This we so

- Becker Electronics
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- Is the Wire Harness Business Consolidating?
- Plug & Play Industrial Ethernet Connectivity for Oil & Gas



Becker Electronics

By Fred Noer

hatever it may be, just one piece of technology can make a tremendous difference in a business. To that the three owners of Becker Electronics Inc. can attest.

The firm in Ronkonkoma on Long Island in New York, 45 miles from New York City, grew by 33 percent in 2013 and '14 after starting to use enterprise resource planning (ERP) software on July 1, 2011. It was purchased from Global Shop Solutions in The Woodlands, Texas

"We made an investment that was fortuitous and necessary," said David Sosnow, company president. "We gained full control of our business. It is the largest and most fundamental change we've made. The new software gave us the tools that enabled us to define our processes, get goods into production and have real-time communication with our customers."

Becker Electronics Inc. (BEI), which began in December 1996 and has grown

The 2016 Wiring Harness Manufacturer's Association Conference will take

place at the Chaparral Suites, Scottsdale, AZ February 23-25.

to \$10-15 million in annual sales, is a contract manufacturer of wiring harnesses, cable assemblies and electromechanical assemblies for OEMs. According to Sosnow, the company has 125 active customers and has 400-500 items open for production at any given time

"We have to make changes and reshuffle the deck on a daily basis," Sosnow said, adding that all production is done in house. "This is an extremely complex business to manage, and we have to manage it quickly and efficiently."

Sosnow related that business manager Frank Spagnuolo spent more than two years studying ERP software on the bases of price, quality and long-term support. "We are fully satisfied with the software," Sosnow said. "We manage our inventory and have on-time delivery, and our success with customers has gained us more business. Refinement is a priority now."

The need for the software grew from a crisis when the company was overwhelmed with orders. "We had been constantly late, and we were not efficient," Sosnow said. "We were hanging



Becker Electronics makes harnesses, cables and electromechanical assemblies for assorted industries.

on by a thread. It has been difficult for us to perfect our processes and operations.

"With quality and delivery, there's no margin of error," Sosnow said. "We have a lot of competitors, and the competition is brutal. These days Mexico is our biggest one."

To withstand such competition, BEI relies on quickness. "Speed is absolutely critical," Sosnow said. "I'd say nobody is faster than us in quotes, first articles and production. Our lead times are extremely good, and often we can respond to an emergency situation the same day

because we have a lot of people and resources."

The BEI profile today is dramatically different from the start-up 19 years ago. Sosnow, Patrick Spagnuolo and Sharon Becker worked together at another company in the harness and cable distribution industry in the New York City area when they decided to open a components distributorship in a 2,000 square-foot rented facility in Bayshore, N.Y., southwest of Ronkonkoma.

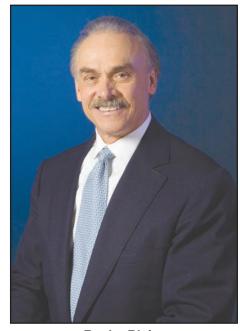
__Continued on page 32

WHMA 2016 Conference in Scottsdale

By Joe Tito Wiring Harness News

tough act to follow. That was the thought I had at the closing of the 2015 WHMA Conference held in Las Vegas last February. If you missed it, you missed a truly inspiring keynote by Allen West. You missed Ted Ergo from Corporate Visions who totally changed the way many attendees are now handling sales presenta-tions. You missed a high octane WHMA Conference, with outstanding presenters and unparalleled networking opportunities.

So how do you top that? That was my first question for Jim Manke, Executive Director of WHMA, during a recent conversation. I think I can say with confidence that Mark Christie and the other members of the Program Committee have done it. I'm a political junkie. So I knew a great deal about Allen West, and felt like a kid in a candy store meeting him. But I'm also a Pittsburgh guy who grew up in the 70's. I couldn't possibly be more excited to hear the keynote



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1

Becker Electronics

The firm began in December 1996 and has grown to \$10-15 million in annual sales.

WHMA 2016 Annual Conference

This year's WHMA Conference will return to Scottsdale Arizona. The event will run Tuesday, February 23rd through Thursday, the 25th at the Chaparral Resort.

News Plugs

Read about the latest products on the market and points of interest about companies and people in the industry.

Make Your Picks!

What we can learn about sports seasons is that every now and then, we have to slow down, plan for the coming new season, and give everyone a clean white slate to start from

Is the Wire Harness Business Consolidating?

Loren Smith shares some thoughts about the wiring harness business.

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Wire Wisdom - Insulation Levels

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ETI Acquires Able Cable

Leading Wisconsin contract manufacturer, Electronic Technologies International, is proud to announce that it has acquired Harvard, Illinois wire harness manufacturer, Able Cable.

Fort Atkinson, Wisconsin-based ETI has acquired Able Cable in an agreement that will bring additional capabilities and improved economies to the electronic manufacturing services sector. The acquisition brings together two customerfocused, high performance manufacturing companies, generating significant benefits for the customers of both businesses.

ETI President and Owner William Brink said the announcement is great news for Midwestern OEMs and customers looking to outsource their wire harness/cable assemblies. "Our team is very excited for the two businesses to come together and begin serving a broader customer base together. By combining resources and technical skills, the two companies stand to offer a more robust set of manufacturing capabilities to current and future partners. With both companies committed to costeffective, quality manufacturing processes, this is a win-win for the industry."

Founded in 1990, ETI is an ISO 9001:2008 certified contract manufacturer that specializes in wire harnesses, printed circuit board assemblies, and panel/box builds for a variety of OEMs across the country. A leader in the electronic manufacturing services sector, ETI has demonstrated its ability to provide high quality contract manufacturing for medical, light and heavy industrial, military, aerospace, agriculture and other industries. The acquisition of Able Cable is the company's fourth acquisition in the past 11 years.

Richard Knaack, President and Owner of Able Cable, said he is looking forward to being able to offer some of the expanded technical and engineering capabilities that ETI has been known for in the EMS and contract manufacturing industry. "With the additional capabilities of printed circuit board assembly and panel builds, we can offer our customers a more fully integrated elec-

tronic manufacturing service. The acquisition by ETI ensures that the customers of Able Cable will be able to see immediate benefits."

Since 1949, Able Cable, a family owned enterprise, has been providing reliable wire harness assemblies to its customers in a variety of industries. Knaack announced that the sale of Able Cable to ETI is in keeping with his succession plan and he is confident ETI will uphold the values and quality that Able Cable had been known for under two generations of Knaack family ownership.

The two businesses, under ETI leadership, plan to grow significantly within the Midwestern electronic manufacturing sector.

Information about products and services is available at www. etim-

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Make Your Picks!

By Paul Hogendoorn

he NFL season is just underway, and I for one am glad Brady's suspension was overturned. I won't take sides on the debate - was the punishment too harsh, or the processes too flawed, or was he even guilty of an offense to begin with - but, as a sports fan, and as one of the growing throng of "poolies", I'm glad he's in the equation.

Being a sports fan, October is always one of my favourite times of the year. The NFL season is only a month old, the NHL and NBA seasons are still clean white slates filled with possibilities and potential for every team (even the Leafs), and baseball games have suddenly become meaningful, even to the casual fan.

Sports is competition, and because of the explosion of sports pools, our experience simply as spectators is greatly enhanced; we benefit personally from the experience that competition brings. As I'm going through my picks this morning, I am predicting who I expect to see in the Superbowl (New England and Seattle), who will make it close (Green Bay and Denver), and who the dark horses are (I'll keep that a secret). Detroit, Dallas, Buffalo and Pittsburgh are emotional favourites for me; I often win or lose a week's pool when emotion



Paul Hogendoorn

overrules reason.

The season's start is an exciting time - it's a clean white sheet for everyone: players, teams and poolies alike. In some ways, our manufacturing businesses follow a similar pattern. We have our off season - a time when things slow down. It's hard to get our heads in the game, and we are often not operating with a complete team. We look forward, with anticipation and some anxiety, to the beginning of the next business season. New models, new equipment, new planning and new processes often all done in the off season, are rolled out and launched. All the planning, changes and new things get put to the test when the new season begins.

_Continued on page 8

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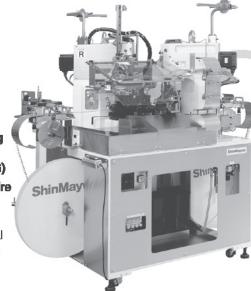


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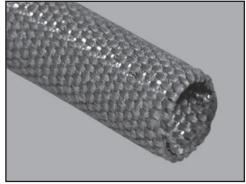
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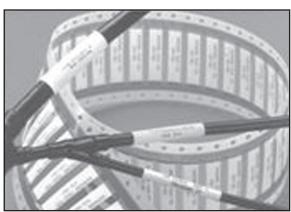


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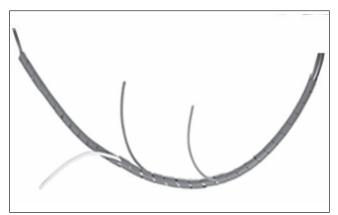


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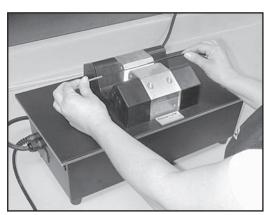


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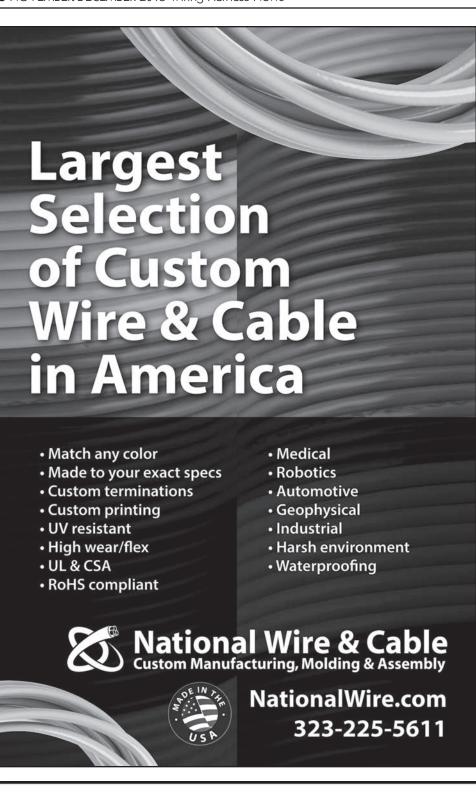




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Make Your Picks!

Continued from page 6

A quarter of the way through the new season, we will know who stumbled out of the gate and who is a pleasant surprise. The teams themselves will have to make adjustments, re-evaluating strategies, personnel and predictions, and so will the poolies. From previous years, I know the choices are staying the course for a while longer, make a few minor strategy adjustments, or make major wholesale changes. Again, not unlike business

Sports pools are fun. Many people I know that are not even fans enough to watch any of the games, still participate and get caught up in the pools. Why is that, I sometimes wonder? I think its human nature; we like to compete, to be put to the test, and to test ourselves. It's always been that way, but with our statistics and information saturated world (thanks to the internet and social media), many more of us are drawn in. I'm not sure if I'd suggest that our very nature has been altered by IT and social media, but I'd certainly suggest some parts of it have been heightened and enhanced. We don't just want to know things instantly, we want to be able to act on them, and test the effects of those decisions and actions, immediately.

All of this brings me back to a recurring conversation: why haven't we

changed the culture and conditions of our manufacturing workplaces to reflect this new reality? Don't the same people that now participate in sports pools also work in our factories? I never personally liked the term "gamification" or the objective of "gamifying the work place", but people obviously find meaning in sports, and they are no longer content to be simply spectators; they have become active participants. Isn't there a significant competitive advantage to our companies if we could do the same thing in the work place?

The process of change begins by understanding why sports pools are so engaging. Timely information is abundantly available to everyone, and as each individual is able to act on that information and measure the effect of that action. That's the day-to-day and week-to-week learning. What we can learn about sports seasons is that every now and then, we have to slow down, plan for the coming new season, and give everyone a clean white slate to start from.

All my picks are in and it's a couple hours before kickoff. A new season has started. Go Patriots!

Paul Hogendoorn is co-founder of FreePoint Technologies. "Measure. Analyze. Share." (Don't forget to share!) He can be reached at paulh@getfree point.com or www.getfreepoint.com



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Plug & Play Industrial Ethernet Connectivity for Oil and Gas

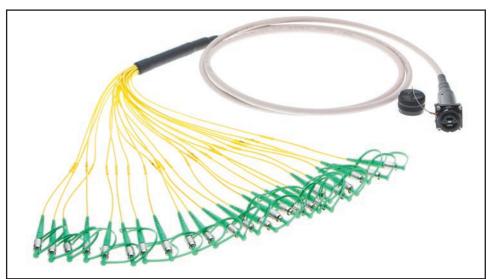
he recent Santa Barbara, CA oil spill is yet another example of the need to monitor and control pipelines to prevent breaches that could endanger life and property for hundreds of miles overland and along coastlines. According to the Los Angeles News Group (June 10, 2015), the spill of more than 100,000 gallons of oil resulted from the failure of monitoring equipment to detect leaks in a corroded pipeline and to automatically shut off valves supplying the oil.

To protect infrastructures against such disasters, promote worker safety

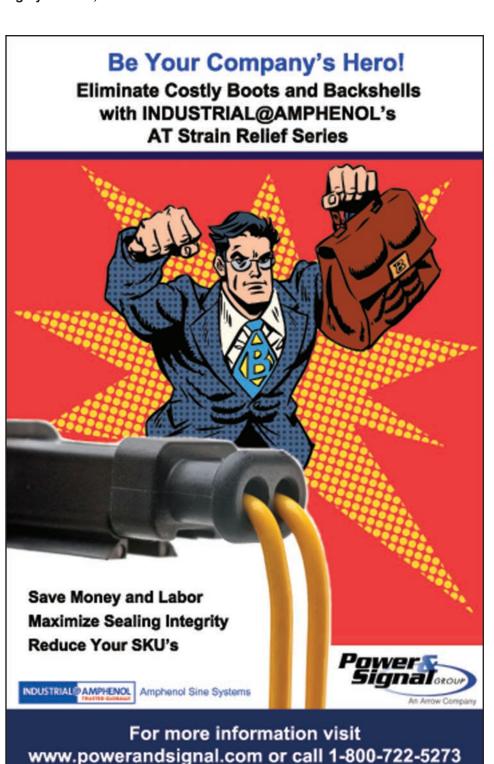
and facilitate automated functions ranging from drilling to wellhead operation and transport pipelines, oil & gas operators are increasingly turning to fiber optic cable suppliers for "end-to-end" communications and control solutions. Many such solutions include ruggedized cable and connectors that ensure survival of fiber-based DCS/PLC automation/control architectures for onshore and offshore oil and gas operations, even in the harshest environments.

Integrating the DIN rail enclosure

As fiber optic cable emerges as the



These assemblies are built according specifications that will meet the environmental demands of any application – whether noise from electric motors, highly flammable conditions or extreme temperatures – thereby providing a highly reliable, DIN rail solution.



medium of choice in many industrial arenas, the DIN rail enclosure plays an increasingly important role. Mounted to a standard DIN rail - the metal rail used to mount various electrical components (e.g., terminal blocks, motor starters, circuit breakers) in a control cabinet a DIN rail enclosure provides a central location where external and internal wiring can be connected quickly and efficiently.

"This type of enclosure is ideal for production applications, the industrial automation side of businesses," says Stephen Porach, PE, RCDD, Sr. Manager of Business Development, Enterprise Solutions at Optical Cable Corporation (OCC), Roanoke VA. "Today the oil & gas industry is turning from high-

ly proprietary communications systems to the more enterprise-wide prevalent Ethernet communications protocol via fiber optical cable. The appropriate DIN rail enclosure provides an optimal connection for fiber cable that can be terminated in a fixed position."

Porach explains that the Ethernet protocol allows products from various manufacturers to talk to one another, making the system less proprietary and costly. Also, fiber cable won't cause an electrical spark, another advantage that makes it ideal for many oil and gas applications, particularly in the field.

Porach adds that OCC has developed a new, ruggedized line of DIN rail enclosures to provide highly secure terminations within a wide variety of industrial applications even in the most adverse environmental conditions. Available for both fiber optic and copper applications, this type of enclosure is very easy to install and provides very simple patching for the connection of all those automation components in a patch field for the industrial automation environ-

This enclosure can also be ordered as a complete assembly including connectors and fiber optic cables that are pre-terminated at the factory. These assemblies are built according specifications that will meet the environmental demands of any application - whether noise from electric motors, highly flammable conditions or extreme temperatures - thereby providing a highly reliable, integrated DIN rail solution.

"Companies in the oil &

gas industry are placing this enclosure into a cabinet located in the automated 'driller's cabin' on their rigs, where one person monitors drilling controls, automated pipe handling controls, computer hardware and data processing systems in single room on the rig," says Phillip Hoyle, OCC Business Development Specialist. "From there they'll connect them to the HMIs and PLCs and other systems. Typically the enclosure would be placed next to the PLC, and then has a 6-, 12- or 24-fiber connection there."

Hoyle adds that there is high interest in this type of DIN rail enclosure among refineries and petrochemical plants. "They are bringing in pre-terminated MTP® assemblies and connecting a 12-

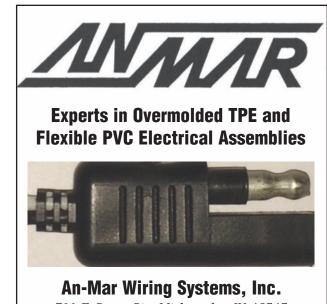
channel MTP into a closet so they can break out their connections to PLCs that continuously monitors the state of input devices," Hoyle explains.

End-to-end reliability needed

With or without a DIN rail enclosure termination, fiber optic cable systems for the oil & gas industry must often include ruggedized or even military-grade cable and con-

"Typically, in the oil fields our customers select an armor-based cable," says Hoyle. "This type of cable is designed specifically for extreme environmental conditions-

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Plug & Play Industrial Ethernet Connectivity for Oil and Gas

Continued from page 11

temperature, humidity, ice, fungus, and fluid immersion. The cable contains MIL [military grade] type of fiber, which is has a bronze braid and is double-iacketed. This top jacket may be a flame-retardant or a low-smoke, zero halogen jacket. This type of cable is designed to provide extra protection when you're out in the oil field in an area where heavy objects may be dropped on cables, or there is danger of the cable becoming sliced or nicked by sharp surfaces."

For pipeline applications, where sensing and communications capabilities are critical, oil & gas companies are increasingly deploying ruggedized fiber optic cable and DIN rail enclosures to interface with communications devices.

"This enclosure is an ideal way to interface with communications devices that are interfacing with communications devices," Hoyle explains. "You can run a fiber cable and have it break out at a point, a communications pod, for example, then bring the fiber in and have it split off to some communications devices and then go back out with the cable."

As far as pipeline cable is concerned, it is normally tough enough to withtemperature extremes and/or heavy moisture. If vermin such as rodents are concerned, fiber cables are available that provide suitable protection; for example, OCC offers ruggedize cables with a layer of fiberglass protection underneath the outer jacket. When a rodent starts chewing on the cable, the fiberglass starts to splinter in its mouths and cause the animals back off

In addition to having fiber optic cable with appropriate protection, oil & gas producers need to have cable connectors and adapters that can withstand temperature extremes and many types of stresses, enabling systems to run and data to flow regardless of the harshness of the environment.

Military-grade connectors and adapters may be required for some applica-

These products feature non-optical disconnect, black anodized brass or stainless steel configurations that can withstand extreme temperature change, shock, vibration and corrosion.

"Selecting the right fiber cable and connectors often requires a consultative process between customer and supplier," explains Hoyle. "In our case, business development specialists like me will consult with an engineer, project manager or application specialist within the customer's team. We'll usually talk through the application and surrounding requirements. The next step is to provide a quote for the application, and review it step by step with the customer. In some cases we may provide the customer with a prototype or sample for testing processes. But whatever the solution, it is vital to ensure that it is end-to-end."

For information contact: Optical Cable Corporation, 5290 Concourse Drive, Roanoke, Virginia, 24019; Phone: (800) 622-7711, Canada (800) 443-5262; FAX: 540-265-0724; Email: info@occfiber. com; Visit the web site www.occfiber.com.





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Is the Wire Harness Business Consolidating?

By Loren Smith

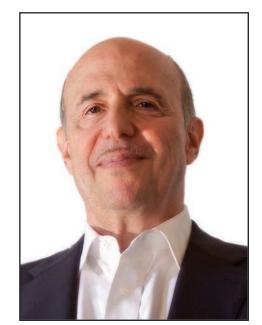
can understand why some recent transactions have prompted friends in our business to ask me if I think the wire harness industry is consolidating. Here are my observations:

First, I believe the more aggressive pursuit of deals we are witnessing has much more to do with private equity groups wanting to take advantage of low interest rates and an abundance of cash than with any dynamics within our industry. Private equity groups are in the hunt in general now, and our industry is just one of many attractive targets.

Second, many larger harness companies want to expand, and acquiring smaller harness companies can be a more cost-effective and reliable avenue to growth than attempting to increase market share.

So while I acknowledge that these two factors are spurring acquisition frequency, I believe they are more than offset by three factors that reduce the probability of industry consolidation:

• Preferred deal size. Private equity firms and large harness companies are



Loren M. Smith, CEO Blue Valley Capital

generally not interested in companies below their minimum EBITDA requirement. The vast majority of wire harness companies fall below that threshold. This reality limits the likelihood of any spike in industry consolidation.

• Small-niche lifestyle. Regional owners are seldom attracted to out-of-the-

____Continued on page 16

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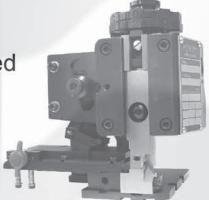




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Applitek and all of it's employees are proud of the fact that we are one of the oldest independent applicator manufacturers in the United States. Our Company was founded on designing and manufacturing quality products using our in-house capabilities. To this day the tradition continues and we are prouder than ever to say "Still made in the USA"

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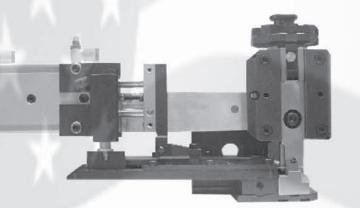


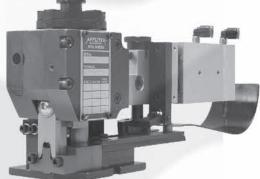


Model 1700

Model 2000

Pneumatic feed mini-style applicators can accommodate terminals with center to center distances up to 2 inches.

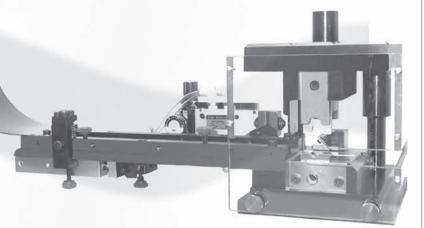




Model 1500

Model 2100

DSA applicators are designed for large terminals manufactured from heavy gage material with center to center distances up to 3 inches and widths to 3.5 inches. Available in left to right, right to left and rear feed configurations.

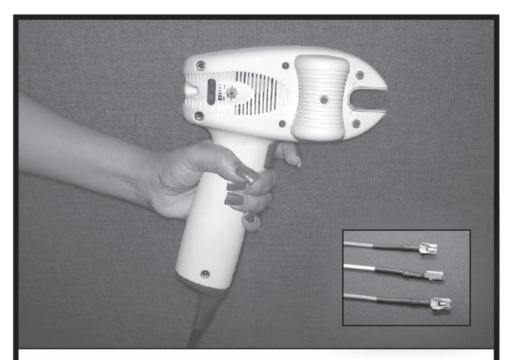


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Applitek has a solution for all your termination requirements. That's why many major wire harnessing companies and Original Equipment Manufacturers use and specify Applitek applicators. Our base applicator frame designs have proven themselves over the years with their reliability and have been able to accommodate over 3000 different types of terminals.

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*polyolefin, 5" length

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average energy expended by the bulbs to be delivered to the target zone. What you will see is an amazing difference in shrink time!

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Is the Wire Harness Business Consolidating?

Continued from page 14 ____

blue selling opportunities. These owners are often enjoying a good living and the security afforded by comfortable interdependence with their customers. When such owners do look to sell, that decision is usually triggered by a change such as a move toward retirement.

• Ease of cost savings. Historically, a quest for cost cutting has been a major driver in industry consolidations, so large harness operations might result from the pursuit of economy of scale. But today's information technology and automated equipment are enabling

many small harness companies, by virtue of their agility, to contain costs more effectively than their much larger competitors.

So is the industry consolidating? It may be true that we now have fewer medium-size harness companies--i.e., those annually generating \$30 to \$50 million--but an overall drop in the number of companies from five or 10 years ago is not reflected in current data. North America is still home to well over 1,000 wire harness companies.

Loren Smith can be reached at lms@blvcapital.com or www.bluevalley-capital.com

NEWS PLUGS continued



Cicoil Opens Up New Office in South Carolina

Based on growing demand for its flexible flat cable products in the Southeastern region of the USA, Cicoil is pleased to announce the opening of a new sales office in Mount Pleasant, SC. Located across the harbor from Charleston, the new location will enable Cicoil (Valencia, CA) to better serve its growing customers in the Carolina's, as well as the entire Southeast territory.

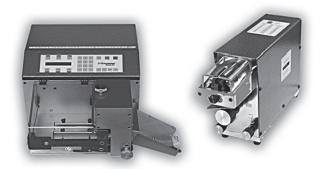
The move comes at a time when Cicoil is developing new products and manufacturing capabilities, so the office will be able to provide immediate technical support and cable design assistance for all Cicoil cables and fully terminated assemblies. The new location will be overseen by Cicoil's National Sales & Marketing Manager Rich Buchicchio, who has been with the organization for almost 7 years.

Howard Lind Cicoil President & CEO remarks, "Cicoil is pleased to now have a more physical presence in the Southeastern USA, where we have had customers for many years. With the Mount Pleasant, SC location, we are very excited to now have the ability to interact with our clients

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face-to-face on a much more frequent basis, which we feel will help us to expand upon our success in this region of the country."

If you would like to learn how Cicoil developed the first IDC Ribbon Cable, helped to put a Man on the Moon and find out more about innovative, crystalclear flat cable products, including our New EZ-FlexxTM designs and our Flat Cable Configurator Design Tool, please contact our new office at 843-936-3352 to set up an on-site visit to your location.

Cicoil has been a leader in designing and manufacturing high performance cable assemblies for almost sixty years. The company's Patented Flexx-Sil™ Flat Cable Technology provides high flexibility, extremely long life, and they can withstand temperature extremes from -65 degrees to +260 degrees Celsius. Cicoil's flat cables are used in thousands of demanding applications; including aircraft fuel control cells, semiconductor automation, and the Space Shuttle. Cicoil designs and manufactures its Flexx-Sil™ jacketed cables and cable assemblies in an automated facility in Valencia, California. Cicoil's quality assurance system is certified to the ISO 9001 (AS9100) standard. Visit www.cicoil.com for more information, or call 661-295-1295 to speak to an application engineer.

Allied Wire and Cable Ranks as Top Family-Owned Business in Philadelphia Region

The Philadelphia Business Journal named their top 50 family-owned businesses in the Philadelphia region. Allied

BRAIDING MACHINERY

Wire & Cable ranked 15th on the list which takes into account family ownership criteria and company employment statistics.

To be eligible for inclusion on this list, a company must be at least 51 percent family-owned by two or more kin-related family members. Allied easily met this requirement, as the wire and cable manufacturer and distributor is owned and operated by the three Flynn brothers: Tim, Dan and Mike.

Beyond that, the Journal's primary interest was demonstrated proof of the company's dedication to providing employment opportunities in the local community. At the time Allied's statistics were reviewed, the business had 219 employees.

Allied started in the Flynn family basement in 1988. Since that time it has outgrown multiple facilities and opened branches across the country. The business has been recognized by the Inc. 5000 and Philadelphia 100 "Fastest Growing Privately Held Companies" lists.

Despite exponential growth, the company hasn't abandoned its familial roots. Allied has most recently been recognized for their family and employee-centric values by Philadelphia SmartCEO at May's Family Business Awards ceremony.

Allied Wire & Cable is a family owned and operated specialty manufacturer and distributor of wire and cable with more than 25 years of experience. Allied serves all major global markets, including government and military, as well as the aerospace, automotive, and telecommunications industries. For more information, please visit www.awcwire.com.

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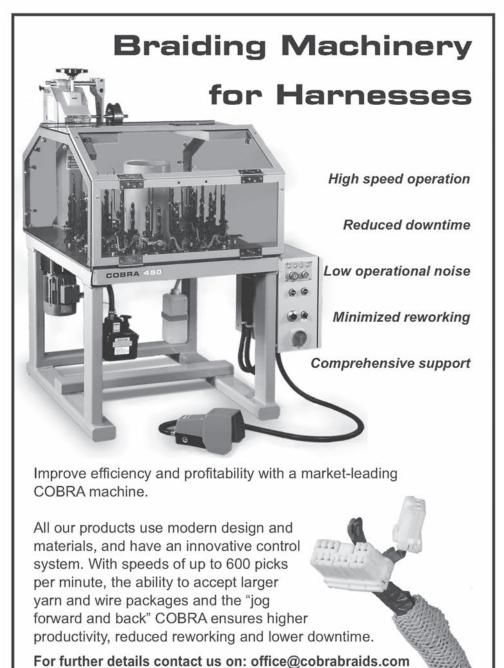
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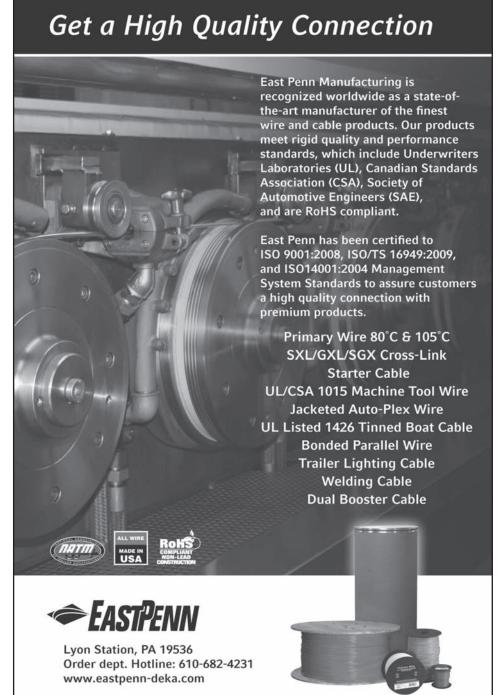
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NEWS PLUGS continued



New Website Provides First Comprehensive online source for Nordson Range of Melt Stream **Components for Polymer Processing**

An extensive new addition to the Nordson Corporation website focuses exclusively on the company's polymer processing range of melt stream components for compounders, processors, converters, and recyclers. The site is designed for maximum usefulness no matter where in the world a visitor is located.

The landing page at http://www.nordsonpolymerprocessing.com gives access to the broad family of renowned product brands, now combined in a fully integrated product portfolio. These brands include:

- BKG® underwater and water ring pelletizing systems.
- EDI™ extrusion dies for film, sheet, and coating and slot dies for fluid coating.
- Kreyenborg[™] melt filtration systems, pumps, and valves.
- Xaloy® screws and barrels for extrusion and injection molding.

The new site is available in English, Chinese, and German and will be in seven other languages by the end of 2016; it provides extensive information on local

contacts in countries around the globe. Links to details on all products are available from listings by product type and by target application. A section on customer support provides contacts for aftermarket service, technical support, and spare parts. In a "News" section are posted illustrated press releases in multiple languages, issues of the Nordson Advances newsletter, and information on Nordson participation in upcoming industry events.

"Nordson's new polymer processing website reflects our capability to provide plastics manufacturers and web converters with comprehensive solutions for all of their needs, and to support them with localized infrastructure for sales and technical service around the world," said Kelly Harings, Nordson global manager of marketing communications for polymer processing systems. "We have created this comprehensive online portfolio because our mission is to offer all of our melt stream components through Nordson offices worldwide and even enable them to be sourced together as part of a package system."

Nordson Corporation engineers, manufactures and markets differentiated products and systems used for the precision dispensing of adhesives, coatings, sealants, biomaterials, polymers, plastics and other materials, fluid management, test and inspection, UV curing and plasma surface treatment, all supported by application expertise and direct global sales and service. Nordson serves a wide variety of consumer non-durable, durable

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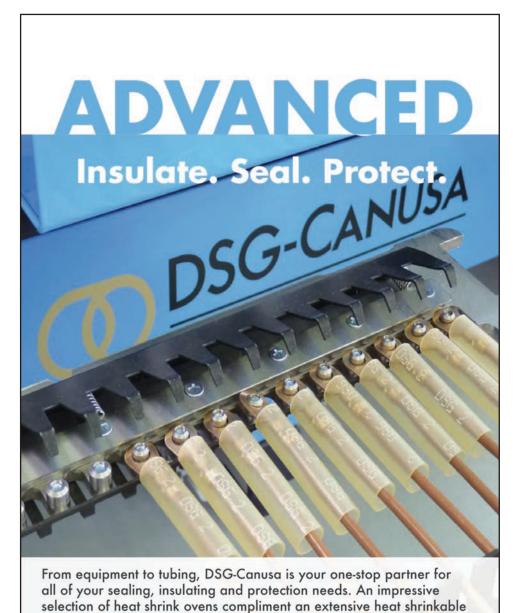


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NEWS PLUGS continued



Continued from page 19 _

and technology end markets including packaging, nonwovens, electronics, medical, appliances, energy, transportation, construction, and general product assembly and finishing. Founded in 1954 and headquartered in Westlake, Ohio, the company has operations and support offices in more than 30 countries. Visit Nordson on the web at http://www.nordson.com

TE Connectivity's New Dual Wall Heat Shrink Tubing Products Meet the UL VW-1 Flammability Requirement

TE Connectivity (TE), a world leader in connectivity, introduces the DWFR (dual wall, fire-retardant) product line – its first dual wall heat shrink tubing products to be rated for the UL VW-1 flammability test specified by the UL 224 standard. The DWFR tubing products' highly flame retardant polyolefin jacket and a thermoplastic inner adhesive wall provide excellent electrical insulation and mechanical protection. When properly installed, the tubing shrinks to create a moisture-resistant seal. The DWFR tubing products' high heat shrink ratios of 3:1 and 4:1 enable designers to use just a few tubing sizes across numerous applications - from home appliances to industrial controls to automotive.

"Although many single wall tubing

products meet the UL VW-1 flammability test, TE's new DWFR product line fills a pressing design need for dual wall tubing that is rated for this requirement," said John Sandwell, tubing product management director, TE Appliances. "Being highly flame retardant, DWFR tubing can be used in a host of applications where safety and reliability are paramount design concerns and protection against moisture ingress is also required. Its versatility can also help manufacturers reduce inventory requirements and costs."



TE's DWFR tubing is applicable to a broad range of electrical connections and terminations. The product line comprises 14 sizes from 3 to 52mm (inside diameter). Of those, seven have 3:1 heat shrink ratios and seven have 4:1 ratios. The high shrink ratios can be particularly useful when applying this tubing to a connectorto-cable transition or to fit over a connector when making a cable jacket repair to an existing harness.

All sizes of DWFR tubing provide a full

_____ Continued on page 25



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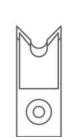
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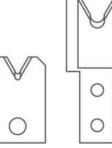


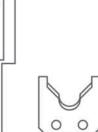


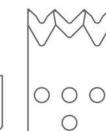
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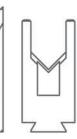
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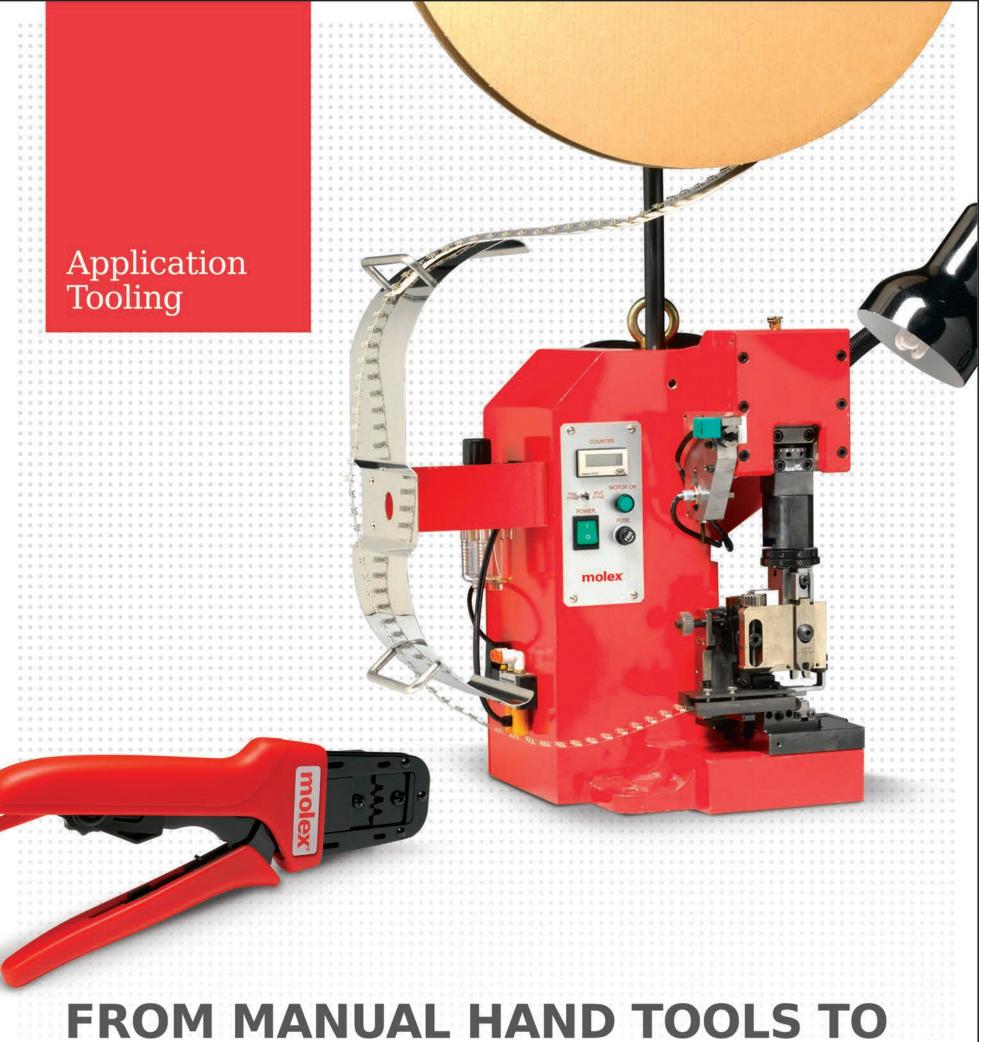












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In every issue of Wiring Harness News Anixter will bring you informative articles about wire and cable technology.

INSULATION LEVELS

Cable insulation is designed to withstand the voltage stresses a cable will experience over its expected lifetime. An insulation level defines various insulation thicknesses within a single voltage rating. The two most common levels are 100 percent and 133 percent. Normally, 100 percent insulation level is used on a grounded system and is sometimes also referred to as a grounded insulation thickness. Likewise, the 133 percent level is normally used on an "ungrounded" system and is referred to as an ungrounded insulation thickness. A

173 percent insulation level also exists and is normally used on an ungrounded system where further fault clearing time is needed.

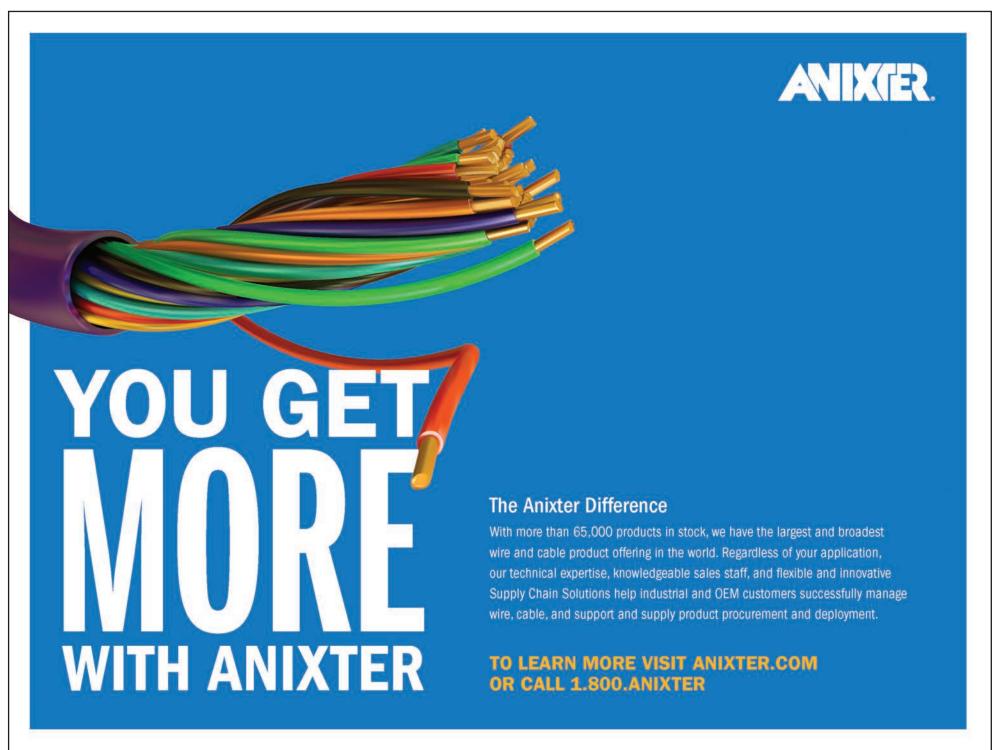
INSULATION THICKNESS FOR VARIOUS LEVELS

The specified insulation thickness for each insulation level is similar among various industry standards. The thickness varies with insulation level, generally becoming thicker as the insulation level increases. Typical insulation thicknesses for many medium-voltage cables

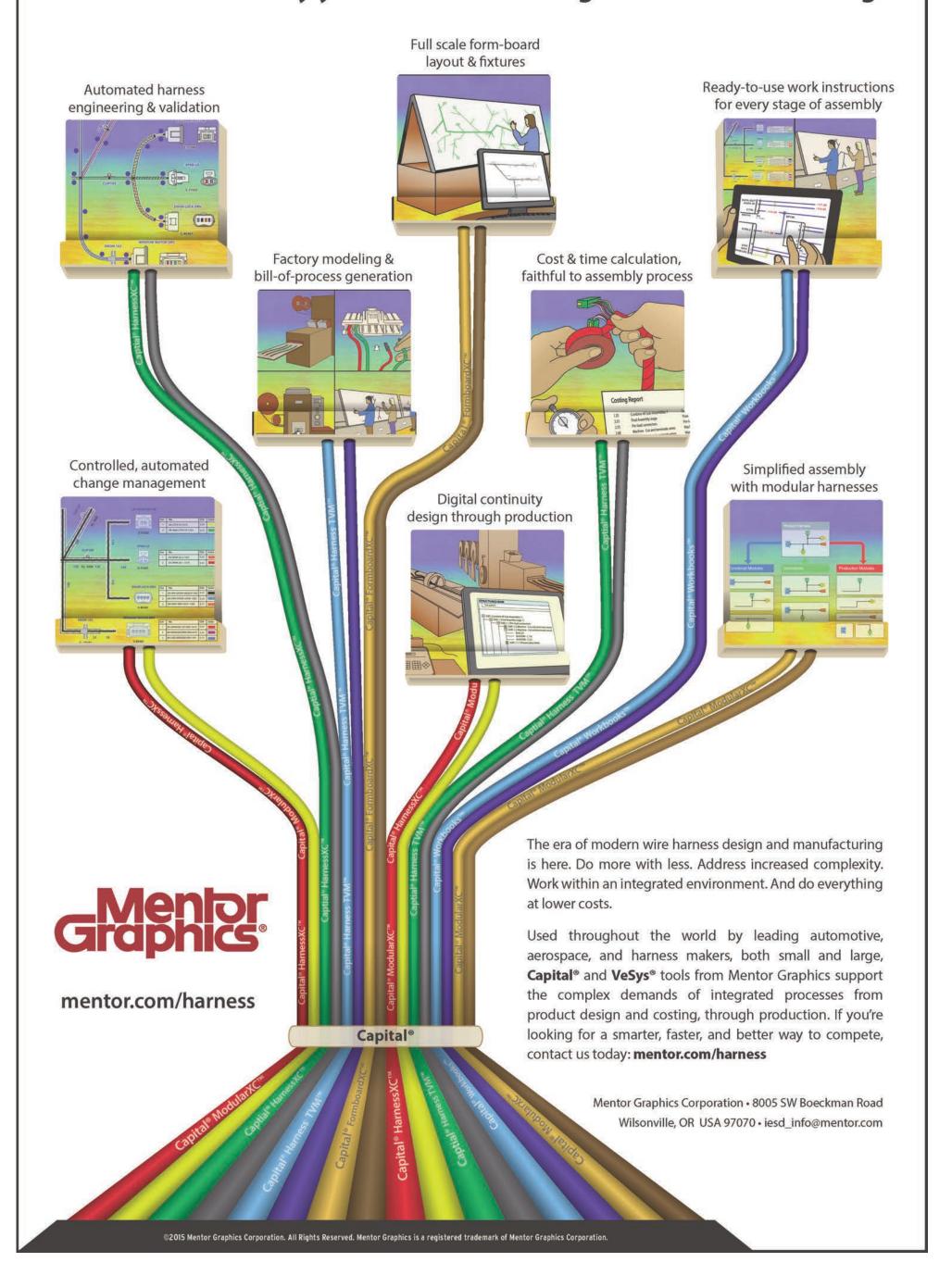
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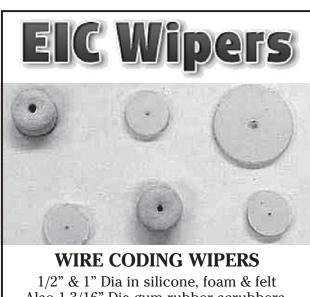
Voltage	Insulation	Typical Insulation Thickness	
Rating (kV)	Level (%)	mm	mils
5	100	2.29	90
	133	2.92	115
	173	3.56	140
8	100	2.92	115
	133	3.56	140
	173	4.45	175
14	100	4.45	175
	133	5.59	220
	173	6.6	260
25	100	6.6	260
	133	8.13	320
	173	10.67	420
35	100	8.76	345
	133	10.67	420
	173	14.73	580

Table 1: Insulation Thicknesses for Insulation Levels



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Continued from page 22 _

are shown in Table 1. Specific insulation thicknesses for voltage ratings up through 46 kV and various conductor sizes are given in National Electrical Manufacturers Association (NEMA), Insulated Cable Engineers Association (ICEA), Underwriters Laboratories (UL), Canadian Standards Association (CSA) and National Fire Protection Association (NFPA) publica-

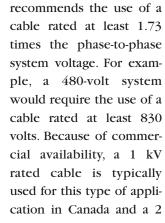
LOW-VOLTAGE CABLES

For cables rated 0 through 2,000 volts, the in-service voltage stress on the insulation is so low that the concept of insulation levels is largely unnecessary. For example, the operating voltage stress on a typical 600-volt cable is about 5 volts per mil of insulation thickness, i.e., each mil (0.001 inch) of insulation must withstand only 5 volts of electrical stress. On the other hand, the in-service voltage stress on a typical 15 kV cable is about 50 volts per mil or 10 times more than that for a 600-volt cable. 600-volt rated cables

have much thicker insulation per volt of applied electrical stress and are thus over insulated from a voltage stress point of view. As a result, the cable insulation thickness specified by industry standards for use in a grounded (100 percent) electrical system is also acceptable for use on an ungrounded (133 percent) electrical system.

There may be some applications that require 173 percent insulation levels for low-voltage systems such as high-resistant grounding systems. 173 percent insulation levels are not addressed by most industry

> standards. However, NEMA and ICEA standards such as ICEA S-95-658-1999 Standard for Nonshielded Power Cables Rated 2000 V or Less for the Distribution of Electrical Energy recommends the use of a cable rated at least 1.73 times the phase-to-phase system voltage. For examcable rated at least 830 volts. Because of commercial availability, a 1 kV rated cable is typically used for this type of application in Canada and a 2 kV cable would be used in the United States.



AREAS OF INSULATION **LEVEL USE**

The cable insulation level required for a specific application depends on the speed at which the protective relay is designed to deenergize the electrical system in case of an electrical ground fault. A ground fault is an electrical short circuit from one phase (one conductor) of the electrical system to ground. If the protective relay is set to deenergize the system in less than one minute, a cable with a 100 percent insulation level is adequate according to industry standards. If the protective relay is designed to deenergize the system within one hour, a cable with a 133 percent insulation level is required. If the protective relay is designed to de-energize the system after an indefinite period of time, a 173 percent insulation level cable is required. If desired, a cable with thicker insulation than specified in industry standards can be used for maximum system reliability.



NEWS PLUGS continued



Continued from page 20 _

recovery at a moderate temperature of 125 degrees Celsius and can be used across operating temperatures ranging from minus 40 degrees Celsius to 110 degrees Celsius. The tubing products' medium wall jacket offers protection from abrasion and bending. The tubing's adhesive liner is capable of bonding to a variety of substrate materials, including plastics, metals and rubbers, and provides protection from moisture ingress.

The tubing can be easily installed using many different types of heating tools, ranging from basic heat guns to conveyor-equipped ovens, for high-volume production environments.

For further information visit www.TE.com

BURNDY® Announces Expansion of UNIRAP™ Cable Tie Mounting

BURNDY®, a leading manufacturer and provider of connector solutions to the industrial, energy, construction, telecommunication, petrochemical, data center, and transportation industries, announces the expansion of our nylon mounting bases. Mounting bases are an effective, versatile, and durable wire management mounting product for routing and securing wires and cables in place. These mounting bases are easy to install and are available in a variety of styles to attach to the mounting surface. The mounting bases are square with rubber or acrylic adhesive, and/or 1, 2, or 4 screw for mounting depending on the design. Acrylic adhesive is recommended for applications requiring more adhesive strength and in high temperature environments. Additionally, acrylic adhesive bases are more durable and suitable for mounting on plastics and metals producing a secure bond between oily and/or contaminated surfaces. All the mounting bases are available in Natural or UV Black color.

Mounting bases are used in conjunction with cable ties to stabilize and secure wire bundles. The bases not only improve aesthetics, but are suitable for both indoor and outdoor applications. Mounting bases provide a quick, economical, and

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Unirap™ Cable Tie Mounting Bases

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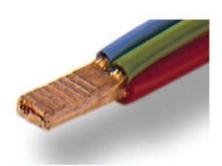
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NEWS PLUGS continued



Three New Benchtop Flux Removers Inroduced by MicroCare at Productronica 2015

MicroCare Europe byba will introduce three new aerosol-packaged circuit cleaners at the giant Productronica Exposition in November 2015. These products use novel chemical formulations not previously on the market to help companies lower their PCB cleaning costs, improve product quality and meet ever-more stringent regulatory obligations.

The three new aerosols are the Universal Flux Remover, the Universal Contact Cleaner and the Polar Flux Remover. The Universal Flux Remover is a highly effective cleaner for the rosin-based, high-temper-

ature, lead-free materials that are so difficult to clean. The Universal Contact Cleaner is formulated for cleaning electrical contacts, relays, switches and circuits. It is non-conductive, fast-drying, non-flammable with excellent materials compatibility. The Polar Flux Remover is the most aggressive of the three and is an excellent choice for cleaning heavy, aged fluxes and pastes found in PCB repairs.

Companies across Europe will prefer these cleaners because they are highly effective, long-term answers to the difficult cleaning issues facing production engineers in Europe today. These cleaners are compliant with all current European environmental, health and safety regulations. Engineers can specify a high performance benchtop cleaning process today and not worry about the issue again, perhaps for decades, which saves time and money. These products also are formulated to be in compliance with all

the emerging regulations around the world. This means a cleaning process can be specified in Germany and deployed globally.

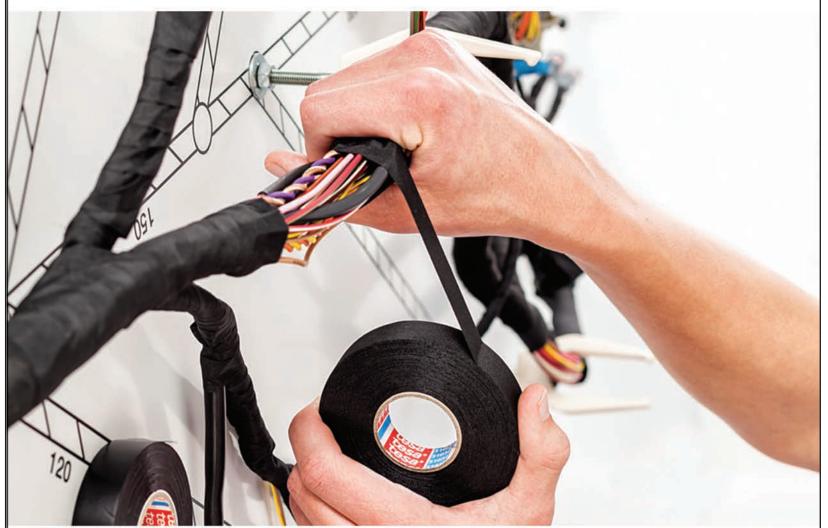
The Universal Remover and the Universal Contact Cleaner are unique in that they are the first electronics cleaners introduced in Europe using the new, environmentally-progressive HFO chemistries. These cleaners have an extremely low Global Warming Potential (GWP) and are exempt from Volatile Organic Compound (VOC) restrictions. Both cleaners are non-flammable for enhanced worker safety. All three cleaners also are packaged with a new, ultra-low GWP propellant, making these products are among the first electronics cleaners to comply with the stringent new European F-Gas regulations. The ingredients of all three new cleaners are REACH, GHS, WEEE- and ROHS-compli-

All three products are engineered to be used with the optional, money-saving TriggerGrip™ cleaning system from MicroCare. The TriggerGrip™ reduces solvent use while enhancing user ergonomics, which enables operators to clean more quickly, more safely and with less fatigue. When the aerosols are empty, the canisters are engineered to be easily recycled, which is a significant benefit to European customers.

These products are be available from authorized MicroCare distributors in Europe and around the globe. For more details, visit MicroCare at Hall A4, Stand 101, or click through to www.microcare.com.

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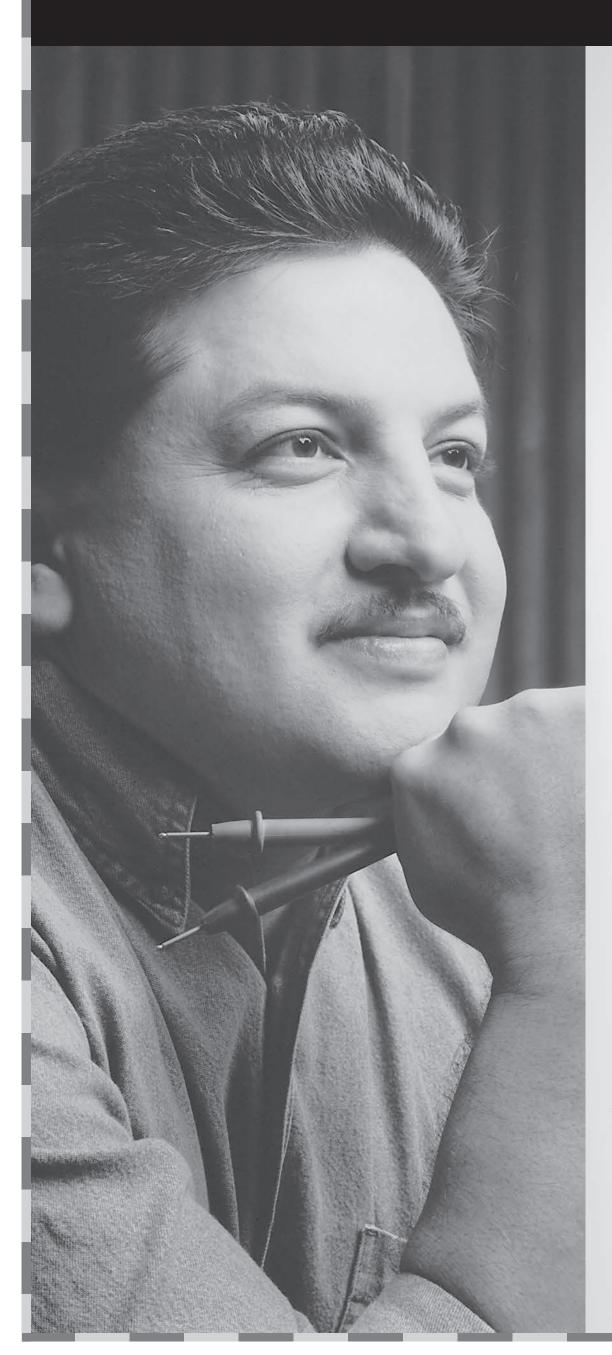
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Mando Can Do.



When Armando Zacarias goes out on a Eubanks service call, unusual things happen.

"Once I helped round up a cow that got loose in a customer's plant.

"Another time, while driving to a customer's site, our rep's car caught fire. We eventually arrived there that night and finished the job in time for the morning shift," Mando reports.

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.

Mando exemplifies the Eubanks



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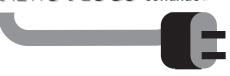
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NEWS PLUGS continued



US-Made Ultrasonic Metal Welders Offer Manufacturers Increased **Productivity and Efficiency**

Sonobond Ultrasonics has been buttressing what some analysts expect will be a resurgence in U.S. manufacturing. Several trends are becoming apparent as 2015 enters its fourth quarter. Among them: higher overseas labor costs are encouraging manufacturers to move production back to the U.S.; the abundance and affordability of natural gas is reducing energy costs, also boosting re-shoring; and improved profits are leading companies to increase their investment in capital equipment, especially for devices that operate more efficiently and reduce downtime.

"Our faith in the U.S.A. as a manufacturing base has never wavered," says Sonobond President Janet Devine. She adds that despite the domestic manufacturing sector's recent years of lackluster performance, "Sonobond has continued to make ultrasonic metal welding machines in the U.S.—and has done so since our inception. This is especially important to potential buyers concerned about the economic impacts of off-shore production."

"Our American-based approach has always been consistent with manufacturers' interest in boosting productivity and efficiency and making wise capital investments," explains Devine. In fact, Sonobond has been a worldwide leader in the development of metal welders since it received the first patent ever awarded for ultrasonic metal welding in 1960. It has continued to design innovative equipment with unique capabilities to serve a wide spectrum of industries.

Moreover, the company's patented Wedge-Reed System gives Sonobond equipment significant advantages, including exclusive capabilities to weld most oxidized or tinned metals with no special cleaning process. The result is strong, reliable welds with excellent thermal and electrical conductivity. Please click here to access our Ultrasonic Metal Welding resources, including information on our technology and our metal welders designed to handle a wide variety of applications—including those requiring customized tooling. To learn more about Sonobond Ultrasonic Welding please visit www.sonobondultrasonics.com

BURNDY® Introduces the BSDCCEE **C-Clamp for Bonding and Grounding** Containers

BURNDY®, a manufacturer and provider of connector solutions to the industrial. energy, construction, telecommunication, petrochemical, data center, and transportation industries, announces the newest addition to their Static Discharge Grounding product offering. The BSDCCEE "C" clamp is used for bonding and grounding of containers. The clamp provides an essential contact between the grounding grid and containers used for dispensing flammable, or combustible fluids.

The reel cable or grounding cable is crimped to the ring terminal (supplied with the "C" clamp) which is then fastened to the clamp at the end of the set screw. The ring terminal can be crimped to the cable using a suitable installation tool. BURNDY also has a line of Static Discharge Reels featuring cable lengths of 50 or 100

Headquartered in Manchester, New Hampshire BURNDY has over 90 years of



BSDCCEE C-Clamp for Bonding and Grounding Containers

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MASTER PROHEAT® LCD

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- Compact, lightweight, easy to use
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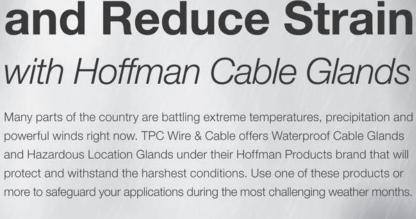
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Teknor Apex Promotes Sachin Sakhalkar to Business Manager, Americas, for TPEs

Teknor Apex Company has promoted Sachin Sakhalkar to the position of business manager, Americas, for the Thermoplastic Elastomer Division.

Mr. Sakhalkar will head the company's TPE business in North, Central, and South America, including compounds offered under the Elexar® (electrical/electronics applications), Medalist® (medical devices), Monprene® (consumer and industrial products), and Sarlink® (transportation) brands.

"Sachin has played a key role in the development and execution of our global strategy for TPEs," said Suresh Swaminathan, senior vice president. "His coordination of our new business development initiatives, including work with key multinational accounts, has contributed to the significant growth of the TPE Division in recent years."

Mr. Sakhalkar joined Teknor Apex in 2005 as a new business development manager for the TPE Division. In 2011 he was promoted to the position of director of strategic marketing and new business development. Before coming to Teknor Apex, he spent seven years with Basell Polyolefins (now LyondellBasell Industries) as manager of strategic marketing and innovation.

Sachin Sakhalkar holds a Ph.D. in chemical engineering from Clemson University and an MBA in business administration from the R.H. Smith School of Business at the University of Maryland.

Teknor Apex Company, a privately held firm founded in 1924, is one of the world's leading custom compounders of plastics.



Teknor Apex Company

Teknor Apex produces flexible and rigid vinyl, thermoplastic elastomers, nylons, toll and specialty compounds, color masterbatches, specialty chemicals, bioplastics and

hoses. The company is headquartered in Pawtucket, RI, U.S.A. and operates thirteen facilities worldwide in the United States, the Netherlands, the United Kingdom, China and Singapore. To learn more visit: www.teknorapex.com.

Light Brigade Introduces New Online Fiber Optic Training Series

Light Brigade is introducing its new Light Bites Online Training Series, a series of training modules that cover a variety of fiber optic topics, both introductory and advanced.

Like other Light Brigade courses, the Light Bites modules feature highquality images, animations, charts, and reference material that enhance the learning experience and help to

____Continued on page 30



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NEWS PLUGS continued



Continued from page 29

reinforce important concepts. The modules are user friendly, can be completed in 60 to 90 minutes, and feature easy-to-use stop, pause, and rewind controls.

The first module of the Light Bites Training Series to be available is Single-mode Technology: Theory and Fibers. A good understanding of fiber optic theory is critical for anyone working in fiber optics, and this module goes beyond the fundamentals to provide an even deeper understanding of how optical theory applies to single-mode fibers and applications. Key topics include attenuation, dispersion, wavelength, windows and bands, and industry standards. The module also examines related applications and technologies, and details how different types of single-mode fibers are designed to address specific requirements. It concludes with a review quiz to ensure mastery of the content. Those who successfully pass the quiz will receive a Light Brigade certificate of completion.

"Along with our Certified Fiber to the Home Professional course," said Lee Kellett, General Manager of Light Brigade, "This first module is just the beginning of our online learning plans. We understand that education needs to come in many different forms today. Light Bites will be an easy way for anyone to get quality fiber optic education where and when they need it."

Single-mode Technology: Theory and Fibers may be purchased on the Light Brigade website at www.light-brigade.com at a limited time introductory price.

Founded in 1987, The Light Brigade has trained over 50,000 people worldwide in its instructor led public and custom classes on fiber optic design, maintenance, and testing, including advanced topics such as FTTx, DWDM, and PMD/CD. The company also produces online training courses and educational DVDs that provide focus on specific fiber related topics. For more information, visit www.lightbrigade.com

Eraser Introduces New Multi-Material Cutter

The Eraser Company, Inc. is pleased to introduce the new Multi-Material Cutter.

The Model MMC71 Multi-Material Cutter is capable of cutting a wide range of materials, including flat material up to 3.3" inches wide, tubing up to 3/16" OD, and wire up to 14 AWG stranded or 16 AWG solid. The MMC71 works great on flat material such as heat shrink tubing, tapes,

foils, ribbon cable and more, and is even capable of cutting silicone tubing. The machine is easily programmable, offering ten fixed feed rates,



Model MMC71
Multi-Material Cutter

ten fixed cut rates, and storage for up to 99 batches and 10 kits (depending on available memory). Material guides are easily adjustable for each application. Additional guide kits are available to allow multiple pieces of the same material to be cut at the same time, increasing operator efficiency and production rate. The unit is fully electric and does not require an air supply.

For more information, please visit www.eraser.com, or contact Eraser at (800)724-0594.

CableEye® HiPot Cable & Harness Test System, HVX-21

CAMI Research Inc. (Acton, MA) announces an addition to its Cable-Eye cable and harness testing system suite, specifically to the HV product





line. The HVX-21 extends the HiPot test voltage range to 2100 Vdc and 1200 Vac permitting detection of even more subtle defects.

HVX-21

Introduced at the 2015 Wire Processing Technology Expo, the HVX-21 differs from the HVX in having 40% greater maximum DC, and 20% greater maximum AC test voltages. In addition, the current sensitivity is 5x higher allowing detection of the same insulation resistance at far lower voltages to minimize the risk of insulation or surface damage.

These extended range capabilities permit testing to meet many of the more stringent requirements of commercial and aerospace applications.

Industry Standards

Like the HVX, the HVX-21 easily handles all electrical testing requirements of the IPC/WHMA-A-620B guidelines, in addition to the most exacting reporting requirements of governmentcontracted and ISO 9000-style certified companies.

Optional Extras

- Expansion module (Item 828), +128TP/module attaches in a stacked con-
- 4-Wire Kelvin test feature (Item 832) for expanded testing of contact and wire resistance to as low as 1 m Ω . Helps reveal cold solder joints, faulty crimps, recessed pins, pin contact contamination, improper wire gauge, and stress-extruded wire.
- HV remote socket (Item 829X) for extending HV emergency stop, and HV-Enable function to an external, customdesigned panel used when mounting the system in an inaccessible cabinet.

further information contact sales@camiresearch.com.

Premo-Flex[™] Cable Jumpers **Boost Design Flexibility with New Custom Solutions**

Molex, LLC expands its line of Premo-Flex™ Cable Jumpers with the addition of Round Flat Cable (RFC) and Hot Bar Soldering Cable versions, providing distributors, original equipment manufacturers and contract manufacturers with an extensive range of custom PCB-connection solu-Like the previously released options, including Flat Flex Cable (FFC) and Etched Polyimide, the new custom cable jumpers are durable, flexible and available in a variety of pitches, cable lengths, thicknesses and formats for use in multiple applications such as automotive electronics, consumer devices, home appliances, and medical.

Continued on page 41

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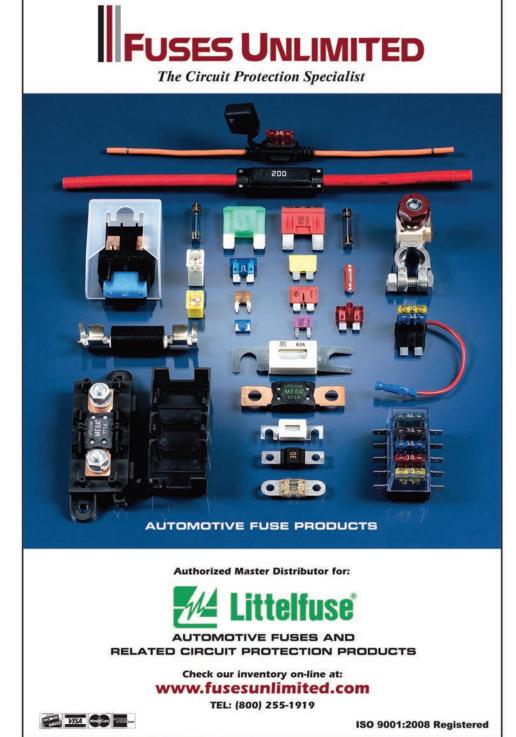
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Introducing: The ProMark T-800

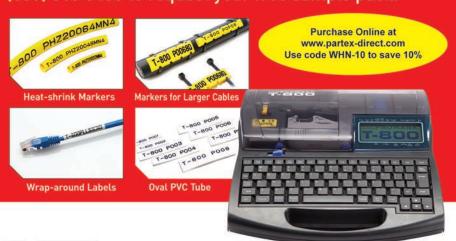
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Becker Electronics

Continued from page 1

"It soon became apparent that we should get into value-added services," Sosnow said. "There were only the three of us, and we didn't have a lot of capital. We had a good sense of contract manufacturing and the components needed, and we were able to build relationships with suppliers."

The firm stayed in Bay Shore six years before moving to a 4,000-square-foot building in Bohemia, south of Ronkonkoma. After five years in Bohemia, the move was made to a 7,500-square-foot building in Ronkonkoma, a city of approximately 20,000 people.

The company began renting 14,000

square feet of a 32,000-square-foot building 4½ years ago. It has an 18-foot ceiling, so the vertical space is being put to use. "We're going to stay here a while because there's a lot of parking, we're near an airport, and the streets are wide," Sosnow said.

Sosnow, 65, and Spagnuolo, 62, are the majority owners of the company, and the balance is owned by Becker. All three work hands-on.

Besides serving as president, Sosnow is the sales manager. Spagnuolo is the chief financial officer and treasurer and has in-depth knowledge about electronics to assist customers and employees.

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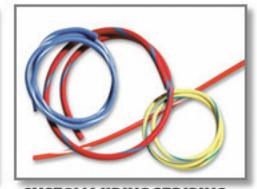
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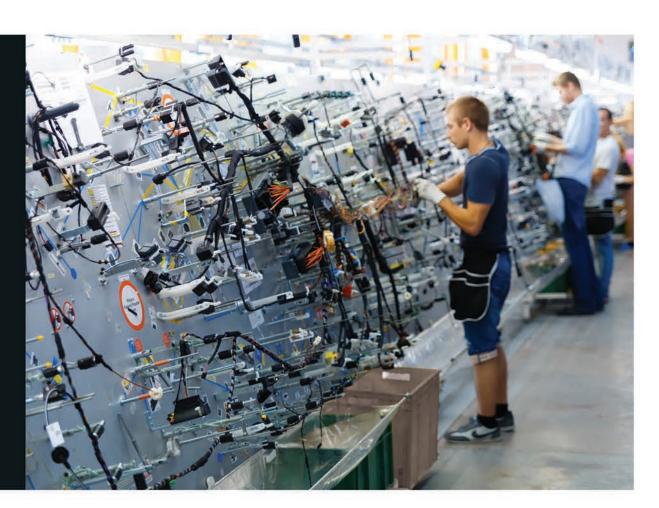


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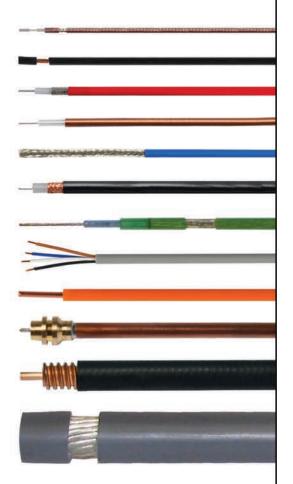


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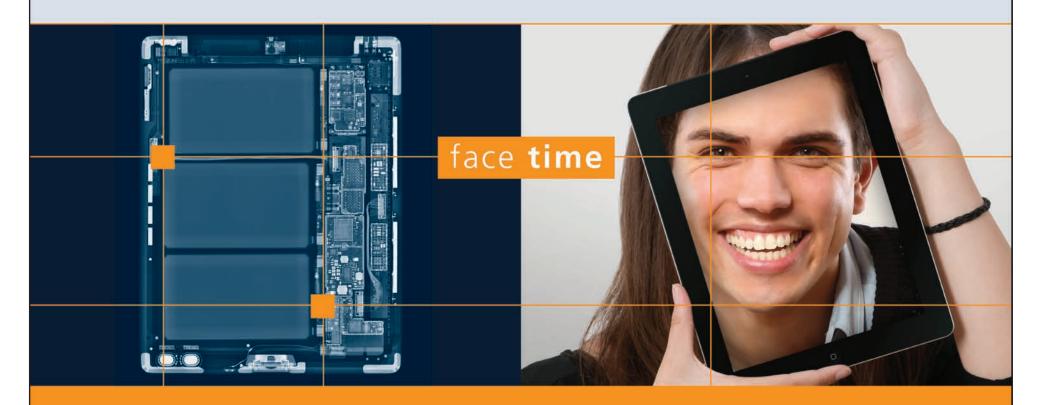
- 10 platforms to process the widest range of applications from 42 AWG to 600 MCM
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"Schleuniger has been an integral part of our company's growth. Because of the time savings and increased productivity, we decided to purchase another Schleuniger machine and then another. These machines became our only method of stripping coaxial cables." Joe Di Diego, Custom Cable Assemblies



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Schleuniger is pleased to announce that all of our direct sales representatives and technical service personnel are now IPC/WHMA-A-620 certified!

"It has been my pleasure to collaborate with Schleuniger for over 15 years – standardizing on the Schleuniger brand for all of our wire processing equipment plant wide. Our Schleuniger sales rep's knowledge of the challenges our industry faces always impresses, and his involvement in crafting solutions to these issues is very much appreciated. We confidently look forward to growing our business, knowing we have a strong partner in Schleuniger!" **Kevin Hooiveld, ED Products**

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Becker Electronics

Continued from page 32

Becker, the company secretary, specializes in finances.

The key managers are: Brayan Cardenaz, accounts; Kathleen Fauteux, purchasing; Frank Spagnuolo, business; Lola Jadan, production; Santiago Ochoa, materials; Jesse Orellano, inspection; Lukas Sosnow, special projects; and Glenn Clifford, engineering.

They are among 100 people on the company staff - 20 in management and 80 in production. Eighty-five work first shift, 15 second. The production staff may vary by 20 percent, depending on demand, but the last year has been steady.

"It's easy to find help where we are," Sosnow said. "There's an unlimited labor

Continued on page 39



When BEI first started they had one wire-processing machine - they now have 20 wire-processing machines.



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Mylar or foil shielding using longitudinal wrap

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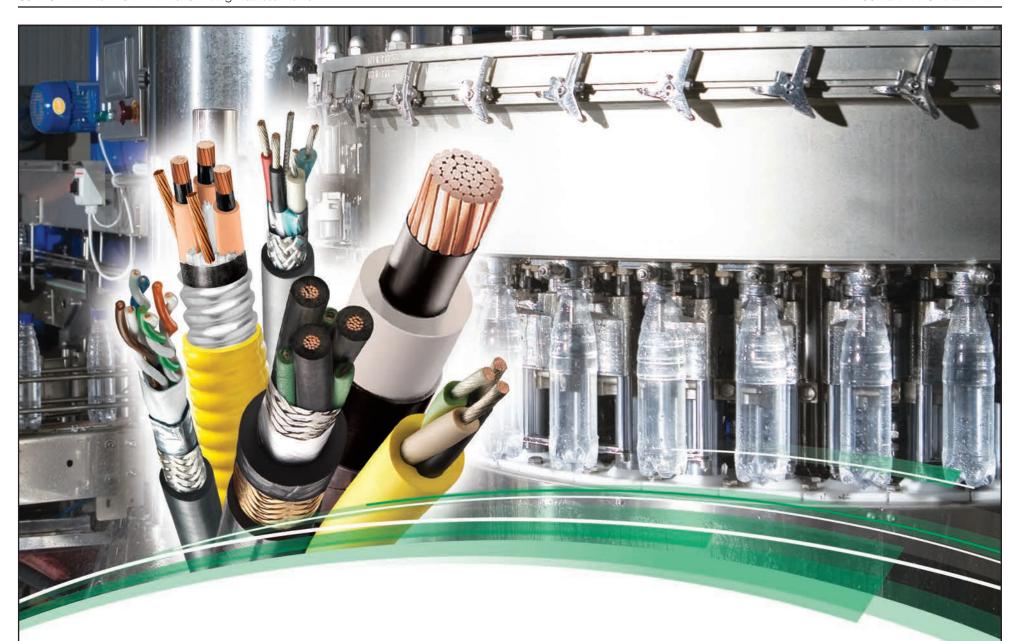
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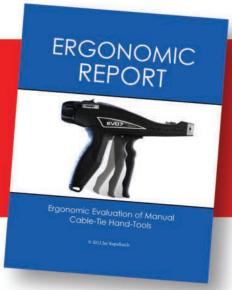


ART MEETS SCIENCE

The EVO 7 takes the cable tie tool to a new art form, delivering durability and scientifically proven results.



An independent ergonomic study of cable tie hand tools found the EVO 7 requires an amazing 21.7% less grip force than other tools.





Study participants rated the EVO 7:

- Best in overall comfort
- Best in overall ease of tension setting
- Best in overall ease of use
- Overall, the most preferred cable tie tool

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to learn more about the ergonomic study and the revolutionary technology behind the EVO 7 cable tie tool.

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Becker Electronics

Continued from page 36 _

pool for unskilled assembly jobs."

A starting wage of \$10 per hour was established by the company when the state minimum was \$7.75. N.Y. Gov. Andrew Cuomo has proposed a \$15 minimum wage, up from the current

"That would cost us hundreds of thousands of dollars," Sosnow said. "Politicians have good intent, but it costs a lot. We have to maintain low-cost labor due to the industry we're in and the complex challenge from Mexico and China. We have to mechanize wherever possible as labor costs become increasingly disproportionate.

The culture at the firm is "uniquely 100-percent transparent and completely

open," Sosnow said. Regular meetings are held with staff members, and they are told about the five-year plan, which is reviewed every December.

Every employee is reviewed annually on the basis of his or her professional goals, according to Sosnow. "That is a cornerstone of our management philosophy," he said. "I love HR, and I'm very concerned about the relationship of us as an employer to our employees and the relationship of our company to society.

"You have to be very practical and focused," Sosnow said. "We are responsible to everyone. Therefore, complete and candid communication is fundamental to our approach."

BEI makes harnesses, cables and electromechanical assemblies for assorted industries. Aerospace accounts for 10 percent of production, medical is another 10 percent, and the remaining 80 percent is for commercial and industrial such as audio and video equipment, automated lighting, boiler systems, communication, computer, home automation, machine tool, music equipment, oil, security and solar.

The most complex harness may have 100 wires and 50 connections, be up to 500 feet long and cost \$12,000. The simplest cutand-stripped cable is two inches long and cost five

Applications include a cable running from a battery pack to a doctor's headlight, internal wiring for a home entertainment center, an XY axis for a solar-panel production

machine and wiring for hooking up military antennas. Harnesses and cables are 80 percent of production.

The other 20 percent is electromechanical assemblies that between \$100 and several thousand dollars each, according to Sosnow. The assemblies are in sheet metal cabinets and used in such applications as aircraft location monitoring equipment, medical components, industrial heating equipment and manufacturing of boilers.

Run sizes are from one to tens of thousands. The average run is a few hundred items. Packaging and storage are available, and some customers have kanban programs in effect.

All aspects of production except final assembly are automated as much as pos-



Three-quarters of BEI customers are located in New York, New Jersey and Connecticut, with the balance in other states as well as Canada and Mexico.

sible. "It's important to automate more," Sosnow said. "Our first machine was 18 years ago to cut and strip. Now we have 20 wire-processing machines." They are from Schleuniger, Amp, Molex, JST, Hollingsworth and Carpenter.

Quality standards are based on UL certification and ISO 9001:2008 registration. The first ISO certification was earned in 2008.

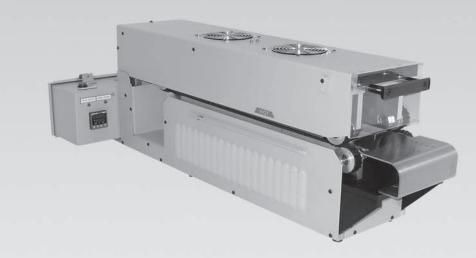
Continued from page 40 ___

HEAT SHRINK APPLICATION TOOLING

Belt Heater for Heat-Shrinkable Tubing Products

Product Facts:

- · Closed-loop speed and temperature control
- · Continuous controlled process
- · Adaptable for different applications
- · Heater operation and overtemperature alarm lights
- Benchtop Design



RAYCHEM MODEL 16B TABLETOP BELT HEATER

Applications

The Model 16B is our smallest (tabletop) conveyor type processor which provides a controlled process for a wide variety of heat-shrinkable tubing products.

Double-sided timing belts on the top and bottom of the processing chamber draw the assemblies through a thermally controlled infrared heat zone and then through a fan-cooled cooling zone before depositing them into the unloading bin.

Controlled Heating Zone

The Model 16B processor has two stamped foil heating elements that are manufactured to a strict wattage specification. Consistent temperatures (ambient to 650° C) are controlled by a thermocouple embedded into the upper heating element connected to a closedloop temperature controller. An alarm light illuminates whenever the actual heating element temperature varies from the set point temperature.

Speed Control

The belt speed is selected using a 3-digit thumbwheel via a closed-loop motor controller and DC gear motor.

Minimal Skill Requirements

There are clearly marked guides for aligning the assembly as well as the tubing or device. The operator only has to center the assembly then the tubing and slide it into the belts. The belts carry the assembly through the heating and cooling zone, depositing them into the bin.

Labor costs are reduced significantly because once an operator loads an assembly, that operator can begin preparing another assembly. The throughput rate is usually limited by the rate at which the operator can load assemblies into the

Versatility

The processor is designed to process a broad range of heat-shrinkable products up to 19 mm [0.75"] in diameter and 90 mm [3.5"] in length. Heat output can be controlled to accommodate a wide variety of products and substrates.







Becker Electronics

Continued from page 39 _

The main quality criterion is external rejects, and they number less than .04 percent. "The quality demands are very intense," Sosnow said. "The margin of error has shrunk in every respect and in every aspect of this business.

"You can't compete with China and Mexico on price and survive, so we have to offer something they can't," Sosnow said. "Customers are coming back from overseas because of lower volume, flexibility, reducing the cost in the air and the communication difficulty."

Three-quarters of BEI customers are located in New York, New Jersey and Connecticut, with the balance in other states as well as Canada and Mexico. Some customers have been with the company 15 years.

The company has grown 5-15 percent every 1-2 years, Sosnow stated, but he expected 2015 to be flat. Same for 2016. He would not speculate beyond next year.

Profits have been steady in spite of "a terrible downward pressure on price from customers," he said. "There's a constant grinding down, grinding down, grinding down.

"In the old days once you established a price on item you delivered at that level for a while," Sosnow said. "Now there's a constant attempt to auction every piece of business and squeeze every penny from you. There's also a lack of fidelity and long-term relationship, and there's an extraordinary urgency that everybody feels they should put on you.



"That puts a lot of pressure on profit margins," Sosnow said. "We can't raise our prices, but our suppliers do. We're caught in the middle. So, we have to do things quicker and more efficiently to maintain a reasonable, viable position in the economy."

Speed and efficiency will be supplemented by a greater emphasis on marketing. It will include going to trade shows, using Google and tapping into staff members' ideas, including those of Lukas Sosnow, the 27-year-old son of David Sosnow.

The younger Sosnow is being trained with 2-3 others to take over management of the company in 3-5 years as David Sosnow, Patrick Spagnuolo and Sharon Becker retire. He has been the senior projects manager since September 2014, and he was account manager in July 2009-August 2011.

"We very much have a plan for transition in place," David Sosnow said. "There are multiple possibilities, which includes the company being sold if the right offer comes along."

In the meantime, Sosnow will find pleasure working with people inside and outside the company and concentrating on improving systems and procedures. "I like doing my job well," he said. "It's a big job, but I enjoy the responsibility and what it teaches me. I like every bit of it.

"I'm proud that we deliver on time and with good quality," Sosnow said. "As an entity, we have survived and matured. We are a valuable contributor to our customers and to society."

For more information, call 631-619-9100, e-mail info@beckerelectronicsinc.com, visit www.beckerelectronicsinc.com or write 50 Alexander Ct., Ronkonkoma, NY 11779.

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- 1 ARTOS CS326 Cut & Strip Machine, CD11 Coiling Bowls, w/ Prefeed
- 1 ARTOS CS29 Cut & Strip Machine, #42774A
- 2 ARTOS CS26A Cut and Strip Machines
- ARTOS CS7 Cut and Strip Machine
- 1 ARTOS PF3 Prefeed
- ATS Crimp Press, Series T3000, with Applicator
- AUTOJECTOR HCS70 Injection Molding Machine
- 1 **BRADY** 'WRAPTOR', approx., 2014
- 3 CARPENTER Model 70B Strippers
- 1 COBRA 450 36-Carrier Harness Braider, approx. 2011
- 1 EUBANKS 4000-04 Tandem Cut and Strip Machine, #890-151, w/extra Blade Sets
- 30 FEINTECHNIK RITTMEYER Pneumatic Strippers, Type AM.STRIP.015
- 1 **IDEAL** Model STP Stripper, Part #45-930, Serial #4593001204, cycle count 21681 1 - **IDEAL** 'Stripmaster' Model 940 Wire Stripper, Part #45-940
- IMAJE Jaime 1000 S8 SI Ink Jet Printer, 2004
- KENCO 5T Press
- 1 KINGSLEY Model KIP-20 Hot Stamp Marker w/11 Identification Discs
- 2 **KODERA** Model C566 Processing Machines
- 1 KOMAX Gamma 333PC w/2 MCI711 Crimp Presses; 2 OMI Crimp Force Monitors, approx. 2.5m cycles, 2007
- **KOMAX** Gamma 333PC w/2 MCI711 Crimp Presses, 201AE Wire Marker, Tinning Station, Updated in 2008
- MECHTRIX Model MPF-35 Prefeeder
- 1 METRONIC Alpha Jet C Inkjet Printer, currently set up for black ink, approx. 2006/07 1 - MORGAN Injection Molding Machine, Model G-100T
- 5 MORGAN Injection Molding Machines, Model G-125T
- 1 **NEW ENGLAND BUTT** 72-Carrier Braider (flat strap capability) - NOVEXX I.D. Tube Printer, Model TMS 2000Plus
- 1 SCHLEUNIGER CC36 CrimpCenter, 2010, w/MECHTRIX MPF-35 Prefeed
- 2 SCHLEUNIGER CP1500 Heavy Duty Coilers 1 - SCHLEUNIGER CS9100 Cut/Strip Machine with a PF2000 Prefeed
- 2 SCHLEUNIGER CT32 Crimp Presses, one New 2008
- 1 SCHLEUNIGER ES9320 EcoStrip Cut/Strip, 2006
- SCHLEUNIGER HS4140 Hot Stamper
- SCHLEUNIGER OmniStrip 9450 Automatic Cut and Strip Machine w/PF2000 Prefeed
- 1 SCHLEUNIGER PF3000 Prefeed w/Dancer
- 1 SCHLEUNIGER PF2000 Prefeed 1 - SCHLEUNIGER PF1100 Prefeed
- 1 SCHLEUNIGER PT26 Pull Tester
- 1 SCHLEUNIGER US2100 Bench Stripper
- 2 SCHLEUNIGER Uni-A Applicators
 - ➤ App #2 Tool 700.337.001/002 (Terminal #AMP 770901-1 and 770902-1)
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- SPECTRUM 'Sienna 510' Laser Printer



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NEWS PLUGS continued



Continued from page 31 _

"The marketplace continues to trend toward smaller and smaller electronic devices, allowing manufacturers to squeeze greater functionality into smaller footprint products - from automotive infotainment systems to smart phones and LCD flat panel screens. At the same time, the race is on to quickly and cost-effectively bring these new, sophisticated offerings to consumers," said David Falla, associate product manager, Molex. "These new options provide designers with even greater design flexibility while enabling them to maximize PCB space, shorten lead times and reduce component costs."

Utilizing a simple solder wave assembly process, Premo-Flex RFC jumpers deliver exceptional cost savings by eliminating the need for connectors or wire stripping. The direct-to-board solution is ideal for electrical connections between PCBs and display boards in high-vibration applications. Available with polyester, aramid or polyimide insulation, the jumpers meet Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) requirements and withstand high-temperature ratings. The Premo-Flex Hot Bar jumpers are permanently affixed to PCBs by soldering, creating a durable board-to-board connection that also withstands high vibration. With superior signal integrity, they feature a flat cable design that can be folded and bent for applications with space restrictions.

Both options include hybrid terminations that feature zero insertion force (ZIF) or low insertion force (LIF) to through-hole soldering with round-to-flat or round-throughout format options, facilitating interchange to different PCBs.

For more information about Premo-Flex Cable Jumpers from Molex, please visit www.molex .com/product/premoflex_ffcfpc.html.

Fairview Microwave Introduces New **Ultra-Miniature Cable** Assemblies Up to 6 GHz

Fairview Microwave Inc., a on-demand supplier of microwave and RF components, introduces a brand new family of ultra-miniature UMCX, WMCX and HMCX32 cable assemblies. Commonly used to connect an external antenna to a mini-PCB. these flexible micro-coax jumpers offer operation from DC to 6 GHz and are ideal for use in wireless communications systems. Additional wireless applications include antennas for GPS and other radio systems, Wi-Fi, wireless LAN, Bluetooth, ZigBee, LTE, mini-PCI and PDA/PCS/cellular handset appli-

Fairview Microwave's new UMCX and WMCX cable assemblies are compatible with Hirose® U.FL™ and W.FL™ connectors respectively, and feature miniature snap-on connectors with mated connection heights ranging from only 1.2mm to 2.5mm. In total, Fairview is releasing 40 unique configurations with multiple coax options including 0.81mm, 1.13mm, 1.37_{mm}, RG178 and double shielded RG178 (RG178-DS). In-series and between-series cable assemblies are available.

The ultra-miniature UMCX, WMCX and HMCX32 cable assemblies from Fairview are offered in standard lengths (6, 9, 12 inches) from stock while custom length versions and special configurations are available



UMCX-WMCX-and-HMCX32-**Ultra-Miniature-Coaxial-Cables**

upon request with quoted lead times. Each of these new cable assemblies are 100% RF tested and continuity tested prior to shipment.

"As wireless systems and hardware continue to get smaller, the demand for miniature, low profile cables and connectors increases," says Brian McCutcheon, Vice Presi-

Continued on page 42



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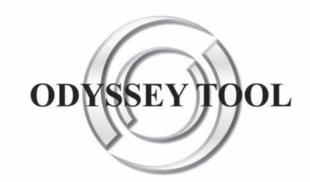
Mini



Mini (2 Post) Air Left to Right



Heavy Duty Slide **Quick Change Tool Pack**



NEW Mini (Power Drive Gen II)



1 Applicator Base, Many Terminals

Run mylar strip, plastic carrier, double or single carrier - all in the same base!

Now runs in K Press, Stripper Crimpers, Stripper Crimpers w/ Grommet Loaders and Cut, Strip, and Crimp Machines.



Mini End Feed



Med. Duty Air End Feed Quick Change Tool Pack



Med. Duty Slide **Quick Change Tool Pack**

For details.

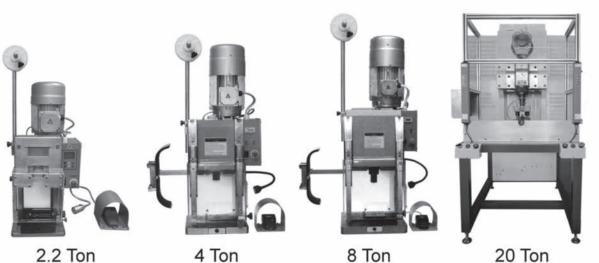
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NEWS PLUGS continued



Continued from page 41 ___

dent and General Manager at Fairview Microwave. "Fairview's continually expanding offering of popular interconnect solutions is designed to meet the increasing needs of engineers in today's ever-changing electronics landscape."

Fairview's new ultra-miniature UMCX.

WMCX and HMCX32 cable assemblies are in-stock and available to ship today. You can view them by visiting http://www.fairviewmicrowave.com/rf-products/ultraminiature-umcx-wmcx-and-hmcx32-cable-assemblies.html directly. Fairview Microwave can be contacted at +1-972-649-6678.

A leading supplier of on-demand RF and microwave products since 1992, Fairview Microwave offers immediate delivery of RF components including attenuators, adapters, coaxial cable assemblies, connectors, terminations and much more. All products are shipped same-day from the company's ISO 9001:2008 certified production facilities in Allen, Texas.

Allied Wire & Cable Expands with Rochester Location

Allied Wire & Cable opens a new branch in Rochester. This news comes at a time when many electrical distributors and manufacturers are closing and consolidating facilities.

As the legend goes, Allied Wire and Cable was founded in 1988 in the Flynn family basement in PA. Over the last 26 years, the family-owned business has expanded from their first subterranean

headquarters to a company with over 200 employees across facilities nationwide, which newly includes an office in Rochester, NY.

The addition of a Rochester location is good news for original equipment manufacturers in the region. Wire and cable provider Anixter recently moved their OEM sales department out of their Rochester office and up to their OEM Solutions group in CT. Anixter Rochester now deals strictly in industrial business, whereas Allied Rochester can serve both industrial customers and OEMs.

Allied's new office is located near Rochester Tech Park and has been built up around local wire and cable veterans Chris Jodoin and Ann Marie Denero. Both Denero and Jodoin worked at Simcona Electronics, headquartered in Rochester, for 90 and 90 years respectively. Denero also spent 11 years as a branch manager at Anixter.

Wire and cable buyers in New York and across the world will benefit from Jodoin and Denero's many years of experience and technical background. Denero also speaks Spanish, so more customers can conduct business in their preferred language.

Allied Wire & Cable is a family owned and operated specialty manufacturer and distributor of wire and cable with more than 25 years of experience. Allied serves all major global markets, including government and military, as well as the aerospace, automotive, and telecommunications industries. AWC is dedicated to personalized service, and assigns an individual sales rep to each and every customer. Customization services such as cut and strip, custom print, dyeing, striping, twisting, and more are available, in addition to a full range of custom cable design and manufacturing services. Allied is headquartered in Collegeville, PA, with stock-

ing locations in Florida, Wisconsin, and Nevada. Additional sales offices are located in New Hampshire and throughout the Southeastern United States. Allied is proud to serve customers worldwide. For more information, please visit www.awcwire.com.

Art Meets Science in Molex Custom Soligie Flexible Printed Sensor Solutions

Molex, LLC expanded its printed electronics portfolio with the recent acquisition of Minnesota-based Soligie, Inc. Custom Soligie solutions provide a robust and economical alternative to a rigid printed circuit board (PCB) or copper flex circuits in sensor applications for medical, industrial, consumer, defense, and other industries.

"Smart sensor products demand smart manufacturing methods. As electronic packaging continues to shrink in size, while ramping up in sophistication, customers need highly functional and cost-effective circuitry," states Todd Hester, vice president and general manager for Molex Printed Circuit Products. "We provide early stage Soligie technology development with a clear path to highvolume manufacturing."

Soligie sensor solutions are ideal for measuring temperature, shock and humidity, physiological monitoring, environmental and biochemical sensors, and virtually any sensor product requiring a thin, flexible electronic form factor. Soligie designs start with a low cost substrate onto which functional components are added using con-

SDE MICRO CRIMP BATTERY TOOL

Compact power with minimal effort

The new SDE Micro Crimp battery tool from TE Connectivity combines the power found in their complete line of lithium ion battery tools with the light weight and ergonomic design found in their family of quality manual hand tools. It's the best of both worlds!

Designed with the operator in mind, the SDE Micro Crimp tool weighs less than 1 kg (2.2 lbs), uses 90% less force then a typical manual hand tool and contains a built in LED light for illuminating your crimp and work area. And, for added flexibility, the SDE Micro Crimp tool utilizes the same easily interchangeable SDE die sets found in their portable hand tools or electric bench equipment so that your tools can grow as your needs grow.

Product Features

- · Light weight, ergonomic design, is only 2.2 lb
- Uses 90% less force, thereby reducing operator muscle fatigue
- Contains a built in LED light for illuminating crimping point and work area
- · Contains mounting ring for use with a balancer or as fall protection when used outdoors
- · Small size for tight areas
- · An electronic control to monitor complete closing of the dies
- · An auto retract feature upon lever release and when the crimping is complete
- Motor stall protection in case of faulty operation
- · Complete mechanical power linkage with no hydraulic fluid to leak

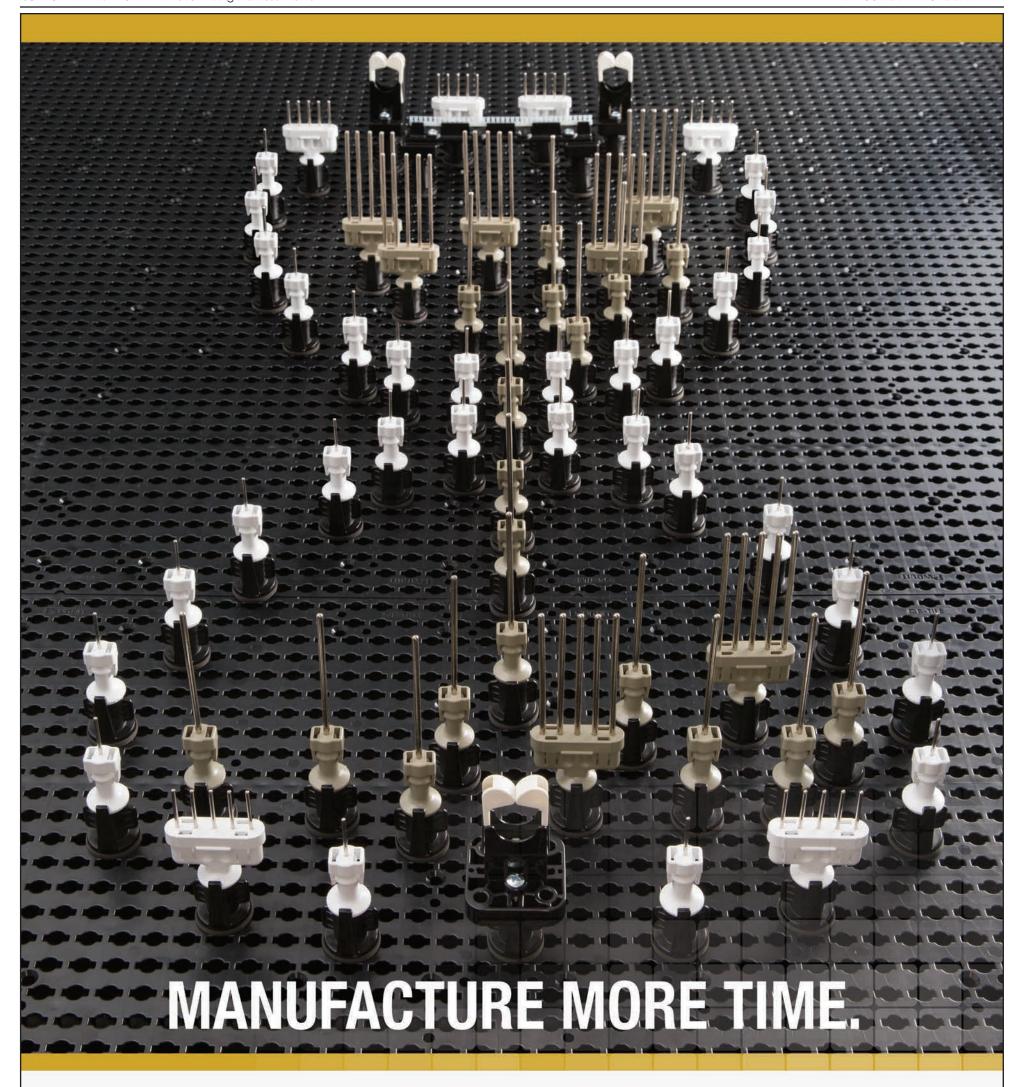




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Time is money, and the new Panduit Quick-Build™ Harness Board System helps wire harness manufacturers save both. With this reusable modular system, low volume/high mix manufacturers can cut costs up to 65% compared to traditional nail and board methods, by:

- · Eliminating the need to buy bulky plywood boards for each assembly
- \cdot Reducing labor costs, with wire harness build times improved by up to 18%
- Reducing costs associated with storing plywood, since it takes up 50% less square footage

The more you build, the more you save.



WHMA Conference

Continued from page 1 _

Proving the Point on WHMA

A few weeks ago, I sent out an email blast to the WHMA group asking past conference attendees about their experiences. I got a plethora of positive responses, but I wanted to share a couple of outstanding endorsements:

John Horgan - Buse Industries: "The networking opportunities at the WHMA conference with other industry players is outstanding. In fact, one of those initial networking contacts made at the conference has recently resulted in a new 'six figure' customer account for us this year!"

Jon Scheiner - PC Manufacturing: "I am a huge fan of the organization, the conference, and the information and knowledge conveyed. I'm confident over the years, and more specifically this year, I took away lessons and information directly from the show. I think, like others at the conference, I found the speakers to be some of the most dynamic we have had in some years."

determination that were his trademarks as a Steelers running back, Rocky Bleier will take us from his early years through his long and storied professional career. He will share the lessons that helped him overcome obstacles to reach his goals. I'm confident his message will be compelling and inspirational.

The conference will then pivot from leadership vision, to the tools leaders can use to achieve these visions. "The group kicked around some of the critical issues in today's manufacturing world, and Lean Theory came to the top," Jim informed. Greg Lane of Lean Enterprise was chosen to present a two part discussion on low-volume lean. The first part of his presentation, Comparing and Contrasting Today's Management to Lean Leadership, will concentrate on



Greg Lane of Lean Enterprise

how leadership interconnects with specific lean tools, like Kaizen or Six Sigma. The second part, "Aligning the Right Behaviors with your Business Objec-

tives," will deal with assessing department leader's current behaviors and competencies; then aligning those with overall business objectives. I've heard Greg Lane speak before, and I can tell you with certainty, you will not hear instruction on lean theory that is more applicable to our industry.

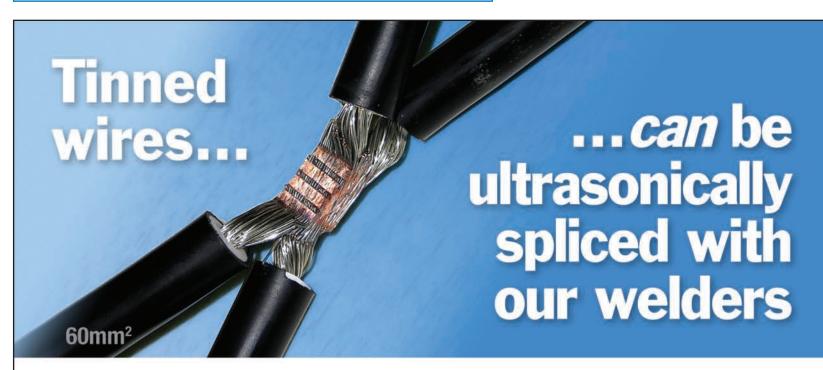
The second pillar of leadership tools will be Supply Chain Management, with a presentation by Dr. Thomas Choi, Chair of Purchasing Management at The Carey School of Business at Arizona State University. He leads the study of the upstream side of supply chains, where a buying company interfaces with many suppliers organized in various forms of networks. Sure sounds familiar, huh? Dr. Choi's presentation, "Conquering Supply Chain Management," will deal with supply chain topics familiar and unique to the wire harness industry.

There will also be a presentation by Cameron Hefferman of The Entrada Group entitled "Overcoming Challenges with Harnessing in Mexico." The Entrada Group helps companies solve problems with things like Lean Manufacturing and Supply Chain Management with their harness production in Mexico. Mr. Hefferman's presentation should provide a nice capstone to the main pillars of the confer-

What's Different for 2016?

Jim Manke spoke about

the committees decision to pare back the speaker list for this years conference. "They decided to focus on

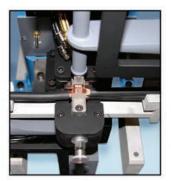


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 Exclusive tin-coated wire splicing, as well as welding aluminum, copper, nickel alloys, precious metals and dissimilar metals.





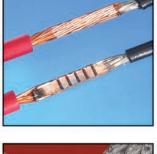
- One-pulse wire splicing up to 100mm² and tinned wire to 60mm².
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- Durable Taper Lock tips that last up to 100,000 welds.
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We've been using our patented Wedge-Reed System since 1960 to provide the most durable, precise welds of any ultrasonic metal welder manufacturer.

Tests prove that ultrasonic welding is less expensive and more reliable than resistance welding or soldering. And Sonobond's technology helps you be RoHS-compliant, unlike conventional soldering.





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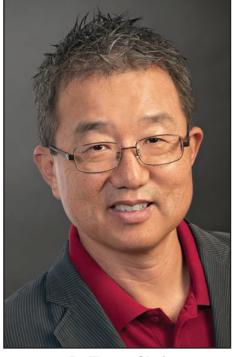
fewer speakers with fewer topics but with greater depth and impact," he informed.

One other big difference this year is the actual conference scheduling. The conference has typically kicked off Wednesday, and is anchored by the Thursday and Friday speakers. "Given a western location, and since the group is heavily based in the Midwest and Northeast, folks tend to leave early Friday to get home for the weekend," Jim noted. "The decision was made to start Tuesday, instead of the traditional Wednesday, and finish at noon on Thursday in hopes that folks won't be in a mad dash to get home for the weekend."

Back in Scottsdale

This years WHMA conference will return to Scottsdale Arizona. The event will run Tuesday, February 23rd through Thursday, the 25th at The Chaparral Resort. The hotel and conference center recently underwent a major renovation. The Chaparral is within walking distance to Old Town Scottsdale with its galleries, specialty retail, and unique dining venues from casual to upscale.

The WHMA Conference has truly evolved through the years. It's much more than just a peer and supplier networking opportunity. Conference atten-



Dr. Thoms Choi The Carey School of Business at Arizona State University

dees go home with tools they can put into effect immediately. Every year, we hear about the dramatic results. WHMA continues to raise the bar, and the 2016 event will not disappoint. Jim mentioned one other surprise for this years conference, but as of print time, he was just adding the final touches, so you will have to keep checking the WHMA website (www.whma.org) for more details!

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February 23-25, 2016

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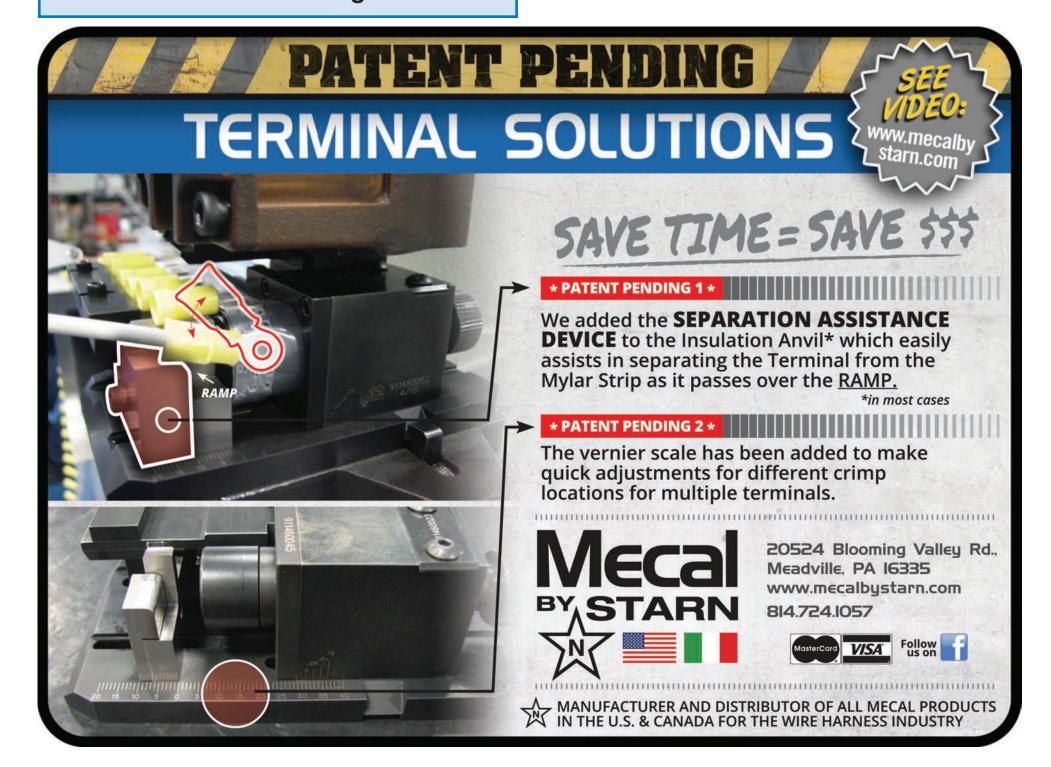
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INSPIRING INNOVATIONS

Employees Construct Playground at Homeless Center

Nordson ASYMTEK, a Nordson company a global leader in dispensing, jetting, and coating equipment and technologies, announced that over 50 employees in Southern California constructed a playground for the children who live at the Solutions for Change Intake and Access Center in Vista, California. During the opening ceremony for the new playground, the County of San Diego Board of Supervisors recognized Nordson for "outstanding service, leadership and commitment to the health, safety and well-being of the region's residents," and presented Joe Stockunas, vice president of Nordson's Advanced Technology Systems, with a proclamation declaring September 17, 2015, as Nordson Day.

As part of Nordson's annual Big Build

Project, the corporation donated \$50,000 for the purchase of the play-ground equipment. All the construction of the play-ground was done by Nordson employees and friends.

More than 50 Nordson ASYMTEK, MARCH and YESTECH employees participated in the two-day long Big Build, working through both recordbreaking rain and hot sun to complete construction on the new playground.

Nordson's Big Build 2015

"Each year, Nordson chooses a community near one of its U.S. facilities for the Big Build," explained Sara Vaz, program officer for Nordson Corporation Foundation. "We look for ways to improve our community by promoting creativity and learning. This year the Big Build took place in Southern Califorwhere Nordson ASYMTEK, Nordson YESTECH, and employees from Nordson MARCH are located. All Nordson employees were encouraged to show up, roll their sleeves up, and help build!"

The Intake Center provides up to three months of shelter for families who are waiting to move into the Solutions Family Center program, a supportive family housing program where parents can rebuild the life skills needed to solve their families' homelessness, offering access to workforce development and counseling.

"The children staying in the intake center are living in very close quarters and have no other space to play besides the playground area," explained Nordson Corporation Foundation program officer Sara Vaz. "Building this beautiful space for the kids will bring joy to their lives in an otherwise very difficult time."

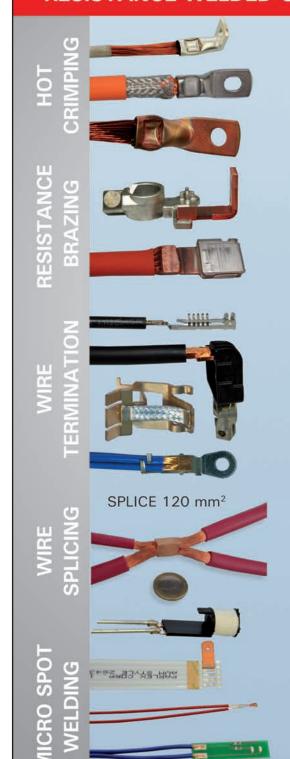
The Nordson Corporation Foundation, which was established by Nordson founder Walter G. Nord, adheres to the philosophy that as a corporate citizen of communities where it does business, it will recognize its social responsibilities by sharing its financial success in ways that improve the quality of life for its employees, their families, and neighbors.

For more information, contact Nordson ASYMTEK at info@nordsonasymtek.com, call +1 760-431-1919, or visit our website at www.nordsonasymtek.com.





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NEWS PLUGS continued



Continued from page 42 ____

ductive silver ink to form the circuitry. Suitable for integrating sensors, batteries, RFID, thin displays, LEDs and other passive devices, the Soligie manufacturing process yields small, flexible all-in-one sensor solutions at a lower overall cost than conventional circuitry.

Molex manufacturing capabilities include electronic device bonding using high precision roll-to-roll (R2R) and sheetto-sheet technology. A multi-station printing system can combine flexographic and rotary screen capability and the ability to print multiple layers for more efficient manufacturing. The R2R high speed printing process for Soligie solutions creates exact equivalents of copper circuitry in sensor applications, while reducing manufacturing processes, materials and cost.

Molex partners with customers and strategic suppliers to ensure Soligie materials and processes scaled to their functional requirements. Services include Soligie sensor design and process development, prototype fabrication, product development, commercialization and manufacturing. A framework of stringent quality systems ensures regulatory compliance, including ISO 9001:2008 and ISO 13485:2003 certified, and maintains compliance with FDA Current Good Manufacturing Processes.

"Our customers can now see their unique product innovations manufactured faster than ever before." added Hester. "Whether the goal is to make a product lighter, thinner, more flexible—or to bring an entirely new concept to life—Soligie flexible printed technologies deliver the right sensor solution."

For more information on Molex Flexible Printed Sensor Solutions please visit: www.molex.com/pa/printedcircuitproducts.html.

Saki America Adds **Distributors in the United States**

Saki Corporation, an innovator in the field of automated optical inspection equipment, announces that Saki America has added three new distributors: SMT Equipment, Bench Top Solutions, and Contek Sales & Marketing. The companies will provide sales support for Saki's 2D and true 3D automated optical, solder paste, and x-ray inspection systems.

SMT Equipment has specialized in sales and support for pick-and-place equipment, soldering systems, and other SMT automation and assembly equipment for over 20 years. Based in Harbor City, California, they will support sales for Southern California. "We help to transform and improve SMT electronics manufacturing efficiencies with innovative equipment and sales support services that directly and positively impact the bottom line for our customers," said Scott Baker, founder of SMT Equipment.

Bench Top Solutions will provide sales

Continued on page 50



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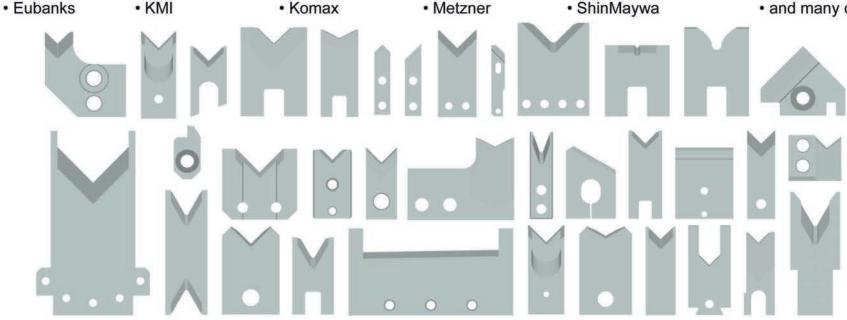
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NEWS PLUGS continued



Continued from page 48 _

support for eastern Pennsylvania, New Jersey, and New York. The company has served as manufacturers' representatives for a wide array of products for the electronics assembly market for over 20 years.

Contek Sales & Marketing in Arlington, Texas will represent Saki in Texas, Arkansas, Oklahoma, and Louisiana.

"We are excited to be able to offer our customers and potential customers quality sales support to enhance our applications, service, and technical team throughout the US," said Satoshi Otake, general manager of SAKI America, Inc. "In February we added Lean Stream as Saki's representative in the California Bay Area and we recently hired a technical engineer to provide application support. Our goal is



Scott Baker, founder of SMT Equipment, and Satoshi Otake, general manager of SAKI America, Inc.

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always to help our customers improve their manufacturing process, quality, and efficiency."

Saki America is now located at 48016 Fremont Boulevard, Fremont, CA 94538-6500. The phone number is +1-510-623-SAKI (+1-510-623-7254). For more information, email Saki at sales.us@sakicorp. com or visit our website at www.sakicorp.com.

Allied Wire & Cable raises \$10,000 for local Make-A-Wish Foundation

In a time of great need, the Make-A-Wish Foundation reached out to Allied Wire & Cable for support. Allied responded with a summer fundraising campaign to help grant more wishes for children living with life threatening illnesses. A total donation of \$10,000 was given to their local chapter in August.

The Make-A-Wish Foundation® of Philadelphia, Northern Delaware & Susquehanna Valley approached Allied Wire & Cable for help in late July, reporting an unexpected influx of wish requests.

A longtime supporter of the national charity, Allied launched a monthlong campaign to raise money from their community of customers, vendors, employees and friends. The wire and cable distributor promised to match the donated total.

The campaign ended on August 21st, with \$3,680 raised through donations. With Allied matching the contributions dollar for dollar, the total donation should have been \$7,720. Because the average wish can cost up to \$10,000, and Allied was determined to grant at least one full wish, they chose to more than double the raised amount, contributing \$6,320 to meet that goal.

The president of the local Make-A-Wish chapter, Dennis Heron, gratefully accepted the \$10,000 gift, saying, "Thank you for helping us meet this wish granting demand. You have brought hope and joy to so many, and you are deeply appreciated."

Allied has supported Make-A-Wish since the mid-90s, and has raised over \$100,000 for this foundation through their annual Charity Week each December and through other events. Though this summer's campaign is over, Allied is sure to continue supporting Make-A-Wish.

Allied Wire & Cable is a family owned and operated specialty manufacturer and

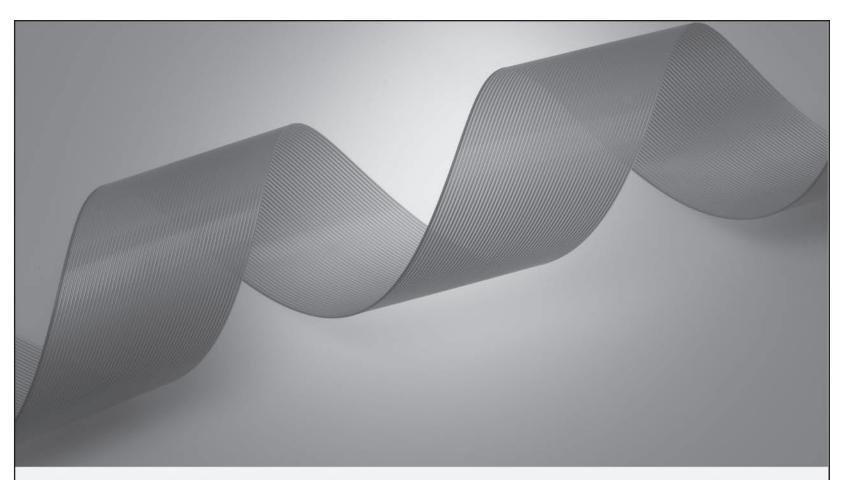
distributor of wire and cable with more than 25 years of experience. Allied serves all major global markets, including government and military, as well as the aerospace, automotive, and telecommunications industries. AWC is dedicated to personalized service, and assigns an individual sales rep to each and every customer. Customization services such as cut and strip, custom print, dyeing, striping, twisting, and more are available,

in addition to a full range of custom cable design and manufacturing services. Allied is headquartered in Collegeville, PA, with stocking locations in Florida, Wisconsin, and Nevada. Additional sales offices are located in New Hampshire and throughout the Southeastern United States. Allied is proud to serve customers worldwide.

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CT 65 – A Programmable, Hydraulic

The powerful CT 65 hydraulic crimping machine is designed for loose-piece, heavy gauge crimping applications. Its

parallel crimping action delivers up to 150 kN (16.9 tons) for applications up to 400 mm2 (750 MCM).

The quality of the crimp is guaranteed by a full-cycle mechanism that assures that the dies have closed completely before they are reopened. The ergonomic 15 degree tilt of the machine provides an optimal viewing angle and the LED light enhances visibility of the crimping area.

The CT 65 features 3 programmable

crimping profiles and job memory for up to 30 different jobs. Open and close positions can be programmed to minimize processing time and maximize quality. For instance, for smaller terminals, a minimized stroke length can be programmed. Or, when necessary, a pre-hold position can be programmed to secure the terminal in place making it easier for the operator to load the wire. Simplicity of programming was a key focus in our design. Of course, the interface can be locked with a key switch for quality assurance purposes.

The quick change system allows for fast changeover times between a variety of optional die adapters. A variety of crimp shapes and sizes is available to meet your applications. The U-die adapters will accept industry standard OEM crimp dies.

Due to its open construction, a variety of crimping or pressing applications can be handled on this powerful, yet relatively compact press. The versatility and power of the CT 65 make it a valuable addition to any production facility with heavy duty crimping needs.

More information about this new product can be found at www.schleunigerna.com. Should you have any questions, please e-mail sales@schleuniger.com or call (603) 668-8117.

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CT 65 – Programmable, **Hydraulic Press**

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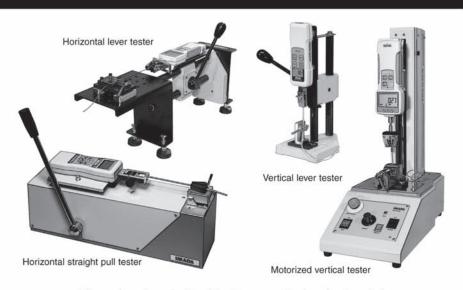
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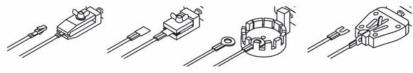
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NEWS PLUGS continued



Tergo™ High Performance Flux Remover for Vapour Degreasing Introduced by MicroCare at Productronics 2015

The cleaning experts at MicroCare Europe byba are introducing a radical new flux remover at Productronica 2015. Designed for cleaning circuit boards in automated vapour degreasing systems, this innovation uses a unique, patent-pending formulation to help companies clean PCBs faster, better and at lower cost while meeting ever-more stringent European regulations.

The MicroCare® Tergo™ High Performance Flux Remover is a non-flammable, low-temperature cleaning fluid that features a non-volatile additive specifically engineered to clean challenging solder pastes and flux residues. It also can remove stubborn white residues. It is a versatile cleaner that is effective even on water-soluble (OA) fluxes. It has secondary applications as a degreaser and can even remove slight oxidation and tarnish from finished surfaces. The Tergo™ High Performance Flux Remover is compatible with traditional vapour degreasing procedures and no hardware modifications normally are required. This makes the Tergo™ High Performance Flux Remover a drop-in replacement for many older vapour degreasing chemistries that are being phased-out under environmental, health, safety or economic pressures.

This innovation is important to European companies because it enables fast. thorough and consistent cleaning of even the most challenging contamination without using water. Vapour degreasing is far less energy-intensive than aqueous cleaning and the burning of fossil fuels to generate electricity is one of the biggest sources of greenhouse gasses. Vapour degreasing also is generally faster, more gentle on delicate circuitry and better able to clean complex shapes than waterbased systems. Another important money-saving feature is that vapour degreasers usually are much smaller and quieter than aqueous cleaners.

The new Tergo™ High Performance Flux Remover technology will be specified by companies in Europe and around the world because it is a new, highly effective, very affordable, long-term answer to the difficult cleaning issues facing production engineers today. The Tergo™ High Performance Flux Remover is in compliance with all the current and proposed European environmental, health and safety regulations, which saves time and money. This means a cleaning process can be specified in Germany and deployed globally.

The TergoTM High Performance Flux Remover will be available from specialized MicroCare distributors in Europe and around the globe. For further information and more details, visit www. microcare.com.



SPE's Strategy to Attract Young People to the Plastics Industry Includes Programs for Students From Grade School to College

A strategy developed by the Society of Plastics Engineers (SPE) to draw more young people into the industry and into SPE itself has created new career opportunities and generated a significant increase in student participation, SPE has announced.

"Diverse initiatives undertaken by SPE have made young people more aware of career opportunities in plastics, increased support for students seeking technical and professional training, and made first-time participation in industry activities easier and more attractive," said Russell C. Broome, managing director of SPE. "As a result, student membership in SPE has grown considerably and now accounts for at least 16% of our total membership."

Students from 33 U.S. colleges and universities have formed SPE student chapters, and there are now such chapters in China and Saudi Arabia as well. Also on the increase is student participation in the annual SPE ANTEC®, the world's largest plastics technical conference.

"SPE recognizes the importance of starting to educate our future workforce as early as possible and staying engaged as they hopefully progress through a career in the plastics industry," said Mr. Broome. "We have expanded programs and offerings for the primary STEM education system and through our partner universities. Next we will focus on closing the gap for those transitioning from high school into secondary education in hopes of recruiting more future plastics industry employees."

Programs and benefits now available for young people provide a broad range of opportunities:

- Free student membership in SPE and SPI. SPE and SPI: The Plastics Industry Trade Association now share the membership costs for students who are U.S. citizens. As a result, students receive free membership in SPE and free electronic membership in SPI.
- Increased scholarship funding. The SPE Foundation last year awarded 47 scholarships worth \$130,000 to graduate and undergraduate students. The foundation also provides grants to college engineering departments for purchasing equipment for hands-on training. In addition, certain sections and divisions within SPE also have scholarship programs. SPE is now working with universities to develop scholarship programs for graduating high school seniors.
- Student loan debt relief. SPE has partnered with Credible, a leading independent marketplace for student loans and loan refinancing, to enable SPE members to compare student loan refinancing offers from multiple lenders after completing a single form. Credible acts as a matchmaker between borrowers and

lenders, providing college graduates with personalized loan refinancing options.

- Free online posting for job seekers. Student members of SPE can post their job searches for no charge at the Career Solutions section of the SPE website (www.spe.org). In addition, companies can post open internship positions there for 180 days at no cost.
- Online community for students. Campus Connection is a special section for students in The Chain, SPE's new online community enabling plastics professionals to interact. Moderated by plastics professionals from industry and academia, Campus Connection enables student members of SPE to ask technical questions, get career advice, and in general benefit from the knowledge and insight available from experts.
- Student Programs at SPE ANTEC®. SPE now offers special programs and activities for students at ANTEC and provides travel stipends for students who attend. Students can make poster-session presentations to plastics professionals, with cash awards going to winning presentations. Other activities include panel discussions with career advice, speed interview sessions, a special student luncheon, and opportunities for networking with industry professionals as well as other students.
- Campus visits by SPE staff. Managing director Russell Broome and other SPE representatives now visit colleges and universities to meet with students and their faculty advisors, provide plastics career advice, learn about plastics educational programs, identify specific needs, and encourage SPE membership and student chapter formation.
- ◆ Hands on PlasticsTM (HOPTM) kits. These are prepackaged educational kits which SPE now offers for sale to teachers in K-8th grades. They are designed to help educators and adult volunteers prepare programs about the chemistry and characteristics of plastics and are available in versions tailored to student age levels.
- PlastiVan. SPE operates this touring program designed to bring plastics education to elementary and high schools throughout North America, providing concrete examples and hands-on activities to help students learn about polymer properties, processing, applications, benefits, and sustainability. Recently the National Plastics Center presented SPE with a \$200,000 donation to help support the PlastiVan program. Plastics companies also sponsor PlastiVan visits in their communities.

___Continued on page 56



NEWS PLUGS continued



Continued from page 55

THE Society of Plastics Engineers (SPE) is the largest, most well-known plastics professional society in the world. Founded in 1942, SPE takes action every day to help companies in the plastics industry succeed by spreading knowledge, strengthening skills, and promoting plastics. Employing these vital strategies, SPE has helped the plastics industry thrive for over 70 years. SPE has become the recognized medium of communication among scientists, engineers, and technical personnel engaged in the development, conversion, and application of plastics.

For more information, visit www.4spe.org

Mentor Automotive Announces Safety Certifiable Digital Instrument Cluster Solution

Corporation Mentor Graphics announced the availability of the Mentor® Automotive Safety Certifiable Digital Instrument Cluster solution enabling safety-critical driver information to be displayed simultaneously with rich 3D graphics on a single instrument cluster display. The software architecture is implemented on a multi-core and even on single-core System-on-Chip, and features very fast boot time. This new solution addresses a key problem for the automotive OEMs: How to migrate safety-critical driver information to full-featured, graphically-rich digital instrument clusters and comply with safety standards including ISO 26262, without pushing up hardware or safety certification costs.

Automotive OEMs today design digital instrument clusters that include graphical

information relating to essential warnings from the vehicle, such as icons notifying the driver of brake, engine or tire problems. The new solution, which is compatible with safety-certified Nucleus® RTOS and Mentor's automotive-qualified Linux solutions, allows safety-critical and noncritical information to be displayed simultaneously on the same display, while maintaining isolation of safety-related functions to comply with ISO 26262 safety standards. The low-overhead isolation features of the solution are uniquely designed to enable the most efficient use of system resources to allow maximum performance of rich 3D graphics, together with complex and demanding features such as infotainment, ADAS and smartphone connectivity, all driven from the same SoC.

The solution enables car makers to reduce costs because the system is built on pre-certified components such as the

Nucleus® SafetyCert™ real-time operating system (RTOS), resulting in minimization of the number of lines of new code to be safety certified. It reduces silicon cost because the solution runs on a single SoC, or even a single core, and makes efficient use of available CPU resources.

Mentor Automotive worked with Socionext Embedded Software Austria GmbH to integrate their CGI Studio development platform for automotive HMI with the Safety Certifiable Digital Instrument Cluster Solution. Reinhard Fuericht, general manager of Socionext's CGI Studio BU, said, "The capability of the Mentor Automotive platform is complemented by the high-end graphics and unique mixed safety-criticality features of CGI Studio, resulting in a seamless end-to-end solution for safety-certifiable HMI from tooling to display."

"Embedded software safety is one of the top requirements for vehicle systems

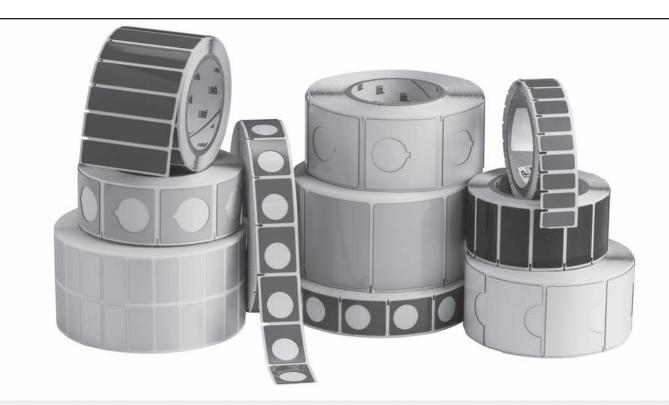
> designers, and our ability to merge safety-critical information from vehicle systems without compromising rich cluster graphics or functionality has been very well received by our customers," stated Rainer Oder, general manager, Mentor Automotive.

Mentor Automotive provides a leading portfolio of automotive design tools and software, built on deep expertise in systems engineering, to help customers solve the most complex design challenges facing the industry. Solutions reside in three key areas for automotive electrical and electronic design: connectivity and networking; in-car experience; and sub-systems and technology.

For further information visit www.mentor.com/ automotive

Corporate headquarters are located at 8005 S.W. Boeckman Rd, Wilsonville, Oregon 97070-7777.

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The CT4 Coastelmatic Pneumatic Tool Holder

The CT4 Coastelmatic hand tool holder is a device that uses air to activate spring retracted hand tools. The CT4 Coastelmatic is a great low cost alternative to automatic crimping, stripping, and cutting machines. The CT4 Coastelmatic can be set up to work crimpers, strippers and cutters. The patent pending tool holder in the applicator securely holds all tools in place, allowing the operator to use his hands freely. This new and improved cylinder delivers 10% more power through dual activation for tough jobs. Each unit is pre-assembled, tested and ready for use.

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NEWS PLUGS continued



Minnesota Wire Achieves AS9100 **Aerospace Certification For** Leading-Edge Wire And **Cable Assemblies**

Minnesota Wire is pleased to announce that its St. Paul headquarters and R&D facility is now AS9100 Certified, which means that a comprehensive effort has verified that the management system is present to develop, design and manufacture wire and cable for aerospace applications. Achieving this certification allows the company to produce and sell specialized custom wire and cable products that meet demanding requirements of the aviation, space and defense industries.

"We've been introducing innovative new products to the cable industry for a decade now," said Minnesota Wire CEO Paul J. Wagner. "So this is just the next step for us, as our customers are eager for standardized manufacturing of products that no one else does, like our iStealth® and iStretch® cables."

"The process of obtaining this certification was quite involved," said Eric Wagner, Minnesota Wire President. "We appreciate the commitment to excellence that our employees exhibited during this effort.

The operating standards that

resulted will also greatly benefit our core business producing custom products for the medical and defense industries."

AS9100 certification means that Minnesota Wire can now meet the mandated requirements from all

Defense Department Prime Contractors' supply chain management. "We are confident that as a result of this certification process, Minnesota Wire is capable of meeting the highlevel demands of the aerospace industry," said Mark Thesenvitz, Minnesota Wire Quality Assurance Man-

Minnesota Wire is a vertically integrated, custom manufacturing and development house of wire, cable and interconnect assemblies for the Medical, Defense, Instrumentation and Telecommunications industries. The company is a market and R&D leader in: electrical signal integrity, mitigating triboelectric effects, radiotranslucent wire and innovative connections for wearable electronics, patient monitoring systems and leading-edge medical devices.

The 30,000 square foot headquarters in St. Paul, Minnesota boasts a full R&D and test and measurement center, an Electromagnetic Capabilities (EMC) chamber for electronic precompliance testing and a "wet lab" for its nanotechnology applications. Another high-volume, 58,000 square foot focused-cell, lean production facility is located in Eau Claire,

Wisconsin. MW is ISO 9001: 2008

certified, ISO 13485: 2003 compliant, ROHS compliant, and is a MIL-STD and IPC-620 certified harness manufacturer. For further information contact Minnesota Wire, 1835 Energy Park Dr, Saint Paul, MN 55108 Phone (651) 642-1800. Visit www.mnwire.com

Hand-Held Air-Operated Cutter from Eraser

Model MR30A from The Eraser Company is a Hand-Held Air-Operat-This ergonomically ed Cutter. designed tool uses 85 PSI air pressure and creates 617 lbs. of cutting force. The MR30A is capable of cutting .130ø copper, .110ø steel and .047ø piano wire. Three blade types are available to provide end cuts, center cuts, or diagonal cuts. Also available for use with the MR30A is an optional combination Air Filter, Regulator and Lubricator. For more information, please visit www.eraser.com, or contact Eraser at (800)724-0594 or info@eraser.com.

The Eraser Company, Inc., celebrating over 100 years in business, manufactures a wide range of machinery that enables customers to manufacture, prepare, and process, wire, cable, and tubing products more efficiently, effectively, and profitably. The company is ISO 9001:2008 Certified, and their products can be found worldwide.

For more information on Eraser's entire product line www.eraser.com or call (800)724-0594.

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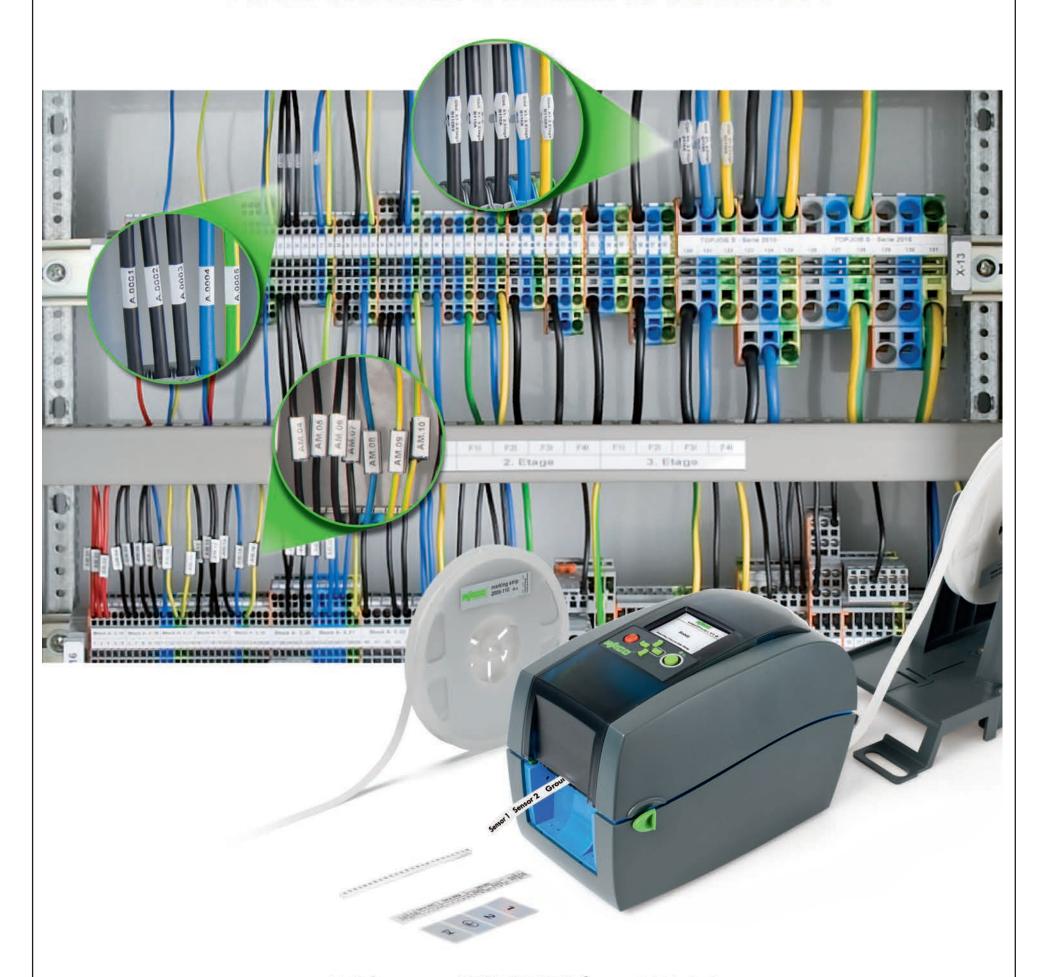
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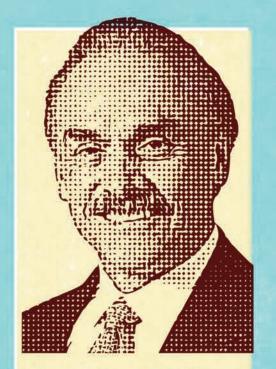




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Digicom Electronics Expands Oakland, California EMS Facility

Digicom Electronics, Inc., a technology and quality driven electronics manufacturing services company, has expanded its facility in Oakland, California in the San Francisco Bay area. In addition to doubling in size, Digicom has added even more advanced manufacturing equipment and additional personnel to increase manufacturing capacity and capabilities. Digicom specializes in complex electronic boards and assemblies for medical device, military, aerospace, and industrial products.

"We moved into this new facility just 3 years ago, but business has grown and we wanted to increase our capabilities and capacity, so we took over the entire building," said Mo Ohady, general manager, Digicom Electronics. "We are excited about the quality and services we can

offer and invite everyone to visit, bring their designs or prototypes, and see for themselves."

The facility has a wallto-wall ESD floor, specialized cleaning equipment and process controls, and an emphasis on green manufacturing. The most advanced component placement, selective soldering, reflow ovens, and automated inspection and test equipment have been added to Digicom's already new and modern operation. All Digicom Electronics' prototyping, purchasing, supply chain management, assembly, manufacturing, and shipping are housed in the expanded building, which is located at 7799 Pardee Lane, Oakland, CA 94621. For more information or to arrange a visit contact Digicom Electronics at +1-510-639-7003, email info@digicom.org, or see our videos, articles, and information at www.digicom.org.

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With new facilities Digicom is able to Increase capacity and manufacturing and assembly capabilities.

AMP-O-LECTRIC MODEL G II TERMINATOR

The Model G II terminator is the latest and most advanced design in the long-standing series of AMP-O-LECTRIC machines for terminating wire using reeled terminals and contacts. This unit is designed and built to continue the tradition of work-horse terminators from TE Connectivity (TE).

The new terminator improves key performance areas for operators. For operator convenience, we've improved access to, and significantly updated, lighting in the under cabinet and target area. A variable speed option was also added to provide more flexibility for those complex applications that benefit from slower ram and feed speeds.



The Model G II terminator is one of the quietest machines available and the improved guarding meets applicable CE and domestic safety requirements. The improved guarding also creates open access for quick and smooth installation of both end-feed and side-feed applicator style.

User Friendly

At the push of a button, you can power the motor on or off, jog forward or reverse, switch to split-cycle operation, turn the work light off or on, power the air feed on or off, or reset the batch counter. And, it's all reported on an LCD display. The controls will also detect and report errors in the machine, and stop cycling when a bad crimp is detected by the CQM II. The operator must then push the reset button to continue. The Model "G II" will accept all existing TE miniature applicators.

Product Features

- · Quiet operation
- Improved guarding and lighting
- Tool-less changeover of applicators
- · Precision manual adjust for crimp height
- · Total and batch counter
- Accepts all existing TE applicators, with minor modifications
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- Standardized 1 5/8 [41.3] stroke
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AMP-O-LECTRIC, TE Connectivity and TE connectivity (logo) are trademarks



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Requires a professional demeanor, integrity, discretion, leadership, persistence and competitiveness. Excellent oral and written communication skills, plus a good working knowledge of computer systems is required. Position involves approximately 50% travel. Please attach a resume with your response.

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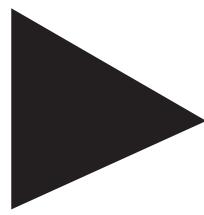
The successful applicant should possess the following qualifications

- Analyze customer drawings and other documentation (BOM) to prepare component cost and labor time estimates for custom cables assemblies.
- Review and recommend the appropriate tooling to be utilized for the most cost effective manufacturing methods for these requirements.
- Write and systematize thorough Bill of Materials and work instructions; verify accuracy during first article build to assure assembly design meets the customer's specifications.
- Work closely with process engineering, component buyer/planners, and manufacturing personnel on (DFM) design for manufacturability issues



Please send resume to HR@LoDan.com or mail to: LoDan Electronics, Inc.

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NRI Electronics, Inc., is seeking a dynamic rep organization responsible for EMS sales to new customers. Seeking a firm with solid long-term relationships with buyers/engineers in the OEM industrial, off-road/construction, agricultural, defense, and medical markets.

Our expertise is in the following areas: low to mid volume turnkey surface mount and through hole assembly, electromechanical box build, and complex wire harness assembly. NRI is ISO 9001-2008 registered and all product is manufactured to IPC 610 and 620 standards. We have been in business for over 38 years, operate out of two facilities in Minnesota totaling 50,000 square feet and have a reputation for consistent quality, value and service.

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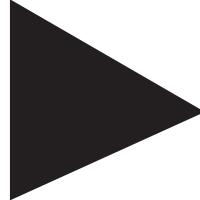
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