

Jet Diffuser

Model JD

Features

- Jet nozzle can rotate through 360°
- Adjustable over 60° for cooling or heating
- Low noise Level
- 2 or 3 Jets integrated into a single panel
- Motorised version available



Air Diffusion

Grilles Diffusers Louvres Chilled Beams

Ruskin Air Management Limited
www.ruskinuk.co.uk

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Introduction



The aerodynamic design of the Model JD jet diffuser ensures a low noise level even with high outlet velocities, whilst also providing a long throw distance. The individual jet nozzles can be rotated through 360° and adjustment of 60° upwards or downwards, for heating or cooling modes, is possible either manually or by using a motorised version.

Constructed from aluminium the Model JD is available with or without a flange for connection direct to exposed circular ductwork or to a wall surface. Multiple jet arrangements can be supplied with either 2 or 3 jet nozzles fitted into a single panel. In addition a motorised version is also available to automatically adjust the jet outlet.

Developed for installation at high level or for large spaces the jet diffuser is suitable for applications such as shopping malls, concert halls, theatres, museums and airport areas.

Specification

Model JD

Aluminium jet diffuser developed for large and high areas.

Materials

Aluminium.

Construction

All made out of aluminium and painted white (RAL9010).

Type JD210 and JD310 are JD110 mounted on galvanised sheet steel and all painted white as above.

Finish

Standard finish is White (RAL9010).

Alternative paint finishes to the relevant RAL colours are available on request.

Fixing

Different versions are possible.

Type JD110: for wall fixing with screws directly on the duct.

Type JD130: direct mounting on Circular ducts.

Type JD210 and JD310:
2 or 3 jet diffusers mounted on a panel and the panel is fixed onto the duct with screws.

Types available

JD110

Jet Diffuser.

JD120

As above but with flex duct connector.

JD130

Jet Diffuser without flange, rear mounting onto circular ducts.

JD 140 (B3)

Jet Diffuser without flange having extension sleeve for motorisation using an LM24SR electric motor.

JD210,310

2 or 3 JD110 pre-mounted on one panel to ease the mounting of different Jet Diffusers next to each other on the wall.

Quick Selection Guide

Size	Volume (m ³ /Hour)	Volume (m ³ /sec.)	Nozzle Velocity (m/sec.)	Noise Rating (NR)	Pressure Loss (Pt) (Pa)	Throw to 0.5 m/sec. (m)
160	150	0.042	8.7	13	30	10
	200	0.056	11.6	20	52	12.9
	250	0.069	14.5	25	82	15.8
	300	0.083	17.4	30	117	18.7
	350	0.097	20.3	33	158	21.5
	400	0.111	23.1	37	206	24.4
	450	0.125	26	40	260	27.3
200	300	0.083	10	20	49	10.7
	350	0.097	11.7	24	66	12.5
	400	0.111	13.4	27	86	14.3
	450	0.125	15.1	30	107	16.1
	500	0.139	16.7	32	132	17.9
	550	0.153	18.4	35	158	19.6
	600	0.167	20.1	37	187	21.4
	650	0.181	21.8	39	219	23.2
250	700	0.194	23.4	40	252	25
	300	0.083	6	12	22	6.9
	400	0.111	8	19	37	8.9
	500	0.139	10	24	57	10.9
	600	0.167	12	28	81	12.9
	700	0.194	14	32	108	14.9
	800	0.222	16	35	139	17
	900	0.250	18	38	174	19
	1000	0.278	20	41	213	21
	1100	0.306	22	43	255	23
315	1200	0.333	24	45	301	25
	400	0.111	4.3	13	11	4.6
	500	0.139	5.4	28	16	5.8
	600	0.167	6.5	22	24	7
	700	0.194	7.6	26	32	8.3
	800	0.222	8.7	29	42	9.5
	900	0.250	9.8	32	53	10.7
	1000	0.278	10.8	34	66	11.9
	1100	0.306	11.9	37	80	13.1
	1200	0.333	13	39	95	14.3
	1300	0.361	14.1	41	111	15.5
	1400	0.389	15.2	42	129	16.7
	1500	0.417	16.3	44	148	17.9

Application

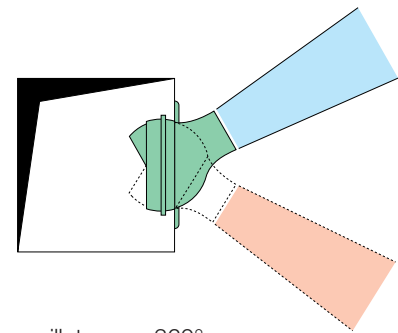
The Jet Diffusers, Type JD are especially developed for large and high areas such as concert halls, theatres, galleries, airports, shopping centres, industrial plants etc.

Through their aerodynamic design they ensure a reduced noise level and even a long throw at high outlet velocities. In all versions, the jet is adjustable over 360°.

As these jet diffusers handle different supply air temperatures, the jet can be oriented upwards or downwards (heating or cooling mode). Orientation manually or with an electric motor.

Technical Information Characteristics

- adjustable over 60° (cooling - heating)



- oscillate over 360°
- high induction level
- available with 2 or 3 jet diffusers integrated into one panel (JD210 and JD310)
- panel includes Type JD110 jet diffusers
- motorised construction available.

Throw is measured horizontally to terminal velocity 0.5 m/s, with nozzle set for horizontal distribution.

No temperature effect on throw has been allowed for.

Noise ratings do not include for room attenuation.

For multiple nozzle units approximate combined noise rating use equivalent for single diffuser and add:

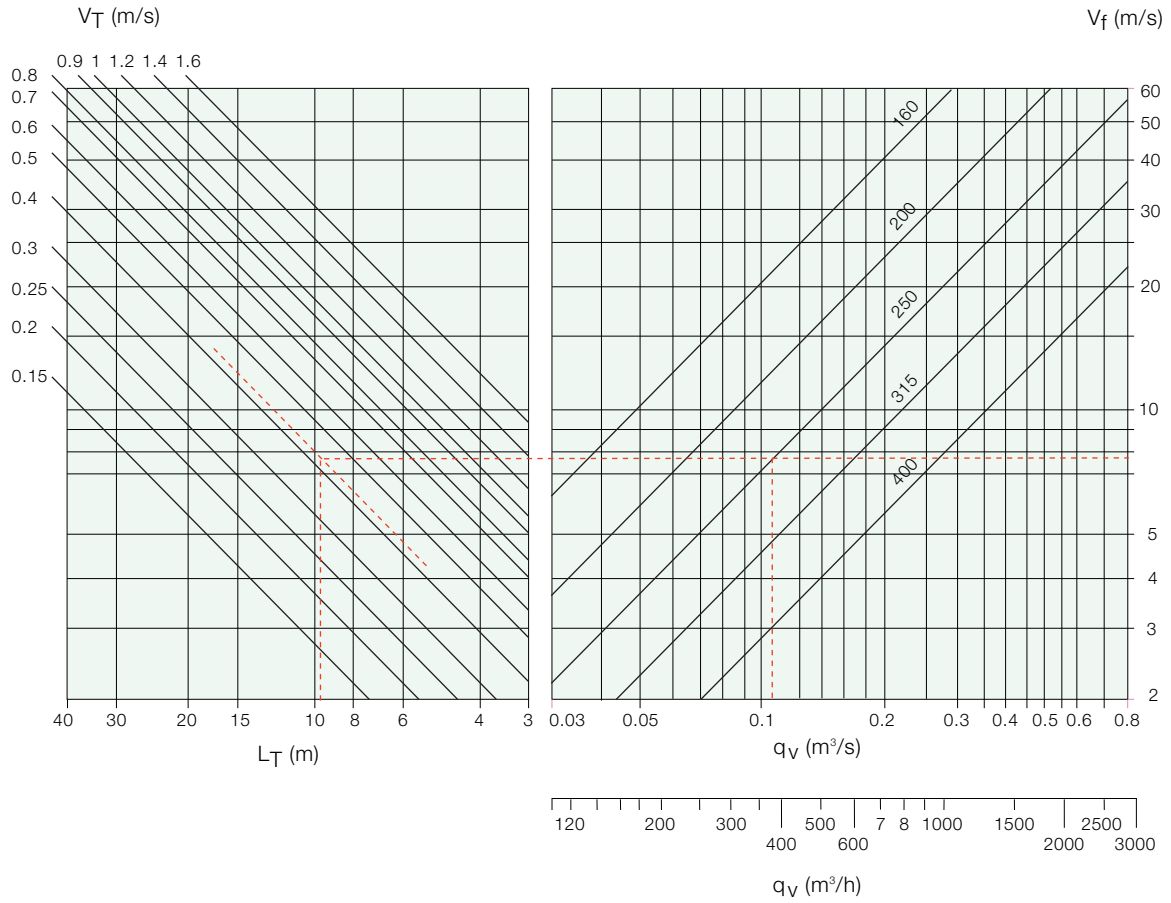
JD210 + 3 NR
JD310 + 3NR

For multiple nozzle units approximate combined pressure drop use equivalent volume for single diffuser and multiply:

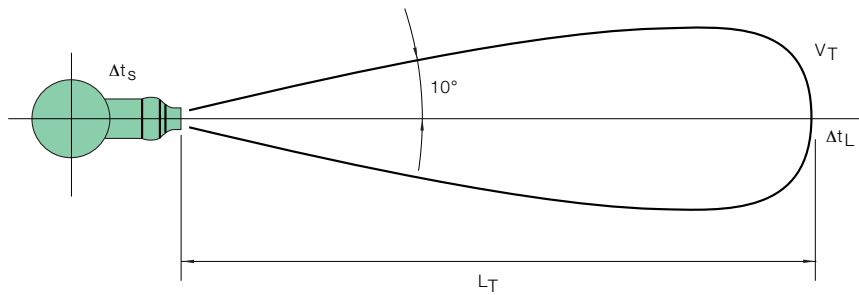
JD210 x 2 Pa
JD310 x 3 Pa

Selection Guide

Diagram 1. Horizontal Throw



Horizontal Throw - isothermal - example



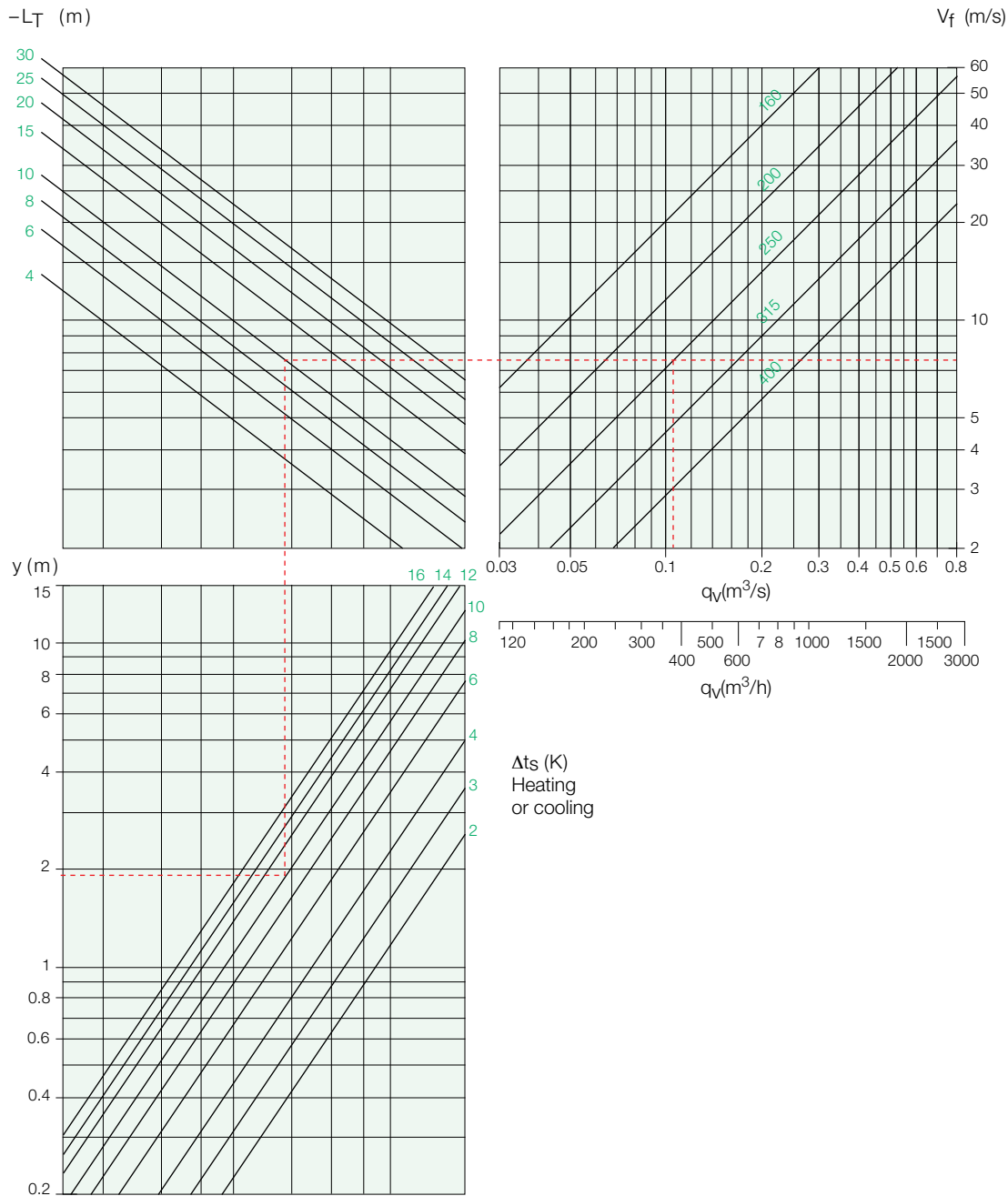
Example:
 $q_v : 0.1 \text{ m}^3/\text{s}$; size 250
 Diagram 1: $v_f: 7.8 \text{ m/s}$;
 $L_T: 10 \text{ m}$ at a $V_T: 0.42 \text{ m/s}$
 Diagram 4: $\Delta P_t : 33 \text{ Pa}$; NR:17.

A _f = values (m ²)					
Size	160	200	250	315	400
A _f	0.0048	0.0083	0.0139	0.018	0.038

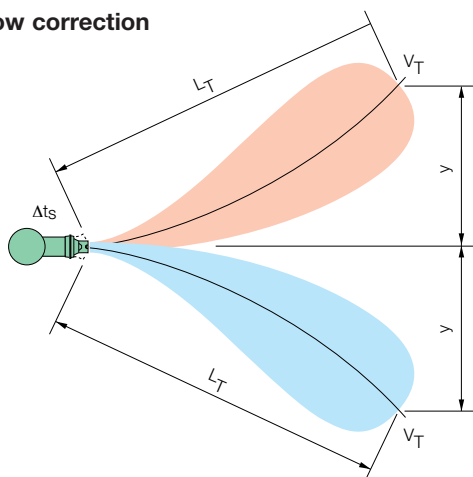
Correction factors noise level	
Angle α	Correction NR
α between 0° and 25°	NR + 0
α between 25° and 30°	NR + 2

Selection Guide

Diagram 2. Throw correction by heating or cooling



Example throw correction



Example by heating:

- $q_v = 0.1 \text{ m}^3/\text{s}$; size 250; Δt_s by heating of 10K.
- Out of diagram nr. 1: $v_f = 7.8 \text{ m/s}$; $L_T = 10\text{m}$ at a $v_T = 0.42 \text{ m/s}$
- Out of diagram nr. 2: $\Delta t_s = 10^\circ$; $y = 2$ which means that the air stream will raise at that point of the throw with 2m.

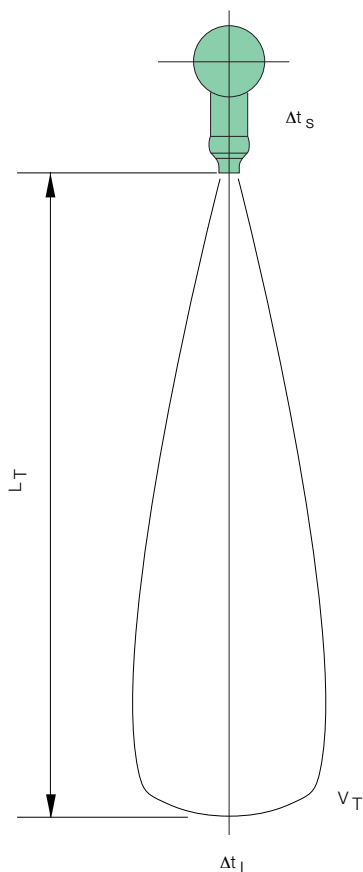
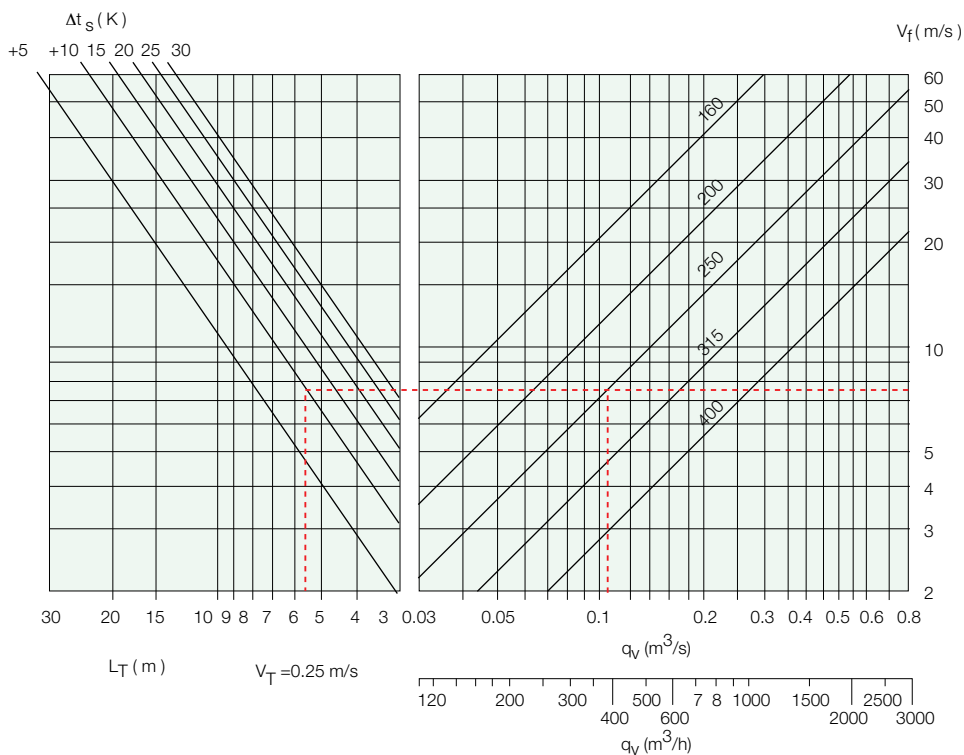
Example by cooling:

- $q_v = 0.1 \text{ m}^3/\text{s}$; size 250; Δt_s by cooling of 10K.
- Out of diagram nr. 1: $v_f = 7.8 \text{ m/s}$; $L_T = 10\text{m}$ at a $v_T = 0.42 \text{ m/s}$
- Out of diagram nr. 2: $\Delta t_s = 10^\circ$; $y = 2$ which means that the air stream will drop at that point of the throw with 2m.

The drop or raise of the air stream can be corrected by modifying the outlet angle of the nozzle.

Selection Guide

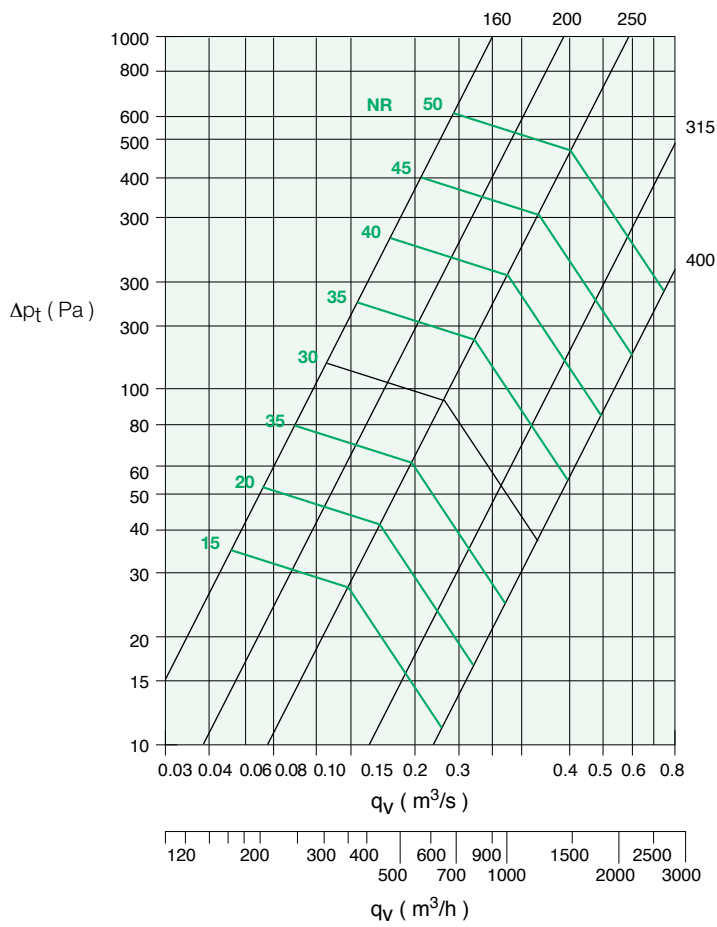
Diagram 3. Vertical Throw



- $q_v = 0.1 m^3/s$; size 250mm
- Out of diagram nr. 3: $v_f = 7.8 m/s$; $\Delta t = +10^\circ$;
 $L_T = 5.4m$ at a $v_T = 0.25 m/s$
- Out of diagram nr. 4: $\Delta P_t = 33 Pa$
NR 17

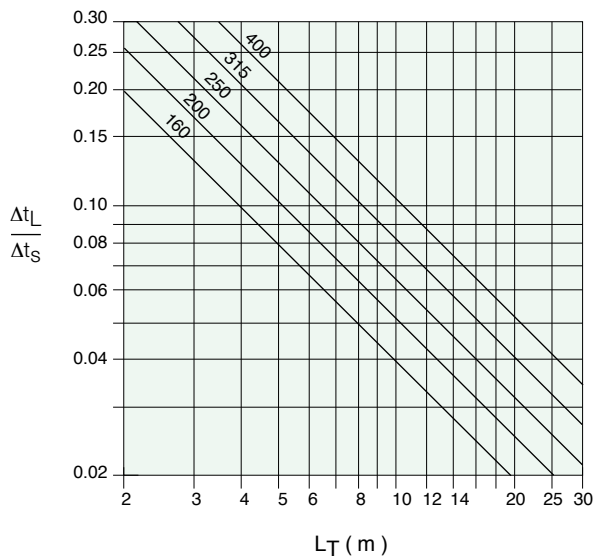
Selection Guide

Diagram 4. Pressure loss and noise levels

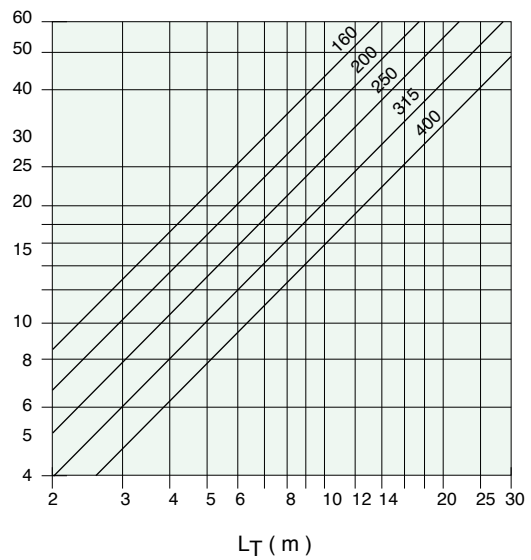


Temperature quotient and induction

Temperature quotient

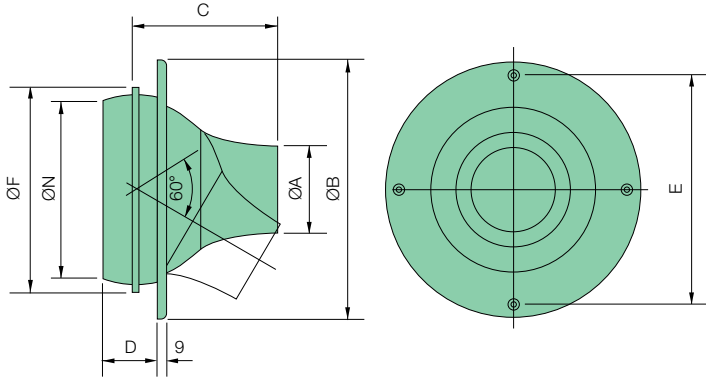


Induction

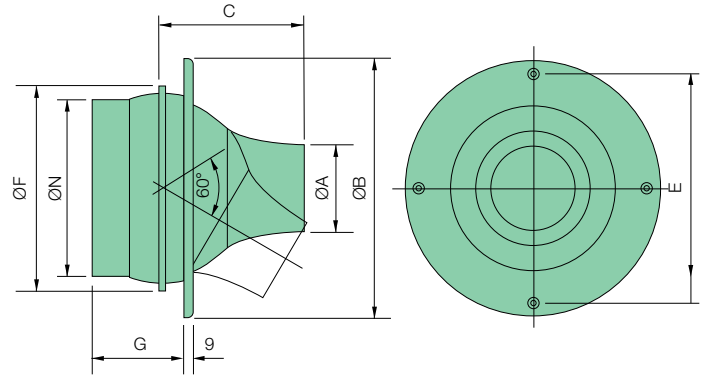


Dimensions

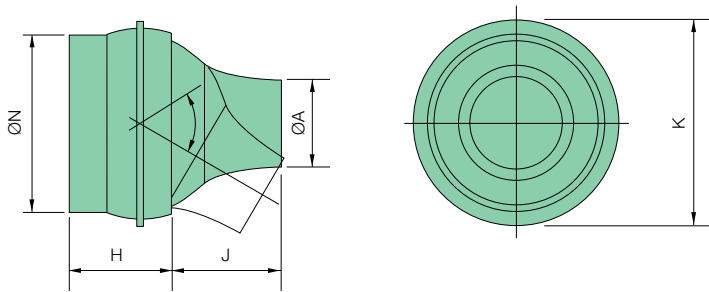
JD 110



JD 120

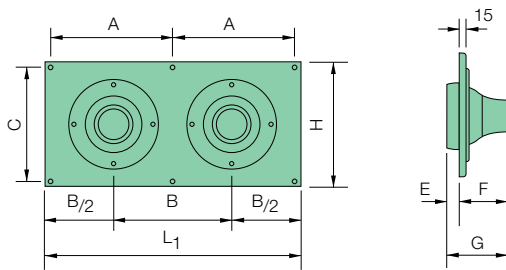


JD 130

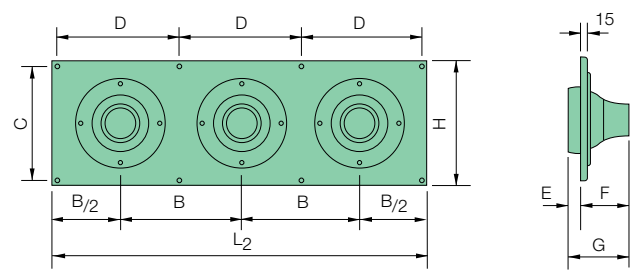


ØN	ØA	ØB	C	D	E	ØF	G	H	J	K
160	85	248	120	51	225	200	101	110	110	196
200	110	298	150	66	270	245	116	125	140	238
250	140	345	190	81	320	295	131	140	180	288
315	175	415	255	90	390	360	155	165	245	355
400	220	600	290	120	475	450	190	200	280	440

JD 210

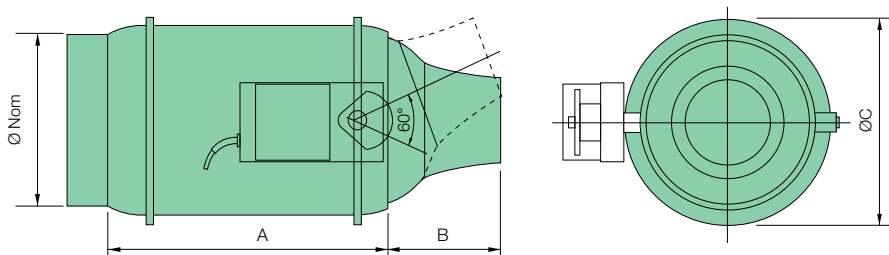


JD 210



Size	L ₁	L ₂	H	A	B	C	D	E	F	G
160	700	1050	350	335	350	320	340	36	134	170
200	800	1200	400	385	400	370	390	51	164	215
250	900	1350	450	435	450	420	440	66	204	270
315	1040	1560	520	510	520	490	510	76	269	345
400	1250	1875	625	610	625	595	615	106	304	410

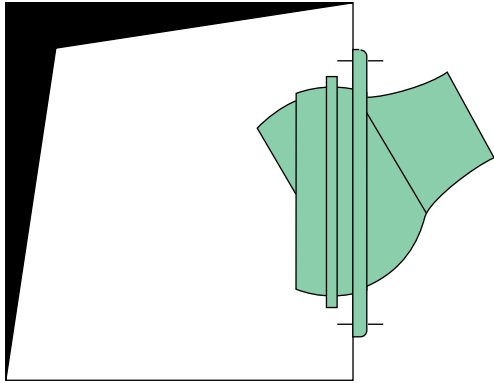
JD 140B3 with Belimo motor LM24SR



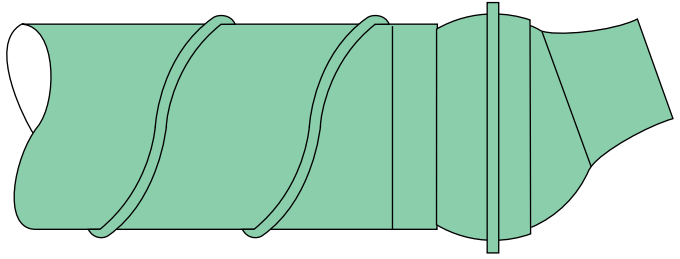
Ø Nom	A	B	ØC
160	271	110	196
200	283	140	238
250	293	180	288
315	315	245	355
400	340	280	440

Jet Diffuser Installation Guide

The choice of three different constructions

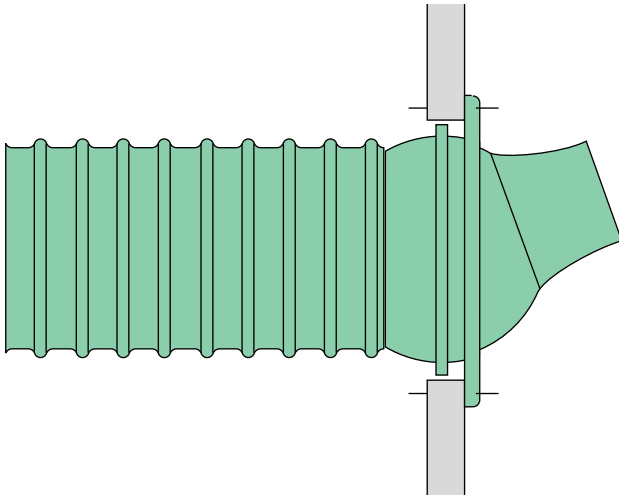


JD110
Duct fixing using screws directly to the side of the duct wall.



JD130
Direct mounting on fixed circular ducts

Panel
To ease the simultaneous mounting of different jet diffusers side by side on a wall or a duct, the possibility is given to get two or three jet diffusers pre-mounted on one panel. The panel is fixed by screws onto a wall or other panel.



JD110
Wall fixing with screws. Connection with flex ducts

Ordering Information

Example

Model Type	Arrangement	Accessory	Size	Colour Finish
JD1	10	-	250	3
JD1	10	-	160	3 - White RAL 9010
JD2	20	B3	200	
JD3	30		250	
	40		315	
			400	

Important Note: All orders must be addressed to Air Diffusion, Ruskin Air Management Limited.

Product Range

- Modular Active Chilled Beams
- Ceiling Swirl Diffusers
- Displacement Ventilation Units
- High Induction Slot Diffusers
- Square Louvre Face Diffusers
- Perforated Diffusers
- Linear Slot Diffusers
- Fixed Blade Linear Diffusers
- Cylinder Jet Diffusers
- Jet Nozzle Diffusers
- Circular Adjustable and Fixed Diffusers
- Air Valves
- Panel Floor Grilles
- Linear Floor Grilles
- Floor Swirl Diffusers
- Wall and Ceiling Grilles
- External Weather Louvres
- Systempac – Fan Coil Unit and Diffuser Package

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Due to a policy of continuous product development the specification and details contained herein are subject to alteration without prior notice.

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