

Bone-Meal Production Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real sealed rendering cooker used for bone-meal processing.

500-1,000 kg/batch entry cooker load	1 approved end-use grade	5-6 h supplier batch reference	8-14 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 controlled abattoir by-product line for fresh segregated cattle, sheep or goat bones: closed receiving, pre-breaking, pressure or high-temperature batch rendering, fat/liquid separation, drying, cooling, hammer milling, screening, metal control and bagging. The chosen product-feed-grade meat-and-bone meal or sterilized fertiliser bone meal-determines feedstock, treatment and legal release tests.

Why this project fits Afghanistan

- Formal abattoirs need safe routes for high-load animal by-products.
- Thermal processing can convert a disposal cost into a controlled product.
- A batch plant matches variable Afghan slaughter volumes.
- The final market must be legally confirmed before equipment purchase.

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, integrate with an approved abattoir and use a 500-1,000 kg/batch sealed crusher-cooker, press, indirect dryer, cooler, mill and bagger. Launch sterilized fertiliser-grade bone meal unless a feed authority and buyer approve the species, pathogen process and feed standard.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Sterilized bone-meal fertiliser	Controlled moisture, particle size, pathogen treatment and declared nutrient analysis	Fertiliser blenders and farms under local approval
Meat-and-bone meal expansion	Feed-authority approved species, protein, ash, fat and microbiology	Licensed feed mills only

A fertilizer claim does not remove animal-disease risk. The competent authority must approve the material source, pressure/temperature/time treatment and end use. Mixed carcass waste, unknown animals or untreated bone must not enter. Dust explosion, odour and fat/condensate handling require engineered controls.

Core Equipment Schedule

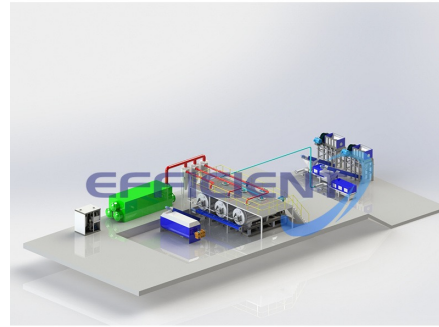
Step	Equipment	Function	Indicative parameter
1	Closed receiving bins and feed system	Contains and meters fresh by-product	500-1,000 kg/batch
2	Crusher or screened transfer pump	Creates a controlled uniform feed	Material-specific design
3	Batch cooker or coagulation vessel	Applies the validated thermal treatment	Recorded temperature and time
4	Press or dewatering unit	Reduces liquid load before drying	Yield trial required
5	Indirect or rotary dryer	Reaches safe stable moisture	Exhaust and fire controls included
6	Condenser and odour treatment	Controls vapour and nuisance emissions	Site-specific mandatory scope
7	Cooler, mill and screen	Produces stable controlled particle size	Low-dust enclosed transfer
8	Scale, bagger and dust collector	Packs and identifies released meal	20-25 kg entry bags

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 sealed rendering cooker used for bone-meal processing.



Made-in-China supplier reference: real complete meat-and-bone-meal equipment layout.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Fresh segregated abattoir by-product collected in closed washable bins
- Food/feed/fertiliser packaging selected for the legally approved end use
- Fuel or steam, filter media and approved cleaning chemicals
- Laboratory samples, calibration materials and traceability labels

Utilities & infrastructure

- Stable three-phase electricity matched to motors and controls
- Potable process and sanitation water with adequate pressure
- Process heat or steam sized to the confirmed thermal load
- Washable rooms, trapped drainage, pest control and hygiene barriers
- Odour, wastewater and by-product controls approved for the site

Quality, safety and environmental controls

- Approve source material, species, maximum age and receiving temperature
- Record every batch mass, thermal time/temperature and pressure where applicable
- Verify final moisture, particle size and microbiological release criteria
- Control dust, odour, condensate and wastewater at source
- Prevent recontamination after the validated thermal process
- Release product only to the legally approved feed or fertiliser market

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 uses one segregated raw material, batch thermal processing and semi-automatic bagging. Building, collection vehicle, full laboratory and working stock are excluded.

Component	Indicative range	Notes
Receiving, crusher and conveyors	US\$20k-55k	500-1,000 kg/batch
Sealed cooker and press	US\$55k-145k	Validated thermal cycle
Dryer, cooler, mill and bagger	US\$45k-120k	One approved grade
Steam, odour and effluent controls	US\$35k-100k	Mandatory site scope
Freight, installation and spares	US\$35k-90k	Pressure/thermal commissioning
Indicative low-entry total	US\$190k-510k	Building and collection excluded

Implementation sequence

Phase 1	3-5 weeks	Confirm raw-material supply, product, capacity, site and buyer rules
Phase 2	3-6 weeks	Run representative product, yield, hygiene and packaging trials
Phase 3	6-12 weeks	Manufacture, inspect and ship the approved equipment scope
Phase 4	4-8 weeks	Install, train, validate sanitation and pass performance 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

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Research and image references

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