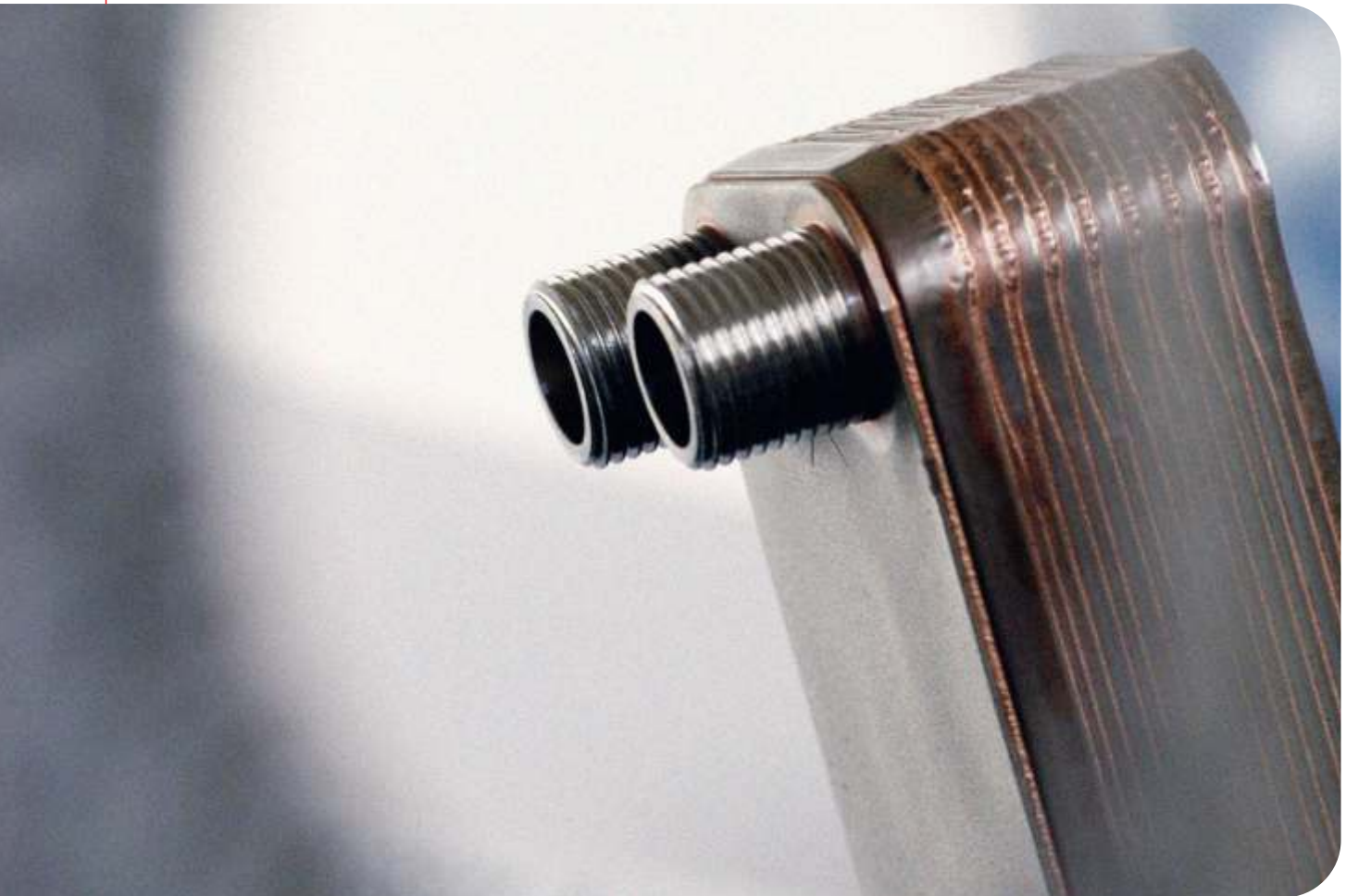


Old habits vs. functionality
The better PHE is spelled BPHE



Things to be seen in a museum: Mona Lisa, ancient relics. And rubber gasket heat exchangers?

It is our aim to convey our knowledge from the complex world of heat exchange to the reality of your everyday life through our layers of competence. Because we are so immersed in the world of heat exchange, we can quickly offer you more ways of meeting your heat exchange needs. From inspiration, through design to production.

There are many different angles to what our competence in Compact Brazen Heat Exchanger (BPHE) technology can offer you: environmental aspects, savings and mass customization. We are confident that we have a place in your everyday life. Change your mind – let us change it for you.



It is essential that we understand your world, regardless of its environment. We find the optimal solutions for your particular situation by mutual agreement. The world and the methods are constantly changing, so our fundamental activity is to change ourselves to help you with your changes. That is how SWEF develops.

Your changes change and direct us, and help us further specialize our products and services. This in particular has led to our patents, and paved the way for breakthroughs: BPHEs for refrigerant applications, distribution devices, integrated dedicated boiler units, true dual models, exotic materials (e.g. Mo-steel) and automatic testing and assembly. Our mission is to lead the global development, production and marketing of brazed plate heat exchanger solutions supporting conversion to sustainable products and processes.

Our global presence enables you to compare us with others. And it gives us the opportunity to develop solutions for different needs in different countries. Our front-line technology means we can rapidly identify new needs and propose alternative applications for our products, particularly relating to BPHEs. We will help you through changed demands in changed environments.



Old habits are hard to kill.

The thing that changes them is calculations

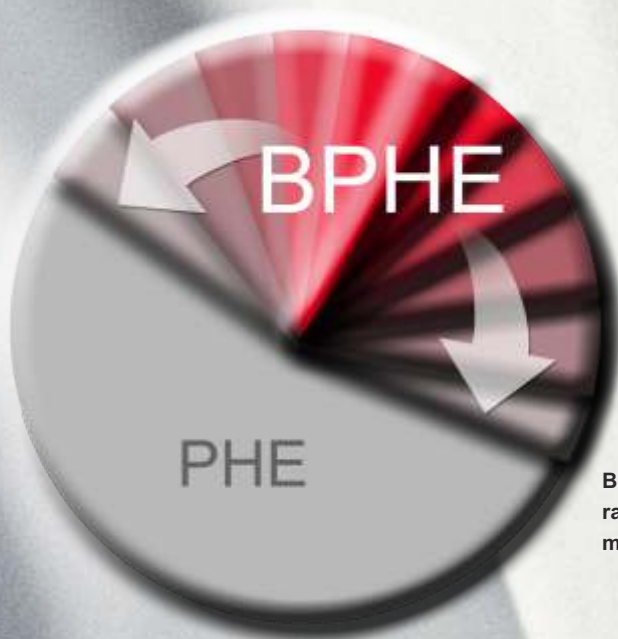
The Achilles' heel of gasketed heat exchangers (PHE) is the gasket. They have to be manufactured, replaced and tested once again, which is both time-consuming and expensive. Replacing gaskets involves the PHE being removed from the system to be dismantled. Unless a spare unit is available to replace the unit that is removed, the entire system must be shut down for quite some time. And gaskets today are an expensive spare part.



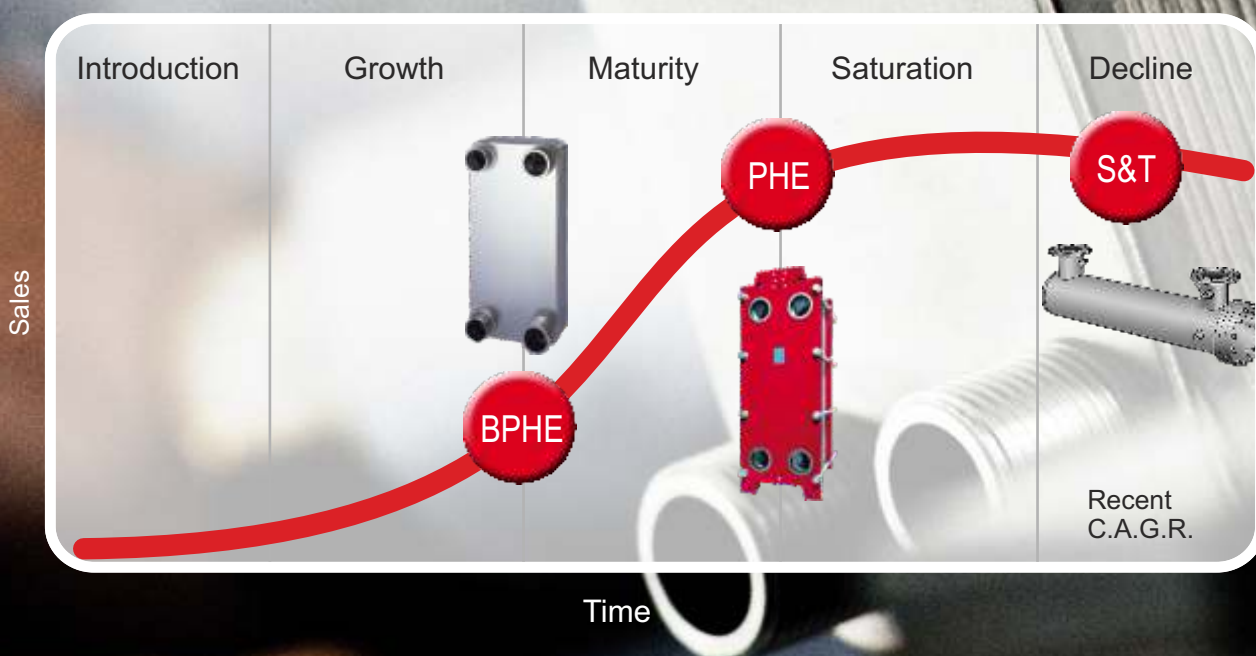
One of the main arguments for using PHEs instead of BPHEs is that PHEs can be taken apart and thoroughly cleaned. However, the process of chemically cleaning a PHE can be very expensive. The gaskets have to be removed prior to cleaning, and if they are glued to the plates (as many types of gaskets are), they have to be replaced at high cost with new ones after cleaning.

The cost of this procedure, including chemically cleaning the plates, new gaskets, system shutdown and dismantling of the unit, can be more than that of a corresponding brand-new BPHE – with no gaskets to replace.





BPHE sales are growing rapidly and winning market share from PHEs.



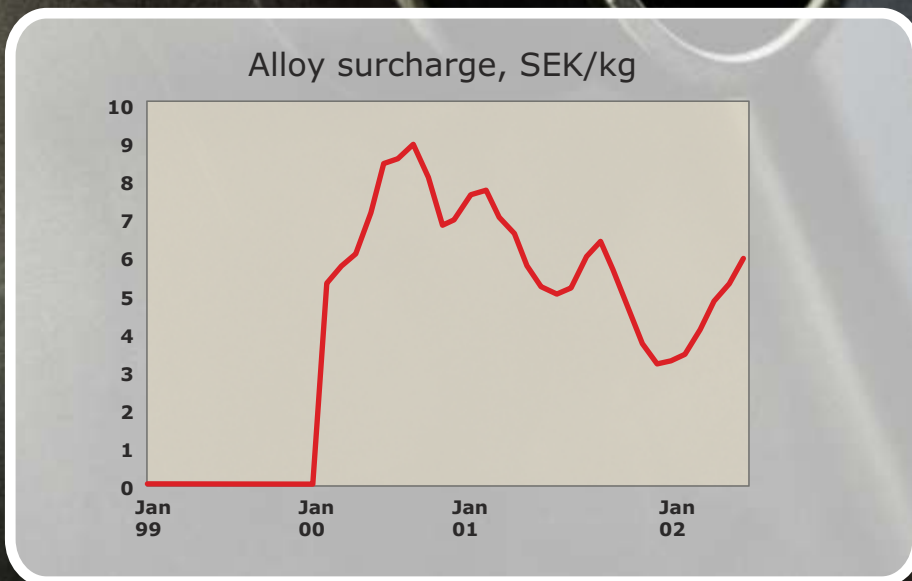
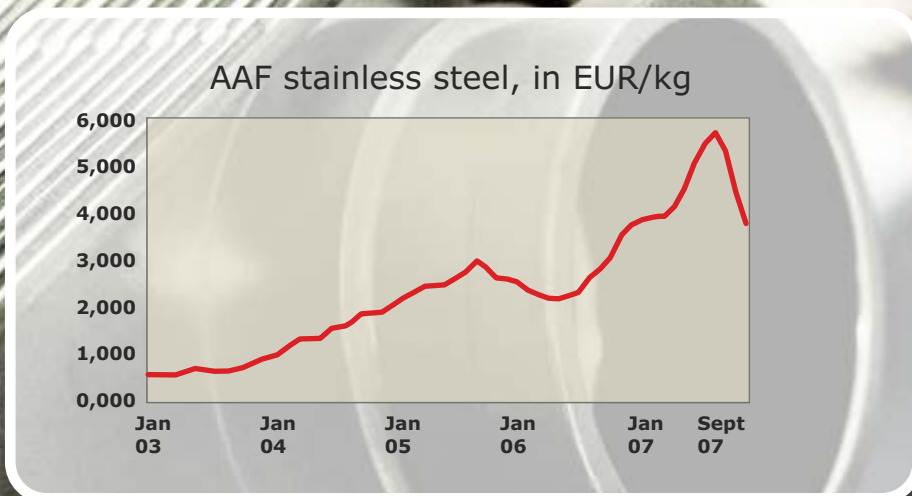
Why waste time dismantling a PHE when you can just blow BPHE?

Cleaning a PHE can very often be time-consuming and labor-intensive, because it has to be removed from the system and taken apart completely. Furthermore, the plates often have to be sent to an external company that carries out the cleaning procedure. This, with the possible need for new gaskets, makes this entire procedure very expensive and long-winded.



Cleaning In Place (CIP) is a procedure that cleans the BPHE without removing it from the system. A cleaning agent is circulated in the BPHE to remove scale or dirt. Thanks to the flexibility of a BPHE, it can easily be fitted with extra CIP ports in the back of the unit, which simplifies the cleaning procedure significantly. While PHEs can use CIP, the additional connections are on the front of the unit, which complicates the piping.

More information about cleaning a BPHE can be obtained from your local SWEP representative. It is possible to purchase the entire CIP system from SWEP directly.



BPHEs use considerably less stainless steel than PHEs of comparable capacities, which reduces the financial uncertainties associated with fluctuating component prices. Your business will be better protected against a volatile commodity market!

Rubber gaskets cannot deliver durability under high pressures and in tough conditions

The rubber gasket has its limitations at high temperatures and pressures. For example, in a typical district cooling system the BPHE can withstand a pressure almost three times higher than a PHE. In steam applications, where the temperature is often very high, the gaskets would simply melt due to the high-pressure steam, while the BPHE is strong because copper has a high melting point and resists corrosion.



Higher efficiency in a smaller volume

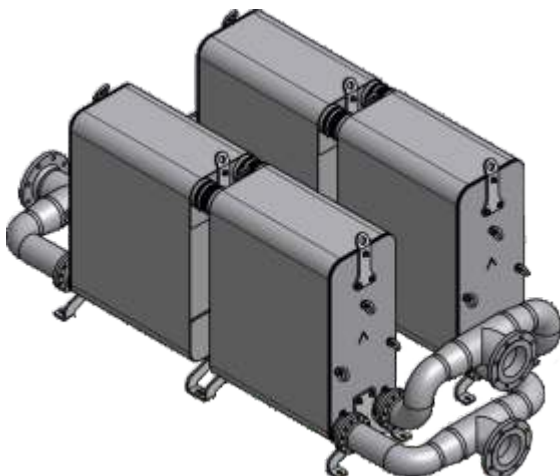
A PHE requires frames and bolts to keep the plates together, while the plates of a BPHE are brazed together, making the use of frames and bolts unnecessary. Frames and bolts require extra steel, which is an expensive commodity as worldwide demand increases.

A BPHE requires less steel than a PHE. The BPHE is smaller: the frames, bolts and support on a PHE require more space than a slim, uncomplicated BPHE. The frames and bolts also make the PHE heavier than the

BPHE. The performances of a PHE and a BPHE with the same heat transfer area are comparable. However, the BPHE often has better flow around the ports because it has no gaskets.

The gaskets can cause stagnation around the ports, which can cause scaling or corrosion. Furthermore, because the turbulence in a BPHE is better overall than in a PHE, the heat transfer is also in general better.

A BPHE can achieve up to 25% more capacity utilization than a PHE.



The BPHE ranges

The flexibility of SWEP BPHEs makes them an excellent choice for many applications. The wide range of plate sizes, plate pattern combinations and connections enables a virtually unlimited number of combinations. You should be able to find a solution for your application among the models below.



B-type

The B-type is the original SWEP BPHE. Its unique plate geometry, modular design and economical long manufacturing runs mean the product is easy to customize for many different applications.



V-type

The V-type has been developed from the original B-type to achieve optimized performance in evaporators over a very wide capacity range. The refrigerant inlet has special technology to distribute the refrigerant evenly in each channel.



P-type

The P-type evaporator has been developed from the V-type to optimize performance with the refrigerant R410A. This refrigerant has been designed to minimize ozone depletion and global warming in line with the Kyoto Protocol. The P-type is used in lower capacity heat pump and chiller applications.



S-type

The S-type evaporator has been developed from the V-type to optimize performance with the refrigerant R134a. This refrigerant has also been designed to minimize ozone depletion and global warming, in line with the Kyoto Protocol. The S-type is used over a wide range of capacities at the lower end of the scale in heat pump and chiller applications.



DB-type

SWEP's patented true dual-circuit product puts the secondary circuit in contact with two primary circuits. Even if one primary circuit is shut off, each secondary circuit remains in contact with a primary circuit. These advantages make the DB-type the natural choice for flexible chillers, climate control and high-precision systems for food cooling cabinets in supermarkets.

The BPHE ranges



DV-type

SWEP's patented true dual-circuit product puts the secondary circuit in contact with two primary circuits. Even if one primary circuit is shut off, each secondary circuit remains in contact with a primary circuit. The DV-type is optimized for evaporation, with innovative technology to distribute the vapor evenly in the heat exchanger.



DP-type

The DP-type evaporator is also based on SWEP's true dual-circuit concept, and is optimized for the refrigerant R410A. This refrigerant has been designed to minimize ozone depletion and global warming in line with the Kyoto Protocol. Applications include flexible chillers, climate control and high-precision food cooling cabinets in supermarkets.



DS-type

The DS-type evaporator is also based on SWEP's true dual-circuit concept, and is optimized for the refrigerant R134a. This refrigerant has also been designed to minimize ozone depletion and global warming in line with the Kyoto Protocol. Applications include flexible chillers, climate control and high-precision food cooling cabinets in supermarkets.



BDW-type

The Double Wall concept is designed for applications requiring high thermal efficiency and no risk of internal leakage between the two medias, such as in the food and pharmaceutical industries. In the unlikely event of a leak, water seeps out between the vented double walls to the atmosphere, giving a visual indication of a fault.



ADWIS – Air Dryer With Integrated Separator

SWEP has achieved breakthrough compactness with the ADWIS, which is one of the smallest air dryers on the market. The ADWIS combines two BPHEs (a refrigerated heat exchanger and a recovery unit) sandwiching an integrated separator in a modular design. This highly cost-effective solution offers stable high performance, convenient drainage and simple insulation.



M-type (Minex)

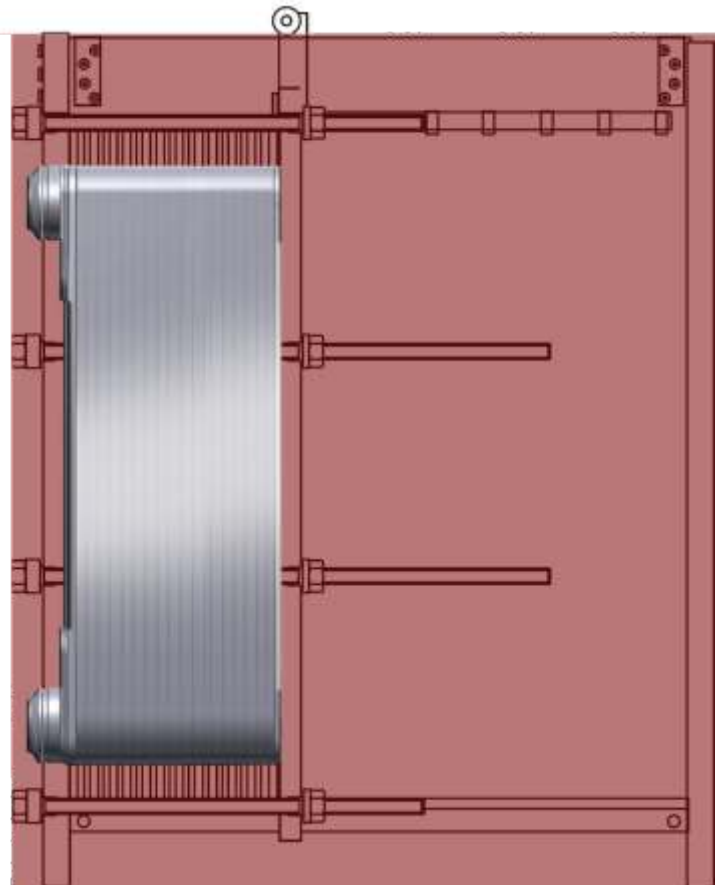
The M-type is a hybrid PHE (plate and frame heat exchanger) sealed by gaskets rather than brazing. It is a small unit, so it does not need the typical support frame used for traditional PHEs. Like SWEP BPHEs, the Minex is available in various combinations of materials.

It's a breeze to convert

Whatever your heat exchange requirements, a SWEP BPHE makes your application more efficient. Compact brazed exchangers are now available for large flows and high capacities - applications for which PHEs have previously been standard. You have everything to gain by converting to a BPHE. It makes your application more compact as well as more efficient.

All you have to do is tell us over the phone about your application, the fluids you use, the flow rate and the temperature. We can give you an indication there and then of how much more efficient your application would be using a BPHE. The next step is for us to meet - without obligation - to study your application in detail. Then we will get back to you with a specific proposal for making your application more efficient. Our advice to those of you currently using a PHE for heat transfer is to contact your local SWEP representative today. It's a sure step towards higher efficiency as well as improved competitiveness.

Installing a compact brazed heat exchanger leads to significant reductions in volume and weight, because gasketed plate heat exchangers of the same capacity require support equipment and pressure plates. The BPHE footprint is hence much smaller. This means great design freedom for every application - and reduced installation costs.



SWEP is the world's leading supplier of compact brazed heat exchangers (BPHEs). These products are used where heat needs to be transferred efficiently in air conditioning, refrigeration, heating and industrial applications. SWEP has annual sales of USD 250 million and is close to its customers, with representation in more than 50 countries and its own dedicated sales force in more than 20 countries. Highly efficient production units in Sweden, Switzerland, the USA, Malaysia, Slovakia and China enable SWEP to serve customers all over the world. SWEP is part of the global Dover Corporation, which is a multi-billion-dollar, NYSE-traded, diversified manufacturer of a wide range of proprietary products and components for industrial and commercial use.