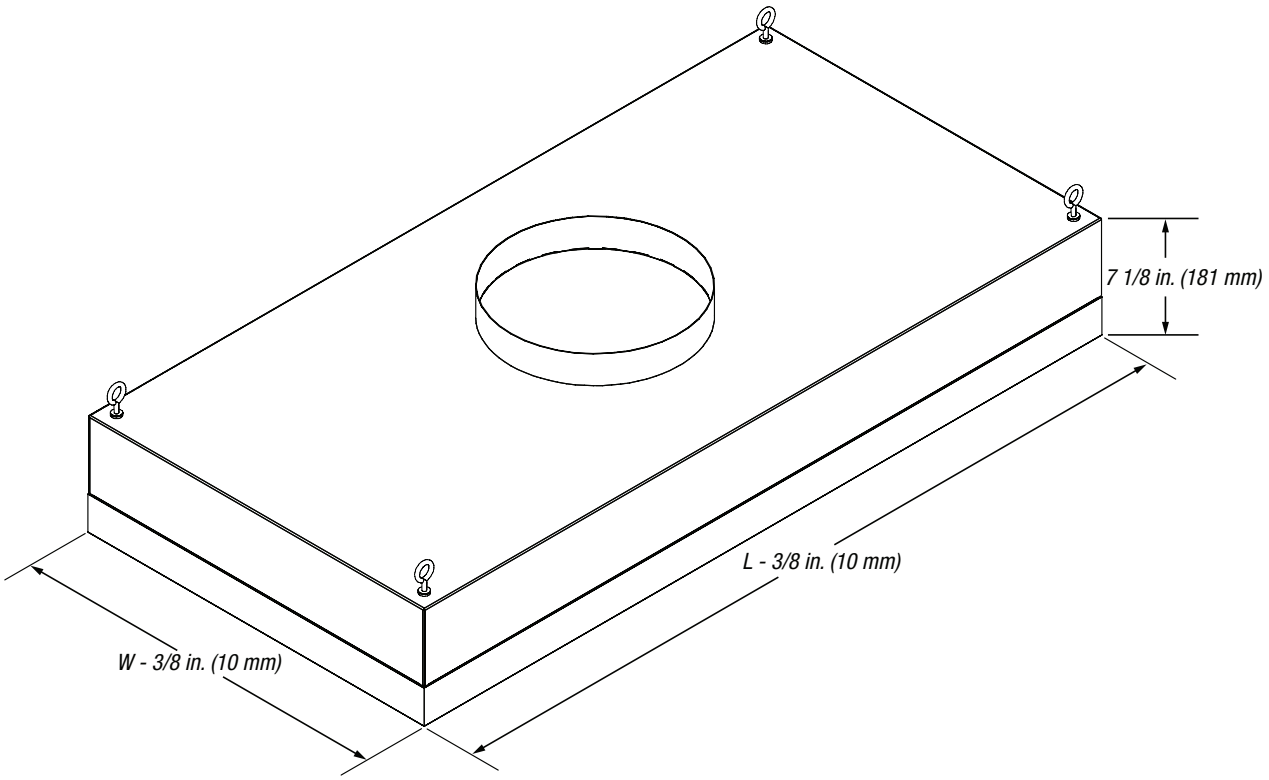
FACTORY INSTALLED INSULATION

+ Ensures quality application and minimizes field labor with factory installed insulation.
+ Eliminates condensation risk associated with unconditioned plenum air exposure to cold diffuser surfaces.
+ Reduced thermal gain improves energy savings.
+ Insulation meets ASTM E84 and UL723 requirements.



1/2 in. foil backed external insulation

DIMENSIONAL DATA



Nominal Sizes			
Nominal Unit Size (W x L)	**Actual Width**	**Acutal Length**	**Inlet Sizes**
24 in. x 24 in.	23.625 in.	23.625 in.	10 in.
24 in. x 48 in.	23.625 in.	23.625 in.	12 in.
610 mm x 610 mm	600 mm	600 mm	254 mm
610 mm x 1220 mm	600 mm	1210 mm	305 mm

PERFORMANCE DATA

Perforated Face with 2-Way Radial Pattern (Imperial)

Unit Size (in.)	Inlet Size (in.)	Air Flow (cfm)	Static Pressure (in. w.g.)	Total Pressure (in. w.g.)	Sound (NC)	Throw (ft.) 100 - 75 - 50 fpm					
						Vertical			Horizontal		
						5 °F	10 °F	15 °F	5 °F	10 °F	15 °F
24 x 24	10	150	0.220	0.225	-	1-2-3	1-3-4	2-4-5	1-1-2	1-2-2	2-2-2
		200	0.320	0.328	-	1-3-5	1-3-5	2-3-5	1-2-3	1-2-3	2-2-2
		300	0.550	0.569	-	2-3-5	3-4-5	4-5-6	3-4-5	3-4-5	3-3-4
24 x 48	12	500	0.485	0.510	22	3-4-6	5-6-7	2-4-8	2-2-2	1-1-2	1-1-2
		600	0.607	0.643	29	3-4-7	3-5-7	4-6-8	2-2-3	2-2-3	2-2-2
		700	0.729	0.778	32	5-6-8	4-6-8	5-6-8	3-3-4	2-3-3	2-2-3

Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 70-2006.
2. Air flow is in cubic feet per minute, cfm.
3. All pressures are in in. of water.
4. The NC values, sound pressure level, are based on a room absorption of 10 dB re 10^{-12} watts and one diffuser.
5. Blanks "-" indicate an NC value below 20.
6. Performance is based on diffuser with HEPA filter.
7. Throw values are given in feet to terminal velocities of 100 fpm, 75 fpm and 50 fpm.
8. Throw values are based on temperature differentials listed at the top of each column in the table.

PERFORMANCE DATA

Perforated Face with 2-Way Radial Pattern (Metric)

Unit Size (mm)	Inlet Size (mm)	Air Flow (L/s)	Static Pressure (Pa)	Total Pressure (Pa)	Sound (NC)	Throw (m) 0.51 - 0.38 - 0.25 m/s					
						Vertical			Horizontal		
						-3 °C	-6 °C	-8 °C	-3 °C	-6 °C	-8 °C
610 x 610	254	71	55	56	-	0.3 - 0.6 - 0.9	0.3 - 0.9 - 1.2	0.6 - 1.2 - 1.5	0.3 - 0.3 - 0.6	0.3 - 0.6 - 0.6	0.6 - 0.6 - 0.6
		94	80	82	-	0.3 - 0.9 - 1.5	0.3 - 0.9 - 1.5	0.6 - 0.9 - 1.5	0.3 - 0.6 - 0.9	0.3 - 0.6 - 0.9	0.6 - 0.6 - 0.6
		142	137	142	-	0.6 - 0.9 - 1.5	0.9 - 1.2 - 1.5	1.2 - 1.5 - 1.8	0.9 - 1.2 - 1.5	0.9 - 1.2 - 1.5	0.9 - 0.9 - 1.2
610 x 1220	305	236	121	127	22	0.9 - 1.2 - 1.8	1.5 - 1.8 - 2.1	0.6 - 1.2 - 2.4	0.6 - 0.6 - 0.6	0.3 - 0.3 - 0.6	0.3 - 0.3 - 0.6
		283	151	160	29	0.9 - 1.2 - 2.1	0.9 - 1.5 - 2.1	1.2 - 1.8 - 2.4	0.6 - 0.6 - 0.9	0.6 - 0.6 - 0.9	0.6 - 0.6 - 0.6
		330	182	194	32	1.5 - 1.8 - 2.4	1.2 - 2.4 - 2.4	1.5 - 1.8 - 2.4	0.9 - 0.9 - 1.2	0.6 - 0.9 - 0.9	0.6 - 0.6 - 0.9

Performance Notes:

1. Units are tested in accordance with ASHRAE Standard 70-2006.
2. Air flow is in Liters per second, L/s.
3. All pressures are in Pascals, Pa.
4. The NC values, sound pressure level, are based on a room absorption of 10 dB re 10-12 watts and one diffuser.
5. Blanks "-" indicate an NC value below 20.
6. Performance is based on diffuser with HEPA filter.
7. Throws given in meters (m) to terminal velocities of 0.51 m/s (minimum), 0.38 m/s (middle), and 0.25 m/s (maximum).
8. Throw values are based on supply air temperature differentials listed at the top of the table.

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