



# TROX TECHNIK CHM Multifunctional Wall Diffuser Instruction Manual

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Diffuser Instruction Manual**



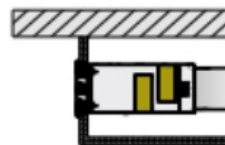
For volume flow limiter VFL:  
variants prepared with longer  
spigot



Standard connection spigot,  
optionally with lip seal and/or  
flow adjustment damper



Various diffuser faces



Installation into ceiling  
bulkheads

## **CHM MULTIFUNCTIONAL WALL DIFFUSER**

Wall diffusers for supply air, extract air, or as a supply and extract air combination with various diffuser faces, for installation in the ceiling bulkhead or wall, e.g. above doors

- Wide range of applications due to different diffusers faces and optional additional functions
- Diffuser face with slot diffusers, type PURELINE
- Nominal lengths 550 – 1175 mm
- Easy and tool-free assembly of the diffuser face, e.g. after completion of all preliminary work

#### Optional equipment

- Removable optional splitter for improved cross-talk sound attenuation.
- Prepared for room-side mountable volume flow limiter for setting the maximum volume flow rate
- Spigot with damper screen for volume flow rate balancing and/or lip seal
- Mounting bracket for secure wall mounting
- Different looks thanks to colourless anodised or powder coated slot diffusers and manually adjustable air control blades, optionally in black,

#### Application

- Wall diffusers as supply or extract air diffuser, or as supply and extract air combination in ventilation systems for comfort areas
- The diffuser face can be fitted with type PURELINE front rails
- Airflow with ceiling effect or directly into the room as turbulent mixed ventilation
- Depending on the setting of the air control blades, the minimum installation height is defined
- High induction causes a rapid reduction of the temperature difference and the airflow velocity
- For constant and variable volume flows
- For supply air to room air temperature differences of -10 to +10 K
- For room heights up to 4 m (lower edge of suspended ceiling)
- Space-saving installation in walls and ceiling bulkheads
- Optionally with mounting brackets for wall mounting (wall thickness 90 to 130 mm)

#### Special characteristics

- Uniform air pattern to reduce dirt deposits that occur on the wall due to induced room air
- One-sided supply airflow with ceiling influence, or directly into the room through manually adjustable air control blades
- Large penetration depths or throw distances due to direct airflow into the room
- Airflow with ceiling influence leads to air distribution below the ceiling with a positive effect on airflow velocity and comfort
- Splitters (removable from room side) as cross-talk silencers (optional):
- To reduce sound transmission to adjacent rooms via the air duct system
- Optionally with flow rate limiter for setting the maximum volume flow rate
- Tool-free fixing for easy and safe installation of the front rail
- Installation of the front rail still possible after completion of all preparatory work
- Comfortable room climate due to rapid reduction of temperature differences and airflow velocities
- High-quality appearance due to extruded aluminium sections with anodised finish or powder coating (according to RAL CLASSIC colour scale)

- The front rail has been optimised for maximum volume flow rate at low sound power levels

## Nominal sizes

Nominal length LN

- 550, 850, 1000, 1175 mm  
Casing depth (without spigot)
- 340 mm  
Casing height (without mounting bracket)
- 145 mm  
Nominal width of air duct (DN): The actual diameter of the spigot depends on the selected variant.
- 100, 125 mm

## Variants

Diffuser face

- PL35: powder-coated front plate with 1 × 3-slot front rail PURELINE35
- 3PL35: powder-coated front plate with 3 × 1-slot front rail PURELINE35
- 3PL18: powder-coated front plate with 3 × 1-slot front rail PURELINE18
- 2PL50: powder-coated front plate with 2 × 1-slot front rail PURELINE50

System

- -S: Supply air
- -E: Extract air
- -SE: Supply and extract air combination

## Construction

Diffuser face finish

- Type PURELINE front rails anodised, E6-C-0 (natural colour)
- -P1: Type PURELINE front rails powder-coated in RALCLASSIC colours
- Front plate powder-coated in RAL 9010
- -P2: Front panel powder-coated in RAL-CLASSIC colours
- Manually adjustable air control blades optionally in black, white or grey

## Attachments

Splitter

- Without splitters: Supply air variants with integrated perforated plate for uniform airflow through the diffuser
- -CT: with splitters (removable from the front) to improve cross-talk sound attenuation to reduce sound transmission via the air duct system Volume flow limiter
- Without volume flow limiter:
- With standard connection spigot – optionally available with damper screen for volume flow balancing and/or lip seal to reduce duct leakage

- Prepared for volume flow limiter:
- With enlarged outer diameter of the spigot for insertion of a volume flow limiter on the room side – e.g. type VFL
- Damper screen (-D) and lip seal (-LS) not possible with these variants

### **Construction features**

- Standard spigot suitable for round air ducts according to EN1506 or EN13180
- Manually adjustable air control blades with detent for defined adjustment of the airflow
- Factory preset airflow that can be manually adjusted on site (only airflow with ceiling influence or direct airflow into the room)
- Standard spigot with groove for lip seal (only for version with lip seal)
- Wall diffuser available in nominal lengths 550 – 1175 mm
- Mounting brackets for wall mounting: Wall thickness 90 – 130 mm
- Fixing material for front diffusers is enclosed loosely, packed in a drawstring bag

### **Materials and surfaces**

- Front plate, plenum box, spigot and cassette for splitter mounting made of galvanised sheet steel
- Front rails made of extruded aluminium profiles
- Air control blades made of ABS plastic, UL 94, V-0, flame retardant
- Lip seal made of Evoprene
- Acoustic lining made of mineral wool
- Front rail anodised E6-C-0 (natural colour) or powder-coated (-P1), colour according to RAL CLASSIC
- Surface front plate powder-coated in RAL 9010 or another RAL CLASSIC colour (-P2)
- Air control blades similar to RAL 9005, jet black
- -W: Air control blades similar to RAL 9010, pure white
- -G: Air control blades similar to RAL 9006, grey

### **Mineral wool**

- Mineral wool on surfaces in contact with air laminated with glass fibre fabric, abrasion-resistant up to 20 m/s
- According to EN13501, building material class A1, noncombustible
- RAL quality mark RAL-GZ 388
- Non-hazardous thanks to high biosolubility according to the German Ordinance on Hazardous Substances and Note Q of the European Regulation (EC) No.
- 1272/2008
- Inert to fungal and bacterial growth

### **Standards and guidelines**

- Sound power level of the air-regenerated noise measured according to EN ISO 5135.
- Conforms to VDI 6022
- Transmission loss according to ISO 7235

## Maintenance

- Low maintenance as construction and materials are not subject to wear and tear
- Inspection and cleaning according to VDI 6022

## TECHNICAL INFORMATION

Wall diffusers allow the supply air of ventilation and air conditioning systems to flow into the room, with ceiling influence or directly. The airflow occurs with a high induction of the room air.

This quickly reduces the air velocity and the temperature difference between supply air and room air. The result is a mixed ventilation system for comfort areas with good room air circulation and low turbulence in the occupied zone. The wall diffusers are equipped with a removable front plate. The front plate contains front rails type PURELINE, which are supplied with factory-set air control blades. The air control blades can be adjusted manually on site. The different airflow directions allow adaptation to different local conditions at any time. The supply air to room air temperature difference may range from -10 to +10 K.

To increase transmission loss and reduce sound transmission into adjacent rooms, the diffuser can optionally be equipped with splitters in the plenum box. Damper blades (optional) in the spigot enable the volume flow rate to be balanced during commissioning. The damper screen is adjusted via the opening for the diffuser face. Alternatively, the wall diffuser CHM can also be pre-equipped for combination with a volume flow limiter VFL. The volume flow limiter is set according to the local system parameters and can be mounted from the room side via the opening for the diffuser face. For an architecturally uniform design, the CHM type can be used as an extract air diffuser or also as a supply and extract air combination.

**Schematic illustration, CHM-35-\* as supply and extract air combination**

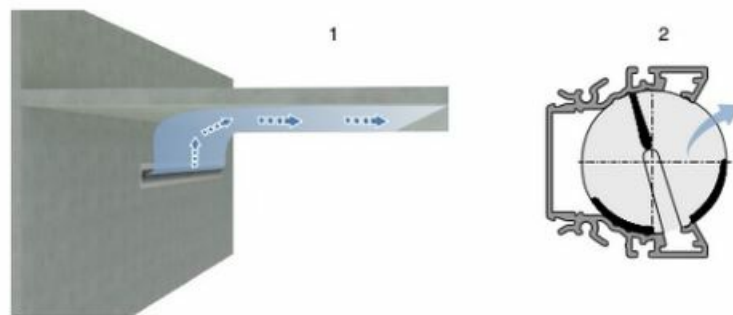


1. Diffuser face consisting of front plate and front rails
2. Adjustable air control blade
3. Plenum box

Optional

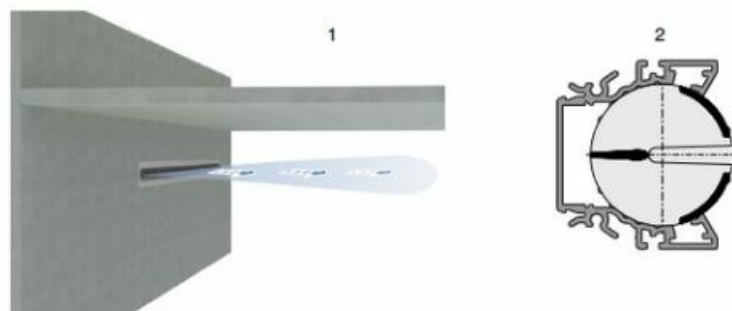
4. Mounting brackets for wall mounting (wall thickness 90 – 130 mm)
5. Spigot, prepared for the installation of a volume flow limiter
6. Flow limiter type VFL (to be ordered separately)
7. Standard spigot
8. Damper screen
9. Lip seal
10. Splitters (removable from room side)

#### Supply air: Airflow with ceiling effect



1. HR: Airflow with ceiling influence – distance from lower edge of ceiling to lower edge of front rail  $\leq 0.5$  m
2. Setting of air control blades

#### Supply air: direct airflow into the room



1. -V: direct airflow into the room – distance from lower edge of ceiling to lower edge of front rail  $\leq 0.3$  m
2. Setting of air control blades

In supply and extract air combinations the air control elements for supply air and extract air are set as shown above

This specification text describes the general properties of the product. Texts for variants can be generated with our Easy Product Finder design program.

#### Specification text

Wall diffusers as supply or extract air diffusers, or as supply and extract air combination, for the supply and extraction of air in ventilation and air conditioning systems. Consisting of a plenum box with spigot for connection to the on-site duct system and a removable front plate.

Extract air variants are also available without spigot or without a connection option to the on-site duct system. The front plate serves as a carrier for the front rails, which are integrated into the front plate. Air is directed into the room via manually adjustable air control blades which are integrated into the front rails. The airflow with ceiling influence or direct air flow into the room can be preset at the factory. Optionally, splitters are available for improved cross-talk sound attenuation (can be removed from the room side). In addition, the wall diffusers can also be optionally extended with a finely adjustable volume flow limiter in round design.

## **Material**

- Plenum box and spigot made of galvanised sheet steel
- Cassette for holding splitters made of galvanised sheet steel (can be removed from the room side)
- Splitter frames made of galvanised sheet steel
- Front plate made of galvanised sheet steel
- Mounting brackets made of galvanised sheet steel
- Front rails made of extruded aluminium profiles
- Air control blades made of plastic ABS, UL94, V-0
- Splitters' sound insulation material made of mineral wool, laminated with glass fibre fabric on surfaces in contact with air

## **Surfaces**

- Front plate powder-coated, RAL CLASSIC colours
- Front rail anodised (E6 C-0), natural colour
- Front rail powder-coated, RAL CLASSIC colours
- Air control blades black, similar to RAL 9005
- Air control blades white, similar to RAL 9010
- Air control blades grey, similar to RAL 9006

## **Nominal size**

### **Length [mm]**

550, 850, 1000, 1175

**Plenum box depth [mm]** (without spigot) 345

**Nominal width (DN) Spigot [mm]** 100, 125

## **Technical data / design data**

- Design-specific

## **Standards and guidelines**

- Conforms to VDI 6022
- Sound power level in air-regenerated noise measured according to EN ISO 5135
- Transmission loss according to ISO 7235
- Mineral wool according to EN13501 of building material class A1, non-combustible, with RAL quality mark RAL-GZ 388
- Mineral wool according to the German Ordinance on Hazardous Substances and Note Q of the European



## **Variants**

- Various front plates with integrated front rails
- Optionally with or without splitters
- Optionally with standard spigot or prepared for room-side installation of a volume flow limiter
- Variants with standard spigot optionally with lip seal and/or damper screen
- Optionally with mounting brackets for wall mounting (wall thickness 90 to 130 mm)

## **Accessories**

- Volume flow limiter for insertion, e.g. type VFL

## **Equivalence criteria**

- Uniform air pattern to reduce dirt deposits on the wall
- Air distribution with ceiling influence or directly into the room via manually adjustable air control blades
- Splitters can be removed tool-free due to interlocking connection
- Glass fibre fabric abrasion-resistant up to 20 m/s
- Mineral wool harmless to health due to high biosolubility
- Mineral wool with glass fibre fabric, inert to fungal and bacterial growth
- Prepared for volume flow limiter that can be mounted from the room side
- Volume flow limiter aerodynamically tested and factory set to reference volume flow rate
- Limiter adjustable via volume flow rate scale (values in l/s, m<sup>3</sup>/h and cfm)
- Front plate can be mounted tool-free after completion of the installation work

## **Make of the tender**

- TROX

## **Type**

- CHM

### **1 Type**

**CHM** Wall diffuse

### **2 Diffuser face**

**PL35** Front plate with one PURELINE35 front rail, 3 slots

**3PL35** Front plate with 3 front rails PURELINE35, 1 slot

**3PL18** Front plate with 3 front rails PURELINE18, 1 slot

**2PL50** Front plate with 2 front rails PURELINE50, 1 slot

### **3 System**

**S** Supply air

**E** Extract air

**SE** Supply and extract air combination

**4 Nominal length [mm]**

550, 850, 1000, 1175

**5 Plenum box depth [mm](without spigot)**

345

**6 Nominal width (DN) Spigot [mm]**

100, 125

**7 Number of spigots**

0, 1, 2

**8 Volume flow rate balancing**

No entry: without volume flow balancing

**D** with damper screen

**VFLS** prepared for volume flow limiter in the supply air

**VFLE** prepared for volume flow limiter in the extract air

**VFLSE** prepared for volume flow limiters in the supply and extract air

**9 Lip seal**

No entry: without lip seal

**LS** with lip seal (not with VFLS, VFLE, VFLSE)

**10 Splitters**

No entry: without splitters

**CT** with splitters

**11 Airflow settings**

**HR** Airflow with ceiling effect



V direct airflow into the room

**12 Fixing**

No entry: without mounting bracket for wall mounting

**F** with mounting brackets for wall mounting

**13 Surface front rail**

No entry: anodised, E6-C-0 (no colour)

**P1** powder-coated, specify RAL CLASSIC colour

**14 Surface front plate**

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

**P2** powder-coated, specify RAL CLASSIC colour

## 15 Colour of air control blades

No entry: similar to RAL 9005 (jet black)

**W** similar to RAL 9010 (pure white)

**G** similar to RAL 9006 (white aluminium)

CHM-PL35-SE/1000×345-100/1/VFLS/ /CT/HR/ F /P1-RAL 9016/P2-RAL 9016/W

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## Documents / Resources

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## References

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