FDM

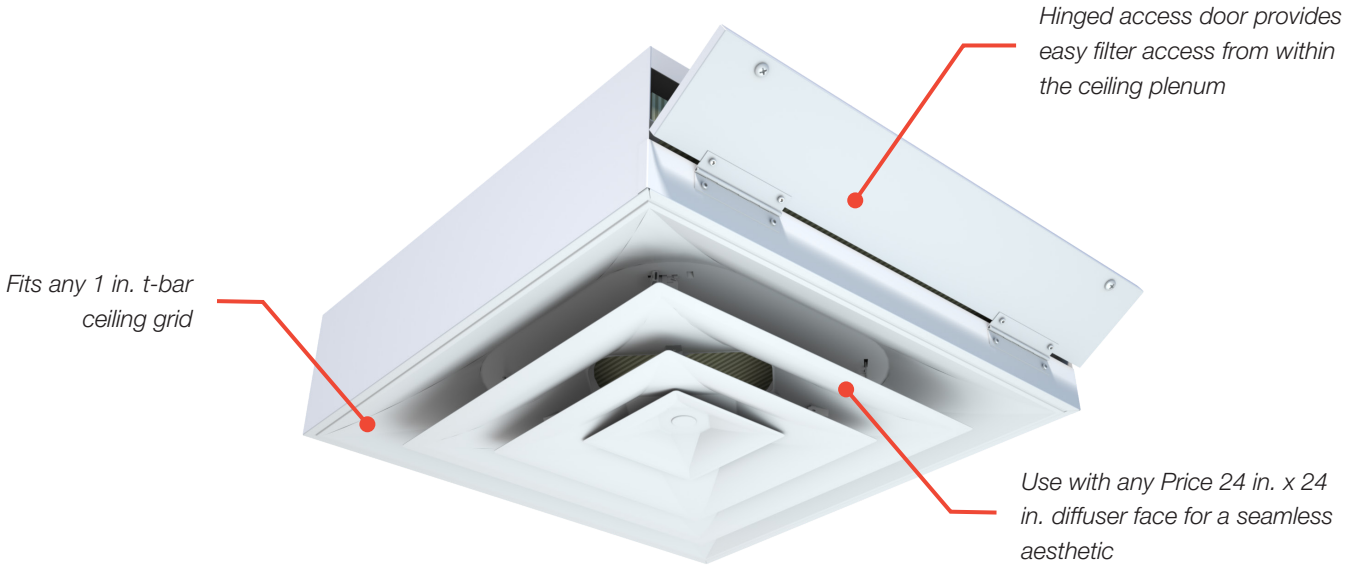
FILTERED DIFFUSER MODULE



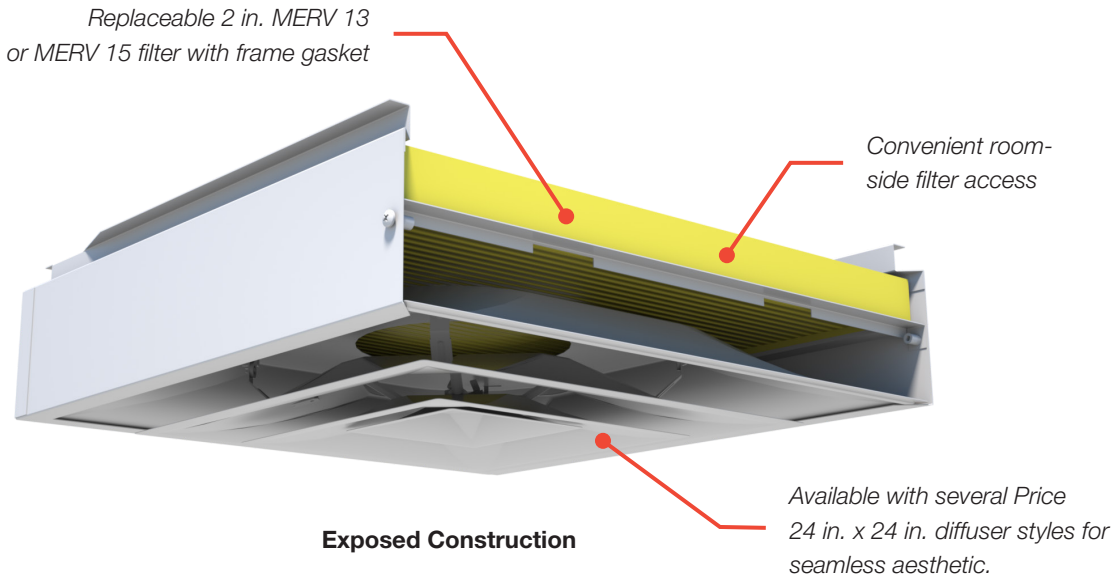
price | CRITICAL ENVIRONMENTS

FDM
Filtered Diffuser Module

Easy to implement, the FDM can replace or modify existing diffusers to provide MERV 13 or MERV 15 filtration in a matter of minutes. Implementing filtration at each diffuser effectively reduces the concentration of airborne particulate. Upgrading a typical overhead mixing system to include filters at each diffuser with the FDM requires very few changes to the overall HVAC system, keeping the cost of implementation low.



Recessed Construction



Exposed Construction

QUICK AND EASY INSTALLATION

+ Easy to implement without any major changes to the HVAC system, the FDM simply replaces or modifies existing diffusers.
+ The FDM fits into a standard 1 in. t-bar ceiling grid and can be selected with 24 in. x 24 in. diffuser faces like square plaque or square cone diffusers to match an existing aesthetic.

DISTRIBUTED FILTRATION

+ Filtration within each individual diffuser provides flexibility and zone-level contamination control reducing the probability of exposure to airborne particulate.

RECESSED CONSTRUCTION

+ The FDM with recessed construction is installed on top of the t-bar ceiling grid, fully replacing existing diffusers and providing a seamless appearance from the room side.
+ Filter replacement requires access to the ceiling plenum, where filters can be slid in/out of the plenum box though a hinged access door.

EXPOSED CONSTRUCTION

+ For extremely fast installation, the FDM with exposed construction is suspended from the t-bar ceiling grid, directly below existing diffusers eliminating the need for ductwork changes.
+ Held in place between the t-bar ceiling grid and the original diffuser, this attachment forces air from the original diffuser through a filter before being discharged through a secondary diffuser face.
+ Filters are accessible from the room side, by sliding the filter in or out of the side access panel.

TYPICAL APPLICATIONS

The FDM is intended to quickly and easily add MERV 13 or MERV 15 filtration, at the diffuser level, to an existing HVAC system. This solution can be used in almost any space including offices, classrooms, and retail applications.

CONSTRUCTION OPTIONS

+ Style
  - Recessed
  - Exposed
+ Filter
  - MERV 13
  - MERV 15



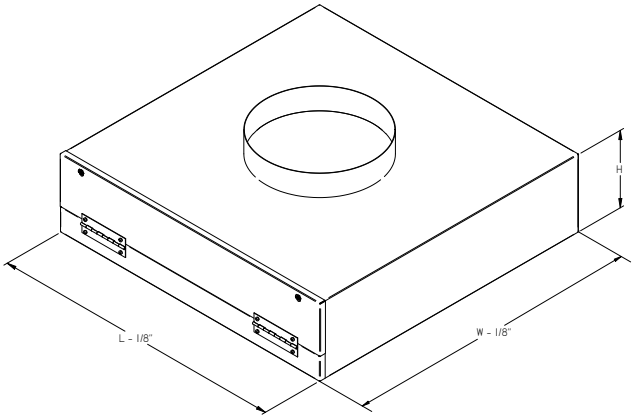
Recessed



Exposed

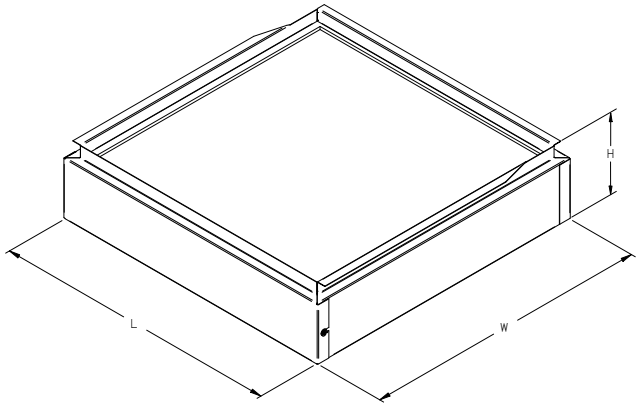
DIMENSIONAL DATA

RECESSED



Nominal Sizes		
W x L	**Inlet Sizes**	**H**
24 in. x 24 in.	**8, 10, 12**	**6 1/4 in.**

EXPOSED



Nominal Sizes	
W x L	**H (below ceiling)**
24 in. x 24 in.	**6 in.**

PERFORMANCE DATA

SMD/AMD

Neck Velocity (fpm)			300		400		500		600		700		800		900	
Duct Size 6 in. x 6 in.		Flow Rate (cfm)	75		100		125		150		175		200		225	
		Static Pressure - MERV 13 (in. w.g.)	0.05		0.075		0.103		0.142		0.205		0.256		0.314	
		Static Pressure - MERV 15 (in. w.g.)	0.09		0.115		0.143		0.182		0.225		0.276		0.334	
		Sound (NC)	-		-		17		23		27		31		36	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
Duct Area 0.25 ft²	4A	cfm/Side	19		25		31		38		44		50		56	
		Throw (ft)	4-6-12		5-8-15		7-10-16		8-12-18		9-14-19		11-15-21		12-16-22	
	3A	cfm/Side	19	28	25	38	31	47	38	56	44	66	50	75	56	84
		Throw (ft)	4-6-12	5-7-14	5-8-15	6-10-16	7-10-16	8-12-18	8-12-18	10-14-20	9-14-19	11-15-22	11-15-21	13-16-23	12-16-22	14-17-25
	2S, 2G	cfm/Side	38		50		63		75		88		100		113	
		Throw (ft)	6-8-15		7-11-18		9-14-20		11-15-22		13-17-24		15-18-25		15-19-27	
	1S	cfm/Side	75		100		125		150		175		200		225	
		Throw (ft)	8-12-19		11-15-22		13-17-24		15-19-27		17-20-29		18-22-31		19-23-33	
Duct Size 9 in. x 9 in.		Flow Rate (cfm)	169		225		282		338		394		450		507	
		Static Pressure - MERV 13 (in. w.g.)	0.07		0.095		0.133		0.172		0.225		0.296		0.354	
		Static Pressure - MERV 15 (in. w.g.)	0.09		0.115		0.163		0.202		0.275		0.356		0.414	
		Sound (NC)	-		-		21		27		31		35		39	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
Duct Area 0.56 ft²	4A	cfm/Side	42		56		71		85		99		113		127	
		Throw (ft)	6-9-16		8-12-18		10-15-21		12-16-23		14-17-24		15-18-26		16-20-28	
	3A	cfm/Side	42	63	56	84	71	106	85	127	99	148	113	169	127	190
		Throw (ft)	6-9-16	7-11-18	8-12-18	10-15-21	10-15-21	12-16-23	12-16-23	15-18-25	14-17-24	16-19-27	15-18-26	17-21-29	16-20-28	18-22-31
	2S, 2G	cfm/Side	85		113		141		169		197		225		254	
		Throw (ft)	.8-13-19		11-16-22		14-18-25		16-19-28		17-21-30		18-22-32		19-24-34	
	1S	cfm/Side	169		225		282		338		394		450		507	
		Throw (ft)	12-17-24		16-19-27		18-22-31		19-24-34		21-26-36		22-27-39		21-29-41	
Duct Size 12 in. x 12 in.		Flow Rate (cfm)	300		400		500		600		700		800		900	
		Static Pressure - MERV 13 (in. w.g.)	0.08		0.115		0.163		0.232		0.295		0.356		0.434	
		Static Pressure - MERV 15 (in. w.g.)	0.11		0.165		0.223		0.262		0.335		0.406		0.494	
		Sound (NC)	-		17		24		30		34		38		42	
			A	B	A	B	A	B	A	B	A	B	A	B	A	B
Duct Area 1.00 ft²	4A	cfm/Side	75		100		125		150		175		200		225	
		Throw (ft)	8-12-19		11-15-22		13-17-24		15-19-27		17-20-29		18-22-31		19-23-33	
	3A	cfm/Side	75	113	100	150	125	188	150	225	175	263	200	300	225	338
		Throw (ft)	8-12-19	10-15-21	11-15-22	13-17-24	13-17-24	16-19-27	15-19-27	17-21-30	17-20-29	19-23-32	18-22-31	20-24-35	19-23-33	21-26-37
	2S, 2G	cfm/Side	150		200		250		300		350		400		450	
		Throw (ft)	11-16-23		15-19-26		17-21-30		19-23-32		20-25-35		22-26-37		23-28-40	
	1S	cfm/Side	300		400		500		600		700		800		900	
		Throw (ft)	16-20-28		19-23-32		21-26-36		23-28-40		25-30-43		26-32-46		28-34-48	

For Performance Notes and Return Factors, see end of section.

Core Style Legend



PERFORMANCE DATA

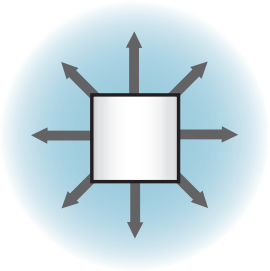
SCD – 24 IN. X 24 IN. FACE SIZE

Listed Size	Neck Velocity (fpm)	400	500	600	700	800	900	1000	1200	1400	1600
6	Static Pressure - MERV 13 (in. w.g.)	0.025	0.027	0.032	0.055	0.06	0.066	0.072	0.095	0.111	0.129
	Static Pressure - MERV 15 (in. w.g.)	0.065	0.067	0.072	0.075	0.08	0.086	0.092	0.125	0.141	0.159
	Flow Rate (cfm)	78	98	118	137	157	176	196	235	274	314
	Sound (NC)	-	-	-	-	15	19	22	28	33	37
	Throw (ft.)	1-2-4	1-2-4	2-3-5	2-3-6	2-4-7	3-4-7	3-4-7	4-5-8	4-6-9	5-7-9
8	Static Pressure - MERV 13 (in. w.g.)	0.026	0.049	0.055	0.069	0.075	0.082	0.1	0.116	0.157	0.21
	Static Pressure - MERV 15 (in. w.g.)	0.066	0.069	0.075	0.099	0.105	0.112	0.15	0.166	0.217	0.24
	Flow Rate (cfm)	140	175	209	244	279	314	349	419	489	558
	Sound (NC)	-	-	-	-	19	22	26	31	36	40
	Throw (ft.)	2-2-5	2-3-6	2-4-7	3-4-8	3-5-9	4-6-9	4-6-10	5-7-11	6-8-12	7-9-12
10	Static Pressure - MERV 13 (in. w.g.)	0.049	0.064	0.082	0.089	0.118	0.128	0.17	0.215	0.256	0.311
	Static Pressure - MERV 15 (in. w.g.)	0.069	0.094	0.132	0.139	0.178	0.188	0.2	0.255	0.306	0.371
	Flow Rate (cfm)	218	273	327	382	436	491	545	654	763	872
	Sound (NC)	-	-	-	17	21	25	28	34	39	43
	Throw (ft.)	2-3-6	3-4-8	3-5-9	4-6-10	4-6-11	5-7-12	5-8-12	6-9-13	8-10-14	9-11-15
12	Static Pressure - MERV 13 (in. w.g.)	0.063	0.08	0.109	0.149	0.181	0.195	0.22	0.295	0.347	0.434
	Static Pressure - MERV 15 (in. w.g.)	0.093	0.13	0.169	0.179	0.221	0.235	0.27	0.355	0.437	0.534
	Flow Rate (cfm)	314	393	471	550	628	707	785	942	1099	1256
	Sound (NC)	-	-	-	19	24	27	30	36	41	45
	Throw (ft.)	3-4-8	3-5-10	4-6-11	5-7-12	5-8-13	6-9-14	7-10-15	8-11-16	9-12-17	11-13-19

Performance Notes:

1. Tested in accordance with ASHRAE Standard 70 - 2006 *Method of Testing for Rating the Performance of Air Outlets and Inlets*.
2. Airflow is in cubic feet per minute [cfm].
3. NC, sound pressure levels, are based on a room absorption of 10 dB re 10^{-12} Watts, and a single diffuser/grille.
4. Blanks "-" indicate an NC level below 15.
5. All pressures are in inches of water column [in. w.g.].
6. Pressures not listed can be calculated using the following formula: $P_{total} = P_{static} + P_{velocity}$
7. Throw data is based on supply air and room air being at isothermal conditions.
8. Throw data is given in feet [ft] to terminal velocities of:
   150 fpm (minimum)
   100 fpm (middle)
   50 fpm (maximum).
9. Diffuser tested with a ceiling. If the diffuser is mounted on an exposed duct, multiply the throw in the performance table by 0.70
10. Does not include effects of ceiling radiation damper (SCD-FR)

Throw Diagram



Plan View - Horizontal Radial Pattern

PERFORMANCE DATA

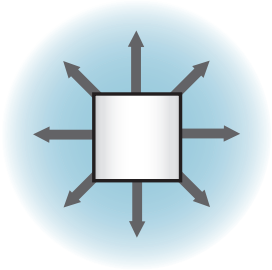
SPD – 24 IN. X 24 IN. FACE SIZE

Listed Size	Neck Velocity (fpm)	400	500	600	700	800	900	1000	1200	1400	1600
6	Static Pressure - MERV 13 (in. w.g.)	0.02	0.02	0.021	0.021	0.041	0.043	0.043	0.043	0.055	0.056
	Static Pressure - MERV 15 (in. w.g.)	0.06	0.06	0.061	0.061	0.061	0.063	0.063	0.063	0.085	0.086
	Flow Rate (cfm)	78	98	118	137	157	176	196	235	274	314
	Sound (NC)	-	-	-	-	-	19	22	29	34	38
	Throw (ft)	1-2-4	1-2-4	2-3-5	2-3-6	2-4-6	3-4-7	3-4-7	4-5-8	4-6-9	5-7-9
8	Static Pressure - MERV 13 (in. w.g.)	0.028	0.053	0.06	0.066	0.084	0.093	0.113	0.136	0.184	0.245
	Static Pressure - MERV 15 (in. w.g.)	0.068	0.073	0.08	0.086	0.114	0.123	0.163	0.186	0.244	0.275
	Flow Rate (cfm)	140	175	209	244	279	314	349	419	489	558
	Sound (NC)	-	-	-	-	19	23	27	33	38	43
	Throw (ft)	2-2-5	2-3-6	2-4-7	3-4-8	3-5-9	4-6-9	4-6-10	5-7-11	6-8-12	7-9-12
10	Static Pressure - MERV 13 (in. w.g.)	0.059	0.079	0.103	0.117	0.155	0.176	0.228	0.299	0.371	0.461
	Static Pressure - MERV 15 (in. w.g.)	0.079	0.109	0.153	0.167	0.215	0.236	0.258	0.339	0.421	0.521
	Flow Rate (cfm)	218	273	327	382	436	491	545	654	763	872
	Sound (NC)	-	-	-	18	22	26	30	36	41	46
	Throw (ft)	2-3-6	3-4-8	3-5-9	4-6-10	4-6-11	5-7-12	5-8-12	6-9-13	8-10-14	9-11-15
12	Static Pressure - MERV 13 (in. w.g.)	0.081	0.109	0.151	0.206	0.236	0.29	0.337	0.463	0.576	0.734
	Static Pressure - MERV 15 (in. w.g.)	0.111	0.159	0.211	0.236	0.266	0.33	0.387	0.523	0.666	0.834
	Flow Rate (cfm)	314	393	471	550	628	707	785	942	1099	1256
	Sound (NC)	-	-	15	21	25	29	33	39	44	49
	Throw (ft)	3-4-8	3-5-10	4-6-11	5-7-12	5-8-13	6-9-14	7-10-15	8-11-16	9-12-17	11-13-19

Performance Notes:

1. Tested in accordance with ASHRAE Standard 70 - 2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Airflow is in cubic feet per minute [cfm].
3. NC, sound pressure levels, are based on a room absorption of 10 dB re 10^{-12} Watts, and a single diffuser/grille.
4. Blanks "-" indicate an NC level below 15.
5. All pressures are in inches of water column [in. w.g.].
6. Pressures not listed can be calculated using the following formula: $P_{total} = P_{static} + P_{velocity}$
7. Throw data is based on supply air and room air being at isothermal conditions.
8. Throw data is given in feet [ft] to terminal velocities of:
   150 fpm (minimum)
   100 fpm (middle)
   50 fpm (maximum)
9. Diffuser tested with a ceiling. If the diffuser is mounted on an exposed duct, multiply the radii of diffusion in the table by 0.70.
10. Does not include effects of ceiling radiation damper (SPD-FR)

Throw Diagram



Plan View - Horizontal Radial Pattern

price | CRITICAL ENVIRONMENTS

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