

# INTELLIGENT MANUFACTURING SYSTEM & HIGH SPEED SORTER™

IMS & HSS



Pictured:  
High Speed Selective Sorter (HS3)

# INTELLIGENT MANUFACTURING SYSTEM & HIGH SPEED SORTER™

IMS & HSS3

**F**OR OVER THIRTY YEARS Belvac has supplied the Metal Container Industry with state-of-the-art manufacturing solutions.

Belvac's **Intelligent Manufacturing System** and the Belvac **High Speed Selective Sorter™** were designed to optimize can plant productivity as well as profitability.

Integrated into your current necking process, these innovations introduce real-time dynamic monitoring of the plant's processes including rejects associated with bodymakers, sprayers, conveying systems and Necker along with smart sampling of containers at full process speeds.



# INTELLIGENT MANUFACTURING SYSTEM

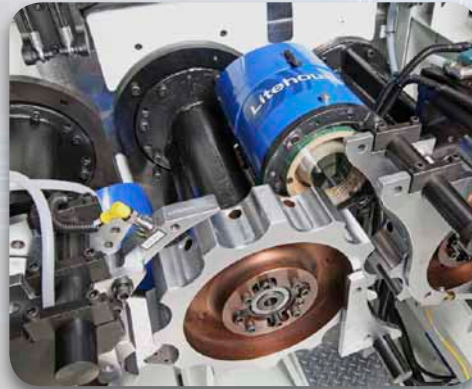


The **Belvac Intelligent Manufacturing System** is a combination of hardware and software working in tandem with the necking process to create significant value for Metal Container Manufacturers.

With Belvac's industry expertise, vision system defects are grouped and prioritized to assist the plant in locating the root cause of the spoilage.

Dynamic quality control and sampling reduces downtime and provides intelligent trouble shooting of up stream problems.

Real-time trending alerts the operator of "out of control" conditions based on SPC charts. The Operator can quickly view Pareto charts that point to the biggest contributor of defects. Real-time and historical data can be compared to understand trends.



Optional hardware associated with the **Intelligent Manufacturing System** consists of:

- BODY Maker ID Camera
- Color dot Correlation Camera
- Vibration sensors
- Light tester
- And High Speed Selective Sorter



The proprietary software of the **Intelligent Manufacturing System** performs:

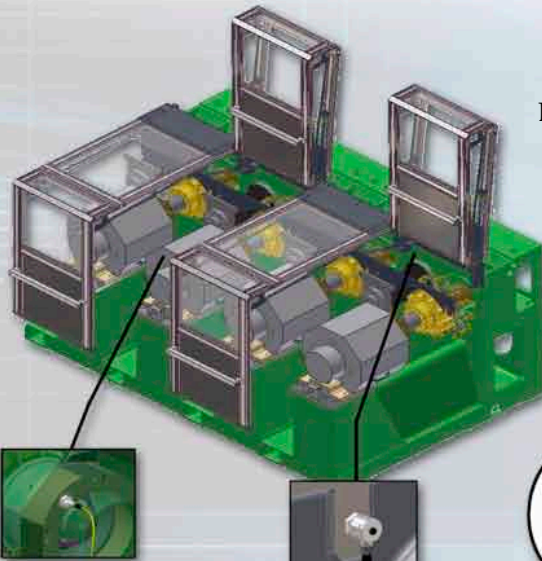
- Remote data collection
- Statistical process analysis
- Product quality analysis
- As well as real time machine performance analysis
- Email or text alerts for configured alarm conditions

# Optional Live Remote IMS Manager Upgrade

IMS & HSB



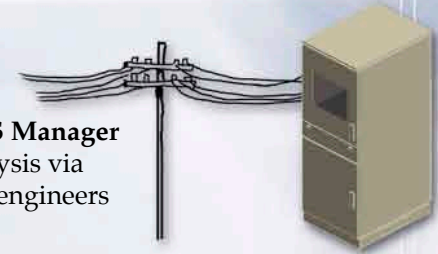
Machine spoilage and operation data can be uploaded to Belvac's cloud server. Customers can log in securely and view their machine's data anywhere they have access to the internet.



**Integrated Accelerometers**  
Real-time analysis for early detection of Mechanical Failure

**User Friendly Operator Interface**  
CPU Monitor Combination

**Live Remote IMS Manager**  
Real-time analysis via qualified Belvac engineers



Real-Time Pareto Charting

Real-Time Vibration Analysis

On-Machine Manuals

Proprietary Algorithms To Mine Data and Alert Customer

Email, SMS Capable

$$-\frac{\hbar^2}{2m} \frac{d^2 \psi}{dx^2} = E \psi$$

Customer specific rules can be created to stop the machine and/or notify personnel through email

# Benefits of the IMS



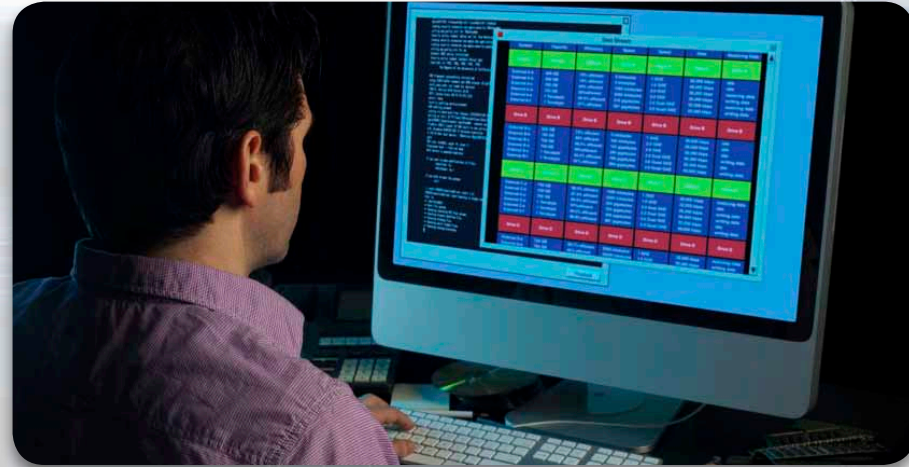
## Value-Added

The most significant benefit of the IMS, when added to your Belvac necker, is the rapid return on investment and the long term increased margins on your can making operation. This is delivered through higher through put, reduced material waste, planned maintenance programs, and reduced trouble-shooting downtime.

By reducing: down time through automatic troubleshooting, spoilage of average incident of a major defect, costs related to major defects incident (sorting, resampling), maintenance downtime, downtime high speed sampling and spare parts/inventory, you can boost profits.

## More Benefits

- Track container quality by Bodymaker ID
- Trend container quality by can count and Bodymaker ID
- ID can drop or reject issues by pocket and turret



- Identify container drop out by Bodymaker and Necker Pocket by correlation
- Inspect for missing IC coating with spray dot correlation ID guns and gun cleaning
- Track container loading issues by cans and turret pocket correlation
- Able to ID Bodymaker defects by Bodymaker trends quickly for rapid response to issues without reduced downtime to troubleshoot problems
- Reduction of line down time to resolve issues without having to shut down the Necker to troubleshoot

## Summing it Up

The **IMS** provides early warning of machine and process changes that could lead to catastrophic failure or product defects.

Devices imbedded in the **IMS** will provide immediate diagnostic and analytical performance data to an operator and/or maintenance personnel within a can plant, Belvac, or even at the company headquarters.

On machine access to Belvac manuals, assembly drawings, and troubleshooting diagnostics.

# HIGH SPEED SORTER™

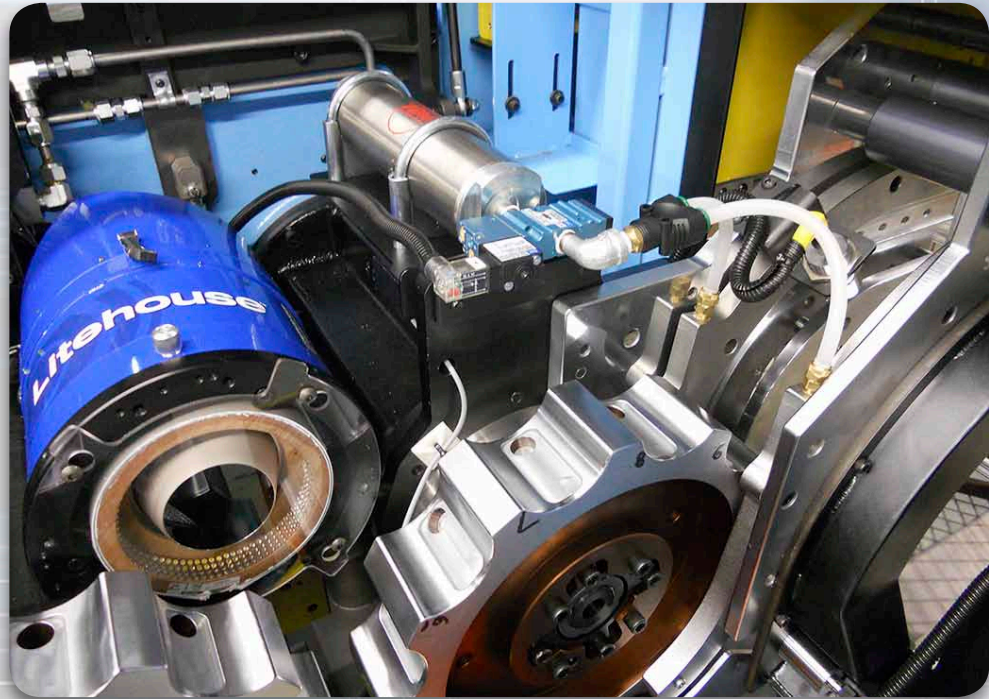


The Belvac The High Speed Selective Sorter™ (HS3) is a Necker add-on to sample, sort, or facilitate correlation without interrupting normal production speeds.

The High Speed Selective Sorter™ is Driven by Belvac Intelligent Technology™

## Software

Software used in the HS3 system is intuitive and provides the operator a number of options in container sampling. The operator has the choice of configuring which samples will be selected, from which Necker pockets these samples will come as well as how many cans to sample. The system can be programmed with a repeat schedule for routine sampling. Sampling options are configured via the operator interface and can be stored as recipes for future use.



System configuration can be accessed through the interface eliminating the need for additional calibration equipment when calibration. Plant Supervisory Control and Data Acquisition

Systems (SCADA) can be used to remotely configure sample requests based on QA scheduling and process driven quality sampling requirements.

# HIGH SPEED SORTER™

## Vision Systems

Integrated 595 Light Testers or Vision Systems which are part of the die necking modules can be linked electronically with the HS3 and provide intelligent sampling of quality related issues. When BMID (Body Maker Identification) is part of the Vision package, the HS3 can be configured to selectively target and sort specified BMID containers for inspection purposes. Tooling issues can also be monitored by selectively sorting a single pocket from the flow of cans passing through the machine, not imposing further damage to the sampled can.

## Mechanical Components

The mechanical module of the HS3 are integral to the Necker discharge track work. The container is transferred from the process turret into the primary transfer starwheel; then to the sorter starwheel, without interrupting the production process or damaging the container. The HS3 module can be retrofitted to existing modular or fixed-based Belvac Neckers.

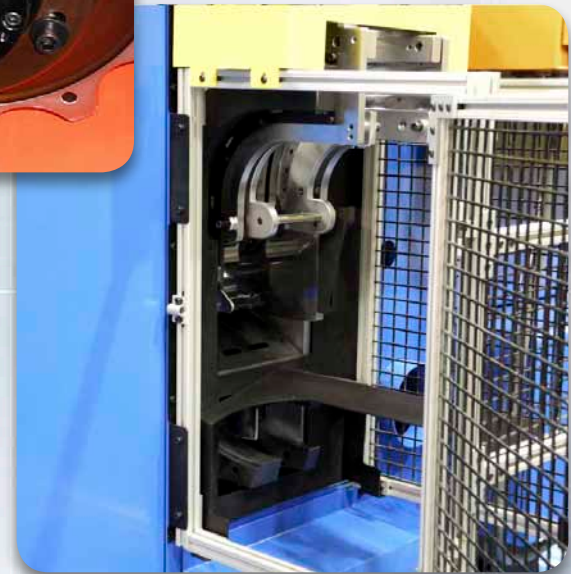
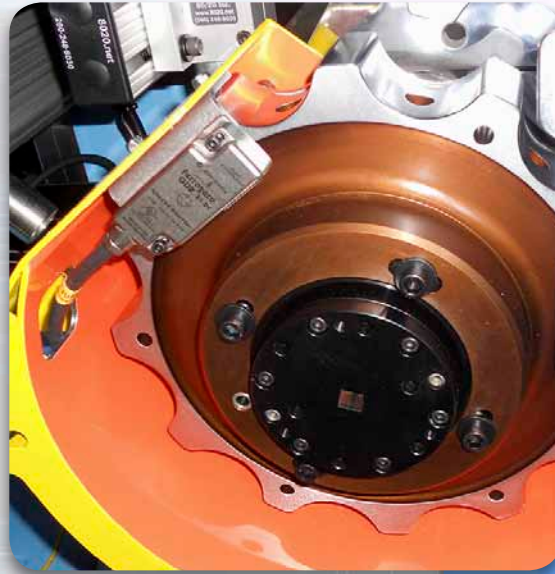


# Benefits of the HS3™



## The Benefits of the dynamic sampling of the Belvac High Speed Selective Sorter™

- Quality control on beverage lines will no longer require stoppages to take samples
- Avoid starving back-end equipment of cans
- Eliminate spoilage associated with machine start-up after sampling
- Cans are not damaged during sampling
- Dynamic high speed sampling is more accurate
- Increased production output
- Unlimited sampling options with pocket-to-pocket integrity
- When combined with IMS and BMID vision HSSS can sort by BMID and spray color dot





# 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.

**Belvac USA**

237 Graves Mill Road  
Lynchburg, VA 24502  
Toll Free: 800.423.5822  
Tel: 434.239.0358  
Fax: 434.239.1964  
info@belvac.com

**Belvac Europe**

Tylova 1/57  
301 00 Plzen  
Czech Republic  
Tel: +420.378.011.322  
Fax: +420.378.011.325  
sales-europe@belvac.com

**Belvac Middle East FZE**

JAFZA Business Plus  
Warehouse No. S3B5WH01  
JAFZ South, UAE, PO Box 18334  
Tel: +971.488.08.337  
Fax: +971.488.07.838  
sales-europe@belvac.com

**Belvac China**

Building No. 4  
Hua Sheng Technology Area  
No. 7 Chun Jui Road  
Suzhou Industrial Park  
Suzhou, China 215122  
Tel: +86.512.62890910  
Fax: +86.512.62890911  
info@belvac.com

 **Belvac  
Production  
Machinery, Inc.**  
A **DOVER** COMPANY

**Corporate Headquarters**

237 Graves Mill Road  
Lynchburg, VA 24502 USA

IMS & HSB