

120 t/h tomato processing plant large-scale campaign line

Target application: 120 t/h tomato processing plant

Reference configuration: 60 t/h fresh tomato at the reception (10  200 t/h configurable)

Above 100 t/h the tomato plant becomes an energy project as much as a food project: evaporation choice, vapour recovery and water reuse decide the cost per tonne far more than the equipment list. MCF Technology engineers 120 t/h campaign lines with forced-circulation or MVR evaporation and redundant aseptic filling.

SCOPE OF SUPPLY

- Reception with multiple unloading bays, flumes and water recovery: 120 t/h
- Hot break with high-capacity extraction and refining trains
- Forced-circulation triple / quadruple effect or MVR evaporation
- Three or more aseptic filling heads with redundancy
- Water reuse, condensate recovery and energy optimisation
- Full plant SCADA with MES-ready traceability

TYPICAL OUTPUTS

30  Brix and 36  38  Brix paste for bulk export  High-volume passata  Diced and crushed tomato lines

DIMENSIONS AND BUILDING ENVELOPE

Process building footprint	2,200  3,200 m  for 60 t/h (1,200  1,800 m  at 30 t/h, 4,000  5,500 m  at 120 t/h)
Clear height	9  12 m under beam in the evaporation bay, 6  7 m in reception and filling
Reception yard	1,500  3,000 m  paved area for truck queuing, weighbridge and water dumping channels
Evaporator height	12  18 m overall for double / triple effect calandria, outdoor or enclosed tower
Aseptic filling room	120  200 m  , controlled area, 4.5 m clear height
Bulk storage	600  1,200 m  covered area per 10,000 t of 30  Brix paste in drums or IBCs
Heaviest single lift	18  26 t (evaporator body)  crane access to be verified at layout stage

LAYOUT FUNCTIONAL ZONES IN FLOW ORDER

1  Reception	Weighbridge, water dumping, roller and brush washing, destoner, elevators
2  Sorting	Optical and manual sorting platform, reject collection, waste conveying
3  Break section	Chopper, hot break 85  95  C or cold break 65  75  C, pulper / refiner / finisher
4  Evaporation	Multi-effect falling-film or forced-circulation train, vacuum unit, condensers
5  Sterilization	Tubular or scraped-surface steriliser with hold cell and aseptic buffer tank
6  Aseptic filling	Bag-in-box 3  20 L, 220 L bag-in-drum, 1,000 L IBC, sterile air and steam barriers
7  Utilities & CIP	Steam distribution, cooling towers, chilled water, compressed air, CIP/SIP skid
8  Warehouse	Bulk storage, packaging materials, laboratory and QC office

UTILITIES AND CONSUMPTION

Installed power	1,600İĞ½2,400 kW at 60 t/h (900İĞ½1,300 kW at 30 t/h)
Steam	12İĞ½20 t/h saturated at 8İĞ½12 bar, MVR option reduces demand by 45İĞ½60%
Cooling water	900İĞ½1,600 mİĞ½/h circulating, cooling towers sized on site design ambient
Process water	60İĞ½120 mİĞ½/h treated, with washing water recovery loops
Compressed air	700İĞ½1,200 NmİĞ½/h at 7 bar, oil-free for the aseptic zone
Effluent	40İĞ½90 mİĞ½/h to treatment, COD load dependent on washing recovery
Manning	18İĞ½26 operators per shift including sorting, QC and maintenance

CAPEX, OUTPUT AND PAYBACK

120 t/h tomato line İĞ½ investment profile

Large-scale campaign plant with forced-circulation or MVR evaporation, where energy per tonne becomes the dominant cost driver.

120 t/h fresh tomato (reference)	Turnkey CAPEX: İĞ½14 İĞ½ 19 million Annual output: 38 000 İĞ½ 48 000 t/year of 30 İĞ½Brix paste EBITDA: 22 İĞ½ 28% of revenue Payback: 3.5 İĞ½ 5 years Commissioning: 16 İĞ½ 20 months contract-to-commissioning
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Assumptions behind the figures

- Campaign of 90İĞ½110 days per year, 20İĞ½22 productive hours per day.
- Hot break line, evaporation to 28İĞ½30 İĞ½Brix, aseptic filling in 220 L bag-in-drum or 1 000 L IBC.
- Yield 5.5İĞ½6.5 t of fresh tomato per tonne of 30 İĞ½Brix paste, depending on inbound İĞ½Brix.
- 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.

Indicative engineering ranges used by MCF Technology for budget screening. Final CAPEX, EBITDA and payback are fixed only in the feasibility study, once inbound İĞ½Brix, 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.

TECHNICAL FAQ

MVR or multiple-effect evaporation at 120 t/h?

MVR reduces steam demand drastically and is preferred where fuel is expensive and electricity is stable and affordable; forced-circulation multiple effect remains preferable where power supply is weak or electricity tariffs are high. The decision is an energy-cost calculation, made in the feasibility study.

How much fresh tomato is needed per campaign?

Roughly 220 000İĞ½290 000 t over 90İĞ½110 days, which is why raw-material contracting and field logistics İĞ½ not equipment İĞ½ are usually the limiting factor at this size.

How is water managed?

Flume, condensate and cooling water are recovered and reused; a 120 t/h plant with recovery typically consumes a fraction of

the fresh water of an older non-recovery line, which also reduces effluent treatment cost.

Is redundancy needed on aseptic filling?

Yes. At this output an unplanned filler stop costs a full evaporation train, so filling heads are specified with redundancy and quick sterilisation cycles.

What CAPEX and payback apply?

Indicatively 14-19 million turnkey with 22-28% EBITDA and 3.5-5 year simple payback, subject to raw material cost, energy tariff and paste pricing.

NEXT STEPS

- Full technical page: <https://mcftechnology.group/en/tomato-processing-plant-120-tph>
- 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.