

SJ INDUSTRIAL OVENS

The Largest Range of Custom Thermal Solutions
in India

Precision, Reliability, and Customization Across 7
Major Industries.

THE COMPREHENSIVE INDUSTRIAL THERMAL SOLUTIONS CATALOGUE 2024

SJ Industrial Ovens proudly offers an exhaustive range of thermal processing equipment, custom-engineered to meet the rigorous demands of over 40 distinct applications. From high-vacuum aerospace processes to large-scale food drying and precise electronic component curing, our technology ensures product quality, consistency, and compliance across every major manufacturing sector. This catalogue serves as your guide to the specific thermal systems engineered for your operational needs.

SECTION 1: COATINGS, METAL FINISHING & FABRICATION

Ensuring durability, adhesion, and finish quality for metal components used across the automotive and industrial sectors.

Key Applications & Oven Focus:

- **Powder Coating Plants:** High-efficiency batch or conveyORIZED tunnel ovens for cross-linking thermoset powder coatings on metal substrates. Key focus: Uniformity and energy recovery.
- **Paint Booth Manufacturers:** Low-temperature drying and baking ovens for solvent-based liquid paints and automotive primer/topcoats. Key focus: Low LEL management and high exhaust volume.
- **Metal Fabrication Units / Sheet Metal Component Makers:** Pre-heating, low-temperature stress relieving, and paint baking for fabricated assemblies and enclosures. Key focus: Large volume, high-load capacity.
- **Aluminium Extrusion Companies:** Ageing furnaces (artificial hardening) to increase the strength and hardness of aluminium profiles after extrusion. Key focus: Tight temperature control (e.g., $\pm 3^{\circ}\text{C}$).
- **Aluminium Bottle/Tube Manufacturing:** Internal/external coating curing for packaging containers. Key focus: Rapid, high-throughput conveyor systems.

SECTION 2: AUTOMOTIVE & HEAVY MECHANICAL COMPONENTS

Providing the critical thermal cycles needed to define the structural integrity and performance of engineered mechanical parts.

Key Applications & Oven Focus:

- **Brake Pad Manufacturers:** Curing ovens for bonding friction materials and stabilizing the phenolic resin matrix. Key focus: Hydraulic press integration and post-cure baking.

- **Shock Absorber Units:** Tempering and stress relieving ovens for high-strength piston rods and internal components to optimize hardness and ductility. Key focus: High temperature $\left(500^{\circ}\text{C}\right)$, forced air uniformity.
- **Spring Manufacturers (Coil/Leaf):** Tempering and set-setting ovens to achieve final elastic limits and required permanent deflection. Key focus: Precision low-temperature control and continuous mesh belt ovens.
- **Bearing Manufacturers:** Pre-heating for press fitting, stabilization of components after grinding, and annealing of retainer cages. Key focus: Clean atmosphere, precise temperature control.

SECTION 3: ELECTRICAL, ELECTRONICS & POWER

Specialized systems ensuring insulation integrity, moisture prevention, and reliable performance of critical electrical and electronic components.

Key Applications & Oven Focus:

- **Circuit Board Manufacturers / Electronics Assembly Units:** Solder mask curing, conformal coating baking, and mandatory moisture bake-out (pre-reflow). Key focus: HEPA filtration, low-oxygen/nitrogen environment options.
- **Transformer Manufacturers / Motor Winding Units:** Large-scale VPI (Vacuum Pressure Impregnation) post-curing furnaces and varnish baking ovens for stators and windings. Key focus: LEL safety compliance (NFPA 86), heavy-duty load capacity.
- **Capacitor Manufacturers / LED Manufacturers:** Component drying, epoxy curing, and aging tests for reliability. Key focus: High-precision control, small volume batch/cabinet ovens.
- **Battery Manufacturers (LIBs):** Electrode drying (moisture and solvent removal), and subsequent cell assembly processes. Key focus: Ultra-low dew point (dry room compatible), vacuum drying systems.

SECTION 4: POLYMERS, RUBBER & COMPOSITES

Managing exothermic reactions, cross-linking, and stress relief for polymers, rubbers, and advanced fiber composites.

Key Applications & Oven Focus:

- **Rubber Molded Part Units:** Vulcanization (curing) and post-curing ovens for silicone, EPDM, and Viton to set mechanical properties. Key focus: High-volume air exchange, tight temperature uniformity.
- **Plastic Molded Part Units / Plastic Coating Units:** Annealing ovens for stress relief in molded thermoplastics (preventing cracking) and curing of specialized polymer coatings. Key focus: Slow cooling ramps, precision control.
- **Resin Manufacturing Units / Adhesive Factories:** Curing of structural adhesives (epoxies, polyurethanes) and thermal setting of resins. Key focus: High-accuracy ramp-soak profile control.
- **Composite Manufacturing Units:** Curing ovens for prepregs (CFRP, GFRP) and honeycomb sandwich panels. Key focus: Vacuum manifold integration, nitrogen purge capability.

SECTION 5: FOOD, PHARMA & HYGIENIC DRYING

Sanitary, precision drying, sterilization, and baking compliant with GMP, FDA, and HACCP standards.

Key Applications & Oven Focus:

- **Food Processing Plants / Bakery Factories:** Baking of extruded snacks, biscuits, and continuous drying tunnels for cereals. Key focus: Stainless steel interior (SS304/SS316), indirect heating options, easy wash-down.

- **Spices Manufacturers / Dehydrated Vegetable Exporters:** Low-temperature drying, roasting, and microbial reduction (sterilization) of herbs and vegetables. Key focus: Air quality filtration, precise humidity control, continuous belt dryers.
- **Fish/Meat Drying Plants:** Large capacity batch or tunnel dryers for moisture content reduction and preservation. Key focus: High exhaust capacity, corrosion-resistant SS construction.
- **Pharma Formulation Units / Chemical Powder Manufacturers:** Sterile drying of granules, powders, and active pharmaceutical ingredients (APIs). Key focus: Tray dryers with HEPA filtration, nitrogen blanketing for explosion proofing.

SECTION 6: HIGH-PERFORMANCE, FOUNDRY & HEAVY INDUSTRY

Systems built for extreme temperatures, high-precision metallurgy, and specialized material processing.

Key Applications & Oven Focus:

- **Aerospace Component Makers / Defense Equipment Factories:** Solution Heat Treatment (SHT) furnaces, TUS $\pm 5^\circ\text{C}$ compliance, and composite autoclave-free curing. Key focus: Nadcap/AMS 2750 standards, drop-bottom quench systems.
- **Foundries / Casting Units:** Core/Mold drying ovens (removing moisture from sand molds), investment casting burnout furnaces, and pre-heating of ladles/tools. Key focus: Robust refractory lining, high temperature $>1000^\circ\text{C}$ capability.
- **Ceramic & Refractory Units / Glass Printing Units:** High-temperature firing, calcination furnaces, and annealing ovens for specialty glass printing and surface coating. Key focus: Extreme temperature $>1200^\circ\text{C}$, non-metallic heating elements.
- **Oil & Gas Component Makers:** Post-Weld Heat Treatment (PWHT) and stress relieving of large pipeline components and assemblies. Key focus: Car-bottom furnaces, mobile heat treatment units.

SJ INDUSTRIAL THERMAL SOLUTIONS MEGA MATRIX (A-Z)



INDUSTRY / APPLICATION	CRITICAL THERMAL PROCESS	RECOMMENDED SJ EQUIPMENT TYPE & FEATURE
Aerospace Component Makers	Solution Heat Treatment (SHT) / Composite Curing	Drop Bottom Furnace ($\pm 3^\circ\text{C}$ TUS) / Vacuum Curing Oven (Nadcap Compliant)
Adhesive Factories	Structural Adhesive Curing / Drying	Precision Batch Oven / Forced Air Conveyor Tunnel
Agricultural/Horticulture Dryers	Bulk Crop Drying / Dehydration	Large Tray Dryer / Continuous Belt Dryer (High Air Volume)
Aluminium Extrusion Companies	Artificial Ageing (Hardening)	Air Circulation Ageing Furnace ($\pm 3^\circ\text{C}$ TUS)
Aluminium Bottle/Tube Manufacturing	Internal Coating Curing	High-Speed Continuous Tunnel Oven
Automotive OEM Suppliers / Ancillaries	Paint Baking / Component Tempering	Walk-In Oven (High Uniformity) / Conveyor Oven (Integrated Line)
Bakery Factories	Biscuit/Cereal Baking and Drying	Band Oven / Multi-Deck Conveyor Oven (Hygienic SS)

Industry / Application	Critical Thermal Process	Recommended SJ Equipment Type & Feature
Battery Manufacturers	Electrode Drying / Cell Assembly Drying	Vacuum Drying Oven / Ultra-Low Dew Point Dry Oven
Bearing Manufacturers	Stabilization / Pre-heating / Annealing	Precision Batch Ovens / Continuous Belt Furnace
Brake Pad Manufacturers	Friction Material Curing	Press-Cure Ovens / High-Load Batch Curing Oven
Capacitor Manufacturers	Epoxy Curing / Component Aging	Precision Benchtop Ovens / Vacuum Drying Cabinets
Casting Units / Foundries	Core/Mold Drying / Investment Casting Burnout	Large Volume Car Bottom Furnace / High-Temperature Box Furnace
Ceramic & Refractory Units	Firing / Calcination / Sintering	High-Temperature Box Furnace $\left(1200^{\circ}\text{C}\right)^{+}$
Chemical Powder Manufacturers	Powder Drying / Solvent Removal	Tray Dryer with Inert Gas Purge / Vacuum Dryer (GMP)
Circuit Board Manufacturers	Solder Mask Curing / Moisture Bake-Out	Tunnel Conveyor Oven / Cabinet Oven (HEPA Filtration)
Composite Manufacturing Units	Prepreg Curing / Post-Curing	Forced Air Curing Oven (Vacuum Manifold Ready)
Contract Manufacturing Units	General Heat Processing / Tempering / Drying	Universal Batch Oven (Flexible Temp Range)
Defense Equipment Factories	Specialty Coating Curing / Metal Stress Relief	High-Temperature Furnace / Clean Room Ovens
Dehydrated Vegetable Exporters	Drying / Moisture Reduction	Continuous Belt Dryer (Hygienic Design)
Electronics Assembly Units	Conformal Coating Curing / Component Stabilization	Conveyor Oven / Infrared (IR) Curing Tunnel
Fish/Meat Drying Plants	Drying / Moisture Content Setting	Large Batch Dryer / Tunnel Dryer (Corrosion Resistant SS316)
Food Processing Plants	Snack Baking / Ingredient Drying	Stainless Steel Continuous Tunnel Ovens
Furniture Manufacturing Units	Wood/Varnish Drying / Powder Coating of Metal Frames	Batch Drying Ovens / Conveyorized Curing Ovens
Glass Printing Units	Ink/Frit Annealing and Curing	Infrared (IR) Tunnels / Precision Annealing Lehrs
Labs & Universities / Research Institutions	Small Batch Curing / Material Testing / High Temp Firing	Benchtop Precision Ovens / Small Box Furnaces
LED Manufacturers	Encapsulation Curing / Component Baking	Small Precision Batch Ovens / Belt Conveyor Ovens

Industry / Application	Critical Thermal Process	Recommended SJ Equipment Type & Feature
Medical Device Manufacturers	Sterilization (Dry Heat) / Adhesive Curing	Sterilization Ovens / Precision Clean Room Ovens
Metal Fabrication Units	Pre-heating / Stress Relieving	Large Walk-In Batch Oven / Car Bottom Furnace
Motor Winding Units	Varnish Curing / Winding Drying	Truck-In Oven (High Load, LEL Compliant)
Oil & Gas Component Makers	Post-Weld Heat Treatment (PWHT) / Coating Curing	Car Bottom Furnace / Heavy-Duty Box Oven
Packaging Machine Manufacturers	Coating Curing / Component Stress Relief	Small Batch Oven / Conveyor Belt Dryer
Paint Booth Manufacturers	Liquid Paint Baking / Primer Curing	Forced Air Batch Oven (High Exhaust)
Pharma Formulation Units	Granule Drying / API Drying	Tray Dryer (cGMP, SS316, Validation Ready)
Plastic Coating Units / Resin Manufacturing Units	Polymer Curing / Powder Coating	Batch Ovens / Conveyor Curing Ovens (High Uniformity)
Plastic Molded Part Units	Annealing / Stress Relief	Precision Batch Ovens (Slow Cooling Ramps)
Powder Coating Plants	Powder Coating Curing	Conveyorized Tunnel Oven / Batch Curing Oven (Energy Efficient)
Renewable Energy Component Factories	Solar Cell Drying / Composite Blade Curing	Precision Clean Room Ovens / Large Composite Curing Oven
Rubber Molded Part Units	Vulcanization / Post-Curing	Batch Curing Oven (High Air Volume)
Sand Drying Plants	Moisture Removal from Sand/Aggregates	Rotary Kiln / Large Tray/Tunnel Dryer
Sheet Metal Component Makers	Drying / Tempering / Paint Baking	Walk-in Ovens / Large Batch Ovens
Shock Absorber Units	Tempering / Final Hardness Setting	Continuous Mesh Belt Furnace / Forced Air Tempering Oven
Spices Manufacturers	Roasting / Drying / Sterilization	Rotary Drum Roasters / Continuous Belt Dryers
Spring Manufacturers	Tempering / Stress Relieving	Mesh Belt Conveyor Oven / Forced Air Batch Oven
Textile Printing Units	Dye/Ink Fixing and Curing	Infrared (IR) Ovens / Short Conveyor Tunnels
Transformer Manufacturers	Varnish Curing / Core Drying	Large Truck-in Oven (High-Mass Load)

INDUSTRY / APPLICATION	CRITICAL THERMAL PROCESS	RECOMMENDED SJ EQUIPMENT TYPE & FEATURE
Wood & Plywood Manufacturers	Veneer Drying / Varnish Curing	Large Kiln Dryers / Batch Curing Ovens

Your Trusted Partner for Precision Thermal Engineering Across All Industries

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