

Lentil Splitting & Polishing Line

Complete Turnkey Business Proposal



Supplier reference: real compact grain dehulling and polishing line representative of the required pulse-processing arrangement.

300-500 kg/h starter cleaned-lentil input	1-2 passes planned dehulling stages	20-35 kW indicative connected load	4-6 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

This line converts cleaned lentils into dehulled split lentils. Controlled abrasion loosens and removes the seed coat, a splitting section separates the cotyledons, aspiration removes hull and fine powder, and polishing and grading create uniform saleable dal. Yield depends strongly on variety, kernel moisture, tempering practice and dehuller pressure; excessive abrasion creates flour and broken product.

Why this project fits Afghanistan

- Split lentils are a familiar retail and institutional staple with higher value than unprocessed grain.
- A dry process reduces water use and simplifies wastewater control.
- Adjustable passes allow processors to balance bright appearance against edible-yield loss.
- Separated hull and fines can enter approved feed channels when kept clean and traceable.

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 300-500 kg/h line with cleaning and destoning, an adjustable dry dehuller, splitter, hull aspiration, polisher, grader and semi-manual packing. Require supplier trials with the exact lentil variety and approve dehulling percentage, whole-kernel carryover, split yield and powder loss before purchase.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Polished split lentils	Buyer-approved dehulling, split uniformity, color and low powder	Retail, wholesale and institutional food buyers
Dehulled whole kernels	Separated whole cotyledon product where demanded	Specialty food processors
Hull and fine fraction	Dry, separately collected and safety-checked	Approved feed or further milling users

Supplier descriptions identify cleaning, destoning, magnetic protection, peeling, splitting, sieving, polishing, optional color sorting and packing as the complete dry flow. A published dry dehuller lists 1-1.5 t/h, but Sanaatchi's entry plan deliberately targets a smaller integrated output. Capacity and yield must be established by trial rather than copied from a single-machine nameplate.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Final cleaner, destoner and magnet	Protects the dehuller and removes remaining impurities	Screens matched to the selected lentil variety
2	Conditioning bin and micro-doser	Equalizes moisture or applies approved minimal conditioning when trials require it	Bypass for validated fully dry processing
3	Abrasive dehuller	Removes the lentil seed coat by controlled friction	Adjustable feed, pressure and residence time
4	Hull aspiration system	Separates loosened hull and fine powder	Cyclone or filter with sealed reject collection
5	Lentil splitter	Separates dehulled kernels into two cotyledons	Low-impact adjustable splitting gap
6	Polisher	Removes adhering powder and improves surface appearance	Gentle dry polish with controllable loss
7	Finished-product grader	Separates accepted splits, whole kernels and fines	Interchangeable food-grade screens
8	Bagging scale and closer	Packs released split-lentil grades	Semi-manual 1-25 kg starter scope

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 compact grain dehulling and polishing line representative of the required pulse-processing arrangement.



Supplier reference: real abrasive dehulling and polishing equipment used for dry grain and pulse preparation.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Clean, variety-segregated Afghan lentils suitable for splitting
- Potable water only if the validated conditioning recipe requires it
- Food-grade pouches or lined bags
- Labels, coding and sealing consumables

Utilities & infrastructure

- Stable three-phase electricity
- High-efficiency aspiration and safe dust collection
- Dry conditioned-lentil and finished-product storage
- Calibrated moisture meter, scales and laboratory sieves
- Food-grade compressed air only where specified

Quality, safety and environmental controls

- Segregate varieties because dehulling and splitting behavior differs
- Record incoming moisture and any conditioning dose and rest time
- Measure dehulling percentage, split yield, whole kernels, powder and hull loss
- Adjust abrasion to avoid excessive edible material in the reject
- Check color, foreign matter, damaged kernels and residual hull
- Verify pack weight, closure, lot code and shelf stability

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 credible entry uses one adjustable dry dehuller, one splitter, essential aspiration, a small polisher, grading and semi-manual packing. Land, building, lentil inventory and optical color sorting are excluded.

Component	Indicative range	Notes
Final cleaning, destoning and conditioning	US\$4k-9k	Reuse existing cleaner where available
Dry dehulling, aspiration and splitting	US\$8k-18k	Core product-forming section
Polishing, grading and semi-manual packing	US\$4k-10k	Optical sorter excluded
Electrical, dust control, installation and spares	US\$3k-7k	Include abrasive parts, screens and belts
Freight and clearance	US\$4k-8k	Confirm blower and duct shipment
Indicative low-entry total	US\$23k-52k	Building, lentil stock and color sorter excluded

Implementation sequence

Phase 1	2-3 weeks	Confirm varieties, target split grade, packing and quality limits
Phase 2	2-4 weeks	Run dehulling trials and approve complete mass balance
Phase 3	5-8 weeks	Manufacture, inspect and ship the selected line
Phase 4	2-4 weeks	Install, tune abrasion and airflow, train staff and release lots

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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