

Application:

The swirl diffuser type RTBD is suitable for the supply of cooled air with a large temperature differential and can be utilised for constant and variable volume installations. The air pattern is fixed. The diffuser may be used for surface mounting as well as for Tee bar mounting. The diffuser is for mounting within the ceiling and can be fitted with a plenum box which is delivered ready assembled. The special high induction swirl effect enables a significant number of air changes. The very shallow inflow pattern also makes the diffuser suitable for somewhat lower spaces.

Features:

Max. air exchanges: up to 15 x
Under temperature: up to 10 K
Over temperature: up to 15 K

Dimensional data:

| model | B | A | D | T | P | H |
|-------|-----|-----|-----|----|-----|-----|
| 250 | 278 | 273 | 123 | 55 | 215 | 110 |
| 350 | 378 | 373 | 158 | 65 | 260 | 125 |
| 450 | 478 | 473 | 198 | 75 | 310 | 140 |
| 550 | 578 | 573 | 248 | 75 | 360 | 160 |

Weights:

| model | type | | Ø vcd |
|-------|------|------|-------|
| | OA | OR | |
| 250 | 2.4 | 3.0 | 0.1 |
| 350 | 4.0 | 5.2 | 0.2 |
| 450 | 6.0 | 7.9 | 0.3 |
| 550 | 8.5 | 11.2 | 0.4 |

Remarks:

The dimensions are given in mm, weights in kg.
Connection "D" is actual O.D.
The face size of models 250, 350 and 450 are 295, 395 and 495 mm respectively overall.
As such these models fit in a Tee-bar modular ceiling with a respective size of 300, 400 and 500 mm. For 600 mm grid see RTBM.

RTBD

- ▶ Swirl
- ▶ Supply

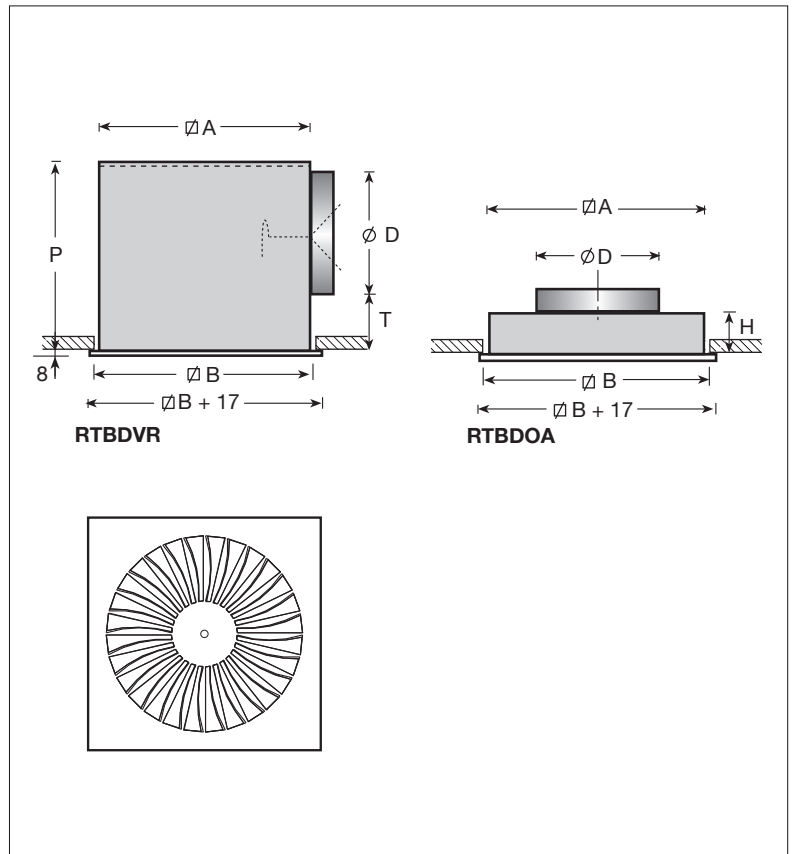
Design:

| | |
|-----------------------|--------------|
| Swirl diffuser | |
| face plate: | steel |
| finish visible parts: | epoxy powder |
| colour: | RAL 9010 |
| Plenum box | |
| material: | steel |
| | sendzimir |
| lining: | 12 mm |
| finish: | none |
| Damper | |
| material: | steel |
| | sendzimir |
| finish: | none |

Available types:

- R T B D - -**
- R** swirl diffuser
 - T** supply
 - B** rotating exhaust pattern, petal shaped
 - D** surface mounted
- **accessories**
- O** none
 - V** damper
- **designed with**
- A** round top connection
 - R** lined plenum box (assembled)
 - U** un-lined plenum box (assembled)

Dimensions:



Performance data RTBD:

| air volume | | model | | | | | | | | | | | |
|-------------------|-------------------|-------|----|----|-----|----|----|-----|----|----|-----|----|----|
| | | 250 | | | 350 | | | 450 | | | 550 | | |
| m ³ /s | m ³ /h | T | Ps | Lp | T | Ps | Lp | T | Ps | Lp | T | Ps | Lp |
| 0.020 | 72 | 0.7 | 3 | - | | | | | | | | | |
| 0.025 | 90 | 0.9 | 5 | - | | | | | | | | | |
| 0.030 | 108 | 1.1 | 7 | 16 | 0.9 | 3 | - | | | | | | |
| 0.040 | 144 | 1.5 | 13 | 24 | 1.2 | 5 | - | | | | | | |
| 0.050 | 180 | 1.9 | 20 | 30 | 1.4 | 7 | 16 | 1.1 | 2 | - | | | |
| 0.060 | 216 | 2.2 | 28 | 34 | 1.7 | 11 | 21 | 1.3 | 3 | - | | | |
| 0.070 | 252 | 2.6 | 38 | 38 | 2.0 | 15 | 25 | 1.5 | 4 | 13 | 1.3 | 2 | - |
| 0.080 | 288 | 3.0 | 50 | 42 | 2.3 | 19 | 29 | 1.7 | 6 | 16 | 1.5 | 3 | - |
| 0.100 | 360 | | | | 2.9 | 30 | 34 | 2.2 | 9 | 22 | 1.9 | 5 | 14 |
| 0.125 | 450 | | | | 3.6 | 46 | 40 | 2.7 | 14 | 28 | 2.3 | 7 | 20 |
| 0.150 | 540 | | | | | | | 3.2 | 20 | 32 | 2.8 | 11 | 25 |
| 0.200 | 720 | | | | | | | 4.3 | 36 | 40 | 3.7 | 19 | 32 |
| 0.250 | 900 | | | | | | | | | | 4.6 | 30 | 38 |

Throw correction factor

| V _{end} m/s | throw factor |
|-------------------------|-----------------|
| 0.15 | 1.67 |
| 0.20 | 1.25 |
| 0.25 | 1.00 |
| 0.35 | 0.71 |
| 0.50 | 0.50 |

Throw figures are based on 0.25 m/s end velocity. In case other end velocities are required correct according to table.

General:

The throw applies to flush mounted in a horizontal dropped ceiling.

- throw T in metres.

- static pressure drop Ps in Pa.

The assumed room absorption is 10 dB.

- sound pressure Lp in dB(A).

Intermediate values may be interpolated.

Lined Plenums:

| model | middle frequency bands | | | | | |
|-------|------------------------|-----|-----|----|----|----|
| | 125 | 250 | 500 | 1K | 2K | 4K |
| 250 | 5 | 0 | 3 | 10 | 5 | 11 |
| 350 | 2 | 2 | 7 | 7 | 7 | 9 |
| 450 | 2 | 3 | 9 | 7 | 7 | 9 |
| 550 | 0 | 6 | 7 | 7 | 6 | 9 |