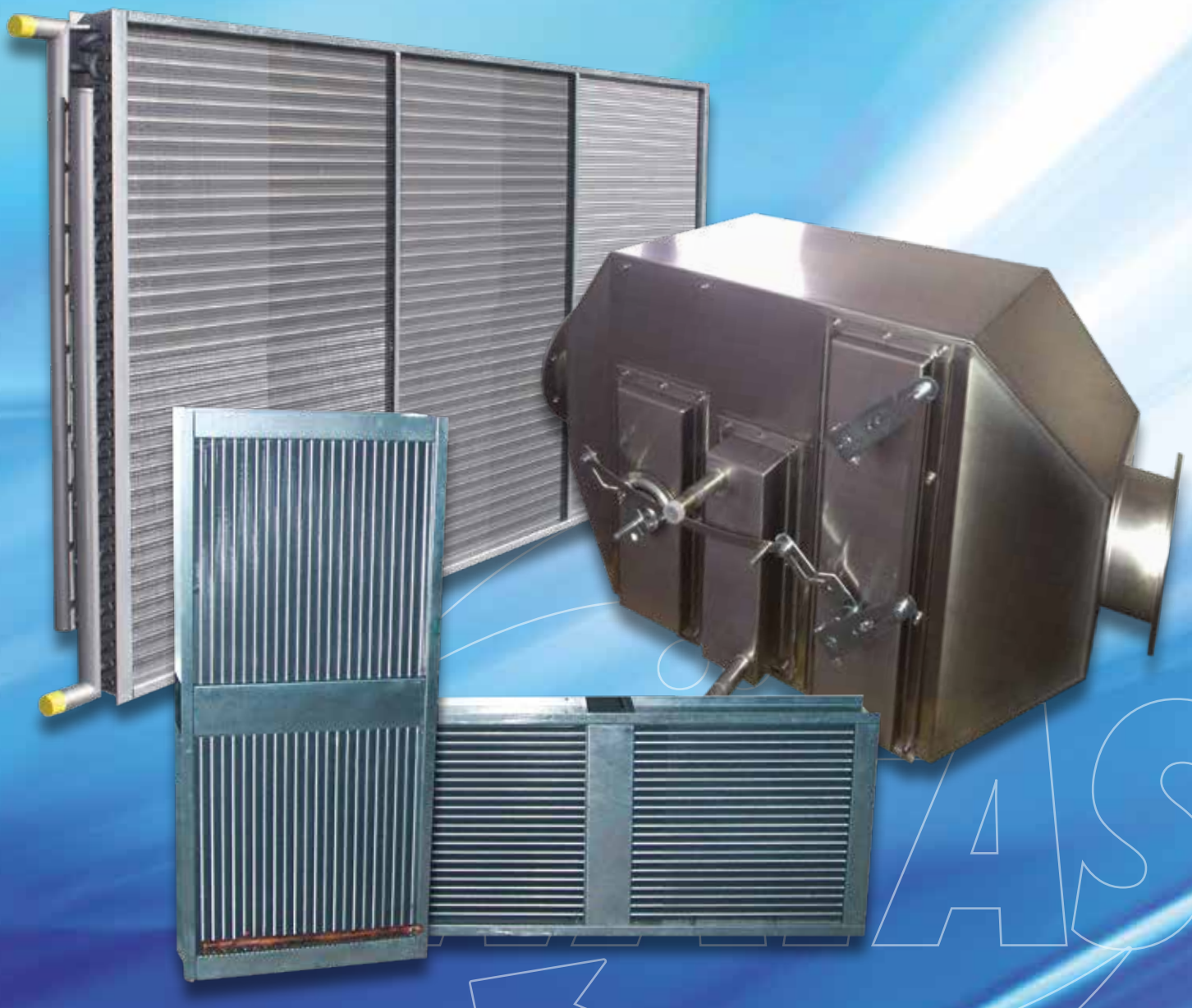
WÄTAS®

INNOVATIONEN
AUS SACHSEN

Expert in Heatrecovery

HEAT EXCHANGER, HEAT PIPES AND GAS COOLER



The work ethic of our company and its employees is based upon this principle:
“The Energy that’s paid for should be used several times”

Energy Efficiency signifes for us

Heat generation and power consumption
optimized on demand – at the right place, at the right time to the extent of the necessary temperature levels
- only when actually needed.

Here the WätaS Heat Exchanger has many applications and a prominent position in the industry.
We have succeeded to achieve a high delivery reliability, outstanding quality and customer satisfaction.

It was always possible to act successful in finding solutions, together with our customers, for innovative products, resource-saving technologies and, as a result, reduced energy consumption. Therewith we often achieve measurable results in our goal to improve our environment.

I am convinced that in the coming years we will through our collaboration and business activities achieve a lasting positive impact on a liveable, prosperous future. Our children and future generations will benefit from this ...

Torsten Enders
Founder and Managing Director of WätaS

WätaS Company History

2002
- Founding of WätaS Wärmetauscher Sachsen GmbH

2003
- Production start with 10 employees

2004
- Sales growth compared to previous year over 60 %
- First Certification according to DIN ISO 9001:2000
- 34 employees, 2 apprentices

2005
- Turnover growth compared to previous year of over 60 %
- 46 employees, 1 BA student, 3 apprentices

2007
- Awarded with KfW (Reconstruction Loan Corporation) Enterprise Award and "Gründerchampion für Sachsen" (Founder Champion for Saxony)

2008
- 5 years of WätaS - Goal of 100 employees reached
- Finalist for German Founder Award, Up-and-comer category
- Winner of a industry award at the Hannover Fair for Exhaust gas Heat Exchanger
- Founding of "Institute of applied energy efficiency"

2009
- Start of heat exchanger production in at the new headquarters location of Olbernhau

2010
- Completion of the reconstruction of the "Gründerzeitvilla" and relocation of the administration headquarters
- TÜV Certification according to DIN ISO 9001:2008

2011
- Production expansion though new build in Olbernhau to 7,500 m² production area

2012
- Certified for fulfilment of the standards for the comprehensive quality requirements for fusion welding of metallic materials by TÜV Süd in according to DIN EN ISO 3834-2

2013
- The company "Steelconcept" in Chemnitz wins the Energy Masters Award 2013 with the WätaS energy concept "The ideal Factory"

2014
- Project start for robot-assisted heat exchange production

2015
- Winner of a Industry Award at the Hanover Fair for the concept of a desalination plant
- Introduction of the new, small heat exchanger-Geometry 20/17
- Production start of heat exchangers for the natural coolant CO_2
- Start of production with automatic welded joints WätaS 4.0

2016
- Winner of the TGA Award "Heat exchanger application in old-building renovation"
- Main and shirt sponsor of the Bundesliga football club FC Erzgebirge Aue

2017
- Awarded with the Saxon integration prize

2018
- Winner of the "Best of" at the Hannover Fair
- Begin of the Construction of a new production hall of 1,400 m²
- Acquisition of the company "WEMA" in Olbernhau with 24 employees
- Implementing the research of the development of a WätaS fuel cell

2019
- Expansion of robot-assisted production
- Acquisition of SAF Leipzig in to the WätaS network

2021
- Development of the automated production of air/air heat exchangers
- Scheduled start of the production in September 2022

Main sponsor

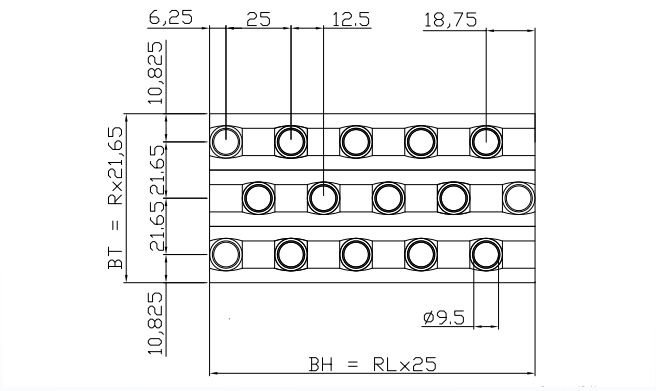
Wir sind Preisträger 2016

Tailor made Heat Exchanger to customer's specifications

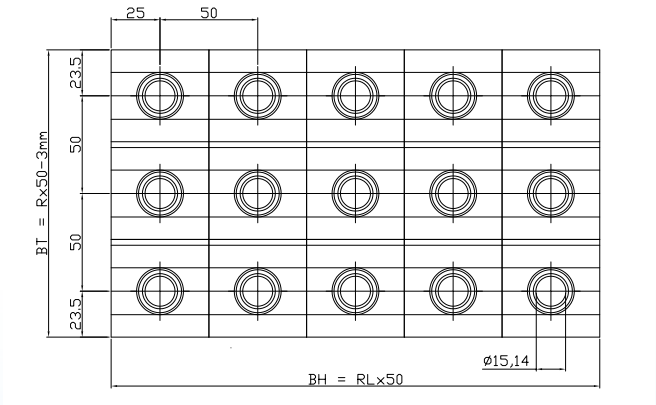
Your specialist in heat recovery

- Producer of
  - Finned heat exchanger in different material combination
  - Straight tube heat exchanger in copper and stainless steel
  - Heat pipes in copper and stainless steel
- Individual consultation as well as customer-specific design and optimization.
- WätaS heat exchangers can be designed in various geometries – besides the Standard designs, curved, U- and V-shaped, wave-shaped or other specific customer requirements are possible
- Various coatings can be offered for all heat exchangers.
- Surface finishing of heat exchanger.
- State-of-the-art robot-assisted production systems in relation to consistent implementation of the principles of "Lean Production"
- Individual single piece production as well as small and large series production in the highest possible quality
- Short delivery times.
- Various fields of application and areas of application in a large number of industries.
- WätaS heat exchangers always achieve the calculated optimum efficiency.
- High energy efficiency and maximum possible customer benefit.
- Great reliability and always the best price / performance ratio.
- Air / air heat exchangers in production from September 2022.

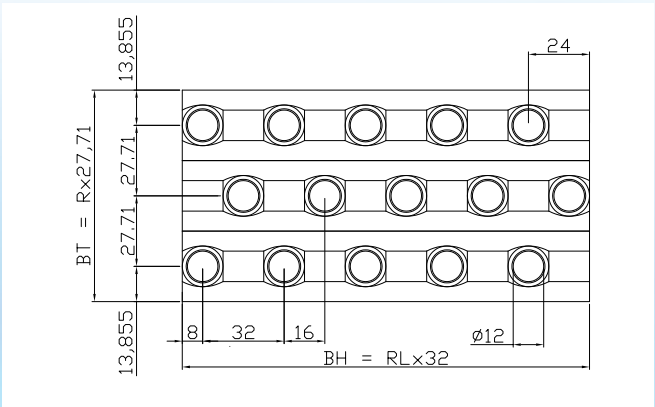
Standard models



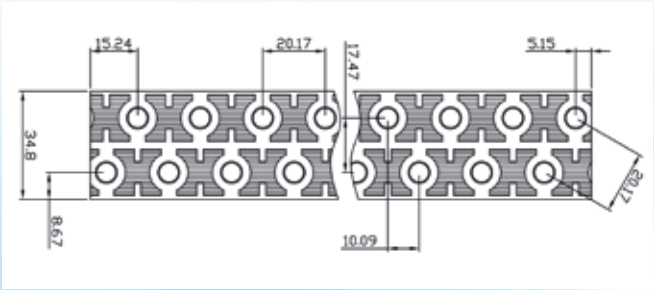
Geometry 25 x 22; coil diameter 9,5 mm



Geometry 50 x 50; coil diameter 15 mm



Geomety 32 x 28; coil diameter 12 mm



Geometry 20 x 17; coil diameter 6 mm

Our heat exchangers are available

- at the standard configurations depicted above
- in a corner design
- in a U- or V-shaped design
- in a sinuous design
- on particular customer requirements

Material assemblies

Fins

The fins are made from strip in aluminium, coated aluminium, AlMg3, copper, steel or stainless steel. We use corrugated high-performance fins.

Core tubes

The core tubes with various diameters are made of copper, stainless steel, CuNi or aluminium and are rmly attached to the fins by means of mechanical expanding.

Collector Tubes

The collectors are made of copper, steel, stainless steel or aluminium. The connections may according to the service mode be fitted with soldered ends, threaded nut or ange bearin

Distributors

The fitting of Venturi distributors made of brass or stainless steel is always performed vertically according to the mounting position of the heat exchanger and guarantees with its optimized manifolds a flawless distribution of refrigerants towards all injection points.

Frame

The frames can be made of aluminium, copper, zinc-coated copper, brass, zinc-coated steel or stainless steel. The laterals are perforated and, according to the shape of the fins and the application, are fitted with shrouds preventing abrasion to a great extent. Aside from the standard U-frame 50mm on all sides we are able to manufacture any frame as is required by the customer. Insulated housings and several levels of tightness up to gas-proof are possible.

Modes and conditions of service

Our heat exchangers are serviceable within the following maximum operating limitations:

		Standardprüfdruck
Air cooler	Thermal oil >180°C applicable	16 bar
Air heater	Steam-register design possible	16 bar
Direct evaporator also multi-circle	Direct evaporation of all refrigerants	30 bar
Condensers	Condensation of various refrigerants	30 bar
Heater exchanger	For thermal oils and refrigerants up to 400°C	

Test pressure possible up to 90 bar.
Special pressures for stainless steel heat exchangers by request.

Nano- and powder coating in our own plant

Nano Coating
Hydrophilic coating
Zinc and Tin coating
Powder coating
Antimicrobial coating

Application

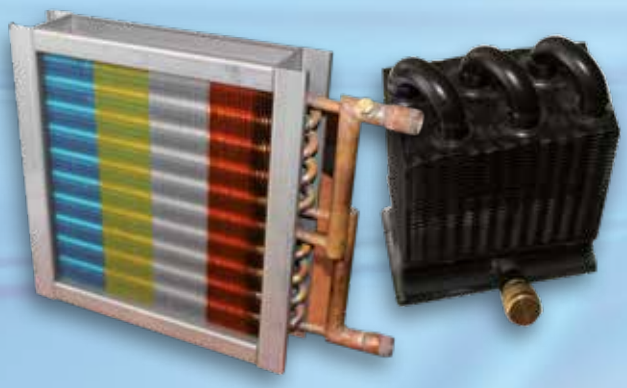
- Heat pumps
- Cooling units
- Machine cooling
- Heat Exchanger without filter

Advantages of nano-coated heat exchangers

Nano-coated heat exchangers feature the so-called lotus effect. The lower dirt adhesion leads to stable and lasting levels of effciency. Nano-coated evaporators achieve a dehumidification performance increased by 30% and an alteration of their dew point on the surface of up to 3K.

Advantages of hydrophilic-coated heat exchangers

Hydrophilic-coated heat exchangers have far more efficient defrosting characteristics than uncoated heat exchangers.



Coating patterns:
Hydrophilic coating, nano-coating, aluminium and copper fins (left to right) and an examples of powder-coated heat exchanger on the right-hand side.

Specializing in the production of stainless steel heat exchangers

Applications for finned heat exchangers
welded with stainless steel pipe and aluminium fins

- in marine industries (Fin AlMg 3.0) ⟶ BV Certification
- Steam registers
- in heating plants (fluctuating medium pressures)
- in wood and pallet-drying (high temperatures and humidity)
- in well-water or surface-water cooling
- in ammonia or CO_2 heat exchangers
- in heat recovery with thermal oils
  (e.g. BHKW waste-gas cooling for heating purposes)
- in cooling-down of cooling emulsions in machinery for poor water quality (wastewater heat exchanger for energy production)

Applications for finned heat exchanger
welded with stainless steel pipe tube and stainless steel fins

- in waste-air cleaning (Condensing of diluted acids in waste gases, neutralization of odours)
- at fluctuating temperatures (V4A-tubes and V4A-fins expand equally)
- in bakeries (air temperatures beyond 100°C)
- in thermal treatment of petroleum and natural gas
- in paper industries (aluminium is decomposed by air)
- in waste-gas cooling for energy generation (BHKW)
- in textile industries, at airports, laundries
  (allows excellent physical cleaning)
- creameries, dairies
- in deep-freeze storage

Advantages of stainless steel heat exchangers

- **withstand aggressive fluids**
- **are resistant to aggressive waste air**
- **stainless steel welded connections allow the use of highest media temperatures including thermal oils (the melting point of stainless steel is beyond 1.000°C)**
- **stainless steel pipes welded with aluminium withstand forces up to 300 bar**
- **stainless steel fins can be cleaned with steam-jets and brushes**

Applications for bare tube heat exchanger
Made of Copper or Stainless Steel

- Able to recover heat out of pollute media or to convey this to certain temperature levels
- Different tube diameters permit customized design
- Easily accessible by design; enable fast and effective cleaning
- Possible use as a preheater with conventional air conditioners

Advantages of the bare tube heat exchanger

- **particularly suitable for demanding, pollution – prone environment in uences**
- **Ideal variant for preheating the air**
- **Using small tube geometries can realize a great efficiency with relatively low space requirements**

Gascooler „Heat Keeper“

Innovative heating with the gas cooler ‘Heat Keeper’

Usual high-temperature heaters using oil, gas or solid fuels have an annual loss of one third of the heat quantity it generated.
Don’t leave costly produced energy unexploited – make use of the heat that is recovered from the waste gas of your heat.

Water processing with the highest possible energy savings

A finned tube heat exchanger is placed between the boiler and the chimney connection. Hot waste gases ow through the heat exchanger, which then gives o the heat to the water flow.
The heated water may then be used for various heating purposes.

The appliance may be used in:
- stove pipes
- exhaust pipes
- replaces

Advantages

- **Additional energy production in your existing heating system – makes the whole system more efficient**
- **Easy installation in compliance with emission standards**
- **Stainless steel design ensures a long service life**
- **Virtually maintenance-free**
- **Eco-friendly due to a lower emission of heat and chemical residues**
- **A diverse range of applications: as reflux heater, hot-water boiler, for direct heating**

„Heat Pipes“

Heat pipes allow an efficient exchange of energy between supply air and exhaust air with an e ciency rate of up to 85%.
Heat pipes by WätaS can be used for cooling and heating according to demand and mode of operation.
They are used, among others, for the following fields of application:

- Air conditioners
- Hall ventilation and heating
- Hotel and restaurant ventilation
- Ventilation and air-conditioning in hospitals
- Ventilation of indoor swimming pools
- Ventilation of supermarkets, indoor tennis

Special Characteristics

- **Heat recovery up to 85%**
- **No moving parts – no wear and tear**
- **No pumps required – no additional energy**
- **No separate ventilators required, they are integrated in the exhaust / supply airstream**
- **Applicable in temperature ranges from - 30°C to approx. +250°C**
- **Easy cleaning with steam-jets**
- **Integrated bypass optional**
- **Swivel mechanism (operation in summer or winter mode)**
- **Sanitary separation of supply and exhaust air possible**
- **Application-specific materials selectable**
- **Silent operation**
- **Maintenance-free**

Available from September 2022
in fully automated production

Air to Air Plate Heat Exchanger

Panels made of aluminium or stainless-steel guide the exhaust air and the fresh air past each other in a cross or counter flow. The energy is extracted from the exhaust air and the fresh air is preheated. Efficiency 60-92%.
No leakage between supply and exhaust air.

Fields of application

- Residential ventilation
- Ventilation and air conditioning
- Drying technology
- Paper industry
- Paintshops
- Laundries
- Thermal power station
- Industrial oven

Materials

- Stainless steel
- Aluminum
- Copper

Advantages

- **Highest Quality**
- **Lowest cost**
- **Large Quantities**
- **Best Price-performance Ratio**
- **Used for Heat and Cold recovery**
- **In stainless steel for higher Temperature available**

USP

Temperature	**-40 bis 600°C**
Pressure Drop	**20 bis 200 Pa**
Efficiency	**60 bis 92 %**

- **No moving parts**
- **No pumps required**
- **No separate fans required**
- **Integrated exhaust / supply air flow**
- **Integrated bypass possible**
- **Hygienic separation of exhaust air and supply air**
- **Application-specific materials can be selected**
- **Noiseless operation**
- **Maintenance-free**

Available from September 2022
in fully automated production

Inquiry Air- Air Heat Exchanger

Fax: +49 3 73 60 - 69 49-69

E-Mail to: vertrieb@waetas.de

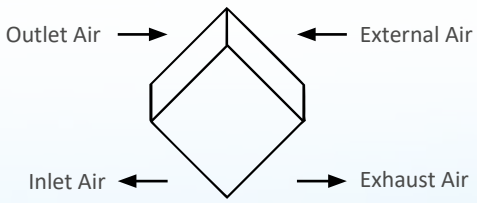
Material
- ☐ Stainless Steel
- ☐ Copper
- ☐ Aluminium

Frame
- ☐ Stainless Steel
- ☐ Copper
- ☐ Aluminium
- ☐ Galvanized Steel

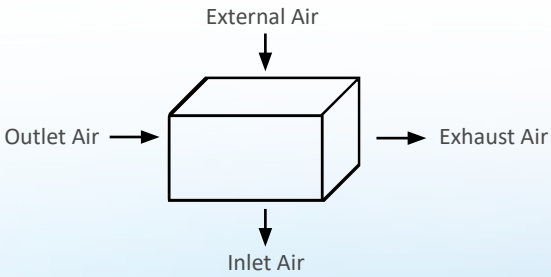
Bypass ☐

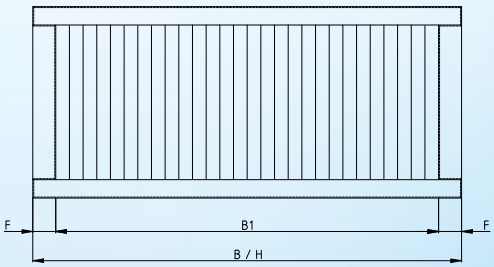
Drip Tray ☐ Stainless Steel

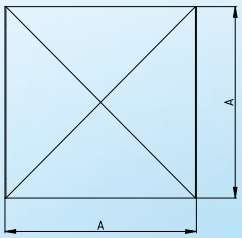
Inlet- and Outlet Air one above the other



Inlet- and Outlet Air side by side







Dimension:

B/H	
B1/H1	
F	
A	
D	

Technical Data

		Inlet Air	Outlet Air
Air Volume by	kg/m³ tr. m³/h		
Temperature In	°C		
Relative Humidity In	%		
Temperature Out	°C		
Relative Humidity Out	%		
Pressure drop dry	Pa		
Pressure drop humid	Pa		
Airspeed in the exchanger	m/s		
Pressure drop Bypass	Pa		
Scale of Temperature Transfer (EN 308)			
Scale of Temperature Humid	%		
Thermal Output (Recovery)	kW		
Dehumidification	g/kg		
Condensate Quantity	l/h		
Start of Icing theoretical	°C		

Inquiry Finned Heat Exchanger

Fax: +49 3 73 60 - 69 49-69 ***E-Mail to: vertrieb@waetas.de***

Fittings (generally)

☐ Air vent / Drain

Coil

☐ Stainless Steel
☐ Copper
☐ Steel

Finn

☐ Aluminium
☐ Copper
☐ Stainless Steel

Rahmen

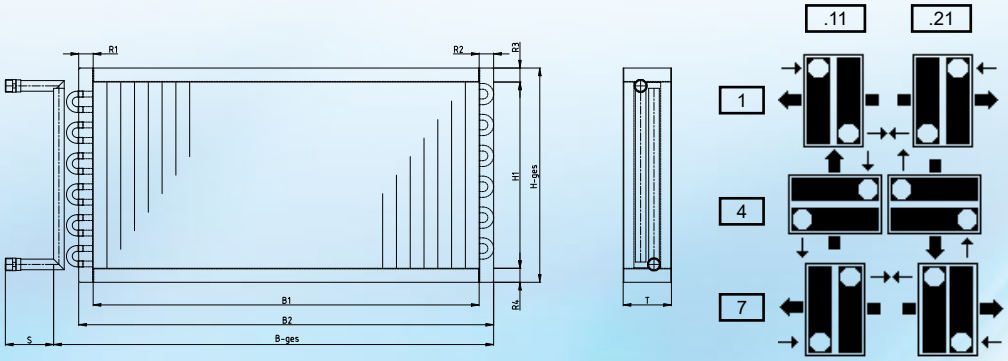
☐ Galvanized Steel
☐ Stainless Steel
☐ Aluminum

Connection

☐ Red Brass / Inside thread
☐ Red Brass / outer thread
☐ Steel* / Stainless Steel** / Inside thread
☐ Steel* / Stainless Steel** / Outer thread
☐ Weld neck flange
☐ Threaded flange
☐ Lap joint flange*
☐ Bare

* just in use with copper Coil
** just in use with stainless steel coil

Dimension



B1	B2	B-ges	H1	H-ges	T	R1	R2	R3	R4	S

Extras
(just for cooler and evaporator)

☐ Droplet Separator
☐ Drip Tray
☐ Siphon
☐ Housing
☐ Hausing insulated

Air direction

111	711	411
121	721	421

Technical Data

Air Flow Volume (m³/h)	m³/h		
Temperature In + Humidity	°C		%
Temperature Out	°C		
Flow Temp. / Return Temperature	°C		°C
Brine in % / Refrigerant	%	R	
Steam Temperature / Pressure	°C		bar
Water Flow Volume	m³/h		
Power	kW		

Expert in Heatrecovery

Energy efficiency = heat production and energy consumption

- **optimized according to the needs of the customer**
- **in the right place**
- **at the right time**
- **at the required temperature levels**

Made in Germany | Individual | Mass Production | Different Material Combination

WätaS Wärmetauscher Sachsen GmbH

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