MILWAUKEE ELECTRONICS NEWS



April 2020

About Milwaukee Electronics

Milwaukee Electronics designs and assemblies for the medical, transportation, military, logistics and a variety of other industries. The company has ISO-13485 medical manufacturing capability in its Portland plant.

The Company operates over 135,000 square feet of manufacturing in Portland, Oregon; Milwaukee, Wisconsin; EMS and product design and engineering services, it offers PCB layout and DFM services through its San Diego PCB Design business unit and quick -turn prototyping and on-demand assembly through its Screaming Circuits business unit.

Production Teams Show Agility in COVID Response

Milwaukee Electronics' manufacturing teams know that the best way to keep delivering quality product to you during this trying time is to keep safe and healthy. To ensure that happens, our senior management team has been meeting daily to assess and implement COVID-19 response best practices.

We are practicing social

distancing and implementing the use of masks in all areas of our factories. We have restricted outside visitors and all employees that are capable of working

at home are doing so. Taking these steps and more will help ensure that we remain open to design and build the electronics (Continued on page 4)

Above, the team at our Tecate, Mexico facility undergoes

training in use of personal protective equipment (PPE).

Message from Rick We Are Prepared and Committed to Transparency Re:COVID-19

As I write this, cases of COVID-19 are in every state of the USA. Most states have implemented some form of a stay-athome policy with only essential businesses



Rick McClain

remaining open. The Mexican Ministry of Health (MOH) has done the same for all of Mexico.

Based on published guidelines from the US Department of Homeland Security (DHS)

and the MOH, we are continuing to operate in all of our facilities as an essential business. We have medical electronics customers who depend upon us and we are prioritizing electronics related to diagnostics and treatment for the COVID-19 fight.

However, we do recognize that transparency with customers and good communication with all stakeholders is critical in this evolving situation. I feel it is important to outline Milwaukee Electronics' approach to this challenging and evolving situation.

We see two primary areas of risk. First, we recognize we must prepare to deal with Coronavirus in the workplace. To that end, in the U.S. we have enacted policies to ensure healthy behaviors such as frequent handwashing, regularly cleaning frequently

touched items and maintaining recommended social distance. All employees that are able to work at home are now doing so.

In compliance with Mexican labor law, our Tecate facility has an infirmary and medical professionals onsite. This team already provides health screening, routine immunizations and health education for our Mexican employees and will be part of our Coronavirus prevention and screening efforts, as well. We have implemented social distance policies, disinfection practices and have issued cloth facial coverings and protective gloves to all employees in the plant.

In all locations, we have cancelled all non-(Continued on page 4)



Portland Facility Adds Assembly and Inspection Equipment

Now more than ever, keeping up to date with manufacturing technology is an important part of our customer commitment. Milwaukee Electronics continues to invest in equipment to increase both capacity and capabilities. The Portland facility has added equipment for both its Screaming Circuits and electronics manufacturing services (EMS) operations.

Screaming Circuits has added two Mydata MY700 paste jet printers, two additional MY100 SMT placement machines and a Sciencescope 6000 x-ray machine.

"The paste jet printers allow us to apply solder paste without the use of stencils. That allows for faster response and in-process adjustments for solder paste deposition on individual component pads." said Alex Hughes, the Portland facility's Production Manager.

Additionally, the MY700 increases capabilities.

"The MY700s are replacing our older MY500 paste jet printers which were limited to 0.5 mil pitch, requiring us to use stencils for anything smaller. The MY700 can easily go down to 0.4 mil pitch and below. So, this upgrade enables us to offer 24-hour turns on printed circuit assemblies (PCBAs) with the latest micro pitch parts. We've run test

boards through with multiple pitches and they have performed flawlessly," added Alex.

Additionally, the MY 700 can run lead and lead-free PCBAs (or any two board designs) simultaneously. While most commercial products have moved to lead-free



Above, the Sciencescope 6000 x-ray machine increases the facility's x-ray inspection capacity.

PCBAs, the Portland facility also serves aerospace and defense projects which still uses lead solder in some PCBAs.

This added flexibility improves throughput.

The Sciencescope 6000 x-ray machine is used for both process improvement and (Continued on page 3)

Milwaukee Facility Increases Work Cell Flexibility

If there is one constant in 21st century factories, it is the need for every member of the team to work smarter. In Q4 2019, the team at Milwaukee Electronics' headquarters facility began looking at ways to improve throughput by eliminating customer-focused cells and enhancing worker responsibilities.

The facility was divided into five areas, each headed by a supervisor with direct responsibility for the team in that area.

"Our goal is to put resource allocation in the hands of the people that are working with those resources. Instead of dedicating space and team members to specific customers, each supervisor has the flexibility to move their team around based on that day's demand. They can also request additional training for any team member, if they feel additional skills are necessary," said Clint Hanson, Vice President of Engineering/ Milwaukee Plant Manager.

The five production areas are:

- **SMT**: includes all activity associated with SMT placement and reflow
- First assembly: which includes component preparation and all through-hole insertion processes
- Second assembly: which includes post wash operations addition of not wettable components, conformal coating and potting
- Test: A team of test technicians now repairs test failures where they happen with debug data

• Final assembly: which includes box build, labelling and any additional value added activity.

Additionally, Purchasing now has materials responsibility from the buy signal (when system indicates that a buy is required) to the kit on the production floor. The final inspection area team now reports to corporate quality.

"We wanted to streamline our processes so that each area works from a business view where material flows in and completed assemblies flow out. The team members understand best what roadblocks impede them from getting their jobs done and they now have the power to address that," added Clint.

The process also has benefits at the indi-(Continued on page 3)



Work Cell Flexibility

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vidual employee level. Terry Martin, Corporate Director of Continuous Improvement was able to obtain a Wisconsin state training grant that is funding courses developed by Milwaukee Area Technical College. The courses have been custom-designed for Milwaukee Electronics' needs and include Lean manufacturing principles, basic electronics training and technician training and are delivered during normal work hours at the Milwaukee facility.

This job enhancement is paying many dividends. For example, machine operators are programming machines and "owning" their metrics. As a result, machines are cleaner and requiring less maintenance, as the machine operators are now focused on meeting key metrics.

"With Terry's help, we have stepped up Kaizen activities. Our team under-

stands the why behind the processes they now help manage. They aren't just looking for good solder joints. They understand the process elements they need to control to ensure good solder joints," said Clint.

Hanson also points out there have been several lessons learned during the process:

- Listen to your team
- People give more if you allow them to excel
- Listen to customers

The reorganization is scheduled to be fully implemented by the end of Q2 2020, and the focus will shift to Continuous Improvement. The results to date have included elimination of 70 bins of work-in-process (WIP). WIP queues between processes have shrunk as each process now works solely to actual demand.



The Milwaukee facility manufactures a mix of newer technology and legacy product.

Equipment

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defect screening. "We purchased a Sciencescope 6000 x-ray unit previously and we were using it to support both our Screaming Circuits and EMS operations. We needed more x-ray capacity. The addition of this second machine will allow us to have a dedicated machine for each business unit," said Alex.

The facility also purchased an x-ray Sciencescope AXC-800iii reel counter.

"Facilities that run prototypes or high mix, low volume product as we do here frequently have partial reels at the end of a production run. If an accurate cycle count of components isn't done when the reel goes back to the stockroom, unanticipated part shortages can occur. Manual part counts of this nature are often inaccurate. This x-ray



Mydata SMT equipment helps Screaming Circuit speed prototype turnaround time.

counter solves that issue. Counts are significantly faster and 100 percent accurate," said Alex. The new equipment arrived in mid-February and has been installed. Validation was completed in March.



Ready to Support Your Needs

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you need.

We have the broadest set of capabilities to keep you operating in an uncertain world.

Milwaukee Electronics contract electronics manufacturing service (EMS), including ISO-13485 medical certification in our Portland, Oregon plant and high volume manufacturing in our Tecate, Mexico facility, serves a broad array of industry with reliable volume production. Our engineering division can create an original design or can work with your designs to ensure optimum manufacturability.

Our Screaming Circuits division offers quick-turn prototype assembly when

Message from Rick

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essential employee travel and are no longer allowing non-essential visitors. We have stopped allowing will-call for pick up and in-person kit drop offs. We've also upped internal facility cleaning protocols to ensure common areas are frequently sanitized. We have educated employees on virus symptoms and have modified our sick leave policies to ensure employees are able to easily take sick leave during this period should they feel unwell.

Second, the continuing spread of the virus in China and to other parts of the world has impacted the overall electronics supply chain. We are montime is of the essence, and on-demand manufacturing capability when forecasting is not possible or needed volumes are unpredictable. Screaming Circuits offers the most flexible electronics assembly whether you need a few prototypes or a fast ramp to meet surge demand.

The San Diego PCB Design business unit employs CID+ certified layout specialists for high-end layout, including complex medical design and board level DFM. Our designers are experts in HDI, flex and other leading edge technologies.

You design the electronics that people use everyday. You design the electronics that keep people safe and secure, that keep the grocery stores open, that keep



We have the capacity and technology to support your needs.

the trucks on the road and that keep our medical system running. You design them and we are here to build them for you.

itoring our suppliers carefully and providing customers with periodic updates. At this point we haven't seen major impacts, but are expecting that delays or disruptions may occur. We will continue to provide periodic general updates via our Supply Chain newsletter and inform customers of any project specific issues as we see them.

Given that we expect this to be an evolving situation over the next couple of months we have set up a task force charged with monitoring the situation and developing/ implementing plans to address any additional issues we see arising.

We are committed to serving customers

to the best of our ability, maintaining a safe workplace for our employees and being as creative as possible in addressing any supply chain or production disruptions we encounter. At the time of this writing we have no confirmed cases of Coronavirus in any of our facilities. Supply chain disruption has been minimal. We hope this will continue, but rest assured, if it doesn't, we have been proactive in planning ways to mitigate any impact. We remain committed to transparent communications should our situation change. In short, we have prepared for the worst case scenario, but are hoping for the best.

Rick McClain President

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