THERMAL – Thermal Heat Exchanger (THE)

The THE (Thermal Heat Exchanger) is a custom-engineered shell-and-tube heat exchanger designed for maximum thermal transfer efficiency between two fluids. Widely applied in heating, cooling, condensation, and heat recovery duties, it handles both liquid-liquid and gas-liquid applications.

While the industry follows the same construction codes (ASME and TEMA), T2E differentiates itself through engineering optimization: for every unit, we run over 1,000 configuration simulations in our proprietary software to select the ideal CAPEX/OPEX balance for your process.





Main Applications:

- Chemical & Petrochemical: heating and cooling in reactors, condensers, and distillation systems;
- Food & Beverage: pasteurization, process fluid heating, and rapid cooling;
- Refineries & Power Plants: energy recovery and industrial thermal loop cooling;
- Pharmaceutical & Cosmetics: precise temperature control and regeneration of heated solutions;
- Industrial Refrigeration: high thermal efficiency in large-scale continuous duty.

Engineering & Manufacturing Quality:

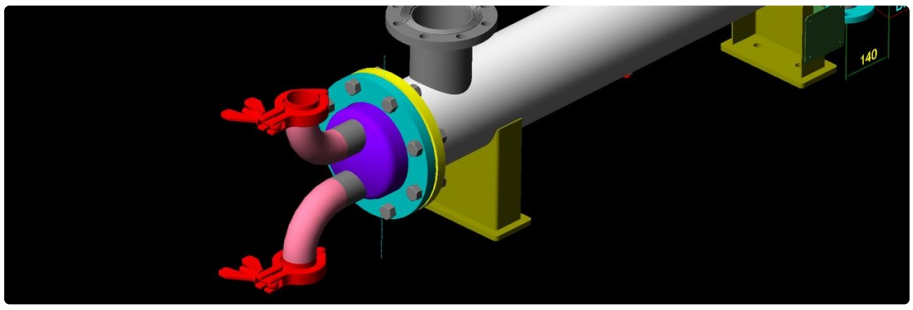
- Thermal and mechanical design in accordance with ASME and TEMA standards;
- Proprietary simulation software evaluating over 1,000 configurations of shell diameter, passes, baffles, and velocities;
- 100% custom-engineered — no off-the-shelf compromises, always tailored to the exact process duty;
- Fully certified materials and qualified welders;
- Rigorous inspection with liquid penetrant testing (PT) and hydrostatic pressure testing prior to shipment.

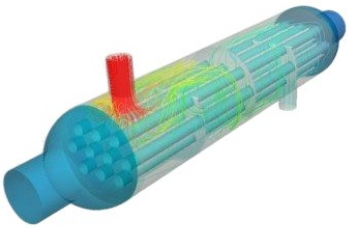
Notice: We do not force standard off-the-shelf models for the THE — every shell-and-tube exchanger is custom-sized to optimize CAPEX, pressure drop, and operating cost (OPEX) for the client's exact duty.

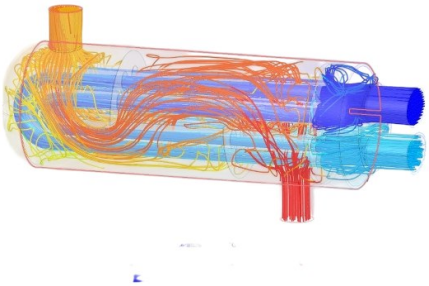
Copyright © 2026 T2E. All rights reserved.

THERMAL – Thermal Heat Exchanger (THE)









Safety & Maintenance Instructions:

Utility Isolation:	Before performing any maintenance or inspection, ensure the equipment is shut down and locked out from all water, steam, process fluid, and power sources.
Pressure & Vacuum Relief:	Heat exchangers may operate under pressure or vacuum. Gradually and completely relieve internal pressure before opening any connections or flanges. Never tighten unions while the unit is operating.
Temperature Check:	The equipment may operate at high temperatures. Allow the unit to cool down to safe handling levels before servicing.
Overpressure Protection:	Never exceed the specified design pressure or temperature. Whenever overpressure risks exist (improper valve closure, pump shutoff head, etc.), properly sized safety relief devices must be installed.
Gasket Maintenance:	Periodic inspection and annual replacement of all gaskets (or shorter intervals depending on process media) is recommended to prevent leaks. Periodic hydrostatic tests must be performed by qualified personnel.

⚠ During operation and maintenance of thermal equipment, proper PPE is mandatory: safety helmet, safety glasses, thermal/mechanical gloves, safety boots, and hearing protection.

Copyright © 2026 T2E. All rights reserved.