

Spice Cleaning & Steam Decontamination Line

Complete Turnkey Business Proposal



Supplier reference: real industrial steam spice-treatment equipment with process piping and controls.

50-100 kg/batch starter treatment load	1-2 validated launch spices	3 recorded critical process variables	6-10 entry operators
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Prepared for investment planning in Afghanistan and regional export markets. Final specifications, pricing, civil works, and utility loads require supplier quotation and site survey.

Executive Summary

A food-safety line for receiving whole spices, removing stones, dust and metal, grading, applying a validated short steam decontamination treatment, then rapid drying, cooling and protected holding. It is not a generic canning retort: time, temperature, moisture and aroma retention must be validated for each spice.

Why this project fits Afghanistan

- Clean whole spices can replace unsafe informal handling.
- Validated decontamination supports institutional and export buyers.
- Separate recipes protect aroma and color differences.
- A batch system limits entry capital while building process evidence.

Sanaatchi delivery scope

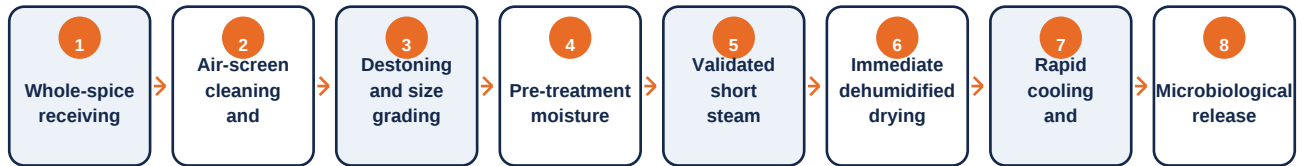
- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration

For the lowest credible entry, select a 50-100 kg/batch cleaning section and pressure-rated batch steam treatment with recorded temperature, pressure and time, followed by immediate dehumidified drying and cooling. Begin with one or two heat-tolerant whole spices.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Clean steam-treated whole spices	Buyer-approved moisture, microbial limits, aroma, color and foreign matter	Food manufacturers, wholesalers and export buyers
Released spice feed for grinding	Dry treated lot protected from recontamination	Controlled spice-milling operations

Steam decontamination is a lethality step, not a cosmetic heating process. A food technologist must validate worst-case microbial reduction and sensory retention for each spice. Pressure equipment requires compliant design, inspection, safety valves and trained operation.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Air-screen cleaner and magnet	Removes light matter, oversize material and metal	Separate settings by spice
2	Destoner and grader	Removes stones and creates uniform treatment fractions	Trialled on each whole spice
3	Batch feed and weighing station	Controls treatment load	50-100 kg/batch entry
4	Pressure-rated steam chamber	Applies validated moist-heat treatment	Recorded temperature, pressure and time
5	Steam generator and treatment water system	Supplies food-compatible steam	Sized to chamber demand
6	Dehumidified batch dryer	Removes treatment moisture promptly	Product-temperature protection
7	Cooling and protected conveyor	Stops heating and limits recontamination	Filtered dry air
8	Sampling and released-lot bins	Holds treated spice pending test release	Closed food-grade containers

Equipment models are indicative and will be matched to the selected capacity, local raw-material tests, available utilities, and preferred automation level.

Reference Equipment Gallery



Supplier reference: real industrial steam spice-treatment equipment with process piping and controls.



Made-in-China reference: real pressure-rated automatic steam sterilisation chamber for herbs and spices.

Images are supplier references for configuration discussion; final equipment appearance and model may differ.

Plant, Raw Materials & Utility Requirements

Raw materials

- Traceable whole spices by separate lot
- Potable treatment water
- Food-grade lined bags and closed bins
- Laboratory sampling and microbiology materials

Utilities & infrastructure

- Stable three-phase electricity
- Clean compressed air where specified
- Potable process water where required
- Washable food-grade processing room with dust control
- Dry segregated raw-material and finished-goods storage

Quality, safety and environmental controls

- Approve pressure-vessel design, inspection and safety devices
- Validate microbial reduction for every launch spice
- Record treatment time, temperature, pressure and load
- Dry immediately to buyer-approved final moisture
- Test aroma, volatile-oil retention, color and microbiology
- Prevent cross-contamination between raw and treated zones

A final factory layout must reserve safe forklift routes, maintenance clearances, raw-material segregation, finished-goods storage, fire protection, ventilation, and future expansion space.

Indicative Investment & Implementation Plan

LOW-ENTRY CONFIGURATION

Lowest entry treats one or two validated whole spices in batches and outsources microbiology. Continuous HTST treatment, laboratory construction, building and working stock are excluded.

Component	Indicative range	Notes
Cleaning, destoning and grading	US\$5k-12k	50-100 kg/batch preparation
Steam treatment chamber and controls	US\$10k-24k	Pressure-rated batch scope
Steam supply, drying and cooling	US\$8k-20k	Rapid moisture removal
Quality and protected handling	US\$3k-8k	Microbiology outsourced at launch
Freight, installation and spares	US\$6k-14k	Pressure and steam interfaces
Indicative low-entry total	US\$32k-78k	Building, boiler fuel, spice stock and certification excluded

Implementation sequence

Phase 1	2-3 weeks	Confirm raw-material specification, product grades, capacity and packs
Phase 2	2-4 weeks	Run trials with representative Afghan raw materials and approve samples
Phase 3	5-9 weeks	Manufacture, inspect and ship the selected equipment
Phase 4	3-5 weeks	Install, train and validate process controls and shelf life

Ranges are planning targets for a low-cost entry configuration, exclude land, and remain subject to confirmed capacity, supplier quotation, freight, duties, exchange rates and site conditions.

Next Steps & Contact Information

Recommended next steps

- Confirm target products, hourly output, and packaging formats
- Test representative raw materials and document quality requirements
- Complete site survey covering electricity, water, fuel, drainage, roads, and warehouse space
- Request comparable technical and commercial quotations from shortlisted suppliers
- Finalize financing, logistics, installation, training, and spare-parts plan

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Research and image references

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