

Compact Roller Wheat-Flour Mill

Complete Turnkey Business Proposal



Verified supplier reference: compact roller-milling set with pneumatic conveying, cyclones and flour collection.

0.3-0.5 t/h entry wheat input	8-12 t/day practical daily range	30-55 kW screening 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

A compact roller-milling line for converting cleaned Afghan wheat into consistent white or bakery flour plus saleable bran. Unlike the separate stone-mill proposal, this configuration uses controlled wheat conditioning, staged roller reduction and sifting to improve flour consistency and extraction while remaining suitable for a small commercial mill.

Why this project fits Afghanistan

- Afghan wheat can be processed close to producing districts, bakeries and urban flour markets.
- Roller milling gives more repeatable flour fineness and separation than a single-pass grinder.
- White flour, bakery flour and bran create separate saleable product streams.
- The compact entry layout uses fewer machines than a large multi-storey industrial flour mill.

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

Start with 300-500 kg/h, compact cleaning and destoning, controlled dampening and resting, two roller-mill passages, pneumatic transfer, multi-deck sifting and semi-manual packing. Add a purifier, flour blending or automatic retail packing only after flour tests and customer demand justify them.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Standard white wheat flour	Extraction, ash, moisture and fineness confirmed by milling trials	Bakeries, wholesalers and household retail
Bakery or naan flour	Protein, gluten behavior and water absorption matched to customer use	Commercial bakeries and naan producers
Wheat bran	Clean, dry and free from metal or excess flour	Livestock-feed traders and farms

Supplier references range from compact 200-500 kg/h roller units to complete 10 t/day lines. A true wheat-flour line must include suitable cleaning, destoning, magnetic separation, dampening/resting, roller milling, sifting, aspiration and safe flour collection; a bare roller mill is not a complete factory. Extraction rate and flour quality must be proven with representative Afghan wheat.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Receiving hopper and intake screen	Receives bagged wheat and removes large foreign material	Manual bag intake sized for 300-500 kg/h
2	Vibratory cleaner and aspiration	Removes dust, chaff and over/undersize impurities	Include adjustable screens, fan and dust outlet
3	Destoner and magnetic separator	Removes stones and ferrous contamination before milling	Verify separation with the buyer's wheat sample
4	Dampener and resting bins	Adjusts wheat moisture and allows bran to toughen before milling	Meter water accurately; provide practical 8-16 hour holding
5	Roller-mill passages	Opens kernels and progressively reduces endosperm	Two compact roller units for the entry flow; corrugation and gap by supplier
6	Pneumatic conveying and cyclones	Transfers intermediate stocks and separates conveying air	Balance airflow; include food-safe ducts and accessible cleaning points
7	Multi-deck flour sifter	Separates flour, middlings and bran for return or discharge	Screen plan must match target flour grades
8	Final control sifter and magnet	Checks finished flour before packing	Accessible inspection and cleaning records required
9	Weighing scale and bag sealer	Packs flour and bran into wholesale or retail bags	Semi-manual 5-50 kg entry scope with lot coding

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



Verified supplier reference: compact roller-milling set with pneumatic conveying, cyclones and flour collection.



Verified supplier reference: cleaning, conditioning and two-stage roller-milling configuration.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Afghan milling wheat segregated by variety and quality
- Food-grade flour bags or retail pouches
- Bran bags
- Labels, ink and coding consumables
- Approved sanitation and pest-control materials

Utilities & infrastructure

- Stable three-phase electricity
- Potable water for controlled dampening
- Dust extraction and explosion-aware ventilation
- Dry wheat storage and conditioned-wheat bins
- Separate flour and bran storage
- Food-hygiene, pest-control and fire-safety systems

Quality, safety and environmental controls

- Test incoming wheat moisture, test weight, protein, impurities, infestation and odor
- Approve the cleaning loss and destoner performance before continuous production
- Calibrate water dosing and record wheat resting time
- Test flour extraction, moisture, ash, fineness, color and baking performance
- Check magnets, sifters, dust collectors and bag weights each shift
- Maintain lot traceability from wheat intake through flour and bran dispatch

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 practical entry: compact cleaner/destoner, controlled dampening and resting, two roller-mill passages, one sifter, pneumatic transfer and semi-manual bagging. Exclude automatic retail packing, flour blending and purifier until the market is proven.

Component	Indicative range	Notes
Compact cleaning, conditioning and roller-milling equipment	US\$10k-22k	Compare complete machine lists, not headline mill prices
Sifting, weighing and bag sealing	US\$2k-5k	Semi-manual wholesale packing at launch
Dust control, electrical work and local installation	US\$2k-6k	Local noncritical supports and ducts where safe
Freight, clearance and critical spares	US\$3k-8k	Confirm packing volume and Afghanistan destination
Commissioning tests and initial packaging	US\$2k-5k	Wheat working capital is excluded
Indicative low-entry total	US\$19k-46k	Land, building and wheat stock excluded

Implementation sequence

Phase 1	1-2 weeks	Confirm wheat quality, flour grades, daily output, bags and buyer tests
Phase 2	2-4 weeks	Run supplier milling trials and compare complete process and power lists
Phase 3	4-8 weeks	Manufacture, inspect and ship the selected compact line
Phase 4	2-3 weeks	Install, balance airflow, commission and approve flour and bran batches

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

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