



BELVAC Ovens and Washer

The Can
Washer



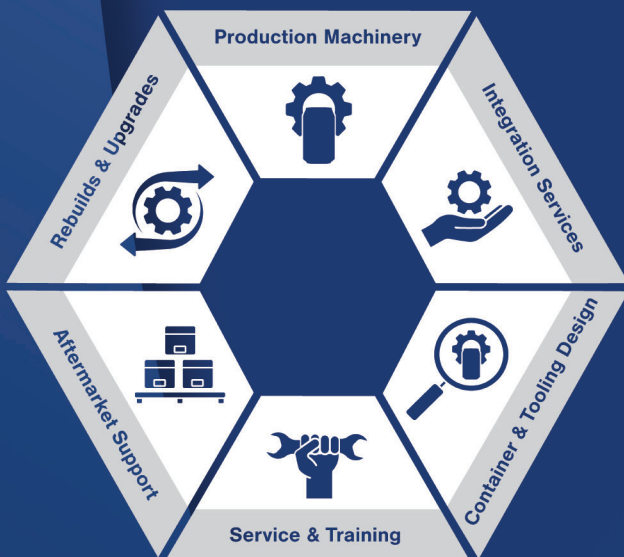
PROVEN TECHNOLOGY *Sustainable Solutions* | FOR OVER 60 years

PROVEN TECHNOLOGY **ENGINEERED** **FOR SUSTAINABLE OPERATIONS**

Belvac's Ovens and Washer technology has been installed around the world. With extensive knowledge and industry leadership, Belvac provides equipment and solutions designed to reduce CO2 footprint while also improving the sustainability of the can making process.

Belvac offers efficient, integrated energy-saving solutions for can production lines. With the shift in consumer views towards the importance of implementing climate protective measures, Belvac recognizes the need for a fundamental change.

Committed to a long-term, mutually beneficial cooperation with their customers and partners, Belvac continues to lead the industry towards a more sustainable and environmentally conscious future.





OVENS & WASHER

DESIGNED WITH CUSTOMERS IN MIND

With over 60 years of experience in the metal container manufacturing industry, Belvac has established itself as a technology leader for various sectors, including food, beverage, beauty, aerosol, and more.



CAN WASHER



DRY-OFF OVEN



PIN OVEN



INTERNAL BAKE OVEN

THE BELVAC ADVANTAGE

- Energy Efficient Solutions
- Safety Focused Designs
- Maximized Production Efficiency
- Latest Advanced Technologies
- Smaller Foot Print Design
- Single Source Partner
- Future Proof Planning
- Reduced Utility Requirements
- Eco-friendly Solutions
- Flexible Solutions for Customers Goals

Pre-Rinse **STAGE ONE**

Removes the oil and lubricant from the Bodymaking and Trimming process.

Pre-Wash **STAGE TWO**

Removes soluble oil and coolant prior to the washing lowering chemical usage and increasing the washing efficiency.

Wash **STAGE THREE**

Cans are Washed with acids to remove organic and inorganic impurities.

Rinse One **STAGE FOUR**

The Rinse stage removes any remaining acids from the Washing stage.



Treatment STAGE FIVE

Treatment to prevent corrosion and improves adhesion of other coatings.

Rinse Two STAGE SIX

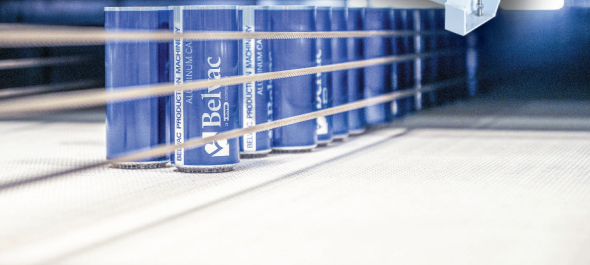
All acids are rinsed and removed from the can.

De-Ionizing STAGE SEVEN

Removes all inorganic salts from the cans surface.

Mobility Enhancer STAGE EIGHT

Prepares the surface of the can with a roughness allowing for better printing results.

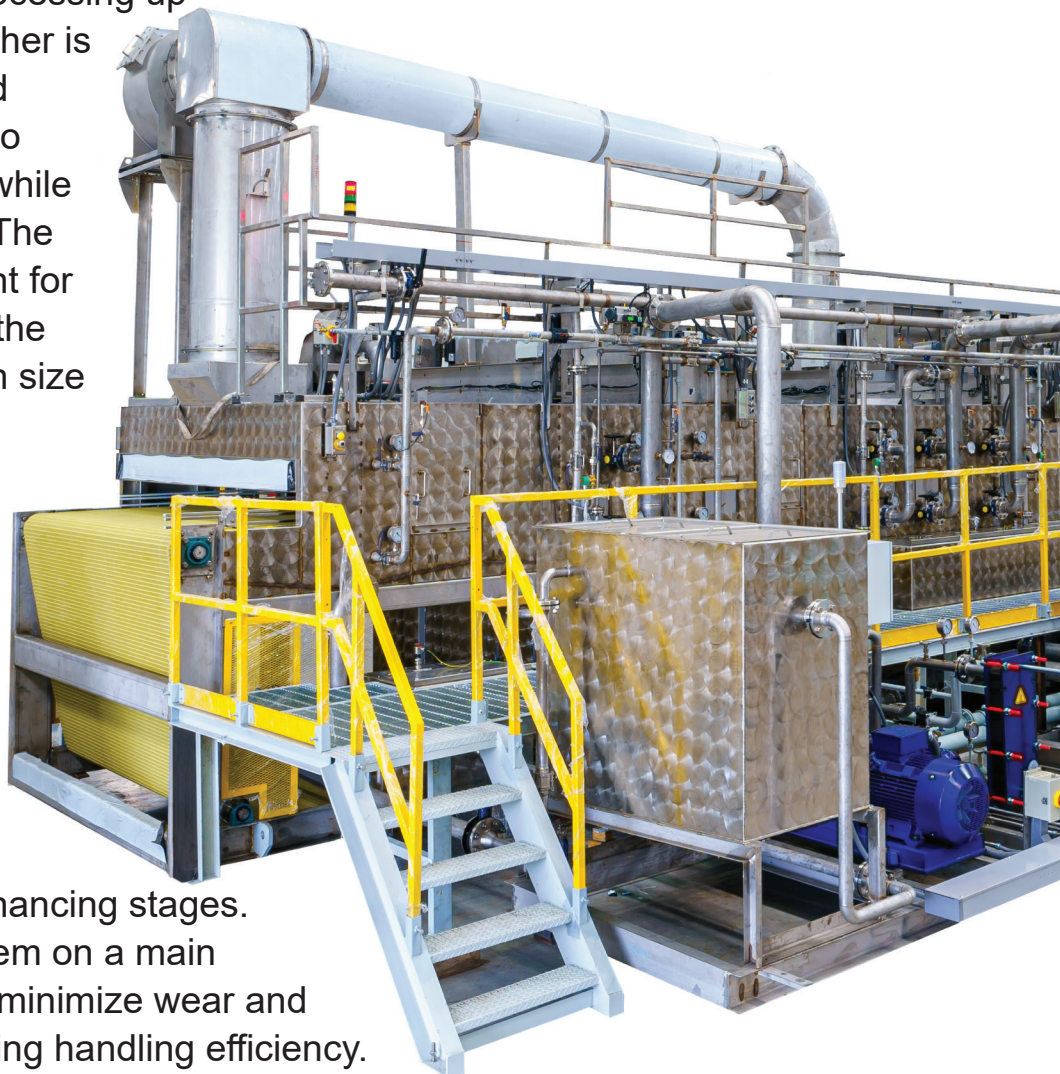


CAN WASHER

*Engineered for Energy Efficiency,
Wastewater Reduction and Process
Optimization, the Can Washer Operates
up to 6,000 CPM*

Engineered for energy efficiency, wastewater reduction and process optimization, this state-of-the-art machine features a robust stainless-steel base frame and structure while processing up to 6,000 CPM. The Can Washer is equipped with variable speed controls, allowing operators to fine-tune process efficiency while also reducing energy costs. The Automated Height Adjustment for the hold-down, operable via the HMI, facilitates seamless can size changeovers, enhancing operational flexibility.

Belvac's eight-stage modular design integrates a sophisticated counter and backflow system that includes Pre-rinsing, Pre-washing, Washing, Rinse Cycle 1, Coating Treatment, Rinse Cycle 2, De-ionizing, and Mobility Enhancing stages. Cans move through the system on a main conveyor belt engineered to minimize wear and electrostatic buildup, optimizing handling efficiency.



The integration of VFDs in the pump and blow-off systems further enhances power and water conservation. An advanced closed-loop wastewater recycling and oil coalescing system enhances water treatment efficiency by recycling water from later stages through earlier ones while also effectively separating oil particles from contaminated water, helping to reduce overall water and chemical usage.

The Can Washer's operation begins with Pre-rinsing and Pre-washing, efficiently removing oils and lubricants, thus reducing chemical usage in subsequent stages. The Washing stage employs specialized chemicals to eliminate organic and inorganic impurities, while the oil coalescer recycles wastewater to maximize

resource utilization. The multi-stage rinsing process ensures thorough removal of residual chemicals, and the application of a corrosion-preventive treatment ensures the aluminum remains pristine through pasteurization. The final stages include De-ionization to eliminate inorganic salts and the application of a Mobility Enhancer to prepare the can surface for optimal printing. Upon completion, the cans are seamlessly transferred to the Dry-off Oven, ready for the next phase of production.



SCAN ME



HIGH EFFICIENCY

- Handles up to 6,000 CPM
- Oil Coalescer
- Water Recycling System
- Eight-stage Modular Design
- VFD Pumps and Blowers

SUPERIOR DESIGN

- Variable Speed Pumps and Blowers Allowing for Superior Control over Energy Usage and Process Efficiency
- Quick-change Risers
- Adjustable Side Guards

PRECISION CONTROL

- Optimal Water Levels are Maintained and Monitored via Real-time Sensors
- Automated Height Adjustments for Hold Downs
- Variable Speed Capabilities
- Water Vacuum System

CAN WASHER TECHNICAL DATA

PRODUCTION SPEED

Rated Speed	Up to 6,000 CPM
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CONTAINER SPECIFICATIONS

Can Diameter Range	202	diameter	307	diameter
	52.8	mm	83.8	mm
Can Height Range	3.30	in	10	in
	83.8	mm	254	mm
Applicable Materials	Aluminum, Steel			

ASSEMBLY SPECIFICATIONS

Can Pack Density	95% at Maximum CPM
Product Handling	2,438 mm Wide Stainless-steel Belt or Intralox S9000 Flush Grid PVDF Belt Available
Cleaning Stages	Pre-rinse,; Pre-wash, Wash Drag-out #1; Rinse #1; Treatment; Drag-out #2; Rinse #2; De-ionizing; Mobility Enhancer
Maximum Operating Temperature	Up to 75° C
Slide Bed	Stainless 316L Steel Herringbone Conveyor Slider Bed
Washer Housing	Stainless 316L
Hold Down Conveyors	Intralox Series 9000 Flush Grid Belt with Quick Height Adjustment System
Height Adjustment for Hold-downs	Manual or Automatic
Blow-offs	Blow-offs with Quick Height Adjustments Available After Each Processing Stage
Risers	Quick Disconnect for all Risers and Headers
Washer Access	Doors Along Each Side Allow Access to the Supply Nozzles, Riser and Conveyors



DRY-OFF OVEN

The Dry-Off Oven Features an Innovative Design that Enhances Production Performance and Sustainable Operations

The Dry-off Oven features cutting-edge technology that emphasizes efficiency and sustainability, resulting in reduced operational costs and enhanced production performance. The Oven's design includes an optimized overall footprint with high-efficiency 6-inch insulated walls and 2-inch safety cool walls. With numerous innovative design elements, the Oven retains heat, reduces energy and gas consumption, and optimizes overall machine efficiency.

An integrated Water Vacuum System effectively removes excess water from the cut edge of cans as they enter the Oven. The cans are secured to the belt through a vacuum suction system which minimizes spoilage. VFD blowers feature optimized airflow control for transferring heat onto cans, further decreasing energy usage. Height requirements for can size changes can be quickly achieved by the Automatic Nozzle Height Adjustment which is controlled via the HMI.

An advanced recirculation system automatically balances process air under varying production conditions, ensuring



minimal gas consumption. Further gas and energy savings are achieved through the preheating of incoming fresh air, resulting in comprehensive end-to-end efficiencies.

Safety and efficiency are integral to the design of the ARC Dry-off Oven. The Exhaust Orifice Monitor tracks exhaust

air volume, ensuring compliance with EHS guidelines. Additionally, the Gas Flow Meter and Regulator precisely measure gas consumption and regulate burner flames, ensuring optimal process control.



SUPERIOR EFFICIENCY

- Handles up to 6,000 CPM
- VFD Fan and Blowers for Optimized Air Flow Lowering Energy Usage
- Premium Insulation Technology for Heat Retention
- Advanced Nozzle Design

REDUCED DOWNTIME

- Nozzle Height Adjustment for Faster Changeovers
- Vacuum Suction Systems for Can Stability
- Automatic Balance of Process Air Ensuring Minimal Gas Consumption

REAL-TIME MONITORING

- Exhaust Orifice Monitor Enabling Operators to Monitor Air Flow Balance and Exhaust Rates
- Gas Flow Meter and Regulator to Precisely Measure Gas Consumption and Regulate Burner Flames

DRY-OFF OVEN TECHNICAL DATA

PRODUCTION SPEED

Rated Speed	Up to 6,000 CPM
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CONTAINER SPECIFICATIONS

Can Diameter Range	202	diameter	307	diameter
	52.8	mm	83.8	mm
Can Height Range	3.30	in	10	in
	83.8	mm	254	mm
Applicable Materials	Aluminum, Steel			

ASSEMBLY SPECIFICATIONS

Can Pack Density	85% at Maximum CPM
Product Handling	4ft/6ft/8ft Synthetic Kevlar Belt or Stainless-steel Belt
Maximum Operating Temperature	200° C
Slide Bed	Stainless-steel Conveyor Slider Bed
Nozzle Lifting System	Optional Automatic
Heat Source	Natural Gas or LPG
Burner	Maxon or Proctor
Burner Turndown Ratio	30:1
Fans	Equipped with VFD, High-efficiency Motors



PIN OVEN

*The Pin Oven Features High Accessibility,
Temperature Uniformity, and Minimized
Power and Gas Consumption*

Designed to maximize ease and efficient operation, the Pin Oven has a single heat zone configuration that features temperature uniformity allowing the can to be cured in either 10, 12, or 14 passes. The cans are transported through the oven via a pin chain that maximizes can stability while curing the freshly applied labels from the Decorator. Constructed with a durable steel frame and a compact footprint, the Oven also includes a top platform to maintain the return chain pass, providing high accessibility for safe and efficient maintenance.

The front frame of the Pin Oven is designed to accommodate your bottom rim coater alongside the chain tensioning unit. An optional two-pass cooling chamber significantly reduces overall Oven heat loss into the plant. Post cooling chamber, cans are effectively discharged through the VFD Vacuum Pin Stripper, which transfers them off the pin chain and onto traditional conveyance systems. The Pin Stripper is also designed for label inspection cameras. The Oven's high-efficiency 6-inch insulated walls, 2-inch safety cool walls, and



on-demand exhaust airflow system ensure optimal heat retention and minimized energy consumption.

The Pin Oven maximizes process efficiency with VFD blowers featuring an advanced nozzle design that enhances heat transfer onto the cans while also optimizing airflow control, further decreasing energy usage. VFD Recirculation Fans help balance process air under varying production conditions ensure optimal heat retention and minimized gas consumption.

The Pin Chain Oiler, which features an option between a conventional or electrostatic type, that optimizes the life of the Pin Chain while ensuring smooth and continuous machine operation. An Automatic Bearing Lubricator enhances operational safety and minimizes maintenance requirements.

With safety and efficiency being integral design components to Belvac's machinery, the Pin Oven is equipped with monitors and regulators for improved process control.

SCAN ME



SUPERIOR DESIGN

- Single Zone, 10, 12 or 14 Pass Options up to 2400 CPM
- Compact Footprint
- Cooling Chamber
- Interlock Guarding
- Premium Insulation Technology

ENHANCED EFFICIENCY

- Advanced Air Technology for Optimal Can Stability and Less Spoilage
- VFD Recirculation Fans Adapt to Line Speed
- VFD Pin Stripper
- Pin Chain Oiler

ADVANCED MONITORING

- Exhaust Orifice Monitor Enabling Operators to Monitor Air Flow Balance and Exhaust Rates
- Gas Flow Meter and Regulator to Precisely Measure Gas Consumption and Regulate Burner Flames



PIN OVEN TECHNICAL DATA

PRODUCTION SPEED

Rated Speed	Up to 2,400 CPM
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CONTAINER SPECIFICATIONS

Can Diameter Range	202	diameter	211	diameter
	52.8	mm	66.2	mm
Can Height Range	3.30	in	7.51	in
	83.8	mm	190.8	mm
Applicable Materials	Aluminum, Steel			

ASSEMBLY SPECIFICATIONS

Oven Passes	10, 12, 14 Passes
Cooling Chamber Passes	2 Passes
Sprockets	126-tooth
Oven Tilt	10° or 13°
Configuration	Right-hand or Left-hand
Maximum Operating Temperature	260° C
Oven Dwell Time	8.5 to 13 Seconds
Heat Source	Natural Gas or LPG
Burner	Maxon or Proctor
Pin Stripper	Extended, Suitable for Camera
Fans	Equipped with VFD, High-efficiency Motors



INTERNAL BAKE OVEN

Designed for Uniform Air Flow and Temperature Distribution, the Internal Bake Oven Cures both the Interior and Exterior of the Can

Efficiently processing the cans to the required thermal profile, the Internal Bake Oven (IBO) cures both the interior and exterior coating of the can. The oven's high-efficiency 6-inch insulated walls, 2-inch safety cool walls, and on-demand exhaust airflow system ensure optimal heat retention and minimized gas consumption. The IBO was designed with sustainability in mind, reducing overall operational Greenhouse Gas Emissions.

The IBO is the final baking stage cans undergo to cure the freshly applied internal spray, over varnish and ink. To achieve this the IBO is fitted with blowers featuring advanced nozzle technology that efficiently transfer heat onto the cans properly curing them and providing exceptional can stability. All blowers are equipped with VFDs to help optimize air flow control and lower energy usage. Advanced technology balancing process air under varying conditions, ensuring minimal gas consumption.



Height requirements for can size changes can be quickly achieved by the Automatic Nozzle Height Adjustment which is controlled via the HMI.

The Internal Bake Oven, carefully engineered with a focus on safety and efficiency, incorporates advanced monitors and regulators to enhance process control. The Exhaust Orifice Monitor tracks exhaust air volume, ensuring compliance with EHS guidelines. This allows for efficient process control and helps operators to better prepare for scheduled maintenance cleaning.



SCAN ME



The supply duct can be equipped with Pressure Sensors to maintain uniform air flow under different production conditions. The Gas Flow Meter and Regulator measures gas consumption and regulates the burner flames to help ensure efficient process control. The entrance hood and exit exhaust hood captures escaped heated air helping to reduce spillage into the plant. The IBO is fitted with side walkways, stairs and handrails which allow for easier and safer maintenance to the burner box.

ADVANCED DESIGN

- Multi-zone up to 6,000 CPM
- Compact Footprint
- Advanced Nozzle Technology
- VFD Exhaust Fans Adapt to Line Speed
- Automatic Nozzle Height Adjustment

SAFER OPERATIONS

- Entrance and Exit Exhaust Hoods Capture Escaped Heated Air
- Side Walkways, Stairs, Handrails for Easier Access and Maintenance
- Uniform Air Flow and Temperature Distribution

ROBUST MONITORING

- Exhaust Orifice Monitor Enabling Operators to Monitor Air Flow Balance and Exhaust Rates
- Gas Flow Meter and Regulator to Precisely Measure Gas Consumption and Regulate Burner Flames

IBO TECHNICAL DATA

PRODUCTION SPEED

Rated Speed	Up to 6,000 CPM
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CONTAINER SPECIFICATIONS

Can Diameter Range	202	diameter	307	diameter
	52.8	mm	83.8	mm
Can Height Range	3.30	in	10	in
	83.8	mm	254	mm
Applicable Materials	Aluminum, Steel			

ASSEMBLY SPECIFICATIONS

Can Pack Density	85% at Maximum CPM
Product Handling	2,438 mm Wide Non-metallic Synthetic Belt
Maximum Operating Temperature	232° C
Slide Bed	Stainless Steel Perforated Slide Bed
Nozzle Lifting System	Optional Automatic
Heat Source	Natural Gas at 5-7 PSIG or LPG
Burner	Maxon or Proctor
Burner Turndown Ratio	30:1
Fans	Equipped with VFD, High-efficiency Motors





Service Support Available Globally

Belvac supports customers worldwide with a comprehensive range of services designed to maintain uninterrupted and efficient Washing and Curing operations throughout the entire service life of equipment. Belvac's dedication to excellence is evident not only in an extensive offering of original spare parts and retrofits but also within a knowledgeable Service team who delivers expert problem-solving solutions. Whether you are in need of maintenance support, spare parts, machine rebuilds, or kits & upgrades, Belvac's global reach ensures assistance and support are available whenever and wherever needed.

SERVICE SOLUTIONS

- **Detailed Evaluation by Qualified Technicians:** Belvac's technicians identify maintenance deficits, wear, or potential damage early.
- **Early Detection of Maintenance Deficits:** Prevent unplanned downtime and extend equipment lifespan by addressing issues early.
- **Regular Maintenance:** Regular assessments ensure optimal machinery efficiency and minimal interruptions.
- **Problem-Solving Solutions:** Immediate, effective solutions to operational challenges for seamless production.
- **Rebuild and Retrofits:** Whether you are looking to rebuild an entire Necker or a single module, services to support your specific needs are available on-site or at select Belvac locations.

TRAINING PROGRAMS

- **Vital for Machinery and Operational Success:** Proper training is crucial for effective use of Belvac machinery.
- **Customized Training Programs:** Tailored training available on-site or at Belvac locations.
- **Hands-On and Personalized Training:** Blend of classroom and hands-on training with small class sizes for extensive practical experience.

SPARE PARTS AND KITS

- **Manufactured to the Highest Quality Standards:** Spare parts meet stringent quality criteria for superior performance and longevity.
- **Ensure Reliability:** Original parts maintain equipment reliability and operational efficiency.
- **Safeguard Value:** Protect equipment value and ensure a sound return on investment with our high-quality parts.
- **Enhance Your Efficiencies:** Belvac offers a large variety of kits & upgrades for equipment.



Interested in learning more about Belvac's service, spares and kits & upgrades offerings?

Email us at sales@belvac.com to speak about your equipment today.

Ready to Learn More About Belvac's Ovens and Washer?

Contact us today at
sales@belvac.com to discover
how Belvac can help enhance your
Washing and Curing operations.

