

Tomato Paste Rework Line in Egypt ÿ½ Aseptic Bulk into Glass, Cans and Sachets

Target application: tomato paste rework line Egypt

Reference configuration: 3,000 kg/h finished product, Egyptian site conditions

Same process backbone as the European reference, adapted to Egyptian utilities, water, ambient conditions and packaging formats ÿ½ the three variables that most often force a re-quotation after order.

SCOPE OF SUPPLY

- Aseptic drum / bag emptying station sized for both locally produced and imported bulk paste at 36ï½38 ÿ½Brix
- Water treatment ahead of dilution: Nile or well water needs filtration, softening and disinfection before it enters a food recipe
- Continuous standardization to 22ï½28 ÿ½Brix with inline refractometer, plus salt and citric-acid dosing to local recipe
- Tubular pasteurizer designed for 40ï½45 ÿ½C ambient summer conditions, with cooling towers oversized accordingly
- Filling into tinplate cans (400 g, 800 g, 2.2 kg catering), glass jars and 50ï½400 g sachets ÿ½ the three formats that dominate Egyptian retail and food service
- Electrical design on 380 V / 50 Hz with generator interface and voltage stabilisation for grid dips
- Arabic / English SCADA and operating manuals, Arabic-compliant labelling data on the coder
- Documentation package for GOEIC clearance and NFSA product registration, plus CE-marked machinery files

TYPICAL OUTPUTS

Tomato paste 22ï½28 ÿ½Brix in tinplate cans for domestic retail ÿ½ Single-serve sachets 50ï½400 g for retail and street food ÿ½ Passata and pizza sauce for hospitality and export within GAFTA / COMESA markets ÿ½ Ketchup and seasoned sauces in bottles and sachets ÿ½ Re-packed aseptic bag-in-box for industrial buyers

CUSTOMER REQUIREMENT

- Pack bulk paste produced during the Nile Delta / Upper Egypt campaign, plus imported aseptic drums, twelve months a year.
- Deliver the formats that actually sell locally: 400 g and 800 g cans, 2.2 kg catering cans and 50ï½400 g sachets.
- Work on a 380 V / 50 Hz supply with generator interface and tolerance to grid dips.
- Documentation ready for GOEIC clearance and NFSA product registration, with Arabic labelling data.

TECHNICAL DATA

Capacity	3,000 kg/h finished product (500 to 5,000 kg/h configurable)
Input	Aseptic bulk 36ï½38 ÿ½Brix, local or imported
Output	400 g / 800 g / 2.2 kg cans, glass jars, 50ï½400 g sachets
Electrical supply	380 V / 50 Hz, generator interface, voltage stabilisation
Ambient design	40ï½45 ÿ½C summer design temperature, oversized cooling towers
Process water	Nile or well water: filtration, softening and disinfection before dilution
Automation	PLC + SCADA, Arabic / English HMI and manuals
Compliance	CE-marked machinery file, GOEIC and NFSA documentation package
Installation	Erection, commissioning and operator training on site in Egypt

PROCESS, STEP BY STEP

1. Bulk sourcing ١٢١٢ Local campaign paste (July١٢October) or imported aseptic drums

The emptying station is specified for both, and the standardization loop absorbs the ١٢١٢Brix difference between suppliers, so the plant is not exposed to a single source.

2. Water treatment before dilution ١٢١٢ Filtration, softening, disinfection

Nile or well water becomes an ingredient the moment it dilutes concentrate: hardness, turbidity and microbiology are corrected upstream, otherwise colour, taste and shelf life move batch to batch.

3. Utilities sized on local conditions ١٢١٢ 380 V / 50 Hz + generator interface ١٢١٢ cooling at 40١٢45 ١٢١٢C ambient

Panels tolerate grid dips and cooling towers, chillers and the pasteurizer cooling section are sized on the peak design day, so output does not collapse in the hottest months.

4. Recipe and format for the local market ١٢١٢ Cans 400 g / 800 g / 2.2 kg ١٢١٢ sachets 50١٢400 g ١٢١٢ jars

Egyptian retail and food service run on cans and single-serve sachets; the filler, seamer and end-of-line are chosen on that mix, with capacity left for a second format later.

5. Pasteurization and validation ١٢١٢ 92١٢98 ١٢١٢C, holding validated on site

Thermal treatment is validated during commissioning on the actual recipes and containers, and the curves are recorded as part of the HACCP file.

6. Coding, labelling and registration ١٢١٢ Arabic labelling data ١٢١٢ NFSA product registration

The coder and label data carry what local regulation requires; MCF supplies the technical documentation used in the NFSA registration file and in GOEIC clearance at Alexandria or Port Said.

7. Installation, training, after-sales ١٢١٢ On-site erection, commissioning, operator training

MCF crews install and commission the line, verify capacity and ١٢١٢Brix, train operators and maintenance staff, and support the plant afterwards remotely and with scheduled visits.

DIMENSIONS AND BUILDING ENVELOPE

Process and filling footprint	700١٢900 m١٢ at 3,000 kg/h (250١٢350 m١٢ at 500 kg/h, 1,100١٢1,300 m١٢ at 5,000 kg/h)
Clear height	6١٢7 m under beam over mixing and thermal section, 4.5 m over filling
Drum unloading station	60١٢110 m١٢, two alternating stations above 3,000 kg/h
Mixing bay	2 ١٢ 6,000 L tanks, 120١٢180 m١٢ including gravimetric dosing platform
Thermal section	90١٢140 m١٢ for pasteurizer, hold cell, buffer tank and CIP interface
Filling and packing	260١٢380 m١٢ including seamer, pasteurization tunnel, coding and case packing
Bulk and finished storage	500١٢900 m١٢ for inbound drums / IBCs and finished pallets

LAYOUT ١٢١٢ FUNCTIONAL ZONES IN FLOW ORDER

1 ١٢ Bulk intake	Drum, IBC and bag-in-box reception, sampling and traceability scanning
2 ١٢ Unloading	Heated drum emptying stations, filtering, transfer pumps
3 ١٢ Mixing & recipe	Mixing tanks with agitator, gravimetric dosing of water, salt, sugar and spices
4 ١٢ Standardisation	Continuous mass-flow loop with inline refractometer, ١٢ 0.2 ١٢Brix at steady state
5 ١٢ Thermal treatment	Tubular or scraped-surface pasteurizer 92١٢98 ١٢C with validated holding section
6 ١٢ Filling & closing	Cans, glass jars, sachets or doypacks with seaming / capping and vacuum control
7 ١٢ Pasteurization tunnel	Tunnel or retort, cooling section and dryer before labelling

8 $\frac{1}{2}$ End of line Coding, labelling, case packing, palletizing and finished-goods staging

9 $\frac{1}{2}$ Utilities & CIP Steam skid, chilled water, compressed air, water treatment, CIP skid

UTILITIES AND CONSUMPTION

Installed power	350 $\frac{1}{2}$ 450 kW at 3,000 kg/h (90 $\frac{1}{2}$ 140 kW at 500 kg/h, 550 $\frac{1}{2}$ 700 kW at 5,000 kg/h)
Steam	1.5 $\frac{1}{2}$ 2.5 t/h saturated at 6 $\frac{1}{2}$ 8 bar at 3,000 kg/h
Process and cooling water	8 $\frac{1}{2}$ 12 m $\frac{3}{2}$ /h at 3,000 kg/h, treated and softened before dilution
Compressed air	300 $\frac{1}{2}$ 500 Nm $\frac{3}{2}$ /h at 7 bar
Effluent	3 $\frac{1}{2}$ 7 m $\frac{3}{2}$ /h to treatment, mainly CIP and tunnel blowdown
Manning	6 $\frac{1}{2}$ 9 operators per shift including QC and end-of-line
Operating calendar	250 $\frac{1}{2}$ 300 days/year, 16 $\frac{1}{2}$ 20 productive hours/day $\frac{1}{2}$ not a seasonal campaign

CAPEX, OUTPUT AND PAYBACK

Rework line in Egypt $\frac{1}{2}$ investment profile

Same engineering grid applied to an Egyptian project, where local utilities cost and year-round operation usually shorten payback compared with a seasonal campaign plant.

500 kg/h finished product	Turnkey CAPEX: $\frac{1}{2}$ 0.6 $\frac{1}{2}$ 0.9 million Annual output: 1 500 $\frac{1}{2}$ 2 200 t/year packed EBITDA: 12 $\frac{1}{2}$ 18% of revenue Payback: 3 $\frac{1}{2}$ 4.5 years Commissioning: 7 $\frac{1}{2}$ 9 months contract-to-commissioning
1 000 kg/h finished product	Turnkey CAPEX: $\frac{1}{2}$ 0.9 $\frac{1}{2}$ 1.4 million Annual output: 3 000 $\frac{1}{2}$ 4 400 t/year packed EBITDA: 14 $\frac{1}{2}$ 19% of revenue Payback: 3 $\frac{1}{2}$ 4 years Commissioning: 8 $\frac{1}{2}$ 10 months contract-to-commissioning
2 000 kg/h finished product (reference)	Turnkey CAPEX: $\frac{1}{2}$ 1.5 $\frac{1}{2}$ 2.3 million Annual output: 6 000 $\frac{1}{2}$ 8 800 t/year packed EBITDA: 15 $\frac{1}{2}$ 20% of revenue Payback: 3 $\frac{1}{2}$ 4 years Commissioning: 9 $\frac{1}{2}$ 12 months contract-to-commissioning
3 000 kg/h finished product	Turnkey CAPEX: $\frac{1}{2}$ 2.2 $\frac{1}{2}$ 3.2 million Annual output: 9 000 $\frac{1}{2}$ 13 000 t/year packed EBITDA: 16 $\frac{1}{2}$ 21% of revenue Payback: 2.5 $\frac{1}{2}$ 4 years Commissioning: 10 $\frac{1}{2}$ 13 months contract-to-commissioning
5 000 kg/h finished product	Turnkey CAPEX: $\frac{1}{2}$ 3.4 $\frac{1}{2}$ 4.8 million Annual output: 15 000 $\frac{1}{2}$ 22 000 t/year packed EBITDA: 17 $\frac{1}{2}$ 23% of revenue Payback: 2.5 $\frac{1}{2}$ 3.5 years Commissioning: 12 $\frac{1}{2}$ 15 months contract-to-commissioning

Assumptions behind the figures

- 250 $\frac{1}{2}$ 300 working days per year, 16 $\frac{1}{2}$ 20 productive hours per day: the feedstock is stored aseptic concentrate, not seasonal fresh tomato.
- Inbound bulk paste at 36 $\frac{1}{2}$ 38 $\frac{1}{2}$ Brix in 220 L bag-in-drum or 1 000 L IBC, standardized in line to 22 $\frac{1}{2}$ 28 $\frac{1}{2}$ Brix.
- 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.
- Egyptian project: 380 V / 50 Hz supply with generator backup, cooling sized on 40 $\frac{1}{2}$ 45 $\frac{1}{2}$ C ambient, treated Nile or well water, packaging in cans, jars and sachets.
- Import duties, GOEIC inspection and inland transport from Alexandria or Port Said are excluded from the CAPEX range.

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 $\frac{1}{2}$ Brix, 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.
- Egypt: 380 V / 50 Hz supply with generator interface, cooling sized on 40 $\frac{1}{2}$ 45 $\frac{1}{2}$ C design ambient, treated Nile or well water before dilution.
- Documentation package prepared for GOEIC clearance and NFSA product registration, with Arabic / English HMI and manuals.

ENGINEERING NOTES

- Sachet filling is usually the highest-margin format locally and is specified as a parallel end-of-line branch.
- Financing structure is normally 3 $\frac{1}{2}$ 10 years: MCF issues the bankable financial plan with the technical offer.

TECHNICAL FAQ

Why install a rework line in Egypt instead of a full campaign plant?

Because a campaign plant needs contracted fresh tonnage and runs 90 $\frac{1}{2}$ 110 days a year, while a rework line runs 250 $\frac{1}{2}$ 300 days on stored or imported bulk paste. CAPEX is a fraction of an evaporation line, and the product sold $\frac{1}{2}$ cans, jars, sachets $\frac{1}{2}$ carries the retail margin.

Can the line work with imported aseptic paste as well as local paste?

Yes. The emptying station handles 220 L bag-in-drum and 1000 L IBC regardless of origin; the standardization loop corrects inbound $\frac{1}{2}$ Brix automatically, so a change of supplier does not change the finished specification.

How is the Egyptian electrical supply handled?

Panels are built for 380 V / 50 Hz with an interface for a generator set and stabilisation on sensitive drives, so voltage dips do not stop a pasteurization cycle mid-batch. Motor and instrument spares are supplied for local availability.

What does the summer ambient temperature change in the design?

Cooling capacity. At 40 $\frac{1}{2}$ 45 $\frac{1}{2}$ C ambient, cooling towers, chillers and the cooling section of the pasteurizer are sized on the peak design day, otherwise output falls exactly in the high-demand months.

Which documentation is needed to import the plant into Egypt?

CE machinery documentation, packing and origin documents for GOEIC inspection at Alexandria or Port Said, and product registration with NFSA before retail sale. MCF issues the technical files in English, with Arabic operating documentation on request.

NEXT STEPS

- Full technical page: <https://mcftechnology.group/en/tomato-paste-rework-line-egypt>
- 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.