

This Issue Features:

- ITAR - International Traffic in Arms Regulations
- Sympathy For a Salesman
- Wire Wisdom - Cost of Wire and Cable Materials
- News Plugs - Introducing the Latest Products in the Industry
- Surplus and Used Machinery, Parts, and Employment Opportunities



CMK Calmer

By Fred Noer

By his own admission, Rick Kugel does not do much work when he is at CMK Calmer, the Wisconsin wiring harness and cable assembly manufacturer he serves as president. Conversely, he is far from a slacker, as he puts in all the hours necessary to assure the company functions smoothly.

Kugel regards how he spends his time on the job differently. "The most challenging part for me is getting com-

ponents and doing accurate projections of what we need," he said. "Whatever you do, it's not going to be right because you overbuy or underbuy.

"That's when it feels like work," Kugel said. "The rest of it is problem-solving, and that's what I find enjoyable."

Kugel, 48, also finds deep satisfaction in providing a comfortable work environment. "I truly and genuinely care about the employees here," he said. "The more enjoyable I can make it here, the better the employees do the work. Happy employees make for a happy business and happy customers.



Dylan Kugel conducting QA inspection.

ITAR

International Traffic in Arms Regulations

By Joe Tito

The U.S. Government has a labyrinth of laws, regulations, and policies that govern the transfer of goods beyond her borders. In order to protect U.S. Security, particular controls govern the transfer of sensitive goods and critical technologies to non-U.S. Citizens. This article serves as a primer to navigating some of these laws and policies, and takes an in-depth look at the International Traffic in Arms Regulations (ITAR). Since it is always of interest to see how these regulations affect the Wire Harness Industry, focus will shift to how St. Claire Technologies structured and implemented their ITAR Compliancy. A brief overview of the Customs Trade Partnership Against Terrorism program C-TPAT will follow, and a list of valuable resources will capstone this analysis.

The Bureau of Industry and Security (BIS) falls under the authority of the U.S. Department of Commerce, and is responsible for enforcing the Export Administration Regulations (EAR). The EAR regulates the export and reexport of most commercial items including electronics. The items that the BIS regulates are commonly referred to as "dual-use" in that they have both commercial and military purposes. These items can

be easily purchased off-the-shelf, but depending on their application, may become controlled by the EAR. The EAR also covers items that are not specifically on the U.S. Munitions List, but may have military applications (GPS, satellite phones, etc.). For the export of such items, a license from the BIS is required.

The Directorate of Defense Trade Controls (DDTC) fall under the U.S. Department of State, and is responsible for enforcing the International Traffic in Arms Regulations (ITAR). Under DDTC rules; any person or company intending to export any defense article, service, or related technical data, must obtain approval (licensing) from the DDTC. In order for such an approval to be considered, a company must be ITAR registered. This registration is primarily a means for the U.S. government to know who is involved in the manufacturing, exporting, or brokering of defense related items. Registration itself does not convey specific export approvals, but is simply a precursor to the issuance of any license or approval. The ultimate goal is to make sure critical technologies do not fall into the hands of rogue nations. Most, but not all, of these critical technologies are spelled out on the U.S. Munitions List which is found in Part 121 of the ITAR legislation.

Continued on page 11

"We've been very customer-oriented since day one," Kugel said. "What our customers need, they get. We go above and beyond. We give attention to detail and react quickly to changing customer needs."

Providing such exemplary service is a staff of 14, several of whom belong to Kugel's family. His father Mel, 75, is the CEO and co-owns the business with his wife Carol, 70. She is the vice president,

office manager and controller.

Kugel's wife Lori, 44, and sister Cheryl, 50, have worked four years as assembly lead persons. His son Dylan, 20, has worked at the company one year and does 90 percent of the wire processing. Kugel's nieces and nephews also are employees.

Marsha Howell is the other key

Continued on page 37

The Next Wave in Wiring

WHMA's 2011 Annual Conference

The 2011 WHMA Annual Wire Conference, will be Wednesday, March 2, 2011 through Friday, March 04, 2011 in San Diego at the downtown Westin Hotel.

This year's event theme is "The Next Wave in Wiring" recognizing that WHMA members are exploring new opportunities - literally around the world. One of the staples of this conference, is the opportunity to meet up close and personal with the leading Suppliers to our industry. They will share their new products and services in the "What's New with Suppliers" session and during exhibit hours over a couple of days. Our

Supplier members can help take your business to the next level.

The conference will also feature sessions on: effectively applying research to take your business in the right direction, new technologies in our industry, how the new health care laws will impact your business, alternative energies and the opportunities they present for you and a re-branding case study on how shifting business trends might require you to rethink your core business.

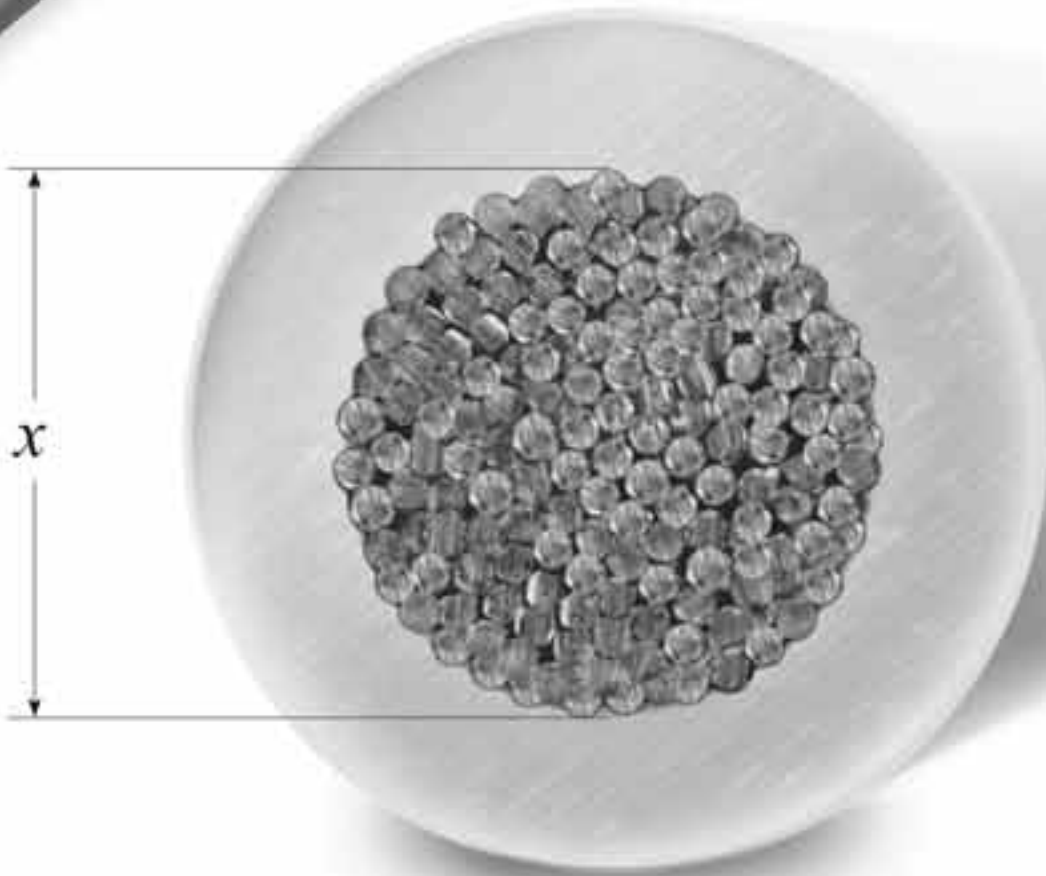
In addition to the programming information found in the invitation this year's event will feature a WHMA Golf outing, a reception on the beautiful San Diego waterfront and plenty to see and enjoy in one of the country's most picturesque and fun cities.

For further information visit www.whma.org or contact Kathy Schlieff at kschlieff@associationsolution-sinc.com or phone (952) 253-6085.

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INSIDE

JANUARY/FEBRUARY
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1 CMK Calmer
One of the keys to keeping this company competitive is being versatile and always changing for the customers' needs.

1 ITAR International Traffic in Arms Regulations
The U.S. Government has a labyrinth of laws, regulations, and policies that govern the transfer of goods beyond her border. In order to protect U.S. Security, particular controls govern the transfer of sensitive goods and critical technologies to non-U.S. citizens.

1 The Next Wave in Wiring
The Wiring Harness Manufacturer's Association 2011 Conference.

4 Sympathy for the Salesman
Salesmen, often underappreciated and unsupported, we should remember the importance of their jobs.

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

23 Wire Wisdom
Cost of Wire and Cable Materials - Costs are influenced by four factors: raw materials, labor, overhead and market conditions.

Classified

- 54 - 55 Machinery, Job Line & Misc.
- 57Calendar of Events
- 58 Advertisers Index
- 58Subscription Order Form

2010 Production Schedule

<u>Issue</u>	<u>Reservations Due Date</u>	<u>Materials Due Date</u>
March/April 2011	February 4, 2011	February 11, 2011
May/June 2011	April 1, 2011	April 8, 2011
July/August 2011	June 3, 2011	June 10, 2011
September/October 2011	August 5, 2011	August 12, 2011
November/December 2011	October 7, 2011	October 14, 2011
January/February 2012	December 2, 2011	December 9, 2011

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Over 10,000 copies of *Wiring Harness News* (ISSN 1097-0789) are distributed bi-monthly to wiring harness & cable assembly shops, cord set manufacturers, companies that process electric wire & cable (including fiber optic) for use in their own products, their suppliers and other interested parties.

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Sympathy for the Salesman

By Paul Hogendoorn



Paul Hogendoorn,
President OES, Inc.

Sometimes I feel sorry for sales people. They get so little “love”. They are often underappreciated and unsupported, especially considering the importance of their jobs. They are held more accountable to expectations than pretty much everybody else in the organization. They have very visible and easily measured objectives – their sales quotas – and the level of their remuneration is often directly tied to that.

Others in the organization have their measurable objectives, or KPI's, but they are not as obvious to the whole company, nor is their impact as immediately felt. Production people can have continuous improvement objectives and production performance bonuses, but the bonus represents a small part of their overall remuneration, and their day-to-day job remains the same. Engineers can have development objectives, but these are often longer term projects, and similar to production people, the success or failure measurements are shared over a larger group of people.

But this is not true for salespeople. Their success or failure is usually theirs' alone, it's visible to all, and it affects how

much money they bring home that month.

Their success (or lack of success) has an almost immediate impact in the company's well-being, but yet, they often remain islands in their companies, enigmas, at best, thought of as “cowboys”, “lone wolves”, or “one man bands”.

The engineering department often dislikes them because (in their opinion) the salesperson overpromises the product's performance. The production department has disagreements with

Continued on page 6

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The Director of the United States Patent and Trademark Office
Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

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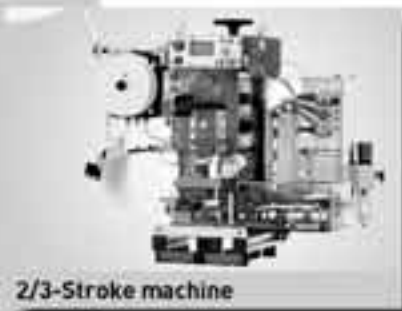
Standard applicator



Stripper Crimper



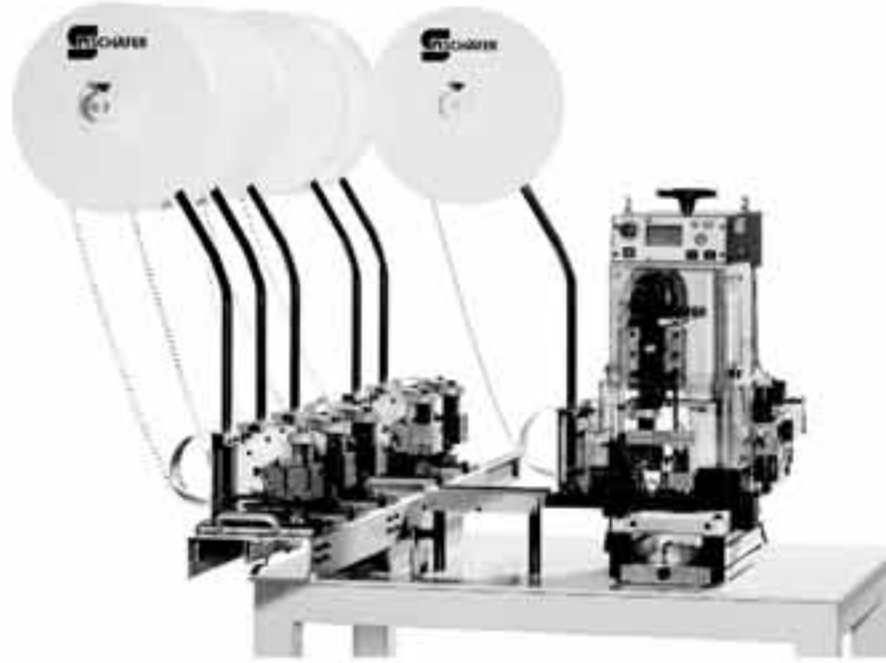
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Sympathy for the Salesman

Continued from page 4

them because the delivery dates are too aggressive. Management wants higher margins, and the administration department is frustrated by the paperwork, or lack thereof. The bottom line is that the salesperson comes into every meeting within the company as the sole voice of the customer, advocating for them for the performance they expect, the price they want to pay, and the delivery date they require. Salespeople have difficult jobs, and often the more successful they are, (i.e. the more business they bring in), the more difficult their jobs. To make matters worse, when they are very successful, the high commissions they might earn sometimes can draw the envious attention of their superiors, which in turn could result in "restructuring" of their commission arrangements.

A couple years ago, this all became clear to me. I had been trying to soothe a number of mounting stresses between one of my company's best sales people and the engineering department - and the production department - and the administration department. It seemed (to them) that he was bringing in nothing but problems that they had to sort out; the product in its current state couldn't do what he promised it could

do, the delivery date couldn't be met without great difficulty, and the paperwork was not in the order the expected. I could sense the sales person's frustration and waning enthusiasm, and called an impromptu meeting of all the various department leaders.

I knew the sales person was bringing in an order for a big and exciting new job. There were stresses, challenges and uncertainties that came with it, but there were significant growth opportunities too. Engineering would be challenged, production would be stressed, and administration would be forced to find ways to make the paperwork work. But I recall that my "guidance" to them in that meeting was very simple and very direct: "when he comes in today with that order, I want you all to meet him at the door and shake his hand, because until somebody walks in with a purchase order, nothing important here happens." There is no need to design something, or produce something, unless somebody wants to buy something, and until then, there's no need for any administrative effort either. Until somebody brings in an order, there's no need for anybody else at all.

Continued on page 9

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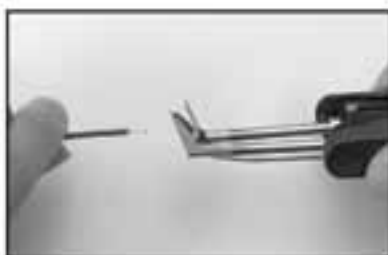
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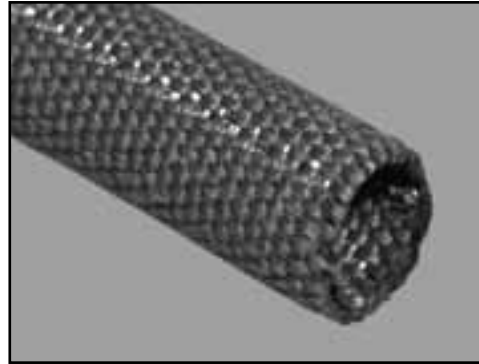
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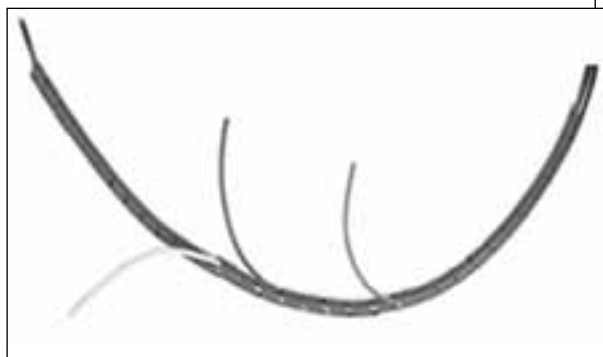
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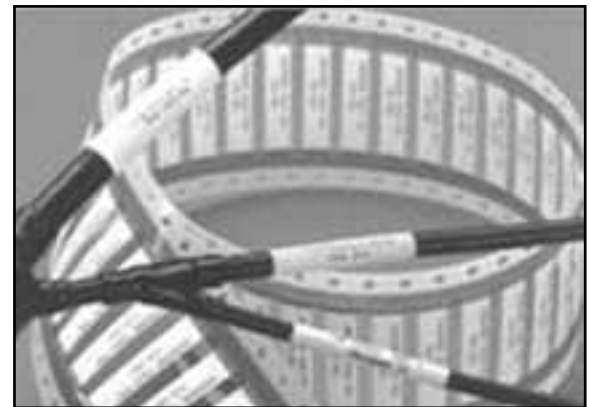
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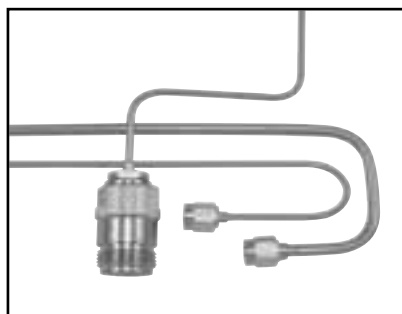
NEWS PLUGS**Semi-Rigid and Formable 50 Ohm Coaxial Cables Offer Customers More Choices, Greater Versatility**

L-com, Inc, a global leader in the manufacture of wired and wireless connectivity products, added semi-rigid and formable style coaxial cables to its product line. Manufactured in the USA, these cable assemblies are made using state-of-the-art equipment and are tested to ensure the highest quality.

"Now we can offer off-the-shelf and even custom semi-rigid and

formable cables, which our customers have been requesting," said Ken Burgner, Product Manager for coaxial products. "In addition to our standard cable types, we can build cable assemblies using semi-rigid low-loss aluminum or copper cable from sizes of .047 to .250 with a wide array of available connector types."

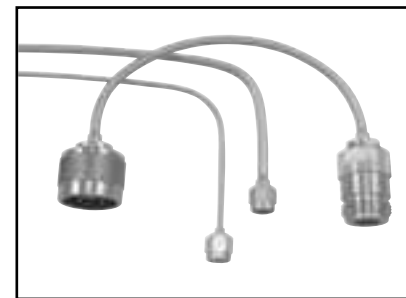
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Semi-rigid cable is a coaxial form using a solid copper outer sheath. This type of coax offers superior screening compared to cables with a braided outer conductor, especially at higher frequencies. The major disadvantage is that the cable, as its name implies, is not very flexible, and is not intended to be flexed after initial forming. This type of cable is also called "hard line" cable.

What is Formable?

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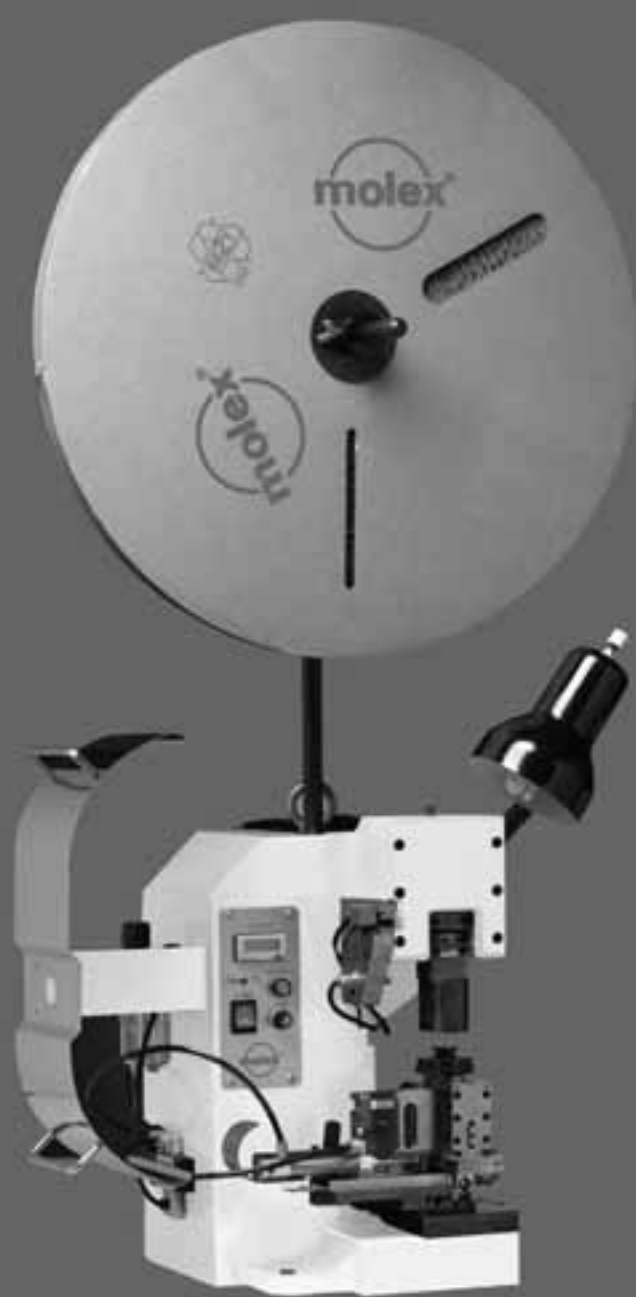
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Sympathy for the Salesman

Continued from page 6

It's very difficult to find true sales people. There are many in sales roles that really prefer the relationship management activities or the project management activities - they may be important people in your organization, but they are not true "sales people". I have come to conclude that there are two definite indicators of a "true" sales person; the first is that they are the people that bring the purchase orders into your building, and the second is that they are the people that most stress your engi-

neering, production and administration people!

If you are fortunate enough to have any of them in your organization, cheer them on and greet them at the door with a handshake and a smile - because until someone walks in the front door with a purchase order, nothing else meaningful happens.

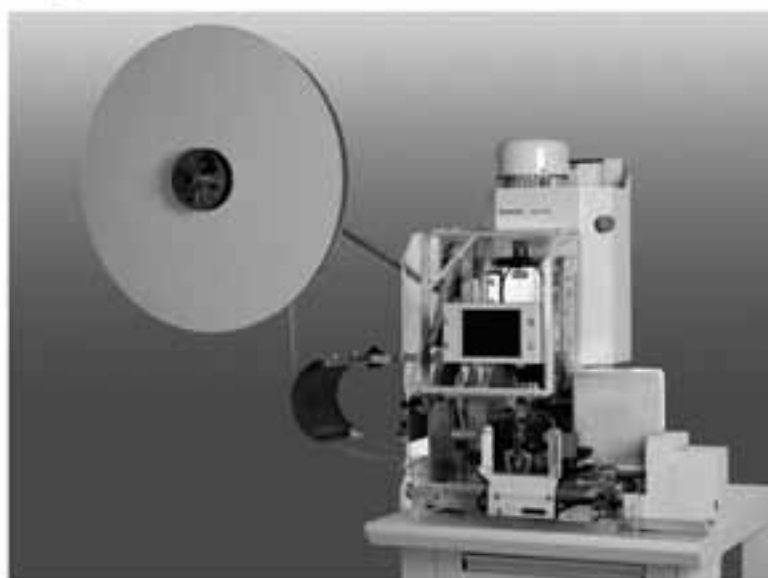
Paul Hogendoorn is president of OES, Inc of London Ontario and OES-A, Inc. of El Paso Texas. He is a founding member of the London Region Manufacturing Council and can be reached at phogendoorn@oes-inc.com

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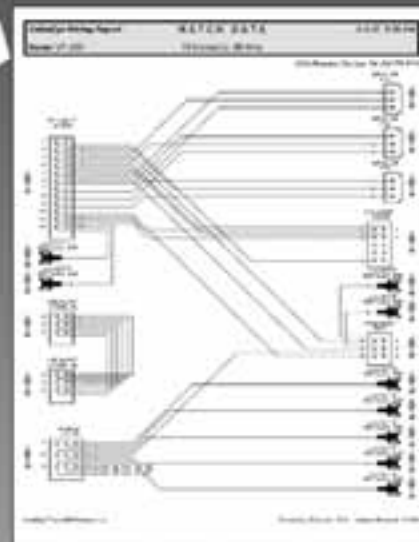
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Delphi Electric Vehicle Charge Coupler with Cable and Charge Inlet Achieve UL Recognition

Successful Completion of U.S. & Canadian Underwriters Laboratories, Inc. Testing Means Components Can Now Be Used in Charging Stations and Vehicle-Side Charging

Delphi Automotive has successfully completed evaluation of its Electric Vehicle

(EV) Charge Coupler with Cable and Charge Inlet under the Component Recognition Program of Underwriters Laboratories, Inc (UL). As a result, the UL Recognized components are now available for use in charging stations and vehicle-side charging applications in the U.S. and Canada.

Delphi's Charge Coupler with Cable is suitable for stationary charging applications, and the Delphi Charge Inlet is a vehicle-side interface that mates to a charging connector to accommodate Level 1 and Level 2 charging of plug-in hybrid electric vehicles (PHEV) and bat-

tery electric vehicles (BEV). Delphi also began selling the previously evaluated UL listed Portable Electric Vehicle Charger earlier this year.

UL is an independent product safety certification organization that has been testing products and writing standards for safety for over a century. Achieving UL Recognition means Delphi's Charge Coupler with Cable can now be incorporated into any charging station in the U.S. and Canada, and Delphi's Charge Inlet can be engineered into electric vehicles in these regions.

According to Randy Sumner, director,

hybrid and electric vehicle development, Delphi Packard Electrical/Electronic Architecture, the component testing for UL recognition is rigorous.

"Achieving UL recognition is a significant step in the development of our EV charging components and an important endorsement of the safety of our products," Sumner said. "Our components also have unique and consumer-driven styling and performance features that will help set charging stations and electric vehicles apart from the competition."

In the research and development phase of its Electric Vehicle Charge Coupler with Cable, Delphi held focus groups to better understand consumer preferences for the shape and size of the charger handle and its overall design in terms of material, shape, and ergonomic features. The focus groups were comprised of current hybrid vehicle owners interested in purchasing an EV or PHEV as their next vehicle. Participants were shown various Delphi interconnect prototypes and design renderings and provided feedback on the styling and functionality they preferred and found to be most comfortable and convenient.

"Consumers are looking to hybrid and electric vehicles as a means to increase fuel economy and lower greenhouse gas emissions for a greener future," Sumner said. "In order for them to become reality, they must be accessible and practical for the average consumer. We believe these charging systems will go a long way toward helping make EV charging safe and easy-to-use for everyone."

Delphi is a leading global supplier of electronics and technologies for automotive, commercial vehicle and other market segments. Operating major technical centers, manufacturing sites and customer support facilities in 30 countries, Delphi delivers real-world innovations that make products smarter and safer as well as more powerful and efficient. Connect to innovation at www.delphi.com.

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Testing will be held at the Frontier Airlines Center in Milwaukee during the 2011 National Electrical Wire Processing Technology Expo. Certifications expiring up to the end of August 2011 may recertify now without losing any time on the current certification. The new expiration date will be the month of current expiration in 2013.

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ITAR

Continued from page 1

It is important to note that multinational companies have specific restrictions under ITAR concerning intellectual property. Intellectual property (formulas, drawings, etc.) is deemed an export when it is transferred or shared with a foreign national employee of a U.S. Company. Transfer can apply to the use of common workplace tools such as computers, emails, and networks; or access to areas where sensitive information can be found. These deemed export controls under ITAR are unique to U.S. export law.

It can be ambiguous to determine if a product should fall under the auspices of EAR or ITAR. As mentioned earlier, not all ITAR controlled items appear on the Munitions List, as they might be technology deemed critical to national security by the DDTC. **Generally, exported items that have a dual use and are not sold to a specific military program, fall under EAR. Items exported to a specific domestic or foreign military program (munitions, military vehicles, etc.) fall under ITAR.** In ambiguous cases, companies can request either a Commodity Classification from the Commerce Control List (EAR) outlined by the Department of Commerce; or a Commodity Jurisdiction Ruling from the DDTC. Using this feedback, they can determine which set of rules apply. Unfortunately, depending on the diversification of a companies prod-

uct offering, there can be instances where both sets of rules apply.

Fees for ITAR registration are on a three tier format. The applicable tier is determined by the number of applications for the previous 12 month period, but initial registration is \$2250. The DDTC section of the U.S. Department of State website should be consulted for specific explanation of the fee structure.

One final important principal that is not spelled out in the ITAR legislation, but is current agency interpretation, is the See Through Rule. Under this rule, the DDTC will 'see through' an item to it's most restricted component. The classification of the whole item or system will be based on the classification of that one component.

ITAR at St. Clair Technologies

St. Clair Technologies is a multinational manufacturer of discrete wire harnesses, panel assemblies, molded connectors, and vehicle lighting systems. Their markets are many and varied, but because some St. Clair products are supplied to the military, they are ITAR certified. Carolynne Hunter, Logistics and Compliance Manager at St. Clair, recently discussed their ITAR experience with The Wiring Harness News. St. Claire had been a participant in the Canadian equivalent, the Controlled Goods Program, since 1997. St. Clair Technologies is a multinational corporation headquar-

Continued on page 12



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ITAR

Continued from page 11

tered in Canada with production in Mexico and Canada, and with engineering and distribution facilities in Michigan and Tucson. Their multinational status and participant in various military programs meant ITAR registration was a must; and St. Clair did so in 2008. The process took about a year.

As ISO and QS are dictated by the automotive market, Hunter considers ITAR to be very much the same for the Military. "We couldn't do business with Ford or GM unless we were ISO or QS and it's the same thing for the military. You really can't do business, at least not legally, without being registered."

In obtaining the initial ITAR registration, St. Clair did not seek outside consultants as some companies do. As a multinational company in many different markets, Hunter acknowledged their existing compliance department was able to handle the task. "We did attend a seminar in the beginning," she revealed, "but overall it's actually a government department that is relatively simple to work with." Because the rules are fairly static, with little open to interpretation, Hunter finds ITAR a straightforward requirement.

This static nature, Hunter reflected, makes it relatively easy to keep abreast of changes to ITAR. She felt strongly that one of the best ways to stay current was through their membership to The Society for International Affairs. Hunter

described SIA as an external lobby group to the Department of State, extremely involved with military programs. She added that the DDTC does a lot of outreach, providing seminars and webinars several times per year. "The education is out there and it's relatively easy once you get in the pipeline of dealing in military programs," she contended.

Overall, Hunter approves of the way the State Department handles the ITAR program. "In all honesty, they've been pretty terrific in facilitating the process. I've been to DDTC seminars where there have been discussions about voluntary disclosures. If you do something wrong, you can essentially fess up and avoid any fines or major repercussions." Because of the strict protocol at St. Clair, however, no such disclosures have been necessary.

Hunter does admit registration was a costly endeavor for St. Clair Technologies. "It's in the same vain as QS certification. You need to do regular internal audits, and there needs to be the same type of ownership within the organization to make sure everybody is following the rules." A great deal of the ITAR expense is record keeping, she advised. "You have to control the technical data along with any specific tooling so those who are not out friends cannot steal it." She added that pursuant to ITAR, St. Clair requires that their customers provide end use certificates to verify the ultimate user is friendly. And, she adds, even seemingly innocuous products like an

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O-ring can fall under ITAR if it ends up on a military product. "The end use agreements, technical assistance agreements, manufacturing licensing, and the various kinds of permits required to move product," she noted, "are the kinds of things requiring a great deal of work to create and manage."

The important thing to remember about ITAR, suggests Hunter, is that it is most restrictive regarding steps taken prior to actually selling a defense related item. "They don't necessarily prohibit U.S. businesses from exporting defense related products; even to countries that are considered 'outside the bubble' in terms of who we trust. As long as you get the appropriate end use certificates and clearance from the State Department, you're good."

And ITAR can be a huge selling point for St. Clair Technologies's customers. "We are obviously interested in enriching the customer experience by taking whatever pressure we can off of them. We go into negotiations with customers saying, we've got this part of the equation under control. Here are our certificates, and these are the people you will be dealing with in compliance." She notes this reassurance makes the selling process much easier.

C-TPAT is a voluntary Department of Homeland Security program designed to build cooperation between exporters and U.S. Customs. St. Clair Technologies feels their ITAR program goes hand to hand with their C-TPAT initiative. "We want to show all levels of government that we have confidence knowing what

is on our trucks, and what is being imported and exported in our name." Participation in C-TPAT helps St. Clair reduce the number of customs inspections and receive priority processing. Hunter reiterated that "while one program is not predicated on the other, we think C-TPAT participation is very important in that it shows we are a responsible member of the trade community."

Carolynne Hunter then provided a brief conclusion to the discussion on ITAR. "Initially, the language of the ITAR legislation can be a bit daunting. Its hard to get to the core of what they really want. But if you remember that it's more about disclosure and control, you will be alright. They want to know what is being transferred and where it ends up. And if you want to export in the defense arena, you really don't have much choice."

Resources:

- The DDTC Homepage of the U.S. Department of State website
- siaed.org (Society for International Affairs)
- export.gov
- CBP.gov
- During the interview, Carolynne Hunter mentioned an daily update on export/import law she receives from James Bartlett, Senior Counsel - Export/Import Law for The Northrop Grumman Corporation. WHN contacted Mr. Bartlett and he is happy to include readers in this valuable daily post. Simply email him at James.Bartlett@NGC.com and ask to be included in the Ex/Im Daily Update.

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NEWS PLUGS continued



Mezalok Connector Offers Fast, Rugged, Super-Redundant Solution for Extreme Environments

Tyco Electronics (TE), the leading global provider of electrical components, connectors, network solutions and specialty products, launched the Mezalok connector – a high-reliability mezzanine connector that more than doubles the speed and durability of competing technology, making it the most viable option for today's military and commercial aerospace applications.

The need for embedded electronic systems in rugged platforms has been continually increasing and driving more

stringent requirements for board-to-board connectivity. TE engineers responded to these needs by developing a super-fast, super-durable and super-redundant mezzanine connector ideal for extreme environments.

"We developed the VITA 61 connector at the request of the rugged embedded community and in support of the aerospace and defense XMC ecosystem," said Greg Powers, market development manager, Global Aerospace, Defense & Marine, Tyco Electronics. "With its M55302 pedigree and refined electrical performance, the Mezalok represents the best in class for mezzanine connectors, further expanding the XMC envelope and allowing designers to leap to the next level."

At 5 GHz+, this rugged, surface mount mezzanine connector incorporates a super-redundant "mini-box" four-point contact system for separable interface and ultra reliability.

LCP plastic housings offer superior thermal stability and are low-outgassing. In addition, compliant BGA board attach supports standard surface mount processing and excellent thermal stability.

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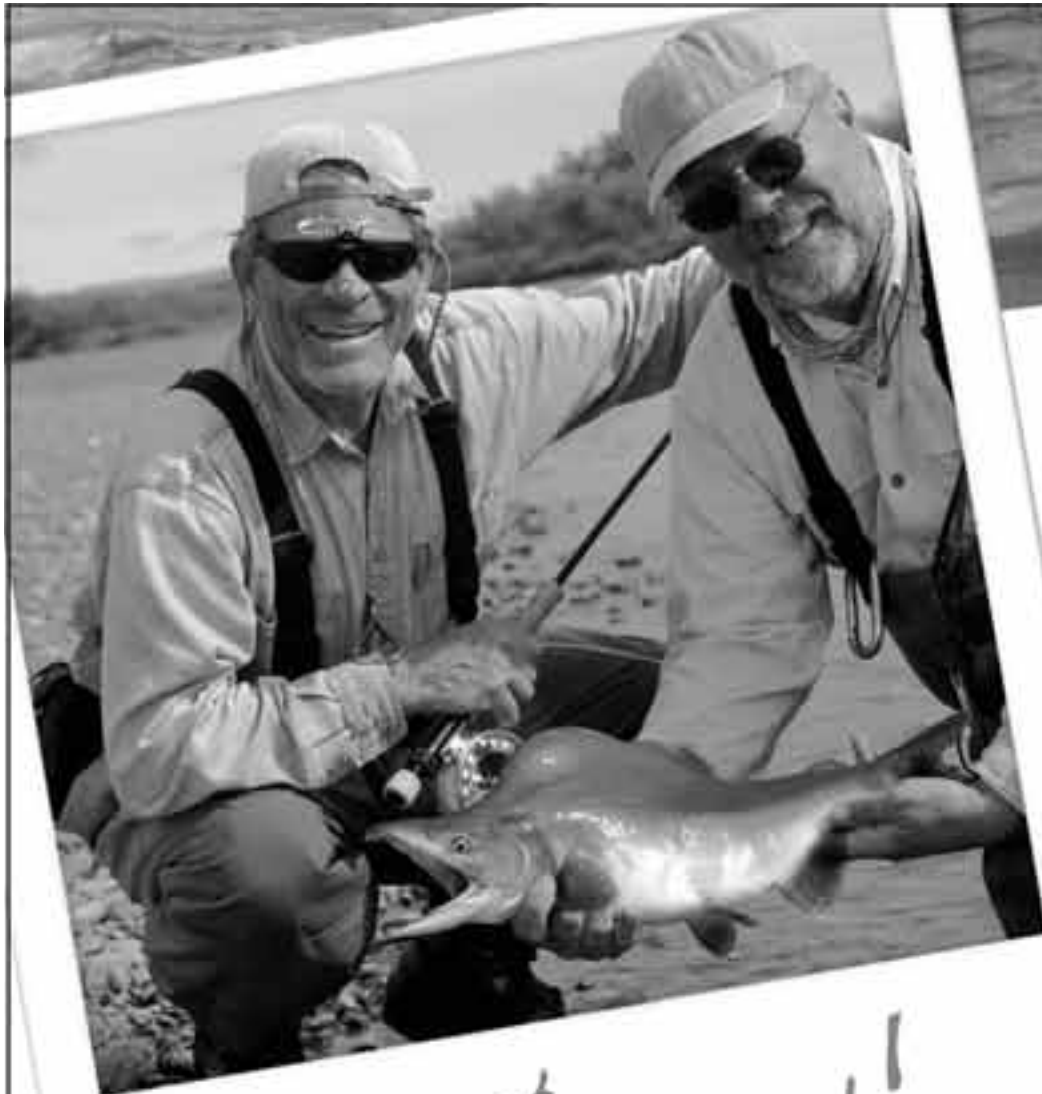
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NEWS PLUGS continued**Eraser Co. to Display Products at the MD&M West Expo: Booth #1745**

The Eraser Company, Inc., manufacturers of wire, cable and tube processing equipment, will display their top quality

industrial processing equipment at the 2011 Medical Device Manufacturing West Expo (MD&M West) from February 8th through the 10th in Anaheim, CA.

This exciting show provides Eraser with the perfect venue for hands-on demonstration of their world-class medical (flexible) tube processing equipment. Visitors will also see Eraser's extensive line of industrial-grade wire, cable and tubing

cutters, wire and cable strippers, wire twisters, infrared heating equipment and material handling equipment. On the spot processing services as well as information on Eraser's free sample processing program, known as Free ESP (Eraser Sample Program) will also be available at the booth.

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tures a wide range of industrial products including wire, cable and tubing cutters, wire and cable strippers, wire twisters, wire brush wheels, dereelers, infrared heating equipment, measuring tools, and fyBrglass® erasers. The company is ISO 9008:2000 certified. The company offers Free E.S.P. (Eraser Sample Program). Send a 10-20 foot sample of your material and Eraser will recommend the best solution for your processing needs from its line of more than 200 products. For more information on Eraser's entire product line visit www.eraser.com or call 315-454-3237.

MRG Announces New Rep Firm for East Coast

Manufacturers Resource Group (MRG), a Massachusetts based Cable assembly contract manufacturer, has announced the addition of Lupton Associates to its domestic sales team to represent MRG in the Eastern seaboard outside of new England as well as Ontario Canada and Colorado. Lupton was specifically chosen as a partner because of its unique ability to provide existing and potential customers with the same kind of value-added service for which MRG is known.

According to MRG Vice President Mark Griffith, "Lupton Associates understands the unique demands of the industries MRG serves, in particular, the military and medical industries, and the need to consistently meet the often competing requirements of design, reliability, schedule and cost". "MRG and Lupton are a good fit because we both excel at bringing both near and long-term value solutions to our customers.", said Griffith. MRG is a UL and CSA approved cable assembly manufacturer as well as ISO 9001 and ITAR certified. They also offer kitting, bonding and supply chain management for their OEM customers. "We welcome inquiries from OEM's seeking assistance with their cable assembly or harness needs. We provide engineering expertise and assistance to insure our customers receive the highest quality and most competitive product available, Griffith said.

MRG is a contract manufacturer specializing in custom cable assemblies, wire harness assemblies, battery pack assemblies, custom medical cables and box builds. MRG can supply the OEM market virtually any

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When it comes to fully automatic seal applicators, you have a few to choose from. Your choices have just grown as Schaefer GmbH has introduced a new seal module or SSM for fully automatic wire process machines.

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The new SSM unit can handle seals in a wider range of sizes and shapes. It is user friendly and will process seals with diameters up to 10 mm and 9 mm in length in its standard configuration. This includes many hard shell seal applications. Optional settings are available for large seals with diameters up to 17 mm and 16 mm lengths. The SSM has many other cost savings options available as well.

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Continued on page 18

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NEWS PLUGS continued



Continued from page 16

type of mechanical or molded cable assembly and specializes in the electronic, electrical, test, battery and medical markets.

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and most competitive product available," said Mark Griffith, MRG Sales Manager.

For more information visit the new site as www.mrg-inc.com or contact MRG, 930 Washigton Street, Norwood, MA 02062.

Homac® Encapsulated Multi-Tap Connector Blocks and Splices Feature Clear PVC for Greater Visibility

The Homac® Encapsulated Multi-Tap Connector Blocks and Splices from Thomas & Betts are encapsulated in clear polyvinyl chloride (PVC), which provides greater visibility for safer, more efficient and more accurate connections. Their versatile design accommodates cable sizes ranging from #14 AWG to 750 kcmil in standard configurations ranging from two to eight conductors. Customized designs are also available.



Homac Encapsulated Multi-Tap Connector Blocks and Splices

The Homac Encapsulated Multi-Tap Connector Blocks and Splices are made from high-conductivity aluminum alloy, and are dual rated for use with aluminum or copper cable. Pre-filled with oxide inhibitor, they are rated at 90° C (194° F)/600 volts, are UL listed, and meet or exceed ANSI C119.4 specifications.

"The innovative designs of the Encapsulated Multi-Tap Connector Blocks and Splices were developed to ensure safe and proper connections," said Mike Cawood, product manager with Thomas & Betts. "As with all Homac connectors, the Encapsulated Multi-Tap Connector Blocks and Splices also are subjected to rigorous quality assurance standards."

For more information about Thomas & Betts' Homac Encapsulated Multi-Tap Connector Blocks and Splices, visit www.tnb.com or call (800) 816-7809.

IPC Releases Revision A to IPC-2222 Design Standard

IPC — Association Connecting Electronics Industries® has released the A revision of IPC-2222, Sectional Design Standard for Rigid Organic Printed Boards. Helping developers avoid common missteps that reduce board manufacturability, IPC-2222 has been expanded to include more information on board materials, such as relative costs, tolerances of board thickness, unsupported holes, and hole aspect ratios.

One of the biggest changes to the document is the addition of a listing of the positives and negatives of popular materials along with some of their performance characteristics. "Having the advantages and disadvantages of common laminates spelled out will help printed board designers select a suitable laminate material," explains John Perry, IPC technical project manager.

Continued on page 20

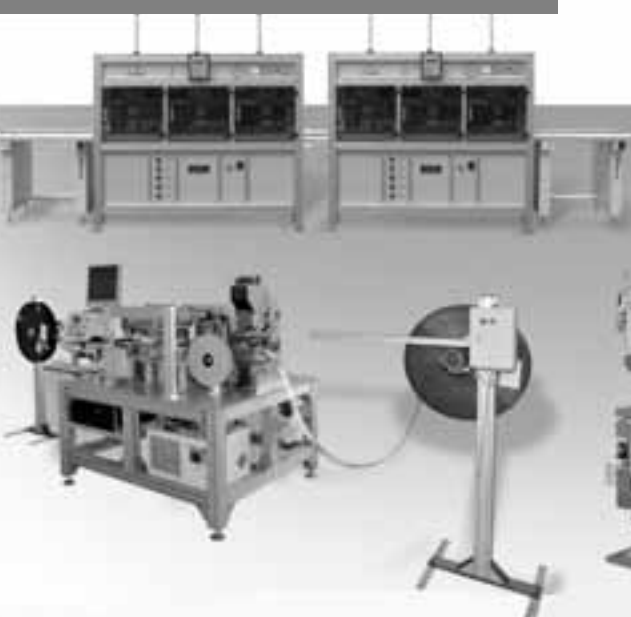
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NEWS PLUGS continued

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Continued from page 18

This information is provided in the form of a comparison table that also includes CTE (coefficient of thermal expansion) data, dielectric constant, and Tg.

Data on the relative cost of materials as well as their capabilities in terms of dimensional stability, material consistency and other special processing has also been added to this table. "We wanted to provide designers with guidance on laminate materials availability, relative cost,

reworkability, moisture stability and suitability for lead-free applications," says Perry.

Another new facet is the inclusion of data that provides guidance for the tolerances of printed board thickness, an area that hasn't been addressed by the IPC document in many years. Helping designers address concerns about dimensional stability, the measurements are based on laminate to laminate thickness. The tolerances provided do not include any finishes or coatings and can help users avoid problems such as bowing or twisting.

Guidance on nonfunctioning lands, which can pose problems in multilayer boards, is now a part of IPC-2222A. "We provide a table that explains why you may want to keep

or remove nonfunctioning lands," Perry says. "For example, if a number of nonfunctioning lands are removed from a board with many layers, inner layers may separate during z-axis expansion, causing reliability concerns."

The standard also examines supported and unsupported holes. Tolerances are provided for diameters of unsupported holes, such as those used to provide clearance for mounting hardware. There's also a guide for the aspect ratio of holes. This latter section provides guidance on the ability to produce holes of specific diameters in relation to the thickness of the printed board. "Aspect ratio plays a key part in the ability of the printed board fabricator to provide sufficient plating along the barrel of a plated hole," Perry said.

Designers who use IPC-2222A can help ensure that the boards they design will meet requirements when the boards are manufactured. "End boards usually have to meet the requirements of IPC-6012, Qualification and Performance Specification for Rigid Printed Boards. If a board is designed according to IPC-2222A specifications, the designer should have confidence that the board will meet IPC-6012 requirements," Perry says.

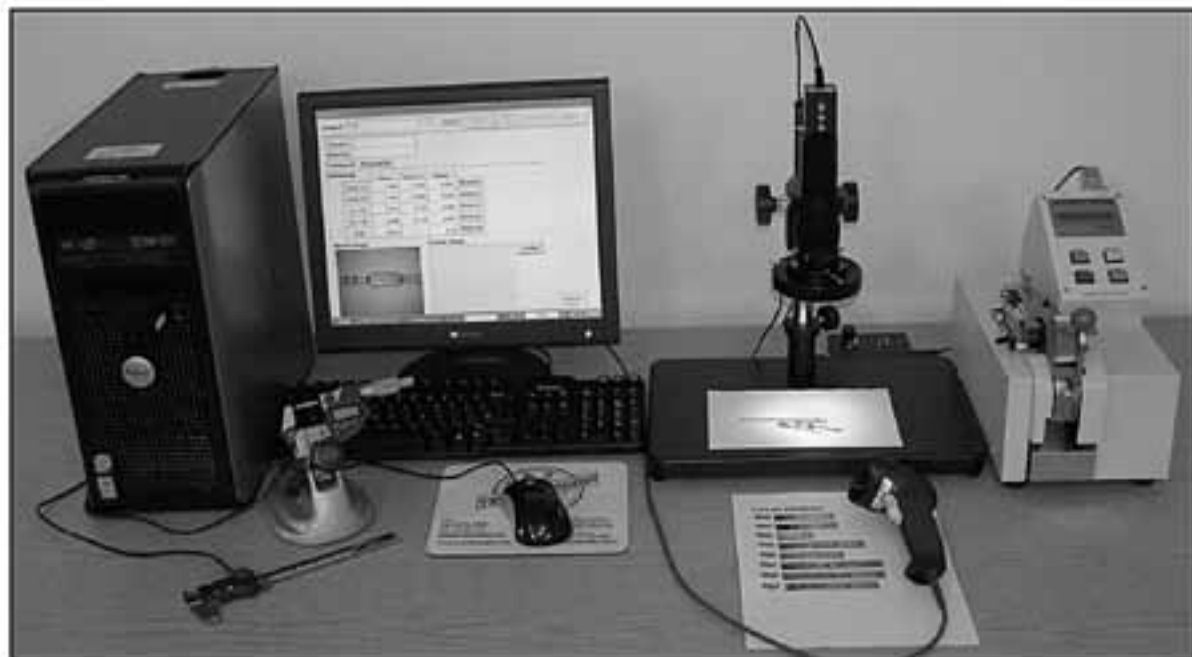
IPC members may request a free single-user download of IPC-2222 by sending an e-mail to MemberTechRequests@ipc.org within 90 days of the document's publication date. After that date, IPC members may purchase the standard for \$36. The nonmember price is \$72.

For more information or to purchase IPC-2222A, visit www.ipc.org/2222.

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First the operator scans the circuit number, his worker number and the machine number. The target crimp specs and master image are recovered from the hard drive and displayed. Using current production samples the operator measures the conductor and insulation crimp heights and widths. The operator measures the pull force. The operator captures an image, either cross section or terminal image. When finished the data is stored in Excel.

Set Up Master ver 1.22

Circuit # WXYZ [Release] [Print Chart] [Report Data] [Master Maintenance] [Quit]

Dimension	Target	Target +/-	Actual	Measure
Cond. CH	0.033	0.002	0.034	Measure
Cond. CW	0.070	0.002	0.071	Measure
Ins. CH	0.080	0.005	0.080	Measure
Ins. CW	0.088	0.005	0.088	Measure
Pull	20.00	---	31.18	Measure

Master Image [Shutter] Sample Image

Save Into Excel



Scan the circuit number, operator number and machine number



Measure conductor and insulation crimp heights



Measure conductor and insulation crimp widths



Measure pull force



Capture cross section image or terminal image



cross section images or terminal images can be captured

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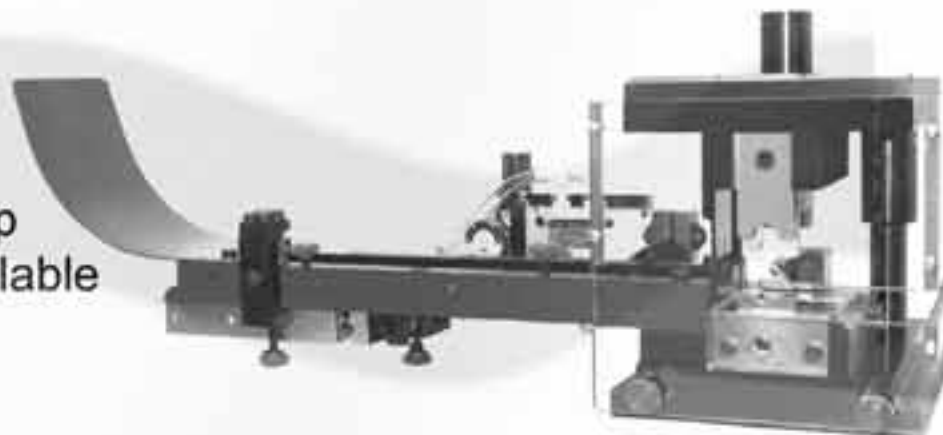


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NEWS PLUGS continued



New Amphenol KTK Connectors Ideal for Oil and Gas Drilling Applications

Amphenol Industrial, a global leader in interconnect systems, now offers a line of high pressure, rugged connectors for oil and gas downhole tools that feature a bi-directional psi of 20,000. Fully compatible with Kintec and GE Tensor layouts, the new KTK high pressure downhole connectors offer a high pressure and high temperature sealed connection standard in the downhole industry.

These well-constructed, reliable connectors are ideal for use in MWD

(measurement while drilling) systems, LWD (logging while drilling) tools and downhole batteries. Because these assemblies provide service companies with critical information such as drillstring rotational speed and smoothness, type and severity of downhole vibration, downhole temperature, drill bit torque and weight and mud flow volume, reliable connectors that withstand harsh conditions are paramount in oil and gas drilling.

Amphenol's KTK connectors are cost-effectively utilized in applications that require low-maintenance, accurate and reliable assemblies, while being flexible and limiting risks associated with in-hole loss.

Designed to meet the rising demand for more rugged connectors in the downhole industry, the new



Amphenol KTK Connectors

KTK downhole connector product line uses machined PEEK polymer, a strong thermoplastic that retains its mechanical properties in extremely high temperatures.

For longer life and prolonged mating cycles, each connector is designed with gold contacts, a Viton O-ring and solder pot connections. Cable assemblies and pigtailed are also available.

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IEWC Announces New Managing Director for Peter Augsten

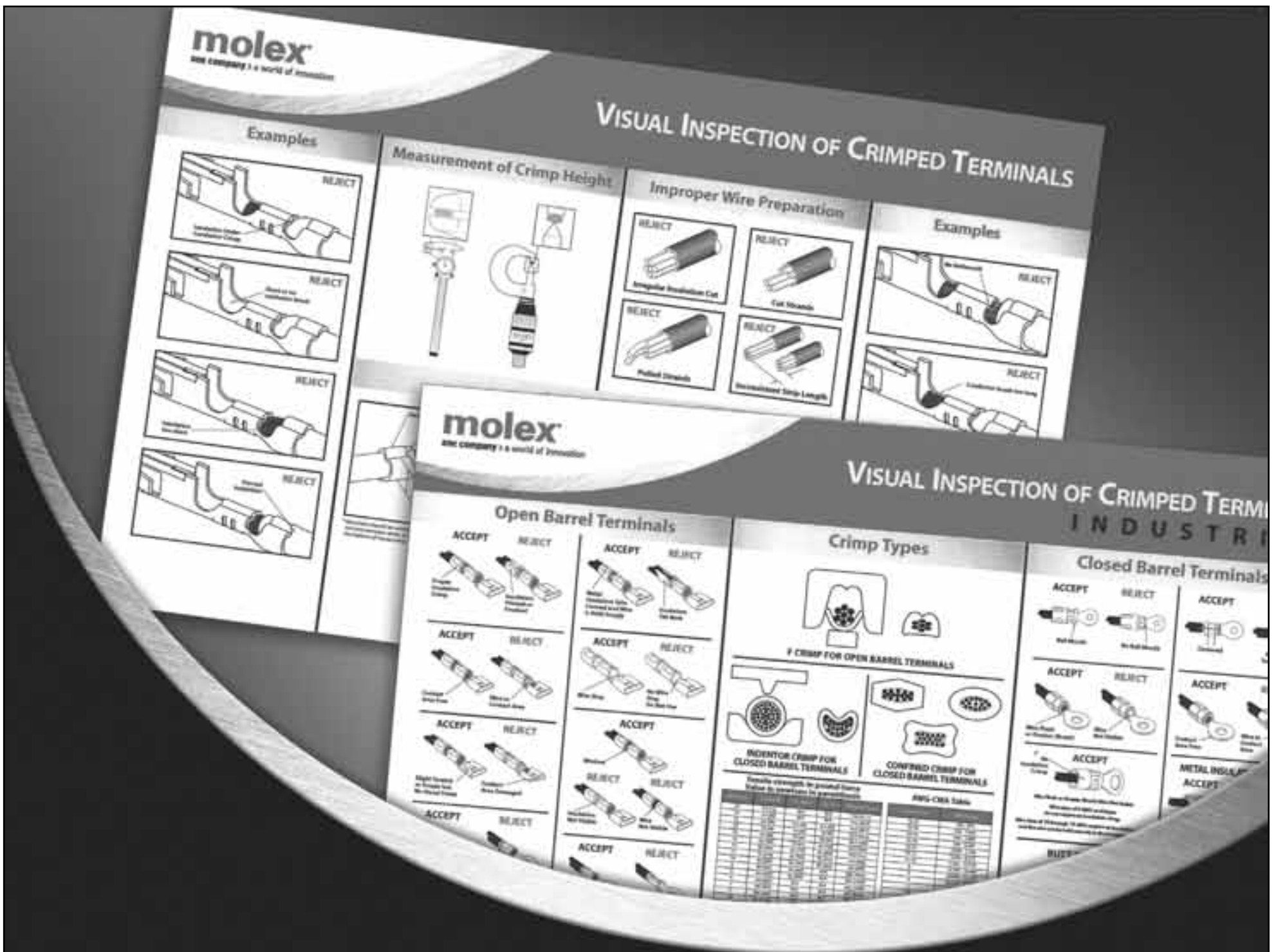
IEWC EMEA Managing Director, Cory McFarlane has selected Oliver Heberling to the role of Managing Director for its subsidiary, Peter Augsten wire & cable GmbH, effective January 1st 2011.

Mr. Heberling came to Peter Augsten in 1998, beginning in the role of Account Manager and later serving as Sales Center Manager (Prokurist). In both of these roles, he has been involved in many aspects of Peter Augsten's business, including administrative duties, account management and business development. He takes over for the departing Gerald Mueller, who both hired and trained him.

Mr. Mueller will continue to support Peter Augsten in a consultant capacity. Peter Augsten is a specialty distributor of wire, cable and wire management products. The company was acquired by IEWC in 2008 and, along with UK & Ireland, makes up IEWC's activities in the EMEA region. IEWC Corporate President & CEO, David Nestingen, states, "Oliver has been with Peter Augsten for 12 years and is an integral part of that team. The highly service oriented business model of Peter Augsten is something that Oliver will carry forward."

Mr. Heberling can be reached at +49 6175 7979 01 or via e-mail at heberling@iewc.com.

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NEWS PLUGS continued**TELSONIC Acquires
SonicSolution Systems**

In an effort to expand its global marketing activities in the field of ultrasonic metal welding, Telsonic Holding AG of Switzer-

land, a manufacturer of Ultrasonic welding equipment has acquired SonicSolution Systems (S3) of Massachusetts. This decision elevates the close collaboration between the two companies to the next level, and further enhances the global support of customers with challenging applications, culminating in the establishment of an even stronger technical team.

Ever since it was first founded in 1966, the core competency of TELSONIC has

been in the field of ultrasonic technologies. The company has been active in providing innovative ultrasonic solutions for a variety of industries. Recognition of the challenges and the limitations in today's metal welding applications, have led to further investments by TELSONIC in this unique joining technique. By utilizing the spirit of innovation and the long held technologies, the global team of metal welding experts at TELSONIC is poised to meet the demands of growing markets such as the automotive industry. With High Powered systems and unique Torsional welding technology, the TELSONIC Group has expanded the metal welding spectrum, facilitating the joining of various materials, sizes and geometries previously outside the capabilities of Ultrasonic Metal Welding.

Saeed Mogadam, who is the co-founder of SonicSolution Systems, will remain as the president and CEO of the new TELSONIC Subsidiary in Massachusetts, which will be operated under the company name TELSONIC Solutions. Saeed Mogadam's involvement in ultrasonic metal welding technology started at Delphi Packard, followed by 23 years at the helm of STAPLA Ultrasonics Corporation. Rooted in technological advances and guided by the pioneers of ultrasonic metal welding, SonicSolution Systems was established in cooperation and close collaboration with TELSONIC. The team at S3 has extensive experience in the field of ultrasonic metal welding, serving various industries for several decades encompassing the Americas.

Through its subsidiaries and joint ventures or agencies in China, India, UK, Germany, Serbia, Michigan / USA, and now in Massachusetts, the TELSONIC group will continue to expand its innovative solutions, superior products and reputable services in the field of ultrasonic metal welding.

For further information contact Saeed Mogadam, TELSONIC Solutions, 10 Ossipee Road, Suite 203, P.O.Box 38, Newton Upper Falls, MA 02464. Phone (617) 527-1844 or email smogadam@ultrasonicsolution.com. Visit www.ultrasonicsolution.com.

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Allied Wire & Cable Expands to Las Vegas, NV

Allied Wire & Cable announces the opening of its new stocking location in Las Vegas, Nevada. The new location provides an opportunity to improve customer service and support for west coast customers, in addition to employment opportunities for the Las Vegas area.

Allied Wire & Cable officially opened the doors to its new 16,000 square foot Las Vegas stocking facility on December 1st. The facility stocks some of Allied's core wire and cable items, used in a wide range of industries and applications. Hook up wire, mil-spec wire, and portable cord are just a few of the products stocked in the new Vegas inventory. But additional stock isn't all the new warehouse has to offer. Soon, the Vegas facility will also have the capability to perform the same major value-added functions and customization services as the Allied Headquarters in Pennsylvania, including striping, dyeing, and more. These services give clients the opportunity to get their wire and cable in the exact form they need it.

Despite recent nationwide economic hardships, Allied continues to expand and is excited to open its new facility which will provide much-needed job opportunities to the Las Vegas community. The Allied mantra, "common sense, not dollars and cents" rings true in the company's expansion. The Las Vegas location is viewed as an opportunity to serve a new community and to improve support for customers in the area. As a family-owned and operated business, the new location was created to service what Allied considers the lifeblood of its business: people.

Manager of the new facility and former Warehouse Manager at the PA headquarters, Rick Gaines, shares his enthusiasm for the new location and the opportunities it provides.

He says, "As a 16 year

employee, I have seen firsthand the dedication and hard work put forth by our owners toward the continued growth of our company. We are looking forward to providing our customers in Canada, Mexico, and the western United States with the same Grade A quality and quick turn-around we have become famous for."

Allied is excited to increase its presence in the western U.S. and looks forward to providing additional support and service to this part of the country. One of the many benefits of the new location is Allied's new ability to provide 1-2 day shipping anywhere in the continental United States.

Allied Wire is proud of its growth and is happy to be a part of the Las Vegas community.

Allied Wire & Cable is one of the largest privately owned value-added manufacturers and distributors of electrical wire and cable products in the United States. Family owned and operated since 1988, Allied services many of the largest industries in the country, from the government and the military to aerospace, automotive and telecommunications. Allied supplies all the wire, cable, tubing and accessory needs of these industries and more everyday.

Headquartered in Collegeville, PA, Allied has offices in Florida, New Hampshire, South Carolina, Tennessee, Texas and Wisconsin, along with several warehouses across the country. For more information on Allied Wire & Cable, please visit www.awcwire.com.



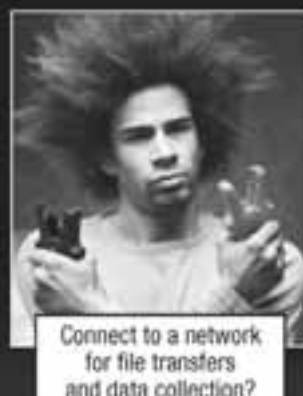
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NEWS PLUGS continued**New Portable Plotter from Weidmuller**

Weidmuller expands their marking systems printing capabilities with the new MCP Basic Plotter. This latest generation

plotter complements the Weidmuller MultiCard identification markers for terminal blocks, wires, cables and other electrical equipment. The MCP Basic features are similar to the MCP Plus Plotter— it uses plotter technology, is compatible with Multi-Card marker formats, and works in conjunction with Weidmuller's dynamic M-Print Pro® software. Lighter and smaller than the MCP Plus, the new MCP Basic also features portability. It comes with a travel

case for easy transport and storage, making it an ideal choice for customers with low volume or on-site printing requirements.

Easy and quick to operate, the compact and lightweight MCP Basic satisfies the needs of low- to medium-volume users who print smaller quantities of markers. In addition to printing full or half cards as required by other printing systems, the MCP Basic also prints partial MultiCards. Its special positioning frame can hold up to three MultiCard types at a time and, when used in conjunction with an optional wire marker inlay or frame, can effortlessly print over 160 MultiCard varieties. An optional MCP-Label positioning frame makes it easy to transition from printing custom tags and markers to printing paper and polyester labels.

The MCP Basic easily connects to PCs or laptops via a USB port and comes with the updated plotter controls featured in the newest version of Windows-based M-Print Pro® software. M-Print Pro® optimizes the process for marking electrical equipment by allowing users to design, import, print and order marking materials. This user-friendly software program is compatible with every Weidmuller printing solution. Customers can use a single program for all their custom print requirements, from Weidmuller's thermal labels to terminal, device and wire markers.

The MCP Basic comes complete with many standard features. A pen depot with sealing rings allows storage of up to 2 plotter pens directly on the machine. The plotter also includes a universal power



Weidmuller's New MCP Basic Plotter

pack (110VAC/240V, 50-60 Hz), software CD, cables, frame, marking pen and manuals for both the hardware and software. The heavy-duty case is equipped with wheels and handle, and offers easy storage and transport. Please visit the new product area at www.weidmuller.com for more information on the new MCP Basic Plotter.

Weidmuller is a leading provider of solutions for the transmission of power, data and control signals in industrial environments. The company develops, produces and sells industrial electronics, network infrastructure components and connectivity solutions such as Wireless Solutions, Industrial Ethernet, Relays, Power Supplies, I/O modules, printed circuit board connectors, terminal blocks and complete DIN Rail assemblies. The Weidmuller group has a strong international focus with manufacturing and sales locations in over 70 countries.

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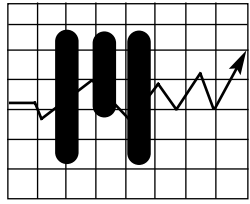
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NEWS PLUGS continued

Mouser Launches Tyco Electronics LCD Coaxial Embedded Display Interface (LCEDI) Connectors

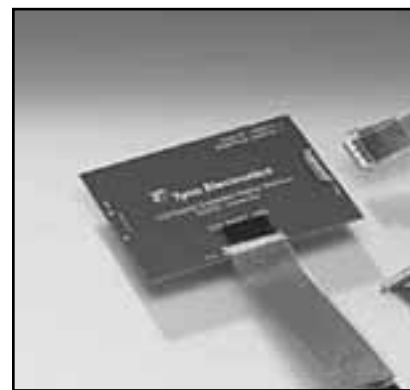
Mouser Electronics, Inc., known for its rapid introduction of the newest electronic components and technologies, today announced it is stocking Tyco Electronics' next generation LCD Coaxial Embedded Display Interface (LCEDI) family of connectors designed to provide exceptional electrical performance in both low-voltage differential signaling (LVDS) and embedded DisplayPort (eDP) applications.

The connectors provide an interconnection between a notebook LCD panel and a main processor board using micro coax cable or discrete wire at speeds of 2.7Gbps. The ultra-low profile mating configuration offers a user-friendly friction lock mechanism at the shell when mated, or an optional full lock mechanism with pull bar. The Tyco Electronics LCEDI connectors are licensed by I-PEX CO., LTD. and are fully compatible and intermateable with the I-PEX CABLINE-VS connector series, recently selected by VESA (Video Electronics Standard Association) as

the global standard for LED backlight, wide panel (16 x 9) interface. To learn more, visit www.mouser.com/telcedi/.

With its broad product line and unsurpassed customer service, Mouser offers customers across the globe the latest, most technologically advanced components for their newest design projects. Mouser's rapidly expanding international presence was recognized with Elektra's 2010 European Distributor of the Year Award. Mouser Electronics' website is updated daily and searches over 6.7 million products to locate over 1.8 million orderable part numbers available for easy online purchase. Mouser.com also houses an industry-first interactive catalog, data sheets, supplier-specific reference designs, application notes, technical design information, and engineering tools.

A wholly-owned subsidiary of Berkshire Hathaway, Inc., Mouser Electronics, Inc. is a semiconductor and electronic component distributor, focused on the rapid introduction of the newest products and technologies to electronic design engineers. Mouser.com features more than 1.8 million products online from more than 400 manufacturers. Mouser publishes multiple catalogs per year providing designers with up-to-date data on the components now available for the next generation of electronic devices.



Tyco Electronics LCD Coaxial Embedded Display Interface (LCEDI) Connectors

Mouser ships globally to over 300,000 customers in 170 countries from its 492,000 sq. ft. state-of-the-art facility, south of Dallas, Texas.

For more information, visit <http://www.mouser.com>.

Tyco Electronics Ltd. is a global technology company with fiscal 2010 sales of US\$12.1 billion to customers in more than 150 countries. We design, manufacture and market products for customers in a broad array of industries including automotive; data communication systems; consumer electronics; telecommunications; aerospace, defense and marine; medical; energy; and lighting. With approximately 7,000 engineers and worldwide manufacturing, sales and customer service capabilities, we are a recognized leader in many of the industries we serve. More information on TE can be found at www.te.com.

Staying Focused on Your Core Competency is Crucial

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With **265 locations in 52 countries** and **more than \$900 million of inventory**, Anixter is a global leader in the distribution of electrical and electronic wire and cable, industrial automation products, network cabling solutions and supporting products. Anixter's unparalleled industry expertise and highly trained sales specialists can help you find the best solutions for all of your product and service requirements.

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

Cost of Wire and Cable Materials

Wire and cable costs can vary significantly from product to product and sometimes from day to day. In general, costs are influenced by four factors: raw materials, labor, overhead and market conditions. Of these contributing factors, labor and overhead are two of the most stable components, while raw materials and market conditions can sometimes fluctuate wildly. To better understand how wire and cable costs can fluctuate, this Wire Wisdom will examine the role raw materials have on the cost of wire and cable.

Raw Materials Used in Wire and Cable

The primary purpose of wire and cable is to deliver energy or a signal in the form of electrical energy. This is typically accomplished using a metal conductor such as copper or aluminum. Other critical components are the insulating and jacketing compounds, shields, armors and filler materials.

Conductor Costs

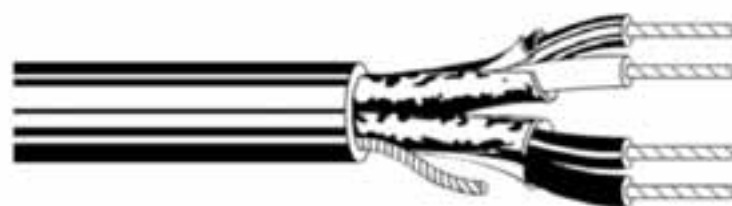
Both copper and aluminum are considered industrial metals, and they have historically been influenced by the prices on the global commodities markets. Both are priced in U.S. dollars and can sometimes swing more due to cur-

rency changes than due to supply and demand forces. In more recent years, the financial markets have had as much of an impact on the price of these metals as the industrial demand for them. Copper is the primary conductor of choice in most applications (except for power transmission lines). Copper's volatility in 2010 has gone as low as \$2.75 per pound and as high as \$4.10 per pound.

Compound Costs

Insulating and jacketing products typically consist of plastic or rubber compounds, with a variety of materials available to wire and cable users. Within each family of compounds, there are a wide variety of characteristics and quality levels. PVC can be made to be flexible, rigid, flame resistant or oil resistant. It's precisely this wide variety of formulations that can cause such a wide price range. The cost of PVC that a cable manufacturer pays can range from \$0.60 per pound up to as much as \$2.50 per pound or more. Factor in the alternative compounds used to replace PVC and that cost range can more than double again. At the extreme end of cost, some premium fluoropolymer-based compounds may cost more than \$20 per pound.

Legislative requirements are also having a significant influence on compound costs. As the environmental movement sweeps the globe, so does legislation



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Motorized WTTM-110/220



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Automatic Simplicity... Set the adjustable pull speed, load the wire and close the protective cover. The test runs automatically with the peak "pull-off" force stored on the display at completion.

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- 7 selectable pull speeds from 1 inch per min (25 mm per min) to 10 inches per min (250 mm per min).
- 2 capacities: 100 lb/50 Kg/500 N for wire sizes AWG 12 to 28 and 220 lb/100Kg/1000N for wire sizes AWG 8 to 28.

Manual WTT-110

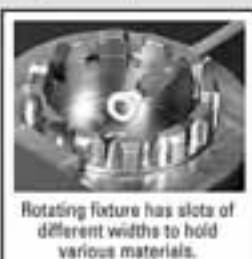
The WTT-110 is easy to use: Simply insert the wire into the appropriate slot in the terminal fixture (12 slots accommodate a wide range of sizes). Select the Peak-Hold or Continuous Measurement mode via the keypad. Then rotate the easy-glide lever clockwise, clamping the wire and creating a consistent, repeatable pull force with minimal effort.



Fast, Accurate, Repeatable and Very Easy To Use

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Rotating fixture has slots of different widths to hold various materials.

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that impacts the substances used in the insulating and jacketing compounds. REACH and RoHS are two of the most commonly known legislative requirements. With many low-cost, high-performance substances being restricted on a near international scale, compound formulations are changing rapidly. In most cases, the changes are resulting in increased costs as the environmentally friendly alternatives are less available and more costly. In addition to being more costly, they drive up the cost of the finished product as they usually require the product to be retested and requalified to applicable standards.

Impact of Other Raw Materials on Total Cost

The shields, armors and fillers used in cable also have an impact on the cost of a wire or cable, although not as broad an impact because they aren't used in every type of wire and cable. The same metal volatility that affects copper and aluminum also impacts shields and armor, and the fillers, which are usually made of a polymeric compound, suffer from the same influences as the insulation and jacket materials.

Understanding the Impact of Raw Materials

Raw materials constitute anywhere from 25 percent to 90 percent of the cost of a product. The influence material cost has on a particular product depends on many factors. More complex products, that require significant engineering, design and manufacturing complexity often have a very low material cost influence. However, simple products or products requiring minimal manufacturing expertise can often have a large raw material cost component. These products are often more affected by volatility in raw material costs than complex, highly engineered products.

When planning for projects or specifying wire, understand that its cost is influenced by many factors. The metal content of a wire can have a significant impact on its cost as the global financial markets can cause wild swings in commodity prices. A better understanding of raw material costs can help in planning, designing and buying the correct wire and cable products.

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NEWS PLUGS continued

Caterpillar to Open Facility in Thailand to Produce Underground Mining Machinery

Caterpillar Inc. (NYSE: CAT) announced that it plans to open a new manufacturing facility in Thailand. The company will break ground on the new factory in early 2011, with production scheduled to begin in late 2012. The facility will produce a full range of underground mining articulated trucks and loaders, which are used by Caterpillar customers around the world in hard-rock underground mining applications.

"We continue to make strategic investments in our mining business to support our customers," said Chris

Curfman, President of Caterpillar Global Mining and a Caterpillar Inc. Vice President. "We are pleased to announce our first manufacturing facility in Thailand, which will increase our capacity for our existing range of underground mining machinery, particularly as we sharpen our focus on meeting long-term customer demand in growth markets."

The 60,000 square meter (645,000 square feet) factory will be located at the Hemaraj Rayong Industrial Land in Rayong Province. The new facility will increase the current production of underground mining products produced by Caterpillar in Australia and Brazil to respond to the growth in demand. Once the facility in Thailand is fully operational and at full capacity, it is expected to employ about 800 people.

"The on-going infrastructure development plans for the world's

growth markets combined with a long-term trend toward urbanization and growing wealth in emerging economies should continue to help drive long-term demand for commodities," said Steve Wunning, Caterpillar group president with responsibility for Resource Industries. "This facility will help to position Caterpillar for continued leadership in the mining industry."

More information is available at: www.caterpillar.com.

Powerful CMO Stereo Zoom Microscopes

CT Vision Engineering is pleased to announce they have added two powerful CMO (Common Main Objective) stereo zoom microscopes to their range of high quality optical inspection solutions, ideal for laboratory observation and dissection applications.

Vision Engineering is a world leader in optical solutions, designing and manufacturing a wide range of microscopes from their award winning 'eye-pieceless' Mantis stereo microscope, to their inverted DX61 with brightfield, fluorescence and phase contrast. With a range of laboratory microscopes utilized in laboratories around the world, Vision Engineering manufactures microscopes with superior optics for use in a wide range of applications from stem cell research through to cell harvesting.

The SX80 and SX100 stereo zoom microscopes are the latest solutions from Vision Engineering and are designed to provide high quality optics at an affordable price. Providing up to x256 magnification with 8:1 zoom ratio the SX80 is ideal for a range of applications with extra long working distances, making reworking samples / components easier with the additional space under the objective.

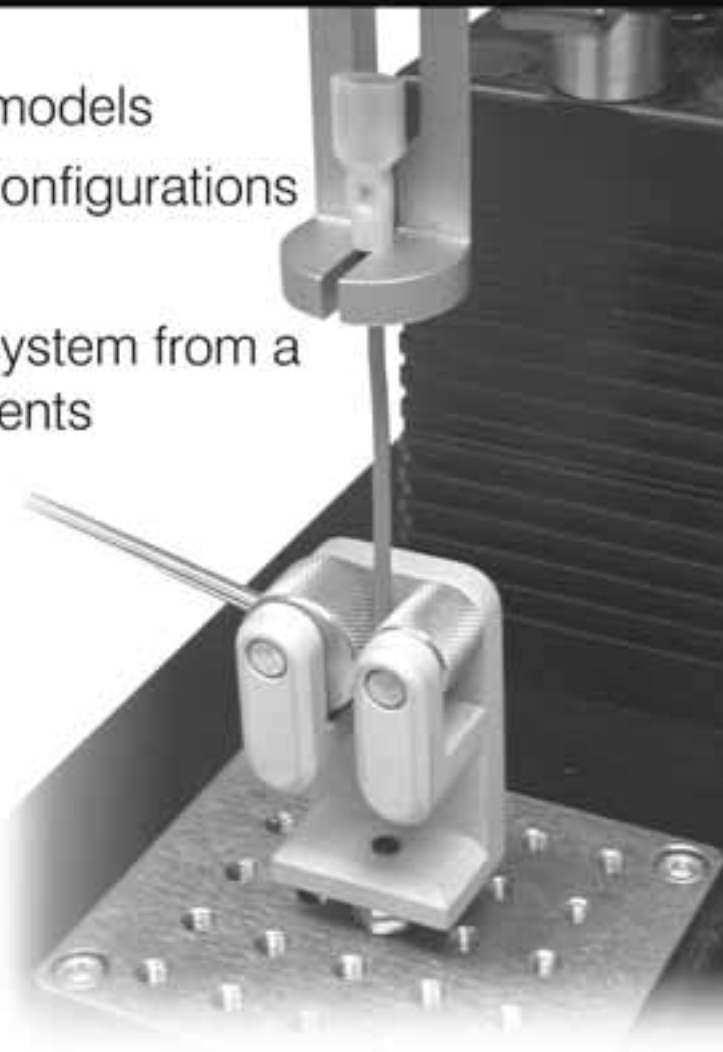
The SX100 provides 10:1 zoom ratio with up to x320 magnification with the additional advantage of coarse and fine focus adjustment option, allowing users to adjust the optical view until it is refined enough to inspect, essential for small and intricate components. Both the SX80 and SX100 CMO stereo zoom microscopes are modular and can be accessorized with digital image capture and polarisation sets and more. A variety of stands including a bench and boom stand make these microscopes easily adapted to a range of working environments. For more information visit www.visioneng.us

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“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.

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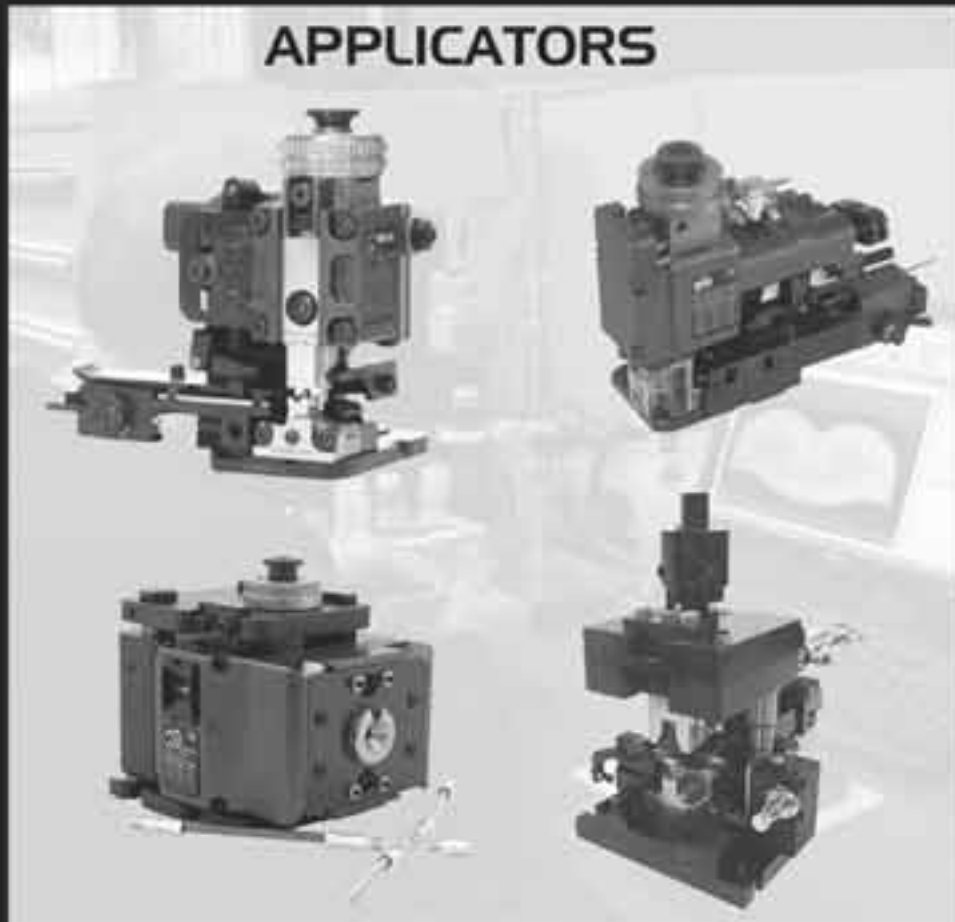
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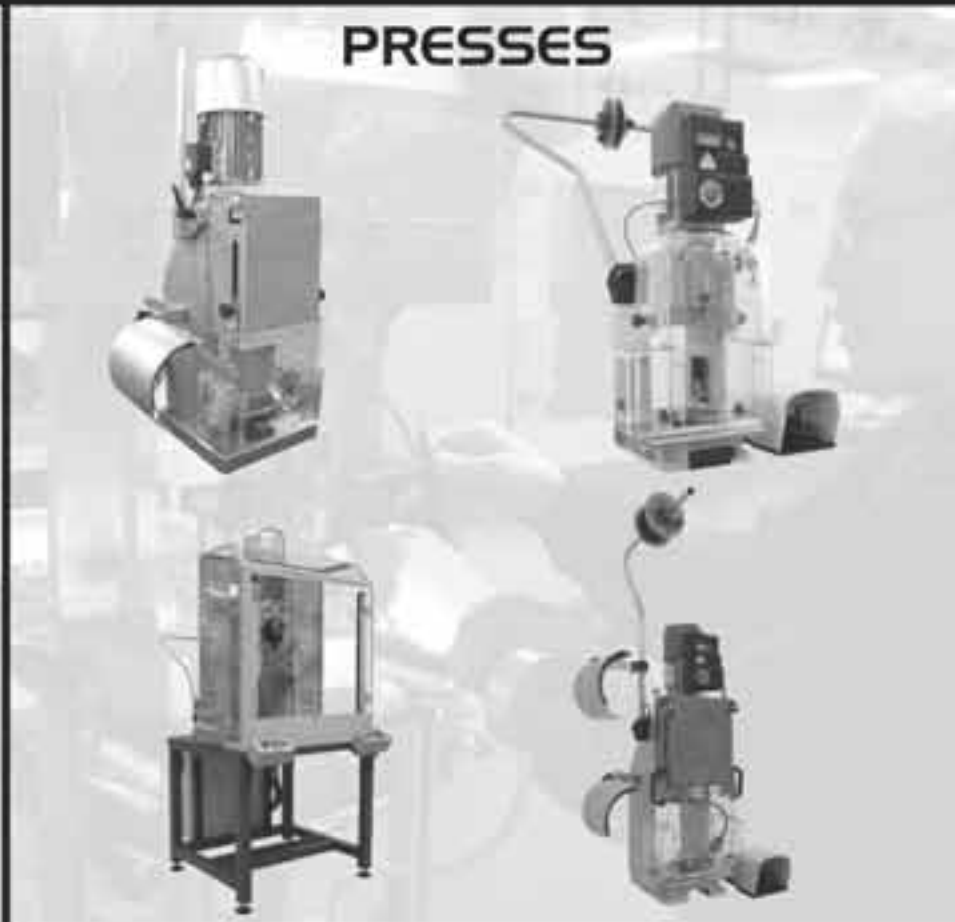
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Established in 1976 with the aim of supplying the wire harness industry with the best crimping equipment available, in less than 30 years Mecal has reached and kept a respected position at the top of its market. Their products are extensively used by the automotive, communication and IT industry, and wherever a high quality connection is called for. Situated in the middle of the most industrially developed part of Italy, Mecal operates out of its fully owned 54,000 sq. ft. plant, employing 100 skilled and motivated young people and has a very modern and rational production structure.

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USA

Starn

Established in 1945, Starn Tool soon became a leader in supplying the automotive industry with progressive stamping dies and spare parts along with the building and assembly of applicator bodies for one of the world's largest terminal manufacturers. It was this experience that Mecal was looking for to form a partnership in the United States. Through this partnership, Starn Tool and Mecal by Starn are providing world class applicators and spare tooling for the wire harness industry.

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NEWS PLUGS continued**DKN Research Develops a Low Cost Flexible EL System Using a Screen-Printing Process**

DKN Research, a leading engineering firm specializing in microelectronics and packaging technology, now carries a variety of flexible devices and materials for printable & flexible electronics. DKN Research continues to develop a wide range of screen-printing technologies for advanced thick film circuits, including fine line conductors down to 30 microns, multi-layer circuits with printed via holes, printed passive components, printed EL devices, printed connectors and more. Choosing the correct substrate material is necessary to optimize the performances from electronic circuits and devices produced by screen-printing. DKN Research can now supply the appropriate substrates for thick film circuit applications and provide engineering support.

Polymer thick film circuits were always considered an economical solution, but performance levels from the printed circuit technology were sub par due to poor resolution and electrical conductivity. Traditional thick film circuits were intended for typical low end items such as keyboard membrane switches and touch panels on microwaves. Technical advances with ink materials and printing equipment over the last few years has trickled down, and the wiring capabilities from the new thick film circuits are closer to traditional etched copper circuits.

DKN Research co-developed a low cost Flexible EL System formed on polyester films using an advanced screen-printing process. Their partners include NY Industries, a leading flexible circuit manufacturer from Ohtsu Japan, Hirai Seimitsu Kogyo, a specialty component manufacturer from Osaka Japan, and Hartec, a specialty design & assembling house from Yokohama Japan. Each of the EL sheet layers, excluding the ITO layer, is produced using an advanced screen-printing process. These screen-printed layers are less than 15 microns thick and remain flexible because of the organic binder materials. The total thickness of the flexible EL sheets can be as little as 100 microns, and are

available in three colors - blue, pink and yellow. Click on the following link to view a short clip demonstrating the flexibility and brightness from one of the EL sheets: www.dknresearch.com

The flexible EL system is a low cost solution to produce flexible light sources and flexible signage. The manufacturing process and tooling design are both simple. The flexible EL product is custom designed based on your criteria, and DKN Research can assist in manufacturing, tooling design, power source and driver modules.

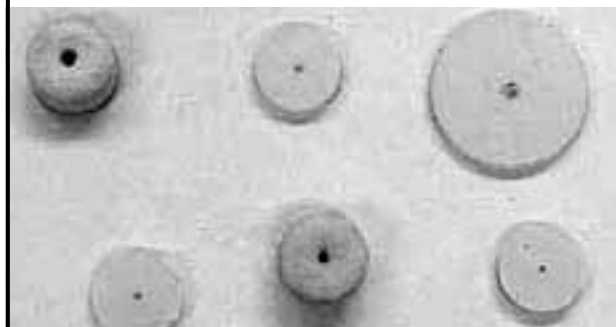
DKN Research expects a new generation of electronic devices that will combine the flexible EL system with other electronic devices and printed circuit systems. Building these circuits and devices from a screen-printing process will require specific



Flexible EL System from DKN Reserch

materials, screen masks and printers. Ink materials are definitely the first priority to consider when using the screen-printing process; however, our engineers at DKN Research Group find it equally important to choose the correct substrate material to optimize the performances from circuits

Continued on page 36

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More Than a Ton of Portable Power in a **1.4 Pound** Hand Tool

Tyco Electronics introduces the BT 3500 Battery Hydraulic Hand Tool!

The BT 3500 Battery-Hydraulic Hand Tool is designed to provide the ultimate in flexibility, modularity, and powered efficiency in a lightweight, ergonomic, powerful crimp unit. It's compatible with SDE dies and CERTI-CRIMP II heads, using the appropriate adapters.

Finally, a lightweight tool that delivers the power required for crimping! The small head offers incredible flexibility and the ability to reach into tight spaces. As an added convenience, the crimping head can be rotated to nearly any angle, allowing the operator to identify the most comfortable position for the job.

Despite the lightweight of the power unit, the tool can produce over 200 10 AWG crimps between charges. This is made possible through a ten ounce, 10.8 Volt Lithium-Ion battery that can re-charge in only 25 minutes, thereby giving plenty of time for production.

We are NOW accepting orders for the BT 3500 Battery-Hydraulic Hand Tool.

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NEWS PLUGS continued



Continued from page 35

and devices that are screen-printed. For this reason, DKN Research decided to make available their engineering information for substrates and provide actual materials. This is especially valuable to those clients who want to experiment with flexible films using advanced screen-printing technologies. DKN Research can also provide custom made substrates for special projects if standard materials are not adequate. Very frequently, research engineers want to try a series of materials on a small volume scale for new R&D projects. DKN Research can supply the

substrate materials from one sheet along with engineering support.

For more information visit www.dknresearch.com or contact DKN Research LLC, 62 Adams St., Haverhill, Massachusetts 01830-6862 U.S.A. Phone: 1-978-436-1417 or Email sales@dknresearch.com for detailed technical information and circuit samples.

Mecal by Starn Introduces Safety Guard for TT Press

Mecal by Starn is now carrying the new and improved Mecal TT press. The re-designed and re-engineered safety guard for the Mecal TT Press improves functionality and operation ability.

The new guard will have "door opening" style by means of a hinge; a state-of-the-art certified security switch conforms to all safety stan-



New Mecal TT press with Safety Guard

dards. The new guard opens 180 degrees which allows the operator to access the applicator without taking the guard completely off. A single locking knob on the "door opening" enhances the accessibility to the overall system.

The new guard also has a faceplate that is closer to the applicator, improving the precision on manual crimping. Along with being closer, the new faceplate and other separate guard pieces are fully removable and replaceable. The change is currently installed on all TT Press versions. Although there is a newly engineered guard, the TT Press is still the same cast iron, one-piece structure that provides the highest rigidity and durability to retain the Mecal standard for consistent crimp height values. This 2-ton press is capable of handling an abundance of different applications. From 32 AWG up to 10 AWG, splices, ferules and multiple wire termination, there is no smoother press available. The Mecal TT Press is a lightweight and versatile press that always leaves people impressed.

Mecal by Starn was formed in 2007 to become the manufacturer and distributor of the entire Mecal product line in the U.S. and Canada. Mecal is an Italian based manufacturer of crimp applicators, presses and tooling. Mecal is also one of the largest manufacturers of crimp tools in the world.

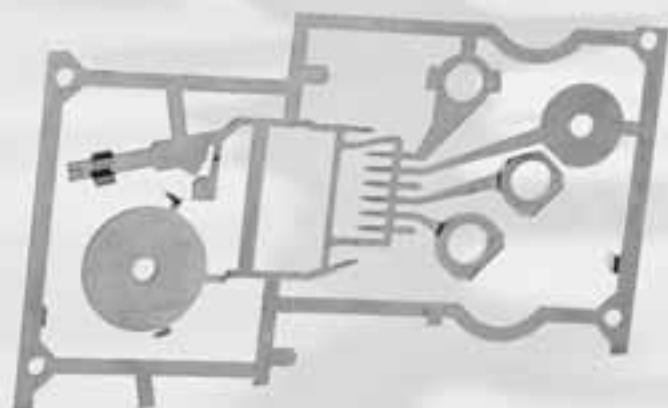
Mecal by Starn prides itself on industry leading delivery time for quality tooling. Mecal by Starn's equipment can handle a wide variety of applications in the industry, and has a strong commitment to exceeding customer's expectations and standards.

To see the new Mecal TT Press and the entire Mecal product line, visit website at www.mecalbystarn.com.

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If you have a problem or a need for a custom product solution call Sean Dunn at 401.467.2400 X 103 or e-mail him at sdunn@etco.com. He'll assemble a team of ETCO engineers to address your problem.

CMK Calmer

Continued from page 1

employee. For 10 years she has done the purchasing and scheduling at the company, which is in Eagle, a village of 1,850 residents approximately 35 miles southwest of Milwaukee.

Production consists of wiring harnesses, cable assemblies, control panels, control boxes and wire processing. Repeat orders of standard harnesses and cables comprise 70 percent of the business, with another 20 percent allocated for custom work. The final 10 percent is custom control panels and electro-mechanical assemblies.

Run sizes begin at 10 and range into the tens of thousands. "We're right at home with an order for 1,000," Kugel said. "We're not afraid to say it's too big for us. We only want orders we can do and deliver."

A single-wire lead five inches long with a termination on each end and costing less than a dollar is the simplest product. The most complex is a harness designed for a heavy-duty truck, and the assembly may be 60 feet long with hundreds of wires and terminations. It costs hundreds of dollars.

Many large orders are filled for companies less than 40 miles from Eagle. One is Putzmeister America, a German company whose U.S. headquarters is in Sturdevant, Wis. The firm specializes in equipment mounted on trucks and trailers that pumps and conveys concrete into places unreachable by concrete trucks.

Another major customer is Generac Power Systems of Waukesha, Wis. The firm produces portable and RV generators as well as ones for residential, commercial and industrial applications. Conveniently, Generac also has a plant two blocks from CMK Calmer.

Bruno Independent Living in Oconomowoc makes wheelchair lifts



Bench top presses are used for low volume crimping.

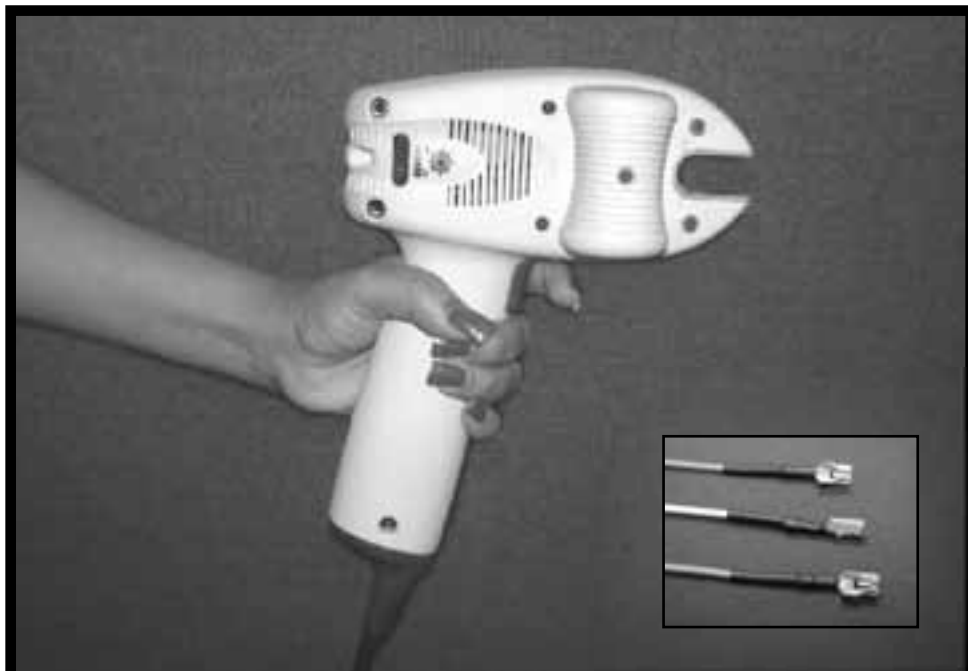
for vehicles. Dueco, also in Waukesha, manufactures bucket trucks, digger derricks, cranes, stringing and tension equipment and utility bodies.

Kugel related that his company reworks harnesses and assemblies that customers had made in China or Mexico. "We've had to redo 20,000 harnesses from China that had a 20-week lead time," he said. "By the time they got to the United States they had to have a different connection system to match new components."

Doing business in Mexico, he pointed out, may be tenuous because of the unstable economy and government. "It's a gamble," he said. "We had a customer call to say he couldn't get product out of Mexico and wondered if we could do 50 of them now."

"We also get involved in start-up runs while a product is overseas or in Mexico getting tooled up," Kugel said. "We can

Continued on page 39



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*polyolefin, 5" length

The Focus-Lite™ FLG3™ by Judco Manufacturing, Inc., is the solution to all your heat-shrink operations. You can say goodbye to the high labor cost, excessive heat, and inefficiencies of other methods. The Focus-Lite™ **reduces the time** necessary to shrink most types of heat shrink tubing. It also **improves the process** control and **overall quality** of your shrink operation. The FLG3™ can be used for **high volume** benchtop applications and is completely **portable and mobile** for board mounted harnesses and tight space assemblies.

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The Focus-Lite™ is equipped with an adjustable timer for repeatable shrinking, time after time. It also has a dimmer switch that controls the power for sensitive components. Visit our website at www.judco.net and see our full line of Focus-Lite™ products.



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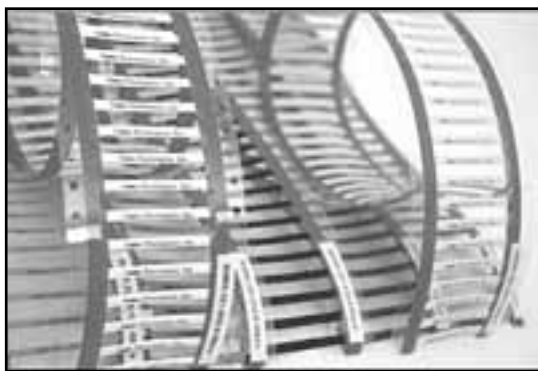
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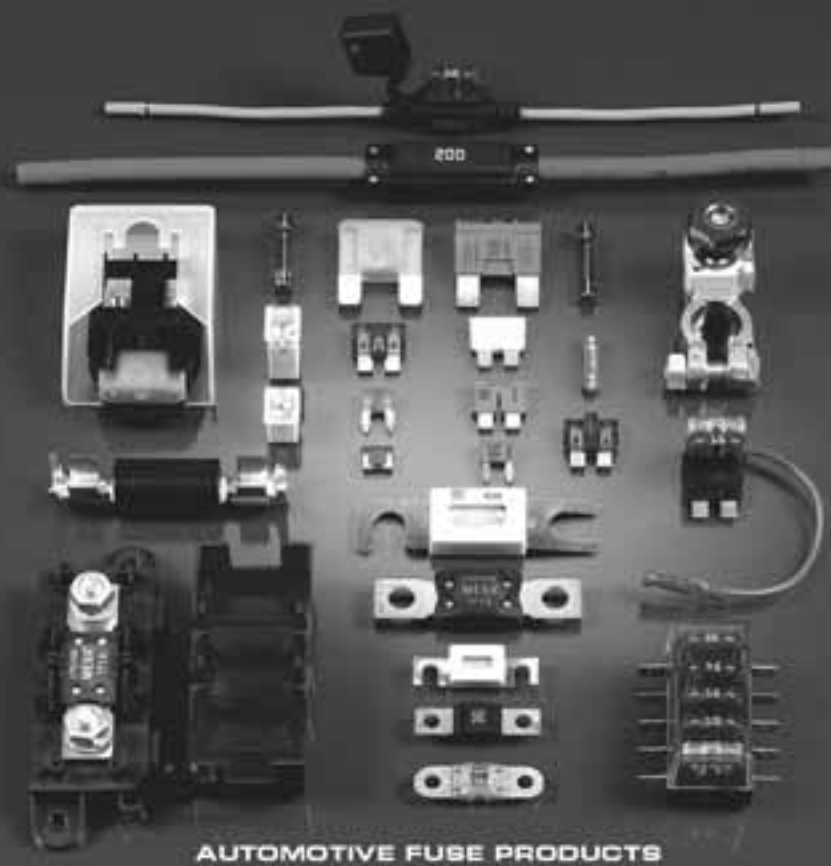
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CMK Calmer

Continued from page 37

respond very well. We're not about high volume as much as we are about being versatile and changing for customers' needs."

CMK Calmer originated when Mel Kugel started taking advantage of opportunities to serve customers in the 1970s while working as a salesman for Interstate Electric Supply in Milwaukee. His career there began in 1954 when the company was known as Milch Interstate Electric.

While calling on his customers in southern Wisconsin, Mel Kugel was asked to do value-added manufacturing such as putting ends on cords, assembling electrical products and making wiring harnesses and flexible armored cables with wires to attach to fixtures. He founded Custom Products to do the work, which was done by family members and friends on nights and weekends.

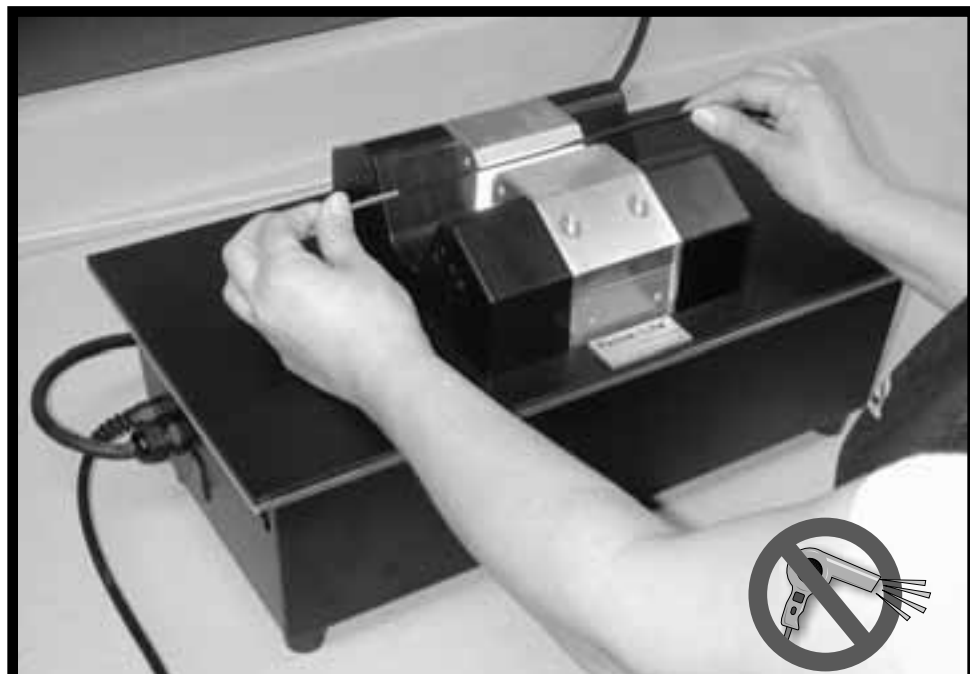
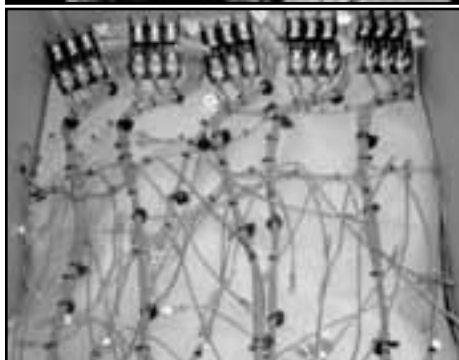
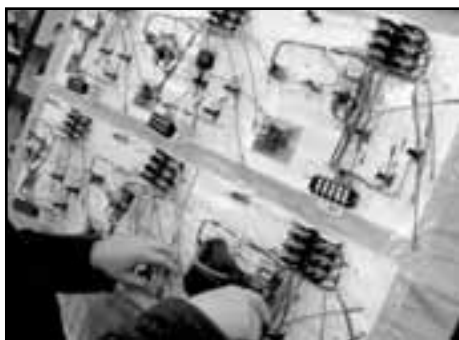


Low to medium volume harness production.

"The company grew and grew and grew, and Custom Products eventually morphed into a CMK Enterprises, a full-time company," Rick Kugel said. It opened in March 1992 and was operated by Debbie Kugel, Rick's sister. She was assisted periodically by their brother Scott, who no longer is involved with the company.

In 1998 Mel Kugel retired from Interstate Electric Supply. He promptly started Calmer Industries in the same facility as CMK Enterprises. Calmer produced control panels. Last year the two compa-

Continued on page 40



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CMK Calmer

Continued from page 39

nies were combined into CMK Calmer.

2000 was a pivotal year. Debbie died of breast cancer in September. Her illness prompted Carol Kugel to join the company full time after working seven years at Plastic Molded Concepts in

Eagle doing the bookkeeping and payroll.

Six years later Rick became the CMK president in charge of day-to-day operations. He also handles customer service, sales, vendor negotiations, prototyping, design and maintenance on the equipment and building.

Kugel has spent more than 30 years in the electrical field. He worked as a journeyman electrician before becoming a project manager and estimator at Roman Electric in Milwaukee and Venture Electric in Waukesha. He also has worked in numerous union shops.

When Kugel came to the family company he was charged with increasing its sales. And that he did. Sales were \$750,000 in 2006, but they doubled to \$1.5 million in 2007 and doubled again to \$3 million in the next year. The Great Recession trimmed them back to a bit more than \$2 million last year.

The tremendous growth was attributed to Kugel calling on existing customers and asking them about the possibilities for additional business. To this day the company has no full-time sales staff, depending instead on offering suggestions to current customers for doing more and following word-of-mouth and website leads.

Kugel stated that CMK Calmer has experienced growth of 3-5 percent the

last six quarters. He is pleased with such controlled growth and said it has resulted from being able to adjust to the economic downturn two years ago.

"We were already in the process of broadening our customer base," he said. "It was a different economy, and we had to think outside the box. We did not have the volume jobs, but we got more into the assembly end of things by doing electromechanical assemblies."

With work having been booked into April since December, Kugel said that "2011 is looking very good, very solid." So, the company's history of being profitable will continue. Should a glitch occur, the firm's finances are strong, since the family always has handled its own financing. A bank line of credit is available in an emergency.

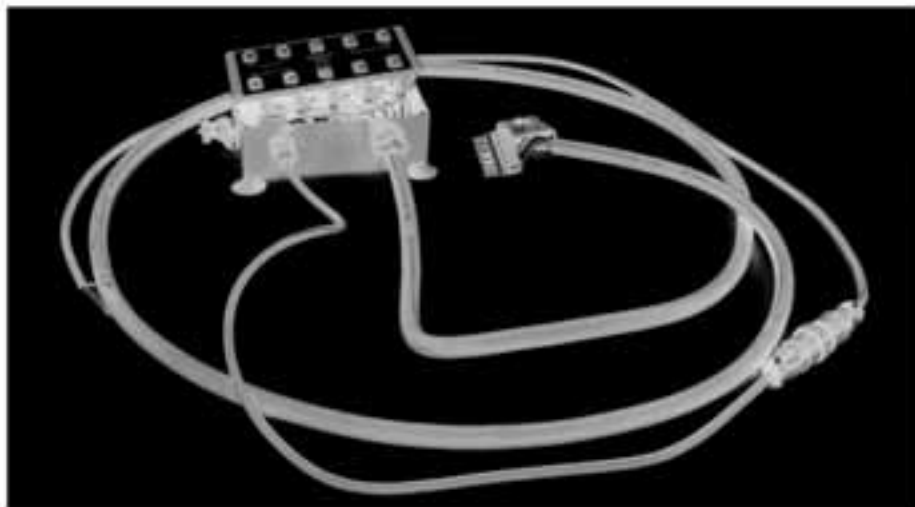
Profitability has enabled CMK Calmer to spend approximately \$250,000 on equipment in the last six years. It features five Komax machines that meas-

Continued on page 43

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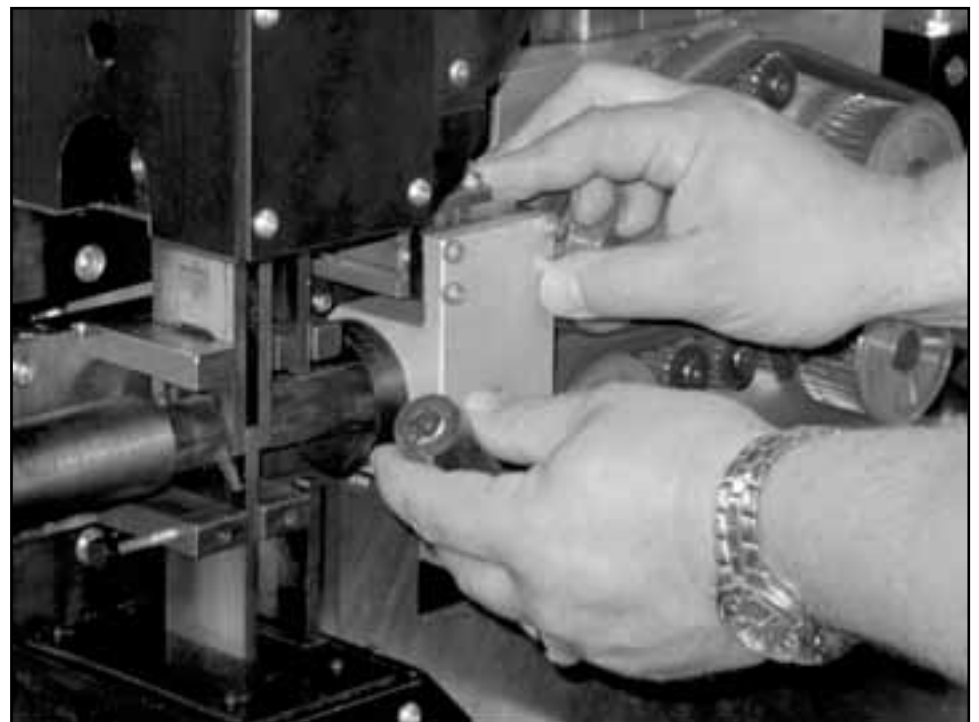
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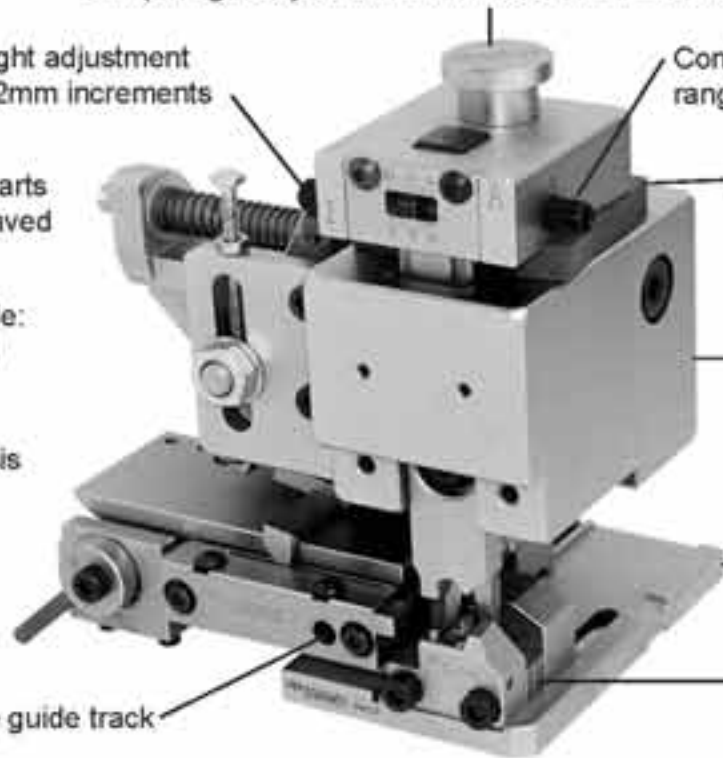
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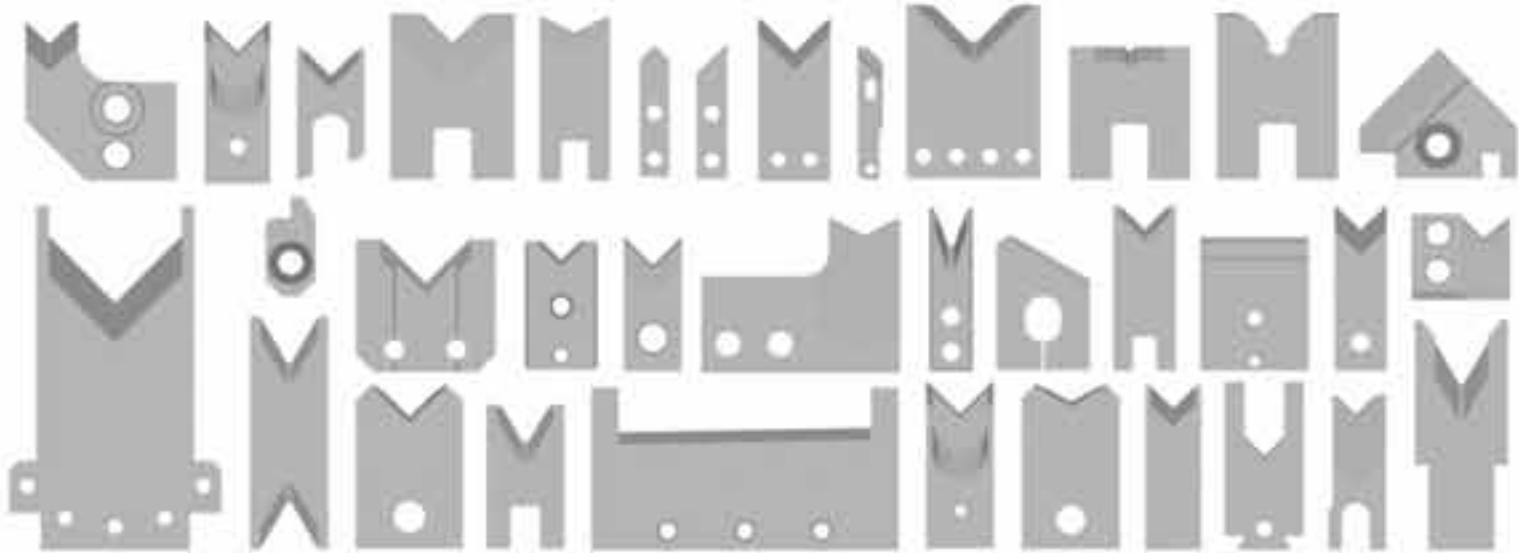
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U.S. Military Orders First M-ATV Ambulances from Oshkosh Defense

Oshkosh Defense, a division of Oshkosh Corporation (NYSE:OSK), will provide the U.S. Armed Forces with the first MRAP All-Terrain Vehicle (M-ATV) tactical ambulances, giving military medics new capabilities for reaching injured

military personnel in otherwise inaccessible battlefield environments. Oshkosh received an order for 250 of the armored, highly mobile ambulances from the U.S. Army TACOM Life Cycle Management Command (LCMC).

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The Oshkosh M-ATV tactical ambulance gives the U.S. military off-road medical-care capabilities for today's battlefield. It is equipped with state-of-the-art medical equipment to treat patients while being evacuated out of harm's way.

"The addition of this vehicle to the U.S. services' fleets will allow the military to provide urgent medical care in landscapes that are too rugged for other tactical ambulances," said Ken Juergens, vice president and general manager of Joint Programs for Oshkosh Defense. "We invested in the development of the M-ATV ambulance in response to the military's need for additional patient recovery and ground transport capabilities. This vehicle expands the military's M-ATV family of vehicles currently protecting troops and supporting operations in Afghanistan."

Oshkosh product-design teams worked closely with the U.S. Army Medical Department (AMEDD) on the M-ATV tactical ambulance's design and interior layout. The vehicle can transport two litter patients in a side-by-side layout, and can be configured to carry up to four ambulatory patients. It will be equipped with military-grade ambulance equipment needed to care for patients, including oxygen concentrators, on-board power for medical equipment and IV stabilization equipment.

"The design allows two patients to be simultaneously loaded very quickly into the M-ATV tactical ambulance, thus significantly reducing the time the medics and patients are exposed to enemy fire and other threats in combat

situations," Juergens said.

Based on the M-ATV platform, the new tactical ambulance variant delivers the same proven mobility and MRAP-level protection for reaching military members in the field and transporting them safely back to medical facilities. Deliveries under this order are scheduled to begin in spring 2011. The contract award is for approximately \$161 million.

The Oshkosh M-ATV was designed to provide superior off-road mobility for harsh mountainous terrain and unimproved road networks in places like Afghanistan. Oshkosh has received awards to date for nearly 8,400 M-ATVs, as well as spare parts kits, upgrade kits and aftermarket support. The tactical ambulance joins the M-ATV base and Special Forces Vehicle (SFV) family of vehicles used by the military.

Oshkosh is continuing to explore new potential mission solutions for the M-ATV. Oshkosh has designed the M-ATV utility vehicle to support resupply operations and the M-ATV Multi-Mission Vehicle (MMV) to support reconnaissance, missile-carrier and command-and-control operations in unforgiving landscapes.

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CMK Calmer

Continued from page 40

ure, strip and cut wire. Two Komax Gamma 333 units that also mark and terminate wire are part of the line-up, as is an Artos CS327 that processes large cable between 10 and 4/0 AWG.

"The computerized and automated equipment can do so much more," Kugel said. "It frees up people to do other things. Our goal is to have equipment to cover the full spectrum of wire and cable."

The equipment is housed in a 15,000-square-foot building Mel and Carol Kugel had built in 2007. The company was located the previous 11 years in a 5,000-square-foot leased building in Eagle.

The business began in the Kugels' 800-square-foot basement and eventually expanded into an adjacent two-car garage. Once outgrown, a 2,400-square-

foot outbuilding on their property was used before moving in 1996 to leased space.

A large portion of the current building is production area. Occasionally Rick Kugel works on the shop floor. "I see the challenges, it gives me a true sense of what employees are experiencing, and they share ideas that help the company as a whole," he said. "We all learn from one another. That's important to me."

The hands-on work enables Kugel to monitor quality, too. After the first five pieces of a run are subjected to destructive testing, progressive sampling is used. One of the first 10 pieces is checked, then one of the next 100 and finally one of the next 1,000, depending on order quantity. Assemblers record their names and badge and date codes for tracing problems.

They occur infrequently, according to Kugel. "We're pretty

conscientious," he said. "We're not an ISO facility, but we aspire to that standard. We follow UL and CSA standards where applicable, and the A-620A standard has helped us tremendously by eliminating a lot of guesswork."

Whatever problems do arise, Kugel has a positive attitude to solve them. "I really enjoy this industry as a whole," he said. "It offers challenges, and there is always a new thing we all have to learn."

"I like the camaraderie and friendships in this business," said Kugel, noting that his company belongs to the Wiring Harness Manufacturer's Association. "There are a lot of nice people, willing to help one another out."

For more information, call 262-594-3045, e-mail rkugel@cmkcalmer.com, fax 262-594-3046, visit www.cmkcalmer.com or write CMK Calmer, P.O. Box 427, Eagle, WI 53119.



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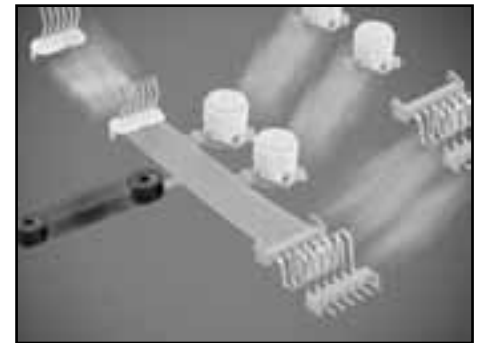
Industries, Inc. announced that it has added the application development and high-volume production of Flex Circuit Assemblies with Custom-Designed Connectors to its menu of engineered solutions.

Interplex Sunbelt's new offering focuses on flex circuit assemblies where application-specific or "custom" connectors and interconnects are required, giving customers a unique "One Stop Shop" for the development and production of the entire flex circuit assembly.

The company supports the customer from concept/ design and quick-turn prototype builds through high-volume production. In addition, the company offers complete supply change management and procurement of all purchased components.

"The addition of our new flex circuit assembly services provides another example of Interplex's continued dedication to expand its technical expertise and to create new solutions for its customers," said Craig Kennedy, Interplex's Director of New Business Development. "By leveraging our global engineering resources, Interplex can now provide customers with complete connector and interconnect design and manufacturing services specific to our customers flex circuit assembly requirements.

Robert Koppel, President of Interplex Sunbelt, added, "We are excited to add this capability to Interplex Sunbelt. Combining Interplex's integrated stamping, plating, molding and assembly capabilities with our custom-interconnect design



Flex Circuit Assembly with Custom Connectors

services creates a total solution for our customers."

Interplex Sunbelt's Flex Circuit Assembly capabilities include RoHS compliant wave soldering and SMT, no-clean and aqueous flux processes, leaded solder, automated component placement and attachment, automated testing, automated inspection, conformal coatings and adhesives specific to moisture sealing applications and specifically designed high volume palletized assembly. Automated contact insertion and secondary lead forming are also available.

The company is marketing this new capability to the communications, electronics, industrial, medical and automotive industries, with an emphasis on Medical electronic devices.

To learn more, visit <http://www.interplex.com>.

Founded in 1958, Interplex Industries, Inc. is headquartered in College Point, NY. The company continues to expand its technology and capabilities in the areas of product design and application development services, metal etching, prototyping,

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tool design and build, precision metal stamping, die casting, precision machining, plating and finishing, insert and injection molding, assembly and full scale automation services around the world. Interplex currently provides its services to the communications, electronics, industrial, medical and automotive markets and has facilities in the United States, Mexico, China, Singapore, India, Malaysia, Korea, Scotland, France, Germany and Hungary.

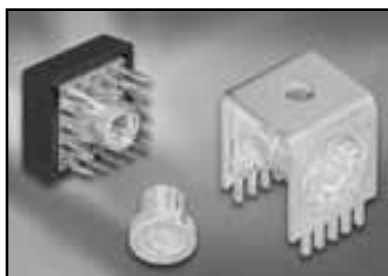
Amphenol's RADSOK PCB Connectors Ideal for Numerous Power Bus Applications

Amphenol Industrial, a global leader in interconnect systems, now offers three compact, high-amperage, ROHS-compliant RADSOK PCB connectors for a variety of power bus applications. These applications include, but are not limited to, high-power bus assembly utilities, power-to-board servers, power-to-box servers and battery power/chargers for electric vehicles. Amphenol's proprietary RADSOK technology uses a hyperbolic, stamped grid configuration that ensures a large, coaxial, face-to-face surface area engagement to maximize heat dissipation and reduce failures.

The RADSERT, PowerBlok and PGY connectors not only feature dependable operation, but also offer more surface space within a circuit board design while eliminating threaded connection failures. They are ideal for use in high-current, single-point connections.

The RADSERT connector offers the smallest footprint of Amphenol's new PCB line, opening up the most surface space for design flexibility. This new connector gives designers the option of bringing power to the board from busbars suspended above or below the board and its components. RADSERT is offered in both press-fit and solder versions, and is available in either a 2.4 mm (0.094") size and rated for up to 35 Amps or a 3.6 mm (0.141") size and rated for up to 70 Amps. It is designed for a board thickness of 6.35 mm +/-0.0635 mm (0.250" +/-0.025") with custom sizes available for specific applications.

Also able to provide 70 Amps to a PCB, the 12.7 mm x 12.7 mm (0.500" x0.500") PowerBlok features a radial design that has a touch-proof cover and many



Amphenol's RADSOK PCB Connectors

points of contact. The connector's backplane power interface employs the use of compliant pins that are press-fit into the PCB. This helps to facilitate a solid connection and an even signal flow. The PowerBlok's small footprint is advantageous to engineers who

have limited size and weight requirements for their PCB.

Available in 3.6 mm (0.141") carrying up to 70 Amps and 5.7 mm (0.224") carrying up to 120 Amps, the PGY is an orthogonal card edge connector that delivers the highest amperage in the smallest housing. The PGY connects to the PCB through a solder reflow process. Design engineers can achieve important size and weight reductions within their guidelines without compromising the power needed for the board. For more information, visit www.amphenol-industrial.com or www.radsok.com

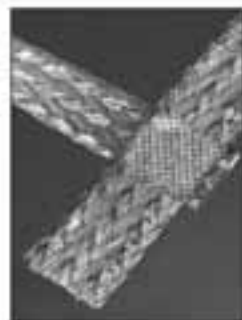
See our "Calendar of Events"
Page 57

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Gladding Braided Products Expands Manufacturing Plant

Gladding Braided Products is expanding and adding approximately 10,000 square of manufacturing space to our existing 85,000 sq. foot factory. The ground breaking took place in July 2010 and is scheduled to be completed by the end of October 2010.



Gladding Management proudly stands in front of its own "design-build" wire braiding machinery, created in South Otselic, NY, for use in Gladding's expanded wire braid factory. L to R: Rob Demuth: Wire Mechanical Manager; Ed Rothwell: Mechanical Engineer; Charles Bishop: Plant Manager; Mark Jenner: VP Wire Division; Mike Radziwon: VP Operations; and Sparky Christakos: President.

The new plant addition will be mainly used for raw material and equipment storage. The existing plant, where these items are currently stored, will then be used to expand production lines and add equipment. Gladding is currently running two production shifts and 7 days a week to fulfill customer orders. "This allows us to accommodate more quality stations and wire equipment for our expanding business" states Vice President Mark Jenner.

business to our existing textile lines. It's natural for our machinery and employees' expertise."

Gladding also manufactures textile braiding machines. Gladding will continue to expand on their capabilities while maintaining focus on there established textile production. "This is a very exciting time for Gladding and all of our employees to be thriving in the current economic climate" stated Christakos.

Gladding, known nationally as one of the leading textile braid manufacturers in the United States, expanded their product offerings last year and are now also serving the wire industry. "The decision to expand into wire was easy. We can use our extensive braiding experience and production methods, and with some small changes in process, produce wire products. Our manufacturing staff is very flexible and have been cross-trained to accommodate each product line" said Gladding Company President, Sparky Christakos. Mike Radziwon, VP of Textiles, also added "Wire braiding is very complimentary

Gladding was established in 1816 and is one of the leading textile and wire manufacturers in the United States. With a wide range of products and customers, Gladding continues to expand product lines while continuing to offer unsurpassed quality and customer service.

For further information visit www.gladdingbraid.com.

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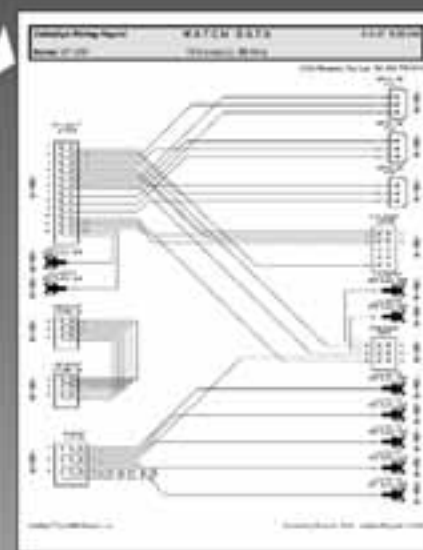
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NEWS PLUGS continued

**Steve Wozniak to Keynote
IPC APEX Expo 2011**

Apple Computer Co-Founder Steve Wozniak will deliver the opening keynote address at IPC APEX EXPO™ on Tuesday, April 12, 2011, at Mandalay Bay Resort & Convention Center.

Wozniak's theme, "How to Foster Creativity and Innovation in a Technical Environment," is a topic the Silicon Valley icon is uniquely equipped to discuss. Wozniak helped invent the personal computer with his design of Apple's first line of products, the Apple I and II, and contributed to the development of the Macintosh.

The keynote is free to all registered IPC APEX EXPO attendees and exhibitors and

will be followed by a book signing on the event's show floor. A published author, Wozniak will sign copies of his autobiography "From Computer Geek to Cult Icon", giving attendees an opportunity to meet the legend face-to-face. Wozniak will also attend the PCB and EMS Executive Management Meetings dinner on April 11.

"We are delighted to welcome Steve Wozniak," says IPC President Denny McGuirk. "When we invited him, he said he had a special place in his heart for electronics manufacturing and was looking forward to meeting the people in our industry. Having a legend like Wozniak kick off our event adds another wow factor to our show, along with the technologies and equipment on display, and should be a big thrill for our exhibitors and attendees."

For his achievements at Apple Computer, Wozniak was awarded the National Medal of Technology by the President of the United States in 1985, the highest

honor bestowed on America's leading innovators.

In 2000, Wozniak was inducted into the Inventors Hall of Fame and was awarded the prestigious Heinz Award in Technology, the Economy and Employment for "single-handedly designing the first personal computer and for then redirecting his lifelong passion for mathematics and electronics toward lighting the fires of excitement for education in grade school students and their teachers." Wozniak founded the Electronic Frontier Foundation, and was the founding sponsor of the Tech Museum, Silicon Valley Ballet and Children's Discovery Museum of San Jose. He is currently co-founder and chief technology officer for Acquicor Technology, Inc.

Registration for IPC APEX EXPO opens in early November. The IPC APEX EXPO conference and exhibition will run April 12-14, 2011; standards development

meetings, professional development courses and other show activities will take place April 10-14.

Visit www.IPCAPEXEXPO.org to sign up for show notifications. Silicon Valley Legend Adds More Sparkle to Las Vegas

The keynote is free to all registered IPC APEX EXPO attendees and exhibitors and will be followed by a book signing on the event's show floor. A published author, Wozniak will sign copies of his autobiography *iWoz: From Computer Geek to Cult Icon*, giving attendees an opportunity to meet the legend face-to-face.

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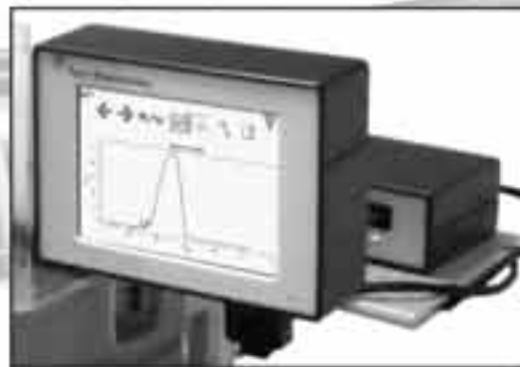


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Opening Keynote Session:
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NEWS PLUGS continued
Norwood / Kingsley Introduces the KIP-FL Hot Stamp Printer for Marking Cables or Wires with Connectors or Terminated Ends

Norwood Marking Systems / Kingsley Machine Company introduces the KIP-FL, the world's first hot stamp printer for marking directly on insulated cables or wires that have connectors or terminated ends.

The new front-loading KIP-FL eliminates the need to print and apply adhesive labels or heat shrink tubing to mark cables or wires with connectors or terminated ends. Compared to labels and tubing, marking directly on cables and wire reduces labor costs and production time, eliminates peripheral materials and results in a cleaner appearance.



KIP-FL Hot Stamp Printer

Made with similar components as Norwood / Kingsley's popular field-proven side-loading inline KIP-20, the new front-loading offline KIP-FL is a robust, low maintenance printer. The new KIP-FL prints

one line horizontally or vertically along insulated wire or cable including Teflon, PVC, Tefzel, Kapton and other materials. It accommodates wire and cable sizes from 0.25 to 0.75 inches in diameter.

Designed for wire harness manufacturers needing to rework existing assemblies, the KIP-FL is also ideal for manufacturers of new assemblies that include connectors or terminated ends. It is suitable for automotive, motorcycle and aviation cables or wires as well as a wide range of other products such as fishing line.

The KIP-FL utilizes full-size, 40-character typewheels. Up to 28 typewheels can be mounted on the printer. Accessories are interchangeable with the KIP-20 and other Kingsley wheeled printers.

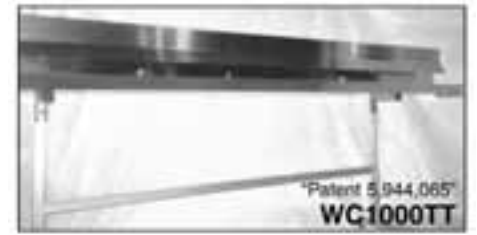
Offering bench-top operation and foot pedal activation, the semi-automatic, intermittent-motion KIP-FL is easy to use. Simply insert the wire or cable into the front of the printer, push the foot pedal to activate the hot stamp printing operation, then remove the wire or cable. A quick-change fixture system minimizes set-up time and maximizes printing speed.

Norwood Marking Systems, a division of Illinois Tool Works, is joined by sister companies, Allen Coding Systems, ac codiergeräte gmbh and Kingsley Machine Company to offer a wide range of marking and coding systems. The companies design and manufacture innovative thermal transfer printers including custom traversing systems, hot stamp imprinters as well as ink and embossing printers that code and mark for a variety of industrial markets worldwide.



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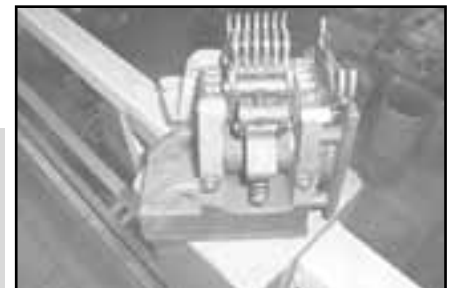
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CLASSIFIEDS



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"We build, sell, and even buy harness braiding equipment."

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Help Wanted

At Schleuniger we actively try to practice what we preach by cultivating a motivating environment with open communication, a high level of employee information and respect within the team to achieve a partnership type of relationship.

Senior Product Manager

Working closely with our sister companies in Switzerland and Germany, the Sr. Product Manager manages assigned product lines from conceptual stages through product life cycle. Individual participates in overall product strategy, coordinates technical product development, and conducts market research. The Sr. Product Manager works closely with Customers, Sales, and Marketing to identify customer needs.

Schleuniger has been locally and nationally ranked as an Employer of Choice. We offer our employees an excellent salary and benefits package that includes:

- Health ■ Dental ■ Life ■ 401(K) Plan with 100% match up to 7% ■ Flexible Spending Accounts ■ Short and Long Term Disability Insurance ■ Wellness and Visions Reimbursements ■ Tuition Reimbursement ■ 11 holidays ■ Sales Bonus Program, and a generous paid leave plan

Job requirements:

- Minimum of 5 years experience as a Product Manager
- Must have demonstrated success in defining and launching successful products
- Must have experience with Crimping technologies, Crimp quality, & Crimping standards.
- BS degree in technical discipline required; MBA beneficial.
- 5 to 10 years relevant experience required; wire processing industry experience desired.
- Excellent written and verbal communication skills
- Excellent presentation skills required.
- Excellent project management skills required.
- Strong technical aptitude required.
- Computer literacy required.
- Must be team-oriented.
- Must be able to travel up to 40% of the time.

We recruit and hire individuals that add to our success - by seeking employees who are team-oriented, self-motivated, and have great personalities. If you are eager to work in a team environment and have a strong desire to succeed, we'd like to meet you.

Please forward your Resume and Compensation Requirements to
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Connectors

Contacts

Accessories

Advertise in Wiring Harness News



DISPLAY ADVERTISING RATES

* Effective Jan. 1, 2011

Based on 10,000 Circulation

MECHANICAL REQUIREMENTS

Printed Size: 11-3/8" x 17"
 We prefer pdf files as they have less font issues. PDF's are also less expensive for the advertiser. We also accept zip disks and cd's, Mac formatted in Quark, Illustrator and Photoshop. Ads may also be E-mailed to marilynmagowan@yahoo.com

If you must submit your material as film please supply negatives as right-reading, emulsion-side down, 100 line screen. Please be aware that we will begin to charge customers for stripping charges on negatives.

If you have any technical questions, please call Marilyn Magowan at (262) 394-5558.

Extra mechanical work such as enlargements, copy changes, dropping in halftones, film work, etc. billed at current commercial rates. Advertising art assistance available. This work will be billed at current rates. Copy and illustrations subject to publisher approval.

ISSUE AND CLOSING DATES

Published bi-monthly: Sept./Oct.; Nov./Dec.; Jan./Feb.; Mar./Apr.; May/June; July/Aug. Call publisher for current closing date.

TERMS

Less 2% if within 10 days, net 30 days. Standard agency commission to recognized advertising agencies.

CLASSIFIED ADVERTISING

Call for current rates and classifications.

INSERTS

Your printed promotional piece can be delivered to potential customers at considerable savings. Contact publisher for details.

International Harness Resources, Inc., dba Wiring Harness News, reserves the right to reject advertisements which in its sole judgment it considers, in whole or in part, inappropriate or unprofessional.

EDITORIAL STATEMENT

Wiring Harness News is a bi-monthly tabloid trade newspaper serving the wire, cable and fiber-optic processor. It targets wiring harness and cable assembly shops, cord set manufacturers, and thousands of companies that process electric wire and cable for use in their own products.

ADVERTISING RATES

FREQUENCY	COST PER COLUMN INCH	BEST VALUE ADS					
		1/12	1/6	1/4	1/2	JUNIOR	FULL
1-Time	\$38	218	415	592	1156	1345	2250
3-Times	33	208	397	569	1097	1292	2132
6-Times	28	197	374	534	1038	1218	2015

The above rates are based on placement within a 12 month period.

HOW TO PURCHASE AD SPACE

We offer two ways to purchase ads: **1.** Best Value ads are standard sizes (see chart below), priced at a discount from the straight cost per column inch.

2. A custom-sized ad can be designed and purchased by Column Inch (see formula for figuring column rate charges and size requirements below).

TO DETERMINE COLUMN RATE CHARGES

Multiply the number of columns by the number of inches deep your ad runs. Then multiply that number by the Cost Per Column Inch. (See Ad Rates above.)

For example: 1 column wide by 1" high equals a 1" ad \$ 38 (1x frequency)
 3 columns wide by 2" high equals a 6" ad \$228 (1x frequency)

SIZE REQUIREMENTS:

- 1 Column....1-1/2"
- 2 Columns...3-1/4"
- 3 Columns...5"
- 4 Columns.....6-3/4"
- 6 Columns*...10-1/4"
- Gutter Width = 1/4"

* Advertisements measuring 14-1/2 column inches or more will be charged the full depth of 15-3/4 column inches, 5 column ads will be charged for 6 columns.

BEST VALUE AD SIZE REQUIREMENTS

FULL 10-1/4 x 15-3/4	JUNIOR 8-1/2 x 11	1/2 HORIZ. 10-1/4 x 7-3/4	1/2 VERT. 5 x 15-3/4	1/4 PG 5 x 7-3/4	1/6 PG Sq. 5 x 5-1/8 Vert. 3-1/4 x 7-3/4	1/12 PG Sq. 3-1/4 x 3-3/4 Vert. 1-1/2 x 7-3/4

Wiring Harness News, P.O. Box 527, Richmond, IL 60071

E-mail space reservations to kfreund2000@yahoo.com • E-mail all ads to marilynmagowan@yahoo.com



CALENDAR OF EVENTS

Automotive News World Congress **Detroit Marriott Renaissance Center** **January 11-13, 2011** **Detroit, Michigan**

The Automotive News World Congress is the industry's meeting place. Against the backdrop of a tenuous economy with weak automotive demand, surviving suppliers, automakers and dealerships are forging new business models. Find out what they are, and take advantage of unprecedented opportunities to ask your own questions, when these and other distinguished speakers address the World Congress audience. *For further information contact Libby Irwin at (313) 446-0420 or email congress@autonews.com.*

DesignCon 2011 **Santa Clara Convention Center** **January 31 - February 3, 2011** **Santa Clara, California**

DesignCon is the premier educational conference and technology exhibition for semiconductor and electronic design engineers. At DesignCon, engineers talk to engineers to find practical solutions to the challenging problems they share in design and verification. We emphasize education and peer-to-peer sharing among practicing engineers, creating a unique atmosphere for learning about state-of-the-art design methodologies and technologies. Individuals presenting papers at DesignCon will join an elite group offering leading-edge case studies, technology innovations, practical techniques, design tips, and application overviews. *For further information visit DesignCon.com/2011.*

Electronics West **Anaheim Convention Center** **February 8-10, 2011** **Anaheim, California**

See all aspects of electronics manufacturing, including components, subassemblies, software, contract services, assembly, test and inspection products. Get input on your upcoming project from hundreds of experienced companies, all in one day! You can develop supplier alliances, technology licensing, partnerships and joint ventures to expand your business. The NEW Innovation Briefs Theatre features 30-40 minutes sessions on current manufacturing topics. Delivered by industry experts from the world's leading OEM suppliers, you can find them right on the show floor, for FREE. Our schedule of speakers and topics will be finalized in the near future. *For further information visit www.ElectronicsWestShow.com.*

Wiring Harness Manufacturer's Conference (WHMA) **Westin San Diego** **March 2-4, 2011** **San Diego, California**

Once a year WHMA sponsors a conference that offers members the opportunity to participate in committee sessions, attend educational programs and check out the industry's latest at the suppliers' technology exhibits. *For further information visit www.whma.org or call (952) 253-6085.*

Aircraft Electronics Association Annual Convention **Grand Sierra Resort** **March 22-25, 2011** **Reno, Nevada**

The 54th Annual AEA International Convention & Trade Show is a unique opportunity to connect with manufacturers, distributors, technicians and business leaders as we shape the future of avionics together. *For more information visit www.aea.net/convention.*

IPC/APEX Expo 2011 **Mandalay Bay Resort & Casino** **April 12-14, 2011** **Las Vegas, Nevada**

The largest show for the electronics interconnect industry. You will see everyone from designers and printed circuit board companies to electronics manufacturing service companies to OEMs to suppliers. This even includes a premier comprehensive technical conference, professional development courses and networking activities specifically for designers, engineers, manufacturing personnel, managers and senior officers. *Contact MaryMacKinnon@ipc.org for details.*

Electronics East **Boston Convention Center** **April 21-22, 2011** **Boston Massachusetts**

Electronics New England brings you fact to face with the technical experts who can help you streamline your electronics manufacturing process and stay competitive. Electronics New England is one of the high-level pioneer discussion forums for the electronics sector. *Contact Canon Communications at 310-445-4200 for details.*

Del Mar Electronics Show **Del Mar Fairgrounds** **May 4-5, 2011** **Del Mar, California**

A high value design and manufacturing show, this event serves the electronics, medical and biotech industries. The Del Mar show's technical program offers key insights to manufacturers who have serious concerns over advanced electronic components in the medical dvies. In addition, the show will play host to an impressive list of exhibitors.

Interwire 2011 **May 3-5, 2011**

Introduced in 1981, Interwire is the largest and longest-running wire and cable marketplace in the Americas. It is an international trade event that includes exhibiting companies, speakers, and attendees from more than 50 countries around the world. Interwire is ranked as one of the 200 largest trade shows in the U.S. by Tradeshow Week magazine. Interwire is the venue where buyers, sellers, researchers, and speakers connect with new contacts and colleagues. The show crosses dozens of vertical industries including automotive, construction, aerospace, transportation, and communications, among others. *Visit www.wirenet.org for exhibitor and attendee information.*

MEDCon – Medical Electronic Device Conference/Expo Navy Pier, Chicago **May 16-18, 2011** **Chicago, Illinois**

The Medical Electronic Device Conference & Expo focuses on specific needs of electrical and design engineers for medical devices. The conference addresses key challenges in designed next generation devices. *See www.medicaldeviceexpo.com.*

National Electrical Wire Processing Technology Expo **Frontier Airlines Center** **May 18-19, 2011** **Milwaukee, Wisconsin**

The National Electrical Wire Processing Technology Expo features new products and services for electronic cable assemblies, cord sets, wiring harnesses and other products within the wire processing industry. Meet over 100 world-class suppliers and service companies in the wire and cable processing industry. Discover the secrets to solve your wire processing problems. *Visit www.expoproductions.com for exhibitor and attendee information.*

Jl Cable **Versailles, France** **June 19-23, 2011**

This international conference on insulated power cables, was last held in 2007. Presenting a comprehensive forum about power cables as well as exhibits JI Cable'11 should prove very useful to the following segments of the cable industry: researchers, engineers, decision-makers, raw materials suppliers, manufacturers, installers and users. *Contact JI Cable 11 at www.jicable.org.*

2011 Automotive News Europe Congress **Pullman Cologne** **June 29-30, 2011** **Cologne, Germany**

Celebrating its 14th year, the Automotive News Europe Congress is an important English language automotive industry conference in Europe.

- Hear keynote addresses, top-level presentations and panel discussions on a range of European topics from more than 15 speakers.
- Networking opportunities with industry leaders and more than 300 delegates
- Recognition of the European 2011 Automotive News PACE award winners
- Presentation of the second-annual L.E.A.D.E.R. Awards recognizing excellence on OEM, supplier and retail categories
- Guided 90-minute VIP tour of Ford Cologne assembly plant
- Attend the first Rising Stars program, a recognition of Europe's top talent.

If you have any questions or need further information, Phone: (313) 446-0420 or E-mail: congress@autonews.com.

60th IWCS Conference **Charlotte Convention Center** **June 19-23, 2011** **Charlotte, North Carolina**

For 60 years, the International Wire & Cable Symposium and Conference has been the premier technology event in the wire and cable and connectivity industry. The IWCS, a non-profit organization, presents an annual event in which the latest technologies in product design, materials, applications and processes are presented in a symposium format. Additionally, the IWCS program includes Professional Development Courses providing tutorials on basic and emerging technologies, presented by industry experts. The event also features the latest developments from industry suppliers in a Suppliers' Exhibition. *For further information contact Pat Hudak, IWCS, www.iwcs.org, phudak@iwcs.org or tel. 732-389-0990.*

Productronica 2011 **Charlotte Convention Center** **November 15-18, 2011** **Charlotte, North Carolina**

19th International trade fair for innovative electronics production. productronica is the world's leading trade fair for electronics production. It is the largest exhibition of its kind, and it covers the entire process chain in electronics manufacturing. Its diverse range of exhibitors and visitors give it a unique international character. Productronica is an exceptional gathering for market leaders and newcomers alike. *For further information visit www.productronica.com.*

If you have an event you would like to have listed here, send it to Marilyn Magowan
marilynmagowan@yahoo.com

American Hakko.....6	Electromatic.....30	Mecal by Starn.....34
AMTI American Mfg & Technologies Inc.....12	Electronic Connector Corp4, 40	Mechtrix Corporation.....41
Anixter.....28	Eraser Company, The.....12	Mello Company Inc., The.....26
Apex Expo.....48	Etco.....36	Molex.....23
Applitek Technologies Corp.....21	Eubanks.....33	Multi/Cable Corp.....14
Artos Engineering Company.....2	Fuses Unlimited.....37	National Wire.....44
Atlas Wire Corporation.....30	Gamma Electronics.....37	OES, Inc.....4
ATS Application Tooling Solutions.....15	Grayline.....11	Precision Plus, Inc.....42
Cablescan.....38	Hamilton Products, Inc.....40	Proline.....8
Calendar of Events.....57	Heilind Electronics.....8	RPC Manufacturing Solutions, LLC.....25
CAMI Research, Inc.....9, 47	HellermannTyton.....19, 35	Schaefer Megomat USA Inc.....16
Carpenter Mfg. Co., Inc.....24	Hu Lane Associate, Inc.....3	Schaefer Technologies LLC.....5
Cirris Systems Corp.....17, 43	Industrial Wire and Cable Corp.....47	Schleuniger Inc.....11, 39, 51
Chief Supply Inc.....20	Imada.....43	Sentry Air Systems, Inc.....24
Coastel Cable Tools.....28	INSCO.....7	Shenyanne Dakota, Inc.....40
Composite & Wire Machinery, Inc.....3	Insulation Supply.....7	ShinMaywa.....31
Crimping & Stamping Technologies, Inc.....20	Intro Corporation.....24	Sonobond Ultrasonics.....45
CYG, Division of DLC, Inc.....14	Judco Manufacturing Inc.....37, 39	Southwire.....53
Daniels Manufacturing Corp.....27	JWB Manufacturing, LLC.....45	Strunk Connect.....18
Del Mar Electronics and Design Show.....50	Kingsley Machines.....36	Techflex.....42
DSG Canusa.....30-31	Komax.....9, 60	Tyco Electronics.....10, 29, 49
Dynalab Test Systems.....25	Lakes Precision Inc.....26	Wezag Tools, Inc.....13
East Penn Manufacturing Co, Inc.....6	Lapp Tannehill.....22	White Products Division (J.R.Greenleaf).....18
ECC.....32	Lone Star Industrial.....44	Wire Systems.....51
EIC Wipers.....35	LTL Tooling & Assembly.....43	Wiring Harness Manufacturer's Assoc.....46
Electrical Products Sales Corp.....13	Mark-10.....32	Z-Tech Engineering LLC.....22
Electrical Wire Processing Technology Expo.....59	Master Appliance Corp.....42	

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JANUARY/FEBRUARY 2011

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- 2 This is the **ONLY** trade show in the wire processing industry that showcases electronic cable assemblies, cord sets, wiring harnesses and other related products!
- 3 Meet industry experts and applications personnel who can answer your most challenging questions—over 1,400 Wire Processing professionals from 45 states and 15 countries attended last year!
- 4 Discover new technologies & explore best practices from industry experts!
- 5 Attend **FREE** technical seminars, test drive new products, network with peers, meet manufacturers, and form alliances and partnerships with industry leaders!



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