

Tomato processing plant in Saudi Arabia ١٢١/٢ configuration for Vision 2030 food localisation

Target application: tomato processing plant saudi arabia

Reference configuration: 60 t/h fresh tomato at the reception (10١٢١/٢200 t/h configurable)

Saudi projects are usually driven by import substitution: bulk paste arrives from abroad and the investor wants local packing, or a full plant fed by contracted greenhouse and open-field production in Riyadh, Qassim, Tabuk or Jazan. MCF sizes the plant on the tonnage actually contractible in the region and on the two constraints that dominate the Gulf: ambient temperature and water. Both change the evaporation and cooling design, not just the equipment list.

SCOPE OF SUPPLY

- Electrical design for 400 V / 60 Hz with generator backup and voltage stabilisation
- Cooling towers, chillers and condensers sized on 45١٢١/٢50 ١٢١/٢C design ambient
- Water strategy: desalinated or well water treatment, wash-water recovery and reuse loops
- Fresh-tomato section (reception, washing, sorting, hot/cold break, extraction) or rework section from aseptic bulk
- Evaporation to 28١٢١/٢38 ١٢١/٢Brix with MVR option where power tariff justifies it
- Aseptic filling in drums / IBC, or retail filling in cans, jars and sachets
- SFDA food-contact compliance, SASO conformity and Arabic + English labelling
- Documentation in English and Arabic, Saudi-based commissioning and operator training

TYPICAL OUTPUTS

Tomato paste 28١٢١/٢30 and 36١٢١/٢38 ١٢١/٢Brix ١٢١/٢ Passata, pizza sauce, ketchup ١٢١/٢ Retail cans, jars and sachets for GCC distribution ١٢١/٢ Aseptic bulk for regional re-processing

DIMENSIONS AND BUILDING ENVELOPE

Process building footprint	2,200١٢١/٢3,200 m١٢١/٢ for 60 t/h (1,200١٢١/٢1,800 m١٢١/٢ at 30 t/h, 4,000١٢١/٢5,500 m١٢١/٢ at 120 t/h)
Clear height	9١٢١/٢12 m under beam in the evaporation bay, 6١٢١/٢7 m in reception and filling
Reception yard	1,500١٢١/٢3,000 m١٢١/٢ paved area for truck queuing, weighbridge and water dumping channels
Evaporator height	12١٢١/٢18 m overall for double / triple effect calandria, outdoor or enclosed tower
Aseptic filling room	120١٢١/٢200 m١٢١/٢, controlled area, 4.5 m clear height
Bulk storage	600١٢١/٢1,200 m١٢١/٢ covered area per 10,000 t of 30 ١٢١/٢Brix paste in drums or IBCs
Heaviest single lift	18١٢١/٢26 t (evaporator body) ١٢١/٢ crane access to be verified at layout stage

LAYOUT ١٢١/٢ FUNCTIONAL ZONES IN FLOW ORDER

1 ١٢١/٢ Reception	Weighbridge, water dumping, roller and brush washing, destoner, elevators
2 ١٢١/٢ Sorting	Optical and manual sorting platform, reject collection, waste conveying
3 ١٢١/٢ Break section	Chopper, hot break 85١٢١/٢95 ١٢١/٢C or cold break 65١٢١/٢75 ١٢١/٢C, pulper / refiner / finisher
4 ١٢١/٢ Evaporation	Multi-effect falling-film or forced-circulation train, vacuum unit, condensers
5 ١٢١/٢ Sterilization	Tubular or scraped-surface steriliser with hold cell and aseptic buffer tank
6 ١٢١/٢ Aseptic filling	Bag-in-box 3١٢١/٢20 L, 220 L bag-in-drum, 1,000 L IBC, sterile air and steam barriers

7 ١٢١/٢ Utilities & CIP	Steam distribution, cooling towers, chilled water, compressed air, CIP/SIP skid
8 ١٢١/٢ Warehouse	Bulk storage, packaging materials, laboratory and QC office

UTILITIES AND CONSUMPTION

Installed power	1,600١٢١/٢2,400 kW at 60 t/h (900١٢١/٢1,300 kW at 30 t/h)
Steam	12١٢١/٢20 t/h saturated at 8١٢١/٢12 bar, MVR option reduces demand by 45١٢١/٢60%
Cooling water	900١٢١/٢1,600 m١٢١/٢/h circulating, cooling towers sized on site design ambient
Process water	60١٢١/٢120 m١٢١/٢/h treated, with washing water recovery loops
Compressed air	700١٢١/٢1,200 Nm١٢١/٢/h at 7 bar, oil-free for the aseptic zone
Effluent	40١٢١/٢90 m١٢١/٢/h to treatment, COD load dependent on washing recovery
Manning	18١٢١/٢26 operators per shift including sorting, QC and maintenance

CAPEX, OUTPUT AND PAYBACK

Saudi project ١٢١/٢ investment profile

Fresh-tomato grid applied to a Saudi project, where cooling design and water treatment add to the base CAPEX.

30 t/h fresh tomato	Turnkey CAPEX: ١٢١/٢4.5 ١٢١/٢ 6.5 million Annual output: 9 000 ١٢١/٢ 12 000 t/year of 30 ١٢١/٢Brix paste EBITDA: 18 ١٢١/٢ 24% of revenue Payback: 4.5 ١٢١/٢ 6 years Commissioning: 12 ١٢١/٢ 15 months contract-to-commissioning
60 t/h fresh tomato (reference)	Turnkey CAPEX: ١٢١/٢8 ١٢١/٢ 11 million Annual output: 19 000 ١٢١/٢ 24 000 t/year of 30 ١٢١/٢Brix paste EBITDA: 20 ١٢١/٢ 26% of revenue Payback: 4 ١٢١/٢ 5.5 years Commissioning: 14 ١٢١/٢ 18 months contract-to-commissioning
120 t/h fresh tomato	Turnkey CAPEX: ١٢١/٢14 ١٢١/٢ 19 million Annual output: 38 000 ١٢١/٢ 48 000 t/year of 30 ١٢١/٢Brix paste EBITDA: 22 ١٢١/٢ 28% of revenue Payback: 3.5 ١٢١/٢ 5 years Commissioning: 16 ١٢١/٢ 20 months contract-to-commissioning

Assumptions behind the figures

- Campaign of 90١٢١/٢110 days per year, 20١٢١/٢22 productive hours per day.
- Hot break line, evaporation to 28١٢١/٢30 ١٢١/٢Brix, aseptic filling in 220 L bag-in-drum or 1 000 L IBC.
- Yield 5.5١٢١/٢6.5 t of fresh tomato per tonne of 30 ١٢١/٢Brix paste, depending on inbound ١٢١/٢Brix.
- CAPEX is turnkey scope: process equipment, automation, installation, commissioning and training; civil works and land excluded.
- EBITDA and payback assume export bulk paste pricing and no financing cost inside the operating margin.
- Saudi project: 400 V / 60 Hz with generator backup, cooling and condensers sized on 45١٢١/٢50 ١٢١/٢C design ambient, desalinated or treated well water with recovery loops.
- Import duties, SASO conformity, inland transport and civil works are excluded from the CAPEX range.

Indicative engineering ranges used by MCF Technology for budget screening. Final CAPEX, EBITDA and payback are fixed only in the feasibility study, once inbound ١٢١/٢Brix, campaign length, utilities cost and target packaging 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.

- Saudi Arabia: 400 V / 60 Hz with generator backup, condensers and cooling sized on 45 $\frac{1}{2}$ 50 $\frac{1}{2}$ C design ambient, desalinated or treated well water with recovery loops, SASO conformity documentation.

TECHNICAL FAQ

Does the Gulf climate change the plant design?

Yes. At 45 $\frac{1}{2}$ 50 $\frac{1}{2}$ C design ambient, condensers, cooling towers and chillers are oversized and often supported by dry coolers; evaporation vacuum and product cooling curves are recalculated, otherwise nameplate capacity is never reached in summer.

Fresh tomato plant or rework line for Saudi Arabia?

If contracted local tonnage is limited, a rework line fed with imported aseptic bulk runs 250 $\frac{1}{2}$ 300 days a year with far lower CAPEX. A full campaign plant makes sense only where the growing basin can supply the reception continuously for 60 $\frac{1}{2}$ 110 days.

How is water handled?

Wash and cooling water is recovered and treated in closed loops; make-up is desalinated or treated well water. Water balance is part of the feasibility study because it directly affects operating cost.

Which approvals apply?

Machines are CE-marked with EHEDG-compliant hygienic design and AISI 304L/316L food-contact surfaces; SFDA requirements for food contact and SASO conformity for imported equipment are addressed in the documentation package.

What is the indicative CAPEX?

$\frac{1}{2}$ 4.5 $\frac{1}{2}$ 6.5 million for 30 t/h fresh tomato and up to $\frac{1}{2}$ 14 $\frac{1}{2}$ 19 million for 120 t/h, turnkey process scope excluding civil works and land. Rework lines start at $\frac{1}{2}$ 0.6 $\frac{1}{2}$ 0.9 million.

NEXT STEPS

- Full technical page: <https://mcftechnology.group/en/tomato-processing-plant-saudi-arabia>
- 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 $\frac{1}{2}$ 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.