



TELLUS face

Ceiling swirl diffusers for exposed installation

TELLUS



With suspended diffuser face for exposed installation & low sound power level for comfort zones

Circular ceiling diffusers for exposed installations

- Nominal sizes 100, 125, 160, 200, 250, 315
- Volume flow rate range 20 – 337 l/s or 72 – 1213 m³/h
- Diffuser face made of mild sheet steel, powder-coated
- Plenum made of galvanised sheet steel
- For variable and constant volume flows
- For all types of exposed systems
- Available in RAL CLASSIC colours
- Horizontal and vertical duct connection
- Plenum box with damper blade and pressure tap

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General information

Application

- Type TELLUS ceiling swirl diffusers are used as supply air or extract air diffusers for comfort zones
- Attractive design element for building owners and architects with demanding aesthetic requirements
- Horizontal 360° supply air discharge for mixed flow ventilation
- The combination of horizontal throw and swirl face creates high induction levels, thereby rapidly reducing the temperature difference and airflow velocity.
- Designed for exposed applications
- For variable and constant volume flows
- For supply air to room air temperature differences from -12 to 4 K

Special characteristics

- Removeable front panel
- Internal diaphragm for volume flow determination
- Internally lined
- Rotational pattern on diffuser face

Nominal sizes

- 100, 125, 160, 200, 250, 315

Construction

Diffuser face finish

- P3: Powder-coated RAL 9010, pure white, gloss level 20%
- P2: Powder-coated RAL 9006, white aluminium, gloss level 30%
- P4: Powder-coated RAL 9005, black gloss level 20%
- P6: Powder-coated in any other RAL CLASSIC colour, gloss level 30%

Plenum finish

- 0: Natural (unpainted)
- P3: Powder-coated RAL 9010, pure white, gloss level 20%
- P2: Powder-coated RAL 9006, white aluminium, gloss level 30%
- P4: Powder-coated RAL 9005, black gloss level 20%
- P6: Powder-coated in any other RAL CLASSIC colour, gloss level 30%

Materials and surfaces

- Diffuser face made of mild steel
- Plenum box made of galvanised sheet steel
- Plenum box lined with 12mm class '0' acoustic foam

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Maintenance

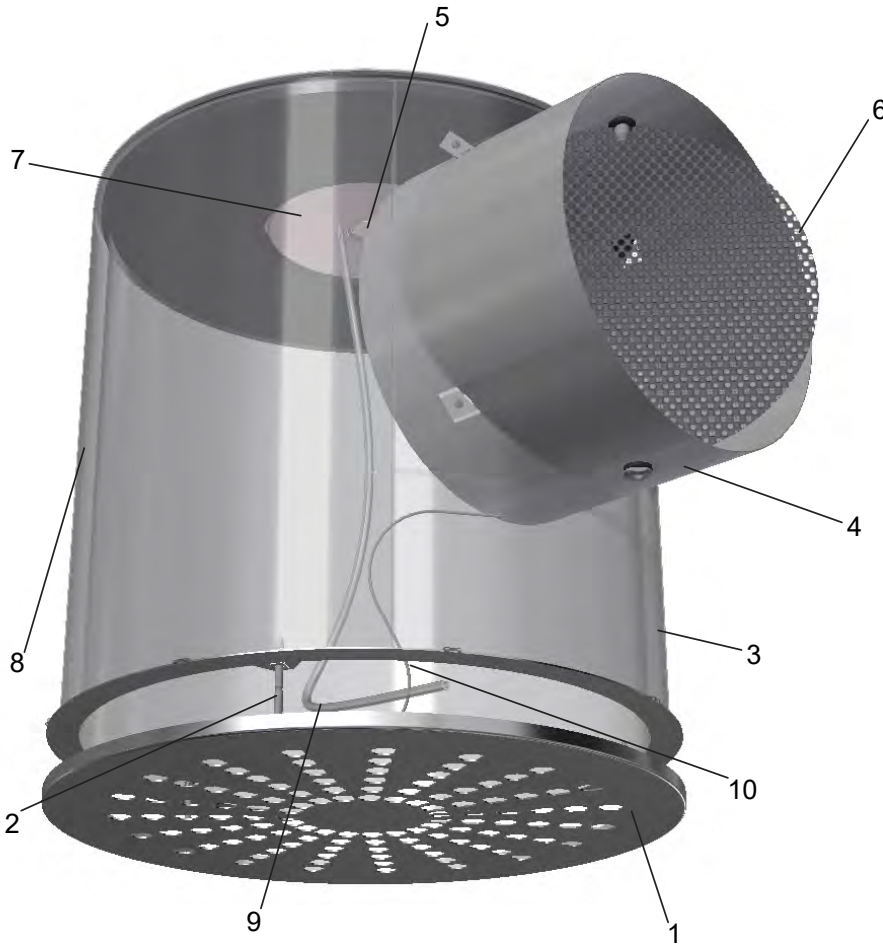
- Maintenance-free as construction and materials are not subject to wear
- Inspection and cleaning to VDI 6022

Function

Ceiling diffusers direct the air from air conditioning systems into the room. 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 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.

Type TELLUS ceiling diffusers have fixed perforations and an adjustable slot between the face and plenum. Horizontal air discharge is radial. The supply air to room air temperature difference may range from -10 to +4K. To give rooms an aesthetic, uniform look, Type TELLUS diffusers may also be used for extract air.

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



TELLUS-V2-...-

- ① Diffuser face
- ② Adjustable pin fixing
- ③ Plenum box
- ④ Spigot
- ⑤ Suspension fixing
- ⑥ Damper blade for volume flow rate balancing
- ⑦ Pressure diaphragm
- ⑧ 12mm lining
- ⑨ Measuring tube
- ⑩ Safety cable

Technical data

Nominal sizes	100, 125, 160, 200, 250, 315 mm
Minimum volume flow rate, with $\Delta t_z = -6$ K	20 – 136 l/s or 72 – 490 m ³ /h
Maximum volume flow rate, with $L_{WA} \cong 40$ dB(A)	52 – 337 l/s or 187 – 1213 m ³ /h
Supply air to room air temperature difference	-10 to +4 K

Quick sizing

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures. The minimum volume flow rates apply to a supply air to room air temperature difference of -6 K and maximum slot gap. The maximum volume flow rates apply to a sound power level of approx. 40 dB (A) with damper blade position 0°.

TELLUS-V2-... (supply air), sound power level and total differential pressure.

Nominal size	q _v l/s	q _v m ³ /hr	Ø Spigot mm	Damper blade position					
				0°		45°		90°	
				ΔPt	LWA	ΔPt	LWA	ΔPt	LWA
				Pa	dB(A)	Pa	dB(A)	Pa	dB(A)
100	20	72	98	8	<15	26	24	62	31
100	25	90	98	12	20	41	30	97	37
100	30	108	98	18	25	59	35	139	41
100	35	126	98	24	29	81	39	190	44
125	25	90	123	6	<15	19	18	72	29
125	35	126	123	12	21	37	28	140	38
125	45	162	123	19	28	62	35	232	44
125	55	198	123	29	35	92	41	347	50
160	40	144	158	6	<15	26	20	71	32
160	60	216	158	14	24	59	32	160	42
160	80	288	158	24	33	106	41	285	49
160	100	360	158	38	40	165	48	445	54
200	60	216	198	5	<15	24	19	58	28
200	90	324	198	12	23	54	31	131	39
200	120	432	198	22	32	96	40	233	47
200	150	540	198	34	39	150	47	365	53
250	90	324	248	5	<15	20	18	54	28
250	130	468	248	11	23	41	30	112	38
250	170	612	248	19	31	71	38	191	45
250	210	756	248	30	38	108	44	292	51
315	140	504	313	5	<15	21	19	65	33
315	200	720	313	10	23	44	29	132	42
315	260	936	313	18	31	74	37	223	48
315	320	1152	313	27	38	112	43	338	54

*Values valid for max S dimension.

Specification text

Specification text

Ceiling diffusers with circular diffuser face. Supply air and extract air variants for comfort zones. Diffuser face with fixed perforations and an adjustable slot between the face and plenum for horizontal radial air discharge. For installation for exposed ceilings.

Ready-to-install component which consists of the diffuser face with fixed perforations and plenum box with lining and damper blade.

Plenums suitable for central fixing. Spigot suitable for circular ducts to EN 1506 or EN 13180.

Sound power level of the air-regenerated noise measured according to EN ISO 5135.

Special characteristics

- Removeable front panel
- Internal diaphragm for volume flow determination
- Internally lined
- Rotational pattern on diffuser face

Parts and characteristics

- Circular diffuser face
- Diffuser with manually adjustable slot between face and plenum
- Simple installation of the diffuser due to central rivnut
- Damper blade for volume flow rate balancing

Standards and guidelines

- Sound power level of the air-regenerated noise measured according to EN ISO 5135

Order code

TELLUS-V2

TELLUS-V2 - 0 - 0 - H - D12 / 200 x 198 / P3 / 0
| | | | | | | | |
1 2 3 4 5 6 7 8 9

1 Type

TELLUS-V2 Ceiling diffuser

2 Variant

0 Combined unit

F Face only

P Plenum only

3 Diffusion type

0 Standard

4 Plenum type

H High profile design

L Low profile design

V Vertical connection

5 Internal lining

D12 12mm internal lining

6 Nominal diffuser size

100

125

160

200

250

315

7 Spigot size

98 TELLUS/100

123 TELLUS/100, 125

158 TELLUS/125, 160

198 TELLUS/160, 200

248 TELLUS/200, 250

313 TELLUS/315

8 Diffuser face finish

P2 RAL 9006 Gloss level:30%

P3 RAL 9010 Gloss level:20%

P4 RAL 9005 Gloss level:20%

P6 Powder-coated RAL CLASSIC colour gloss level 30%

9 Plenum finish

0 Natural (unpainted)

P2 RAL 9006 Gloss level:30%

P3 RAL 9010 Gloss level:20%

P4 RAL 9005 Gloss level:20%

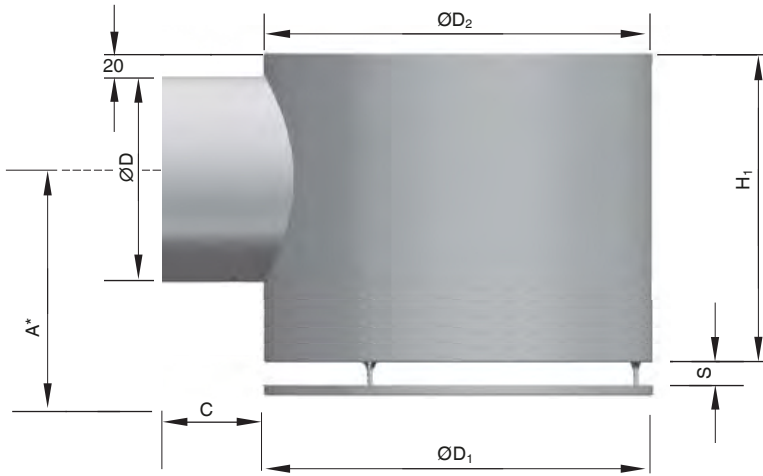
P6 Powder-coated RAL CLASSIC colour gloss level 30%

Order example: TELLUS-V2-0-0-H-D12/200x198/P3/0

Type	TELLUS-V2
Variant	Combined unit
Diffusion type	Standard
Plenum type	High profile design
Internal lining	12mm internal lining
Nominal diffuser size	200
Spigot size	198
Diffuser face finish	RAL 9010 white gloss level 20%
Plenum finish	Natural (unpainted)

Dimensions

Circular diffuser face with high profile plenum box for horizontal duct connection

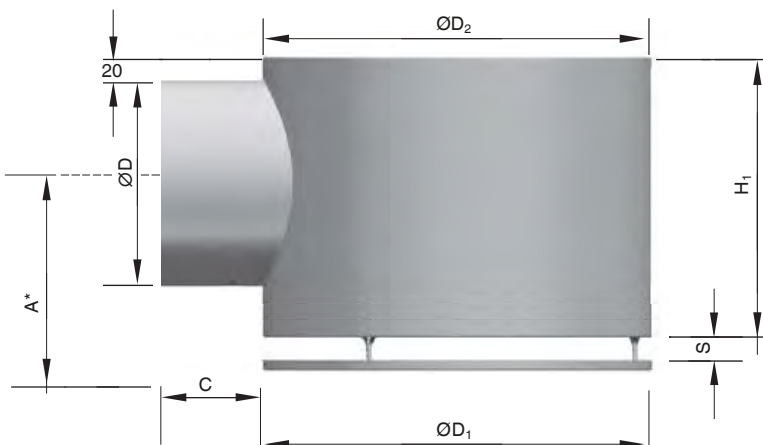


TELLUS-V2-...-H

Nominal size	ØD	H ₁	A	ØD ₁	ØD ₂	S	C
	mm	mm	mm	mm	mm	mm	mm
100	98	172	137	239	223	13/17/24	90
100	123	172	124.5	239	223	13/17/24	90
125	123	210	162.5	239	223	13/17/24	90
125	158	210	145	239	223	13/17/24	87
160	158	262	202	278	262	15/22/29	90
160	198	262	182	278	262	15/22/29	83
200	198	322	242	378	362	15/22/29	90
200	248	322	217	378	362	15/22/29	87
250	248	397	301	417	401	13/28/38	90
315	313	494	365.5	525	509	13/28/38	90

*A Dimension valid for max S dimension

Circular diffuser face with low profile plenum box for horizontal duct connection

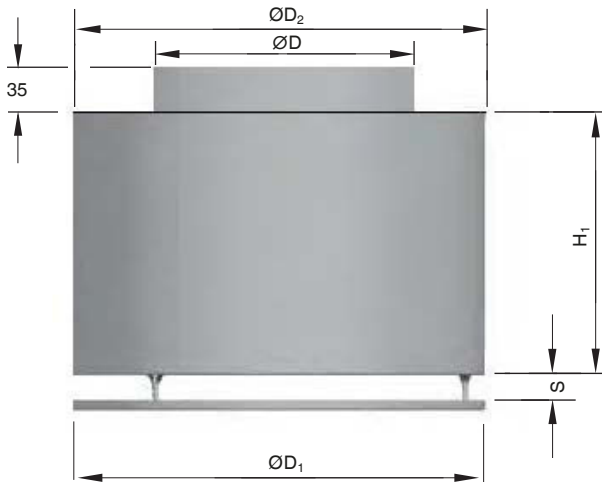


TELLUS-V2-...-L

Nominal size	ØD	H ₁	A	ØD ₁	ØD ₂	S	C
	mm	mm	mm	mm	mm	mm	mm
100	98	139	104	239	223	13/17/24	90
125	123	164	116.5	239	223	13/17/24	90
160	158	199	139	278	262	15/22/29	90
200	198	239	159	378	362	15/22/29	90
250	248	289	193	417	401	13/28/38	90
315	313	354	225.5	525	509	13/28/38	90

*A Dimension valid for max S dimension

Circular diffuser face with plenum box for vertical duct connection



TELLUS-V2-...-V

Nominal size	ØD	H ₁	ØD ₁	ØD ₂	S
	mm	mm	mm	mm	mm
100	98	172	239	223	13/17/24
100	123	172	239	223	13/17/24
125	123	210	239	223	13/17/24
125	158	210	239	223	13/17/24
160	158	262	278	262	15/22/29
160	198	262	278	262	15/22/29
200	198	322	378	362	15/22/29
200	248	322	378	362	15/22/29
250	248	397	417	401	13/28/38
315	313	494	525	509	13/28/38

Product details

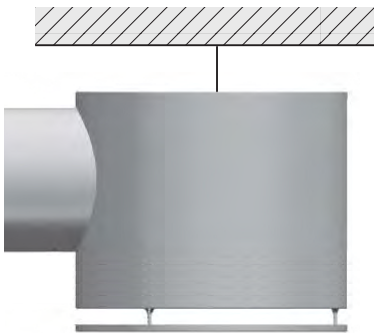
Installations in exposed ceilings



Installation and commissioning

- Preferably for rooms with a clear height up to 4.3 m
- Exposed ceiling installation
- Horizontal duct connection
- If necessary, carry out volume flow rate balancing with the damper blade

Freely suspended installation TELLUS-V2



M8 captive nut provided in top of TELLUS plenum



Three plenum support brackets provided on TELLUS plenum body

Volume flow rate balancing

When several diffusers are connected to just one volume flow controller, it may be necessary to balance the volume flow rates.

- Ceiling diffusers with plenum box and damper blade : The diffuser face can be removed to access the damper blade; the damper blade can then be set to any position between 0 and 90°, the damper blade can also be adjusted externally using the cam on the spigot. Damper blade should be rotated clockwise.

Volume flow rate measurement

Ceiling diffusers with horizontal plenum box, damper blade and pressure diaphragm allow for volume flow rate balancing with the diffuser face in place.

- Connect the measuring tube to the digital manometer
- Read the effective pressure
- Read the volume flow rate off the characteristic or calculate it
- If necessary, adjust the damper blade position



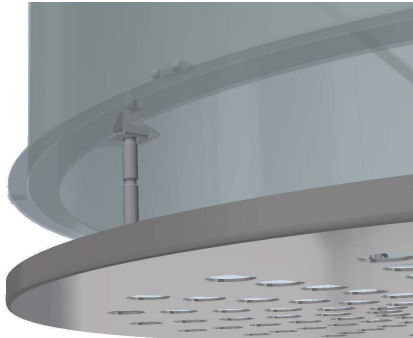
Volume flow calculations

$$\textcircled{1} \quad q_v = C \times \sqrt{\Delta p_w}$$

$$\textcircled{2} \quad q_v = C \times \sqrt{\Delta p_w} \times \sqrt{\frac{1.2}{\rho}}$$

- ① For an air density of 1.2kg/m
- ② For other air densities

Please contact TROX UK for the required 'C' factors



Before commissioning it is important to make sure the face is set to the right position. The face can be set by moving the diffuser face towards or away from the plenum.

As a default the face should be set to the maximum distance from the plenum, with two of the three notches on the pin visible.

Note on vertical connection units;

Please be aware that vertical connection units do not have a means of controlling or commissioning the volume flow. Therefore, a separate method of doing this is required such as an iris damper placed in the duct before the diffuser.

Safely notice - ordering face and plenum separately

Diffuser faces and plenums can be order separately in case replacements are needed due to damage. When ordered separately the face's safety cable must be fixed to the plenum.

This can be done by riveting the safely cable, located next to one of the pins on the face, to the hole in the bottom of the spigot.

If an old plenum is being used it may be necessary to drill out the old rivet.



Nomenclature

$\varnothing D$ [mm]

Outer diameter of the spigot

$\varnothing D_1$ [mm]

Outer diameter of a circular diffuser face

$\varnothing D_2$ [mm]

Diameter of a circular plenum

H_1 [mm]

Height of the plenum box

H_2 [mm]

Height of a ceiling diffuser, from the lower edge of the suspended ceiling to the upper edge of the spigot

s [mm]

Slot gap between plenum and diffuser face

A [mm]

Position of the spigot, defined by the distance of the spigot centre line to the lower edge of the diffuser face

C [mm]

Length of the spigot

L_{WA} [dB(A)]

A-weighted sound power level of air-regenerated noise

q_v [m³/h]; [l/s]

Volume flow rate

Δt_z [K]

Supply air to room air temperature difference, i.e. supply air temperature minus room temperature

Δp_t [Pa]

Total differential pressure