

Customized Heat Exchangers

Optimized solutions that best suit your needs



Wieland Thermal Solutions.
Globally leading in heat transfer and forming technologies.

Maximizing heat transfer while minimizing material and thermal input: that's our goal when designing and producing enhanced surface tubes and heat exchangers for refrigeration, air conditioning, and heating systems, as well as for mechanical engineering and process technology applications. Our heat transfer solutions are trusted by our customers the world over. Because they are cost-effective, safe, and durable, and because they ensure the highest energy efficiency.

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A brand of the strong Wieland Group – a global leader with 8,000 employees worldwide, cutting-edge in the manufacture of semi-finished and specialty products and a strong expertise in copper and copper alloys.



Project review, and individualized support

Heat Exchangers

The design of a heat exchanger is as individualized as the respective specifications. Numerous options, and considerations are available to meet your specific requirements.

- Optimization of the heat transfer surfaces –
- Integration of additional functional parts – Reduced pressure drop –
- Fewer refrigerant needed – Less material –
- Robust design – Increased safety –

With our experience in thermal engineering, mechanical design, serial manufacturing, and applications of heat exchangers, we are able to offer customized thermal solutions that successfully optimize your product.

Some preferable key options:

- Efficient,
- Eco-friendly,
- Durable,
- Compact and
- Cost-optimized



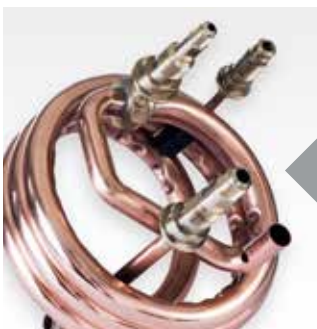
As individual as the application:



In addition to finned, and smooth tubes, double-wall solutions, and tubes with variable profile structures are available.



With a broad material portfolio, and a varied possibility of coatings, we are able to offer durable solutions.



With the integration of additional functional parts (i.e. fittings, and mounts) we are able to supply ready-to-use systems for serial production.



Our long-term experience in engineering enables us to supply tailor-made solutions of high complexity.

From concept, to prototypes, and serial production

Collectively reaching tailored solutions that best suit your needs.



Understanding

We understand your specific requirements

- Operating range (fluids, pressure, performance, temperatures)
- Efficiency
- Design space
- Cost frame, and budget

Suitable solutions

- Product concepts
- Appropriate materials
- Minimization of operating costs
- Durability
- Suitable for serial production



Development

Development, and prototype establishment

- Product design (specification, engineering design, design to cost)
- Simulation
- Thermal and mechanical performance evaluation conducted in our testing laboratory
- Prototype manufacturing



Startup Support

Exemplary customer service support during series launch

- As part of the distinguished Wieland Group, resources are available to support for initial development and investments
- Supporting with questions about handling, assembly, installation, and application
- Researched, and reviewed conclusions are utilized for optimizations
- Quality assurance and proof of process stability

If you...

are seeking the best solution to transfer heat,

we are able to provide...

the greatest support starting from initiation, to developing prototypes, and delivering serial demand – all from one source.

The right material...



will be chosen based on your requirements regarding durability, thermal conductivity, mechanical properties, and further processing steps to realize

a suitable design...

such as a coil, meander, U-bend, flat-oval coil, shell-and-tube, and/or further customized styles.



Manufacturing & Delivery

Consistently of the highest quality

- According to your requirements of specification, certification and standards
- With highest demand of process stability
- Providing the requested lot size suitable for production
- Within the expected, promised delivery time
- Additional offered services – logistical concepts, eco-friendly, and sustainable packaging

Ensuring Success

Even beyond the start of serial production we maintain focus on:

- Optimizations of performance, delivery time, and costs
- New ideas for shaping future requirements

Contact us

thermalsolutions@wieland.com



How we work – 5 steps to customized solutions

Success story: Heat Pump Design, Engineering, and Manufacturing

An OEM of heat pumps is seeking customized, and optimized solutions to fulfill new safety requirements considering new refrigerants while increasing efficiency.

1 Clarify Requirements

In consideration of the design ideas, and price scope provided by the manufacturer we identify the exact requirements of the customized heat exchanger:

- Avoid heat losses
- Legal, and hygienic regulations are considered for the heating of drinking water
- Replaceability, and cleanability
- Safety while utilizing high pressure (e.g. high pressure refrigerant R32, R744)
- Min. design space and max. energy storage
- Low refrigerant content

3 Engineering & Quotation

Based on the specified design, the heat exchanger is constructed by our development department.

- The thermal design defines the necessary tube length
- For safety reasons, a double-wall tube design with optimized thermal contact will be utilized

Based on a planned introductory scenario and subsequent serial demand, costs are determined. This information is transparently furnished in a quotation for the ease of the decision-making process.

2 Design Proposals

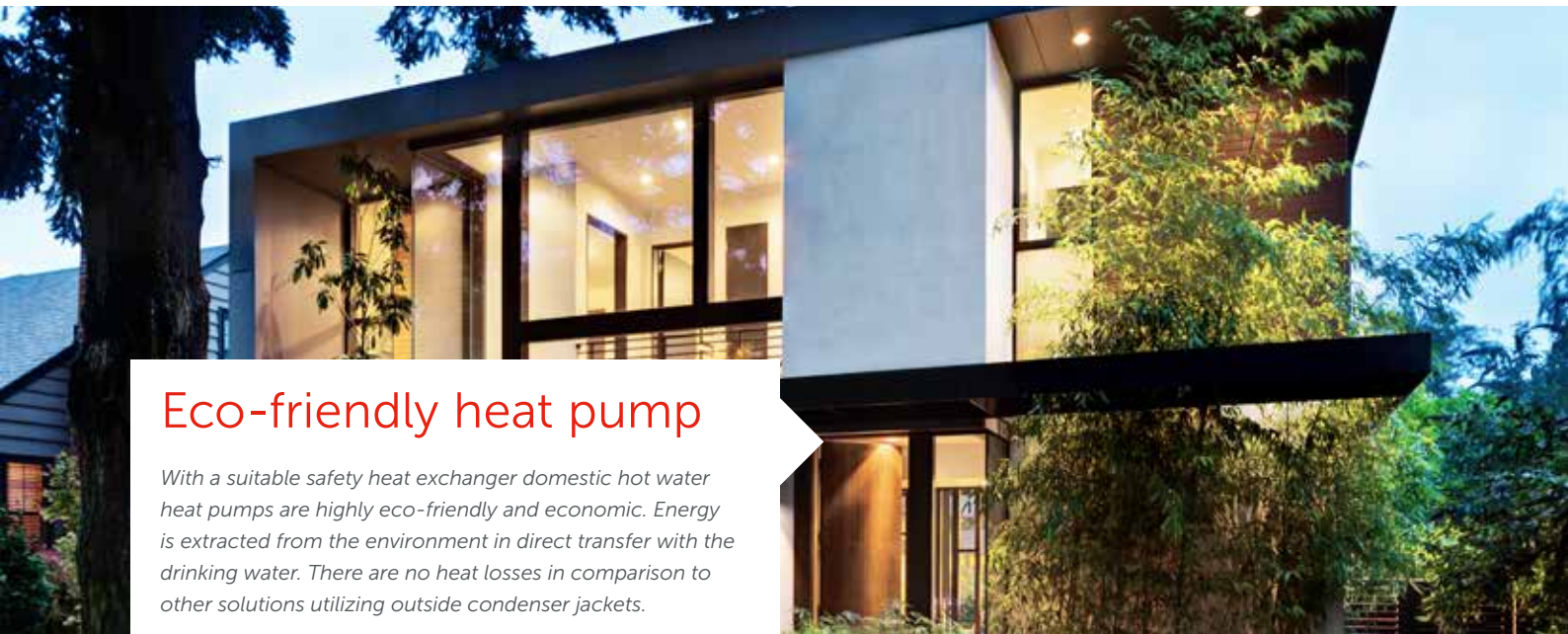
Preparation of varied design proposals regarding shape, and material.

- No heat losses on the outside of the heat exchanger and only minimal temperature differences due to direct condensation in the hot water tank
- Optimized surfaces encourage condensation inside and free convection outside



–50%

With the newly developed Wieland safety heat exchanger the necessary refrigerant volume can be highly decreased compared to the former solution.



Eco-friendly heat pump

With a suitable safety heat exchanger domestic hot water heat pumps are highly eco-friendly and economic. Energy is extracted from the environment in direct transfer with the drinking water. There are no heat losses in comparison to other solutions utilizing outside condenser jackets.

4 Prototype Manufacturing

Choice selection of the appropriate solution in regards to performance, processing, production, and costs.

Thereafter, while maintaining close collaboration, there is an exchange of CAD models, and prototype production. With the installation, and functional tank testing, the manufacturer checks the performance, and decides on further optimizations as necessary.

Advised adjustments are implemented for the connector parts, and the designed product is ready for pilot production.

5 Design Release & Series Production

The heat exchanger design is fixed, and the first produced parts are ready for field, and process testing.

Additional adjustments in production are made, machinery, and tools are acquired. The serial capability will be determined within a PPAP.

A long-term agreement can be established including terms for cost-efficient logistical strategies, and stock requirements.



Further Optimizations During Serial Production

To develop the next generation heat pump, we are collectively collaborating on innovative optimized solutions.

.. In consideration of operational issues:

- raising demand -> more cost-efficient large-batch production and sustainable reusable packaging
- problems with mounting -> design changes of the flange
- demand for smaller hot water tanks -> design of a condensed version

.. Possible process improvements:

- shortening of delivery time, and decreasing of stock through automation in our production
- improvement of process stability through better brazing quality in an automatic brazing process

in out

Innovative spirit.

Outstanding results.

wieland

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