

Rota-Jet Diffusers

Description

For supply air, high capacity, rotating drum jet diffuser, providing 30° upward and downward adjustment of the airstream. Vertical vanes allow 45° sideways adjustment in two planes. Suitable for wall or duct mounting, especially high installation applications.

Construction

From extruded aluminium sections throughout, frame 1.6mm thick and heavy duty vanes and drum. Optional damper is of extruded aluminium. Plenum connections from 1.0mm thick galvanised sheet steel.

Size and Weight

There are 8 No. sizes to choose from as detailed below. Rota jet only 17.5kg/m². Rota jet and OBD 25.5kg/m².

How to Specify

STATE QUANTITY, THE PRODUCT CODING AND THE SIZE WIDTH X HEIGHT

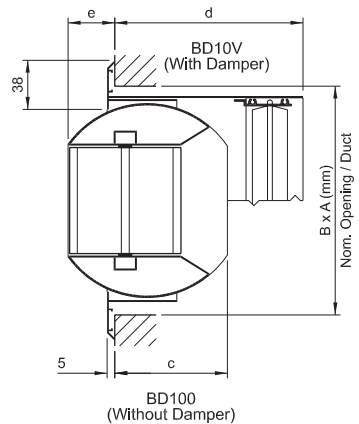
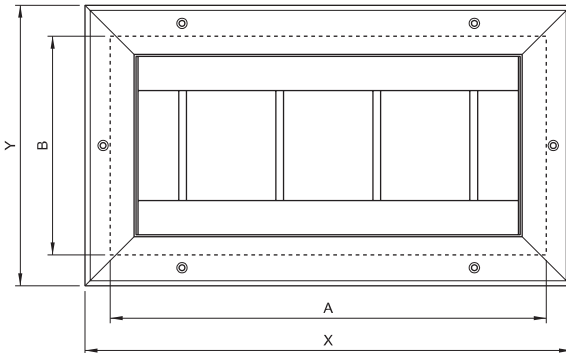
e.g. 10 Qty. BD70V+1C 794 x 271.



Frame Style	Size Code	Options	Accessories
B 38mm Bevel Edged Frame	D1 > D8	0 None	0 None
		S Spiral Duct Plenum	V Damper
		T Square Duct Plenum	



Fixings	Finish
1 Flange Holes	A Satin Anodised
	C PPC BS /RAL Colour
	D Mill Finish



Size	Dimensions (mm)				
	A x B	X x Y	c	d	e
D1	261 x 170	300 x 217	87	150	36
D2	337 x 170	376 x 217	87	150	36
D3	490 x 170	529 x 217	87	150	36
D4	642 x 170	681 x 217	87	150	36

Size	Dimensions (mm)				
	A x B	X x Y	c	d	e
D5	540 x 271	579 x 319	138	225	63
D6	667 x 271	706 x 319	138	225	63
D7	794 x 271	833 x 319	138	225	63
D8	921 x 271	960 x 319	138	225	63

1 Application

For cooling heating and ventilating where very long throws are required in free space situations such as large industrial areas, sports complexes, auditoriums, hypermarkets, swimming pools etc..

2 Nomenclature

- q (l/s) = Air Volume; litres per second
- Lt = Length of 'throw' of airstream in metres
- Lt (R) = Throw **rise** distance in metres of warm air
- Lt (D) = Throw **drop** distance in metres of cool air
- Td = Temperature difference °C between supply air and average room temperature
- Ps = Static pressure drop in Pascals
- Vt (Ms) = Terminal velocity in metres per second expected at the given throw distance 'Lt'
- NC = Noise criteria levels based on 8dB deduction and sound power level (LW) 10⁻¹² W

3 General

Data is based on isothermal conditions and with the vertical adjustable vanes and the rotating drum set at 0° deflection.

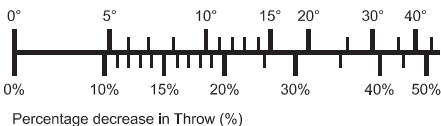
4 Directional control of the airstream

The rotating drum provides upward or downward adjustment of the airstream to 30° from its axis. Integral vanes provide widespread air adjustment facility (to left and right of centre) thus providing optimum control of the air discharge pattern serving the occupied zone.

5 Vertical vane adjustment

The vertical vanes can be adjusted to give a widespread pattern. The effect of this will decrease the throw distance by the following percentage:

Vertical vane angle setting (degrees)



Example:

A 7.5° angle setting will give a throw reduction of approximately 15%

6 Rise Lt (R) or Drop Lt (D) in throw

The effect of heated or cooled air upon 'throw' is given in the performance tables against temperature difference between supply air and room air. To counteract this affect the main 'drum' or the Rota-jet can be adjusted upward or downward to 30°. Refer to the diagram Note 8 at the foot of the page, then consider Fig. 1 below to determine the angle of correction that the 'drum' should be set at to counteract rise or drop.

Fig. 1.

Lt (R) or Lt (D) (metres)	Lt (throw distance in metres)										
	2.5	5.0	7.5	10.0	12.5	15.0	17.5	20.0	22.5	25.0	30.0
.30	4	2	1	1							
.60	9	5	3	2	2	2					
1.0		10	8	7	5	4	4	3	2		
1.5		14	12	10	8	6	5	4	4	3	
2.5		20	15	13	11	10	8	7	6	5	5
3.0		25	19	17	13	11	9	8	7	6	6
4.0		30	25	19	18	16	13	10	10	8	8
5.0			30	27	25	20	16	14	13	12	11
6.0					28	23	18	17	16	15	13
7.0					30	27	23	21	18	17	14
8.0						28	24	22	20	18	15
9.0						30	27	24	22	21	17

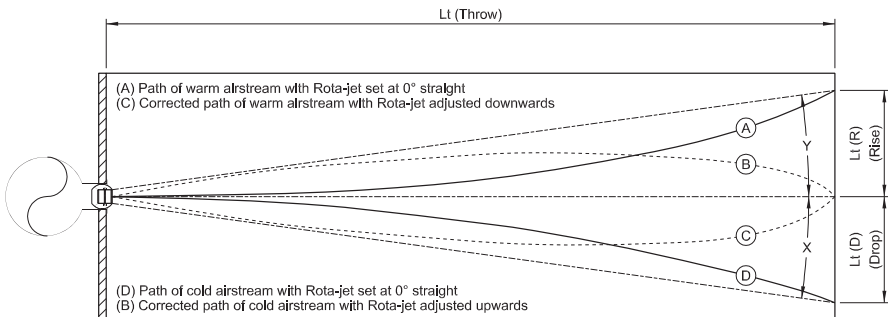
= Degrees of angular correction up or down that the drum of the Rota-jet should be set at to counteract rise or drop.

7 Selection example

Size a Rota-jet to supply 750l/s to give a throw (Lt) of 15 metres with a cooling differential (Td) of 10°C, a terminal velocity (Vt) of no greater than 0.5M/s and within NC40.

- i) For air volume quantity 750 l/s refer to fig. 3.
- ii) At throw (Lt) of 15 metres follow the data horizontally to where it intersects volume 750 l/s.
- iii) A Rota-jet size 'D5' will give NC34 which provides scope for damper adjustment and a terminal velocity (Vt) of 0.45M/s which is ideal.
- iv) Note that there will be a throw 'drop' Lt (D) over Lt 15 metres of 3 metres against 10°C of cooling. To counteract this drop refer to Fig.1 above. Descend vertically from the Lt '15' column to where it intersects the Lt (D) 3 metre data. The value of '11' at this point is the angle in degrees that the rotating drum should be set to i.e: **upward 11°**

8 Heating and cooling effect



X = Downward angle of Rota-jet to overcome rise of warm air (maximum angle 30°)

Y = Upward angle of Rota-jet to overcome drop of cold air (maximum angle 30°)

Technical Data Rota-Jets

Fig. 4.

Table with 19 columns (D4 to D19) and multiple rows for different models (Lt, Lt+, Lt+). Each cell contains numerical performance data. The columns are grouped into five sets of four columns, labeled 950, 1050, 1150, 1250, 1350, 1450, 1650, and 1900.