TYPE QLI

INDUCTION-TYPE DISPLACEMENT FLOW DIFFUSER IN NOMINAL LENGTHS OF 900, 1200 AND 1500 MM, WITH VERTICAL HEAT EXCHANGER AND CONDENSATE DRIP TRAY

Induction-type displacement flow diffuser with 2-pipe or 4-pipe heat exchanger, for installation under a sill. The condensate drip tray is useful if the temperature temporarily falls below the dew point.

- High heating and cooling capacity with a low conditioned primary air volume flow rate and low sound power level
- High comfort levels due to low airflow velocity in the occupied zone
- Three nozzle variants to optimise induction based on demand
- Two different heat exchanger positions

Optional equipment and accessories

- Control equipment
- Fixing systems for wall or floor fixing, fixing systems for both wall and floor fixing
- Powder coating in many different colours, e.g. RAL CLASSIC

Application

- Induction-type displacement flow diffusers of Type QLI for installation under a sill
- High comfort levels due to low-turbulence airflow and low airflow velocity in the occupied zone
- Displacement flow
- Choice of location for primary air spigot at a narrow side; end cap may have to be changed accordingly
- 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
• Low-turbulence supply air discharge as displacement flow
• Vertical heat exchanger as 2-pipe or 4-pipe system, optional condensate drip tray including condensate drain that can be connected to a condensate pipe (to be provided by others)
• Water connections at the narrow side, Ø12 mm Cu pipe, either with plain tails or with external thread or union nut, G½”, flat seal

Nominal sizes
• 900, 1200, 1500 mm

Description

Variants
• WVL: Heat exchanger at the front, water connections on the left
• WVR: Heat exchanger at the front, water connections on the right
• WHL: Heat exchanger at the rear, water connections on the left
• WHR: Heat exchanger at the rear, water connections on the right

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

Nozzle variants
• M: Medium
• G: Large
• U: Extra large

Construction
• Galvanised
• P1: Powder-coated RAL 9005, black, gloss level 70%

Attachments
• Water connection A1: G½” external thread and flat seal
• Water connection A2: G½” union nut and flat seal
• Condensate drip tray

Accessories
• W0: Wall fixing
• B0: Floor fixing
• WB: Wall and floor fixing

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
• Choice of ventilation grille from our portfolio

Construction features
• Spigot is suitable for circular ducts to EN 1506 or EN 13180
• Three nozzle variants to optimise induction based on demand
• Vent valves on the heat exchanger
Materials and surfaces
- Casing, supply air grille, and primary air plenum with punched nozzles are made of galvanised sheet steel
- Exposed surfaces either galvanised or black (RAL 9005)
- Heat exchanger with copper tubes and aluminium fins

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)

TECHNICAL INFORMATION

Function, Technical data, Quick sizing, Specification text, Order code, Related products

Functional description
Induction-type displacement flow diffusers provide centrally conditioned primary air (fresh air) to the room and use heat exchangers for 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, causing only very little turbulence.

Schematic illustration of QLI

① Primary air spigot
② Heat exchanger
③ Water connections
④ Supply air grille
⑤ End cap
Primary air plenum with integral nozzles

Principle of operation – QLI

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

Construction WHR/L

(Water connections on the right or left as required)

Construction WVR/L
Nominal length | 900, 1200, 1500 mm
Length          | 975, 1275, 1575 mm
Height          | 729 mm
Width           | 195 mm
Primary air volume flow rate | 4 – 50 l/s or 14 – 180 m³/h
Cooling capacity | Up to 1000 W
Heating capacity | Up to 750 W
Max. operating pressure, water side | 6 bar
Max. operating temperature, water side | 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
<table>
<thead>
<tr>
<th>LN</th>
<th>①</th>
<th>②</th>
<th>Primary air</th>
<th>2-pipe and 4-pipe systems</th>
<th>4-pipe system</th>
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<tr>
<td></td>
<td>Vₚ</td>
<td>Δ₀₁</td>
<td>LWA</td>
<td>Q₁</td>
<td>Δt</td>
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<td>14</td>
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</table>

① Nozzle variant ② Air-regenerated noise

Reference values
### Parameter Cooling Heating

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Cooling</th>
<th>Heating</th>
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<tr>
<td>$t_{ih}$</td>
<td>16 °C</td>
<td>22 °C</td>
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<tr>
<td>$t_{oh}$</td>
<td>16 °C</td>
<td>50 °C</td>
</tr>
<tr>
<td>$t_{lv}$</td>
<td>26 °C</td>
<td>22 °C</td>
</tr>
<tr>
<td>$V_W$</td>
<td>110 l/h</td>
<td>50 l/h</td>
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</table>

Induction-type displacement flow diffuser of Type QLI, with one-way discharge and high thermal output, providing high thermal comfort levels.

For installation on a wall or under the sill

The units consist of a casing with a primary air plenum, spigot, non-combustible nozzles, and vertical heat exchanger; a condensate drip tray is optional.

### Special characteristics
- Low-turbulence supply air discharge as displacement flow
- Vertical heat exchanger as 2-pipe or 4-pipe system, optional condensate drip tray including condensate drain that can be connected to a condensate pipe (to be provided by others)
- Water connections at the narrow side, Ø12 mm Cu pipe, either with plain tails or with external thread or union nut, G½", flat seal

### Materials and surfaces
- Casing, supply air grille, and primary air plenum with punched nozzles are made of galvanised sheet steel
- Exposed surfaces either galvanised or black (RAL 9005)
- Heat exchanger with copper tubes and aluminium fins

### Construction
- Galvanised
- P1: Powder-coated RAL 9005, black, gloss level 70 %

### Technical data
- Nominal length: 900, 1200, 1500 mm
- Length: 975, 1275, 1575 mm
- Height: 729 mm
- Width: 195 mm
- Primary air volume flow rate: 4 – 50 l/s or 14 – 180 m³/h
- Cooling capacity: up to 1000 W
- Heating capacity: up to 750 W
- Max. operating pressure: 6 bar
- Max. operating temperature: 75 °C

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

<table>
<thead>
<tr>
<th>QLI–2–G–WVL/1200</th>
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<tbody>
<tr>
<td>Heat exchanger</td>
</tr>
<tr>
<td>Nozzle variant</td>
</tr>
<tr>
<td>Arrangement of heat exchanger and water connections</td>
</tr>
<tr>
<td>Nominal length</td>
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</tbody>
</table>

| QLI–4–U–WHR–KW/1200/WB/P1/VS |
## Variants, Dimensions and Weight

<table>
<thead>
<tr>
<th>Heat exchanger</th>
<th>4-pipe</th>
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<td>Nozzle variant</td>
<td>Extra large</td>
</tr>
<tr>
<td>Arrangement of heat exchanger and water connections</td>
<td>At the rear, water connections on the right</td>
</tr>
<tr>
<td>Condensate drip tray</td>
<td>With</td>
</tr>
<tr>
<td>Nominal length</td>
<td>1200 mm</td>
</tr>
<tr>
<td>Fixing</td>
<td>Wall and floor fixing</td>
</tr>
<tr>
<td>Surface</td>
<td>Powder-coated black</td>
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<tr>
<td>Valves and actuators</td>
<td>With</td>
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### QLI – 2 – M – WVR – KW / 900 / W0 / G1 / VS

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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>4-pipe</td>
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<td>2-pipe</td>
<td>4</td>
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<tr>
<td>Nozzle variants</td>
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<td>Medium</td>
<td>G</td>
<td>Large</td>
<td>U</td>
<td>Extra large</td>
<td>M</td>
<td>Medium</td>
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<td>Arrangement of heat exchanger and water connections</td>
<td>WVL</td>
<td>Heat exchanger at the front, water connections on the left</td>
<td>WVR</td>
<td>Heat exchanger at the front, water connections on the right</td>
<td>WHL</td>
<td>Heat exchanger at the rear, water connections on the left</td>
<td>WHR</td>
<td>Heat exchanger at the rear, water connections on the right</td>
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<tr>
<td>Condensate drip tray</td>
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<td>KW</td>
<td>With</td>
<td>No entry: none</td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>1200</td>
<td>1500</td>
<td>900</td>
<td>1200</td>
<td>1500</td>
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<tr>
<td>Fixing material (supplied separately)</td>
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<td>W0</td>
<td>Wall fixing</td>
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<tr>
<td>Surface of casing and heat exchanger</td>
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<td>G1</td>
<td>Casing powder-coated, heat exchanger coated RAL 9005, jet black</td>
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<td>Valves and actuators</td>
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### Variants, Dimensions and Weight

#### Dimensions [mm]
Installation details, Basic information and nomenclature

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<th>Lk</th>
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<th>LB</th>
<th>LC</th>
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<td>883</td>
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<tr>
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<td>1540</td>
<td>1483</td>
<td>1575</td>
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Weights

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<th>mm</th>
<th>Unit</th>
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<th>1500</th>
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</thead>
<tbody>
<tr>
<td>kg/piece</td>
<td>kg</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Contained water (max.)</td>
<td>1.8</td>
<td>2.4</td>
<td>3</td>
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</table>

QLI-WHL

QLI, arrangement of heat exchanger and water connections

1. QLI-...-WVL
2. QLI-...-WVR
3. QLI-...-WHL
4. QLI-...-WHR

Installation and commissioning

- Installation on an external wall
- Installation under the sill
- Installation and connections to be performed by others; fixing, connection and sealing material to be provided by others
- The unit can be fixed to the floor and/or to the wall with the fixing material supplied (accessory)
- Heat exchangers are fitted with water flow and water return connections at the narrow side
$L_N$ [mm]
Nominal length

$L_{WA}$ [dB(A)]
Sound power level

$t_P$ [$^\circ$C]
Primary air temperature

$t_W$ [C°]
Water flow temperature – cooling/heating

$t_R$ [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

$\Delta p_a$ [Pa]
Total pressure drop, air side

$\Delta t_{Pr} = t_P - t_R$ [K]
Difference between primary air temperature and room temperature

$\Delta t_{WV} = t_W - t_R$ [K]
Difference between water flow temperature and room temperature

$\Delta t_{AN-Ref}$ [K]
Difference between mean water temperature and reference temperature

$L_W$ [mm]

Nominal length

Displacement flow ventilation

The supply air is discharged into the space with a velocity between 0.15 and 0.20 m/s and as close as possible to the floor; the result is a pool of fresh air over the entire floor area. The convection from people and other heat sources causes the fresh air from the pool to rise and create comfortable conditions in the occupied zone. Displacement ventilation is characterised by low airflow velocities and low turbulence. The air quality in the occupied zone is very high. The extract air should ideally be removed near the ceiling.

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.

Principle of operation – QLI

![Image of QLI principle]

Wärmeübertrager 2-Leiter-System

Heat exchanger as 4-pipe system