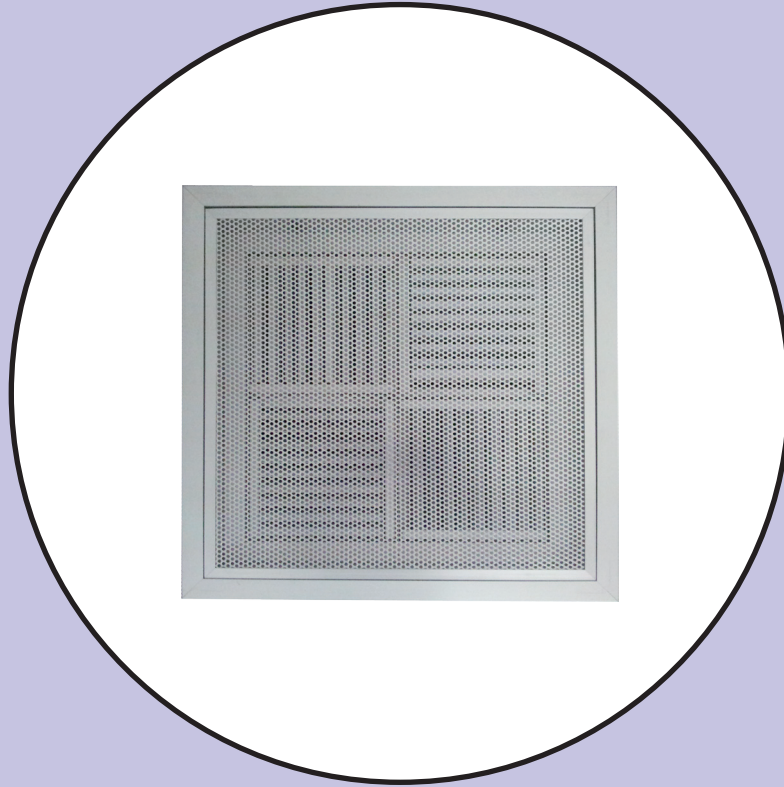


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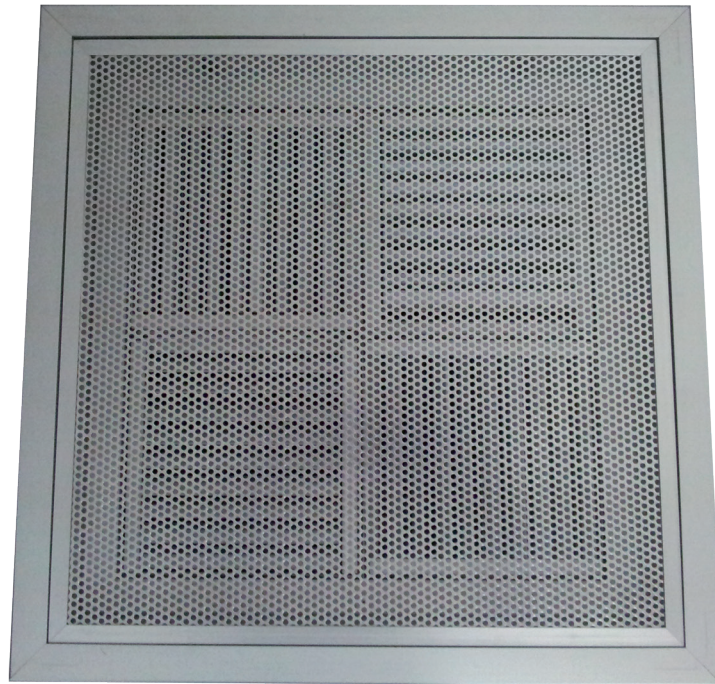
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شركة الخليج لفتحات التكييف المركزي  
GULF GRILLES CO.



PERFORATED  
MODULAR DIFFUSER

A21 PERFORATED  
MODULAR DIFFUSER



GGC standard modular perforated ceiling diffuser comprise fully adjustable air pattern deflectors (one, two, three or four way) with integral volume control damper and with round or square neck adaptors.

- Perforated face, while providing architectural advantage of blending the diffuser into the ceiling system prevent the unwanted tampering with the air pattern adjustment by act as a barrier in front of the modular core.
- The frame and blades are extruded aluminum 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, give easy access to control deflectors or dampers
- 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.
- Each of the modular core sections can easily be removed from the frame and rotated to provide one two, three way or a vertical air pattern.
- Standard finish white color for frame, blades and perforated face. Damper and adaptor in black color. Painted under electrostatic polyester powder coating system. Other colors are also available on request. The polyester powder of highest quality are used to enhance the appearance of the units.

## MODULAR CORE PERFORATED DIFFUSERS

PERFORMANCE DATA-24in x24in[610 x 610] MODULE

Inlet Size (inches)	Neck Velocity, fpm		300	400	500	600	700	800	900	1000	1200
	Velocity Pressure, in w.g		0.006	0.01	0.016	0.022	0.031	0.04	0.05	0.062	0.09
	Total Pressure, in w.g		0.028	0.047	0.075	0.103	0.146	0.188	0.235	0.291	0.423
6	Flow Rate cfm NC		59	79	98	118	137	157	177	196	236
			-	-	19	25	31	35	40	44	50
	Throw ft	4 WAY	2-3-7	3-4-8	4-5-8	4-7-9	5-7-10	6-8-11	7-8-11	7-8-12	8-9-13
		3 WAY	3-4-8	4-5-9	4-7-10	5-8-11	6-8-12	7-9-13	8-10-14	8-10-14	9-11-16
		2 WAY	4-5-10	5-7-12	6-9-13	7-10-15	8-11-16	9-12-17	10-13-18	11-13-19	12-15-21
1 WAY	4-7-13	6-9-15	7-11-17	9-13-18	10-14-20	12-15-21	13-16-23	14-17-24	15-18-26		
6x6	Flow Rate cfm NC		75	100	125	150	175	200	225	250	300
			-	-	20	26	32	37	41	45	51
	Throw ft	4 WAY	3-4-7	4-6-8	5-7-9	6-7-10	6-8-11	7-8-12	7-9-13	8-9-13	8-10-15
		3 WAY	3-5-9	4-7-10	6-8-11	7-9-12	8-10-13	8-10-14	9-11-15	9-11-16	10-12-18
		2 WAY	4-7-12	6-9-14	7-11-15	9-12-17	10-13-18	11-14-19	12-14-20	12-15-21	14-17-24
1 WAY	6-8-15	7-11-17	9-13-19	11-15-21	13-16-22	14-17-24	15-18-25	15-19-27	17-21-29		
8	Flow Rate cfm NC		105	140	175	209	244	279	314	349	419
			-	-	22	28	34	38	43	47	53
	Throw ft	4 WAY	2-4-8	3-5-10	4-6-11	5-8-12	6-9-13	7-10-14	8-11-15	8-11-16	10-12-17
		3 WAY	2-5-9	4-6-12	5-8-13	6-9-15	7-11-16	8-12-17	9-13-18	10-13-19	12-15-21
		2 WAY	3-6-12	5-8-16	7-10-18	8-12-20	9-14-21	11-16-23	12-17-24	14-18-25	16-20-28
1 WAY	4-8-15	7-10-20	8-13-22	10-15-25	12-18-27	14-20-28	15-21-30	17-22-32	20-25-35		
8x8	Flow Rate cfm NC		133	178	222	267	311	356	400	444	533
			-	-	23	29	35	40	44	48	54
	Throw ft	4 WAY	3-5-10	4-6-11	5-8-13	6-10-14	8-11-15	9-11-16	10-12-17	10-13-18	11-14-20
		3 WAY	4-6-12	5-8-14	6-10-15	8-12-17	9-13-18	10-14-19	12-14-20	12-15-21	14-17-24
		2 WAY	5-8-15	7-10-18	9-13-20	10-16-22	12-17-24	14-18-26	16-19-27	17-20-29	18-22-31
1 WAY	6-10-19	9-13-23	11-16-25	13-19-28	15-21-30	17-23-32	19-24-34	21-25-36	23-28-39		
10	Flow Rate cfm NC		164	218	273	327	382	436	491	545	654
			-	16	24	30	36	41	45	49	55
	Throw ft	4 WAY	2-5-9	4-6-12	5-8-14	6-9-15	7-11-17	8-12-18	9-13-19	10-14-20	12-15-22
		3 WAY	3-5-11	5-7-14	6-9-17	7-11-18	8-13-20	10-14-21	11-16-23	12-17-24	14-18-26
		2 WAY	3-7-14	6-10-19	8-12-22	10-14-25	11-17-27	13-19-28	14-21-30	16-22-32	19-25-35
1 WAY	4-9-18	8-12-24	10-15-28	12-18-31	14-21-33	16-24-35	18-27-38	20-28-40	24-31-43		
10x10	Flow Rate cfm NC		208	278	347	417	486	556	625	694	833
			-	17	25	32	37	42	46	50	57
	Throw ft	4 WAY	4-6-11	5-8-14	6-10-16	8-12-17	9-13-19	10-14-20	11-15-21	13-16-22	14-17-24
		3 WAY	4-7-14	6-9-17	8-11-19	9-14-21	11-16-22	12-17-24	14-18-25	15-19-27	17-21-29
		2 WAY	6-9-18	8-12-23	10-15-25	12-18-28	14-21-30	16-23-32	18-24-34	20-25-36	23-28-39
1 WAY	7-11-23	10-15-28	13-19-32	15-23-35	18-26-37	20-28-40	23-30-42	26-32-45	28-35-49		
12	Flow Rate cfm NC		236	314	393	471	550	628	707	785	942
			-	18	26	32	38	43	47	51	57
	Throw ft	4 WAY	2-5-11	4-7-14	6-9-17	7-11-18	8-12-20	9-14-21	11-16-23	12-17-24	14-18-26
		3 WAY	3-6-13	5-8-17	7-11-20	8-13-22	10-15-24	11-17-26	13-19-27	14-20-29	17-22-31
		2 WAY	4-8-17	7-11-22	9-14-27	11-17-29	13-20-32	15-22-34	17-25-36	19-27-38	22-29-42
1 WAY	5-11-21	9-14-28	12-18-34	14-21-37	16-25-40	19-28-43	21-32-45	23-34-48	28-37-52		
12x12	Flow Rate cfm NC		300	400	500	600	700	800	900	1000	1200
			-	19	27	34	39	44	48	52	59
	Throw ft	4 WAY	4-7-13	6-9-17	7-11-19	9-13-21	10-16-22	12-7-24	13-18-25	15-19-27	17-21-29
		3 WAY	5-8-16	7-11-20	9-13-23	11-16-25	13-19-27	14-20-29	16-22-31	18-23-32	20-25-35
		2 WAY	6-11-21	10-14-27	12-18-30	14-21-33	17-25-36	19-27-38	21-29-41	24-30-43	27-33-47
1 WAY	8-13-27	12-18-34	15-22-38	18-27-42	21-31-45	24-34-48	27-36-51	30-38-54	34-42-59		

## MODULAR CORE PERFORATED DIFFUSERS

14	Flow Rate cfm NC		321 -	428 19	535 27	641 34	748 39	855 44	962 49	1069 52	1283 59
		4 WAY	3-6-12	5-8-16	7-10-20	8-12-21	9-14-23	11-16-25	12-18-26	13-20-28	16-21-30
	Throw ft	3 WAY	3-7-15	6-10-19	8-12-24	10-15-26	11-17-28	13-19-30	15-22-32	16-24-33	19-26-36
		2 WAY	4-10-19	8-13-26	11-16-31	13-19-34	15-23-37	17-26-40	19-29-42	22-31-44	26-34-49
		1 WAY	5-12-24	10-16-32	13-20-39	16-24-43	19-28-46	22-32-50	24-36-53	27-39-55	32-43-61
14x14	Flow Rate cfm NC		408 -	544 21	681 29	817 35	953 41	1089 46	1225 50	1361 54	1633 60
		4 WAY	4-8-15	7-10-20	9-13-22	10-15-24	12-18-26	14-20-28	15-21-31	17-22-31	20-24-34
	Throw ft	3 WAY	5-9-18	8-12-24	10-15-27	12-19-29	14-22-31	16-24-34	19-25-36	21-27-38	24-29-41
		2 WAY	7-12-25	11-16-32	14-21-35	16-25-39	19-29-42	22-32-45	25-34-48	27-35-50	32-39-55
		1 WAY	9-15-31	14-21-40	17-26-44	21-31-49	24-36-52	27-40-56	31-42-59	34-44-63	40-48-69
15	Flow Rate cfm NC		368 -	491 20	614 28	736 35	859 40	982 45	1104 49	1227 53	1473 60
		4 WAY	3-6-13	5-9-17	7-11-21	9-13-23	10-15-25	11-17-27	13-19-28	14-21-30	17-23-33
	Throw ft	3 WAY	3-8-15	6-10-21	9-13-25	10-15-28	12-18-30	14-21-32	15-23-34	17-25-36	21-28-39
		2 WAY	5-10-21	8-14-28	11-17-34	14-21-37	16-24-40	18-28-43	21-31-45	23-34-48	28-37-52
		1 WAY	6-13-26	10-17-34	14-22-42	17-26-46	20-30-50	23-34-53	26-39-56	29-42-59	34-46-65
15x15	Flow Rate cfm NC		469 -	625 21	781 29	938 36	1094 41	1250 46	1406 51	1563 54	1875 61
		4 WAY	5-8-16	7-11-21	9-14-24	11-16-26	13-19-28	15-21-30	16-22-32	18-24-34	21-26-37
	Throw ft	3 WAY	5-10-20	9-13-25	11-16-28	13-20-31	15-23-34	18-25-36	20-27-38	22-28-40	25-31-44
		2 WAY	7-13-26	12-18-34	15-22-38	18-26-42	20-31-45	23-34-48	26-36-51	29-38-54	24-42-59
		1 WAY	9-16-33	15-22-42	18-27-47	22-33-52	26-38-56	29-42-60	33-45-64	37-47-67	42-52-73
16	Flow Rate cfm NC		419 -	559 21	698 29	838 35	977 41	1117 46	1257 50	1396 54	1676 60
		4 WAY	3-7-14	5-9-18	8-11-22	9-14-25	11-16-27	12-18-28	14-21-30	15-22-32	18-25-35
	Throw ft	3 WAY	4-8-16	6-11-22	9-14-27	11-16-29	13-19-32	15-22-34	16-25-36	18-27-38	22-29-42
		2 WAY	5-11-22	8-15-29	12-18-36	15-22-39	17-26-42	20-29-45	22-33-48	24-36-51	29-39-56
		1 WAY	6-13-27	11-18-37	15-23-45	18-27-49	21-32-53	24-37-57	27-41-60	30-45-63	37-49-69
16x16	Flow Rate cfm NC		533 -	711 22	889 30	1067 37	1244 42	1422 47	1600 51	1778 55	2133 62
		4 WAY	5-9-17	8-12-23	10-15-25	12-17-28	14-20-30	16-23-32	17-24-34	19-25-36	23-28-39
	Throw ft	3 WAY	6-10-21	9-14-27	12-17-30	14-21-33	16-24-36	19-27-38	21-29-41	23-30-43	27-33-47
		2 WAY	8-14-28	12-19-36	16-23-40	19-28-44	22-33-48	25-36-51	28-38-54	31-40-57	36-44-63
		1 WAY	10-17-35	16-23-45	19-29-51	23-35-55	27-41-60	31-45-64	35-48-68	39-51-72	45-55-78
18	Flow Rate cfm NC		533 -	707 22	884 30	1060 37	1237 42	1414 47	1590 51	1767 55	2121 62
		4 WAY	3-7-15	6-10-20	9-13-25	10-15-28	12-18-30	14-20-32	15-23-34	17-25-36	20-28-39
	Throw ft	3 WAY	4-9-18	7-12-25	10-15-30	12-18-33	14-21-36	16-25-38	18-28-41	20-30-43	25-33-47
		2 WAY	5-12-25	9-16-33	14-20-40	16-25-44	19-29-48	22-33-51	25-37-54	27-40-57	33-44-63
		1 WAY	7-15-31	12-20-41	17-26-50	20-31-55	24-36-60	27-41-64	31-48-68	34-50-71	41-55-78
18x18	Flow Rate cfm NC		675 -	900 23	1125 31	1350 38	1575 43	1800 48	2025 52	2250 56	2700 63
		4 WAY	5-10-20	9-13-25	11-16-28	13-20-31	15-23-34	17-25-36	20-27-38	22-28-40	25-31-44
	Throw ft	3 WAY	6-12-23	10-16-31	13-20-34	16-23-37	18-27-40	21-31-43	23-32-46	26-34-48	31-37-53
		2 WAY	8-16-31	14-21-41	17-26-46	21-31-50	24-36-54	28-41-58	31-43-61	35-46-64	41-50-71
		1 WAY	11-20-39	17-26-51	22-33-57	26-39-62	30-46-67	35-51-72	39-54-76	43-57-80	51-62-88

## MODULAR CORE PERFORATED DIFFUSERS

**PERFORMANCE DATA-12 in x 12 in ( 305 mm x 305 mm)**

INLET SIZE	Neck Velocity, fpm		300	400	500	600	700	800	900	1000	1200
	Velocity Pressure, in w.g		0.006	0.01	0.016	0.022	0.031	0.04	0.05	0.062	0.09
	Total Pressure, in w.g		0.036	0.06	0.096	0.132	0.186	0.24	0.3	0.372	0.54
6	Flow Rate cfm NC		59	79	98	118	137	157	177	196	236
			-	-	19	25	31	35	40	44	50
	Throw ft	4 WAY	2-3-7	3-4-9	4-5-10	4-7-11	5-8-12	6-9-13	7-10-14	7-10-15	9-11-16
		3 WAY	3-4-8	4-5-11	4-7-12	5-8-14	6-9-15	7-10-16	8-12-17	9-12-18	11-14-19
		2 WAY	4-5-11	5-7-14	6-9-17	7-11-18	8-12-20	9-14-21	11-16-22	12-17-23	14-18-26
1 WAY	4-7-13	6-9-18	7-11-21	9-13-23	10-15-24	12-17-26	13-20-28	15-21-29	18-23-32		
6x6	Flow Rate cfm NC		75	100	125	150	175	200	225	250	300
			-	-	20	26	32	37	41	45	51
	Throw ft	4 WAY	3-4-8	4-6-10	5-7-12	6-8-13	7-10-14	7-10-15	8-11-16	9-12-17	10-13-18
		3 WAY	3-5-10	4-7-13	6-8-14	7-10-15	8-12-17	9-13-18	10-13-19	11-14-20	13-15-22
		2 WAY	4-7-13	6-9-17	7-11-19	9-13-21	10-16-22	12-17-24	13-18-25	15-19-26	17-21-29
1 WAY	6-8-17	7-11-21	9-14-23	11-17-26	13-20-28	15-21-30	17-22-31	19-23-33	21-26-36		
8	Flow Rate cfm NC		105	140	172	209	244	279	314	349	419
			-	-	22	28	34	38	43	47	53
	Throw ft	4 WAY	2-4-8	3-5-10	4-6-12	5-8-13	6-9-14	7-10-15	8-11-16	8-12-17	10-13-18
		3 WAY	2-5-9	4-6-12	5-8-14	6-9-15	7-11-17	8-12-18	9-13-19	10-14-20	12-15-22
		2 WAY	3-6-12	5-8-16	7-10-19	8-12-21	9-14-22	11-16-24	12-18-25	14-19-27	16-21-29
1 WAY	4-8-15	7-10-20	8-13-24	10-15-26	12-18-28	14-20-30	15-22-32	17-24-33	20-26-36		
8x8	Flow Rate cfm NC		133	178	222	267	311	356	400	444	533
			-	-	23	29	35	40	44	48	54
	Throw ft	4 WAY	3-5-10	4-6-12	5-8-13	6-10-15	8-11-16	9-12-17	10-13-18	11-13-19	12-15-21
		3 WAY	4-6-12	5-8-14	6-10-16	8-12-17	9-13-19	10-14-20	12-15-21	13-16-23	14-17-25
		2 WAY	5-8-15	7-10-19	9-13-21	10-16-23	12-18-25	14-19-27	16-20-29	17-21-30	19-23-33
1 WAY	6-10-19	9-13-24	11-16-27	13-19-29	15-22-31	17-24-34	19-25-36	22-27-38	24-29-41		

Notes: Throw values are measured in feet for terminal velocities of 150 fpm (minimum) , 100 fpm ( middle) and 50 fpm ( maximum)

Throw data is based on supply air and room air at isothermal conditions

NC values are based on room absorption 10 dB re 10<sup>-12</sup> Watts and one diffuser

Blanks indicate an NC level below 15