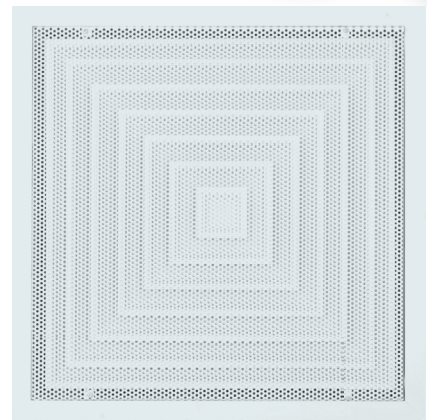
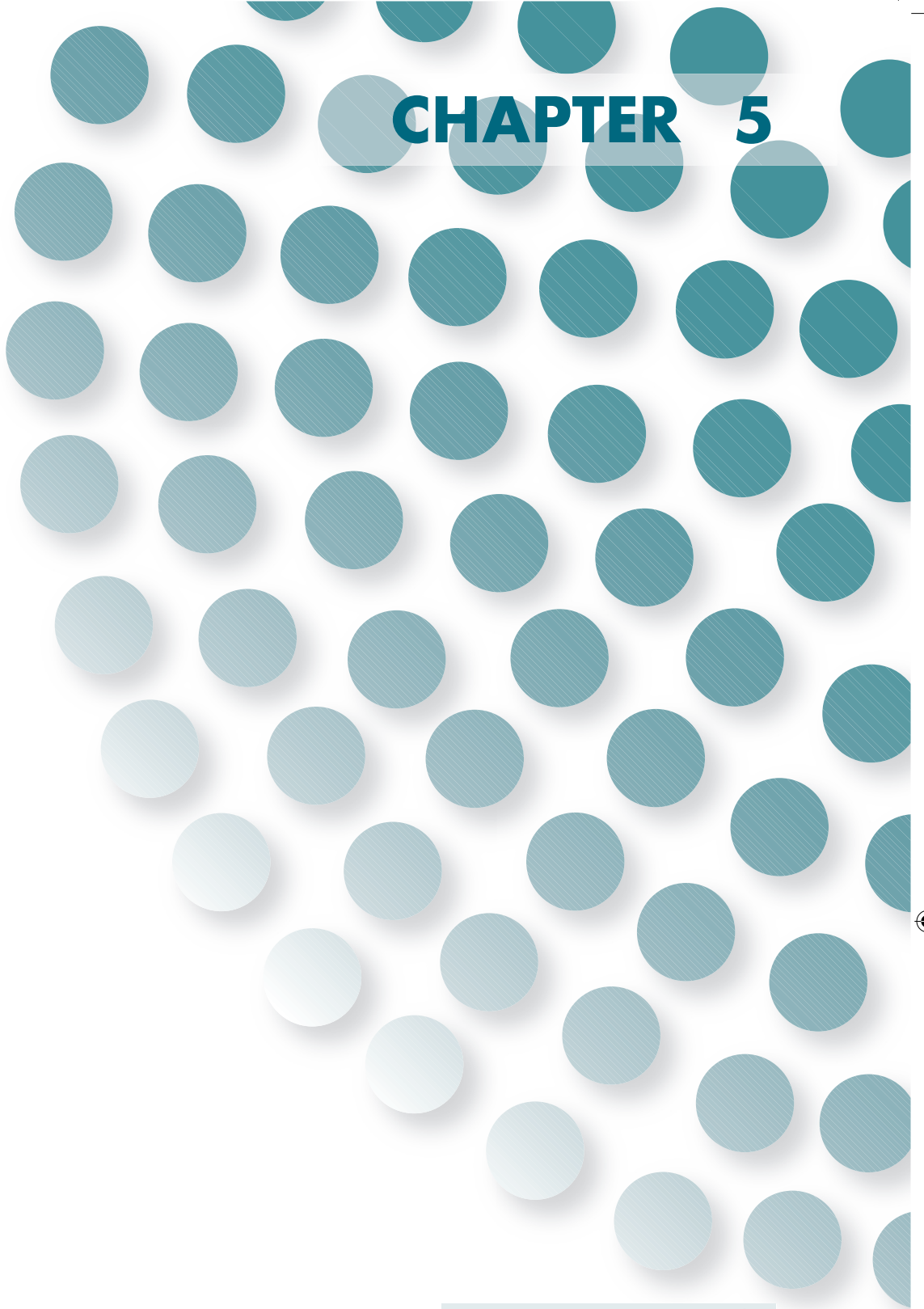


# CHAPTER 5



## PERFORATED CEILING DIFFUSERS





**CONTENTS**

**Introduction, Features & Characteristics.**

**Models, Perforated Ceiling Diffusers.**

**Diffuser Accessories, Profiles used in Perforated Diffusers.**

**Tabular Selection for Perforated Ceiling Diffusers.**

**Ordering Data.**

**PERFORATED CEILING DIFFUSERS**

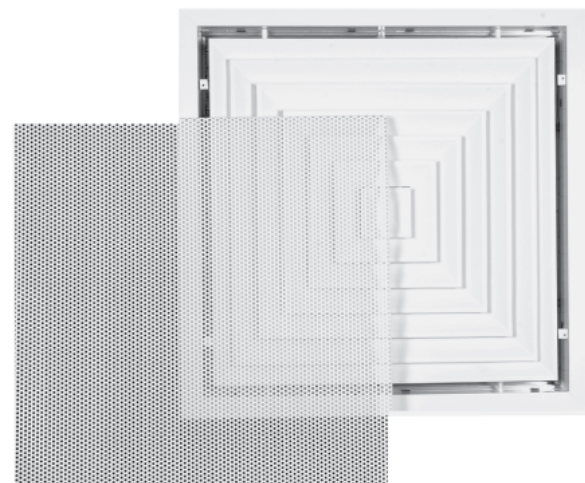
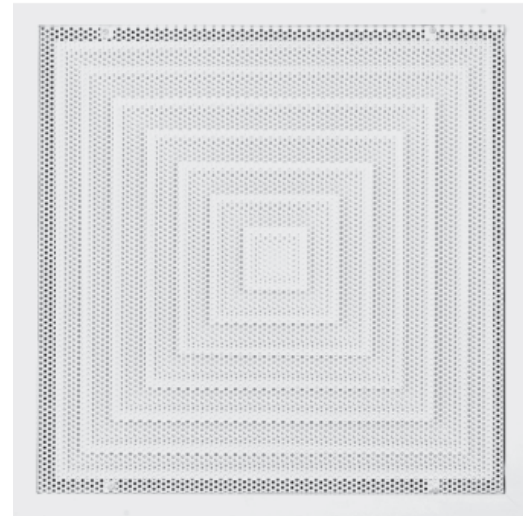




The **BCI** Perforated Diffusers provides a modern silent and draft-free range of diffusers designed to blend effectively with modern ceiling styles and profiles. Offering excellent uniform air distribution patterns the unit comprises of an extruded aluminium frame with a perforated steel sheet face, 50 % free area, and square cones (core) concealed behind the perforated face positioned to give 4, 3, 2 or 1 way discharge as required for the supply units. While return, extract or exhaust units are normally supplied without this feature for straight forward extract application.

These diffusers have high diffusion induction rates, resulting in rapid temperature and velocity equalization of the mixed air mass before the supply air enter the occupied space.

As an alternative use also, the perforated diffusers have been designed to meet architectural requirements as to appearance, module size or other aesthetic considerations.

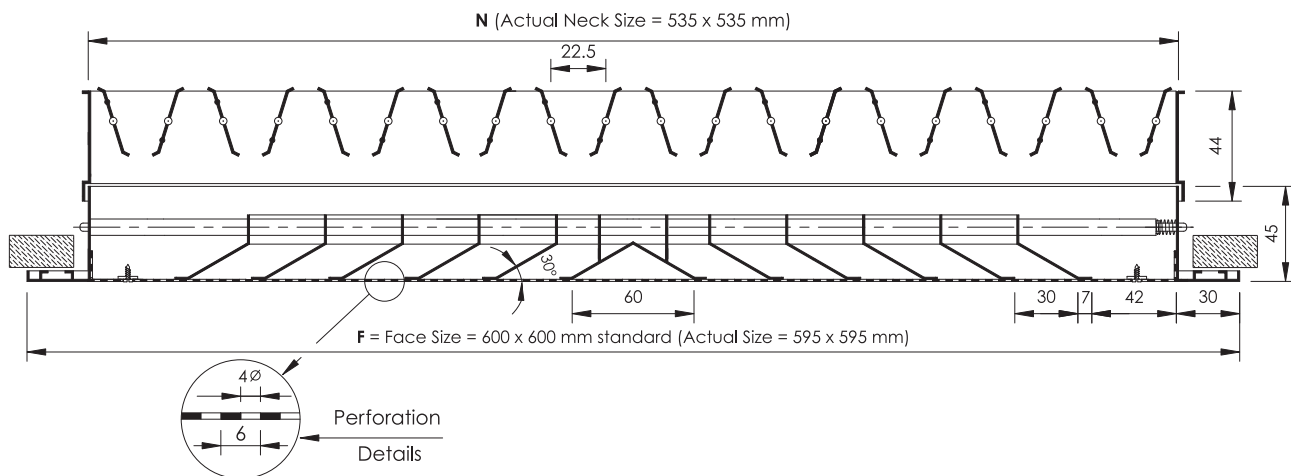


### Features & Characteristics :

- Construction : Frame & inner cones (core) are made of high quality Extruded Aluminium Profiles of 6063 Alloy.
  - Frame Flange width : 30 mm.
  - Perforated Face : made of G.I. Perforated sheet of 0.8 mm thickness with 4 mm  $\varnothing$  perforation at a pitch of 6 mm to produce 50 % free area.
  - Units are flush mounted available with different pattern arrangements 4,3,2&1way (i.e. different ways of air discharge directions).
  - Available in wide variety of square neck sizes ranging up to the most popular used 600 x 600 mm module with 595 x 595 mm outer frame size making it suitable for standard false ceiling panel replacement.
  - The perforated screen shall be removable from the diffuser face and fitted with screws to facilitate the removal of face screen to provide easy access to :
    - Installation.
    - Adjustment of key operated OBD.
    - Maintenance and cleaning.
    - Core exchange by different pattern in future.
- The core is held in place and fixed to the frame by two loaded spiral galvanized steel springs.
- For a better supply air mixing, increase of throw and induction, more sound containing and easy connection to duct system, G.I. Neck adaptor is available as an option.
  - Perforated diffusers project from the mounting surface by 5 mm.
  - Accessories : see page No. PD-03.
  - Mounting Instructions : refer to page No. CD-09, Chapter (1).
  - Surface Finishes : see page No. PD-05.

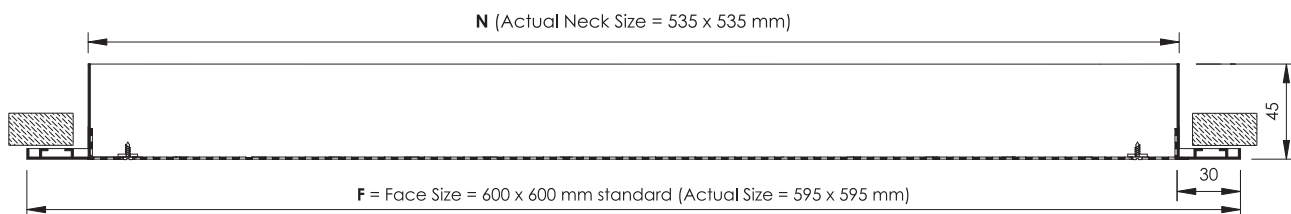
## Models Construction and Dimensional Details

### Model PSCD 4WS , Standard Module 600 x 600 mm Face Size



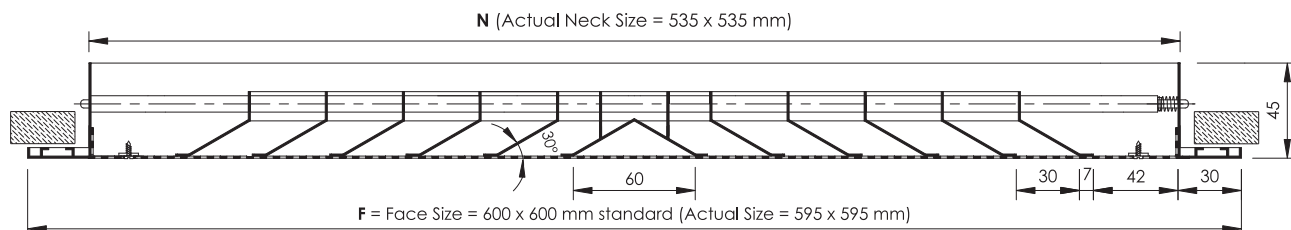
- Diffusers called Perforated Supply Ceiling Diffuser and coded as **PSCD 4WS** are always equipped with 4 - Way Square Pattern and Opposed Blade Damper (provided as standard).

### Model PRCD W/O CORE , Standard Module 600 x 600 mm Face Size



- Unless otherwise specified, Diffusers called Perforated Return, Extract or Exhaust Ceiling Diffuser and coded as **PRCD W/O CORE** are normally supplied w/o inner core and w/o Opposed Blade Damper as standard to ensure straight forward extract application.

### Model PRCD 4WS , Standard Module 600 x 600 mm Face Size



- In some cases, Return, Extract or Exhaust Perforated Ceiling Diffusers are required with inner core (4 way pattern), this will be supplied on request only as an option and coded as **PRCD 4WS**.

- Other sizes and models are available on request.
- All Dimensions are in mm and subject to  $\pm 1$  mm tolerance.

## Diffuser Accessories

### A. Opposed Blade Damper

Refer to page No. CD-06, Chapter (1).

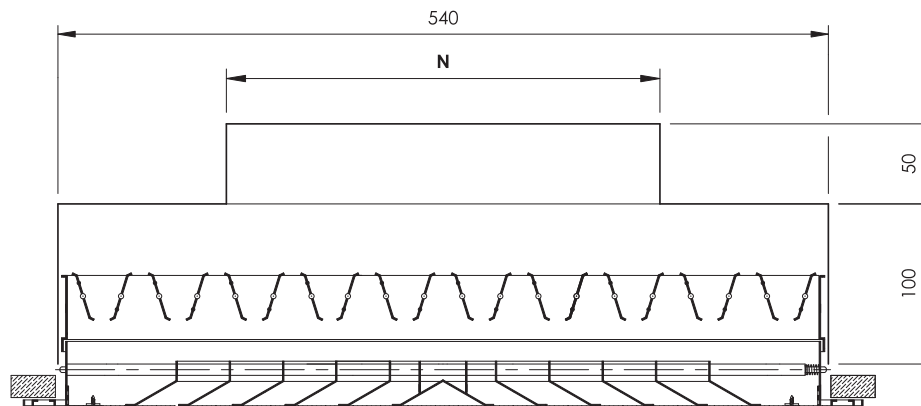
### B. Equalizing Grid (Optional)

Refer to page No. CD-07, Chapter (1).

### C. Foam Type Rubber Gasket (Optional)

Refer to page No. CD-07, Chapter (1).

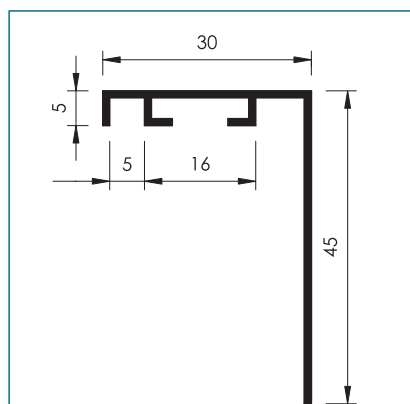
### D. Neck Adaptor (Optional)



Perforated Diffuser Fixed with Neck Adaptor

- For more details, refer to page No. CD-08, Chapter (1).
- The adaptor neck size "N" to be specified by customer according to ducting system.
- Data listed in table No. CD-04, page No. CD-08, Chapter (1) are not valid for Perforated Diffuser.

## Cross Sectional Drawing for Frame Profile used in Perforated Diffusers



Frame Profile Section

Perforated Ceiling Diffusers

- All Dimensions are in mm and subject to  $\pm 0.2$  mm tolerance.

TABLE PD-01

Tabular Selection for Square Perforated Ceiling Diffusers with Neck Adaptor, Model PSCD 4WS Module 600 x 600 mm (Face Size)										
No.	Adaptor Neck Size		Vn m/s FPM	1.5	2.0	2.5	3.0	3.5	4.0	4.5
	Inch	mm		300	400	500	600	700	800	900
1	6" x 6"	150 x 150	L/S (CFM)	34 (73)	46 (97)	57 (121)	69 (145)	80 (170)	91 (194)	103 (218)
			ΔPt (Pa)	5	9	14	19	27	35	44
			Th. (m)	0.3-0.9-2.1	0.6-1.5-2.7	1.2-1.8-3.0	1.5-2.1-3.4	1.6-2.4-3.7	1.8-2.7-4.0	2.1-3.0-4.3
			Noise Level	<15	<15	17	23	28	33	37
2	8" x 8"	200 x 200	L/S (CFM)	61 (129)	81 (172)	102 (215)	122 (258)	142 (301)	163 (344)	183 (388)
			ΔPt (Pa)	6	10	16	21	30	39	49
			Th. (m)	0.6-1.2-2.4	0.9-1.6-3.0	1.3-2.1-3.7	1.6-2.4-4.0	1.8-2.7-4.3	2.1-3.0-4.6	2.4-3.7-4.0
			Noise Level	<15	<15	21	27	33	36	41
3	10"x10"	250 x 250	L/S (CFM)	95 (202)	127 (269)	159 (336)	191 (404)	222 (471)	254 (538)	286 (606)
			ΔPt (Pa)	7	11	17	23	33	42	53
			Th. (m)	0.7-1.3-2.7	1.0-1.8-3.7	1.5-2.2-4.3	1.8-2.7-4.6	2.1-3.0-4.9	2.4-3.7-5.5	2.7-4.0-5.8
			Noise Level	<15	17	24	31	35	39	43
4	12"x12"	300 x 300	L/S (CFM)	137 (291)	183 (388)	229 (484)	274 (581)	320 (678)	366 (775)	411 (872)
			ΔPt (Pa)	8	12	18	25	35	45	56
			Th. (m)	0.8-1.5-3.0	1.2-1.9-4.0	1.6-2.4-4.6	1.9-3.0-5.2	2.3-3.4-5.5	2.7-4.0-6.1	3.0-4.3-6.4
			Noise Level	<15	19	27	33	38	42	47
5	15"x15"	375 x 375	L/S (CFM)	214 (454)	286 (605)	357 (757)	429 (908)	500 (1059)	571 (1211)	643 (1362)
			ΔPt (Pa)	9	13	19	28	38	48	59
			Th. (m)	0.9-1.7-3.3	1.3-2.1-4.2	1.7-2.6-4.9	2.1-3.3-5.6	2.5-3.7-5.8	3.0-4.3-6.4	3.3-4.6-6.7
			Noise Level	16	21	30	35	40	44	50
6	18"x18"	450 x 450	L/S (CFM)	309 (654)	411 (872)	504 (1090)	617 (1308)	720 (1526)	823 (1744)	926 (1962)
			ΔPt (Pa)	10	14	20	30	42	52	62
			Th. (m)	1.0-1.9-3.6	1.4-2.2-4.5	1.9-2.8-5.2	2.4-3.6-5.9	2.7-4.0-6.1	3.3-4.6-6.7	3.6-4.9-7.0
			Noise Level	17	23	33	37	43	55	65
7	6" Ø	150 Ø	L/S (CFM)	27 (57)	36 (76)	45 (95)	54 (114)	63 (133)	72 (152)	80 (171)
			ΔPt (Pa)	5	8	13	18	26	34	42
			Th. (m)	0.3-0.9-2.1	0.6-1.2-2.7	1.2-1.8-3.0	1.3-2.1-3.1	1.5-2.4-3.4	1.8-2.7-3.7	2.1-2.8-4.0
			Noise Level	<15	<15	<15	20	27	31	35
8	8" Ø	200 Ø	L/S (CFM)	48 (101)	64 (135)	80 (169)	96 (203)	112 (237)	128 (270)	144 (304)
			ΔPt (Pa)	6	9	15	20	29	37	47
			Th. (m)	0.4-1.0-2.2	0.9-1.5-3.0	1.2-1.8-3.4	1.5-2.1-3.7	1.8-2.7-4.0	2.1-3.0-4.3	2.2-3.4-4.6
			Noise Level	<15	<15	19	26	31	34	38
9	10" Ø	250 Ø	L/S (CFM)	75 (158)	100 (211)	124 (264)	149 (316)	174 (369)	199 (422)	224 (475)
			ΔPt (Pa)	7	10	16	22	31	40	50
			Th. (m)	0.6-1.2-2.4	0.9-1.5-3.4	1.5-2.1-4.0	1.6-2.4-4.3	1.8-3.0-4.6	2.1-3.4-4.9	2.4-3.7-5.2
			Noise Level	<15	<15	22	28	33	38	41
10	12" Ø	300 Ø	L/S (CFM)	108 (228)	143 (304)	179 (380)	215 (456)	251 (532)	287 (608)	323 (684)
			ΔPt (Pa)	8	11	17	24	33	43	54
			Th. (m)	0.7-1.3-2.7	1.1-1.8-3.7	1.5-2.4-4.2	1.8-2.7-4.9	2.1-3.4-5.2	2.4-3.7-4.3	2.7-4.3-5.8
			Noise Level	<15	17	25	31	36	40	44
11	14" Ø	350 Ø	L/S (CFM)	146 (310)	195 (413)	244 (517)	293 (620)	341 (723)	390 (827)	439 (930)
			ΔPt (Pa)	9	12	18	25	35	46	57
			Th. (m)	0.8-1.5-3.0	1.2-2.1-4.0	1.6-2.5-4.9	2.1-3.0-5.2	2.4-3.5-5.8	2.7-4.0-6.1	3.0-4.6-6.4
			Noise Level	<15	19	27	33	38	42	46
12	16" Ø	400 Ø	L/S (CFM)	191 (406)	255 (541)	319 (676)	383 (811)	447 (946)	510 (1082)	574 (1217)
			ΔPt (Pa)	10	13	19	26	37	48	60
			Th. (m)	0.9-1.6-3.1	1.5-2.1-4.3	1.8-2.7-5.2	2.1-3.2-5.8	2.4-3.7-6.1	2.8-4.3-6.7	3.3-4.9-7.0
			Noise Level	<15	21	29	35	40	44	48
13	-	535 x 535 (without Adaptor)	L/S (CFM)	436 (924)	581 (1232)	726 (1539)	872 (1847)	1017 (2155)	1162 (2463)	1308 (2771)
			ΔPt (Pa)	15	17	23	35	47	57	68
			Th. (m)	1.9-2.8-5.2	2.4-3.6-5.9	2.7-4.0-6.1	3.3-4.6-6.7	3.6-4.9-7.0	3.7-5.1-7.1	4.0-5.3-7.3
			Noise Level	22	28	38	44	51	62	73

- Damper at full open position
- Noise Level values are based on 10 dB attenuation.
- All listed sizes as above except No. (13) are equipped with Neck Adaptor giving the listed neck size.



## Ordering Data

- **Available Surface Finishes For Perforated Ceiling Diffusers :**

- Powder Coating (Standard Colors are white RAL 9010/ 9016, other optional colors if required to be provided in RAL - No. only and charged extra).
- Aluminium in Mill Finish.
- Other Special Finishes (on request if available).

- **Available Surface Finishes For Opposed Blade Damper :**

- Aluminium in Mill Finish (standard).
- Matt Black Powder Coating (optional).

- **Ordering Specifications :**

### Specify :

- 1 . Perforated Ceiling Diffuser Description / Model (Supply or Return).
- 2 . Inner Core Arrangement if any (4, 3, 2 or 1 Way).
- 3 . Inner Core shape (Square or Rectangular).
- 4 . Opposed Blade Damper Surface Finish (only mention if required in Black color).
- 5 . Face Size (F) for the 600 x 600 mm Standard Module (other non-standard sizes are available on request and to be ordered also by face size).
- 6 . Neck Adaptor Size if any.
- 7 . Quantity.
- 8 . Perforated Diffuser Surface Finish.
- 9 . RAL – No. (only mention if powder coating surface finish is required).
- 10 . Optional Accessories ( Equalizing Grid, Gasket, Adaptor,..... or others).

### Example 1 :

1	2	3	4	5	6	7	8	9	10
PSCD	4W	S	-	24" x 24" 600 x 600 (mm)	-	3	Powder Coating	9016	-

### Example 2 :

1	2	3	4	5	6	7	8	9	10
PSCD	4W	S	BD	24" x 24" 600 x 600 (mm)	10" Ø 250 mm Ø	10	Powder Coating	9010	With Neck Adaptor

### Example 3 :

1	2	3	4	5	6	7	8	9	10
PRCD	-	-	-	24" x 24" 600 x 600 (mm)	-	5	Powder Coating	7045 (Optional)	-

### Example 4 :

1	2	3	4	5	6	7	8	9	10
PRCD	4W	S	-	12" x 12" 300 x 300 (mm)	-	15	Mill Finish	-	With Rubber Gasket

