

# MILWAUKEE ELECTRONICS NEWS

Q3 2014



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## About Milwaukee Electronics

Milwaukee Electronics designs and manufactures custom circuit board assemblies for the medical, transportation, military, HVAC and a variety of other industries. The Company operates over 135,000 square feet of manufacturing in Portland, Oregon; Milwaukee, Wisconsin; and Tecate, Mexico. In addition to EMS and product design and engineering services, it offers quick-turn prototyping through its Screaming Circuits business unit.

## What Are the Real Benefits of an Internal Asia Purchasing Office?

Most contractors tout their global sourcing capabilities. But, what does the phrase 'global sourcing' really mean today? At the Tier One global electronics manufacturing services (EMS) provider level it typically translates to purchasing teams around the globe. However, at the regional EMS level, it often translates to relationships with third parties who represent suppliers in that part of the world.

When Milwaukee Electronics established its International Purchasing Office (IPO) in Singapore three years ago, they quickly discovered a difference in supplier quality, flexibility and costs.

"The first thing we realized was that we had no direct relationships with our

Asian supply base. Even the ones we thought were direct had a third party involved, especially in China. Not dealing direct is a huge handicap, of course, in terms of price but also in terms of relationship. Relationships are how things get done in Asia," said Jered Stoehr, Director of Asia Business Development.

Another benefit was extended payment terms that improve raw inventory turns and, most importantly, allow us to see the goods before we pay for them.

"If you've already paid for the goods with a supplier you don't have a direct relationship with, quality issues are going to consume you. These are the soft costs and headaches most regional CMs have to deal with

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## Letter from Mike

By now many of you have received a request to participate in our annual Customer Satisfaction Survey. Though the survey window has yet to



close as I write this, I'm told the number of responses this year has already surpassed last year's participation rate. I'm very pleased about that and am eager for the outside agency we utilize for processing our surveys to provide us the information about

our performance through others' eyes. The anonymity of these surveys is important to us to ensure critical feedback. And for those of you who have responded, I thank you for doing so.

In a world where time is precious, why bother to provide survey feedback? The answer is that we truly do value customer feedback. We've made significant investments over the past two years in direct response to data that our survey has provided. We've installed a completely new operating system, enhanced our supply chain management capabilities, expanded our operation in Mexico and completely

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David Corry

## David Corry Joins the Sales Team

David Corry joined Milwaukee Electronics as a Director of Business Development in July. He is based in Phoenix and has responsibility for managing sales in the Southwest. He brings over 20 years of experience in electronics manufacturing-related sales.

“Dave brings an excellent mix of sales experience to Milwaukee Electronics. His experience at both a Tier One EMS provider and a major distributor give him excellent perspective on the outsourcing equation and Milwaukee Electronics’ advantages in the EMS world. He is a great addition to our team,” said Rick Cummings, VP Sales.

Previously, he was associated with Automation Tooling Systems as Sales Manager – APG. He was earlier associated with Jabil and Avnet Electronics in a variety of sales management positions.

## Tecate, One of Mexico’s Most Cost Competitive Manufacturing Options

Recent research by the Boston Consulting Group (BCG) indicates that Mexico’s cost competitiveness over China reached a tipping point in 2012. When adjusted for productivity, Mexico’s manufacturing costs are now lower than China. The research is part of BCG’s ongoing “Made in America, Again” series on the changing global economics of manufacturing. By 2015, BCG projects, average total manufacturing costs in Mexico are likely to be around 6 percent lower than in China and around 20 to 30 percent lower than in Japan, Germany, Italy, and Belgium.

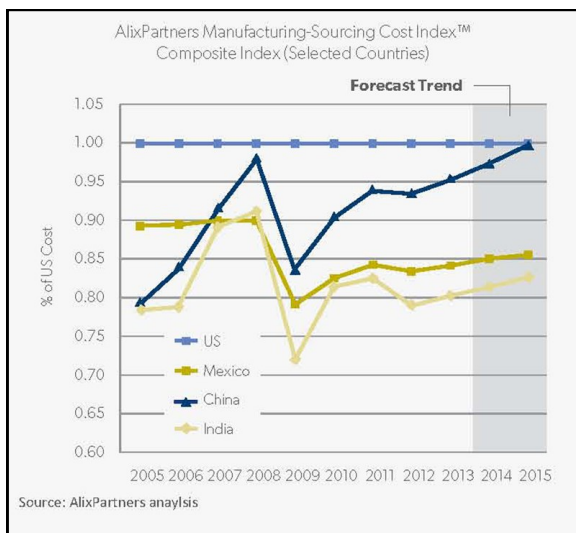
The report confirms key drivers of Mexico’s improving competitive edge are relatively low labor costs and shorter supply chains due to the country’s proximity to markets in the U.S. Another important advantage is that Mexico has 44 free-trade agreements, allowing many of its exports to enter major economies with few or no duties. Research from AlixPart-

ners and Bank of America highlights similar trends.

But, do all areas of Mexico provide the same competitive advantage? Just as original equipment manufacturers (OEMs) should evaluate electronics manufacturing services (EMS) suppliers carefully for the best fit for their project;

there are also considerations in choosing the right region in Mexico.

The primary reason Milwaukee Electronics chose Tecate for its location in Mexico was because it represented an ideal mix of advantages for its medium-to-high volume custom-



er base. What factors make this a facility and location a good choice for companies considering Mexican manufacturing? Here are few:

**Logistics Simplicity** – Tecate provides a less congested port of entry option and is only 40 miles from San Diego. This paves the way for responsive support of

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## New Rep Firm Named in Southwest



Milwaukee Electronics has expanded its sales resources with the addition of a new manufacturer’s representative firm covering Southern Nevada, Arizona, New Mexico and West Texas. Mindshare Technical Sales is headquartered in Scottsdale, AZ.

“Given Milwaukee Electronics’ strong

manufacturing presence in both Tecate, Mexico and on the west coast, it makes sense to increase our sales activity in the Southwest. Mindshare Technical Sales has more than a decade of experience serving this market and should complement Dave Corry’s activities by providing a cost effective approach to increasing our feet on the street,” added Rick Cummings, Milwaukee Electronics’ VP Sales.

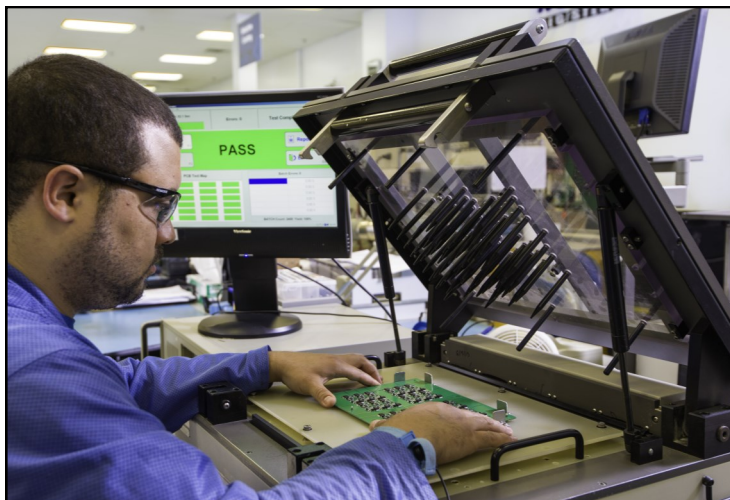
## Milwaukee Electronics Offers a Range of Test Solutions

One area where Milwaukee Electronics stands out is in its approach to test solutions and its quest to help customers achieve superior quality cost competitively.

“Our customer base includes companies with low volume products, legacy products and highly regulated products. Ultimately that means we need to be as expert in listening to our customers’ concerns about preferred test strategy and cost of test, as we are in providing test solutions,” said Dan Yantz, Engineering and Quality Manager at Milwaukee Electronics’ Portland facility.

The Portland and Tecate facilities use automated optical inspection (AOI), Checksum in-circuit testers and custom functional testers to address customer test requirements. The Milwaukee facility has similar test capability plus an HP 3070 in-circuit tester.

When customers don’t have strong test expertise in-house, the Design Engineer-



*Milwaukee Electronics’ capabilities include in-circuit test.*

ing group in Milwaukee can help with both design for testability (DFT) recommendations and development of custom functional testers. Test fixture design and fabrication is also supported. The group takes custom requirements and designs rack-based test systems with mechanical interfaces. Software is written using National Instruments’ Labview. Capabilities include standard electronics and electro-mechanical devices. Systems can include use of optical interfaces or automated visual inspection

with cameras. Typically, these custom functional test systems are best for low-to-medium volume production.

The Design Engineering group also designs in-line functional testers, which include a clam-shell box with safety systems to protect employees from high voltage. These systems typically use a National Instruments data acquisition card embedded in the test box with additional peripheral circuitry with varying voltages, relays and switches that interact with test points though pogo pins. These testers

typically support medium volume in-line production.

The group has also designed a Universal blue box functional tester using the National Instruments platform. It has a higher voltage test range and a standard logic test range with multiple channels on each. The system can be customized to interface with the product under test via wire harness or pogo pins. The system uses a suite of modular test soft-

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## IPO

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today,” Jered added.

The fact that the Asian IPO team can make surprise factory visits easily changes the nature of the relationship.

“If a problem does develop, it is usually caught before the product ships, but always before we pay,” Jered said.

As a result, suppliers take ownership of quality issues and are more responsive.

In short, proximity to a direct Asian supply base drives supplier responsiveness, decreases the costs of maintaining quality and puts the relationship on more even footing.

For example, a quality issue developed

with a supplier of aluminum castings. The product had visual stains which were deemed unacceptable. A Kanban of good parts was in place at the supplier and the supplier agreed to ship from the Kanban, averting a line down situation. A new specification was developed that addressed the limits on visual staining.

“The challenge was that our specification did not address visual stains, so we were in a grey area. We created a new spec that had the visual requirement, but we wanted the supplier to apply it retroactively. Things worked out because we were local and able to sit down with them. We got what we wanted from our supplier without dam-

aging the relationship, and most importantly, we prevented a line down situation” said Jered.

“It is easy for a sub-\$10 million project to get lost in a Tier One EMS supplier. Customers outsource to a regional EMS provider like Milwaukee Electronics because they want a responsive partner who values their business. But, it is difficult to be responsive in your supply chain if you don’t have strong relationships. Our IPO has helped us ensure that our commitment to responsiveness flows all the way down through our supply chain. To us and our customers, ‘global sourcing’ translates to strong, direct supplier relationships facilitated by both our U.S. and Asian purchasing teams,” added Jered.



## Letter from Mike

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revised our quoting procedures in efforts to decrease the time it takes to respond to each opportunity. In addition to questions related to our level of service performance, we include questions focused on future requirements that respondents would like us to provide.

## Test

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ware that is based on the National Instruments platform. Typically, this system supports low volume, higher test complexity production.

“Our goal is to provide customers with the test solution that meets their requirements and their budget. If they are trying to minimize cost of test fixturing, we work within their desired cost parameters to provide the best fixtureless solution possible. If they

## Mexico

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variable demand projects.

**Secure Location** – The Milwaukee Electronics facility is in a gated industrial campus with contract security limiting access to employees and authorized visitors.

**Stable, Experienced Workforce** – Milwaukee Electronics’ team has been in place in Mexico for over a decade. Turnover is less than 2% per month.

**Proximity to the U.S.** – Tecate’s location makes it easy for visitors to commute from San Diego. English proficiency is high among key technical and management staff. Holiday schedules align with U.S.

The contract manufacturing world has evolved to adding value in additional ways other than simply product assembly. We see ourselves as an extension of each customer’s reputation and, in many cases our performance is visible to our customers’ end markets. Our mantra is PERFECT PRODUCT! What our customers want, when they want it,

want a more complex set of test or custom functional test development we support that, as well. We also support legacy functional test equipment,” Dan added.

Inspection, test and quality reporting is only one part of Milwaukee Electronics’ process for ensuring quality.

“Inspection and test are simply tools for identifying potential quality issues. Our ultimate goal is to help customers identify the root cause of any defects and elim-

inate that issue, even when it isn’t an issue in our process. For example, we were experiencing a high number of bad solder joints in a reed switch. There were four j-leads and we determined that they had coplanarity issues that weren’t being caught at the switch manufacturer. The customer didn’t want to change manufacturers. We were able to convince the manufacturer to improve their process and add an inspection step that validated lead coplanarity,” Dan said.

holidays.

**Socially Responsible Employer** – Your contractor is an extension of your reputation. Milwaukee Electronics takes corporate responsibility seriously both in its treatment of employees and its approach to environmental responsibility.

**Facility Optimized for Electronics Production** - Milwaukee Electronics’ facility was built specifically to support efficient electronics production with an open production floor enabling flexibility in efficient production line arrangements as business mix evolves over time.

In short, Tecate provides the cost advantages of Mexico without the border

crossing congestion and labor market shortage disadvantages typically found in larger Mexican manufacturing cluster zones. Its proximity to San Diego makes it a convenient travel option for customers wishing to visit the factory. Milwaukee Electronics’ investments in key staff, facility infrastructure, and enhanced benefits and amenities for all employees ensure an experienced team, with one the lowest turnover rates in Mexico. Milwaukee Electronics’ Tecate facility represents an excellent choice for companies looking tap Mexico’s increasing cost competitiveness while avoiding the ‘hidden costs’ of outsourcing in Mexico’s more congested manufacturing regions.

**P. Michael Stoehr**  
CEO & President

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