RXGF 系列热灌装线
Fruit Juice Hot Filling Line

品质 Quality　服务 Service　高效 Efficiency

■ 产品描述 / Product Description

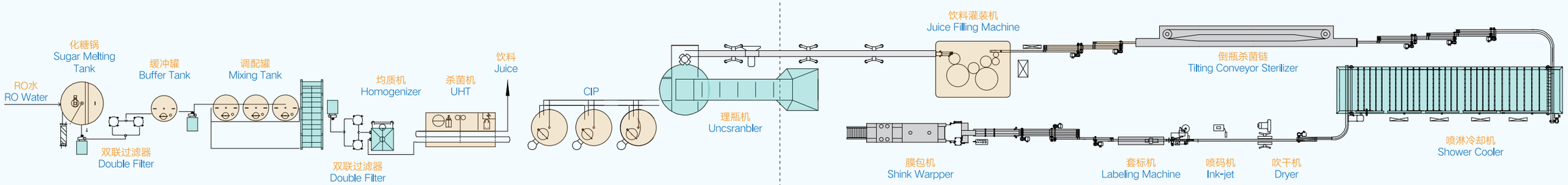
用于茶、果汁饮料等生产的RXGF、RXXGF 三合一、四合一热灌装系列，产量2000-28,000瓶/ 小时可供用户选择。

RXGF 3-in-1Unit and RXXGF 4-in-1Unit applies to the production of tea and juice, with optional capacity from 2,000 BPH to 28,000 BPH.

■ 主要技术参数 / Main Technical Parameters

型号 Type	冲瓶头数 Washing Nos	灌装头数 Filling Nos	封口头数 Capping Nos	生产能力 Capacity	外形尺寸 Measurement	装机容量 Power
RXGF14/12/5	14	12	5	3500BPH	2360x1770x2700mm	2kw
RXGF16/16/5	16	16	5	5000BPH	2760x2060x2700mm	2.2kw
RXGF24/24/8	24	24	8	8000BPH	2800x2230x2700mm	3kw
RXGF32/32/8	32	32	8	12000BPH	4215x2960x2700mm	4kw
RXGF40/40/10	40	40	10	15000BPH	4360x3300x2700mm	7.5kw
RXGF50/50/12	50	50	12	18000BPH	5900x3300x2700mm	7.5kw
RXGF60/60/15	50	60	15	21000BPH	6100x5815x2700mm	11kw
RXGF72/72/18	72	72	18	28000BPH	6540x4900x2700mm	11kw

■ 工艺流程图 / Flow Chart



Part I Juice prepare system :

1. **Syrup Melting Tank**

Using RO-purified water combined with a jacketed heating and agitation/recirculation system, solid sweeteners—such as white granulated sugar—are fully dissolved into a uniform syrup. The fruit juice industry commonly employs a hot dissolution method (60–85°C) to accelerate the dissolution rate while simultaneously eliminating microorganisms present in the sugar; the agitation system breaks up sugar clumps, preventing localized supersaturation and the persistence of undissolved sugar particles.

2. **Double Head Filter**

Function: The Syrup Filter is used to filter the melted syrup from the Syrup Melt Tank, after filtration, the melted sugar become clear without any impurity.

Food Grade 304 stainless steel construction, fine polish

inlet and outlet pressure gauge, stainless steel filter screen, filter accuracy 100 mesh, including four butterfly valves. ,

3. Blending/ Mixing Tank

The blending tank is the core piece of equipment in the juice pretreatment section; it receives ingredients—such as syrup from the sugar dissolution tank, concentrated juice, purified water, acidity regulators, stabilizers, and flavorings—and performs metered dosing, mixing, and volume standardization to supply a uniform juice mixture for the subsequent stages of deaeration, homogenization, and sterilization.

4. **Homogenizer**

Positioned between the blending tank and the sterilization stage, the homogenizer is a critical piece of equipment in fruit juice pre-processing; its primary function is to use high pressure to break down particles and disperse suspended matter within the liquid, thereby stabilizing the juice system and improving both mouthfeel and appearance.

5. Vacuum deaerator

As the liquid forms a thin film within the vacuum chamber, dissolved oxygen and nitrogen—along with micro-bubbles introduced during agitation—are released. Since oxygen is a primary cause of quality deterioration in fruit juice, the vacuum deaerator is positioned after blending and homogenization but before pasteurization; it serves as a critical piece of pre-processing equipment designed to remove dissolved oxygen and entrapped air bubbles, thereby preserving juice quality and minimizing defects in subsequent processing stages

6. **UHT sterilization system**

1.Positioned after the deaerator and before the filling stage, the UHT system serves as the final thermal sterilization unit in the juice pretreatment line. It employs an ultra-high-temperature, short-time (UHTST) sterilization process and is the core component for achieving commercial sterility and a long shelf life at ambient temperatures.
2.Typical processing parameters involve heating to 110–135°C with a holding time of 2–8 seconds, followed by rapid cooling; tubular UHT systems are generally preferred for pulpy juices, while plate UHT systems are suitable for clear juices. It rapidly eliminates pathogenic bacteria, yeasts, molds, and heat-resistant spores in the product, achieving commercial sterility and preventing issues such as souring, spoilage, and bottle swelling.

3.High-temperature, rapid treatment inactivates endogenous enzymes—such as polyphenol oxidase and pectinase—thereby preventing enzymatic browning, pectin degradation, and phase separation or turbidity during storage, while stabilizing color and product consistency. The combination of short-time high-temperature treatment and rapid cooling significantly reduces the thermal loss of Vitamin C and natural fruit aromas compared to traditional long-duration pasteurization; it also minimizes burnt or "cooked" off-flavors, resulting in a finished product with sensory characteristics closer to those of fresh juice.

7. CIP System

The CIP system is an on-site cleaning system for food & beverage production lines. There is no need to disassemble tanks, pipelines, pumps, homogenizer, UHT, filler and other equipment. Pre-set cleaning solutions circulate to clean, rinse and sanitize the internal surfaces of juice pre-treatment and filling equipment. It is an essential auxiliary system to meet food hygiene regulations and guarantee product safety.

Main Functions

1. In-place cleaning without disassembly, reducing downtime and contamination risk No disassembly of sugar dissolving tank, blending tank, pipelines, homogenizing valve, deaerator, UHT heat exchanger, filler product bowl and product path. Cleaning liquid circulates in closed loop to flush inner surfaces, greatly shortening changeover cleaning time and avoiding secondary contamination caused by disassembly.
2. Multi-stage cleaning to remove different types of residues Standard CIP sequence: pre-rinse → caustic wash (removal of organic residues such as pulp, sugar and protein) → intermediate water rinse → acid wash (elimination of limescale and mineral deposits) → final purified water rinse → sanitization (hot water / sodium hypochlorite / peracetic acid). Caustic solution decomposes pulp and sugar deposits; acid removes calcium & magnesium scale on jacket and heat exchanger surfaces, preventing microbial growth inside scale and heat transfer deterioration.
3. Sanitization to reduce microbial load After cleaning, hot water or chemical sanitant circulates to kill yeast, mould and biofilm attached on equipment inner walls. It mitigates risks of spoilage, souring and cross-contamination between batches.
4. Equipment protection and extended service life Timely removal of pulp deposits, sugar scale and limescale prevents corrosion on stainless steel product contact surfaces. It avoids blockage of homogenizer gap, UHT tubes/plates and filler valves, maintains heat transfer and conveying performance and reduces maintenance frequency.
5. Compatible with sanitary units across all sections Circuits can be switched separately by sections: sugar dissolving & blending tank loop, pre-treatment loop (homogenizer + deaerator + UHT), filler product circuit. Independent sectional CIP cleaning is available.

Part II Juice filling machine

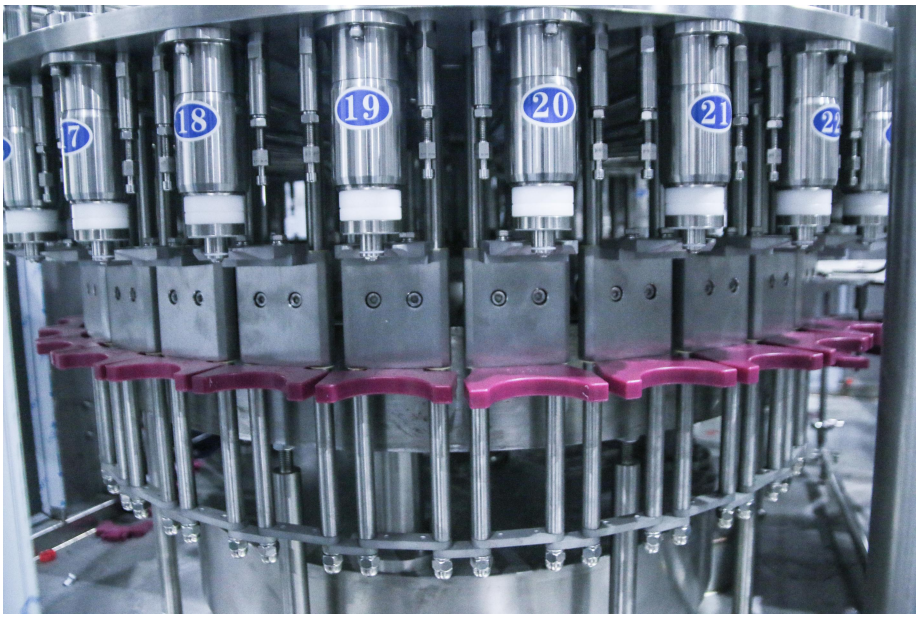
Juice 3-in-1 Filling Machine (Rinser-Filler-Capper Monoblock)

Basic Functions

The 3-in-1 monoblock machine integrates bottle rinsing, juice filling and capping in one rotary unit. It is core equipment for hot filling of juice in PET bottles, fruit tea and pulp-containing beverages. It receives sterilized juice from UHT system and performs fully automatic continuous packaging.

1. Bottle Rinsing Empty bottles are conveyed by air channel. Bottle necks are clamped and inverted. Sterile water or sanitizer sprays inner bottle wall to remove dust and contaminants. Bottles are drained and turned upright to reduce initial microbial load.

2. Juice Filling Micro-negative gravity hot filling is adopted for juice (working temperature 85～92℃). Special anti-clog filling valves are equipped for pulp juice to avoid foaming and blockage. "No bottle, no fill" interlock is available. Product recirculation loop will divert under-temperature juice back to UHT for re-sterilization.



3. Capping & Sealing Automatic cap sorting, cap feeding and magnetic torque capping. Torque is stepless adjustable to guarantee consistent sealing, preventing leakage or bottle swelling. Interlock protection: no bottle, no cap feeding; machine stops if caps missing.

4. Auxiliary Functions Product contact piping and filling valves are fitted with CIP ports for in-place cleaning. Controlled by PLC & touch screen, with variable speed, fault alarm and batch counter. Quick bottle size changeover by replacing star wheel parts.