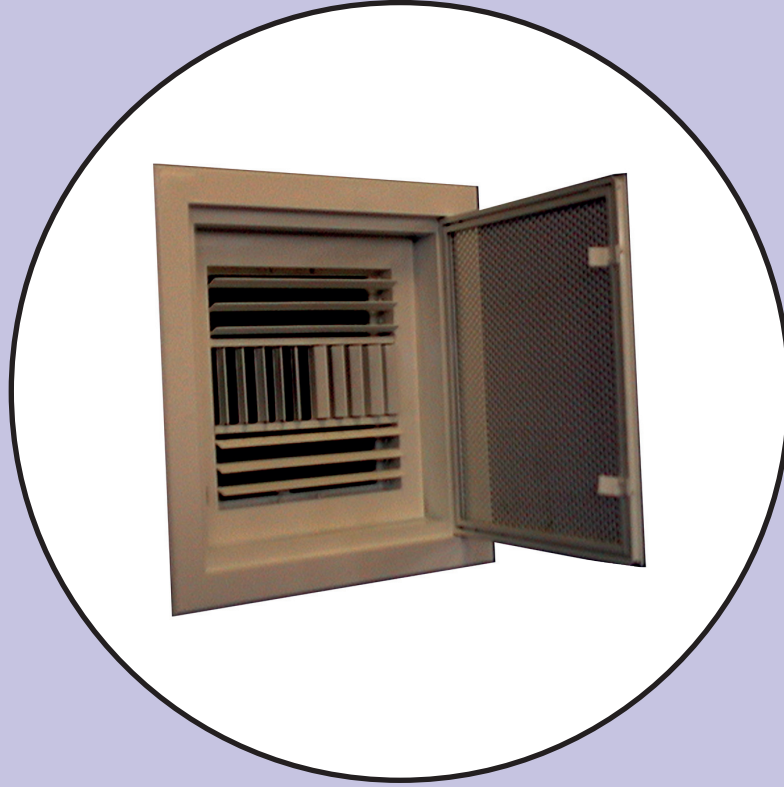


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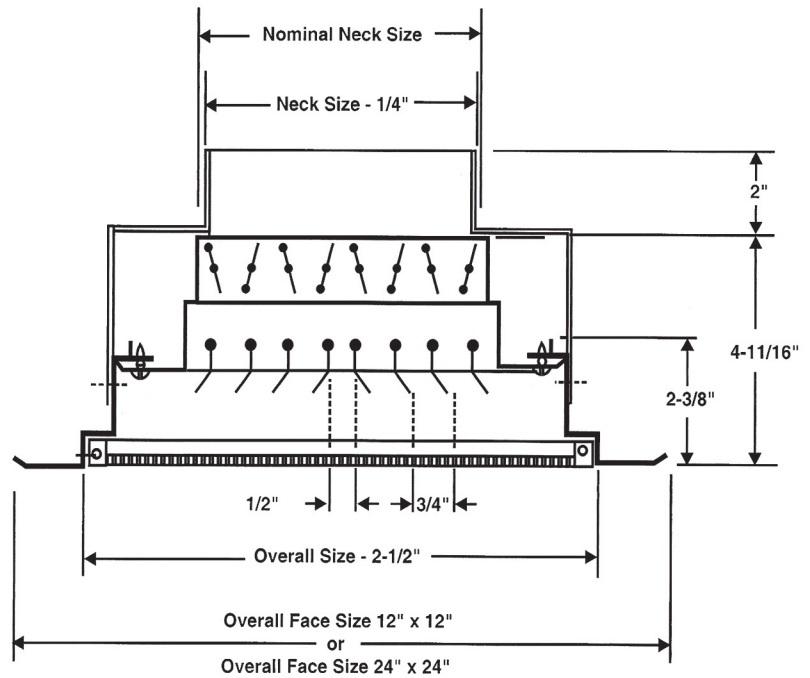
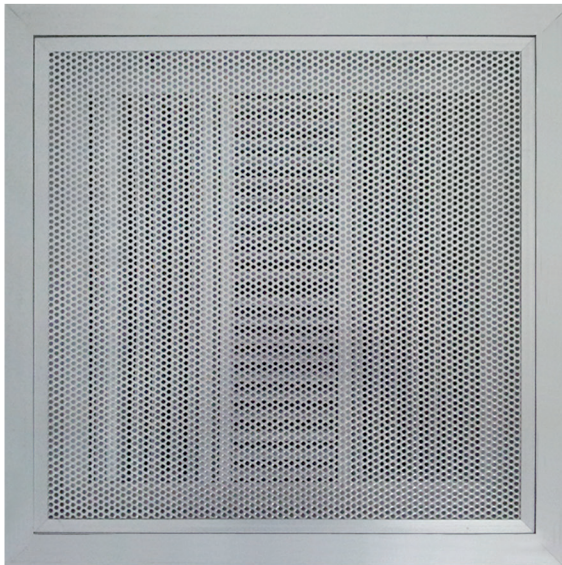
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شركة الخليج لفتحات التكييف المركزي
GULF GRILLES CO.



PERFORATED FACE
CEILING DIFFUSER

A04
PERFORATED FACE
CEILING DIFFUSER



PRODUCT DESCRIPTION

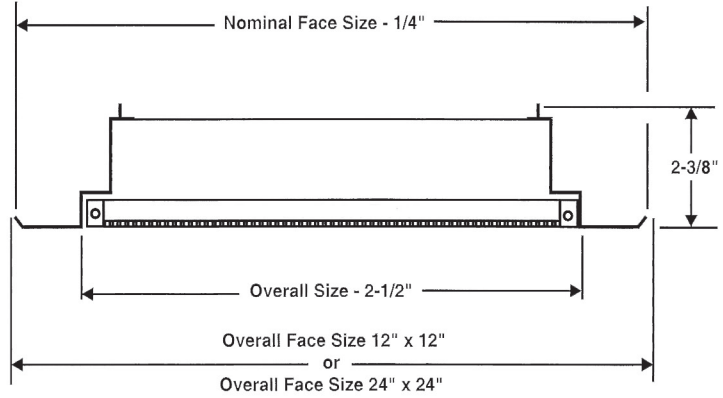
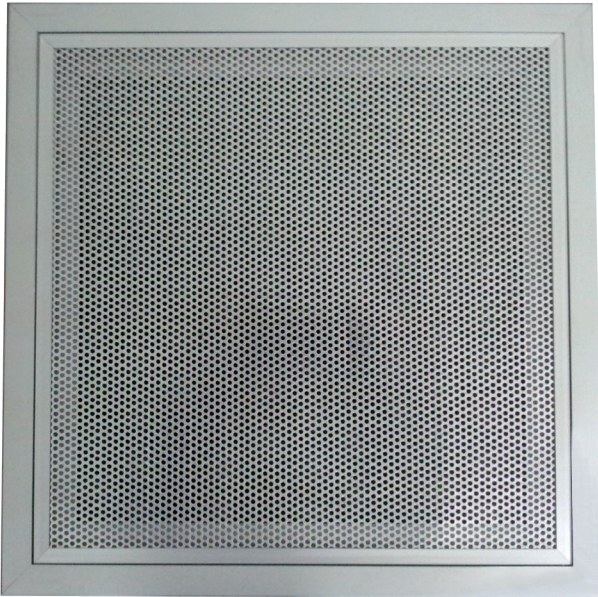
Perforated face supply ceiling diffusers with fully adjustable air pattern deflectors (1,2,3 & 4 way) with volume control damper and with round or square neck.

- The frame and blades are extruded aluminium alloy and electrostatic polyester powder coated with a white finish.
- The outer frame has a typical wall thickness of 1/16".
- Perforated face plate is SNAP-IN type, removable face plate, gives easy access to control deflectors or dampers.
- Air pattern control is comprised of individually adjustable angle-curved deflectors, capable of producing fully controlled air direction for greater performance and efficiency.

- Diffuser's perforated face plate is made of polyester powder coated aluminum material with 11/64" diameter perforation, at a pitch of 15/64", 60° staggered to produce 45% free area.
- All internal portions of the diffuser is non-reflective.
- Galvanized steel adaptor having square to round or square to square is provided.
- Standard finish white color for frame, blades and perforated face. Damper and adaptor in black color. Painted under electrostatic polyester powder coated system. Other colors are also available on request. The polyester powder of highest quality are used to enhance the appearance of the units.
- Perforated ceiling diffuser is designed for heating, cooling and ventilating applications.
- Equalizing grid is provided as an option.

Listed Sizes

Face or Ceiling Module Size	Round Neck Size	Square Neck Size
12" x 12"	5",6",8"	6" x 6" 8" x 8"
24" x 24"	6",8",10",12" 14",16",18"	6" x 6" 8" x 8" 10" x 10" 12" x 12"



PRODUCT DESCRIPTION

- Perforated face return ceiling diffuser is comprised of perforated face sheet and frame having square neck.
- Perforated face plate is made of polyester powder coated aluminum material with $11/64$ " diameter perforation, at a pitch of $15/64$ ", 60° staggered to produce 45% of free area.
- The outer frame is extruded aluminum alloy having a typical wall thickness of $1/16$ ".
- The perforated face plate is SNAP-IN type, removable face plate.
- Standard finish is white color for frame and perforated face. Painted under electrostatic polyester powder coated system. Other colors are also available on request. The polyester powder of highest quality are used to enhance the appearance of the units.

Listed Sizes

Face or Ceiling Module Size	Neck Size
12" x 12"	10" x 10"
24" x 24"	22" x 22"

PERFORATED CEILING DIFFUSERS PERFORMANCE DATA

12" x 12" Module Size

Neck Size (Inches)	Neck Area (Sq. ft.)	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure, in. W.G.		.006	.010	.016	.023	.031	.040	.063	.090	.123
6 x 6	0.25	Total Pressure, in. W.G.		.013	.023	.037	.053	.072	.094	.147	.211	.287
		Flow Rate, CFM		75	100	125	150	175	200	250	300	350
		NC		<20	<20	<20	<20	21	24	31	39	45
		Throw, Feet	4 - way	1-1	1-2	1-3	1-4	1-5	2-6	3-8	4-9	5-11
			3 - way	1-3	1-5	2-6	3-8	4-9	5-10	6-13	8-16	9-17
2 - way	1-4		2-7	3-9	4-10	6-12	7-14	9-18	10-19	12-21		
1 - way	1-6		2-8	4-11	6-13	7-15	8-17	11-20	13-22	15-24		
8 x 8	0.44	Total Pressure, in. W.G.		.018	.031	.049	.071	.096	.126	.196	.283	.385
		Flow Rate, CFM		133	177	222	266	310	355	444	532	621
		NC		<20	<20	<20	20	25	29	35	44	>50
		Throw, Feet	4 - way	1-2	1-4	1-6	2-7	3-8	4-9	6-12	7-14	8-17
			3 - way	1-5	2-8	4-10	5-12	7-14	8-16	10-20	12-24	14-26
2 - way	2-8		4-10	6-13	8-16	9-19	10-21	13-26	16-29	19-31		
1 - way	3-9		5-13	8-16	9-19	11-23	13-26	16-30	19-33	23-35		
Return 10 x 10	0.69	Negative SP, in. W.G.		.024	.043	.068	.098	.133	.174	.271	.391	.532
		Flow Rate, CFM		208	277	347	416	485	555	694	832	971
		NC		<20	<20	<20	<20	<20	21	28	34	40

12" x 12" Module Size

Neck Size (Inches)	Neck Area (Sq. ft.)	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure, in. W.G.		.006	.010	.016	.023	.031	.040	.063	.090	.123
5 Dia.	0.136	Total Pressure, in. W.G.		.010	.017	.027	.039	.053	.070	.109	.157	.214
		Flow Rate, CFM		41	54	68	82	95	109	136	163	190
		NC		<20	<20	<20	<20	<20	<20	24	30	35
		Throw, Feet	4 - way	1-1	1-1	1-2	1-3	1-4	1-5	3-6	4-8	4-9
			3 - way	1-1	1-2	1-3	2-4	3-5	4-6	5-9	6-11	7-12
2 - way	1-2		1-4	2-5	3-6	4-7	6-9	7-12	9-13	10-15		
1 - way	1-3		1-6	2-6	3-7	5-9	6-10	8-13	10-15	12-16		
6 Dia.	0.196	Total Pressure, in. W.G.		.012	.021	.033	.047	.064	.084	.131	.189	.257
		Flow Rate, CFM		58	78	98	117	137	156	196	235	274
		NC		<20	<20	<20	<20	<20	22	28	34	40
		Throw, Feet	4 - way	1-1	1-1	1-3	1-4	1-4	1-5	3-6	4-8	4-9
			3 - way	1-2	1-4	1-5	2-6	3-7	4-8	5-11	6-13	7-14
2 - way	1-3		1-6	2-7	3-9	4-10	6-12	7-15	9-16	10-18		
1 - way	1-4		2-7	3-9	4-11	6-13	7-14	9-17	11-19	13-20		
8 Dia.	0.348	Total Pressure, in. W.G.		.015	.027	.043	.062	.084	.110	.171	.247	.336
		Flow Rate, CFM		104	139	174	209	244	279	349	418	488
		NC		<20	<20	<20	<20	22	25	32	38	44
		Throw, Feet	4 - way	1-2	1-3	1-5	2-6	2-7	3-8	5-10	6-12	7-14
			3 - way	1-4	2-6	3-8	4-10	5-11	6-13	8-17	10-20	11-22
2 - way	1-6		3-9	4-11	6-13	8-16	9-18	11-22	13-24	16-26		
1 - way	2-8		4-11	6-14	8-16	9-19	11-22	14-25	16-28	19-30		

- All Pressures are in inches of water.
- Throw values are given for Terminal Velocities of 100 and 50 fpm.
- NC values are based on a room absorption of 10 dB, re 10⁻¹² watts.

PERFORATED CEILING DIFFUSERS PERFORMANCE DATA

24" x 24" Module Size

Neck Size (Inches)	Neck Area (Sq. ft.)	Neck Velocity, FPM	300	400	500	600	700	800	1000	1200	1400	
6 x 6	0.25	Velocity Pressure, in. W.G.	.006	.010	.016	.023	.031	.040	.063	.090	.123	
		Total Pressure, in. W.G.	.013	.023	.037	.053	.072	.094	.147	.211	.287	
		Flow Rate, CFM	75	100	125	150	175	200	250	300	350	
		NC	<20	<20	<20	23	26	29	37	43	48	
		Throw, Feet	4 - way	1-1	1-2	1-3	1-4	1-5	2-6	3-8	4-9	5-11
			3 - way	1-3	1-5	2-6	3-8	4-9	5-10	6-13	8-16	9-17
2 - way	1-4		2-7	3-9	4-10	6-12	7-14	9-18	10-19	12-21		
1 - way	1-6		2-8	4-11	6-13	7-15	8-17	11-20	13-22	15-24		
8 x 8	0.44	Total Pressure, in. W.G.	.018	.031	.049	.071	.096	.126	.196	.283	.385	
		Flow Rate, CFM	133	177	222	266	310	355	444	532	621	
		NC	<20	<20	23	27	31	35	43	49	>50	
		Throw, Feet	4 - way	1-2	1-4	1-6	2-7	3-8	4-9	6-12	7-14	8-17
			3 - way	1-5	2-8	4-10	5-12	7-14	8-16	10-20	12-24	14-26
			2 - way	2-8	4-10	6-13	8-16	9-19	10-21	13-26	16-29	19-31
1 - way	3-9		5-13	8-16	9-19	11-23	13-26	16-30	19-33	23-35		
10 x 10	0.69	Total Pressure, in. W.G.	.022	.039	.061	.088	.119	.156	.243	.350	.477	
		Flow Rate, CFM	208	277	347	416	485	555	694	832	971	
		NC	<20	22	27	31	35	40	47	>50	>50	
		Throw, Feet	4 - way	1-4	2-6	3-8	4-10	5-11	6-13	8-16	10-20	11-23
			3 - way	2-8	4-11	6-13	8-16	9-19	11-22	13-27	16-32	19-35
			2 - way	3-11	6-14	9-18	11-22	13-26	14-29	18-36	22-39	26-43
1 - way	5-13		9-18	11-22	13-27	16-32	18-36	22-41	27-45	32-49		
12 x 12	1.00	Total Pressure, in. W.G.	.026	.047	.073	.105	.144	.188	.293	.422	.574	
		Flow Rate, CFM	300	400	500	600	700	800	1000	1200	1400	
		NC	<20	25	30	34	39	43	>50	>50	>50	
		Throw, Feet	4 - way	1-6	3-8	4-11	6-13	7-15	8-17	11-22	13-26	15-30
			3 - way	3-10	6-14	9-18	10-21	12-25	14-28	18-36	21-42	25-45
			2 - way	5-14	9-19	12-24	14-29	17-34	19-39	24-46	29-51	34-55
1 - way	8-17		11-23	14-29	17-35	20-41	23-47	29-53	35-58	41-63		
14 x 14	1.36	Total Pressure, in. W.G.	.030	.055	.085	.122	.169	.220	.343	.494	.671	
		Flow Rate, CFM	408	544	680	816	952	1088	1360	1632	1904	
		NC	<20	27	32	36	41	46	>50	>50	>50	
		Throw, Feet	4 - way	1-8	4-10	5-13	8-16	9-19	10-22	14-28	16-32	19-37
			3 - way	4-12	8-17	12-23	13-26	15-31	17-34	23-45	26-52	31-55
			2 - way	7-17	12-24	15-30	17-36	22-42	24-49	30-56	36-62	42-67
1 - way	11-21		14-28	17-36	21-43	24-50	28-58	36-65	44-67	50-77		
16 x 16	1.78	Total Pressure, in. W.G.	.034	.063	.097	.139	.194	.252	.393	.566	.768	
		Flow Rate, CFM	534	712	890	1068	1246	1424	1780	2136	2492	
		NC	22	29	34	39	44	>50	>50	>50	>50	
		Throw, Feet	4 - way	1-10	5-12	6-15	10-19	11-23	12-27	17-34	19-38	23-43
			3 - way	5-14	10-20	14-28	16-31	18-37	20-40	28-54	31-62	37-65
			2 - way	9-20	15-29	18-36	20-43	27-50	29-59	36-66	43-73	50-79
1 - way	14-25		17-33	20-43	25-51	28-59	33-69	43-77	53-84	59-94		
18 x 18	2.25	Total Pressure, in. W.G.	.036	.071	.109	.156	.209	.284	.443	.638	.865	
		Flow Rate, CFM	675	900	1125	1350	1575	1800	2250	2700	3150	
		NC	23	31	36	42	>50	>50	>50	>50	>50	
		Throw, Feet	4 - way	1-12	6-14	7-17	12-22	13-27	14-32	20-40	22-44	27-50
			3 - way	6-16	12-23	16-32	18-36	21-43	23-46	33-63	36-72	43-75
			2 - way	11-23	18-34	21-42	23-50	32-58	34-69	42-77	50-84	58-91
1 - way	17-29		20-38	23-50	29-59	32-68	38-80	50-89	62-97	68-108		
Return 22 x 22	3.36	Negative SP, in. W.G.	.024	.043	.068	.098	.133	.174	.271	.391	.532	
		Flow Rate, CFM	1008	1344	1680	2016	2352	2688	3360	4032	4704	
		NC	<20	<20	<20	<20	22					

- All Pressures are in inches of water.
- Throw values are given for Terminal Velocities of 100 and 50 fpm.
- NC values are based on a room absorption of 10 dB, re 10⁻¹² watts.



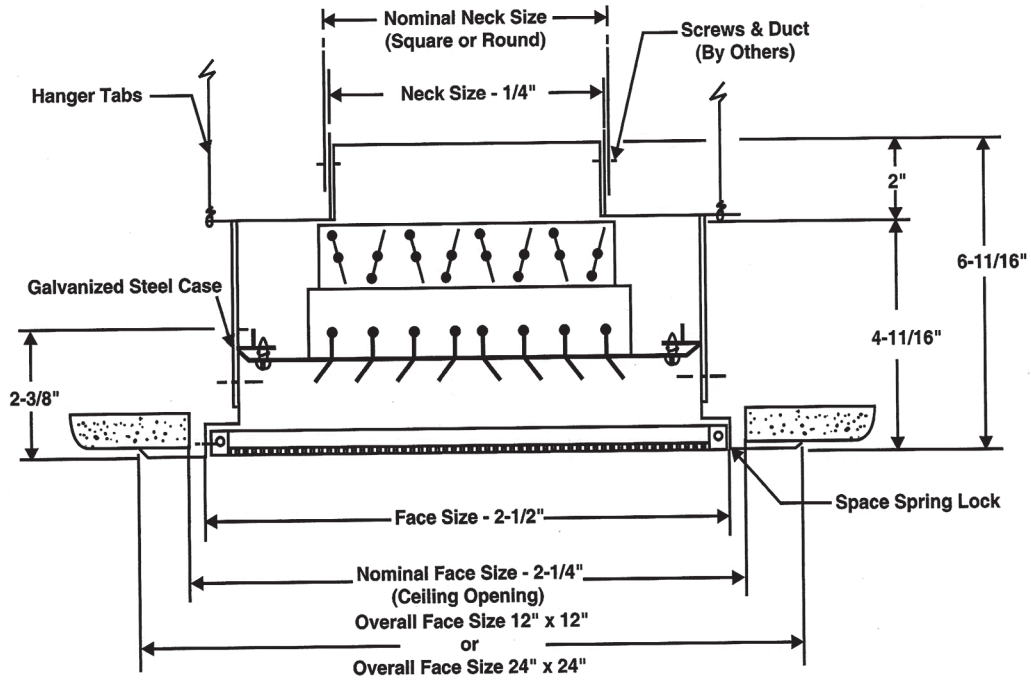
PERFORATED CEILING DIFFUSERS PERFORMANCE DATA

24" x 24" Module Size

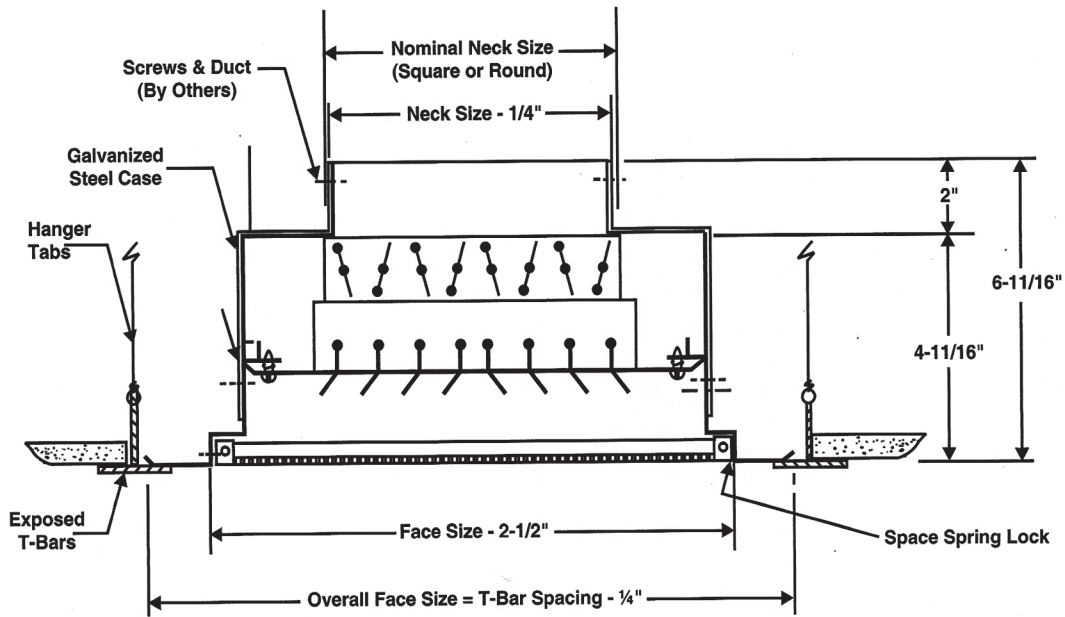
Neck Size (Inches)	Neck Area (Sq. ft.)	Neck Velocity, FPM		300	400	500	600	700	800	1000	1200	1400
		Velocity Pressure, in. W.G.		.006	.010	.016	.023	.031	.040	.063	.090	.123
6 Dia.	0.196	Total Pressure, in. W.G.		.012	.021	.033	.047	.064	.084	.131	.189	.257
		Flow Rate, CFM		58	78	98	117	137	156	196	235	274
		NC		<20	<20	<20	21	24	27	34	40	46
		Throw, Feet	4 - way	1-1	1-1	1-3	1-4	1-4	1-5	3-6	4-8	4-9
			3 - way	1-2	1-4	1-5	2-6	3-7	4-8	5-11	6-13	7-14
			2 - way	1-3	1-6	2-7	3-9	4-10	6-12	7-15	9-16	10-18
			1 - way	1-4	2-7	3-9	4-11	6-13	7-14	9-17	11-19	13-20
8 Dia.	0.348	Total Pressure, in. W.G.		.015	.027	.043	.062	.084	.110	.171	.247	.336
		Flow Rate, CFM		104	139	174	209	244	279	349	418	488
		NC		<20	<20	21	25	29	33	40	46	50
		Throw, Feet	4 - way	1-2	1-3	1-5	2-6	2-7	3-8	5-10	6-12	7-14
			3 - way	1-4	2-6	3-8	4-10	5-11	6-13	8-17	10-20	11-22
			2 - way	1-6	3-9	4-11	6-13	8-16	9-18	11-22	13-24	16-26
			1 - way	2-8	4-11	6-14	8-16	9-19	11-22	14-25	16-28	19-30
10 Dia.	0.545	Total Pressure, in. W.G.		.019	.034	.054	.077	.105	.138	.215	.310	.422
		Flow Rate, CFM		163	218	272	327	381	436	545	654	763
		NC		<20	20	25	29	33	37	45	>50	>50
		Throw, Feet	4 - way	1-3	1-5	2-7	3-8	4-10	5-11	7-14	8-17	10-20
			3 - way	1-7	3-9	5-11	7-14	8-16	9-18	11-23	14-27	16-29
			2 - way	2-9	5-12	7-15	9-19	11-22	12-25	15-31	19-33	22-36
			1 - way	3-11	7-15	9-19	11-23	13-27	15-30	19-35	23-38	27-41
12 Dia.	0.785	Total Pressure, in. W.G.		.023	.041	.065	.093	.127	.166	.259	.373	.507
		Flow Rate, CFM		235	314	392	471	549	628	785	942	1099
		NC		<20	23	28	32	36	41	48	>50	>50
		Throw, Feet	4 - way	1-5	2-7	3-9	5-11	6-13	7-14	9-18	11-22	13-26
			3 - way	2-9	5-12	7-15	9-18	10-21	12-24	15-30	18-35	21-38
			2 - way	4-12	7-16	10-20	12-24	14-28	16-32	20-40	24-43	28-47
			1 - way	6-14	9-19	12-24	14-29	17-34	19-39	24-45	29-49	32-49
14 Dia.	1.06	Total Pressure, in. W.G.		.027	.048	.075	.108	.147	.192	.299	.431	.587
		Flow Rate, CFM		318	424	530	636	742	848	1060	1272	1484
		NC		<20	25	30	34	39	44	>50	>50	>50
		Throw, Feet	4 - way	1-6	3-9	5-11	6-13	8-16	9-18	11-23	13-27	16-32
			3 - way	4-11	7-14	9-18	11-22	13-26	14-29	18-37	22-43	26-47
			2 - way	6-15	10-20	12-25	15-30	17-35	20-40	25-49	30-53	35-58
			1 - way	8-18	12-24	15-30	18-37	21-43	24-49	30-56	37-61	43-66
16 Dia.	1.39	Total Pressure, in. W.G.		.032	.056	.088	.127	.172	.225	.351	.506	.689
		Flow Rate, CFM		417	556	695	834	973	1112	1390	1668	1946
		NC		20	27	32	37	42	48	>50	>50	>50
		Throw, Feet	4 - way	1-7	4-11	7-13	8-15	10-19	11-21	13-27	15-32	19-38
			3 - way	6-13	9-16	11-21	13-26	16-31	17-34	21-44	24-51	31-56
			2 - way	8-18	13-24	14-30	18-35	20-41	24-47	30-58	36-63	41-69
			1 - way	10-21	15-28	18-35	22-44	25-52	29-59	36-60	43-72	51-79
18 Dia.	1.76	Total Pressure, in. W.G.		.038	.066	.104	.150	.204	.266	.414	.597	.813
		Flow Rate, CFM		528	704	880	1056	1232	1408	1760	2112	2464
		NC		21	29	34	40	45	>50	>50	>50	>50
		Throw, Feet	4 - way	1-8	5-13	9-15	10-17	12-22	13-24	15-31	17-37	22-44
			3 - way	8-15	11-18	13-23	15-30	19-36	20-39	24-51	28-59	36-65
			2 - way	10-21	15-28	16-35	21-40	23-46	28-54	35-67	42-73	47-80
			1 - way	12-24	18-32	21-40	26-50	29-61	34-69	42-85	49-93	60-92

- All Pressures are in inches of water.
- Throw values are given for Terminal Velocities of 100 and 50 fpm.
- NC values are based on a room absorption of 10 dB, re 10⁻¹² watts.

INSTALLATION DETAILS



SURFACE MOUTING FLAT BORDER STYLE



EXPOSED T-BAR LAY-IN STYLE