

# ENSURING EFFICIENT RELIABILITY FOR MARINE THERMAL SYSTEMS



**SUPERCHANGER<sup>®</sup>**  
Plate & Frame HE

**SUPERMAX<sup>®</sup>**  
Shell & Plate HE



## Plate Heat Exchangers Provide Extra Security at Sea

When you're miles from port and there's blue water breaking on deck, you need all your thermal systems running strong, reliably and efficiently. Since the sea isn't known for giving second chances, Tranter offers ways to optimize thermal systems aboard platforms and vessels with an extensive range of plate heat exchangers.

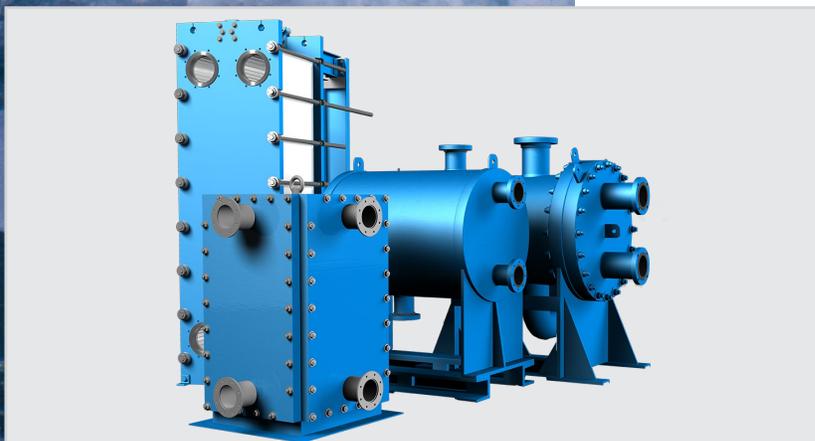
Our units are designed to provide maximum efficiency for various closed-circuit cooling systems at sea, as well as process other on-board applications including fresh water production and HVAC systems.

Titanium plates significantly enhance durability and long-lasting, uninterrupted performance in corrosive seawater cooling duties. Plus, their compact size and weight make them quick and easy to disassemble for inspection, cleaning and maintenance.

Why fill up engineering spaces and burden topsides with heavy, bulky equipment, when efficiency and economy are readily available with Tranter plate heat exchangers?

### Marine HE Applications

- Large yachts
- Supertankers
- Offshore rigs
- ATBs
- Cruise ships
- Freighters
- Naval vessels
- FPSO vessels



*Plate technology for reliability and efficiency offshore. From left: SUPERCHANGER® Plate & Frame, NOVUSBLOC® Welded Plate, and SUPERMAX® Shell & Plate.*



## PHE Standard Range General Specifications

	<b>SUPERCHANGER® Plate &amp; Frame Gasketed</b>	<b>SUPERMAX® Shell &amp; Plate</b>
<b>PERFORMANCE</b>		
Max. Pressure Rating, barg (psig) <sup>a</sup>	27.56 (400)	70 (1015)
Max. Temperature Rating, °C (°F)	160 (320)	538 (1000)
<b>CONNECTIONS</b>		
Max. Connections, DN (ANSI RF in.)	Contact Factory Also Studded Ports	400 (16)
<b>MATERIALS</b>		
Standard Plate Material <sup>b</sup>	304 SS, 316 SS, Titanium	316L SS, Titanium
Standard Frame/Shell Material <sup>c</sup>	Carbon Steel	Carbon Steel, 316L SS
<sup>a</sup> Ratings offered as a general guide only. Certain combinations of physical and fluid properties may affect individual product specifications. Contact the factory with your specific application data. <sup>b</sup> Higher performance materials are available. <sup>c</sup> Corrosion-resistant marine coatings available.		

### SUPERCHANGER® Plate & Frame

- Higher “U” values and close temperature approaches
- Unique turbulent flow design resulting in lower fouling
- Immediate availability (made in factories strategically located worldwide)
- Space saving and light weight
- Expandability and easy servicing
- Design flexibility makes them ideally suited for a wide variety of shipboard cooling and heating applications
- Conform to American Bureau of Shipping, U.S. Coast Guard, shock testing per MIL-S-901C (U.S. Navy), vibration testing per MIL-STD-167-1 (Ships), ASME U stamp per Sec. VIII Div. 1 and DNV (Det Norske Veritas)
- Worldwide OEM service and parts



### SUPERMAX® Shell & Plate

- Welded construction comprises a pressure vessel of high integrity with good thermal cycling performance
- Optional flanged cover model allows the plate pack to be removed for cleaning
- Particularly suited for large flow imbalances—distillation vapor condensers, economizers, aftercoolers, intercoolers and related service
- Removable Cover HE is available as an option in all sizes



## Idea Notebook

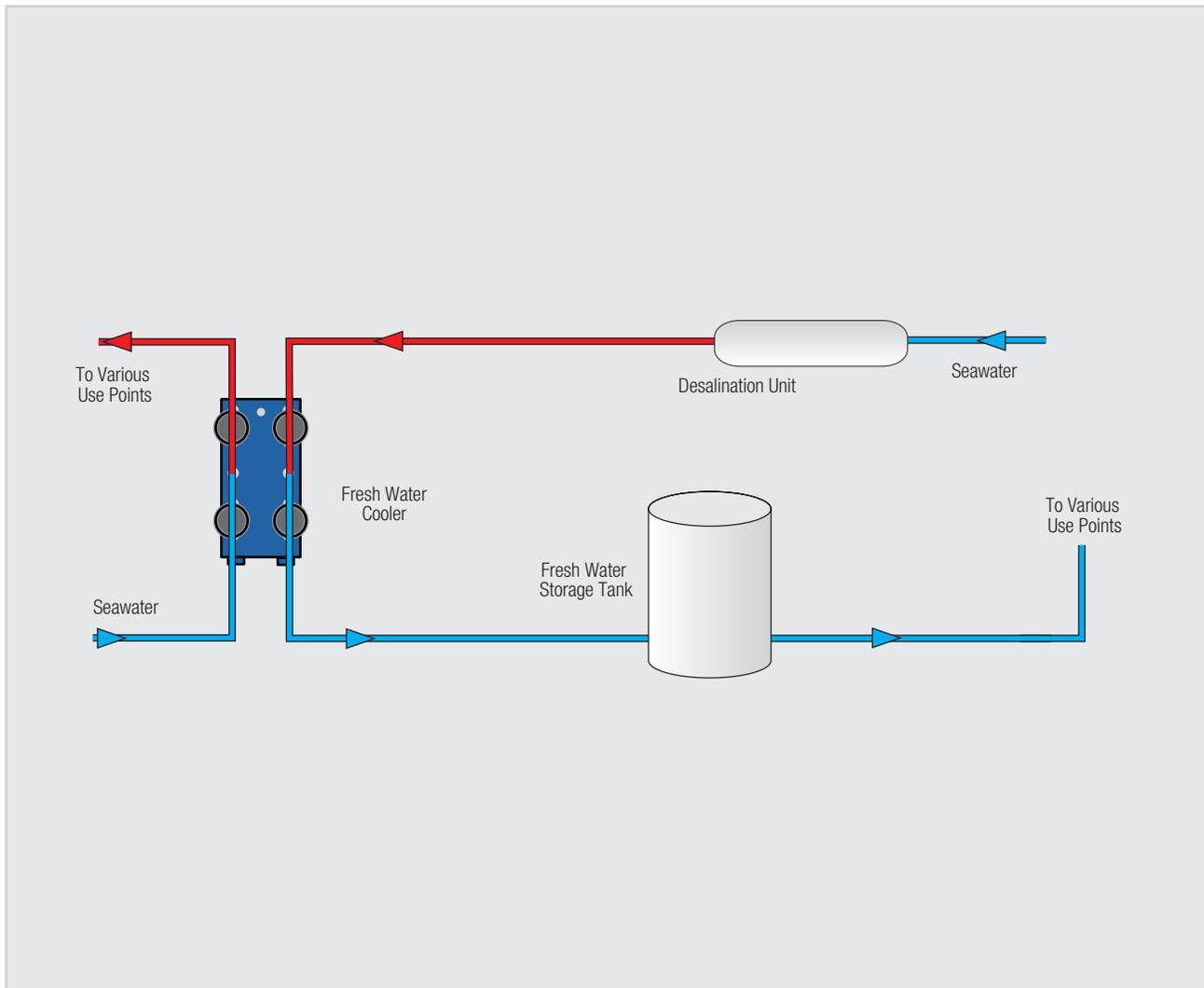


Tranter heat exchangers are ideally suited for marine processes, with their reliability, easy maintenance, compact size and efficient performance.



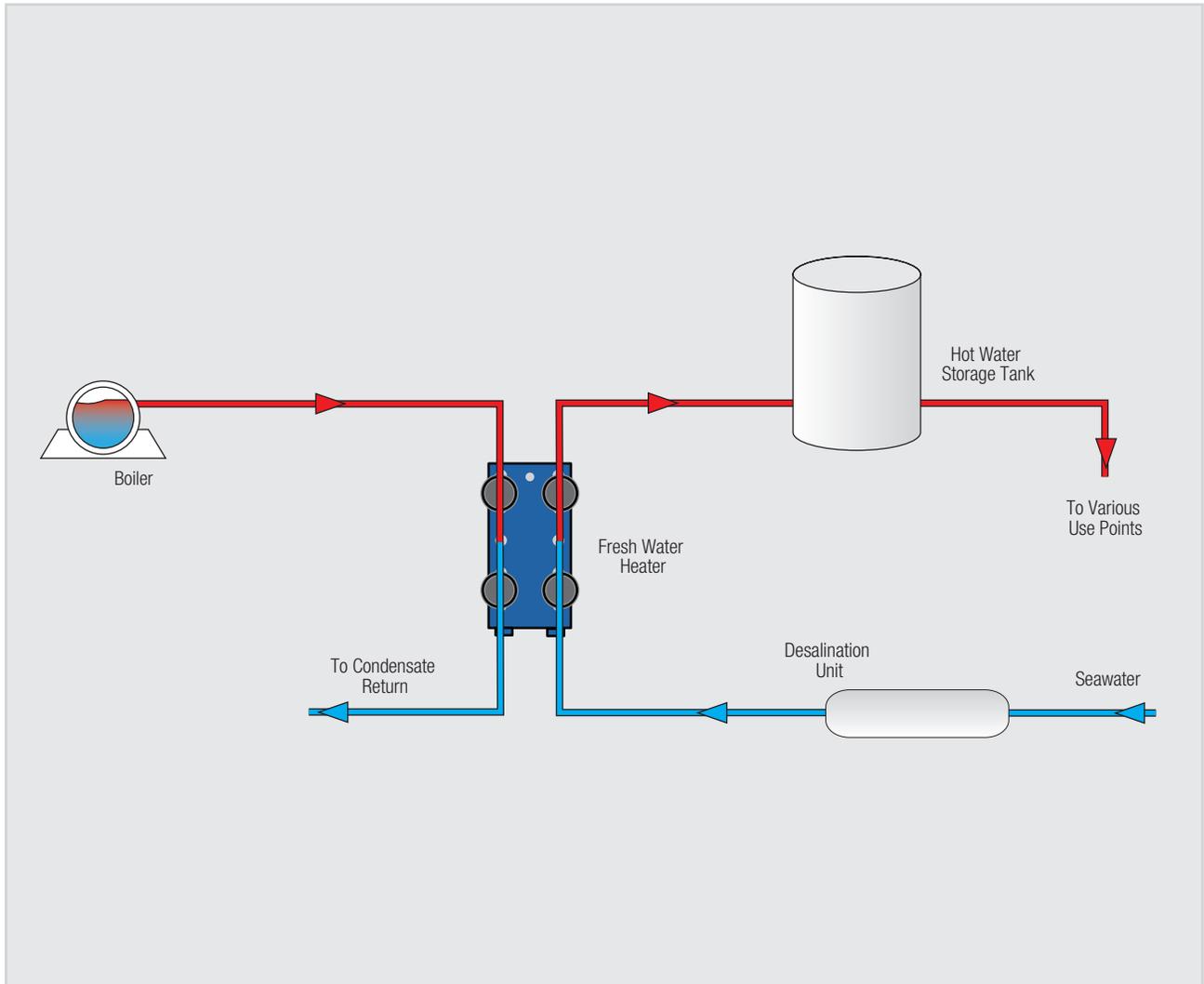
### Central Fresh Water Cooler

Large SUPERCHANGER® units use seawater to cool the ship's central fresh water system. Titanium plates provide corrosion-resistant, trouble-free exchanger service. High turbulence between plates reduces biofouling. Large vessels use this centrally cooled fresh water for many other cooling requirements, eliminating the need for titanium in those applications.



### Heating Ship Service Water

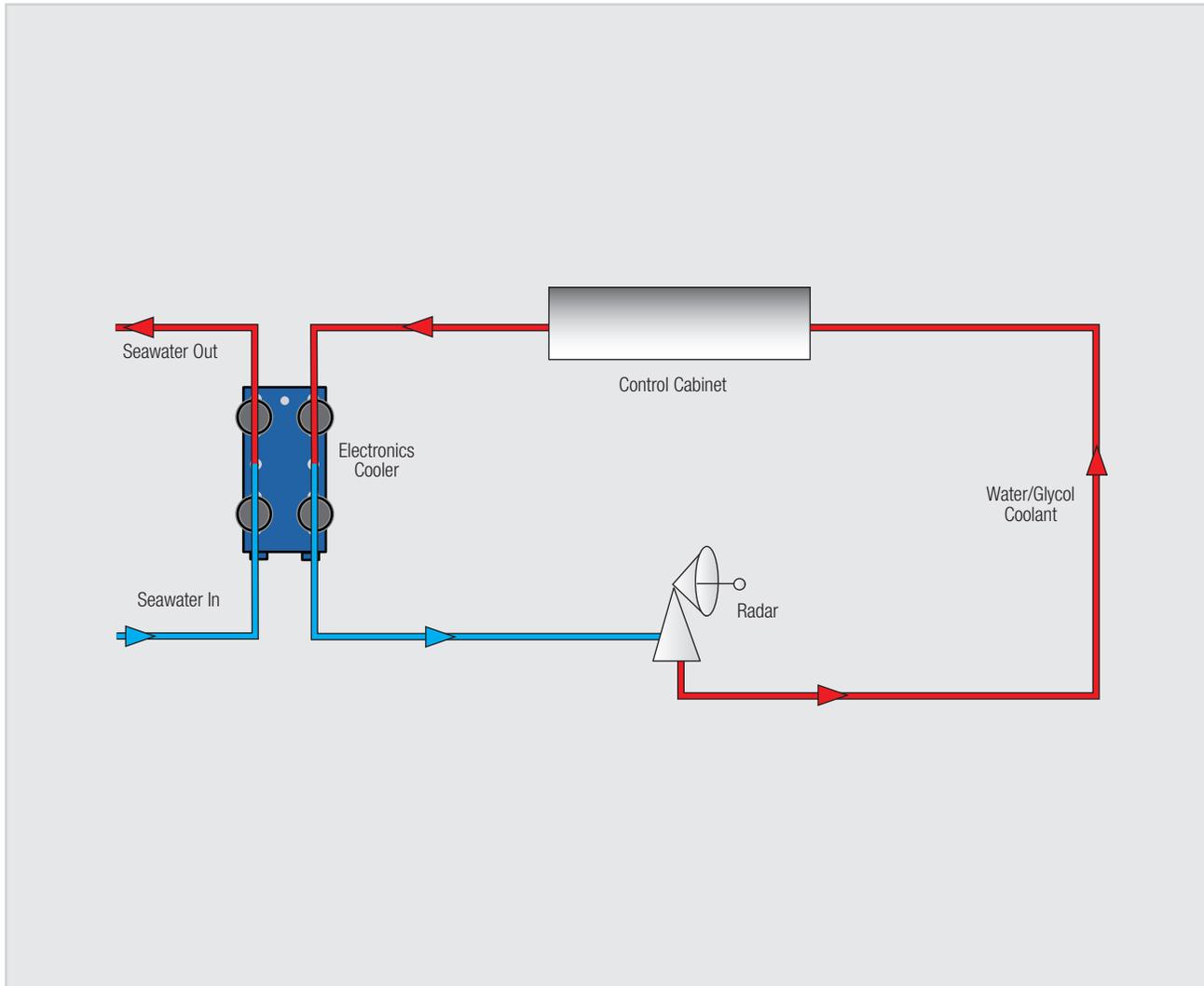
Hot water for many uses is produced with steam through SUPERCHANGER units. Saturated steam at up to 8 bar (120 psi) and 176°C (350°F) can be used with EPDM gaskets. The heat transfer rates average about 6,814 W/(hr•m<sup>2</sup>•°C) [1,200 Btu/(hr•ft<sup>2</sup>•°F)] for this duty, resulting in a very compact unit.





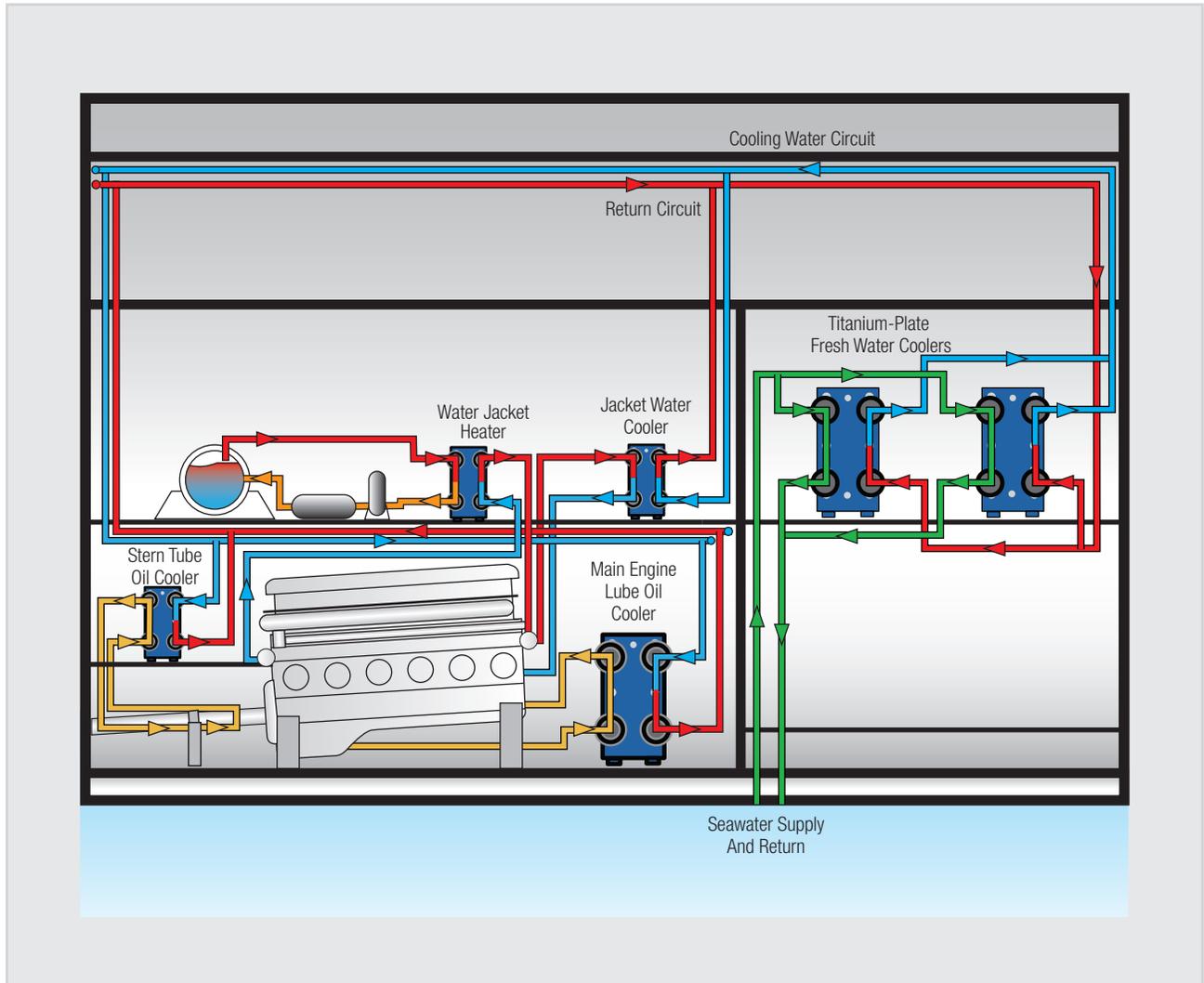
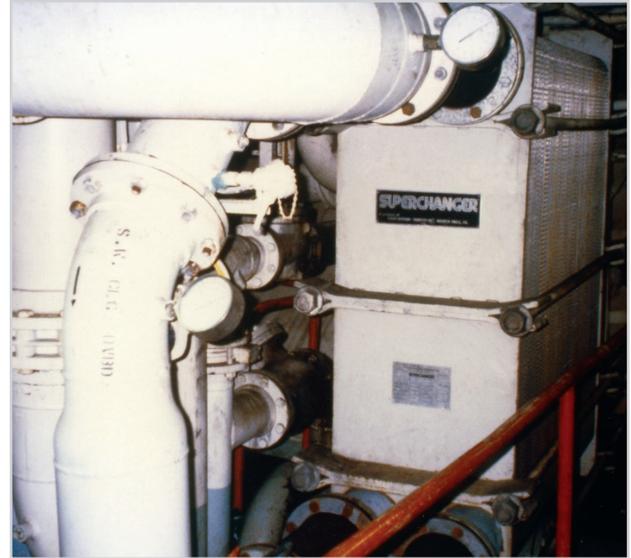
### Cooling Electronic Gear

Critical electronic gear and radar/sonar control systems are typically cooled using deionized water. SUPERCHANGER exchangers are replacing S&T units constructed with Cu-Ni tubes. SUPERCHANGER HEs, with corrosion-resistant titanium plates, safely use seawater as a coolant without corrosion and in a lot less space.



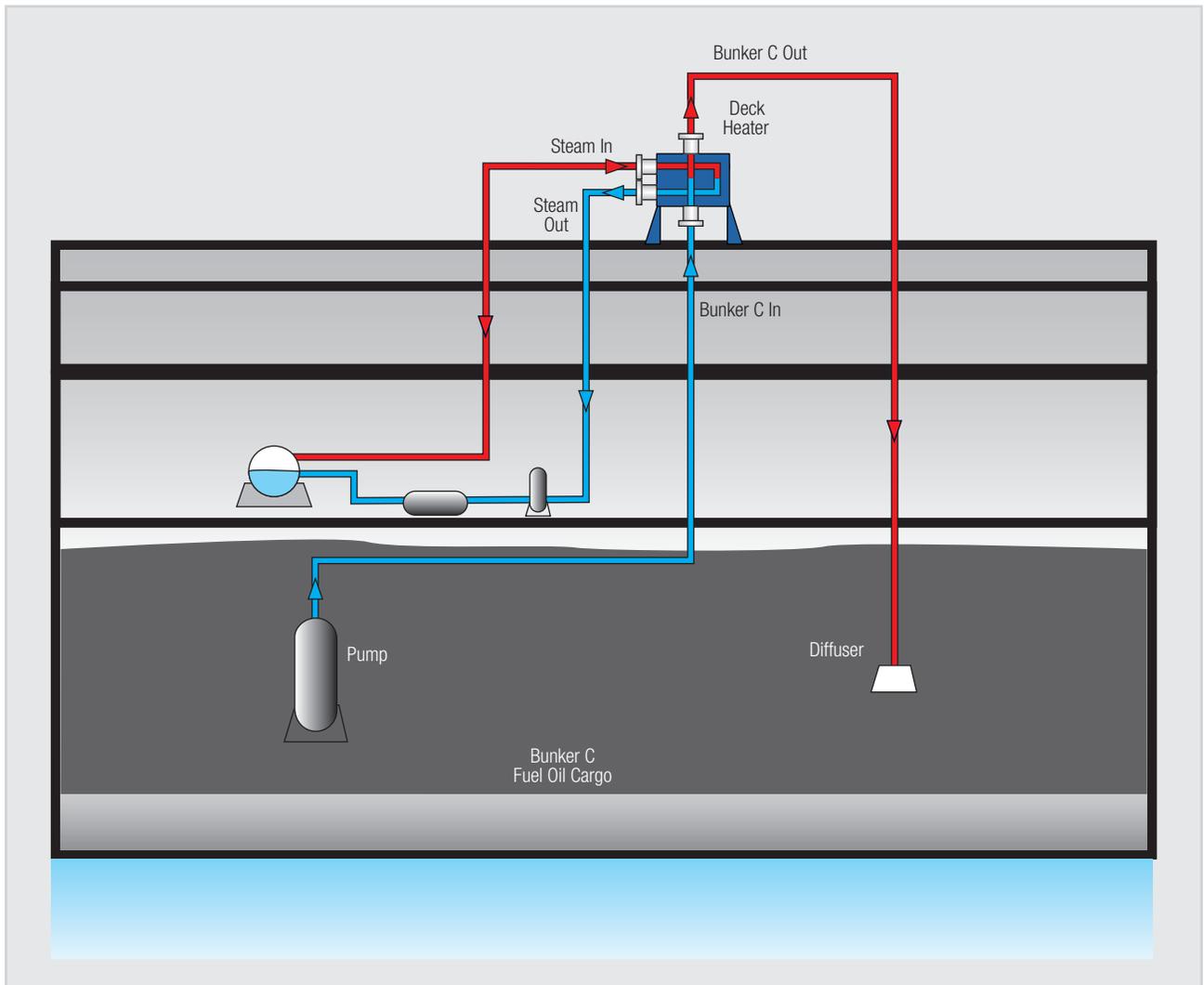
## Main Engine Jacket Water And Lube Oil Temperature Control

With titanium-plate SUPERCHANGER Plate & Frame Heat Exchangers, seawater can be used as a practical isolation circuit jacket water coolant in diesel engines. Stainless steel-plate SUPERCHANGER units instantaneously preheat jacket water prior to startup using steam as the heating medium. They are also effective lube oil coolers, cam oil coolers, steering gear coolers, bow thruster coolers and fuel oil conditioning heat exchangers for large engines. The cooling medium can be fresh water, or seawater when constructed with titanium plates.



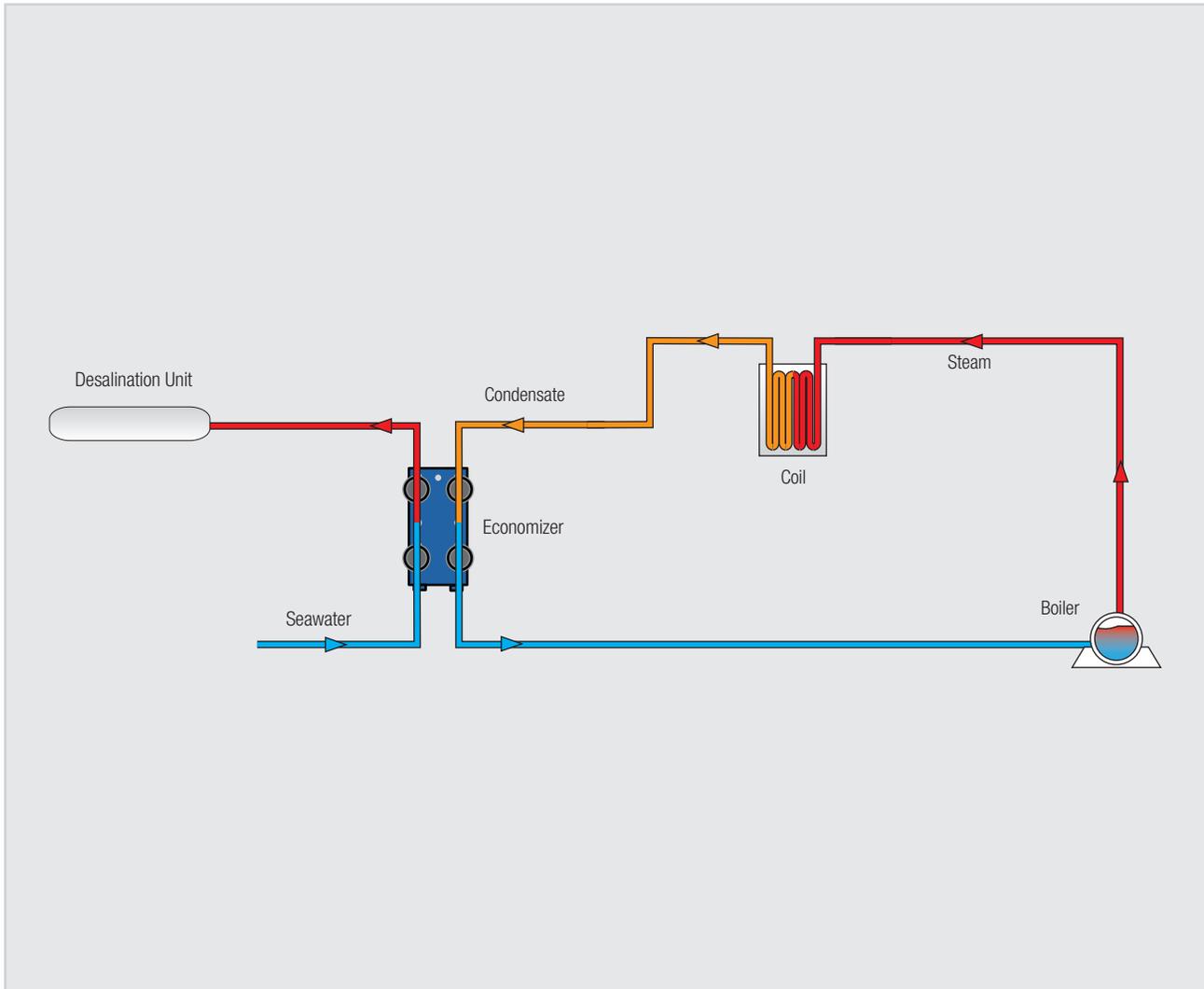
### Deck Heaters

SUPERMAX® Shell & Plate exchangers used as deck heaters for direct cargo heating offer lower topside weight, smaller footprint and easier maintenance than shell & tube (S&T) units. High flow turbulence provides superior scaling and fouling resistance. SUPERMAX can use steam, heat transfer oil or hot water to heat cargoes such as bunker oils, edible oils, non-edible oils, *p*-xylene and crude oil.



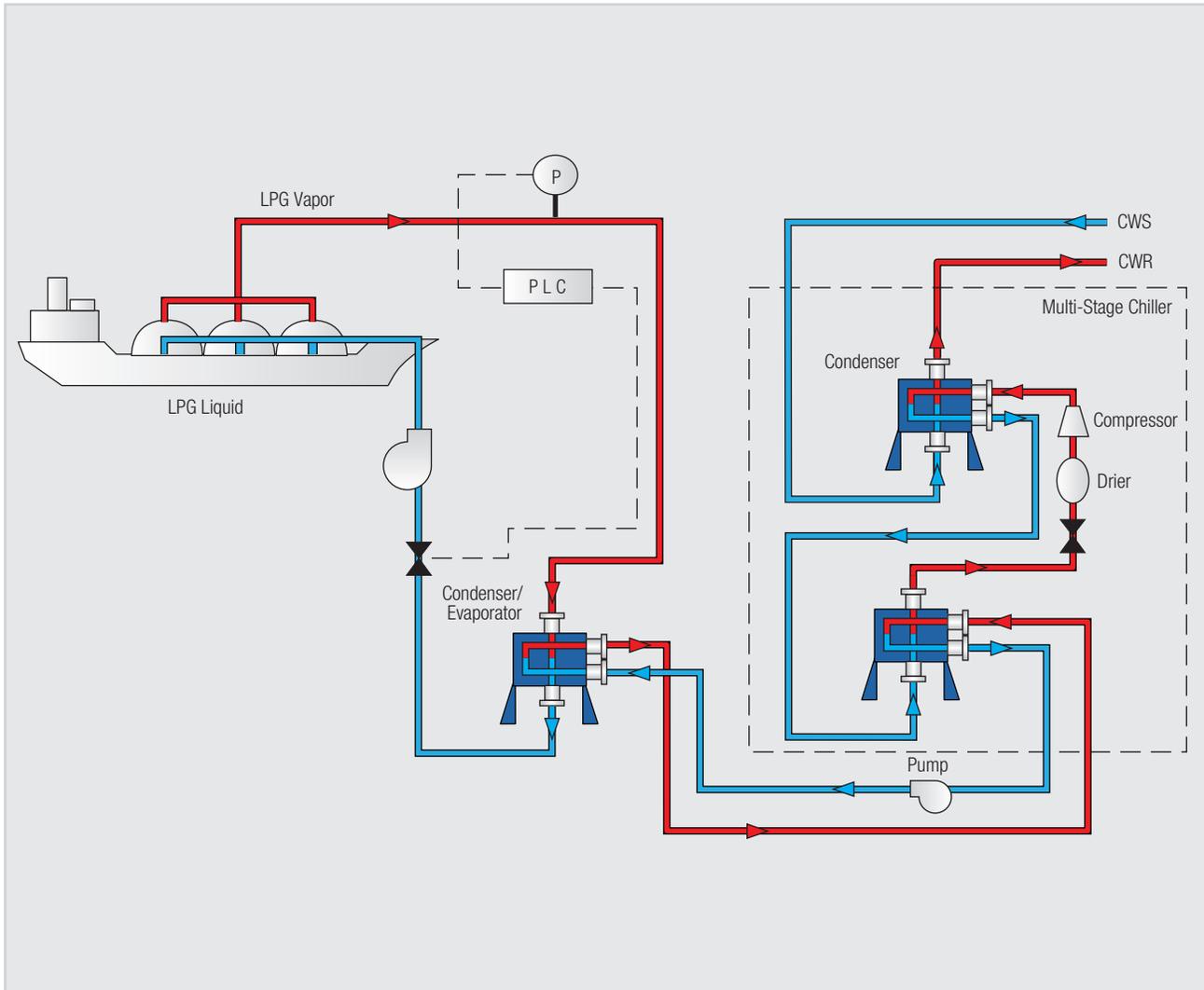
### Heat Recovery From Hot Condensate

SUPERCHANGER heat exchangers are widely used both onshore and aboard ship to cool the steam condensate from various heating applications. This system can also be used for heat recovery, whereby seawater used for cooling is preheated on its way to the desalination unit.



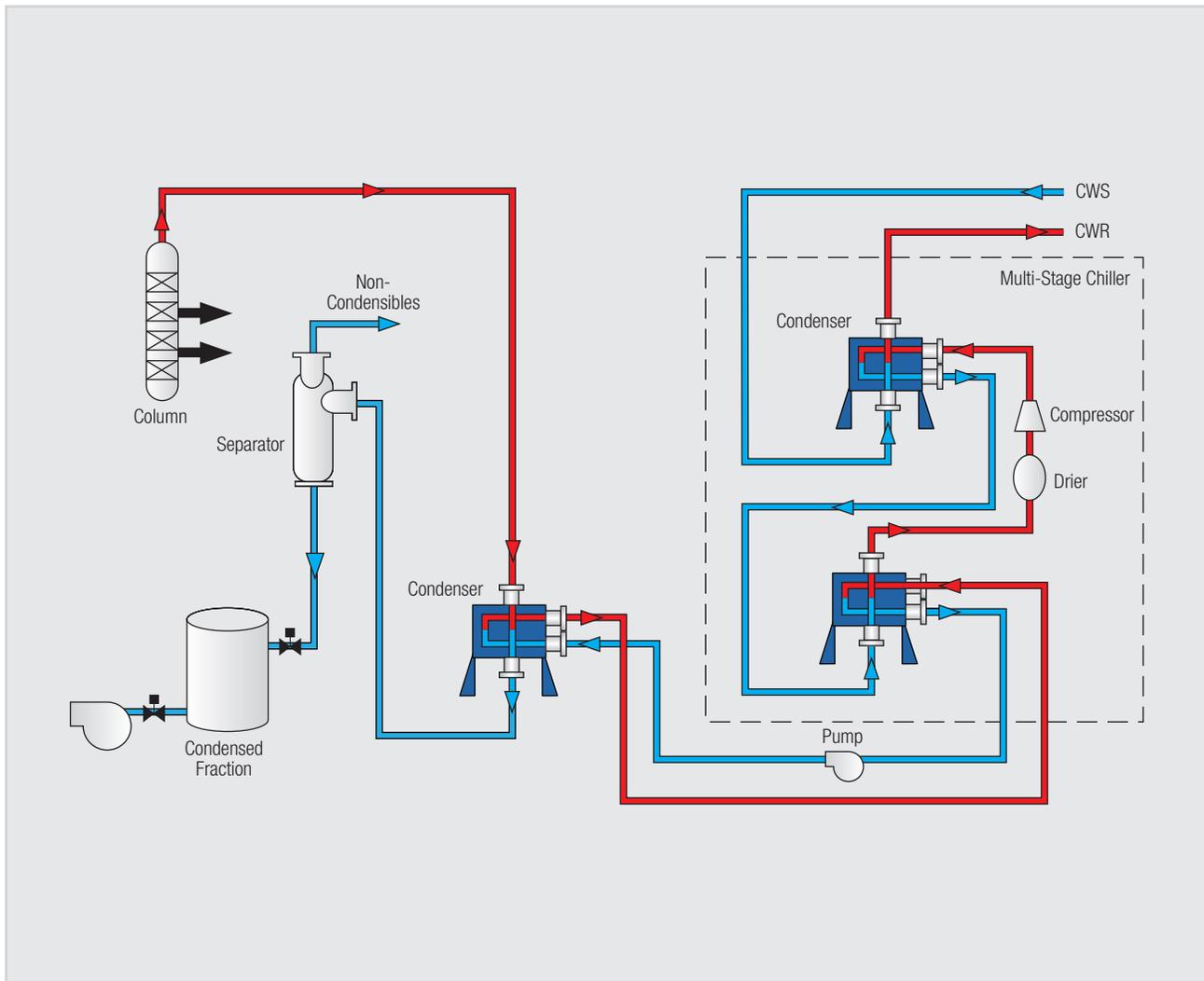
### LPG Reliquefaction

SUPERMAX exchangers, configured as a multi-stage chiller and condenser system, can reliquefy LPG during transport. And multi-pass configurations perform well as condensers/evaporators where flow imbalances are significant.



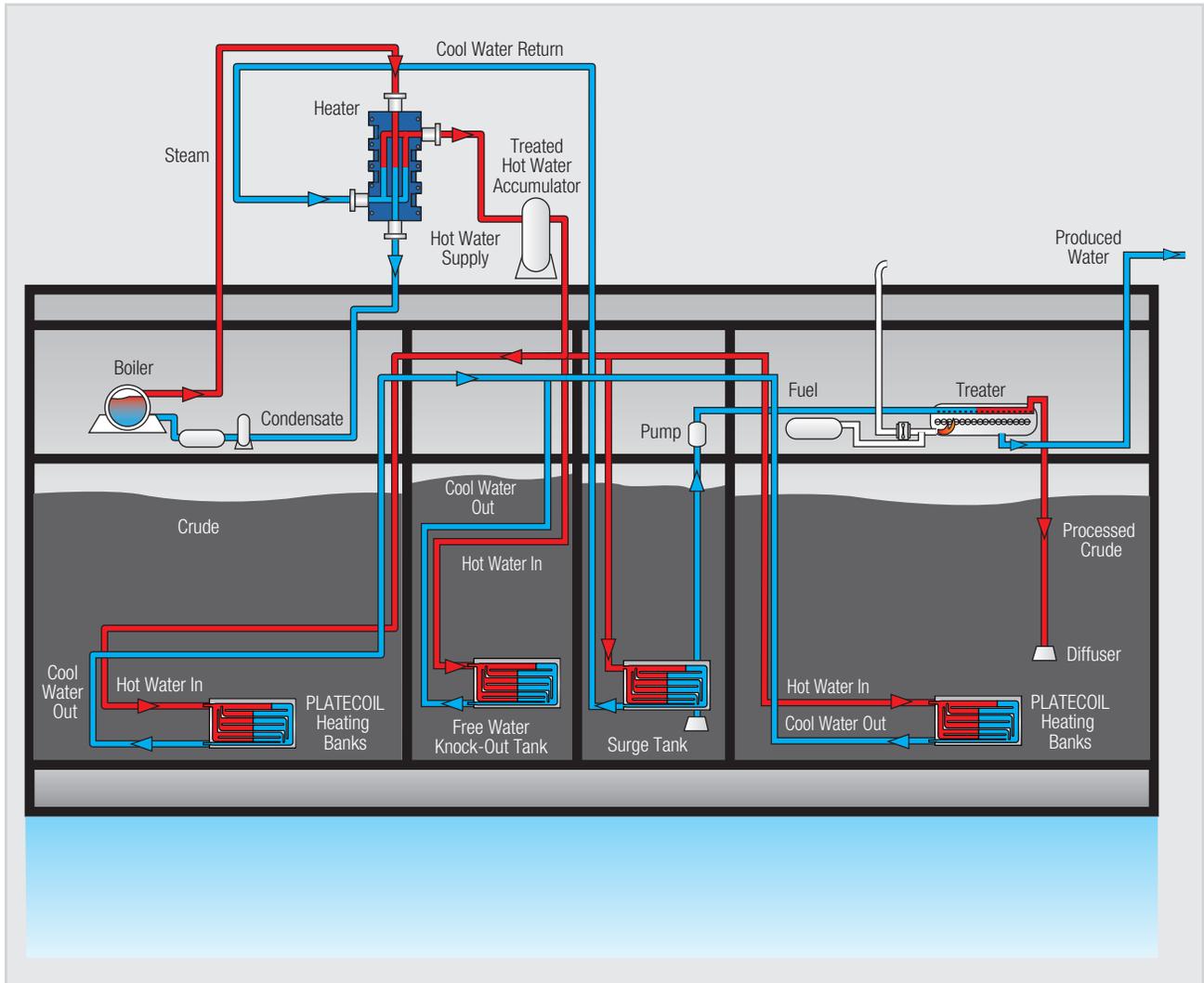
## Noncondensibles Separation And Condensate Return

A SUPERMAX serves as a high-performing condenser for removing noncondensable fractions and returning condensates to process in offshore processing operations. With its available large-diameter shell-side nozzles, it can handle unbalanced flows found in gas/water exchanger service. SUPERMAX units can also be used as space-efficient chiller components.

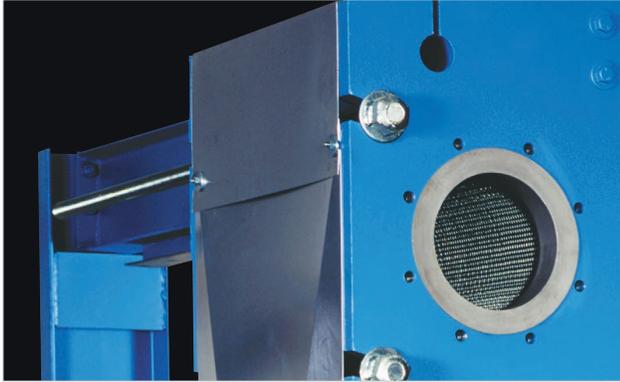


## FPSO Applications

Space, weight and corrosion resistance are critical factors for process systems aboard FPSO vessels. SUPERMAX exchangers serve as steam-powered heaters for the local heating medium circuit, which supplies heat for various processes throughout the vessel. These units require only 30–50% of the space and weigh up to 70% less than other typical exchangers. These efficiencies translate into less steel, lower purchase price, shorter lead time and less expensive delivery. Protection is provided by a PTFE coating and a special, three-layer epoxy paint on all tightening bolts. The units also offer the assurance of ABS certification and ASME Code stamps, as well as compliance with API662.



## Maximize Maintenance Productivity and Efficiency with Plate & Frame Accessories



### Shrouds

Shrouds provide protection in an aggressive environment, preventing damage to plates and gaskets.



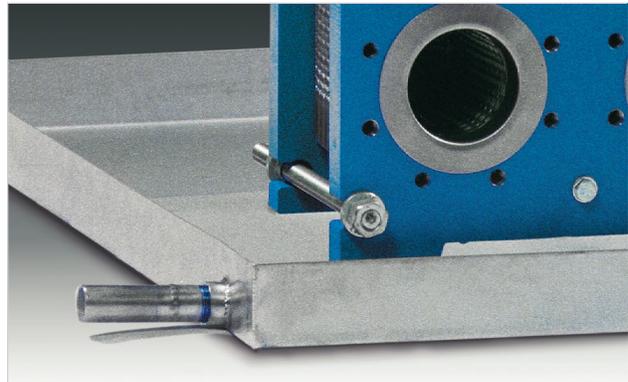
### Instruments And Gauges

Special flanges are available with outlets for drainage and ventilation, pressure gauges and sensors.



### Hydraulic Tightening Devices

Hydraulic tightening devices facilitate assembly and reassembly of plate & frame heat exchangers fast, easily and securely.



### Drip Pans

Drip pans prevent water and other liquids from flowing onto the floor when dismantling the heat exchanger.



### Port Strainers

A strainer protects the plate pack from large particles that would otherwise foul and clog the channels. The length is adapted to the number of plates.

### Other accessories include:

- Portable Clean-In-Place systems
- Backflush valves
- Wrenches
- Grounding lugs
- Molybdenum bolt coatings
- Tie-rod protectors
- HexWrap insulation



## Quality, OEM Service and Maintenance Protect Your Plate HEs and Your Systems

Tranter offers extensive experience in both onshore and offshore applications. With manufacturing centers on three continents, Tranter sources systems close to major production and refining areas, minimizing lead-time and freight for accommodating tight project schedules.

Efficient operation is the key to optimum return of investment in your heat exchanger. Malfunctions and changes in heat transfer can have severe consequences on operational costs and may affect the product quality. Regular service and maintenance safeguard your exchanger's condition and allow you to maintain the optimum performance.

Tranter service only begins when the heat exchanger starts up. The Tranter service concept helps meet application requirements, prolongs the life of the exchangers and makes them top performers at all times.

With Tranter authorized service, you can always be sure that you get the right gaskets, the right plates, the friendliest service and our OEM Guarantee.



### Authorized Service Guarantees The Original Standards

To obtain additional information on operation and maintenance, contact your local Tranter, Inc., representative or the nearest Tranter, Inc., factory-authorized Service Center.

#### **Tranter Service Center (USA)**

Factory/Sales/Engineering Office  
1900 Old Burk Highway  
Wichita Falls, TX 76306  
Tel: 1-800-414-6908  
E-mail: [service@tranter.com](mailto:service@tranter.com)



#### **Tranter Midwest Service Center (USA)**

30241 East Frontage Road  
Farmersville, IL 62533  
Tel: 217-227-3470  
E-mail: [service\\_il@tranter.com](mailto:service_il@tranter.com)

#### **Tranter Gulf Coast Service Center (USA)**

6819 Willowbrook Park  
Houston, TX 77066  
Tel: 1-713-467-0711  
E-mail: [service\\_hou@tranter.com](mailto:service_hou@tranter.com)

#### **Tranter West Coast Service Center (USA)**

857 E. Levin  
Tulare, CA 93274  
Tel: 559-686-1840  
E-mail: [service\\_ca@tranter.com](mailto:service_ca@tranter.com)

#### **Tranter East Coast Service Center (USA)**

316 East 22nd Street  
Norfolk, VA 23504  
Tel: 757-533-9185  
E-mail: [service\\_va@tranter.com](mailto:service_va@tranter.com)

#### **Tranter Heat Exchangers Canada, Inc. (Canada)**

7207 - 68 Avenue  
Edmonton, AB T6B 3T6 Canada  
Tel: 780-465-4582  
E-mail: [servicecanada@tranter.com](mailto:servicecanada@tranter.com)

#### **Tranter Ind e Com de Equip Ltda (Brazil)**

Av. Leonil Cre Bortolosso, 88 Galpão 1  
06194-971 Osasco, SP Brazil  
Tel/Fax: +55 11 3608-4154  
E-mail: [brasilsales@tranter.com](mailto:brasilsales@tranter.com)

At the forefront of heat exchanger  
technology for more than 85 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.



North America

Tranter, Inc.  
Texas, USA  
Tel: +1 940 723 7125  
E-mail: sales@tranter.com

South America

Tranter Ind e Com de Equip. Ltda  
Sao Paulo, Brazil  
Tel: +1 940 723 7125  
E-mail: brasilsales@tranter.com

EMEA

Tranter International AB  
Vänernborg, Sweden  
Tel: +46-521-79 98 00  
E-mail: sales.support.europe@tranter.com

India

Tranter India Pvt. Ltd.  
Pune, India  
Tel: +91 2137 392300  
E-mail: salesindia@tranter.com

China

Tranter Heat Exchangers Co. Ltd.  
Beijing, P.R. China  
Tel: +86 1064379490  
E-mail: info\_cn@tranter.com

South East Asia & Oceania

Tranter Heat Exchangers  
Singapore, Singapore  
Tel: +65-8299-2212  
E-mail: info\_sea@tranter.com