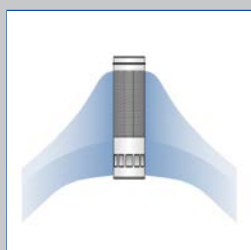
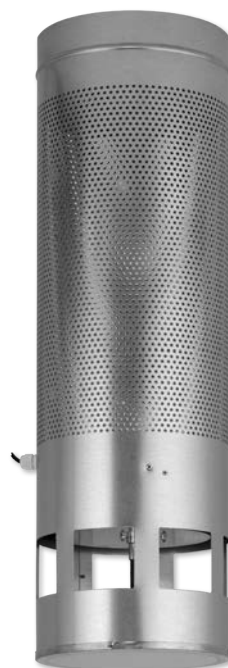
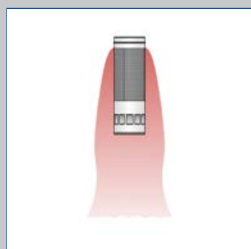


# Impulse diffusers

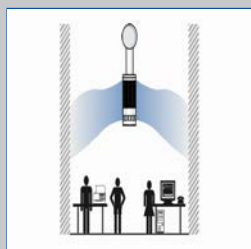
## Type ISH



Cooling mode, horizontal air discharge



Heating mode, vertical air discharge



Free hanging installation above workstations

### For industrial zones without air polluting processes

Impulse diffusers with horizontal air discharge in cooling mode

- Nominal sizes 250, 355, 450, 560 mm
- Volume flow rate range 205 – 1585 l/s or 738 – 5706 m<sup>3</sup>/h
- Casing made of galvanised sheet steel
- For variable and constant volume flows
- Installation either free hanging or on walls or pillars
- Large throw distance due to high discharge momentum
- Discharge direction can be adjusted manually or with an actuator
- Chain pull for adjusting the discharge direction manually

Optional equipment and accessories

- Exposed diffuser parts in RAL CLASSIC colours
- Electric and thermal actuators for adjusting the air discharge direction
- Bowden cable for adjusting the discharge direction manually
- Wall mount

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## Application

### Application

- Type ISH impulse diffusers are used primarily for industrial zones without air polluting work processes
- Horizontal air discharge in cooling mode, vertical air discharge in heating mode
- Ventilation of large occupied zones due to high discharge momentum
- For variable and constant volume flows
- For supply air to room air temperature differences from –8 to +12 K
- Installation at heights between 3.5 m and 10 m, either free hanging or on walls or pillars
- Installation preferably above occupied zones

- Ideal for use with TDC temperature difference control module

### Special characteristics

- Large throw distance due to high discharge momentum
- Horizontal or vertical air discharge
- Free hanging installation above the occupied zone
- Air discharge direction is adjusted manually or with an electric or thermal actuator

### Nominal sizes

- 250, 355, 450, 560 mm

## Description

### Parts and characteristics

- Perforated sheet metal casing with additional rectangular air outlets
- Air control disc to control the air discharge direction
- Top entry spigot for connection to a vertical duct

### Attachments

- Chain pull for manual adjustment, approx. 2.0 m
- B: Bowden cable for manual adjustment, approx. 2.8 m
- E\*: Electric actuator
- T: Thermal actuator

### Accessories

- W00: Wall mount
- K00: Chain fixing
- WK0: Wall mount and chain fixing

### Construction features

- Spigot suitable for circular ducts to EN 1506 or EN 13180

### Materials and surfaces

- Casing with base plate, cross bar and air control disc made of galvanised sheet steel
- Chain pull made of galvanised steel
- Pulley wheels made of plastic, UL 94, V-0, flame retardant
- B: Hand lever made of galvanised steel, Bowden cable made of galvanised steel and with PE sheath
- P0: Powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

### 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

## Functional description

Impulse diffusers discharge the air from air conditioning systems with a high momentum such that large throw distances are achieved. This allows for the ventilation of large areas.

Type ISH impulse diffusers are used primarily for industrial zones without air polluting work processes. They are installed above the occupied zone. An adjustable air control disc allows for adapting the air discharge direction to heating or cooling mode. The supply air to room air temperature difference may range from  $-8$  to  $+12$  K.

## Cooling mode

In cooling mode the supply air is discharged horizontally.

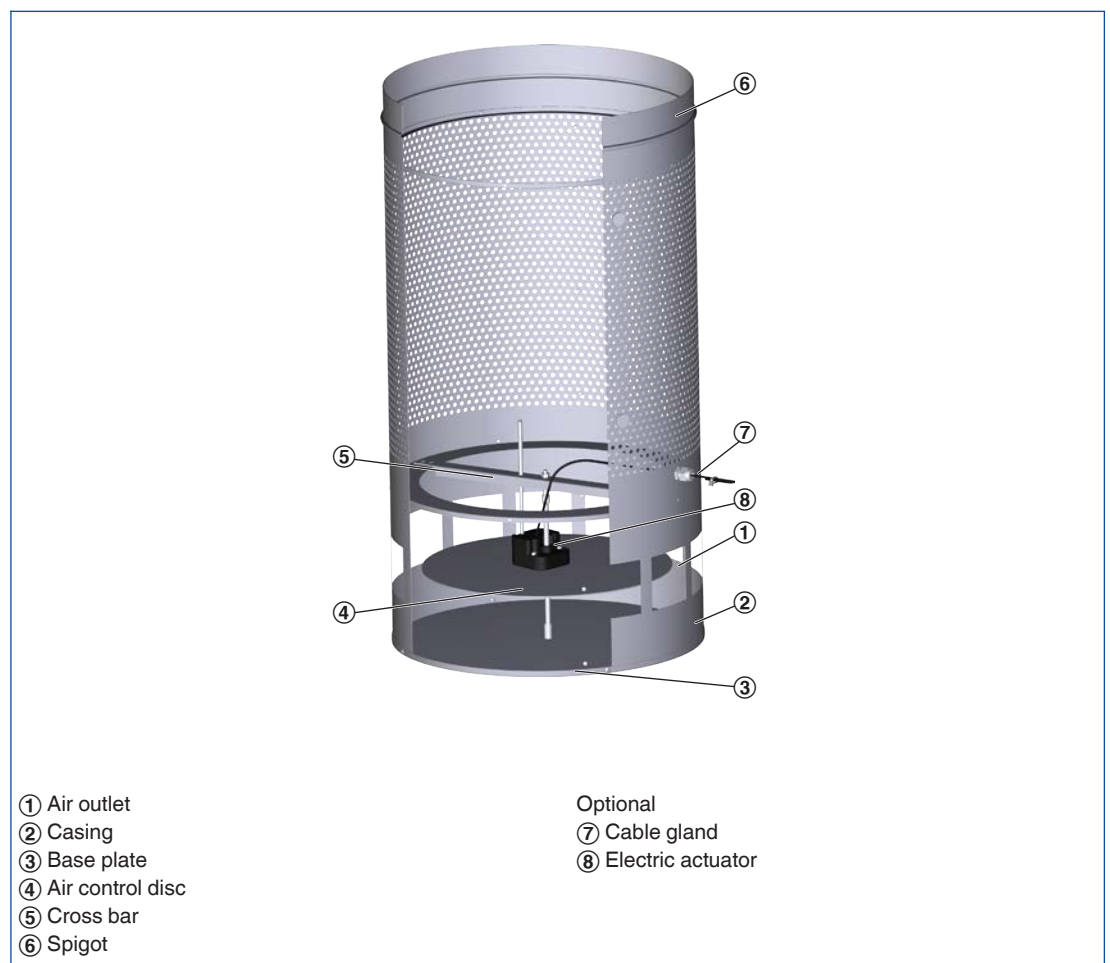
## Heating mode

In heating mode the air is discharged vertically.

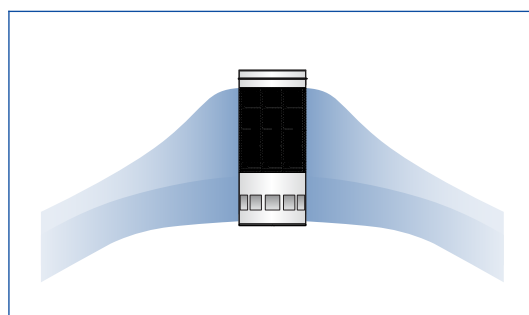
The air control disc can be adjusted manually or with a thermal or electric actuator.

Extract air units should be installed in the upper part of a room, above the occupied zone.

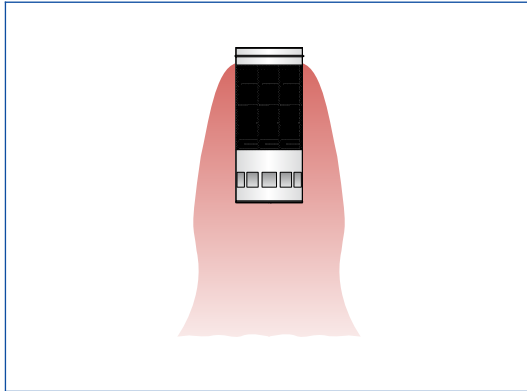
## Schematic illustration of ISH with electric actuator



## Horizontal air discharge



Vertical air discharge



Nominal sizes	250, 355, 450, 560 mm
Minimum volume flow rate	205 – 785 l/s or 738 – 2826 m <sup>3</sup> /h
Maximum volume flow rate, with $L_{WA} \cong 55$ dB(A)	400 – 1585 l/s or 1440 – 5706 m <sup>3</sup> /h
Supply air to room air temperature difference	-8 to +12 K

Quick sizing tables provide a good overview of the volume flow rates and corresponding sound power levels and differential pressures.  
The maximum volume flow rates apply to a sound power level of approx. 55 dB (A).

**ISH supply air, horizontal air discharge, sound power level and total differential pressure**

Nominal size	$\dot{V}$		$\Delta p_t$	$L_{WA}$
	l/s	m <sup>3</sup> /h	Pa	dB(A)
250	205	738	12	34
	270	972	21	43
	340	1224	33	50
	400	1440	46	55
355	335	1206	11	39
	435	1566	18	47
	535	1926	27	54
	565	2034	30	55
450	470	1692	9	30
	625	2250	15	39
	780	2808	24	47
	950	3420	35	55
560	785	2826	14	30
	1050	3780	24	40
	1310	4716	38	48
	1585	5706	55	55

**ISH supply air, vertical air discharge, sound power level and total differential pressure**

Nominal size	$\dot{V}$		$\Delta p_t$	$L_{WA}$
	l/s	m <sup>3</sup> /h	Pa	dB(A)
250	205	738	12	39
	255	918	20	46
	300	1080	27	51
	350	1260	37	55
355	315	1134	10	40
	370	1332	14	45
	435	1566	19	50
	515	1854	27	55
450	430	1548	9	36
	530	1908	13	43
	630	2268	19	49
	730	2628	25	55
560	600	2160	9	34
	795	2862	16	43
	985	3546	24	50
	1180	4248	35	55

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

Impulse diffusers with a cylindrical casing, for industrial zones without air polluting work processes. With adjustable air control disc for air patterns from horizontal (0°) to vertical (90°). Large throw distances with horizontal air discharge. For free hanging installation and also for installation on walls or pillars.

Ready-to-install component which consists of a cylindrical perforated metal casing with air outlets, an air control disc and a top entry spigot. Spigot suitable for ducts to EN 1506 or EN 13180. Sound power level of the air-regenerated noise measured according to EN ISO 5135.

### Special characteristics

- Large throw distance due to high discharge momentum
- Horizontal or vertical air discharge
- Free hanging installation above the occupied zone
- Air discharge direction is adjusted manually or with an electric or thermal actuator

### Materials and surfaces

- Casing with base plate, cross bar and air control disc made of galvanised sheet steel
- Chain pull made of galvanised steel

- Pulley wheels made of plastic, UL 94, V-0, flame retardant
- B: Hand lever made of galvanised steel, Bowden cable made of galvanised steel and with PE sheath
- P0: Powder-coated RAL 9010, pure white
- P1: Powder-coated, RAL CLASSIC colour

### Technical data

- Nominal sizes: 250, 355, 450, 560 mm
- Minimum volume flow rate: 205 – 785 l/s or 738 – 2826 m<sup>3</sup>/h
- Maximum volume flow rate, with  $L_{WA} \cong 55$  dB(A): 400 – 1585 l/s or 1440 – 5706 m<sup>3</sup>/h
- Supply air to room air temperature difference: -8 to +12 K

### Sizing data

- $\dot{V}$  \_\_\_\_\_  
[m<sup>3</sup>/h]
- $\Delta p_i$  \_\_\_\_\_  
[Pa]

Air-regenerated noise

- $L_{WA}$  \_\_\_\_\_  
[dB(A)]

ISH

ISH – E4 / 450 / W00 / P0 – RAL ...

1 2 3 4 5

1 Type

**ISH** Impulse diffuser

2 Actuator

No entry: chain pull for manual adjustment

**B** Bowden cable for manual adjustment

**E4** 230 V AC, 3-point

**E5** 24 V AC/DC, 3-point

**E6** 24 V AC/DC, modulating 0 – 10 V DC

**T** Thermal actuator

3 Nominal size [mm]

250

355

450

560

4 Fixing

No entry: none

**W00** With wall mount

**K00** With chain fixing (only for variants with chain pull)

**WK0** With wall mount and chain fixing (only for variants with chain pull)

5 Exposed surface

No entry: galvanised

**P0** Powder-coated RAL 9010, pure white

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

Gloss level

RAL 9010 50 %

RAL 9006 30 %

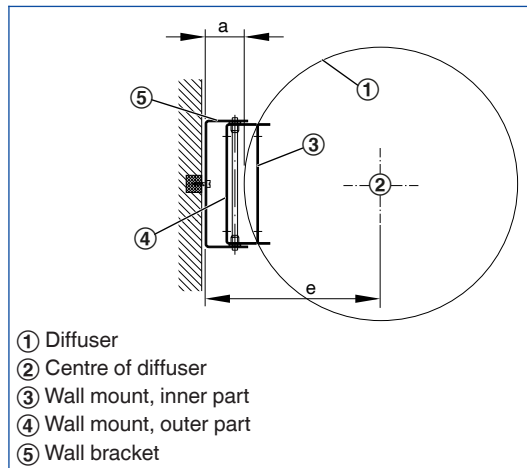
All other RAL colours 70 %

Order example: ISH-E5/450/P1-RAL 9016

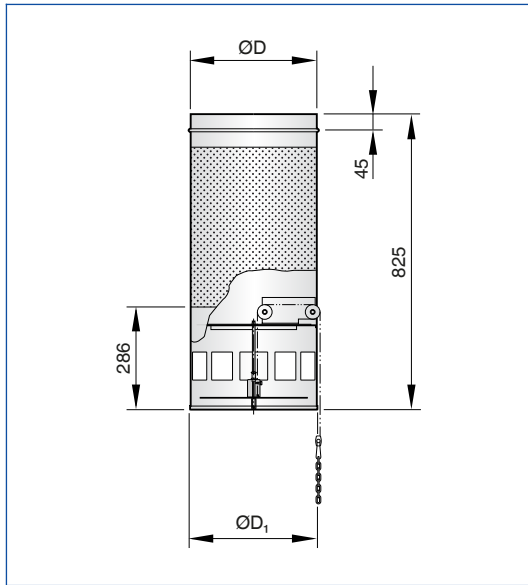
Actuator	24 V AC/DC, 3-point
Nominal size	450 mm
Fixing	Without
Exposed surface	RAL 9016, traffic white, gloss level 70 %



Wall mount (accessory)

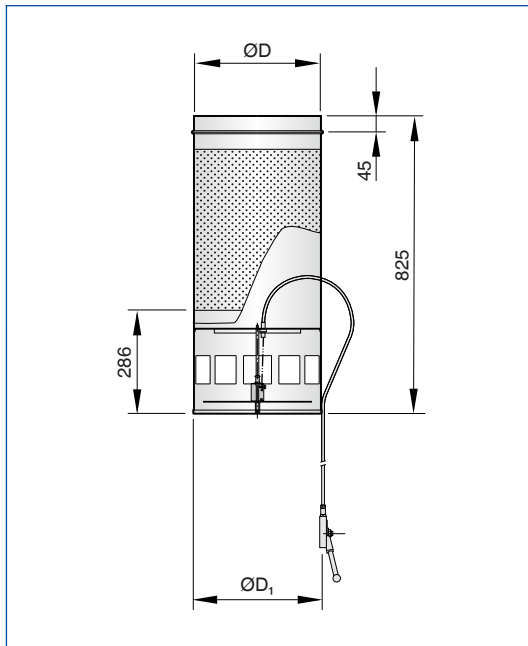


ISH



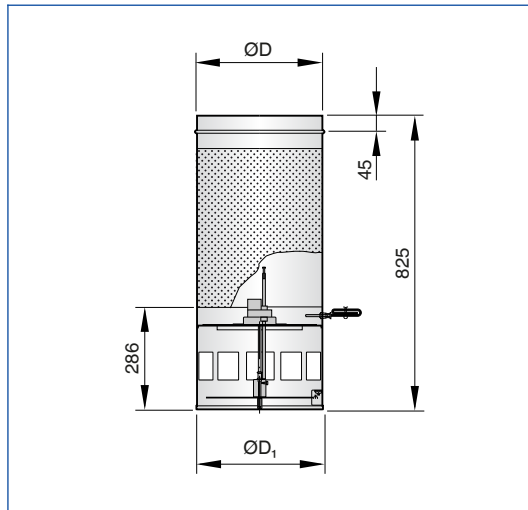
Chain pull for manual adjustment

ISH-B



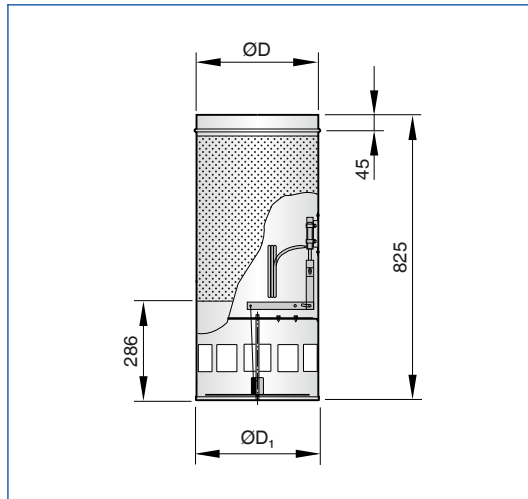
Bowden cable for manual adjustment

ISH-E\*



Electric actuator

ISH-T



Thermal actuator

ISH

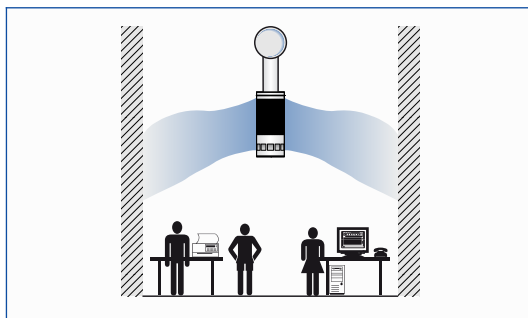
Nominal size	ØD <sub>1</sub>	ØD	m
	mm	mm	kg
250	252	248	5.0
355	357	353	7.4
450	452	448	10.1
560	562	558	13.1

#### Installation and commissioning

- Installation preferably at heights between 3.5 m and 10 m
- Freely suspended installation
- Vertical duct connection
- The spigot has to be screw-fixed to the duct and the entire system has to be securely fixed and suspended (by others)
- Fixing to walls or pillars with optional wall mount
- Attach the chain fixing and the hand lever of the Bowden cable to the wall or pillar, if necessary

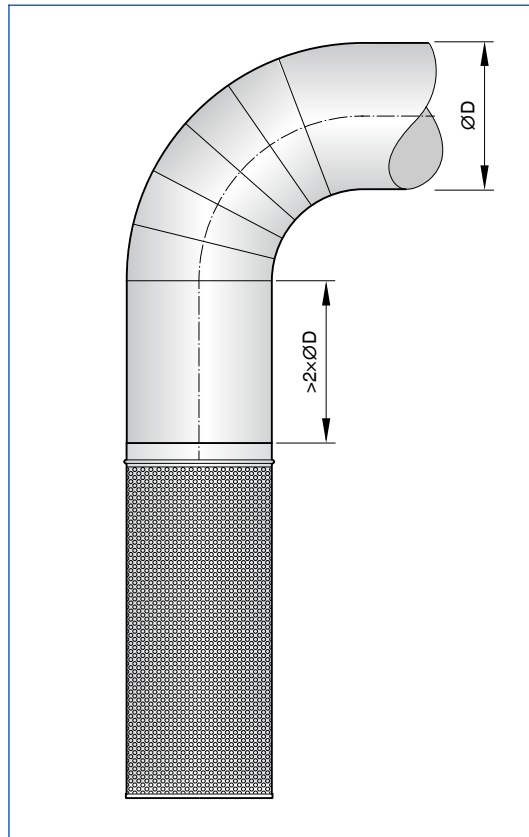
These are only schematic diagrams to illustrate installation details.

#### Free hanging installation above workstations

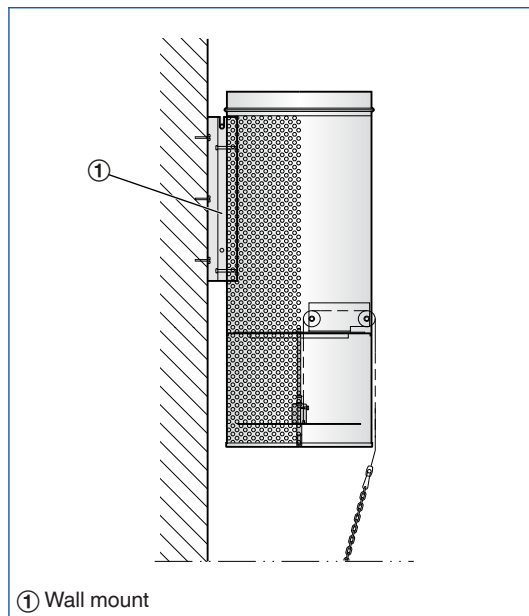


- For industrial zones without air polluting work processes
- Installation preferably above occupied zones

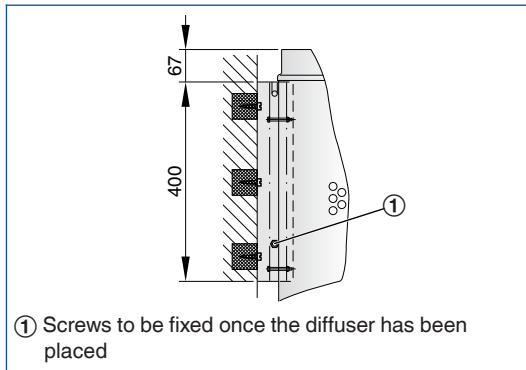
Free hanging installation



Wall fixing



Wall fixing, detail



### Principal dimensions

 **$B_1$  [mm]**

Width of diffuser face

 **$B_4$  [mm]**

Width of a rectangular spigot

 **$\varnothing D$  [mm]**

Outer diameter of the spigot

 **$\varnothing D_1$  [mm]**

Casing diameter

 **$H_1$  [mm]**

Height of diffuser face

 **$T_1$  [mm]**

Casing depth

 **$T_4$  [mm]**

Depth of a rectangular spigot

 **$m$  [kg]**

Weight

### Nomenclature

 **$L_{WA}$  [dB(A)]**

Sound power level of the air-regenerated noise, A-rated

 **$\dot{V}$  [ $m^3/h$ ] and [l/s]**

Volume flow rate

 **$v_0$  [m/s]**

Theoretical airflow velocity across the diffuser area, at a distance of 0 m from the diffuser face

 **$L_{nz}$  [m]**

Near zone of the displacement flow diffuser, where the comfort criteria may not be achieved  
The near zone is at least 0.5 m, independent of the airflow velocity

At distance  $L_{nz}$  the airflow velocity is 0.2 m/s max., measured 0.1 m above the floor

 **$\Delta t_z$  [K]**

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

 **$\Delta p_t$  [Pa]**

Total differential pressure

 **$A_{eff}$  [ $m^2$ ]**

Effective air discharge area

All sound power levels are based on 1 pW.