

Rotary regenerative heat exchangers

RRW HE – rotary heat exchangers



Technical details
see K 3.2



energy efficient
system

■ Cabinet

The exchanger housing is made of steel, galvanized sheet. There are flanges on the fronts of the cabinet for fixing the inlet and outlet square piping. There is an inspection cover on the side of the case to access the motor or replace the belt.

■ Regeneration

Rotary exchangers meet the requirements of EC Regulation No. 1253/2014. The accumulative mass of the exchanger rotor is formed by a cylinder, which has a number of small channels, created by winding a straight and corrugated aluminum alloy foil. The rotor is housed in ball bearings with permanent lubrication. The rotor seal is non-contact, there is a clearance between the rotor and the seal that can be defined.

■ Motor

The drive of the rotor by means of a rubber belt is ensured by an asynchronous motor with a short armature with a worm gearbox. Thus approx. 12 rpm is achieved. For enthalpy exchangers, approx. 20 rpm is achieved. The motor can be equipped with a frequency converter with central and autonomous regulation of the supply air temperature. The heat exchangers can be equipped with anti-freeze protection provided by a pressure sensor, which slows down the rotor speed in case of increased pressure loss on the rotary heat exchanger. However, under normal conditions, freezing does not occur. The direction of rotation is indicated by a glued arrow.

■ Speed control

For basic applications, regulation by switching RRW HE on and off using a thermostat is sufficient, when a 1×230 V/50 Hz motor is supplied with the exchanger. This regulation is limited in the case of large heat loads, when it is necessary to limit the ability to transfer a large amount of heat. Consult this option with our experts. Scheme recommended by the manufacturer on request. RRW HE rotary heat exchangers can also be regulated using a frequency converter, when the heat exchanger is fitted with a 3×230 V/50 Hz motor.

■ Variants

- RRW xxx HE yyy rotary regenerative heat exchanger, where xxx is the size, yyy is the drive type (G1-AC or G3-AC).

The basic design is with a 1×230 V/50 Hz motor (ON/OFF regulation). An alternative is a 3×230 V/50 Hz motor (frequency converter control). The engine type needs to be specified in the order.

- G1-AC drive 40 W 1×230 V/50 Hz
- G3-AC drive 40 W 3×230 V/50 Hz

■ Instructions

If the correct design is maintained, the exchanger does not require frequent cleaning, the exchanger bearings and the motor are maintenance-free. In the terms set by the operating regulations (but at least once a year), it is necessary to check the sealing brushes, the drive belt and carry out electrical revisions. In demanding operating conditions with higher dust and humidity, the operating regulations must be consulted with the heat exchanger manufacturer.

■ Information

RRW HE rotary heat exchangers are intended for modular systems with fans IRB, IRT for square pipe systems (400×200 to 1,000×500 mm), respectively with a reduction for fans CVB, CVT, CVAB/CVAT-N, CAB into a circular piping (diameter 200 to 500 mm). On special order, rotary regenerative heat exchangers can also be produced for ILHT or CVTT fans. The supplied air-air rotary regeneration exchangers can be used in central and decentralized ventilation systems in industrial and comfort air conditioning. The air flow is in the range from 600 to 5350 m³/hour. This range is covered by a series of 4 types. For standard conditions, we recommend a flow velocity in the range of 2 to 4 m/s. The RRW HE rotary heat exchanger enables the transfer of heat (in the case of a special design, also the transfer of enthalpy, i.e. heat and moisture) from the exhaust air to the supply air. Heat is transferred by means of the storage mass of the rotor, where approximately one half is in the exhaust air flow and the other half is supplied with outdoor air. Cold transfer may occur under certain conditions. By rotating the rotor, the heat exchange surface of the exchanger is located alternately in the stream of incoming and outgoing air, and thus the transfer of heat or cold (or enthalpy) occurs. These exchangers belong to devices with high heat transfer efficiency (enthalpy). Therefore, their use is suitable for all air-conditioning systems with higher air flows. They are very suitable as part of assembly units for supply and exhaust of ventilation air. There is then a reduction in operating costs and thus a reduction in the return on investment.

- wheel diameter 500; 600; 700; 1,000 mm
- air speed 2 to 4 m/s
- flow rate 600–5,350 m³/h
- motor power 40 W
- speed approx. 12 rpm.
- efficiency 73 to 80 %