

Tomato paste rework line 500 kg/h 1/2 entry configuration for retail packing

Target application: tomato paste rework line 500 kg/h

Reference configuration: 3,000 kg/h finished product from aseptic bulk paste (5001/25,000 kg/h configurable)

The 500 kg/h configuration is the entry step into paste rework: it converts stored aseptic concentrate at 361/238 1/2Brix into packed retail product without owning a campaign plant. Semi-automatic batch mixing keeps CAPEX low, while the pasteurizer and filler are already industrial, so the same line can later be upgraded to continuous standardization. Typical use: a national brand starting its own packing operation, or a trader that wants to stop importing finished cans.

SCOPE OF SUPPLY

- One aseptic bag-in-drum emptying station with hydraulic press and jacketed hopper
- Batch mixing tank 1 0001/21 500 L with side-scraping agitator and load cells
- Manual/assisted ingredient dosing: salt, sugar, vinegar, starch, spices
- Standardization to 221/228 1/2Brix with inline refractometer verification
- Tubular or scraped-surface pasteurizer 921/298 1/2C with holding section
- Filler and closing unit for glass jars, tinsplate cans or sachets
- CIP skid, utilities connection and SCADA recipe management
- Indicative layout: 2501/2350 m1/2 process area, 4.5 m clear height

TYPICAL OUTPUTS

Standardized tomato paste 221/228 1/2Brix 1/2 Passata and pizza sauce 1/2 Ketchup (with homogenizer option) 1/2 Formats: 701/24 500 g cans, 1901/2720 ml jars, 501/2200 g sachets

DIMENSIONS AND BUILDING ENVELOPE

Process and filling footprint	7001/2900 m1/2 at 3,000 kg/h (2501/2350 m1/2 at 500 kg/h, 1,1001/21,300 m1/2 at 5,000 kg/h)
Clear height	61/27 m under beam over mixing and thermal section, 4.5 m over filling
Drum unloading station	601/2110 m1/2, two alternating stations above 3,000 kg/h
Mixing bay	2 1/2 6,000 L tanks, 1201/2180 m1/2 including gravimetric dosing platform
Thermal section	901/2140 m1/2 for pasteurizer, hold cell, buffer tank and CIP interface
Filling and packing	2601/2380 m1/2 including seamer, pasteurization tunnel, coding and case packing
Bulk and finished storage	5001/2900 m1/2 for inbound drums / IBCs and finished pallets

LAYOUT 1/2 FUNCTIONAL ZONES IN FLOW ORDER

1 1/2 Bulk intake	Drum, IBC and bag-in-box reception, sampling and traceability scanning
2 1/2 Unloading	Heated drum emptying stations, filtering, transfer pumps
3 1/2 Mixing & recipe	Mixing tanks with agitator, gravimetric dosing of water, salt, sugar and spices
4 1/2 Standardisation	Continuous mass-flow loop with inline refractometer, 1/2 0.2 1/2Brix at steady state
5 1/2 Thermal treatment	Tubular or scraped-surface pasteurizer 921/298 1/2C with validated holding section
6 1/2 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

CAPEX, OUTPUT AND PAYBACK

500 kg/h rework line İÇİ½ investment profile

Entry configuration with batch mixing: the lowest CAPEX step into retail packing from stored aseptic bulk.

500 kg/h finished product (reference)	Turnkey CAPEX: İÇİ½0.6 İÇİ½ 0.9 million Annual output: 1 500 İÇİ½ 2 200 t/year packed EBITDA: 12 İÇİ½ 18% of revenue Payback: 3 İÇİ½ 4.5 years Commissioning: 7 İÇİ½ 9 months contract-to-commissioning
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Assumptions behind the figures

- 250İÇİ½300 working days per year, 16İÇİ½20 productive hours per day: the feedstock is stored aseptic concentrate, not seasonal fresh tomato.
- Inbound bulk paste at 36İÇİ½38 İÇİ½Brix in 220 L bag-in-drum or 1 000 L IBC, standardized in line to 22İÇİ½28 İÇİ½Brix.
- Finished product filled in tins, glass jars or sachets, with pasteurization and end-of-line packing included.
- CAPEX is turnkey scope: emptying station, mixing, standardization, pasteurizer, filler, closing, CIP, automation, installation, commissioning and training; civil works, land and bulk paste stock excluded.
- EBITDA and payback assume retail or food-service pricing of the packed product and no financing cost inside the operating margin.

Indicative engineering ranges used by MCF Technology for budget screening of rework projects, not a quotation and not the audited result of a specific plant. Final figures are fixed in the feasibility study, once inbound İÇİ½Brix, packaging formats, utilities cost and working hours are confirmed.

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

What utilities does a 500 kg/h rework line need?

Indicatively 90İÇİ½140 kW installed electrical power, 350İÇİ½600 kg/h saturated steam at 6İÇİ½8 bar, 3İÇİ½5 mİÇİ½/h treated process water, 8İÇİ½12 mİÇİ½/h cooling water and 200İÇİ½350 NI/min compressed air at 6 bar. Final figures are fixed in the technical dossier.

How much bulk paste does it consume?

At 22°C/28 °C Brix finished product from 36°C/38 °C Brix bulk, roughly 0.7/0.8 kg of bulk paste per kg of packed product, i.e. about 350/400 kg/h of concentrate: two to three 220 L drums per hour.

Can it be upgraded later?

Yes. The pasteurizer, filler and CIP are sized with margin, so the batch mixing section can be replaced with continuous in-line standardization to reach 1 000/2 000 kg/h without changing the thermal section.

How many operators are required?

Three to four per shift: one at the emptying and mixing station, one at the filler, one at the end of line, plus a shift supervisor.

What is the indicative CAPEX?

€0.6/€0.9 million turnkey for process equipment, automation, installation, commissioning and training; civil works, land and bulk paste stock excluded.

NEXT STEPS

- Full technical page: <https://mcftechnology.group/en/tomato-paste-rework-line-500-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 (3/10 years): <https://mcftechnology.group/en/financial-plan>
- Request a quotation: <https://mcftechnology.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.