

INDUSTRIAL CASE STUDY

Export-Grade Turmeric Powder

Production from Raw Turmeric Fingers

Continuous Industrial-Scale Thermal Drying & Microbial Reduction System — 1 Tonne Per Hour Capacity

Designed, Engineered & Validated by KERONE Engineering Solutions Limited

1 TPH PLANT CAPACITY Turmeric Finger Input	85 °C PROCESS TEMP. Controlled Hot-Air	40 min RESIDENCE TIME Optimal Hold	6.8 % FINAL MOISTURE Mass Basis	3-log MICROBIAL REDUCTION Total Plate Count	~2.1 Yrs PAYBACK PERIOD At Export Market Premium
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PROJECT REFERENCE DETAIL

Field	Detail
Client Organisation	Vasant AgroFoods Ltd. — Leading Indian spice processing & export company
KERONE Reference	KRDC/ICS/TurmericPowder/2025-04 Based on KRDC Lab Report 63/KRDC/LAB/09
Technology	Continuous Multi-Zone Hot-Air Dryer-cum-Sterilizer with Controlled Atmosphere & Forced Cooling
Feedstock	Boiled & Sun-Dried Turmeric Fingers — 11.80% Moisture Content (as-received)
Product Output	Export-Grade Turmeric Powder — 6.8% Moisture, 3-log Microbial Reduction
Plant Location	Client facility (spice processing plant) — Inline with existing grinding & packing line
Document Date	July 2026 Validated on KRDC Lab Data — March 2026

Spice Processing | Food Safety Upgrade | Export Quality Compliance | Thermal Drying | Industrial Sustainability | Food & Agro-Processing

Executive Summary

Vasant AgroFoods Ltd., a growing Indian spice processing and export company, faced a commercially significant challenge: their turmeric procurement and primary processing operations yield large volumes of boiled, sun-dried turmeric fingers which, in their raw state, carry 11.80% residual moisture and elevated microbial load — restricting sale to the domestic bulk-spice market and disqualifying the material from higher-value export and food-manufacturing contracts.

KERONE Engineering Solutions Limited was engaged to design, validate, and specify an industrial-scale continuous thermal processing system capable of upgrading this raw turmeric feedstock to export-grade turmeric powder feedstock suitable for premium spice, nutraceutical, and food-manufacturing applications — at a throughput of 1 Tonne Per Hour (1 TPH).

Following rigorous laboratory validation at KRDC (Kerone Research & Development Centre) using a controlled multi-zone tray dryer at 85 degrees C across multiple hold times (20 min, 40 min, 60 min), the optimal industrial process parameters were established. The KERONE continuous multi-zone hot-air dryer-cum-sterilizer — operating at 85 degrees C with a 40-minute material residence time under controlled, dehumidified hot-air atmosphere — delivers moisture reduction from 11.80% to 6.8%, and total plate count microbial reduction of approximately 3 orders of magnitude (99.9%), while retaining over 95% of native curcumin content.

CHALLENGE	KERONE SOLUTION	OUTCOME ACHIEVED
Raw turmeric fingers with 11.80% moisture and high microbial load — viable only for domestic bulk sale at INR 90-120/kg.	Continuous 1 TPH multi-zone hot-air dryer-cum-sterilizer at 85 degrees C, controlled atmosphere, 40-min residence — validated from KRDC lab trials.	Export-grade turmeric powder feedstock with 6.8% moisture, 3-log microbial reduction — commanding INR 220-320/kg in export and food-manufacturing markets.

Key Performance Summary

KPI	Raw Feedstock (Baseline)	After KERONE Processing (1 TPH Plant)	Improvement
Moisture Content	11.80%	6.8%	42% reduction
Microbial Load (TPC)	~1 x 10 ⁶ cfu/g	~1 x 10 ³ cfu/g	3-log (99.9%) reduction
Curcumin Content	3.20%	~3.35%	+5% (concentration effect)
Volatile Oil Content	4.10%	~4.05%	Retained (<2% loss)
Market Value (Export Grade)	INR 90-120/kg	INR 220-320/kg	2.5-3x price premium
Product Classification	Bulk / industrial-grade spice	Export / food-manufacturing grade	Grade uplift
Annual Revenue Potential	INR 6.5-8.6 Cr/yr	INR 15.8-23 Cr/yr	at 7,200 hr/yr operation

Industry Context & The Business Challenge

India produces an estimated 1.1 million tonnes of turmeric annually and accounts for over 70% of global turmeric trade. A large share of this volume passes through small and mid-sized processors as boiled, sun-dried turmeric fingers — a semi-processed intermediate that still carries significant moisture and microbial load, and is typically sold into the unorganised bulk-spice trade at commodity prices.

The global spice and seasoning market continues to tighten food-safety expectations, with buyers in the EU, US, and Gulf markets applying stricter limits on moisture, Total Plate Count (TPC), Yeast & Mould, and Salmonella presence, alongside aflatoxin and pesticide-residue caps under Codex, FSSAI, and ASTA Clean Spice guidelines. However, the critical barrier for Indian processors is quality consistency: raw sun-dried turmeric fingers do not reliably meet the moisture and microbial specifications required by export buyers and branded food manufacturers due to variable field drying conditions and open-air handling.

The Commercial Problem — Why Raw Turmeric Fingers Have Low Value

Quality Parameter	Raw Turmeric Fingers (Vasant AgroFoods)	Market Requirement (Export/Food-Grade)	Gap
Moisture Content	11.80%	< 8%	FAIL — 1.5x over limit
Total Plate Count	~1 x 10 ⁶ cfu/g	< 1 x 10 ⁴ cfu/g	FAIL — 100x over limit
Yeast & Mould	~1 x 10 ⁴ cfu/g	< 1 x 10 ³ cfu/g	FAIL — 10x over limit
Curcumin Content	3.20%	> 3.0% (ASTA/Codex ref.)	PASS — retention needed
Market Price Realised	INR 90-120/kg	INR 220-320/kg	2.5-3x revenue gap

Table 1: Raw turmeric finger quality parameters vs export/food-grade market specification | Source: KRDC Analysis & FSSAI / Codex Alimentarius Spice Norms

Revenue Opportunity — Upgrading Existing Procurement Stream

The Opportunity: At 1 TPH throughput operating 300 days/year (7,200 hours), the annual feedstock volume is approximately 7,200 tonnes of raw turmeric fingers. At current raw-finger prices of INR 100/tonne-equivalent basis (taken as INR 1.0 Lakh/tonne for this illustration), this generates roughly INR 7.2 Cr/year at bulk pricing. Post-processing with KERONE's system, the same volume as export-grade turmeric powder feedstock at an average of INR 2.7 Lakh/tonne generates approximately INR 19.4 Cr/year — a revenue increase of over INR 12 Cr annually, from the same base procurement volume.

About Vasant AgroFoods Ltd.

Vasant AgroFoods Ltd. is a spice processing and export company with annual turmeric handling capacity exceeding 40,000 tonnes. Their operations span turmeric boiling, sun-drying, polishing, grinding, and blended-spice packing — positioning them as an ideal anchor client for KERONE's continuous drying and sterilization technology. The KRDC trial was conducted on Vasant AgroFoods' actual production turmeric fingers (25 kg sample, dispatched 3 March 2026) to ensure industrial relevance of all process parameters.

Process Validation — From KRDC Lab to Industrial Scale

KERONE's engineering approach mandates laboratory-scale validation before any industrial system specification. The KRDC (Kerone Research & Development Centre) conducted a structured experimental programme on Vasant AgroFoods' actual turmeric fingers over 5 days (2-6 March 2026), using a precision multi-tray hot-air dryer to establish the process envelope that informs the 1 TPH industrial plant design.

KRDC Experimental Programme — Key Findings

Test Condition	Hold Time	Moisture Reduction	Microbial Log Reduction	Assessment
Control (no hold)	0 min	< 1%	0-log	Baseline — raw finger
Short hold	20 min	~3.5%	~1-log	Insufficient — rejects grade spec
OPTIMAL	40 min	5.0%	~3-log	Optimal for export grade
Extended hold	60 min	5.3%	~3.5-log	Marginal gain — colour/curcumin loss risk

Table 2: KRDC Laboratory Results — 85 degrees C multi-tray dryer trials on Vasant AgroFoods turmeric fingers | KRDC Test Report 63/KRDC/LAB/09 | Microbial enumeration per FSSAI Manual of Methods; moisture per IS 1797

Scale-Up Methodology — Lab to 1 TPH

KERONE's scale-up process follows a structured engineering framework where laboratory parameters are translated to industrial equipment specifications using validated thermal and psychrometric engineering models. The key translation factors for this project are:

Parameter	KRDC Lab (Multi-Tray Dryer)	Industrial Plant (1 TPH Continuous Dryer)	Scale-Up Factor
Treatment Temperature	85 degrees C	85 degrees C	1:1 (direct)
Optimal Hold Time	40 min	40 min residence time	1:1 (direct)
Throughput	~500 g/batch	1,000 kg/hr	2,000:1
Atmosphere	Hot air (dehumidified, static)	Continuous recirculated hot air, controlled RH	Direct
Airflow Rate	0.8 m/s (tray)	Zone-controlled (3 zones)	Adapted
Heating Mode	Batch (static trays)	Continuous multi-pass belt conveyor	Configuration change
Cooling	Ambient (in-tray)	Forced-air cooling zone	Enhanced
Feed System	Manual loading	Vibratory feeder + auto control	Automated

Industrial Plant Design — 1 TPH Continuous Processing System

Fig. 1: KERONE 1 TPH Turmeric Finger to Export-Grade Powder Feedstock — Continuous Industrial Process Flow

FEEDSTOCK INTAKE Raw turmeric fingers, 1,000 kg/hr	CLEANING & SLICING Destoning, size reduction <25mm	MULTI-ZONE HOT-AIR DRYER 85°C 40 min residence 3-zone	STERILIZATION MODULE Controlled hold, microbial reduction	COOLING & GRINDING Forced air cool, mesh-100 pulverize	PACKING & QC Metal check, N2-flush food-grade bags
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CONTINUOUS INDUSTRIAL HOT-AIR DRYER-CUM-STERILIZER — 1 TPH TURMERIC PROCESSING LINE

System Architecture — Major Process Units

Unit / Section	Equipment	Design Parameters	Function
U-01: Feed Intake & Cleaning	Destoner + Magnetic Separator + Belt Conveyor	25 mm max lump size 1,100 kg/hr rated	Remove stones/tramp metal; ensure clean feed to slicer
U-02: Size Reduction	Turmeric Finger Slicer	Uniform chip 8-12 mm 1,100 kg/hr	Improve drying uniformity and rate
U-03: Hot-Air Dryer (Primary Process Unit)	KERONE Continuous Multi-Zone Belt Dryer	1,100 kg/hr capacity 85°C, 40 min residence 3-zone hot-air, dehumidified	Core thermal processing — moisture removal, microbial reduction
U-04: Air Handling System	Hot-Air Generator + Dehumidifier + Recirculation Fans	Inlet air 85°C, RH < 15% Flow: 8,000 Nm3/hr	Maintain uniform drying atmosphere; prevent case-hardening
U-05: Sterilization Hold Zone	Insulated Hold Chamber + Steam-Assist (optional)	85°C hold 3-log TPC reduction target	Achieve microbial reduction to export-grade limits
U-06: Cooling Zone	Ambient Forced-Air Cooler	Inlet: 85°C Outlet: < 35°C 1,000 kg/hr	Cool dried fingers before grinding; prevent moisture re-pickup
U-07: Pulverizing & Sieving	Pin-Mill Pulverizer + Vibro Sieve	Mesh 100 (150 micron) 950 kg/hr	Grind to fine turmeric powder; remove oversize fibre
U-08: Metal Detection & QC	Metal Detector + In-line Moisture Sensor	Fe/Non-Fe/SS detection ±0.2% moisture accuracy	Food-safety checkpoint; continuous quality monitoring
U-09: Product Handling & Packing	Screw Conveyor + Auto Bag Filler + N2 Flush	Food-grade SS contact parts Load-cell filling	Transfer product to packing; prevent contamination and oxidation
U-10: Emission & Dust Control	Cyclone + Bag Filter + Induced Draft Fan	Efficiency: >99.5% PM < 30 mg/Nm3	Capture turmeric fines; food-grade housekeeping compliance
U-11: Process Control	PLC/SCADA Control Panel	Siemens S7 / Allen Bradley Remote monitoring capable	Automated temperature, airflow, residence time and data logging

Table 3: Process Unit Descriptions — KERONE 1 TPH Continuous Turmeric Processing Plant | U-03 (Hot-Air Dryer) is the primary process unit; all others are ancillary

Core Equipment Specification — KERONE Multi-Zone Hot-Air Dryer

The KERONE Continuous Multi-Zone Hot-Air Dryer-cum-Sterilizer is the heart of the turmeric upgrading system. Designed and manufactured in-house at KERONE's Ambernath facility, it directly scales the validated laboratory parameters from KRDC trial 63/KRDC/LAB/09 to industrial throughput while maintaining the identical thermal profile, residence time, and airflow control that produced the 6.8% moisture / 3-log microbial reduction result.

Parameter	Specification
Design Throughput	1,100 kg/hr (turmeric finger input)
Operating Temperature	85 degrees C (max design: 140 degrees C)
Residence Time	40 min (adjustable 20-70 min via belt speed)
Belt Dimensions	W 1,500 mm x L 18,000 mm, 3-tier (food-grade SS mesh)
Heating Zones	3 independent hot-air zones
Atmosphere	Recirculated hot air RH < 15% HEPA pre-filtered intake
Drive System	VFD-controlled belt drive, 5.5 kW
Installed Power	~95 kW (total connected load)
Contact Parts	SS 304 food-grade construction throughout
Insulation	Mineral wool — 100 mm, food-safe cladding
Sealing	Gasketed access doors, positive-pressure zone isolation

KERONE Multi-Zone Dryer (KRDC laboratory scale, shown) — industrial unit scaled to W 1,500 mm x L 18,000 mm, 3-tier belt

Utilities & Ancillary Requirements

Utility	Specification	Consumption (at 1 TPH)	Source
Electrical Power	415V, 3-phase, 50Hz	~95 kW connected ~72 kW avg demand	Site utility
Thermal Energy (Hot Air)	Biomass/LPG-fired air heater	~85 kg/hr biomass (or 18 kg/hr LPG equiv.)	Onsite biomass or LPG
Compressed Air	6 bar dry food-grade filtered	12 Nm3/hr	Air compressor (site)
Process Water	Potable, food-grade	0.5 m3/hr (cleaning/CIP)	Site utility
Space Requirement	Building / covered, food-safe area	L 24m x W 8m x H 5m	New shed or existing bay

Food-Safety & Emission Compliance

Compliance Point	Parameter	Expected Level	FSSAI / CPCB Limit	Status
Dryer off-gas (after cyclone + bag filter)	PM10	< 25 mg/Nm3	50 mg/Nm3	COMPLIANT
Product handling area	Airborne Turmeric Dust	< 20 mg/Nm3	50 mg/Nm3	COMPLIANT
Finished product	Total Plate Count	< 1 x 10 ⁴ cfu/g	1 x 10 ⁴ cfu/g (export ref.)	COMPLIANT
Finished product	Salmonella	Absent / 25g	Absent / 25g (FSSAI)	COMPLIANT

Mass Balance & Energy Analysis — 1 TPH Operation

Detailed Mass Balance — Per Hour at Full Load

Stream	Material	Flow Rate (kg/hr)	Notes
Feed (IN)	Raw turmeric fingers (as-received)	1,000	11.80% moisture, Vasant AgroFoods quality
Moisture Loss	Water vapour (evaporated)	~53	~5.3% of feed at 40-min hold; exhausted via dehumidifier
Fibre / Reject (screening)	Oversize fibre & stalk	~8	Removed at U-07 sieving stage
Product (OUT)	Export-grade turmeric powder	~939	6.8% moisture; 3-log TPC reduction; bagged
Fines (recycled)	Bag filter fines	~10	Collected from U-10; recycled to product or waste stream
Exhaust	Humid air, trace volatile oil	Stack	Post-dehumidifier discharge; meets CPCB norms

Table 4: Mass balance — 1 TPH continuous turmeric processing plant | Based on validated KRDC lab data scaled to industrial throughput

Energy Consumption Estimates

Energy Category	Equipment / Unit	Power / Fuel	Load Factor	Consumption (per tonne product)
Hot-Air Heating	Biomass/LPG air heater (3-zone)	~85 kg/hr biomass	80%	~68 kg biomass
Drive & Airflow Systems	Belt drive + recirculation fans	35 kW	75%	~26 kWh
Cooling System	Forced-air cooler blowers	8 kW	85%	~7 kWh
Pulverizing & Sieving	Pin mill + vibro sieve	22 kW	70%	~16 kWh
Emission Control	Cyclone + bag filter + ID fan	10 kW	80%	~8 kWh
Utilities & Controls	Dehumidifier + SCADA + lighting + misc	20 kW	60%	~12 kWh
TOTAL	~95 kW (electrical) + biomass thermal			~69 kWh/t + ~68 kg biomass/t

Table 5: Energy consumption estimate — 1 TPH turmeric processing plant | Based on KERONE engineering estimates; actual values to be confirmed during detailed engineering

Product Quality Specification & Market Applications

Expected Product Specification — KERONE Processed Turmeric Powder Feedstock

Parameter	Test Method	Raw Finger (Input)	Processed (20-min hold)	Processed (40-min hold)	Export-Grade Reference
Moisture Content	IS 1797 (P-I)	11.80%	~8.3%	~6.8%	< 8.0%
Total Plate Count	FSSAI MoM	~1 x 10 ⁶ cfu/g	~1 x 10 ⁵ cfu/g	~1 x 10 ³ cfu/g	< 1 x 10 ⁴ cfu/g
Yeast & Mould	FSSAI MoM	~1 x 10 ⁴ cfu/g	~5 x 10 ³ cfu/g	~5 x 10 ² cfu/g	< 1 x 10 ³ cfu/g
Curcumin Content	HPLC (Codex ref.)	3.20%	~3.28%	~3.35%	> 3.0%
Volatile Oil	IS 1797 (P-III)	4.10%	~4.08%	~4.05%	> 3.5%
Colour (ASTA Units)	ASTA Method	~145	~148	~150	> 140
Product Grade	Classification	Bulk / industrial-grade	Standard export grade	Premium export / food-manufacturing grade	Export / Food-Grade

Table 6: Product quality specification — raw finger vs processed turmeric vs export-grade reference | 40-min processed column = recommended for high-value applications

Market Applications for Processed Turmeric Powder Feedstock

- **Export Spice Trade** — Whole/ground turmeric meeting Codex, EU, and US moisture and microbial limits qualifies for direct export contracts, commanding a substantial price premium over bulk domestic sale.
- **Branded Food Manufacturing** — Curry powders, spice blends, and ready-to-cook masalas require consistent moisture and microbial specification; processed material at 40-min hold meets typical branded-manufacturer vendor approval criteria.
- **Nutraceutical & Pharmaceutical Feedstock** — Curcumin extraction units require low-moisture, microbially clean turmeric as extraction feedstock; the retained curcumin content and reduced microbial load support this higher-value channel.
- **Cosmetics & Personal Care** — Turmeric powder is used as a natural colourant and active ingredient in cosmetic formulations, which similarly require low microbial load and consistent colour value (ASTA units).
- **Ayurvedic & Traditional Medicine Products** — Certified low-microbial turmeric powder is a preferred input for Ayurvedic formulations sold under AYUSH-regulated quality norms.

Financial Analysis & Return on Investment

Cumulative cash flow over a 5-year projection shows an estimated CAPEX outlay of approximately INR 42 Lakhs in Year 0, with the plant reaching break-even at approximately 2.1 years, based on an assumed export-grade turmeric powder feedstock market price of INR 270/kg (mid-range of the INR 220-320/kg market band).

CAPEX Estimate — 1 TPH Plant

Cost Head	Scope	Estimated Cost (INR Lakhs)	Notes
Multi-Zone Hot-Air Dryer (Primary Equipment)	KERONE supply, factory tested	14-17	FOT Ambernath; includes belt, drive, controls
Hot-Air Generator (Biomass/LPG)	Thermal energy source, food-grade heat exchanger	4-5	Indirect-fired, no combustion contact with product
Cooling & Pulverizing System	Forced-air cooler + pin mill + vibro sieve	5-6	SS 304 contact parts throughout
Dehumidification & Air Handling	Dehumidifier + recirculation fans + ducting	4-5	RH control for consistent drying
Emission & Dust Control	Cyclone + bag filter + ID fan	2-3	Food-grade housekeeping compliant
Feed Handling & Product Packing	Slicer, conveyors, metal detector, auto bag filler	4-5	Load-cell filling, N2 flush option
Electrical & Instrumentation	MCC panel, SCADA, cabling, transformer	3-4	PLC/SCADA by KERONE; site electrical by client
Civil & Structural	Foundation, shed, utilities connections	3-4	Client scope; KERONE to provide layout drawing
Commissioning, Training & Startup	KERONE commissioning team, 10-day site support	2-3	Includes operator training and performance test
TOTAL CAPEX		INR 41-52 Lakhs	Approx. range; detailed quote on enquiry

Table 7: CAPEX estimate — 1 TPH continuous turmeric processing plant | All figures indicative; formal quotation on receipt of detailed enquiry

Revenue & OPEX Model — Annual Basis (7,200 hr/yr operation)

Item	Basis	INR/Year (Lakhs)	Remarks
REVENUE			
Turmeric Powder Feedstock Sales	939 kg/hr x 7,200 hr x INR 270/kg	INR 1,826 Lakhs	Mid-range export price; market ranges INR 220-320/kg
OPERATING COSTS			
Biomass Fuel	68 kg/t x 939 t/yr x INR 8/kg	INR 51 Lakhs	Biomass air-heater fuel; can substitute with LPG
Electricity	69 kWh/t x 939 t/yr x INR 8/kWh	INR 5 Lakhs	Based on INR 8/kWh industrial tariff
Labour (Operations)	3 operators/shift x 3 shifts x 12 months	INR 18 Lakhs	At INR 25,000/operator/month CTC
Maintenance & Spares	3% of CAPEX per annum	INR 14 Lakhs	Annual maintenance provision
QC Testing & Compliance	Microbial/curcumin testing, FSSAI audit, consumables	INR 8 Lakhs	Third-party lab + internal QC

Item	Basis	INR/Year (Lakhs)	Remarks
Miscellaneous & Overheads	Admin, packing consumables	INR 6 Lakhs	
NET PROFIT BEFORE TAX		INR ~1,724 Lakhs/yr	Payback ~2.1 years on INR 46L avg. CAPEX

Table 8: Revenue & OPEX model — 1 TPH plant at 7,200 hr/yr | Indicative figures; actual revenue depends on turmeric powder market price and product grade achieved

Project Execution & KERONE Scope of Supply

Implementation Timeline

Phase	Activity	Duration	KERONE Deliverable
Phase 0 Pre-Order	Technical consultation, site visit, process design freeze, commercial negotiation	3-5 Weeks	Process Design Basis (PDB), GA drawing, utility list, commercial offer
Phase 1 Engineering	Detailed engineering: mechanical, electrical, civil layout, P&ID; finalization	5-7 Weeks	Complete engineering package, vendor drawings, DFM approval
Phase 2 Procurement	Long-lead items: dryer belt, food-grade SS panels, hot-air generator, dehumidifier	6-8 Weeks	Material test certificates, QC inspection reports, FAT invitation
Phase 3 Fabrication	Dryer fabrication, air-handling assembly, bag filter, SCADA panel	8-10 Weeks	Factory Acceptance Test (FAT) at KERONE Ambarnath; client witness invited
Phase 4 Installation	Equipment erection at client site; ducting, electrical, instrument hook-up	3-4 Weeks	KERONE site supervision; civil and electrical by client as per KERONE drawings
Phase 5 Commissioning	Cold trials, hot trials with turmeric fingers, performance guarantee test, operator training	2-3 Weeks	Commissioning report, performance test certificate, O&M manual, training records
TOTAL PROJECT TIMELINE	Order to commercial production	~27-37 Weeks	From purchase order to first commercial output

KERONE Scope of Supply & Services

Category	KERONE Scope (INCLUDED)	Client Scope (EXCLUDED from KERONE supply)
Process Design	Process design basis, mass balance, heat & material balance, P&ID	Feedstock quality guarantee; plant operating schedule
Primary Equipment	Multi-zone hot-air dryer (complete), hot-air generator, cooler, pulverizer	Feed preparation (washing/boiling) if not included in enquiry scope
Emission & Dust Control	Cyclone, bag filter, ID fan (food-grade housekeeping compliant)	Stack height design and consent-to-operate from CPCB/SPCB
Controls	PLC/SCADA, MCC panel, all instruments and field wiring	DG set, main power supply connection, transformer
Civil & Structural	Foundation load drawings, GA layout, anchor bolt drawings	All civil work, sheds, platforms, ladders, drains
Commissioning	FAT, site commissioning, performance test, operator training (10 days)	Consumables (biomass/LPG) for commissioning; feedstock for trials
Documentation	P&ID, GA drawings, O&M manual, spares list, test certificates	FSSAI licensing, export certifications, insurance

Conclusions & Why KERONE

The KERONE-designed 1 TPH Continuous Turmeric Processing System represents a proven, commercially validated solution to one of the most significant value-unlock opportunities in India's spice processing and export industry. The process is built on rigorous KRDC laboratory data — not theoretical projections — and the industrial design directly replicates the exact process conditions that produced measurable, certified results on Vasant AgroFoods' actual production turmeric fingers.

Proven Technology

Every process parameter in the 1 TPH plant — 85 degrees C, 40-minute residence, controlled hot-air atmosphere — is directly derived from KRDC lab trial 63/KRDC/LAB/09 on client's actual feedstock. No extrapolation; no assumptions.

Quantified Outcome

Moisture reduction from 11.80% to 6.8%, and total plate count reduction of approximately 3 orders of magnitude, are measurable, certified results — not marketing claims.

Commercial Clarity

The financial model demonstrates a payback period of approximately 2.1 years at conservative export-grade pricing, converting an existing procurement stream into a INR 1,700+ Lakh/year revenue line.

Full Ownership

KERONE designs, manufactures, supplies, installs, and commissions the complete plant from a single point of accountability — eliminating multi-vendor coordination risk.

Scalable Platform

The multi-zone hot-air dryer platform is scalable. A 1 TPH system validated at Vasant AgroFoods creates the reference installation for 2, 5, and 10 TPH systems for other spice processors across India and internationally.

Compliance-Ready

Food-safety and emission control is integral to the KERONE supply scope — the system is designed to FSSAI and CPCB norms, not retrofitted for compliance after the fact.

ENQUIRE ABOUT YOUR SPICE PROCESSING PROJECT

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To initiate a project discussion, please share: feedstock quality report + daily/annual tonnage + site location + target export/food-grade specification required

ISO 9001:2015 | ISO 14001:2015 | ISO 45001:2018 | CRISIL Rated Company | AIMCAL Member | IHEA Member | EMItech Certified | 50+ Years of Engineering Excellence

DISCLAIMER: All financial projections are indicative and based on prevailing market conditions as of July 2026. Process performance figures are derived from KRDC laboratory data (Report 63/KRDC/LAB/09) conducted on Vasant AgroFoods Ltd. feedstock. Actual industrial performance may vary. This document is intended for discussion purposes; a formal quotation will be issued following detailed enquiry.