



THERMALINE

I N N O V A T I V E H E A T T R A N S F E R S O L U T I O N S

Plate Heat Exchangers
Shell & Tube Heat Exchangers
Hot Water Sets
Corrugated Tube Heat Exchangers
Testing & Service

Our Mission

To Soundly Exceed the Expectations of our Customers, Employees, Vendors and Competitors.

For over a quarter of a century Thermaline has stood behind our Mission Statement. This powerful mission is evident in every heat exchanger we manufacture and the support you receive. With a mindset to view everything through the customers eyes first and years of real industry experience, we are just as committed as you are to take on today's challenges of stringent consumer safety and energy consciousness.

Cross Contamination Tester (CCT)

The must have heat exchanger tester for every food/beverage producer!

Finally, an easy to operate, comprehensive and economical heat exchanger tester that you can own. The Thermaline CCT Heat Exchanger Tester provides immediate results and can be used for your FISMA preventative maintenance plan and/or any time you suspect a problem. Own a CCT test system today and Thermaline has you covered for all of your further support needs.

- CCT Training and verification of results
- Dye Testing, inspections, plate cleaning and re-gasketing
- Complete heat exchanger rebuild – all makes and models

Two models to choose from:

CCT 2.0

The Patented CCT 2.0 is a primary tester* producing a pass or fail indication of internal defects regardless of the size of any particular heat exchanger. The Bubbler senses internal defects giving the operator visual results. The CCT 2.0 also performs a timed duration test based on heat exchanger volume.

Kit includes the following:

- *CCT 2.0 Primary Tester
- Air Pressure regulator and dump valve
- Heavy duty carrying case
- Volume/Duration lookup chart
- Spare connection O rings
- Tri Clamp connection kit 1", 1-1/2", 2", 2-1/2" and 3" (other connections available)

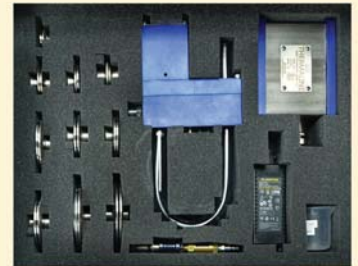


CCT 4.0

The Patented CCT 4.0 is a primary tester* which uses an IDEC PLC to calculate the volume of the heat exchanger and produces a PDF report of the results for your record retention. The CCT 4.0 also has a bubbler feature for a quick visual indication of internal defects. The rugged CCT 4.0 is constructed of stainless steel and aluminum to give years of service in today's rough environments.

Kit includes the following:

- *CCT 4.0 Primary Tester and pressure sensing PLC driver
- Power supply & interconnecting cable
- Air Pressure regulator & dump valve
- Heavy duty carrying case
- Spare connection O rings
- Tri Clamp connection kit 1", 1-1/2", 2", 2-1/2" and 3" (other connections available)



Thermaline Plates: Manufactured in the USA

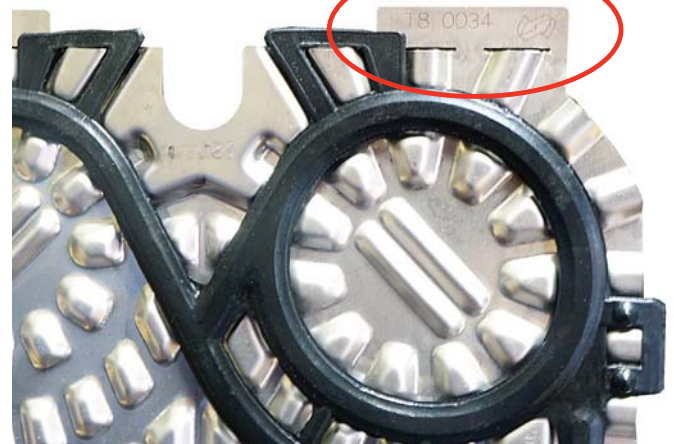
Worlds First Smart Identification System (SIS)

Even the most hygienic of designs cannot safeguard against human error. Until now, there wasn't a way to ensure your plate heat exchanger was assembled properly. One wrong move can cost more than just a financial burden; it may cause a recall destroying your brand. Thermaline's patent pending Smart Identification System (SIS) laser etches vital plate information on an external tab that is visible at a glance even when the unit is assembled.

Other Plate and Gasket Features

- Deep channels for gentle processing of food products and cleanability
- Shallow channels for efficient utility and industrial designs
- Open channels with minimal contact points for small particulates and fibers
- Mix-Proof Double Wall plates for cross contamination protection
- Various plate and gasket materials compatible with your process
- Clip on gaskets for ease of maintenance

Smart Identification Code etched onto external tab. (Patent Pending)



Sanitary Plate Heat Exchangers

Dairy | Juices | Condiments | Wine | Beer

Achieving the balance between energy efficiency, optimal performance, and dependability is a complicated equation that is easily solved with Thermaline's years of industry experience and the understanding of your process needs.

Stainless Steel Frame

- Highly polished for complete cleanability
- Rugged design for years of service
- Solid heads no cladding to harbor bacteria
- Multiple mounting options
- Customizable connections

Sanitary Carbon Steel Frames

- Rugged high temp powder coating
- Sanitary wetted surfaces and customizable connections
- Stainless steel tie bolts

Open Centerframe Design (OCD) for Cleanliness

- Completely cleanable - no enclosed boxes to harbor bacteria
- Leak detection and sanitization portals
- Economical design makes it easy to adapt to new processes



Industrial Plate Heat Exchangers

- Manufactured in accordance with ASME standards
- Heavy duty epoxy coated frames
- Connections, gaskets, and plates available in a variety of styles and materials to match your process



Mix Proof Double Wall Plates

Thermaline's mix proof double wall plates prevent cross contamination of your low viscosity fluids. Two plates are paired together to form one plate with a safety micro air gap in between the plates. If either of the plates fail from corrosion or cracks the process fluids will not mix, rather the fluid against the failed plate will be directed through the micro air gap and to the outside of the heat exchanger where it becomes visible.

- Standard 0.4mm plates for exceptional service life
- Micro air gap maximizes heat transfer efficiency
- Clip on adhesive-less gaskets
- Pharmaceutical, Bio-Tech, Personal Care, Potable Water, Food, Bio Pharma, Beverage Processing.

**Excellent choice for low viscosity processing.*



Automated Plate Heat Exchangers

The Power of Innovation Provides an Incalculable ROI

Features:

- Single automated heat exchanger
- Dual automated heat exchanger
- Modular Design: Convert single into dual
- 3A Design

Applications Include:

- Multiple process lines
- Critical redundant processes
- Products requiring manual cleaning or frequent inspections
- Dual pasteurizers/Dual HTST



Patented EZ Automated Plate Heat Exchanger

Lock Solid

The Thermaline Automated Heat Exchanger utilizes the smooth operation of hydraulics to open and close the unit. Once the unit is closed, engage the patented twist lock system to mechanically hold the unit closed indefinitely.

TagTeam Automated Plate Heat Exchanger

The patented TagTeam is two independent heat exchangers in one automated frame.



Savings Include:

- No labor claims from the strenuous task of assembling and disassembling
- No lost time during a production run to make repairs
- Effortless labor to open and close the unit for maintenance and inspection
- Cannot damage plates from over-compression
- Plate capacity can be easily expanded
- Years of uninterrupted dependable service

Shell & Tube Heat Exchangers

Thermaline stainless steel Shell & Tube heat exchangers are manufactured in accordance with ASME and TEMA standards. Standard with a mechanical solid seal backed with a self energized o-ring ensuring years of uninterrupted service.

Options:

- 304, 316, Duplex, AL6XN and other materials
- Single or multi pass
- Single and double tube sheet
- Insulation – Stainless Steel/PVC/Blanket
- High purity surface finishes

HYGX

Standard Shell & Tube designed for utility-type applications where the process water is not in the same circuit as food products. Closed loop and instant hot water applications.

- Inner tubes - 2B finish and laser welded seams
- Tube to tube sheet connection- rolled and expanded into the sealing groove
- Connections and distribution area 32 RA polish

HYGA

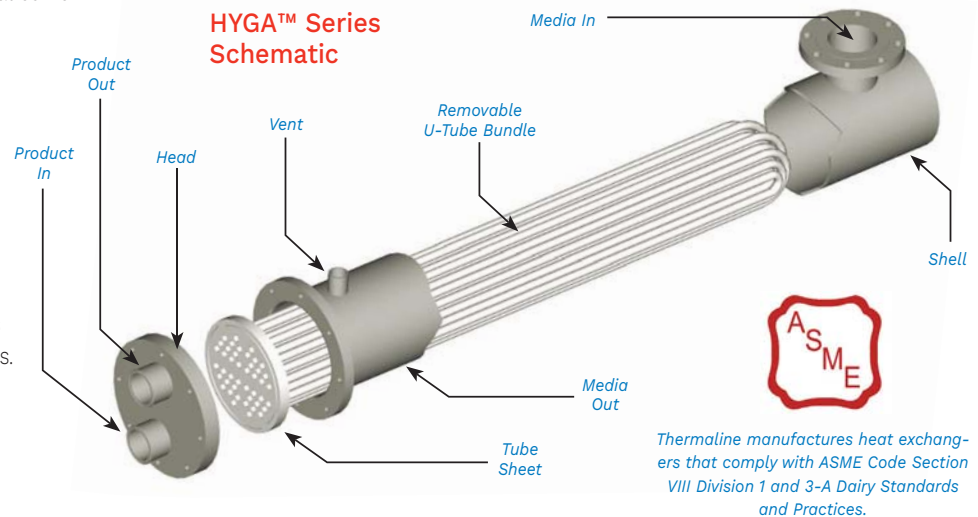
Sanitary Shell & Tube meeting 3-A Sanitary standard 12-07. Can be used to process food products, personal care products, and CIP circuits that come in direct contact with processing circuits.

- Seamless inner tubes with 32 RA ID finish
- Tube to tube sheet connection - rolled and expanded into the sealing groove
- Seal welded tube to tube sheet face
- Connections and distribution area 32 RA polish

BIOX

Pharmaceutical grade Shell & Tube manufactured in accordance with ASME/BPE for bioprocessing, pharmaceutical, and personal-care products industries, as well as other applications with high levels of sanitary requirements.

- High purity inner tube surface finish
- Tube to tube sheet connection - rolled and expanded (hydro-swaged) into the sealing groove
- Precision machine welded tube-to-tube sheet face
- High purity connections and distribution area



Hot Water Sets

Close approach temperatures, precision control, and dependability all come standard on every Thermaline hot water set. Each hot water set is designed around your process, closely matching the steam characteristics with the thermal demand for optimal performance, but still providing the power needed for startups and high demands.

Closed Loop Applications

- HTST/UHT Loop water
- Utility water
- Jacketed tanks

Continuous Duty

- Clean-In-Place (CIP)
- Batch heating
- Hose stations
- Instant hot water

Features

- Thermaline HYGX, HYGA, and BIOX Shell & Tube heat exchanger
- Stainless steel frame with adjustable ball feet or mounting tabs
- Stainless steel or carbon steel steam components
- ASME Steam and relief components

Options

- Process water pump (stainless steel or painted motor) piped to the Shell & Tube with port for RTD
- Control panel stainless steel enclosure with precision loop controller
- Condensate return - electric or pressure motive
- Stainless steel or Carbon steel expansion tank (when applicable)



Expansion Tanks

Thermaline offers a full range of all stainless steel expansion tanks which are used on closed loop systems to displace expanding fluids and limit the pressure in heating systems. Thermaline expansion tanks are made of 304 or 316 stainless steel and built in accordance to ASME standards. Custom and standard sizes available.

Floating Series Corrugated Tubular Heat Exchangers

Floating

The innovative design allows the tubes to freely expand and contract independently which diminishes material fatigue and failure. Thermaline's Floating Series completely eliminates failure-prone expansion bellows and rigid welds on all models.

Operational Simplicity

The product flow and heating/cooling media flow are separated in concentric lengths of sanitary tubing. The unit has no moving parts, is easy to clean, easy to inspect, and easy to maintain. Tube ends, with their sanitary clamp design, can be easily removed for QC inspections and maintenance.

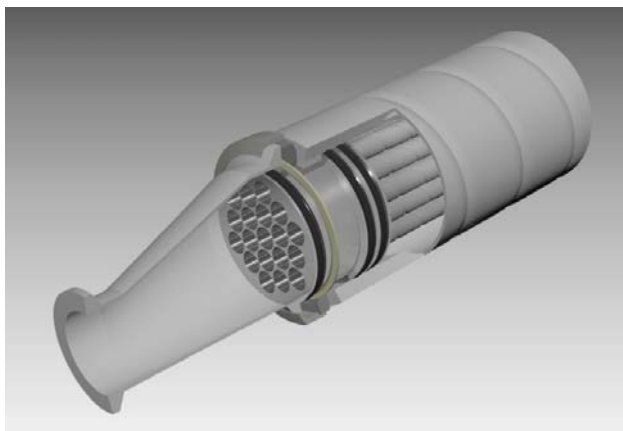


Go Green

Tubes can be arranged in either direct or indirect regeneration. Direct product regeneration can yield more than 80% in energy savings. Indirect product regeneration can recover energy from thermal waste streams in other areas of your facility, reducing thermal pollution and increasing energy savings.

Corrugation

The heat exchanger surface is shaped into turbulence-inducing, alternating parallel grooves and ridges to increase heat transfer efficiency. Inducing turbulent flow results in less total surface area required to achieve the desired thermal results. Turbulent flow promotes thorough mixing of the product and even thermal disbursement without compromising product integrity.



Safe

The strategically-positioned elastomers eliminate the possibility of product intermixing. If a leak were to develop from an elastomer failure, the fluid would be vented to the atmosphere so it can be quickly identified and repaired. The Floating Series eliminates blind, internally-positioned elastomers that can lead to cross contamination.



DuoFloat

Sanitary corrugated floating double-tube heat exchanger. Simplistic by design, two concentric tubes of varying size are positioned one inside the other. Excels at processing fluids of moderate viscosity with medium to large particulates.



TriFloat

Sanitary corrugated floating triple-tube heat exchanger. Three concentric tubes of varying size are positioned so the media flows inside and outside of a product zone. Ideal for higher viscosity fluids with medium to small particulates and fluids with large viscosity changes.



MultiFloat

Sanitary corrugated floating multi-tube heat exchanger. Multiple product tubes within a common media tube. Ultimate solution for thin fluid processing with small particulates and fibers.



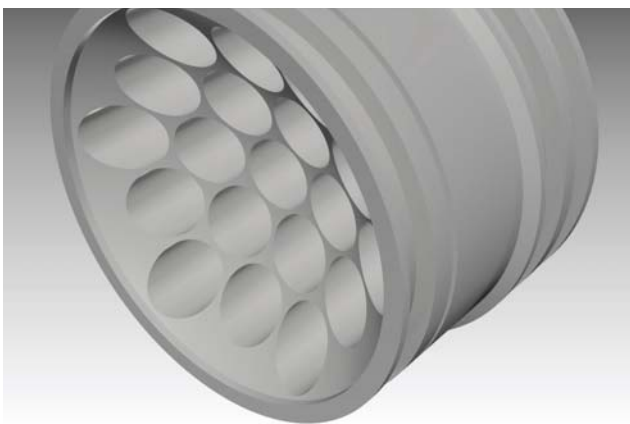
Versatility

Adding the DuoFloat inline mixer to your double-tube heat exchanger enables you to tune your processing needs to a variety of products. When processing fluids with large particulates, remove the DuoFloat inline mixer to maintain product integrity and then easily reinstall the mixers to ensure thorough heat transfer on your other viscous products.



MultiSafe

When product integrity is an absolute necessity, Thermaline offers a sanitary corrugated floating multi-tube heat exchanger with additional safety features. The product tube face is separated from the media tube face, eliminating the possibility of product cross contamination from tube-to-tube sheet failures.



ConClean

Thermaline's innovative concave tube sheet design smoothly guides fluids and particulates into each individual tube alleviating pressures and potential buildup.

During cleaning cycles, the ConClean design creates a vortex that further enhances the cleaning process ensuring nothing is left behind and all surfaces are clean.



All Welded

For aggressive applications, Thermaline offers double-tubes, triple-tubes, and multi-tubes in an all-welded design with expansion bellows.

Programs

What is Value?

Thermaline understands your time is valuable! In today's global marketplace it is imperative to create value beyond tangible goods. One of our strongest core values is our mindset: **Common sense first – view everything through the eyes of our customers.** Not only is this evident in every heat exchanger, but also in our supporting programs.

Rapid Deployment

We offer a full line of plate and shell & tube heat exchangers that ship in one week or less at no extra cost.

Tactical Alliance Program (TAP)

A new way to market – an alliance between manufacturer and distributor to ensure the customer receives unprecedented service. Use Thermaline's online engineering and quoting tools or work directly with the factory engineers for expedient proposals and engineering specifications. When the time comes to purchase, you choose the distributor. You get real-time factory direct communication with the additional value of your preferred distributor.

Cross Contamination Testing (CCT)

Plate and tubular heat exchanger testing for internal cracks and defects. World's first test system that can be operated by your trained plant personnel or a third party certified tester.

Maintenance Program

Exchange plate packs, rebuild services, PM services and field services.

RAPID DEPLOYMENT
FROM **THERMALINE**

Maximum Uptime! Thermaline provides 24/7 Full Service & Repair



Purchase the CCT and/or have a factory trained technician perform the test.

- The patented CCT tests tubes and plates for defects
- Unit does not need to be disassembled
- Immediate test results
- Results documented on report for each test



Dye Testing

- Dye testing is used to locate the defect if the plates fail primary test with CCT 4.0
- Eco friendly water-based NDT dye used on each individual plate to locate the defect
- Results documented, and reports provided

On Site Services

- Pipe Removal and Installation
- CCT Testing and Dye Testing
- Re-gasketing
- Open/Close – Inspect and advise
- Plate Installation/Restreaming



Spare Parts

- All Makes and Models
- Plates: 304/316/6Mo/Hastelloy/Titanium and more
- Gaskets: NBR/EPDM/Viton/Silicone



Shop Services

- Heated Chemical Baths for Deep Plate Cleaning
- Dye Testing
- Gasket Installation
- Plate pack set in order for easy installation
- Frame rebuilding, assembly test



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