



TID



TID

Vertical connection

Vertical connection



TID

Horizontal connection

Horizontal connection



TID

Vertical connection with
perforated standard metal
ceiling tile

Vertical connection with
perforated standard metal
ceiling tile



TID

Horizontal connection with
perforated standard metal
ceiling tile or factory-made
perforated plate diffuser face

Horizontal connection with
perforated standard metal
ceiling tile or factory-made
perforated plate diffuser face

TID

**NON-VISIBLE AIR TERMINAL DEVICE FOR
COMBINATION WITH FINELY PERFORATED STANDARD
METAL CEILING TILES**

These swirl diffusers allow for a seamless ceiling appearance without any visual interruptions

- Invisible due to the black coated functional unit located on the rear of the diffuser face or ceiling tile
- Flexible combination options with various perforated standard metal ceiling tiles or a factory-made perforated plate diffuser face
- Maximum comfort due to swirling air distribution, swift reduction of supply air velocities and temperature differences
- Easy installation, with either plenum box or direct air connection

General information



Application

- Type TROX INVISIBLE DIFFUSER (TID) ceiling swirl diffusers as supply air and extract air diffusers for use in ventilation and air conditioning systems
- For installation in comfort and industrial zones
- Can be combined with perforated standard metal ceiling tiles, but without acoustic fleece or factory-made perforated plate diffuser face (LBK or LBS)
- The functional unit installation is not visible, which is why it is particularly suitable as an attractive design element for building owners and architects with demanding aesthetic requirements
- Horizontal swirling supply air discharge for mixed flow ventilation
- The efficient swirl creates high induction levels, thereby rapidly reducing the temperature difference and airflow velocity (supply air variant)
- For variable and constant volume flows
- For supply air to room air temperature differences from -12 to +10 K
- For room heights up to 4 m (lower edge of suspended ceiling)
- For all types of ceiling systems, particularly for standard metal ceilings with perforated standard ceiling tiles (free cross section $\geq 15\%$)

Special characteristics

- Inconspicuous or non-visible swirl diffuser
- Non-visible installation of technical components
- Installation behind on-site perforated standard ceiling tile, without affecting the appearance of the ceiling, ceiling tile thickness must be ≤ 1 mm, preferably ≤ 0.7 mm
- Optionally with factory-made perforated plate diffuser face, to cover the functional unit consisting of discharge nozzle, swirling element and spigot
- Functional unit always dip coated black

Nominal sizes

- 300, 400, 600, 625
- \varnothing : 125, 160, 200, 250, 315

Variants

Connection

- Vertical: In the case of a vertical connection, a spigot is attached to the discharge nozzle; it can be mounted directly to the on-site duct network. Suspension lugs are attached to the spigot to retain the dead load of the air diffuser

- Horizontal: In the case of a horizontal connection, the TID air diffuser is combined with a suitable Type AK-Uni plenum box
- Variants with a perforated plate diffuser face (LBK and LBS) are only available with plenum boxes

Perforated plate diffuser face

- Without perforated plate diffuser face: This variant is suitable for installation behind standard metal ceiling tiles perforated on site (free cross section $\geq 15\%$), which must be ≤ 1 mm thick, and ideally ≤ 0.7 mm thick
- LBK - clamped perforated plate diffuser face: A perforated plate diffuser face with a perforation of RV 6.0-8.0 with a free cross section of approx. 51 % is included in the supply package ex works; the perforated plate diffuser face is attached to the discharge nozzle by means of clamps; this variant is particularly suitable for insertion in T-bar ceilings and is only available with a plenum box; the diffuser face is permanently connected to the plenum box
- LBS - screwed perforated plate diffuser face: A perforated plate diffuser face with a perforation of RV 6.0-8.0 with a free cross section of approx. 51 % is included in the supply package ex works; the perforated plate diffuser face is attached to the discharge nozzle with lugs at the edges; this variant is particularly suitable for direct installation below suspended ceilings and only available with a plenum box; the air diffuser is secured to the cross bar in the plenum box with the central fixing screw. The entire air diffuser can be removed to access the plenum box behind it up to the equalising element, e.g. for cleaning

Attachments

Perforated plate diffuser face

- Without perforated plate diffuser face: This variant is suitable for installation behind standard metal ceiling tiles perforated on site (free cross section $\geq 15\%$), which must be ≤ 1 mm thick, and ideally ≤ 0.7 mm thick
- LBK - clamped perforated plate diffuser face: A perforated plate diffuser face with a perforation of RV 6.0-8.0 with a free cross section of approx. 51 % is included in the supply package ex works; the perforated plate diffuser face is attached to the discharge nozzle by means of clamps; this variant is particularly suitable for insertion in T-bar ceilings and is only available with a plenum box; the diffuser face is permanently connected to the plenum box
- LBS - screwed perforated plate diffuser face: A perforated plate diffuser face with a perforation of RV 6.0-8.0 with a free cross section of approx. 51 % is included in the supply package ex works; the perforated plate diffuser face is attached to the discharge nozzle with lugs at the edges; this variant is particularly suitable for direct installation below suspended ceilings and only available with a plenum box; the air diffuser is secured to the cross bar in the plenum box with the central fixing screw. The entire air diffuser can be removed to access the plenum box behind it up to the equalising element, e.g. for cleaning

Accessories

- Lip seal and damper blade for variants with plenum box

Nominal sizes

- 300, 400, 600, 625
- \varnothing : 125, 160, 200, 250, 315

TECHNICAL INFORMATION

Function, Specification text, Order code



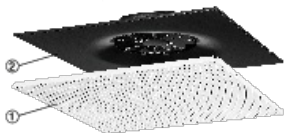
Ceiling swirl diffusers in air conditioning systems create a swirl to supply air to rooms. The resulting airflow induces high levels of room air, thereby rapidly reducing the airflow velocity and the temperature difference between supply air and room air. Ceiling swirl diffusers allow for large volume 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. TROX INVISIBLE DIFFUSERS (TID) feature invisible or inconspicuous installation methods. The swirl unit required for the swirling air discharge is not visible from the room. The special shape of the discharge nozzle allows the swirl effect to be used even behind perforated standard metal ceiling tiles or factory-made perforated plate diffuser faces. Type TID ceiling swirl diffusers have fixed air control blades. Air discharge is horizontal, with an omni-directional flow. The supply air to room air temperature difference may range from -12 to +10 K. A damper blade in the plenum box simplifies volume flow rate balancing for commissioning. To give rooms a uniform aesthetic, Type TID diffusers may also be used for extract air.

TID schematic illustration, with horizontal air connection



- ① Perforated standard metal ceiling tile / perforated plate diffuser face
- ② Functional unit including discharge nozzle, swirling element and spigot
- ③ Plenum box
- ④ Damper blade for volume flow rate balancing

TID schematic illustration, with vertical air connection



- ① Perforated standard metal ceiling tile
- ② Functional unit including discharge nozzle, swirling element and spigot

Ceiling swirl diffusers for invisible or inconspicuous installation behind standard metal ceiling tiles or factory-made perforated plate diffuser faces. The ceiling swirl diffuser is suitable for comfort and industrial zones and is installed as a supply or extract air diffuser in the suspended ceiling. The swirling element with fixed air control blades enable a horizontal swirling supply air discharge creating high induction levels so that the airflow velocities and temperature differences are quickly reduced. The special shape of the discharge nozzle allows the ceiling swirl diffuser to be used behind perforated standard metal ceiling tiles, which must not be thicker than 1.0 mm, and should ideally be preferably less than or equal to 0.7 mm thick, without any visual interruptions in the ceiling appearance. The ceiling swirl diffuser can be combined with all types of ceilings using a factory-made perforated plate diffuser face. The ready-to-install functional unit, consisting of a specially shaped discharge nozzle, swirling element with fixed blades and spigot, is always coated in black and can be connected directly to the on-site air duct system or combined with a Type AK-Uni plenum box. In the case of a vertical connection, suspension lugs are provided for on-site fixing to the spigot. The plenum box has drilled holes for on-site fixing. All spigots are suitable for ducts according to EN 1506 or EN 13180. The sound power level of the air-regenerated noise is measured according to EN ISO 5135.

Special features

- Inconspicuous or non-visible swirl diffuser
- Non-visible installation of technical components
- Installation behind on-site perforated standard ceiling tile, without affecting the appearance of the ceiling, ceiling tile thickness must be ≤ 1 mm, preferably ≤ 0.7 mm
- Optionally with factory-made perforated plate diffuser face, to cover the functional unit consisting of discharge nozzle, swirling element and spigot
- Functional unit always dip coated black

Materials and surfaces

- Discharge nozzle, swirling element, spigot and optional factory-made perforated plate diffuser face and/or plenum box made from galvanised sheet steel
- Perforated plate diffuser face, powder-coated, RAL 9010, pure white
- P1: Perforated plate diffuser face, powder-coated according to RAL Classic

Technical data

- Nominal sizes: 300, 400, 600, 625
- \varnothing : 125, 160, 200, 250, 315 mm
- Supply air to room air temperature difference: -12 to $+10$ K

Sizing data

q_v _____ [m³/h]

Δp_t _____ [Pa]

Air-regenerated noise

L_{WA} _____ [dB(A)]

TID - Z - H - M - L / 600 x 160 / LBS / P1 - RAL 9016
 | | | | | | x | / | / | |
 1 2 3 4 5 6 7 8 9

1 TypeTID
Swirl diffuser

2 System

Z Supply air

A Extract air

3 Connection

V vertical

H horizontal

4 Damper screen for flow rate balancing

No entry: without damper screen

M With damper blade (connection H only)

5 Lip seal

No entry: without lip sealL With lip seal (connection H only)

6 Nominal size [mm]

300, 400, 600, 625

7 Nominal width [mm]

125, 160, 200, 250, 315

8 Perforated plate diffuser face

No entry: none (perforated metal ceiling tile as standard)

LBK perforated plate diffuser face with clamp fixing (only for nominal sizes 600 and 625)

LBS perforated plate diffuser face with screw fixing (only for nominal sizes 600 and 625)

9 Exposed surface

LBK and LBS only

No entry: powder-coated RAL 9010 (pure white)

P1 powder-coated, specify RAL CLASSIC colourGloss level

RAL 9010 GU 50RAL 9006 GU 30All

other RAL colours GU 70

Order example: TID-Z-V/600x160

System Supply air

Connection Vertical

Nominal size 600

Nominal width 160

TID



TID with perforated standard metal ceiling tile / perforated plate diffuser face



TID



TID with perforated standard metal ceiling tile



- Preferably for rooms with a clear height up to 4.0 m
- For use behind perforated standard metal ceiling tiles or with factory-made perforated plate diffuser face
- LBK for inserting in T-bar ceilings
- LBS for installation directly below suspended ceilings
- Perforated standard metal ceiling tiles are not included in the TID supply package and must always be provided on site

Note: In the case of the LBK variant, the optional flow adjustment damper can only be adjusted before installation. It is not possible to adjust the damper from the outside at a later point in time.