**TYPE DID632**

**ACTIVE CHILLED BEAM WITH TWO-WAY AIR DISCHARGE AND HORIZONTAL HEAT EXCHANGER, SUITABLE FOR GRID CEILINGS WITH GRID SIZE 600 OR 625**

Active chilled beam for heating and cooling, with 2-pipe or 4-pipe heat exchanger, for integration with various ceiling systems

- Preferably for room heights up to 4.0 m
- High heating and cooling capacity with a low conditioned primary air volume flow rate and low sound power level
- Four nozzle variants to optimise induction based on demand
- Hinged, removable induced air grille in four designs

Optional equipment and accessories

- Control system
- Additional casing for extract air
- Heat exchanger powder-coated black
- Powder coating in many different colours, e.g. RAL CLASSIC
- Adjustable air control blades for air direction control
- With an extended border also suitable for freely suspended installation
Application

Active chilled beams of Type DID632 for the integration into various ceiling systems, preferably for room heights up to 4.0 m
- Particularly suitable for grid ceilings with grid size 600 or 625
- Adjustable air control blades (optional) allow for the manual adjustment of the air discharge direction
- 2-pipe or 4-pipe heat exchangers enable good comfort levels with a low conditioned primary air volume flow rate
- Energy-efficient solution since water is used for heating and cooling

Special characteristics
- Adjustable air control blades for air direction control
- Hinged, removable induced air grille in four designs
- Horizontal heat exchanger as 2-pipe or 4-pipe system
- Internal nozzle plate with punched nozzles (non-combustible)
- Water connections at the narrow side, Ø12 mm Cu pipe, either with plain tails or with G½" external thread and flat seal

Nominal sizes
- 900, 1200, 1500, 1800, 2100, 2400, 2700, 3000 mm

Description

Variants
- DID632-LR: With induced air grille – perforated sheet metal, circular holes
- DID632-LQ: With induced air grille – perforated sheet metal, square holes
- DID632-GL: With induced air grille – longitudinal blades
- DID632-GQ: With induced air grille – transverse blades

Heat exchanger
- 2: 2-pipe systems
- 4: 4-pipe systems

Nozzle variants
- Z: Small plus
- M: Medium
- G: Large
- U: Extra large
Construction

- Powder-coated RAL 9010, pure white, gloss level 50%
- P1: Powder-coated in any other RAL colour, gloss level 70%
- P1: Powder-coated RAL 9006, white aluminium, gloss level 30%

Attachments

- Additional casing with extract air spigot (45° connection)
- Water connection A1: G½” external thread and flat seal
- Water connection A2: G½” union nut and flat seal
- Adjustable air control blades for air direction control

Useful additions

- Connecting hoses
- Control equipment consisting of a control panel including a controller with integral room temperature sensor; valves and valve actuators; and lockshields
- X-AIRCONTROL control system

Construction features

- Spigot is suitable for circular ducts to EN 1506 or EN 13180
- Four suspension points for on-site installation (by others)
- Four nozzle variants to optimise induction based on demand
- Optional additional casing with extract air spigot (45° connection)
- Optional adjustable air control blades for air direction control (retrofit at a later stage is not possible)

Materials and surfaces

- Casing, front frame, nozzle plate, and perforated induced air grille (LR/LQ) made of galvanised sheet steel
- Blades of the induced air grille (GL/GQ) made of aluminium sections
- Heat exchanger with copper tubes and aluminium fins
- Exposed surfaces are powder-coated pure white (RAL 9010) or in any other RAL colour
- Heat exchanger also in black (RAL 9005)
- Additional casing with extract air spigot made of galvanised sheet steel
- Air control blades made of polypropylene, UL 94, flame retardant (V0)

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

- No moving parts, hence low maintenance
- 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 (in 4 sizes) into the mixing chambers; as a result of this, secondary air is induced. Secondary air (room air) is induced via the induced air grille and passes through the horizontal heat exchanger, where it is heated or cooled.

Primary and secondary air mix and are then supplied to the room horizontally through the supply air slots.

**Schematic illustration of DID632**

1. Hanging bracket
2. Primary air spigot
3. Casing
4. Water connections
5. Front frame
6. Heat exchanger
7. Nozzles
8. Air control blades (optional)

**Principle of operation – DID632**

1. Conditioned fresh air (primary air)
2. Supply air
Room air (secondary air)

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<th>Nominal length</th>
<th>900, 1200, 1500, 1800, 2100, 2400, 2700, 3000 mm</th>
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<td>Primary air spigot, diameter</td>
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<td>Primary air volume flow rate</td>
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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

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1 If the air discharge is not straight, the water-side capacity will be slightly affected; blades set at 45° may cause a loss of up to 5%.

① Nozzle variant ② Pressure drop ③ Air-regenerated noise

Reference values

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Aerodynamic data – extract air
### Aerodynamic data – extract air

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Active chilled beams of Type DID632, with two-way air discharge and high thermal output, providing high thermal comfort levels.

For installation flush with the ceiling, preferably in rooms with a height up to 4.0 m.

The units consist of a casing with suspension points, a spigot, non-combustible nozzles, and a horizontal heat exchanger.

Nozzles in four sizes to optimise induction based on demand.

**Special characteristics**

- Adjustable air control blades for air direction control
- Hinged, removable induced air grille in four designs
- Horizontal heat exchanger as 2-pipe or 4-pipe system
- Internal nozzle plate with punched nozzles (non-combustible)
- Water connections at the narrow side, Ø12 mm Cu pipe, either with plain tails or with G1/2” external thread and flat seal

**Materials and surfaces**

- Casing, front frame, nozzle plate, and perforated induced air grille (LR/LQ) made of galvanised sheet steel
- Blades of the induced air grille (GL/GQ) made of aluminium sections
- Heat exchanger with copper tubes and aluminium fins
- Exposed surfaces are powder-coated pure white (RAL 9010) or in any other RAL colour
- Heat exchanger also in black (RAL 9005)
- Additional casing with extract air spigot made of galvanised sheet steel
- Air control blades made of polypropylene, UL 94, flame retardant (V0)
Construction

- Powder-coated RAL 9010, pure white, gloss level 50 %
- P1: Powder-coated in any other RAL colour, gloss level 70 %
- P1: Powder-coated RAL 9006, white aluminium, gloss level 30 %

Technical data

- Nominal length: 900, 1200, 1500, 1800, 2100, 2400, 2700, 3000 mm
- Length: 893 – 3000 mm
- Height: 210 mm
- Width: 593, 598, 618, 623 mm
- Primary air spigot, diameter: 123/158 mm
- Primary air volume flow rate: 6 – 85 l/s or 22 – 306 m³/h
- Cooling capacity: up to 2450 W
- Heating capacity: up to 2970 W
- Max. operating pressure: 6 bar
- Max. operating temperature: 75 °C

Sizing data

Primary air

- \( V \) \([\text{m}^3/\text{h}]\)
- \( \Delta p_i \) \([\text{Pa}]\)

Air-regenerated noise

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

Cooling

- \( Q_{ges} \) \([\text{W}]\)

Heating

- \( Q_{ges} \) \([\text{W}]\)

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

**DID632–LR–2–M–LL/1193×1200×593**
### Induced air grille
- Perforated metal, circular holes

### Heat exchanger
- 2-pipe

### Nozzle variant
- Medium

### Arrangement of casings and connections
- Left side, left side

### Total length (diffuser face) × nominal length
- 1193 × 1200 mm

### Width of front frame
- 593 mm

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### Induced air grille
- Transverse blades

### Heat exchanger
- 2-pipe

### Nozzle variant
- Extra large

### Arrangement of casings and connections
- Right side, right side

### Extract air spigot
- Front

### Water connections
- With G½" external thread and flat seal

### Total length (diffuser face) × nominal length
- 1798 × 1500 mm

### Width of front frame
- 598 mm

### Exposed surface
- RAL 9006

### Surface of heat exchanger
- Black

### Valves and actuators
- With

---


### Type

**DID632**  
Active chilled beam

### Induced air grille

- **GL**: Longitudinal blades
- **GQ**: Transverse blades
- **LR**: Perforated metal, circular holes
- **LQ**: Perforated metal, square holes

### Heat exchanger

- **2**: 2-pipe
- **4**: 4-pipe

### Nozzle variant

- **Z**: Small plus
- **M**: Medium
- **G**: Large
- **U**: Extra large

### Arrangement of casings and connections

<table>
<thead>
<tr>
<th>LL</th>
<th>LR</th>
<th>ML</th>
<th>MR</th>
<th>RL</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>(also available as supply and extract air combination)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:  
L = left side, R = right side, M = centre

### Additional casing with extract air spigot

- **AV**: Front
- **AH**: Rear

No entry: from **L = L_N + 250 mm**

### Water connections

- **A1**: With G½" external thread and flat seal
- **A2**: With G½" union nut and flat seal

### Total length (diffuser face) \times nominal size [mm]

|  
| L × L_N  
| Supply air  
| 893 – 1500 × 900  
| 1193 – 1800 × 1200  
| 1493 – 2100 × 1500  
| 1793 – 2400 × 1800  
| 2093 – 2700 × 2100  
| 2393 – 3000 × 2400  
| 2693 – 3000 × 2700  
| 2993 – 3000 × 3000  

L is up to 7 mm shorter than **L_N**

|  
| Supply and extract air combination  
| 1150 – 1500 × 900  
| 1450 – 1800 × 1200  
| 1750 – 2100 × 1500  
| 2050 – 2400 × 1800  
| 2350 – 2700 × 2100  
| 2650 – 3000 × 2400  
| 2950 – 3000 × 2700  

### Width of front frame [mm]

- **B**: 593, 598, 618, 623

### Exposed surface

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

|  
| Gloss level  
| RAL 9010 50 %  
| RAL 9006 30 %  
| All other RAL colours 70 %  

### Surface of heat exchanger

- **G3**: RAL 9005, black

### Air control blades

- **LE**: With

### Valves and actuators

- **VS**: With

No entry: none
**DID632-LR**

**Set of air control blades**

If a high cooling capacity is required in a very small space with active chilled beams, optional air control blades allow for adjusting the air discharge pattern such that the acceptable air velocity in the occupied zone is not exceeded. The airflow of each active chilled beam is spread and discharged according to the room geometry. If the use of a room changes, the air discharge pattern can be optimised by adjusting the air control blades accordingly.

- It is possible to adjust several air control blades (i.e. a set of air control blades) together
- For fine adjustment, the sets of air control blades can be disconnected from complementary to one another
- To adjust a set of air control blades, use both hands to move the two outer blades of the set as required
- Maximum possible adjustment is 45° to the right or left in steps of 15°
- The blades are factory set to straight air discharge

If the air discharge is not straight, the water-side capacity will be slightly affected. Blades set at 45° may cause a loss of up to 5%. Air control blades have to be factory fitted; it is not possible to retrofit air control blades at a later stage.

**Set of air control blades**

1. Locking
2. Blade
3. Coupling strip
4. Connection
Straight air discharge

Angled air discharge

Divergent air discharge
### Dimensions [mm]

<table>
<thead>
<tr>
<th>B</th>
<th>C</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>593</td>
<td>18</td>
<td>178</td>
</tr>
<tr>
<td>598</td>
<td>8</td>
<td>180</td>
</tr>
<tr>
<td>618</td>
<td>18</td>
<td>190</td>
</tr>
<tr>
<td>623</td>
<td>8</td>
<td>193</td>
</tr>
</tbody>
</table>

B = Width of front frame

### Dimensions [mm]

<table>
<thead>
<tr>
<th>LN</th>
<th>L</th>
<th>ØD</th>
<th>HS</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>900</td>
<td>893 – 1500</td>
<td>123</td>
<td>134</td>
<td>51.5</td>
</tr>
<tr>
<td>1200</td>
<td>1193 – 1800</td>
<td>123</td>
<td>134</td>
<td>51.5</td>
</tr>
<tr>
<td>1500</td>
<td>1493 – 2100</td>
<td>123</td>
<td>134</td>
<td>51.5</td>
</tr>
<tr>
<td>1800</td>
<td>1793 – 2400</td>
<td>123</td>
<td>134</td>
<td>351.5</td>
</tr>
<tr>
<td>2100</td>
<td>2093 – 2700</td>
<td>158</td>
<td>116</td>
<td>361.5</td>
</tr>
<tr>
<td>2400</td>
<td>2393 – 3000</td>
<td>158</td>
<td>116</td>
<td>451.5</td>
</tr>
<tr>
<td>2700</td>
<td>2693 – 3000</td>
<td>158</td>
<td>116</td>
<td>561.5</td>
</tr>
<tr>
<td>3000</td>
<td>2993 – 3000</td>
<td>158</td>
<td>116</td>
<td>651.5</td>
</tr>
</tbody>
</table>

L = Total length (diffuser face)

LN = Nominal length

### Weight per unit [kg]

<table>
<thead>
<tr>
<th>Nominal length (LN)</th>
<th>900</th>
<th>1200</th>
<th>1500</th>
<th>1800</th>
<th>2100</th>
<th>2400</th>
<th>2700</th>
<th>3000</th>
</tr>
</thead>
<tbody>
<tr>
<td>DID632-LR</td>
<td>18</td>
<td>22</td>
<td>27</td>
<td>32</td>
<td>39</td>
<td>47</td>
<td>54</td>
<td>61</td>
</tr>
<tr>
<td>DID632-LQ</td>
<td>17</td>
<td>21</td>
<td>26</td>
<td>31</td>
<td>38</td>
<td>46</td>
<td>53</td>
<td>60</td>
</tr>
<tr>
<td>DID632-GL</td>
<td>20</td>
<td>25</td>
<td>31</td>
<td>36</td>
<td>43</td>
<td>52</td>
<td>59</td>
<td>67</td>
</tr>
<tr>
<td>DID632-GQ</td>
<td>20</td>
<td>25</td>
<td>31</td>
<td>36</td>
<td>43</td>
<td>52</td>
<td>59</td>
<td>67</td>
</tr>
<tr>
<td>Contained water (max.)</td>
<td>1.8</td>
<td>2.4</td>
<td>3</td>
<td>3.6</td>
<td>4.2</td>
<td>4.8</td>
<td>5.4</td>
<td>6</td>
</tr>
</tbody>
</table>
Non-active section as extension: 10 kg/m
Differences in width can be neglected

DID632-…-LR

Water connection, Ø12 mm pipe, either with plain tails or with G½" external thread
① Only with 4-pipe system

DID632-…-MR¹
¹Construction MR is only available from $L = L_N + 200$ mm.

Casing: centre
Water connections: right side

**DID632-...-ML¹**

¹Construction ML is only available from $L = L_N + 200$ mm.

Casing: centre
Water connections: left side
Construction RR is only available from $L = L_N + 200$ mm.

Casing: right side
Water connections: right side

Construction LL is only available from $L = L_N + 200$ mm.
Casing: left side
Water connections: left side

DID632-...-LR

Casing: left side
Water connections: right side

DID632-...-RL

Casing: right side
Water connections: left side

### Dimensions [mm]

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B = Width of front frame

### Dimensions [mm]

<table>
<thead>
<tr>
<th>$L_N$</th>
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$L$ = Total length (diffuser face)

$L_N$ = Nominal length

### Weight per unit [kg]
Nominal length ($L_n$) in mm

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Non-active section as extension: 10 kg/m

Extract air spigot Ø123 mm (min. length 250 mm) 3 kg/piece

Differences in width and LE can be neglected

Type DID632-…-RR-AV

① Extract air spigot
② Primary air spigot

DID632-…-RR-AV
Supply and extract air combination is only available with arrangement LL and RR, and from \( L = L_N + 250 \text{ mm} \)

Casing: right side  
Water connections: right side  
Extract air spigot at the front

**DID632-...-LL-AV**

Supply and extract air combination is only available with arrangement LL and RR, and from \( L = L_N + 250 \text{ mm} \)

Casing: left side  
Water connections: left side  
Extract air spigot at the front

**DID632-...-RR-AH**
Supply and extract air combination is only available with arrangement LL and RR, and from
$L = L_N + 250 \text{ mm}$

Casing: right side
Water connections: right side
Extract air spigot at the rear

DID632-...-LL-AH

Supply and extract air combination is only available with arrangement LL and RR, and from
$L = L_N + 250 \text{ mm}$

Casing: left side
Water connections: left side
Extract air spigot at the rear

Installation examples, Installation details, Basic information and nomenclature

Installation into grid ceilings
Installation and commissioning

- Preferably for rooms with a clear height up to 4.0 m
- Flush ceiling installation
- Side entry primary air spigot
- Lengths from 893 to 3000 mm, and widths of 593, 598, 618 and 623 mm, hence suitable for all ceiling systems, particularly for grid ceilings with grid size 600 or 625
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- Active chilled beam has 4 suspension points for on-site installation (by others)
- Heat exchangers are fitted with water flow and water return connections at the narrow side
- With an extended border also suitable for freely suspended installation

Installation into T-bar ceilings or continuous ceilings

- To avoid too much load on the ceiling, the suspension points should be used

Ceiling installation, visible T-bars

![Diagram](image)

① DID  
② Ceiling tile

Ceiling installation, concealed T-bars
Ceiling installation with clamping profile

Ceiling installation, plasterboard

$L_N$ [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

\( V_{Pr} \) [l/s]

Primary air volume flow rate

\( V_{Pr} \) [m³/h]

Primary air volume flow rate

\( V_{W} \) [l/h]

Water flow rate – cooling/heating

\( V \) [l/h]

Volume flow rate

\( \Delta t_{W} \) [K]

Temperature difference – water

\( \Delta p_{W} \) [kPa]

Pressure drop, water side

\( \Delta p_{t} \) [Pa]

Total pressure drop, air side
\[ \Delta t_{Pr} = t_{Pr} - t_{R} \, [K] \]

Difference between primary air temperature and room temperature

\[ \Delta t_{RWV} = t_{RWV} - t_{R} \, [K] \]

Difference between water flow temperature and room temperature

\[ \Delta t_{Wm-Ref} \, [K] \]

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.

**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.

**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.

**Schematic illustration of mixed flow ventilation**
Wärmeübertrager 2-Leiter-System

Heat exchanger as 4-pipe system