**Decentralised ventilation unit with heat recovery Trio QD-ARV**

Crosswise flow with preheating register

Decentralised unit with crosswise flow with preheating register, exhaust air to the right.

Brief description

Intelligent ventilation unit with heat and humidity recovery for controlled ventilation and air extraction with an air volume of 40 to 120 m³/h.

Compact and highly efficient – energy efficiency class A. Sound and energy-optimised fans in EC technology.

Eligible for KfW funding: Especially suitable for modern new buildings or redevelopments.

Very quiet unit with extremely low installation height (22 cm): This makes it particularly suitable for installation in walls, ceilings or sloping roofs.

ISO ePM10 ≥ 50 % (M5) filter in exhaust air and ISO ePM1 ≥ 50 % (F7) pollen filter in outside air.

The ventilation unit is equipped with a state-of-the-art enthalpy heat exchanger with hygiene certificate according to VDI 6022, sheet 1.

Bypass mode / Eco mode: ECO supply air, ECO exhaust air for passive summer night cooling.

Complete separation of exhaust air/supply air ducts throughout the unit. This prevents unwanted recirculation of air. Viruses (e.g. Corona virus) and bacteria are therefore not transmitted.

RLS 1 WR room air control included in the scope of delivery.

Maximum flexibility due to flexible air socket in DN 125: Outside air and outgoing air connection on the face side (ceiling installation) or on the rear side of the unit (wall installation).

The trio can be controlled via the APP (air@home) and the browser-based web tool (www.air-home.de) using an integrated LAN interface.

Plug & Play: Easy commissioning thanks to free commissioning software and standard USB connection for commissioning, control update and service.

No pressure fluctuation sensitivity: The integrated/automatic volumetric flow constancy control ensures permanent compliance with the set volumetric flow under all operating conditions (e.g. filter contamination).

Combi sensor (humidity/temperature) integrated as standard in the exhaust air enables demand-driven ventilation operation as well as an intelligent dehumidification strategy (excess humidity protection). Furthermore, the unit is characterized by a frost protection strategy adapted to the real demand.

The heat recovery unit has a multifunction contact for the control of, e.g., brine earth heat exchanger (unregulated pump), operation and fault display, pre-heating or supplementary heat register, shutters or cooling.

Two input contacts (12 V and 230 V) are available for, e.g., safety shutdown.

Various inputs/outputs enable a control connection to other building service installations, e.g., the heat pump.

Integrated MODBUS interface (TCP/IP and RTU) enables integration in the building control system.

The optional K-SM plug-in module enables integration into KNX building control systems.

The optional E-SM plug-in module enables integration into EnOcean systems.

Optional additional circuit boards ZP 1 and ZP 2 for expansion functions such as “pressure consistency control” of the EC fans, zone damper, brine earth heat exchanger (regulated pump), filter differential pressure measurement.

Maximum unit flexibility thanks to a wide range of equipment/connection options

Modern unit module technology enables a high degree of user-friendliness for service and maintenance.

Features

Housing

Powder-coated sheet steel housing, colour: granite grey, similar to RAL 7026.

Viewing cover, pure white, similar to RAL 9010.

Simple filter change is possible without tools.

Tight, thermal bridge-free and sound-insulated internal housing.

Unit surface and unit’s internal housing are easy to clean.

Filter:

ISO ePM10 ≥ 50 % (M5) filter in exhaust air and ISO ePM1 ≥ 50 % (F7) pollen filter in outside air.

Operation

Ready for service with on/off switch.

RLS 1 WR control unit included in the scope of delivery, 4 air levels, filter change indicator, fault indicator.

Other control units can be connected in parallel.

Mobile operation via APP (air@home) or browser-based web tool (www.air-home.de) via smartphone, laptop or PC enables, e.g.,

live reporting, user management

Demand-driven automatic operation / time-controlled automatic operation

Manual operation / OFF

ECO mode supply air or ECO mode exhaust air

Filter queries, error messages

Optional RLS T1 WS touchscreen control unit for the setting of:

2 automatic operating modes (Auto Sensor / Auto Time)

4 manual operating modes (ECO exhaust air / ECO supply air / MANUAL / OFF)

complete commissioning of the Trios possible

USB connection for service/commissioning – free MAICO commissioning software.

Network integration via integrated LAN interface.

Smart-Home ready (e.g. Loxone via Modbus TCP/IP).

Modbus TCP/IP and RTU integrated as a standard feature.

Optional KNX plug-in module K-SM for integration into building control technology, www.knx.org.

Optional EnOcean plug-in module E-SM for integrating the unit into the “EnOcean world”, www.enocean-alliance.org.

Control

Standard demand-driven volumetric flow regulation (“decisive humidity value”).

Continuously variable demand-driven adaptation of air volumes.

Integrated excess humidity protection function.

3 temperature sensors in outside, outgoing and supply air.

1 combi sensor (temperature and humidity) in exhaust air socket.

Up to four external sensors of different types (CO2, VOC, humidity) can be connected.

Multifunction contact for the control of e.g. brine earth heat exchanger (unregulated pump), operation and fault indicator, preheating or supplementary heat register, shutters or cooling.

Inputs for safety shutdown via 12V contact or 230V contact (e.g. smoke detector, fire alarm, differential pressureless fireplace).

Additional pushbutton input for triggering time-limited intensive ventilation (intermittent ventilation).

Expandable via optional additional circuit board ZP 1 for the control of:

3-way shutter (e.g. earth-air heat exchanger)

a regulated pump (e.g. brine earth heat exchanger)

of an air shutter of a zone control

Switching contact use for external supplementary heat register

Expandable via optional circuit board ZP 2 for:

Pressure consistency of the EC fans

Differential pressure controlled filter monitoring

Various inputs and outputs enable a control connection of the ventilation unit with another service installation, such as a heat pump.

Approvals and certificates

Test report in accordance with DIN EN 13141-7.

Hygiene certificates for housing material (EPP) and heat exchanger.

Heat exchanger

Highly efficient enthalpy cross-counterflow heat exchanger.

Heat recovery up to 82 % and humidity recovery up to 69 %.

Hygiene certificate (no bacteria, virus growth/virus transfer) according to VDI 6022, sheet 1.

Heat exchanger can be cleaned with water, antimicrobial.

No condensation connection required.

Bypass

Eco mode: ECO supply air, ECO exhaust air for passive summer night cooling.

Frost protection

Prevention of heat exchanger freezing at low temperatures by monitoring the outgoing air temperature.

Highly energy-efficient frost protection function via demand-controlled, power-modulated, electric preheating register.

Fans

Forward curved centrifugal fans in the outgoing air or outside air.

Energy-efficient EC direct current motors with integrated volumetric flow consistency control.

Possibility of pressure consistency control via the optional additional circuit board ZP 2.

3 ventilation levels from 40 m³/h to 120 m³/h, can be adjusted continuously.

Installation information

Easy, very time-saving installation by screwing the unit directly to the ceiling/wall.

Housing cover and viewing cover can be easily removed via screws.

Technical data

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| Article: | Trio QD-ARV |
| Air flow volume: | 40 m³/h / 120 m³/h |
| SEC average: | -36,14 kWh/(m²\*a) |
| Energy efficiency class: | A |
| Type of voltage: | Alternating current |
| Rated voltage: | 230 V |
| Frequency: | 50 Hz/60 Hz |
| SPI value in accordance with DIN EN 13141-7 (A7): | 0,28 Wh/m³ |
| Power consumption in accordance with DIN EN 13141-7 (A7): | 23 W |
| Stand-by power consumption: | < 1 W |
| Imax: | 5 A |
| Degree of protection: | IP 40 |
| DIBT approval: | No |
| PHI certification: | No |
| Material: | Sheet steel, powder coated |
| Heat exchanger material: | Synthetic material |
| Inner coating material: | Foam (plastic) |
| Colour: | granite grey, similar to RAL 7026 |
| Viewing cover: | Pure white, similar to RAL 9010 |
| Weight: | 49 kg |
| Weight including packaging: | 52 kg |
| Filter class: | ISO ePM10 ≥ 50 % (M5) / ISO ePM1 ≥ 50 % (F7) |
| Connection diameter: | 125 mm |
| Width: | 650 mm |
| Height: | 220 mm |
| Depth: | 1.100 mm |
| Width with packaging: | 720 mm |
| Height with packaging: | 300 mm |
| Depth with packaging: | 1.120 mm |
| Airstream temperature at IMax: | -20 °C up to 50 °C |
| Max. degree of heat provision in accordance with DIN EN 13141-7 (A7): | 82 % |
| Heat exchanger construction type: | Enthalpy cross-counterflow |
| Bypass: | No |
| Frost protection: | integrated |
| Enthalpy heat exchanger: | yes |
| Antifreeze circuit: | yes |
| Summer circuit: | ECO exhaust air / ECO supply air |
| Filter monitoring: | with time control |
| Humidity control: | integrated |
| CO2regulation: | CO2 sensor for Trio |
| Air quality control (optional): | VOC sensor for Trio |
| KNX connection (optional): | K-SM |
| MODBUS interface: | integrated |
| Control unit included in scope of delivery.: | RLS 1 WR, App |
| Control unit (optional): | RLS T1 WS |
| EnOcean wireless integration (optional): | E-SM |
| Mobile control: | yes |
| Packing unit: | 1 piece |
| Range: | K |
| GTIN (EAN): | 4012799951230 |
| Article number: | 0095.0123 |

Manufacturer: MAICO

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