

# TERLOTHERM®

## Scraped surface heat exchanger



### Markets

- Food/Beverage
- Pharmaceutical
- Chemical/Petro chemical
- Dairy

### Applications

- Crystallization
- Heating and cooling
- Reaction control
- Aseptic processing
- Slush freezing
- Polymerization
- Aeration
- Mixing
- Gelling



[www.terlotherm.com](http://www.terlotherm.com)

ASME Certified, 3A, USDA Designs

 **terlet**

MEMBER OF THE MPE GROUP



# Why a Terlotherm scraped surface heat exchanger?

**Many prepared foods and other products prevent optimal heat transfer because of their consistency. For example, food containing large particles, viscous, sticky and crystalline products can quickly block or foul certain types of heat exchangers.**

Scraped surface heat exchangers incorporate special design features which make them ideal for heating and cooling products that impair good heat transfer. As the product is pumped through the SSHE cylinder, even temperature distribution is ensured by a rotor and blade assembly, which continually and gently blends the product, while simultaneously removing it from the heat transfer surface.

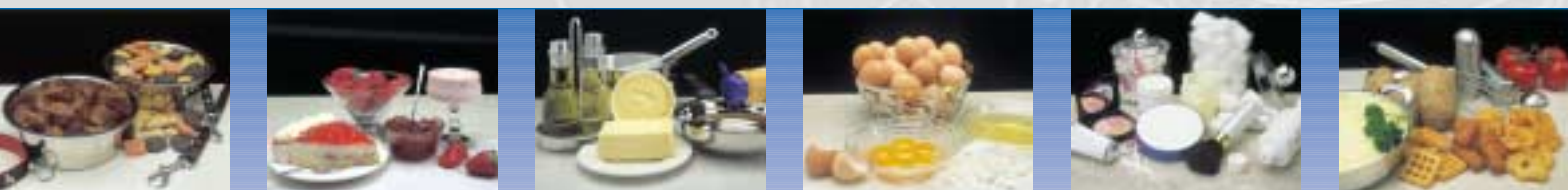
**The Terlotherm is a vertical scraped surface heat exchanger with two concentric heat exchange surfaces to provide optimum heat transfer. This design, together with other features, offers the following advantages:**

- Vertical unit, which gives a large heat exchange surface area, and gives a small foot print so valuable production floor space area, is not required. Our largest machine gives more than five times the surface area than conventional equipment.
- One single mechanical seal. All other types of equipment have a minimum of two seals, and require a lot of time to replace the seals. The seal in the Terlotherm can be changed very quickly. No special hydraulic system is required either as in other conventional equipment.
- No product contamination. The bottom driven scraper drive has the drive entering the product area at the top of the inner cylinder. There is no shaft going through the top lid.
- Simple inspection of the interior of the machine via the top lid, which can be opened without tools. There is no need to disturb seals or remove shafts.
- For maintenance purposes the equipment is easily accessible and simple to clean.
- The scraper blades are manufactured of a high quality synthetic resin, which is tasteless, non-toxic and contains no undesirable reinforcing material such as glass fibers, etc. The chemical resistance is very high, were as the water absorption is extremely low. Bacteriologically this synthetic resin is inert.
- With the lid opened the scraper blades can easily be removed from the scraper holders by hand without any tools required.
- All product contacting parts are of FDA approved material.

- The machine is designed in such a way that the exterior heat exchange surface can easily be separated from the interior heat exchange surface, should either surface need to be refinished or replaced.
- The heat exchange surfaces are not provided with potentially dangerous materials such as chromium or other materials, but are of solid AISI 316 quality stainless steel, thus avoiding the danger of contamination of the product.
- The Terlotherm operates utilizing low pressures and low rpm's, but still maintains the same tip speeds of the scraper blades as other units that run at much higher rpm's and pressures. This is due to our unique design of the double wall cylinder. This is a key advantage when you have very sensitive or complex products that can be easily damaged with too much pressure or too high rpm's.
- Efficient heat transfer is achieved by continuous scraping of the entire heat exchange surface.
- Leak detection device ensures immediate indication of any leakage at the shaft seal.
- The Terlotherm has been approved with 3A, U-Stamp and ASME codes.
- Because of its solid construction the Terlotherm needs practically no service at all.

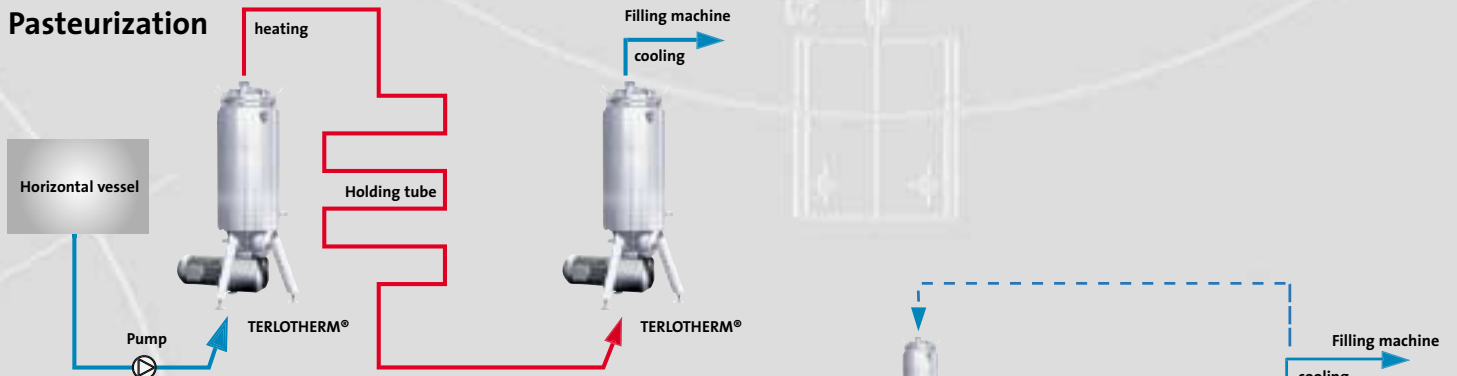
## Typical products processed by the Terlotherm:

Caramel	Gelatins	Celery soup	Potato products
Candy syrups	Freeze concentrates	Chicken soup	Mayonnaise
Cream cheese	Icings	Mushroom soup	Mustard
Cheese whey	Marshmallows	Split pea soup	Meat fillings
Chocolate	Tomato juice	Baby food	Sausage
Candy crèmes	Ketchup	Cream style corn	Hamburger
Fudge	Tomato puree	Custards	Candle gels
Eggs	Applesauce	Gravies	Mascara
Ice cream mix	Fruit puree's	Fruit juices	Ointments
Chili	Margarine	Waxes	Lotions
Meat sauces	Peanut butter	Vaseline	Pet food
Pizza	Pie fillings	Yogurt	Taco filling
Sauces	De-boned poultry	Dairy creamers	Wine
Puddings	and red meats	Jellies	
Salad dressings	Potato soup	Waffle batter	

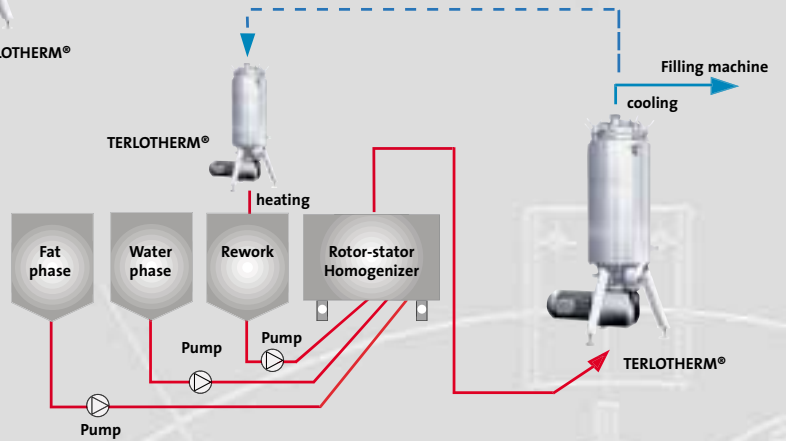


# TERLOTHERM® some product applications

## Pasteurization



## Oil/Fat crystallization



# TERLOTHERM® advantages and applications



## Advantages

- Scrapers can easily be replaced without tools
- Can be CIP cleaned
- Inspection without removing seal
- Lid can be opened with quick clamp system
- Large heating area with small footprint
- Tangential inlet
- Acceleration and deceleration area
- No damage to product
- Maintenance-friendly; only one seal and one drive

## Applications

- Heating
- Aseptic cooling
- Deep-cooling
- Crystallisation
- Tempering
- Sterilization
- Pasteurization
- Polymerization
- Gelling



# TERLOTHERM<sup>®</sup> Technical information

Type	Number of scrapers	Heated surface in m <sup>2</sup>	Number of scraper rows	Total height in mm ca.	Cylindrical height in mm ca.	Ground Clearance in mm ca.	External diameter in mm ca.	Product inlet in NW	Product outlet in NW	Medium inlet interior cylinder inch	Medium inlet external cylinder inch	Medium outlet interior cylinder inch	Medium outlet external cylinder inch	Rinse / leak detection pipes in mm	Product space in mm	Scraper peripheral velocity in metre/second	Maximum drive capacity in Kw	Product temperature range from to in °C	Maximum product area pressure in bar g	Cooling & heating medium in m <sup>3</sup> /hour	Product volume in litres
T1/2	8	0,6	4	1108	552	556	423	50	50	3/4	1	3/4	1	8	50	0,5-3,0	4,0	0-150	5 of 10	5-8	20
To-4	16	1	4	1427	871	556	423	50	50	3/4	1	3/4	1	8	50	0,5-3,0	4,0	0-150	5 of 10	5-8	30
T1-4	24	2,4	4	2015	1340	675	573	80	80	1	1 <sup>1/2</sup>	1	1 <sup>1/2</sup>	8	50	0,5-3,0	17,0	0-150	5 of 10	10-15	70
T1-6	36	2,4	6	2015	1340	675	573	80	80	1	1 <sup>1/2</sup>	1	1 <sup>1/2</sup>	8	50	0,5-3,0	17,0	0-150	5 of 10	10-15	70
T2-4	32	4,4	4	2460	1690	770	723	80	80	1 <sup>1/2</sup>	2	1 <sup>1/2</sup>	2	8	50	0,5-3,0	22,0	0-150	5 of 10	20-25	130
T2-6	48	4,4	6	2460	1690	770	723	80	80	1 <sup>1/2</sup>	2	1 <sup>1/2</sup>	2	8	50	0,5-3,0	22,0	0-150	5 of 10	20-25	130

Applied heating media:  
Steam and water

Applied cooling media:  
Water, ice water, brine, glycol and ammonia

## TERLOTHERM<sup>®</sup> types



### Terlet International

P.O. Box 62, 7200 AB Zutphen

The Netherlands

T: +31 575 593 100 F: +31 575 593 111

I: www.terlet.com E: info@terlet.com

### Terlet USA

6981 North Park Drive

East Bldg., Suite 201, Pennsauken, NJ 08109

T: +1 856 317 9960 F: +1 856 317 9963

E: info@mpegroupusa.com



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