

Industrial pasteurizer 1/2 plate and tubular units for milk, juice and pur1/2e

Target application: industrial pasteurizer

Reference configuration: Industrial pasteurizer, 5,0001/220,000 l/h

MCF Technology supplies industrial pasteurizers as complete skids: balance tank, regeneration, heating, holding tube, flow diversion, cooling and automatic CIP. Plate units cover low-viscosity liquids, tubular units handle pulps, fibres and particles 1/2 both are validated on the customer's product at commissioning.

SCOPE OF SUPPLY

- Level-controlled balance tank and sanitary feed pump
- Plate pack or tubular exchanger with up to 95% regeneration
- Holding tube sized on the target lethality (HTST or long hold)
- Automatic flow diversion valve and pressure differential monitoring
- Cooling on chilled water or glycol, with optional homogeniser
- Automatic CIP recipes and PLC/SCADA temperature recording

TYPICAL OUTPUTS

Pasteurised milk and cream (721/275 1/2C) 1/2 Fruit juices and nectars (881/295 1/2C) 1/2 Pur1/2es, pulps and sauces (951/2105 1/2C) 1/2 Beer, tea and liquid coffee 1/2 Liquid egg and plant-based drinks

PROCESS, STEP BY STEP

1. Balance tank and feed 1/2 Level-controlled, sanitary centrifugal or positive pump

Constant flow to the exchanger, with automatic recirculation if the process temperature drops below set point.

2. Regeneration 1/2 Up to 901/295% heat recovery

Incoming cold product is preheated by the outgoing hot product: the section that determines steam and chilled-water consumption.

3. Heating 1/2 Milk 721/275 1/2C 1/2 juices 881/295 1/2C 1/2 pur1/2es 951/2105 1/2C

Plate pack for low-viscosity liquids, tubular with wide gaps for pulps, fibres and particles up to 10 mm.

4. Holding tube 1/2 151/230 s (HTST) up to several minutes

Holding time is dimensioned on the target lethality for the specific microorganism and pH class of the product.

5. Flow diversion and safety 1/2 Automatic divert valve, pressure differential monitoring

Under-processed product is automatically diverted back to the balance tank; the pressure differential protects the pasteurised side from cross-contamination.

6. Cooling and outfeed 1/2 Regeneration + chilled water / glycol

Cooling to filling or storage temperature, with the option to feed a homogeniser, deaerator or aseptic surge tank downstream.

7. CIP and documentation 1/2 Automatic CIP recipes, PLC/SCADA recording

Cleaning recipes per product, recorded temperature curves and commissioning records usable for HACCP, audits and certification.

DIMENSIONS AND BUILDING ENVELOPE

Skid footprint	8 1/2 3 m at 5,000 l/h, 12 1/2 4 m at 20,000 l/h, fully piped and wired
Skid height	2.61/23.2 m; 4.5 m clear height for plate pack opening and maintenance
Service clearance	1.5 m on the plate-pack side, 1 m on the remaining sides
Holding tube	Sized for 151/230 s at process flow, insulated and sloped for full drainage

Tunnel option	Tunnel pasteurizer for packed product: 14½28 m length, 2.2½3.5 m width
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LAYOUT FUNCTIONAL ZONES IN FLOW ORDER

1  Balance tank	Feed balance tank with level control and CIP return
2  Regenerative section	Plate or tubular regeneration with 88½92% heat recovery
3  Heating	Hot water set or direct steam injection, 72½98  according to the product
4  Holding	Insulated holding tube with temperature recording and flow diversion valve
5  Cooling	Cooling with tower and chilled water to 4½25  product dependent
6  Control & CIP	PLC with recipe management, validated diversion logic, CIP interface

UTILITIES AND CONSUMPTION

Installed power	45½140 kW depending on flow and pump configuration
Steam	0.5½2 t/h at 6½8 bar, hot water set or direct injection
Cooling water	20½90 m½/h circulating plus chilled water for final cooling
Compressed air	60½150 Nm½/h at 7 bar for valve actuation
Performance	Heat recovery 88½92%, temperature accuracy  0.5  20 h run between CIP cycles
Manning	1 operator, unattended running with SCADA supervision

INSTALLATION, SITE CONDITIONS AND SCOPE BOUNDARIES

- Scope of supply: process equipment, automation, mechanical and electrical erection, commissioning, FAT/SAT, HACCP validation and operator training.
- Excluded from the ranges: land, civil works, building steelwork, external utility generation and import duties.
- Installation, commissioning and after-sales service are delivered worldwide by MCF crews, with remote diagnostics on the SCADA.

TECHNICAL FAQ

Plate or tubular pasteurizer which one?

Plate exchangers are the most compact and energy-efficient choice for low-viscosity liquids such as milk, clear juice or beer. Tubular exchangers have wide gaps and handle pulps, fibres and particles up to about 10 mm without clogging.

What capacities does MCF supply?

From 500 l/h pilot and artisan skids up to 50 000 l/h dairy and beverage lines, always sized on the daily production window rather than on peak flow alone.

Which temperatures and holding times are used?

72½75  on milk (HTST), 88½95  on juices and nectars, 95½105  with longer holding on puri½es and
The exact profile is fixed by product pH and target shelf life.

How much energy does regeneration save?

Regeneration typically recovers 90½95% of the heat, so steam and chilled-water consumption drop accordingly  the fastest payback item on the whole skid.

How is under-processed product handled?

If the temperature falls below set point, the automatic divert valve sends product back to the balance tank; the pressure differential across the plate pack protects the pasteurised side from cross-contamination.

NEXT STEPS

- Full technical page: <https://mcfttechnology.group/en/industrial-pasteurizer>
- Configure the line and request the feasibility study: <https://mcfttechnology.group/en/configurator>
- Run the ROI simulator: <https://mcfttechnology.group/en/roi-simulator>
- Build the bankable financial plan (310 years): <https://mcfttechnology.group/en/financial-plan>
- Request a quotation: <https://mcfttechnology.group/en/contact>

DISCLAIMER

All figures in this datasheet are indicative engineering ranges used by MCF Technology for budget screening and layout discussion of the reference configuration. They are not a quotation, not a performance guarantee and not the audited result of a specific plant. Final specification, dimensions, utilities and CAPEX are fixed in the feasibility study on your product, packaging formats, utilities cost and site conditions.