How plate heat exchanger technology improves energy efficiency in heavy process industry

Compared to traditional shell-and-tube technology, plate heat exchangers provide several benefits to industrial processes.

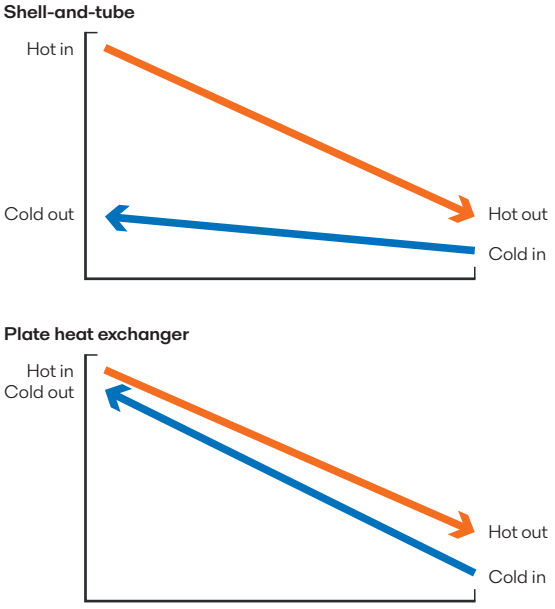
- **Compact installation**
  - Plate heat exchangers have a smaller footprint, making them easy to install, service and maintain.
- **Increased reliability**
  - Reduced fouling, stress, wear, and corrosion contribute to higher performance and longer operational uptime.
- **Optimized process**
  - Minimized energy costs, water usage, and emissions; better product quality and improved bottom-line.

Core features for efficient heat transfer

The key to plate heat exchangers' advantages is in the technology. Due to the counter-current flow arrangement and the use of corrugated plates, plate heat exchangers can transfer heat much more efficiently than shell-and-tube units.

In a shell-and-tube heat exchanger, the cold liquid cannot reach a temperature higher than that of the hot liquid outlet, without adding a lot of surface area or multiple units. A plate heat exchanger uses a counter-current flow that allows it to work with crossing temperatures. As a result, the cold liquid can reach a temperature almost as high as the hot liquid inlet, and vice versa. This design enables high energy recovery, while utilizing minimal resources.

Thanks to the plate technology, the area needed to get the inlet and outlet temperatures this close to each other is also minimized. To achieve the same performance easily accomplished by one plate heat exchanger, multiple shell-and-tubes are needed.



Producing more with less
For the same heat transfer capacity, a plate heat exchanger takes up significantly less space than a corresponding shell-and-tube unit.

Alfa Laval's plate heat exchangers feature a specialized design that allows for thin metal in the heat transfer area. This design not only improves heat transfer efficiency but also reduces overall weight. The smaller footprint translates to less material usage during production, resulting in much less CO_2 emissions and substantial cost savings, especially when exotic materials are required.

Benefits of Alfa Laval plate heat exchangers for process optimization

Alfa Laval has over 90 years of experience in developing plate heat exchanger technology. Our expertise encompasses building the units, perfecting the process of bringing them into operation, and devising service strategies to maintain peak performance throughout each unit's life cycle.

The widest portfolio on the market
Getting the most energy-efficient and reliable performance comes down to having the ideal technology for your specific conditions. Today Alfa Laval offers the market's most comprehensive portfolio of plate heat exchangers, engineered to match the widest range of industrial processes and duties

Advanced plates to fit all applications
Alfa Laval's heat transfer technology goes through continuous innovation to enhance efficiency. Various plate types are developed regularly, with different materials, distribution patterns and thickness. Through digital simulation to rigorous thermal and mechanical testing, the plates remain at the forefront of innovation. This allows for perfect adaptation, process optimization, and reliability in every application and industry.

Application knowledge
With almost a century's experience of selecting technology for various applications, Alfa Laval has built a deep understanding of the value of proper design, process knowledge, and maintenance strategies. It has made us well-equipped to provide the ideal solution for each process, ensuring top-notch performance and maximum uptime.

Adding value through service
Through Alfa Laval's global service network, we offer frequent preventive maintenance, upgrades, and redesigns, to make sure the heat exchangers run at optimal performance throughout their life cycle. With advanced digital technology, such as connectivity and machine learning, we can optimize maintenance and cleaning intervals. Taking advantage of these services saves both energy and costs and keeps emissions at a minimum.