

## Plate heat exchangers



## Heavy industry

Efficient in all applications



GEA Heat Exchangers  
GEA PHE Systems

## We've focussed our know-how for you

GEA PHE Systems is responsible for plate heat exchanger technology within the GEA Heat Exchanger Segment of the international GEA Group. Strong individual companies: GEA Ecoflex, GEA WTT, GEA PHE Systems Asia Pacific and GEA PHE Systems North America with manufacturing locations in Germany, the USA and India produce gasketed, fully-welded and brazed plate heat exchangers for just about every industrial application sold throughout the world.

GEA EcoServe – the service organisation of GEA PHE Systems – provides a fast and competent maintenance and spare-parts service worldwide with its network of customer service centres in many countries and more than 20 years of experience.

## GEA – Technology to meet the toughest challenge

Production processes in heavy industry often call for a high energy input, and the result is a corresponding generation of heat. To ensure that production keeps running smoothly despite the heat, it's not only the employees who have to keep cool.

The range of applications for heat exchangers is particularly diverse in heavy industries, where demands are extremely high. GEA PHE Systems meets these challenges thanks to many years of experience in plant and mechanical engineering in all fields of heavy industry.

Industrial processes have been optimised continuously over the decades, and the efficiency of performance and output has increased across the board. GEA plate heat exchangers have kept up with all of these developments and the product portfolio is more powerful than ever before. This is the reason why our plate heat exchangers are always to be found where performance and economic efficiency are essential – whether in steel making, mechanical engineering or the automobile industry.



## What you need – what we deliver

### Plate heat exchangers come in three categories:

Either gasketed, fully-welded or brazed. GEA PHE Systems can offer the complete range of plate heat exchangers in all three of these categories. Process-optimised product ranges are adapted individually to suit the special requirements in heavy industry.

And providing perfectly matched equipment is not all that we can do for you. We are also at your disposal as a component supplier, always offering you the best solution possible to match the specific requirements of your operating scenario.

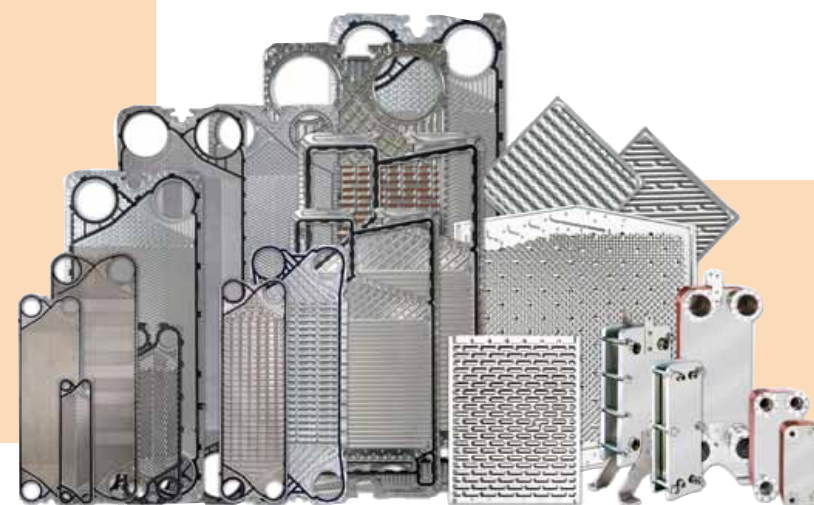
Using state-of-the-art technology we develop and manufacture high-efficiency plate heat exchangers for reliable everyday use – thanks to their outstanding performance characteristics and economic benefits. Our careful selection of the materials used has a considerable influence on the long service life of our products.

## Only benefits: GEA plate heat exchangers

Admittedly, shell-and-tube heat exchangers can also do their job today. But in comparison plate heat exchangers have a particular advantage as they combine an optimum of reliability and safety with an outstanding level of economic efficiency. PHEs are not only less expensive, but also lighter in weight and simpler to assemble and service. An unbeatable advantage is that their compact design requires up to 80 percent less space than shell-and-tube heat exchangers.

### Quality you can rely on – plate heat exchangers from GEA are:

- Highly efficient – excellent heat transfer performance with low pressure loss
- Reliable and safe in continuous operation
- Flexible configuration to match individual requirements
- Compact, space-saving design
- Easy to assemble and service



A finely differentiated product range – with a plate to match every application.

Plate heat exchangers are used in the widest range of applications in the steel industry.





# GEA plate heat exchangers in use ...

We have a product portfolio which is just as diverse and comprehensive as the fields of application of our plate heat exchangers. Wherever a high input of energy can cause extreme heat generation in heavy industry, you will find GEA plate heat exchangers in use as absolutely reliable cooling components. Almost all production facilities – whether in the automobile industry, steel making or in mechanical engineering – operate a closed water circuit for central cooling, and this is where we find one of the main tasks for our plate heat exchangers.

## ... in mechanical engineering

In the classical discipline of mechanical engineering you will find GEA plate heat exchangers being used for example for the slow cooling down of quenching oils. They are also excellently suited for temperature control of hydraulic fluids to achieve the desired viscosity. There are numerous additional possible applications – from system separation through heat extraction up to heat recovery. Take up our challenge!

## ... in the automobile industry

Appearances count for a great deal in the automobile industry, as most people buy their cars instinctively. A decisive factor in this is the colour, or to be more accurate, the paintwork of a new car. Our systems are excellently suited for cooling the dipping baths or robots in paint lines in car production plants.

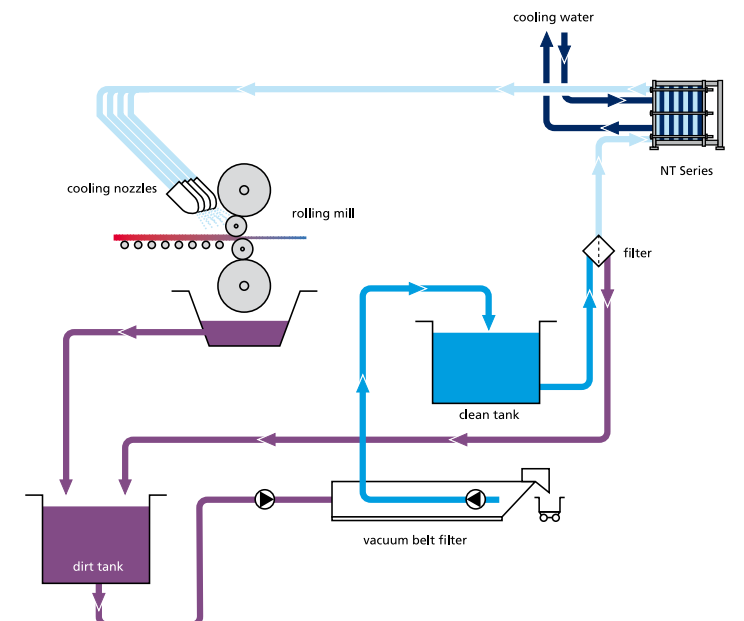
GEA plate heat exchangers bring the bodywork baths to the temperature required to make the surfaces of the body shells rust-resistant and ready for painting. Only then can the future car be provided with a durable paint finish in the colour of choice. GEA products are also used in many other areas of the automobile industry to achieve sustainability in heat recovery. With GEA plate heat exchangers you can enjoy double the benefits: Not only do you save primary energy in most of your system's processes, but our products also ensure relaxed economic management with low investment costs, high performance and low maintenance expenditure.

## ... in the steel industry

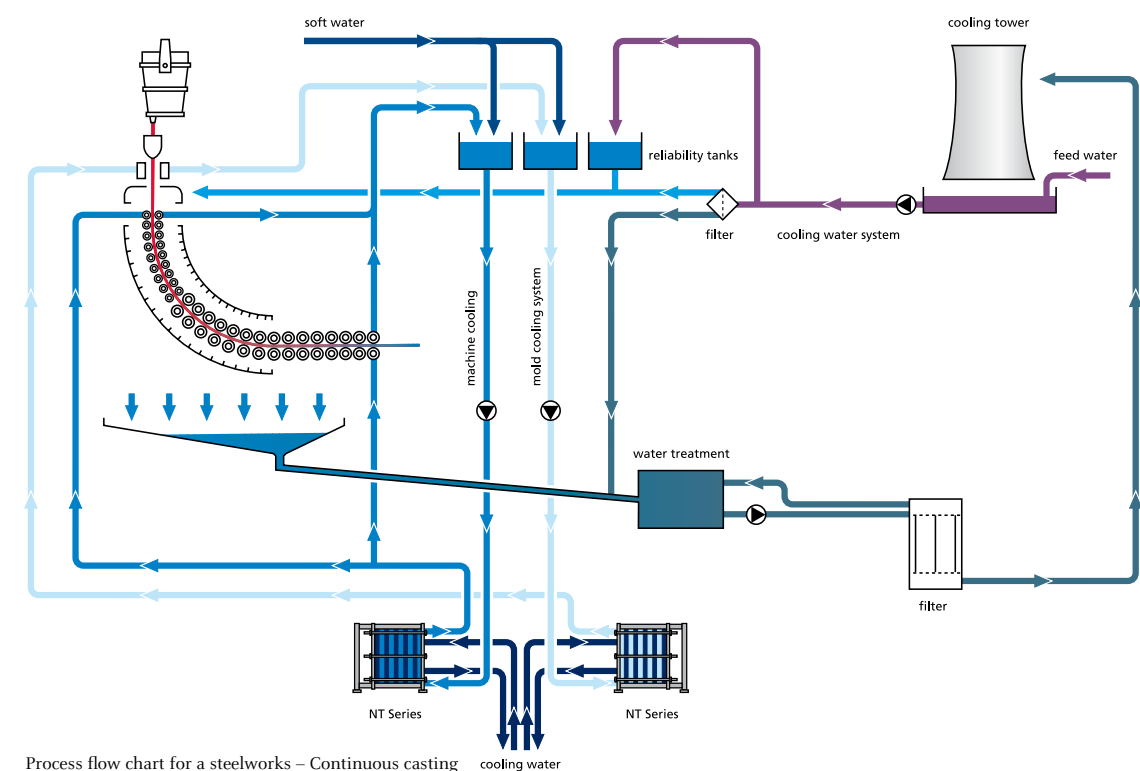
Blast furnaces are naturally a pretty hot environment, but work operations here have to be carried out routinely and calmly. This is why efficient cooling is absolutely essential in many areas of steel making.

A typical field of application for our plate heat exchangers can be found in the cooling of the rolling mills. Depending on the operating temperature they are used for cooling the emulsion or the rolling oil and to maintain the temperature at 40°C to keep the steel strip smooth and stop it sticking to the rollers.

Wherever cooling is needed in your plant: GEA PHE Systems can show you the economic solution. Whether in hydraulic oil cooling in the process lines, directly at the blast furnace or in airwash systems to reduce environmental impact – our plate heat exchangers always ensure the correct temperature.



Process flow chart for a steelworks – Rolling mill



Process flow chart for a steelworks – Continuous casting



Rolling oil cooling using gasketed plate heat exchangers



Plate heat exchangers keep the temperature constant in the dipping baths.

## Standards for guaranteed quality

All companies within GEA PHE Systems are certified to DIN EN ISO 9001 and comply with the requirements applicable to gasketed, fully-welded and brazed plate heat exchangers specified in the European Pressure Equipment Directive 97/23/EC.

We also use the specifications of the AD-2000 technical rules and the ASME Boiler and Pressure Vessel Code including U-Stamp.



The NT Series convinces with optimum heat transfer rates.

## EcoFlex – gasketed plate heat exchangers

We always suggest gasketed plate heat exchangers when the emphasis is on maximum flexibility. The major advantage compared to other systems is the possibility to adapt to meet changing process conditions in the future. EcoFlex PHEs feature low investment, operating and maintenance costs, and can be used for a multitude of applications.

These strengths make them the first choice for many fields of application. Depending on the demands you can choose different plate and gasket materials. That meet the highest quality standards.

### NT Series – high flexibility, high versatility

This new plate generation sets consistent economic standards with low complete cost to increase the profitability of your company. The OptiWave plate design with its unique asymmetrical corrugated shaping requires less surface area to achieve the heat transfer performance of other plate heat exchangers. The NT Series offers every plate type in a wide variety of lengths and profiles to guarantee individual adaptation to any performance requirements, even at a later date. Further technical highlights include the self-centring plate system for a stable, perfectly aligned plate pack and our innovative glueless EcoLoc gaskets for fast and uncomplicated gasket replacement.

- **Efficient:** highest heat transfer rates
- **Economic:** low investment and maintenance costs
- **Powerful:** high pressure resistance
- **Clever:** simplified assembly and fast gasket replacement
- **Flexible:** individual solutions to meet special demands



GEABloc – a fully-welded plate heat exchanger from the EcoWeld product range.



EcoBraz, brazed plate heat exchangers, the economic all-rounders.

## EcoWeld – fully-welded plate heat exchangers

Fully-welded plate heat exchangers offer maximum process reliability and extremely high performance thanks to their large heat exchanger surface areas. Particular features are the small size and low investment costs. At the same time these units are extremely sturdy and low-maintenance. This is of the essence where high performance has to be combined with an above-average load capacity. This is why these units are to be found mainly in the oil industry and automobile manufacture.

## EcoBraz – brazed plate heat exchangers

Brazed plate heat exchangers are very compact, easy to install and have a relatively low weight. A particular advantage is that all EcoBraz products can be fitted with individually arranged connections, tailor-made to match your specific requirements.

A pack of high-quality, embossed stainless-steel plates is permanently brazed to form a single unit, using a special vacuum brazing process with copper or nickel. The system is hermetically tight and therefore also suitable for particularly high operating pressures and temperatures.

## GEA EcoServe: guaranteeing long service life

GEA EcoServe – the service organisation of GEA PHE Systems – is always at your disposal with a tightly-woven international service network. And it doesn't matter whether you use products from GEA PHE Systems or from other manufacturers – GEA EcoServe will always provide you with complete service from a single source, wherever and whenever you need it. For maintenance and repair of all makes we use only high-quality spare parts to guarantee a reliable fit, perfect functioning and a long service life.

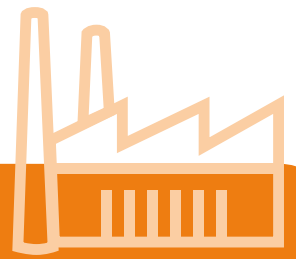
### You can rely on these services:

- Guaranteed use of only high-quality original spare parts
- Expert assembly, thorough maintenance and repair
- All spare parts kept in stock or made-to-order at short notice
- Preventive maintenance checks for optimum reliability and correct functioning



We keep gaskets for practically all makes and models constantly in stock.

## GEA PHE Systems Competence in Heat Transfer



In asserting its undertaking to provide the highest quality standards and pioneering innovation, GEA PHE Systems continues to expand its market position: Within the GEA Heat Exchangers segment, GEA Ecoflex together with GEA WTT, GEA PHE Systems Asia Pacific, GEA PHE Systems North America and GEA EcoServe forms GEA PHE Systems, the Competence and Service Centre for gasketed, fully-welded and brazed plate heat exchangers in the following fields of application:

- HVAC
- Refrigeration
- Sugar
- Chemical
- Paper
- Food
- Power
- Marine
- Heavy industry
- Renewable energies



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Contact information at:

[www.gea-phe.com](http://www.gea-phe.com)

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