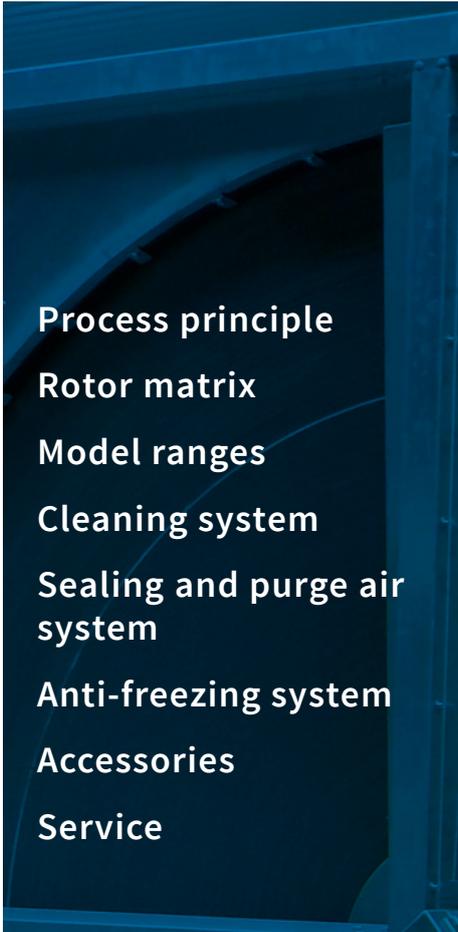


R. Scheuchl GmbH

process engineering | environmental protection | custom machinery



Process principle

Rotor matrix

Model ranges

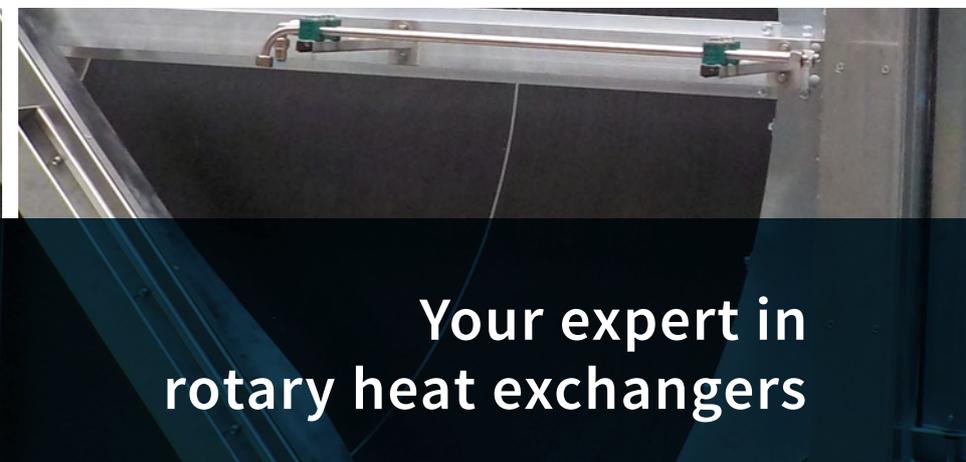
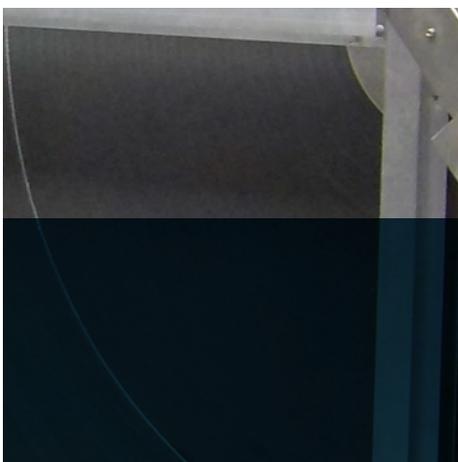
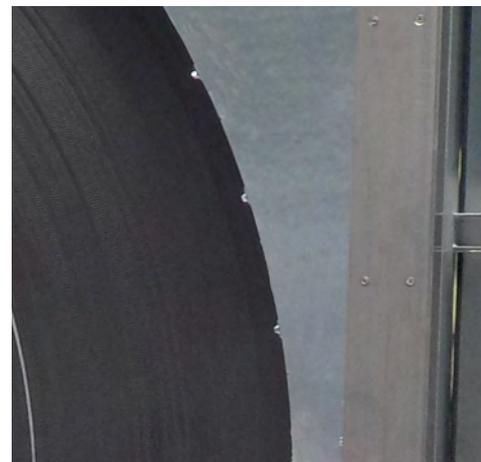
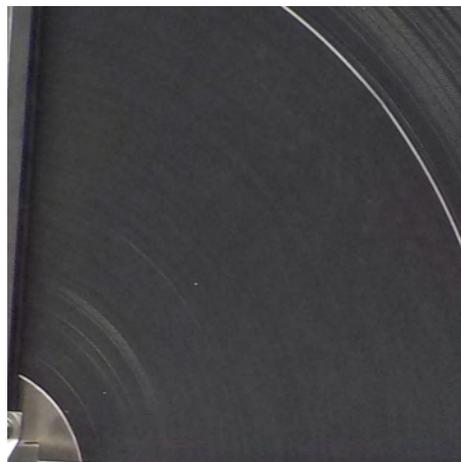
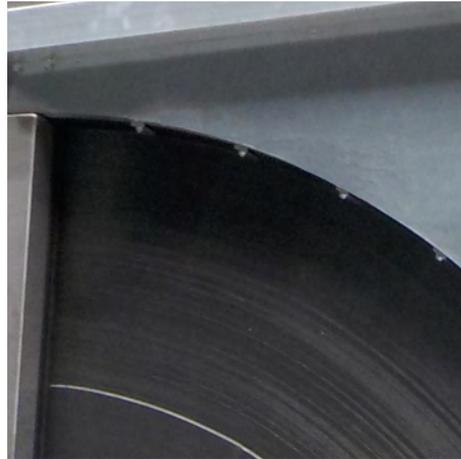
Cleaning system

Sealing and purge air system

Anti-freezing system

Accessories

Service



Your expert in
rotary heat exchangers

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YOUR EXPERT

SCHEURUTHERM
Rotors for ventilation and air conditioning, process air technology as well as paint booths

COMPARED TO OTHER SYSTEMS, THE REGENERATIVE HEAT EXCHANGER HAS THE FOLLOWING ADVANTAGES:

- | | | |
|--------------------------------|---|--|
| High heat recovery coefficient | → | High heat yield |
| Less pressure loss | → | Lower fan power required |
| Compact design | → | Lower weight and less space required |
| Good cleaning possibilities | → | Cleaning possible during operation, no downtimes |
| Good temperature control | → | Optimum adaption to process data, such as supply air and extract air temperature |

PROCESS PRINCIPLE

The regenerative heat exchanger is installed in such a way that extract air and outdoor air (fresh air) pass through approximately 50 % of the rotor matrix (storage mass) in a counterflow. The warm extract air stream heats the rotor matrix during rotation through the extract air section, while the cooler outdoor air is led in counterflow through the outdoor air section. Therefore, the rotor matrix is passed by warm extract air and cooler outdoor air.

Due to the prevailing temperature difference, heat is transferred from the extract air into the cooler outdoor air, resulting in cooling the extract air flow and heating the supply air flow. The ongoing rotation of the rotor matrix leads to a continuous operation.

HEAT EXCHANGERS FOR VENTILATION AND AIR CONDITIONING, INDUSTRIAL AND PROCESS AIR TECHNOLOGY

ROTOR MATRIX (STORAGE MASS)

Depending on the heat exchanger requirements, heat recovery coefficient and pressure loss can be adjusted within certain limits. This is done by adapting the fin geometry. Within the rotating rotor matrix an almost laminar air flow dominates, so that only slight deposits occur in the fins.

In industrial processes, heavily polluted extract air flows contain a high waste heat potential, which proves to be economical to be reclaimed. In this case, the fin geometry can be adapted so that the heat recovery still proves to be economical despite the cleaning effort.

The rotor matrix is formed by alternate layers of a corrugated and a smooth metal foil wound up in a tight spiral. This allows the air to flow through the rotor matrix with low pressure loss and good self-cleaning characteristics.

The rotor diameter can be selected in steps of 10 mm, this applies for both rotor types:

- Single-piece rotors
- Segmented rotors

The following rotor profiles and materials are available:

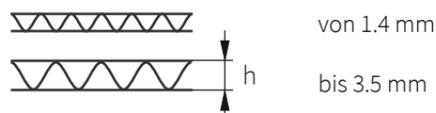
Aluminum-based rotor materials

Version	Characteristics	Foil
Condensation rotor uncoated	<ul style="list-style-type: none"> • Best mechanical characteristics • Good corrosion resistance 	
Sorption rotor with Scheurutherm sorption coating	<ul style="list-style-type: none"> • Best mechanical characteristics • Good corrosion resistance • Improved humidity transfer • Improved corrosion resistance 	
Condensation rotor with epoxy gold coating	<ul style="list-style-type: none"> • Improved corrosion resistance • Good mechanical characteristics 	

Rotor material, rotor profile and material thickness have to be selected according to heat transfer efficiency and humidity transfer efficiency, pressure loss, contamination and cleaning procedures of the unit.

Rotor profile

Height of lamella h:
Available in steps of 0.1 mm



Material thickness

Available thickness:



SCHEURUTHERM SPT

The Scheurutherm SPT type is suitable for room and process extract air heat recovery up to 140 °C:

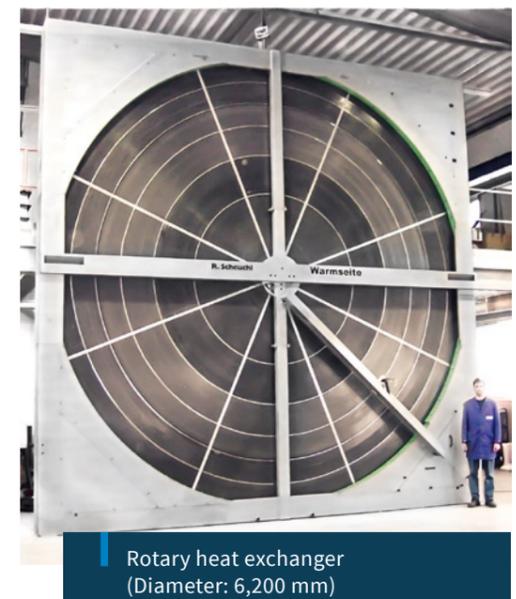
- Temperature resistant circumferential sealing
- Rigid, durable casing design, available in steel (galvanized / painted) or stainless steel
- Sturdy rotor matrix made of special foil alloy
- Special sealing systems to prevent the transfer of extract air into the supply air
- Rotor diameters from 600 mm up to 6,200 mm
- Extract air volume flows from 1,000 m³/h to 250,000 m³/h per rotary heat exchanger



SCHEURUTHERM SFT

The extract air from paint booths or paint spraying systems is often contaminated with particularly problematic impurities. The Scheurutherm SFT type was designed exactly for the following applications:

- Use of a particularly tensile foil alloy (suitable for cleaning with high pressure water)
- Improved durable casing design, available in steel (galvanized / painted) or stainless steel
- Special self-adjusting circumferential sealing
- Integrated condensate tub with drain
- Rotor diameters from 600 mm up to 6,200 mm
- Extract air volume flows from 1,000 m³/h to 250,000 m³/h per rotary heat exchanger



CHARACTERISTICS

CLEANING SYSTEMS

In many industrial processes, the dirt content (load) in the extract air is high. Due to the air flow through the rotor matrix, the surface of the rotor is subject to clogging. If the rotor matrix is not cleaned, the clogging can cause an increase in pressure loss, reduced efficiency or even an interruption of regular operation.

For effective cleaning of the rotor matrix, the following Scheurutherm cleaning systems are available:

- Dry-cleaning system (compressed air only) **STR** type
- Combined cleaning system (high-pressure water and compressed air in combination) **SKR** type

Both cleaning systems consist of one-sided or two-sided cleaning carriages mounted diagonally on the case in front of the rotor matrix.

SEALING AND PURGE AIR SYSTEM

The installation of a sealing and purge air system is recommended if the extract air fan pushes the air while the supply air is sucked through the rotor.

A sealing air system minimizes the cross contamination between extract air and supply air. The sealing air creates an air curtain, which separates the extract air at the duct divider (air stream separation) from the supply air. The purge sector is used to further minimize cross contamination due to co-rotation. For this purpose, fresh outdoor air is forced through the rotor by a fan.

ANTI-FREEZING SYSTEM

The anti-freezing system was developed to reduce ice buildup on the rotor matrix, and thus minimize the resulting problems in the rotor operation.

If the extract air has a high moisture content, a part of this humidity condenses in the rotor matrix. At freezing outside air temperatures, this condensate tends to freeze in the rotor matrix.

With the help of the anti-freezing system, heated air from the air handling unit or from a separate heater is forced through the rotor matrix by an impulse air fan attached to the pulse air chamber. The condensate in the rotor matrix is forced onto the warm side of the rotor matrix. Hereby, ice formation is reduced or even eliminated.

ACCESSORIES

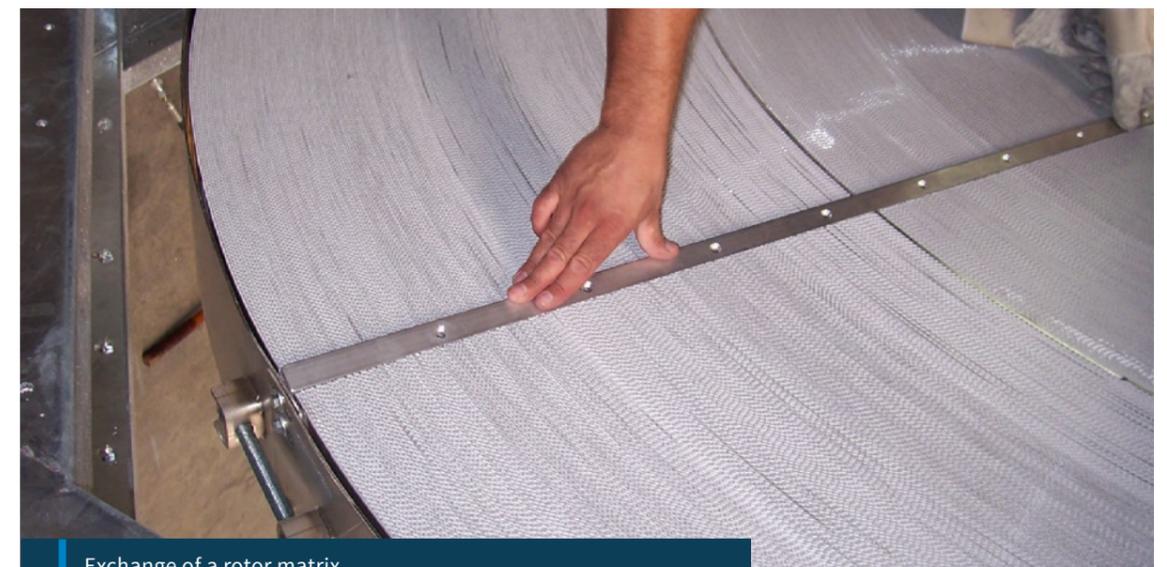
Upon request, R. Scheuchl GmbH will be pleased to supply additional accessories such as:

- High-pressure cleaner (unheated, electric heated or gas-fired)
- Gas valve train
- Control panels and piping for cleaning systems
- Control units for rotary heat exchangers and cleaning systems

SERVICE

Service is our top priority. We offer you comprehensive services:

- Technical consulting and planning support
- Delivery, erection and commissioning
- Maintenance services
- Replacement of rotor matrixes (storage masses) (usually in existing cases of all common manufacturers)
- Spare parts



Exchange of a rotor matrix

R. Scheuchl GmbH

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