

# VALUE ENGINEERED — BELVAC 590VE

590VE



 Belvac  
Production  
Machinery, Inc.  
A  DOVER<sup>®</sup> COMPANY

# The Belvac 590VE Necker/Flanger/Reformer System

590VE

**A**MONG BELVAC'S TECHNICAL successes is the Model 590VE Necker System. The 590VE, Value Engineered, system features the 590VE necking technology that has proven itself time and again with proven speed, reliability, and productivity. This one modular machine has the ability to lubricate, neck, flange, re-profile, reform, and inspect. The system can handle a wide range of can body sizes, with a diameter range of 202 through 211 and a length range from 307 to 710.

The 590VE models can process 1800 cans per minute respectively without defects, thanks to Belvac's streamlined continuous motion rotary technology. These proven speeds allow canmakers to keep up with high demands, meet customer's needs, and find sustainable competitive advantage. The modular design of the 590VE can accommodate up to 18 stages of necking. Additional turrets can be ordered individually and can

expand the machine's capability as your needs change. This modular design makes expansion quick and easy, and allows all the operations to be combined into a single system.

Quick change turrets are a standard feature on the 590VE, a feature which greatly reduces change-over time when adjusting can height or diameter and provide better flexibility for can sizes. This also means that changing the height and diameter requires minimal tools and training.

The turret design for the 590VE necker has been simplified with the standardization of quick change. Among the changes are a switch to the simplified Lincoln Lube Injectors and a consolidation of the air and grease manifolds. The shaft length was shortened, the casting weight was reduced, and the dual bearing design was changed to a single bearing. To make assembly and disassembly easier the gear is mounted directly to the shaft with a ringfeder and the reduced diameter air manifold now fits through the rear base. The original bi-fold guard has been re-designed to be lighter and easier to operate.

The slimmer tubing frame structure and large windows provide improved turret visibility.

The 590VE system is value engineering at it's best. Belvac has takes the proven 595 technology and made it more efficient and cost effective. The turrets have been standardized, the machine operations have been streamlined and reduced, and many components have been combined and simplified. Several components have been eliminated, and some, such as the guards, have been redesigned to use less material. These changes cut material and part costs while not only refusing to sacrifice quality but actually improving the performance and ease of use of this system.

The value improvements didn't stop with manufacturing. The standardized quick change reduces the amount of parts and time required for changeover. The adjustments can be made with common hand tools.

The 590VE platform uses a basic design for lower production volume requirements.

590VE

# Features

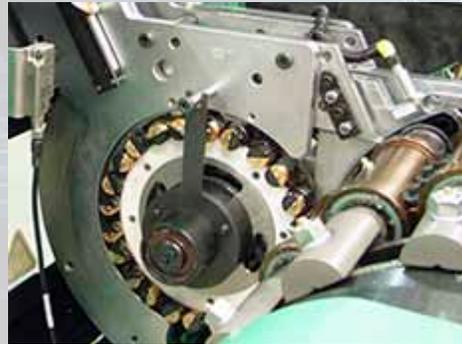
- Optional integrated Waxer infeed
- Air assisted discharge trackwork
- Vacuum transfer starwheels
- Modular design also integrates Waxer, Flanger, Reformer, Reprofilers, Light Tester, Necker and Belvac/Pressco or Applied Inspection Module
- Up to 18 stage Modular base available (20 stages with can inspection modules)
- Cam Autolube option
- Ram Bushing Lube Option (590A)
- Standard Quick Change features
- Optional Intermediate Infeed
- Proven process for reducing can bodies from 211 down to 200 neck diameters
- Interchangeable parts reduce replacement parts inventory
- Hard chrome-plated can guides and starwheels





## Infeed Trackwork

Belvac's infeed trackwork is compatible with conveying systems designed by many manufacturers. The infeed used is a constant velocity vacuum starwheel which brings cans into the machine at a steady rate and damaged cans are dropped before entering the system, preventing jams and interruptions.



## Waxer

Belvac can waxers are designed to apply oil or hot wax lubricant to the exterior of the open ends of cans prior to the necking operations. Waxing is accomplished by rolling the open ends of cans over a felt wick charged with lubricant by a series of adjustable injectors.



## Modular Necking

The Belvac modular necking system dramatically decreases floor space, can damage, labor and training by reducing the amount of can handling, eliminating the need for connecting tracks and conveyors. The reduction of costly space and power consuming trackwork, elevators and other redundant equipment offers the canmaker a simple process and significant savings while minimizing installation and platform costs.



## Reformer

The Belvac Base Reformer is essential for lightweighting in the canmaking process. The Reformer places a groove inside the dome of the can to reduce the tendency for the stand radius to unroll under internal pressure, which can allow the dome to collapse. This tooling assembly maximizes dome reversal and drop strength giving can-makers the ability to use thinner coil stock. In addition, reforming allows improved inside spray with more reliable coverage.



## Reprofiler

The Belvac Base Reprofiler reworks the outside profile of the base of the can providing stackability of 206, 204 and 202 dome diameters without the necessity of changing domer tooling in can body makers, making it ideal for swinglines. In addition, a can designed for reprofiling allows improved inside spray with more reliable coverage.



## Light Tester

The Belvac LED Light Tester uses proven SENCON technology to provide high speed light inspection for pin holes and gross split flanges with rejection rates of 100% on cans with 0.002 in. (0.051 mm) diameter pin holes. The cans are consistently rejected by an air jet eliminating unreliable mechanical rejection devices.



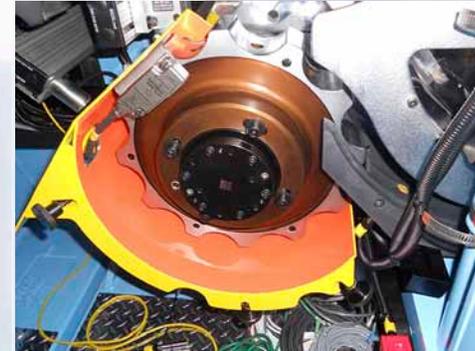
## Inspection

Automated, on-line inspection of the inside of beverage cans at production speeds is a reality with Belvac's Vision Inspection System (Pressco or Applied). The Belvac Vision Inspection System includes BMID and is capable of detecting the smallest of defects..



## Flanger

The Belvac Flangers incorporate design engineering improvements that are essential for today's demanding flange width requirements for beverage and food cans. The Flanger has radial or axial spin heads that improve the formation of the flange and provide consistent flange width to meet demanding ultra-light can specifications.



## High Speed Sorter

The High Speed Selective Sorter allows for the removal of sample cans at full production speed, without slowing down the line. This eliminates the production loss that results from jogging the machine to remove samples. The system also communicates with the light tester and inspection system and removes detected reject cans.

# Technical Specifications

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Can Body Size Range		202 (52.8mm) to 211 (66.2mm)		Machine Overall Dimensions	Length	[31" (787.4mm) + 27" (685.8mm) x # Modules]	
Can Neck Size Range		200 (50mm) to 209 (62mm)			Width (Non-Cradle Mount)	106" (2692mm)	
Maximum Can Height		7.51" (190mm)			Width (Cradle Mount)	131" (3327mm)	
Minimum Can Height		3.30" (84mm)			Height	99" (2514.6mm)	
Number of Pockets per Working Turret		12		Maximum Neck Shoulder Dimension	Approx. 0.81" (20.6mm)		
Number of Pockets per Transfer Turret		12		Maximum Neck Length	0.750" (19.05mm)		
Pocket-to-Pocket Integrity		Yes		Minimum Neck Length	0.23" (5.8mm)		
"Active" Pockets (Linear		12		Effective Push Cam Stroke (Less BIS) Max	1.750" (44.4mm) (RDC)		
Shaped Can Option Capable		Not Applicable		KO Cam Stroke Max	0.917" (23.3mm) (RDC)		
"Active" Pockets (Recirculation)		Not Applicable		Cam Dynamics	Reduced Dynamics Cam (RDC)		
Rated Speed (CPM) (Linear Machine)	Model: 590	1800 CPM (150 RPM Max Turret Speed)		Cam Style	Matched or Differential Velocity		
	Model: 590A	1800 CPM (150 RPM Max Turret Speed)		Cam Working Arc	180 degrees		
Rated Speed (CPM) (Recirculation Machine)	Not Applicable			Diameter Change Capability	One QC parts kit per can diameter		
Required Utilities: Dual Compressor Setup	Pressure Requirements	Flow Requirements		Height Change Capability	"Quick Change"		
	50 psig (3.4 BAR) Process Air 80 psig (5.5 BAR) Brake Circuit	<ul style="list-style-type: none"> <li>• 80 SCFM (38 SLPS) per Necking Turret</li> <li>• 40 SCFM (19 SLPS) per Flanger or Light Tester Turret</li> <li>• 50 SCFM (24 SLPS) per Reformer or Reprofiler Turret</li> </ul>		Ram Assembly Style	Cast Iron Bushing with Dual Cam Followers		
Required Utilities: Single Compressor Setup	80 psig (5.5 BAR)	<ul style="list-style-type: none"> <li>• 80 SCFM (38 SLPS) per Necking Turret</li> <li>• 40 SCFM (19 SLPS) per Flanger or Light Tester Turret</li> <li>• 50 SCFM (24 SLPS) per Reformer or Reprofiler Turret</li> </ul>		Main Shaft Style	Horizontal		
	Required Utilities: Inspection Blow-Off (Lt/V)	80 psig (5.5 BAR) minimum	100 SCFM (24 L/s) Per Blow-Off		Guard Style	Aluminum Extruded Modular Bi-Fold	
Required Utilities: Vacuum	8-10 In/HG @ 30 SCFM (203mm-254mm HG @ 14.2 SLPS)			Main Drive Motor and Gearbox	Single or Multiple Drive: Configuration Dependent		
				Gearbox	Helical Bevel		
				Drive Gearing	Spur Gear, Inline Steel Oil Bath Lubed		
				Transfer Shaft Assembly	Quick Change Modular		
				Blowers	Floor Standing		
				Infeed Star Wheel	Quick Change Modular		
				Waxer	Optional, model 480, hot wax or oil, gear driven		
				Transfer Starwheel	Quick Change Modular		
				Discharge Starwheel	Quick Change Modular		
				Face Seal Manifold	Modular FSM with HyComp Lining		
				Main Drive Side Bearing	Tapered Roller Bearing		
				Pusher Side Bearing	Radial Roller Bearing		
				Auto Lubrication	Not Standard on 590VE		

# ABOUT BELVAC

*Belvac is the clear choice for sustainable competitive advantage and the best option for new and innovative manufacturing processes.*

**B**ELVAC IS THE PREFERRED CHOICE OF THE world's two piece can makers and the most trusted source for canmaking technology worldwide. Belvac leads the industry with its design and production of continuous motion rotary technology. Belvac provides beverage canmakers with high-speed trimming, necking, base reprofiling and reforming, bottom rim coating, flanging and inspection technology. Belvac has enabled their customers to steadily increase line speeds and improve quality and productivity, while significantly reducing materials costs. Belvac customers have a sustainable competitive advantage in their market.

With nearly half a century of experience developing cutting edge machinery and almost 100% of its machines still in use, Belvac is the best option for new and innovative manufacturing processes. A testament to Belvac's dedication to quality, defect free products and precision engineering is that nearly all their machines are still in service — the oldest was made in the 1970s. Belvac engineers design their machines with industry leading precision. This technology is backed by Belvac's highly trained engineers who have installed and serviced machines in 49 countries.



Belvac...*the* choice for all your can making needs.

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