

TERLOTHERM®

Scraped surface heat exchanger

Fruit



Products

- Baker's fruit
- Jelly
- Yogurt fruit

Applications

- Aseptic and non-aseptic lines
- Related to various filling methods.



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 **terlet**

MEMBER OF THE MPE GROUP



TERLOTHERM® Applications in the fruit-processing industry

Pasteurization of fruit

The TERLOTHERM, was originally developed by Terlet for processing whole pieces of fruit. Within fruit processing, the TERLOTHERM is used for both heating and cooling. For applications for baker's fruit, jelly and in aseptic fruit-processing lines for "container fruit", TERLOTHERM has established itself as the "standard unit".

Process

Assuming that no damage has occurred during the pretreatment of the fruit, it is introduced into the bottom of the TERLOTHERM by means of a high-quality, slow-running pump. In the acceleration chamber, the fruit will take on more or less the same speed as the scrapers. Because the TERLOTHERM is equipped with a double-acting heat-exchanging system, the fruit will be heated evenly through contact with the hot inner and outer wall. Due to the high wall temperature and the effective scraping action no burning, discolouration etc. will occur. After passing the double heat-exchanging walls, the fruit arrives at the deceleration chamber, where it is decelerated and leaves the TERLOTHERM via the eccentrically positioned outlet in a flowing movement. When it leaves the TERLOTHERM, the final temperature will have been reached.

If required, the fruit can be maintained at the same temperature in a holding tube for a few minutes. The fruit can now be cooled down again very quickly in a second TERLOTHERM and then, at a temperature of 30°C (86°F), it can be transported to the filling machine. Because of the adjusted scraper speed, the tangential inlet, the acceleration and deceleration chambers and the eccentric outlet, this equipment design feature is conducive to minimal harm to the product.

Advantages of TERLOTHERM® in the fruit processing industry:

- Parts up to 25 mm can pass undamaged
- Optimum scraper action prevents burning

Pasteurization of bake-proof fruit-mass

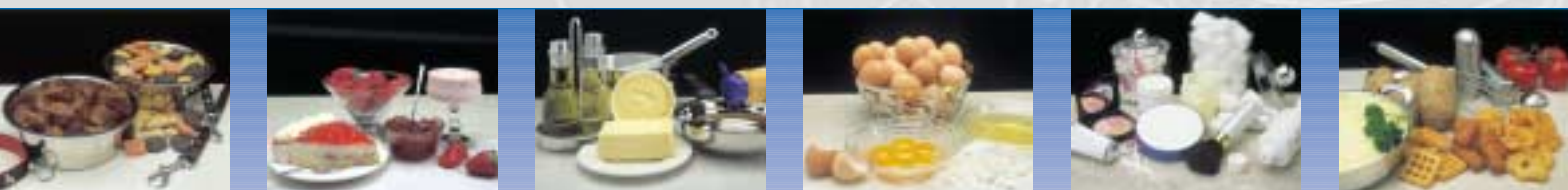
The TERLOTHERM, was developed initially for processing whole fruit. In the production of bake-proof fruit mass, the TERLOTHERM is used for, among other things, cooling. Both bake-proof jelly and fruit mass are cooled down by the TERLOTHERM from 98°C (200°F) to about 25°C (77°F). The dry solids content may increase to 75° Brix; the viscosity may increase to 500,000 cPs. The system described is used for both aseptic and non-aseptic lines for filling buckets, containers or bag-in-box packaging with bake-proof fruit mass.

Process

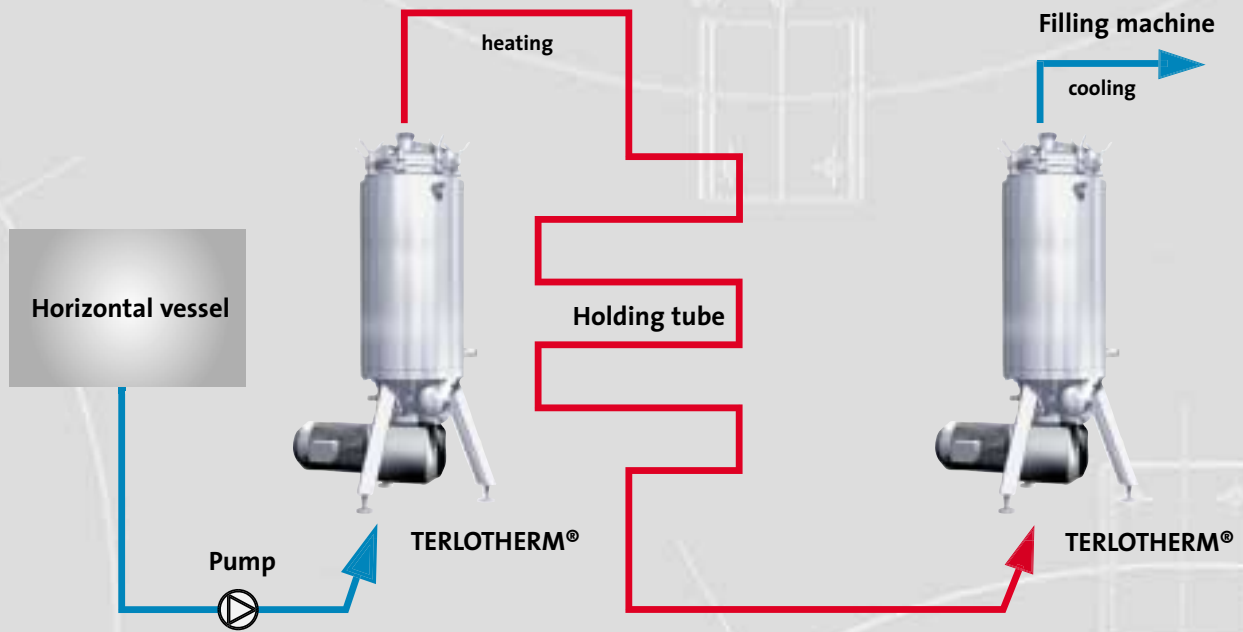
The pureed fruit without fruit parts is mixed homogeneously with syrup and the other ingredients. After this, the whole parts are added to the cooking vessel, mixed and heated to a temperature of 45°C (113°F). To avoid damaging the fruit parts, the fruit mass is introduced into the bottom of the TERLOTHERM via a high-quality slow-running pump. In the acceleration chamber, the fruit will take on more or less of the same speed as the scrapers. Because the TERLOTHERM is equipped with a double-active heat-exchange system, the fruit mass will be heated evenly through contact with the hot inner and outer wall. Due to the high wall temperature and the effective scraping action the fruit mass will be heated quickly and evenly. After passing the double heat-exchanging walls, the fruit arrives at the deceleration chamber. Here the product is decelerated after which it leaves the TERLOTHERM via the eccentrically positioned outlet in a flowing movement. The fruit mass will then have reached pasteurization temperature, and will pass through the holding tube, where the temperature/time combination, required to achieve the necessary pasteurization effect, is reached. Immediately after the heater, the product is transported to the cooling TERLOTHERM. Again, the specific TERLOTHERM concept ensures a quick but gradual and product-friendly cooling process. When it leaves the TERLOTHERM, the final temperature of 25°C (77°F) will have been reached, after which the product is transported to the filling machine.

Advantages of TERLOTHERM® in the pasteurization of bake-proof fruit-mass

- Fruit pieces remain undamaged
- Fully closed system
- No pressure on product side



TERLOTHERM® and your process



TERLOTHERM® advantages and applications



Advantages

- Scrapers can easily be replaced
- Can be CIP cleaned
- Inspection without removing seal
- Lid can be opened with clamps
- Large heating area on limited floor area
- 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[®] Technical information

Type	Number of scrapers	Heated surface in m ²	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 ³ /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 ^{1/2}	1	1 ^{1/2}	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 ^{1/2}	1	1 ^{1/2}	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 ^{1/2}	2	1 ^{1/2}	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 ^{1/2}	2	1 ^{1/2}	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[®] types



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