

Square Diffusers

Introduction

The performance objective of a ceiling air Diffuser is to deliver conditioned air into an occupied space in a quiet draft free manner.

The performance efficiency of a particular diffuser design is usually judged by the diffuser's ability to rapidly dissipate the air velocities and temperature differential of the supply air before it enters the occupied space.

Many Models are developed by KMC to meet air distribution and architectural requirements.

Application

- Versatile Supply Air Diffuser for constant or variable air volume cooling, heating or ventilating
- Designed for high capacity, KMC Model Series "KD" can supply large volumes of air at low sound levels and pressure drops.
- Directed air diffusion for space coverage with great flexibility in space layout, geometry, and diffuser location.
- Return Air use to maintain matched appearance

Product Features

- 5 "application specific" air distribution patterns – 1 way, 2 way opposite, 2 way corner, 3 way, and 4 way
- Core is removable to facilitate access to duct / damper
- Concealed core attachment – NO screws

Construction

- Frame & inner cores are made of Extruded Aluminum Profiles of 6063.T6 Alloy, which allow the diffusers to be suitably used for both internal & external applications.
- Available in wide variety of sizes ranging from 150mmx150mm up to 600mmx600mm available in 75mm increments.
- The core is held in place & fixed to the frame by two nos. lock sets.
- Foam Gasket seal around the back of the frame as option to avoid air leakage.

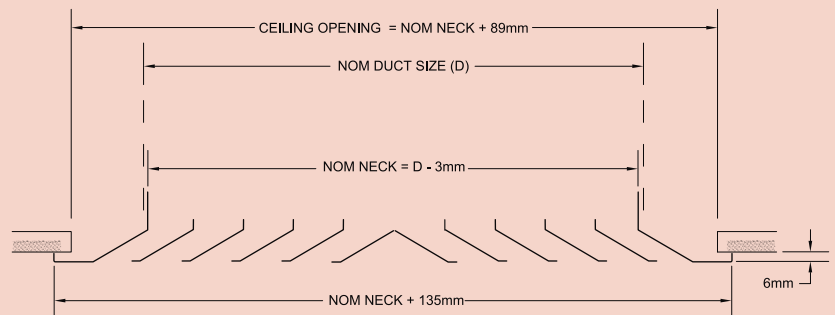
Selection Procedure :

Selections can be made by means of straight read-off from the " Performance Tables"

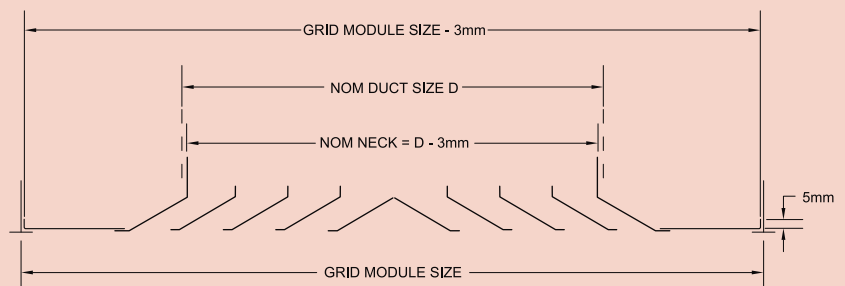
- Determine air diffusion pattern required and air volume flow rate per outlet.
- Establish the required throw (Refer Notes for Throw Pattern)
Opposing Diffusers : Maximum Throw for each diffuser should be no more than 75% of half of the distance between them.
- Select the diffuser based on required Air flow rate against the limiting pressure drop and sound level requirements.



Model KDF - Surface Mounted



Model KDP - Lay in T-Bar



Product Selection Check List

- Select Inlet (L X W) Size based on desired performance requirements.
- Select face size based on ceiling module (Lay-in Application Only)
- Select core style based on application.
- Select volume control accessories, if desired (OBD)
- Select finish

Performance Data

NECK W	SIZE H	NECK m2	Neck Velocity	1.0			1.5			2.0			2.5			3.0			3.5			4.0			4.5																																																										
				Pt	CMH	NC	CMH (L)	Throw (L)	CMH (S)	Throw (S)	CMH	NC	CMH (L)	Throw (L)	CMH (S)	Throw (S)	CMH	NC	CMH (L)	Throw (L)	CMH (S)	Throw (S)	CMH	NC	CMH (L)	Throw (L)	CMH (S)	Throw (S)																																																							
225	150	0.034	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	2.5	5	10	15	22.5	30	40	50	119	187	238	306	357	425	476	544	<20	<20	<20	<20	20	24	28	31	51	68	85	119	136	153	187	204	1.2 1.5 2.7	1.8 2.4 3.4	2.1 2.7 3.7	2.4 3.0 4.3	2.7 3.4 4.6	2.7 3.7 4.9	3.0 3.7 5.2	3.4 4.0 5.8	34	51	68	102	119	136	153	170	0.9 1.5 2.4	1.5 2.1 3.0	1.8 2.4 3.4	2.1 2.7 4.0	2.4 3.0 4.3	2.7 3.4 4.6	2.7 3.4 4.9	3.0 3.7 5.2																
			300	150	0.045	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	170	238	323	408	493	561	646	731	<20	<20	<20	<20	21	25	29	32	85	119	170	204	255	289	323	374	1.5 2.4 3.7	2.1 3.0 4.3	3.0 3.7 5.2	3.4 4.0 5.8	3.7 4.3 6.1	4.0 4.6 6.7	4.3 5.2 7.0	4.3 5.5 7.6	51	68	85	102	119	136	170	187	1.2 1.5 2.4	1.5 2.1 3.0	2.1 2.4 3.7	2.4 2.7 4.0	2.4 3.0 4.3	2.7 3.4 4.6	3.0 3.7 5.2	3.0 3.7 5.5																					
						375	150	0.056	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	204	306	408	510	612	714	816	918	<20	<20	<20	<20	22	26	30	33	136	187	255	323	391	442	510	578	1.8 2.7 4.6	2.7 4.0 5.5	3.7 4.6 6.4	4.0 4.9 7.0	4.6 5.5 7.6	4.9 5.8 8.2	5.2 6.4 8.8	5.5 6.7 9.5	34	51	68	102	119	136	153	170	0.9 1.5 2.4	1.5 2.1 3.0	2.1 2.4 3.4	2.1 2.7 4.0	2.4 3.0 4.3	2.7 3.4 4.6	2.7 3.4 4.9	3.0 3.7 5.2																		
									450	150	0.068	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	238	374	493	612	731	850	986	1105	<20	<20	<20	<20	23	27	31	34	187	289	374	459	544	646	748	833	2.1 3.4 5.2	3.4 4.6 6.7	4.3 5.5 7.6	4.9 6.1 8.5	5.5 6.7 9.1	5.8 7.0 10.1	6.1 7.6 10.7	6.7 7.9 11.3	34	51	68	85	102	119	136	153	0.9 1.2 2.1	1.5 1.8 2.7	1.8 2.1 3.0	2.1 2.4 3.4	2.1 2.7 4.0	2.4 2.7 3.7	2.4 2.7 4.0	2.7 3.4 4.6															
												300	225	0.068	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	238	374	493	612	731	867	986	1105	<20	<20	<20	<20	23	27	31	34	85	119	170	204	238	289	323	374	1.5 2.1 3.7	2.4 3.0 4.6	3.0 3.7 5.2	3.4 4.0 5.8	3.7 4.3 6.1	4.0 4.9 6.7	4.3 5.2 7.3	4.3 5.5 7.6	85	119	170	204	238	289	323	374	1.5 2.1 3.7	2.4 3.0 4.6	3.0 3.7 5.2	3.4 4.0 5.8	3.7 4.3 6.1	4.0 4.9 6.7	4.3 5.2 7.3	4.3 5.5 7.6												
															375	225	0.084	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	306	459	612	765	918	1071	1241	1394	<20	<20	<20	<20	24	28	32	35	136	187	255	323	391	442	510	578	1.8 2.7 4.6	2.7 4.0 5.5	3.7 4.6 6.4	4.0 4.9 7.0	4.6 5.5 7.6	4.9 5.8 8.2	5.2 6.4 9.1	5.5 6.7 9.5	85	136	187	221	272	306	357	408	1.5 2.4 3.7	2.4 3.4 4.6	3.0 3.7 5.2	3.4 4.3 5.8	3.7 4.6 6.4	4.0 4.9 7.0	4.3 5.5 7.6	4.6 5.8 7.9									
																		525	225	0.118	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	425	646	867	1088	1292	1513	1734	1955	<20	<20	<20	<20	20	25	30	37	255	374	510	629	748	884	1020	1139	2.7 4.0 6.1	4.0 5.5 7.6	5.2 6.4 8.8	5.8 7.0 10.1	6.4 7.6 11.0	6.7 8.2 11.9	7.3 8.8 12.5	7.6 9.5 13.4	85	136	187	221	272	323	357	408	1.5 2.4 3.7	2.4 3.4 4.6	3.0 3.7 5.2	3.4 4.3 6.1	3.7 4.6 6.4	4.0 4.9 7.0	4.3 5.2 7.6	4.6 5.8 7.9						
																					375	300	0.113	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	408	612	833	1037	1241	1445	1649	1853	<20	<20	<20	<20	20	25	29	36	136	187	255	323	391	459	510	578	1.8 2.7 4.6	2.7 4.0 5.5	3.7 4.6 6.4	4.3 5.2 7.0	4.6 5.5 7.9	4.9 6.1 8.5	5.2 6.4 9.1	5.5 6.7 9.5	136	204	289	357	425	493	561	629	1.8 3.0 4.6	3.0 4.0 5.8	4.0 4.9 6.7	4.3 5.2 7.6	4.9 5.8 8.2	5.2 6.4 8.8	5.5 6.7 9.5	5.8 7.0 10.1			
																								450	300	0.135	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	493	748	986	1241	1496	1734	1989	2244	<20	<20	<20	<20	21	26	30	37	187	289	374	459	561	646	748	850	2.1 3.4 5.5	3.4 4.6 6.7	4.3 5.5 7.6	4.9 6.1 8.5	5.5 6.7 9.5	5.8 7.0 10.1	6.4 7.6 11.0	6.7 8.2 11.6	153	238	306	391	476	544	629	697	2.1 3.0 4.9	3.0 4.3 6.1	4.0 4.9 7.0	4.6 5.5 7.9	4.9 6.1 8.5	5.2 6.4 9.1	5.8 7.0 9.8	6.1 7.3 10.4
																											450	375	0.169	Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	629	935	1241	1564	1870	2176	2499	2805	<20	<20	<20	<20	22	27	31	38	187	289	374	476	561	646	748	850	2.4 3.4 5.5	3.4 4.6 6.7	4.3 5.5 7.6	4.9 6.1 8.5	5.5 6.7 9.5	5.8 7.3 10.1	6.4 7.6 11.0	6.7 8.2 11.6	221	323	442	544	663	765	867	986	2.4 3.7 5.8	3.7 5.2 7.3	4.9 5.8 8.2	5.5 6.7 9.1	5.8 7.3 10.1
525	450	0.236																												Pt	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	867	1309	1751	2193	2618	3060	3502	3944	<20	<20	<20	<20	23	28	33	40	255	374	510	646	765	901	1020	1156	2.7 4.0 6.4	4.0 5.5 7.6	5.2 6.4 8.8	5.8 7.0 10.1	6.4 7.6 11.0	6.7 8.2 11.9	7.3 8.8 12.8	7.6 9.5 13.4	306	459	612	782	935	1088	1241	1394	3.0 4.3 7.0	4.6 6.1 8.5	5.8 7.0 9.8	6.4 7.9 11.0	7.0 8.5 12.2



Performance Data

NECK SIZE		NECK m2	Neck Velocity Pt	1.0	1.5		2.0		2.5		3.0		3.5		4.0		4.5				
W mm	H mm			1.0 Pt	1.5 Pt	2.0 Pt	2.5 Pt	3.0 Pt	3.5 Pt	4.0 Pt	4.5 Pt										
225	150	0.034	CMH	119	187	238	306	357	425	476	544										
			NC	<20	<20	<20	<20	<20	<20	<20	24	28	31								
			CMH (L) Throw (L)	1.2	1.8	2.7	1.8	2.4	3.4	2.1	2.7	4.0	2.4	3.0	4.6	2.7	3.4	4.9	3.0	3.7	5.2
			CMH (S) Throw (S)	0.6	1.2	1.8	1.2	1.5	2.1	1.5	1.8	2.4	1.5	2.1	2.7	1.8	2.1	3.0	1.8	2.4	3.4

Performance Data (Return Air)



NECK SIZE		NECK m2	Neck Velocity Pt	1.0	1.5		2.0		2.5		3.0		3.5		4.0		4.5				
W mm	H mm			1.0 Pt	1.5 Pt	2.0 Pt	2.5 Pt	3.0 Pt	3.5 Pt	4.0 Pt	4.5 Pt										
150	150	0.023	CMH	85	119	153	204	238	272	323	357										
			NC	<22	<22	<22	<22	<22	<22	24	28	31									
			4 Way - 41 Pattern	0.9	1.2	1.8	1.2	1.5	2.1	1.5	1.8	2.4	1.5	2.1	2.7	1.8	2.4	3.4	2.1	2.4	3.7
			2 way - 21 & 25 Patterns 1 way - 11 Pattern	0.9	1.5	2.4	1.5	2.1	3.0	1.8	2.4	3.4	2.1	2.7	3.7	2.4	3.0	4.0	2.4	3.0	4.3

Performance Data

NECK SIZE		NECK m2	Neck Velocity Pt	1.0		1.5		2.0		2.5		3.0		3.5		4.0		4.5									
W mm	H mm			2.5	5	10	15	22.5	30	40	50																
225	150	0.034	CMH	119	187	238	306	357	425	476	544																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	0.9	1.5	2.4	1.5	2.1	3.0	2.1	2.4	3.7	2.4	2.7	4.0	2.4	3.0	4.3	2.7	3.4	4.6	2.7	3.7	4.9	3.0	3.7	5.5
			CMH (S)	17	34	34	51	68	85	85	85	85	85														
300	150	0.045	CMH	170	238	323	408	493	561	646	731																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	0.6	1.2	1.8	1.2	1.5	2.1	1.5	1.8	2.4	1.5	2.1	2.7	1.8	2.1	3.0	1.8	2.4	3.4	2.1	2.4	3.7	2.1	2.7	3.7
			CMH (S)	17	34	34	51	68	85	85	85	85															
375	150	0.056	CMH	204	306	408	510	612	714	816	918																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	0.9	1.2	1.8	1.2	1.5	2.1	1.5	1.8	2.4	1.5	2.1	2.7	1.8	2.1	3.0	1.8	2.4	3.4	2.1	2.4	3.7	2.1	2.7	3.7
			CMH (S)	17	34	34	51	68	85	85	85	85															
450	225	0.101	CMH	374	561	748	935	1105	1292	1479	1666																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	2.1	3.0	4.6	3.0	4.0	5.8	4.0	4.6	6.7	4.3	5.2	7.3	4.6	5.8	7.9	5.2	6.1	8.8	5.5	6.7	9.5	5.8	7.0	10.1
			CMH (S)	51	68	68	102	119	136	170	170	170															
375	300	0.113	CMH	408	612	833	1037	1241	1445	1649	1853																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	1.8	2.7	4.3	2.7	3.7	5.5	3.7	4.6	6.4	4.0	4.9	7.0	4.3	5.5	7.6	4.9	5.8	8.2	5.2	6.1	8.8	5.5	6.7	9.5
			CMH (S)	85	119	119	170	204	255	255	255	289															
450	300	0.135	CMH	493	748	986	1241	1496	1734	1989	2244																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	1.5	2.1	3.7	2.4	3.0	4.6	3.0	3.7	5.2	3.4	4.0	5.8	3.7	4.3	6.4	4.0	4.9	6.7	4.3	5.2	7.3	4.3	5.5	7.6
			CMH (S)	85	119	119	170	204	255	255	289																
600	300	0.180	CMH	663	1003	1326	1666	1989	2329	2652	2992																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	2.7	4.0	6.4	4.0	5.5	7.6	5.2	6.4	8.8	5.8	7.0	10.1	6.4	7.6	11.0	6.7	8.2	11.6	7.3	8.8	12.5	7.6	9.5	13.4
			CMH (S)	85	119	170	204	255	255	289																	
600	375	0.225	CMH	833	1241	1666	2074	2499	2907	3332	3740																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	1.8	2.7	4.6	2.7	4.0	5.5	3.7	4.6	6.4	4.3	5.2	7.0	4.6	5.5	7.9	4.9	6.1	8.5	5.2	6.4	9.1	5.5	6.7	9.5
			CMH (S)	136	187	255	323	391	459																		
600	450	0.270	CMH	1003	1496	2006	2499	3009	3502	4012	4505																
			NC	<20	<20	<20	<20	<20	<20	<20	<20	<20															
			Throw (L)	3.0	4.6	7.0	4.6	6.1	8.5	5.8	7.0	10.1	6.4	7.9	11.0	7.0	8.5	12.2	7.6	9.1	13.1	8.2	10.1	14.0	8.5	10.7	14.9
			CMH (S)	187	289	374	476	561																			

Notes :

Standard

ANSI / ASHRAE standard 70

Sound Levels

NC is noise criteria curve that will not be exceeded at the operating point for the supply air volume shown. This is determined by assuming a 10dB(ref: 10-12 watts) room attenuation that is subtracted from the power levels in each of the 2nd thru 7th octave bands.

Return Use: Add + 2 to the NC shown in the tables.

Pressure

Pt represents Total Pressure, Pascal (Pa), measured in the supply duct

Throw

The numbers shown are throw distances, in meters, measured along the jet trajectory axis relating to terminal velocities of 0.75, 0.5 & 0.25 m/s with the jet attached to the ceiling surface.

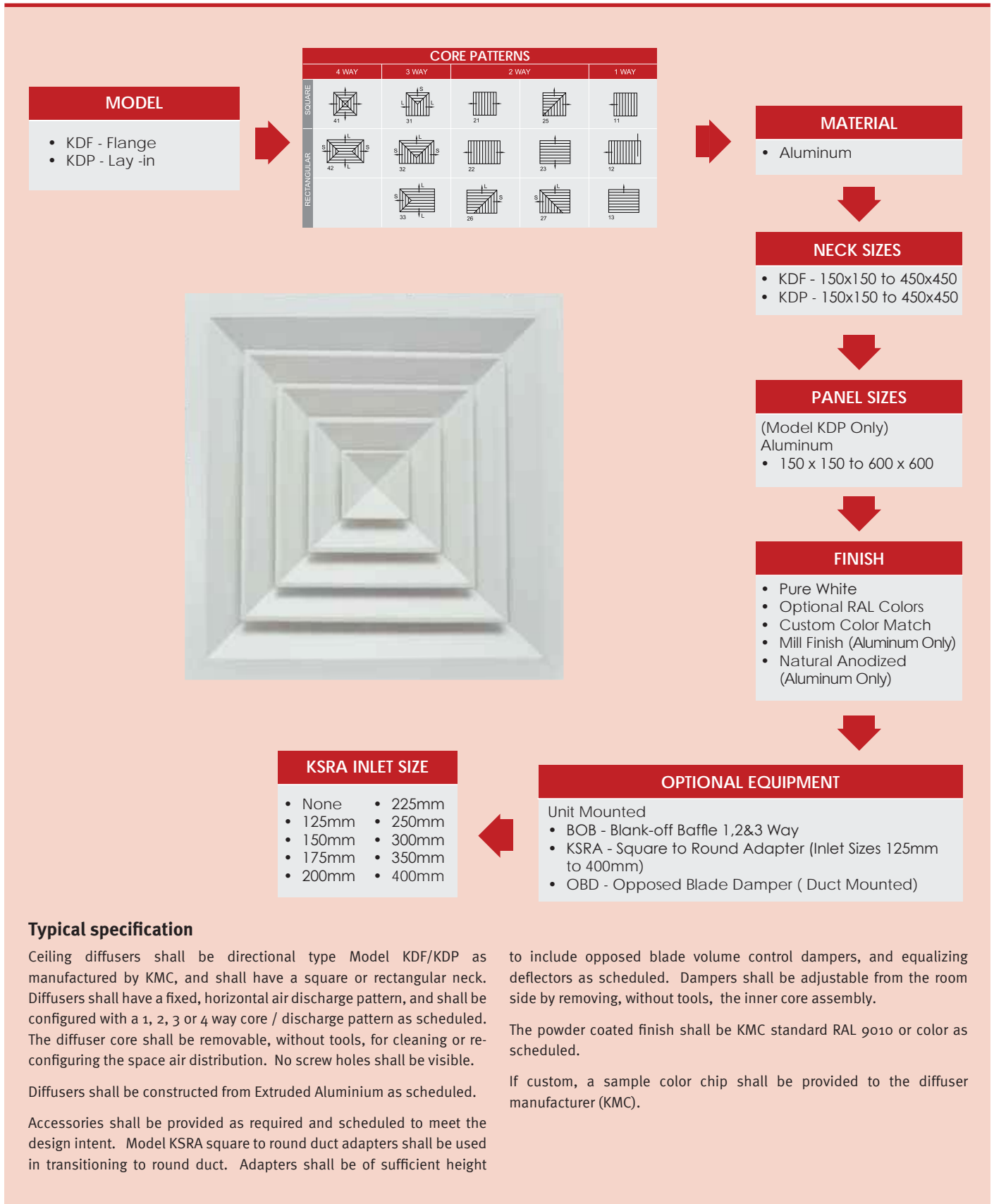
Data for core patterns indicating L & S represent the throw distance at the CMH referenced for the side shown. These non-symmetrical cores proportion air based on pattern & neck size.

Terminal velocity is the air speed, in meters per second, measured in the supply airstream.

Neck Velocity

Meters per second (m/s), measured in the supply duct

Square Diffusers



Typical specification

Ceiling diffusers shall be directional type Model KDF/KDP as manufactured by KMC, and shall have a square or rectangular neck. Diffusers shall have a fixed, horizontal air discharge pattern, and shall be configured with a 1, 2, 3 or 4 way core / discharge pattern as scheduled. The diffuser core shall be removable, without tools, for cleaning or re-configuring the space air distribution. No screw holes shall be visible.

Diffusers shall be constructed from Extruded Aluminium as scheduled.

Accessories shall be provided as required and scheduled to meet the design intent. Model KSRA square to round duct adapters shall be used in transitioning to round duct. Adapters shall be of sufficient height

to include opposed blade volume control dampers, and equalizing deflectors as scheduled. Dampers shall be adjustable from the room side by removing, without tools, the inner core assembly.

The powder coated finish shall be KMC standard RAL 9010 or color as scheduled.

If custom, a sample color chip shall be provided to the diffuser manufacturer (KMC).

