



LeMaitre Vascular: All In or Not at All

> client | LeMaitre Vascular
(www.lemaitre.com, NASDAQ: LMAT)
Founded in 1983 by vascular surgeon George D. LeMaitre, MD, the company reported 2008 net sales of \$48.7 million, up five-fold from 2000. Its 212 employees make and sell vascular devices and implants used in arteries and veins outside of the heart. Over the past 11 years LeMaitre has completed 10 acquisitions. In the first half of 2009 the company recorded 42% of its sales from outside of the United States.

> challenge | Eliminate waste in the form of excess time, space and materials from production lines, while simultaneously improving quality and gross margins. Successfully integrate acquired product lines into the company's headquarters facility in Burlington, Mass.

> Solution | Launch an ongoing series of kaizen events that leverage a unique culture that embraces change and gives team members the tools to transition from batch production methods to one piece flow. Embed a mindset of continuous improvement.

> Results | Double-digit reductions in lead time and ongoing quality improvements. A continuous improvement culture that continues to drive progress throughout the company week after week and year after year.

If you want to minimize the disruption to your business, if you want incremental gains, if you want isolated results, start small. Dip your toe into the water, ease in slowly, and crawl before you walk. But if you want the biggest bang, the highest possible return for your effort, if you ultimately want to transform your business and how you serve your customers, and you want it to happen quickly, you have to start big.

That's what LeMaitre Vascular did. Based in Burlington, Mass., LeMaitre (pronounced "Le-MATE") develops, manufactures and markets medical devices for the treatment of peripheral vascular disease. Employees assemble most products in a 6,500 sq.-ft. ISO Class 8 clean room. When TBM Consulting Group formally introduced the company to lean concepts at their first kaizen event in September 2004, they didn't start in a distant corner of the facility.

"We felt that if we were able to apply lean manufacturing principles to our biggest product line, it would produce the greatest results. So that's what we did," recalls Trent Kamke, senior vice president, operations. "We are not afraid of making changes and taking some risks in terms of big changes. We felt that we'd rather go after the product line that had the biggest opportunity to reduce scrap, improve first-time quality, reduce back orders, and improve cycle times."

The first event was a huge success, Kamke reports. The kaizen team reduced set-up times dramatically, moved away from a batch production process, improved material flow and reduced work-in-process inventory. As a result they achieved double-digit cycle-time reductions, lead-time reductions and square footage reductions, and they enhanced their ability to respond to quality defects in real-time.

At the time the company had been struggling to integrate the operations of a French company that it had acquired.

After transferring production to Burlington, they weren't achieving the targeted build rates or first-time quality, and worst of all, they were barely making enough product to satisfy demand.

"If a hospital needs a product for a procedure, they need the device shipped to arrive the next day to treat and potentially save a life," says Kamke. For this reason most LeMaitre products, with the exception of some custom-manufactured stent grafts, are built to stock. "Having product always available and not back-ordered is critical," he adds.

In addition to meeting market demand for that product line, the results of the first kaizen event set the stage for further consolidations. The company subsequently was able to close facilities in Phoenix; St. Petersburg, Fla.; and Brymbo, Wales. It relocated all of these production operations to Burlington without adding any additional square footage.

"We were able to successfully consolidate a high-volume product line and produce results beyond our expectations, which allowed us to bring in additional operations and further improve our gross margin and profitability," says Kamke.

There are several additional benefits that the company's lean-enabled consolidation work has allowed it to realize. Having manufacturing at the same site as the R&D group gives them the opportunity to work in the clean room with operators when launching new products, which contributes to superior product designs that are easy to assemble and yield higher initial quality. Being at the corporate headquarters also increases executive involvement in day-to-day activities in the plant. Located in close proximity to world-class healthcare facilities clustered around Boston also gives surgeons the opportunity to tour and see what it takes to make a medical device from raw material and put it into their hands.

> About Peripheral Vascular Disease

Peripheral vascular disease affects an estimated 20 million people worldwide, including approximately 12 million people in the United States and 7 million people in Europe. The disease encompasses a number of conditions in which the arteries or veins that carry blood to or from the legs, arms, or organs other than the heart become narrowed, obstructed, weakened, or otherwise compromised. In many cases peripheral vascular disease goes undetected, sometimes leading to life-threatening events—such as stroke, ruptured aneurysm, or pulmonary embolism—or death. Clinical studies have identified several factors that increase the risk of peripheral vascular disease, including smoking, diabetes, obesity, high blood pressure, lack of exercise, coronary artery disease, high cholesterol, and being over the age of 65.

Source: LeMaitre Vascular, Inc.

> About the TBM Medical Products Practice

TBM Consulting Group is the worldwide leader in lean innovation and rapid sustainable business improvement for manufacturing and service industries. They have helped medical device and equipment companies eliminate order backlogs, improve quality, increase productivity, remove capacity constraints, rapidly integrate new acquisitions, streamline the R&D process, and improve customer responsiveness. Learn more at www.tbmcg.com or contact Bill Schwartz at 800.438.5535.



LeMaitre Vascular launched its lean program in this workcell where employees assemble catheters used in vascular surgery. The first kaizen event reduced set-up times, improved material flow, and reduced inventory, which contributed to dramatic lead-time and square footage reductions.

A Culture That Embraces Change

In addition to lower costs and better quality, one of the key metrics that LeMaitre kaizen teams always strive to improve is the lead time from when an order hits the clean room floor to when it's ready to be shipped to the sterilizer. To keep shrinking this time, they hold several kaizen events every month, and go back to the same area or production cell every year to year and a half. After five years, as LeMaitre continues to reduce the number of employees required to meet customer demand, they're spending more and more time on automation and parts presentation.

"Once we've had an event and balanced the line, we can focus our efforts on automation," reports David Finn, senior manufacturing engineer. "Flexible automation allows us to take next step toward higher productivity and lower costs. Doing a kaizen event forces you to look at the process, which gives people ideas to automate."

LeMaitre has taken the lessons they've learned in the production areas and applied the kaizen process to other areas of the business. They've used the methodology to make shipping, order entry and customer service more efficient. More efficient

order-entry processes has freed up people to spend more time on sales support, which contributes to the top line. Kamke says that a robust incentive program that features cash, gift cards, flat-screen TVs and other prizes, has helped motivate people to respond and adopt process changes more quickly than they might have otherwise. Recognition is awarded by line or manufacturing cell based on productivity, time to build, quality and scrap rates.

"Historically we are a company that is always challenging ourselves to get better, so people are less afraid of change. That's been our mindset all along," says Kamke. "One could argue that the smaller a company is, the easier it is to adopt these principles. It is certainly a culture change and a mindset change that takes a while for people to accept. But once you achieve that, lean is very powerful."

Those contributions have had a direct impact on the growth and profitability of the company, Kamke concludes. "Superior quality reduces complaints in the field. Lower cost products lead to better gross margins, which allow us to take that money and invest it back into salespeople, R&D, and innovation. There's no real end goal, it's just to continue to always push to be as good as we can be."



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