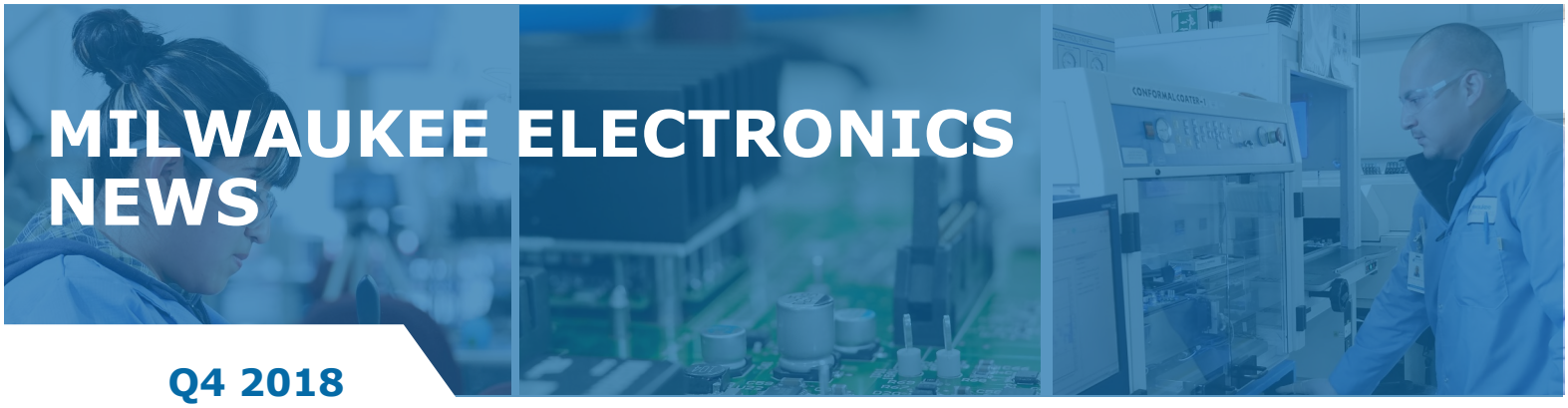


MILWAUKEE ELECTRONICS NEWS

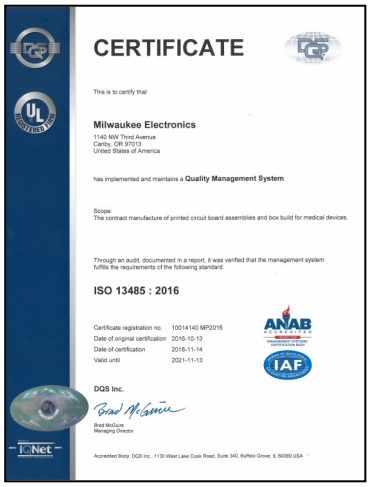
Q4 2018

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 PCB layout services through its San Diego PCB business unit and quick-turn prototyping through its Screaming Circuits business unit.

Portland Facility Completes Transition to ISO 13485:2016

Milwaukee Electronics' Portland facility completed its audit for the transition to ISO 13485:2016 and re-certification to ISO 9001:2015 in October.


CERTIFICATE

This is to certify that

Milwaukee Electronics
1140 NW Third Avenue
Canby, OR 97013
United States of America

has implemented and maintains a Quality Management System

Scope:
The contract manufacture of printed circuit board assemblies and box build for medical devices.

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

ISO 13485 : 2016

Certificate registration no. 10014140 MP2016
Date of original certification 2016-10-13
Date of certification 2016-11-14
Valid until 2021-11-13

DQS Inc.

Brad McGuire
Managing Director

Accredited Body: DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA

"We completed the audit with only three minor findings which were quickly corrected. Our team did a great job supporting this transition," said Bob Willenbring, Milwaukee Electronics' Corporate Quality Director.

The quality team began their transition efforts to ISO 13485 revision in 2017, shortly after the facility completed certification to the latest revision of ISO 9001. While some of the work supporting revision of ISO 9001 quality management system (QMS) procedures did benefit the ISO 13485 revision, the two standards are no longer as closely aligned which drove some additional procedural modifications. For example, the transition to the new standard more closely aligns the facility's processes with FDA requirements in the areas of complaint handling, process vali-

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Message from Mike: Changing Customer Needs in 2018

The results are in from our customer satisfaction survey and we are seeing new trends. While our survey model preserves the anonymity of individual respondents, our management team analyzes the feedback we receive very carefully. As we look forward to a new year, I think it is important to share that feedback and discuss how that will influence our investments over the coming year.

First, I'd like to thank everyone who took the time to respond. Our survey participation numbers across virtually all of our survey segments were up over the previous years and in some cases represented record response. Second, I'm very pleased that the survey feedback indicated a high level of customer satisfaction with our performance. Key indicators in most facilities and business units were up over the prior year. I'd like to thank our team for their hard work in supporting our customers at that level.

In the EMS segment, we've seen some new trends. In previous years, reducing lead-time within internal operations was the number one concern of our customers. This year, the number one "internal" customer concern was more complex test requirements. There were also some shifts in where customers would like to see us invest in more resources. In prior years, reducing standard lead-times was the number one investment priority. This year, the number one priority was expanding our range of capabilities. We have several takeaways from this shift in trends. First, the comments we've received along with our survey suggest that customers are relatively happy with the way our team has handled the constrained materials market. Second, we recognize that technological complexity is increasing within our customer base and that we should be committing resources to support that. The SMT equipment investments we've made in the past two years easily support increasing technological complexity. We have strong test engineering capability and will be looking at ways to best align and enhance our support services with our customer requirements in that areas.

The ratings in our Screaming Circuits prototype business were similar to the EMS business. High levels of customer

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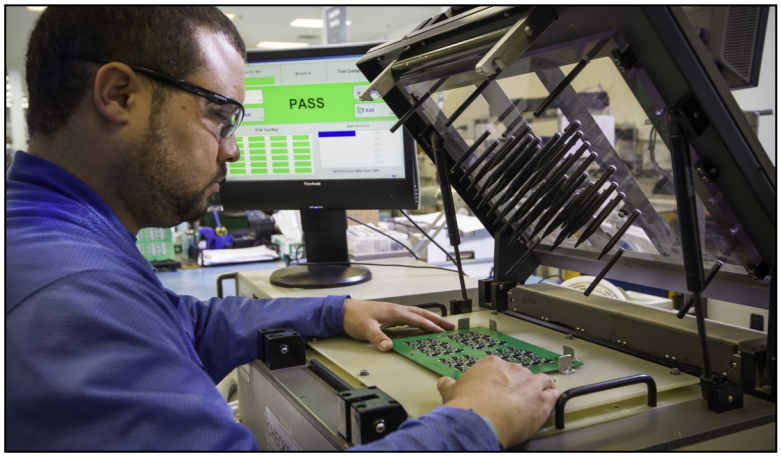
Agricultural Product Ramps Up at Milwaukee Facility

Milwaukee Electronics will begin volume production of an entire line of agricultural products in its Milwaukee, WI facility starting in January 2019. Pre-production began in March of 2018 and included an extensive product qualification phase. The printed circuit board assemblies (PCBAs) work in conjunction with sophistical software and sensors to optimize farm technology including the farmers experience in planting and harvesting activities.



The Milwaukee facility provides a cost effective Made in USA solution.

"Culturally, this company is a very good fit for us. They are very Lean and focused on superior quality and reliability. We added new process technologies to more efficiently build their products and have spent the bulk of this year completing engineering builds over the 10 product types they have awarded us," said Scott Pohlmann, Milwaukee Electronics Director of Business Development.

Initially, production will be centered in Milwaukee as some products have a Made in USA requirement.

"Our customers like the fact that they have multiple facility options with Milwaukee Electronics to support their changing needs. Initially, this customer wanted all production close to their team located in the heart of the US farm belt. Our Tecate, Mexico facility gives them an option to reduce cost on margin sensitive products over time," added Scott.

Cybersecurity and Compliance Enhancements

The Compliance team at Milwaukee Electronics is working diligently to identify and mitigate cybersecurity risks.

"We've been reviewing our cyber footprint and the potential associated cybersecurity risks. We've also been reviewing our plans to protect our customers from cyber threats," said Kyle Frank, Milwaukee Electronics' Corporate Compliance Specialist.

The Compliance team is utilizing a cybersecurity framework developed by the National Institute of Standards and Technology (NIST). Cyber risk assessment is being performed utilizing the newly released Risk Analysis Method (RAM) tool developed by the Center for Internet Security (CIS).

"Our goal is to use industry-standard methods and tools in hardening our systems. That helps ensure a more robust risk assessment process plus helps us rapidly understand developing threats not covered by the current version of the tool," added Kyle.

The Compliance team is also working to ensure Milwaukee Electronics stays abreast of changes in required reporting activities.

The compliance team is using industry-standard tools to assess cyber threats.

RoHS III will restrict four phthalates in products placed on the market on or after July 22, 2019, except where exemptions permit. These restricted substances are:

- Bis(2-Ethylhexyl) phthalate (DEHP)
- Benzyl butyl phthalate (BBP)
- Dibutyl phthalate (DBP)
- Diisobutyl phthalate (DIBP)

"While these substances primarily impact the plastics industry, they may be found in IC packaging. We are working with component manufacturers to ensure their parts are updated to that standard. We've found most component manufacturers have addressed this," said Kyle.

The Compliance team manages the support of a variety of customer reporting requirements including Conflict Minerals.

"The growth in regulatory reporting requirements makes it critical for EMS providers to support a variety of customer-specific reporting activities. We use industry-standard tools to automate this reporting as much as possible. Our goal is to provide this support as efficiently as possible," said Kyle.

Engineering in Action

Engineering Teams Tackle New Product Issues

A customer with an animal husbandry-related product had some design-related challenges in their product testing process. The product is used to monitor livestock heartbeat, blood oxygen and movement, since these are key metrics in assessing the health of animals in a herd. The product lets farmers rapidly identify livestock that may be unusually stressed or exhibiting health issues.

Screaming Circuits and engineering collaborate to solve customer challenges.

The initial design was done by third-party design firm selected by the customer. The Screaming Circuits team identified a manufacturability issue related to conformal coating and was able to modify its process to clean the sensor portion of the product. However, a second issue was not identified until product testing began. Screaming Circuits had built 30 prototypes for product testing and then received and built a 500-piece order prior to the start of product tests in the field. While the battery selected by the design firm fit the small size footprint required for the device, it was slightly under power for the device's power requirements. As a result, the battery was losing power in less than 48 hours during field testing of the product. The design firm was able to identify an alternate battery that met the power requirements, but it required a battery strap whose horizontal "feet" were wider than the printed circuit board (PCB).

Screaming Circuits and Milwaukee Electronics' Oregon-based design engineering/test team was able to develop a retrofit solution for the printed circuit board assemblies (PCBAs). Several experiments were performed to identify the correct volume of solder paste to create a strong continuous solder fillet along each vertical face of the battery strap.

While the new battery samples were in shipment, the engineering team 3D printed a battery blank in the size of the proposed battery and the team at Screaming Circuits wired it to a similar power transformer and tested the concept. The customer's design firm is now developing a software solution that reduces power consumption by putting the device into a sleep mode during

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ISO 13485:2016

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dation and risk management.

"Jack Tanz, our Quality Engineer, did a great job updating procedures to comply with the new standard, then working with the Quality team to perform a full internal audit to identify any areas we needed to enhance. They completed over 90% of the work prior to my joining the company. The only area I felt we needed to add was employee training on the intent of the standards," added Bob.

While employees were already fully trained on the procedures, the additional training was designed to better ensure they understood the intent of both standards in terms of mitigating risk and driving better understanding of the impact of each employee's efforts on product quality and overall customer satisfaction.

"Both standards drive more risk analysis across the organization and require employees to understand the specific impact of their roles in process of product realization at a much deeper level than in previous iterations. Our training was designed to ensure they fully understood that new level of responsibility," said Bob.

At a corporate level, Bob is working to better standardize procedures across the company.

"Our quality procedures vary slightly by facility. While we serve distinctly different customer bases in each facility, we will be focusing on standardizing key processes, such as corrective action, and the look and feel of documentation going forward. While certificates demonstrate third-party oversight of our QMS at each facility, it is equally important that we internally maintain a vision that unifies our approach to quality documentation across our company," said Bob.

Engineering In Action

(Continued from page 3)

periods where animals have minimal activity.

A 10-piece sample was produced using the new, modified battery straps.

Milwaukee Electronics' engineering team has also optimized the functional test, reducing test time by 50 percent. Screaming Circuits is in the process of retrofitting the prototypes and will also be programming the device with the updated programming during the test process. The team is also providing additional design for manufacturability recommendations (DFM) to improve future products.

"Product development processes sometimes have surprises. One of the benefits of Milwaukee Electronics' business model is that we have a very strong front-end engineering and prototype assembly process capable of helping customers quickly work through these types of challenges," said Julie Hay, Screaming Circuits Inside Sales.

(L-R) Paul Forker, Mike Creeden and Andrew Hale staffed Milwaukee Electronics' booth at the show.

BioMEDevice Exhibit Big Success

Milwaukee Electronics exhibited at the BIOMEDevice trade show on Dec 4-5 in the San Jose Convention Center. The show brings together more than 1,500 medical device industry professionals in Silicon Valley and the surrounding region.

"We had a great show. Milwaukee Electronics' strength in front-end engineering solutions combined with its range of North American manufacturing options was very attractive to many of the people visiting our booth," said Paul Forker, Milwaukee Electronics' Director of Business Development West Region.

Message from Mike

(Continued from page 1)

satisfaction and a desire to see us continue to invest in enhancing manufacturing technology. Our engineering customers are looking for better performance on timelines and would like to see continued investment in additional design disciplines both at the PCB layout and engineering level.

Our survey data indicates that we have much to be proud of, while also suggesting opportunities for continued improvement. Much of the work we've done in 2018 to enhance our internal systems and optimize our production capabilities will just start becoming visible to customers in 2019. Our Tecate facility expansion will also become fully operational in early 2019. In short, our capability enhancements will start demonstrating our commitment to continuous improvement in the new year at a fast pace. All that said, we will continue to look at ways we can increase engineering bench strength and best align with our customers' technology needs.

I'd like to wish you and yours a very Merry Christmas and a healthy and happy 2019!

P. Michael Stoehr

CEO

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