

MASTER CATALOGUE: CORE PRODUCT LINES AND INDUSTRIAL CAPABILITIES

SJ Industrial Ovens offers a comprehensive portfolio of standardized and custom-engineered industrial ovens, furnaces, and chambers. We provide high-precision thermal solutions tailored to meet the critical process requirements across a wide spectrum of industries, from heavy fabrication and petrochemicals to high-purity pharmaceuticals and R&D. Our focus is on **energy efficiency, superior temperature uniformity, and compliance with rigorous industry standards (e.g., API, NACE, GMP)**.

SECTION 1: CORE PRODUCT LINES

1. Batch Ovens & Furnaces

The foundation of industrial processing, offering maximum flexibility and robust performance for varied workloads.

- Truck-In / Walk-In Ovens:** High-capacity chambers for large, heavy components (e.g., pipe spools, vehicle chassis). Features include reinforced floors and specialized air baffles.
- Box/Cabinet Ovens:** Medium-volume units for curing, drying, baking, and pre-heating. Excellent temperature uniformity ($\pm 2^{\circ}\text{C}$).
- High-Temperature Furnaces:** Units capable of exceeding 500°C for processes like annealing,

2. Continuous & Conveyorized Systems

Engineered for high-volume, automated production lines requiring consistent throughput and rapid cycle times.

- Conveyor/Tunnel Ovens:** Straight-through systems (mesh, chain, or belt) for continuous curing (e.g., FBE pipe coatings, electronic components, baked goods).
- Rotary/Drum Dryers:** Systems for agitation and uniform drying of granulated materials, powders, spices, and nuts (e.g., chemical pellets, coffee beans).
- Fluidized Bed Dryers:** Specialized for rapid, gentle drying of pharmaceutical granules and fine particles via high-velocity air suspension.

3. Specialized Chambers & High-Purity Systems

Equipment for sensitive and controlled processes requiring vacuum, humidity, or specialized atmospheres.

- Vacuum Ovens / Dryers:** Designed for moisture/solvent removal from temperature-sensitive or oxidation-prone materials (e.g., battery electrodes, APIs) at low temperatures.
- Stability/Environmental Chambers:** Used in Pharma R&D for precise, long-duration testing under controlled temperature and humidity (ICH compliant).
- IR Testing Ovens:** Utilize Infrared emitters for rapid, targeted surface heating and curing (e.g., thin coatings, selective heating).

SECTION 2: TECHNICAL SPECIFICATIONS & ENGINEERING

Heating & Energy Sources

Our ovens are designed for efficiency and adaptability, allowing selection based on required temperature, operational cost, and process environment.

SOURCE	TEMP RANGE (TYPICAL)	BEST FOR
Electric Heating Elements	Ambient to 600°C	High-precision, clean, non-hazardous (e.g., R&D, Electronics, Pharma).
Direct-Fired Gas (LPG/CNG)	100°C to 400°C	High-volume air movement, fastest heat-up, lowest operating cost (e.g., Fabrication, Automotive).
Indirect-Fired Gas/Oil	100°C to 550°C	Processes requiring clean air, preventing contact between exhaust gases and product (e.g., Food Roasting, Paint Curing).
Infrared (IR)	Up to 800°C (Surface)	Rapid curing, selective heating, minimal air circulation required (e.g., Powder Coating, Composite Pre-heat).

Compliance & Safety Standards

All SJ Industrial Ovens are built with safety and quality assurance as primary concerns.

- **NFPA 86 Compliant:**** Mandatory safety features for ovens handling flammable materials (e.g., solvent evaporation in curing ovens).
- **GMP (Good Manufacturing Practice):**** For Pharma/Food units, ensuring hygienic, easy-to-clean design, non-toxic materials, and validation readiness.
- **MOC SS316/304:**** Use of Stainless Steel for all product contact parts in hygienic (Pharma, Food) and corrosive (Petrochemical) applications.
- **TUS (Temperature Uniformity Survey):**** Provision for thermal mapping to meet standards like AMS (Aerospace) or API (Petrochemical).

SJ Industrial Ovens

The Authority in High-Performance Thermal Processing

Catalogue Continuation
Industry-Specific Thermal Solutions

SECTION 3: INDUSTRY-SPECIFIC APPLICATION MATRIX (CONSOLIDATED)

This matrix summarizes the primary thermal equipment and critical processes catered to across key sectors, demonstrating the breadth and specialization of SJ Industrial Ovens' solutions.

INDUSTRY SECTOR	CRITICAL THERMAL PROCESS	RECOMMENDED SJ EQUIPMENT TYPE	KEY FEATURE / COMPLIANCE FOCUS
Petrochemical & Lubricants	Component Drying, Resin-Setting Ovens (FBE)	Truck-In Batch Oven / Continuous Curing Tunnel	Heavy-duty load capacity, Corrosion Resistance (SS MOC), NACE/API Compliance.
Renewable Energy (Battery/Solar)	Solar Panel Lamination Curing, Battery Electrode Drying/Curing	Vacuum Drying Oven / Large Format Curing Chamber	Deep Vacuum (0.1 Torr), Inert Gas Purge, Extreme Temperature Uniformity ($\pm 1^{\circ}\text{C}$).
Pharmaceuticals R&D	Stability Chambers, High-Volume Tray Drying, Solvent Removal	GMP Stability Chamber / SS316 Tray Dryer / Vacuum Oven	ICH/CFR 21 Part 11 Compliance, HEPA filtration, IQ/OQ/PQ Validation Ready.
Laboratory & R&D	Custom Walk-in Chambers, Vacuum, Ultra-High Temp Annealing	Custom Walk-In Chamber / 1600°C Furnace / IR Ovens	Custom Size/Atmosphere, Multi-Zone Control, TUS Capability, Precision $\pm 1^{\circ}\text{C}$ Uniformity.
Agriculture Sector	Seed Drying (Viability), Bulk Crop Drying, Herbal/Ayurvedic Drying	Low-Temperature Tray Dryer / Continuous Flow Dryer	Low-Temp/High-Volume Airflow, Moisture Control Sensors, Non-Contaminating SS Contact Parts.
Coatings & Fabrication	Powder Coating Curing, Liquid Paint Baking, Component Pre-heat	Standard Box Oven / Conveyorized Curing Oven	NFPA 86 Safety, High-Airflow Convection, Fast Ramp Rates.
Automotive & Mechanical	Engine Block Curing, Brake Pad Curing, E-coating Bake	High-Capacity Truck-In Oven / Customized Batch Oven	Heavy-duty loading systems, multi-zone control for dense loads.
Composites & Plastics	Autoclave-Free Curing (Aerospace), Thermoset Plastic Curing	Vacuum-Assisted Curing Oven / Walk-In Chamber	Vacuum port integration, extremely tight temperature uniformity for polymer cross-linking.

INDUSTRY SECTOR	CRITICAL THERMAL PROCESS	RECOMMENDED SJ EQUIPMENT TYPE	KEY FEATURE / COMPLIANCE FOCUS
Food & Beverage	Biscuit Baking, Cereal Roasting, Snack Pellet Drying	High-Capacity Tunnel Oven / Rotary Drum Roaster	SS304/316 Food-Grade Finish, Clean-In-Place (CIP) Design, Indirect Heating Options.

SECTION 4: CUSTOM ENGINEERING & SUPPORT SERVICES

Customization Capabilities

Our engineering team specializes in modifying and building equipment from the ground up to fit unique process and space requirements.

- **Size & Volume:** From small benchtop units to multi-storey, site-erected walk-in chambers.
- **Atmosphere:** Integration of Nitrogen, Argon, or specialized gas mixing and handling systems.
- **Material of Construction (MOC):** Custom MOCs including different grades of Stainless Steel, Inconel, or specialized alloys for corrosive or high-temperature environments.
- **Loading Systems:** Design and integration of automated conveyor belts, rail carts, rotating tables, and custom jigs.

Installation & Validation Services

We provide comprehensive support throughout the equipment lifecycle to ensure seamless integration and compliance.

- **Installation & Commissioning:** On-site setup, calibration, and initial performance testing by expert technicians.
- **Calibration & Service Contracts:** Routine maintenance, calibration services, and spare parts supply to maximize uptime.
- **Temperature Uniformity Survey (TUS):** Comprehensive temperature mapping and reporting to validate oven performance to required standards.
- **Validation Support:** Full documentation and on-site support for DQ, IQ, OQ, and PQ required in GMP and highly regulated industries.

Maximize Your Process Reliability and Efficiency with SJ Industrial Ovens

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