

CIRCULAR CEILING DIFFUSERS



CHAPTER 6



تكنو فاب
TECHNO FAB
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CIRCULAR CEILING DIFFUSERS

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→ The Circular or Round Diffusers of TFE provide an alternative to conventional square or rectangular diffusers for both ceiling supply and extract applications. Mounted on exposed duct-work or flush with a conventional ceiling and offering an attractive appearance, these Omni directional diffusers, with their aerodynamic profile, are capable of handling high air volumes at comparatively low sound levels and give a

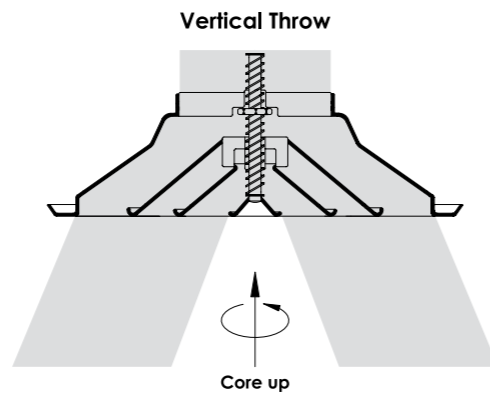
smooth even distribution of air. Circular Ceiling Diffusers are available in field - adjustable air pattern consists of a conical designed inner core to provide three adjustable positions, horizontal, vertical or any intermediate position. For example, at the full vertical position, it provides an unusually long downward projection serving high ceiling areas of variable conditions.

Features & Characteristics

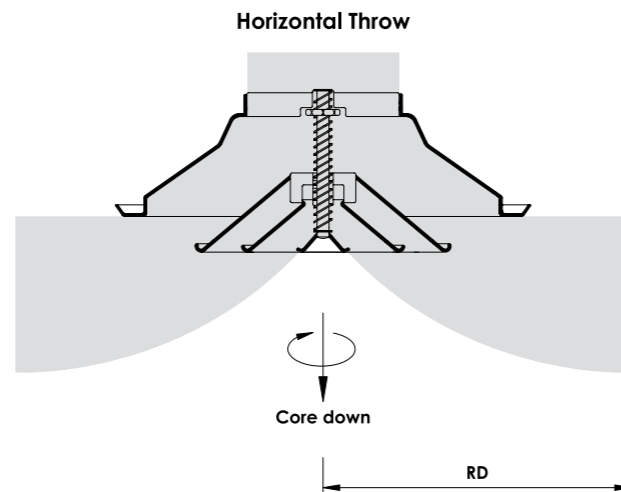
- Construction Frame & inner cones (core) are of pressed Aluminum sheet constructions.
- Damper (Butterfly type) Construction: steel Sheet in matt black powder coating finish.
- Circular I Round Diffusers are one of the best solutions for ceiling air diffusion in air conditioning systems suitable for large offices commercial and shopping centers, industrial buildings, warehouses, cinemas, etc. The high induction rate, extremely silent operation and low pressure drops assure optimum performance and a high level of ambient comfort.
- The inner cones (core) are in conical shape, Omni directional air discharge, modern styling and removable allowing for easy installation, balancing, cleaning, damper adjustment and access to duct system.
- Wide step down cones (core) overlap with each other for efficient draft free diffusion.
- A specially designed outer ring (frame) helps to reduce ceiling smudge.
- Expanded cones feature gives a high degree of mixing of primary and secondary air that provides excellent air distribution and efficiency.
- Just by adjusting the position of inner cones, desirable airflow patterns are ensured. Thus rotating the core to "UP" position until it reaches its stop point is allowing for maximum vertical throw, in reverse the same can be lowered to "DOWN" position allowing for maximum horizontal throw.
- Available in 8 standard neck sizes ranging from 150 mm Ø up to 500 mm Ø in 50 mm increments.
- Consists of 2 inner cones for 150 and 200 mm Ø sizes and 3 inner cones for other sizes.
- Butterfly Damper: Matt black powder coated, allows adjustment from the face side of the diffuser. For more details see page No. RD-04.
- Sponge Gasket to reduce air infiltration and diffuser rattling is added around the outer ring as an option with extra cost.
- Mounting Instructions: see page No. RD-04.
- Surface Finishes: see page No. RD-07.

➔ Influence of Central Core Position on Outlet Performance

- To obtain the maximum vertical throw, turn the central core to «UP» position.



- To obtain the maximum horizontal throw; turn the central core to «DOWN» position.
- Radius of Diffusion (RD): The horizontal axial distance an airstream travels after leaving the circular diffuser before the maximum stream velocity is reduced to a specified terminal level.

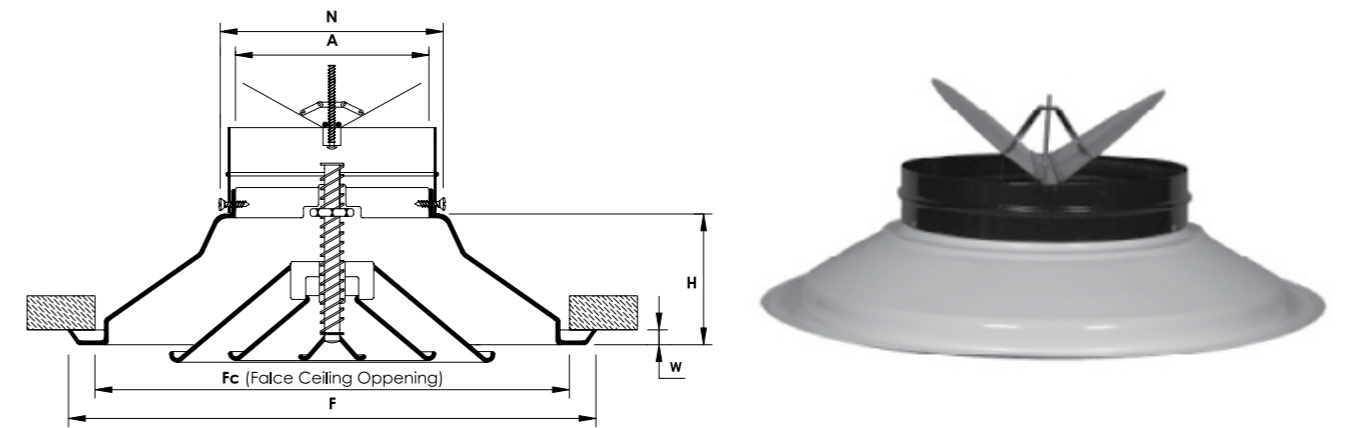


OPERATING RANGE & QUICK SELECTION TABLE

Nominal / Listed Sizes (N)		Noise Level			
mm	Inch	Min	<25	>25	>40
150 ∅	6" ∅	60	170	175	315
200 ∅	8" ∅	105	200	245	560
250 ∅	10" ∅	165	425	435	870
300 ∅	12" ∅	235	600	630	1255
350 ∅	14" ∅	320	660	700	1710
400 ∅	16" ∅	420	900	940	2240
450 ∅	18" ∅	530	1150	1240	2830
500 ∅	20" ∅	655	1400	1525	3490

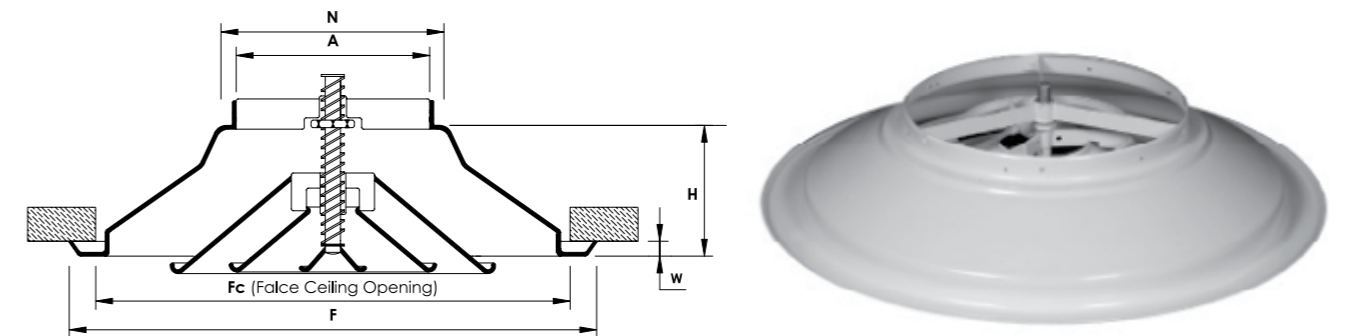
Models Construction and Dimensional Details

➔ Circular Supply Ceiling Diffuser, Model CSCD C/W BFD



- Diffusers called Circular Supply Ceiling Diffuser and coded as CSCD C/W IPD
- are always equipped with Bul1er11y Damper (provided as standard).

➔ Circular Return Ceiling Diffuser, Model CRCD W/O DAMPER



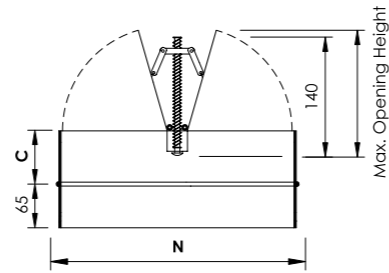
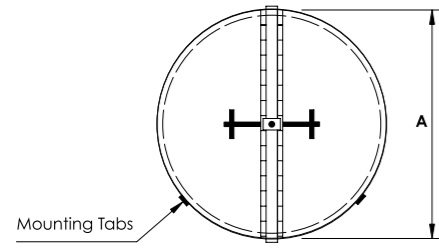
- Unless otherwise specified, Diffusers called Circular Return Ceiling Diffuser and coded as CICD W/O DAMPER are usually supplied w/o damper as a standard.

NECK & OTHER DIMENSIONS FOR CIRCULAR DIFFUSERS

Nominal / Listed Sizes (N)		Dimensions in mm				
mm	Inch	A ∅	F ∅	Fc ∅	H	W
150 ∅	6" ∅	146	321	295	46	10
200 ∅	8" ∅	197	429	391	60	11
250 ∅	10" ∅	248	537	483	81	13
300 ∅	12" ∅	298	645	573	95	16
350 ∅	14" ∅	349	746	664	114	19
400 ∅	16" ∅	400	864	756	130	22
450 ∅	18" ∅	451	978	848	148	19
500 ∅	20" ∅	502	1092	940	166	22

- All Dimensions are in mm and subject to: 1: 2mm tolerance.

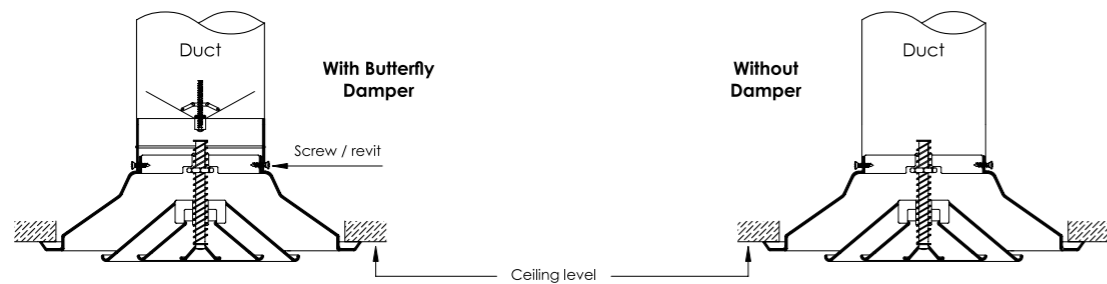
Butterfly Damper



- Economical designed damper for volume control.
- Continuously adjustable.
- Friction Pivots hold the heavy gauge blades at the desired position.
- Easily adjusted from the face side of the diffuser.
- Can be mounted directly on the diffuser neck before installation.
- Factory assembled for supply diffuser model only.

Butterfly Damper Dimensions				
Nominal / Listed Sizes (N)		Dimensions in mm		
mm	Inch	A Ø	B Ø	C Ø
150 Ø	6" Ø	149	81	51
200 Ø	8" Ø	200	106	51
250 Ø	10" Ø	251	132	51
300 Ø	12" Ø	302	160	51
350 Ø	14" Ø	352	185	51
400 Ø	16" Ø	403	203	76
450 Ø	18" Ø	454	229	76
500 Ø	20" Ø	505	265	76

Mounting Instructions



- Install outer frame of the circular diffuser by means of ceiling hangers or with the help of self-tapping screws. Duct joints are then sealed with adhesive tape.
- Central core assembly can be detached or attached by rotating anti-clockwise or clockwise direction.
- Horizontal or vertical discharge pattern could be achieved by rotating the central core clockwise or anti-clockwise. thus:
 - rotate the central core clockwise until you get the required horizontal discharge pattern.
 - rotate the central core anti-clockwise to get the required vertical discharge pattern.
- Butterfly damper is attached to the outer frame collar of the diffuser back side. Damper adjustable from the face of the diffuser by rotating the central core part anti-clockwise and removing it, then with the help of a screw driver damper can be adjusted.

S = Opening in mm	Nominal (n), mm.					Air Flow, M ³ /H										
	80	100	125	160	200	Qv (M / H)	20	40	60	80	100	150	200	300		
3	0	-3	-6	-6	-6	ΔP _t (Pa)	90	200								
						L _T	0.80	1.20								
						NR	30	40								
						ΔP _t (Pa)	50	120	200							
						L _T	0.70	1.05	1.40							
						NR	23	35	42							
	6	-3	-6	-6	-6	-6	ΔP _t (Pa)	30	75	130	200					
							L _T	0.60	0.90	1.30	1.40					
							NR	17	30	37	42					
							ΔP _t (Pa)	20	45	80	130					
							L _T	0.60	0.85	1.20	1.30					
							NR	-	25	32	37					
6	0	-3	-3	-3	-3	ΔP _t (Pa)	13	30	60	80	200					
						L _T	0.50	0.85	1.00	1.20	1.90					
						NR	-	20	28	32	45					
						ΔP _t (Pa)	8	22	40	60	150					
						L _T	0.45	0.75	0.95	1.20	1.80					
						NR	15	24	30	42						
	12	6	6	6	6	6	ΔP _t (Pa)		15	30	45	100	200			
							L _T		0.70	0.90	1.10	1.60	2.20			
							NR		-	20	27	39	46			
							ΔP _t (Pa)		12	22	35	80	150			
							L _T		0.65	0.80	1.10	1.50	2.10			
							NR		18	23	35	43				
12	6	6	6	6	6	ΔP _t (Pa)		15	25	60	100					
						L _T		0.70	0.95	1.40	1.90					
						NR		-	20	31	38					
						ΔP _t (Pa)			13	35	60	130				
						L _T			0.80	1.20	1.70	2.50				
						NR			-	23	32	43				
	12	12	12	12	12	12	ΔP _t (Pa)			5	20	35	80	150		
							L _T			0.75	1.15	1.50	2.20	3.00		
							NR			17	25	35	48			
							ΔP _t (Pa)			12	22	45	90			
							L _T			0.90	1.30	1.90	2.70			
							NR			-	21	32	49			
15	15	15	15	15	15	ΔP _t (Pa)				13	29	45				
						L _T				1.15	1.70	2.20				
						NR				15	25	33				
						ΔP _t (Pa)										
						L _T										
						NR										

Ordering Data

➔ Butterfly Damper

Available Surface Finishes For Circular Ceiling Diffuser:

- 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.

➔ Available Surface Finishes For Butterfly Damper:

- Standard, Matt Black Powder Coating.-Aluminium in Mill Finish.

➔ Ordering Specifications: Finishes For Butterfly Damper:

Specify:

- 1. Circular Ceiling Diffuser Description I Model (Supply or Return).
- 2. Butterfly Damper (only mention for supply model).
- 3. Nominal/ Neck Diameter Size.
- 4. Quantity.
- 5. RAL-No.

➔ Example 1:

1	2	3	4	5
CSCD	C/W BFD	12" Ø 300 mm Ø	5	9010

➔ Example 2:

1	2	3	4	5
CRCD	W/O DAMPER	10" Ø 250 mm Ø	15	7045 (optional)

➔ Example 3:

1	2	3	4	5
CRCD	W/O DAMPER	16" Ø 400 mm Ø	2	Mill Finish

DVR

Exhaust Disc Valve

Material: Steel

Technical Data

Performance Data - DVR Valve

S = Opening in mm	Nominal (n), mm.					Qv (M ³ /H)	Air Flow, M ³ /H								
	80	100	125	160	200		20	40	60	80	100	150	200	300	
-9						ΔP _t (Pa)	90								
						NR	-								
-3	-6	-12				ΔP _t (Pa)	20	80	200	300					
						NR	-	25	28						
6	-6					ΔP _t (Pa)		30	70	120	200				
						NR		-	12	20	28				
	0		-15				ΔP _t (Pa)		20	30	60	80	200		
							NR		-	-	11	18	30		
	0					ΔP _t (Pa)			15	25	40	90	170		
						NR			-	-	9	21	30		
	12		0				ΔP _t (Pa)					15	30	60	150
							NR					-	10	18	30

Disc Valves

CONTENTS

01	Introduction, Features & Characteristics, Operating Range & Quick Selection Table.
02	Models, Sizes & Dimensions Table.
03	Fixing Collar Mounting Ring Details, Mounting Instructions.
04	Selection Diagrams, size 100 mm Ø.
05	Selection Diagrams, size 150 mm aJ.
06	Selection Diagrams, size 200 mm (IJ).
07	Ordering Data.

➔ Disc I Air Valves are a pleasing terminal device which contains good appearance with a very accurate control over supply or exhaust air volumes. The Disc Valves have been designed to provide a compact, clean and attractive means to ventilate (supply or exhaust) bathrooms, toilets, wash rooms, kitchens and other small rooms.



➔ Features & Characteristics:

- Construction: outer ring and inner disc are manufactured from steel sheet and finished in durable white powder coating color to RAL- 9010 as standard.
- Fixing Collar or Mounting Ring is manufactured from galvanized steel sheet and supplied as a standard with no extra cost.
- Sponge Gasket: provided around the back side of the outer ring as a standard with no extra cost.
- They can provide relatively high air volumes whilst retaining good diffusion and low noise and pressure drop characteristics.
- The inner disc (core) is fully adjustable, its connected to the outer frame by threaded rod for accurate and easy adjustment.
- Fixing is obtained by twisting the valve body into the fixing collar until attaining a perfect seal utilizing the gasket provided.
- Valve adjustment is achieved by simply rotating the



- inner disc (core) inwards or outwards on its spindle and locking into its set position using the holding nut at the rear of the valve assembly.
- Mounting Instructions: see page No. DV-03.
- Surface Finishes: see page No. DV-07.

TABLE DV - 01

OPERATING RANGE & QUICK SELECTION TABLE											
SUPPLY						EXHAUST					
Available Sizes		Noise Level				Available Sizes		Noise Level			
mm	Inch	Min.	<25	>25	35	mm	Inch	Min.	<25	>25	35
100 Ø	4" Ø	5	26	28	40	100 Ø	4" Ø	5	60	62	85
150 Ø	6" Ø	30	100	105	140	150 Ø	6" Ø	20	140	145	220
200 Ø	8" Ø	10	90	100	118	200 Ø	8" Ø	20	245	250	350

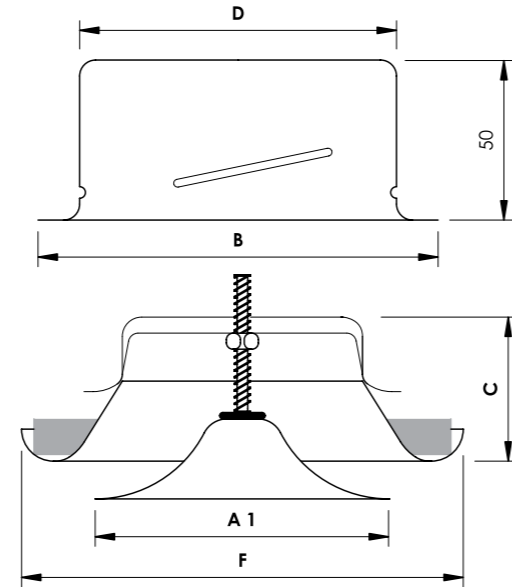
- Figures are in (m³ / h).
- Selection based on (0) level position (see pages No. DV-04, 05 & 06).

Models Construction and Dimensional Details

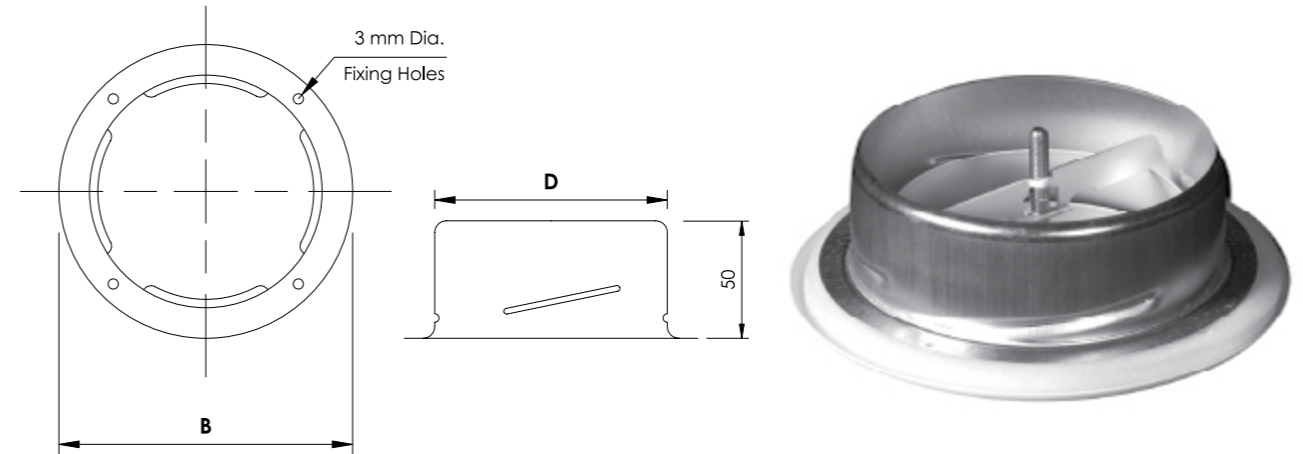
Supply Disc Valve, Model SUPPLY D.V. METAL



• Supply Disc Valve complete with its fixing collar.



Fixing Collar / Mounting Ring Details

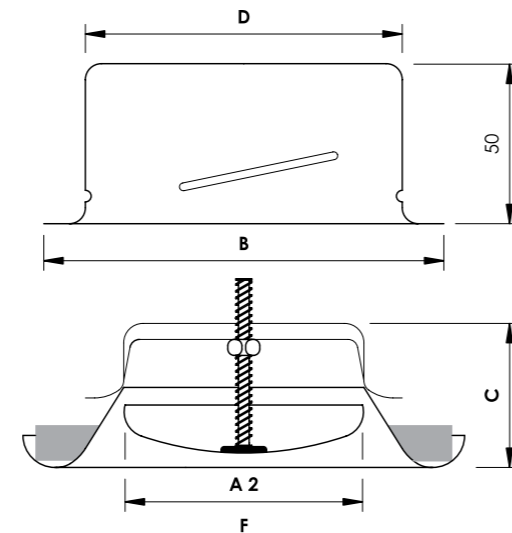


• Refer to previous page for sizes and dimensions details.

Exhaust Disc Valve, Model EXH. D.V. METAL

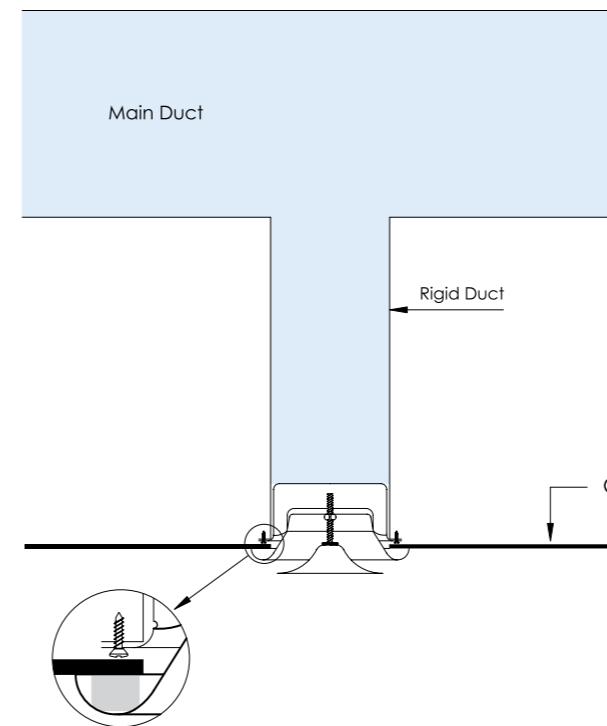


• Exhaust Disc Valve complete with its fixing collar.



Mounting Instructions

Connection To Round Rigid Duct



Connection To Round Flexible Duct

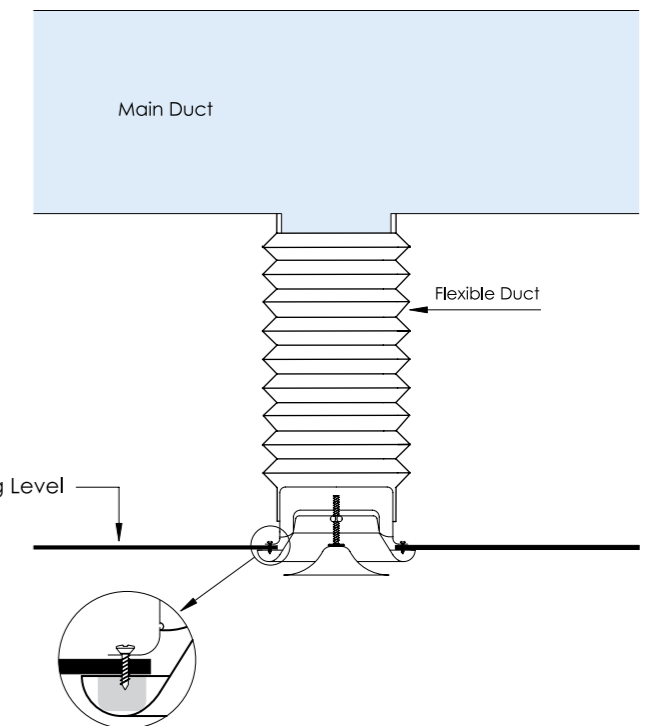


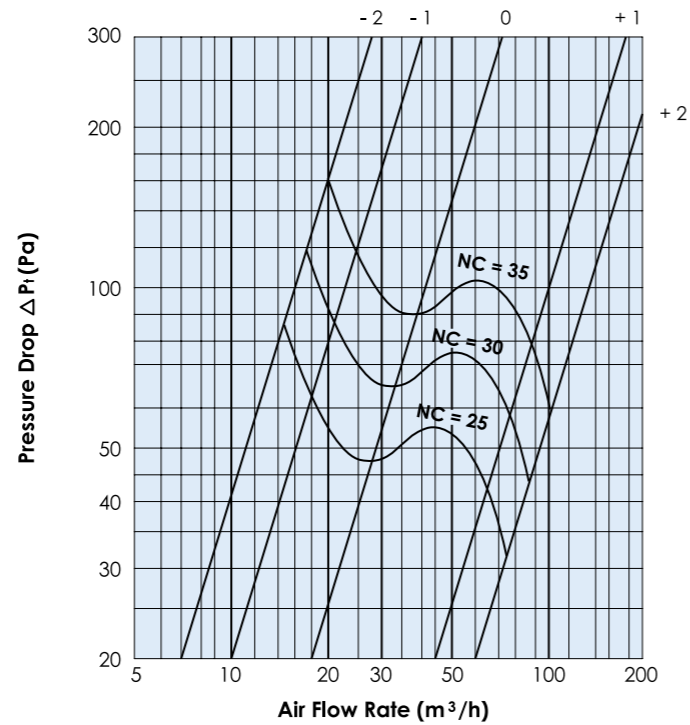
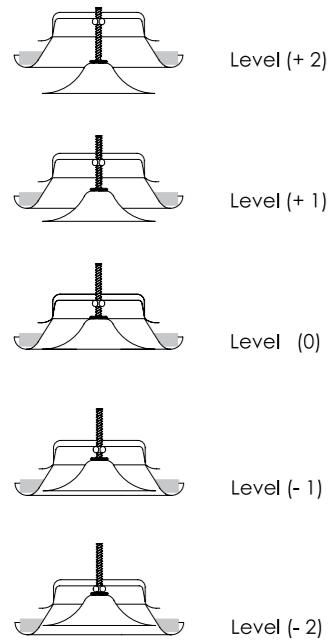
TABLE DV - 02

NECK & OTHER DIMENSIONS FOR SUPPLY & EXHAUST DISC VALVES							
Nominal / Listed Sizes		Dimensions in mm					
mm	Inch	D Ø	F Ø	A 1 Ø	A 2 Ø	B Ø	C
100 Ø	4" Ø	99	138	92	75	125	40
150 Ø	6" Ø	149	202	135	119	175	50
200 Ø	8" Ø	199	248	194	157	225	63

• All Dimensions are in mm and subject to ± 2 mm tolerance.

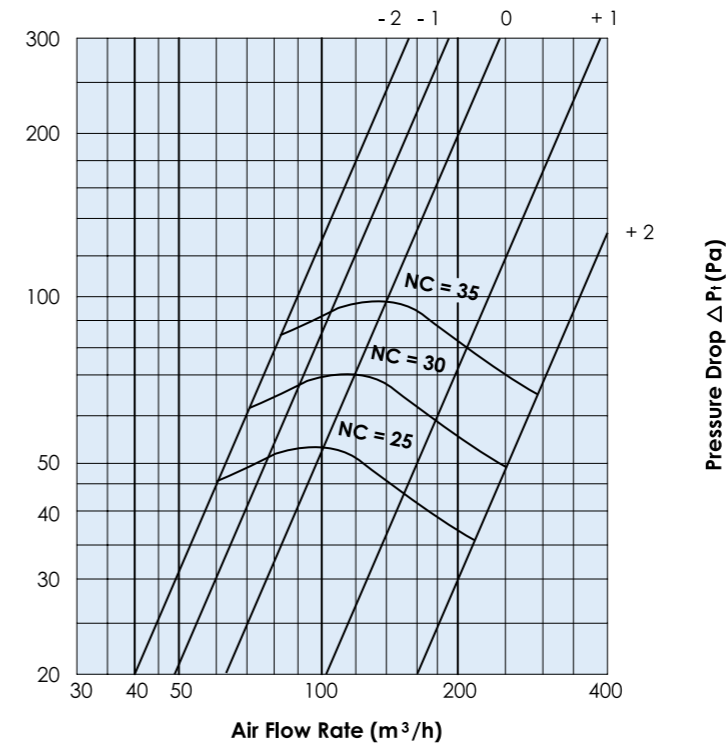
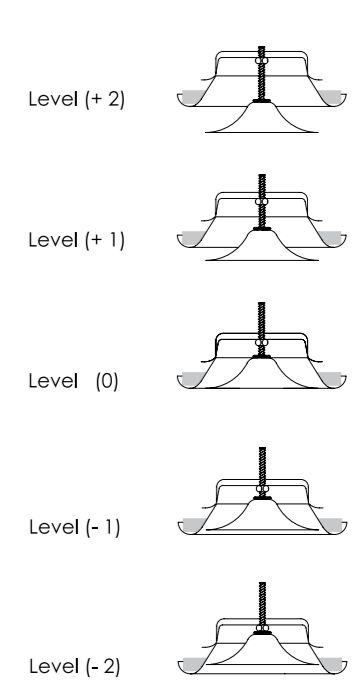
Siz 100mm \varnothing

Supply Disc Valve, Model SUPPLY D.V. METAL



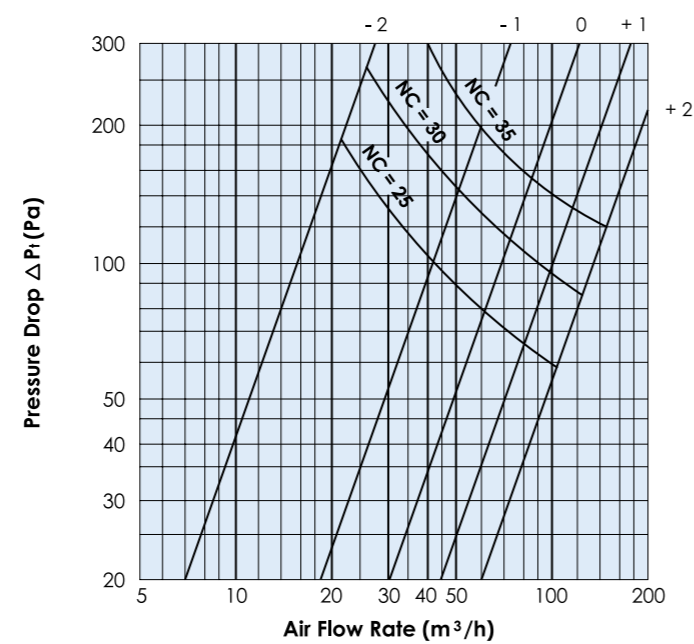
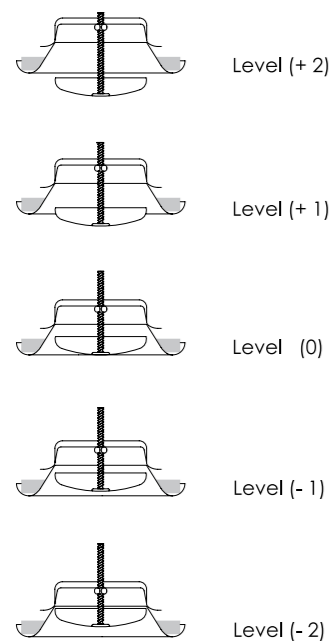
Supply Disc Valve, Model SUPPLY D.V. METAL

Siz 100mm \varnothing



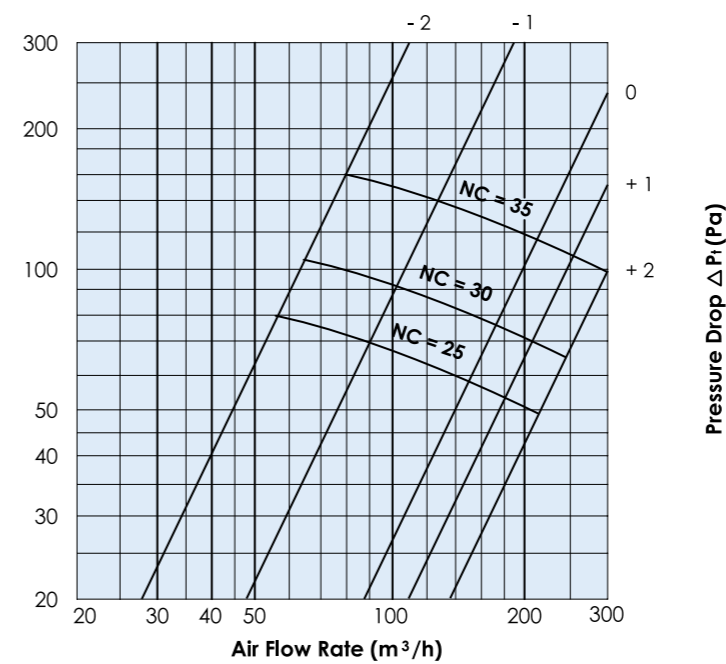
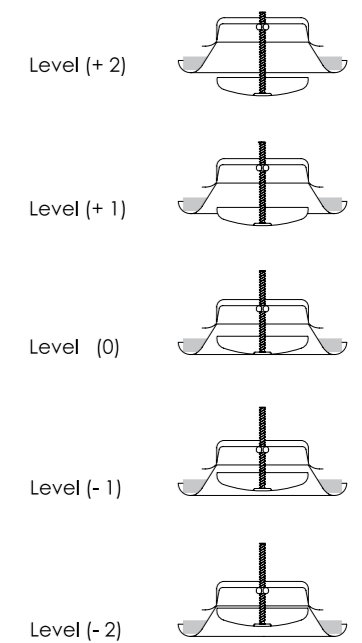
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Exhaust Disc Valve, Model EXH.D.V.METAL



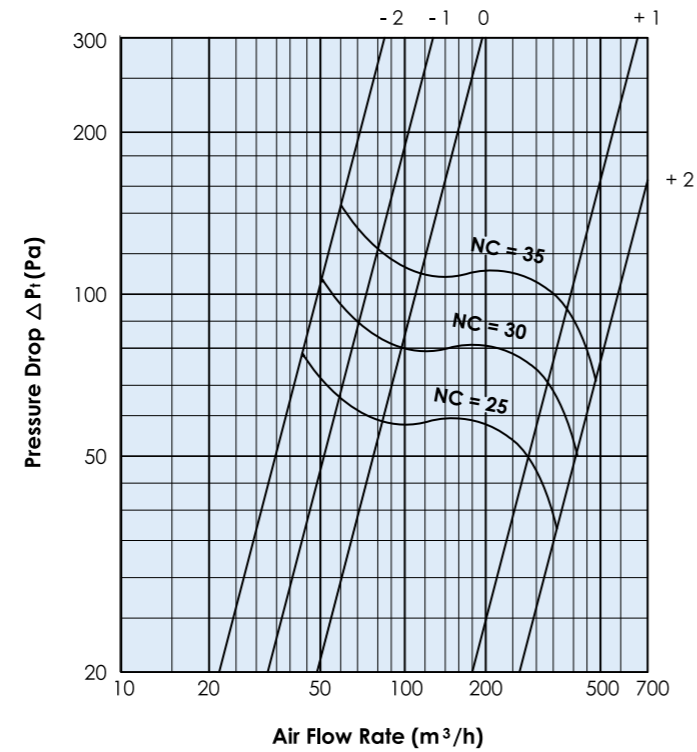
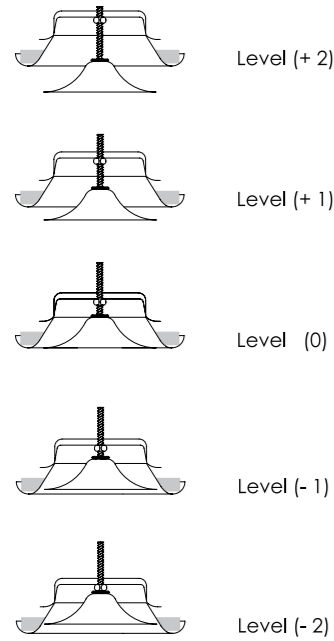
Exhaust Disc Valve, Model EXH. D.V. METAL

Siz 100mm \varnothing



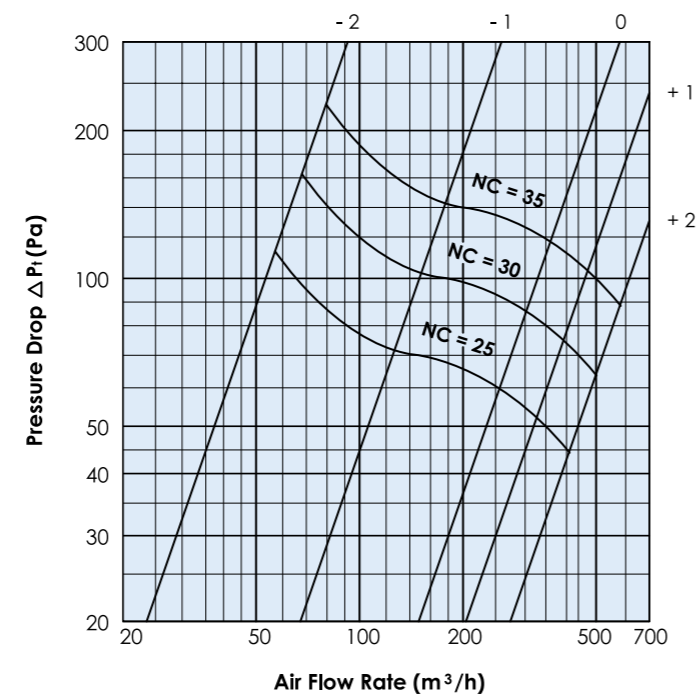
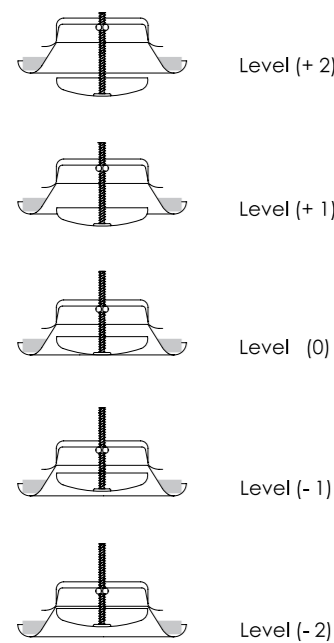
Siz 200mmø

Supply Disc Valve, Model SUPPLY D.V.METAL



Siz 200mmø

Exhaust Disc Valve, Model EXH.D.V.METAL



Available Surface Finishes for Disc Valves:

- ➔ Powder Coated, Standard white color to RAL- 9010, other optional colors if required to be provided in RAL - No. only and charged extra.

Ordering Specifications: Specify:

1. Disc Valve Description I Model (Supply or Exhaust).
2. Nominal / Neck Diameter Size.
3. Quantity.
4. RAL- No. (colors other than RAL- 9010 to be charged extra).

➔ Example 1:

1	2	3	4
SUPPLY D.V. METAL	100 mm Ø 4" Ø	25	9010 (standrad)

➔ Example 2:

1	2	3	4
EXH. D.V. METAL	150 mm Ø 6" Ø	1500	9010 (standrad)

➔ Example 3:

1	2	3	4
EXH. D.V. METAL	200 mm Ø 8" Ø	12	9016 (optional)

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