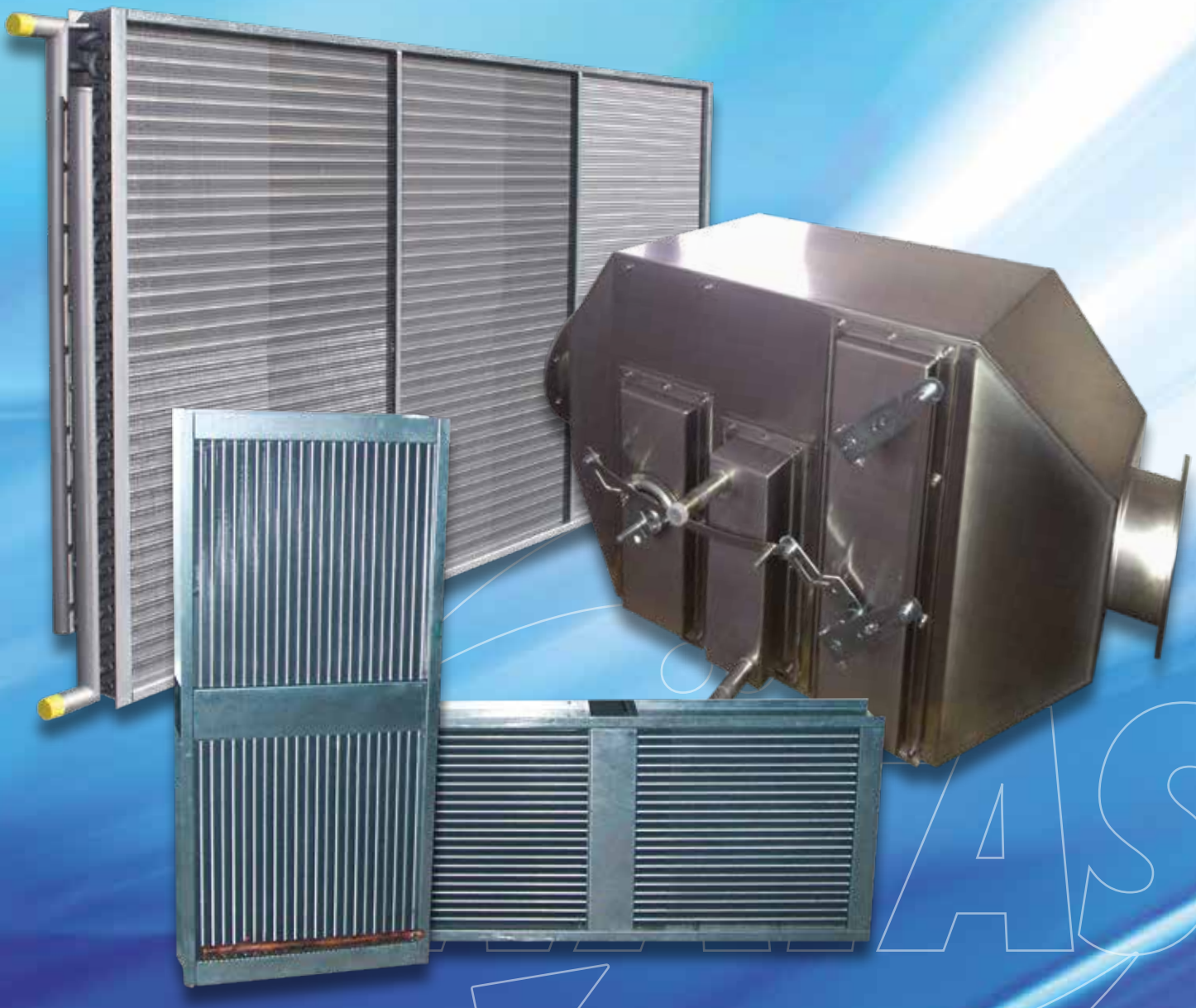
WÄTAS®

INNOVATIONEN
AUS SACHSEN

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 signifies 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

2003
- Production start with 10 employees (Completion of the production facilities by January 2004)

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

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

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

2008
- 5 years of WätaS - Goal of 100 employees reached
- Nomination for German Founder Award, Up-and-comer category
- Awarding of the industry award "Hannover Messe" (Hanover Fair)
- 2nd place company of the year in Saxony
- Foundation of Institute for applied energy efficiency

2009
- Start of the training and restructuring measure "lean production" in collaboration with Porsche Consulting GmbH
- Production relocation and start of production at the new headquarters location for heat exchanger production in Olbernhau, investment sum approx. 2.5 million Euro

2010
- Completion of the reconstruction measures in the Gründerzeitvilla and relocation of the registered office and administrative headquarters
- TÜV Certification according to DIN ISO 9001:2008

2011
- Production expansion in Olbernhau to 7,500 m^2 production area
- Strongest sales year in the history of the company

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 steelconcept company from Chemnitz wins the Energy Masters Award 2013 with the WätaS energy concept "Ideale Fabrik"
- The year 2013 was the most profitable year in the company's history.

2014
- Project start for robot-supported heat exchange production
- Market entry Arabia

2015
- awarding of the Industry Award Hanover Fair
- Introduction of the new, small heat exchanger-Geometrie 20/17
- Production start of heat exchangers for the coolant CO2
- Start of series production automatic welded and soldered joints WätaS 4.0

2016
- Won the TGA Award heat exchanger application in old-building renovation
- Main sponsor, and jersey sponsor of the football club FC Erzgebirge Aue
- Assumption of 15 refugees in production operations

2017
- Most successful year in the history of WätaS
- Awarded with the Saxon integration prize

2018
- Best of at INDUSTRIEPREIS 2018 in the category "Energy & Environment" with new plastic encapsulated lamellar heat exchanger
- Construction of a new production hall of 1,400 m^2 and purchase of the WEMA company in Olbernhau with 24 employees
- Beginning of development of the WätaS fuel cell

Tailor made Heat Exchanger to customer`s specifications

Applications

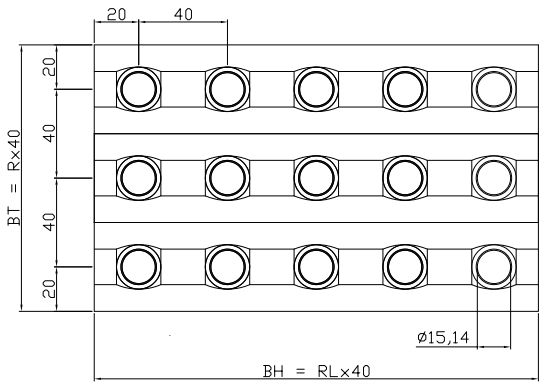
- Heating and cooling of factory buildings, offices, hopping centres
- Recovery of industrial waste-heat
- Biogas plants
- Climate-control units and ventilation systems
- Dehumidification of cellars and various processes
- Heat production by heat-pump processes
- Cooling with well water / rainwater / cisterns
- Low-temperature heating systems
- Energy recovery from waste gases
- Heat recovery from drying units, such as
  z.B.: Wood drying
  Laundries
  Textile industry
  Powder coating and painting plants

Our heat exchangers achieve optimal efficiency and with that the highest possible customer benefits.

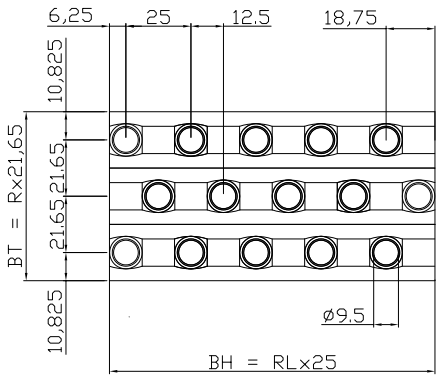
Through our state of the art production facilities and the consistent implementation of the principles of „lean production", we are able to custom-made heat exchanger

- **in a very short time,**
- **highest quality and**
- **with a competitive price**

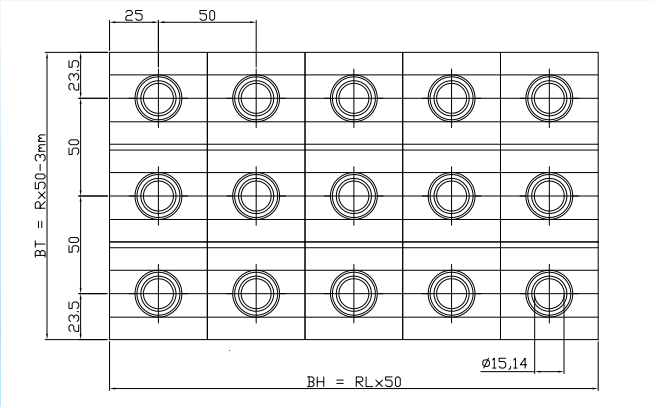
Standard models



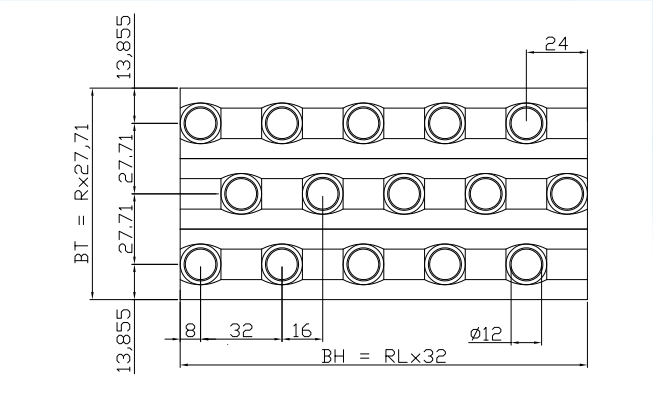
Geometry 40 x 40; coil diameter 15 mm



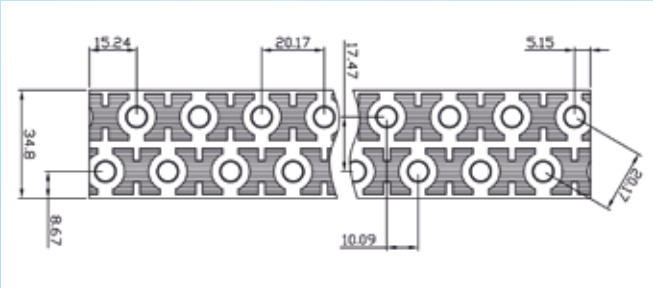
Geometry 25x 22; coil diameter 9,5 mm



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 (V2A/V4A). We use corrugated high-performance fins.

Core tubes

The core tubes with various diameters are made of copper, stainless steel (V4A), CuNi or aluminium and are firmly attached to the fins by means of mechanical expanding.

Collector Tubes

The collectors are made of copper, steel, stainless steel (V2A/V4A) or aluminium. The connections may according to the service mode be fitted with soldered ends, threaded nut or flange bearin

Distributors

The fitting of Venturi distributors made of brass or V2A 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 (V2A/V4A).

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	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

Application

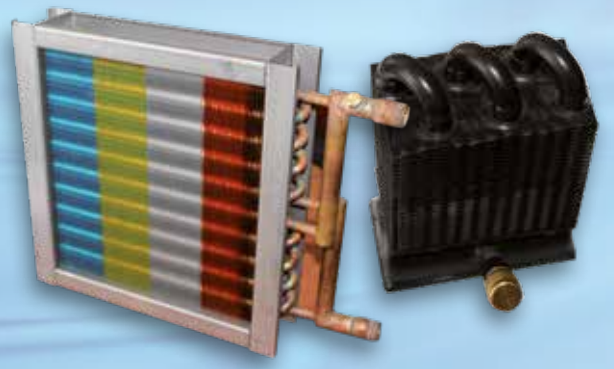
- Heat pumps
- Cooling units
- Machine cooling
- Heat Exchanger without filter

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 efficiency. 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 V4A-tube and aluminium fins

- in marine industries (Fin AlMg 3.0)
- 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 V4A-tube and V2A/V4A-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**
- **V4A welded connections allow the use of highest media temperatures including thermal oils (the melting point of V4A is beyond 1.000°C)**
- **V4A-tubes welded with aluminium withstand forces up to 300 bar**
- **V2A-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 influences**
- **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 flow through the heat exchanger, which then gives off 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
- fireplaces

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 efficiency 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
- Kitchen ventilation
- Ventilation and air-conditioning in hospitals
- Ventilation of indoor swimming pools
- Ventilation of supermarkets, indoor tennis centres, and many others

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

Template: Basic data for evaluation (gas cooler)

Please complete the form below

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

The heat exchanger will be calculated individually upon your requirements.
The dimensioning displays information about the capacity in kW, pressure losses, dimensions and costs.

Project / Address:	
Contact:	**Date:**

Exhaust gas quantity in kg/h	
Exhaust gas temperature inflow in °C	
Exhaust gas temperature outflow in °C (permissible minimum)	
Water temperature inflow in °C (usually cold service water)	
Desired water outlet temperature in °C (intended use)	
Smoke tube inner diameter in mm	
Installation	☐ vertikal ☐ horizontal
Special forms	☐ with Bypass ☐ without Bypass

Special characteristics (e.g. maximum installaition dimension):

Please attach the last measurement report of your chimney sweep and consult him regarding the installation

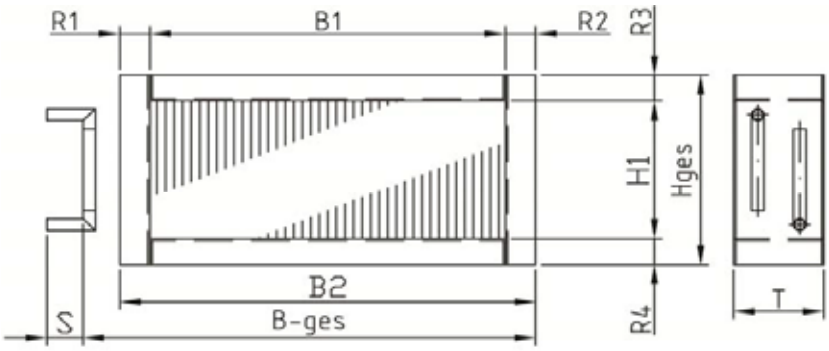
Template: Request Heat Exchanger

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

Supply (general)
☐ Ventilation / Deflation

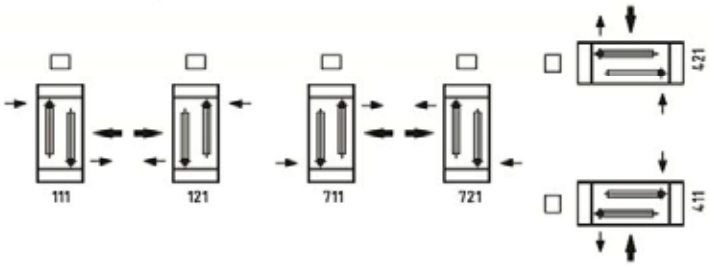
Core tube:	☐ VA ☐ Cooper ☐ Steel	**Connection:**	Red brass	☐ core thread ☐ external thread
Finn:	☐ Aluminium ☐ Cooper ☐ VA		Steel* / VA**	☐ score thread ☐ external thread
Frame:	☐ Steel ☐ VA ☐ Aluminum		☐ welding neck flange ☐ threaded flange loose ☐ type flange* ☐ smooth * just in connection with copper pipe ** just in connection with stainless steel pipe	

Dimension:



B1	B2	B-ges	H1	Hges	T	R1	R2	R3	R4

Direction of air stream:



Fixtures:
(just for cooler and direct evaporator)

☐ droplet separator
☐ drip tray
☐ Siphon
☐ housing
☐ housing insolated

Performance data

Air volume flow	m^3/h	
Temperature in + humidity in %:	°C	%
Temperature out:	°C	
Flow Temp. / return Temp.:	°C	°C
Brine in % / cooling liquid:	%	R
Vapour Temperature / Pressure:	°C	bar
Water Volumestream (m^3/h):	m^3/h	
Power (kW):	kW	

Notes

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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The general terms and conditions of WätaS Wärmetauscher Sachsen GmbH apply (see www.waetas.de)

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