



# PBM Plastics

## Designed for Success

### Results

- 60 percent increase in machine productivity
- 20 percent savings on cycle times
- Drastically reduced training time
- Graphical interface that is as easy to use as the Internet
- More accurate process monitoring
- Overall startup time reduced by 60 percent

*"The GE automation solution helps us keep our costs down, so we can provide quality and value to parents. It is also helping us meet the productivity and volume goals that keep costs down and allow for affordable products."*

**Adam Burke**  
**President**  
**PBM Plastics**

## GE Fanuc Helps PBM Deliver Cost-Effective Baby Bottle Liners for America's Fastest Growing Infant Formula

### Automation Increases Machine Productivity 60% to Help Drive Savings

Helping families save up to \$500 during their baby's first year, PBM Products delivers America's Store Brand Infant Formulas™, the fastest growing formula in America. America's Store Brand Infant Formulas reduce the cost of formula by as much as 40 percent and are now available at major retailers under the stores' corporate brand or own brand, right alongside low-cost, durable baby bottle liners from PBM-subsidiary PBM Plastics. PBM Plastics prides itself on producing dependable products at a price that families can afford and ensures efficient, quality manufacturing with the help of a new automation solution from GE Fanuc Automation, a unit of GE Infrastructure.

### Formula for Success

Liners from PBM Plastics offer parents an easy method of feeding their babies. Additionally, the liners minimize the chance that a baby will swallow air while nursing – which helps to decrease upset stomachs and unhappy babies. And, the best part about the PBM liners is that they provide equal quality to families at 20 percent less cost.

Manufacturing plays a key role in liner quality and cost effectiveness, and PBM recently implemented enhancements to its plant processes. According to Adam Burke, president of PBM Plastics, the company



was looking for new ways to increase accuracy and uptime on three of its drop-in baby bottle liner melt-phase forming machines.

"We wanted an automation solution that would accurately collect downtime data for faster troubleshooting and improved productivity," Burke says. "We also needed faster control technology to properly handle machine components and drive down manufacturing costs even more."

With the help of Charlottesville, Va.-based GE Fanuc, PBM designed and installed a complete machine-retrofit solution that features Machine Edition\* software, running on a ControlStation industrial PC and connected to VersaMax® I/O. With three retrofits completed, PBM has virtually eliminated troubleshooting time and has already experienced a 60 percent increase in machine productivity and a 20 percent savings on cycle times. The new system has also drastically reduced training time with an interface that is as easy to use as the Internet.

"The GE automation solution helps us keep our costs down, so we can provide quality and value to parents," Burke explains. "It is also helping us meet the productivity and volume goals that keep costs down and allow for affordable products."

#### More than a One Liner

To manufacture plastic baby bottle liners in four-ounce and eight-ounce sizes, PBM employs its Melt Phase Forming system, a patented technology that creates retortable, flexible or rigid plastic containers, and reduces production costs and scrap. Within the technology is a high-volume production system capable of producing uniform thin-wall, deep draw barrier containers, or in this case, baby bottle liners.

Combining the advantages of thermoforming, injection molding, and blow molding, the Melt Phase Forming process allows for multi-layer stretching without violating the final product's integrity. By using discs or billets, the process provides significant material savings for clear barrier products – like baby bottle liners – and for form/fill/seal applications, producing a maximum 20 percent scrap for round containers, as compared to a typical scrap rate of 50 percent or higher using other processes.

Once PBM enhanced its thermoforming process, the company turned to GE to improve the thermoforming equipment itself. "The GE engineering team worked directly with us to provide a turnkey solution that allowed us to focus on our core competencies—exceptional product quality and value," Burke states.

Employing an object-oriented, ActiveX "shell," the Machine Edition software features a common user interface to host multiple software applications. All software components share a common database and common objects, including logic, scripts, graphical panels and data structures. Therefore, once PBM created a variable, the team could reuse it in other software environments. With a single database throughout, Machine Edition variables and I/O points are easily accessible – regardless of which software component is used – and all development and runtime platforms



access the database with no importing or exporting of data between systems.

One of the software's interoperable components, View, provides PBM the needed tools for graphical visualization and control of the thermoforming machine. View is a machine-level HMI equipped with tools that graphically represent and control the machine. The VersaMax I/O is tied directly into View's logic, allowing it to produce a graphical flashing alert on the ControlStation industrial PC interface when an area of the machine is down. The operator can then identify and address critical machine events, such as sensor faults, and quickly resume production.

Before selecting the graphical ControlStation interface, PBM relied on a text box interface and manual drive investigation for troubleshooting. When a thermoforming machine shut down, an operator would have to go into a drive manually to determine the cause. "The graphical user interface allows the operator to interact with the machine and view how the machine is responding to commands, instead of just blindly telling the machine what to do," Burke explains. View also logs the events to a database that aids PBM resolving downtime issues. From the touchscreen ControlStation, operators can simply select the section of the machine they wish to access, and with a touch of the screen, they can review and change setpoints for variables such as temperature, feed rate, forming, and offloading.

In addition to troubleshooting advantages, PBM has realized a significant cycle time improvement, which Burke attributes to more accurate process monitoring and faster startups using automated functions previously performed by the operator. "Before, the operator had to manually home all the different areas of the machine, from material feed, to heating, to forming," Burke says. "Now, Machine Edition initializes and homes all areas of the machine upon startup and has reduced the overall startup time by 60 percent."

\* Part of Proficy Intelligent Production Solutions from GE Fanuc.

As well, PBM anticipates its engineering skills and ability to upgrade will be greatly enhanced. Machine Edition software's simple logic design and intuitive drag-and-drop functionality have already improved PBM's ability to learn the system and to enhance and modify it as needed. Operator training time has also been significantly reduced because the software is so easy to use. As a result, PBM plans to assign one operator to two machines and double operator productivity.



### **Baby, You're the Greatest!**

While improving the efficiency of its bottle liner machines has been a great source of pride for PBM, what the company is most proud of is the bottle liner product itself. According to Burke, PBM's bottle liners exemplify exceptional rim strength and overall liner strength attributed to heating the plastic to a semi-liquid state during the forming process. (The rim is the portion of the liner that rests on the rim of the actual bottle.) PBM also integrates leak-test technology into the production line, so every liner the company produces in a typical day is tested.

"Our liners are equal to most national brands, but cost about 20 percent less," Burke says. "The baby can throw the bottle or drop it, and the liner will stay intact. Parents often cannot believe they are getting a product of this quality at a better price."

Currently, PBM is linking the completed bottle liner machines into its business-level network to provide real-time reporting and equipment analysis. A DDE links data to a Microsoft Excel spreadsheet from which users can track or reference downtime by area, cause, shift, operator, and time period.

### **About PBM Plastics**

PBM Plastics, located in Newport News, Virginia, is the technology leader in the manufacturing of thin wall, deep draw thermoformed plastics. The company's patented Melt Phase Forming system is the most economical and effective plastic container manufacturing system available. For more information, visit [www.PBMPlastics.com](http://www.PBMPlastics.com).

### **GE Fanuc Automation Information Centers**

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### **Additional Resources**

For more information, please visit the GE Fanuc web site at:

[www.gefanuc.com](http://www.gefanuc.com)

