



Denim-Fabric Production Plant

Complete Turnkey Business Proposal

TONGDA®



Made-in-China supplier reference: real denim-fabric production plant machinery.

1 launch denim article	12-24 screened loom set	12-24 ropes modest rope-dye basis	120-220 three-shift workforce
----------------------------------	-----------------------------------	---	---

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 large strategic denim mill converting specified cotton warp and weft yarn into finished denim through ball warping or direct warping, repeated indigo rope or slasher dyeing with oxidation, washing and sizing, long-chain beaming, drawing-in, high-density rapier or air-jet weaving, greige inspection, singeing, desizing/washing, optional mercerising, skew control, sanforising, final inspection, laboratory release and roll packing. It is a chemical, water, energy and wastewater project.

Why this project fits Afghanistan

- Denim has a large regional garment and workwear market when quality and shade are repeatable.
- Local cotton yarn can enter a higher-value woven fabric chain.
- A single core article reduces indigo recipe, loom and finishing complexity.
- Used inspected dyeing assets may lower entry cost but need specialist refurbishment and environmental engineering.

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

Proceed only after bankable feasibility confirms one core denim article, annual yarn offtake/input, indigo and chemical supply, reliable steam/power/water, wastewater compliance and garment or fabric buyers. Screen a modest integrated scope with one 12-24 rope dye range or slasher alternative, 12-24 suitable looms, inspection and compact finishing; compare a used inspected dye range with new supported weaving and control systems.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Rigid cotton denim	One buyer-approved ounce weight, width, 3/1 or selected twill, shade, shrinkage and defects	Jeans, workwear and garment factories
Stretch or special denim expansion	Separate yarn, loom, heat-setting and performance route	Fashion buyers after Phase 1 validation

Indigo is reduced for fibre affinity and repeatedly oxidised; shade depends on yarn, bath chemistry, pH, redox potential, immersion, airing and wash control. Denim finishing must control skew and shrinkage. Effluent colour, COD, salt, sizing chemicals and sludge need a licensed treatment route. Garment washing is not included.

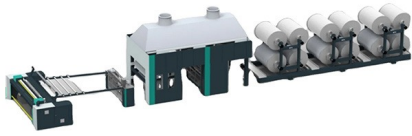
Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Ball warper or direct warping system	Prepares warp packages for dyeing	Matched to rope or slasher route
2	Indigo rope/slasher dye range	Applies repeated controlled indigo dips and oxidation	12-24 rope modest basis
3	Washing, sizing and beaming	Removes loose dye and prepares stable warp beams	Recipe and tension controlled
4	Twelve to twenty-four looms	Weave the selected denim twill	Width and yarn by core article
5	Greige inspection and mending	Maps and repairs weaving defects	Roll-level traceability
6	Singeing and desizing/washing range	Prepares surface and removes size	Effluent-linked process
7	Skew and sanforising line	Controls garment twisting and residual shrinkage	Buyer-specified finish
8	Laboratory and wastewater plant	Controls shade, fabric performance and discharge	Complete engineered system

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

TONGDA®



Made-in-China supplier reference: real denim-fabric production plant machinery.



Made-in-China supplier reference: second real industrial configuration for denim-fabric production plant.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Buyer-approved cotton warp and weft yarn by count, twist, strength and lot
- Indigo, caustic, hydrosulfite or approved reducing system, size and auxiliaries
- Process water, steam/fuel and laboratory chemicals
- Paper tubes, roll wrap, labels, pallets and critical loom/finish spares

Utilities & infrastructure

- Stable three-phase electricity with transformer, power-quality and motor-starting study
- Central dust or lint extraction with fire-safe collection and housekeeping
- Controlled temperature and humidity suited to the confirmed fibre, yarn or fabric
- Dry covered raw-material and finished-product storage with lot traceability
- Compressed air, process water, steam and wastewater treatment where the selected process requires them

Quality, safety and environmental controls

- Approve yarn and one master denim construction before procurement
- Control dye-bath pH, redox, temperature, dip/air cycles and shade trend
- Measure size pickup, warp tension and loom efficiency
- Inspect weave, width, GSM/ounce, shade and roll defects
- Test tensile, tear, colourfastness, skew and dimensional stability
- Monitor water, chemical mass balance, effluent, sludge and worker exposure

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 integrated plant launches one rigid denim article and considers an inspected used dye range with supported new controls and looms. Stretch denim, garment washing, land and working capital are excluded.

Component	Indicative range	Notes
Bankable study, trials and environmental engineering	US\$180k-500k	Buyer, utility and discharge proof
Indigo warping, dyeing, washing and sizing	US\$1.2m-4.0m	Used inspected or new modest range
Twelve to twenty-four looms and preparation	US\$700k-2.4m	Selected article and width
Finishing, laboratory and wastewater systems	US\$1.0m-3.5m	Singeing through sanforising
Civil works, utilities, erection and contingency	US\$1.4m-4.5m	Chemical and wet-process building
Indicative strategic project basis	US\$4.48m-14.9m	Land, yarn, chemicals and financing excluded

Implementation sequence

Phase 1	3-6 weeks	Confirm product, buyer specification, feedstock, capacity, site and utility basis
Phase 2	3-8 weeks	Run representative material and product trials and freeze the complete equipment list
Phase 3	8-24 weeks	Manufacture or refurbish, inspect and ship the approved equipment scope
Phase 4	4-16 weeks	Install, commission, train and pass contracted performance and quality 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

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

- https://it.made-in-china.com/co_qdtongda/product_Tongda-Td-608-China-Made-Indigo-Rope-Dyeing-Machine_yyseniruig.html
- <https://hftextilemachinery.en.made-in-china.com/product/UjSmglAybqhY/China-Morrison-Indigo-Rope-Dye-Range-200cm-24-Ropes-Weaving-Loom-Textile-Machine.html>