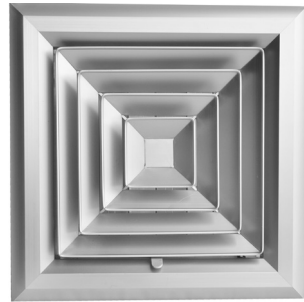


# SQUARE AND RECTANGULAR DIRECTIONAL DIFFUSERS

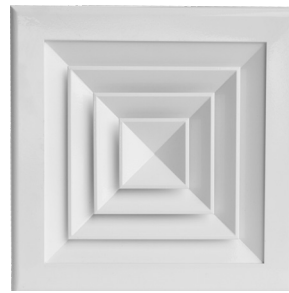
## Model: HCD & LCD

For ceiling and high sidewall installation

MODEL: HCD-4



MODEL: LCD-4-TK



### Order code

HCD - 4 - F + OVD + BF + .....

1

2

3

4

5

5

#### 1 Type

HCD: High ceiling diffusers  
LCD: Low ceiling diffusers

#### 2 Air Diffusion Pattern

1, 2, 3, 4 way(s)

#### 3 Surface

Non-specify: Curve surface  
F: Flat surface  
TK: Flat surface with flanged neck  
\*Could be specified

#### 4 Volume Damper

OVD: Opposed blade volume damper  
PVD: Parallel blade volume damper  
\*Could be specified

#### 5 Additional Accessories

BF: Black synthetic filter  
WF: White synthetic filter  
NF: Black nylon filter  
AF: Aluminium filter  
BFM: Black synthetic filter frame  
WFM: White synthetic filter frame  
INS: Aluminum wire mesh  
\*Could be specified

### ★ Features

- Removable snap-in directional cores
- 4,3,2 or 1-way horizontal air diffusion pattern
- Tie off cable for fall protection
- High diffusion induction rate results in rapid reduction in the temperature and airflow velocity
- Sound level range of NC 17 to 50
- Assure cooling temperature differentials of 25F and greater, at predicted low air motion (35 fpm) in zone of occupancy

### + General Optional Equipment and Accessories

- Opposed blade volume damper
- Air filter for air purification
- Aluminum wire mesh

\*Could be specified

### ✂ Installation

1. Prepare the air duct edge size according to the neck size of diffuser
2. Fix diffuser frame to air duct with screws
3. Snap in the diffuser core to the frame

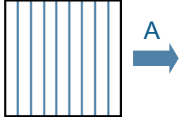
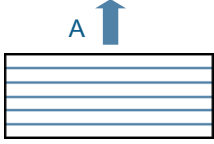
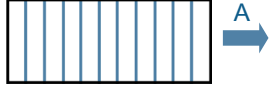

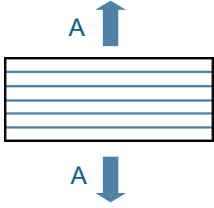

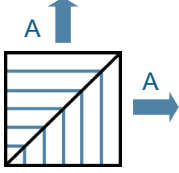
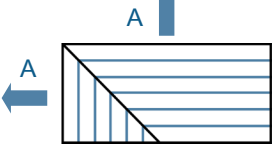
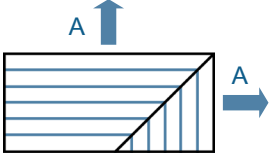
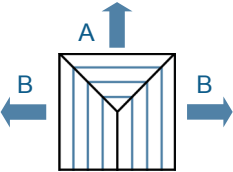
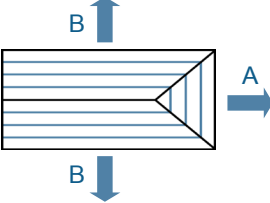
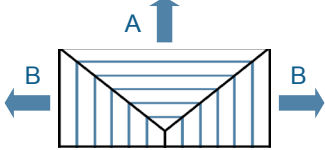
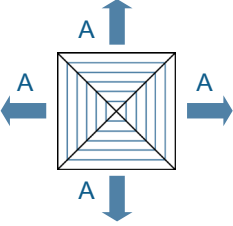
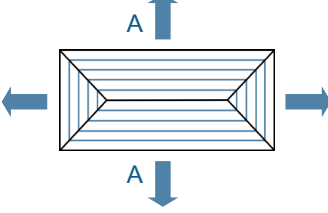
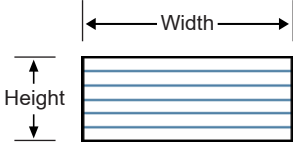
### 💡 Application

- Heating, ventilating & cooling, and space conditions requiring directional air diffusin patterns
- LCD is recommended for room height up to 3 m.
- HCD is recommended for room height above 3 m.
- For all types of ceiling systems
- Efficiently perform with air loadings of 6 to 20 air changes per hour (based on 10 ft. ceiling height)
- Attractive and excellent design
- Satin anodised surface which special colour finishes can be applied
- Special anodised or duranodic finished are available to match architectural requirements
- Available in aluminium, stainless steel, and steel
- Customised design is available

### 🏆 Certification

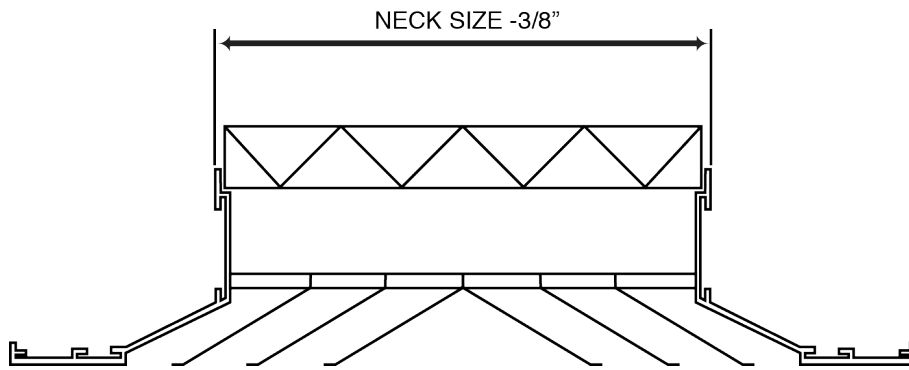
- VIPAC
- NATA
- King Mongkut's University of Technology Thonburi

AIR DIFFUSION PATTERN: HCD & LCD

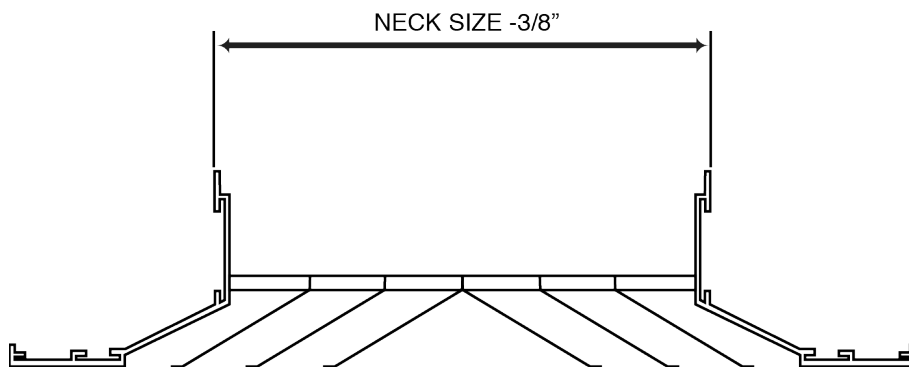
1-Way (1W)			
HCD, LCD	-1	-1W	-1H
2-Way (2WS)			
HCD, LCD	-2	-2W	-2H
2-Way (2WG)			
HCD, LCD	-2C	-2L	-2R
3-Way (3W)			
HCD, LCD	-3	-3W	-3H
4-Way (4W)			
HCD, LCD	-4	-4W	-4H

## SECTION DETAILS

MODEL LCD-TK+OVD



MODEL LCD-TK



**SQUARE DIFFUSER PERFORMANCE DATA**

Neck velocity		300	400	500	600	700	800	900
Velocity Pressure		0.006	0.01	0.016	0.022	0.031	0.04	0.05
Total Pressure		0.049	0.086	0.135	0.195	0.265	0.346	0.438
DUCT SIZE 6"x6"	Total cfm	75	100	125	150	175	200	225
	NC	-	18	23	26	30	33	35
		A B	A B	A B	A B	A B	A B	A B
4W	cfm/side	19	25	31	38	44	50	56
	throw,ft	3-4-9	4-6-12	5-7-15	6-9-17	7-10-20	8-12-21	9-13-23
3W	cfm/side	19 28	25 38	31 47	38 56	44 66	50 75	56 84
	throw,ft	3-4-9 4-5-11	4-6-12 5-7-14	5-7-15 6-9-18	6-9-17 7-11-21	7-10-20 8-12-23	8-12-21 10-14-24	9-13-23 11-16-26
DUCT AREA 0.25 ft <sup>2</sup>	2WS,2WG	cfm/side	38	50	63	75	88	100
	throw,ft	4-6-12	5-8-16	7-10-21	8-12-23	10-14-24	11-16-26	12-19-28
1W	cfm/side	75	100	125	150	175	200	225
	throw,ft	6-9-17	8-12-23	10-15-25	12-17-28	14-20-30	16-23-32	17-24-34
DUCT SIZE 8"x8"	Total cfm	133	178	222	266	311	355	400
	NC	-	21	26	30	33	36	38
		A B	A B	A B	A B	A B	A B	A B
4W	cfm/side	33	45	56	67	78	89	100
	throw,ft	4-6-12	5-8-16	6-10-19	8-12-22	9-14-24	10-16-25	12-17-27
3W	cfm/side	33 50	45 67	56 83	67 100	78 117	89 133	100 150
	throw,ft	4-6-12 5-7-14	5-8-16 6-10-19	6-10-19 8-12-22	8-12-22 9-14-25	9-14-24 11-17-27	10-16-25 13-19-28	12-17-27 14-21-30
DUCT AREA 0.444 ft <sup>2</sup>	2WS,SWG	cfm/side	67	89	111	133	156	200
	throw,ft	5-8-16	7-11-22	9-14-24	11-16-27	13-19-29	15-22-31	16-23-33
1W	cfm/side	133	178	222	266	311	355	400
	throw,ft	8-12-23	10-16-27	13-19-30	16-23-32	18-25-35	21-27-37	23-28-40
DUCT SIZE 10"x10"	Total cfm	208	278	347	416	486	555	625
	NC	17	23	28	32	35	38	41
		A B	A B	A B	A B	A B	A B	A B
4W	cfm/side	52	70	87	104	122	139	156
	throw,ft	5-7-15	6-10-19	8-12-23	10-15-25	11-17-27	13-19-29	15-22-30
3W	cfm/side	52 78	70 104	87 130	104 156	122 182	139 208	156 234
	throw,ft	5-7-15 6-9-18	6-10-19 8-12-23	8-12-23 10-15-25	10-15-25 12-18-28	11-17-27 14-21-30	13-19-29 16-23-32	15-22-30 18-24-34
DUCT AREA 0.694 ft <sup>2</sup>	2WS,SWG	cfm/side	104	139	174	208	243	313
	throw,ft	7-10-21	9-14-25	11-17-28	14-21-30	16-23-33	18-25-35	21-26-37
1W	cfm/side	208	278	347	416	486	555	625
	throw,ft	10-15-26	13-19-30	16-24-34	19-26-37	23-28-40	25-30-43	26-32-45
DUCT SIZE 12"x12"	Total cfm	300	400	500	600	700	800	900
	NC	19	25	30	34	37	40	43
		A B	A B	A B	A B	A B	A B	A B
4W	cfm/side	75	100	125	150	175	200	225
	throw,ft	6-9-17	8-12-23	10-15-25	12-17-28	14-20-30	16-23-32	17-24-34
3W	cfm/side	75 113	100 150	125 188	150 225	175 263	200 300	225 338
	throw,ft	6-9-17 7-11-21	8-12-23 10-14-25	10-15-25 12-18-22	12-17-28 14-21-31	14-20-30 17-24-33	16-23-32 19-25-36	17-24-34 21-27-38
DUCT AREA 1 ft <sup>2</sup>	2WS,SWG	cfm/side	150	200	225	300	350	400
	throw,ft	8-12-24	11-16-27	14-21-31	16-24-34	19-26-36	22-27-39	24-29-41
1W	cfm/side	300	400	500	600	700	800	900
	throw,ft	12-17-29	16-23-33	19-26-37	23-29-41	26-31-44	27-33-47	29-35-50
DUCT SIZE 14"x14"	Total cfm	408	544	680	816	952	1088	1224
	NC	21	27	32	36	39	42	44
		A B	A B	A B	A B	A B	A B	A B
4W	cfm/side	102	136	170	204	238	272	306
	throw,ft	7-10-20	9-14-25	11-17-27	14-20-30	16-23-33	18-25-35	20-26-37
3W	cfm/side	102 153	136 204	170 255	204 306	238 357	272 408	306 459
	throw,ft	7-10-20 8-12-24	9-14-25 11-17-28	11-17-27 14-21-31	14-20-30 17-24-34	16-23-33 19-26-36	18-25-35 22-28-39	20-26-37 24-29-41
DUCT AREA 1.36 ft <sup>2</sup>	2WS,SWG	cfm/side	204	272	340	408	476	544
	throw,ft	10-14-26	13-19-30	16-24-33	19-26-37	22-28-40	24-30-42	26-32-45
1W	cfm/side	408	544	680	816	952	1088	1224
	throw,ft	14-20-32	18-26-36	23-29-41	26-32-45	28-34-48	30-36-52	32-39-55

**SQUARE DIFFUSER PERFORMANCE DATA**

Neck velocity		300	400	500	600	700	800	900
Velocity Pressure		0.006	0.01	0.016	0.022	0.031	0.04	0.05
Total Pressure		0.049	0.086	0.135	0.195	0.265	0.346	0.438
DUCT SIZE	Total cfm	531	708	885	1062	1239	1416	1593
	NC	22	29	33	37	40	43	46
16"x16"	4W cfm/side	133	177	221	266	310	354	398
	throw,ft	8-12-23	10-15-26	13-29-30	15-23-32	18-25-35	21-26-37	23-28-40
DUCT AREA	3W cfm/side	133	199	177	266	310	465	398
	throw,ft	8-12-23	9-14-26	10-15-26	13-19-30	15-23-32	19-26-36	18-25-35
1.77 ft <sup>2</sup>	2WS,SWG cfm/side	266	354	443	531	620	708	797
	throw,ft	11-16-28	15-22-32	18-25-36	22-28-39	25-30-43	26-32-46	28-34-48
DUCT AREA	1W cfm/side	351	708	885	1062	1239	1416	1593
	throw,ft	15-23-34	21-28-39	25-31-44	28-34-48	30-37-52	32-39-56	34-24-59
DUCT SIZE	Total cfm	675	900	1125	1350	1575	1800	2025
	NC	24	30	35	38	42	45	47
18"x18"	4W cfm/side	169	225	281	338	394	450	506
	throw,ft	9-13-25	12-17-28	15-22-32	17-25-35	20-27-38	23-28-40	25-30-43
DUCT AREA	3W cfm/side	169	253	225	338	394	591	506
	throw,ft	9-13-25	11-16-28	12-17-28	14-21-32	15-22-32	18-25-36	17-25-35
2.25 ft <sup>2</sup>	2WS,SWG cfm/side	338	450	563	675	788	900	1013
	throw,ft	12-19-30	16-24-35	21-27-39	24-30-42	26-32-46	28-35-49	30-37-52
DUCT AREA	1W cfm/side	675	900	1125	1350	1575	1800	2025
	throw,ft	17-26-36	23-30-42	27-33-47	30-35-52	32-39-50	34-42-60	36-45-63
DUCT SIZE	Total cfm	831	1108	1385	1662	1939	2216	2493
	NC	19	25	30	34	37	40	43
20"x20"	4W cfm/side	208	277	346	416	485	554	623
	throw,ft	10-15-26	13-19-30	16-24-34	19-26-37	23-28-40	25-30-43	26-32-45
DUCT AREA	3W cfm/side	208	312	277	416	485	727	623
	throw,ft	10-15-26	12-18-29	13-19-30	16-24-34	20-27-38	19-26-37	24-29-41
2.77 ft <sup>2</sup>	2WS,SWG cfm/side	416	554	693	831	970	1108	1247
	throw,ft	14-21-32	18-26-37	23-29-41	26-32-45	28-34-48	30-37-52	32-39-55
DUCT AREA	1W cfm/side	831	1108	1385	1662	1939	2216	2493
	throw,ft	19-27-39	26-32-45	29-35-50	32-39-55	34-42-59	36-45-63	39-47-67
DUCT SIZE	Total cfm	1088	1344	1680	2016	2352	2688	3024
	NC	26	32	37	41	44	47	49
22"x22"	4W cfm/side	252	336	420	504	588	672	756
	throw,ft	11-16-28	14-21-32	18-25-36	21-28-39	24-30-42	26-32-45	28-34-48
DUCT AREA	3W cfm/side	252	378	336	504	588	882	756
	throw,ft	11-16-28	13-20-31	14-21-32	17-25-36	18-25-36	22-28-40	21-26-39
3.36 ft <sup>2</sup>	2WS,SWG cfm/side	504	672	840	1008	1176	1344	1512
	throw,ft	15-23-34	20-27-39	25-31-43	27-34-47	30-36-51	32-39-55	34-41-58
DUCT AREA	1W cfm/side	1088	1344	1680	2016	2352	2688	3024
	throw,ft	21-29-41	27-33-47	30-37-53	33-41-58	36-44-62	39-47-67	41-50-71
DUCT SIZE	Total cfm	1200	1600	2000	2400	2800	3200	3600
	NC	27	33	38	42	45	48	50
24"x24"	4W cfm/side	300	400	500	600	700	800	900
	throw,ft	12-17-29	16-23-33	19-26-37	23-29-41	26-31-44	27-33-47	29-35-50
DUCT AREA	3W cfm/side	300	450	400	600	700	1050	900
	throw,ft	12-17-29	14-21-32	16-23-33	19-27-38	19-26-37	24-30-42	23-29-41
4 ft <sup>2</sup>	2WS,SWG cfm/side	600	800	1000	1200	1400	1600	1800
	throw,ft	16-25-35	22-29-41	26-32-46	29-35-50	31-38-54	33-41-58	35-43-61
DUCT AREA	1W cfm/side	1200	1600	2000	2400	2800	3200	3600
	throw,ft	23-30-43	29-35-50	32-39-50	35-43-61	38-46-66	41-50-70	43-53-74

**Performance Notes:**

- Air flow is in cfm.
- All pressures are in in.wg.
- Throw values are given in feet to terminal velocity of 150-100-50 fpm.
- NC values are based on room absorption of 10 dB re 10<sup>-12</sup> watts and one diffuser.
- Blank "-" indicate an NC level below 15.

Note: According to the tests of products, the data in this report had been conducted under Smart Flow Industry Co., Ltd. in a laboratory by the expert. The materials and equipment were selected and installed accurately. In order to acquire the result of the test especially. The use of product and installation in other types and surroundings would get the different results. Please use only these information as guidance or estimation.