

Freely suspended units

Type IDH



Condensate drip tray with drainage pipe



Damper actuator



Eurovent certification



Tested to VDI 6022



Induction unit for ceiling installation, with one-way or two-way air discharge, vertical heat exchanger and condensate drip tray

Induction unit for heating and cooling, with 2-pipe heat exchanger, for freely suspended installation in large internal spaces, e.g. exhibition or production halls. The condensate drip tray is useful if the temperature temporarily falls below the dew point.

- Very high heating capacity and cooling capacity (up to 27 kW) when installed at a height of 8 to 25 m
- High comfort levels due to low airflow velocity in the occupied zone
- Non-combustible nozzles made of aluminium
- Motorised damper blade allows for precise setting of air discharge direction
- Heat exchanger with plain Cu pipe (Ø22 mm) for the water connection

Optional equipment and accessories

- Control system
- One-way or two-way air discharge
- Powder coating in many different colours, e.g. RAL CLASSIC

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Application

Application

- Induction units of Type IDH for freely suspended installation, preferably for very large internal spaces with a height of 8 to 25 m
- Dissipation of very high heating and cooling loads (up to 27 kW) due to the 2-pipe heat exchanger and motorised damper blades that allow for setting the airflow direction precisely
- Energy-efficient solution since water is used for heating and cooling

Special characteristics

- Active induction unit for high volume flow rates and with high thermal output, ideal for industrial applications
- One-way or two-way air discharge

- 1 or 2 electric actuators allow for the precise control of the discharge direction and of the airflow in the occupied zone; in cooling mode, air is supplied to the occupied zone either horizontally or downwards at an angle; in heating mode, the air is supplied vertically to the occupied zone
- Vertical heat exchanger with condensate drip tray including condensate drain that can be connected to a condensate pipe (to be provided by others), Ø12 mm both sides
- Water connections at the narrow side, Ø22 mm Cu pipe, with plain tails

Nominal sizes

- 1500, 2000, 2500 mm

Description

Variants

- IDH-1: Induction unit with a primary air volume flow rate of 280 l/s or 1000 m³/h; cooling load up to about 13.5 kW, heating load up to about 8.5 kW
- IDH-2: Induction unit with a primary air volume flow rate of 555 l/s or 2000 m³/h; cooling load up to about 27 kW, heating load up to about 17 kW

Construction

- Galvanised
- Powder-coated RAL 9010, pure white, gloss level 50 %
- P1: Powder-coated in any other RAL colour, gloss level 70 %

Attachments

- E1: Electric actuator (3-point) 230 V AC
- E2: Electric actuator (3-point) 24 V AC
- E3: Electric actuator (modulating) 24 V AC, 0 – 10 V DC

Construction features

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

- Non-combustible nozzles made of aluminium

Materials and surfaces

- Casing, damper blade and perforated metal facing made of galvanised sheet steel
- Nozzles made of aluminium
- Heat exchanger with copper tubes and aluminium fins
- Exposed surfaces either galvanised or in any RAL colour

Standards and guidelines

- Products are certified by Eurovent (no. 09.12.432) and listed on the Eurovent website
- Declaration of hygiene conformity to VDI 6022

Maintenance

- Only few moving parts, hence easy to maintain
- The heat exchanger can be vacuumed with an industrial vacuum cleaner if necessary
- VDI 6022, Part 1, applies (Hygiene requirements for ventilation and air-conditioning systems and units)

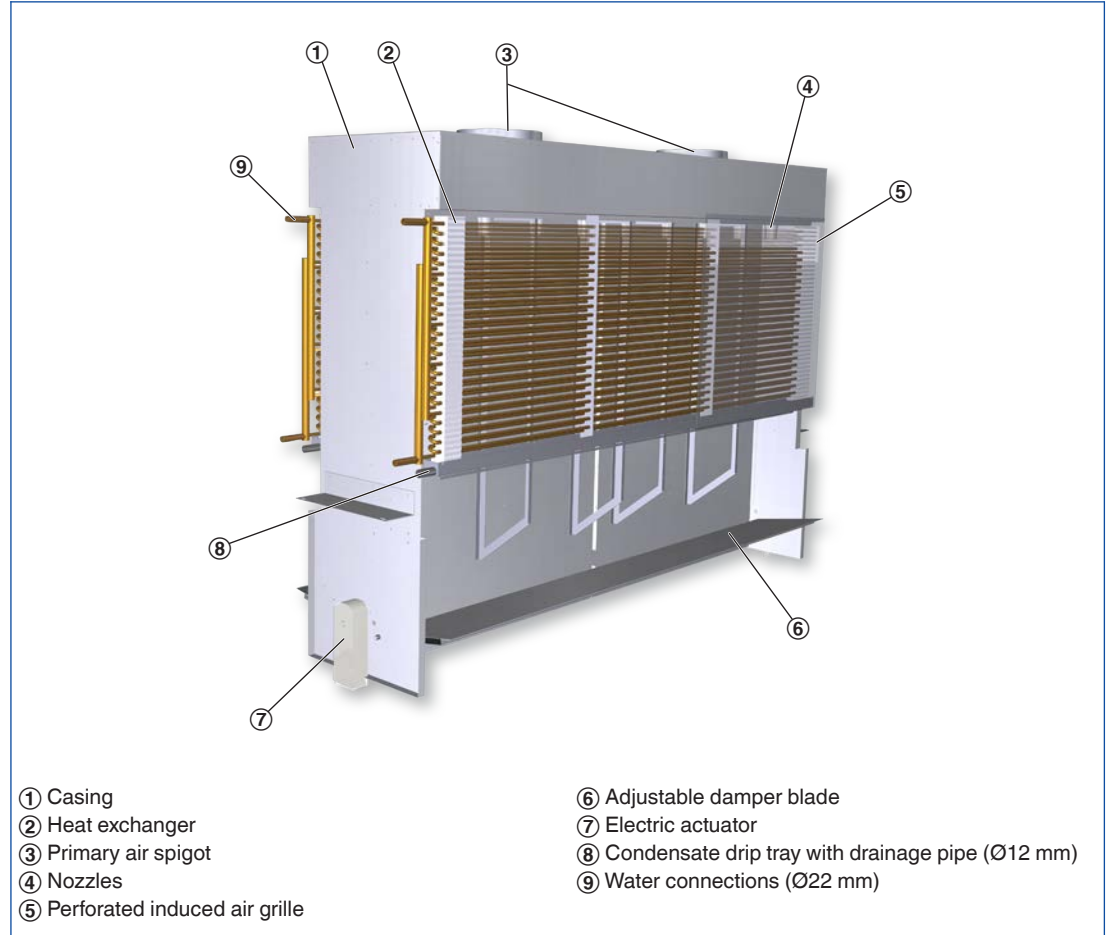
Functional description

Active chilled beams provide centrally conditioned primary air (fresh air) to the room and use heat exchangers for additional cooling and/or heating. The primary air is discharged through nozzles and

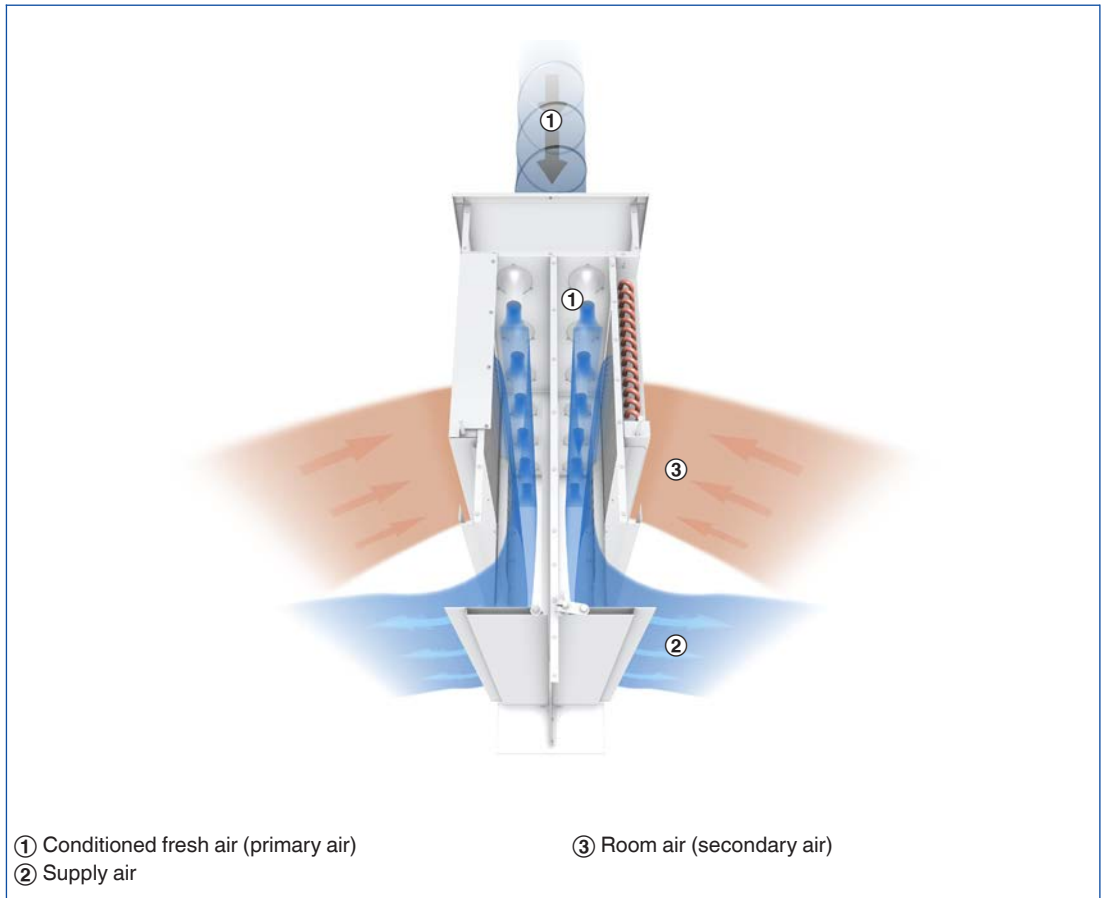
induces secondary air (room air), which passes through the heat exchanger.

Primary and secondary air mix and are then supplied to the room, passing the motorised damper blades.

Schematic illustration of IDH



Principle of operation – IDH



	IDH-1	IDH-2
Nominal length	1500, 2000, 2500 mm	1500, 2000, 2500 mm
Length	1530, 2030, 2530 mm	1530, 2030, 2530 mm
Height	1840 mm	1840 mm
Depth	327 mm	651 mm
Primary air spigot, diameter	198 mm	313 mm
Primary air volume flow rate	280 l/s or 1000 m ³ /h	555 l/s or 2000 m ³ /h
Cooling capacity	Up to approx. 13.5 W	Up to approx. 27 W
Heating capacity	Up to approx. 8.5 W	Up to approx. 17 W
Max. operating pressure, water side	6 bar	6 bar
Max. operating temperature, water side	75 °C	75 °C

The quick sizing table contains operating points for defined reference units. For other operating points you may use the Easy Product Finder design software.

Quick sizing – IDH-1

L_N	Primary air			①	Cooling				Heating		
	\dot{V}_{Pr}		Δp_t	L_{WA}	\dot{Q}_{tot}	\dot{Q}_{WH}	Δt_w	Δp_w	$\dot{Q}_{WH} = \dot{Q}_{tot}$	Δt_w	Δp_w
	l/s	m ³ /h	Pa	dB(A)	W	K	kPa	W	K	kPa	
1500	250	900	305	56	6541	3527	3.0	12.6	7227	12.4	3.2
2000	333	1200	319	61	8455	4439	3.8	15.7	9016	15.5	4.1
2500	417	1500	356	63	10291	5263	4.5	18.9	10602	18.2	4.9

① Air-regenerated noise

Quick sizing – IDH-2

L_N	①	Primary air			②	Cooling				Heating		
		\dot{V}_{Pr}		Δp_t	L_{WA}	\dot{Q}_{tot}	\dot{Q}_{WH}	Δt_w	Δp_w	$\dot{Q}_{WH} = \dot{Q}_{tot}$	Δt_w	Δp_w
		l/s	m ³ /h	Pa	dB(A)	W	K	kPa	W	K	kPa	
1500	G	500	1800	291	59	13083	7054	3.0	12.6	14455	12.4	3.2
2000	G	666	2400	312	64	16910	8879	3.8	15.7	18032	15.5	4.1
2500	G	834	3000	346	66	20582	10526	4.5	18.9	21205	18.2	4.9

① Nozzle variant

② Air-regenerated noise

Reference values

Parameter	Cooling	Heating
t_R	26 °C	22 °C
t_{Pr}	16 °C	22 °C
t_{wv}	16 °C	50 °C
\dot{V}_w	2000 l/h	1000 l/h

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

Description

Induction units of Type IDH, with one-way or two-way air discharge and high thermal output, providing high thermal comfort levels in the occupied zone.

For freely suspended installation, preferably for very large internal spaces with room heights from 8 to 25 m.

The units consist of a casing with suspension points, a spigot, non-combustible nozzles, and a vertical heat exchanger with condensate drip tray.

Special characteristics

- Active induction unit for high volume flow rates and with high thermal output, ideal for industrial applications
- One-way or two-way air discharge
- 1 or 2 electric actuators allow for the precise control of the discharge direction and of the airflow in the occupied zone; in cooling mode, air is supplied to the occupied zone either horizontally or downwards at an angle; in heating mode, the air is supplied vertically to the occupied zone
- Vertical heat exchanger with condensate drip tray including condensate drain that can be connected to a condensate pipe (to be provided by others), Ø12 mm both sides
- Water connections at the narrow side, Ø22 mm Cu pipe, with plain tails

Materials and surfaces

- Casing, damper blade and perforated metal facing made of galvanised sheet steel
- Nozzles made of aluminium
- Heat exchanger with copper tubes and aluminium fins
- Exposed surfaces either galvanised or in any RAL colour

Construction

- Galvanised
- Powder-coated RAL 9010, pure white, gloss level 50 %
- P1: Powder-coated in any other RAL colour, gloss level 70 %

Technical data

- Nominal length: 1500, 2000, 2500 mm
- Length: 1530, 2030, 2530 mm
- Height: 1840 mm
- Depth: 327, 651 mm
- Primary air spigot, diameter: 198, 313 mm
- Primary air volume flow rate: 280 – 555 l/s or 2000 – 1000 m³/h
- Cooling capacity: up to approx. 13.5 kW or 27 kW, respectively
- Heating capacity: up to approx. 8.5 kW or 17 kW, respectively
- Max. operating pressure: 6 bar
- Max. operating temperature: 75 °C

Sizing data

Primary air

- \dot{V} _____
[m³/h]
- Δp_i _____
[Pa]

Air-regenerated noise

- L_{WA} _____
[dB(A)]

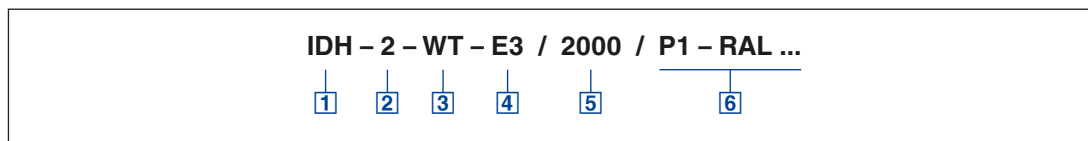
Cooling

- \dot{Q}_{ges} _____
[W]

Heating

- \dot{Q}_{ges} _____
[W]

IDH



1 Type

IDH Active induction unit

2 Air discharge

- 1** One-way
- 2** Two-way

3 Heat exchanger

- No entry: none
- WT** With 2-pipe heat exchanger

4 Electric actuator

- E1** 230 V AC
- E2** 24 V AC
- E3** 24 V AC, 0 – 10 V DC

5 Nominal length [mm]

- 1500**
- 2000**
- 2500**

6 Exposed surface

- No entry: Untreated – galvanised sheet steel
- 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 examples

IDH-2-WT-E3/2000/P1-RAL 9005

Air discharge	Two-way
Heat exchanger	2-pipe
Electric actuator	24 V AC, 0 – 10 V DC
Nominal length	2000 mm
Exposed surface	Powder-coated, RAL CLASSIC colour

IDH-1-E2/1500

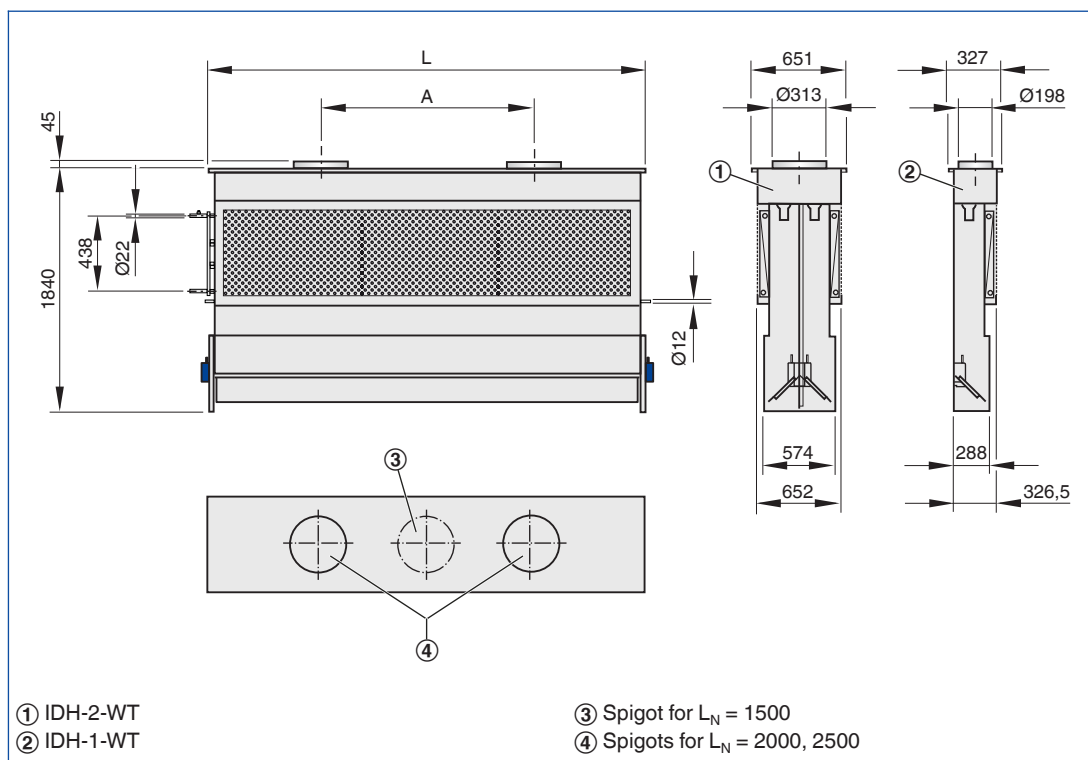
Air discharge	One-way
Electric actuator	24 V AC
Nominal length	1500 mm
Exposed surface	Untreated – galvanised sheet steel

Product examples

IDH-2-WT-E1/1500



IDH



Dimensions [mm]

L _N	L	A	No. of spigots
1500	1530	-	1
2000	2030	835	2
2500	2530	1235	2

Weight [kg]

L _N	IDH-1-WT-E...			IDH-2-WT-E...		
	1500	2000	2500	1500	2000	2500
Unit	70	90	110	120	155	190
Contained water	5	6	8	9	12	15

Installation example



Installation example



Installation and commissioning

- Preferably for halls with a height of 8 to 25 m
- Freely suspended installation in large internal spaces, e.g. exhibition or production halls
- Top entry primary air spigot Ø198 mm for IDH-1, or Ø313 mm for IDH-2
- Length: 1530, 2030 or 2530 mm; height: 1405 mm; depth: 305 mm (one-way discharge) or 548 mm (two-way discharge)
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- Induction unit has 4 suspension points for ceiling installation

L_N [mm]

Nominal length

L_{WA} [dB(A)]

Sound power level

t_{Pr} [°C]

Primary air temperature

t_{wv} [C°]

Water flow temperature – cooling/heating

t_R [C°]

Room temperature

t_R [C°]

Room temperature

t_{AN} [C°]

Secondary air intake temperature

Q_{Pr} [W]

Thermal output – primary air

Q_{tot} [W]

Thermal output – total

Q_w [W]

Thermal output – water side, cooling/heating

\dot{V}_{Pr} [l/s]

Primary air volume flow rate

\dot{V}_{Pr} [m³/h]

Primary air volume flow rate

\dot{V}_w [l/h]

Water flow rate – cooling/heating

\dot{V} [l/h]

Volume flow rate

Δt_w [K]

Temperature difference – water

Δp_w [kPa]

Pressure drop, water side

Δp_t [Pa]

Total pressure drop, air side

$\Delta t_{Pr} = t_{Pr} - t_R$ [K]

Difference between primary air temperature and room temperature

$\Delta t_{Rwv} = t_{wv} - t_R$ [K]

Difference between water flow temperature and room temperature

Δt_{wm-Ref} [K]

Difference between mean water temperature and reference temperature

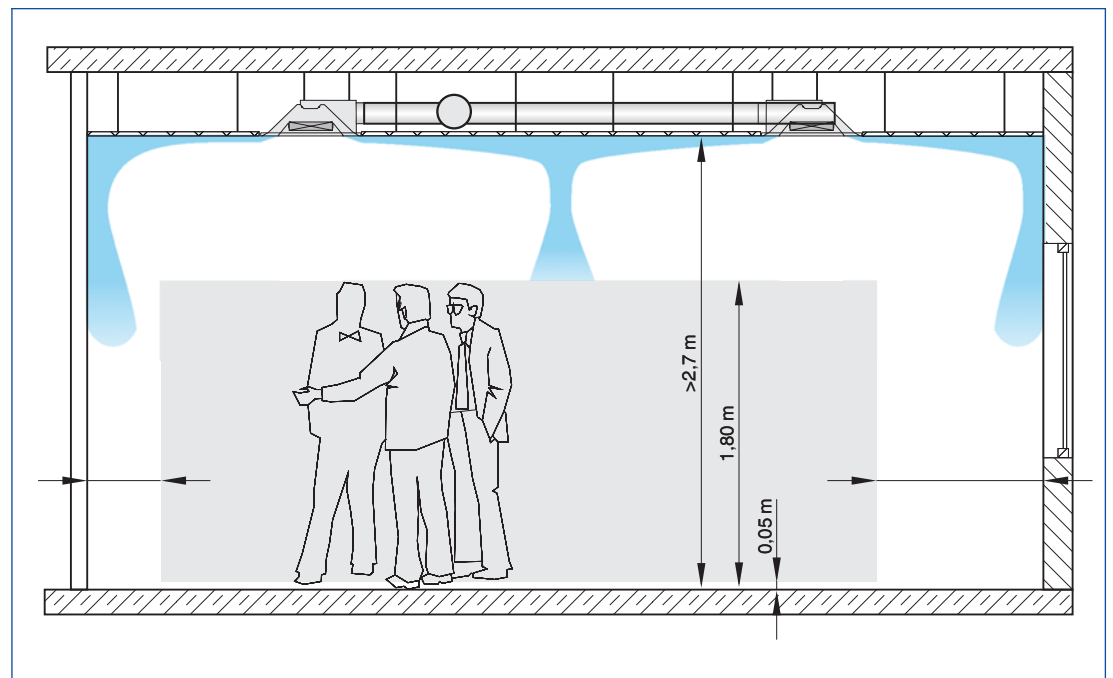
L_N [mm]

Nominal length

Mixed flow

The supply air is discharged from the diffuser into the space with a velocity between 2 and 5 m/s. The resulting air jet mixes with the room air, ventilating the entire space. Mixed flow systems typically provide a uniform temperature distribution and air quality within the space. The originally high velocity of the turbulent air jet decreases rapidly due to the high induction levels of mixed flow systems.

Schematische Darstellung Mischlüftung



Heat exchanger

The maximum water-side operating pressure for all heat exchangers is 6 bar.

The maximum water flow temperature (heating circuit) for all heat exchangers is 75 °C; if flexible hoses are used, the water flow temperature should not exceed 55 °C. Units for other pressures

and temperatures are available on request.

The water flow temperature (cooling circuit) should be at least 16 °C such that it does not permanently fall below the dew point. For units with a condensate drip tray the water flow temperature may be reduced to 15 °C.

Heat exchanger as 2-pipe system

Air-water systems with a 2-pipe heat exchanger may be used for either heating or cooling. In

changeover mode it is possible to use all units within a water circuit exclusively for cooling in summer and exclusively for heating in winter.

Wärmeübertrager 2-Leiter-System



Heat exchanger as 4-pipe system

Air-water systems with a 4-pipe heat exchanger may be used for both heating and cooling. Depending on the season, i.e. especially in spring

and autumn, it may be possible that an office has to be heated in the morning and cooled in the afternoon.

Wärmeübertrager 4-Leiter-System

