SUPERMAX®

When conditions are tough... Think plates instead of tubes

NOW YOU CAN OBTAIN THE THERMAL EFFICIENCY AND COMPACTNESS OF GASKETED HEAT EXCHANGERS IN ELEVATED PRESSURE/HIGH- AND LOW-TEMPERATURE APPLICATIONS. TRANTER´S WELDED PLATE HEAT EXCHANGERS ALLOW YOU TO ATTAIN HIGH HEAT TRANSFER RATES UNDER ELEVATED PROCESS CONDITIONS, IN LESS SPACE AND AT LOWER COST THAN SHELL AND TUBE EXCHANGERS.

SUPERMAX – FOR AMAZING EFFICIENCY IN A SMALL FOOTPRINT

The Supermax shell and plate heat exchanger is designed for pressures to 103 barg (1,500 psig) and at temperatures up to 448°C (840°F) for standard range units. Extended range units are available for higher temperature and pressure applications. Optional Supermax configurations meet special needs.

Turbulent flow, even at low velocities, enables stable capacity regulation and minimizes fouling. In refrigeration and cryogenic service, the exchangers require a low refrigerant charge. They are also resistant to freezing because of high fluid turbulence induced by the corrugated plate pattern. Supermax wide temperature/pressure ratings offer good performance with natural refrigerants such as ammonia and carbon dioxide.

Fluids can undergo phase change on either the plate or shell side. The Supermax is particularly suited to applications having a large flow imbalance, allowing higher flow rates on the shell side. The Supermax can be installed horizontally or vertically; horizontal installation is recommended for condensing/ evaporating/boiling applications.

THE RIGHT MATERIALS FOR THE JOB

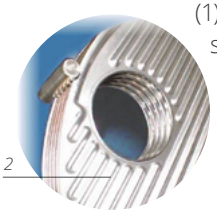
Supermax plate materials may be type 316L stainless steel, Hastelloy C-276, AL6XN, SMO254 or other alloys; shells may be fabricated of carbon steel, Types 304, 316, 316L stainless steel or titanium. The unit can be fabricated from dissimilar metals when only one side will be exposed to corrosive conditions.

SUPERMAX SHELL AND PLATE ROUND EXCHANGER CONNECTIONS

PLATE MODEL	PLATE SIDE CONNECTIONS, DN (ANSI IN.)	SHELL-SIDE CONNECTIONS, DN (ANSI IN.)
SPW-30	50 (2)	20 – 150 (0.75 – 6)
HPW-30	50 (2)	20 – 150 (0.75 – 6)
DPW-30[2]	50 (2)	20 – 150 (0.75 – 6)
SPW-40	80 (3)	25 – 250 (1 – 10)
DPW-40[2]	80 (3)	25 – 250 (1 – 10)
SPW-55	100 (4)	32 – 350 (1-1/4 – 14)
DPW-55[2]	100 (4)	32 – 350 (1-1/4 – 14)
SPW-75	150 (6)	50 – 500 (2 – 20)
SPW-83	150 (6)	50 – 500 (2 – 20)
SPW-101	200 (8)	100 – 700 (4 – 28)
DPW-101[2]	200 (8)	100 – 700 (4 – 28)

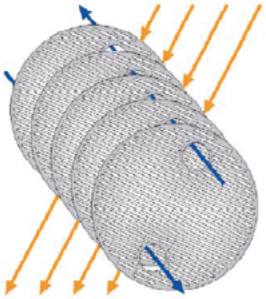
[1]Dual inlets on both plaet and shell sides are available.
[2]Deep draw depth plate.

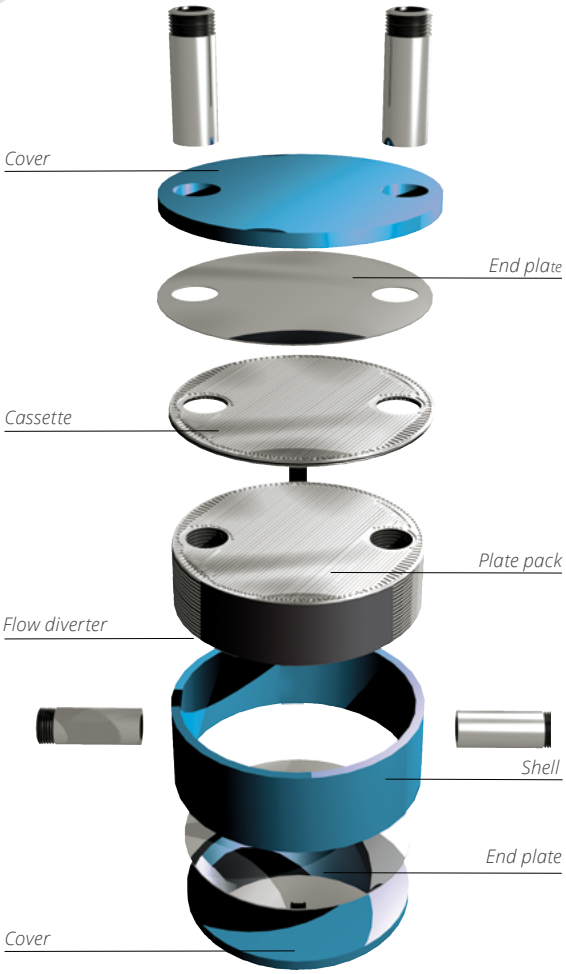
The chevron-type plates are fabricated into a cassette by full automatic welding in the port hole (1). These cassettes are then stacked together and perimeter welded to each other (2), producing an accordion-like core which is highly tolerant to thermal expansion.

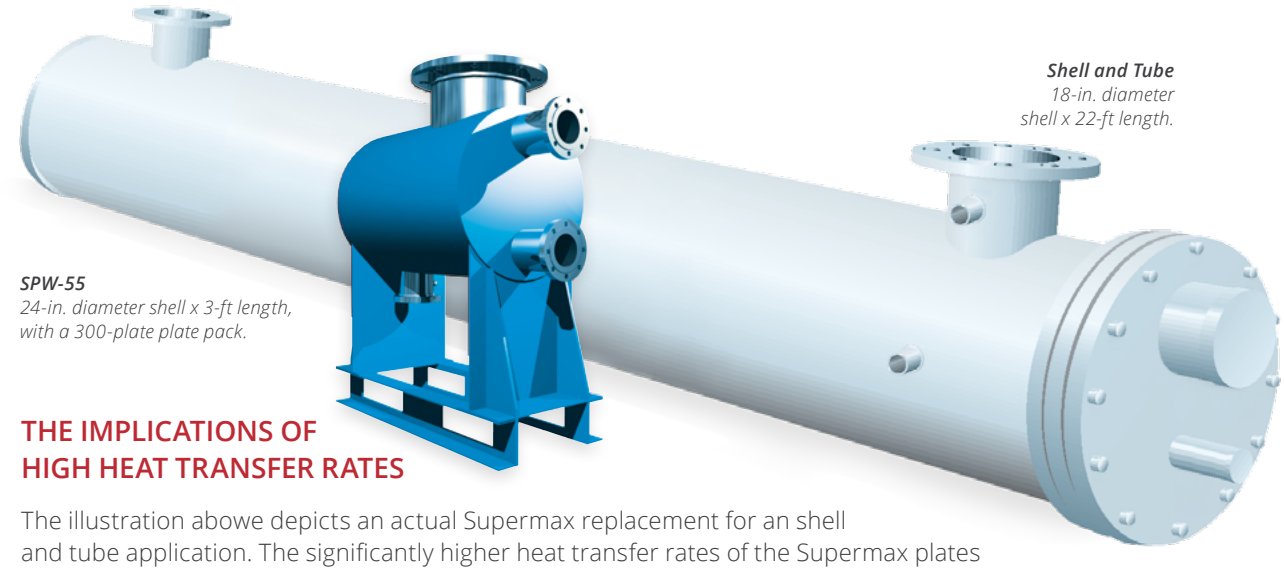


The plate pack is then inserted in a cylindrical shell. The shell and plate pack are fitted with special fluid diverters to ensure proper flow throughout the unit. End plates, connections and top & bottom covers are welded to the shell to form a pressure vessel of high integrity. Extra large connection sizes can be selected on the shell side of the heat exchanger.

The plates are adjusted within the shell to optimise flow distribution and performance. Supermax units can be designed in for co-current, counter-current and cross-flow duties. Plates can also be arranged to form multiple passes.







Shell and Tube
18-in. diameter shell x 22-ft length.

SPW-55
24-in. diameter shell x 3-ft length, with a 300-plate plate pack.

THE IMPLICATIONS OF HIGH HEAT TRANSFER RATES

The illustration abowe depicts an actual Supermax replacement for an shell and tube application. The significantly higher heat transfer rates of the Supermax plates versus the tube bundle are responsible for the striking difference. The implications are clear: less cost for materials (stainless steel, titanium or other expensive higher alloys), simpler fabrication for shorter delivery lead times, easier installation, simpler support structures and vastly smaller footprints, especially considering dead space required to pull the shell and tube bundle for cleaning.