



Prestressed Bridge-Beams & Utility-Poles Plant

Complete Turnkey Business Proposal



Made-in-China supplier reference: real prestressed bridge-beams & utility-poles plant equipment.

bankable study investment gate	confirmed feedstock supply gate	EPC scope delivery gate	quality laboratory release gate
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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

Strategic precast/prestressed concrete plant that batches controlled concrete, tensions strand, casts bridge beams and utility poles in approved moulds, cures, detensions, tests, marks and dispatches structural components.

Why this project fits Afghanistan

- This is a strategic plant, not a low-entry equipment package.
- Bankable feedstock, utility, permit, market, EPC and financing evidence is required before selection.
- Operate only with an independent laboratory, defined quality release and preventive-maintenance program.

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 approved bridge/pole designs, authority orders, strand/cement supply, curing yard, lifting route, laboratory and experienced prestress engineering are confirmed.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Prestressed bridge beams and utility poles	Design load, span/length, concrete strength, strand force, insert layout, dimensional tolerance and authority standard	Road/bridge EPCs, utilities, municipalities, rail/infrastructure authorities and approved contractors

Final capacity, process, resource quality, utilities, permit conditions, emissions, acceptance test and commercial terms require independent engineering review before any order.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Batching and material laboratory	Controls concrete	Strength and consistency
2	Strand cutting/tensioning	Applies prestress	Force and alignment
3	Mould preparation/casting	Forms components	Geometry and inserts
4	Curing/detensioning	Develops strength	Maturity and release
5	Load test/marketing/yard	Releases structures	Traceability and safe handling

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

TIANYI MACHINERY
TIANYI SHARES (Stock Code: 201648)

19 years
experience



Made-in-China supplier reference: real prestressed bridge-beams & utility-poles plant equipment.



Made-in-China supplier reference: second real machine configuration for prestressed bridge-beams & utility-poles plant.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Cement, graded aggregate, water/admixtures, prestressing strand, reinforcement/inserts, mould release, curing materials and lab consumables

Utilities & infrastructure

- Bankable electricity/fuel/water plans, process cooling and treatment, plant fire safety, laboratory, covered stores and qualified operation team
- Environmental permits, emissions control, waste route, maintenance workshop, critical spares and site-specific safety systems

Quality, safety and environmental controls

- Confirm authority designs/orders, materials, curing and lifting yard, transport, laboratory and named prestress engineer
- Control batch mix, strand force, mould alignment, inserts, vibration, curing, detensioning and lifting
- Test strength, dimensions, strand force, cracking, camber, load requirements and batch 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

Prestressed components require approved structural designs, traceable strand tension and authority acceptance - not only concrete casting capacity.

Component	Indicative range	Notes
Batching, moulds and tensioning beds	US\$45m-145m	Component design/output
Curing, lifting, yard and laboratory	US\$25m-80m	Authority QA scope
Utilities and installation	US\$15m-50m	Prestress critical
Indicative strategic project total	US\$85m-275m	Orders, land and finance 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

- prestressed-hollow-core-concrete-slabs
- prestressed-concrete-railway-sleepers