EXTREME PERFORMANCE FOR EXTREME CONDITIONS

OEMSales
200 East Big Beaver Rd., Troy, MI 48083
P: (248) 752-2620 E: Sales@oemsalesinc.com

SUPERMAX®
SHELL & PLATE HE

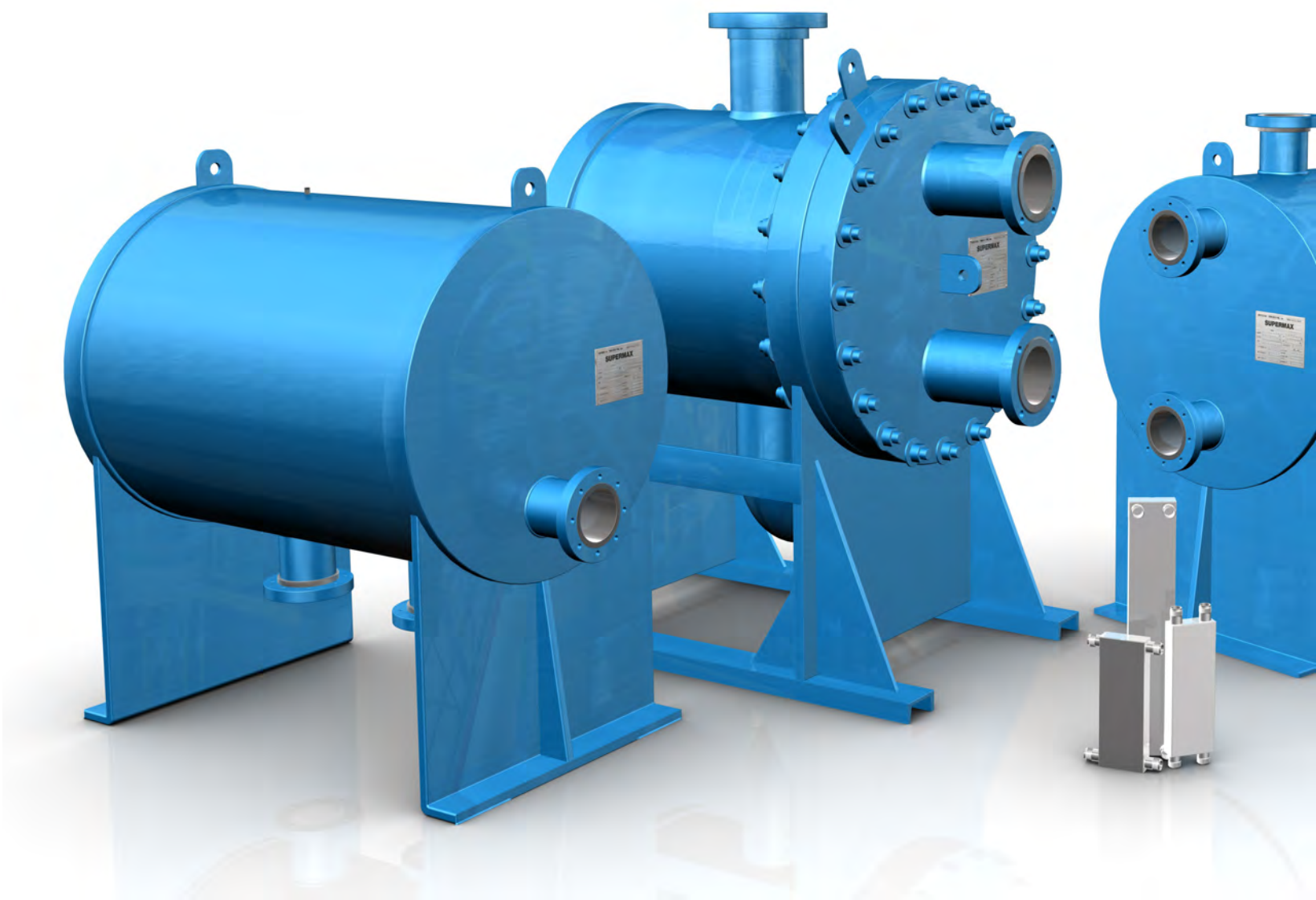
MAXCHANGER®
WELDED PLATE HE

TRANTER®
The heat transfer people

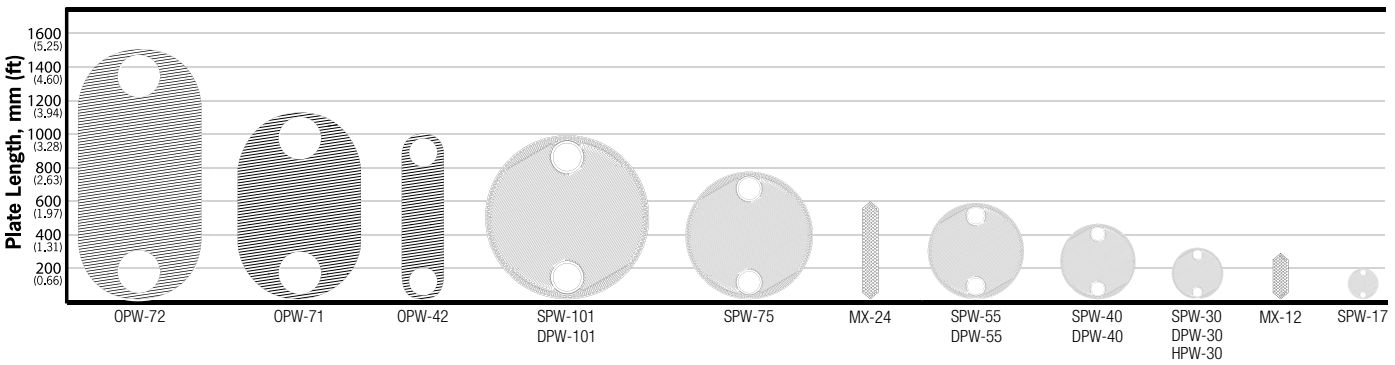
When Conditions Are Tough... Think Plates Instead Of Tubes

Now you can obtain the thermal efficiency and compactness of gasketed heat exchangers in elevated pressure/high- and low-temperature applications—with Tranter welded plate heat exchangers (PHEs). Until recently, heat exchangers in elevated pressure/temperature or corrosive media applications were often shell & tube (S&T) units. This meant constant tradeoffs in thermal efficiency, material mass and excessive physical footprint...until recently.

Tranter welded PHEs allow you to attain high heat transfer rates under elevated process conditions, in less space and at lower cost than S&T exchangers.



SUPERMAX® SPW, DPW, OPW And MAXCHANGER® Plate Range



PHE Comparative Footprint

Model	Required Surface Area, m^2 (ft^2)	Footprint Area, m^2 (ft^2)	Dry Weight, kg (lb)
TEMA Shell & Tube	203 (2,187)	9 (100)	6,350 (14,000)
SUPERMAX (SPW-55)	56 (600)[a]	0.7 (8)	726 (1,600)

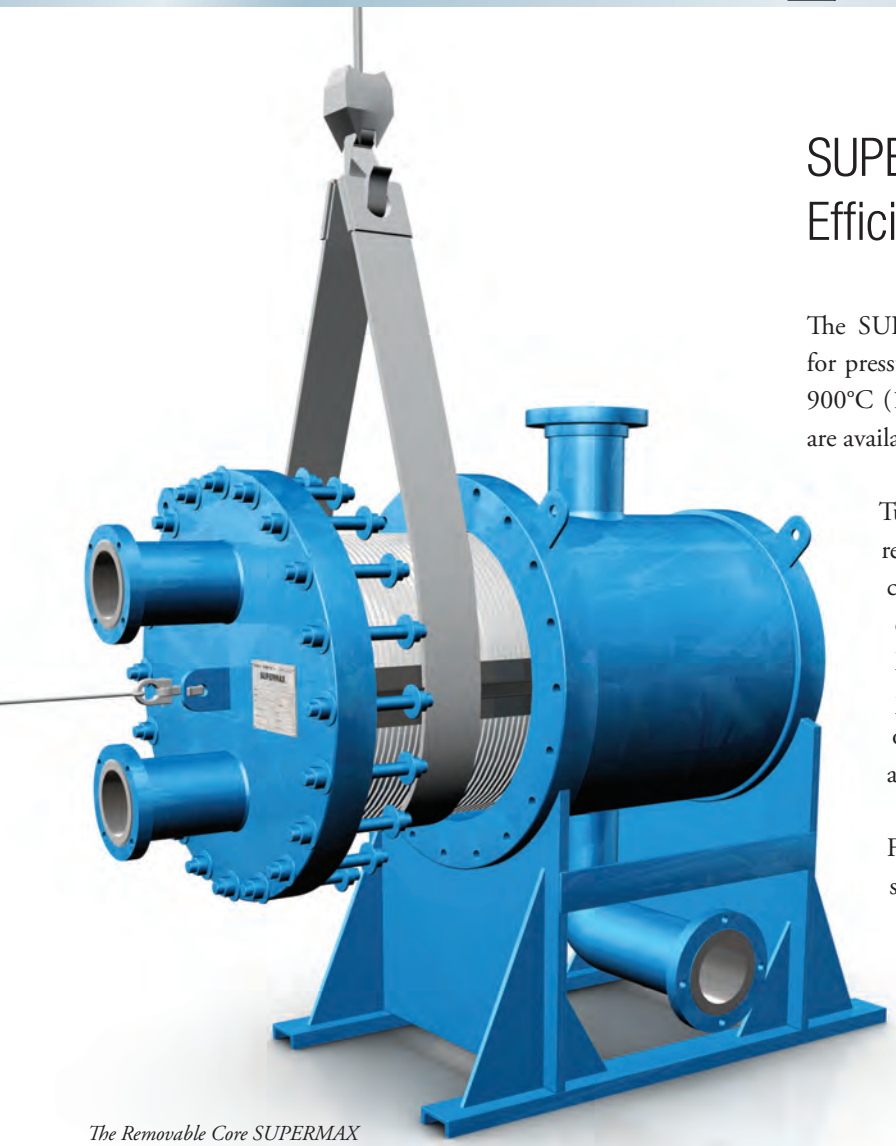
[a] Common HVAC water–water application—10°F approach.

From just a few plates come many duty configurations, represented by the blue SUPERMAX® and ultra-compact, steel-finish MAXCHANGER® exchangers. Back row, from left: Multi-Pass, Long-Pass Oblong, Removable Core, Standard Single-Pass, Multi-Duty/Multi-Pass.

Plate Heat Exchanger Performance At Shell & Tube Pressures

Tranter's SUPERMAX® and MAXCHANGER® Welded Plate Heat Exchangers require only a fraction of the space of the equivalent shell & tube exchangers. Turbulent flow induced by the corrugated and dimpled plate patterns produces high heat transfer rates. This high efficiency allows Tranter to design compact exchangers with a 1°C (2°F) temperature approach. Another benefit is the small hold-up volume which offers fast start-up times and close following of process changes.

The advantages of the SUPERMAX and MAXCHANGER exchangers can be applied to challenging applications involving liquids, gases, steam and two-phase mixtures. This includes aggressive media, organic solvents, steam heaters and as interchangers which are beyond the capability of traditional gasketed plate & frame heat exchangers. In addition to efficiency, the units offer cost effectiveness and minimal maintenance.



The Removable Core SUPERMAX exchanger is fully accessible for inspection and/or mechanical cleaning by removing the cover plate assembly.

SUPERMAX®—For Amazing Efficiency In A Small Footprint

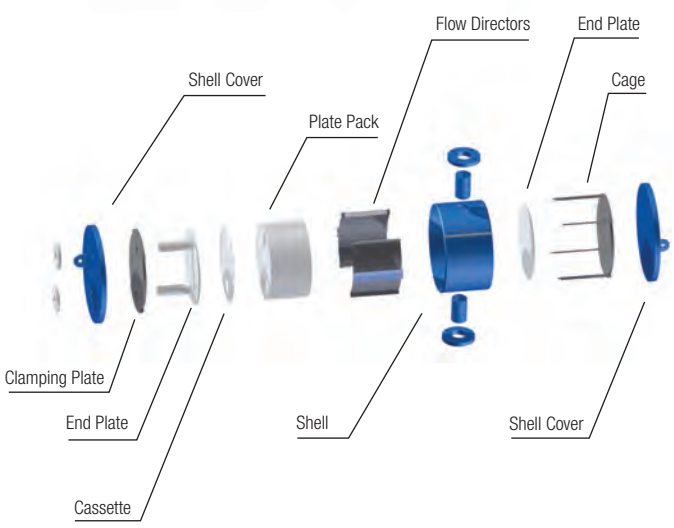
The SUPERMAX® Shell & Plate Heat Exchanger is designed for pressures to 200 barg (2900 psig) and at temperatures up to 900°C (1650°F) for standard range units. Extended range units are available for higher temperature and pressure applications.

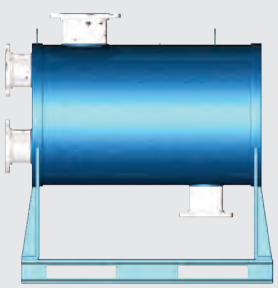
Turbulent flow, even at low velocities, enables stable capacity regulation and minimizes fouling. In refrigeration and cryogenic service, the exchangers require a low refrigerant charge. They are also resistant to freezing because of high fluid turbulence induced by the corrugated plate pattern. SUPERMAX 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.

Accordion-like core accommodates thermal expansion cycles

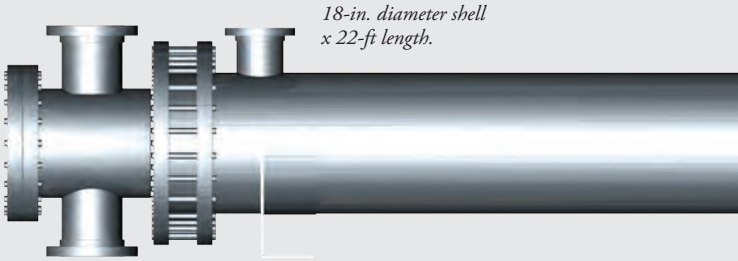
Pairs of chevron-type plates are placed back-to-back and fabricated into a cassette by full automatic perimeter welding of adjacent





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

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

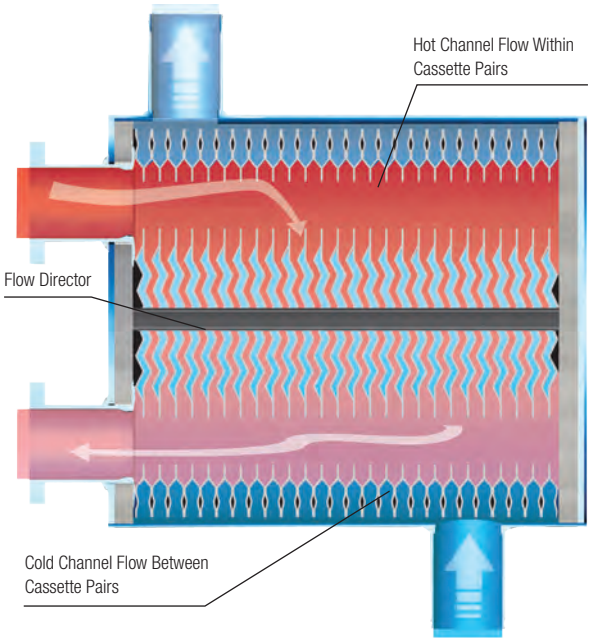


port holes. Cassettes are then placed together and perimeter welded to each other, producing an accordion-like core that is highly tolerant to thermal expansion.

The plate pack is then inserted in a cylindrical shell. Flow directors positioned between the shell and the plate pack ensure proper flow through the shell side channels. End plates, nozzles and top and bottom covers are welded to the shell to form a pressure vessel of high integrity. Extra-large nozzle sizes can be accommodated on the shell side of the exchanger. Plates can also be arranged to form multiple passes.

The right materials for the job

SUPERMAX plate materials may be Type 316L stainless steel, titanium, 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 countercurrent flow pattern can have hot channel on shell or plate side.

SUPERMAX Shell & Plate Round Exchanger Connections[1]

Plate Model	Plate-Side Connections, DN (ANSI in.)	Shell-Side Connections, DN (ANSI in.)
SPW-17	25 (1)	10–100 (0.5–4)
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-101	200 (8)	100–700 (4–28)
DPW-101[2]	200 (8)	100–700 (4–28)

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

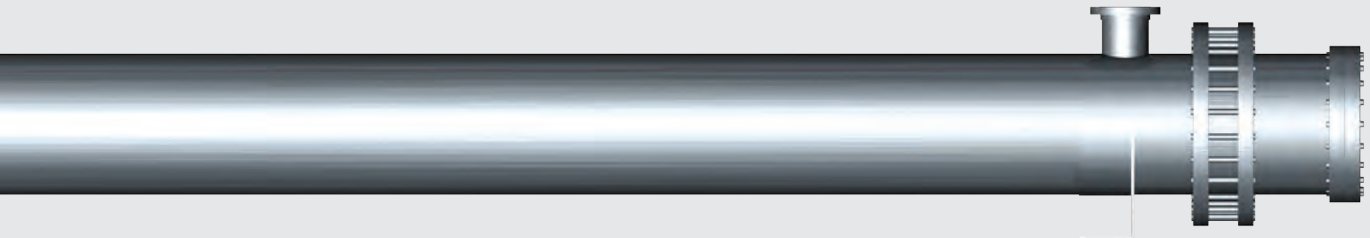
SUPERMAX Shell & Plate Oblong Exchanger Connections[1]

Plate Model	Plate-Side Connections, DN (ANSI in.)	Shell-Side Connections, DN (ANSI in.)
OPW-42	80 (3)	10–150 (0.5–6)
OPW-71	250 (10)	10–500 (0.5–20)
OPW-72	250 (10)	10–500 (0.5–20)

[1]Dual inlets on both plate and shell sides are available.

The Implications Of High Heat Transfer Rates

The illustration below depicts an actual SUPERMAX replacement for an S&T 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 S&T tube bundle for cleaning.



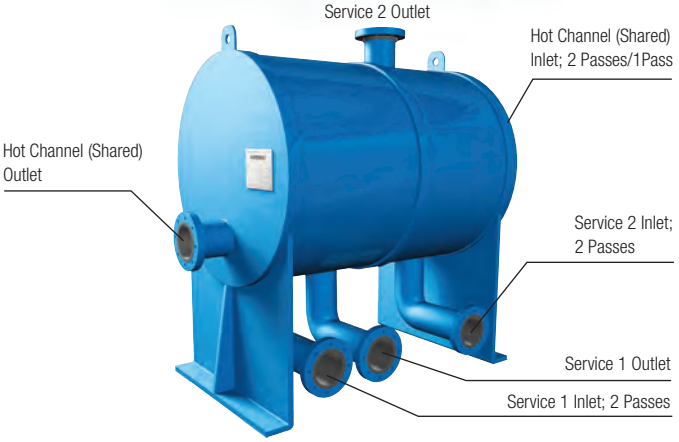
SUPERMAX Shell & Plate Exchanger can replace competitor's failing rectangular welded PHEs or gasketed PHEs with premature gasket failures.

Optional SUPERMAX Configurations Meet Special Needs

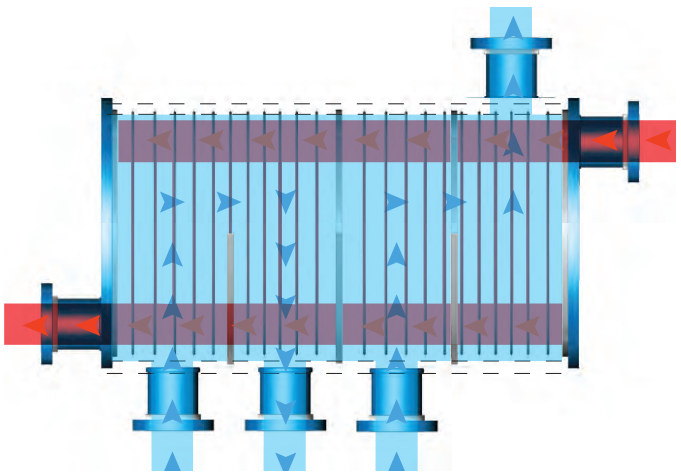
Various optional configurations of the SUPERMAX unit enable this versatile exchanger to meet wide-ranging application needs. The Removable Core SUPERMAX exchanger provides full accessibility to the plate pack for inspection and/or mechanical cleaning by removing the plate pack bundle.

The Multi-Duty SUPERMAX has two separate plate packs that share one shell. These cores can handle different or identical fluids. For flows that require a high flow rate, the two inlets and outlets can be piped together.

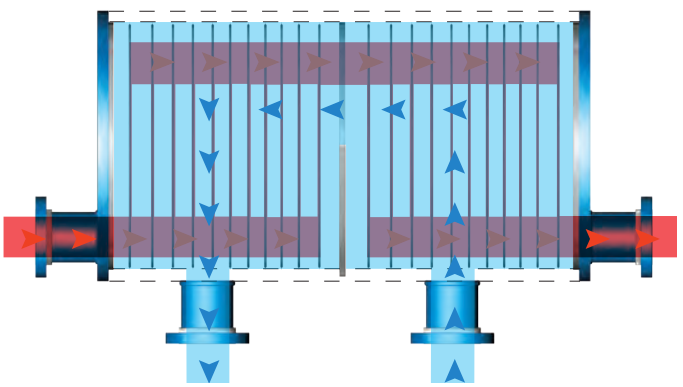
Units can be precisely configured for specific requirements, such as cooling without condensing, by employing the Multi-Pass SUPERMAX configuration and by grouping plates in pure co-current, counter-current or cross-flow duties.



Outstanding versatility (from left): a round-plate R404a- DX-cascade with CO_2 collector, large-flow shell-side condenser and a two-in-one, extended thermal length oblong plate interchanger used in gas dehydration skids.



The Multi-Duty SUPERMAX, which unites independent plate packs in a single shell, is common for glycol gas dehydration and for gas refrigeration applications at gas plants.



The Multi-Pass SUPERMAX has separate plate pack and shell zones with countercurrent (shown above) or co-current flow.

SUPERMAX Applications

Efficiency and ease of maintenance mark the versatility of Tranter plate heat exchangers in heating and cryogenic duties such as found in gas processing and refrigeration. Consider the benefits of thermal efficiency and compactness offered by plate heat exchangers in applications traditionally handled by S&T heat exchangers.

Ammonia evaporator.

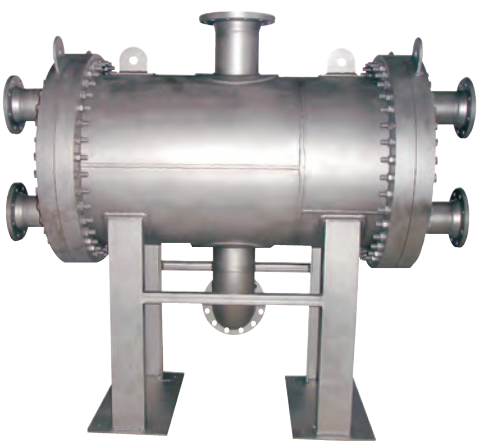
Reducing maintenance as a demethanizer low side heater replacing brazed units.

Oblong in tube as a compact evaporator and receiver system providing heat transfer and simultaneous vapor release and separation.

Compact, skid-mounted propane condenser.

Two evaporators in parallel with separator handling R507 refrigerant.

Multi-duty, multi-pass rich TEG heater for gas dehydration skid.



Two-Duty exchanger in one shell.

Looks can deceive… there is nothing brazed in these welded 316L SS or titanium units, rated to 70 barg (1,015 psig) and 538°C (1,000°F). No CBE can survive under those conditions.

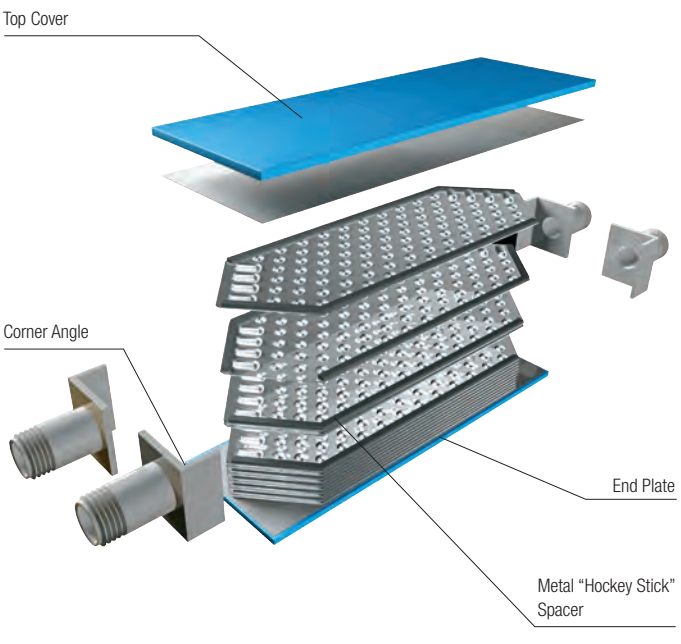
MAXCHANGER®—The Design Engineer's Friend

MAXCHANGER single- and multiple-pass designs fit virtually any application requirement. The unique geometry of the patented MAXCHANGER's variable interspaces produce extremely high "U" values. Channels formed between the specially dimpled, welded plates direct the two heat transfer media countercurrently through alternate paths for maximum efficiency, immediate thermal response and a close temperature approach capability of less than 1°C (2°F).

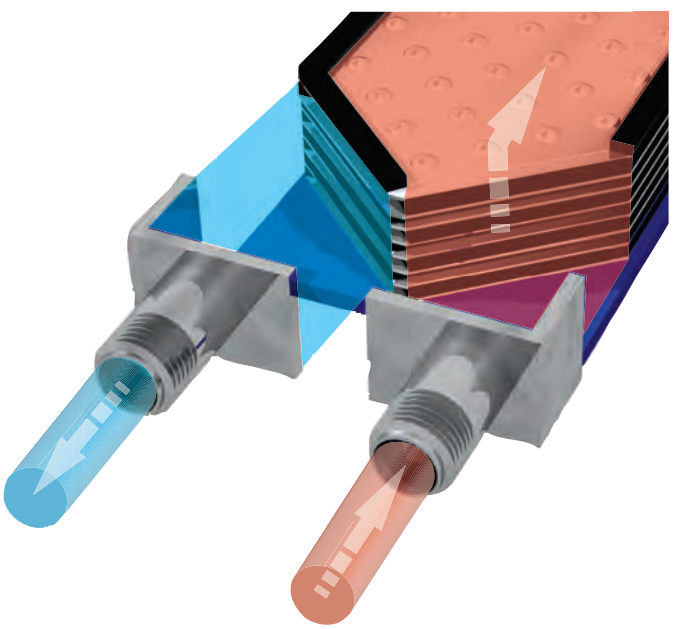
Constructed for long life cycles

The 1-mm (0.039-in.) thick dimpled heat exchanger plates are sandwiched between top and bottom plates specified to withstand the design pressure. Special spacers separate the plates, isolating the channels and establishing countercurrent flow. Four corner angles (or half-pipes) are welded to side plates, top and bottom plates and to the heat exchange plate points, forming inlet and outlet headers.

The corner angle fittings or corner half-pipe fittings, enable inlets and outlets—NPT or flanged—to be located in any number of configurations for maximum flexibility in tight spaces.



This exploded view of the welded MAXCHANGER unit shows the large number of dimpled contact points that provide maximum pressure resistance and heat transfer.



MAXCHANGER can achieve an extremely close temperature approach of less than 1°C (2°F).

Applications

Oil & Gas Production And Refining
- Optimization of heat recovery, cooling, condensation, dehydration and reboiling systems
- Distillation column exchangers: fractionators, hydrocrackers, recrackers and hydrogen sulfide strippers
- Waste heat recovery and feed water heating
- LPG reliquefaction

Chemical Processing And Pharmaceuticals
- Optimization of condensation, heating/cooling, mist elimination, heat recovery and reboiling systems
- Evaporation, distillation and condensation of substituted olefins and aromatics, including halogenated compounds
- Thermal processing involving mineral acids and caustics
- Viscous processing with monomers and resins
- Soaps and detergents, paints and coatings
- Mineral oil heating and cooling
- Gas cooling and drying: chlorine, hydrogen, nitrogen, carbon dioxide
- Vapor and solvent recovery

HVAC And District Heating
- Steam and hot water heaters
- Heat recovery exchangers
- High temperature interchangers
- Water/glycol-cooled oil coolers
- Discharge gas desuperheaters for heat recovery

Emissions Control Systems
- Ammonia liquor scrubber coolers
- Flue gas heat recovery banks
- Flue gas reheating banks
- Mist elimination banks

Food Processing
- Vegetable oil heating
- Waste heat recovery

Power Generation
- Low pressure feedwater heaters
- Condensate exchangers and condensate trim coolers
- Blowdown heat recovery exchangers
- Condensers and vapor condensers
- Condensate subcoolers
- Evaporators
- Molten salt to thermal fluid interchangers
- Seal water coolers
- Closed cooling loop exchangers
- Component cooling water (CCW) exchangers
- Lube oil coolers
- Gland steam condensers
- Recuperators
- Economizers
- HRSG (Heat Recovery Steam Generator) cross exchangers

Refrigeration
- Flooded evaporators with surge drum, condensers, chillers
- Liquid chillers for flooded evaporation
- Flooded evaporators with pumped refrigerant feed
- Liquid-cooled condensers
- Cascade CO_2 condensers for flooded ammonia and other refrigerants
- Thermosyphon oil coolers
- Oil coolers and condensate subcoolers for flooded evaporation

Service Centers Help Keep Your Welded Units On Line

At Tranter Authorized Service Centers, we safely clean and refurbish your welded and gasketed plate heat exchangers, returning them to peak efficiency. Our centers guarantee their work with written warranties covering materials and workmanship.

TRANTER MULTI-BRAND® SERVICE & PARTS

We do pressure washing and chemical cleaning, spiral or plate core replacement, sandblasting and repainting, gasket replacement and hydro testing. With Tranter and its authorized service facilities, you can always be sure that you get the right parts, the friendliest service and our OEM Guarantee.

Our Service Centers are strategically located to support our installed heat exchanger base. Give us a call at (940) 723-7125 for the location most convenient to your facility.

A special Pressure Cleaning Wand Accessory enables cleaning of shell-side channels in the plate pack with the core removed.

PHE Performance In Many Forms

PLATECOIL® Prime Surface Plate Heat Exchangers

PLATECOIL® panels are made from die-formed channels pressed into flat sheets. Panels are then fabricated into pre-engineered modules, complete with piping, supporting structure and manifolds, or formed into vessel shells or jackets.

Embossing pattern and number of panels are functions of capacity and pressure drop specified for the application. Two embossing patterns are used:

- Multi-Zone panels are especially suited with high flow rates and where low pressure drop is necessary.
- Serpentine panels excel at low-to-moderate flow rates for heating or cooling of liquid-phase mediums.

Spiral Heat Exchangers

The Spiral Heat Exchanger provides trouble-free heat transfer between particle-loaded process streams. Our units can accommodate various mass flows and temperature approaches, often with an excellent turndown ratio. Most importantly, the flow channels have no dead spaces or sharp turns that would otherwise result in plugging. Options include openable configurations in which both channels can be cleaned.

SUPERCHANGER® Plate & Frame Heat Exchangers

SUPERCHANGER® Plate & Frame Heat Exchangers offer "U" values three to five times greater than S&T units, a less than 1°C (2°F) temperature approach, easy maintenance and in-place expansion capability. A broad selection of plate designs means a better match to your requirements, thus lower costs. Studded port connections and flanged extended nozzles are available.

MAXCHANGER (foreground) and SUPERMAX (right) Welded Plate Heat Exchangers joined by our Spiral (left), SUPERCHANGER® Gasketed P&F (back) and PLATECOIL® Prime Surface Bank.

TRANTER
The heat transfer people

Welded PHE Fax Form

Phone No: (940) 723-7125
Fax No: (940) 723-5131
E-Mail: sales@tranter.com

Date:_____

Customer Information	
Customer:	Phone:
Attention:	Fax:
Street:	E-Mail:
City/ State/ Zip:	Project:

1. **Quote Turnaround**: ☐ Specified Turnaround_____ ☐ Std. Turnaround - 5 Business Days
2. **Formal Quote Required**: ☐ Yes ☐ No
3. **Type of Quotation** ☐ Buy ☐ Budget ☐ Design
4. **ASME Code Stamp** ☐ Yes ☐ No
5. No. of Units _____

Items marked in bold should be completed for best sizing and quickest turnaroung.

Design Conditions		Hot Side	Cold Side
Fluid Circulated			
Total Flow Rate		Gpm	Gpm
Specific Heat*		Btu/(lb) °F	Btu/(lb) °F
Specific Gravity*			
Thermal Conductivity		Btu/(hr)(ft)°F	Btu/(hr)(ft)°F
Viscosity* (2nd Temperature)		cp@ °F cp@ °F	cp@ °F cp@ °F
Temperature In		°F	°F
Temperature Out (only one required)		°F	°F
Pressure Drop Allowed		Psi	Psi
Heat Exchanged			
Design Pressure*	Psig		
Test Pressure	Psig		
Design Temp*	°F		

6. ***Materials of Construction** ☐ 316SS ☐ Titanium ☐ Other

***For fluids other than water or steam, properties should be furnished.**
For batch heating please provide tank dimensions and time allowed for heat-up.

Remarks / Application Details:

At the forefront of heat exchanger technology for more than 80 years

Tranter top quality, high-performance, proprietary products are on the job in demanding industrial and commercial installations around the world. Backed by our comprehensive experience and worldwide presence, Tranter offers you exceptional system performance, applications assistance and local service. Tranter is close to its customers, with subsidiary companies, agents, distributors and representatives located worldwide. Contact us for a qualified discussion of your needs.

TRANTER®
The heat transfer people

North America
Tranter, Inc.
Wichita Falls, TX USA
Tel: (940) 723-7125
E-mail: sales@tranter.com

Europe
Tranter International AB
Vänersborg, Sweden
Tel: +46 521 799 800
E-mail: info@se.tranter.com

Mid-East/Africa/Asia
Tranter India Pvt. Ltd.
Pune, India
Tel: +91 20-30519300
E-mail: sales@in.tranter.com

South America
Tranter Ind e Com de Equip. Ltda
Cotia, Brazil
Tel: +55 11 36084154
E-mail: vendas@tranter.com

China/Southeast Asia
Tranter China
Beijing, China
Tel: +86 10 6554 4920/21
E-mail: paulyang@tranter.com.cn
Support: tina@tranter.com.cn

www.tranter.com

W-4-1011 650873 Printed In The USA