

Wieland Thermal Solutions[®]
PROVIDING EFFICIENCY



Wieland



Do you regard efficiency as yardstick for outstanding thermal solutions? If so, we agree with you; this is exactly what Wieland Thermal Solutions stand for. We are the right partner when it comes to developing efficient and innovative solutions – according to the Wieland Thermal Solutions philosophy, i.e. providing efficiency:

- **Product efficiency:** Wieland Thermal Solutions offer a wide range of high-quality products for any requirement – inner-grooved tubes, finned tubes and heat exchangers in various different alloys and performance classes.
- **Know-how efficiency:** Our employees are highly qualified. On the basis of extensive experience they develop solutions meeting the latest technical, economical and ecological requirements.
- **Development and production efficiency:** Wieland Thermal Solutions uniquely combine the production possibilities of an international manufacturer with its own state-of-the-art Research & Development capabilities.

This brochure provides examples of successful development co-operations for Wieland Thermal Solutions with partners from different industries. Should you be interested in further details, please contact us as soon as possible.

Bernd Graßhof,
Vice President Tube Division
Wieland-Werke AG



Case illustration using Wieland Thermal Solutions in air conditioning and refrigeration: Efficient cooling through high-efficiency tubes

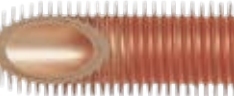
[Tasks] Today's air-conditioning and refrigeration manufacturers are faced with rising demands for more comfort, higher energy costs and reduced installation spaces and, therefore, have to find more efficient and compact design solutions.

[Possibilities] In cooperation with our customers the Wieland Thermal Solutions Team develops tailor-made solutions for air conditioning and refrigeration needs. These solutions include, for example, optimized surface structures on heat transfer elements for common refrigerants or viscous media, special materials for use in corrosive environment or high-strength copper alloys for high-pressure refrigerants such as carbon dioxide.

[Solutions] Thanks to special surface structures, GEWA high-efficiency tubes for shell-and-tube evaporators and condensers achieve heat transfer values four times higher than those of plain tubes. Inner-grooved tubes enable the customer to manufacture fin coil heat exchangers with optimized weight and performance ratios as well as very compact unit designs.

I Product efficiency

The Wieland Thermal Solutions Team is successfully cooperating with partners from numerous sectors such as the refrigeration, air-conditioning, heating, chemical and hydrocarbon-processing as well as the building, vehicle construction and machine & apparatus engineering industries. For your new, specific thermal solution you benefit from our extensive experience in the field of thermodynamics. In addition, Wieland Thermal Solutions offer you a wide range of optimized inner-grooved, finned and plain tubes in a large variety of dimensions and in different materials – be it copper, copper alloys, aluminium or carbon steel.






I Know-how efficiency

Experience the exceptional collaboration with the Wieland Thermal Solutions Team. Together we can work out an exact solution to bring you a vital step forward. Efficient, economical and ecological solutions are created based on our team's expertise and our state-of-the-art R&D laboratories.

Bernd Graßhof, Vice President Tube Division
Anja Kunze, Sales Tube Division



Case illustration using Wieland Thermal Solutions in heating: More efficient use of solar heat

[Task] Heat from solar energy is environmentally friendly, sparing of resources and safe for the future. Demand for solar panels and hot water storage tanks is, therefore, rapidly increasing.

[Possibilities] During the manufacturing process of solar panels, copper tubes and absorber plates are welded together. A precondition for a strong and lasting weld is a superclean surface quality.

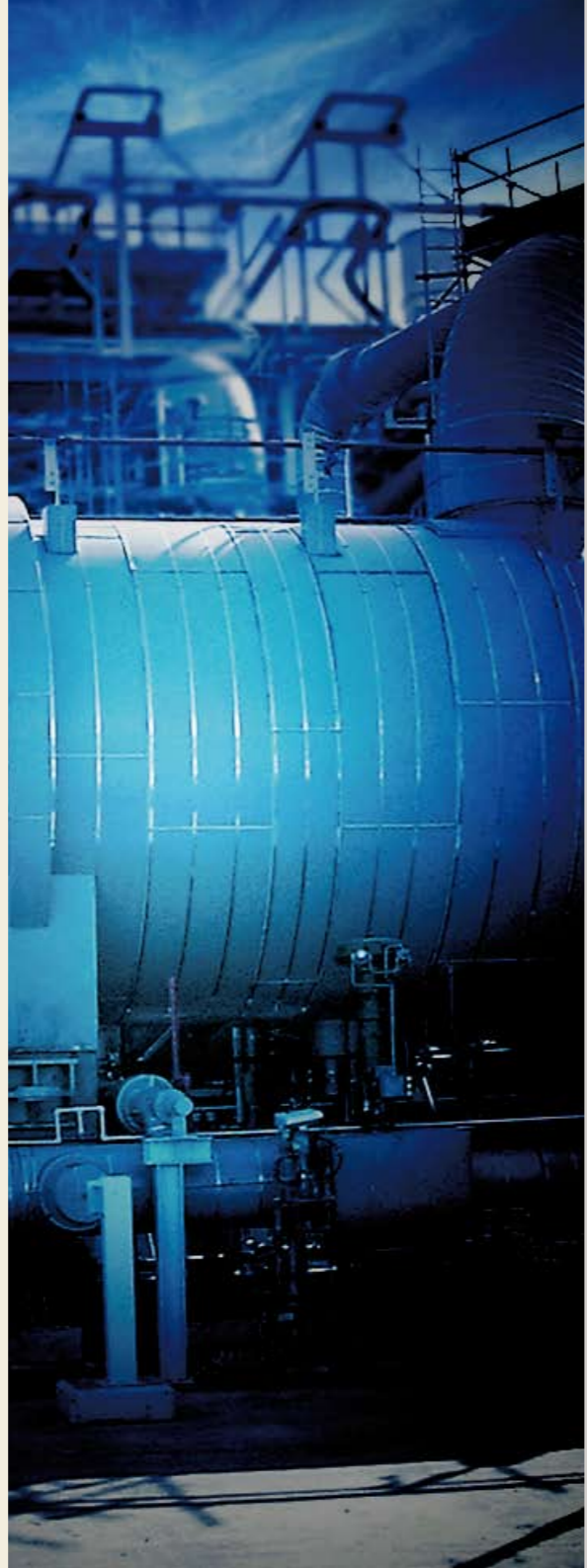
[Solutions] We use a special production process to achieve the required superclean outer surface of the tubes. The solarclean copper tubes from Wieland's Thermal Solutions can be welded faster and produce less scrap, as cleaning operations and pre-treatment of the tubes are no longer required.

**Case illustration using Wieland Thermal Solutions in process technology:
Tubes for LNG plants**

[Tasks] Natural gas has to be liquefied to make transportation economical. Designers and manufacturers are facing new economical and ecological challenges due to the growing size of LNG plants getting bigger.

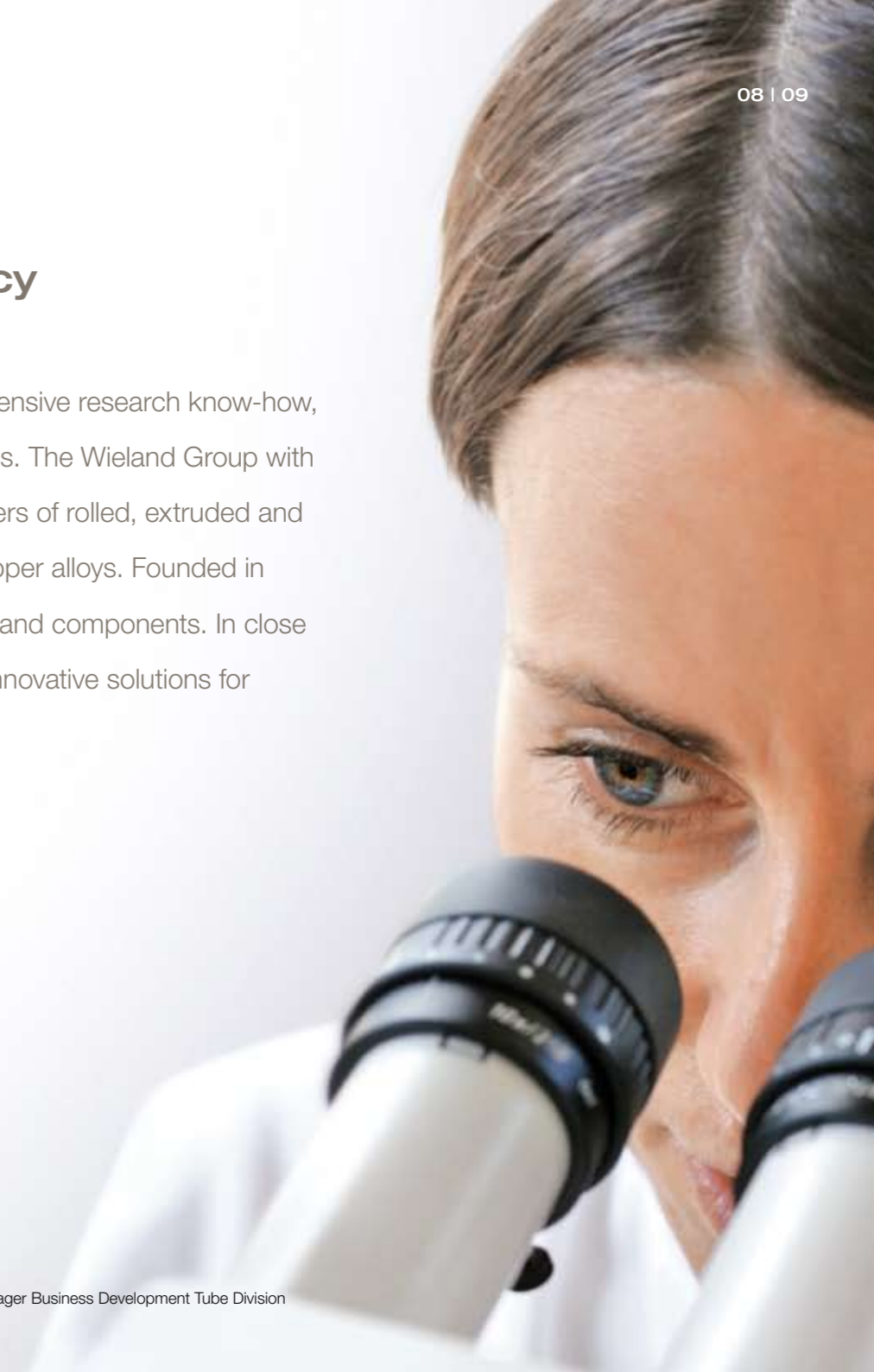
[Possibilities] The French company Technip contacted us concerning an order they received to increase the existing capacity of the three Qatar Liquefied Gas Company LNG plants by 50 %. As a result of our collaboration Technip opted to use our high-efficiency steel tubes from the Wieland Thermal Solutions range in three new main heat exchangers.

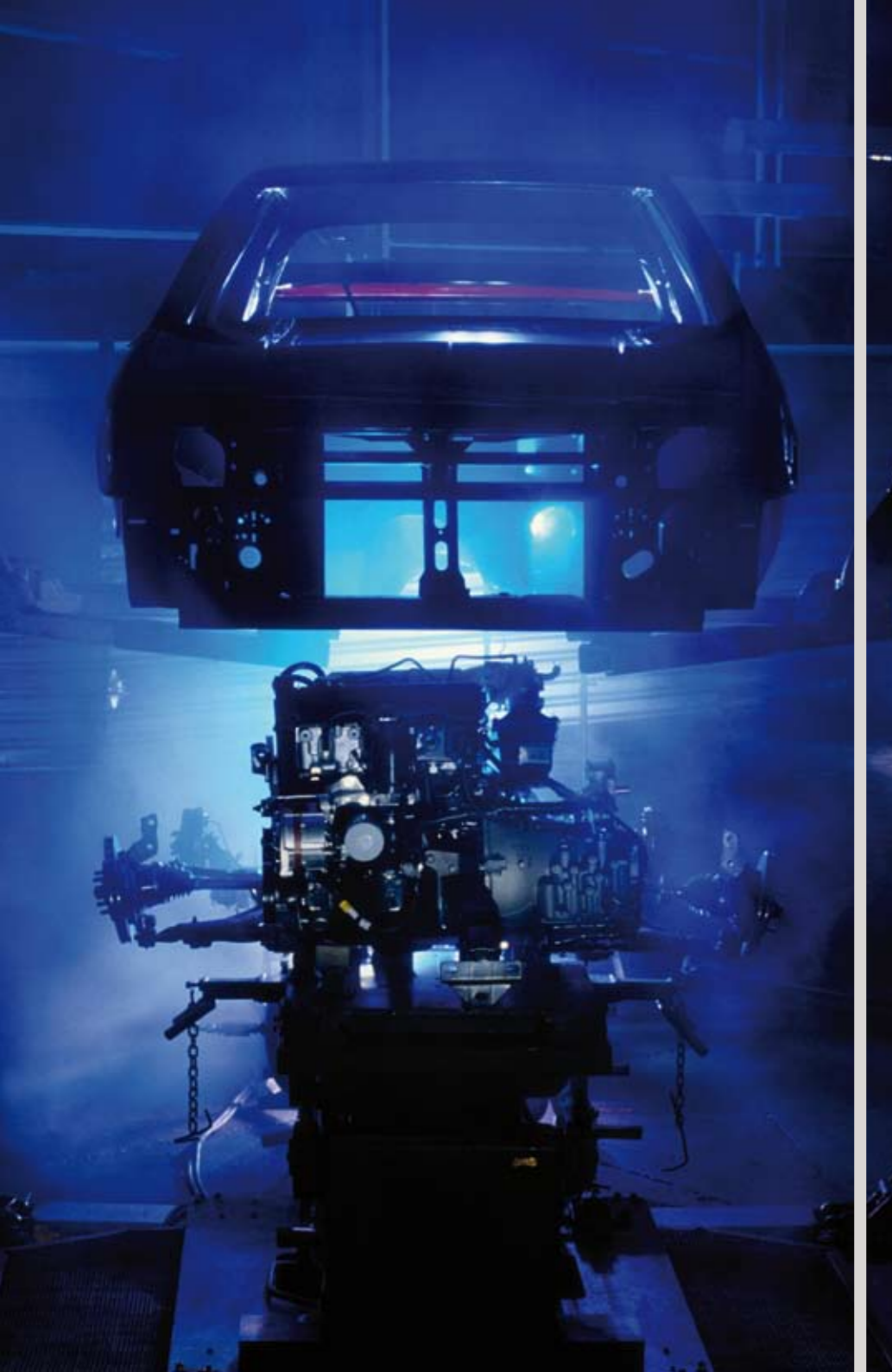
[Solutions] Technip was able to secure six orders for new LNG installations due to the successful completion of this capacity expansion. Each of these plants has a capacity of 7.8 million tons LNG p.a., currently the largest of its kind. High-efficiency finned tubes from the Wieland Thermal Solutions range have been used in all of the main heat exchangers to ensure the best possible heat transfer in tight spaces and a lower investment outlay.



I Development and production efficiency

Wieland Thermal Solutions is a brand of the Wieland Group covering extensive research know-how, development resources as well as a wide range of production possibilities. The Wieland Group with headquarters in Ulm, Germany, is one of the world's leading manufacturers of rolled, extruded and drawn products as well as tubes and sliding elements in copper and copper alloys. Founded in 1820, Wieland is a global supplier of high-quality semi-finished products and components. In close collaboration with customers all over the world, the company develops innovative solutions for many different industries.





Case illustration using Thermal Solutions in vehicle construction: Finned tubes for environmentally friendly automotive air conditioning

[Tasks] The automotive industry is developing new air-conditioning systems with environmentally friendly refrigerant alternatives to meet legal requirements. Depending on the thermodynamic properties of the refrigerant the air-conditioning systems require specially designed heat exchangers.

[Possibilities] Heat exchangers with aluminium finned tubes present attractive solutions with regard to efficiency, installation space and weight while withstanding the extreme pressures in the refrigeration cycle.

[Solutions] Wieland has developed concepts for high-efficiency heat exchangers in collaboration with subcontractors to the automotive industry. We have developed special aluminium finned tubes with optimized geometries and good bending properties in order to meet the high standards required in terms of compact design and efficiency. The results of our processing and performance tests have been very good, which means we have the green light for the use of aluminium finned tubes in environmentally friendly automotive air-conditioning systems

Customers from the following industries rely on materials and components from Wieland Thermal Solutions:

- | Automotive industry
- | Electrical and electronic industry
- | Air conditioning and refrigeration industry
- | Heating industry
- | Machine and apparatus engineering
- | Building industry
- | Chemical and hydrocarbon-processing industry
- | Energy and solar technology



North America	South America	Europe		Asia	Africa	Australia
USA	Brazil	Belgium	Poland	China	South Africa	Australia
Canada	Colombia	Denmark	Portugal	India		New Zealand
		Germany	Russia	Indonesia		
		Finland	Sweden	Japan		
		France	Switzerland	Malaysia		
		Greece	Spain	Pakistan		
		Great Britain	Holland	Singapore		
		Italy	Czech Republic/	South Korea		
		Croatia/	Slovakia	Thailand		
		Slovenia	Turkey	Taiwan		
		Norway	Hungary			
		Austria	Belarus			

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Wieland-Werke AG | Graf-Arco-Str. 36 | 89079 Ulm
www.wieland-thermalsolutions.com