

Engineering Your Competitive Advantage

Spray Drying & Multi-Stage Drying Plants



**India's Most Trusted
Advanced Spray Drying Technology Partner**

Precision spray drying solutions engineered to deliver consistent powder quality, predictable output, and optimized operating costs—plant after plant.

When Output Becomes Complex and Sensitive,

Your Process Needs Equal Precision

Whether your manufacturing is **critical, sensitive, complex, costly, or simply too valuable to risk, Shachi becomes your No. 1 partner for process plant technologies.

From spray drying to evaporation, we deliver **end-to-end process solutions** that keep your plant efficient, compliant, and future-ready—without compromising performance.

SHACHIProcess

Spray Dryers

Integrated Fluidised
Bed Spray Dryer (Multi Stage Drying)

Beading Plants

Evaporators

Spin Flash Dryer

SHACHIEnvironment

Zero Liquid Discharge (ZLD) Systems

Effluent Treatment Plants (ETP)

Condensate Polishing Units (CPU)

Agitated Thin Film Dryer (ATFD)

Proven Track Record

500+ critical process
projects delivered

27+ Years of process
engineering expertise

400+ customers
across industries

10+ export
countries

100+ high-value
applications handled

End-to-end capability designed for lower OPEX and faster business scale-ups.

“ We believe in creating a lasting competitive edge for our customers through **technology, process insight, and execution excellence.** ”

Marthu Shanbhag
Managing Director, Shachi Engineering



What Our Customers Say

Shachi's team added value at every stage—from design to commissioning. Their process insight made the difference.



Harsh Patel | Director
Yashaswi Rasayan

Mr. Shanbhag's expertise helped us overcome multiple operational challenges and achieve stable spray dryer output.



Purvang Agrawal | Director
Ankit Pulps & Boards

We challenged Shachi with a difficult requirement—and they delivered it right.



Subhash Pisal | MD
Nisarga Crops

Trusted by Leading Industry Names



Spray drying plants relied upon by some of the most respected manufacturers across India and global markets.

We Understand the Real Challenges in Spray Drying

Quality

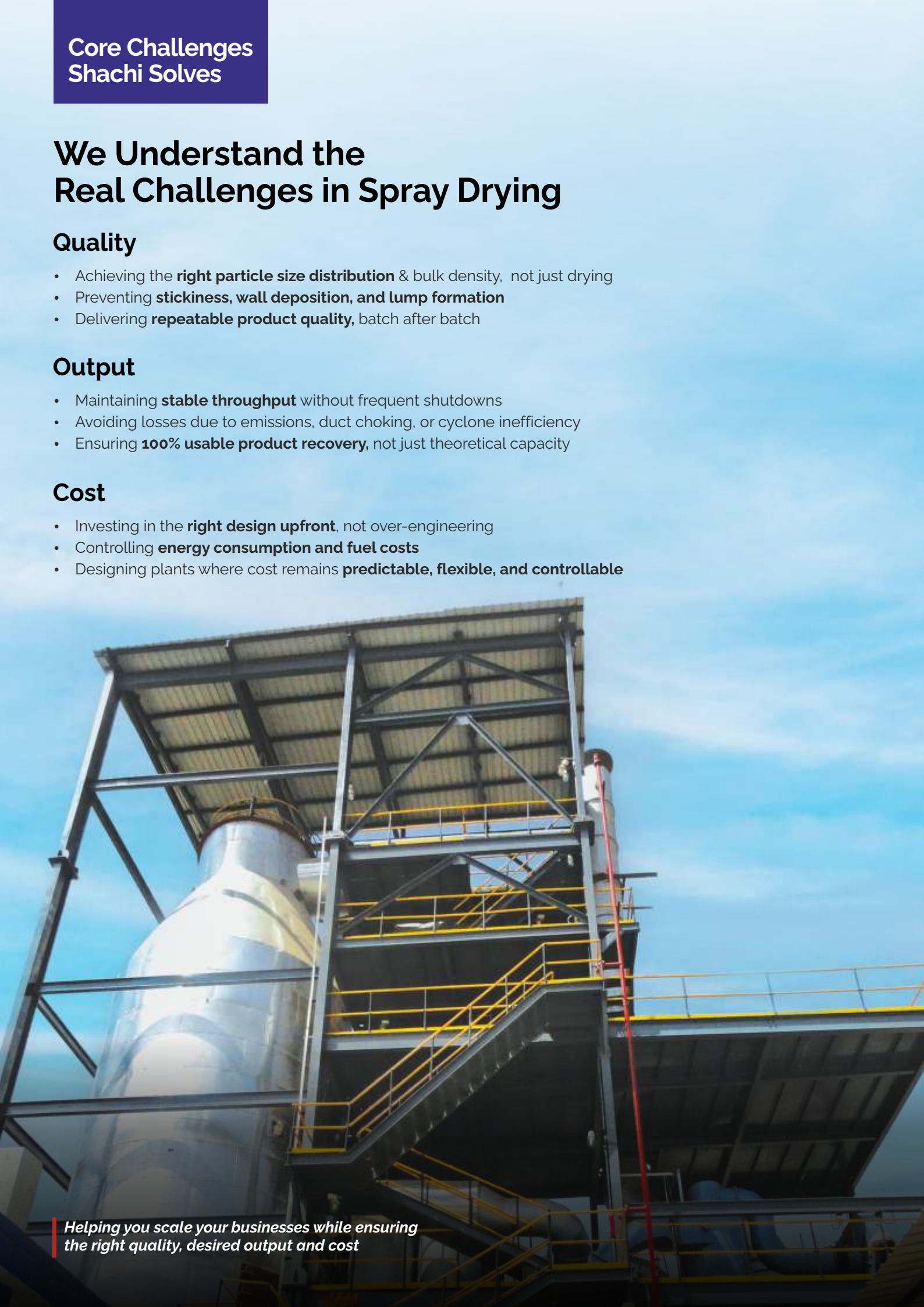
- Achieving the **right particle size distribution** & bulk density, not just drying
- Preventing **stickiness, wall deposition, and lump formation**
- Delivering **repeatable product quality**, batch after batch

Output

- Maintaining **stable throughput** without frequent shutdowns
- Avoiding losses due to emissions, duct choking, or cyclone inefficiency
- Ensuring **100% usable product recovery**, not just theoretical capacity

Cost

- Investing in the **right design upfront**, not over-engineering
- Controlling **energy consumption and fuel costs**
- Designing plants where cost remains **predictable, flexible, and controllable**



Helping you scale your businesses while ensuring
the right quality, desired output and cost

Spray dryers engineered around **your feed, quality targets, output needs, site conditions, and particle size requirements.**

Consistent Quality, Less Operator Dependency

Stable Performance, Designed to run reliably even through seasonal ambient changes.
Maximum product recovery

Automation Built-In, Recipe-based PLC controls, alarms, interlocks. IOT ready systems.

Optimized energy per kg
of water evaporated and better emission control.

Reduced project risk backed by 27 years of experience in critical & Precious applications.



Consistent product output—spray drying tuned precisely to your feed.

Integrated Fluid Bed Spray Dryers – Multi-stage Drying

Shachi's multistage **spray dryer** is engineered to maximise product recovery while **minimising energy consumption**. By dividing drying into controlled stages, it delivers uniform moisture, superior powder quality, and reduced thermal stress—even for challenging products. In short: higher yield, consistent performance, and lower operating costs.



Best suited for

Heat-sensitive products

Hygroscopic or sticky materials

Products requiring **narrow moisture tolerance**

Agglomerated or instant powders

Benefits this means for your plant

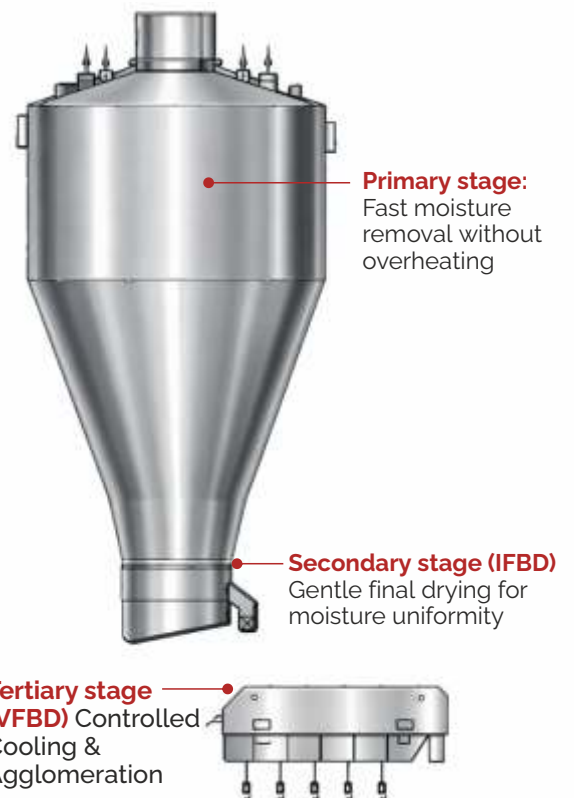
- > Lower energy cost per ton of powder
- > Higher product recovery
- > Reduced reprocessing and downtime
- > Consistent quality across batches

Integrated and external fluid bed

Integrated Fluid Bed improves flowability, reduces fines, enables agglomeration for instant solubility

External Fluid Bed: independent control for critical moisture targets; ideal for sensitive, high-value products

How multi-stage drying works



Drying isn't one-shot, multi-stage control gives you consistent powder, batch after batch.

Atomization: The right atomizer, your first step towards quality.

The right atomizer selection is the **first and most critical step** toward achieving consistent powder quality. Shachi brings deep expertise in matching atomization technology to your feed properties and product goals.

Atomizer examples:

Rotary Disc Atomizer

Pressure nozzle atomization

Twin Fluid Nozzle Atomizer

At **Shachi**, we design and build atomizers in-house to match your specific process needs, delivering particle sizes down up to 5 microns. For highly critical applications, we also work with international atomizer partners to ensure the right technology fit.



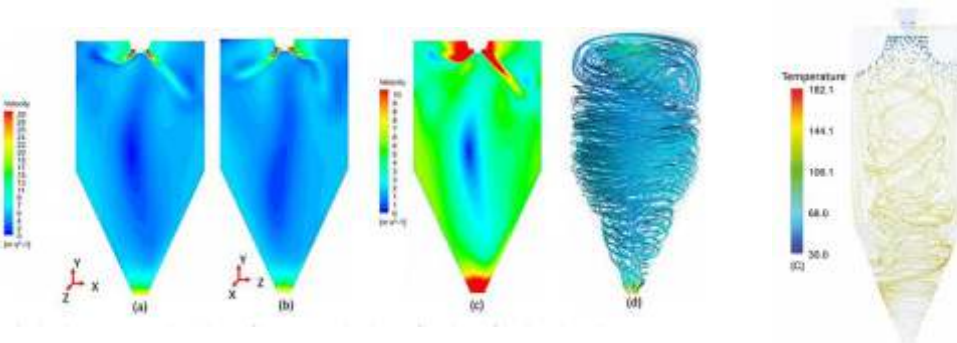
Predicting Performance with CFD

Get your batches right the **first time**—with right clarity, not trial-and-error.

CFD helps visualize:

Optimize performance before the plant is actually built

- > Particle movement
- > Residence time
- > Temperature profiles across air, walls, and internals
- > Forces acting on droplets that influence PSD and deposition



Key Benefits

- > Clarity on performance before building
- > Faster design validation
- > Simulation of real operating conditions
- > Clear insights before fabrication

Outcome: Right atomizer selection and predictable plant performance—before the first run.

Designing Spray Dryers Is Science, Experience, and Control


Spray drying may look simple—but predictable results demand deep process understanding. **Every Shachi spray dryer is designed by evaluating:**

- > **Nature of feed** (liquid, slurry, solution)
- > Solids content, viscosity, and **heat sensitivity**
- > Desired particle **size distribution (D50 / D90)**
- > **Ambient conditions** at site
- > **Downstream handling** and packaging needs

Airflow Geometry That Protects Product Quality

Airflow inside the spray dryer defines drying behavior. **Shachi designs chambers and air distribution systems to ensure:**

- > Uniform air-particle contact
- > Controlled residence time
- > Uniform air distribution
- > Stable temperature gradients



Each Spray chamber is sized and shaped based on throughput, feed behavior, and operating conditions—not generic calculations.

Maximum Product Recovery. Minimal Emissions

Efficient powder recovery is critical to output and operating economics. Shachi integrates:

- High-efficiency** cyclones
- Optimized** duct routing
- Low-pressure-drop** air handling

This ensures:

- Minimal fine emissions
- Stable exhaust performance
- Compliance with pollution control norms



More saleable product, cleaner exhaust, and predictable compliance.

Designed for Low OPEX from Day One

Energy efficiency is not an add-on—it is engineered into every Shachi spray dryer.

Key focus areas include:

- > **Optimized air heating** and distribution
- > **Reduced pressure drops** across systems
- > **High-efficiency gas duct burners**
- > **Smart heat utilization**

Plants are sized for actual operating loads, not peak assumptions—avoiding over-capitalization and wasted energy.

Carbon Footprint & Carbon Credit Readiness

Shachi's energy-efficient spray drying reduces CO₂ emissions by lowering energy use per ton of powder—supporting carbon accounting and sustainability reporting, and helping assess carbon credit or incentive eligibility (as per local regulations).

Lower CO₂ footprint through reduced fuel/power consumption

Quantifiable data for ESG and internal carbon reporting

Supports third-party sustainability audits and compliance needs

Helps evaluate eligibility for **carbon credits/efficiency** incentives locally



Lower fuel consumption, stable energy bills, and faster payback.

Control Systems That Keep the process in control

Shachi spray dryers are available from semi-automatic to fully automatic PLC-SCADA-based systems, designed for ease of operation, safety, and connected visibility across the plant.

Control features include:

- > **Real-time monitoring** of key process parameters
- > **Alarm-based protection** against off-spec operation
- > **Recipe-based operation** for product changeovers
- > **Data logging** for audits and traceability
- > **IIoT-ready** connectivity & tracking



Other Drying Solutions from Shachi

Cage
Mill Flash
Dryer



Spin Flash
Dryer



Pollution
Control
Equipment



Continuous
Vibration
Fluid
Bed Dryer



Global Presence. Local Support.

Installations across India and key export markets —
Southeast Asia, MENA, Africa, CIS.



Unit I – Pune, Maharashtra



Gat No. 271, Sr. No. 38, A/Po. Bhare,
Tal. Mulshi, Pirangut,
Dist.: Pune - 412 115, Maharashtra.

Unit II – Saykha, Gujarat



Plot No. E-185, Saykha Ind. Est.
S. No. 44/P, 46/P to 49/P Juned Vagra,
Bharuch, Gujarat -392140.

+91 96899 44897 / 020-66546904 / +91 70304 70233

marketing@shachiengg.com / sales@shachiengg.com

**Advanced Spray Dryers,
Engineered for Continuous, High-Efficiency Output**