



HIGH EXPOSURE DIFFUSER



**High Exposure Swirl Diffusers
VDL**

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Cooling



Heating

DESCRIPTION:

Ceiling swirl diffusers in air conditioning systems create a swirl to supply air to rooms. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling swirl diffusers allow for large volume flow rates. The result is a mixed flow ventilation in comfort zones, with good overall room ventilation, creating only very little turbulence in the occupied zone

VDL: Adjustable Blade (6-12 Blades)

VDL-S: Fixed Blade (12 Blades)

MATERIAL:

Galvanized sheet metal

FUNCTION:

Type VDL ceiling swirl diffusers have adjustable air control blades. Different air patterns allow for cooling or heating mode, or for the adjustment to varying loads. Horizontal air discharge is omni directional. Vertical air discharge is possible in heating mode.

The supply air to room air temperature difference may range from -12 to $+15$ K.

- Nominal sizes 315, 400, 630, 800
- Volume flow rate range 65 – 1080 l/s or 234 – 3888 m

FINISHING:

- Powder coated in RAL9010 color as standard. Other colors on request

INSTALLATION:

- Screw
- No Fixing

ACCESSORIES:

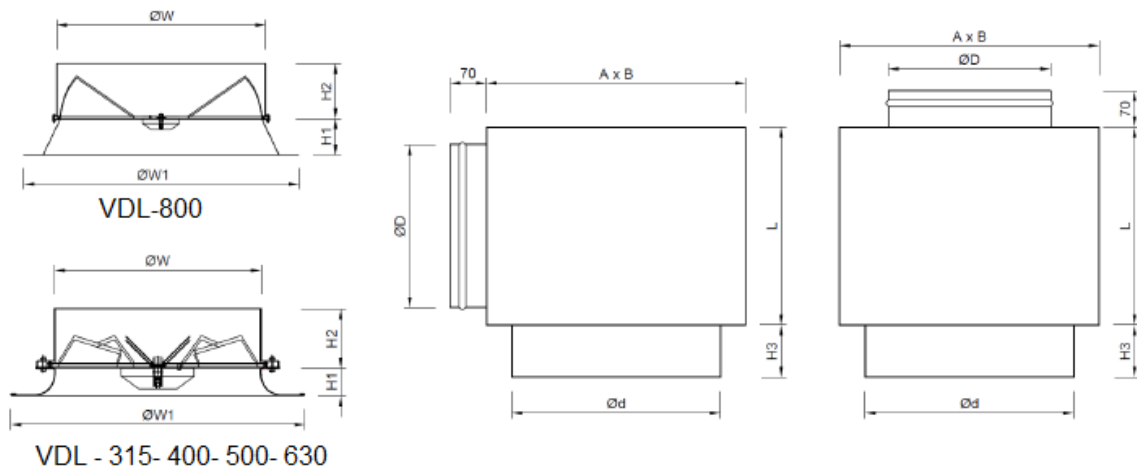
- Plenum box

STANDARD SIZES (mm):

| TYPE VDL - AVAILABLE SIZES (mm) | | | | |
|---------------------------------|------|------|------|------|
| NECK DIAMETER | | | | |
| Ø315 | Ø400 | Ø500 | Ø630 | Ø800 |
| X | X | X | X | X |

DIMENSIONS

| | ØW | ØW1 | H1 | H2 | H3 | Ød | A | B | L | ØD | ØW2 |
|---------|-----|------|-----|-----|-----|-----|------|------|-----|-----|-----|
| VDL-315 | 313 | 480 | 50 | 75 | 100 | 319 | 435 | 435 | 280 | 248 | 380 |
| VDL-400 | 398 | 550 | 50 | 110 | 150 | 402 | 500 | 500 | 380 | 313 | 475 |
| VDL-500 | 498 | 650 | 50 | 120 | 160 | 502 | 620 | 620 | 430 | 355 | 570 |
| VDL-630 | 628 | 780 | 50 | 120 | 170 | 632 | 750 | 750 | 470 | 398 | 700 |
| VDL-800 | 798 | 1050 | 135 | 200 | 250 | 802 | 1000 | 1000 | 570 | 498 | 880 |



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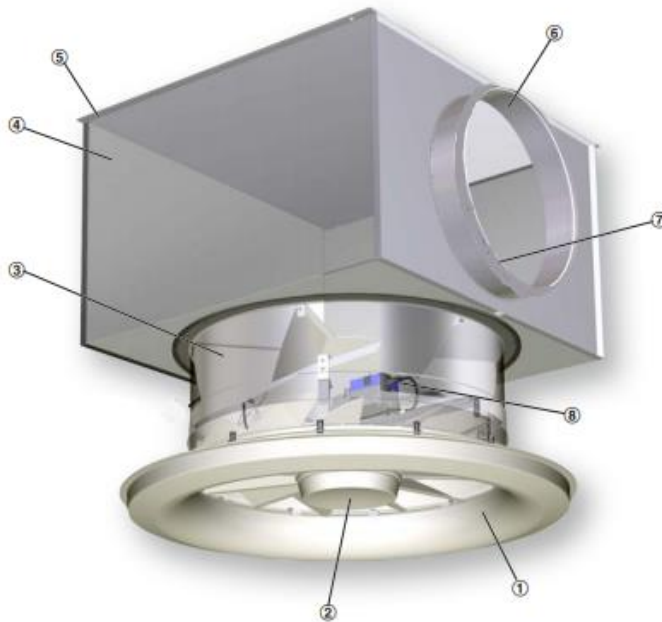
6 BLADES



12 BLADES



Schematic illustration of the VDL, with plenum box for horizontal duct connection



- ① Diffuser face
- ② Decorative cap
- ③ Swirl unit with opposed blades (only with nominal sizes 630 and 800)
- ④ Plenum box

- ⑤ Suspension hole
- ⑥ Spigot Options
- ⑦ Lip seal
- ⑧ Actuator and cross bar

Air patterns



Horizontal directional air discharge



Vertical air discharge



TECHNICAL DATA

| | |
|--|--|
| Nominal sizes | 315, 400, 500, 630, 800 mm |
| Minimum volume flow rate | 65 – 320 l/s or 234 – 1152 m ³ /h |
| Maximum volume flow rate, at $L_{WA} \cong 50$ dB(A) | 170 – 1080 l/s or 612 – 3888 m ³ /h |
| Supply air to room air temperature difference | -12 to +15 K |

VDL QUICK SELECTION TABLE

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| VDL | A _{eff} (m ²) | Flow Rate (m ³ /h) | 250 | 375 | 500 | 625 | 750 | 875 | 1000 | 1500 | 2000 | 2500 | 3000 | 3500 | 4000 | 4500 | | |
|------|---------------------------------------|----------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|--|--|
| Ø315 | 0,023 | V _b (m/s) | 0,9 | 1,3 | 1,8 | 2,2 | 2,7 | 3,1 | 3,6 | | | | | | | | | |
| | | P(Pa) | 10 | 22 | 40 | 61 | 89 | 120 | 156 | | | | | | | | | |
| | | L _s (m) | 1,3 | 2,1 | 3,0 | 4,0 | 5,1 | 6,1 | 7,2 | | | | | | | | | |
| | | N[dB(A)] | 24 | 31 | 40 | 47 | 54 | 59 | 69 | | | | | | | | | |
| Ø400 | 0,031 | V _b (m/s) | | | 1,1 | 1,4 | 1,7 | 1,9 | 2,2 | 3,3 | | | | | | | | |
| | | P(Pa) | | | 15 | 23 | 34 | 46 | 61 | 137 | | | | | | | | |
| | | L _s (m) | | | 2,2 | 2,9 | 3,7 | 4,4 | 5,3 | 8,8 | | | | | | | | |
| | | N[dB(A)] | | | 22 | 27 | 32 | 36 | 40 | 54 | | | | | | | | |
| Ø500 | 0,049 | V _b (m/s) | | | | 0,9 | 1,1 | 1,2 | 1,4 | 2,1 | 2,8 | 3,5 | | | | | | |
| | | P(Pa) | | | | 12 | 18 | 22 | 29 | 65 | 117 | 181 | | | | | | |
| | | L _s (m) | | | | 2,1 | 2,8 | 3,4 | 3,7 | 6,6 | 9,2 | 11,0 | | | | | | |
| | | N[dB(A)] | | | | 22 | 25 | 32 | 30 | 49 | 56 | 65 | | | | | | |
| Ø630 | 0,078 | V _b (m/s) | | | | | | | 0,9 | 1,3 | 1,8 | 2,2 | 2,7 | 3,1 | | | | |
| | | P(Pa) | | | | | | | 12 | 27 | 47 | 74 | 106 | 145 | | | | |
| | | L _s (m) | | | | | | | 2,9 | 4,9 | 6,9 | 9,2 | 11,6 | 14,1 | | | | |
| | | N[dB(A)] | | | | | | | 23 | 34 | 42 | 48 | 54 | 58 | | | | |
| Ø800 | 0,111 | V _b (m/s) | | | | | | | | 0,8 | 1,1 | 1,4 | 1,7 | 1,9 | 2,2 | 2,5 | | |
| | | P(Pa) | | | | | | | | 14 | 24 | 38 | 55 | 75 | 98 | 124 | | |
| | | L _s (m) | | | | | | | | 3,6 | 5,1 | 6,8 | 8,5 | 10,3 | 12,2 | 14,2 | | |
| | | N[dB(A)] | | | | | | | | 26 | 34 | 41 | 47 | 53 | 58 | 63 | | |

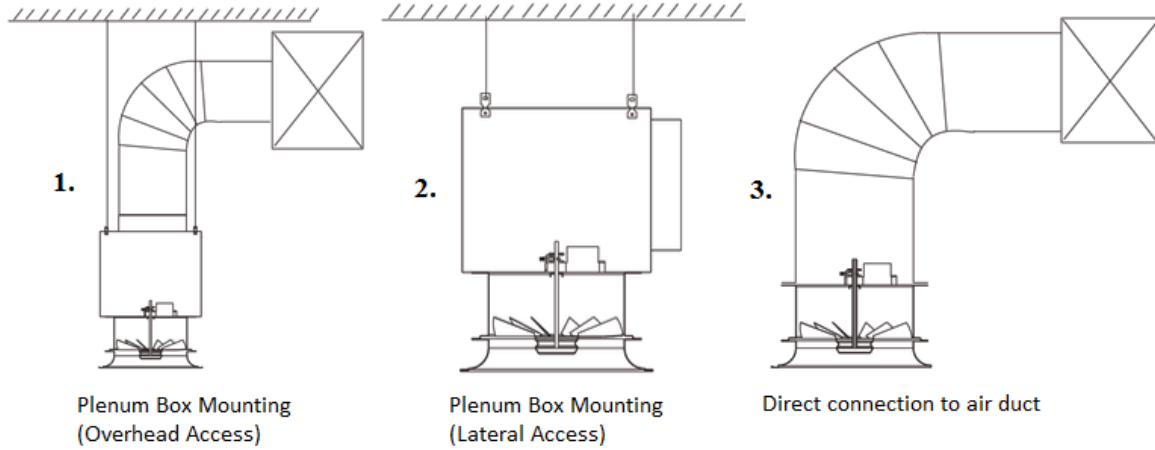
The firing distances in the table are calculated by calculating $\Delta T = + 10$ K for heating. Comfort level is 1,80m. The arrival speed is 0.25 m / s.

L_a(m) : Throw Distance
N (dB) : Sound Level
P(Pa) : Pressure Drop
V_b(m/s) : Output Speed

INSTALLATION:

1. Plenum Box Mounting (Overhead Access)
2. Plenum Box Mounting (Lateral Access)
3. Direct Mounting to Channel

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Installation examples

Freely suspended installation



Installation in continuous ceilings



With plenum box





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ORDER CODES

| | | | | |
|---|----|---------|--|------------------|
| VDL | 00 | RAL9010 | SM | D 800mm |
| | | | | D: Neck Diameter |
| VDL: 12-6 blades (adjustable) VDL-S : 12 blades (Fixed) | | | 00: No Mounting SM: Screw Mounting | |
| 00: Without Plenum Box PL: With Plenum Box | | | 00: No coating EX: Eloxal Coating RAL----: Powder Coating | |