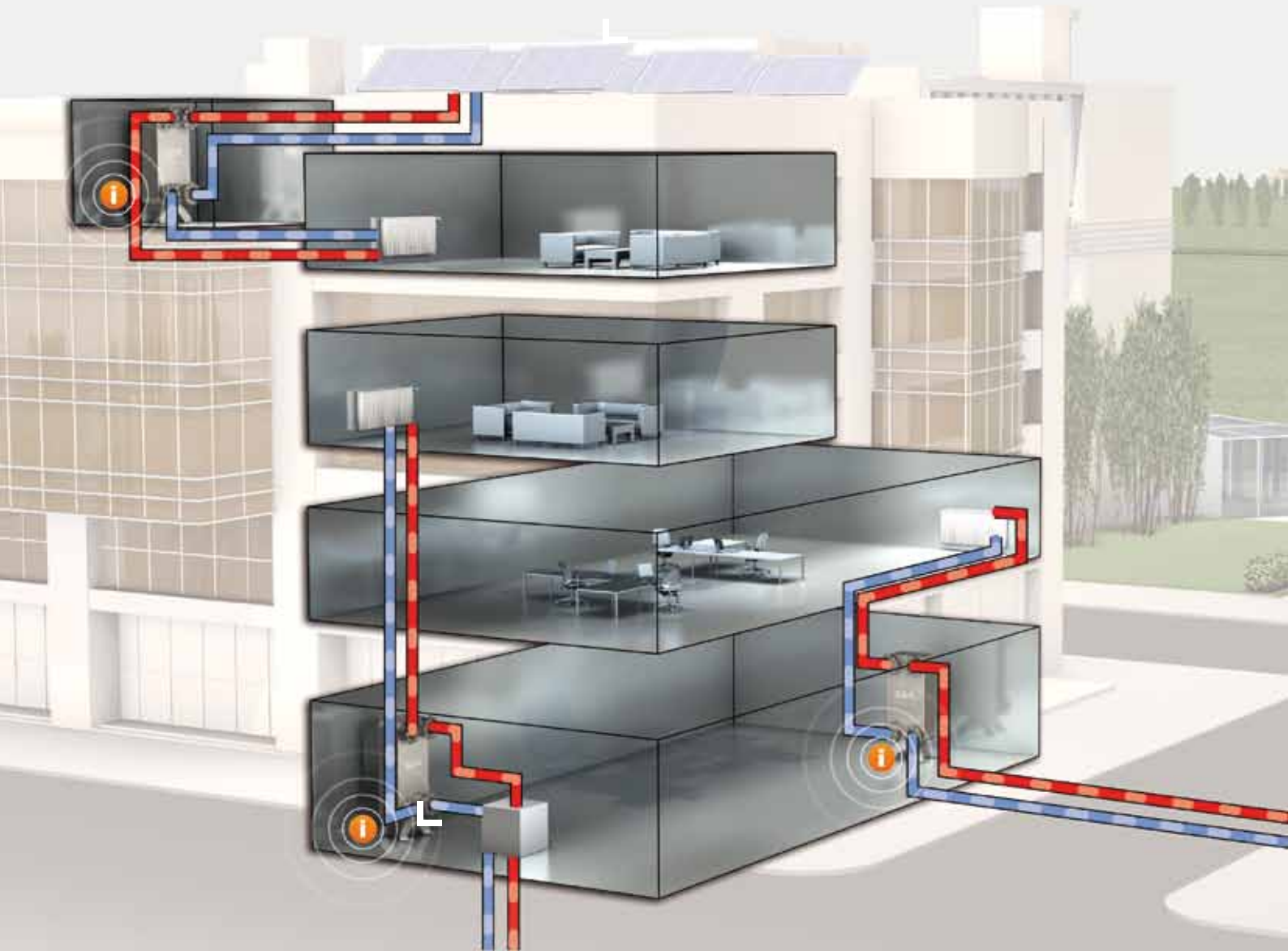


## Brazed plate heat exchangers

Thermal efficiency in its most compact form



### **No leaks – no worries!**

They can cope with a lot of pressure, stand a great deal of heat, remain cool when it counts, adapt smoothly to the prevailing situation and master every challenge. These strengths are reliably demonstrated by EcoBraze brazed plate heat exchangers. Our principle is that the customer's wishes determine our solutions. This gives you important benefits, such as a clear increase in efficiency and profitability.

Use the chance – explore your options.

## EcoBraze by GEA – as versatile as your applications

To keep your planning flexible we offer you the most comprehensive product range of brazed plate heat exchangers to meet the performance demands of modern heating and refrigeration/air conditioning systems, allowing an impressive versatility in circuit possibilities and applications.

Customer-specific solutions with no restrictions coupled with a wide standard range: with these choices you will always find the right connection – to suit your requirements exactly.

### Consulting competence to guarantee your success

To help you always find the suitable model for your purposes from our wide range of heat exchangers, we have developed a design software that recommends the optimum plate heat exchanger configuration to match your requirements. Our application and sales engineers are also at your service for personal consulting and helpful advice and suggestions.

### Quality in development, design and manufacture

The complete manufacturing and logistics process is carried out in compliance with DIN EN ISO 9001:2008. The pioneering and cutting-edge technology used in our equipment is approved by all of the usual international standards, directives and classifications such as CE/PED, UL, ASME, KIWA.

Thanks to their unique concept, the fields of application for brazed plate heat exchangers continue to expand: From air conditioning, process cooling and industrial refrigeration via domestic and building engineering, heating and energy technology right up to plant engineering, automotive and general industrial applications – you'll find brazed plate heat exchangers by GEA in use!

## Powerful and gasket-free – for all cases!

Brazed plate heat exchangers are made up of an individually defined number of high-quality embossed stainless steel plates that are permanently joined in a special vacuum brazing process using either copper or nickel. They are hermetically sealed without gaskets and can therefore handle extreme operating pressures and temperatures. During assembly every other plate is rotated by 180 degrees in the plane to produce two separate flow channels in which the products involved in heat transfer flow in opposite directions. The innovative plate patterns generate a highly turbulent flow allowing efficient heat transfer even at low volumetric flows. This prevents any soiling of the heat exchanger and non-contact zones are completely excluded.

As just about the all heat exchanger plate is used as a heat transfer surface, brazed plate heat exchangers are extremely space-saving and cost-effective.



### Brazed plate heat exchangers by GEA

- Practically maintenance-free as no gaskets are used
- Simple installation thanks to individual configuration of connections
- Highest operational reliability thanks to comprehensive quality inspections
- High resistance to pressure and temperature
- Compact low-weight design

## Always the best solution

### From all-rounders to specialists

Copper is the most common brazing material used in brazed plate heat exchangers. It provides the highest processing quality and pressure strength combined with an excellent cost-performance ratio. Copper is resistant towards most media and is therefore always the material of choice, when suitable. It can also be combined with a number of stainless steel plate materials.

#### GBS Series – the all-rounder

Ideally suited for applications of any size – pressure-resistant up to 30 bars and up to +200°C! This brings quality, economic efficiency and excellent thermal performance to your operations

- Heating and service water systems
- Underfloor heating
- Subcoolers and condensers
- Economizers
- Refrigerant evaporators
- Oil coolers, further industrial applications

#### GBH Series – keeping cool, even under high pressure

This series is designed for pressures of up to 45 bars and offers an extraordinarily wide range of models. The GBH Series units are designed for use with the efficient and non-ozone-depleting refrigerant R410A.

- Heat pumps
- Evaporators in air conditioning systems
- Process cooling
- Economizers
- Subcoolers and condensers

#### GML Series – for safe CO<sub>2</sub> applications

The multi-layer technology used is based on 2 stainless steel plates with fully brazed surfaces that can withstand a pressure of up to 140 bars. This innovation ensures that CO<sub>2</sub> can be used as refrigerant in transcritical and subcritical applications.

- Pressure up to 140 bars
- Eco-friendly: CO<sub>2</sub> as carbon-neutral refrigerant
- Space-saving
- Economically sensible solution



Where the reliability of copper is not sufficient in ultrapure water applications (deionate, etc.) as well as with corrosive media, plant operators prefer nickel as the brazing material. In contrast to copper-plated brazed plate heat exchangers, the nickel-plated versions have a silver-coloured surface and offer all of the advantages expected from brazed plate heat exchangers. But not every nickel brazing is the same: Only around 75% is made of pure nickel, the remaining 25% is our secret – and your benefit.

### GNS Series – stable towards corrosive media

Whenever the strength of copper is not enough – in direct comparison with copper-brazed plate heat exchangers increased stability against corrosive media such as ammonia, sulphides and sulphates.

- Laser cooling
- Applications using deionised water
- Ammonia systems
- Demineralised water and corrosive liquids



## Heating drinking water without non-ferrous metals

### GG Series – Efficient, compact and safe

The GG Series is a convincing solution when it comes to the special requirements involved in the heating of drinking water. It combines the advantages of our brazed and gasketed plate heat exchangers. The revolutionary BoxFrame design forms the basis for an efficient heat exchanger free of non-ferrous metals in combination with stainless steel heat exchanger plates and FDA-listed gaskets.

- Preferred for drinking water applications
- Free of non-ferrous metals
- Low investment costs
- Minimum space requirements
- FDA-listed gaskets



## For specialist applications

### Special designs



#### DW – Double wall

The DW Series is an extremely reliable and mix-proof compact double-wall design. It offers double reliability that your media always remain separate from each other even under the highest demands. Mixing of the media is prevented in the case of an internal rupture. Brazing material: copper



#### HP – High-pressure frame

The HP Series uses an external pressure-bearing frame to achieve higher pressures. Condensers and economizers for ammonia applications in conjunction with nickel braze. Brazing material: nickel



#### TD – True-Dual heat exchanger

True-Dual – the twin-circuit evaporator or condenser is a synonym for constantly high efficiency. The TD reliably provides this optimum performance even when operated using only one refrigerating circuit. It comprises two independent refrigeration circuits and a water/brine circuit. Brazing material: copper



#### XCR – eXtended Corrosion Resistant

Our XCR models feature high corrosion resistance to chlorine-loaded media. The plate material used is high-quality stainless steel, SMO 254 (1.4547). Brazing material: copper or nickel



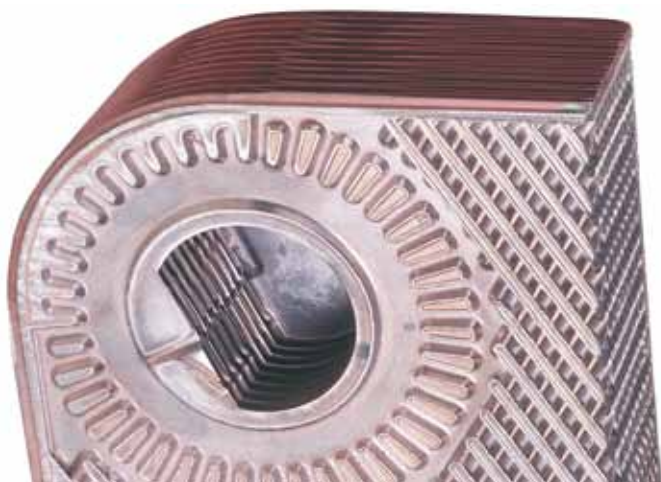
#### AP – Air Plate compressed air drier

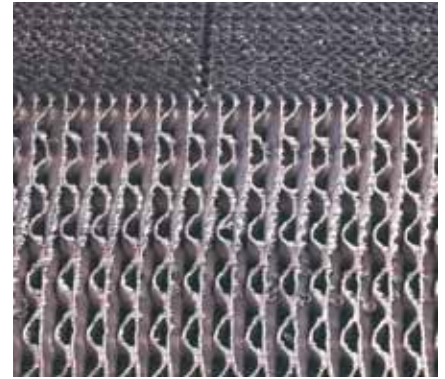
The AP Series of plate heat exchangers was developed for efficient refrigeration drying of industrial gases. A range of different models and features allows a system configuration with either separate or integrated condensate removal as well as heat recovery in all standard sizes. Brazing material: copper



#### OC – Oil-Cooler

Specially developed plate heat exchanger for oil and hydraulic cooling. The OC Series offers reinforced flange connector plates, either with SAE standard connections or internal threads. Brazing material: copper





## For maximum efficiency Standardised features in all ranges



### Plate design

The special plate design enables optimum heat transfer and consequently maximum efficiency for your application. Larger contact points result in stronger brazing points between the plates and guarantee high pressure resistance of the equipment.



### Full-Flow System™

The Full-Flow System™ was developed to prevent freezing of the flow channels and therefore to minimise failures of brazed plate heat exchangers used as evaporators in refrigeration systems. It guarantees optimum flow around the nozzles and is very effective in preventing port freezing.



### Safety Chamber™

Our patented Safety Chamber™ is the ultimate feature for large brazed plate heat exchangers. Encapsulated contact points around the ports take up the forces. Even when these contact points are overloaded and the material fractures, there is still no penetration to the other process medium – representing maximum process reliability for plant operators.



### AE – Advanced Evaporator

The patented refrigerant distribution system was specially developed for evaporator applications. It provides precise distribution of refrigerant to the channels, guaranteeing maximum evaporator performance. It is fully integrated into the refrigerant inlet of the heat exchanger and functions with both dry and flooded evaporation. Brazing material: copper or nickel



## EcoBraze – Versatility with individual flow channels

### Wide range of connections

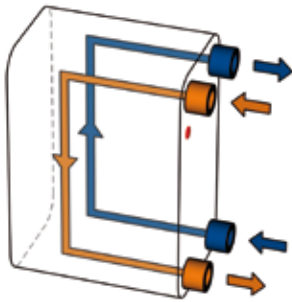
GEA plate heat exchangers offer a wide range of circuit variations to meet all requirements. The connections can all be on the front side or some can be fitted to the rear to simplify installation. The exact positioning can be adapted to match your selected plant design.

Flow channelling is either single-path or multipath in a range of channel arrangements. In addition to systems with simple layout and those with sensor connections GEA also offers individual flow channels and three-media heat exchangers.

#### Standard design

For all standard applications

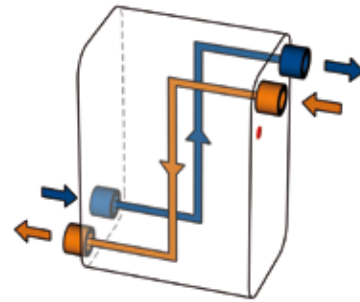
Flow channels: single-path



#### Z design

Rear connections for simplified installation

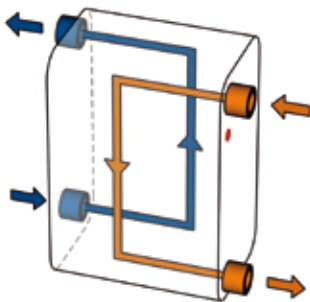
Flow channelling: single-path



#### X design

Alternating connections; rear connections for simplified installation

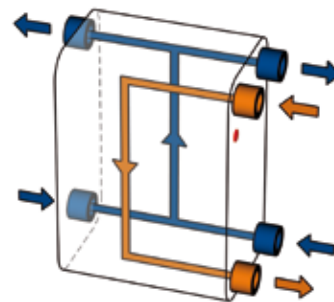
Flow channelling: single-path



#### Design with extra connections

Alternating connections with additional sensor connections; preferred configuration for heat pumps with sensor connections

Flow channelling: single-path

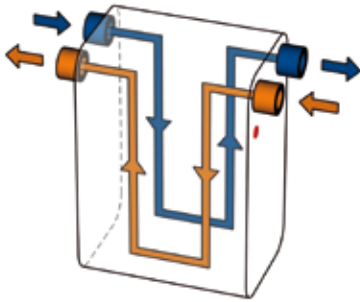






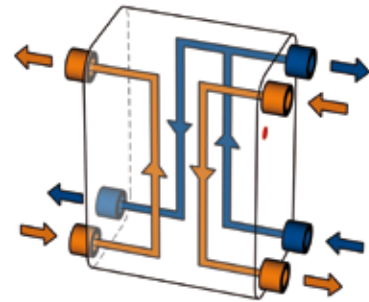
### U design

Multi-pass applications with double thermal length  
Flow channelling: dual-path



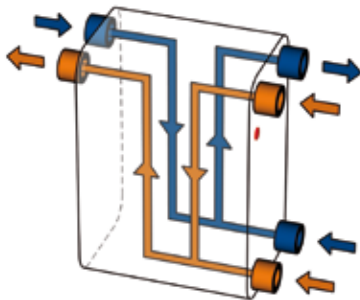
### TIO design

Plate heat exchanger for combined hot water and service water heating in a single unit  
Three-media heat exchanger



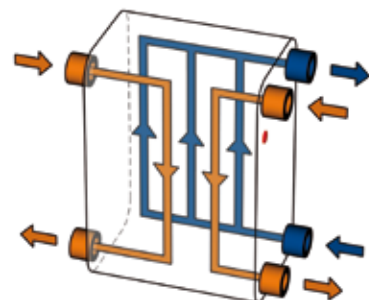
### DS design

Variant for two-stage service water heating – with pre-heater and after-heater in a single unit  
Flow channelling: dual-path



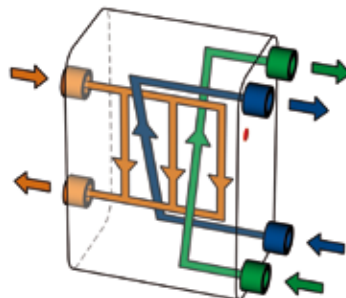
### DUO design

Dual-circuit plate heat exchanger for connecting two refrigerating circuits in a back-to-back arrangement  
Three-media heat exchanger



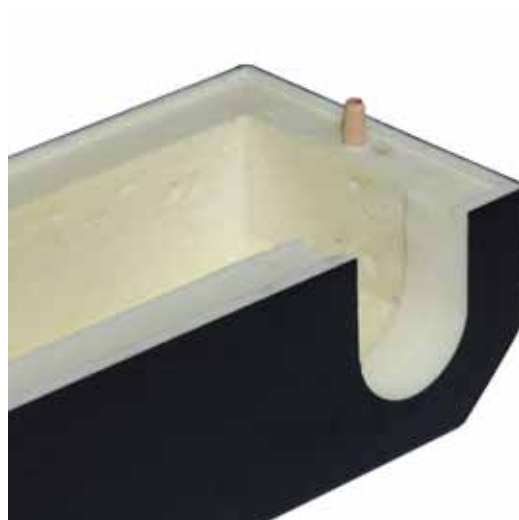
### TD design

True-Dual for connecting two refrigerating circuits in complex channel arrangement to improve behaviour under partial load  
Three-media heat exchanger





Factory-fitted insulation for all standard product



Part of insulation

## Accessories for brazed plate heat exchangers

### Factory-fitted or retrofitting insulation

3 different types of insulation can be supplied for our heat exchangers. You can choose between factory-fitted insulated heat exchangers made of diffusion-proof polyurethane foam, a further diffusion-proof NBR insulation for in situ gluing into position and a PU box for heat-engineering applications. All insulation types effectively reduce heat loss and increase system efficiency. Diffusion-proof insulation also prevents the formation of condensate.

- Permanent, factory-fitted insulation made of polyurethane foam
- Cut-to-shape diffusion-proof cold insulation of 10 mm or 20 mm NBR
- Half-shells of rigid PU foam





COMPACT™ flange system



Screwed connectors with gaskets

## Connection range

GEA can offer a diverse range of connections for its heat exchangers. In addition to threaded connections, brazing connections and DIN flanges you can also select from a wide range of more than 400 different connection types. Compac flanges, SAE flanges, Victaulic connections, etc. are also included in our standard range. We can also supply screw connections and counterflanges. Please contact our Sales Team for more detailed technical advice.

- COMPACT™ flange system including counterflange, bolts and gaskets
- DIN flange PN16 and PN40
- Threaded connections, also with connectors (soldered, threaded or welded sleeves)
- Brazed connections (metric and imperial)
- Additional connections for measuring sensors

## Brackets

Floor brackets and transport lugs are available for all of the larger-sized heat exchangers. The brackets are fixed using previously welded-on stud bolts. As a precaution all larger-sized heat exchangers (GB 700 and larger) should be anchored using a bracket. It is not sufficient to fix it at the connections alone. There is also the possibility of fixing the heat exchanger in place using the welded-on stud bolts.

- Floor brackets and transport lugs
- Floor/wall bracket
- Available stud bolts M8, M10 and M12





Excellence

Passion

Integrity

Responsibility

GEA-iversity

GEA Group is a global mechanical engineering company with multi-billion euro sales and operations in more than 50 countries. Founded in 1881, the company is one of the largest providers of innovative equipment and process technology. GEA Group is listed in the STOXX Europe 600 Index.



## GEA Heat Exchangers

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