

Freeze-Dried Fruit & Vegetable Factory

Complete Turnkey Business Proposal



Made-in-China supplier reference: real freeze-dried fruit & vegetable factory equipment.

1 product family controlled launch	0.5-2 t/day fresh input screen	vacuum dried product method	20-45 three-shift workforce
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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 controlled freeze-drying factory preserving one prepared fruit or vegetable family through receiving, washing, cutting, pre-freezing, vacuum freeze drying, moisture conditioning, metal detection, nitrogen packing and laboratory release. It is designed for premium shelf-stable products, not ordinary hot-air drying.

Why this project fits Afghanistan

- Freeze drying keeps premium texture and flavour but has high energy and capital requirements.
- A single cut size and product family simplifies trays, recipes and acceptance testing.
- Water activity and barrier packing determine shelf life.

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

Begin with one high-value product such as diced apple, strawberry slices or mixed vegetable cubes. Validate seasonality, yield loss, pre-freezing capacity, stable electricity, vacuum maintenance, moisture-barrier packaging and premium domestic/export off-take before investment.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Freeze-dried fruit or vegetable pieces	Species, cut size, moisture, water activity, colour, microbiology, foreign matter and pack integrity	Premium Afghan retail, bakery, beverage and export buyers

Supplier selection must be based on representative buyer material, utilities and a documented acceptance test for this exact product.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Preparation, cutting and pre-freezing	Creates uniform frozen feed	One product/cut size
2	Vacuum freeze dryer and condenser	Removes ice under vacuum	Validated final moisture
3	Conditioning and nitrogen packing	Protects crisp low-moisture product	High-barrier packs
4	Laboratory and cold-support equipment	Verifies safety and product stability	Water activity and shelf-life checks

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



Made-in-China supplier reference: real freeze-dried fruit & vegetable factory equipment.



Made-in-China supplier reference: second real machine configuration for freeze-dried fruit & vegetable factory.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Sound graded fruit/vegetables, potable water and approved anti-browning treatment only where specified
- High-barrier pouches, nitrogen, cartons and pallets

Utilities & infrastructure

- Stable three-phase electricity with verified connected load
- Guarded machinery, lockout, ventilation and fire protection
- Covered segregated raw-material and finished-goods storage
- Maintenance tools, safe lifting and critical spare parts
- Pre-freezing capacity, vacuum pumps, refrigeration, oil-free air and controlled low-humidity packing room
- Wash-water treatment and organic trim/by-product route

Quality, safety and environmental controls

- Release fresh material for maturity, defects and pesticide documentation
- Record freezing, vacuum, shelf temperature and drying endpoint
- Test moisture, water activity, colour, microbiology, metal detection and seal integrity

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

Use freeze drying only after a premium buyer accepts the product and price; hot-air dried products belong to a lower-cost different plant.

Component	Indicative range	Notes
Preparation, freezing and tray handling	US\$120k-300k	One product family
Vacuum dryer, condenser and vacuum system	US\$300k-1m	Core freeze-drying scope
Packing, laboratory, utilities and installation	US\$120k-350k	Low-moisture packaging
Indicative project total	US\$540k-1.65m	Land and seasonal inventory excluded

Implementation sequence

Phase 1	2-5 weeks	Confirm product specification, representative raw material, buyer, capacity, site and utilities
Phase 2	3-7 weeks	Run supplier trials with the buyer material and freeze the balanced machine, tooling and utility scope
Phase 3	8-22 weeks	Manufacture or refurbish, inspect, document and ship the contracted equipment
Phase 4	3-12 weeks	Install, commission, train operators and pass material-specific acceptance tests

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

Sanaatchi Industrial Vision Group

Afghanistan Office: +93 779 819 820 | info@sanaatchi.com

China Office: +86 159 5171 6867 | china@sanaatchi.com

Website: www.sanaatchi.com

Research and image references

- <https://www.alibaba.com/showroom/freeze-dried-fruit-production-line.html>
- https://www.made-in-china.com/products-search/hot-china-products/Freeze_Drying_Food_Machine.html