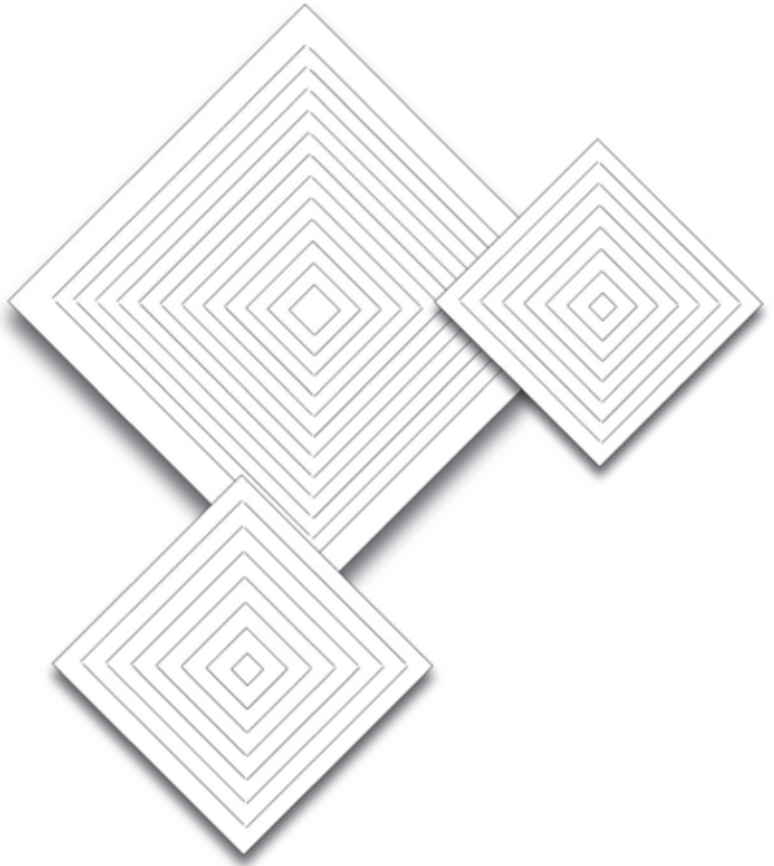


WE SHAPE AIR



BETA
industrial
PRODUCTS CATALOGUE

PRODUCT BULLETIN

3

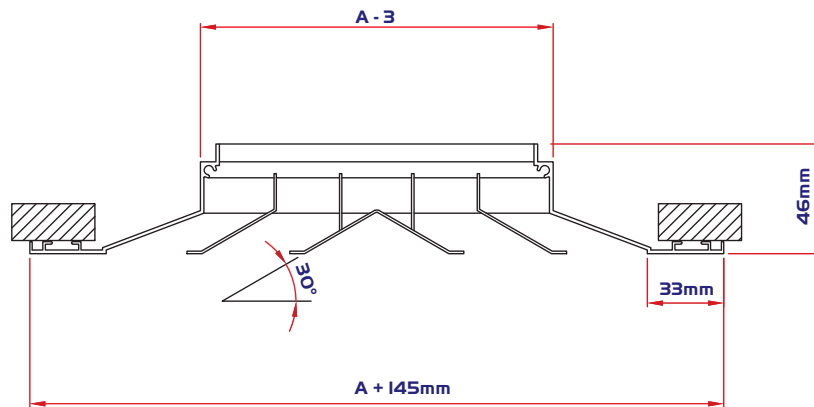




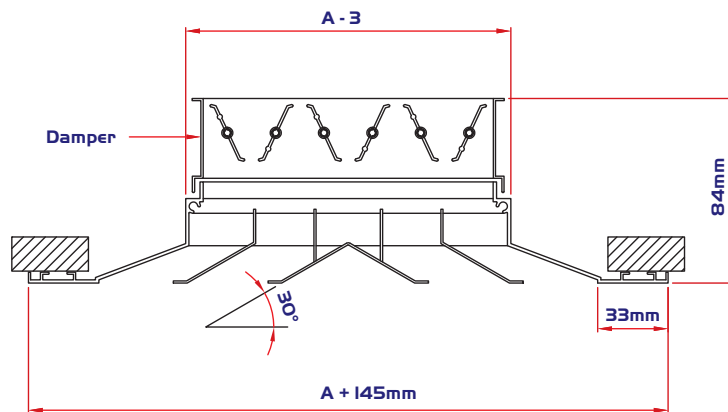
BETA
i n d u s t r i a l

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- >> **MULTI PATTERN CEILING DIFFUSERS** 1-4
 - >> **PERFORATED CEILING DIFFUSERS** 5
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TYPE: 4W RAD



TYPE: 4W SAD

- >> Flush mounted with different pattern arrangements. Available in both square and rectangular shapes.
- >> Core is available in one way, two way, three way and four way discharge.
- >> Core is fixed to the frame by the action of spring loaded pins, It is easily removable to allow for maximum flexibility in installation, maintenance, damper adjustment and pattern exchange.





CEILING DIFFUSERS

- >> Stainless steel clips are fixed at the frame corners to assure maximum tightness and rigidity for the diffuser construction.
- >> Insulating gasket is fixed on request around the back of the frame to prevent infiltration between the frame and the ceiling.
- >> Available with easily removable opposed blade damper, attached to the frame by means of stainless steel (S) shape clips to ensure tight attachment with maximum flexibility.
- >> The ceiling diffuser may be used as a supply air diffuser or as a return air diffuser according to the application designed for both types can be supplied with a damper to control the static pressure loss and the air volume flow rate.

Finishing:

- Powder coated to RAL 9010/9016 (Standard) or other RAL codes.
- Natural anodized aluminium finish

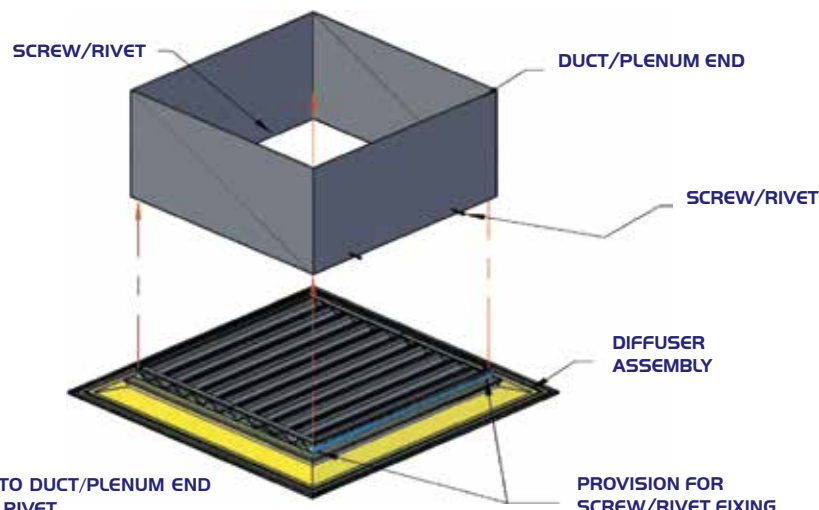
SQUARE



RECTANGULAR



FIXING



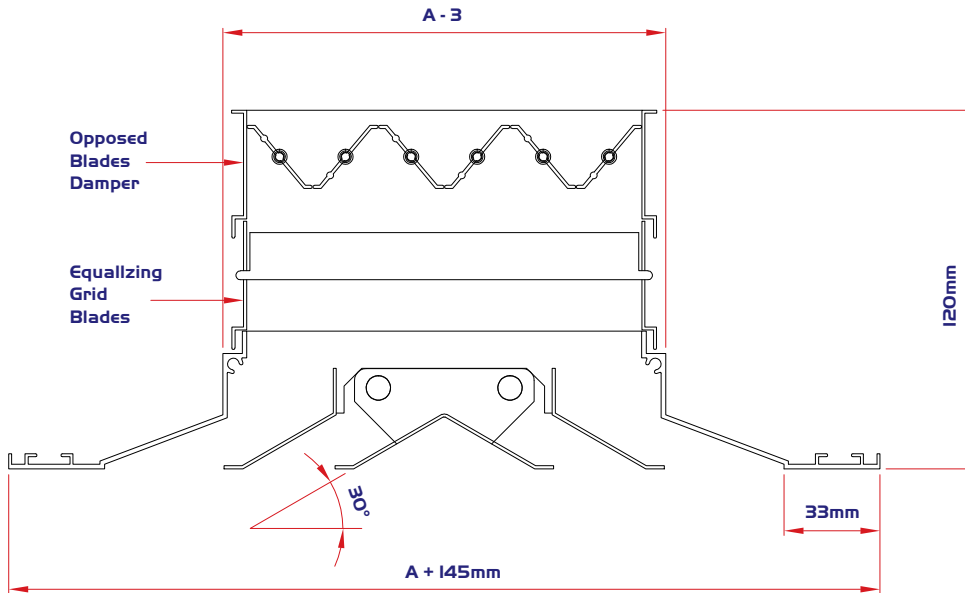
INSTALLATION:
STEP 1 - INSERT THE DIFFUSER INTO DUCT/PLENUM END
STEP 2 - TIGHTEN THE SCREW OR RIVET



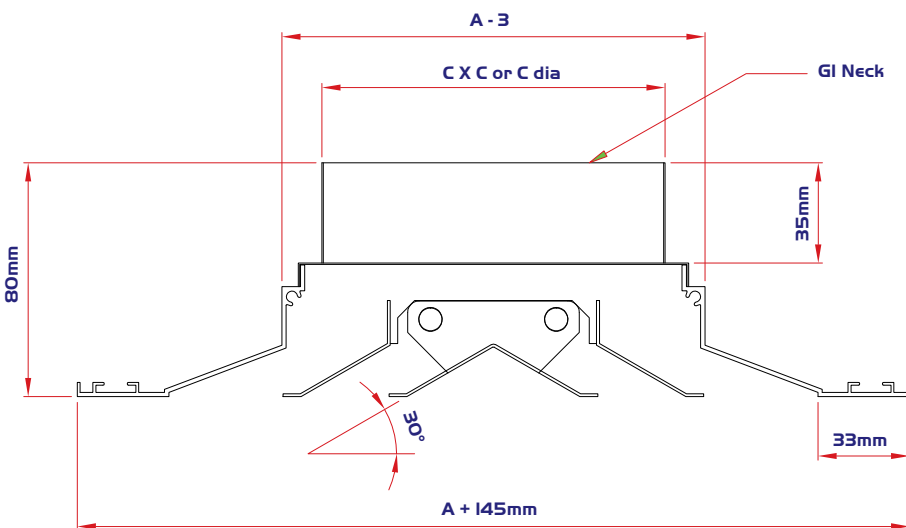


OPTIONS

1 - EQUALIZING GRID (-EG) SAD - EG

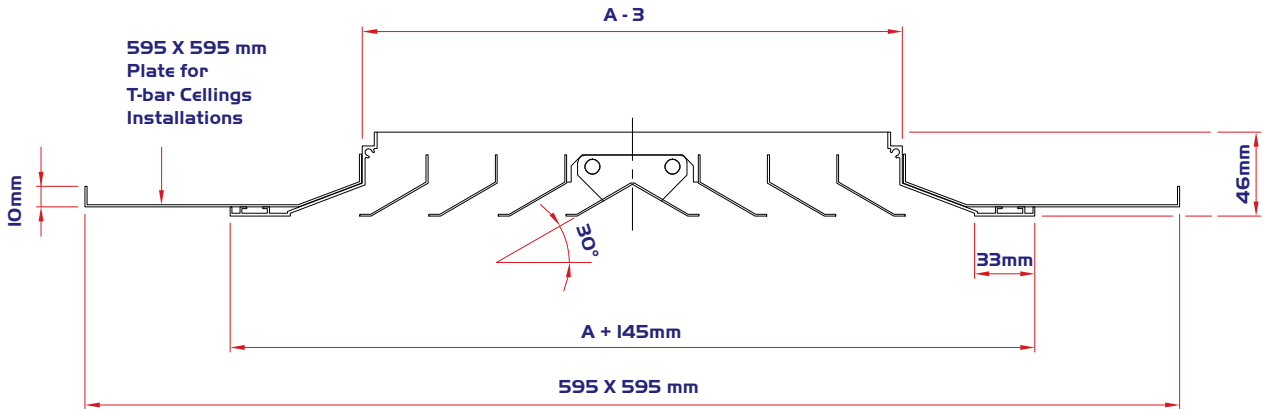


2 - G.I. NECK (-GN) RAD - GN





3 - 595 X 595 MM FACE PLATE FOR T-BAR CEILINGS (-TB) RAD - TB



Ordering Key:

4	W	S	A	D	B	3	O	O	X	3	O	O	E	G	-
4W: 4 WAY (STANDARD) 3W: 3 WAY 2W: 2 WAY 1W: 1 WAY															
SAD: WITH OPPOSED BLADES DAMPER (OBD) RAD: WITHOUT OPPOSED BLADES DAMPER (OBD)															
M: MILL FINISH OBD (STANDARD) B: BLACK OBD															
STANDARD SQUARE NECK SIZES: 150X150, 225X225, 300X300, 375X375, 450X450, 525X525 & 600X600MM STANDARD RECTANGULAR NECK SIZES: ANY COMBINATION OF 150, 225, 300, 375, 450, 525 & 600MM															
OPTIONAL ACCESSORIES: EG: EQUALIZING GRID GN: GI NECK TB: 595X595MM FACE FOR T-BAR INSTALLATIONS GI NECK SIZE (FOR ABOVE GN OPTION ONLY)															

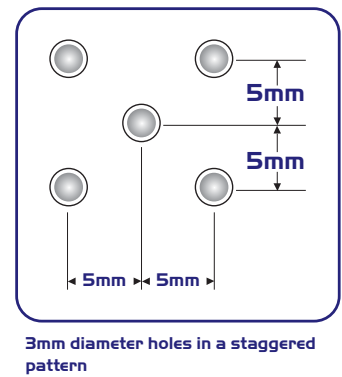
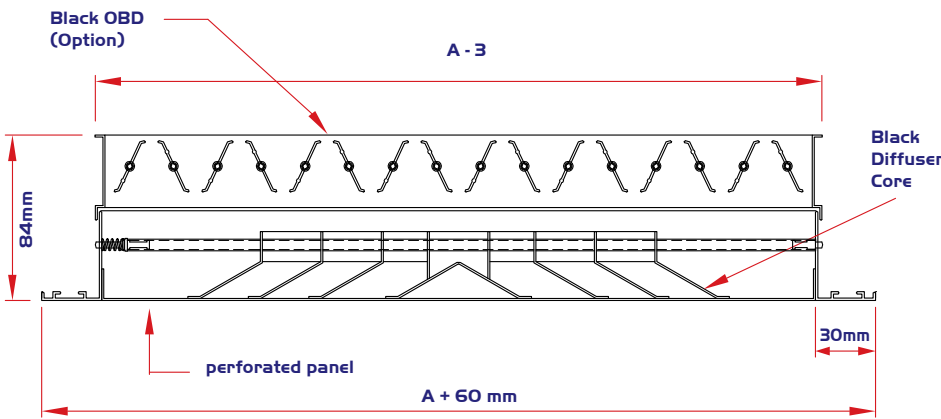
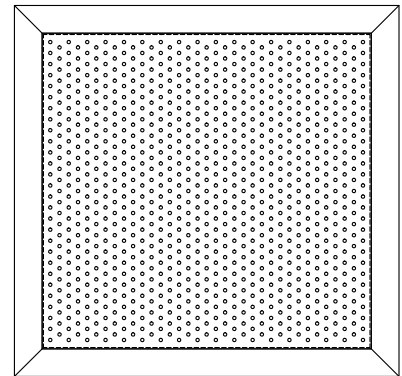
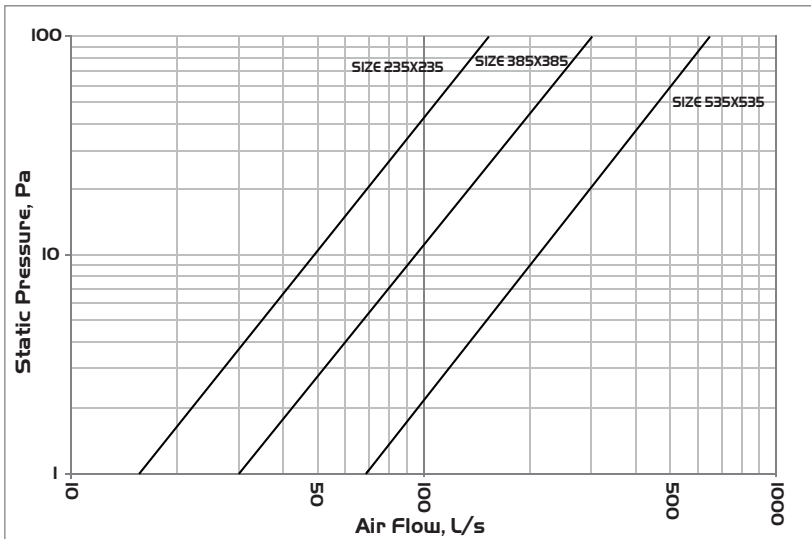




PERFORATED DIFFUSER WITH BLACK 4-WAY CORE - MODEL P4W

Description:

- Ceiling-mounted.
- 3mm dia. Perforated sheet removable face with 30mm flange powder coated to RAL 9010/9016.
- With black 4-way core blades.
- Black Opposed Blades Damper (OBD) as option.



Ordering Key:

P	4	W	B	5	3	5	X	5	3	5
PERFORATED 4-WAY										
- : WITHOUT OBD										
B: WITH BLACK OBD										
M: WITH MILL FINISH OBD										
NECK SIZE: 535X535MM, 385X385MM OR 235X235MM										



**PRODUCTS TESTING >>**

The following tables include the results of tests conducted on three square ceiling diffusers. The test results include noise criteria (NC) static pressure versus airflow, throw and Ak. The diffusers were selected and supplied by Beta in 1991. The extrapolations and interpolations were made to cover a full range of sizes and parameters according to ETL Testing Laboratories Inc. who made the tests.

**TEST METHOD >>**

The air diffusers were tested in accordance with the Air Diffusion Council test code for grilles, registers and diffusers No. ADC IO62:GRD-84. The test was conducted in ETL Testing Laboratories Inc.

The diffusers were installed in the ADC facility and supplied with measured volume of air. The static pressure was measured (1-1.5) duct diameter upstream of the diffuser inlet.

Acoustical data was obtained employing a Bruel and Kjaer digital frequency analyzer and analyzed by computer.

Sound power levels were plotted on a graph of Noise Criteria Curves which are in the ADC codes.





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*SI UNITS

SIZE	An	Ak	Vn	1.016	1.270	1.524	1.778	2.032	2.540	3.048	3.556	4.064
150X150	L/S		24	29	35	41	47	59	71	83	94	
	Pt	0.009	0.330	0.508	0.711	0.991	1.295	2.007	3.658	3.962	5.029	
	Th		0.9-1.2-2.4	1.2-1.8-3.3	1.2-2.1-3.6	1.5-2.4-3.9	1.8-2.7-4.2	2.1-3.3-4.8	2.7-3.6-5.1	3.0-3.9-5.4	3.3-4.2-5.7	
	NC		<15	<15	<15	<15	<15	<15	19	24	29	33
225X150	L/S		35	44	53	62	71	88	106	124	142	
	Pt	0.014	0.330	0.508	0.711	0.991	1.295	2.032	3.658	4.978	6.502	
	Th		1.2-1.8-3.3	1.5-2.1-3.9	1.8-2.4-4.2	2.1-3.0-4.8	2.4-3.3-5.1	3.0-3.9-6.0	3.6-4.5-6.6	4.2-5.1-7.2	4.5-5.4-7.5	
	NC		<15	<15	<15	<15	<15	<15	20	26	30	34
300X150	L/S		47	59	71	83	94	118	142	165	189	
	Pt	0.018	0.330	0.508	0.737	1.016	1.321	2.057	3.658	4.978	6.502	
	Th		1.5-2.1-4.2	1.8-2.7-4.5	2.1-3.0-4.8	2.4-3.3-5.4	2.7-3.6-5.7	3.3-4.2-6.6	3.9-4.8-7.2	4.5-5.4-7.8	5.1-6.0-8.4	
	NC		<15	<15	<15	<15	<15	<15	21	27	31	35
225X225	L/S		53	66	80	93	106	133	159	186	213	
	Pt	0.020	0.330	0.508	0.737	1.016	1.321	2.057	2.972	4.064	5.283	
	Th		1.5-2.1-4.2	1.8-2.7-4.8	2.1-3.3-5.4	2.4-3.6-6.0	3.0-4.2-6.3	3.3-4.8-6.9	4.2-5.4-7.8	4.8-6.0-8.4	5.1-6.3-9.3	
	NC		<15	<15	<15	<15	16	22	28	33	37	
375X150	L/S		59	74	88	103	118	147	177	206	236	
	Pt	0.022	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502	
	Th		1.5-2.4-4.2	1.8-2.7-4.8	2.1-3.3-5.7	2.7-3.9-6.3	3.3-4.5-6.9	3.9-5.1-7.5	4.5-5.7-8.1	5.1-6.3-8.7	6.0-7.2-9.9	
	NC		<15	<15	<15	<15	15	22	28	32	36	
450X150	L/S		71	88	106	124	142	177	212	248	283	
	Pt	0.026	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502	
	Th		1.8-2.7-4.5	2.1-3.3-5.7	2.4-3.6-6.0	3.0-4.2-6.6	3.6-4.8-7.5	4.2-5.4-8.1	4.8-6.0-9.0	5.4-6.9-9.9	6.3-7.8-11.1	
	NC		<15	<15	<15	<15	16	23	29	33	37	
300X225	L/S		71	88	106	124	142	177	212	248	283	
	Pt	0.026	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502	
	Th		1.8-2.7-4.5	2.1-3.3-5.7	2.4-3.6-6.0	3.0-4.2-6.6	3.6-4.8-7.5	4.2-5.4-8.1	4.8-6.0-9.0	5.4-6.9-9.9	6.3-7.8-11.1	
	NC		<15	<15	<15	<15	16	23	29	33	37	
525X150	L/S		83	103	124	145	165	206	248	289	330	
	Pt	0.031	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502	
	Th		1.8-2.7-4.8	2.1-3.3-6.0	3.0-3.9-6.9	3.3-4.5-7.5	3.6-4.8-8.1	4.2-5.4-8.7	5.1-6.0-9.3	5.7-6.9-10.2	6.3-7.8-11.1	
	NC		<15	<15	<15	<15	16	23	29	33	37	





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*SI UNITS

SIZE	An	Ak	Vn	1.016	1.270	1.524	1.778	2.032	2.540	3.048	3.556	4.064
375x225	L/S	0.033	L/S	89	111	133	155	177	221	266	310	354
	Pt	0.033	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.033	Th	1.8-2.7-4.5	2.4-3.0-5.7	3.7-3.9-6.9	3.3-4.5-7.2	3.6-5.1-7.8	7.2-5.7-8.7	5.1-6.3-9.6	5.7-6.9-10.5	6.6-7.8-11.4
	NC	0.033	NC	<15	15	17	20	24	30	34	38	42
300x300	L/S	0.033	L/S	94	118	142	165	189	236	283	330	378
	Pt	0.033	Pt	0.356	0.533	0.787	1.067	1.397	2.159	3.150	4.242	5.563
	Th	0.033	Th	1.8-2.7-5.4	2.1-3.3-6.3	2.7-3.9-7.2	3.3-4.8-7.8	3.6-5.4-8.1	4.5-6.3-9.0	5.4-7.2-9.9	6.3-7.8-10.8	6.9-8.1-11.4
	NC	0.033	NC	<15	<15	<15	16	19	25	32	36	40
600x150	L/S	0.033	L/S	94	118	142	165	189	236	283	330	378
	Pt	0.033	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.033	Th	1.7-2.8-5.5	2.7-3.6-6.6	3.0-4.2-7.5	3.6-4.8-8.1	3.9-5.7-8.4	4.8-6.6-9.3	5.7-7.5-10.2	6.6-8.1-11.1	7.2-8.4-11.7
	NC	0.033	NC	<15	<15	<15	<15	17	24	30	34	38
450x225	L/S	0.039	L/S	106	133	159	186	212	265	319	372	425
	Pt	0.039	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.039	Th	2.4-3.3-6.0	2.7-3.6-6.9	3.0-4.2-7.5	3.6-5.1-7.8	4.2-6.0-9.0	5.1-6.9-9.6	6.0-7.5-10.5	6.6-8.1-11.1	7.2-8.7-12
	NC	0.039	NC	<15	<15	<15	15	18	25	31	35	39
375x300	L/S	0.043	L/S	118	147	177	206	236	295	354	413	472
	Pt	0.043	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.043	Th	2.4-3.3-6.6	2.7-3.9-6.9	3.0-4.5-7.5	3.6-5.4-8.1	4.5-6.3-9.0	5.4-6.9-9.9	6.3-7.8-10.5	6.9-8.4-11.1	7.5-9.3-12.6
	NC	0.043	NC	<15	<15	<15	15	19	26	32	36	40
525x225	L/S	0.045	L/S	124	155	186	217	248	310	372	434	496
	Pt	0.045	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.045	Th	2.4-3.0-6.0	2.7-3.6-6.6	3.0-4.8-7.5	3.6-5.7-8.1	4.2-6.0-8.7	5.1-6.6-9.3	6.0-7.5-9.9	6.9-8.4-11.1	7.2-9.0-12.9
	NC	0.045	NC	<15	<15	<15	15	18	25	31	35	39
600x225	L/S	0.052	L/S	142	177	212	248	283	354	425	496	566
	Pt	0.052	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.052	Th	2.4-3.0-6.0	2.7-4.2-6.9	3.3-5.1-7.5	3.9-5.7-8.1	4.5-6.0-8.7	5.4-6.9-9.3	6.3-7.5-10.2	6.9-8.7-11.1	7.5-9.0-12.9
	NC	0.052	NC	<15	<15	<15	15	19	26	32	36	40
450x300	L/S	0.052	L/S	142	177	212	248	283	354	425	496	566
	Pt	0.052	Pt	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th	0.052	Th	2.4-3.0-6.0	2.7-3.9-6.6	3.3-4.8-7.2	3.6-5.4-7.8	4.2-5.7-8.4	5.1-6.6-9.0	6.0-7.2-9.9	6.9-8.4-10.8	7.2-8.7-12.3
	NC	0.052	NC	<15	<15	<15	15	20	27	33	37	41





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*SI UNITS

SIZE	An	Ak	Vn	1.016	1.270	1.524	1.778	2.032	2.540	3.048	3.556	4.064
375x375	L/S			148	184	221	258	295	369	443	516	590
	Pt	0.054		0.356	0.559	0.813	1.092	1.422	2.210	3.200	4.369	5.715
	Th			2.4-3.6-6.9	3.0-4.2-8.1	3.6-5.1-9.0	3.9-5.7-9.9	4.8-6.9-10.2	5.7-8.1-11.4	6.9-9.0-12.9	7.8-9.6-13.8	8.4-10.2-15
	NC			<15	<15	17	23	28	35	41	45	49
525x300	L/S			165	206	248	289	330	413	496	578	661
	Pt	0.060		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.4-3.6-7.5	3.0-4.5-8.4	3.6-5.4-9.3	4.5-6.6-9.6	5.1-7.5-10.5	6.3-8.4-12.3	7.5-9.3-13.2	8.1-9.9-14.4	9.0-10.8-15.6
	NC			<15	<15	<15	15	20	27	33	37	41
450x375	L/S			177	221	265	310	354	442	531	619	708
	Pt	0.064		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.4-3.3-7.2	3.0-4.8-8.7	3.9-5.7-9.3	4.5-6.9-9.9	5.1-7.2-10.2	6.6-8.7-12.6	7.5-9.3-13.5	8.4-10.2-15	9.3-11.1-16.2
	NC			<15	<15	<15	17	21	28	34	38	42
600x300	L/S			189	236	283	330	378	472	566	661	755
	Pt	0.068		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.4-3.3-7.2	3.4-4.8-8.7	3.9-6.0-9.3	4.5-6.9-9.9	5.7-7.8-11.4	6.9-8.7-12.9	7.8-9.6-14.1	8.4-10.5-15.3	9.0-11.4-16.8
	NC			<15	<15	<15	17	21	28	34	38	42
525x375	L/S			207	258	310	361	413	516	620	723	826
	Pt	0.074		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.7-3.9-7.8	3.3-5.1-8.7	3.9-6.3-9.3	4.8-7.2-10.5	6.0-8.1-12.0	7.2-9.0-13.2	7.8-9.9-14.4	8.4-10.8-15.9	9.3-11.7-17.7
	NC			<15	<15	<15	17	21	28	34	38	42
450x450	L/S			212	265	319	372	425	531	637	743	849
	Pt	0.073		0.381	0.584	0.838	1.143	1.473	2.311	3.353	4.521	5.969
	Th			2.7-4.2-8.1	3.3-5.1-9.6	4.2-6.0-10.5	4.8-6.9-11.7	5.7-8.1-12.3	6.6-9.6-13.5	8.1-10.5-15.3	9.3-11.4-16.2	12.3-16.2-17.7
	NC			<15	18	22	27	34	39	44	48	53
600x375	L/S			236	295	354	413	472	590	708	826	944
	Pt	0.084		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.7-4.5-8.7	3.6-5.4-9.9	4.2-6.3-10.8	5.4-7.8-11.7	6.0-8.7-12.6	7.2-9.9-14.1	9.0-11.1-15.9	12.0-15.6-17.1	12.9-16.5-18.3
	NC			<15	<15	<15	18	22	29	35	39	43
525x450	L/S			248	310	372	434	496	619	743	867	991
	Pt	0.088		0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			2.4-4.2-7.8	3.6-5.4-9.9	4.2-6.0-10.5	5.4-8.1-12.0	5.7-8.4-12.6	6.9-9.3-13.5	8.7-10.8-15.0	12.0-15.3-17.1	13.5-16.8-18.9
	NC			<15	<15	<15	18	22	29	36	39	43





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*SI UNITS

SIZE	An	Ak	Vn	1.016	1.270	1.524	1.778	2.032	2.540	3.048	3.556	4.064
600x450	L/S			283	354	425	496	566	708	849	991	1133
	Pt	0.279	0.101	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			3.3-4.8-9.3	3.9-6.0-10.8	4.8-7.2-12.3	5.7-8.1-13.5	6.6-9.6-14.1	8.4-11.1-15.6	9.9-12.6-17.7	11.4-13.8-18.3	12.3-14.7-20.4
	NC			<15	<15	<15	19	23	30	36	40	44
525x525	L/S			289	361	434	506	578	723	867	1012	1156
	Pt	0.285	0.099	0.381	0.610	0.864	1.168	1.524	2.413	3.454	4.724	6.121
	Th			3.3-4.6-9.3	3.9-6.0-11.1	4.8-7.2-12.3	5.7-8.1-13.5	6.6-9.6-14.1	7.8-11.1-15.9	9.6-12.6-17.7	10.8-13.2-18.9	11.7-14.1-20.7
	NC			16	20	25	31	37	42	47	51	55
600x525	L/S			330	413	496	578	661	826	991	1156	1321
	Pt	0.325	0.117	0.395	0.616	0.914	1.205	1.651	2.515	3.658	4.978	6.502
	Th			3.3-5.1-9.9	4.2-6.6-11.7	5.4-7.8-12.6	6.3-9.0-13.5	6.9-10.2-14.7	8.7-11.7-16.8	10.5-12.6-18.0	11.4-13.5-19.8	12.3-14.7-21.6
	NC			<15	<15	15	18	24	31	37	41	45
600x600	L/S			378	472	566	661	755	944	1133	1321	1510
	Pt	0.372	0.130	0.381	0.610	0.889	1.194	1.549	2.413	3.505	4.775	6.223
	Th			3.6-5.7-10.8	4.5-6.9-12.9	5.4-8.1-14.1	6.3-9.3-15.6	7.5-11.1-16.2	9.0-12.9-18.0	11.1-14.1-20.1	12.3-15.3-21.6	13.5-16.2-23.7
	NC			18	23	29	34	40	45	50	53	57

SYMBOLS

L/S : Air volume in litre per second
 Ak : Effective area in square meter
 An : Neck area in square meter
 Vn : Neck velocity in meter per second
 Pt : Total pressure in mm water gauge
 Th : Throw in meter
 NC : Noise Criteria

CONDITIONS

* Supply..
 * Damper is fully open.
 * Noise Criteria values are based on (10 dB) room attenuation

NOTES

* The large throw values are based on the minimum terminal velocity of 0.25 m/sec.
 * The middle throw values are based on the middle terminal velocity of 0.5 m/sec.
 * The small throw values are based on the maximum terminal velocity of 0.75 m/sec.
 * For Rectangular Diffusers- throw values mentioned are for the longer side of the diffuser- for shorter sides throw values are 0.7-0.75 of the mentioned ones.

CORRECTION FOR 1-2 AND 3 WAY

* Noise Criteria : No correction required.
 * Pressure : No correction required.
 * Throw : 3 way - increase from 10 - 20%
 2 way - increase from 20 - 30%
 1 way - increase from 40 - 50%
 * Drop : No correction required.





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - RETURN

*SI UNITS

SIZE	An	Vn	1.5	2	2.5	3	3.6	4.1
150 x 150	0.023	L/S	35	47	59	71	83	94
		Ps	1.270	2.032	3.032	4.572	6.350	8.128
		NC	<15	17	25	31	36	41
225 x 150	0.035	L/S	53	71	88	106	124	142
		Ps	1.524	2.540	3.810	5.588	7.620	9.906
		NC	<15	19	28	33	38	44
300 x 150	0.046	L/S	71	94	118	142	165	189
		Ps	1.524	2.540	3.810	5.588	7.620	9.906
		NC	<15	21	29	34	40	45
225 x 225	0.052	L/S	79	106	132	159	185	211
		Ps	1.524	2.540	3.810	5.588	7.620	9.906
		NC	<15	22	30	36	41	46
375 x 150	0.058	L/S	88	118	147	177	206	236
		Ps	1.524	2.626	3.986	5.764	7.881	10.253
		NC	<15	23	31	36	42	46
450 x 150	0.070	L/S	106	142	177	212	248	283
		Ps	1.524	2.793	4.320	6.098	8.383	10.922
		NC	15	24	32	37	43	47
300 x 225	0.070	L/S	106	142	177	212	248	283
		Ps	1.524	2.793	4.320	6.098	8.382	10.922
		NC	15	24	32	37	43	47
525 x 150	0.081	L/S	124	165	206	248	289	330
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	16	25	33	38	44	48
375 x 225	0.087	L/S	133	177	221	266	310	354
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	16	26	33	38	45	48
300 x 300	0.093	L/S	142	189	236	283	330	378
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	16	26	33	39	45	49
600 x 150	0.093	L/S	159	212	265	319	372	425
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	17	27	34	40	46	50
450 x 225	0.105	L/S	177	236	295	354	413	472
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	17	27	34	40	46	50
375 x 300	0.116	L/S	186	248	310	372	434	496
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	18	27	35	41	46	51
525 x 225	0.122	L/S	212	283	354	425	495	566
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	19	28	36	42	47	52
600 x 225	0.139	L/S	212	283	354	425	495	566
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	19	28	36	42	47	52
450 x 300	0.139	L/S	212	283	354	425	495	566
		Ps	1.524	2.794	4.318	6.096	8.382	10.922
		NC	19	28	36	42	47	52



*SI UNITS

SIZE	An	Vn	1.5	2	2.5	3	3.6	4.1
375 x 375	L/S	221	294	368	442	515	589	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	19	28	36	42	47	52	
525 x 300	L/S	248	330	413	495	578	661	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	20	29	37	42	48	53	
450 x 375	L/S	265	354	442	531	619	708	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	20	29	37	43	49	53	
600 x 300	L/S	283	378	472	566	661	755	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	21	30	37	43	49	53	
525 x 375	L/S	310	413	516	620	723	826	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	21	31	38	44	50	54	
450 x 450	L/S	319	425	531	637	743	849	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	21	31	38	44	50	54	
600 x 375	L/S	354	472	590	708	826	944	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	22	32	39	45	51	55	
525 x 450	L/S	372	495	619	743	867	991	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	22	32	39	45	51	55	
600 x 450	L/S	425	566	708	849	991	1133	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	23	33	40	46	52	56	
525 x 525	L/S	433	578	722	866	1011	1155	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	23	33	40	46	52	56	
600 x 525	L/S	495	661	826	991	1156	1321	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	24	34	41	47	53	57	
600 x 600	L/S	566	755	944	1133	1321	1510	
	Ps	1.524	2.794	4.318	6.096	8.382	10.922	
	NC	24	34	42	48	53	58	

SYMBOLS

L/S : Air volume in Litre per second

*An : Neck area in meter squared

*Vn : Neck velocity in meter per second

*Ps : Negative static pressure in mm water gauge

*Nc : Noise Criteria

CONDITIONS

* Return

* Damper is fully open.

* Noise Criteria is based on (10dB) room attenuation.



CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*IMPERIAL UNITS

SIZE	An	Ak	Vn	200	250	300	350	400	500	600	700	800
6 X 6	0.250	0.096	CFM	50	63	75	88	100	125	150	175	200
			Pt	0.013	0.020	0.028	0.039	0.051	0.079	0.144	0.156	0.198
			Th	3-4-8	4-6-11	4-7-12	5-8-13	6-9-14	7-11-16	9-12-17	10-13-18	11-14-19
			NC	<15	<15	<15	<15	<15	<15	19	24	29
9 X 6	0.375	0.146	CFM	75	93	112	131	150	187	225	262	300
			Pt	0.013	0.020	0.028	0.039	0.051	0.080	0.144	0.196	0.256
			Th	4-6-11	5-7-13	6-8-14	7-10-16	8-11-17	10-13-20	12-15-22	14-17-24	15-18-25
			NC	<15	<15	<15	<15	<15	20	26	30	34
12 X 6	0.500	0.192	CFM	100	125	150	175	200	250	300	350	400
			Pt	0.013	0.020	0.029	0.040	0.052	0.081	0.144	0.196	0.256
			Th	5-7-14	6-9-15	7-10-16	8-11-18	9-12-19	11-14-22	13-16-24	15-18-26	17-20-28
			NC	<15	<15	<15	<15	<15	21	27	31	35
9 X 9	0.563	0.210	CFM	110	140	170	195	225	280	335	395	450
			Pt	0.013	0.020	0.029	0.040	0.052	0.081	0.117	0.160	0.208
			Th	5-7-14	6-9-16	7-11-18	8-12-20	10-14-21	11-16-23	14-18-26	16-20-28	17-21-31
			NC	<15	<15	<15	<15	16	22	28	33	37
15 X 6	0.625	0.239	CFM	125	156	188	219	250	312	375	438	500
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	5-8-14	6-9-16	7-11-19	9-13-21	11-15-23	13-17-25	15-19-27	17-21-29	20-24-33
			NC	<15	<15	<15	<15	15	22	28	32	36
18 X 6	0.750	0.284	CFM	150	188	225	263	300	375	450	525	600
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	6-9-15	7-11-19	8-12-20	10-14-22	12-16-25	14-18-27	16-20-30	18-23-33	21-26-37
			NC	<15	<15	<15	<15	16	23	29	33	37
12 X 9	0.750	0.284	CFM	150	188	225	263	300	375	450	525	600
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	6-9-15	7-11-19	8-12-20	10-14-22	12-16-25	14-18-27	16-20-30	18-23-33	21-26-37
			NC	<15	<15	<15	<15	16	23	29	33	37
21 X 6	0.875	0.330	CFM	175	218	262	306	350	437	525	612	700
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	6-9-16	7-11-20	10-13-23	11-15-25	12-16-27	14-18-29	17-20-31	19-23-34	21-26-37
			NC	<15	<15	<15	<15	16	23	29	33	37
15 X 9	0.938	0.353	CFM	188	235	281	328	375	469	563	657	750
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	6-9-15	8-10-19	9-13-23	11-15-24	12-17-26	14-19-29	17-21-32	19-23-35	22-26-38
			NC	<15	15	17	20	24	30	34	38	42
12 X 12	1.000	0.353	CFM	200	250	300	350	400	500	600	700	800
			Pt	0.014	0.021	0.031	0.042	0.055	0.085	0.124	0.167	0.219
			Th	6-9-18	7-11-21	9-13-24	11-16-26	12-18-27	15-21-30	18-24-33	21-26-36	23-27-38
			NC	<15	<15	<15	16	19	25	32	36	40





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*IMPERIAL UNITS

SIZE	An	Ak	Vn	200	250	300	350	400	500	600	700	800
24 X 6	1.000	0.358	CFM	200	250	300	350	400	500	600	700	800
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	7-10-19	9-12-22	10-14-25	12-16-27	13-19-28	16-22-31	19-25-34	22-27-37	24-28-39
			NC	<15	<15	<15	<15	17	24	30	34	38
18 X 9	1.125	0.420	CFM	226	282	337	393	450	562	675	768	900
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-11-20	9-12-23	10-14-25	12-17-26	14-20-30	17-23-32	20-25-35	22-27-37	24-29-40
			NC	<15	<15	<15	15	18	25	31	35	39
15 X 12	1.250	0.465	CFM	250	313	375	438	500	625	750	875	1000
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-11-22	9-13-23	10-15-25	12-18-27	15-21-30	18-23-33	21-26-35	23-28-37	25-31-42
			NC	<15	<15	<15	15	19	26	32	36	40
21 X 9	1.313	0.488	CFM	262	327	393	458	524	655	786	917	1050
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-10-20	9-12-22	10-16-25	12-19-27	14-20-29	17-22-31	20-25-33	23-28-37	24-30-43
			NC	<15	<15	<15	15	18	25	31	35	39
24 X 9	1.500	0.555	CFM	300	375	450	525	600	750	900	1050	1200
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-10-20	9-14-23	11-17-25	13-19-27	15-20-29	18-23-31	21-25-34	23-29-37	25-30-43
			NC	<15	<15	<15	15	19	26	32	36	40
18 X 12	1.500	0.555	CFM	305	380	458	530	600	750	900	1050	1200
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-10-20	9-13-22	11-16-24	12-18-26	14-19-28	17-22-30	20-24-33	23-28-36	24-29-41
			NC	<15	<15	<15	15	20	27	33	37	41
15 X 15	1.563	0.577	CFM	310	390	470	545	625	780	940	1090	1250
			Pt	0.014	0.022	0.032	0.043	0.056	0.087	0.126	0.172	0.225
			Th	8-12-23	10-14-27	12-17-30	13-19-33	16-23-34	19-27-38	23-30-43	26-32-46	28-34-50
			NC	<15	<15	17	23	28	35	41	45	49
21 X 12	1.750	0.644	CFM	350	438	525	613	700	875	1050	1225	1400
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-12-25	10-15-28	12-18-31	15-22-32	17-25-35	21-28-41	25-31-44	27-33-48	30-36-52
			NC	<15	<15	<15	15	20	27	33	37	41
18 X 15	1.875	0.688	CFM	375	468	562	656	750	937	1125	1312	1500
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-11-24	10-16-29	13-19-31	15-23-33	17-24-34	22-29-42	25-31-45	28-34-50	31-37-54
			NC	<15	<15	<15	17	21	28	34	38	42
24 X 12	2.000	0.732	CFM	400	500	600	700	800	1000	1200	1400	1600
			Pt	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256
			Th	8-11-24	11-16-29	13-20-31	15-23-33	19-26-38	23-29-43	26-32-47	28-35-51	30-38-56
			NC	<15	<15	<15	17	21	28	34	38	42





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - SUPPLY

*IMPERIAL UNITS

SIZE	An	Ak	Vn	200	250	300	350	400	500	600	700	800
21X15	CFM		436	546	655	765	875	1092	1312	1532	1750	
	Pt	0.799	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256	
	Th		9-13-26	11-17-29	13-21-31	16-24-35	20-27-40	24-30-44	28-33-48	31-39-59		
	NC		<15	<15	<15	17	21	28	34	38	42	
18X18	CFM		450	560	675	785	900	1125	1350	1575	1800	
	Pt	0.785	0.015	0.023	0.033	0.045	0.058	0.091	0.132	0.178	0.235	
	Th		9-14-27	11-17-32	14-20-35	16-23-39	19-27-41	22-32-45	27-35-51	31-38-54	41-54-59	
	NC		<15	18	22	27	34	39	44	48	53	
24X15	CFM		500	625	750	875	1000	1250	1500	1750	2000	
	Pt	0.908	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256	
	Th		9-15-29	12-18-33	14-21-36	18-26-39	20-29-42	24-33-47	30-37-53	40-52-57	43-55-61	
	NC		<15	<15	<15	18	22	29	35	39	43	
21X18	CFM		526	657	787	918	1050	1310	1570	1830	2090	
	Pt	0.952	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256	
	Th		8-14-26	12-18-33	14-20-35	18-27-40	19-28-42	23-31-45	29-36-50	40-51-57	45-56-63	
	NC		<15	<15	<15	18	22	29	36	39	43	
24X18	CFM		600	750	900	1050	1200	1500	1800	2100	2400	
	Pt	1.083	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256	
	Th		11-16-31	13-20-36	16-24-41	19-27-45	22-32-47	28-37-52	33-42-59	38-46-61	41-49-68	
	NC		<15	<15	<15	19	23	30	36	40	44	
21X21	CFM		610	765	920	1070	1225	1530	1835	2140	2450	
	Pt	1.065	0.015	0.024	0.034	0.046	0.060	0.095	0.136	0.186	0.241	
	Th		11-16-31	13-20-37	16-24-41	19-27-45	22-32-47	26-37-53	32-41-59	36-44-63	39-47-69	
	NC		16	20	25	31	37	42	47	51	55	
24X21	CFM		700	875	1050	1225	1400	1750	2100	2450	2800	
	Pt	1.256	0.016	0.024	0.036	0.047	0.065	0.099	0.144	0.196	0.256	
	Th		11-17-33	14-22-39	18-26-42	21-30-45	23-34-49	29-39-56	35-42-60	38-45-66	41-49-72	
	NC		<15	<15	15	18	24	31	37	41	45	
24X24	CFM		800	1000	1200	1400	1600	2000	2400	2800	3200	
	Pt	1.400	0.015	0.024	0.035	0.047	0.061	0.095	0.138	0.188	0.245	
	Th		12-19-36	15-23-43	18-27-47	21-31-52	25-37-54	30-43-60	37-47-67	41-51-72	45-54-79	
	NC		18	23	29	34	40	45	50	53	57	

SYMBOLS	CONDITIONS	NOTES	CORRECTION FOR 1-2 AND 3 WAY
CFM : Air volume in cubic foot per minute. Ak : Effective area in square foot. An : Neck area in square foot. Vn : Neck velocity in foot per minute. Pt : Total pressure in inch water gauge. Th : Throw in feet. NC : Noise Criteria.	* Supply. * Damper is fully open * Noise Criteria values are based on (10dB) room attenuation.	* The large throw values are based on the minimum terminal velocity of 50 fpm. * The middle throw values are based on the middle terminal velocity of 100 fpm. * The small throw values are based on the maximum terminal velocity of 150fpm. * For Rectangular Diffusers - throw values mentioned are for the longer side of the diffuser - for shorter sides throw values are 0.7-0.75 of the mentioned ones.	* Criteria : No correction required. * Pressure : No correction required. * Throw : 3 way - increase from 10 - 20% 2 way - increase from 20 - 30% 1 way - increase from 40 - 50% * Drop : No correction required.





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - RETURN

*IMPERIAL UNITS

SIZE	An	Vn	300	400	500	600	700	800
6 X 6	0.250	CFM	75	100	125	150	175	200
		Ps	0.050	0.080	0.130	0.180	0.250	0.320
		NC	<15	17	25	31	36	41
9 X 6	0.375	CFM	113	150	188	225	263	300
		Ps	0.060	0.100	0.150	0.220	0.300	0.390
		NC	<15	19	28	33	38	44
12 X 6	0.500	CFM	150	200	250	300	350	400
		Ps	0.060	0.100	0.150	0.220	0.300	0.390
		NC	<15	21	29	34	40	45
9 X 9	0.563	CFM	168	224	280	336	392	448
		Ps	0.060	0.100	0.150	0.220	0.300	0.390
		NC	<15	22	30	36	41	46
15 X 6	0.625	CFM	188	250	313	375	438	500
		Ps	0.060	0.103	0.157	0.227	0.310	0.404
		NC	<15	23	31	36	42	46
18 X 6	0.750	CFM	225	300	375	450	525	600
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	15	24	32	37	43	47
12 X 9	0.750	CFM	225	300	375	450	525	600
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	15	24	32	37	43	47
21 X 6	0.875	CFM	263	350	438	525	613	700
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	16	25	33	38	44	48
15 X 9	0.938	CFM	281	375	469	563	657	750
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	16	26	33	38	45	48
12 X 12	1.000	CFM	300	400	500	600	700	800
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	16	26	33	39	45	49
24 X 6	1.000	CFM	338	450	563	675	788	900
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	17	27	34	40	46	50
18 X 9	1.125	CFM	375	500	625	750	875	1000
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	17	27	34	40	46	50
15 X 12	1.250	CFM	394	525	657	788	919	1050
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	18	27	35	41	46	51
21 X 9	1.313	CFM	450	600	750	900	1050	1200
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	19	28	36	42	47	52
24 X 9	1.500	CFM	450	600	750	900	1050	1200
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	19	28	36	42	47	52
18 X 12	1.500	CFM	450	600	750	900	1050	1200
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	19	28	36	42	47	52





CEILING DIFFUSERS 4WSAD-4WRAD

PERFORMANCE DATA - RETURN

*IMPERIAL UNITS

SIZE	An	Vn	300	400	500	600	700	800
15 X 15	1.563	CFM	468	624	780	936	1092	1248
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	19	28	36	42	47	52
21 X 12	1.750	CFM	525	700	875	1050	1225	1400
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	20	29	37	42	48	53
18 X 15	1.875	CFM	563	750	938	1125	1313	1500
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	20	29	37	43	49	53
24 X 12	2.000	CFM	600	800	1000	1200	1400	1600
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	21	30	37	43	49	53
21 X 15	2.188	CFM	656	875	1094	1313	1532	1750
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	21	31	38	44	50	54
18 X 18	2.250	CFM	675	900	1125	1350	1575	1800
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	21	31	38	44	50	54
24 X 15	2.500	CFM	750	1000	1250	1500	1750	2000
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	22	32	39	45	51	55
21 X 18	2.625	CFM	788	1050	1313	1575	1838	2100
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	22	32	39	45	51	55
24 X 18	3.000	CFM	900	1200	1500	1800	2100	2400
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	23	33	40	46	52	56
21 X 21	3.063	CFM	918	1224	1530	1836	2142	2448
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	23	33	40	46	52	56
24 X 21	3.500	CFM	1050	1400	1750	2100	2450	2800
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	24	34	41	47	53	57
24 X 24	4.000	CFM	1200	1600	2000	2400	2800	3200
		Ps	0.060	0.110	0.170	0.240	0.330	0.430
		NC	24	34	42	48	53	58

SYMBOLS

CFM : Air volume in cubic foot per minute.
 An : Neck area in foot squared.
 Vn : Neck velocity in foot per minute.
 Ps : Negative static pressure in inch water gauge.
 NC : Noise Criteria.

CONDITIONS

* Return.
 * Damper is fully open.
 * Noise Criteria is based on (10dB) room attenuation.





NOTES :

A series of horizontal dashed red lines for taking notes.





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A series of horizontal dashed red lines for taking notes.





BETA

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