

MYNNews

A magazine from Mycronic

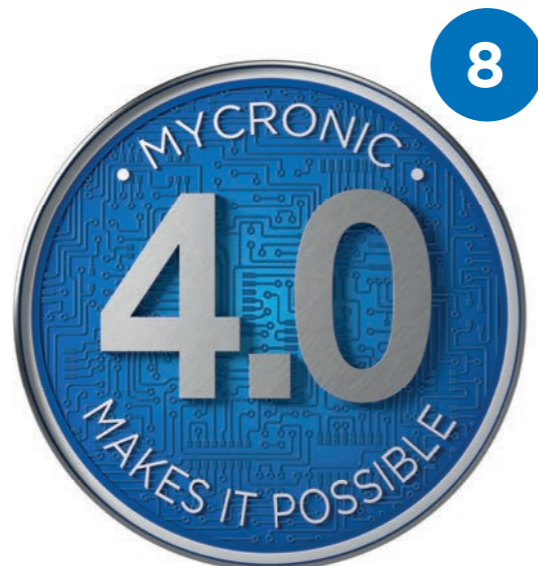
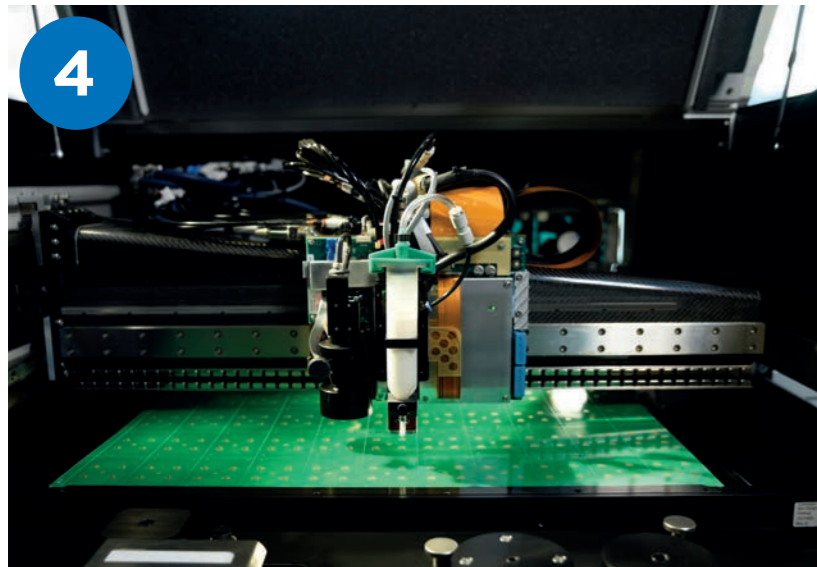
2016.01

Jet dispensing comes to SMT



Mycronic 4.0
**EMBRACING TOMORROW'S
CHALLENGES TODAY**

**NEAR PRODUCTION
INVENTORY MANAGEMENT**
– coming near you!



Contents 2016.01

- 3** Worldwide events calendar
- 4** Jet dispensing is here
- 8** Mycronic 4.0
- 14** Product news
- 16** Automated material handling takes center stage
- 22** Changeover guidance with Agilis Smart Bin
- 26** Exhibition in China

Visit
mycronic.com

If you haven't already, now is the time to visit mycronic.com and find out more about our products!

The mycronic.com web site is filled to the brim with inspirational and useful content. You'll find information on our latest developments in SMT production solutions including the MY200 series pick-and-place machines, award winning Agilis feeder system, jet printing technology, intelligent storage solutions, and state-of-the-art software solutions.



WE ARE LIVING IN EXCITING TIMES. Around the world, Industry 4.0, or the industrial Internet of Things, is creating opportunities for intelligent SMT production with software-driven automation, factory-wide connectivity and higher levels of productivity. At the same time, the trend towards miniaturization and complex board architecture continues to pose dynamic new challenges.

But let us first start welcoming Axxon Automation, our recent acquisition, to the Mycronic family. Axxon develops, manufactures, and sells dispensing equipment for the electronics industry, with a strong focus on solutions for mobile device manufacturing, and has obtained a leading position in the SMT market in China in a short time. Axxon's product line is a perfect complement to our own high-speed jet dispensing technology. Together, we can now offer customized solutions for the most complex boards and demanding applications on a global scale.

Industry 4.0 and board complexity will continue to impact the SMT industry in powerful ways. Industry 4.0, the subject of our cover story, grew out of the German manufacturing industry and has now made its way into the global electronics industry. Here, the driving force is the need for greater cost-efficiency.

But achieving the promises of Industry 4.0 involves much more than just machine-to-machine communication. It demands a 360-degree approach to designing tomorrow's intelligent factory – including fully integrated material handling, intelligent storage, full planning visibility and much more. The good news is that we at Mycronic have already been designing with this ambition in mind for many years – an approach we now call Mycronic 4.0. Ultimately, the goal will be “batch-size one” production, with complete customization and control. We've always been at the forefront in this area and are highly committed to our customers' long-term success. This applies not only to our software suite and placement equipment, but our jet printing and dispensing technology, smarter bins, intelligent material handling and our storage solution.

The second key driver is the trend towards miniaturization, which is turning PCBs into miniature cities with complex stacks of packages. Here, screen printing often isn't enough. You need to be able to dispense solder paste or other media with unmatched speed, precision and flexibility. Here, we are seeing strong interest from high-volume manufacturers in our Jet Printers and Jet Dispensers for building key components, boards and subsystems.

To sum up, as a Mycronic customer you are well positioned to meet the growing list of challenges. Whether it's being Industry 4.0-ready or assembling complex boards, we continue to apply our passion for innovation so that, together, we can enable the future of the electronics industry.

// Robert Göthner
Senior Vice President & General Manager

MYCRONIC

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Worldwide events calendar

Mycronic will be represented at the following trade fairs:

January 2017

InterNepcon Japan 2017
Dates: January 18–20
Location: Tokyo Big Sight, Japan

ETFN 2017
Dates: January 25–26
Location: Hamburg, Germany

February 2017

Semicon Korea 2017
Dates: February 8–10
Location: COEX, Seoul, South Korea

IPC APEX EXPO 2017
Dates: February 14–16
Location: San Diego Convention Center, USA

March 2017

ENOVA Strasbourg 2017
Dates: March 15–16
Location: Strasbourg, France

Productronica China 2017
Dates: March 14–16
Location: Shanghai New International Expo Centre, China

April 2017

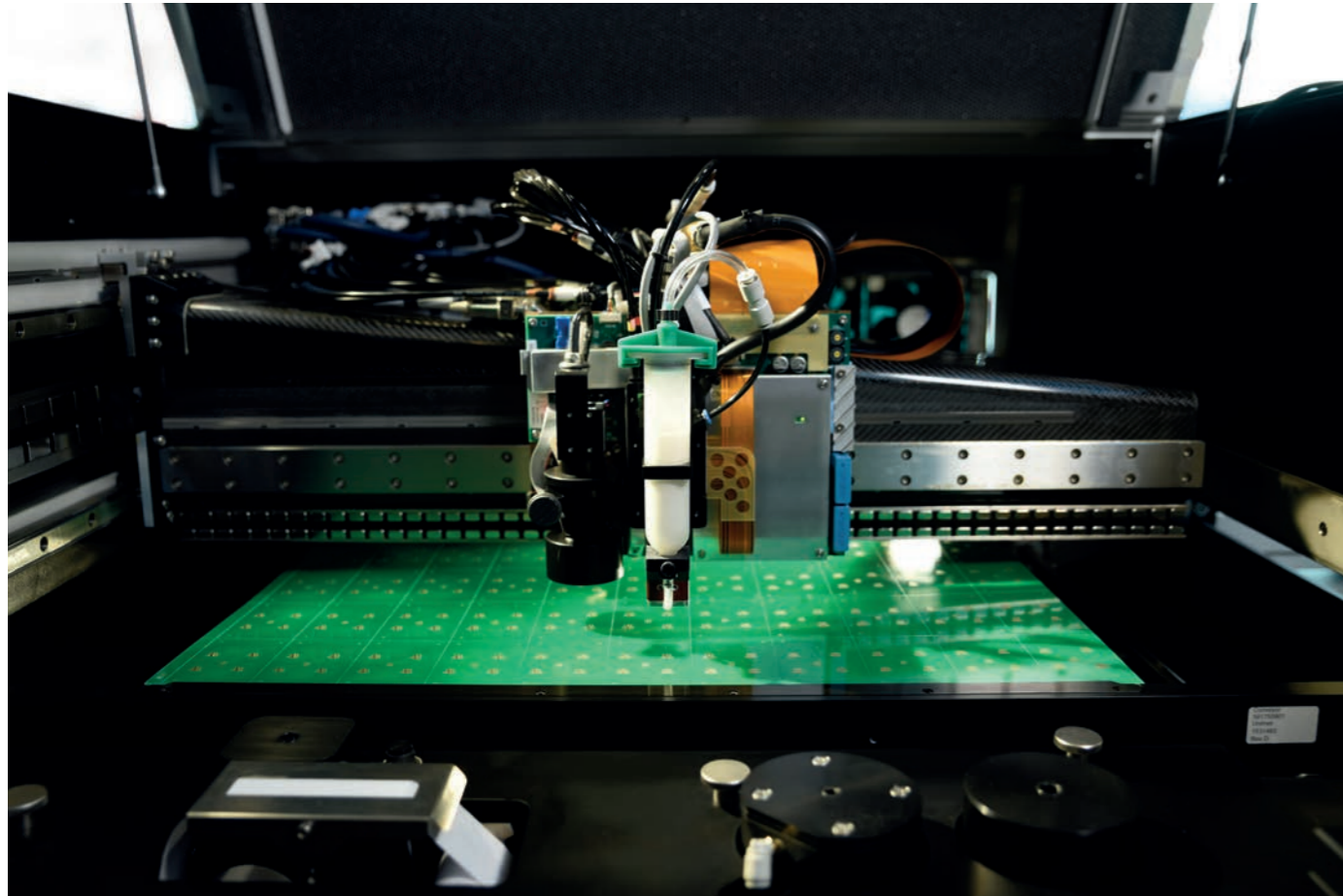
Nepcon Korea 2017
Dates: April 5–7
Location: COEX, Seoul, South Korea

Nepcon China 2017
Dates: April 25–27
Location: Shanghai World Expo Exhibition & Convention Center, China

Fast, faster, fastest... Jet dispensing is here

TEXT: JEM BAKER PHOTO: MAGNUS ELGQVIST

In another first for the SMT industry, Mycronic is bringing new levels of speed and accuracy to dispensing applications. Building on the success of the MY600 solder paste jet printer, the new MY600JD is the industry's first ever high-performance dispensing platform.



WELCOME TO A NEW WORLD. A world of faster, more accurate and more flexible dispensing. The market's first ever high-performance, high-quality dispensing platform has been developed at Mycronic – the home of SMT innovation.

The MY600JD takes dispensing to new levels in terms of speed and precision. It offers electronics manufacturers a significant boost to their productivity, helping them to build more products, with higher quality and at lower cost.

10-year heritage

The jet dispenser was developed by extending the capabilities of the award-winning MY600 solder paste jet printer. This means it comes with ten years of performance heritage already built in.

The MY600 is a fast, high-precision platform, fully software-driven and capable of jetting over one million solder paste droplets per hour. It delivers an unmatched combination of speed, quality and design flexibility.

First introduced in 2005, today jet printing is firmly established around the world. The MY600 has been installed at more than 200 sites in over 30 countries. It has seen success both as a stencil-free replacement for screen printers, and as an add-on to screen printing in high-volume production lines.

Add-on success

Frank Huysmans, VP Jet Printing and Dispensing, explains why the company is expanding into jet dispensing applications.

“At Mycronic, product innovation is driven by customer needs. In the case of dispensers, a technology gap had opened up and those needs were fairly obvious. Traditional dispensing technology hasn't really kept pace with some of the other advancements in the industry, particularly in terms of agile manufacturing and the intelligent factory.”

Frank Huysmans continues, “Leveraging the jet printer's capabilities, we were confident that this was an area where we could bring improvements. But it's about more than technology and hardware. The real breakthrough comes when you bring new ways of thinking to dispensing applications. That means using our Mycronic 4.0 philosophy to find new solutions to real-life customer challenges.”

First introduced in
2005, jet printing is,
today, firmly established
around the world.

New performance levels

The MY600JD is capable of dispensing a wide range of fluids and is well suited to a variety of industry applications, including chip encapsulation, cavity fill, SMA, gasketing, sealing, edge bonding, and conductive adhesives.

Thanks to a very robust platform, the jet dispenser achieves micrometer accuracy together with acceleration speeds up to 3g. That is roughly twice the average straight-line acceleration achieved in Formula 1 racing.

The MY600JD is the fastest dispensing platform on the market delivering throughputs two to ten times higher than traditional dispensers (depending on the application). In many situations, and especially in high-volume production lines, a MY600JD can be used to replace two or more ordinary dispensers.

Compared to conventional dispensing setups, the MY600JD also offers an improved cost of ownership through a lower parts count, longer service intervals, and requiring fewer personnel and less training and maintenance.

Arriving just in time

Like the MY600, the jet dispenser is non-contact and fully software-driven. It can be programmed offline to minimize change-over time and, just as importantly, it can also handle any last minute changes and revisions on-the-fly.

This kind of flexibility, together with its high performance speed and accuracy, make the MY600JD an ideal solution for just-in-time production and agile manufacturing set-ups.

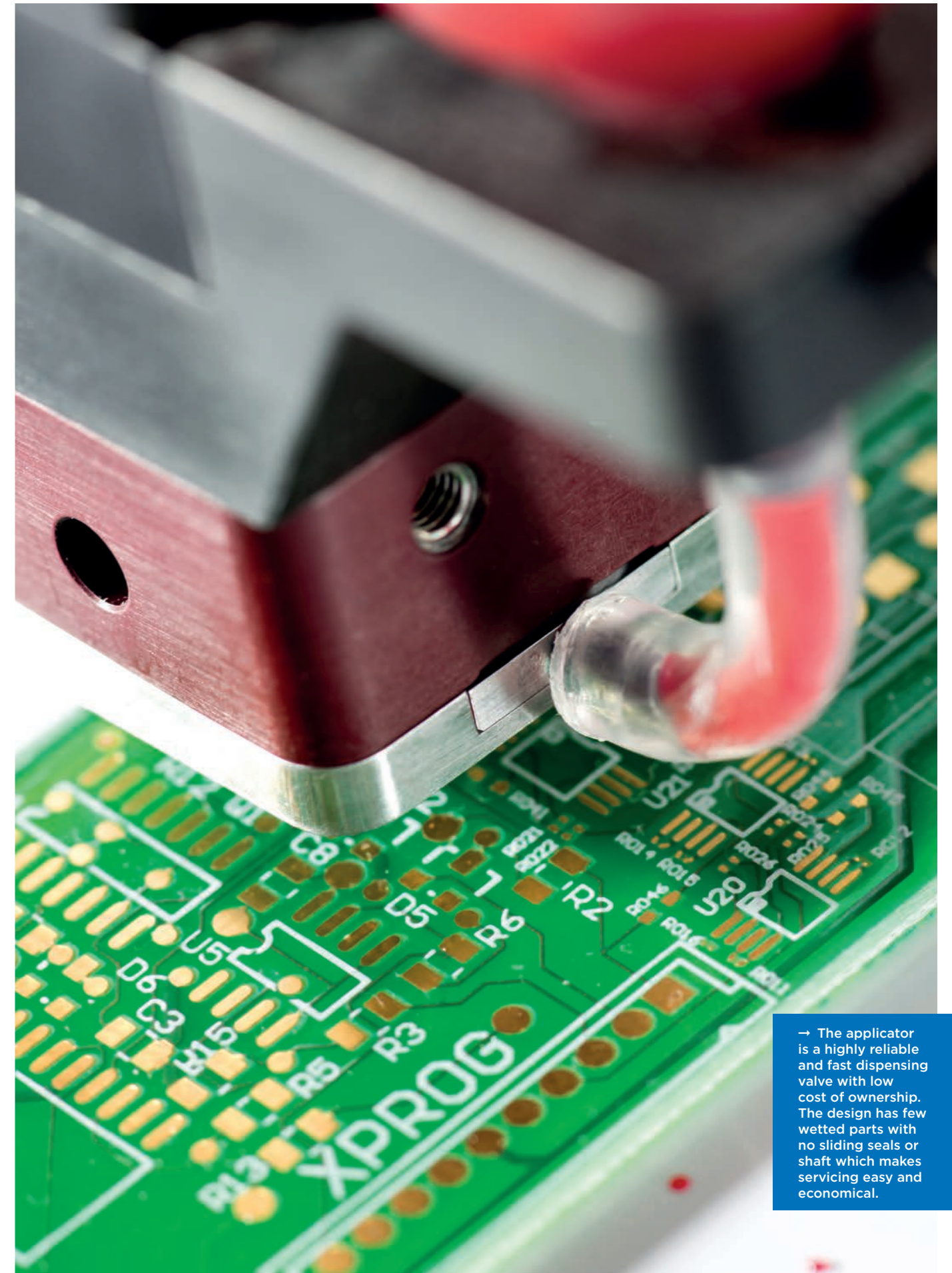
"It fits extremely well with the rest of our offering," says Frank Huysmans. "Productivity

gains alone make the MY600JD very interesting, but it has enormous value in terms of enabling dispensing applications within an intelligent factory. As with the rest of our Mycronic 4.0 offering, it is about combining technology and know-how to give customers a performance advantage over the competition."

You can experience jet dispensing capabilities for yourself at Mycronic trade shows and user meetings world-wide. The first customer deliveries took place in the first half of 2016.

The jet dispensing movement has begun.

This kind of flexibility, together with its high performance speed and accuracy make the MY600JD an ideal solution for just-in-time production and agile manufacturing set-ups.



→ The applicator is a highly reliable and fast dispensing valve with low cost of ownership. The design has few wetted parts with no sliding seals or shaft which makes servicing easy and economical.

Embracing tomorrow's challenges today

TEXT: JEM BAKER PHOTO: MAGNUS ELGQVIST

Smart factories are no longer a vision of the future. Mycronic is one of the companies spearheading the transition to intelligent manufacturing. Getting there requires a broad approach and a clear understanding of modern production challenges. By combining know-how with innovative smart solutions, Mycronic is helping its customers turn today's challenges into tomorrow's opportunities.



WHERE ARE WE HEADING? What will the future look like? What will it take to succeed?

No one can truly know what the future holds. But that doesn't mean we shouldn't prepare ourselves as best we can.

The electronics manufacturing landscape is changing. The old rules, where hardware plus manpower were enough to succeed, no longer apply. Specifications are useful, but just thinking, "If I buy a faster machine I will be able to shift more product," is an out-of-date approach.

Today, a wider perspective is needed that includes the supply chain, logistics, processes, automation and, above all, information management. Production investment needs to lead to an improvement in net output, not simply an increase in throughput potential. Investments also need to

establish a platform upon which to build future competitiveness.

Mycronic is well positioned to support its customers in their efforts. We call our offering Mycronic 4.0. It's based on a dynamic combination of industry-leading solutions and in-depth production know-how. Partnering with Mycronic puts customers in a strong position, especially in light of how the competitive landscape is shaping up.

Digital revolution

In Germany, they call it "Industrie 4.0" – the fourth industrial revolution. But it is also known as the smart factory, digital enterprise and intelligent production, for example.

It is the complete digitization of industrial production, bringing together online thinking, big data, the internet of things and cyber-physical systems. And it's coming faster than you think.

Governments are investing heavily to ensure their industrial sectors take the lead – rather than the powerhouses from the digital domain. In Germany, it is a favorite theme of the Chancellor Angela Merkel. Her visit to the Siemens showcase 'digital factory' in the small Bavarian city of Amberg in 2015 was a major media event. (Those paying close attention to the video reports will have seen a long row of Mycronic SMD Towers providing close-to-production component access on the futuristic factory floor.)

In a smart factory, human intervention is minimal. The products themselves communicate with machines and all processes are optimized and controlled via IT.

For the majority of companies, the reality of a completely digitized and automated production is still some way off. However, the journey has begun. The tools needed for increasing automation, improving operator efficiency and implementing factory-wide connectivity are available today.

This is good news, since the demands being placed on electronics production are becoming ever more challenging.

The tools needed for increasing automation, improving operator efficiency and implementing factory-wide connectivity are available today.

Modern production challenges

Rapid technology evolution is generating more and more products and increasing numbers of product variants. At the same time, more competition, stronger branding and a wider choice of models has changed purchasing patterns. Demand volatility has increased, product lifecycles have shortened, and fewer items are being held within distribution channels.

For manufacturers, the result is an increased production mix, a higher number of new product introductions, and less predictable order volumes.

The production process has had to adapt. Today, orders are broken down into batches and those batch sizes are getting smaller. There is also increased focus on just-in-time production to reduce inventory levels and minimize risk.

In modern electronics manufacturing, part numbers run to thousands upon thousands – way beyond what they used to be. Maintaining inventory accuracy is becoming increasingly difficult and yet increasingly important. There is greater movement of materials from storage to the production line and back again. Replenishments are needed more frequently and there are greater demands on testing and traceability.

With greater complexity comes increased risk of production interruptions, for example, due to missing materials, inaccurate stock levels, wrong revisions, late purchase decisions, or last minute re-planning.

When it comes to productivity, component placement speed is almost never the decisive factor any longer. Information management and material handling are the new bottlenecks.

When it comes to productivity, component placement speed is almost never the decisive factor any longer. Information management and material handling are the new bottlenecks.

What's needed today?

Dealing with increasing complexity requires greater production flexibility. This has always been important for short run and specialist manufacturers but is also now increasingly important for medium and higher volume producers as well.

The secret to success, of course, is achieving greater flexibility whilst maintaining or, better still, improving throughput. Get it right and you open the door to higher productivity and new business opportunities.

It requires looking beyond the production line itself. A more holistic approach is needed that includes the flow of information and the flow of materials, along with an understanding of how people impact the various processes.

At Mycronic, we have spent many years re-defining the boundaries of agile production. During that time, we have seen the entire spectrum of production set-ups from all corners of the globe. This has given us a unique understanding of what can be achieved in any situation.

We have been able to identify a number of key factors essential for smart production:

CONNECTIVITY. There needs to be a seamless flow of information across all functions and processes. Production, quality, engineering, admin and reporting systems – should all have access to the same information. Component and production information should only ever need registering once. Data should be centrally stored, updated in real time, and be immediately available to users and production equipment alike. Real-time access to data means more intelligence can be built into production equipment, providing greater opportunities for automation.

PLANNING VISIBILITY. Planners must have access to correct, up-to-date and complete information if they are to maximize equipment utilization. Just knowing whether the right components are in stock is not enough. Planners need to know the carrier type, the location, and whether a component is already assigned to another job. They also need to be able to take into account order prioritization, current machine kitting, part commonality between jobs, and line balancing issues.

MATERIALS FLOW. A complete material tracking solution needs to be able to track materials wherever they are in the factory - from incoming goods to being part of a final assembly. An effective inventory management system also needs to maintain stock accuracy. That means eliminating quantity divergence, often associated with traditional ERP/MPS systems. Rather than estimating rejects and waste, production equipment needs to provide accurate consumption feedback, updating stock levels in real time.

AUTOMATED REPLENISHMENT. A placement machine should never stand still waiting for component reels to be replaced. There should be an automated warning process, so the operator can prepare well in advance and replenish components on the fly without any interruption to production.

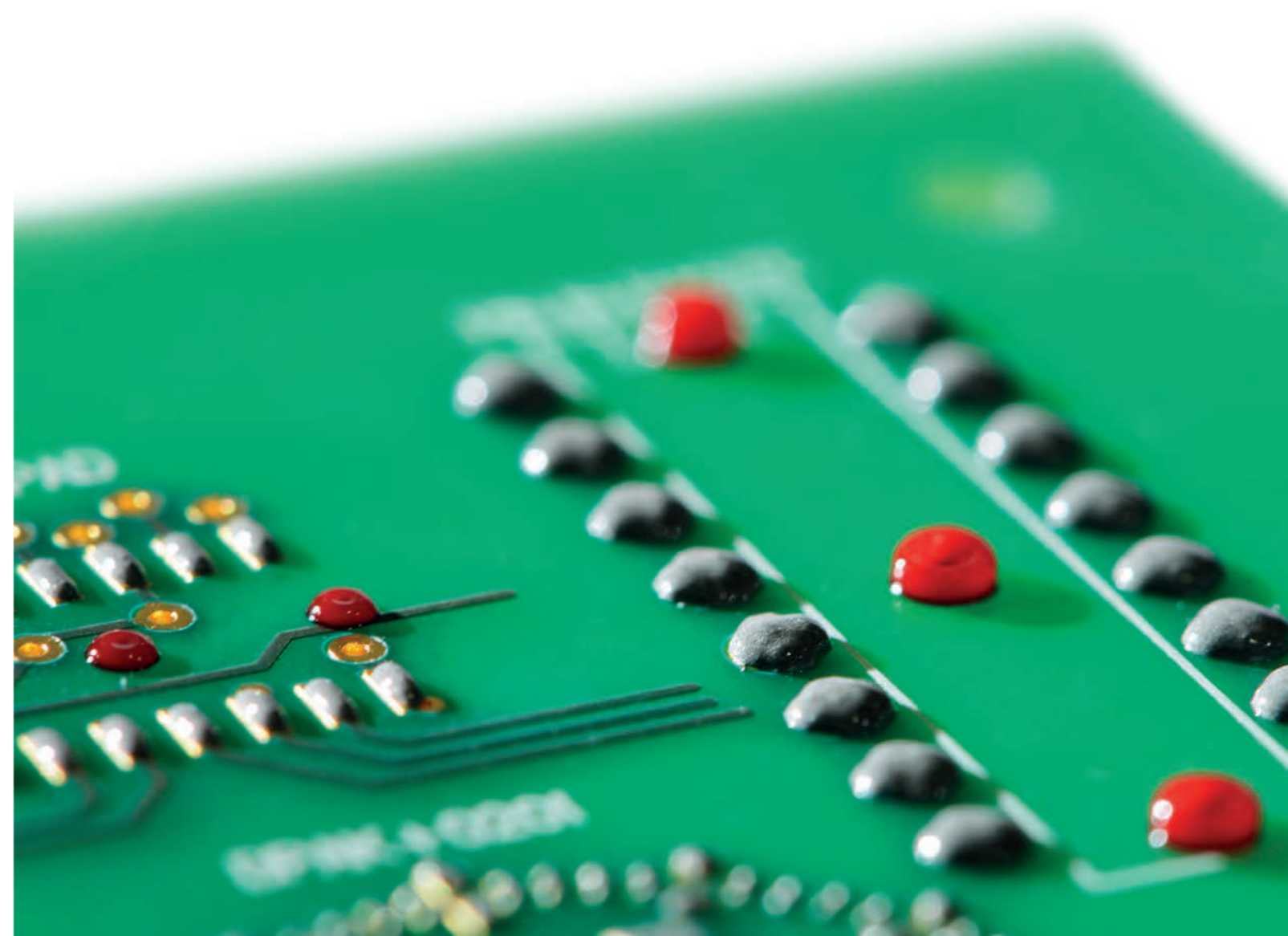
EFFICIENT CHANGEOVERS. As production goes over to smaller batch sizes, the ability to quickly switch between jobs is becoming increasingly important. To minimize downtime, new jobs need to be prepared offline

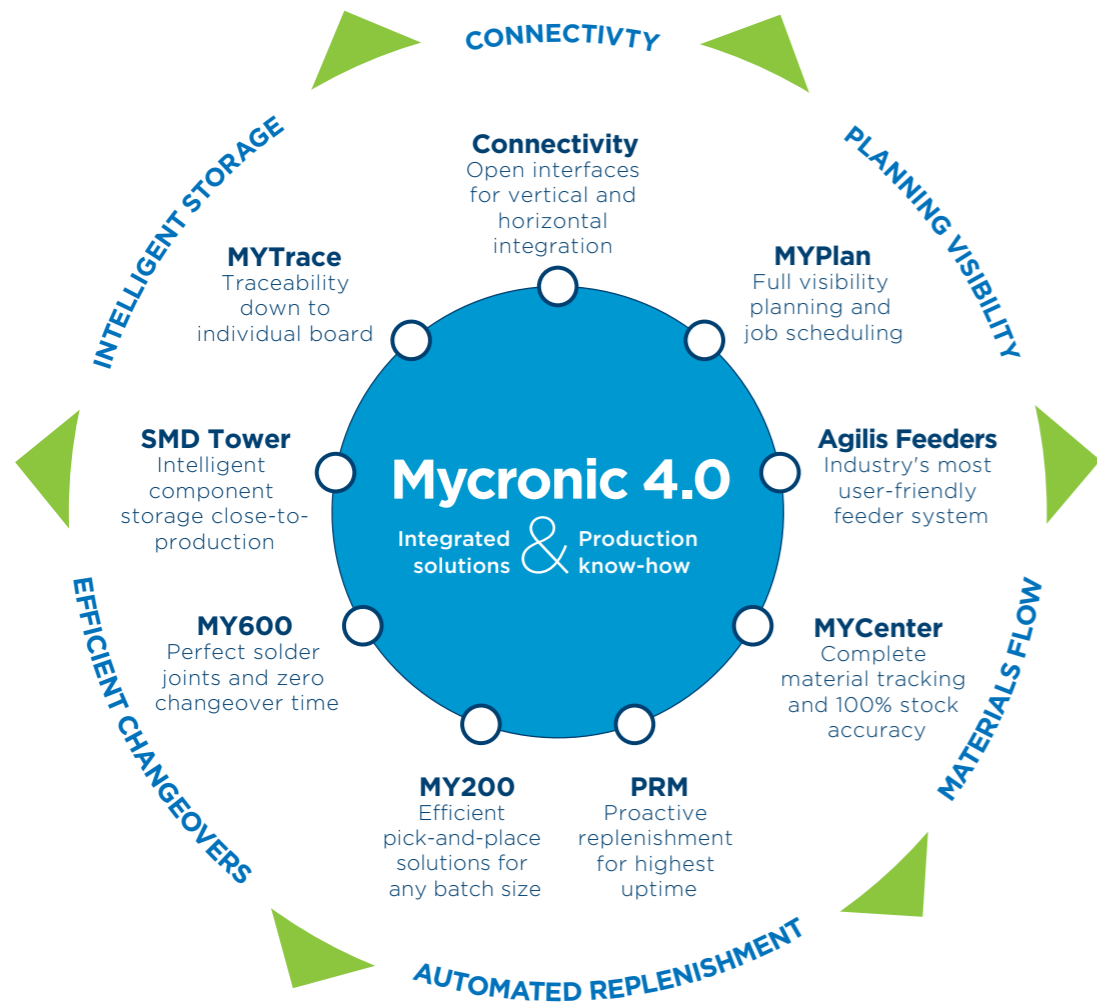
Paste? Epoxy? Assembly fluids? Boost your productivity and yield at 1,080,000 dots per hour

MY600 – The ultimate in high-speed jet printing and dispensing

With the MY600JX, now you can alternate between jetting solder paste and assembly fluids at speeds of more than one million dots per hour. Simply jet your preconfigured job. Switch quick-connect cassettes. And press start. Advanced automatch capabilities optimize parameter settings automatically. And a self-learning data preparation system improves speed and quality with every job.

It's all part of the highly automated just-in-time production that we call **Mycronic 4.0** – our fully integrated solution designed to meet the challenges of today's increasingly complex production environments. Find out how MY600 and Mycronic 4.0 can boost your yield, flexibility and factory-wide productivity at www.mycronic.com





and kitting needs to be carried out quickly. Where possible, changeover times should be eliminated altogether, either by carrying out changeovers on the fly, or by combining jobs into a single production run and replacing components on the fly.

INTELLIGENT STORAGE. Operators should never waste time searching for components. Nor should there be room for human error when picking. Both can be avoided by using an automated, software-controlled component retrieval solution. It should provide fast component access, be fully integrated with the inventory management system, and be able to handle moisture-sensitive devices. Locating storage solutions close to the production line and providing automated restocking can boost efficiency still further.

How high should you aim?

At Mycronic, we look beyond our current solutions areas. We make it our business to understand how modern production strategies and wider industry trends impact our customers. The six factors outlined above are part of this approach and provide a framework for our Mycronic 4.0 offering.

But what does this mean for customers?

Let's consider the example of an electronics manufacturer who wants to increase line utilization. Working with a broad mix of customers across several industries, and with a reputation for delivering quality, their current line utilization is around 30-40 percent. The company knows that with some internal effort and a little invest-

ment, they should be able to increase utilization to 50-55 percent. The question is, should they be satisfied with this?

In the end it comes down to vision and ambition – and that is for the company's management team to decide. But what is almost certain is that a focused approach, that makes full use of integrated smart solutions, could achieve much higher utilization – over 80 percent might not be an unreasonable target.

Delivering this level improvement requires knowledge and experience – understanding the current situation, recognizing where the best opportunities for improvement are, knowing how to optimize processes and routines, selecting the right enabling tools, and implementing a fully integrated information and production solution.

Where are your performance gaps?

Mycronic can help customers who want to generate new business opportunities and are prepared to embrace change. We offer a complete range of solutions supporting intelligent manufacturing. Just as importantly, we know how everything should be integrated in order to maximize returns.

The first step is to understand where performance gaps are today. Your goal might be to increase equipment utilization, improve productivity, enhance quality, lower costs, or any combination of these. Whatever the driver for change is, it is essential to take a broad approach. The complex nature of modern production means that making improvements in one area requires an understanding of how it affects, and is affected by, all the other areas. Everything is connected.

This is where Mycronic's unique insight into high-performance manufacturing can help. We are able to provide customers with a 360° view of their manufacturing operations, benchmarking their current production against industry best-in-class agile solutions.

Backed up by Mycronic 4.0, this ensures the best possible start for developing more intelligent, agile and highly efficient production.

Electronics manufacturing is at a turning point. Those that fall behind now, may find it difficult to catch up again. Those that choose Mycronic as their partner, move forward knowing they have one foot in the future even before they begin.



MY600 Long Board, now at your doorstep!

THE MARKET'S NEED for a high-quality, high-productivity solution for long board applications such as LED strips is now available to you. Maximize the use of your Jet Printer and run both short and long boards on the same machine. Boards up to 1,524 mm can now be jetted by the MY600. A pair of tailor-made conveyors support the board at entry and exit, and boards can be processed in all orientations. The board is indexed and jetted in steps and any board stretch is automatically compensated for, which is another smart software feature found in the MY600. The Long Board option, which consist of both software and hardware options, can be retrofitted to all MY600, but requires JPSys 2.2. //



PHOTO: MAGNUS ELGOVIST



PHOTO: MAGNUS ELGOVIST

Introducing the Agilis™ Tray Magazine

IN ORDER TO HELP electronics manufacturers improve their productivity and flexibility, Mycronic is now introducing a new tray feeder solution, the Agilis Tray Magazine ATM8. The compact unit is the next addition to the Agilis family, suitable for low- to medium-volume tray handling. The ATM8 offers the possibility to handle up to 8 JEDEC trays in a single magazine slot.

The ATM's user-friendly tray holders feature a unique ID chip and a matching barcode, making the loading process just as easy and safe as with any other Agilis feeder. Exchanging or refilling a tray is done in less than a minute, and the operator is guided by an LED indicator showing which tray needs to be replaced. The pick-and-place machine will continue mounting non-tray components while the ATM is being replenished.

The ATM is compatible with all MY100, MY100e and MY200 series machines running TPSys 3.3 or later. //

New PRM software for higher uptime

THE IMPROVED Proactive Replenishment Monitor (PRM), which is now fully integrated with TPSys and MYCenter, will minimize machine stoppages by guiding the operator through fetching and preparing replenishment material well in advance.

PRM's comprehensive interface shows a list of feeders in next-to-run-out order, including component name, location and remaining time until empty. The view can be configured to fit the working process, e.g. which machines should be monitored, and what time limits should activate the notification and warning color codes. The PRM software can also be configured to automatically provide the needed reels from the SMD Tower.

Thanks to a web-based solution, the replenishment needs can be displayed close to the production line, as well as in the kitting area and storage room. PRM is fully integrated with MYCenter Material Handling, allowing the operator to quickly locate material, and pre-load it onto suitable feeders. It can even help ensure that replenishment material is placed nearby the machine when ready, in order to reduce stoppages to a minimum. //



PHOTO: MAGNUS ELGOVIST

Inventory management takes center stage

TEXT: DAVID GRAY PHOTO: KOMATSU ELECTRONICS, MAGNUS ELGQVIST

Ask PCB assemblers about inventory challenges and there is no shortage of stories. One US-based manager recalls his SMT line “screaming to a halt” as his entire staff ran around looking for a missing part that his purchasing manager “swore” was ordered and delivered. Another Japanese producer laments about paying an “army” of stock-kitting personnel in a component warehouse far away from the actual production lines, often using ladders to reach reels. The man-hours and lost production time – not to mention the risk of human error or keeping valued customers waiting – was costing both of them a lot of money and creating production challenges.

THESE ARE JUST a few examples of the bottlenecks that often stand in the way of a more cost-effective flow of material in the modern SMT factory. And yet, as recently as five years ago, if you asked a logistics manager how they planned to maintain seamless production in the face of smaller batch production and complex boards, they’d often do the expected thing – that is, point proudly to shiny new “agile” placement machines or, possibly, new software.

75% of the raw materials in an SMT factory need not be there.

MENTOR GRAPHICS RESEARCH

Essential part of Mycronic 4.0

Today, however, as the focus turns to Industry 4.0, or the “smart factory”, many are now urgently looking into fully automated, software-driven storage solutions for loading and reloading of component reels in the kitting area that connect seamlessly with their ERP systems. It appears that optimizing materials handling and storage, a sometimes under-prioritized investment area, is coming into sharper focus. Indeed, Mycronic has made “intelligent storage” a key part of its own “Mycronic 4.0” solution, a 360-degree approach to optimizing the factory workflow.

Time is money

Göran Frank, Product Manager at Mycronic who is responsible for the company’s range of SMD storage towers, says: “Manual storage has reached its limits and many companies are realizing this the hard way. They’re tired of having a lot of extra staff spend valuable time looking for components stored in different locations or returning material to stock with all the risk of human error that this involves.”

Some revealing facts

Research also supports Frank. One study by Mentor Graphics, for example, found that inefficient material handling has a strong impact on lost productivity – an area that deserves closer analysis. Amazingly, the study concluded that: “75 percent of the raw materials in an SMT factory need not be there.” If you think about this for a minute,





SMT operations often run at as little as 20% absolute productivity.

MENTOR GRAPHICS RESEARCH

it means that many producers are light years away from achieving their stated visions of “just-in-time production,” with zero backlogs of components. In fact, quite the opposite is true. In another startling revelation, the study found that: “SMT operations often run at as little as 20 percent absolute productivity.” Such surprisingly low line utilization levels can often be traced directly back to challenges with the supply of materials, poor stock accuracy or mixed-up reels – factors that are often vastly underestimated in the larger scheme of things, according to Frank.

New focus on material handling

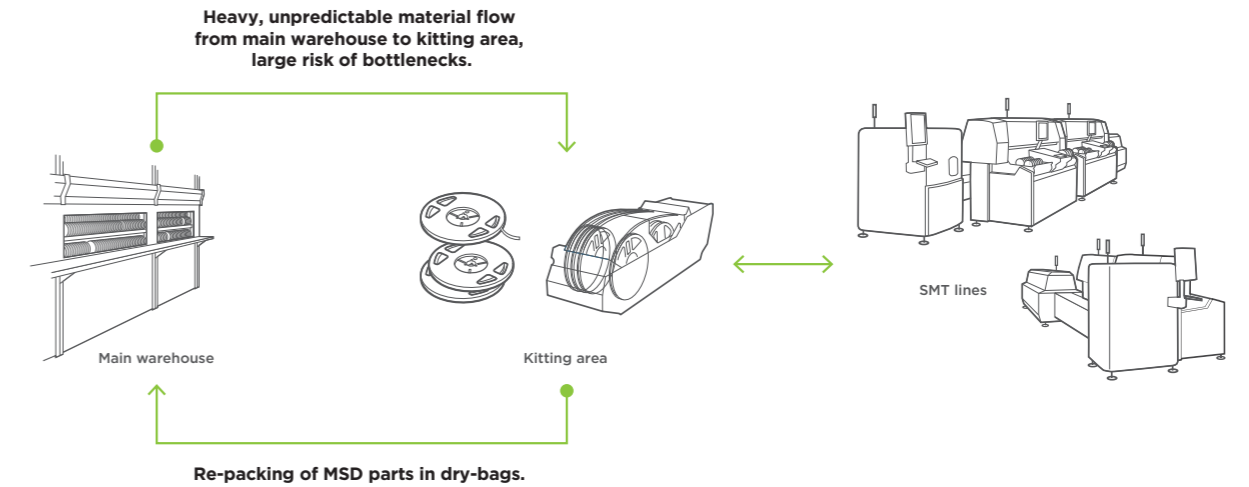
So why the lack of focus on material handling? “Actually, this lack of attention is not so surprising when you consider the industry’s long-term obsession with machine speeds as the means to higher productivity, or the tendency to offshore volume production to low-cost countries,” says Robert Göthner, Senior VP, General Manager, Business Area SMT.

“Today the tide is turning, as batches become shorter and board architecture takes on a life of its own. Even in low-cost countries like China, producers can no longer achieve quick changeovers and a cost-effective flow of materials by simply adding faster chip shooters or more personnel. Now, they really need to tackle the heart of the problem; to further automate the production process. This is why Industry 4.0 is also coming to Asia and why we’re seeing such a strong interest in our tower solution for use in a wide range of key locations in the factory.”

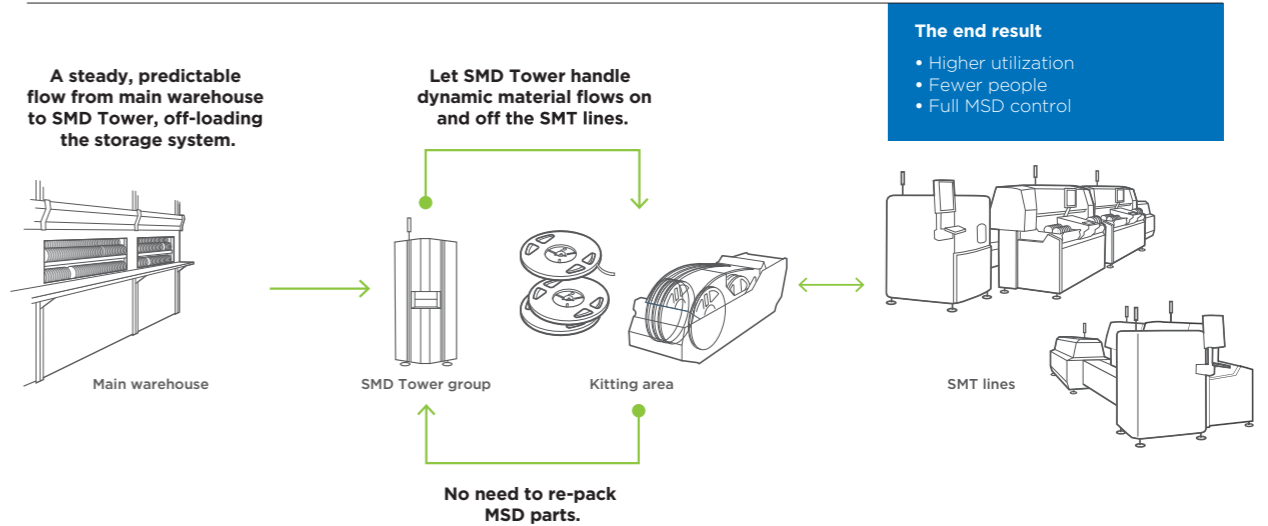
Forward-looking tower solutions

Mycronic was an early pioneer in the SMT industry in offering compact automated storage tower solutions more than 10 years ago. Since then, it has continued to develop a range of automated, highly flexible and expandable buffer storage units designed for deployment near the production line. With a one-square meter footprint and the ability to handle up to 980 different SMD reels or

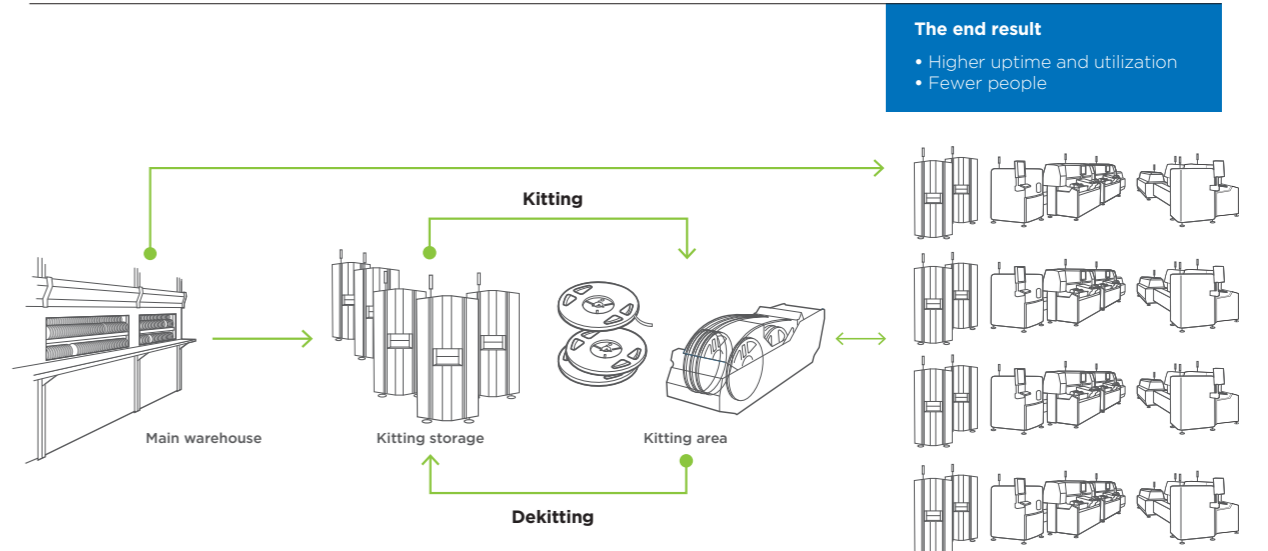
The traditional SMD material flow storage systems becomes a bottleneck



The SMD Tower material flow eliminating unnecessary material movement and workload



Local replenishment storage: the ultimate distributed storage system





Say goodbye to waiting for components Pick 100 reels in under 5 minutes with no errors

SMD Tower – Millions of components. One intelligent storage solution.

For too many of today's SMT manufacturers, more complex PCBs means more time spent storing, finding and retrieving components. Not any more. With our SMD Tower storage system, you can handle tens of thousands of part numbers without losing a single reel. All with complete control, MSD tracking, and retrieval speeds as high as 20 reels per minute. More than just speed, it's about achieving the highest possible line utilization at the lowest possible cost.

It's all part of the highly automated just-in-time production that we call **Mycronic 4.0** – our fully integrated solution designed to meet the challenges of today's increasingly complex production environments. Find out how SMD Tower and Mycronic 4.0 can boost your utilization and increase factory-wide productivity at www.mycronic.com



MYCRONIC
When passion meets innovation ●

We reduced our material storage and retrieval times from 90 to 4 seconds per part, resulting in an overall savings of 4,600 man-hours per year.

MR KUWATA, EXECUTIVE PRODUCTION MANAGER
KOMATSU ELECTRONICS, JAPAN



up to 875 trays in a controlled environment, serving up reels in seconds, the Mycronic SMD Tower is becoming popular across the globe. The tower solution is now used by both small and large electronic manufacturers, including some of the largest companies within the automotive and communications industries – and the installed base continues to grow.

Suite of 16 SMD towers at Komatsu

One electronics manufacturer that has adopted the Mycronic SMD Tower solution is Komatsu Electronics, a low- to mid-volume producer of high-mix boards for airline entertainment systems and other products, based in Komatsu City, Ishikawa Prefecture, Japan. According to Mr Kuwata, Executive Production Manager, the company was experiencing high costs due to challenges with “back-end operations”, including high labor requirements to hunt down missing material, resulting in pick-and-place machine downtime.

Saving 4,600 man-hours a year

Starting with one tower, Komatsu later installed a suite of 13 near-production SMD Towers to fully automate its component handling and achieve its ambitious cost rationalization goals. Improvements so far include a 57 percent reduction in placement machine downtime, and material storage

and retrieval times that have gone from 90 to 4 seconds per part. The towers are interconnected with Komatsu's ERP system, allowing for real-time inventory checking. According to Komatsu's management, they have proven indispensable in the reduction of both lead times and labor costs. In effect, they've reduced pick-and-place downtime from 75 minutes per line and day to 32 minutes per line and day. Not only were the towers instrumental in reducing picking mistakes, but the company achieved an overall savings of 4,600 man-hours per year!

Strategically placed storage solutions

According to Goran Frank, Mycronic is now building on this success and introducing its new 615 range, including four models, featuring up to 49 percent more capacity than previously, and the ability to handle a total of up to 980 reels, including 15” capability. But he says the really interesting development is how the towers can be used flexibly in a wide range of configurations, strategically placed throughout the factory – from traditional warehousing and kitting to local replenishment solutions near production. In conclusion, he notes how the SMD Tower solution is a key part of Mycronic 4.0, the company's own holistic approach to greater factory automation, leading to higher productivity, efficiency and quality.

Paperless productivity – changeover guidance with Agilis Smart Bin

TEXT: GRANT BALDRIDGE PHOTO: MAGNUS ELGQVIST

More than ten years ago, the award-winning Agilis feeder system gave high-mix manufacturers the industry's most streamlined changeovers. Now, the Agilis Smart Bin system is bringing the same low changeover costs to mid-volume producers, making misplaced components and excessive shop floor movements a thing of the past.

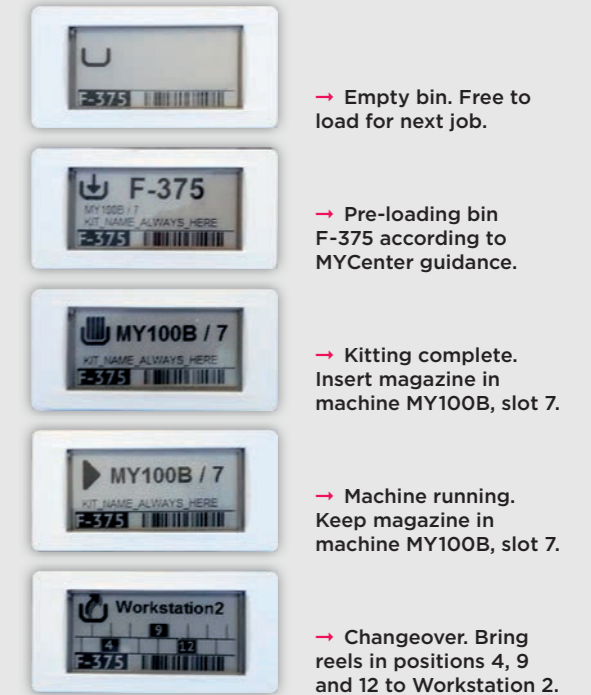


The Agilis Smart Bin system enables:

- Real-time paperless kitting guidance and changeover instructions
- Intuitive pre-loading for upcoming jobs, with factory-wide material tracking
- Easy location of missing components across the shop floor
- Faster changeovers and higher utilization

Complete kitting and changeover guidance

The upper-left side of the e-label shows an icon for easy indication of the bin's material status: kitting ongoing, ready to bring to machine, ready for changeover, etc. To the right of the icon, the operator can view primary instructions such as machine name, feeder slot, the material destination during changeover, and more.



The next step in intelligent material handling

Missing components. Sticky notes falling off. Hunting for information. The list of reasons for unplanned downtime could go on. But in most cases, line utilization is heavily dependent on efficient material and information handling. These are precisely the challenges Mycronic's Agilis feeder system, MYCenter software, and SMD Tower automated storage system were designed to solve. The Agilis Smart Bin system marks the next step in this evolution toward smarter material handling for the intelligent factory.

Intuitive paperless kitting guidance

The new Agilis Smart Bin provides intuitive paperless kitting guidance through electronic labels placed directly on the reel bins. These wireless e-labels communicate with a central data server via a radio base station to give operators real-time, accurate information about every component reel's status and physical location. The MYCenter material

handling software guides operators through the entire kitting and changeover process, with instructions presented both on the bins' e-labels and on the PC screen.

Comprehensive kitting status monitoring

A hand-held bar scanner is used to confirm all actions and movements, making it possible to instantly locate any material, anywhere on the shop floor. The information presented by the e-labels includes current kitting and material status, machine name, feeder slot and material destination during changeovers. If a bin is in need of material, it alerts the operator through its e-label, displaying which materials to collect and where to place them.

Factory-wide material tracking

Thanks to its continuous factory-wide material tracking, the Agilis Smart Bin system makes it possible to eliminate missing material entirely. When kitting personnel needs to

collect material that's already loaded on a machine, MYCenter sends signals to the e-labels to alert the machine operators about the need to transfer this material to the kitting station. By presenting relevant information directly on the material container, it significantly reduces unnecessary movements across the shop floor, inefficient paper instructions and component inventory lists, and associated human errors. As a result, high-mix and mid-volume manufacturers can achieve substantially faster changeovers and higher utilization.

A result of customer collaboration

Development of the Agilis Smart Bin system was carried out in close collaboration with TBP Electronics, a mid-volume SMT manufacturer based in the Netherlands. With several production lines, large shop floor areas, multiple operators and large quantities of materials, the company had already made major steps toward enabling advanced logistics for smarter, just-in-time manufacturing. Thanks to an automated warehouse, complete with near-production SMD Towers for local storage and factory-wide MYCenter material handling software, only one final gap remained: a paperless system for handovers from kitting personnel to machine operators. The Agilis Smart Bin met this need for paperless productivity by providing operators with the comprehensive kitting guidance and intuitive material tracking they needed. Instead of handing over paper instructions and locating necessary components, kitting personnel can now spend more time pre-loading bins in preparation for upcoming jobs.

Another award-winning innovation

In recognition of this comprehensive advance in material handling, the Agilis Smart Bin system received a 2015 Global Technology Award in the category Low-to-Medium Volume Placement at Productronica 2016 in Munich. "With the introduction of the Agilis Smart Bin system, Mycronic offers the SMT industry's lowest changeover cost," says the award sponsor, Global SMT & Packaging magazine. "The Agilis Smart Bin system brings unparalleled ease of use to the kitting and changeover process."



Individualized production made easy Go from volume to batch-size one without missing a beat

MY200 Performance Series - The industry's most agile pick-and-place solution

Now you can switch between any batch sizes in record time. With our recently improved MY200 series, you can handle an endless array of individualized products with higher production quality, zero mix-up of parts, seamless material handling, and traceability down to individual placements. The result is not just better quality and faster changeovers, but more boards mounted at the end of the day.

It's all part of the highly automated just-in-time production that we call **Mycronic 4.0** - our fully integrated solution designed to meet the challenges of today's increasingly complex production environments. Find out how MY200 and Mycronic 4.0 can minimize your changeover costs and boost factory-wide productivity at www.mycronic.com



MYCRONIC
When passion meets innovation ●

Exhibition: Nepcon South China 2016

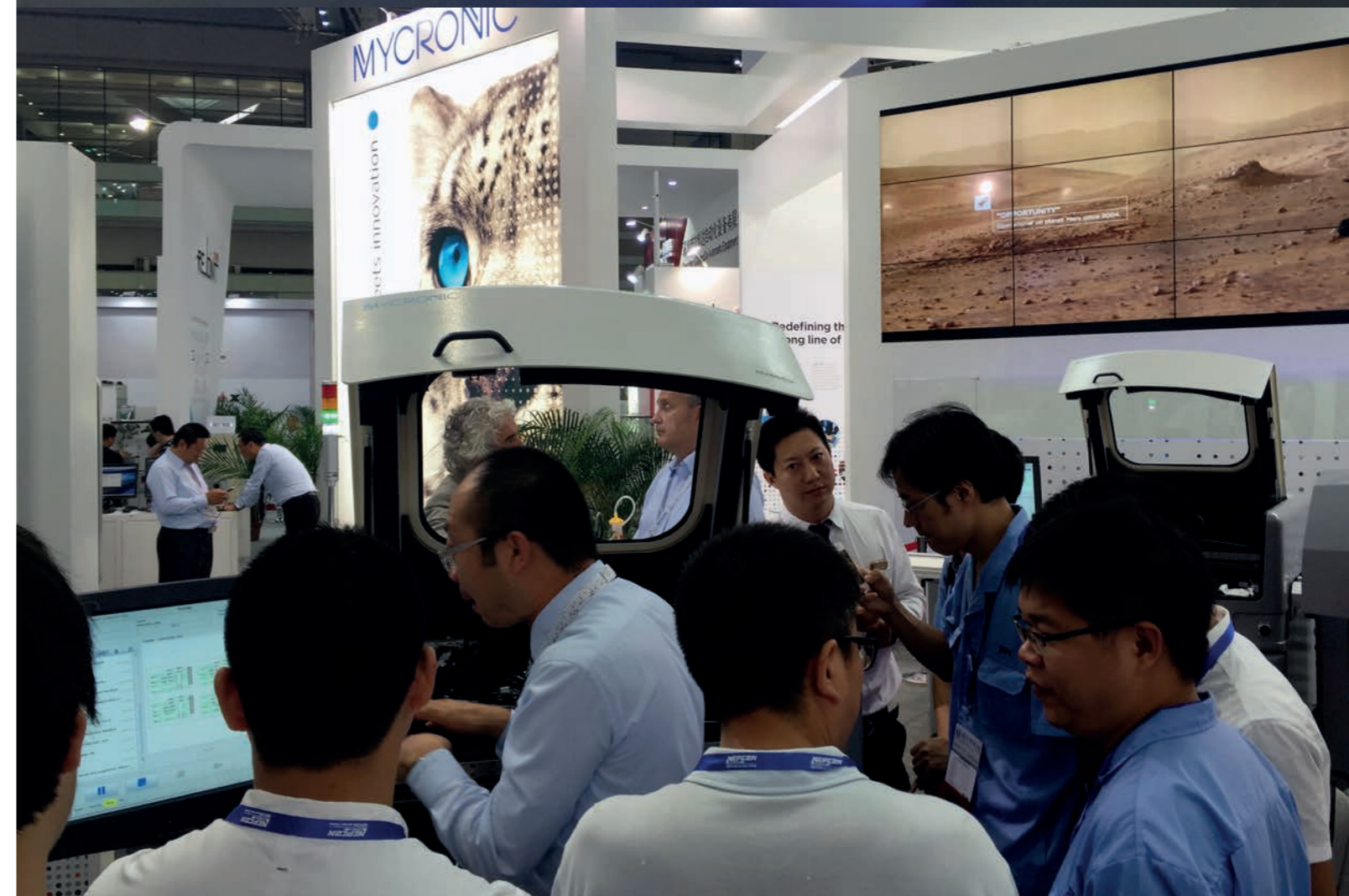
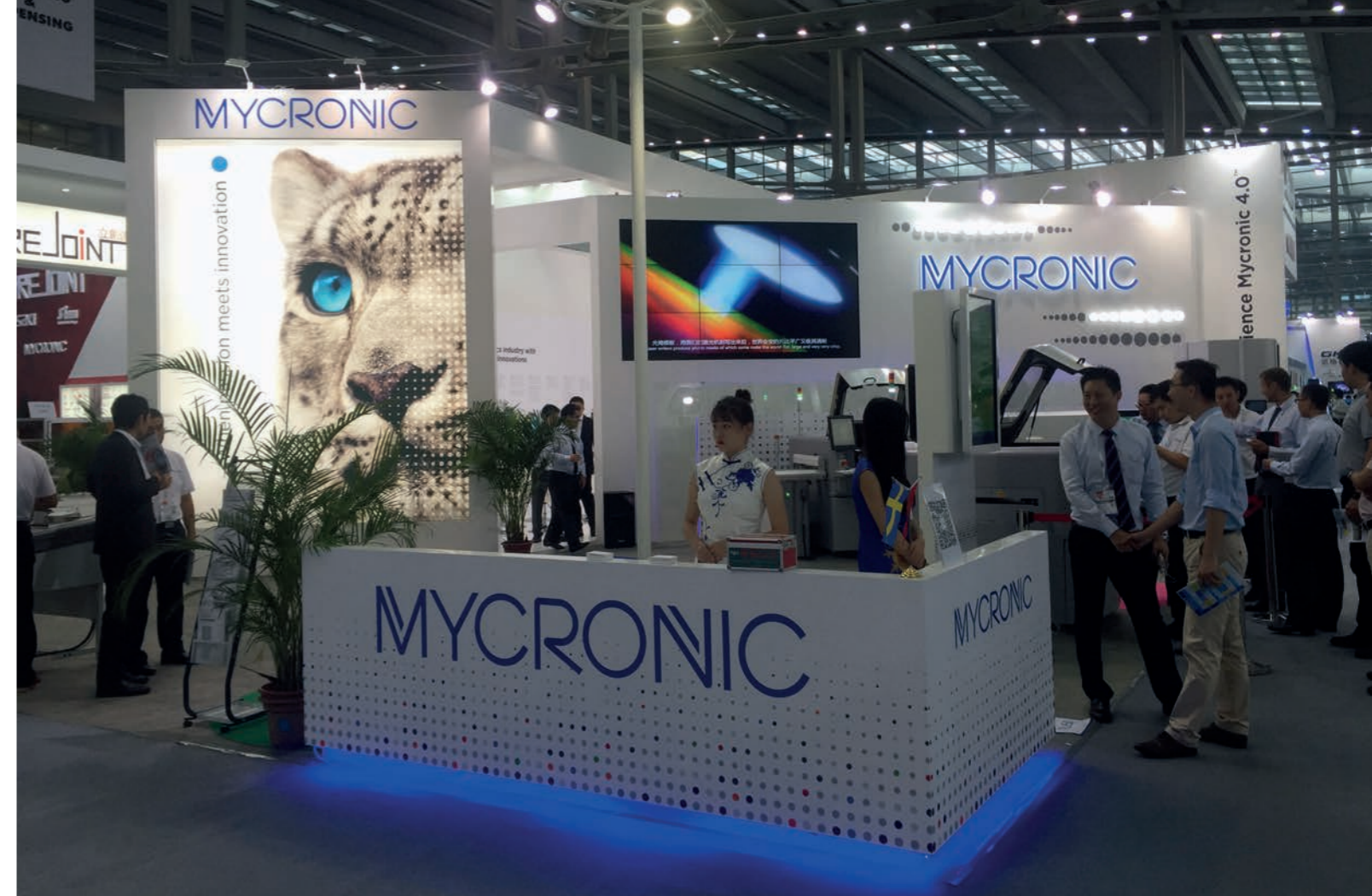
FROM AUG 30TH TO SEP 1ST, 2016, Mycronic participated in the Nepcon South China 2016 trade show, held in Shenzhen Convention & Exhibition Center. Nepcon South China is an outstanding trade platform and exhibition that features the entire electronics manufacturing industry on a large scale. The visitors represented the fields of EMS/OEM/ODM, consumer electronics, computers, communications, automotive electronics, and medical devices.

Nepcon South China is an ideal platform for acquiring new sales leads, networking with customers, presenting new products and technologies, and creating awareness around Mycronic's solutions and know-how.

During the exhibition, Mycronic displayed the MY600JX for the first time in southern China. The MY600JX represents a major step forward for the electronics industry, and the new high-speed dispensing capabilities of the versatile platform were well-received by the market.

Another major attraction was the high-mix production area consisting of MY200, MY600JP, SMD Tower and THT Assembly Station. Many highly influential electronics companies visited our booth - ZTE, Huawei, Foxconn to name just a few - to learn more about Mycronic 4.0 and our total solution for cost-effective SMT assembly.

Finally, we would like to extend our warm thanks to all clients and partners who honored us with their presence at the dinner and social event on the evening of Aug 30th. We are already looking forward to next year's event!



Paste? Epoxy? Assembly fluids? **Boost your productivity and yield at 1,080,000 dots per hour**

MY600 - The ultimate in high-speed jet printing and dispensing

With the MY600JX, now you can alternate between jetting solder paste and assembly fluids at speeds of more than one million dots per hour. Simply jet your preconfigured job. Switch quick-connect cassettes. And press start. Advanced automatch capabilities optimize parameter settings automatically. And a self-learning data preparation system improves speed and quality with every job.

It's all part of the highly automated just-in-time production that we call **Mycronic 4.0** - our fully integrated solution designed to meet the challenges of today's increasingly complex production environments. Find out how MY600 and Mycronic 4.0 can boost your yield, flexibility and factory-wide productivity at www.mycronic.com

