

Wool Felt & Carpet-Underlay Production Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real wool felt & carpet-underlay production line equipment.

100-250 kg/h screened line throughput	2.0-3.2 m entry working width	3-15 mm launch thickness window	10-18 entry 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 small/medium dry-laid needle-punch line converting specified clean wool, recovered textile fibre or a validated wool-synthetic blend into technical felt and carpet underlay through bale opening, metal removal, blending, fine opening, carding, cross-lapping, pre-needling, finish needling, optional thermal setting, edge trimming, thickness control, winding or sheet cutting, inspection and packing.

Why this project fits Afghanistan

- Coarse wool and selected textile recovery streams can become useful cushioning and insulation products.
- Carpet underlay has simpler appearance requirements than apparel textiles but still needs density and thickness control.
- Needle-punch capacity can expand by adding needling width or speed after a stable product is sold.
- Claims for fire, acoustic, thermal or automotive use require laboratory evidence, not supplier advertising.

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

Launch one non-structural underlay or general-purpose felt specification. Screen a 100-250 kg/h line with one opener/blender, single card, cross-lapper, pre-needle loom, finish needle loom, simple calender only if required, edge trimmer and winder/cutter. Validate wool blend, binder fibre, odour, moth resistance and fire performance before promising building or automotive applications.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Carpet underlay	Buyer-defined width, basis weight, thickness, density, compression recovery, odour and roll length	Carpet installers and floor-covering distributors
General-purpose wool-blend felt	Approved blend, thickness, tensile, dimensional and shedding limits	Furniture, padding, craft and non-critical insulation users

Card and cross-lapper capacity must balance needle density, stroke frequency, line speed and target basis weight. Recycled fibre can introduce metal, dust, colour, odour and inconsistent length. Acceptance must use the contracted blend and measure GSM, thickness, density, tensile, elongation, compression recovery, delamination, shedding, odour and roll uniformity. Fire or acoustic claims need the named test standard.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Bale opener, metal detector and blender	Meters and homogenizes the fibre recipe	Recipe traceability
2	Fine opener and feed chute	Separates fibre and feeds the card evenly	Wool-safe settings
3	Carding machine	Forms a uniform thin fibre web	Matched to 100-250 kg/h
4	Cross-lapper and web drafter	Builds width and basis weight	2.0-3.2 m basis
5	Pre-needle loom	Consolidates the loose batt for handling	Low initial penetration
6	Finish needle loom	Develops strength and density	Needle board by product
7	Trimmer, winder and sheet cutter	Forms saleable rolls or sheets	Length and edge control
8	Dust extraction and felt laboratory	Controls workplace and product release	Density and compression tests

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 wool felt & carpet-underlay production line equipment.



Made-in-China supplier reference: second real machine configuration for wool felt & carpet-underlay production line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Clean graded wool, approved recycled textile fibre or specified blend
- Binder fibre only where product trials require thermal bonding
- Anti-moth treatment only with legal, buyer-approved chemistry
- Cores, wrap, labels, pallets, felting needles and card clothing

Utilities & infrastructure

- Stable three-phase electricity and motor-starting study
- Dry covered fibre store and physically separated dusty opening zone
- Central fibre/dust extraction and fire detection/suppression
- Compressed air where controls and cleaning require it
- Optional controlled heat source and exhaust for thermal setting

Quality, safety and environmental controls

- Approve every fibre recipe and control contamination
- Verify metal removal and opening waste
- Measure card-web and cross-lap basis-weight profile
- Record needling depth, density, speed and broken needles
- Test GSM, thickness, density, tensile and compression recovery
- Inspect edges, roll length, odour, shedding and traceability

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

The lowest credible line makes one general underlay or felt specification with a single card and two needling stages. Automotive certification, fire-rated building products, thermal oven, building and fibre inventory are excluded.

Component	Indicative range	Notes
Opening, blending, feeding and carding	US\$55k-155k	One fibre recipe basis
Cross-lapper and two-stage needling	US\$75k-230k	Width and needle density drive cost
Trimming, winding, laboratory and dust control	US\$25k-80k	Essential finishing and safety
Freight, electrical, installation and spares	US\$40k-125k	Needles and card clothing included
Indicative installed project total	US\$195k-590k	Building, fibre stock and optional thermal oven 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

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Research and image references

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