THERMAL – Thermal Multi-Tube (TMT)

The TMT (Thermal Multi-Tube) is a single-pass sanitary multitubular heat exchanger composed of small-diameter tubes welded tube-to-tubesheet inside an outer shell with an integrated expansion joint. Product flows through the inner tubes while the utility fluid (steam or water) circulates on the shell side.

Engineered specifically for sanitary industries (dairy, food, beverage, pharmaceutical, and chemical), the TMT provides low pressure drop, reduced thermal residence time, and fast, thorough CIP cleanability.





Advantages of the TMT:

- Single-pass sanitary design: eliminates dead zones, promotes full drainability, and minimizes product-side pressure drop;
- Expansion joint supplied as standard to absorb thermal expansion and prevent tubesheet weld cracking;
- Reduced product residence time and shorter CIP cycles, preserving product quality;
- Handles clean liquids, pulps, blends, and fluids with small particulates or seeds;
- Modular installation in series or parallel, vertical (standard) or horizontal orientation;
- Typical applications: CIP stations, membrane skids, and inline product heaters/coolers.

Standard Construction:

Material of construction:	AISI 304L Stainless Steel (AISI 316L optional)
Sanitary finish:	Ra < 0.8 µm on all product-contact surfaces
Standard design pressure:	10 bar (other ratings upon request)
Product connections:	Sanitary SMS unions (Tri-Clamp or DIN optional)
Steam / condensate connections:	ASME B16.5 Class 150# flanges (Class 300# optional)
Orientation & insulation:	Vertical standard (horizontal optional); supplied uninsulated (insulation optional)
Quality assurance:	Certified materials, qualified welders, 100% PT and hydrostatic pressure testing

Notice: Every TMT includes an integrated shell expansion joint as standard to protect tubesheet welds against thermal fatigue during frequent heating and CIP cycles.

Copyright © 2026 T2E. All rights reserved.

THERMAL – Thermal Multi-Tube (TMT)

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.