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*50 Years of Growth, Innovation and Leadership*

## Profiles in Manufacturing Excellence

Five Manufacturers Use IQMS Software to Win 2013 MLI00 Awards

A Manufacturing  
Leadership Community  
White Paper

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## INTRODUCTION

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What are the elements of manufacturing excellence?

Year in and year out, winners of the prestigious Manufacturing Leadership 100 Awards share a few key characteristics that allow them to rise above others in their industries. Most ML100 Award leaders, for example, exhibit a fierce dedication to customer service and an ability to anticipate market trends, and to react to them with agility.

ML100 Award winners also consistently demonstrate a commitment to using innovative technologies to refine and improve key business processes and, ultimately, achieve competitive advantage.

For five winners of 2013 Manufacturing Leadership 100 Awards, one strand of the connective tissue underlying and enabling their outstanding performance was their use of a specific technology—the EnterpriseIQ enterprise software platform from IQMS.

Serving repetitive, process, and discrete manufacturers in aerospace and defense, automotive, assembly, medical, packaging, plastics, and stamping market segments since 1989, IQMS offers a uniquely integrated product line that covers ERP, manufacturing, MES, supply chain, and CRM functionality. That level of integration allows customers to avoid the added cost of melding best-of-breed solutions at implementation time.

IQMS (<http://www.iqms.com/>) is also known for its customer focus, maintaining a consistent and collaborative dialogue with manufacturers.

The following pages will profile the five IQMS customers that, between them, won seven Manufacturing Leadership 100 Awards in 2013. Taken together, their stories provide a useful roadmap to the achievement of manufacturing excellence:

- Nicolet Plastics won an Operational Excellence Award for its Quick Response Manufacturing Project;
- Plastic Components Inc. won an Operational Excellence Award for its Lights-Out Facility Project;
- Plastikos Inc. won two ML100 Awards: Its Automated Production Labeling and Tool Tracking Project won an Operational Excellence Award, and its Reduce, Reuse, and Recycle Project won a Sustainability Award;
- Thogus Products Co. won two ML100 Awards: Its Manufacturing Success Through Social Media Project won a Game-Changing Technologies Award, and its president, Matthew Hlavin, won a Manufacturing Entrepreneur Award; and
- Tribar Manufacturing LLC won an Information Leadership Award for its Post-ERP Implementation Audit Drives Tribar Manufacturing to World-Class Performance Project.

## ML100 PROFILE:TRIBAR MANUFACTURING LLC



### A Rewarding Re-enactment

*A re-implementation of a critical ERP system enabled Tribar Manufacturing to save \$350,000 in inventory, improve order management, raise assembly productivity by 20 percent, and secure its business with a key customer.*

In 2010, Tribar Manufacturing, a maker of badge assemblies for the automotive industry, was on a roll. Rapid growth in its assembly and outsource operations compelled the company to look for a new software-based system that could help manage its growth. After an evaluation of alternatives, Tribar thought it found the answer—the EnterpriseIQ enterprise resource planning system from IQMS.

But as Tribar was to find out, sometimes success can have a downside. The company was so busy at the time fulfilling orders for its plastic decorating products, complex assemblies and chrome-plated products, that it couldn't muster the organizational focus necessary to fully implement and take advantage of the IQMS system. Tribar found that it was conducting much of its business without using EnterpriseIQ or with complete disregard of the information the ERP system was providing. The bottom line was that the new software system was never woven into the fabric of the company; no one took ownership of the system, a lack of training occurred, and employees did things as they had always done them, resulting in continued errors in shipping notices, in receiving orders, and in inventory management.

And then the external event that would force Tribar to refocus occurred. One of Tribar's largest customers was becoming unhappy. Tribar's supplier status had slipped 24 points below the minimum score required to maintain its business with the customer. A key business relationship was now on the line.

Tribar mobilized to head off the issue. It conducted a post-implementation audit of IQMS to improve inventory, reduce errors, and increase its supplier score. It held daily staff meetings with all system users and a weekly meeting with Tribar's management team to infuse the system into the company's organization and culture. And it brought in IQMS's Professional Services Group for training and system usage advice.

"I don't know if there was an 'aha' moment, but people got on board," Tim Barkume, an inventory specialist with Tribar, said of EnterpriseIQ. "Now, more and more people are depending on it."

The result was not only greater participation in the use of the system by Tribar employees, but also an expanded use of EnterpriseIQ across the company's business processes. The overall effect was that Tribar improved its EDI capabilities by using EnterpriseIQ, an important requirement; improved tooling and assembly operations scheduling; and better managed its inventory, resulting in a \$350,000 savings.

More importantly, Tribar's supplier rating with its key customer was not only restored, but it improved significantly, jumping to more than acceptable levels after the EnterpriseIQ re-implementation.

For Tribar, the experience reaffirmed its credo of continuous improvement, which is reflected in its name. The word Tribar means three bars or thresholds—baseline, better, and best. What Tribar realized, of course, is that there is only one truly meaningful bar: world-class performance.

And what does the future hold for the new software system? Barkume says the company is looking at functional additions, such as a supplier portal and quality management. "But we don't want to limit ourselves," he said. "We want to keep going."

#### **Key Facts**

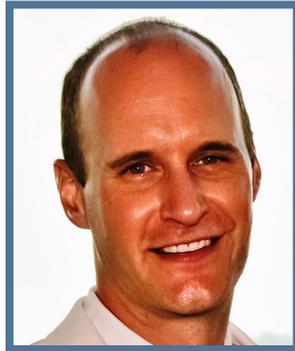
**Company:** Tribar Manufacturing LLC

**Location:** Howell, Michigan

**Industry:** Automotive

**Size:** \$25 million-\$50 million

**ML100 Project:** A Post-ERP Implementation Drives Tribar Manufacturing to World-Class Performance

**ML I00 PROFILE: PLASTIKOS, INC.***Philip A. Katen***A Push for Operational Precision**

*Automation initiatives on the plant floor and sustainability efforts allow Plastikos, Inc., to reduce costs, cut lead times, and improve customer satisfaction.*

Plastikos, Inc., prides itself on the precision engineering that goes into the injection-molded thermoplastic components that it sells to medical and electronic manufacturers. Some of the parts it designs and produces are no larger than a grain of rice, with design tolerances to match.

But the small, Erie, Pa.-based manufacturer hasn't always applied the same level of precision engineering to its internal processes. Until a few years ago, for example, Plastikos's manual plant floor production labeling approach could lead to errors, longer-than-desired lead times and, in some cases, customer complaints. Storage and retrieval of tooling was not optimally managed, leading to wasted time and energy on the shop floor. And reuse and recycling opportunities were being missed, leading to higher-than-necessary materials and energy costs, as well as too much material ending up in landfills.

Several years ago, Plastikos's president, Philip A. Katen, and his team launched a set of multi-phased initiatives aimed at automating manual processes, reducing costs, and improving customer service. The results of those efforts have included dramatically-reduced production costs, shorter lead times, reduced material and energy costs, and higher customer satisfaction.

On the production side, Plastikos automated its product labeling and production reporting processes, and implemented a barcode-based system that not only helps workers quickly find a tool when it is needed, but also provides a detailed history of that tool's use, information that helps engineers anticipate when a tool may be in need of additional engineering to improve its performance.

Those automation initiatives, all three of which are managed using the EnterpriseIQ system, have delivered big benefits. The potential to mislabel products at the press has been completely eliminated, and the company now receives real-time production reports, allowing the production team to plan and refine schedules and reduce customer lead times.

Plastikos estimates that these automation initiatives have saved the company \$770,000 to date, representing a 359 percent ROI. The company also has seen improved quality, shorter lead times, and longer tool uptimes, as well as improved customer satisfaction.

Meanwhile, Plastikos's sustainability efforts have yielded similarly impressive results. The company's multifaceted Reduce, Reuse, and Recycle program included a concerted effort to reduce material usage through product redesign, cut energy usage through the use of more efficient equipment and lighting technologies, and reduce waste through the expansion of a regrind program that results in less waste material finding its way into the local landfill.

The sustainability initiatives have resulted in an annual reduction of 75,000 pounds of raw materials used. At the same time, by working with customers on the use of more regrind material in parts and by arranging for the recycling of waste material, Plastikos has diverted more than 50,000 pounds per year of waste material from landfills. And the company's investment in more efficient equipment has resulted in a savings of 275,000 kilowatt hours of electricity every year, while its implementation of energy-efficient lighting has reduced its electricity consumption by another 150,000 kilowatt hours per year.

"I know that our entire team is extremely proud to be honored with two Manufacturing Leadership Awards," says Katen. "I believe that these two cross-functional team initiatives highlight the continuous improvement culture at Plastikos and demonstrate the significant returns that a company can realize from constantly striving to be better in all aspects of its daily operations."

### **Key Facts**

**Company:** Plastikos, Inc.

**Location:** Erie, Pennsylvania

**Industry:** Precision-engineered, injection-molded parts primarily for medical and electronic markets, among others

**Size:** \$15 million-\$20 million

**ML100 Project:** Automated Production Labeling and Tool Tracking (Operational Excellence) and Reduce, Reuse, and Recycle (Sustainability)

## ML I00 PROFILE: THOGUS PRODUCTS CO.



*Matthew Hlavin*



### **A Small Manufacturer with Big Ideas**

*By embracing a range of emerging technologies and developing new, global markets, Thogus Products Co. tripled its sales since 2009.*

It's usually the large, global manufacturing enterprises that are portrayed as the bold, early adopters of emerging technologies. But, as is sometimes the case, smaller companies can and do beat their larger competitors to the punch, as long as their leaders have the vision to recognize important emerging technologies and the will to invest in them.

Take Thogus Products Co., for example. The \$25 million maker of high-quality thermoplastic parts for the consumer, healthcare, small household appliance, aerospace, electronics, industrial, telecommunications and plumbing industries has, in recent years, proven adept at utilizing emerging technologies such as 3D printing and social media to expand its market presence and generate impressive growth.

Soon after taking over as president of the company his grandfather founded in 1950, Matthew Hlavin launched rp+m, a spinoff that uses 3D printing technology to offer rapid product prototyping services to manufacturing companies. rp+m allows clients to quickly create prototypes without the need to first build a steel mold and to rapidly refine their products before putting them into production. The spinout, which operates under the same roof as Thogus, is growing at a rate of 50 percent per year.

But rp+m is just one of the technology-forward spinouts that Thogus and Hlavin have launched since 2009. Another, Radiation Protection Technologies, has developed a plastics-based radiation-protective material capable of replacing lead, which is being banned in many countries. And JALEX Medical is a biomedical design, regulatory and quality consulting company that works with doctors and surgeons on designing, prototyping and manufacturing medical devices, ranging from surgical and implantable devices to regulatory-care equipment.

But Thogus and Hlavin have also invested in emerging technologies such as social media to raise the profile of the company's core business and unearth new leads. Soon after taking

over the company, Hlavin invested in an internal marketing department and directed it to raise Thogus's global profile by unleashing a business-to-business social media campaign. By generating a steady stream of messaging on Twitter, Facebook, LinkedIn, and YouTube, and by posting a series of authoritative blogs, Thogus was able to increase its global profile and create new business opportunities. As a result of these activities, traffic to the company's website has increased 64 percent.

Between its new spinout businesses and social media marketing efforts, Thogus has grown dramatically. Since 2009, the company's annual sales have tripled to \$25 million. The company, which had 51 employees in 2009, expects to employ 150 by the end of 2014.

### **Key Facts**

**Company:** Thogus Products Co.

**Location:** Avon Lake, Ohio

**Industry:** High-quality thermoplastic parts for the consumer, healthcare, small household appliance, aerospace, electronics, industrial, telecommunications and plumbing industries

**Size:** \$25 million

**MLI 00 Projects:** @Thogus Products Company Increases #Manufacturing Success Through Social Media (Game-Changing Technologies), and Matthew Hlavin (Manufacturing Entrepreneur)

## ML I00 PROFILE: NICOLET PLASTICS, INC.



*Bob Macintosh*



### Slashing Lead Times for Global Advantage

*With a clear mission to be fast, fluid and flexible, Nicolet Plastics is driving growth with a quick-response manufacturing strategy and a relentless emphasis on lead-time reduction for complex plastic parts.*

Speed and flexibility are critical to the competitiveness of Nicolet Plastics and its customers. Nicolet's philosophy is that responsiveness to the customer includes not only what they want, and when they want it, but at quantities that allow them to lower inventories and improve cash flow—the lifeblood of any business.

The Wisconsin-based company produces highly complex custom plastic parts in a range of materials, from throwaway packaging to high-end medical parts for MRI equipment. Slashing lead times for the development and delivery of its made-to-order plastics products has helped Nicolet significantly improve its customer responsiveness and double its business over the past four years.

Back in 2009, when many plastics manufacturers began to move production operations offshore in search of lower costs and low wages, Nicolet noticed that although the high-volume business was leaving, the low-to-moderate business was not able to take advantage of the offshore workforce. Nicolet saw a clear market opportunity and began to look at manufacturing philosophies that supported its new product focus.

It chose to follow the Quick Response Manufacturing (QRM) approach supported by a consortium of industrial enterprises and the Engineering School at the University of Wisconsin-Madison, under director Rajan Suri.

QRM is designed to focus on reducing lead times to lower inventory levels, raise margins, improve working capital, create more competitive pricing and lower overall cost throughout the business. It also addresses complexity by distinguishing between strategic variability (large number of options, custom-engineered products) that can be exploited for competitive advantage, and dysfunctional variability (excessive inventory, ineffective systems, and rework) that must be eliminated.

The company set clear goals, reducing the total lead times of injection-molded parts by 14 days (from 21 to seven days); reducing finished goods inventory, improving the ability to respond to unexpected changes in demand without degradation of service; and cross-training the workforce to create greater flexibility.

Nicolet's QRM approach is supported by new technology tools, including the EnterpriseIQ system from IQMS that helps the plant adapt dynamically to scheduling changes, and touch-screen terminals at each press to make data input quicker and easier and enable the use of video, and the display of production control and set-up documents on the spot.

The results have been impressive. Lead times have been cut by 11 days, and the company is on target to hit its 14-day reduction goal by year-end. The company has also gained more than 1,200 hours of time-savings from the program this year alone, with an additional 400 hours to be completed by the end of May. Employees have aggressively worked on their skills development, reaching 82 percent of their goal for the year, and the company's new Skills Matrix program is providing cross-functional teams on all shifts.

"Our focus on time has been a game-changer for Nicolet," said Bob Macintosh, president and chief executive officer of Nicolet Plastics. "Today's manufacturers have to be as good as or better than the competition. While we all know that, I believe that being different in your approach can separate you from the herd. And when you deliver the results, customers respond positively."

**Key Facts:**

**Company:** Nicolet Plastics Inc.

**Location:** Mountain, Wisconsin

**Industry:** Plastics

**Size:** \$5 million-\$10 million

**ML 100 Project:** Quick Response Manufacturing

## ML I00 PROFILE: PLASTIC COMPONENTS INC.



*Tom Duffey*

Producing Results. Building Relationships.

plasticcomponents.com



### Lights-Out Plant Boosts Competitiveness

*A new 24/7, lights-out facility allows Plastics Components to deliver a higher-quality product at a lower cost and fight off global competition.*

When Wisconsin-based Plastic Components Inc. (PCI) needed to significantly grow its manufacturing operations in early 2011, the company's executive management opted for an ambitious expansion strategy—regarded as the first of its kind in the U.S. plastics sector.

PCI specializes in producing low-cost, precision-engineered, injection-molded components for a diverse range of customers in the automotive, plumbing, water filtration, industrial engine and appliance parts industries.

In an effort to eliminate all non-value-added labor from its manufacturing processes, and to support its low-cost business model, PCI chose to invest \$1 million in a fully-automated, lights-out facility that runs completely unattended, 24/7, without any human intervention.

The company had two clear goals for the project: a 24/7, scalable production facility capable of housing up to 20 55-ton machines, where the addition of any new machines would not involve any major changes to its core infrastructure; secondly, a fully-automated production process, from material handling to the automated box conveyor, so all parts could be produced without human intervention.

To achieve these goals, PCI developed a core infrastructure that includes an automated material handling system, overhead cranes to move molds, production robots and an automated packaging system. These are all monitored by the EnterpriseIQ enterprise resource planning/manufacturing execution system from IQMS. Through network cameras, PCI can view each machine from its main plant two blocks away using the IQMS system's scheduling and real-time production monitoring capabilities, as well as other modules to run the machines at the lights-out facility.

Running an entire plant without any human interaction or involvement created a few production challenges. The first was the lack of in-person supervision. By using network cameras that

monitor the facility 24/7 and state-of-the-art technology to deliver detailed production information in real time, PCI is now confident with its hands-free production approach.

The second challenge was staff training. Some of the systems required to run the lights-out facility were new before implementation. PCI's maintenance and operation teams trained for weeks on the critical pieces of machinery in order to ensure they could be managed effectively.

The project has already delivered numerous benefits. Between October 2011 and October 2012, the new facility produced more than 148 million components and PCI has yet to register any quality defects. By taking on long-running, large-volume production jobs, the new plant has also freed up space at the company's primary production facility for shorter-run molding.

But perhaps most importantly for the future of its business, the new plant allows the company to compete successfully and meet the cost challenges of the global marketplace, so its customers can still buy at home in the U.S., rather than offshore.

"Successful business strategies equate to successful customer relationships," said Tom Duffey, president of PCI. "As demands increase for engineering or procurement managers, a company's ability to successfully deliver results from prototyping to production has become one of the most important criteria for success and inevitability results in meaningful customer connections."

**Key Facts:**

**Company:** Plastic Components Inc.

**Location:** Germantown, Wisconsin

**Industry:** Plastics

**Size:** \$10 million-\$25 million

**ML100 Project:** Lights-Out Facility

## **A HISTORY OF MLI00 ACHIEVEMENT**

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*Eleven IQMS customers have won MLI00 awards since 2010.*

### **2013**

KLW Plastics, Inc.  
Nicolet Plastics  
Plastic Components Inc.  
Plastikos Inc. (2)  
Thogus Products Co. (2)  
Tribar Manufacturing

### **2012**

Mar-Bal Inc.  
Tessy Plastics (MLI00 High Achiever Award)  
Aribex Inc.

### **2011**

About Medical Inc.  
Steinwall Inc.

### **2010**

Tessy Plastics

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