

Tomato Paste Rework Line 3,000 kg/h Engineering, Utilities and Output per Shift

Target application: tomato paste rework line 3000 kg/h

Reference configuration: 3,000 kg/h finished product

Equipment list, utilities and output for the 3,000 kg/h configuration, so a building and a budget can be sized before a quotation is issued.

SCOPE OF SUPPLY

- Two alternating drum / IBC unloading stations with hot-water melting jackets, so the line never stops for a container change
- Buffer and mixing tank group (2  6,000 L) with bottom agitator and load cells for gravimetric recipe dosing
- Continuous standardisation loop: mass-flow meter, inline refractometer, deaerator,  0.2  Brix at steady state
- Tubular or scraped-surface pasteurizer 92 98  C with validated holding section and heat recovery
- Aseptic-grade buffer tank and filling group for cans and glass, with seamer / capper and pasteurization tunnel
- Automatic CIP skid (caustic + acid circuits, conductivity and temperature recording) and utilities skid
- PLC + SCADA with recipe management, per-batch traceability, OEE reporting and remote assistance

TYPICAL OUTPUTS

400 g and 830 g cans  120 200 cans/min depending on format  2 5 kg catering cans  Glass jars 314 / 720 ml  Sachets and doypacks (optional module)

CUSTOMER REQUIREMENT

- Produce roughly 24 t of finished paste per 8-hour shift, all year round, from aseptic bulk concentrate.
- Run 400 g and 830 g cans, 2 5 kg tins and glass jars on the same line with predictable changeover times.
- Hold the finished specification within  0.2  Brix regardless of the inbound bulk batch.
- Deliver per-batch traceability and a documentation set usable for financing and food-safety audits.

TECHNICAL DATA

Capacity	3,000 kg/h finished product  ~24 t/shift, 60  70 t/day on three shifts
Annual output	15,000  20,000 t/year on a 250  300 day calendar
Input	Aseptic drums 220 L, IBC 1,000 L, bag-in-box  36  38  Brix
Output	400 g / 830 g / 2  5 kg cans + 314 / 720 ml glass jars
Installed power	350  450 kW indicative, formats and heat recovery dependent
Steam	1.5  2.5 t/h saturated at 6  8 bar
Water	8  12 m  3/h process and cooling water
Compressed air	300  500 Nm  3/h at 7 bar
Footprint	700  900 m  3 process and filling, 6  7 m clear height
Manning	6  9 operators per shift including quality control
Automation	PLC + SCADA, recipes, batch traceability, OEE, remote assistance
CIP	Automatic skid, caustic and acid circuits with conductivity control

Lead time	8İÇİ½12 months contract to commissioning
Installation	Worldwide: erection, commissioning, FAT/SAT and training included

PROCESS FLOW

1. Aseptic tomato paste (36İÇİ½38 İÇİ½Brix)
2. Drum / IBC unloading İÇİ½ 2 alternating stations
3. Mixing İÇİ½ 2 İÇİ½ 6,000 L
4. Recipe preparation (gravimetric)
5. Continuous standardisation
6. Thermal treatment 92İÇİ½98 İÇİ½C
7. Buffer tank
8. Filling
9. Seaming / capping
10. Pasteurization tunnel
11. Coding, packaging
12. Palletizing

DIMENSIONS AND BUILDING ENVELOPE

Process and filling footprint	700İÇİ½900 mİÇİ½ at 3,000 kg/h (250İÇİ½350 mİÇİ½ at 500 kg/h, 1,100İÇİ½1,300 mİÇİ½ at 5,000 kg/h)
Clear height	6İÇİ½7 m under beam over mixing and thermal section, 4.5 m over filling
Drum unloading station	60İÇİ½110 mİÇİ½, two alternating stations above 3,000 kg/h
Mixing bay	2 İÇİ½ 6,000 L tanks, 120İÇİ½180 mİÇİ½ including gravimetric dosing platform
Thermal section	90İÇİ½140 mİÇİ½ for pasteurizer, hold cell, buffer tank and CIP interface
Filling and packing	260İÇİ½380 mİÇİ½ including seamer, pasteurization tunnel, coding and case packing
Bulk and finished storage	500İÇİ½900 mİÇİ½ for inbound drums / IBCs and finished pallets

LAYOUT İÇİ½ FUNCTIONAL ZONES IN FLOW ORDER

1 İÇİ½ Bulk intake	Drum, IBC and bag-in-box reception, sampling and traceability scanning
2 İÇİ½ Unloading	Heated drum emptying stations, filtering, transfer pumps
3 İÇİ½ Mixing & recipe	Mixing tanks with agitator, gravimetric dosing of water, salt, sugar and spices
4 İÇİ½ Standardisation	Continuous mass-flow loop with inline refractometer, İÇİ½ 0.2 İÇİ½Brix at steady state
5 İÇİ½ Thermal treatment	Tubular or scraped-surface pasteurizer 92İÇİ½98 İÇİ½C with validated holding section
6 İÇİ½ Filling & closing	Cans, glass jars, sachets or doypacks with seaming / capping and vacuum control
7 İÇİ½ Pasteurization tunnel	Tunnel or retort, cooling section and dryer before labelling
8 İÇİ½ End of line	Coding, labelling, case packing, palletizing and finished-goods staging
9 İÇİ½ Utilities & CIP	Steam skid, chilled water, compressed air, water treatment, CIP skid

UTILITIES AND CONSUMPTION

Installed power	350İÇİ½450 kW at 3,000 kg/h (90İÇİ½140 kW at 500 kg/h, 550İÇİ½700 kW at 5,000 kg/h)
Steam	1.5İÇİ½2.5 t/h saturated at 6İÇİ½8 bar at 3,000 kg/h
Process and cooling water	8İÇİ½12 mİÇİ½/h at 3,000 kg/h, treated and softened before dilution
Compressed air	300İÇİ½500 NmİÇİ½/h at 7 bar
Effluent	3İÇİ½7 mİÇİ½/h to treatment, mainly CIP and tunnel blowdown
Manning	6İÇİ½9 operators per shift including QC and end-of-line
Operating calendar	250İÇİ½300 days/year, 16İÇİ½20 productive hours/day İÇİ½ not a seasonal campaign

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.

ENGINEERING NOTES

- Utilities figures are engineering estimates for budgeting; they are confirmed against your formats, heat recovery and site conditions in the feasibility study.
- Ketchup and seasoned sauces need vacuum powder induction, deaeration and a 100İÇİ½200 bar homogenizer upstream of the pasteurizer.

TECHNICAL FAQ

How much finished product does a 3,000 kg/h rework line make per year?

About 24 t per 8-hour shift and 60İÇİ½70 t/day on three shifts. On a 250İÇİ½300 day calendar with realistic changeover and CIP losses, that is roughly 15,000İÇİ½20,000 t/year of finished paste in cans and jars.

What footprint and building height does it need?

Indicatively 700İÇİ½900 mİÇİ½ for the process and filling area plus warehouse, with 6İÇİ½7 m clear height for the pasteurizer, tanks and tunnel. Final layout comes from the feasibility study on your building.

Which utilities are required?

Indicatively 1.5İÇİ½2.5 t/h saturated steam at 6İÇİ½8 bar, 350İÇİ½450 kW installed electrical power, 8İÇİ½12 mİÇİ½/h process and cooling water and 300İÇİ½500 NmİÇİ½/h compressed air at 7 bar, depending on formats and heat recovery.

How many operators run the line?

Typically 6İÇİ½9 people per shift: two on unloading and recipe, one at the process panel, three to four on filling, seaming and palletizing, plus quality control.

Can the same line handle ketchup and pizza sauce?

Yes, by adding vacuum powder induction, deaeration and a 100İÇİ½200 bar homogenizer upstream of the pasteurizer, with dedicated recipes in the SCADA.

NEXT STEPS

- Full technical page: <https://mcftechnology.group/en/tomato-paste-rework-line-3000-kg-h>
- Configure the line and request the feasibility study: <https://mcftechnology.group/en/configurator>
- Run the ROI simulator: <https://mcftechnology.group/en/roi-simulator>
- Build the bankable financial plan (310 years): <https://mcftechnology.group/en/financial-plan>
- Request a quotation: <https://mcftechnology.group/en/contact>

DISCLAIMER

Reference configuration for budgeting and layout discussion. Final specification, utilities and performance are confirmed in the feasibility study on your product, packaging formats and site conditions.