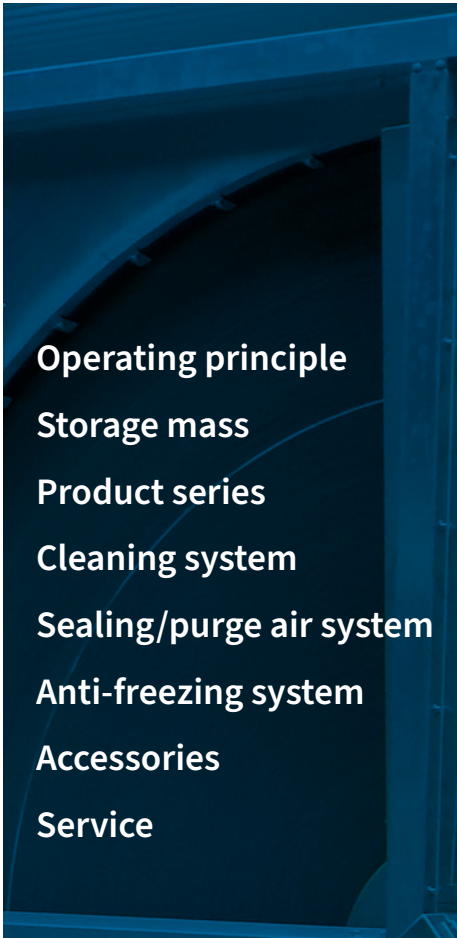
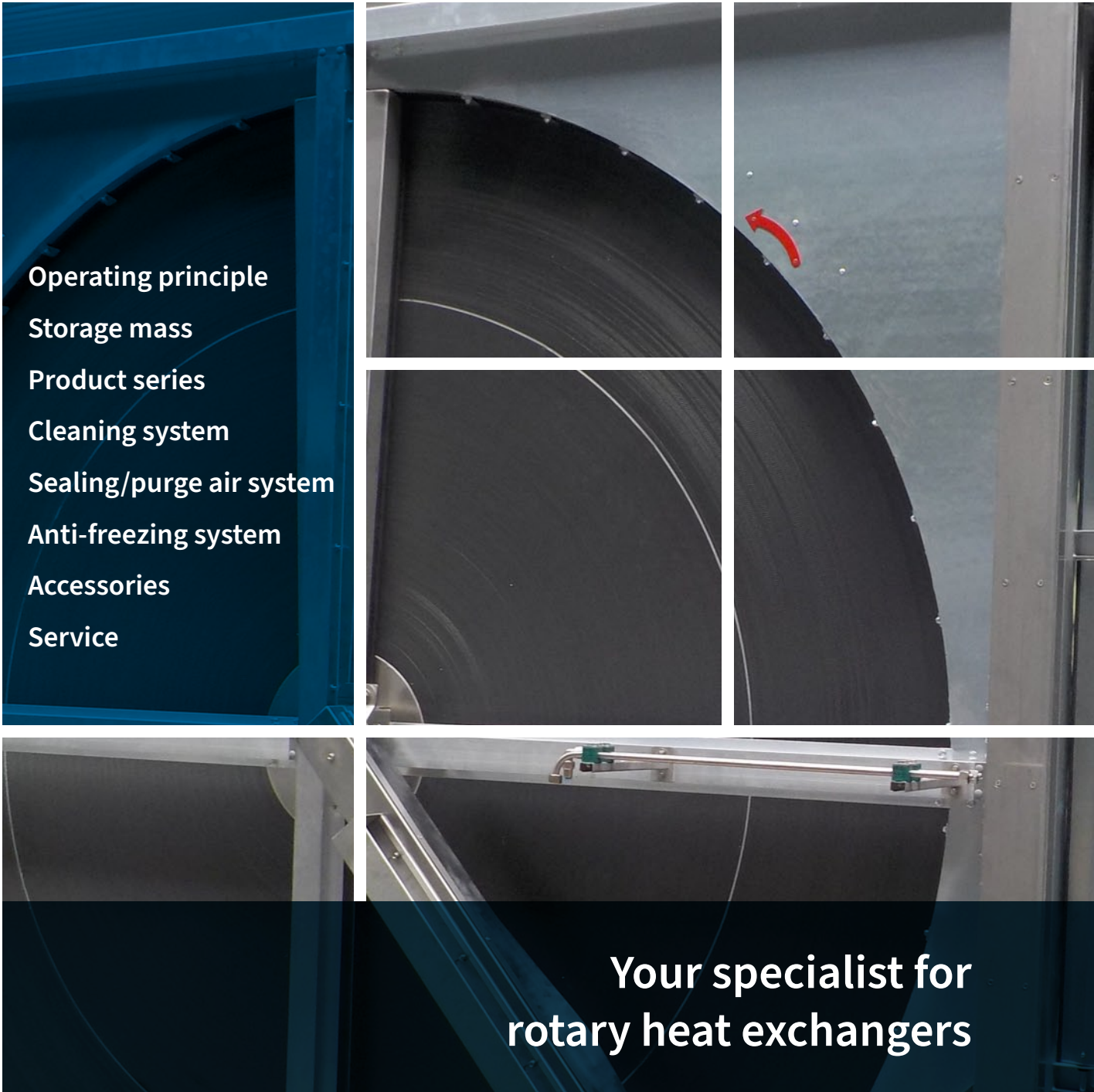


R. Scheuchl GmbH

Process Engineering | Environmental Protection | Plant Engineering | Mechanical Engineering



- Operating principle
- Storage mass
- Product series
- Cleaning system
- Sealing/purge air system
- Anti-freezing system
- Accessories
- Service



Your specialist for
rotary heat exchangers

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YOUR SPECIALIST

SCHEURUTHERM Rotary heat exchangers for HVAC and process air systems as well as paint shops

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

- | | | |
|----------------------------------|---|---|
| High heat recovery efficiency | → | high heat yield |
| Lower pressure drop | → | lower fan power requirement |
| Compact design | → | lower weight and smaller footprint |
| Easy cleaning | → | cleaning possible during operation, no downtimes |
| Good temperature controllability | → | optimum adaptation to process data such as supply and exhaust air temperature |

OPERATING PRINCIPLE

The regenerative heat exchanger is installed so that approx. 50 % of the storage mass (rotor matrix) is exposed to the exhaust air stream and 50 % to the outdoor (fresh) air stream.
The warm exhaust air stream heats the storage mass as it rotates through the exhaust air section, while the cooler outdoor air passes through the outdoor air section in counterflow.
The storage mass is thus alternately exposed to warm exhaust air and cooler outdoor air.

Due to the prevailing temperature difference, heat is transferred from the exhaust air to the cooler outdoor air, cooling the exhaust air stream and warming the supply air stream. The rotation of the storage mass ensures continuous operation.

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ROTARY HEAT EXCHANGERS FOR HVAC, INDUSTRIAL AND PROCESS AIR

STORAGE MASS (rotor matrix)

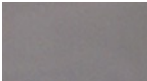
Depending on the requirements for the heat exchanger, the heat recovery efficiency and the pressure drop can be adjusted within certain limits during design. This is achieved by modifying the lamella geometry. The airflow inside the rotating storage mass is almost laminar, so only minor deposits form in the lamellae. Industrial processes often involve heavily contaminated exhaust air streams which nevertheless contain a high heat potential, making it economical to use the waste heat. In this case the lamella geometry can be adapted so that heat recovery remains economical despite the cleaning effort. The storage mass is wound from one corrugated and one flat metal foil. This allows the air to flow through the storage mass with low pressure drop and good self-cleaning properties.

The rotor diameter can be selected as follows:

- One-piece rotors in 10 mm increments
- Segmented rotors in 10 mm increments

The following rotor profiles and materials are available:

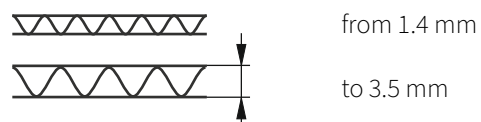
Aluminium-based rotor materials

Design	Properties	Foil
Condensation rotor uncoated	• Best mechanical properties • Good corrosion resistance	
Sorption rotor with Scheurutherm sorption coating	• Best mechanical properties • Good corrosion resistance • Improved moisture transfer • Improved corrosion resistance	
Condensation rotor with epoxy gold coating	• Improved corrosion resistance • Good mechanical properties	

The rotor material, rotor profile and material thickness must be selected taking into account heat and moisture transfer performance, pressure drop, contamination and the cleaning processes of the plant.

Rotor profiles

Lamella height h:
Available in increments of 0.1 mm



Material thicknesses

Available material thicknesses:



SCHEURUTHERM SPT

The Scheurutherm SPT is suitable for heat recovery from room air and process exhaust air – applicable up to 140 °C:

- Temperature-stable circumferential seal
- Robust, durable casing, available in steel (galvanized/painted) or stainless steel
- Stable storage mass made of a special foil alloy
- Special sealing systems to prevent carry-over of exhaust air into the supply air
- Rotor diameters from 600 mm to 6,200 mm
- Exhaust air flow rates from 1,000 m³/h to 250,000 m³/h per rotary heat exchanger



SCHEURUTHERM SFT

Exhaust air from painting or paint-spraying plants is often laden with particularly problematic contaminants. The Scheurutherm SFT was designed precisely for these applications:

- Use of a particularly tear-resistant foil alloy (suitable for cleaning with high-pressure water)
- Modified casing design, available in steel (painted/galvanized) or stainless steel
- Special self-adjusting circumferential seal
- Integrated condensate tray with drain
- Rotor diameters from 600 mm to 6,200 mm
- Exhaust air flow rates from 1,000 m³/h to 250,000 m³/h per rotary heat exchanger



FEATURES

CLEANING SYSTEMS

In many industrial processes the exhaust air carries a high dirt load. Due to the airflow through the storage mass, its surface is affected by contamination. If the storage mass is not cleaned, the contamination could cause an increased pressure drop, reduced performance or even a complete loss of function.

The following Scheurutherm cleaning systems are available for effective cleaning of the storage mass:

- Dry cleaning (compressed air) Type **STR**
- Combined cleaning unit (high-pressure water plus compressed air) Type **SKR**

The cleaning systems consist of single-sided or double-sided cleaning carriages mounted on the casing in front of the storage mass.

SEALING AND PURGE AIR SYSTEM

The installation of a sealing and purge air system is recommended when the exhaust air fan is arranged on the pressure side and the supply air fan on the suction side.
A sealing air system reduces the carry-over of exhaust air into the supply air to a minimum. The sealing air creates an air curtain that separates the exhaust air from the supply air at the centre partition.
To avoid carry-over caused by rotation, fresh purge air is forced through the rotor from the purge chamber by a fan.

ANTI-FREEZING SYSTEM

The anti-freezing system was developed to reduce ice formation on the storage mass – and the resulting problems with rotor function – to a minimum.
If the exhaust air has a high moisture content, part of this moisture condenses in the storage mass. At cold outdoor temperatures this condensate begins to freeze in the storage mass.
With the anti-freezing system, warm air from the ventilation system or from a separate heater is forced through the storage mass from the pulse air chamber by a pulse air fan. The condensate in the storage mass is pushed to its warm side. This reduces or prevents ice formation.

ACCESSORIES

On request, R. Scheuchl GmbH is happy to supply additional accessories such as:

- High-pressure units (unheated, electrically or gas heated)
- Gas control train
- Control panels and piping for cleaning units
- Control units for rotary heat exchangers and cleaning units

SERVICE

SERVICE is a top priority for us. We offer you comprehensive services:

- Technical consulting and support during planning
- Delivery, installation and commissioning
- Maintenance
- Replacement of storage masses (usually within existing casings of all common manufacturers)
- Spare parts supply
- Training



Replacement of a storage mass

R. Scheuchl GmbH

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R. Scheuchl GmbH
Königbacher Straße 17
94496 Ortenburg
Fon +49 8542 165-0
Fax +49 8542 165-33
Mail info@scheuchl.de

OFFICE Ingelheim
Vorderer Böhl 39
55218 Ingelheim
Fon +49 6132 73088
Fax +49 6132 73370

OFFICE Perach
Hauptstraße 14
84567 Perach
Fon +49 8542 165-150

Scheuchl CHINA
Scheuchl Equipment Technology
(Shenyang) Co., Ltd.
No. 37-1; Kaifa 23rd Road,
Shenyang Economic and Technological
Development Zone, Shenyang,
Liaoning Province, CHINA
Fon +86 24 8953 6688
Mail info@scheuchl.cn

RS
www.scheuchl.de

