

Yarn Dyeing Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real yarn dyeing line machinery.

10-30 kg screened launch batch	1 fibre route controlled chemistry basis	6-10 h typical batch cycle	5-9 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 small/medium wet-processing line dyeing released cotton, wool or selected synthetic yarn in package or hank form through lot preparation, optional scouring or bleaching, controlled dye-bath circulation, dosing, washing, neutralisation, hydro-extraction, drying, conditioning, shade inspection, rewinding where required and packing. Fibre chemistry, package form and wastewater route must be fixed before machine selection.

Why this project fits Afghanistan

- Local knitters, weavers and carpet makers need repeatable coloured yarn in smaller lots.
- Small batches can serve regional colours without importing every finished shade.
- One fibre and dye class at launch reduces recipe and wastewater complexity.
- Shade repeatability and effluent compliance determine commercial credibility.

Sanaatchi delivery scope

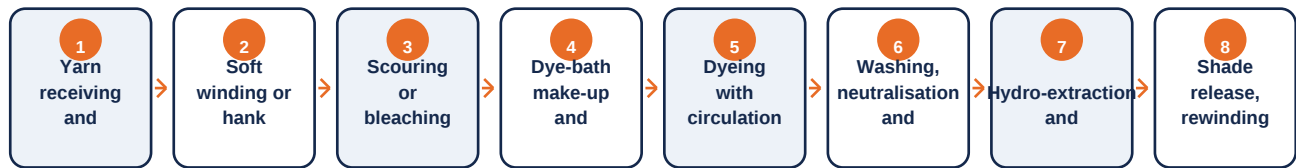
- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning
- International logistics, customs documentation, operator training, spare parts, and after-sales support

Recommended configuration

For an economical launch, select one fibre route and one package form. Screen a 10-30 kg atmospheric hank or package dye machine, manual or semi-automatic dosing, small hydro-extractor, yarn dryer, water softening, steam generator and a complete segregated effluent-treatment system. High-temperature polyester package dyeing requires a certified pressure vessel and a higher utility basis.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Dyed cotton yarn	One buyer-approved count, package or hank, shade standard, colourfastness and moisture	Knitting, weaving and carpet workshops
Wool-yarn dyeing expansion	Separate acid-dye recipe, temperature and handle standard	Carpet and apparel makers after dedicated trials

Cotton reactive dyes, wool acid dyes and polyester disperse dyes are not interchangeable processes. Package density and winding determine liquor penetration. Every shade needs a laboratory recipe scaled by liquor ratio, salt/alkali or acid profile, temperature curve, wash-off and drying. The plant must account for colour, salt, COD, pH and sludge in wastewater.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Soft package winder or hank preparation	Creates dye-permeable yarn packages	Matched to launch form
2	Ten- to thirty-kilogram dye vessel	Controls liquor circulation and temperature	Atmospheric entry basis
3	Dosing and addition tank	Adds dyes and chemicals reproducibly	Measured manual or semi-auto
4	Hydro-extractor	Removes excess water after washing	Balanced yarn carriers
5	Yarn dryer	Dries packages or hanks without shade damage	Temperature and airflow controlled
6	Water softener and steam generator	Provides recipe-quality water and heat	Sized to batch profile
7	Laboratory dyeing and shade instruments	Develops recipes and approves colour	Master standards and light box
8	Effluent-treatment system	Controls pH, colour, COD and sludge	Complete permitted route

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 yarn dyeing line machinery.

Fabern



Made-in-China supplier reference: second real industrial configuration for yarn dyeing line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Released cotton, wool or selected synthetic yarn by count, package, lot and moisture
- Buyer-approved dyes and fibre-specific auxiliaries with safety data
- Soft cones, springs, hanks, labels, bags and cartons
- Water-treatment chemicals, laboratory standards and wastewater consumables

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

- Verify yarn identity, absorbency, package density and lot
- Approve laboratory dip and master shade before bulk dyeing
- Control liquor ratio, pH, conductivity, dosing, temperature and circulation
- Measure shade difference, levelness and wash-off
- Test colourfastness to wash, rubbing and light as contracted
- Monitor water, salt, COD, colour, sludge and worker chemical 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 entry uses one 10-30 kg atmospheric machine for one fibre and package form with full water and effluent controls. High-temperature polyester, automatic colour kitchen, building and working yarn/dye stock are excluded.

Component	Indicative range	Notes
10-30 kg dye vessel and yarn carriers	US\$12k-35k	One fibre and package route
Hydro-extractor, dryer and handling	US\$8k-24k	Small-batch matched
Water, steam, laboratory and dosing	US\$10k-28k	Recipe-critical utilities
Effluent treatment, freight and installation	US\$18k-48k	Mandatory wet-process scope
Indicative low-entry total	US\$48k-135k	Building, dyes and yarn stock 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

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Research and image references

- <https://www.made-in-china.com/showroom/wuxisunsky/product-detailjXUmdueJvzkx/China-New-Generation-Yarn-Package-Dyeing-Machine.html>
- <https://fabern.en.made-in-china.com/product/zZQmcNevfakw/China-Y-Series-Hank-Yarn-Dyeing-Machine.html>