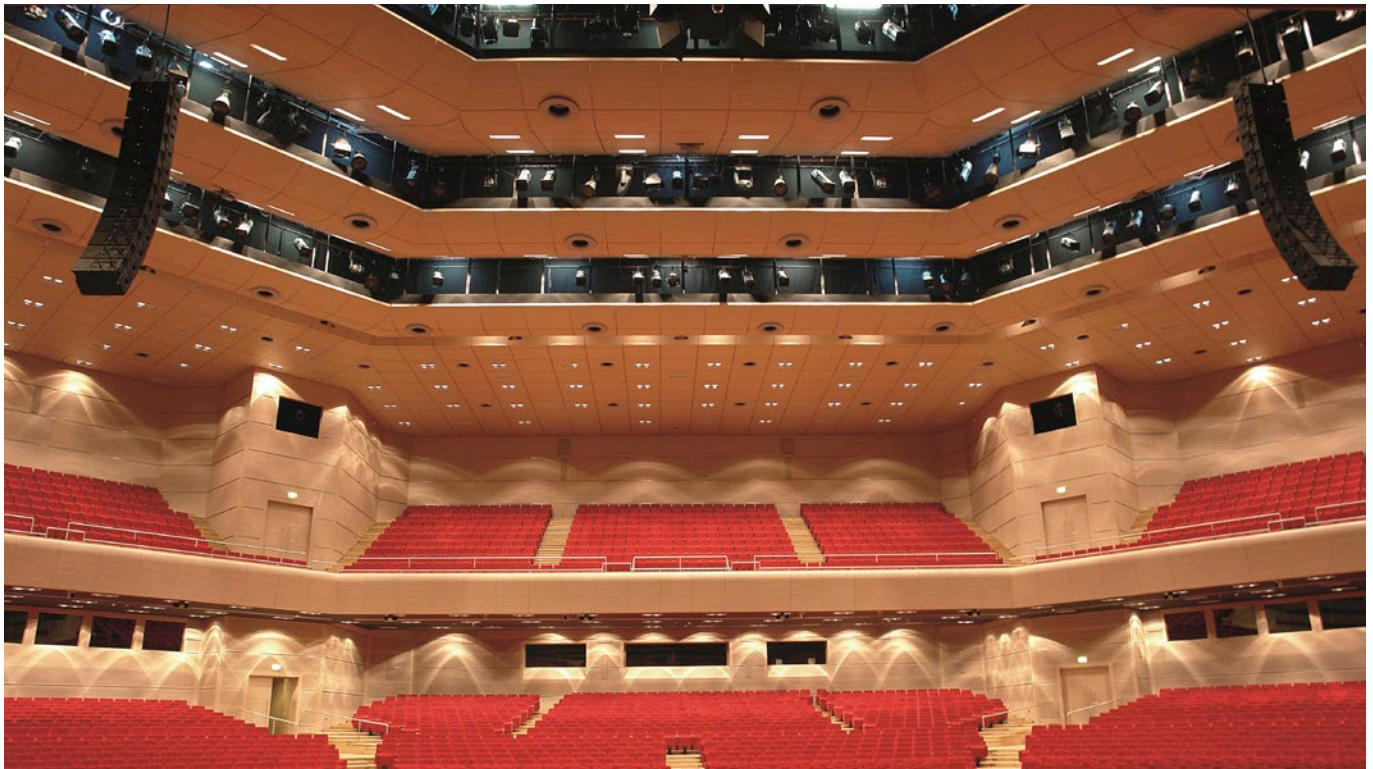


VDP

Adjustable ceiling swirl diffuser with high induction



QUICK FACTS

- Swirl diffuser with high primary induction and internal control cone for various distribution patterns
- Available in a circular or square design
- Direction of high air flows can be adjusted manually or via electric motor
- Heating and cooling operation at ceiling heights of up to 5 m without the need to change the direction of the distribution pattern
- Plenum box with horizontal or vertical duct connection
- Non-painted as standard

Size	Horizontal								Operating range V_{min} (m ³ /h)
	L _{WA} = 30 dB		L _{WA} = 35 dB		L _{WA} = 40 dB		L _{WA} = 45 dB		
	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	
20	168	10	232	18	278	26	365	44	100
25	328	14	374	19	441	26	530	38	280
31	622	21	722	28	842	57	1040	57	560
35	848	25	974	33	1130	44	1390	68	680
40	1210	31	1400	42	1600	54	1950	83	900
46	1790	39	2090	53	2350	67	2930	105	1200

Size	Vertical								Operating range V_{min} (m ³ /h)
	L _{WA} = 30 dB		L _{WA} = 35 dB		L _{WA} = 40 dB		L _{WA} = 45 dB		
	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	V (m ³ /h)	Δp (Pa)	
20	154	12	180	17	208	22	258	34	100
25	288	17	339	24	390	32	483	49	280
31	557	26	659	36	755	48	934	74	560
35	750	31	881	43	1010	57	1250	88	680
40	1100	39	1300	54	1490	73	1840	111	900
46	1630	50	1920	69	2200	91	2730	141	1200

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Technical description

Design

The VDP swirl diffuser is a ceiling diffuser with high primary induction and an adjustable control cone for changing the distribution pattern. The diffuser is available with a horizontal or vertical duct connection.

The diffuser consists of a circular or square plenum box containing a cylindrical swirl element, an adjustable control cone, and a circular outlet diffuser that may be integrated or separate.

The control cone can be adjusted manually or with an electric motor (Belimo LH 24A-MP60). Infinitely variable control is achieved through a 0-10 V control signal.

Functionality

The cylindrical swirl element generates a circulating flow within the plenum box, causing negative pressure to build up at its center. This negative pressure draws room air into the diffuser outlet, where it mixes with the supply air. As a result, energy is exchanged and temperature differences are reduced.

This effect is further enhanced by the induction of secondary air along the air discharge edges, creating almost isothermal conditions even at a short distance from the outlet diffuser. Due to the minimized temperature differences in the horizontal distribution pattern and the high level of primary air induction, stable room air rolls are formed regardless of the installation method, whether flush with the ceiling or suspended.

Consequently, the air diffuser is suitable for both heating and cooling modes in rooms with ceiling heights up to 5 meters, without needing to change the direction of the distribution pattern. For rooms with ceiling heights exceeding 5 meters, the distribution pattern can be shifted from horizontal to vertical using the adjustable control cone.

Therefore, the swirl diffuser is especially well-suited for alternative heating and cooling applications or for adjusting the air infiltration depth with variable air flows or temperature differences.

Material and surface treatment

Diffuser outlet and control cone

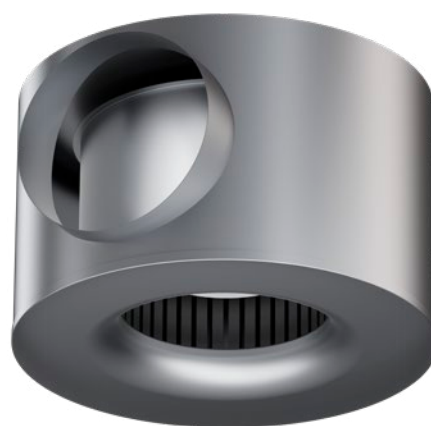
- Made of aluminium.
- Standard colour:
 - RAL 9010, pure white, gloss 70

Plenum box

- Made of galvanised steel.

Swirl element

- Made of galvanised steel.
- Standard colour:
 - RAL 9005, jet black, gloss 70



Adaptation

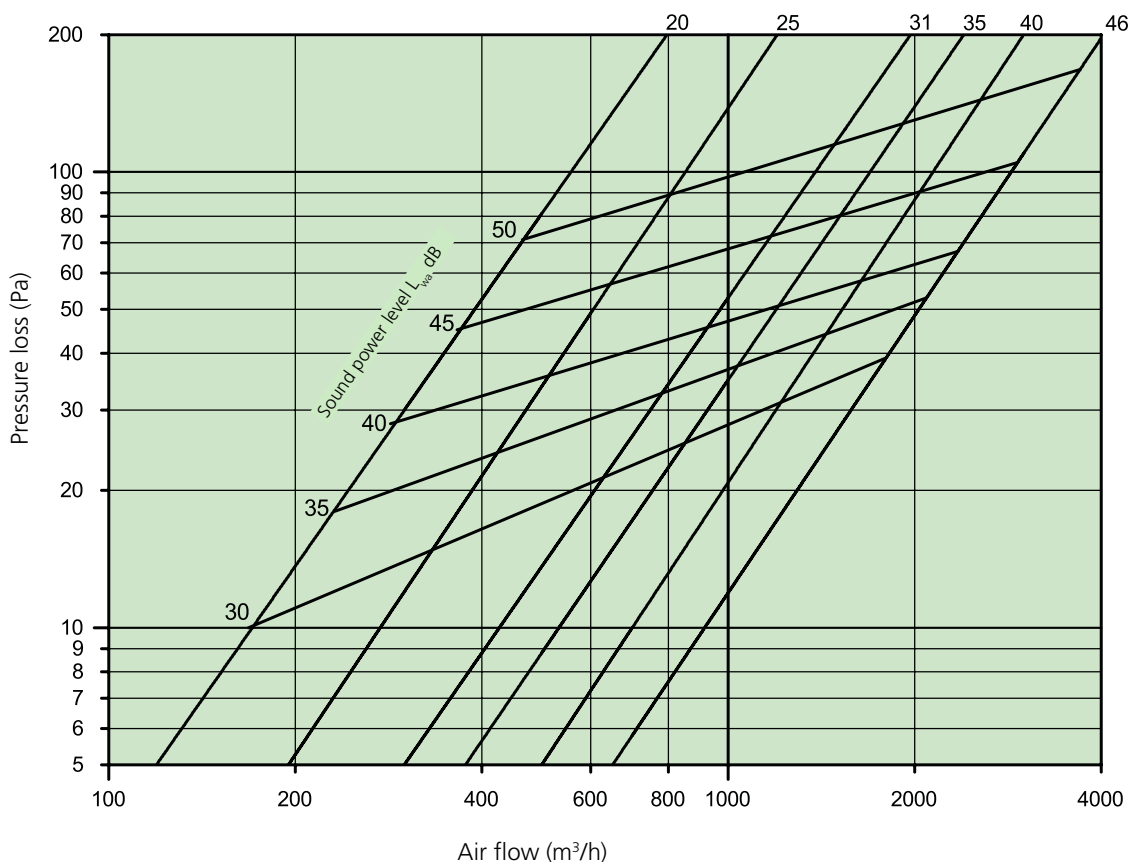
The diffuser is available in multiple configurations to accommodate different technical requirements and installation conditions.

Planning

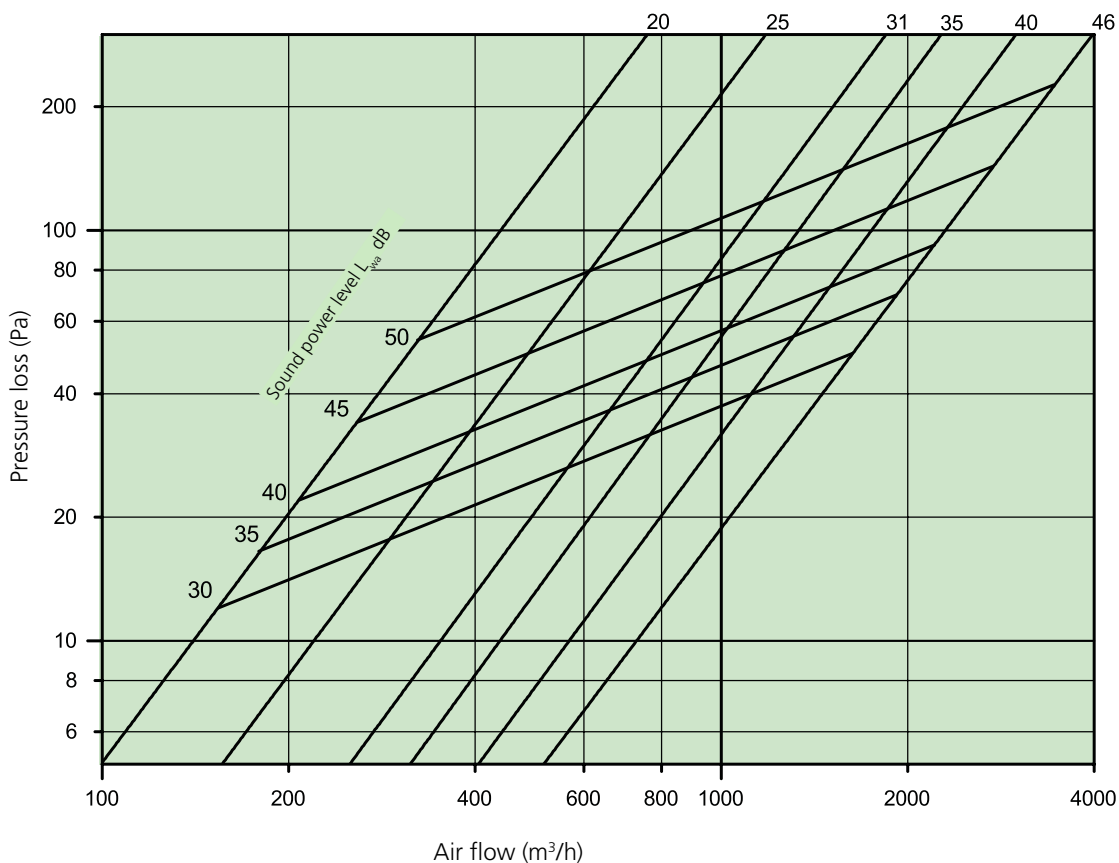
The VDP swirl diffuser is always operated together with the plenum box.

Technical data

Horizontal distribution pattern



Vertical distribution pattern



Dimensions

Manual control

Size	∅ A (mm)	∅ d (mm)	∅ B (mm)	□ B (mm)	∅ C (mm)	□ C (mm)	Hh (mm)	Hv (mm)	h (mm)
20	199	148	400	400	300	600 / 625	300	300	70
25	249	198	600	600	380	600 / 625	350	350	80
31	314	248	600	600	490	600 / 625	400	400	80
35	349	313	700	700	550	600 / 625	450	450	80
40	399	353	800	800	625	600 / 625	500	500	80
46	459	398	900	900	662	600 / 625	600	600	80

The specified measurements refer to the external dimensions (mm). These can be adjusted within functional limits to meet specific requirements.

Hh = height for plenum box with horizontal duct connection.

Hv = height for plenum box with vertical duct connection.

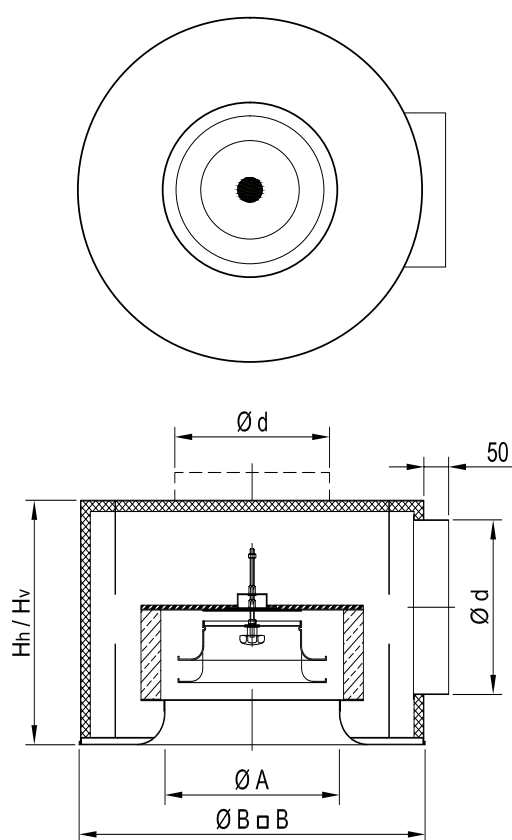


Figure 1. Dimensions, integrated outlet diffuser (mm).

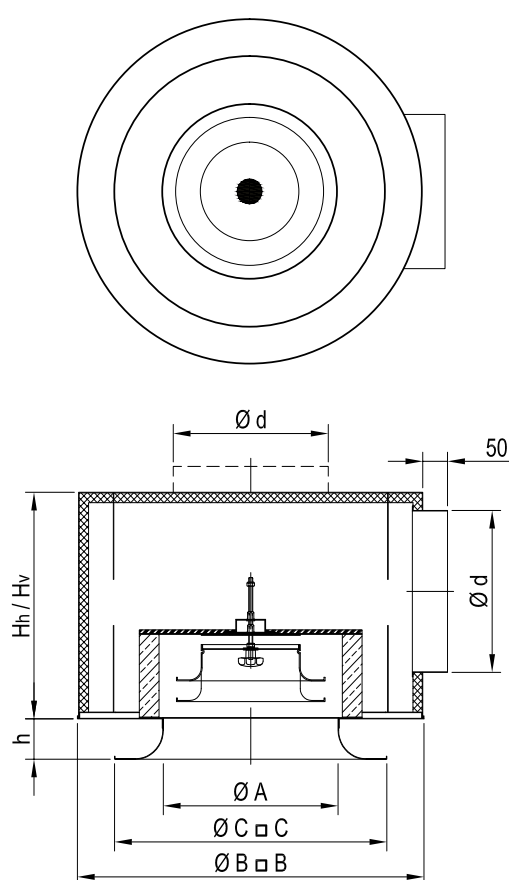


Figure 2. Dimensions, separate outlet diffuser (mm).

Electric motor

Size	∅ A (mm)	∅ d (mm)	∅ B (mm)	□ B (mm)	∅ C (mm)	□ C (mm)	Hh (mm)	Hv (mm)	h (mm)
20	199	148	400	400	300	600 / 625	500	450	70
25	249	198	600	600	380	600 / 625	500	500	80
31	314	248	600	600	490	600 / 625	550	550	80
35	349	313	700	700	550	600 / 625	600	600	80
40	399	353	800	800	625	600 / 625	650	650	80
46	459	398	900	900	662	600 / 625	750	750	80

The specified measurements refer to the external dimensions (mm). These can be adjusted within functional limits to meet specific requirements.

Hh = height for plenum box with horizontal duct connection.

Hv = height for plenum box with vertical duct connection.

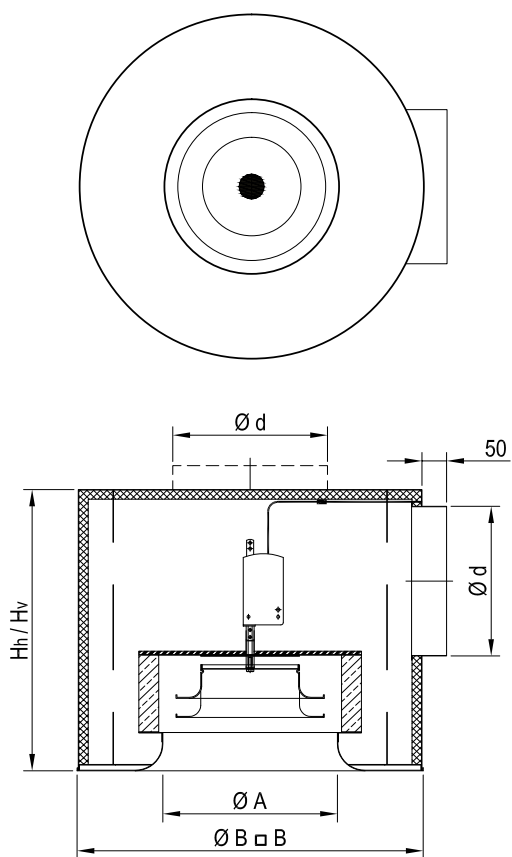


Figure 3. Dimensions, integrated outlet diffuser (mm).

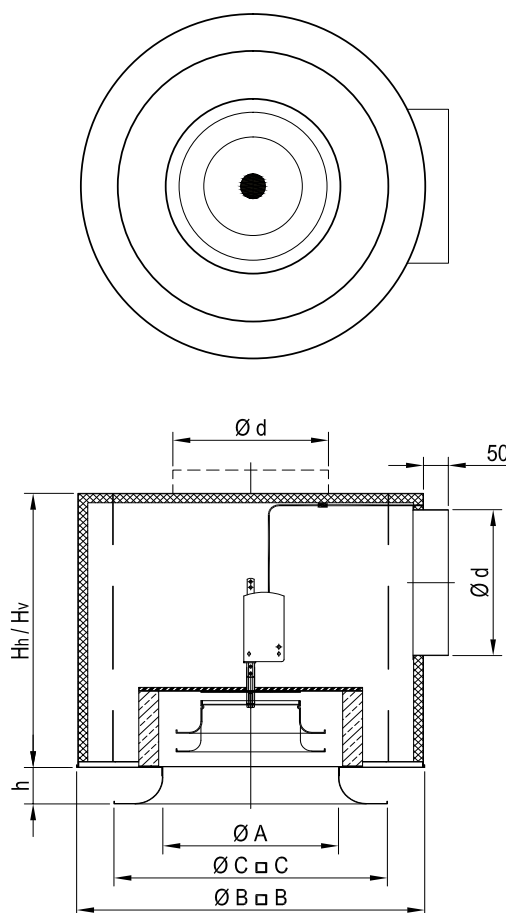


Figure 4. Dimensions, separate outlet diffuser (mm).

Specification

For ordering, contact your local Swegon sales office.

Specification text

Swirl diffuser VDP with high primary induction and an adjustable control cone with the following features:

- Circular or square design with horizontal or vertical duct connection, made of galvanised steel.
- Control cone adjusted manually or by electric motor (Belimo LH 24A-MP60).
- Internal cylindrical swirl element made of galvanised steel, painted black.
- Integrated or separate outlet diffuser made of aluminium.