



Cotton-Waste Opening & Cleaning Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real cotton-waste opening & cleaning line equipment.

80-150 kg/h small modular target	1+2/3 opener plus cleaners	40-65 kW screened entry load	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 micro/small textile-recycling line sorting clean pre-consumer cotton waste, cutting oversized pieces, detecting metal, metering material through one coarse opener and trial-selected cleaning rollers, extracting dust, condensing recovered fibre and baling it by grade. It does not make finished yarn; it prepares a controlled recycled-fibre feedstock.

Why this project fits Afghanistan

- Afghan tailoring, knitting and textile workshops generate sortable cotton waste.
- Recovered fibre can supply wadding, nonwoven or trial low-count yarn buyers.
- A modular two- or three-cleaner launch lowers capital and fibre damage.
- Source segregation is more valuable than trying to clean mixed unknown waste.

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 entry, accept only clean, known-composition cotton yarn and cutting waste. Install a guarded cutter only where needed, one 600 mm opener, two or three 250 mm cleaning rollers rather than six, magnet, suction/cyclone, condenser and small press. Prove fibre length and buyer use before adding stages.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Recovered cotton fibre	Buyer-agreed composition, colour, fibre length, trash and moisture	Wadding, nonwoven and trial low-count spinning
Separated textile rejects	Metal, zips, elastane-rich and contaminated fractions isolated	Approved recycling or disposal

Supplier full lines report approximately 140-260 kg/h with one opener and six cleaners, or 180-225 kg/h with two openers and five cleaners. The lower-entry configuration deliberately uses fewer stages and only clean pre-consumer cotton. Used garments require sanitisation, accessory removal and composition control beyond this scope.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Sorting and inspection tables	Separates cotton by source, colour and contamination	No mixed municipal clothing
2	Guarded textile cutter	Reduces large clean offcuts	Install only if feed size requires
3	Magnet and spark-risk detector	Protects high-speed rollers and dust line	Before the first opener
4	600 mm coarse opener	Releases entangled textile waste	80-150 kg/h entry target
5	250 mm cleaning rollers	Progressively removes thread and trash	Two or three launch modules
6	Suction, cyclone and dust filter	Moves fibre and captures dust	Fire-safe balanced system
7	Fibre condenser	Forms a consistent recovered-fibre batt	Matched to final airflow
8	Small hydraulic press	Bales released fibre by grade	Separate buyer-labelled lots

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 cotton-waste opening & cleaning line equipment.



Made-in-China supplier reference: second real industrial configuration for cotton-waste opening & cleaning line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Clean pre-consumer cotton yarn waste and cutting offcuts by known composition
- Bale wrap, ties and lot labels
- Replacement card clothing, knives, bearings and filters
- Cleaning and fire-control consumables

Utilities & infrastructure

- Stable three-phase electricity matched to the confirmed motor and starting loads
- High-volume dust extraction with fire-safe ducting, collection and housekeeping
- Dry covered raw-material and finished-product storage with lot separation
- Fire detection, suitable extinguishing equipment and controlled ignition sources
- Safe access, guarding, lifting aids and preventive-maintenance workspace

Quality, safety and environmental controls

- Verify fibre composition and exclude wet, oily, biological or unknown waste
- Remove metal, zips, buttons and hard accessories before opening
- Measure recovered-fibre length, trash, colour and moisture
- Calculate fibre yield and dust/reject mass by source
- Inspect roller wire, clearances, bearings and guards every shift
- Control dust, static electricity, sparks and fire separation

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 accepts segregated clean cotton waste and uses one opener with two or three cleaners. Used-clothing sanitisation, six-stage lines, automatic sorting, building and working stock are excluded.

Component	Indicative range	Notes
Cutter, feeder and one opener	US\$8k-20k	Clean pre-consumer waste only
Two or three cleaning rollers	US\$8k-22k	Add stages after fibre trials
Air, condenser and small press	US\$6k-16k	Fire-safe dust collection
Electrical, guarding and installation	US\$4k-10k	Local noncritical supports
Freight, clearance and wear spares	US\$5k-12k	Wire and filter stock
Indicative low-entry total	US\$31k-80k	Building and waste inventory excluded

Implementation sequence

Phase 1	2-4 weeks	Confirm feedstock, buyer specification, capacity, site utilities and test protocol
Phase 2	2-5 weeks	Run representative material trials and approve the exact machine configuration
Phase 3	5-12 weeks	Manufacture, inspect and ship the approved equipment and critical spares
Phase 4	2-6 weeks	Install, commission, train operators and validate saleable output

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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