



Glass Impact Testing at PGT's North Venice Production Facility



## Customer Success Story

# PGT Industries North Venice, Florida



A Control Screen for PGT Insulated Glass Assembly

*"ICONICS Productivity Analytics, in addition to identifying issues, has been used to drive a cultural change in the company [...] This system has been a great success and the production capacity found to exist in the current plants has exceeded any expectation."*

**Jon McArthur**  
Manufacturing Technology Engineer  
PGT Industries

### About PGT Industries

PGT® (pgtindustries.com) pioneered the U.S. impact-resistant window and door industry and today is the nation's leading manufacturer and supplier of residential impact-resistant windows and doors. PGT is also one of the largest window and door manufacturers in the United States. Founded in 1980, the company employs over 1,000 at its manufacturing, glass laminating and tempering plants, and delivery fleet facilities in Florida. Sold through a network of over 1,300 independent distributors, the company's total line of custom windows and doors is now available throughout the eastern United States, the Gulf Coast and in a growing international market, including the Caribbean, South America and Australia. PGT's product line includes PGT Aluminum and

Vinyl Windows and Doors; WinGuard® Impact-Resistant Windows and Doors; PGT Architectural Systems; and Eze-Breeze® Sliding Panels. PGT Industries is a wholly owned subsidiary of PGT, Inc. (NASDAQ: PGTI).

### ICONICS Software Deployed

PGT Industries selected ICONICS Productivity Analytics visual OEE/KPI/analysis software as their manufacturing intelligence system and GENESIS32™ HMI/SCADA software suite (including AlarmWorX32™ Multimedia alarm management, WebHMI™ Web-based real-time automation, and ScriptWorX™ 2010 creation/management of Visual Basic for Applications [VBA] scripts) as their system to integrate all their automation equipment. The manufacturer also chose BridgeWorX™ real-time workflow for data bridging and ReportWorX™ enterprise reporting/charting/analysis, as well as BACnet Connector, OPC Data Mining, Unified Data Manager and Unified Web Interface technologies.

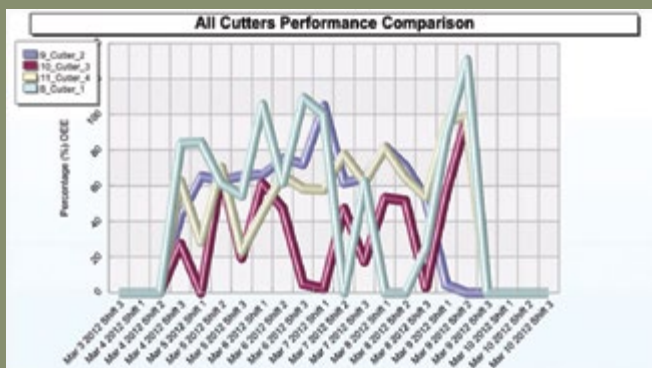
## Project Summary

PGT Industries runs its glass manufacturing operations from its North Venice, Florida plant. A few years ago, the company projected that demand would soon exceed production capacity and, as a result, constrain revenue growth. In response, they developed a capital plan with the intent to expand their manufacturing operations. However, prior to executing the capital expansion, the Vice President of Operations decided to test the assumptions about current capacity by installing and applying a productivity analysis tool.

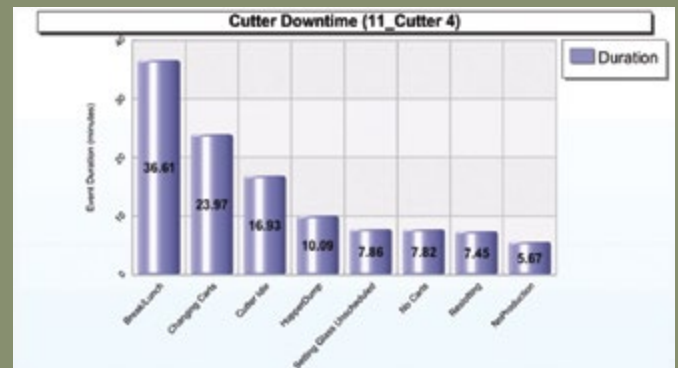
ICONICS Productivity Analytics software was applied to the 12 most critical production assets to analyze the

time, accurate data to the plant operators and upward through the organization. Any deviation from the ideal production rates is seen immediately. Any occurrence of downtime that exceeds a certain limit is immediately made known throughout the company so that all available help is quickly redirected to the issue.

PGT had considered other companies' offerings but ultimately decided on ICONICS, due to its "having all the needed tools and, most importantly, its ease of configuration". PGT's manufacturing technology team was able to quickly understand and configure the software and get a system online. Competitor products were deemed just too complicated.



*Performance Comparison of Glass Cutters*



*Productivity Analytics Allows for Auditing at the Corporate Levels*

Overall Equipment Effectiveness (OEE) of the current plant. The software's drilldown and correlation capabilities were used to zero in on sources of loss of OEE, focusing on three OEE factors: availability, quality and performance. Prior to installation of the software and the analysis performed, most inefficiencies were reported as equipment capacity problems. Once the data analysis tools were online, numerous immediate issues were visible to all levels of the organization. These included production start-up meetings greatly exceeding allocated time, sporadic loading cart availability, improper material layouts causing gaps on conveyors to furnaces, and unplanned idle time.

Once these issues were uncovered with the assistance of Productivity Analytics, PGT created work teams to swiftly remedy the causes of downtime and production gaps. Productivity Analytics continues to deliver real-

## Integrations

A critical need of the system was the ability to integrate data from many existing equipment systems, so that all interrelated issues could be seen and analyzed. The ICONICS system, including Productivity Analytics, integrates with the following equipment and data:

- Think and Do Live PC Control – On Glass Tempering Ovens
- Allen-Bradley MicroLogiX – Glass Laminating System
- ASCII Text Files, Read On Schedule – Eastman Laminate Cutters
- Rockwell RSView32 – Insulated Glass Assembly
- Bechoff Twincat – Insulated Glass Assembly
- Microsoft SQL (Many Databases) – Glass Cutters

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- Moxa PLC – Insulated Glass Assembly
- CTC PLCs – Colonial Grid Production

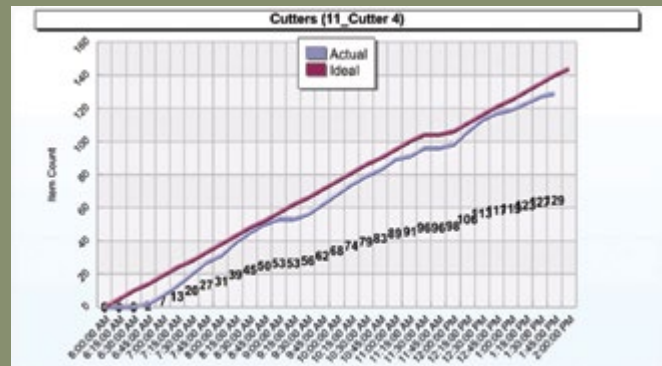
**Benefits of the System**

Now that PGT has initiated its OEE program, including the implementation of Productivity Analytics throughout all processes, the necessary data is continuously reported, in real time, to all levels of management. Over the course of a year, improvements were identified and implemented that resulted in an increase in production output using current assets. The planned plant expansion has been canceled, resulting in major savings for the company. In addition, after the resulting improvement programs

Productivity Analytics, in addition to identifying issues, has been used to drive a cultural change in the company. OEE and Downtime charts are now viewed by each line supervisor and by all levels of management. OEE is a subject discussed in almost all operations meetings and is included in all objectives. This system has been a great success and the production capacity found to exist in the current plants has exceeded any expectation. PGT has now commissioned the expansion of the Productivity Analytics implementation from the initial 12 assets to approximately 80 assets over three years.



*A PGT Web-based Portal, Integrated with ICONICS GENESIS32™, Showing Current Alarms*



*ICONICS Productivity Analytics Showing a Real-time Shift View at PGT*

were implemented (as identified with Productivity Analytics), the plant has achieved improved production rates, running only five days a week instead of seven to meet current demand. This resulted in an approximate 20 percent decrease in labor and energy cost.

**Conclusion**

Productivity Analytics helped provide transparency of undiscovered losses of production capacity. It is now being used as the source of benchmarking and performance measurement to drive a culture built around Overall Operational Effectiveness. With ICONICS software solutions, PGT’s operations now run as smooth as the glass they produce.

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