



TOMATO KETCHUP MAKING PLANT



Your Trusted Partner for Consultancy and Turnkey Project Execution



COMPANY OVERVIEW

Salvin Industries is a leading engineering, technology and consulting conglomerate, working closely with diversified industries spanning across food processing, agriculture, plastics, chemicals, metals healthcare, packaging, Dealer, distributor, super stocks, marketing plan, product analysis and other industries and business sectors offering complete turn-key solutions including advanced engineering, Industry 4.0 solutions, digital transformation and expert technical and management consultancy. With 10+ years of experience and global presence in 8+ countries, Salvin Industries is serving from the most demanding to the most distant customers across the globe. We empower them for rewriting their future with our depths of knowledge, unique ideas, technical expertise, creative solutions and enduring results, all at the most optimal costs, right at their doorsteps.

Armed with the eminence in technological expertise, global capabilities and a process driven approach, we have the ability to take on any challenging project. Crossing the geographical borders & cultures and living up to our core values Excellence, Respect, Care & Joy, we propel innovation to engineer solutions that build & foster equality. Working together as one team with all our business partners & associates, we are transforming industries, fueling economies, developing sustainable solutions and thereby elevating societies, globally. We realize the need to respond to the dynamism & speed with which the world is changing all around us and understand the need to anticipate

Tomato

Ketchup Making Plant

Our Tomato Ketchup Manufacturing Machine is designed for efficiency and precision. It incorporates advanced technology to handle various stages of ketchup production, including tomato processing, blending, heating, and packaging. With user-friendly controls and durable construction, it ensures consistent quality and output while minimizing manual intervention. This machine streamlines the manufacturing process, reducing labor costs and increasing productivity. It is built to meet industry standards for hygiene and safety, making it an ideal choice for food processing facilities looking to optimize their ketchup products.

P&L DIAGRAM TOMATO KETCHUP MAKING PLANT



Tomato

Ketchup Making Plant

THE PROCESS

Raw Material Receiving & Storage

Raw material receiving & Storage

Fresh tomatoes are unloaded from field containers onto hydraulic discharge platforms. The system weighs incoming loads, remove field heat, and temporarily stores fruit in ventilated hoppers. This buffers supply against processing interruptions and allows for initial visual inspection before washing



Washing

Tomatoes are immersed in bubbling water tanks where compressed air agitates the water to scrub surfaces clean. This removes field soil, pesticide residues, microbes, and foreign matter. Some systems employ sequential stages: pre-wash, final wash, and spray rinse to ensure sanitary raw material entry

Sorting/Grading

Defective, green, or rotten tomatoes are manually removed by workers on slow-moving conveyor belts. Simultaneously, fruit may be sized by mechanical graders. This prevents off-flavors and brown pigments (pheophytin) from compromising final ketchup color.



Crushing

Sound tomatoes are fed into fruit mills or hammer crushers which rapidly chop them into a coarse pumpable slurry. This ruptures cell walls, liberating juice and pectin-rich pulp. The degree of comminution affects subsequent extraction efficiency and yield

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THE PROCESS

Hot Break (Enzyme Inactivation)

Crushed tomato slurry is instantly heated to 90–100°C within tubular heat exchangers. This inactivates pectinase enzymes that would otherwise degrade pectin. Preserving pectin is critical for achieving the thick, viscous consistency required in premium ketchup.



Pulping/Refining (Juice extraction)

Heated mash passes through rotary pulpers fitted with fine mesh screens (0.5–1.5 mm). Centrifugal force separates juice and fine pulp from seeds, skins, and fibrous stems. The result is a smooth, homogenous tomato juice/sauce base free of coarse particulates.

Concentration/Evaporation

Juice is concentrated under vacuum (triple-effect evaporators) at approximately 70°C. Water evaporates at low temperature without burning or darkening the product. Solids content rises from ~5% to 28–38% Brix, producing shelf-stable paste and reducing storage/transport volume.



Reconstitution

High-Brix tomato paste (28–38%) is metered into mixing vessels with precise amounts of potable water. Lobe pumps transfer the viscous paste, and agitators create a uniform diluted slurry matching the solids content of fresh juice (typically 14–16% TSS).



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THE PROCESS

Mixing/Blending Ingredients

Mixing/Blending ingredients

Sugar, salt, vinegar, spice extracts (oleoresins or vinegar infusions), and stabilizers (xanthan gum) are incorporated into the tomato base. High-shear rotor/stator mixers create vacuum suction, instantly hydrating powders and breaking agglomerates. This ensures uniform flavor distribution and prevents lumps



Homogenization

Homogenization

The pre-mix is forced under high pressure (1000–1500 psi) through a narrow valve gap at ~66°C. Intense shear and cavitation fibrillate tomato fiber strands, increasing their water-holding capacity. This creates the smooth, creamy, non-pulpy texture characteristic of industrial ketchup.



Deaeration

Deaeration

Product passes into a vacuum chamber where dissolved oxygen is rapidly removed. Deaeration prevents oxidative degradation of vitamin C, preserves bright red lycopene color, and eliminates micro-foam that would cause filling inaccuracies or oxidized off-flavors .



Pasteurization/Cooking

Pasteurization/Cooking

Ketchup is heated to 85–95°C via tubular or scraped-surface heat exchangers. This thermal process destroys yeasts, molds, and spoilage bacteria (target: total plate count <10,000/ml). It also develops final flavor and achieves required total soluble solids (>25% TSS) per FSSAI standards



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THE PROCESS

Filling

Sterile, hot ketchup (82–88°C) is volumetrically dosed into pre-washed bottles, jars, or sachets using piston fillers. Positive displacement filling ensures precise weight accuracy despite high viscosity. The product's heat sterilizes the container interior during filling



Cooling



Filled containers immediately pass through a spray tunnel where cold water cascades over them. Rapid cooling from ~85°C to 35–40°C halts thermal over-cooking, preserves color and flavor, and creates a vacuum seal within the headspace for package integrity.

Labeling & packaging

Dry, cooled bottles are automatically labeled (front/back/neck) with self-adhesive applicators. Date codes are inkjet-printed. Bottles are collated into trays, shrink-wrapped, and palletized for warehouse storage and distribution to retail markets.





LET'S WORK TOGETHER



+91 97127 77034



www.salvinindustries.in



info.salvinindustries@gmail.com



210, Arved Transcube Mall,
Bandhu Nagar, Vijay Nagar,
Ranip, Ahmedabad, Gujarat 382480



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