

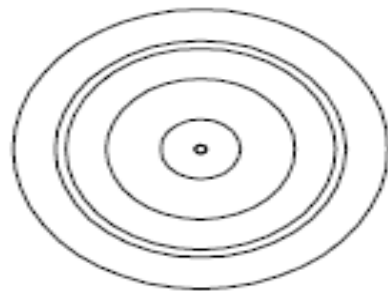
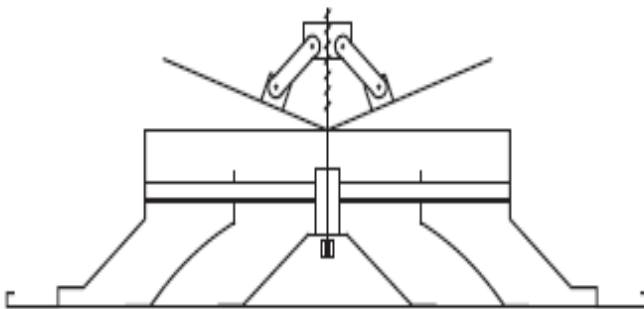
# CIRCULAR CEILING DIFFUSERS

Rev.02  
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## GMC CCD-021 PRODUCT SPECIFICATIONS:

- Standard Material: Aluminum profile. Usable for both supply and return air ducts.
- The circular design guarantees a uniform radial discharge of supply air application.
- Usable for places up to 4m. height.
- Has three models: Standard Model (CCD-121), Curvilinear Bladed Model (CCD-221) and Telescopic Model (CCD-321).
- On request, damper can be added to control flowing air volume.
- Mounted with 4 mm screws on frame. Optional: Clips or Plate-spring applications.
- Eloxal, anodizing or electrostatic powder coating with the color from RAL catalogue.



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4640 Hedgcoxe Road 227 Plano, TX 75024 – US

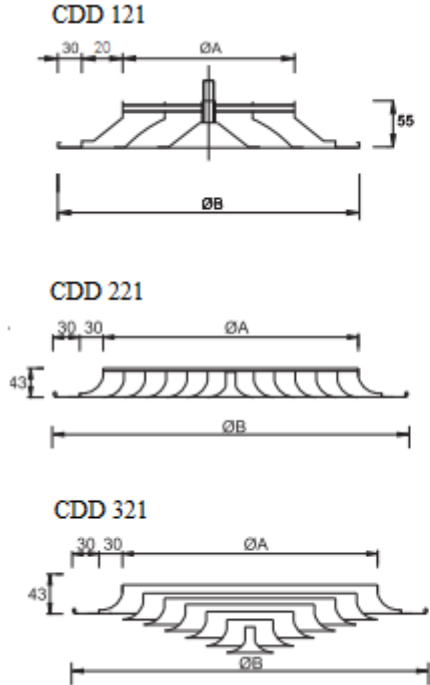
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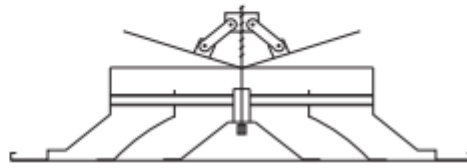


## TECHNICAL DETAILS

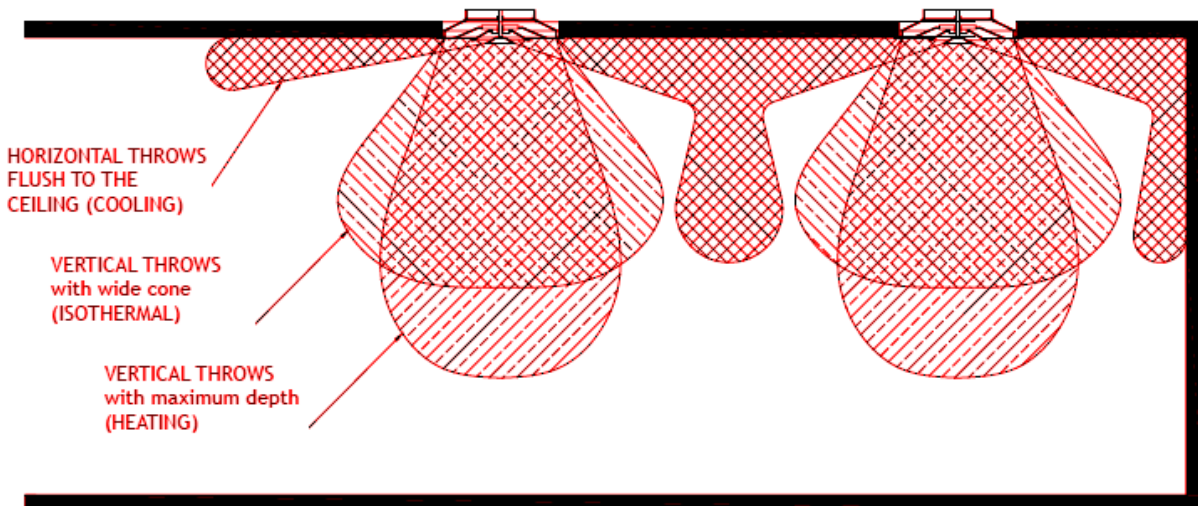
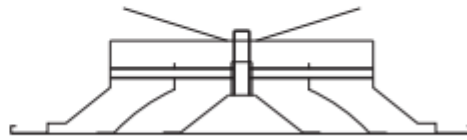


### AIR VOLUME ADJUSTMENT

Butterfly damper  
(Adjustment by screw)



Butterfly damper  
(Adjustment by Manually)



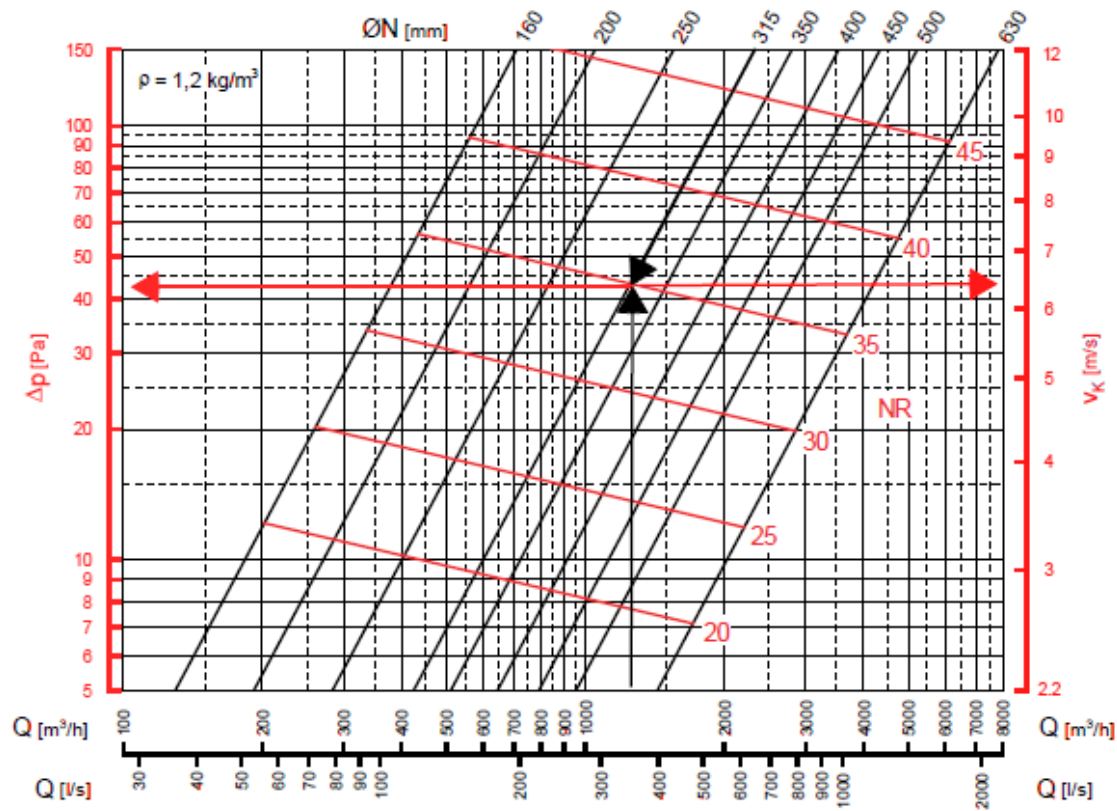
# CIRCULAR CEILING DIFFUSERS

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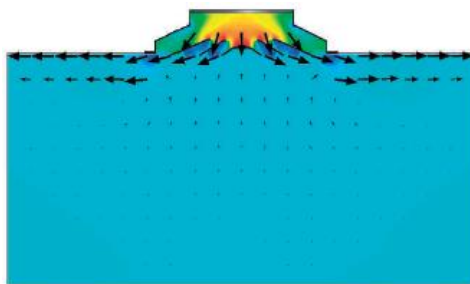
## DATA DIAGRAMS

### CCD-021, PRESSURE DROP AND NOISE LEVELS

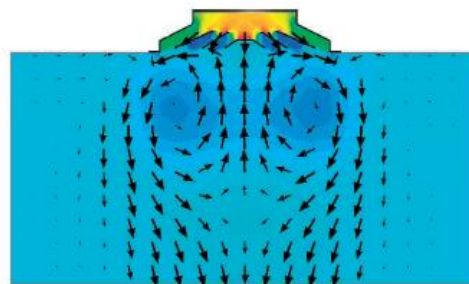


- Q [m³/h] [l/s]      supply air flow rate
- ØN [mm]            nominal diameter of the diffuser
- v<sub>k</sub> [m/s]            velocity relating to the effective outlet area S
- Δp [Pa]              total pressure loss
- NR                    noise rating (ISO standard, in relation to 10<sup>-12</sup> W) taking no account of the attenuation of the room

Δp and NR do not vary significantly with changes to the position of the central cones



Horizontal throw configurations



Vertical throw configurations

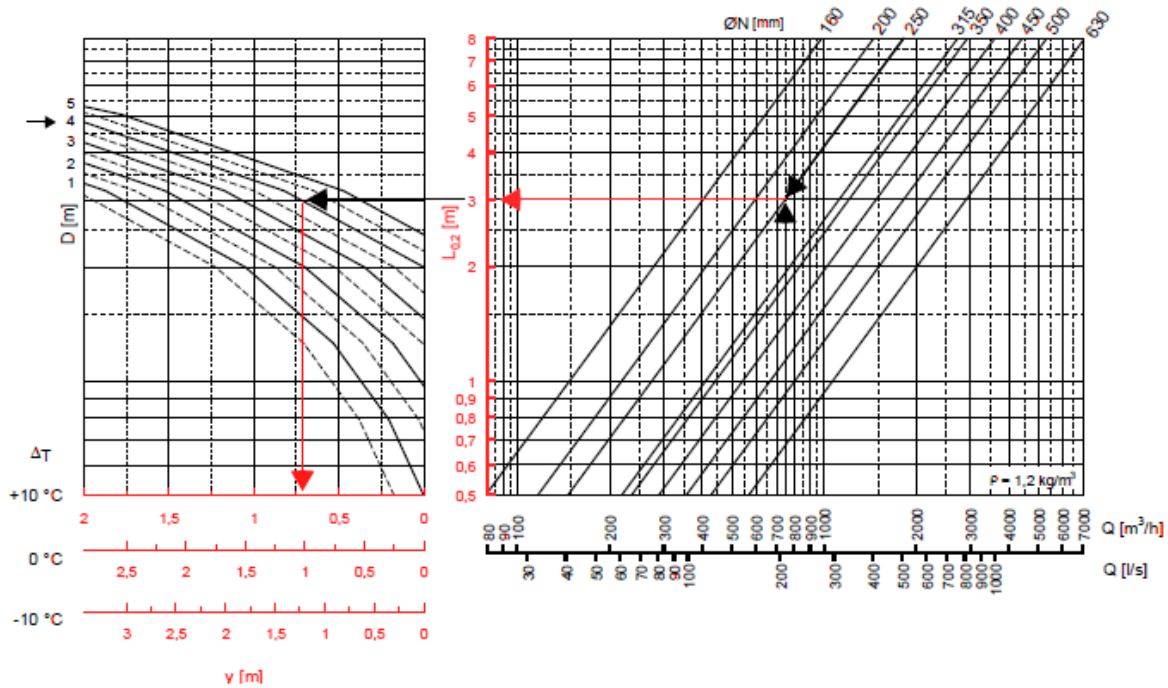


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## CCD-021, THROW DISTANCES (m)



- Q [m<sup>3</sup>/h] or [l/s]      supply air flow rate
- ØN [mm]                      nominal diameter of the diffuser
- v<sub>m</sub> [m/s]                      average velocity of the throw at distance L
- L [m]                              diffusion radius (= x + y)
- x [m]                              horizontal dimension of the throw
- y [m]                              vertical dimension of the throw
- L<sub>0,2</sub> [m]                        throw with terminal velocity of 0.2 m/s
- D [m]                              distance between two diffusers
- ΔT [°C]                         difference between supply air temperature and ambient temperature

## CCD-021, SELECTION TABLES

Standard sizes ø A [mm]	CDD 121 ø B	CDD 121 CDD 121 ø B	Effective area (m <sup>2</sup> )	Air volume (m <sup>3</sup> /h)	Throw max.(m)
150	290	270	0,015	135	
200	343	320	0,027	243	1,3
250	390	370	0,040	360	1,55
300	443	420	0,056	504	1,8
350	490	470	0,074	666	2,2
400	543	520	0,096	810	2,4
450	590	570	0,112	1048	2,7
500	643	620	0,135	1278	3,0
550	690	670	0,192	1728	3,6

\*Datas was chosen when the air velocity is 2,5 m/s and the velocity at throw distance is 0,25m/s.



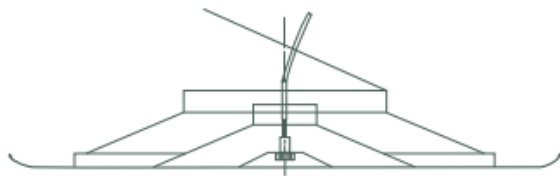
# CIRCULAR CEILING DIFFUSERS

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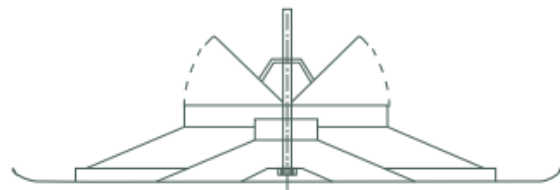


CCD 121			AIR VOLUME (m <sup>3</sup> /h)												
SIZE	AREA (m <sup>2</sup> )		2.5	3.4	4.4	5.4	6.4	7.3	8.3	9.3	10.3	11.3	12.3	13.3	14.3
150	0,015	Vk (m/s)	3,7	5,8	7,8	-	-	-	-	-	-	-	-	-	-
		Pt (Pa)	15	36	63	-	-	-	-	-	-	-	-	-	-
		L <sub>T</sub> (m)	0,7	1,15	1,4	-	-	-	-	-	-	-	-	-	-
		NR	25	38	48	-	-	-	-	-	-	-	-	-	-
200	0,027	Vk (m/s)	2,1	3,2	4,2	5,2	6,1	7,3	-	-	-	-	-	-	-
		Pt (Pa)	4,7	10	19	29	40	56	-	-	-	-	-	-	-
		L <sub>T</sub> (m)	-	0,8	1,15	1,35	1,7	1,9	-	-	-	-	-	-	-
		NR	-	22	31	38	45	52	-	-	-	-	-	-	-
250	0,040	Vk (m/s)	-	2,2	2,8	3,5	4,2	4,9	5,6	6,2	7,2	-	-	-	-
		Pt (Pa)	-	5,1	7,9	13	19	26	25	43	53	-	-	-	-
		L <sub>T</sub> (m)	-	0,65	0,85	1,15	1,4	1,6	1,8	2,1	2,4	-	-	-	-
		NR	-	-	21	27	33	38	44	47	50	-	-	-	-
300	0,056	Vk (m/s)	-	-	2,0	2,5	3,0	3,5	4,0	4,5	5,0	7,0	-	-	-
		Pt (Pa)	-	-	4,2	6,5	9	13	17	22	26	51	-	-	-
		L <sub>T</sub> (m)	-	-	0,72	0,92	1,1	1,35	1,5	1,7	1,8	2,7	-	-	-
		NR	-	-	-	-	24	29	34	37	42	-	-	-	-
350	0,074	Vk (m/s)	-	-	-	-	2,2	2,6	3,0	3,4	3,7	5,2	-	-	-
		Pt (Pa)	-	-	-	-	5,1	7,3	9	12	15	29	7,5	-	-
		L <sub>T</sub> (m)	-	-	-	-	0,94	0,92	1,35	1,45	1,6	2,4	5,9	-	-
		NR	-	-	-	-	-	26	30	37	45	3,5	-	-	-
400	0,090	Vk (m/s)	-	-	-	-	-	2,2	2,4	2,8	3,1	4,3	5,0	6,2	-
		Pt (Pa)	-	-	-	-	-	5,1	6,1	7,9	9,5	21	26	43	-
		L <sub>T</sub> (m)	-	-	-	-	-	1,0	1,2	1,35	1,4	2,2	2,7	3,5	-
		NR	-	-	-	-	-	-	21	24	28	38	45	51	-
450	0,112	Vk (m/s)	-	-	-	-	-	-	-	2,3	2,4	3,5	5,0	6,0	7,5
		Pt (Pa)	-	-	-	-	-	-	-	-	5,4	6,1	13	26	38
		L <sub>T</sub> (m)	-	-	-	-	-	-	-	-	1,2	1,3	1,8	2,8	3,4
		NR	-	-	-	-	-	-	-	-	-	22	32	47	52
500	0,135	Vk (m/s)	-	-	-	-	-	-	-	-	2,1	2,8	4,1	5,0	6,0
		Pt (Pa)	-	-	-	-	-	-	-	-	4,7	7,9	18	26	38
		L <sub>T</sub> (m)	-	-	-	-	-	-	-	-	1,2	1,8	2,4	3,0	3,8
		NR	-	-	-	-	-	-	-	-	-	27	38	46	52
550	0,192	Vk (m/s)	-	-	-	-	-	-	-	-	-	2,0	2,8	3,7	4,5
		Pt (Pa)	-	-	-	-	-	-	-	-	-	4,2	7,9	14	22
		L <sub>T</sub> (m)	-	-	-	-	-	-	-	-	-	1,4	2,1	1,6	3,1
		NR	-	-	-	-	-	-	-	-	-	-	29	36	43

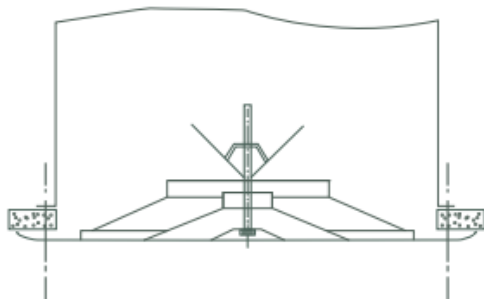
## DAMPER TYPES



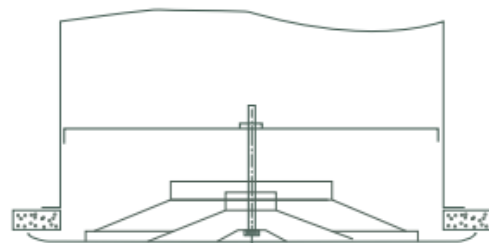
Diffuser With Flap Type Damper



Diffuser With Butterfly Type Damper



Screw Type : Available for diffusers with/without damper



Bridge Type : Only available for diffusers without damper



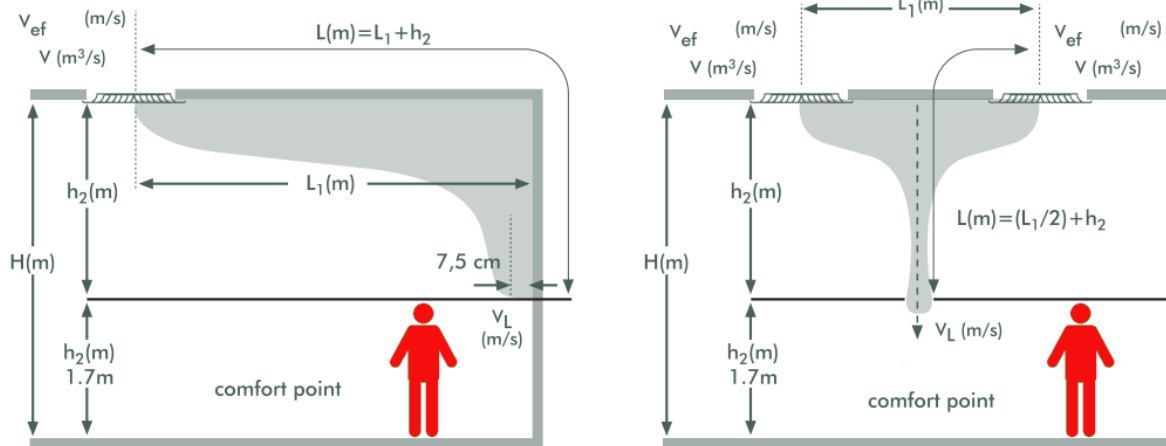


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## CCD-021, SELECTION CHARACTERISTICS



<b>L1</b>	The distance between the diffusers or between the diffuser and the wall (m)
<b>h1</b>	Comfort point height (m)
<b>h2</b>	The distance between the diffuser and the comfort point (m)
<b>V<sub>efek.</sub></b>	Effective comfort point (m/s)
<b>V<sub>L</sub></b>	At the comfort point (m)
<b>Δt<sub>0</sub></b>	The temperature difference between the air accessing to the environment and the temperature of the comfort point (°C)
<b>Δt<sub>L</sub></b>	The temperature difference between the air accessing to the comfort point and the temperature of the comfort point (°C)
<b>L</b>	Throw distance (m)
<b>V</b>	Mass air flow (m³/h)
<b>H</b>	Ambient height (m)
<b>S</b>	Sound power level dB(A)

	Sound	Pressure Loss
Splitter and with damper	+3 dB (A)	x 1,0
Integrator	+3 dB (A)	x 1,1
Integrator and with damper	+13 dB (A)	x 1,15

The values in the table are given for the splitter diffusers with damper and related coefficients and additions are applied for the cases mentioned apart.

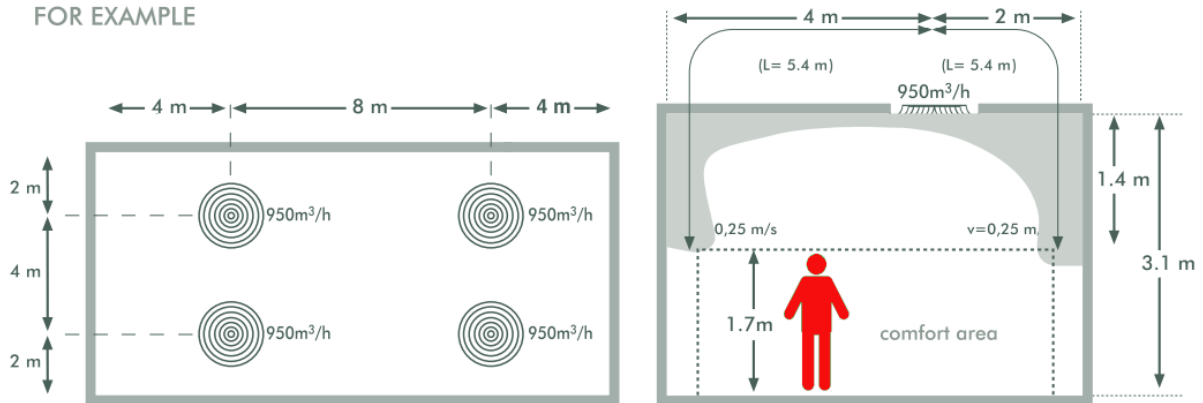


# CIRCULAR CEILING DIFFUSERS

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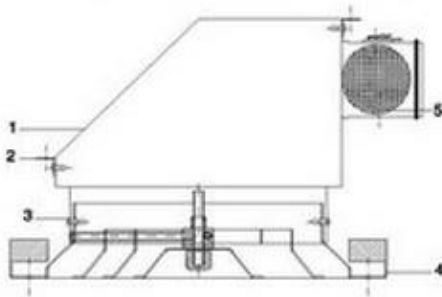
FOR EXAMPLE



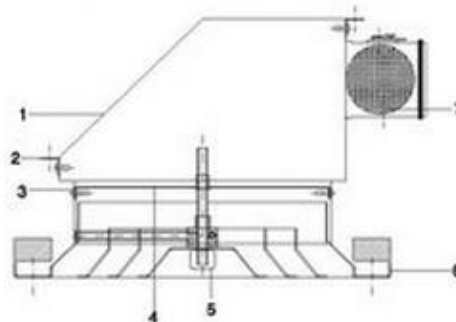
## MOUNTING DETAILS

1. Plenum Box + Standard Duct Mounting Details (Non-insulated)
2. Plenum Box + Standard Duct Mounting Details (Insulated)
3. Plenum Box + Standard Bridge Mounting Details (Non-insulated)
4. Plenum Box + Standard Bridge Mounting Details (Insulated)

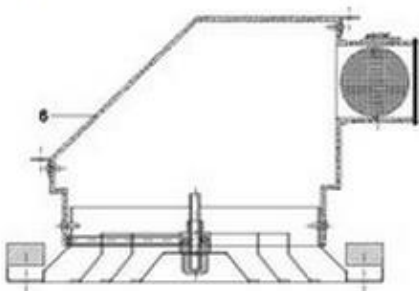
1.



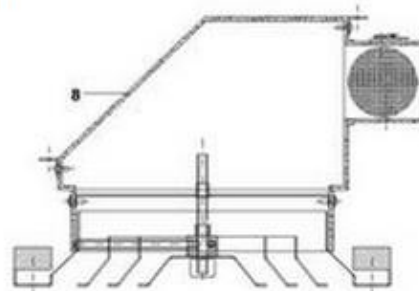
3.



2.



4.



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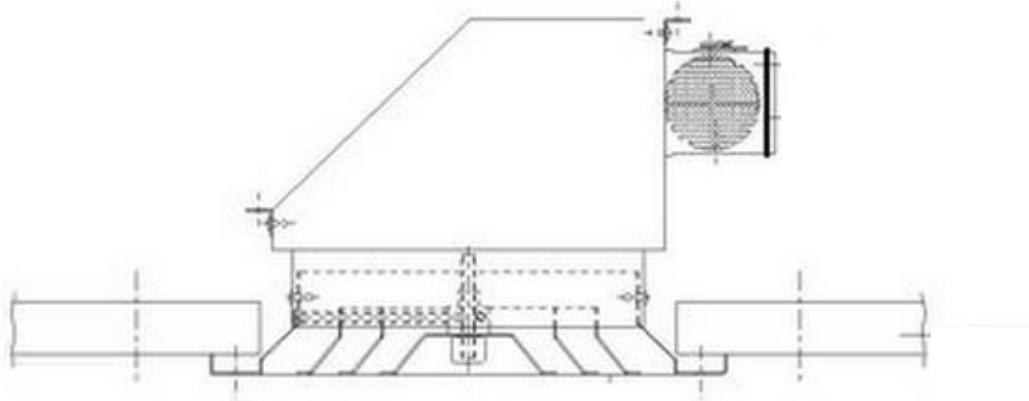
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# CIRCULAR CEILING DIFFUSERS

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## 5. Drywall Ceiling Mounting Detail



## 6. Installation Sizes of Circular Ceiling Diffusers

MOUNTING DIMENSIONS OF CIRCULAR CEILING DIFFUSERS

ØB (mm)	100	150	200	250	300	350	400	450	500	550	600	650
ØC (mm)	300	400	500	500	600	600	700	700	800	800	900	900
ØK (mm)	225	325	425	425	525	525	625	625	725	725	825	825
H (mm)	74	80	82	82	82	82	82	82	82	82	82	82

### ORDER PARAMETERS:

CCD-021	FL	00	PFD	OD9010	SM	D 400
<b>CCD-121: Standard</b> <b>CCD-221: Curv. Blade</b> <b>CCD-321: Telescopic</b>					<b>D: Neck Size</b> <b>F: Frame Size</b>	
<b>00: No-Accessory</b> <b>FL: with Filter</b> <b>PL: with Plenum Box</b>					<b>00: No Mounting</b> <b>BF: Blind Frame</b> <b>SM: Screw Mounting</b> <b>BM: Bridge Mounting</b>	
<b>000: Without Damper</b> <b>OFD: Opposite Flap Damper</b> <b>PFD: Parallel Flap Damper</b>					<b>00: No coating</b> <b>EX: Eloxal Coating</b> <b>OD----: Oven Drying Coating</b>	

