NO-BAKE SAND PLANT ENGINEERING

Built to Run. Designed to Grow.

Pure engineering-first foundry equipment — sized today, upgradeable tomorrow — from continuous mixing to sand reclamation.

100%	24 Hrs	1.3	FS1.3+
ENGINEERING-LED DESIGN	SERVICE RESPONSE	MIN. FACTOR OF SAFETY	UPGRADE-READY DESIGN

THRAEX CO & JEK
No-Bake Sand Foundry Equipment

JEK Manufacturing & Supply · Bakrol, Ahmedabad, Gujarat
thraex-globe.com · +91 96626 46821

COMPANY NOTE

New to the Market. Not New to the Engineering.

Five years in business, built entirely around one discipline: technical correctness first, commercial pitch second.

Why We Compare Differently

We are a young supplier by age — five years — but every plant we design starts from calculation sheets, factor-of-safety checks, and duty-point selection, not from a catalogue page. Where an established brand sells you a model number, we size the machine to your sand chemistry, tonnage, and — most importantly — your production plan for the next 5 years, not just the next order.

OUR CORE DESIGN PRINCIPLE

We do not sell a machine for today's tonnage. Every continuous mixer, knockout machine, elevator, cooler classifier and conveying system we supply is engineered with structural, drive, and control headroom — so that when you increase mould production, the **same equipment and the same plant layout** absorbs the higher capacity, instead of forcing a replacement or a parallel new line within 2–3 years.

01

No Forced Re-Investment

Shaft, bearing, motor, and structural sizing carry margin for future de-rating/re-rating — so a capacity increase is a parameter change, not a re-purchase.

02

Prerequisite-Based Selection

Every equipment selection starts from your sand type, binder system, mould box size and target moulds/hour — not a standard catalogue size pushed to fit.

03

Plant-Level Thinking

Mixer, knockout, elevator, cooler and conveying are sized as one connected system — so no single station becomes the bottleneck when you scale.

04

Long-Term Ownership Cost

Fewer emergency parts, less binder waste, less downtime — designed to be cheaper to own in year 3–5, not just cheaper to buy in year 1.

OUR DIFFERENCE

Five Commitments That Come With Every Plant

This is what we put on the table before we talk price.

USP 01 — PURE ENGINEERING DESIGN

Calculation Before Fabrication

Every machine — mixer paddle/shaft, knockout deck, elevator, cooler bank, conveying line — is backed by a design calculation sheet: load, stress, factor of safety, drive sizing and bought-out component selection. Nothing is scaled up by eye from an old drawing.

USP 02 — SPARES CARE

Spares Planned, Not Improvised

Critical wear and bought-out parts (motors, vibrators, valves, seals) are identified and stocked as a recommended spares list at the time of supply — not discovered during a breakdown.

USP 03 — DOCUMENTED HANDOVER

User Manual + Part Identification

Every plant is handed over with an O&M manual and a part identification document — drawing-referenced, so your maintenance team can identify, order and replace parts without waiting on us.

USP 04 — 24-HOUR SERVICE

On-Site Response Within 24 Hrs

Mechanical service support is committed within 24 hours of a call — because in continuous casting operations, downtime cost is measured in hours, not days.

USP 05 — PHONE-RESOLVED ELECTRICAL

Electrical Faults Solved on Call

Because our PLC/HMI logic is kept deliberately simple, most electrical faults are diagnosed and resolved through phone-guided troubleshooting — without waiting for a site visit.

SAND MIXING STATION

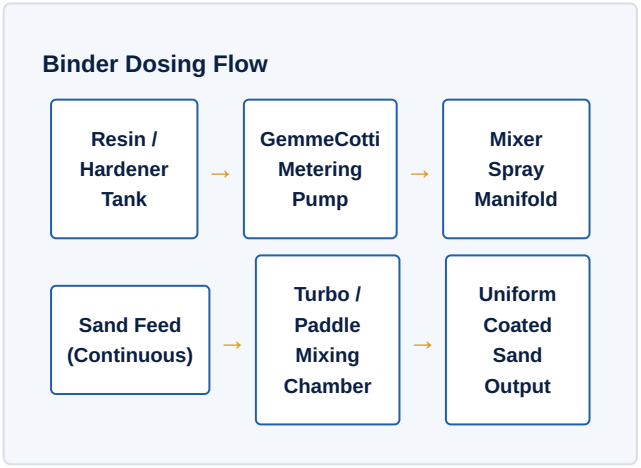
Continuous Mixer with GemmeCotti Binder Dosing

Precision hardener metering, built to reduce binder waste and eliminate leakage.

Why the Pump Choice Matters

Binder dosing accuracy is one of the biggest hidden cost drivers in a no-bake plant — an inconsistent pump means over-dosing (wasted binder), under-dosing (weak mould strength), or leakage (safety and housekeeping issue). We standardize on **GemmeCotti** pumps for hardener/catalyst dosing.

- **Anti-corrosion construction** — chemical-duty magnetic-drive pump design, built for continuous contact with hardener/catalyst without seal degradation.
- **Seal-less, leak-free operation** — magnetic coupling design removes the shaft seal as a failure/leak point entirely.
- **Precision, uniform flow** — consistent dosing at set flow rate, run after run, batch after batch.
- **Lower binder consumption** — accurate dosing directly reduces resin/hardener wastage per tonne of sand processed.
- **Reduced leakage & housekeeping risk** — cleaner mixing station, less binder loss to spillage.



RESULT AT PLANT LEVEL

Every extra 1% of binder wasted is a recurring cost, every mould shift, forever. A precision pump is a one-time equipment decision with a permanent running-cost benefit.

CONTROL PHILOSOPHY

Mitsubishi PLC + HMI — Simple by Design

Industrial-grade protection, operator-grade simplicity.

Keep It Simple, Keep It Running

Our control panels for the continuous mixer and pump station are built on **Mitsubishi** PLC and HMI platforms, chosen for two reasons: field-proven dust and solid ingress protection, and a control logic philosophy that stays deliberately simple for the operator on the floor.

- **Mitsubishi PLC + HMI** — reliable in the dusty, particulate-heavy environment of a sand plant.
- **Simple operator interface** — recipe/parameter screens designed for shift operators, not automation engineers.
- **Reduced training dependency** — new operators can be productive on the mixer/pump station in hours, not weeks.
- **Remote-diagnosable logic** — simple, well-documented ladder logic is exactly what makes phone-based electrical troubleshooting (USP 05) possible.

Panel Protection Focus

Sand plants generate continuous airborne fines. Panel and component selection is made specifically to resist dust and solid ingress into control enclosures — protecting PLC I/O, HMI touchscreen and drive components from the environment they actually operate in, not a clean-room datasheet condition.

Mitsubishi PLC | Mitsubishi HMI | Dust & Solid Protected Enclosure | Simple Recipe Screens | Phone-Diagnosable Logic

KNOCKOUT & ELEVATION

Low-Level Knockout & Pitless Vibrating Elevator

OLI (Italy) vibration technology, factor of safety 1.3, maintenance built into the layout.

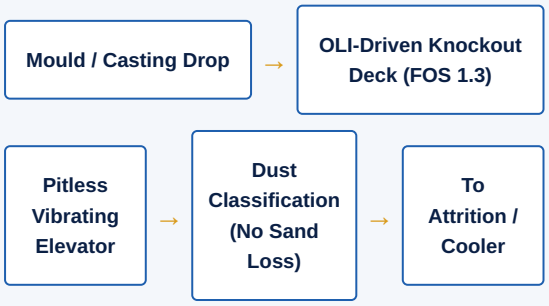
Vibrating Low-Level Knockout Machine

- **OLI (Italy) vibratory motors** — selected on duty-specific technical criteria, not a generic catalogue pick.
- **Factor of safety 1.3 minimum** — applied to the structural deck, spring mounts, and drive selection.
- **Effective mould/casting separation** — sized for consistent shakeout without over-stressing the deck.

Vibrating Elevator — Pitless Concept

- **Same OLI vibration technology, same FOS 1.3** criteria carried through from the knockout station.
- **Pitless installation** — no civil pit required, simplifying installation and site preparation.
- **Easier maintenance access** — service and inspection at grade level, reducing confined-space work and downtime per intervention.

Shakeout → Elevation → Classification Flow



DESIGN NOTE

Dust classification is arranged so fine dust is removed **without carrying reusable sand** to the cooler classifier — protecting sand yield before the attrition stage even begins.

SAND RECLAMATION

Attrition & Fluidized-Bed Cooler Classifier

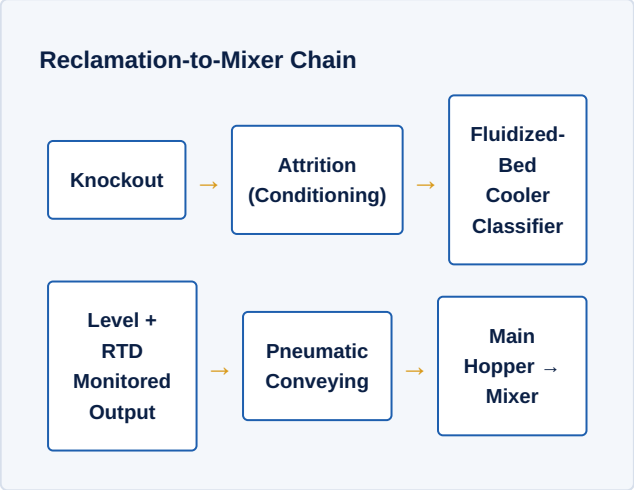
Preparing sand to a mouldable, temperature-controlled condition — reliably, batch after batch.

Attrition Before Cooling

After knockout, reclaimed sand goes through an **attrition process** as a prerequisite step — conditioning the sand and preserving the cooling period and downstream performance before it ever reaches the cooler classifier.

Fluidized-Bed Cooler Classifier

- **Proper fluidization** across the bed for uniform, consistent sand-to-air contact.
- **Intermediate baffle plate design** in the heat exchanger cooling bank — engineered for high cooling efficiency.
- **High & low level sensors** (standard make) — protecting the bed condition and preventing dry-run or overload.
- **RTD temperature sensing** at cooler output — confirming sand is delivered at the correct, mouldable temperature every cycle.



SAND TRANSPORT

Dense-Phase Pneumatic Conveying to Main Hopper

From cooler output to mixer feed — sealed, valve-controlled, low-maintenance transport.

Dense-Phase Transport, Component by Component

Reclaimed and cooled sand is delivered to the main hopper via a **dense-phase pneumatic conveying** system, specified with durable, duty-matched valves and pneumatic controls:

VALVE

Butterfly Valve with Actuator

Efficient, durable line isolation and batch control at key transfer points in the conveying line.

VALVE

Y-Type NO/NC Angle Valves

Normally-open and normally-closed angle valve selection matched to each line's function for reliable material release.

PNEUMATICS

24V AC Solenoid Valves

Branded pneumatic control components — AIRA, SMC, and Festo — selected for consistent actuation and long service life.

SYSTEM

Sealed, Dense-Phase Line

Reduced sand degradation in transit and a cleaner, sealed transfer path from cooler classifier output to the main hopper.

Dense Phase Conveying | Butterfly + Actuator | Y-Type NO/NC Valves | AIRA | SMC | Festo

HEAD-TO-HEAD

THRAEX CO & JEK vs. Conventional Suppliers

Where the decision-relevant differences actually sit.

Evaluation Point	Typical / Conventional Supplier	THRAEX CO & JEK
Equipment sizing basis	Standard catalogue model closest to stated tonnage	**Calculated to your sand, binder & mould-box prerequisites**
Capacity growth path	New machine / parallel line when production increases	**Same equipment, same plant — built-in upgrade headroom (FOS 1.3+)**
Binder dosing pump	Generic dosing pump, seal-prone	**GemmeCotti anti-corrosion, seal-less, precision-flow pump**
Control philosophy	Complex PLC logic, vendor-dependent for faults	**Mitsubishi PLC/HMI, simple logic, dust-protected, phone-diagnosable**
Knockout / elevator vibration	Unrated or oversized vibrator selection	**OLI (Italy) vibrators, FOS 1.3 engineered selection**
Elevator installation	Civil pit required	**Pitless design — simpler install, easier maintenance**
Cooler classifier control	Manual temperature checks	**RTD + level-sensor monitored fluidized-bed cooling**
Spares & documentation	Spares sourced reactively after failure	**Spares list + part-ID manual handed over at supply**
Service response	Multi-day site-visit dependency	**24-hour response; electrical faults resolved by phone**

THE HONEST PITCH

We don't have 20 years of installed base yet — we have five. What we bring instead is a design discipline that treats your growth plan as a specification input, not an afterthought, and documentation + service commitments that reduce what you depend on us for after handover.

LET'S SIZE YOUR PLANT

Tell Us Today's Tonnage.
We'll Design for Tomorrow's.

Share your sand type, binder system, mould box size and target production — we'll come back with an engineering-first proposal, not a catalogue quote.

COMPANY

JEK Manufacturing & Supply

Operating as Thraex Globe / Quality Engineers

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