

FORMING

Always attentive to the needs and demands of its clients, and in consideration of the costs behind even the smallest mistakes in the glassmaking sector, Quantum has the Total Forming Analysis System. The TFA™, as it is called, is an automatic gob weight control and process control system that responds to the needs and demands of global-based glassmakers, fillers, and consumers alike.



QUANTUM ENGINEERED PRODUCTS

real-time forming

process control with

automatic

gob weight control



that is produced. This is why a state-of-the-art system, such as the TFA™, is crucial in the effort to keep glass as the best packaging choice. If glassmakers are to continue to compete against non-glass packaging, the industry must increase productivity, decrease energy consumption and lessen their environmental impact. These goals can be met with the assistance of a quality process and gob weight controller like Quantum's TFA™.

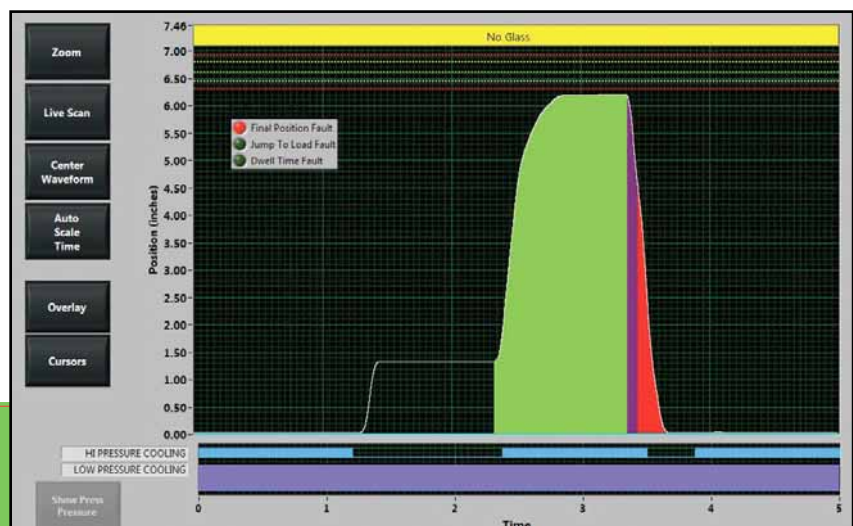
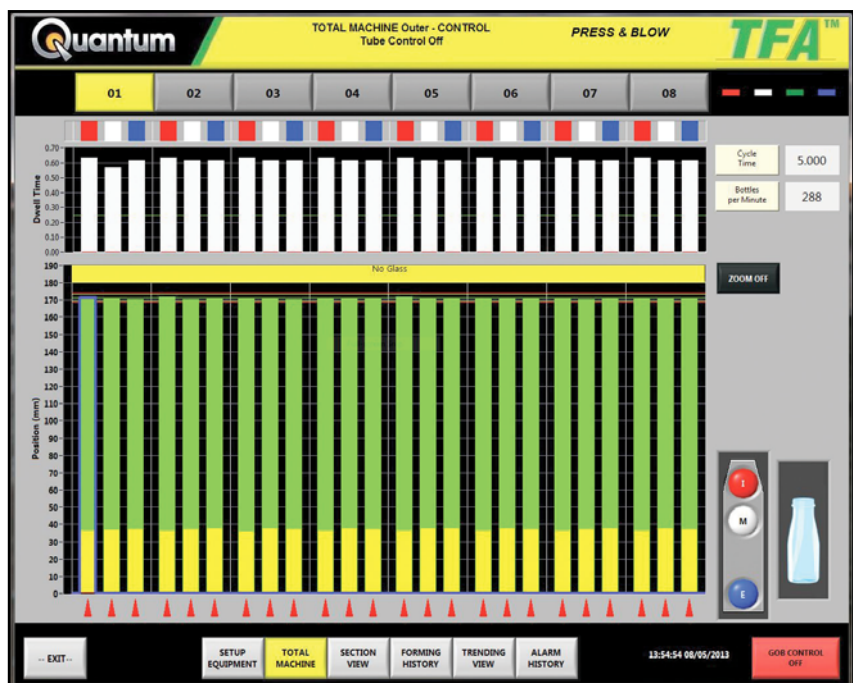
PROCESS CONTROL PERFORMANCE

Tens of billions of dollars are being lost every year to unexpected downtime in global manufacturing, and the glass container industry is no exception.

It's hard to imagine another industry where a double-digit loss of production is acceptable, but still we see many glass container manufacturers operating at a 10 per cent loss. Machine downtime, caused by mechanical problems, is a large contributor to the industry's lost production. Quantum's TFA™ aims to overcome the challenges associated with machine downtime and create a more efficient forming process. The TFA™ Process Controller boosts pack to melt ratios and reducing wasted glass by quickly identifying mechanical malfunctions during blank side forming. The TFA™ is a real-time Forming Process Controller with Automatic Gob Weight Control. This system is the only real-time

Quantum Engineered Products, Inc., a US-based company, is continuing to advance its Total Forming Analysis System. The TFA™ is an automatic gob weight control and process control system that has been operating behind the scenes in some of the world's most successful glass container manufacturing plants for some time now.

In response to the ever increasing demands for light weighting and container quality, Quantum has developed this blank side forming system that will satisfy the needs of glassmakers, fillers, and consumers. There is very little room for mistakes to be made in the glass container industry, especially when you consider how costly production defects can be, more so, if they reach the consumer. Manufacturers put their reputation, and the industry's, on the line with every container



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process controller that combines full stroke linear plunger movement with the intended timing commands of the IS machine. Having Timing Signals overlaid with the linear movement of the Cylinder, enables the user to see what happens before and after each timing event. By visually displaying machine timing, the operator can make adjustments to the timing or the machine itself that will allow for correction of mechanical failures, faster production speeds, and the elimination gaps in the timing cycle. Forming irregularities that lead to container defects are recognized by the Cylinder Performance Monitoring System (CPMS™) and shown on the display screen of the TFA™. The user can recognize loading issues, mechanisms out of alignment, air pressure differences, failing or broken equipment and quickly make adjustments to the corresponding cavity. The Total Forming Analysis System recognizes forming imperfections in minutes not hours. The types of problems that used to be corrected by trial and error can now quickly be addressed prior to excessive glass and energy waste. The TFA™ removes the guess work from blank side forming and, through automation, enables inexperienced operators to accomplish high pack to melt ratios that were once only achieved by an experienced bottle maker. Instead of

conventionally testing finished containers after they have been formed and cooled, then trying to determine what went wrong in the forming process, the Quantum system can provide immediate real time data while each container is being formed. The availability of such data allows IS machine operators to make quicker adjustments, resulting in higher quality containers and improved yields. The end result is increased profitability for glassmakers.

AUTOMATIC GOB WEIGHT CONTROL

Through automatic gob weight control, the TFA™ allows for a decrease in operator intervention from the blank side forming process. The TFA™ uses the final position value of each electronically enhanced cavity to determine if a weight adjustment needs to be made to the gob. By incorporating the final position of the plunger into a volume displacement equation, the TFA™ automatically adjusts the tube height or each individual needle, creating a gob weight controller with accuracy of +/- .5 grams on a beer production line. The final position values of the plunger are compared to a set point generated by the average of previous cycles. The TFA™ Weight Controller will successfully control container weight in NNPB 70mm, 83mm, 90mm and even 120mm process.

OTHER FEATURES AND BENEFITS OF THE SYSTEM

Quantum's TFA™ incorporates many value added features that distinguish it from other similar systems on the market. One key feature of the system is the fully enclosed sensor. The full stroke sensor is not exposed to oil, excess heat or glass particles, which can cause damage creating unreliable signals and data. The TFA™ also incorporates a hot end automatic rejection feature that can reject containers based upon final position of; plunger faults, loading faults, dwell time faults, and full down faults (blow and blow only). Another important feature of Quantum's TFA™ is an easy to use operator interface. The system is touch screen operated and because of specially designed software the learning curve to use the system is minimal. ■

 **Quantum**

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