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- Transitioning from In House Production to a Contract Manufacturer

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# Flux Connectivity

By Joe Tito  
Wiring Harness News

Recently, I stumbled across the website of Flux Connectivity, a wire and cable harness manufacturer in Canada. Flux produces wire and cable assemblies, and has full over-molding capabilities for both. They also produce Ethernet cable assemblies and junction boxes along with a couple of other specialty products (FluxForce™ Cable for harsh environments and Swivel-pole™ Assembly).

I found a number of informative blog posts (see Intelligent Vs. Non-Intelligent Part Numbers from the

July August issue) along with some primers I thought would make great introductory training for folks new to our industry. Curious about the company, I left a comment and connected with Adam Amos, the CEO at Flux. His new company sounded like a great subject for our Industry Profile, so I scheduled an interview with he and Shelly Billingham, head of Human Capital Management.

Adam may have a few of us beat as to ‘age of entry’ in the wire and cable harness assembly industry. “I actually started working in the industry at 11 years old,” he chronicled. “In my previous company, I started working summers washing coffee cups



Visual inspection at Flux Connectivity

and sweeping floors, and eventually became VP of Manufacturing.” Adam had many successes at the company including the establishment of the over-molding division, directing the ISO 9001 certification, developing the corporate manufacturing facility, streamlining the supply chain, and bringing lean concepts to the organization. He worked as part of a team to accomplish a corporate re-branding. That effort won the company the 2015 Summit Creative Award for a Complete Branding Package.

Despite these successes, Adam fell prey to his entrepreneurial streak, and branched out on his own. Flux Connectivity was born on April, 14, 2018. In order to understand what Adam and his team are doing, you may have to unpack some of your conventional thinking on how a typical contract manufacturer is fashioned. Adam has steered away from the standard model of a corporate headquarters with centralized manufacturing, in place of a decentralized model that focuses

on staging inventory and work-in-progress close to the customer.

The only physical locations Flux has are its value-add centers. They partner with complimentary, but non-competing, companies who aren’t using all the space they have. Adam detailed, saying, “This allows us to scale quickly as it’s easier than negotiating with a landlord who wants us to commit to a lease for x number of years. For example, we are looking at a building in Houston right now where they are not utilizing all of their space, so we have an opportunity to work collaboratively and get cheap rent with no long-term commitment while providing more jobs to the local economy.”

Adam has some history with what he sees as the major drawbacks of the conventional manufacturing setup. One is with insurance. Flux comes in as a secondary under the host company’s insurance, saving the

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## Streamlining Inbound Marketing: Falconer Electronics Develops In-house Quote Tool

Falconer Electronics has been a successful manufacturer of custom Wire Harnesses and Ground Straps since 1985. Yet, like many companies in the contract manufacturing arena, attracting new customers who fit their core competency became a challenge. As Roger Hall, Founder and President of Falconer Electronics explained, “There is a tendency to try to be everything to everybody. Someone knocks on your door, you respond, and you end up chasing things that aren’t really in your wheelhouse.” By embracing eCommerce and Inbound Marketing strategies, however, the company is changing this tendency, and focusing on its core strengths.

“To start, we decided to make an investment in creating two robust software tools to help streamline the purchasing process for our customers,” Roger revealed. The Ground Strap Quote Builder and the Wire Harness

Estimator were created as a result. Because of the simplicity of ground strap design, and the relative few inputs for configuration, the Ground Strap Quote Builder was an easier task. “Customers input data regarding specific requirements, and then receive a near-instant email quote on those customizations. The entire five-step process is simple and takes about 60 seconds or less,” he outlined. The five inputs are: RoHS compliance (yes/no), width and length of braided wire, A and B side terminal selection, terminal orientation (selection from seven illustrations), and finally, the specific quantity needed. The Quote Builder includes video instruction with each step.

The Wire Harness Estimator works in a similar fashion, but as Roger advised, “Due to the near infinite number of variables in building a wire

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# Transitioning from In-house Production to a Contract Manufacturer: Opportunities and Challenges

By Tracie Ball and Tom Brazier  
RESCO Electronics

In today’s challenging manufacturing environment, OEM’s are always looking for opportunities to reduce costs. Recently the RESCO team worked on a new project with a large medical OEM to transition production of a critical high voltage assembly from their plant to RESCO’s facility in Ciudad Acuna Mexico. As with any outsourcing project, this one came with a unique set of opportunities and challenges.

Because this product was causing a bottleneck in our customer’s production, the first challenge our team

faced was developing a project timeline that was aggressive, but allowed enough time for all of the steps required for a smooth transition to be covered. An important part of the project was to re-direct raw material from our customer’s suppliers; many of them new to RESCO.

As the two engineering groups worked together, it was discovered that several changes needed to be made to the assembly drawing. These changes, while not directly affecting the end product, impacted the manufacturing and inspection procedures. Since our customer is a medical device OEM with strictly controlled change procedures, it was impor-

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tant to get these items identified quickly so that they had ample time to execute their internal engineering change approval process.

Because of the nature of the product, as well as the testing requirements, the RESCO team needed to identify new test equipment, develop a test procedure, and build the required fixturing that would allow for a safe and efficient testing of this high voltage product. Because our customer was currently building parts our engineering team requested and was able to get known good and bad samples with which to validate our test procedure.

After all of the effort to get to this point it was time to build and validate first articles. When the first articles were submitted to our customer we hit our first real snag...there was a dimensional issue with the drawing. After the issue was corrected our two teams worked concurrently to get back on schedule; RESCO built a new set of first articles while our customer processed an ECN to update the drawings and inspection reports. All of this took place while the clock was ticking on the transition deadline. Fortunately, both teams were able to expedite their respective processes and a new set of first


articles was submitted and approved relatively quickly.

As we moved to the production phase, RESCO’s sales team coordinated with our customer’s procurement team to have raw material transitioned over to our facility; all the while maintaining an adequate supply of material at our customer’s site to support continuing internal builds. Due to the excellent communication between the teams, we were able to get the required material when we needed it without causing any line shutdowns at our customer.

The next step in the process was for the RESCO production team in Acuna to build adequate stock to support a kanban stocking program for the customer. This was accomplished within a short period. The customer then wound-down production at its site and RESCO began fulfilling our customer’s demand for this high voltage assembly.

The final step in the process was the teams getting together to celebrate a win-win for both companies and to start figuring out what the next project should be.

Many Thanks to RESCO Electronics for allowing WHN to reprint this article from their Blog. To find out more, visit them at [www.rescoelectronics.com](http://www.rescoelectronics.com).



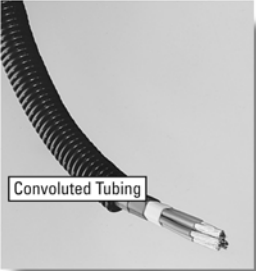
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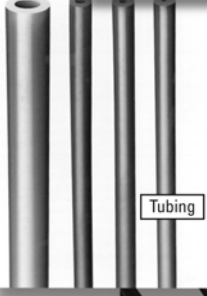
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# LEADERSHIP

PUTTING INSIGHTS INTO ACTION

## Hitting the Trifecta

By Paul Hogendoorn



Paul Hogendoorn

Just in case you don't know the term, "hitting the Trifecta" is the expression used to describe the ultimate winning bet on a horse race. It means picking the top 3 finishers of the race, in the correct order. Since the odds against doing so are extremely low, the winning pay-outs are often extremely high. If you picked the right horses in the right order, a two-dollar bet could return a 4-digit payout.

Wouldn't it be great to know which 3 horses to bet on, and in which order?

In many manufacturing companies in North America today, there are many competing ideas and priorities being considered by companies seeking to win the improvement race. What is the most important improvement to make first? What investment will yield the biggest return? Which improvements will hit it out of the park, and which ones will result in minimal, if any, gain?

There is an approach that your manufacturing company can follow to "hit the trifecta". It's a simple 3 step process. The first step is easy, and relatively low cost. The second step requires a bit more effort, but is

risk mitigated because it is based on the results delivered in the first step. The third step requires the most investment of the 3 steps, but since it is based on the results delivered in the first 2 steps, it is not only risk mitigated, the cost of the investment may have already been paid for by the results of the first 2 steps. *Picking the order is just as important as picking the horses.*

So, are you interested in knowing how you can hit the trifecta in your plant?

**Step 1:** establish an empirical baseline to truly understand the critical "value adding" activities on your

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## Hitting the *Trifecta*

Continued from page 6

plant floor. This is done simply by connecting your machines to a data collection system. With the advent of IIoT technologies, it is remarkably inexpensive and can be done in typically less than an hour without modifying the machine or your current infrastructure – even on old machines. (As an example, FreePoint’s FPT 4i connects to any machine “non-invasively”). Within 30 days of placing this small bet, you will not only have established an empirical baseline of your plant, you will have given real-time visibility to the plant that puts everyone on the same page, aiming for the same thing you are: productivity and profit improvement.

**Step 2:** engage your people in the process of improvement by using available off-the-shelf tablets and engagement software (such as FreePoint’s ‘Narrative’ software). You will now be collecting all the information you need to determine all the reasons your equipment and processes aren’t running as effectively as they should be. And more importantly than that, you will have made your people a part of the solution and improvement process, every hour of every day. They will be engaged. FreePoint’s Narrative software is embraced by workers when they conclude that management is not

monitoring them, but rather listening to them. This is a powerful game changer for many companies, especially those companies where people are their biggest input cost. Those same people can also be their biggest advantage and asset.

**Step 3:** connect your live, empirical machine data, and your fully engaged people, to your schedule and workflow plan dynamically, in real time. Most plants use a combination of accounting systems, whiteboards, even excel spread sheets, to plant and then report on the performance of their productivity. Some may have an ERP system deployed and some may even be considering an MES system. The problem with most ERP and MES system deployments is that it represents a single, very large bet, that will take a very long time to pay out, if it pays out at all. The best approach however, is to use the knowledge, insight, plus early financial payback from the first 2 stages, and tie them together in a process using visualization tools that lines up with your plant’s current effective processes. Placing a bad bet on a system that takes years to fully implement and requires your manufacturing processes to be modified for the system to work is not just a bad bet, it’s often a losing bet.

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# Hitting the *Trifecta*

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If you are still reading, you are probably wondering how long it should take to hit this trifecta. The first step should take 30 days and should result in a payback 30 days later. The second step should take 30 days, and it too should result in a payback in 30 days. The third step should take about 120 days, but it can take as long as you like, because at that point, you will already have great empirical data, engaged and motivated people, and your system can be built to match your improved, and continually improving, manufacturing processes.


What is the expected payback on hitting this trifecta? From our experience, manufacturers should typically see a 10% to 15% improvement at step 1, a further 10% to 15% improvement after step 2, and a 20% to 30% improvement after step 3. Doing the math, that would work out to productivity improvement, or capacity increase, of between 45% and 79%.

If you had the knowledge of which horses to bet on, and which order to bet on them on, would you? Our suggestion: bet on achieving empirical data first, engaging your people second, and digitizing your plan third.

Paul Hogendoorn cofounded FreePoint Technologies 7 years ago with the goal of giving manufacturers the benefit of cost-effective information technologies that inform, empower and motivate their most critical asset – their people. He can be reached at paul.hogendoorn@get-freepoint.com or [www.getfreepoint.com](http://www.getfreepoint.com)


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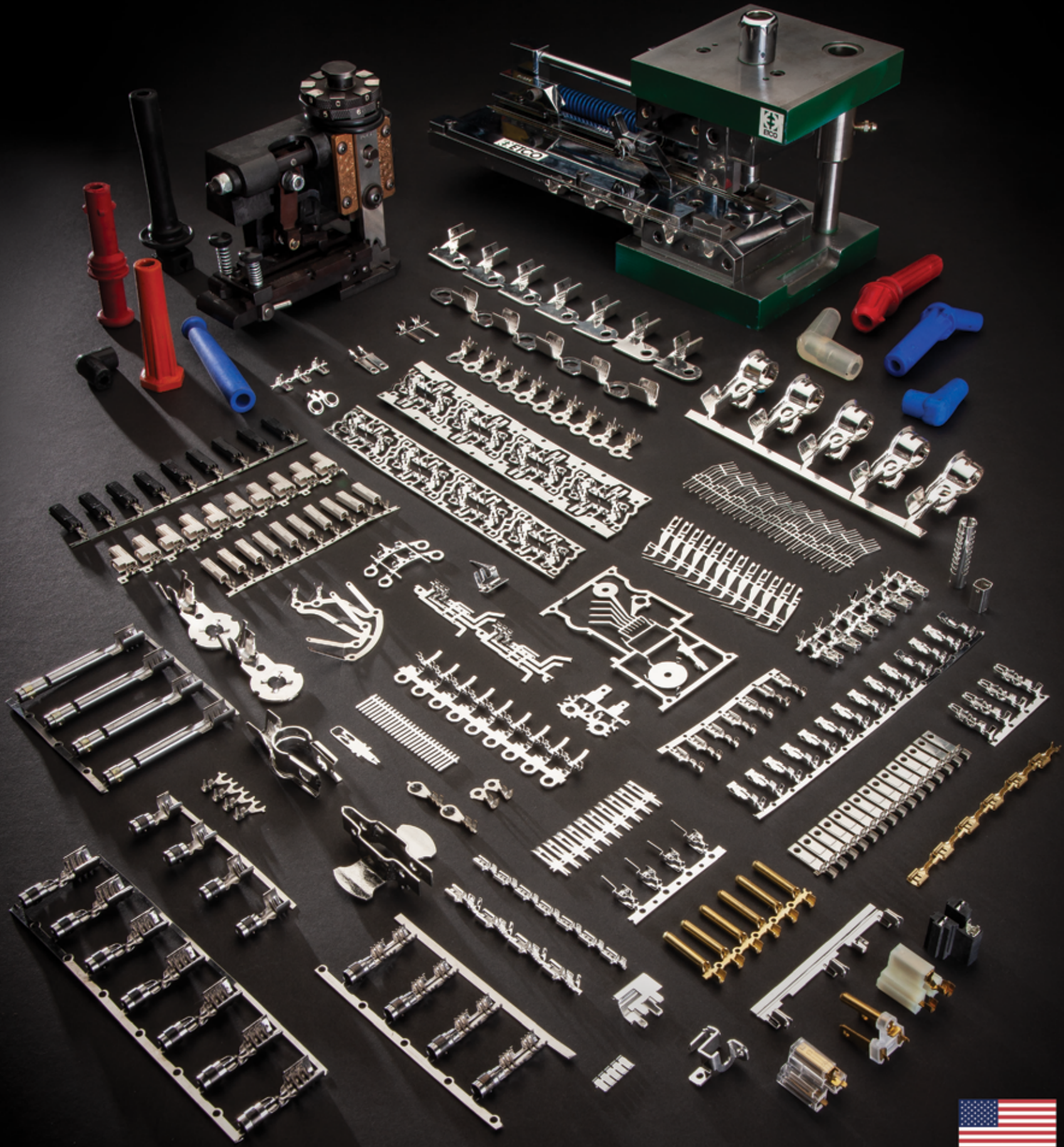
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# M & A 101:

Lessons learned from decades of deals

## ABCs of an LOI

By Loren Smith

A recent exchange with a prospective buyer of a harness company we were representing surprised me. After we had provided her the usual amount of initial information, she requested additional information that included a number of items normally disclosed only after both the buyer and seller sign an LOI (letter of intent). When I explained we would need a signed LOI before disclosing the extra information, she asked us to define what an LOI was. That's when I realized that although the potential buyer owned a \$20M harness company she had founded, she had never made an acquisition.

And that, in turn, led me to conclude that maybe many otherwise seasoned folks who might want to explore an acquisition growth strategy would benefit from an explanation of the intricacies of an LOI:

*At what point in the deal process does a prospective buyer provide an LOI?*

A Letter of Intent is submitted to the seller of the company at the point



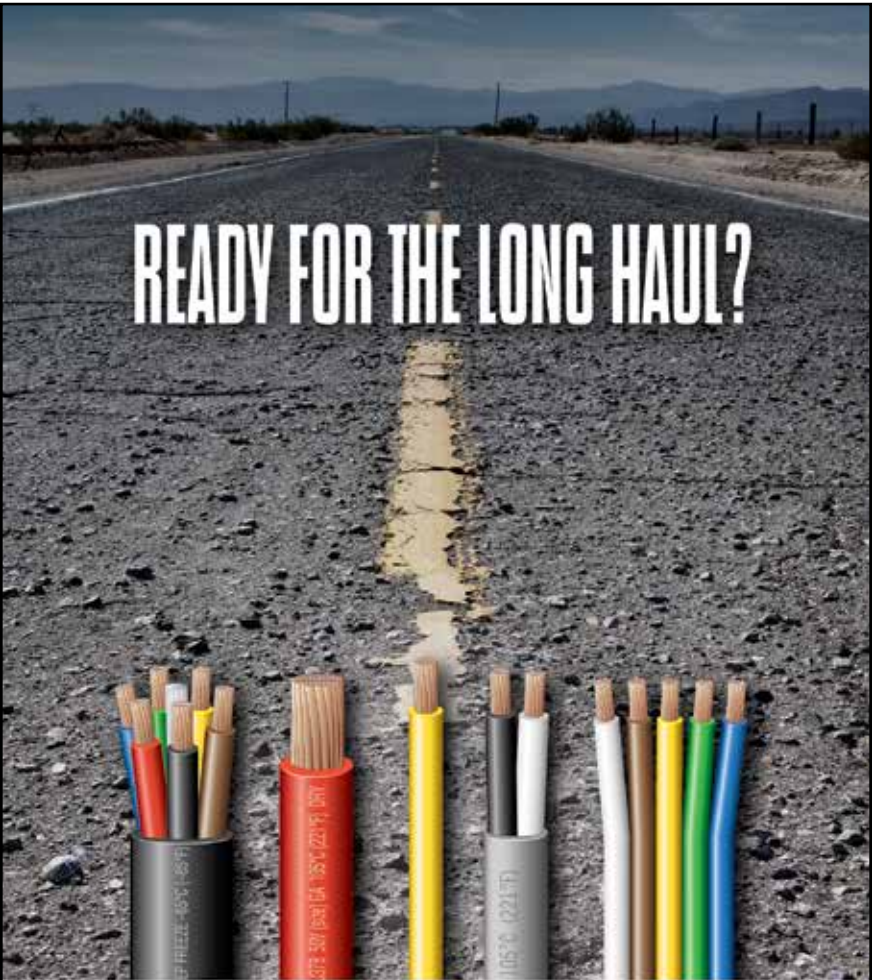
Loren Smith CEO  
Blue Valley Capital

when the buyer has had the opportunity to see enough information to verify that he or she wants to pursue the acquisition.

*What information will the buyer have typically seen before signing an LOI?*

Usually this will consist of historical financials, some information about customers and probably a plant tour.

Continued on page 14



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## ABCs of an LOI

*Continued from page 13*

*What does the buyer need to include in the LOI?*

The central ingredient is the price and terms the buyer, subject to due diligence, agrees to pay for the company. Other information often stipulated includes, but is not limited to, source of funds, how the buyer intends to finance the acquisition, whether it's an asset or stock sale and other boilerplate legal matters.

*How does a signed LOI obligate the buyer?*

Once both parties have signed the letter of intent, the buyer proceeds with due diligence, which requires time and money. During the course of the due diligence process, if a buyer discovers a reason to modify the price or terms--or even to walk away from the deal--he or she has that option.

*How does a signed LOI obligate the seller?*

With an LOI in hand, the seller must take the company off the market and refuse to speak to prospective buyers for the due diligence period, customarily 60 to 90 days. Meanwhile, the seller often needs to respond to requests for vital information such as legal and financial documents. In addition, many buyers want to have some direct dialogue with the selling company's key customers.

*What risks are presented by the LOI?*

The LOI sets the due diligence period in motion. During this stage the prospective buyer is not vulnerable to risk (unless the due diligence is conducted shoddily, and important facts are not discovered) because if some untoward information surfaces, the buyer can ask for a modification of terms or halt the process altogether.

But because the buyer is now carefully trying to confirm that the business is worth the agreed-upon sale price, the seller can encounter a few complications:

- Material changes from the initial disclosures, such as a lawsuit or environmental liability that was not revealed during the initial information exchange, could be a reason for the buyer to modify or terminate the deal.
- Changes occurring during the due diligence period itself, such as a minor drop in sales, might be used as a buyer reason to request a reduction in the sale price specified in the LOI.

*How can an M&A adviser help the buyer or seller with the LOI?*

Quite obviously, a firm specializing in mergers and acquisitions can counsel a buyer or seller in many aspects of deal-making, such as the content of the LOI or the conduct of due diligence, but one particular situation that demands expertise may not be so obvious: That is when the seller receives more than one LOI.

In that case, an experienced M&A adviser can help the seller rank order the probability that each potential buyer will move through the diligence process without either modifying the LOI or walking away from the deal. Helping the seller recognize a "good buyer" who has a solid background, a high motivation to buy the company--and the steadfastness to avoid being thrown by a minor negative development--markedly lowers the stakes during the due diligence phase and markedly raises the prospects of the deal being consummated.

*Loren Smith can be reached at [lms@blucapital.com](mailto:lms@blucapital.com) or [www.bluevalleycapital.com](http://www.bluevalleycapital.com)*



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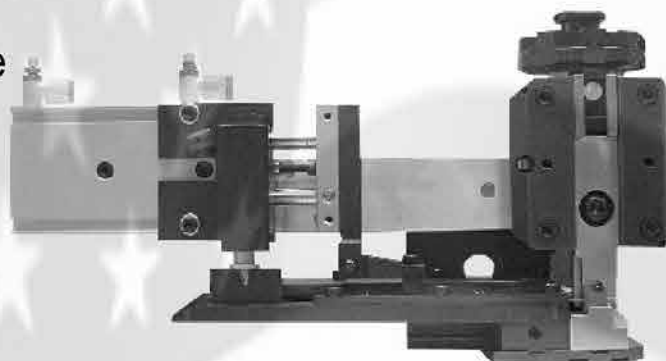


Model 1700



Model 2000

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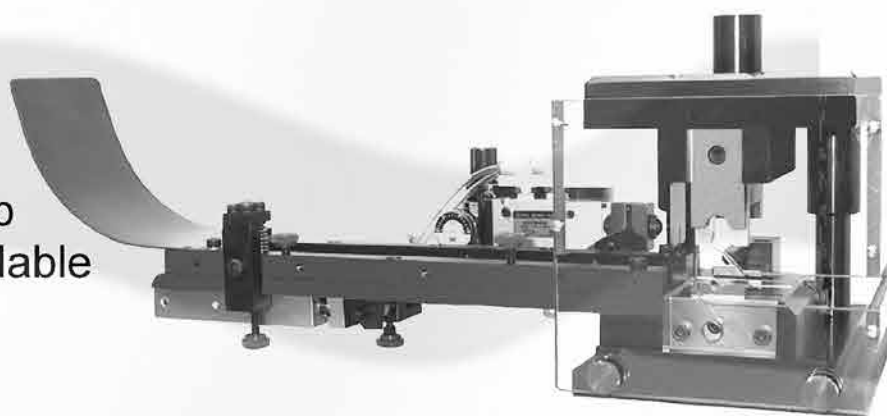


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# Opportunity for Suppliers/ Equipment Manufacturers

Are you looking for the right opportunity to grow your business? Do you want to get in on the ground floor of the hottest new EXPO? Then come on down, right over the Southern US border to Cd. Juárez, México, in the State of Chihuahua, aka “the Wiring Harness Capital of the World!”. Here you will find THE 3rd Annual M-EXPO’s Wire Processing Technology Event on October 9th - 11th. Due to the high demand, from

both Exhibitors and Attendees, M-EXPO 2019 has doubled its event space to accommodate approximately 50 exhibitors. (Some of the exhibitors who participated in both 2018 and now 2019 are BiTech, Cami, Cirris, HellermannTyton, HST, Identco, IMMSA, Komax, Lone Star Industrial, Schaefer Megomat USA, Schleuniger, Stapla, WHMA and *Wiring Harness News*, and more new exhibitors.) There are still booth spaces

available but are filling up fast. This is an incredible ground floor opportunity for Suppliers/Equipment Manufacturers that want to create or grow their business in this world class manufacturing industry that utilizes wires and cables in their processes and products. With the new partnership with IPC/WHMA, M-EXPO feels it will gain enough momentum and support to exist on its own, without co-locating with EXPO-MRO, for 2020.

The M-EXPO team is setting the stage for an independent M-EXPO event to take place September 2020 at the Cuatro Siglos Convention Center in Cd. Juárez. Speaking with the M-EXPO team they stated, “We’re trying to make sure the M-EXPO doesn’t compete with other related industry activities and September seems to be a good month. If the M-EXPO is in September and with the Milwaukee show (EWPT Expo) in May, that seems to be a good time period between the two.” They stressed that the M-EXPO is not trying to compete with EWPT, rather it seeks to be a compliment to it and definitely the right place to have it – the “Wire Harness Capital of the World”.

One of the main benefits of working with the M-EXPO show is the international logistical aspect is taken care of by E-POSTAL LOGISTICS. All logistics and the movement of materials and equipment to/from the M-EXPO site will be handled by E-POSTAL LOGISTICS, an El Paso Company specializing in border logistics, pack and freight to/from Mexico. All you have to do is get your equipment, tradeshow supplies to El Paso and E-POSTAL LOGISTICS takes care of the rest!

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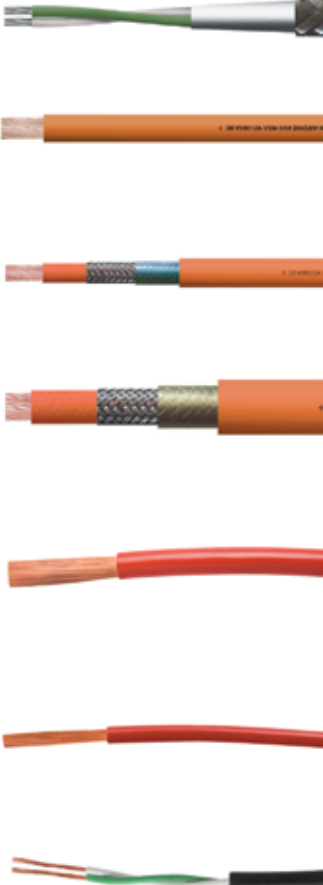
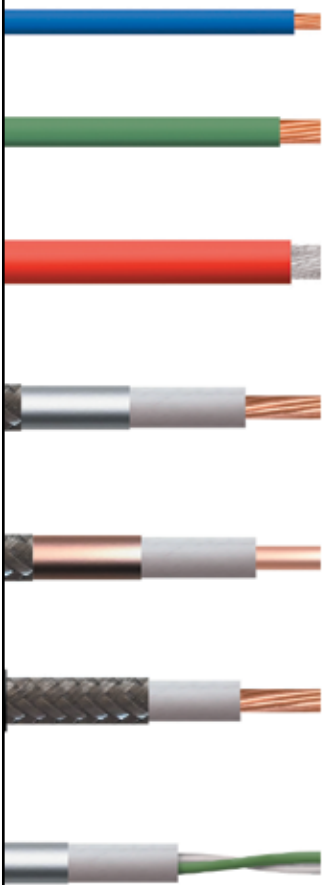


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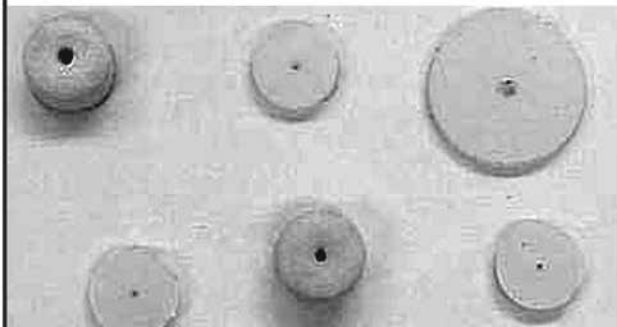


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# Opportunity for Suppliers/ Equipment Manufacturers

Continued from page 16 \_\_\_\_\_



Cd. Juárez, Mexico and if it is safe. First, Cd. Juárez has improved greatly in the last decade. Of course, there is some safety concerns as there is in every city but in a recent report (Mesa de Seguridad y Justicia, FBI, 2017) showed that Cd. Juárez was safer than Detroit, Baltimore and St. Louis per Homicide Rates.

M-EXPO also wants to make traveling over the border easier and safer for all their visitors. They have set up transportation to/from the show when staying at the Holiday Inn in El Paso. The M-EXPO sponsor hotel. This makes border crossing easy and of course Safe.

Now, if all the above hasn't enticed you to exhibit or attend the show, how about some interesting Manufacturing Facts in Cd. Juárez:

- Among Mexico's largest Manufacturing Centers
  - Over 300,000 mfg jobs
  - Over 320 "IMMEX" plants
  - Main markets: Automotive, Appliance, Aerospace, Electronics, Industrial, Metal
- Over \$99 billion in US-Mexico Trade (2016)
  - \$55 billion exports
  - \$45 billion imports
- Over 550 manufacturing operations

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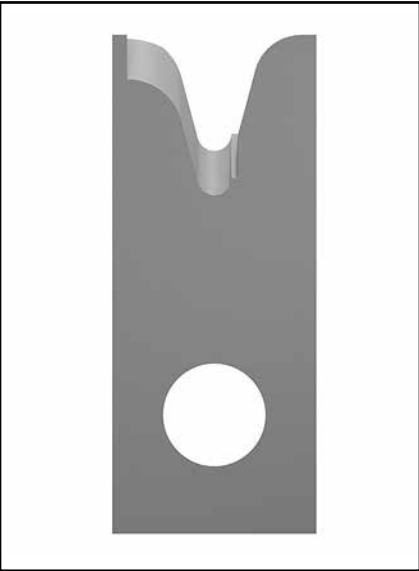
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# Wire Stripping Technology: A Better Blade

**M**echtrix Corporation, a manufacturer of tooling for the wire processing industry, has recently developed and patented a new wire stripping blade design they call the Cyclonic-V®. It has a unique geometry and an enhanced slicing action that is especially suited for some of the more exotic insulation materials. Bil DeGrace, Vice President of Mechtrix, recently explained the technology, and why it was developed.

“Wire processing machines have evolved greatly over time,” he began.



Cyclonic-V® Blade

“Automated wire stripping equipment has gone from mechanical cutter-heads, to those driven by stepper motors, then on to servo powered equipment. These changes have resulted in a much more precise set of operating characteristics versus the older equipment.” He further outlined that over the same time, machines moved away from using multiple blade sets, to using just a single blade set.

According to Bil, these advances and limitations presented a particular challenge when stripping certain difficult materials (Semi-Rigid PVC, Irridated PVC, Kynar®, Tefzel®, Teflon®, Thermoplastic Rubber, etc.). “Customers were coming to us with wires that were very difficult to process with existing blade geometries. We had solutions developed 20 years ago, but those solutions could not be used in the current machines without modifying the tool holders,” Bil remembered.

To add further difficulty to the task, the materials (insulations) were becoming even thinner and harder

Continued on page 23

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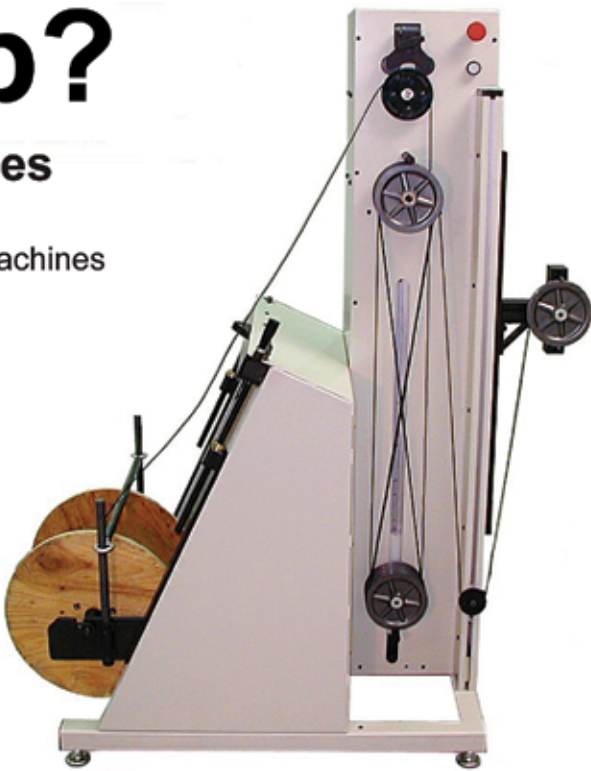




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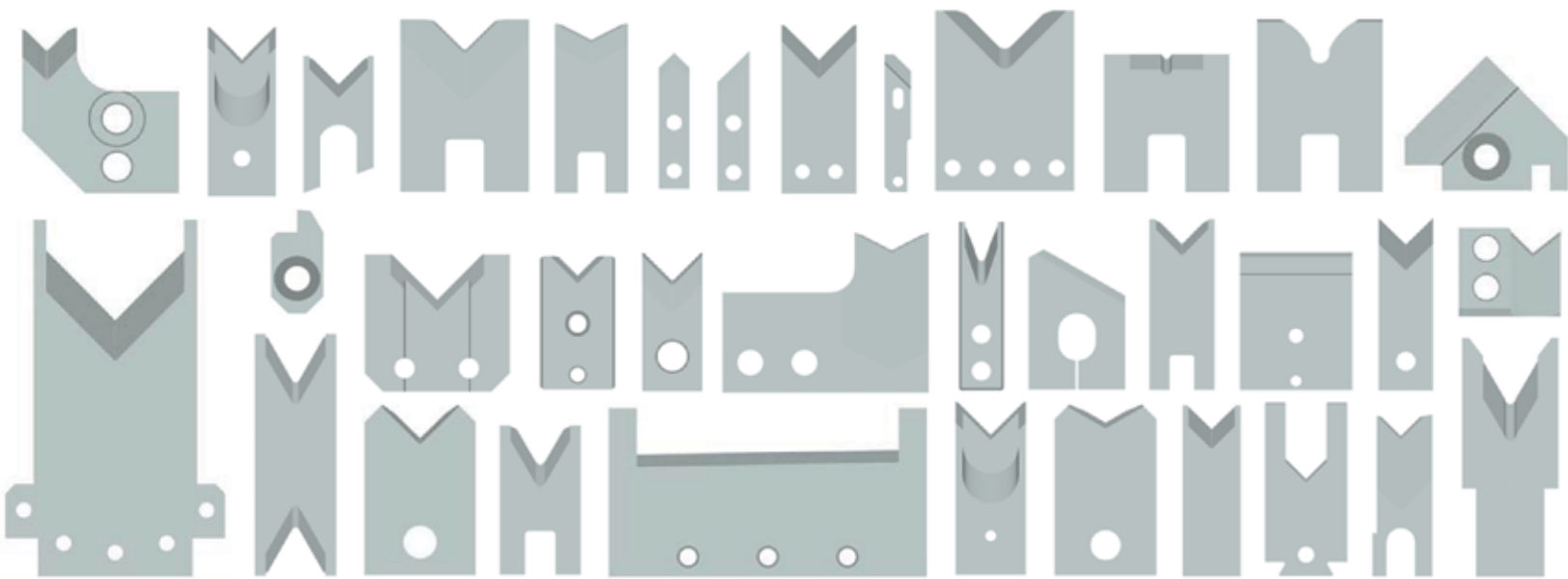
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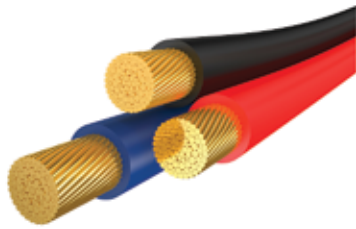
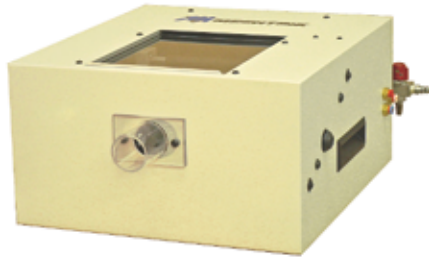
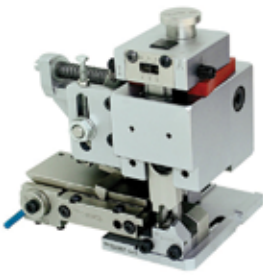
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# Wire Stripping Technology: A Better Blade

Continued from page 21

to strip reliably. “It was obvious a new solution was required, so I was thinking about this and looking at the cutting form geometry. What I came up with was a design that replaced one half of the stripping form geometry with an integrated guiding feature.” This allowed Mechtrix to utilize the same incline angle as the existing blades (for blade edge strength) AND still create a blade form geometry that would displace less material as it penetrated the insulation. “Now, when the opposing blades meet, only half of the blade thickness is cutting through the material so we get a cleaner, straighter cut.” Bil confirmed.

Bil explained another advantage using the example of pressing a steak knife blade against the palm of your hand. It would take a great deal of pressure to cut through the skin. However, if you slide the blade just slightly, you will easily cut the skin. “With one blade edge to guide, and the other edge to cut, we’re able to increase the slicing action to cut cleanly through the insulation. This also creates a much better circumferential cut so that you’re not tearing as much insulation during the stripping motion,” he detailed.


During the stripping operation, the guide performs two functions. “It makes sure that you don’t penetrate too far into the insulation, and it also rotates the insulation just slightly so you actually get a better cut all the way around the insulation,” Bil explained. “When you look at it, it’s a pretty straightforward concept, and everybody that has seen it instantly understands exactly what we’re doing. It’s just a matter of having today’s advanced manufacturing equipment to be able to create these difficult geometries.”

When Mechtrix presented the design to the US Patent Office, they thought several elements of the design were patentable. “They granted about three quarters of those elements and reviewed the other 25%,” Bil described. “They then granted a second patent on the rest of the elements, so that’s why we actually have two patents on the Cyclonic-V® blade”


You can check out more about this innovation in blade technology by visiting [www.mechtrix.com](http://www.mechtrix.com) and clicking on the What’s New tab.

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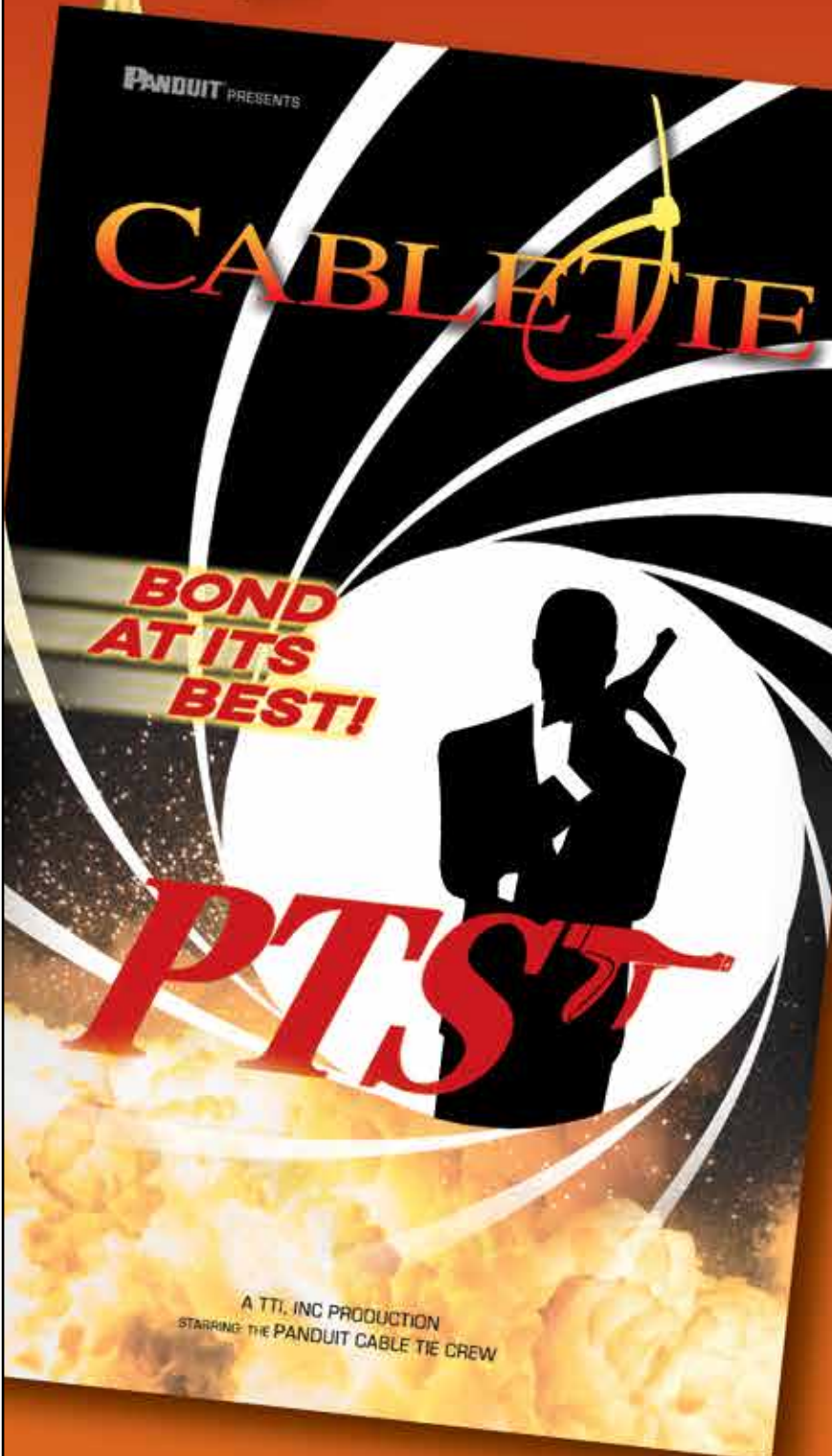
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Copper and aluminum  
combinations



Wire splicing  
Multi-conductor cables  
Twisted wires



# THE POWER WOMEN OF THE WIRE HARNESS INDUSTRY

This edition of The Power Women series features Melissa Goecks, a Validation & Reliability Laboratory Supervisor & mechanical engineer, from the Milwaukee area. Melissa is currently employed by HellermannTyton, a solution provider specializing in the management and identification of wires, cable, and components.

### Early Years

While many engineers were exposed to engineering at a young age via school programs, Melissa was not. She was raised in a less populated Northern suburb of Milwaukee where STEM programs were unavailable at the private school she attended. In 8th grade, there were only 7 kids in her entire class. Her teacher actually taught Melissa's 8th grade class in a shared room along with the 7th grade class. Fortunately, Melissa was already exposed to engineering as her father was a mechanical engineer with Harley-Davidson. He was employed by H-D for 31 years, and later worked for Kohler in its faucet division prior to retiring. Melissa's mother was a homemaker and childcare teacher, who really enjoyed being at the house with the kids.

Melissa mentioned that her parents did not push her to become an



Melissa Femia

engineer. They also never 'put her in a female box' in that they did not expect her to only take interest in traditionally-female topics and activities. To the contrary, they often involved her in projects like woodworking and fishing.

### Secondary School & College Experience

Even though she had exposure to engineering at a young age, Melissa was an undecided major during her

Continued on page 26

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THE  
POWER WOMEN  
OF THE WIRE HARNESS INDUSTRY

Continued from page 25

first year at The University of Wisconsin-Milwaukee. Potentially because she had such a broad academic interest rather than being limited to strength in just math and science, her teachers did not recommend that she consider becoming an engineer. She decided to take Introduction to Engineering during her second semester of college and liked the class enough to choose engineering as her major. She recalls looking around the room and mentally noting that every object was designed by someone. She wanted to contribute to that creative construction. She chose to major in Mechanical Engineering as a result of her interest in design and the broad applications of the field.

When I asked her about her collegiate experience, she said that she was

often the only girl in her class. Initially, because she was so shy, she did not join study groups, but rather studied on her own. During her Junior and Senior years, she realized she learned more effectively with others. At that point, she initiated more study sessions and found other engineering students to befriend—both men and women. In summary, she considered the lack of collegiate engineering female representation as an obstacle in her early University of Wisconsin-Milwaukee student experience. However, she eventually found her support network.

During college, she was an intern at Harley-Davidson twice—once in design engineering and next in the Structures Lab. While in the design assignment, her tasks were menial though an important first step to professional life. She preferred her final internship in the laboratory as she was working on more interesting, relevant projects. In all, she spent 3 ½ years at H-D. Due to a friend's positive feedback about her own internship with HellermannTyton, Melissa also decided to seek an internship there. Building on her existing laboratory experience, her final internship was with HellermannTyton in their lab.

Post-Collegiate Experience

Since she enjoyed her millennial-friendly internship with HT, she didn't feel the need to seek other opportunities upon graduation. Additionally, she thought that she would have significant opportunity with this company. In total, Melissa has been employed by HellermannTyton for 7 years. After her first internship year, she spent 1 ½ years as an engineer in the lab, then was promoted to Supervisor there, where she is now in her 4th year. She is about to undertake a new project involving the commonization of test standards within HellermannTyton, where she will work on a team with members from its global locations including Asia and Europe.

Melissa was and continues to be active in many organizations since joining the professional workforce. She was appointed as a member of a NEMA committee, The National

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Electrical Manufacturing Association, writes and revises global test standards. She also took part in writing a USCAR (The United States Council for Automotive Research) standard, which won a 2016 team award. After first attending the University of Wisconsin-Milwaukee's Women Leaders Conference, Melissa successfully incited her company to sponsor the event the following year and serves on the advisory committee for the annual event.

As further professional development, Melissa recently began the University of Wisconsin-Platteville's Master of Science in Organizational Change Leadership program. She wanted to compliment the analytical background with softer, personnel management skills especially given her current managerial role within HellermannTyton. The program content is based on social sciences. Pertaining to this 'Power Women' WHN Series, Melissa is actually researching why more females are not in engineering. Additionally, her coursework will address the overall scope of change management, inclusive of handling changes cross-culturally for most effective results.

When I asked Melissa about her advice to potential engineering students, she mentioned that she became an engineer through determination and grit. She feels mechanical ability is developed over time and activity, and that it's something that anyone can learn. So, her advice is that students should persevere through adversity they may face in college, with the knowledge that skills take time to



**Melissa Goecks**

grow. Also, she noted that while she enjoyed design (a typical mechanical engineering focus), she found she prefers the applied science involved in test labs, especially the statistics aspect. She mentioned that others may share a similar experience. According to Melissa, "engineers should expect to continually find their natural strengths and interests beyond college, and they can build and specialize their careers around that."

Thank you, Melissa, for sharing your story.

If you are interested in sharing the stories but missed the original WHN distribution, the articles are available on the Jana Diversity Solutions website at [www.janadiversity.com](http://www.janadiversity.com), or at [wiringharnessnews.com](http://wiringharnessnews.com).

If you know a female engineer who would make a great candidate to feature in the Power Women series, please direct them to me at [melissa.femia@janadiversity.com](mailto:melissa.femia@janadiversity.com)



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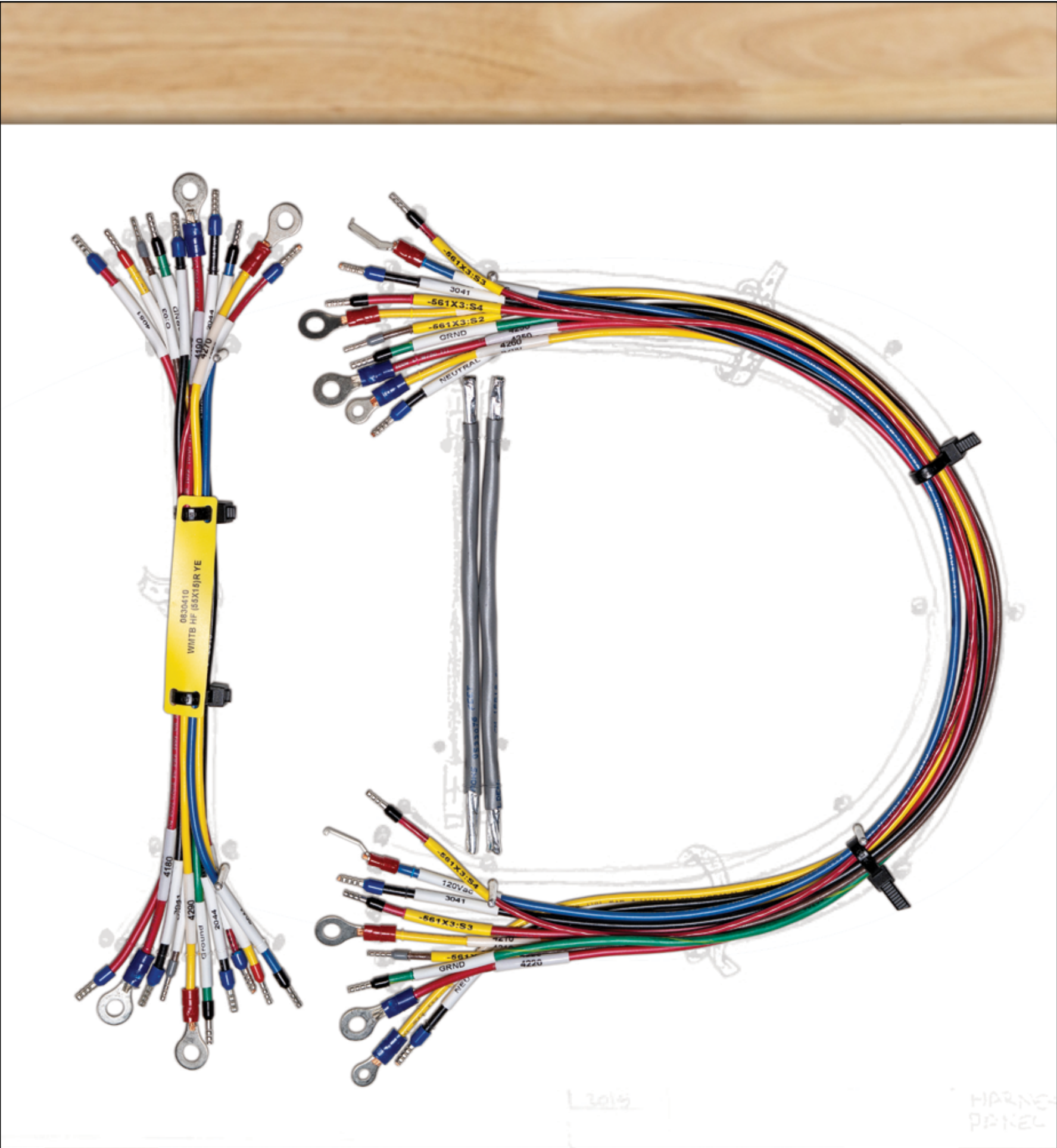
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NEWS PLUGS



New Fiber Laser Wire Marker Makes Its Debut

Tri-Star Technologies, a leader in laser wire marking, unveiled its new Fiber Laser Wire Marker at the National Electrical Wire Processing Technology Expo in Milwaukee. Developed for the commercial and industrial markets, this advanced laser technology enables marking on many different types and colors of wire, including dark colors such as black, brown and gray, or on wires that cannot be marked with UV laser.

Alex Kerner, President of Tri-Star Technologies said, “The reception at the show was very positive...We had many customers expressing their need for a tool that could print on dark colored wire insulations...They were particularly impressed with the quality of the marking.”



The new Econolase-Fiber Laser Wire Marker from Tri-Star Technologies is portable and affordable.




The new M100-L Fiber Laser Wire Marker from Tri-Star Technologies is fully automatic.

The Fiber Laser is a tabletop system available in two configurations: the Econolase-Fiber allows for manual feed of wire and cable, making it perfect for low/medium volume jobs and marking of already terminated cable assemblies. The M100L-Fiber is a fully automatic system that can feed, measure, mark, cut and coil. Both have full graphics capabilities that can mark any alphanumeric character in any font, language and size. They can also mark bar codes and company logos, permanently and in exceptional detail. Delivery of these new fiber laser markers will begin in the next few weeks.

For further information please visit [www.tri-star-technologies.com](http://www.tri-star-technologies.com).

Continued on page 51




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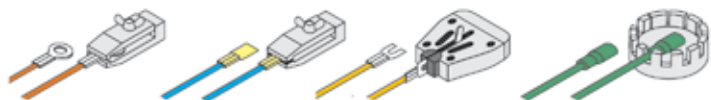
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## WIRED IN WHMA UPDATE

Wiring Harness Manufacturer's Association

By Christine Siebert

As I have discussed in previous articles, the Wiring Harness Manufacturer's Association (WHMA), now with support through the affiliation with IPC, are finding ways to new ways to bring education to our members and non-members. Our mission is to LEAD, EDUCATE, and CONNECT. WHMA strives to connect our members on industry topics, through conferences, standards, networking, social media and we are now offering webinars.

The last two years, WHMA and IPC held innovation conferences discussing how wire harnesses are the backbone of our industry. In these events, we arranged for the largest industry leaders to come and speak on topics related to innovation and technical challenges in our industry. This year we have decided to change the format so more of the members in our industry can attend and learn from these subject matter experts.

You won't want to miss this year's IPC/WHMA Wiring Harness Innovation Webinar Series, taking place on **September 17, October 15, and November 19, 2019**. By attending this live, online event, you will gain significant knowledge on cable and wire harness technology while saving on travel expenses and avoiding unnecessary time out of the office.

This unique series will give you an opportunity to hear from leading industry companies including **Panduit Corp., Schleuniger, Komax,**

**Wieland** and others. Topics to be covered will increase your knowledge of design, process, product quality and field reliability for cable and wiring harness applications.

### Webinar Topics to be covered:

- Industry Trends in Wiring Harnesses
- Leveraging Standards to Address Wire Harness Manufacturing Challenges
- What's New in the Soon to be Released IPC/WHMA-A-620 Revision D
- Innovations in Connector Base Materials
- How Wiring Harness Automation Can Lead to Engineering Efficiency Gains

Join WHMA/IPC at the wire harness innovation webinar series to learn from our technology experts. They represent important verticals like automotive, industrial, aerospace and defense, and are looking forward to sharing their knowledge and answering your questions about the advances and innovations taking place in the wire harness and cable industry.

If you're interested in registering for one of these webinars, go to <http://www.ipc.org/WHMA-Webinar>. As always, if you have any questions, please contact [contact.us@whma.org](mailto:contact.us@whma.org).

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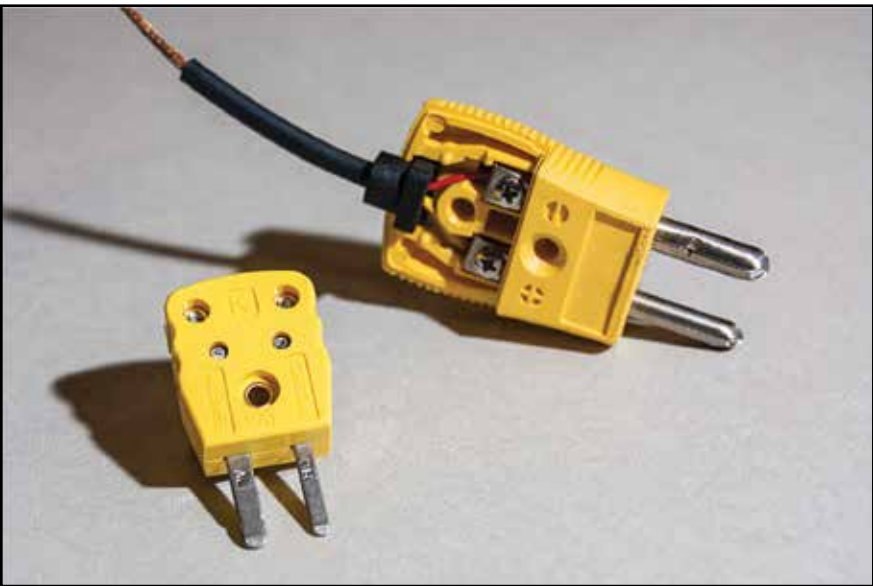
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REFERENCE JUNCTIONS

As noted earlier, a reference (cold) junction is also required in a thermocouple circuit. Because the voltage read by the instrumentation is actually proportional to the difference in temperature between the measuring junction and the reference junction, it is necessary to know the temperature of the reference junction to determine the temperature at the measuring junction. In practice, the reference junction is frequently built into the temperature recording or process control instrumentation. As a result, the reference junction is often “invisible” to the user. The thermocouple is connected to the extension wire and the extension wire is connected to the process control instrumentation.

THERMOCOUPLE TYPES

Industry specifications recognize different types of thermocouples and thermocouple wires with a letter designating each type. Some common types are K, J, T and E. Different thermocouple types have different temperature ranges over which they can be used successfully. The chemical make-up of each thermocouple alloy, the temperature error limits al-

lowed and the color codes for each thermocouple type are specified in ISA/ANSI standard MC96.1. The important thing to remember from an application standpoint is that the thermocouple wire type must match the thermocouple type.

THERMOCOUPLE AND  
RTD WIRE EXTENSION WIRE

Thermocouple extension wire types such as KX, JX, TX and EX are used to connect the measuring junction to the temperature recording or process control instrumentation. This can be hundreds or even thousands of feet away. Extension wire is normally exposed to temperatures and other environmental conditions that are less extreme than those encountered by the measuring junction. As a result, “extension” grade wire is not calibrated above 400° F (204° C) and is typically insulated and jacketed with materials with lower temperature ratings. Since low voltage instrumentation signals are being carried, thermocouple extension wire is often shielded.

RTDS

There are other temperature measurement technologies than the thermocouple, such as RTDs (resistance temperature detectors). In applications with temperatures above 1,200° F (650° C), thermocouple is used. At lower temperatures, RTDs are used for their simpler operation and greater sensitivity and stability. Thermocouples have a better response time. RTDs are special resistors whose resistance value changes with temperature in a known way. RTDs are connected to the temperature recording or process control instrumentation using ordinary copper instrumentation cable. Thermocouple wire is not required to connect an RTD.

Typical RTD cable is standard instrumentation cable in two, three or four conductors or possibly groups of pairs/triads/quads depending on the type of RTD being used and number of devices being monitored. Individual or overall shielding is often used for noise immunity.

For questions or more information, contact your Anixter representative or visit [anixter.com](http://anixter.com).

ANSI Code	Thermocouple Grade	Extension Grade	Conductor Colors		Alloys		Temperature Range
	Jacket Color	Jacket Color	Positive	Negative	Positive	Negative	
J	Brown	Black	White	Red	Iron	Constantan Copper-Nickel	-210° to 1,200° C / -346° to 2,193° F
K	Brown	Yellow	Yellow	Red	Nickel-Chromium	Nickel-Aluminum	-270° to 1,372° C / -454° to 2,501° F
T	Brown	Blue	Blue	Red	Copper	Constantan Copper-Nickel	-270° to 400° C / -454° to 752° F
E	Brown	Purple	Purple	Red	Nickel-Chromium	Constantan Copper-Nickel	-270° to 1,000° C / -454° to 1,832° F

Table 1: Thermocouple Wire and Thermocouple Extension Wire Types



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# Streamlining Inbound Marketing:

## Falconer Electronics Develops In-house Quote Tool

Continued from page 1 \_\_\_\_\_

harness assembly, this tool provides an estimate only.” The tool allows the customer to enter their wire harness assembly information which includes adding actual manufacturer part numbers into the program. Once complete, the user receives an estimate instantly via email. “This creates immediate engagement with the customer,” he elaborated, “which typically converts to a Request for Quote soon after.”

According to Roger, the tool works great for new customers who want

to compare prices with their current vendors. In addition, new product developers, engineers and those in purchasing who need a ballpark price promptly, find the Wire Harness Estimator extremely helpful. The development experience has been helpful to Falconer as well. “By creating these tools, it’s really helped us narrow down what we do and given us a more concise focus,” he continued.

“As a wire harness or ground strap assembly manufacturer, you don’t have a proprietary product per se,” Falconer Electronics eCommerce



Consultant Curt Anderson suggested, “but you have a proprietary process.”

He refers to what they are doing with these tools as, “scaling your proprietary process,” and he added that, this fall, Falconer will piggyback with some marketing firms to do workshops with other companies in their area. “In the workshops, we’ll be exploring how these tools help create a sales funnel to narrow focus so that you’re not chasing leads or product lines that aren’t a good fit.”

Curt explained Falconer is really trying to change the old school, back and forth, quote process. He sincerely hopes their efforts are a beacon for others. “Our goal is to encourage other U.S. contract manufacturers to embrace eCommerce strategies, as well as explore offering an online quoting tool to help reduce the cumbersome RFQ process.” He is convinced that allowing customers to make an easy and efficient buying decision lends to a healthy competitive advantage. “Especially as we all work together to strengthen the foothold of USA Made products in this highly competitive global market,” he concluded.

If you would like to see the tools in action, visit the Falconer Electronics website at [www.falconerelectronics.com](http://www.falconerelectronics.com), or email [info@FalconerElectronics.com](mailto:info@FalconerElectronics.com) or [Curt@FalconerElectronics.com](mailto:Curt@FalconerElectronics.com).

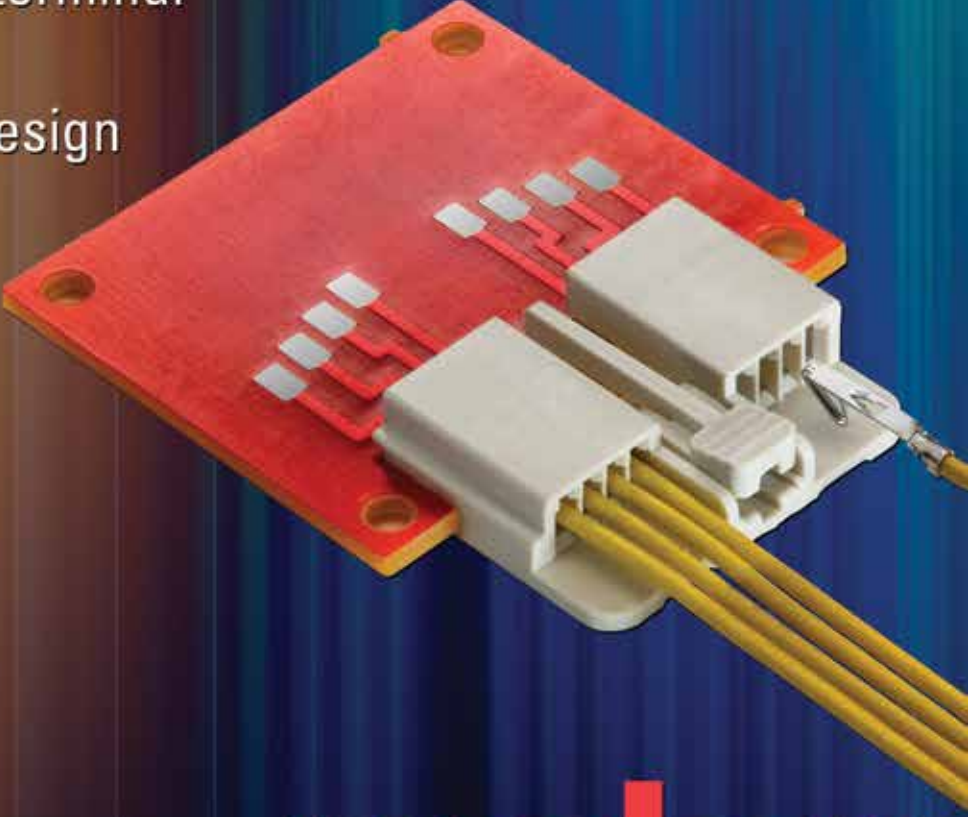
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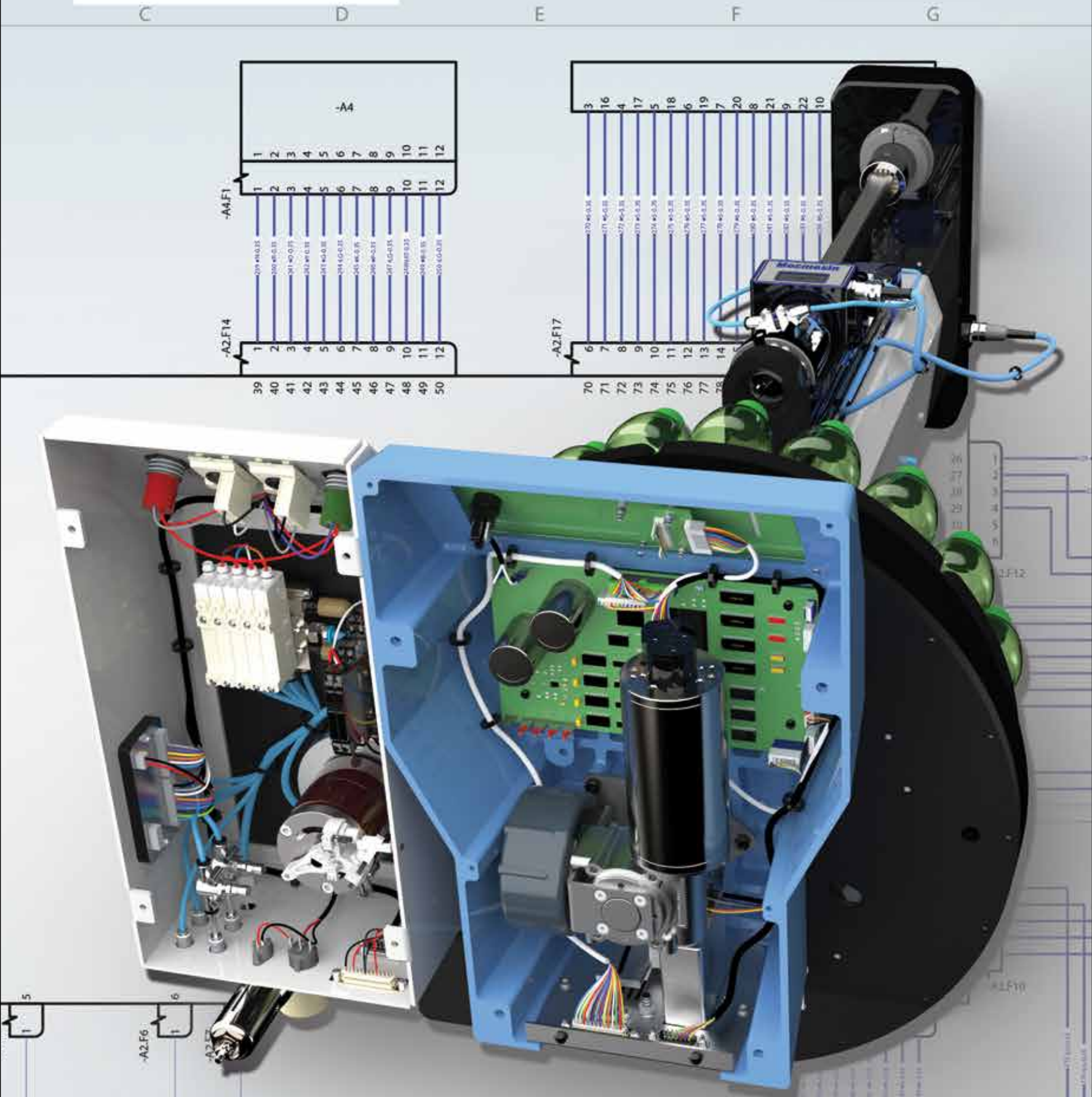


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WHITE PRODUCTS

# Flux Connectivity

Continued from page 1 \_\_\_\_\_ of having to maintain a static work space through economic cycles. “I managed a company through three recessions,”



Adam lamented. “We had a 50,000-square foot facility, and at one point we went down to 10,000 square feet of that capacity. The base rent almost bumped that company out of business, and I swore I would never do that again.”

In addition to renting space at existing going concerns, the company also utilizes collaborative workspaces like the newly opened one in Calgary (see [www.gotradespace.com](http://www.gotradespace.com)). The advantage with the arrangement is there are about 20 other companies in the building that are in various

trades that can use Flux’s services, and vice versa. “We opened the space in Calgary so we can provide molding services to the Alberta market, and it’s strategically placed in a building that is close to major shipping routes.” While the current space is only 720 square feet, it can be expanded by up to 10,000 square feet in less than 5 days. “How many other companies can say that?” Adam queried. They started with enough area for one production line, and because they practice lean business principles and have flexible scheduling for the workers, each square foot is actually worth double to them.

Shelly pivoted to the Human Capital Management side of the equation. Management is decentralized by empowering employees at every level to make their own decisions. She informed that they have core employees, and leverage a contingent workforce by utilizing temp agencies and workers from twin industries. This helps them manage through periods of high demand or when they are in process of acquiring a new space. “Problems are identified and solved rapidly through the use of technology and broadcast to employees at every location,” she described.

Flux posts production schedules to qualified people and they accept based on their availability and desire. Production managers

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are on site for each shift. Adam chimed in saying, "I spent 20 years scheduling and planning and I've learned we all need a work/life balance, so we give people that option, and that's how we attract the millennials. It's hard to convince folks it works, but it does."

The management team also utilizes collaborative work spaces. These offices are usually located at the value-add work centers and available when and as needed. This eliminates the need for a corporate headquarters. All accounting is automated and monitored remotely by the accounting staff. Customer service agents work from their homes in various time zones. As they are tied into the MRP I and MRP II software systems, they are able to identify, track, and make changes to orders per customer request. "We take the adage 'we can do that in our sleep' literally," Adam advised. His goal is to stretch across every time zone with the home-

based customer service agents, and he is convinced it offers the best customer experience. "For example," he detailed, "if we get an order at the end of the day in Calgary, it is reviewed and booked, the manufacturing orders are planned and created, and parts are placed on order by someone in Singapore. So, what takes some organizations 2-3 days to confirm, we can do while we are sleeping by leveraging folks on the other side of the globe." He added this is subject to ITAR and Controlled Goods regulations.

Flux allows indirect labor to work from home or on a flexible schedule. Employees save money on child care and vehicle expenses, not to mention the amount of time and stress it takes to travel to and from work. "We consider environmental impact, personal well-being, and overall customer experience in every decision we make. All of this translates into more productive employees

and less overhead transferred to the customer."

Although the team is spread out, all employees are united via a uniquely configured intranet link. Video communications to and from any member of the team are easy and immediate. Training modules are constantly updated and special training or production issues can be shared on an individual, group, or company-wide basis. "All team members, management, core employees, and temporary, are alerted to large wins and provided context so they can understand their relevance to the company and to customer experience," Shelly assured.

In order to make this system work efficiently, Adam and his team have worked tirelessly with logistics companies and suppliers to have product placed where and when it is needed. "We've established a great relationship with a major carrier and other key suppliers and distributors on the logistics side," Adam said. Relationship building is certainly one of his strong points and it's key to making decentralization work.

Part of Flux's on-boarding strategy for core employees is to donate to local schools. "We furnish engineering departments with product we don't need anymore, and we mentor and stay in communication

Continued on page 40





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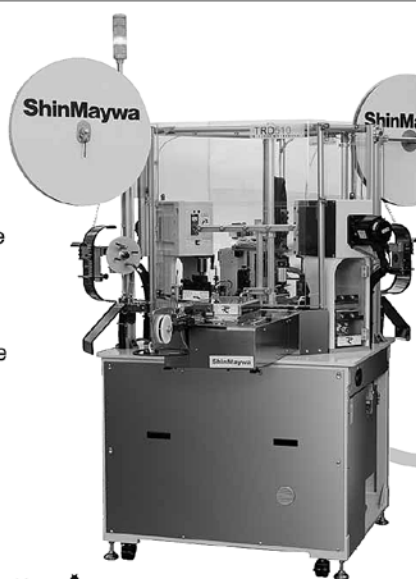
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# Flux Connectivity

*Continued from page 39*

with them all the time.” The goal is that not only will Flux attract some of the best talent from these schools, but that as other students go out into the world, they will become advocates or even customers.

**FluxPod™**

One of the most interesting parts of Flux’s decentralization strategy is soon to be launched. It’s part of their next stage in production innovation, and they call it FluxPod. Because of the increased global demand for specialty manufactured goods, along with current and future labor constraints, Flux is attempting to increase capacity by hiring people in their homes who have the ability and space to manufacture or assemble certain products. “We’ve identified several demographics that may be eligible including stay-at-home parents, retired persons looking for extra in-

come, or those with physical limitations. The vision is to have these folks build products as part of a specific BOM which may be completed elsewhere,” Adam outlined. FluxPod team members will connect and train via the video linked training classes the company has created. “We are aiming to create a ‘crowd manufacturing’ environment currently unprecedented in the manufacturing arena,” he asserted.

**Markets Served**

About 80% of Flux’s current business is in Texas in the Oil and Gas industry. Adam explained it’s the low-lying fruit, and that Flux will continue to eagerly serve that market. But Adam’s heart is in Medical and Renewable Energy. “I know it’s strange to say we are in Oil and Gas and that we want renewables, but that really is where we need to be,” he explained,

*Continued on page 42*





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Customers report something unusual too: Mando’s “can-do” attitude.

George Price, vice president of J&M Products, for example, writes how Mando takes time to answer questions, explain machine operation and even gave “tips on stripping some shielded cable that others said could not be done.”

“Can’t be done” is not in Mando’s vocabulary—either English or Spanish. On his own initiative, he solves problems, leads training classes, helps boost plant efficiencies, and makes lasting friendships while doing it.

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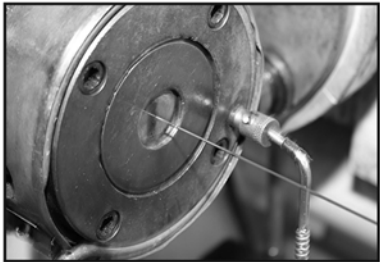
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# Flux Connectivity

*Continued from page 40*

“especially if we want to attract the younger talent in the industry.” As Adam is very interested in social causes, he has Flux actively seeking opportunities to build assemblies for solar and wind applications.

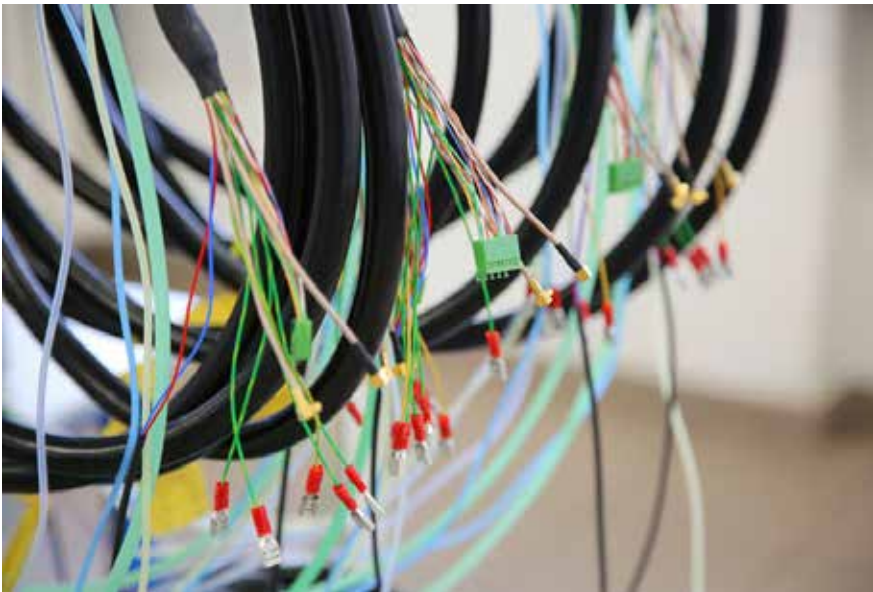
As far as attracting new business, it’s still very much word-of-mouth for Flux, but that’s changing. The company is hiring account executives to collaborate and consult with customers to tackle specific challenges. Following Flux’s decentralized format, these account managers will be tethered virtually through the extensive use of Flux’s CRM platform. Not surprising, they are making extensive use of social media to promote the company and Adams blog on the website. Shelly added, “The blog is really part

of our brand strategy and whether someone is a competitor, a customer, a potential supplier, future employee, or just an advocate for us in the industry, we want them to know we speak the language in a very authentic and informal tone.”

### Quality Standards

Flux is about to embark on their certification for ISO 9001: 2015, and Adam and his team have a company waiting in the wings to certify them. It seems this will mostly be a formality as Adam reports that his crew is already there with respect to training, documentation, and all the ISO essentials. But Adam sees this as only a starting point. “I’m constantly communicating our strategy of rapid

*Continued on page 44*





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# Flux Connectivity

Continued from page 42

problem solving, and this is where I think even ISO is outdated with the whole NCR. When we run into a problem at any of the production facilities, we have the ability to ‘go live’ on a video where we can train the entire organization.” Adam and Shelly find this a far superior approach to

the laborious paperwork where the engineering design changes and control notices fall on the shoulders of one person. “Here, the ownership is on everybody. We all understand the goals of our customer and so any-time, and anywhere, we can go live to train somebody, a group, or the entire organization on how to do something properly,” Shelly elaborated.

In addition to ISO adherence, Flux is compliant with the IPCA-620 standard. “But even IPC is a default, and we hold ourselves to a higher standard,” he advised. Full ITAR and certification to military standards are also in the works for the very near future. The ISO 14000 series of certifications is also in the company’s sights. They are strong supporters of environmental issues and want to attract like-minded people who are concerned about the footprint of the organization.

“Our adherence to OTD is what gives us the edge.” He knows other companies quote short lead times to get the business, but then underperform. “We usually lose the first two orders after presenting to a customer,” he explained, “but after that, the supply chain starts thinking, ‘OK, we need to go with a company who can actually deliver on time.’” In fact, the company is so confident in their ability to meet this all important metric, they offer an OTD Guarantee™ (you can see details at [www.fluxconnectivity.com/otd-guarantee/](http://www.fluxconnectivity.com/otd-guarantee/)).

Both Adam and Shelly asserted that the level of scalability their unique structure enables is unobtainable by competitors. “We view Canada and the US as one market, and we realize that capacity has to be on both sides. We do realize some contracts require American content, so we have that ability to scale up or scale down on that side of the border.” Adam assured.

### Outstanding Attributes

I asked Adam and Shelly what makes Flux unmistakable to their customers. Adam quickly responded it was their on-time delivery perfor-

mance. “It truly is a unique model that Adam and his team have constructed for a harness manufacturer. The secret sauce seems to be the supplier relationships and the ability to scale their facilities and workforce. They are leveraging technology to its fullest to ensure production efficiencies and quality. Adam admits it’s not always an easy sell to potential clients. “Trying to convince people you can do all this without owning a big building and having people in the office has been the greatest challenge. Again, we don’t usually get the first or second order, but we still look at every opportunity as ours to lose.” Quality results are what speak loudest and that’s what they concentrate on at Flux Connectivity. Once clients are able to grasp how quickly they are able to move through business decisions and the lack of hierarchy, silos and corporate red tape, they realize what a great performer this young company can be.

For more info, you can email Adam directly at [aamos@fluxconnectivity.com](mailto:aamos@fluxconnectivity.com).

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# Back to Basics

## Proper Selection and Use of Wire Ties

By Maria Haynes,  
Lead Product Marketig Specialist  
Phoenix Contact USA

All tangled up? Do you need a way of cleaning up your cabinet or securing cables for transport? Wire ties keep your cabinet organized, but there's more to consider than you might think! There are so many decisions to make when choosing a wire tie, such as bundle diameter, tensile strength, material composition, color, environmental conditions and any special requirements.

### Bundle diameter

First, you need to determine what is being pulled together and then measure the bundle diameter. What is meant by "bundle diameter"? A bundle of things is several collected items brought together. Diameter is the measurement of the thickness of that group of items, measured by a straight line passing through the center of the circle. The length of that straight line is the diameter.

Once you know the bundle diameter, you can determine the length requirement of a wire tie. For our purposes, we will assume our bundle consists of a group of wires or a large single cable. You might need to run

these from point A to point B rather than have them dangling freely with the potential to get snagged and disconnected. Wire ties can hold the wires together, attaching them on their path to prevent movement or accidental disconnection.

### Tensile strength

Second, we need to determine the required tensile strength of the wire tie. Tensile strength is the resistance of the material (in our case the wire tie) to prolonged stress. It is measured by the minimum amount of resistance needed to cause the material to break.

Tensile strength determines the strength of the wire tie in a steady state. DIN EN 62275: 2010 and SAE AS 23190 form the basis of the test conditions and evaluations of the results of the tensile strength. The wire tie spans a defined field ( $\varnothing 38 \pm 0.2$  mm) and is pulled open at a speed of 25 meters per minute. The force determined when the wire tie tears or the plastic becomes deformed (flows) must be above the values defined in the standard. Tensile strength is measured in Newtons. A best practice is to choose loop tensile strength values that are higher than the limit values defined by standards.

Continued on page 46



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# Proper Selection and Use of Wire Ties

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What tensile strength is needed for the application? A simple calculation can be used to determine the required minimum holding force for the individual application. Mass [kg] = preload [kg] + bearing load [kg]. Minimum holding force [N] = mass [kg] x gravitational acceleration [m/s²]. The preload is the tensile force when tightening the wire ties.

### Choosing the right material

Once the length and tensile strength are determined, the next step is to choose the appropriate material of the wire tie: steel or plastic. Phoenix



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Contact's plastic wire ties are available in polyamide plastic or V2A or V4A stainless steel. Deciding which material to use will depend on the application and the local environment. Is the cabinet going to be inside, protected from the elements? Is it going to be on a boat or ship where the sun and saltwater will affect it? Or is it meant to secure the product for transportation to its destination?

### Plastic

Phoenix Contact's plastic wire ties are manufactured with polyamide plastic due to its excellent electrical, mechanical, chemical and thermal properties, even at high temperatures. They are free from silicone and halogen, ideal for operating temperatures from -58°F to 257°F.

In a typical climate, polyamide can breathe and maintain stability, tensile strength, tenacity, and resistance to abrasion and sliding. The flexibility and minimum holding force are influenced by the water content of the wire tie and therefore should be stored in polyethylene bags, protected from direct sunlight and heat sources until they are used.

Common varieties of plastic wire ties include:

- Standard
- High-temperature
- UV-resistant
- Removable
- Blue magnetically identifiable
- Screw or rivet-mount
- Body-mountable

Ideally, any plastic wire ties should be halogen-free. The term halogen-free relates primarily to the elements chlorine and



bromine in flame-protection agents. In order to be classified as halogen-free, the material must consist of less than 900 parts per million of these elements and have less than 1,500 ppm of total halogens. The term “total halogens” refers to chlorine, fluorine, bromine, iodine and astatine elements, commonly used in the production of plastics and Teflon. Halogen-free plastics were established due to the dangers of gases released when these elements catch fire or are heated to high temperatures. Halogen-free is preferred, and in some cases required, in areas with a lot of foot traffic, such as hospitals, airports, buses and train stations.

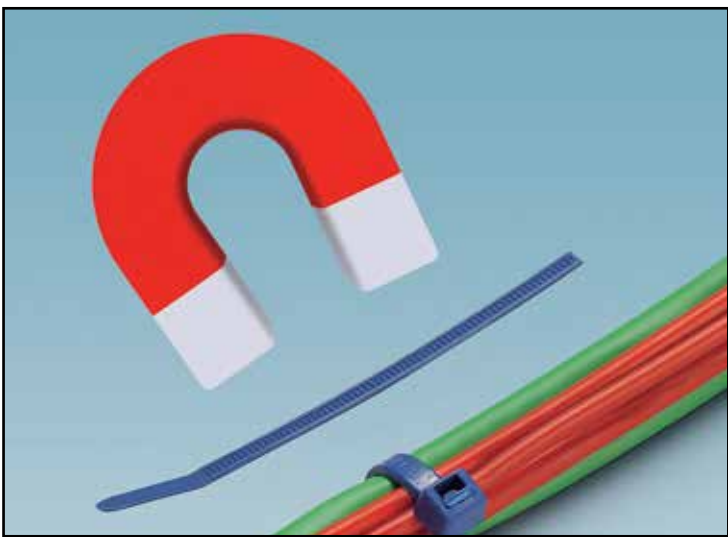
Standard wire ties meet the basic requirements. As an example, Phoenix Contact’s standard wire ties are available in white (commonly referred to as transparent) or black and range from 3.85” to 11.89” long. The thicknesses of the tie range from 0.1” to 0.5” relative to the tensile strength of 80N to 1080N. Color choice is a matter of user preference.

High-temperature wire ties contain copper dioxide additives that enable them to withstand higher levels of heat, up to 257°F. These versions are also available in white or black, ranging from 3.85” to 14.4” in length, 0.1” to 0.3” in width, and 80N to 540N in tensile strength.

The UV-resistant wire ties are available in the same length, width and tensile strength as the high-temperate wire ties, but they differ in their UV-B protection. Those without any special UV protection can withstand around 150 hours of high-dose UV-B radiation without any damage. Phoenix Contact’s UV wire ties have a much higher level of resistance because they are fixed with UV protection, providing resistance up to 10 years.

Removable wire ties are suitable for applications such as transporting, which requires quick and easy removal. No tools are required to unlock them, and they can be reused. Phoenix Contact carries six types of removable wire ties, three in black and three in white. All are .3” in width and are between 8” and 13.8” long.

In the food and beverage industry, blue is the preferred color for non-edible components. The number of blue foods is minimal, so it is the desired color for components in and



Blue magnetized wire ties are easy to spot and remove in food and beverage applications.

around production. If a wire tie gets lost on the production line, the blue color makes it easy to spot. For additional security, Phoenix Contact’s

blue wire ties are magnetized for easy locating and removal with a magnet. Some factories

Continued on page 48

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1 - CARPENTER Model 58A Prefeed

8 - DANIELS Crimpers, WA22, WA27F, WA27-300BT-EP

1 - ERASER Model 1256 Wire Stripper, Part #RC-1071

1 - EUBANKS 8000 Cut & Strip Machine

1 - EUBANKS 2900 Cut & Strip Machine w/Model 6880-05 Prefeed

1 - JUNQUAN 2T Semi-Automatic Terminal Crimping Machine, Model SATC-20, 2007

5 - KENCO 3T Presses, 1.5”, 1.25”, 1.125” Strokes

1 - KINGSLEY Model KIP-20 Hot Stamp Marker

1 - KOMAX DPS 272 Coiler, 2012

1 - KOMAX Gamma 333LCD Crimping Machine

1 - KOMAX Gamma 311 Automatic Crimping Machine

1 - KOMAX Kappa 325 Cut & Strip Machine

4 - KOMAX 106, 125R, ADS112, ADS119 Prefeeds

1 - LOEPFLE Thermal Transfer Printer, Model TTP4000 (Schleuniger TTP4000)

6 - NITRONIC Model ST730T Coax Cable Stripping Machines

1 - ONDAL Linear TaperS, 2016

2 - PERKINS 3T Presses, Models JR and 3-C, 1-1/8’ Stroke

1 - RAMATECH Prefeed, Model ABW 800/300, 2005

1 - RONI 220lb Mobi Crane

2 - SCHLEUNIGER CC60 CrimpCenters

2 - SCHLEUNIGER CC1000. CC500 CableCoilers

1 - SCHLEUNIGER CP1500 Heavy Duty Coiler

1 - SCHLEUNIGER CS5400 CoaxStripper

1 - SCHLEUNIGER HS4128 Hot Stamp Machine

1 - SCHLEUNIGER MP257 Coax Wire Stripper, Refurbished

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1 - SCHLEUNIGER PC3700 PowerCut

5 - SCHLEUNIGER PF4200, PF4000, PF2000, PF1100 Prefeeds

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# Proper Selection and Use of Wire Ties

Continued from page 45

Phoenix Contact offers two different grades of stainless steel, V2A and V4A. Both are resistant to vibration, weather and UV, and they are anti-magnetic and fire-proof. However, the V4A is also resistant to harsh chemicals such as acid and saltwater. The V2A stainless steel wire ties are suitable for the chemical and processing industries, whereas the V4A is required for on-shore or offshore industries such as oil and gas.

### Accessories


Finally, you will need to decide what accessories will complement your wire ties. Phoenix Contact carries several different options for wire

tie bases. While self-adhesive and/or screw-mount bases work for many applications, high-temperature locations may require screw-mount only or bases with built-in rivets. If all you need is to temporarily tie some wires together, a cable driller might be able to do the job for quick and tool-free grouping of wires and cables.


### Conclusion


In summary, choosing a wire tie can require a little thought. While wire ties seem like a simple component, choosing the right one for an industrial location requires careful consideration of many different factors. If you would like specific information on products from Phoenix Contact, visit [www.phoenixcontact.com/wire](http://www.phoenixcontact.com/wire)

High-temperature applications will require the wire tie bases to have screw-mounting or rivets, rather than adhesive.



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NEWS PLUGS continued



Continued from page 29

Schleuniger, Inc. to Exhibit Latest Wire Processing Innovations at M-Expo

Schleuniger, Inc., a leading international manufacturer of high-precision wire processing machines, will demonstrate select equipment from its comprehensive line of solutions at M-EXPO Wire Processing Technology on October 9-11, 2019, at the Cuatro Siglos Convention Center in Ciudad Juarez, Chih.

M-Expo is the premier wire processing technology exhibition in the region, primarily for those in the wire and cable processing industries. Schleuniger will be at booth #608 providing hands-on demonstrations of innovative wire processing solutions.

New this year, Schleuniger will be showcasing the MultiStrip 9480 cut and strip machine with SmartDetect, our highly innovative quality monitoring option. This sensor-controlled system monitors the complete stripping process and detects any contact between the stripping blade and the conductor ensuring 100% quality with no nicks, cuts or missing strands. This versatile, high performance automatic cut and strip machine accurately processes a wide range of wires and cables. It is available in six machine versions to cover most applications and easily fits most budgets. Add the TriStar laser marking machine, and you have a complete system to handle virtually any application.

Schleuniger will also be exhibiting the CrimpCenter 36 SP fully automatic crimping machine. Equipped with the latest high precision technology, the CrimpCenter 36 SP offers up to six processing stations, decreased set up time with its new wire straighteners and pro-

grammable gripper pressure, increased performance with higher feed rates, and refined motor synchronization. The CrimpCenter 36 SP also adds enhanced wire handling with a new deposit gripper and an automatic batch tray. Increased productivity and decreased cost per lead are guaranteed.

Additional equipment will be on display including the latest generation CoaxStrip 6580 fully programmable multi-step stripping machine for coaxial, tri-axial, multi-conductor cable and single conductor wire and the

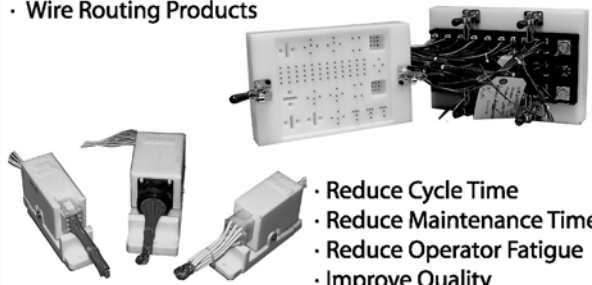
UniStrip 2300 with the SmartDetect option for additional quality assurance. Several of Schleuniger's Sales and Technical Service experts will be on hand to discuss any and all applications and to offer feedback on Schleuniger's complete line of wire processing solutions.

More information can be found at [schleuniger.com/m-expo](http://schleuniger.com/m-expo). Should you have any questions, please e-mail [sales@schleuniger.com](mailto:sales@schleuniger.com) or call (603) 668-8117.

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NEWS PLUGS continued



TLC Electronics Announces President

TLC Electronics is pleased to announce the hiring of John Haley as its new President.

John was hired to enhance the culture and drive growth to achieve the company vision.

John graduated from Michigan State University with a Bachelor of Science degree in Packaging Engineering. After Graduation, John was hired by IBM in Rochester, MN where he worked various positions over 14 years including managing/engineering the Shock and Vibration Lab, Program Manager, and New Product Administrator. In 1996, John joined UFE an injection Molding Company where he managed two



John Haley  
President, TLC Electronics.

plants in Wisconsin. In 2009, Advanced Molding Technologies hired John as their President where he helped achieve record growth. In March of 2019, John Joined TLC Electronics as its new President.

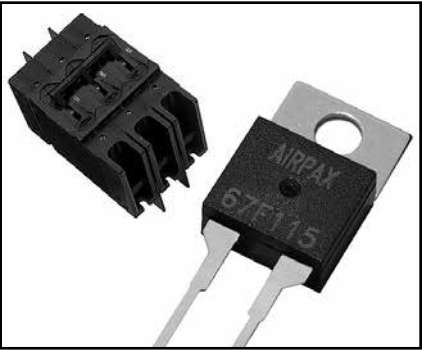
TLC Electronics Owner, Jon Croford, will continue to be involved in the operations of TLC Electronics as CEO. He will focus on the vision of the company and what TLC will look like in the future.

TLC Electronics is a Minnesota Based Company that creates Custom Cable & Wire Harness Assembly Solutions. For over 30 years, we have taken customer concepts from paper to reality. We are also a factory-authorized distributor of electromechanical and interconnect components. Being both a contract manufacturer and a distributor allows us to provide competitive pricing and ensure our assemblies are designed for manufacturability.

Are you interested in talking with John? Contact him at [j.haley@tlcelectronics.com](mailto:j.haley@tlcelectronics.com) or 651-558-2977

Heilind Electronics Expands Sensata Partnership with Sensata-Airpax Offering

Heilind Electronics, a leading distributor of electronic components, has expanded its Sensata Technologies offering by adding Sensata-Airpax - a leading innovator and manufacturer of hydraulic-magnetic circuit breakers and protectors, bimetal thermostats, power switches and modular distribution systems.



The new line will complement Heilind's existing Sensata Technologies portfolio, which includes industry-leading sensing, electrical protection, control and power management solutions.

"We are very pleased to expand our existing Sensata offering with Sensata-Airpax," said Glen MacGibbon, Vice President of Business Development - Sensors, Heilind Electronics. "Sensata's ever-expanding sensor offering, combined with power distribution, makes for a powerful solution that can benefit a wide array of customers. These products are RoHS-compliant and manufactured in ISO-certified facilities around the world. As a result, we are able to offer a reliable and diverse set of power distribution items to our global customer base."

Sensata-Airpax products span a wide range of industrial and commercial applications, including telecommunications, recreational vehicles, HVACR, marine, military, medicine, information processing, electronic power supply, power generation, over-the-road trucks, construction, agriculture and alternative energy.

Heilind Electronics will be offering Sensata's complete Sensata-Airpax product line. Visit Heilind's website for more information about Sensata-Airpax power distribution products.

About Heilind Electronics  
Heilind Electronics, Inc. (<http://www.heilind.com>) is one of the world's leading distributors of connectors, relays, sensors, switches, thermal management and circuit protection products, terminal blocks, wire and cable, wiring accessories and insulation and identification products. Founded in 1974, Heilind has locations throughout the U.S., Canada, Mexico, Brazil, Germany, Singapore, Hong Kong and China. Follow Heilind on Facebook at [facebook.com/Heilind](https://facebook.com/Heilind) and on Twitter at [twitter.com/Heilind](https://twitter.com/Heilind).

About Sensata Technologies  
Sensata Technologies is a world leader and early innovator in mission-critical sensing, electrical protection, control and power management solutions. Sensata's operations span twelve



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#### **IEWC Announces New Distribution Center in Hermosillo, Sonora, México**

IEWC is pleased to announce its newest distribution facility opening in Hermosillo on August 1, 2019. This facility increases IEWC's capacity to service its customers' wire, cable and wire management product needs with increased local inventory and shipping capabilities.

Michelle Osman, IEWC Chief Operating Officer commented, "This is an exciting time for expansion. IEWC is looking forward to extending our services and distribution footprint into Hermosillo."

"Hermosillo is an excellent location for our new distribution center," stated Ricardo Garcia, President, Americas South. "IEWC's new Hermosillo location will continue to strengthen our presence in north-western Mexico, further widening the Mexican network that supplies our customers the unparalleled customer service they've come to expect from IEWC."

IEWC's new distribution center is located in:

IEWC Hermosillo Via Verte Business Center Hermosillo Boulevard Antonio Quiroga No. 107 – M Col. Vista Bella, Hermosillo, Sonora, México, C.P. 83174 Tel: +52 662 478 0600

IEWC ([www.iewc.com](http://www.iewc.com)) is an employee-owned company with 24 locations in nine countries, serving customers in 96 countries.

#### **LUTZE Introduces M12 Connectors with Quick Push-in Technology**

LUTZE Inc. is expanding its industrial connector offering by adding a variety of straight and angled push-in M12 connectors to complement our existing product offering. The innovative push-in technology delivers a quick and reliable termination without any tools required providing a simple time saving solution while supplying reliable transmission for signal, data or power cabling.

These versatile M12 connectors provide a secure connection for

solid, stranded, and ferruled wires per application requirements. Color coded and numbered terminals simplify termination to ensure proper connections. Ferruled and solid wires can be terminated using the quick push-in technology, and stranded wires use the easy-to-open tabs for termination.

LUTZE's portfolio consists of 18 new M12 connectors, a combination of 2, 4 and 5 PIN options including straight or angled, male or female and A, B or D coded versions. These M12 connectors come either with a plastic housing or with a rugged zinc die cast housing for harsh industrial environments. With a wide variety of cables, connectors and connectivity solutions, LUTZE is a complete solutions provider for industrial network applications.

LUTZE Inc. designs, manufactures and markets control products for industrial automation and specializes in flexible industrial cable marketed



under the following brands: LUTZE Silflex®, Superflex®, Superflex® Plus, MOTIONFLEX™, DRIVEFLEX® VFD; ground-

ing and wire management products, compact power supplies, AirSTREAM Wiring System for control cabinets, intelligent 24Vdc control circuit monitoring system LOCC-box and LCIS relays.

LUTZE Inc. located in Charlotte, NC, is part of the LUTZE International Group. Founded in 1958, LUTZE International Group has manufacturing and distribution operations in Germany, Austria, France, Switzerland, Great Britain, Czech Republic, China and the USA. Efficiency in Automation. LUTZE solutions mean improvement and innovation.

For more information, please contact LUTZE Inc. at 800-447-2371, email [info@lutze.com](mailto:info@lutze.com) or visit them on the web at [www.lutze.com](http://www.lutze.com).



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NEWS PLUGS **continued****TE Connectivity's New Terminal Strip Cutter Hand Tool Now at Heilind Electronics**

Heilind Electronics, a leading global distributor of electronic components and authorized distributor for TE Connectivity (TE), a global leader in connectivity and sensors, recently introduced the manufacturer's new terminal strip cutter hand tool. The tool enables operators to easily remove side-feed, front-carrier strip and reeled terminals from their carrier strips – and in the process, avoid damaging products or creating sharp burs commonly associ-

ated with traditional wire snips.

TE Connectivity's terminal strip cutter is a purpose-built tool with the single objective of making loose piece terminals from strips and reels. The product has an ergonomic design with enough handle force to manage large terminal sizes. It is also equipped with simple adjustment features to accommodate tension and varying terminal heights, depths and carrier strip lengths.

Not only is the tool lightweight, but it is also easy to use and affordable. The adjustable tool accommodates side-feed, front-carrier strips of varying sizes, but is not designed to cut end-feed, center-carrier or dual-carrier terminal strips. The device offers the precision needed to cut one terminal at a time, reducing waste.

Visit Heilind's website for more in-



formation about TE Connectivity's terminal strip cutter hand tool.

**About Heilind Electronics**

Heilind Electronics, Inc. (<http://www.heilind.com>) is one of the world's leading distributors of connectors, relays, sensors, switches, thermal management and circuit protection

products, terminal blocks, wire and cable, wiring accessories and insulation and identification products. Founded in 1974, Heilind has locations throughout the U.S., Canada, Mexico, Brazil, Germany, Singapore, Hong Kong and China. Follow Heilind on Facebook at [facebook.com/Heilind](https://www.facebook.com/Heilind) and on Twitter at [twitter.com/Heilind](https://twitter.com/Heilind).

**About TE Connectivity**

TE Connectivity Ltd. (<http://www.te.com>) is a \$14 billion global technology and manufacturing leader creating a safer, sustainable, productive and connected future. For more than 75 years, TE's connectivity and sensor solutions, proven in the harshest environments, have enabled advancements in transportation, industrial applications, medical technology, energy, data communications and the home. With 80,000 employees, including more than 8,000 engineers working alongside customers in approximately 140 countries, TE ensures that EVERY CONNECTION COUNTS.

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taining two different metals expand at different rates. This stress on the solder joint can cause it to crack upon cooling, resulting in the failure of the device.

For more information on indium metal, visit [www.indium.com/indium49](http://www.indium.com/indium49).

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For more information about Indium Corporation, visit [www.indium.com](http://www.indium.com) or email [abrown@indium.com](mailto:abrown@indium.com). You can also follow our experts, From One Engineer To Another® (#FOETA), at [www.facebook.com/indium](http://www.facebook.com/indium) or @Indium-Corp.

**Mark-10 Celebrates 40 Years in Business**

Mark-10 Corporation is celebrating its 40th year of engineering and manufacturing force and torque measurement solutions. The company was founded in 1979 as an engineering consultancy, later expanding into complete product development services and contract manufacturing. PCB assembly originally took place on the founder’s kitchen table in New York City. A diverse array of projects through the 1980s and 1990s included a remote controller for limousine passengers, a portable suture strength tester for a medical device sales team, and other diverse projects, leveraging the company’s expertise in engineering and electromechanical assembly.

Mark-10’s first branded product was an innovative digital force gauge, introduced in 1990. It was followed by additional force and torque measuring instruments, including tension, compression, and torsion test stands, grips and fixtures designed for specific samples and test methods, and data collection software.

Today, Mark-10 is headquartered in Copiague, NY, where all engineering,

machining, assembly, support, and administrative functions take place. Private ownership and vertical integration have allowed the company to maintain tight control over quality and lead times. A close-knit staff is aligned around the company’s singular focus on force and torque measurement solutions. Mark-10 looks forward to a future of opportunity and progress.

For more information on Mark-10’s force measurement equipment for the harness industry, contact Mark Fridman, Director of Sales & Marketing at [mf@mark-10.com](mailto:mf@mark-10.com), or call Mark at 888-MARK-TEN / 631-842-9200 x13.

**Sonobond Equipment Accommodates Manufacture of New Innovative Batteries**

Company’s Ultrasonic Welders Aid in Assembly for Next-Generation Energy Storage

Innovative battery manufacturers are responding to the growing need for affordable and efficient solutions for renewable energy storage. To accommodate the demand, they are using durable, cost-effective and environmentally friendly ultrasonic technology to assemble their products.

“Currently, wind and solar account for only about 6 percent of the United States’ electrical power generation. But, as reliance on alternative sources of energy increases, storage batteries will become essential as backup, providing power when there is no wind or sun,” explains Sonobond President Janet Devine. “In fact, some battery manufacturers are already developing new formats for home and utility-sized energy storage systems that could eventually make wind and solar more

*Continued on page 56*



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NEWS PLUGS **continued**

Continued from page 55

consistent power resources.

“Some battery manufacturers hoping to commercialize new types of rechargeable batteries – that may eventually provide backup power, as well as grid-scale distributive storage to maintain peak power – are already employing Sonobond’s ultrasonic assembly technology,” notes Devine. “Additionally, we continue to supply welding units to manufacturers seeking dependable, environmentally friendly methods for assembling exist-

ing lithium-ion and NiMH rechargeable batteries used in applications such as all-electric and hybrid automobiles, medical technology, and military and telecommunication fields.”

Unique System Ensures Reliable Welds

Sonobond’s ultrasonic metal spot welders require no external heat, current, fluxes or fillers and produce no arcs, sparks or fumes. Instead, the welders create durable bonds by employing the company’s unique, patented Wedge-Reed ultrasonic bonding system that combines high vibratory force and low amplitude coupling. Using shear mode vibration parallel to the welding surface – while the line of force is directly over the parts to be welded – achieves precise, depend-

able, solid-state and highly conductive welds. Sonobond’s is also the only ultrasonic assembly system that can weld most oxidized and tinned metals in one pulse, even without pre-cleaning.

Ultrasonic Spot Welding Equipment

Sonobond offers two ultrasonic spot welder models that weld multiple layers of foils to tabs or terminals, accommodate battery pouch assembly and HV termination welding. The SonoWeld® 1600 and Dual Head Spot (DHS) Welders weld foils as thin as seven microns without tearing. Also, the Dual Head Spot Welder is the first ultrasonic welder that can join up to 100 layers of copper or aluminum foil without tearing, and in just one pulse. The units use outputs of 1,500, 2,500 or

3,500 watts. Both models have digital displays that allow weld control to be selected by time, energy, or distance. Each unit has a power supply with a built-in microprocessor featuring automatic frequency control, overload protection, and storage and recall of up to 250 protocols.

The SonoWeld® 1600 and Dual Head Spot Welders employ heat-treated tool steel Taper Lock Tips that can perform up to 30,000 welds before redressing is required and as many as 100,000 welds before being easily removed and replaced. As with all Sonobond equipment, the spot welders require only minimal training.

Achieving New Electrical Grid Storage Capability

“It’s estimated that the market for batteries providing stationary energy storage will increase from about \$1 billion today, to approximately \$6 billion by 20202,” notes Devine. “Sonobond fully expects to help manufacturers achieve that goal, which potentially promises to make our energy grid cleaner and more resilient.”

Free Ultrasonic Viability Test

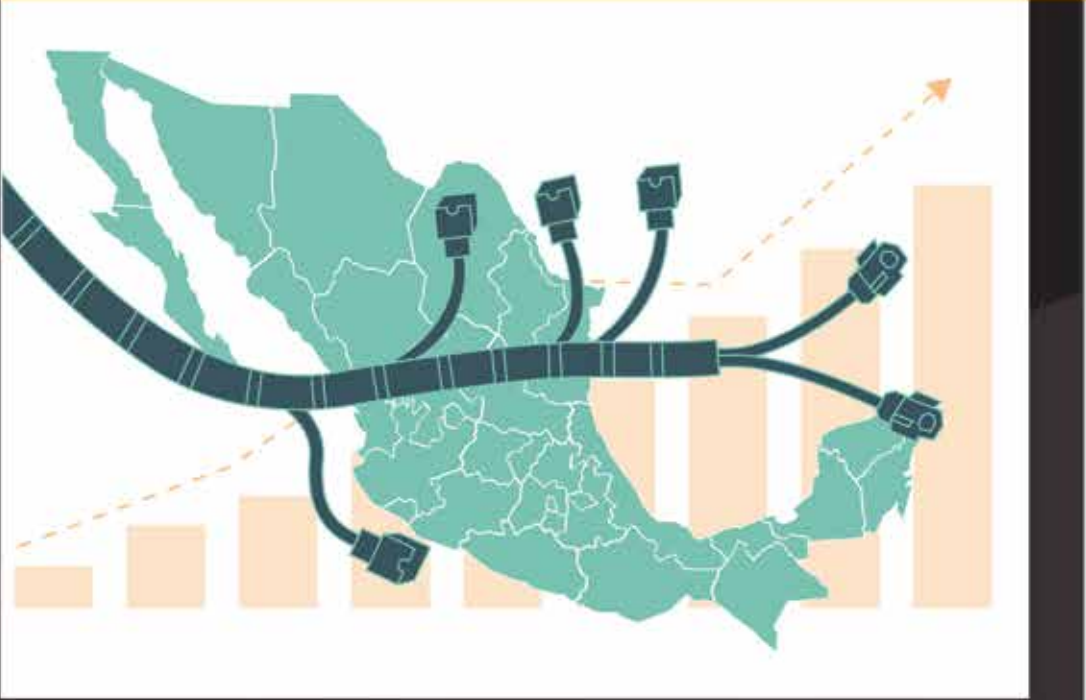
To assist battery manufacturers in determining the benefits of ultrasonic welding for their particular applications and requirements, Sonobond offers a free Ultrasonic Welding Viability Test. Using materials provided by the manufacturer, Sonobond produces no-cost, no-obligation sample welds. If Sonobond’s equipment is incorporated into the customer’s production process, service and technical support is provided before, during and after installation.

Leading the Industry in Ultrasonic Innovation


For over 59 years, innovation, performance and service have made Sonobond the industry leader in ultrasonic welding technology. Founded in 1960, Sonobond (then known as Aeroprojects) earned the first patent ever issued for ultrasonic metal welding. Since then, the company has received more than 150 additional patents for metal welders and custom-engineered ultrasonic bonders of all types used by manufacturers in the automotive,

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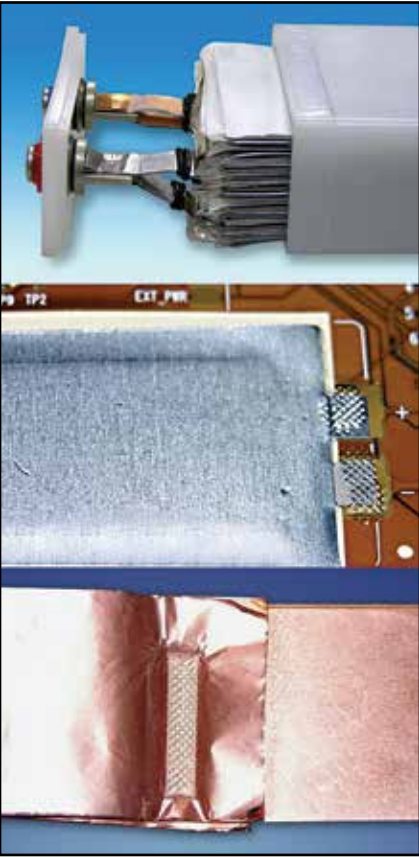
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Sonobond’s ultrasonic metal welding technology provides a reliable, cost-effective, environmentally friendly method for assembly of battery pouch cells and for attaching multiple layers of foil to battery terminals that are used in new, innovative, rechargeable batteries designed to store electrical energy from alternative and conventional sources.

appliance, filtration, HVAC, apparel, aerospace, medical, electronic, electrical, photovoltaic and ballistic vest/body armor fields.  
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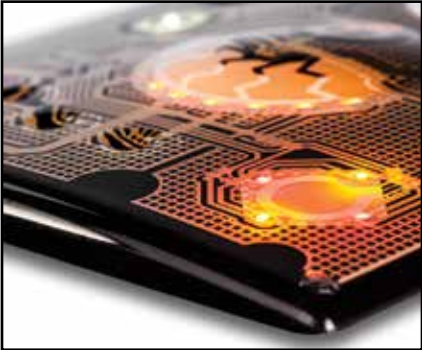
on submitting materials for a free Ultrasonic Welding Viability Test, please call 800-323-1269, visit [www.sonobondultrasonics.com](http://www.sonobondultrasonics.com), or contact President Janet Devine at [JDevine@sonobondultrasonics.com](mailto:JDevine@sonobondultrasonics.com).

**SonoWeld® 1600 Digital Ultrasonic Spot Welder**

In addition to the assembly of newly designed rechargeable batteries, Sonobond’s SonoWeld® 1600 Digital Ultrasonic Spot Welder is ideal for manufacturing existing lithium-ion, NiMH rechargeable batteries and pouch cells. The machine can weld foils as thin as seven microns without tearing, and welds most oxidized and tinned metals in one pulse, even without pre-cleaning.

**BÖ-LA and TactoTek® Join Forces for Injection Molded Structural Electronics (IMSE™)**

BÖ-LA and TactoTek® have jointly announced that they have signed an agreement for BÖ-LA to market and sell injection molded structural electronics (IMSE™) solutions. This partnership brings together leaders in their respective technology domains to advance the market for integrating electronic functionality within molded plastics.  
“The vast majority of our IMSE customer cases are for user interfaces that require flawless cosmetics. BÖ-LA’s film-insert molding skill is recognized by leaders in automotive, appliance and electronics markets as consistently meeting the highest standards,”



**TactoTek IMSE**

said Sini Rytty, TactoTek VP, Product Management. “With their close customer relationships and deep technical knowledge that includes printed electronics, BÖ-LA is in an ideal position to determine the best fit of technologies for each customer project.”  
BÖ-LA has a distinguished reputation for technology innovation and

has specific expertise in delivering high quality cosmetic surfaces, technical screen printing, illumination and film-insert-molding (FIM) which is also known as in-mold labeling (IML).  
According to Dirk Lange, Head of Sales, at BÖ-LA, “We have been actively involved in developing and commercializing techniques for adding electronic functions to cosmetic surfaces, including integrating printed electronics in 3D-formed FIM parts. With TactoTek’s IMSE technology, we can also integrate electronic components within these molded structures which increases integrated functionality and streamlines production for the right designs.”  
*Continued on page 59*

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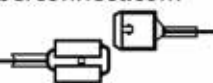
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# NEWS PLUGS continued

Continued from page 57

## About TactoTek

TactoTek is a leading provider of solutions for Injection Molded Structural Electronics (IMSE) that integrate printed circuitry and electronic components into 3D injection molded plastics. Leading use cases include in-vehicle applications, home/industrial appliances, and wearable technology. TactoTek adapts customer designs to IMSE technology, develops mass production ready prototypes, and mass produces or licenses the technology for 3rd party mass production. TactoTek is funded by Conor Venture Partners, Ascend Capital Partners, Faurecia Ventures, Plastic Omnium, Nanogate, VTT Ventures and Leaguer VC. For more information, please visit [www.tactotek.com](http://www.tactotek.com)

## About BÖ-LA

BÖ-LA is one of the world's leading specialists for industrial screen printing applications. As pioneer of the Film-Insert-Molding process (FIM) BÖ-LA is one of the most recognized and competent technology partners in offering all FIM production steps, as well as the comprehensive process- and tooling know-how, all from one source. As a first and second tier supplier BÖ-LA produces a wide range of decorative components like trim parts or front-panels as well as bezels and control-elements for all sorts of human-machine-interfaces (HMIs). Components and assembly groups from BÖ-LA can be found throughout the automotive- and appliance industry, as well as in various electronic markets like medical and smart-home. For more information, please visit [www.boela.de](http://www.boela.de)

## New Modular Cable Entry System Provides Flexible Management of Pre-assembled Cables

Weidmuller is pleased to announce

the new Cabtite Cable Entry System for pre-assembled cables and cables without plugs. This new modular frame system is replacing an earlier version of Cabtite, and offers users increased flexibility in the cable management of control cabinets and OEM equipment in manufacturing environments. A flex-



Cabtite Cable Entry System

ible cable entry system helps speed up installation, facilitates service and minimizes downtime.

Cabtite features a modular design that includes three basic components—a frame, snap-in inlays and sealing grommets. The frame is made from fiberglass reinforced plastic and is available in four different sizes. An optional internal locking frame is available for added tamper proof protection. The one-piece frame is configurable when using the snap-in inlays which provide an easy, configurable method to generate small to large entry points with sealing grommets of various sizes (full range: .06" – 1.4" dia.). This permits a number of configurations to accommodate a wide range of sizes for cables, conductors, hoses, pneumatic and hydraulic lines. Two conical-shaped sealing grommets (large/small) are available to reduce grommet complexity as the two grommets cover a cable range of .08" – 7.4" diameter and provide a reliable self-forming seal for a variety of cable diameters and shapes.

The unique Cabtite design offers quick installation whether it be installing from the inside of an enclosure out or from the outside in via the cable

Continued on page 61

# Why You Should Upgrade to a CableEye® Tester...

Using built-in scripting with operator prompts to automate a test procedure is only one way in which the flexible, intuitive CableEye cable and harness test system adapts to meet your needs.



Production Continuity & HiPot Pass/Fail Check GUI

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• If you need reliable, fast diagnostic tools to find intermittent connections, locate shorts, opens, or miswires, our live graphic wiring display makes this a snap.

• If you need to protect stored cable data from inadvertent erasure or tampering, our operator log-in privilege settings are there for you.

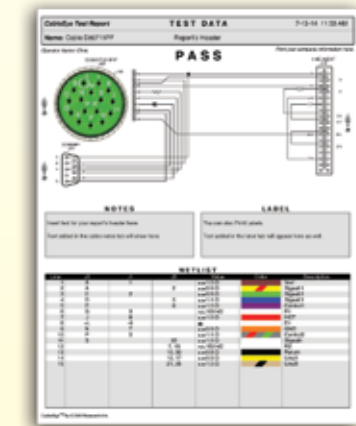
• If you prefer to readily share files and auto-detected fixtures between different models, our common software platform and network interface makes that a cinch.

• If you require your system to be Future-Proof, you will like that we do not use embedded computers or screens.

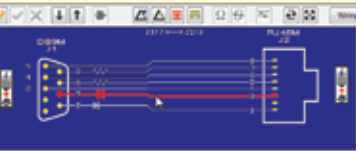
• If you insist on reliable hardware and rock-solid support, we insist on that too. Here's what others have to say: [camiresearch.com/testimonials](http://camiresearch.com/testimonials)

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Trigger Test Signal	Foot pedal, remote control
Relay Control	Lock & Release Latches, Diverter Gates
Printing	Reports & Labels
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NEWS PLUGS continued



Continued from page 59

entry cut-out. The frames and accessories securely seal pre-assembled and unassembled cables with grommet seals that meet IP66 and NEMA 4 – 12 protection, and integrated strain relief in accordance with DIN EN 62444. The Cabtite Cable Entry System has an operating temperature range of -40°F to +248°F (-40°C to +120°C).

Weidmuller's focus is to collaborate with customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. The company develops innovative, sustainable and useful solutions that set standards in Industrial Connectivity today and continually work toward providing solutions for the technology challenges of tomorrow. The Weidmuller Group owns manufacturing plants, sales companies and representatives in more than 80 countries. For more information, contact Weidmuller Inc. at (800) 849-9343 • FAX: (804) 379-2593 or visit them on the web at [www.weidmuller.com](http://www.weidmuller.com)

Collier County Commissioners Name Pelican Wire as 'Business of the Month'

During a recent Collier County Board of County Commissioners meeting, Pelican Wire was named the Collier County 'Business of the Month' and was recognized by the Board for being a manufacturing leader in Collier County for over forty years.

Pelican Wire President, Ted Bill, who received the award, says "We are truly honored to be named the Collier County 'Business of the Month' for July. Since moving to Naples in 1976, Pelican Wire has watched Collier County grow and we have been pleased to be part of that growth. As a manufacturer, we help to diversify the economy of Southwest Florida and are honored to be recognized by the Commission for our contribution to the county and the community. On behalf of the employee-owners of Pelican Wire, I would like

to thank the Board of County Commissioners for recognizing the importance of manufacturing by honoring Pelican Wire." The Greater Naples Chamber of Commerce also recognized Pelican Wire at their monthly 'Wake-Up Naples' breakfast meeting the following morning.

Celebrating its 50th Anniversary, Pelican Wire is an employee-owned manufacturer of application-driven wire solutions in the areas of thermocouple, resistance and custom wire. With specialties in the fine-gauge and high-temperature wire fields, Pelican Wire works globally across multiple industries, offering solutions in Aerospace, Medical, Industrial, Automotive, Defense and other fields. For additional information, contact Pelican Wire at (239) 597-8555 or online at [PelicanWire.com](http://PelicanWire.com).



First Row (L. to R.): Naples Chamber CEO Michael Dalby, Pelican Wire CEO Ted Bill, Pelican Wire Marketing Manager Trent Dunn, Naples Chamber Membership Director Bethany Sawyer. Second Row: Commissioners Andy Solis, Donna Fiala, William McDaniel Jr., Penny Taylor & Burt Saunders

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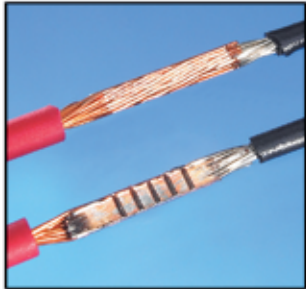
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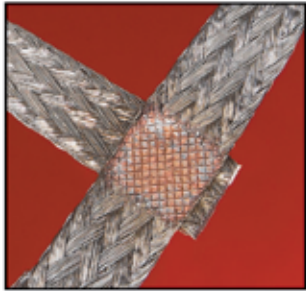


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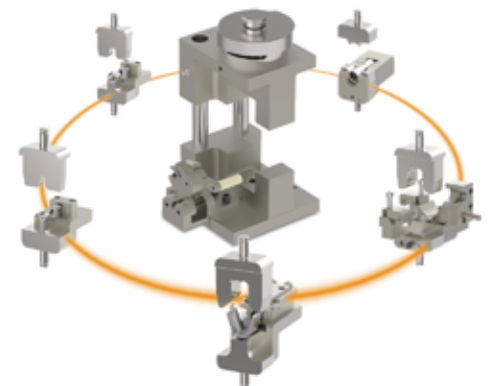


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