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TECHNICAL DATA SHEET // AIR OUTLETS

Square Ceiling Diffuser – 4-Way

ديفيوزر سقف مربع – 4 اتجاهات

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DOCUMENT

6 pages, extracted from:
Technical Submittal - Air Outlet, p. 11–15
Revision 01 · October 2026

CONTACT · REQUEST A QUOTE

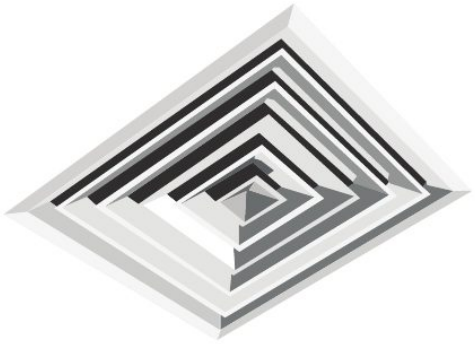
Phone / WhatsApp: +974 7097 0111 Email: hvac@tawreed.ltd
Factory: Zone 91, Street 3138, Building 66, Birkat Al Awamer, Qatar
Web: tawreed.ltd Hours: Sat–Thu, 9am–5pm

Data supplied for submittal and specification purposes. Values are nominal;
confirm project-specific requirements with Tawreed before ordering.

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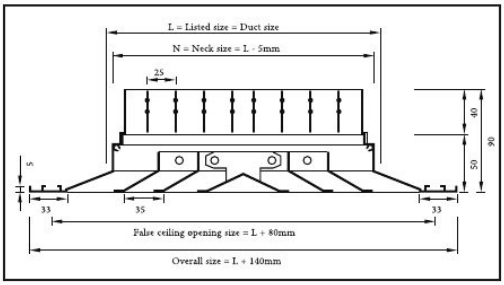
SUPPLY AIR SQUARE CEILING DIFFUSER FOUR Way Throw

CONSTRUCTION:
Frame and core: High quality extruded aluminium profile with 33 mm flange width. Damper frame and core: High quality extruded aluminium profile with natural aluminium finish. Black matt finish as option. Optional diffuser frame: Stamped aluminium core.

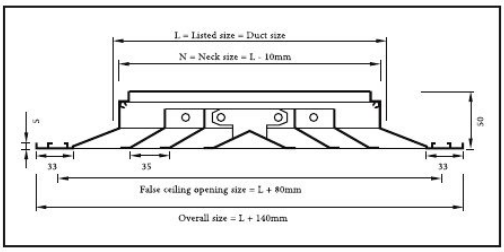


Description:

- The frame and blades are of high quality extuded aluminium profiled construction with the advantages of corrosion resistance and rigidity.
- Diffusers shall be coned type with each cone manufactured by extruded aluminium louvered profiles or one piece die formed aluminium construction – arranged in concentric cones to deflect air equally in four directions.
- Louvered type core is fixed to the frame with aluminium pins loaded with steel springs. Core can be easily removable and interchangeable to allow for maximum flexibility in installation, maintenance and damper adjustment.
- Damper is fixed rigidly to the frame by aluminium rivets. Fixing by spring clips as option.
- Damper blades are separated from its frame by nylon bushes.
- Opposed blade damper is screw operated from the face opening of the diffuser after removing the internal core. Lever operated damper as option.
- Discharge air equally in four horizontal directions.
- Foam gasket is sealed around the back of the frame as option to avoid air leakage.
- Available in rectangular sizes as option. Suitable for flush mounting in lay in type ceiling.



Model ACD4:
Same as ACD+4D, but without opposed blade damper and foam gasket. Suitable for return air applications.



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STANDARD FINISHES, SIZES, FIXING DETAILS & PRODUCT SUMMARY

Standard finishes:

- Natural aluminium anodized finish.
- Powder coated colour finish as per RAL colour codes.
- Flexibility of finishing is available as option.

Standard sizes:

- Available in square and rectangular sizes
- Any combination of W x D.

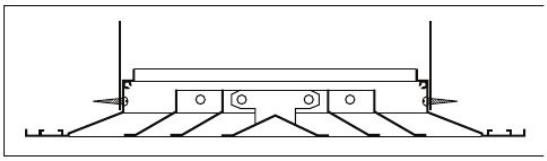
W = width in mm	150	225	300	375	450	525	600
D = Depth in mm	150	225	300	375	450	525	600

False ceiling sizes:

Duct size in mm x mm	150 x 150	225 x 225	300 x 300	375 x 375	450 x 450	525 x 525	600 x 600
False ceiling opening size	230 x 230	305 x 305	380 x 380	455 x 455	530 x 530	605 x 605	605 x 605

Fixing details:

- Concealed screw fixing from neck of the diffuser to the duct, after removing the inner core.



Product summary:

Model Number	Product Description	Remarks
ACD+1D	Supply Air Diffuser – 1 way	• With damper • Optional accessories • Filter • Equalizing grid • Plenum (chapter 15)
ACD+2D	Supply Air Diffuser – 2 way	
ACD2C+D	Supply Air Diffuser – 2 way corner	
ACD+3D	Supply Air Diffuser – 3 way	
ACD+4D	Supply Air Diffuser – 4 way	
ACD+4D(AS)	Supply Air Diffuser – Anti smudge	
ACD4R+D	Supply Air Diffuser – rectangular	
ACD1	Return Air Diffuser – 1 way	• Without damper • Without foam gasket • Optional accessories • Filter
ACD2	Return Air Diffuser – 2 way	
ACD2C	Return Air Diffuser – 2 way corner	
ACD3	Return Air Diffuser – 3 way	
ACD4	Return Air Diffuser – 4 way	
ACD4(AS)	Return Air Diffuser – Anti smudge	
ACD4R	Return Air Diffuser – rectangular	
ACCD	Combined Ceiling Diffuser	
ACDM	Ceiling Tile Replacement Diffuser	
ACBD	Curved Blade Adjustable Diffuser	
ASD-A	Swirl Diffuser – Adjustable	
ASD-F	Swirl Diffuser – Fixed	

Product order checklist:

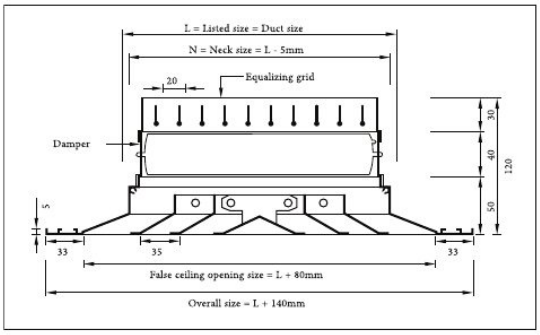
- Model number (please refer product summary).
- Size.
- Colour (RAL 9010, 9016, Anodized aluminium finish or other RAL Colours)
- Quantity.
- Optional accessories.

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DIFFUSER ACCESSORIS

1. EQUALIZING GRID:

- Equalizing grid is fixed to the damper by rivets.
- Equalizing grid is manufactured from high quality aluminium profiles with aerofoil blades connected by plastic bushes. Finish will be same as damper.



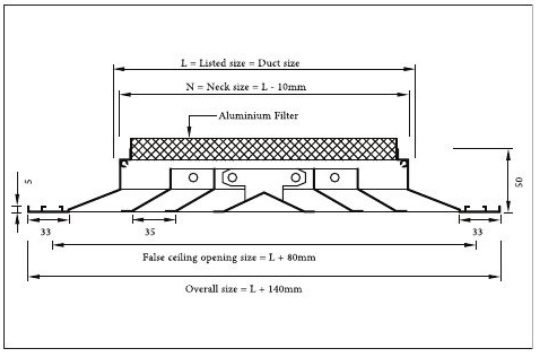
- his assembly will provide uniform air distribution over the neck of the diffuser, which ensures reduction in pressure drop, noise and trubulence.
- To order, mention model from Product summary + E.



2. FILTERS:

- Ceiling diffusers available with removable type washable aluminium filters with aluminium mesh as the filter media.
- Fabricated from 1 mm thick aluminium sheet with aluminium mesh as the filter media.
- Filter frame is screw fixed to the diffuser.
- Generally available in 40 ,25 ,12 and 50 mm thickness as standard.
- Structure will have high dust holding capacity and low resistance to air flow.
- Other insulating materials available as option.

To order, mention model from product summary + F.



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SUPPLY AIR SQUARE CEILING DIFFUSER Four Way Throw

Table 6.4 Air flow data

Neck size in mm x mm Area factor in m^2	Neck vel in m/sec	1.0	1.5	2.0	2.5	3.0	3.5
150 x 150 0.0093	Cfm	47	72	95	119	144	167
	M^3/sec.	0.023	0.034	0.045	0.056	0.068	0.079
	- P_s in mm H_2O	0.51	0.76	1.52	2.54	3.56	4.57
	Throw in m	2.4-1.8-1.2	3.1-2.4-1.8	3.7-3.1-2.4	4-3.4-2.7	4.6-3.7-3.1	4.9-4.3-3.4
	NC	<15	16	21	27	34	39
225 x 225 0.0169	Cfm	108	161	214	269	322	375
	M^3/sec.	0.051	0.076	0.101	0.127	0.152	0.177
	- P_s in mm H_2O	0.51	1.00	2.03	3.05	4.32	5.84
	Throw in m	2.4-1.8-1.2	3.4-2.4-1.8	4.3-3.1-2.4	5.5-4.3-3.1	7.3-5.5-4	9.1-6.7-5.5
	NC	<15	17	24	30	36	41
300 x 300 0.028	Cfm	191	286	381	476	572	667
	M^3/sec.	0.09	0.135	0.18	0.225	0.27	0.315
	- P_s in mm H_2O	0.51	1.27	2.29	3.81	5.33	7.37
	Throw in m	4.9-3.1-2.1	6.1-4.3-3.1	7.3-4.9-4.0	7.9-5.8-4.6	9.1-5.8-4.9	9.8-6.7-5.5
	NC	<15	17	26	33	38	43
375 x 375 0.043	Cfm	299	447	595	745	893	1042
	M^3/sec.	0.141	0.211	0.281	0.352	0.422	0.492
	- P_s in mm H_2O	0.76	1.52	2.54	4.06	5.84	8.13
	Throw in m	5.5-3.7-2.4	7.6-5.5-4.0	8.8-6.1-5.2	10.1-7-5.8	11.3-7.6-6.1	12.2-8.2-6.7
	NC	<15	18	28	35	40	44
450 x 450 0.065	Cfm	430	644	858	1071	1287	1501
	M^3/sec.	0.203	0.304	0.405	0.506	0.608	0.709
	- P_s in mm H_2O	0.76	1.52	2.79	4.57	6.6	9.14
	Throw in m	7.6-4.6-3.1	9.1-6.4-4.6	10.7-7.6-5.6	12.2-8.5-6.7	13.4-9.2-7.6	14-10.1-8.2
	NC	<15	20	30	36	41	44
525 x 525 0.093	Cfm	585	875	1165	1461	1757	2033
	M^3/sec.	0.276	0.413	0.55	0.69	0.83	0.96
	- P_s in mm H_2O	0.76	1.78	3.05	4.83	6.86	8.39
	Throw in m	8.5-5.2-3.7	11-7.6-5.2	12.5-8.5-7.0	14-9.8-7.9	15.9-11-8.5	16.8-11.6-9.5
	NC	15	23	32	37	42	45
600 x 600 0.13	Cfm	762	1143	1524	1906	2287	2668
	M^3/sec.	0.36	0.54	0.72	0.9	1.08	1.26
	- P_s in mm H_2O	0.76	1.78	3.05	4.83	6.86	8.39
	Throw in m	10.4-5.8-4	12.2-8-5.8	14.3-10-7.6	16.1-11.3-8.5	18-12.5-9.4	19.5-13.4-10
	NC	16	26	33	38	42	45

- Neck velocity is measured in m/sec.
- P_s: Static pressure loss across the diffuser in mm of H_2O.
- Throw (meters) is measured for terminal velocities of 0.75, 0.5 & 0.25 m/sec.
- Noise criteria (NC) based on a room attenuation of 10 dB.

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RETURN AIR SQUARE CEILING DIFFUSER FOUR Way

Table 6.8 Air flow data

Neck size in mm x mm Neck Area in m²	Neck vel in m/sec	1.0	1.25	1.5	1.75	2.0	2.5	3.0	3.5	4.0
150 x 150 0.023	CFM	49	61	74	85	97	123	146	171	195
	M³/sec.	0.023	0.029	0.035	0.04	0.046	0.058	0.069	0.081	0.092
	- P_s in mm H_2O	0.64	1.02	1.45	1.98	2.51	4.01	5.72	7.9	10.16
	NC	<15	<15	<15	<15	19	25	30	34	40
225 x 225 0.051	CFM	108	135	163	188	216	271	324	379	432
	M³/sec.	0.051	0.064	0.077	0.089	0.102	0.128	0.153	0.179	0.204
	- P_s in mm H_2O	0.69	1.12	1.65	2.16	2.87	4.44	6.35	8.89	11.43
	NC	<15	<15	<15	16	21	28	34	40	45
300 x 300 0.09	CFM	193	239	286	335	381	476	572	667	762
	M³/sec.	0.09	0.113	0.135	0.158	0.18	0.225	0.27	0.315	0.36
	- P_s in mm H_2O	0.79	1.24	1.78	2.41	3.15	4.95	7.11	9.65	12.7
	NC	<15	<15	16	21	25	32	38	43	48
375 x 375 0.141	CFM	298	372	449	521	597	747	896	1046	1194
	M³/sec.	0.141	0.176	0.212	0.246	0.282	0.353	0.423	0.494	0.564
	- P_s in mm H_2O	0.89	1.39	2.03	2.74	3.58	5.59	8.13	10.9	14.22
	NC	<15	<15	19	25	32	38	43	47	51
450 x 450 0.203	CFM	430	538	646	752	860	1076	1289	1505	1719
	M³/sec.	0.203	0.254	0.305	0.355	0.406	0.508	0.609	0.711	0.812
	- P_s in mm H_2O	0.97	1.49	2.18	2.97	3.91	6.09	8.64	11.94	15.49
	NC	<15	17	24	31	36	40	45	48	52
525 x 525 0.276	CFM	584	730	877	1023	1168	1461	1753	2045	2337
	M³/sec.	0.276	0.345	0.414	0.483	0.552	0.69	0.828	0.966	1.104
	- P_s in mm H_2O	1.04	1.63	2.36	3.2	4.19	6.6	9.39	12.7	16.76
	NC	18	25	30	36	40	44	47	51	55
600 x 600 0.36	CFM	762	953	1143	1334	1524	1905	2287	2668	3049
	M³/sec.	0.36	0.45	0.54	0.63	0.72	0.9	1.08	1.26	1.44
	- P_s in mm H_2O	1.14	1.78	2.54	3.51	4.52	7.11	10.16	13.9	18.29
	NC	23	30	36	40	42	46	49	54	58

- Neck velocity is measured in m/sec.
- P_s: Static pressure loss in mm of H_2O.
- Noise criteria (NC) based on a room attenuation of 10 dB.