

Manufactured-Sand Production Line

Complete Turnkey Business Proposal



Made-in-China supplier reference: real manufactured-sand production line equipment.

40-60 t/h screened starter output	0-40 mm clean crusher feed	2.4-3.1 target fineness-modulus study	14-24 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 medium-industrial line converting tested crushed-rock feed into specification manufactured sand through feed buffering and metal removal, controlled secondary crushing where necessary, vertical-shaft impact shaping, closed-circuit high-frequency screening, return of oversize, air classification and dust collection for a dry route or washing and hydrocyclone recovery for a wet route, moisture conditioning, laboratory release and separated storage.

Why this project fits Afghanistan

- Manufactured sand can reduce pressure on river extraction and use quarry crusher fines or selected rock.
- Controlled grading and particle shape improve concrete consistency compared with uncontrolled crusher dust.
- A dry air-classified route can suit water-scarce Afghan locations when feed moisture is controlled.
- The project is marketable only after concrete and mortar trials confirm performance with local cement and aggregate.

Sanaatchi delivery scope

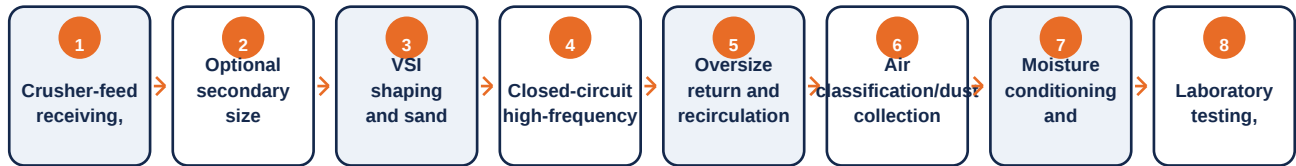
- Factory setup planning, supplier pre-qualification, and technical comparison
- Complete production-line and individual equipment supply
- Factory layout, utilities, civil-work coordination, installation, and commissioning
- Raw-material sourcing, trial-batch qualification, and repeat supply planning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

Recommended configuration

Proceed after concrete trials define feed rock, target grading, fineness modulus, particle shape and permitted stone-powder content. Screen a 40-60 t/h plant using clean 0-40 mm crusher feed, surge bin, VSI, closed-circuit screen, air classifier and baghouse for dry climates, plus moisture conditioner; compare a wet wash route only where water and sludge treatment are viable. Existing quarry crushing can supply the feed.

Manufacturing Process & Product Portfolio

Integrated process flow



Target products

Product	Typical specification	Primary market
Concrete-grade manufactured sand	Buyer-standard grading, fineness modulus, shape, stone powder, clay-equivalent, absorption and moisture	Ready-mix, precast and infrastructure projects
Mortar-grade manufactured sand	Separate finer grading and controlled stone-powder specification	Dry-mix, masonry and plaster users after trials

VSI capacity and wear depend on feed size, hardness, abrasiveness, moisture and rock-on-rock or rock-on-iron mode. Crusher dust is not automatically manufactured sand. Acceptance must measure tonnes per hour, kWh/t, grading, fineness modulus, voids, particle shape, stone powder below 75 microns, clay equivalent, absorption, moisture, concrete workability/strength and wear rate.

Core Equipment Schedule

Step	Equipment	Function	Indicative parameter
1	Surge bin, feeder and metal protection	Delivers stable clean crusher feed	0-40 mm contracted feed
2	Vertical-shaft impact crusher	Shapes particles and creates sand fraction	40-60 t/h product basis
3	High-frequency grading screen	Separates sand and returns oversize	Closed-circuit media
4	Return and product conveyors	Controls recirculation and stockpiles	Covered transfers
5	Air classifier	Controls stone-powder content in dry route	Adjustable cut and airflow
6	Baghouse and enclosed transfers	Captures airborne mineral dust	Negative-pressure design
7	Moisture conditioner and homogenizer	Stabilizes dispatch moisture and grading	Buyer-agreed moisture
8	Sand/concrete laboratory	Confirms grading and performance	Local concrete trials

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 manufactured-sand production line equipment.



Made-in-China supplier reference: second real machine configuration for manufactured-sand production line.

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

Plant, Raw Materials & Utility Requirements

Raw materials

- Tested clean crushed-rock feed with controlled top size and clay
- VSI rotor tips, anvils/liners, screen media and conveyor spares
- Bag filters and compressed-air consumables for the dry route
- Small controlled water addition and sample/packing materials

Utilities & infrastructure

- High-capacity three-phase power and transformer/motor-starting study
- Engineered foundations and wear-safe maintenance access
- Fully enclosed dusty transfers, baghouse and housekeeping
- Dry feed protection from rain for air classification
- Loader access, separated stockpiles and laboratory curing area

Quality, safety and environmental controls

- Test feed petrography, abrasion, moisture and grading
- Control VSI feed rate, rotor speed and recirculating load
- Inspect rotor wear, screen condition and dust differential pressure
- Measure grading, fineness modulus, shape and stone powder
- Run concrete/mortar workability and strength trials
- Track kWh/t, wear cost, dust recovery and saleable yield

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 plant uses existing clean crusher feed and a 40-60 t/h dry VSI/classification route. Quarry crushing, mobile fleet, wet washing, land and working capital are excluded.

Component	Indicative range	Notes
Feed, VSI and closed-circuit screen	US\$240k-620k	40-60 t/h dry-route basis
Air classifier, baghouse and conveyors	US\$160k-450k	Powder and dust control
Foundations, laboratory and moisture system	US\$90k-260k	Installed quality scope
Freight, erection, commissioning and wear spares	US\$120k-360k	VSI wear package
Indicative installed project total	US\$610k-1.69m	Upstream quarry crushing, land and working capital 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

- <https://baichygroup.en.made-in-china.com/product/zwatTldDhKfV/China-200tph-Complete-Sand-Making-Production-Line-Stone-Aggregate-Crusher-Plant.html>
- <https://chinacrusher.en.made-in-china.com/product/mGKUtzlVoQrA/China-VSI-Sand-Making-Machine-50-500t-H-ISO-Certified-for-Quarry-Mining.html>