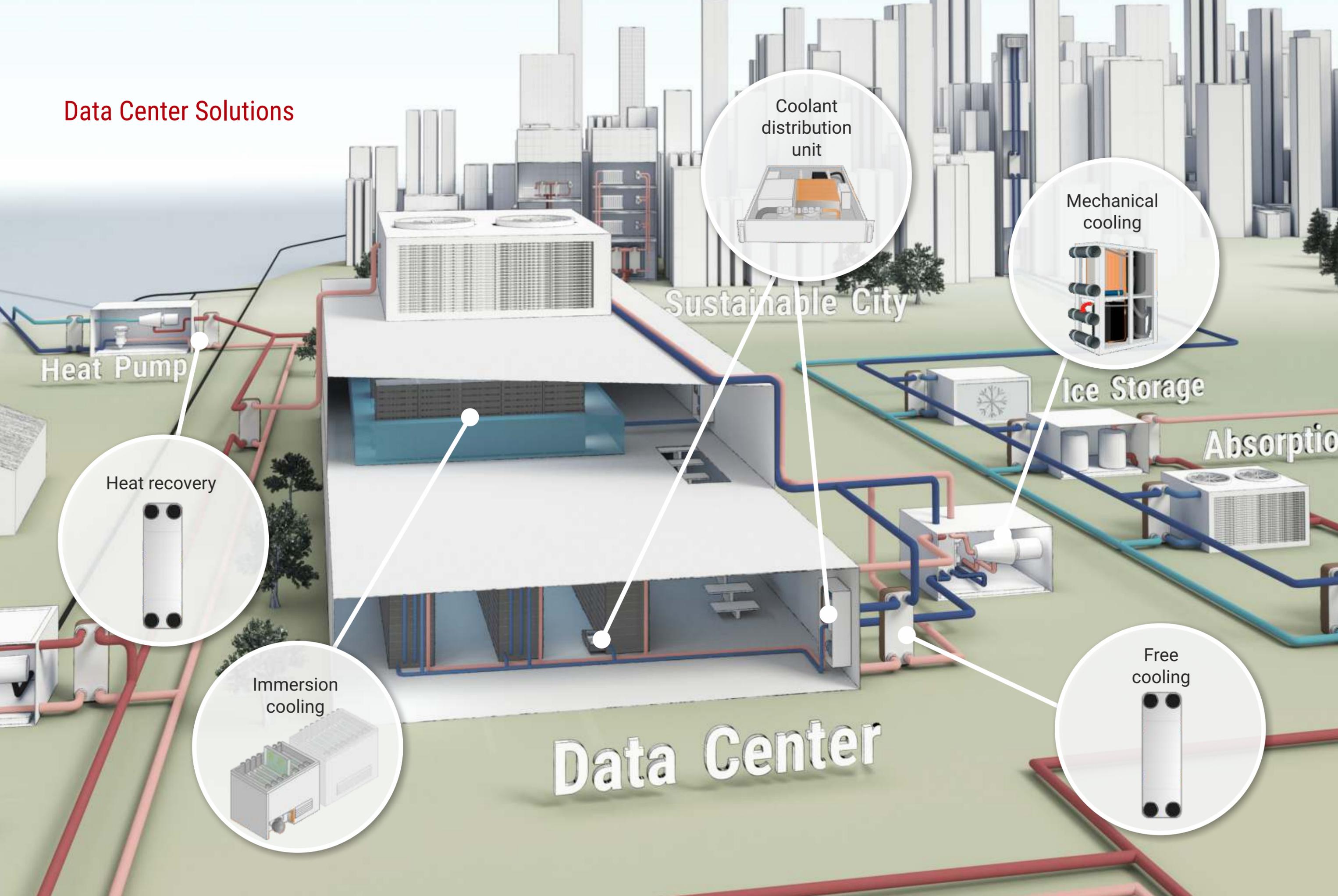




SWEP Solutions

Exceptional performance in Data Center Cooling

Data Center Solutions



Sustainable City

Heat Pump

Heat recovery

Immersion cooling

Coolant distribution unit

Mechanical cooling

Ice Storage

Absorption

Free cooling

Data Center

Data centers account for nearly 3% of global energy consumption – a number that's set to increase dramatically over the next decade. As artificial intelligence, the internet of things, machine learning, and high-performance computing continue to expand, so will the need for high-density data centers capable of handling extreme data processing loads. Traditional air-cooled systems are unable to meet the demands of these centers.

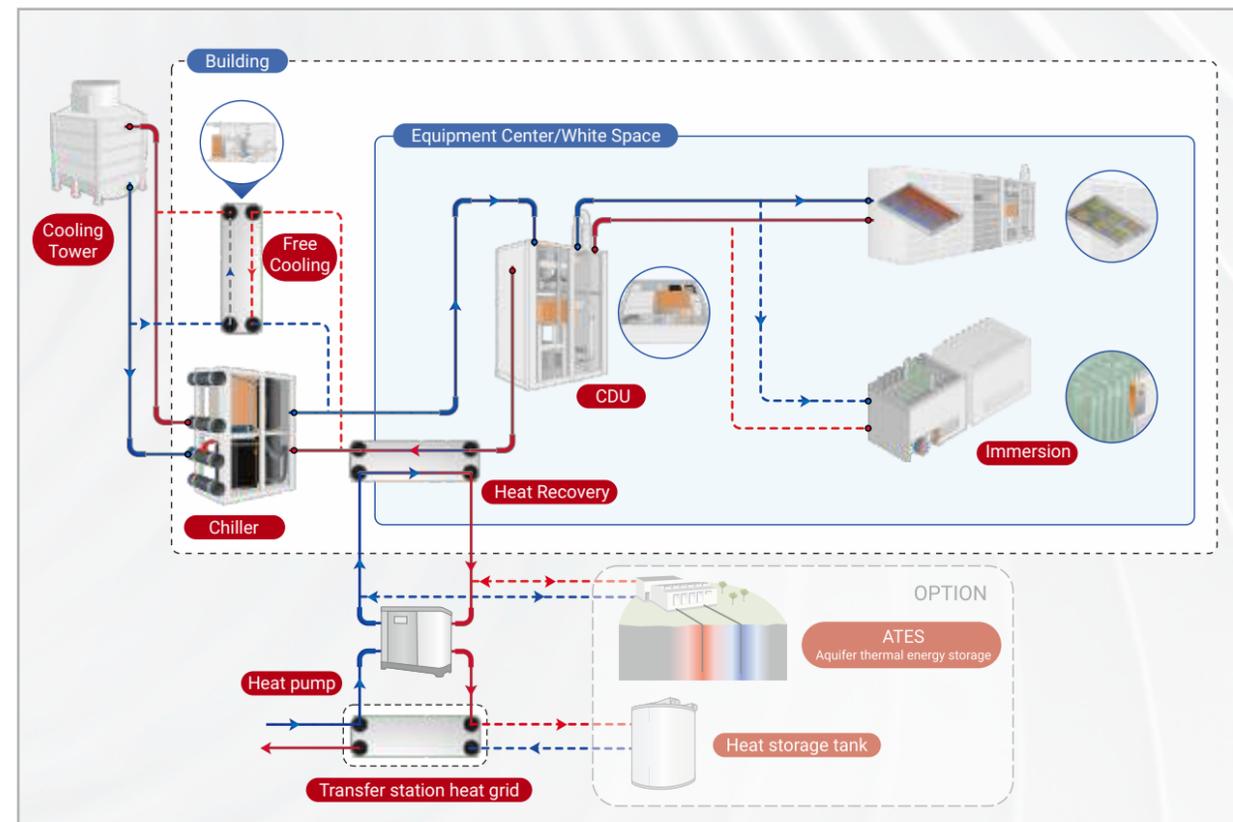
Advantages of liquid cooling

Large-scale liquid cooling systems offer a sustainable, high-capacity alternative to air cooling. Liquid cooling increases energy

efficiency, improves both power and water usage effectiveness (PUE and WUE) ratios, and makes it possible to implement heat-recovery solutions.

Liquid cooling advantages		
Cooling capacity	Thermal performance	Energy transfer
<p>Water has superior cooling capacity more than 4x compared to Air (3500x in volume)</p> 	<p>Water outperforms Air by 25x by outstanding heat transfer conductivity</p> 	<p>Removing excess heat with water requires 50x less energy than with air</p> 

Data Center Cooling

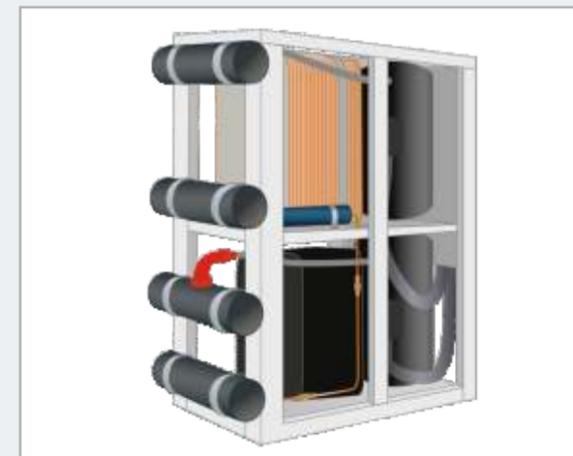


Compact SWEP brazed plate heat exchangers (BPHE) are key components in any liquid-cooled system. They can function in multiple positions within the circuit, including in the coolant distribution unit (CDU), in free cooling, or in heat recovery.

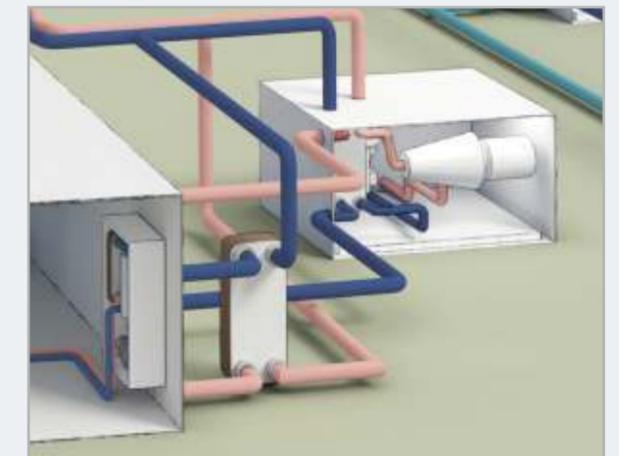
Mechanical cooling Optimizing chiller performance

SWEP brazed plate heat exchangers can enhance the efficiency of any data center chiller system. They can be used as evaporators, condensers, economizers, or desuperheaters. They can be placed in multiple positions simultaneously and can be optimized for use with natural and low global warming potential (GWP) refrigerants.

SWEP brazed plate heat exchangers feature innovative technologies such as our AsyMatrix™ plate pattern, which improves heat transfer while reducing pressure drop and refrigerant charge; and True Dual, which delivers optimal performance at both full and half load.



SWEP brazed plate heat exchangers work as evaporators, condensers, or economizers in a range of chiller systems.



SWEP brazed plate heat exchangers operate with a low pressure drop and require a minimal refrigerant charge.

A broad product portfolio

As a chiller component, a brazed plate heat exchanger from SWEP can work as an evaporator or condenser up to 500 kW, or as an economizer up to 2000 kW. We offer a wide range of capacities, with flexible plate configurations and a variety of ports and connectors.

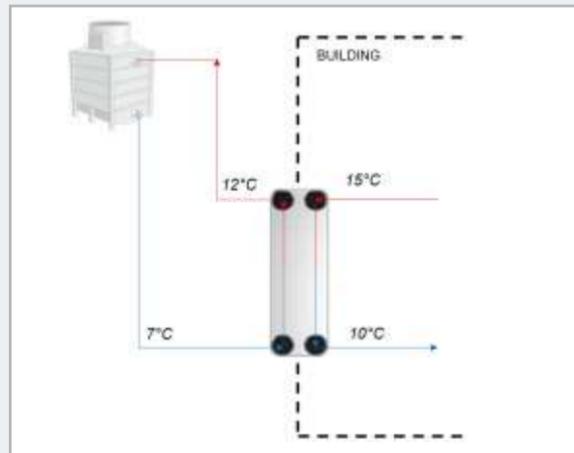


Free cooling

Less energy, lower cost

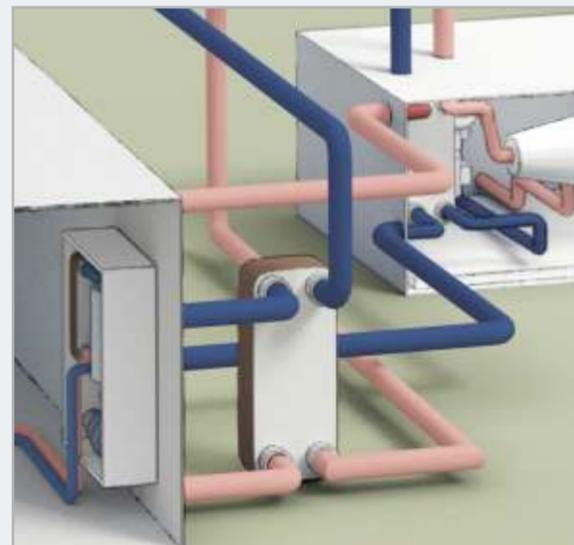
Free cooling uses cold ambient air or water from nearby sources, rather than refrigerants, to chill the air in the data center or to cool servers or other equipment directly.

High thermal efficiency and a tight temperature approach make SWEP brazed plate heat



SWEP brazed plate heat exchangers provide efficient heat transfer, even with small temperature differences.

exchangers the ideal intermediate circuit to separate the external glycol loop from the internal server loop in a water-cooled system. Their highly turbulent flow helps prevent the fouling, scaling, and corrosion that can sometimes result from dirty cooling tower water.



A SWEP brazed plate heat exchanger can separate the external and internal water loops.

High capacity, low maintenance

Our high-capacity, maintenance-free BPHEs can be set up modularly, ensuring part-load efficiency and cost-effective redundancy.



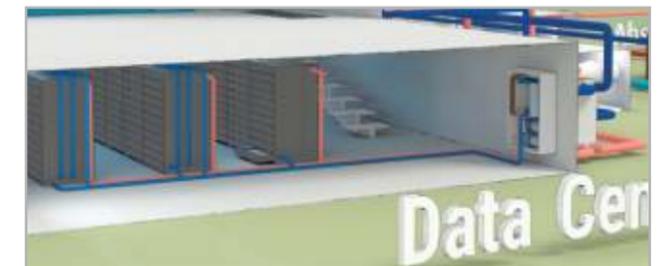
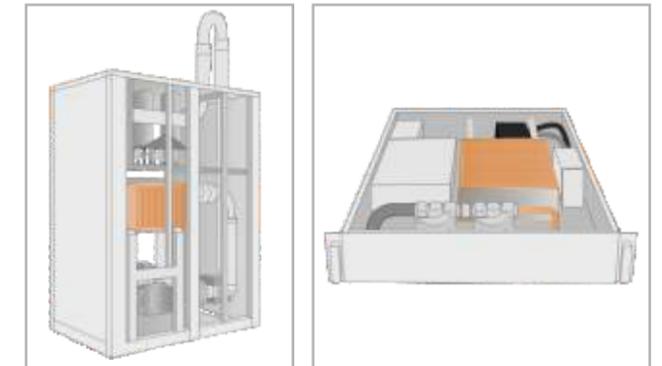
Coolant Distribution Unit (CDU)

Precise, efficient cooling

Coolant Distribution Units use a closed-loop system to circulate coolant on one side and water on the other. They enable efficient cooling to a precise temperature, allowing data center owners to optimize their equipment environment.

CDU cooling technology enhances thermal management, ensuring that the data center can handle power-dense hotspots without compromising performance.

SWEP brazed plate heat exchangers are compatible with all fluids commonly used in CDUs, including water, various concentrations of monopropylene glycol (MPG), and dielectric fluids. The SWEP All-Stainless range is recommended for use with deionized water.



In-Rack CDUs can deliver up to 15-200 kW of cooling capacity, In-Row CDUs up to 1,000 kW of cooling capacity and can manage high heat loads across a series of server chassis. They can be integrated into the existing cooling system or be fully self-contained.

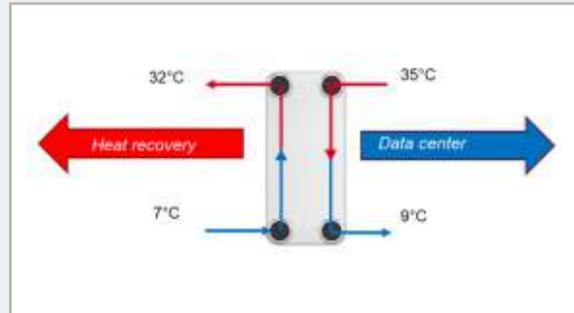
Optimized for CDUs

SWEP components are designed to boost the efficiency and operation of the entire system where they operate. We offer a complete range of brazed plate heat exchangers optimized for use in CDUs.

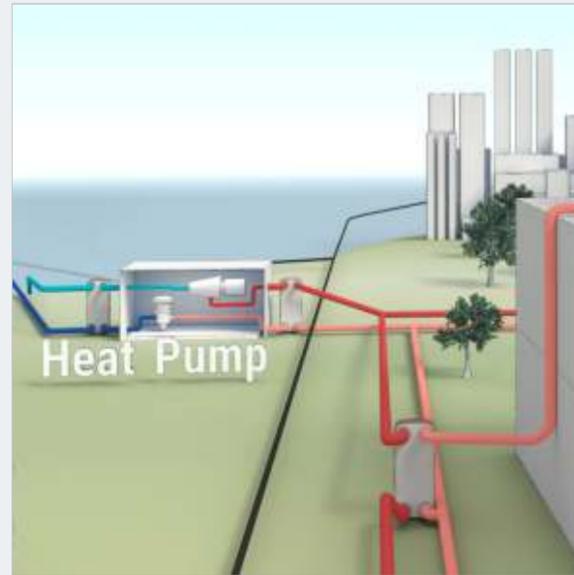


Heat Recovery Reusing waste heat

Data centers consume vast amounts of energy, both for storing and processing data and for cooling servers and equipment. As much as 40% of the energy used by a data center is dedicated to cooling the servers. Rather than allowing excess heat to dissipate, it can be captured for reuse. SWEP brazed plate heat exchangers are one of the most efficient means of recovering waste heat from hot water, which can then be used for district heating, process heating, or other purposes.



Water, warmed by cooling the servers, is already contained in the piping system. A heat exchanger can easily extract it.



Used cooling water from the data center can reach temperatures of 30°C or more. A heat pump can further raise the temperature.

Saving heat saves costs

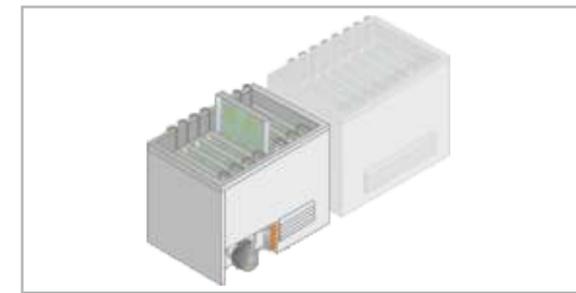
Using a SWEP brazed plate heat exchanger, a heat recovery function can be integrated directly into the cooling system, resulting in significant energy, cost, and carbon emission savings.



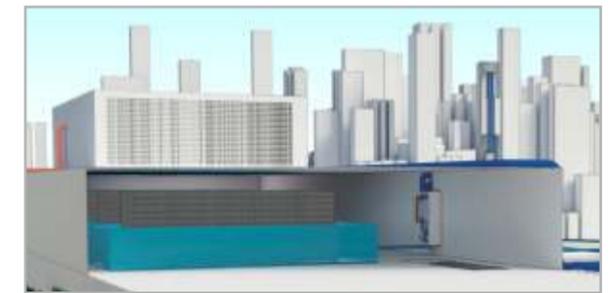
Immersion Cooling Exceptional PUE and WUE

Immersion systems offer the best possible Power Usage Efficiency, with the highest energy density and unequalled WUE. In these systems, components are placed in leak-proof cases and immersed in heat-absorbing dielectric liquid.

SWEP's range of double-walled brazed plate heat exchangers deliver improved leak-protection for immersion cooling. In addition to being highly efficient and compact, double-walled products enable full control of the fluid, making it possible to detect internal leakage, and to avoid any mixing or contamination of the fluids. SWEP brazed plate heat exchangers are ideal for 1- and 2-phase applications.



Compatible with most dielectric fluids.



SWEP BPHEs offer a compact and efficient solution for 1- and 2- phase immersion systems.

Find the right fit

SWEP offers a range of tools that provide guidelines and calculations to help you find the right product for your job and your specifications, including single-phase, condenser, evaporator, and cascade calculations, as well as two-stage applications.

DThermX is the online version of our powerful SSP software tool, which helps you select a product that meets your specific dimensional, thermal performance, and pressure-drop requirements. Based on a few value entries, such as inlet and

outlet temperature, capacity, and fluids, SSP will generate a list of matching brazed plate heat exchangers, specifying plate types and plate counts, for a custom-fit heat exchanger.



SWEP delivers



Compact



Efficient



Cost-Effective



Flexible



Reliable



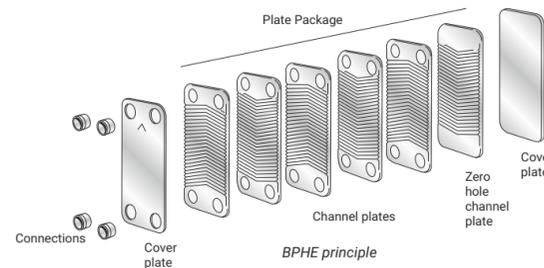
Self-cleaning

A complete range of dedicated brazed plate heat exchangers for data center applications

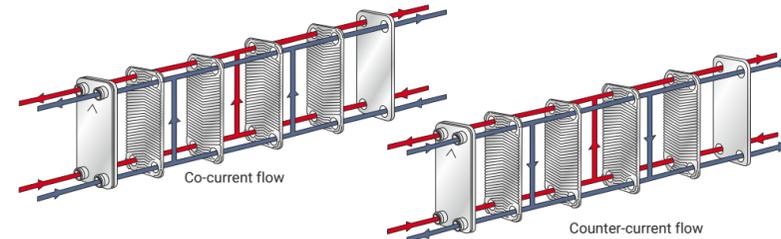
BX3T	BX4T	B8T	B8LAS	B10T	B12	B26	B80	B80AS	B85	B85AS	B65	B120T	B220	
Dimension 54.4x119.5 mm 2.14x4.7 inch	Dimension 75x192.6 mm 2.95x7.58 inch	Dimension 76x317 mm 2.99x12.48 inch	Dimension 76.2x317.7 mm 3x12.51 inch	Dimension 119x289 mm 4.68x11.37 inch	Dimension 117x287 mm 4.60x11.29 inch	Dimension 119x376 mm 4.69x14.8 inch	Dimension 119x526 mm 4.69x20.71 inch	Dimension 119x526 mm 4.69x20.71 inch	Dimension 119x526 mm 4.69x20.71 inch	Dimension 119x526 mm 4.69x20.71 inch	Dimension 119x526 mm 4.69x20.71 inch	Dimension 363x864 mm 14.29x34.02 inch	Dimension 243x525 mm 9.57x20.67 inch	Dimension 202x524 mm 7.95x20.63 inch
Weight 0.11+0.016x(NoP-2) kg 0.24+0.035xNoP lb	Weight 0.26+0.040xNoP kg 0.58.4+0.089xNoP lb	Weight 0.85+0.075x(NoP-2) kg 1.88+0.165x(NoP-2) lb	Weight 0.84+0.059xNoP kg 1.85+0.130xNoP lb	Weight 1.14+0.096xNoP kg 2.51+0.21xNoP lb	Weight 1.17+0.120xNoP kg 2.58+0.26xNoP lb	Weight 1.49+0.108xNoP kg 3.29+0.237xNoP lb	Weight 2.09+0.164xNoP kg 4.61+0.362xNoP lb	Weight 2.09+0.164xNoP kg 4.61+0.362xNoP lb	Weight 2.09+0.137xNoP kg 4.61+0.301xNoP lb	Weight 2.50+0.137xNoP kg 5.50+0.301xNoP lb	Weight 27.4+1.030xNoP kg 60.5+2.271xNoP lb	Weight 8.33+0.404xNoP kg 18.36+0.891xNoP lb	Weight 12.1+0.321xNoP kg 26.7+0.708xNoP lb	
Max. NoP 60	Max. NoP 100	Max. NoP 60	Max. NoP 70	Max. NoP 140	Max. NoP 140	Max. NoP 160	Max. NoP 140	Max. NoP 140	Max. NoP 160	Max. NoP 160	Max. NoP 360	Max. NoP 250	Max. NoP 300	
B250AS	B320HT	B320LT	D300	D310	D400	D650	B427	B439	B633	B649				
Dimension 202x620 mm 7.95x24.41 inch	Dimension 243x525 mm 9.57x20.67 inch	Dimension 243x525 mm 9.57x20.67 inch	Dimension 243x525 mm 9.57x20.67 inch	Dimension 243x525 mm 9.57x20.67 inch	Dimension 304x694 mm 11.96x27.32 inch	Dimension 365,6x744,6 mm 14.39x29.31 inch	Dimension 304x694 mm 11.97x27.32 inch	Dimension 304x979 mm 11.96x38.54 inch	Dimension 537x830 mm 21.14x32.68 inch	Dimension 537x1232 mm 21.14x48.50 inch				
Weight 8.40+0.337xNoP kg 18.52+0.743xNoP lb	Weight 9.61+0.389xNoP kg 21.19+0.858xNoP lb	Weight 13.1+0.432xNoP kg 28.9+0.952xNoP lb	Weight 7.75+0.331xNoP kg 17.08+0.730xNoP lb	Weight 7.75+0.342xNoP kg 17.08+0.754xNoP lb	Weight 11.6+0.630xNoP kg 25.6+1.389xNoP lb	Weight 14.6+0.939xNoP kg 32.2+2.070xNoP lb	Weight 21.9+0.590xNoP kg 48.3+1.301xNoP lb	Weight 15.7+0.890xNoP kg 34.7+1.962xNoP lb	Weight 80.3+1.224xNoP kg 177.1+2.698xNoP lb	Weight 101.27+1.941xNP 223.2+4.27xNoP lb				
Max. NoP 300	Max. NoP 300	Max. NoP 260	Max. NoP 346	Max. NoP 350	Max. NoP 282	Max. NoP 346	Max. NoP 420	Max. NoP 420	Max. NoP 320	Max. NoP 420				

The concept

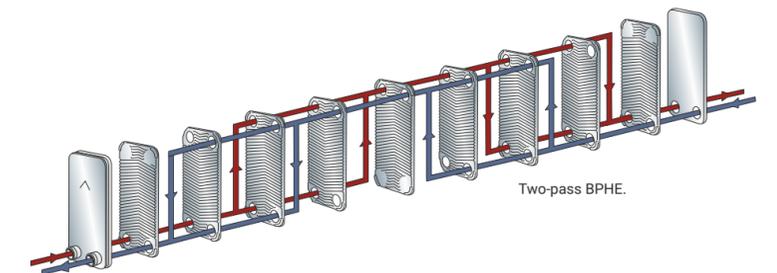
A brazed plate heat exchanger is constructed by placing a package of corrugated channel plates between a front and a rear cover-plate package. The cover plate packages consist of sealing plates, blind rings and cover plates. During the vacuum-brazing process, a brazed joint is formed at every contact point between the base plates and the filler material.



Fluids can pass through the heat exchanger in various ways. For parallel-flow brazed plate heat exchangers, there are two different flow configurations: co-current or counter current.



Channel plate packages are available in different configurations. The illustration at the right depicts a 2-pass execution, where the flow travels the length of the plate twice, delivering double the thermal performance, while maintaining the same footprint. This configuration is ideal for applications such as CDUs, which require a compact solution.



Challenge efficiency

At SWEP, we believe our future rests on giving more energy than we take – from our planet and our people. That's why we pour our energy into leading the conversion to sustainable energy usage in heat transfer. Over three decades, the SWEP brand has become synonymous with challenging efficiency.

SWEP is a world-leading supplier of brazed plate heat exchangers for HVAC and industrial applications. With over 1,100 dedicated employees, carefully selected business partners, global presence with production, sales and heartfelt service, we bring a level of expertise and customer intimacy that's redefining competitive edge for a more sustainable future. SWEP is part of Dover Corporation, a multi-billion-dollar, diversified manufacturer of a wide range of proprietary products and components for industrial and commercial use.



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webpage on data center
cooling solutions

