Measuring Up
WHMA Annual Conference
Gowth Strategies for Harness Companies
Standard and Low Profile Cable Ties
Electrical Wire Processing Expo Registration

Wire Wisdom - How Current Relates to Wire & Cable



TA Wire and Harness Inc.

By Fred Noer

Wire And Harness Inc., in 1997
Trevor Williams made a decision that would prove invaluable to him and his company to this day. Supplying wiring harnesses, cable assemblies and other products to customers in such industries as medical, automotive, railroad, commercial garage-door openers, security and telecommunications has been supplicated by what Williams learned on the gridiron.

Coaching 9 and 10-year-old youngsters for nine years in Montreal, Canada—the home of Williams and his firm—has afforded insights into every aspect of his company.

"Almost everything you do in life involves teamwork," says Williams. The secret is positioning--figuring out the right player for your key positions. The wrong player in the wrong position can make or break your team—and prove a costly error. "I realized fast that I had to get to know my company staff and devise a plan of attack."

Williams' plan has fostered long tenures by TA Wire's 15 full-time and 6 part-time employees. "Of all the things about my company, I am most proud of the workers," he said. They are always



TA Wire and Harness manufacturers harnesses for many different industries. Pictured above is a railway harness.

here. They show up no matter what.

"Stepping out of the box" is how Williams sums up his coaching venture. He believes that, "Continuous improvement" could apply not only to all aspects of manufacturing at TA Wire but to his own personal and professional development as well.

Continuous improvement, facilitated through seminars such as 'Secrets of the Millionaire Mind' and 'Rich Dad, Poor Dad' based on the books by T. Harv Eker and Robert Klyosaki, respectively. These men see things a bit different from the average individual, Williams said. Yet they remind you of things you already knew but just never apply or even consider.

The seminars provide information

which provokes the mind and lends insight on how things could be done more efficiently, said Williams. I noticed that I have changed my approach in doing things and I pay more attention to details

Likewise, TA Wire and its customers have and continue to benefit from Williams attendance at trade shows every year. By the extensive amount of information exchanged in these shows and the ridiculously large network of suppliers it is impossible not to increase ones' buying knowledge and acuity. Knowledge is power. It allows you to explore new ideas. It helps you to see

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Standard and Low Profile Cable Ties Have Unique Differences

By Mark Bresnahan, Vice President Cobra Products

ost people are familiar with cable or zip ties and do not understand the features and benefits of low profile ties over standard cable or zip ties.

A cable tie is a band or length of strap, manufactured from a class of polymeric materials known as polyamides (Nylon 6/6). The width, length and head area employ ratcheting mechanisms that allow for locking as necessary for "bundling" items together.

Material Characteristics

Nylon possesses an outstanding balance of properties, combining strength,

moderate stiffness, high service temperature and a high level of toughness. Particularly resistant to repeated impact, nylon has a low coefficient of friction and excellent abrasion resistance. Nylon is resistant to fuels, lubricants and most chemicals, but is attacked by phenols, strong acids and oxidizing agents. Nylon is inherently susceptible to environmental conditions. Some cable ties like Cobra® cable ties are moisturized to attain optimum performance levels. Nylon products should be stored in cool dry areas, out of direct sunlight and sealed in the original packaging material. These measures will extend performance levels indefinitely.

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Getting Away From the Office to Work ON the Business!

By Paul Hogendoorn

his is a good expression that I have heard from time to time: "leaders need to work ON the business instead of always IN the business". A similar phrase that rings equally true to me is this: "leaders determine the right things to do; managers figure out how to do those things right." Saying it, and even understanding it, is the easy part; living it and doing it is the hard part. Often, the best first step is to just leave the office for a period of time, and surround yourself with like-minded people that face similar challenges that you do, and that pursue dreams and objectives similar to yours.

The upcoming WHMA conference in Orlando is perhaps the best such opportunity. Each year, the conference attracts business and company leaders that have two things in common: the industry they serve, and the desire to improve and grow. Based on what people said about last year's record breaking conference, people attending this year can expect two things - to be informed and inspired.

And that is exactly how I left last year's conference – informed, and inspired. A few weeks prior to that, Randy Hess and I formed FreePoint Technologies, a new little company that had acquired some innovative technology. Our belief was that it had a compelling value proposition to wire harness manufacturers if we could commercialize it for broad based applications, and if it could demonstrate an ROI right out of the box. And so, with that in mind, we attended the conference to share ideas, gain insights, find out what kept busi-

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News Plugs

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

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Wire Wisdom

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http://www.wiringharnessnews.com

Office Hours: 7:00 a.m. - 3:30 p.m. CST - (Monday-Thursday) Printed in the USA.

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NEWS PLUGS

Translation Services Announced

Acclaro has announced the launch of its new site (acclaro.jp) featuring Japanese translation services for the Tokyo office's local client-base. The Japanese language site caters to Japanese companies looking for a nimble, tech-savvy translation company to help them with their language communications as they export goods and services to the global marketplace.

"Acclaro Tokyo is seeing great interest from the local Japanese business community," says founder and president Michael Kriz. "Beyond helping U.S. companies export to Japan, we're now excited to be

working with more Japanbased companies exporting to the U.S., Europe and other Asian countries."

Japanese has long been the company's number one language. The timing coincides with the current economic resurgence that has allowed Japanese companies in the internet, consumer products, technology, retail, computer hardware and software industries to increase export volume in 2013.

"Ultimately we want to work with Japanese companies that are looking to do business in a nimble global manner," says Kriz. "Fast growing Japanese businesses need high-quality marketing and product information turned around very quickly, and we have built a strong team and service offering to deliver on demanding requirements."

In tandem with its upcoming participation in the Japan Translational Federation Conference on November 27, 2013, the new website aims to expand the Japanese language communication strategy and increase visibility with local, global-oriented companies.

The new site seeks to communicate the value of connecting with Acclaro including customized workflow, rapid turnaround, quality-oriented service and leading technology for automated processes. Content focuses on the four main service lines at Acclaro: software localization, mobile application translation, document translation and marketing translation.

The Acclaro Japan team treated the translation and localization just like a client project, taking key messaging from the English-language site and adapting it to a local

audience. New service pages will be rolled out as Acclaro continues to invest in local communications with Japan-based clients.

"We're seeing a significant increase in our Japanese-language work as we further invest in our physical presence there," says Kriz. "Based on our recent performance and investments in Japan, we're expecting to see 20% growth at Acclaro Japan in the next year."

Acclaro (http://acclaro.com) is an international translation and localization agency that helps the world's leading brands succeed across cultures. With its global headquarters in New York and offices and affiliates in San Francisco, Boston, Buenos Aires, Bangkok, Tokyo and Paris, the agency translates websites, marketing campaigns, documents and software for global enterprises, giving clients an authentic voice in key language markets.

Amphenol Circular Thermoplastic Connectors Use AT Contact Technology

Amphenol Industrial Global Operations, a global leader in interconnect systems, has enhanced its AT Circular (ATC) thermoplastic connectors by incorporating Amphenol's AT contact technology. These upgraded connectors mate with a positive reverse bayonet retention system and can withstand current up to 13 A.

Sealed and rated to 125°C, Amphenol's ATC connectors are ideal for communication and diagnostic testing in heavy duty trucks, buses, construction and agriculture equipment. Available in 3-, 5- and 9-way receptacles, these connectors are drop-in replacements to existing panel designs. The 9-way receptacles are also available with a jam nut for quick assembly.

Amphenol's ATC reverse bayonet coupling design allows for quick mating and unmating. These corrosion resistant,



Amphenol's ATC Connectors

heavy-duty industrial connectors are environmentally sealed against moisture and contaminants. Durable to 100 mating cycles, the connectors' contact retention system helps decrease installation costs and increase reliability.

Amphenol's RoHs compliant ATC connectors feature size 16 machined contacts and are made from a high quality copper alloy. They are available in both nickel and

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connector accessories.

CROSS REFERENCE TABLE

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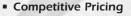
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Growth Strategies for Harness Companies

Loren M. Smith, CEO
Blue Valley Capital

requently people ask me what is the best way for a harness manufacturer to grow. My initial response is asking, "Are you sure growth would be good for you?" While conventional wisdom says if you're not growing you are going backwards—and that you increase your risk if you're not growing—it's simply not true that growth is good for everyone.

The controls, the management structure, and the management staffing of a \$20M harness manufacturer are very different from what is required to run a \$5M or \$10M harness company. Unless a CEO is prepared to make the structural changes necessary to effectively manage a much larger company, growth can undo years of success. In fact, a key reason the harness industry is fragmented, consisting of hundreds of small companies, is that many owners recognize this reality and have been reluctant to create the risk associated with growth.

As long as you are exceeding your customers' expectations regarding quality, delivery, and price, the market niche you serve might not be conducive to growth as a means of reducing risk. I



Loren M. Smith, CEO Blue Valley Capital

have seen many small harness manufacturers who serve a regional niche and whose revenue has been flat, but healthy, for years. These businesses have generated an exceptional living for their owners while simultaneously building strong value.

But, of course, pursuit of a growth path can be prudent for a number of reasons, such as the following:

- To provide more opportunity for family or for management
 - To reduce customer concentration
- To increase the company's value for a planned sale



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Internal growth can be achieved by increasing share in the markets you currently serve or expanding the number of markets your serve. Unless your competition stumbles, however, internal growth can be difficult. Perusing new markets, can be even more challenging than expanding your share in markets you currently serve because many harness users have limited their supply base and will not even return a phone call to prospective new suppliers

External growth: Harness manufacturers who have pursued growth through an acquisition strategy have met mixed results. The main challenge is that owners have to reach a "tipping point" before they are prepared to sell their business. Owners reaching retirement age with no succession plan can make good potential acquisitions, but often even these folks will not position themselves for a sale, and they might not return phone calls from suitors they don't know. When a harness company looking to expand through acquisition uses an intermediary with ample industry knowledge and visibility, the probability of success finding willing sellers can be substantially increased.

Here is an example of a harness company that successfully executed an acquisition growth strategy:

The company was owned by an entrepreneur who wanted to sell his business but felt he needed to grow to several times his \$20M annual revenue

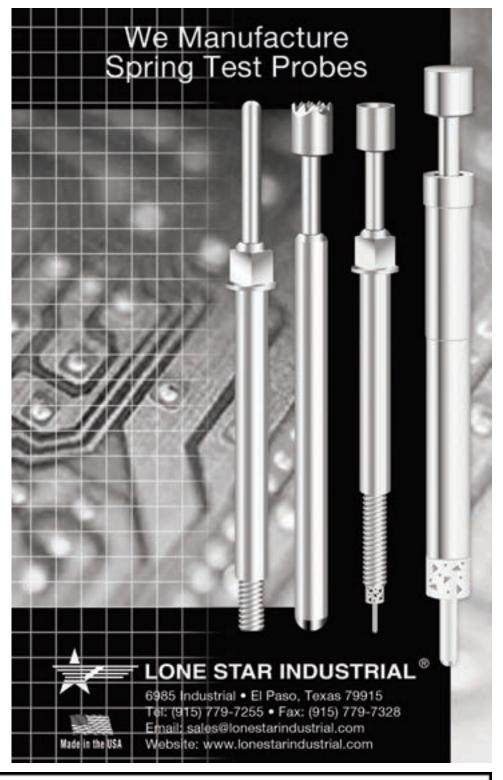
to yield a price that would give him a comfortable retirement. When he decided to embark on an acquisition growth strategy, he partnered with an investment group that provided the capital and expertise to enable him to make acquisitions that otherwise would have been beyond his reach.

Because the owner knew and respected his competition, he was able to approach target acquisitions with fair valuations and the opportunity to participate in the value creation that his growth would yield. Over the next few years he made several acquisitions that grew his revenue four-fold to \$80M while maintaining his EBITDA percent. When he sold his company he exceeded his price goal and was able to retire comfortably

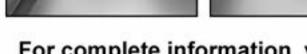
This example shows how an entrepreneur was able to achieve growth through a well-planned acquisition strategy, realizing a result he could not have attained by pursuing internal growth, in a time frame acceptable to his personable goal.

In the absence of a major market shift or a competitors misstep, internal growth always takes longer. When contemplating growth the entrepreneur always needs to first access his or her personal goals. Even more than most business decisions, growth is an issue where timing is everything.

Loren Smith can be reached at lms@blvcapital.com or www.bluevalleycapital.com













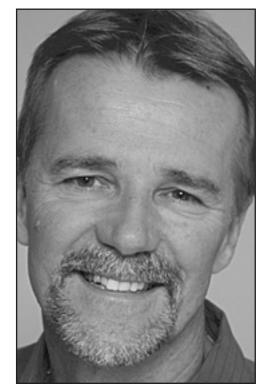


Measuring Up!

By Paul Hogendoorn

arly in my entrepreneurial career, my father tried to impress upon me the importance of good accounting disciplines. His words of advice - "you can't improve what you don't measure" - fell on relatively deaf ears most of those early years. I was too busy getting things done, or trying to bring in new business, or trying to get things working. I saw the accounting function as something that was useful mostly to the bank and to the tax man. With all the more important tasks on my own plate, I ascribed to the wisdom of the classic Kenny Roger's song "The Gambler": "there'll be time enough for counting, when the dealing is done".

I gradually developed an appreciation and understanding for my father's advice, and I came to realize that it was not only true for the financial part of the business – it was true for every aspect and function of the business. Indeed, every manufacturer today recognises the terms and concepts of "Lean Manufacturing", or "Six Sigma", or "SPC", or "OEE" etc. Every one of these systems or approaches is based on the premise that you have to measure the things that you want to improve in order to improve them. Being a late convert to my father's long lingering words of advice, I've added some advice of my own: "anec-



Paul Hogendoorn

dotal measurement results in anecdotal improvement".

Effective measurement is the key to improvement success, and the 3 keys to effective measurement are objective, method, and tools.

There's little sense measuring something purely for the sake of measuring. There needs to be a defined outcome objective - be it better quality, productivity, or profit. The purpose for any measurement has to be the achievement of an identified desired positive outcome.

The second key is the measurement method. Measurements should be granular, automatic, and be in 'real-time'. If the only indication a company has for its financial



performance is a year-end statement that is presented 6 months late, there is little opportunity to make any significant improvements in the next period, which by then is half over. Plus, there would be virtually no hints or indication where effective improvements could be made. More detailed and timely information is required – and it's the same for productivity, or product quality improvement objectives. Granular information, collected in real-time, and collected automatically – that's the second key.

The third key is tools. Most people I speak with are in complete agreement with the first two keys. There are plenty of "yep, we get it" nods of affirmation, but I often sense a building tension as the dialog progresses. "Yes, we know why we should be measuring, and we know what we should be measuring, but how can we do it effectively?"This is the point in the conversation where many manufacturers share their frustrations, and sometimes even stories of expensive failure.

I have three simple rules for tools. First, they have to be simple. If it's too complex, and only your IT person can figure it out, it's not a good productivity measurement tool. The operator, or the person regularly performing the function, should understand what the tool is measuring and how it's being done. We often think that we measure things for management's sake, but the truth is we should be measuring things for the benefit of the operator, because he or she is the one most directly connected with the work being done, and the one most able sto make positive changes to the

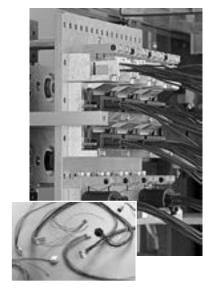
outcome. Second, it has to be automatic. If it requires manual entries to be made, or adds steps to the process or secondary tasks for the operator, it slows production down, and it makes the information less empirical and more subjective. And third, it has to be flexible and adaptable, and work well with other readily available tools, (such as spread sheet programs). If the measurement tool is built into the IT system or machine control, then only the supplier of that device or program can make changes to it. The cost of the tool should not be mistaken for the value of the tool. The best tools are often the inexpensive ones, and the least effective tools are sometimes the really expensive ones. Choose your tools well - try them out, and make sure the people that have to work with them like them too. The better they like them, the better they'll use them, the better the result will be.

Admittedly, these were all hard learned lessons for me, but fortunately, they were also lessons that I learned in time. This past January I embarked on another entrepreneurial adventure, launching FreePoint Technologies, a company that has developed products and tools specifically to help manufacturers measure, and improve, their productivity. This time, however, I will heed my father's advice right from the start, because "you can't improve, what you don't measure".

Paul Hogendoorn has worked with leading manufacturers for over 30 years. He can be reached at paulh@getfreepoint.com. For more information on this topic, check out www.getfreepoint.com

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Getting Away From the Office to Work ON the **Business!**

Continued from page 1 _____

ness leaders awake at night, and to learn as much as we could from people that were there for the reason we were - to work on their business instead of just working in their business. Now, as our company gets ready to enter its second exciting year, I can't think of a better place to reflect on the first year, renew my passion and refresh my vision for the next year, than the WHMA conference in Orlando.

Over my 30 plus years in this industry, I have learned that attending or participating at different events has different value to different people within the same organization. Simply being away from the office, in the company of your peers from time to time, is a healthy thing to do. For many, the Wire Expo in Milwaukee is a favorite place to do this "time away" experience with different members of their diverse company team, connecting people from engineering, sales, management and even service and administration, to the vision of the company and to its marketplace. It's a great opportunity to give everyone a tactile sense of what the company is doing, and why it is doing it. The WHMA conference on the other hand is a great opportunity to take one or two key people with you, and then surround yourself, and them, in the company of like-minded peers and leaders, for the purpose of determining what you should be doing next, and reminding everyone why.

Remember, working on the business rather than in the business requires you to get out of the business sometimes. Get informed, and get inspired! Hope to see you in Orlando!

Contact Paul at paulh@getfree point.com or www.getfreepoint.com

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- 1 EUBANKS Model 02700 Cut & Strip Machine w/6215 Prefeed
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- 1 **ARTOS** CS326 Cut/Strip Machine (2010) with a PF-6 Prefeed (2011) 1 - ARTOS Model AM.STRIP.50 Pneumatic Cable Stripper, 2008

PLUS: IDEAL Model STP Stripper, Part #45-930; RENNSTEIG Model CM-25-1 Pneumatic Crimper, 2006; CARPENTER Model 70B Strippers (3); MEGOMAT Model ASM3001-U Cut, Strip, Crimp Machine w/Crimp Force

Monitor, 1996; **METRONIC** Alpha Jet C Inkjet Printer, 2006/07;

MULTITECH 55T Injection Molding Machines, used 1 year; ARBURG 35T Injection Molding Machine, new

Contact: Martin Kenner

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Standard and Low Profile Cable Ties Have Unique Differences

General purpose nylon is suitable for use in most practical application at continuous temperatures up to 150 degrees Fahrenheit. Nylon 6/6, the grade most often used for cable tie production, meets UL 94V-2 flammability ratings. Its working temperature range is from 40

Heat Stabilized Nylon 6/6 is used in

degrees Fahrenheit to 185 degrees

Fahrenheit.

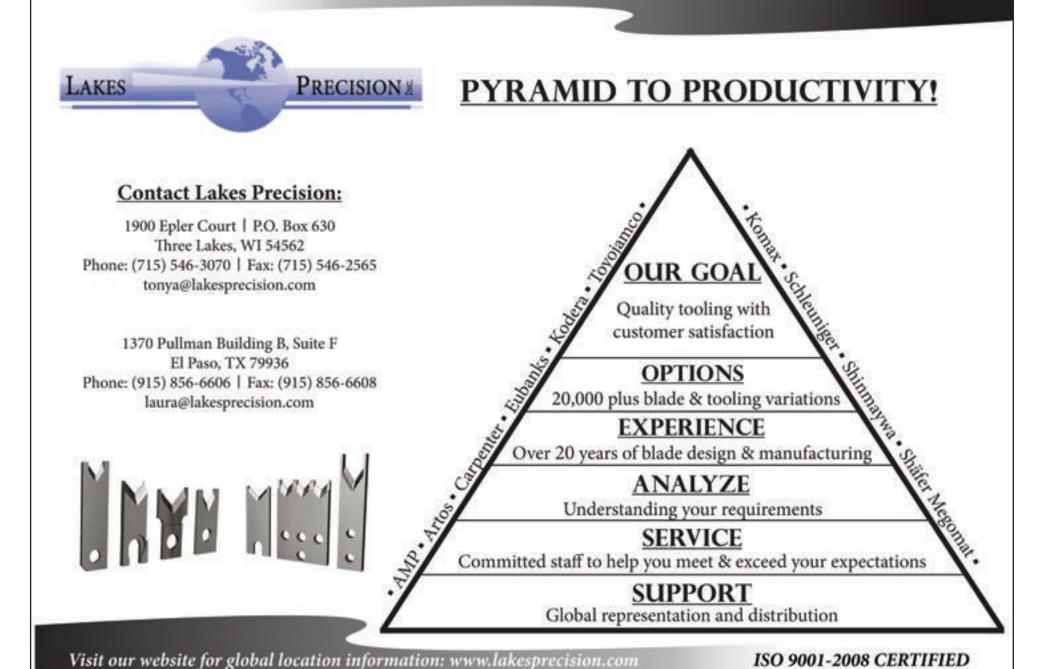
continuous or extended exposure to high temperatures (up to 250 degrees Fahrenheit). A general-purpose nylon will have a reduction in physical properties and fatigue as a result of high temperatures. Nylon cable ties containing specially formulated heat stabilizers provide additional thermal endurance. Heat stabilized nylons are engineered for con-

tinuous exposure to temperatures above

Continued from page 1



Side by side comparison of standard cable tie on left and Cobra low profile tie on the right.



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185 degrees Fahrenheit, which meet UL standards for electrical applications.

UV Stabilized Nylon 6/6 is used in continuous or extended exposure to outdoor use. The nylon cable tie is a weather resistant grade, enduring additional ultraviolet (UV) light. This grade is produced by incorporating stabilizers in the nylon resin. UV Stabilized Nylon cable ties are available only in black.

Cable Tie Applications and Types

Cable ties are used to harness and bundle items, most often wires and cables, but the scope of their use is limitless. Cable ties are available in a wide variety of sizes, from miniature ties for small loads to long lengths and strong tensile

strengths for large items or bundles. Various manufacturers custom design cable ties in numerous colors or dimensions, according to application requirements. There are low profile ties, traditional ties, mounting hole ties, releasable ties, push mount ties, beaded ties, flag ties, fluorescent ties, and many more. Specific application fields include transportation (automotive, marine, aviation), telecommunications, speaker wires, HVAC, and home theater/equipment. Some ties are designed for pneumatic tools to help reduce installation time.

Low Profile Ties

Low profile tie designs boast a contoured locking head which is safer, and snag resistant. Some low profile ties are more flexible and stronger than existing standard cable ties. They are safer because the stub is now deflected into a pocket at the rear of the head. They tend to be more flexible because the flat lock section curves to the bundle contour, and stronger because the low profile ties use an inline feature, which can create a higher tensile strength through engineering.

These plastic ties are ideal for control panels, appliances, and safety equipment (especially in confined spaces). They can also be used in applications such as playgrounds, construction sites, marine environments, and anywhere else safety is the highest priority.

The smaller head height of low profile ties is recognized both for their safety and for the cleaner, more finished look they give your cable bundle. Because of the construction of the low head, there are no cut-offs or sharp edges left out to snag, cut or abrade. This protects both unwary fingers and other cables and wires in proximity.

Wire harnesses and hoses can be bundled and/or fastened with low profile ties and then removed without damaging wires and tubing. A cable tie removal tool is another good way to ensure that you don't damage your cables while removing any other kind of ties.

Some low profile cable ties fea-

ture a zero clearance head, which conforms to the circumferences of the hoses, tubing, or bundled wires to eliminate snags, abrasion and friction in confined spaces. These low profile nylon cable ties are safe and tamper-resistant, and have a level of tensile strength that's ideal for use in maritime, datacom/telecom, playground, cable installation, and household applications.

Mark Bresnahan can be contacted at Cobra Products. 1 Robert Bonazzoli Ave, Hudson, MA 01749. Phone (978) 568-9815 or email: mark@cobraproductsus.com.

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Data Cable Co. Lands \$1.89 **Million Contract with Canadian Armed Forces**

ata Cable is proud to announce a \$1.89 million subcontract with General Dynamics Land Systems to support an

updated fleet of light armoured vehicles for the Canadian Armed Forces.

"The partnership demonstrates our continued support of our brave men and



Basic fixturing to a Cirris Easy Touch provides in-process testing before the assemblies are "closed up".



women in uniform and skilled Canadian workers—including right here in Orangeville," said the Honourable Bernard Valcourt, Associate Minister of National Defence. "Our investments will provide our troops with the modern equipment they need to conduct their missions safely and effectively for many decades to come while supporting Canadian workers across the country."

The Light Armoured Vehicle III Upgrade Project is one of four combat vehicle projects announced by the Government of Canada this year. The project will use evolving technology to improve protection, mobility and lethality of the Light Armoured Vehicle III fleet. Ensuring the protection, operation mobility and tactical agility

of the combat vehicles, they will remain the backbone of domestic and expeditionary task forces as well as expand the vehicles life span to 2035.

General Dynamics Land
Systems-Canada and Data
Cable have been working
with each other for over
15 years, together they
have supplied cables on
the original Light
Armoured Vehicle—
Armoured Personal Carrier
build of 650 vehicles.

"We have worked very diligently over the years to earn the faith and trust of General Dynamics. They recognize our reliability and quality as very important to their success in each project," said Paul Nelson, President of Data Cable. "We are honoured to have been awarded this important contract."

Data Cable will be providing high quality custom cable and wiring harnesses. These cables will be used in the chassis and turret to power the various vehicle subsystems.

"The assemblies we are making vary from power distribution components, similar to a battery cable in a car, to fairly complex vehicle control and monitoring harnesses. All of our cables are built to Military specifications and standards," said David Gillies, Development Manager at Data Cable

For further information contact Paul Nelson, President Data Cable Co., at 1-877-395-5133 or 519-941-7020; email pnelson@datacable.ca



Data Cable invested in a new conveyor oven. Tim Cathcart, CI/QA Manager is working on the oven parameters for a new assembly using a conveyor oven purchased for their Military contracts.





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Consumer - Appliances / white goods, Consumer electronics / brown goods



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2014 Annual Conference

the 2014 Wiring Harness Manufacturers Association (WHMA) Annual Wire Harness Conference will be held February 12-14 in Orlando. The Walt Disney World Swan Hotel will serve a conference headquar-

This will be the 21st annual WHMA Conference - a fact not overlooked by WHMA Executive Director Jim Manke. "Every WHMA Conference is filled with good information and networking opportunities. But this year's agenda is really special. We will have a variety of sessions touching on quality improvement, team building, marketing, and strategy deployment just to name a few," said Manke.

The keynote presenter will be Greg Lane of Low Volume Lean. His topic is: "Creating Ownership in the Company's Success". Mr. Lane says, "Although many will jump to thinking about monetary incentives as the most direct way to get the team's hearts and minds focused on the company's success, many success stories prove otherwise."

He continues, "Creating a positive organizational culture that is directly linked to the company's strategy and associated with the team member's success has proven to be a winning combination. Data demonstrates organizations with a highly engaged culture achieve up to 3X the operating margin compared to those that lack this level of engagement."

Of course a topic always discussed at the WHMA Conference is, "what areas of the industry are hot right now?" To give us an expert insight is Dave Pheteplace of Bishop Research. "With the recent launch of the North American Cable Assembly Manufacturers report and the companion World Report we see some definite areas of growth in the industry. The session will identify those areas and provide the background analysis on what we can expect going for-

Another "must see" presentation will be Joseph MacDonald's, "Big Thinking and Hoshin Lean Planning: Moving Forward to Quality Breakthrough Performances".

"Doing more with less and challenging the status quo are commonplace terms that seem attractively old fashioned. We are surrounded by new territory," Mac Donald says.

The session will answer:

· What is the compass azimuth and travel distance to top of the market mountain?

- · Are we moving upstream in conflict or downstream in cooperative collaboration?
- Is the team building toward results or repeating mediocre performances?

Scot Sharland, a lively observer of the auto industry and a WHMA Conference favorite, will address, "Automotive Supply Chain 2014: A NAFTA Perspective." Scot will look at this topic with:

- North American Market Overview
 - AIAG: At a Glance
 - 2014 Challenges and Threats
- Collaboration: The Key to Success

Joan Galletta from the Florida Association of Health Underwriters will cover all vou need to know about, "ObamaCare and its Impact on Business".

Of course, any WHMA Conference is also full of peer to peer networking time and sitting down with the major suppliers to our industry in the WHMA expo area. For full program and registration information go to WHMA.org.

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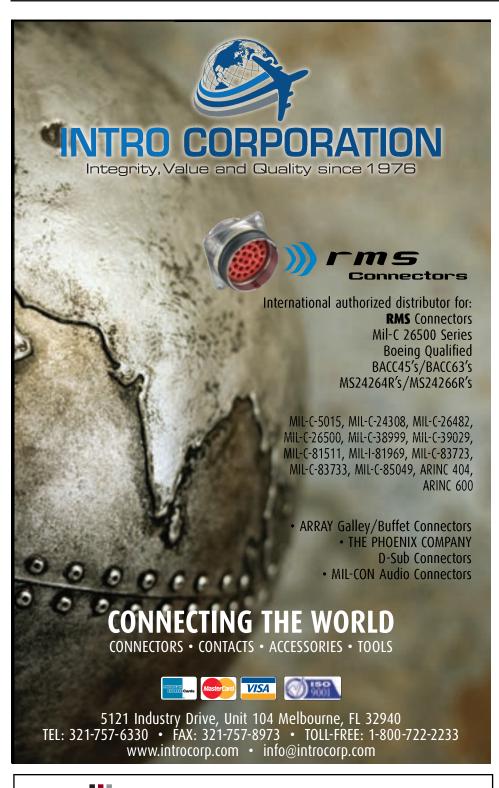
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Hanging Up the Wire



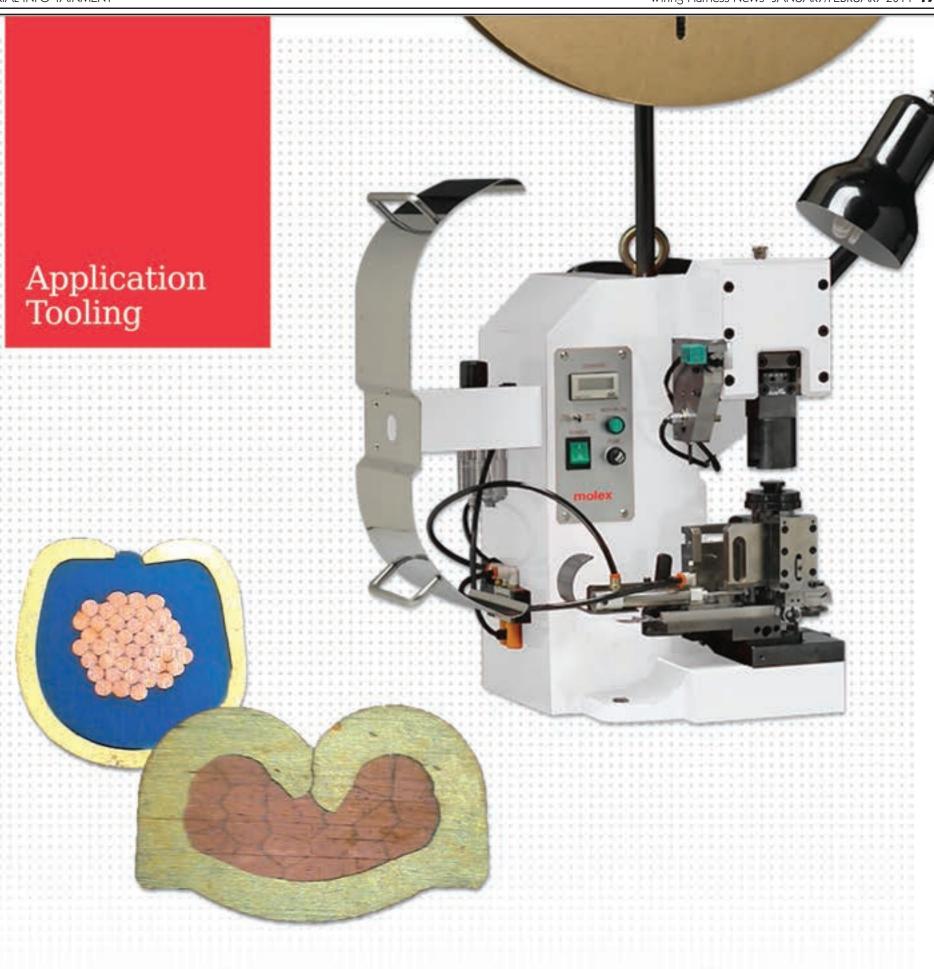
Komax Regional Sales Manager, Tom Rybicki

ong-time, Komax Regional Sales Manager, Tom Rybicki will be "hanging up the wire" and retiring at the end of 2013. Fondly known by many as the "Godfather", Tom has built hundreds of relationships in his 25 years of serving the Midwest region. Always putting the customer first, Tom recalls the first Komax 40 machine he ever sold to Burk Lift Industries in Mishawaka, Indiana. "There wasn't too much optimism that we would win the business at

Burk Lift. After multiple machine sales, I would say Burk Lift turned out to be a great first customer".

From golfing to woodworking, Tom is looking forward to pursuing his one of many interests in his retirement years. Tom is a wonderful storyteller and has always puts a positive spin on life. Both Komax employees and customers will miss his knowledge, kindness, and sense of humor. We all wish Tom a healthy and happy retirement.





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SPLICE 120 mm²

Schleuniger, Inc. to Demonstrate New Coax Stripping Machine



Schleuniger, Inc., a leading international manufacturer of high-precision wire processing machines and member of the Wire Harness Manufacturer's Association (WHMA), will present and exhibit at the 2014 WHMA Annual Wire Harness Conference at the Walt Disney World Swan Hotel in Lake Buena Vista, FL, February 12 - 14, 2014.

The conference will feature presentations on the latest issues facing the industry and include a small trade show of industry leading suppliers. During the trade show, Schleuniger will be demonstrating its innovative wire processing machines,

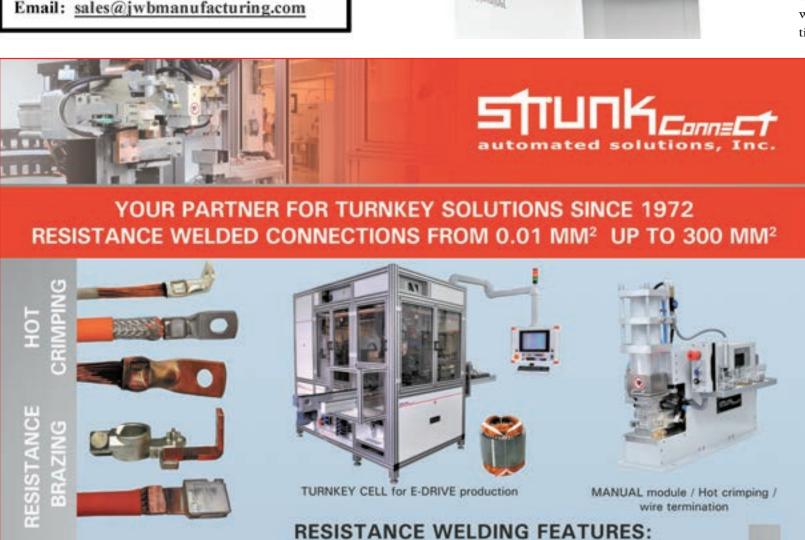
including one of the latest additions to its line of coaxial stripping machines, the CoaxStrip 5200.

The CoaxStrip 5200 is a semi-automatic, multi-step stripping machine for coaxial, multi-conductor cable and single conductor wire. Thanks to the universally designed blades, centralizers and clamping jaws, the machine can process a full range of cables without the need for mechanical adjustments, saving the user valuable time and increasing output when switching between applications. The CoaxStrip 5200 also offers user-friendly features such as easy access to the LED lit working area and an intuitive, menu-driven data input system that allows cable programs to be created, saved and recalled quickly, ensuring consistent, repeatable results each time. Additional benchtop wire stripping machines from Schleuniger will also be shown during the exhi-

In addition to exhibiting in the trade show, Schleuniger will also provide a short presentation during the "What's New in the Industry" session, highlighting the company's latest products and solutions.

Schleuniger has participated in the WHMA Annual Conference for several years now and is proud to be part of an organization that is dedicated to addressing the specific needs of the wire harness and cable industry.

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



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NEWS PLUGS continued

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Continued from page 5 _

gold plating. The connectors have an operating temperature range of -55°C to +125°C. Stamped and formed contacts are available upon request, as well as connectors with higher temperature ratings to 150°C. Various caps are available for each version.

Technical Specifications:

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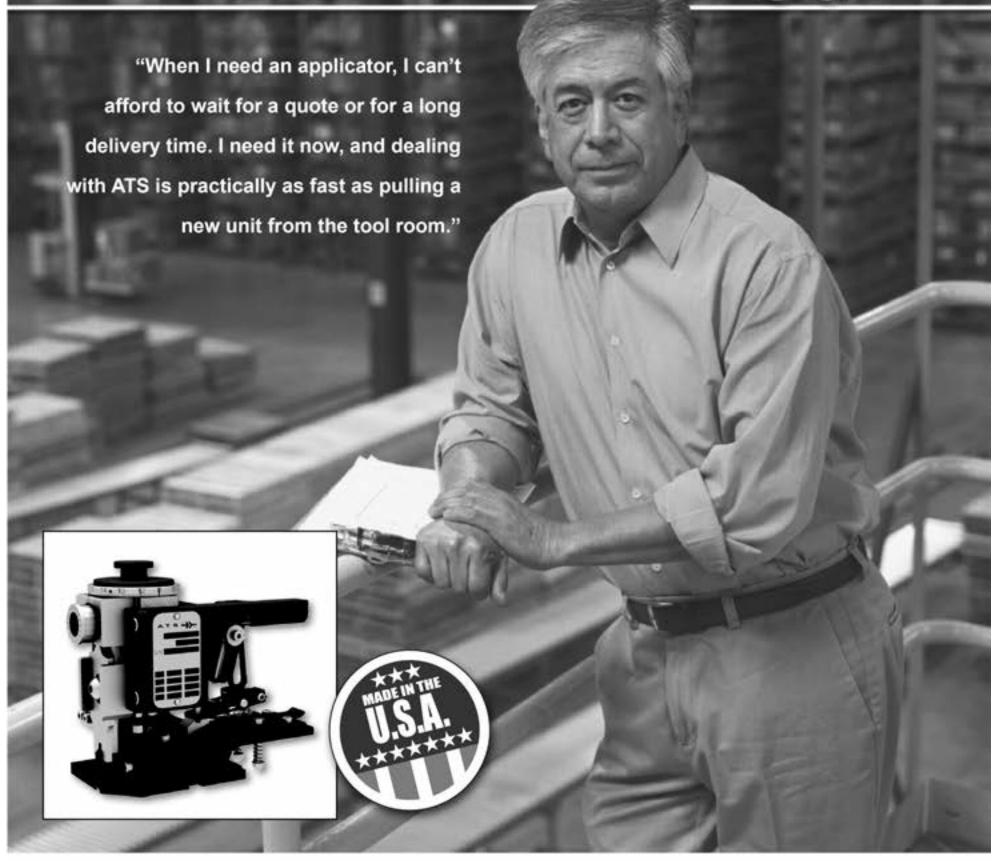
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NEWS PLUGS continued



Mentor Graphics Adds \$1000D Compliance and More with Latest Release of Capital Software

Mentor Graphics Corp. announced support for the S1000D documentation standard as part of the latest Capital® software release. The Capital suite addresses vehicle electrical system definition, design, manufacture and service. \$1000D support is just one of over 60 new capabilities available in the latest version of the Capital software suite. Users can automatically generate S1000D-compliant information packages directly from their electrical design data using the Capital Publisher™ tool, thereby reducing the costs and lead times associated with technical documentation creation. Also new in this release is tablet device support, enhanced security, and further support for regulatory compli-

S1000D is an international specification for the production of technical publications. It was initially developed by the Aerospace and Defense Industries Association of Europe (ASD) for use with military aircraft. The specification has since been modified for use with land, sea, and commercial equipment. S1000D is maintained by the S1000D Steering Committee, which includes board members from ASD, the Aerospace Industries Association (AIA) in the United States, and the Air Transport Association (ATA), along with national industry and defense representatives.

Werner Schadelbauer, managing director of HiCo-ICS and chairman of the ASD Integrated Logistics Support Specifications Working Group in Austria, said "Standards such as S1000D are increasingly the choice for technical documentation. Capital's feed into S1000D environments

will significantly streamline electrical system documentation creation for companies that have adopted this standard."

In addition to automatic creation of S1000D compliant documentation, Capital Publisher is a unique tool that delivers a highly navigable, vehicle/configuration-specific environment for maintenance technicians. Even with the aid of diagnostic systems, faults within the complex, multi-configuration electrical systems found on wheeled and flying vehicles are often time-consuming to troubleshoot. Capital Publisher's technician environment can substantially aid this task. With the new Capital release this environment can now be delivered to tablet devices, which may be either online or offline, thereby making troubleshooting easier even in remote locations.

Martin O'Brien, general manager of Mentor's Integrated Electrical Systems Division, said "Rapid fault rectification is a particularly high-impact activity. It directly affects the availability of industrial vehicles ranging from agriculture equipment to military aircraft, while for passenger cars or motorcycles the impact is felt in terms of reduced repair costs and improved brand image. Delivering electrical system troubleshooting assistance to mobile platforms is a natural extension of the Capital capability first introduced in 2011."

In addition to the new capabilities noted above, the new Capital release delivers multiple improvements such as enhanced security, and further support for regulatory compliance. This latest release of the Capital software suite is available for immediate download by new and existing customers.

Mentor Graphics Corporation is a world leader in electronic hardware and software design solutions, providing products, consulting services and award-winning support for the world's most successful electronic, semiconductor and systems companies. Corporate headquarters are located at 8005 S.W. Boeckman Road, Wilsonville, Oregon 97070-7777. World Wide Web site: http://www.mentor.com/.

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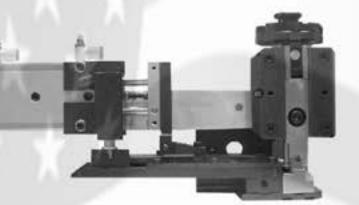




Model 1700

Model 2000

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

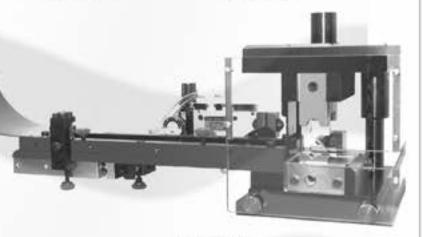




Model 1500

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TA Wire and Harness Inc.

Continued from page 1

what the other companies couldn't. Giving you the edge you need to stay relevant in this game.

My advice to anyone who is considering doing business in this field or any other or just trying to stay relevant is to do the trade shows. Technology is like a downslope river it never stays still. It is vital to know how the technological current moves and how it affects your industry lest you get left behind and or become obsolete. It is a good practice to know what is already available when you meet with engineers they seldom have the time to go over every little

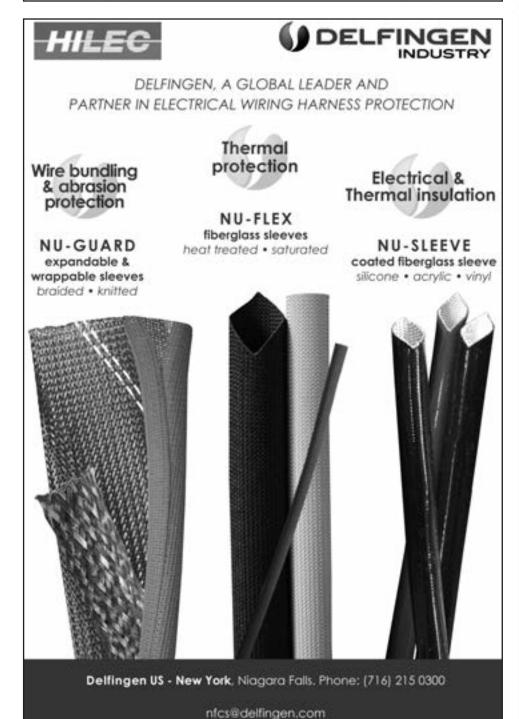
aspect of a project with you.

In tow with technology, engineers are always modifying or changing a product and the tools for any job is continuously upgraded. The word here is efficiency—time is money and quality is the life of your business- and machines are the logical direction. Williams seriously considers machinery displayed at these shows- and have procured a few. The proper equipment and tooling can make all the difference in the quality and efficiency of fabricating a product or coordinating an entire project. Customers are always looking at cost and turn-

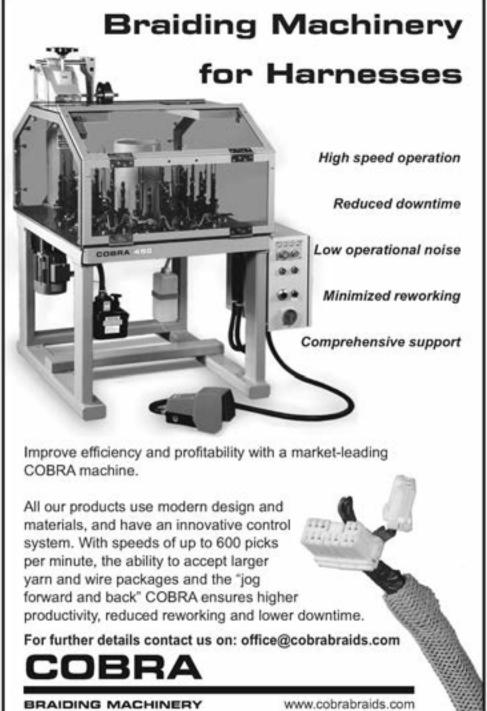
_Continued on page 28



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TA Wire and Harness Inc.

Continued from page 26

around and we at TA Wire strives to please them.

"Rekindling friendships with customers also motivates my attendance at these shows," he said. I may not get an order right away but some months down the road I get a call or an email and the partnership begins or continues. I know that the culture of today is one of instant gratification but in this business patience is everything.

With such a focus on gathering information Williams has established a culture at TA Wire of openness. Cost efficiency and how it directly affects production and the very life of the business

is examine in meetings. Staff meetings are held every month which allows for follow-ups, rethinking things, repositioning if necessary and or scraping entire plans of action to implement better ones. It is very easy to become complacent in business so the aim is always to keep growing and that must translate to the staff.

Williams' career has grown enormously since he began working in 1983. At Frisco Bay Industries, a Montreal company that once produced security devices, camera systems and related components used in the banking and other such industries. Williams began as an assembler and moved up to tester then to coordinating job production. It



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With two other partners Williams decided to venture out into the world as his own boss. They started Phaeton Electronics in 1986 producing mainly printed circuit boards. It wasn't long before williams and his partners realize that this product was too time consuming and risky for such a young business as theirs. All it would take is just one tiny part to hold up production, shipment would be delayed and customers would get angry. So they decided to make the switch from PCB to cables and wiring harnesses. Phaeton ran its course as most small business with inexperience owners often does. Williams however was only now

getting started he had tasted independence and wanted more- TA Wire was born in November of 1997.

Using his own money and the relationships he had built with key suppliers during his time at Phaeton Williams forged ahead. He went to each supplier and boldly ask for a ridiculous 90 days terms and found that they were willing to support him. They had come to know his determination and what was even more important that he was a man of his word. To show his gratitude to his suppliers, Williams paid them when he was paid by his customers.

It wasn't long before TA Wire And Harness Inc., became a formidable competitor. An ISO 9001:2008 certified company, TA Wire built its' name on rapid product delivery to its' customers giving them, on average, a two week lead time. "A satisfied customer is a returning customer" became our mission. "The key employees at the time and myself," says Williams. "worked the clock. Day shifts for full-time employees and the evenings for the part-time workers, we even worked weekends. There was no job that was to difficult or to big to handle--we always found a way. " TA Wire has been fortunate to have some very creative staff members who put in the time to evaluate every job for the right application and production processes. Customers, like everyone else, react to what they see. So offering a service to improve the quality and aesthetics of a customer's

products--functionality needn't be unattractive to the eye--was and still is hugely important. Customer satisfaction should always govern how a company functions. Ensuring that the quality of product you sell to your customers meets industries approved standards is paramount.

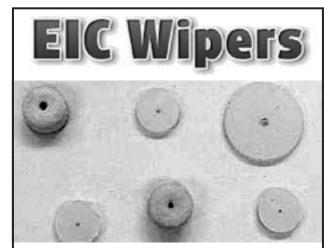
Another very important aspect of cost efficiency is inventory, we keep it to a minimum, Williams said. Though, we stock certain products to accommodate those customers who request it by providing us with order forecasts.

Williams believe it is crucial to have an extensive list of suppliers. Customers aren't interested in how much snow fell or that it flooded in the city where you buy the parts to make their product-- they care only that their delivery is on time.

Controlling the cost of a product is also important and having alternatives when it comes to buying is huge. We go the extra mile to find parts for our customers.

Throughout the years TA Wire And Harness Inc., has evolved as a company in many ways, yet our attitude and respect for our customers remain constant. Running this company is my gridiron- and like the 9 and 10 year- olds I once coachedemployees, suppliers and customers make up the team we all have our positions and every position contribute to the success of the team.

For more information, call 514-341-2131; email info@tawireand-harness.com; fax 514-341-5265; visit www.tawireandharness.com; or write to 183 Bates Road, Suite 202, Montreal, QC Canada H3S 1A1.



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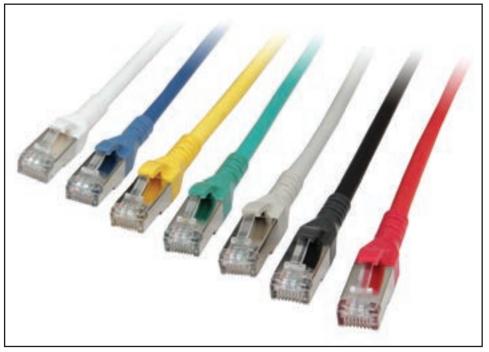
TLC Electronics, Inc. is a leading distributor of interconnect and electromechanical products offering a wide range of services to meet customer specific applications. These services include precision wire and cable assembly, fan and blower assembly, power supply modification, electromechanical subassembly including turn-key enclosure assembly and drafting services.

TLC Electronics is certified under ISO9001:2008 and is UL/CUL recognized. TLC's account managers and inside sales personnel are trained in the electromechanical product lines and services offered and are prepared to assist customers and prospects with solutions for their specific application. See www.tlcelectronics.com for more details on the products and services offered by TLC Electronics.

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For additional information, please contact Steven Olson, TLC Electronics' sales and marketing director at 651-558-2582 or via email s.olson@tlcelectronics.com.

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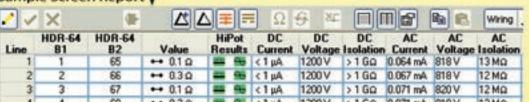
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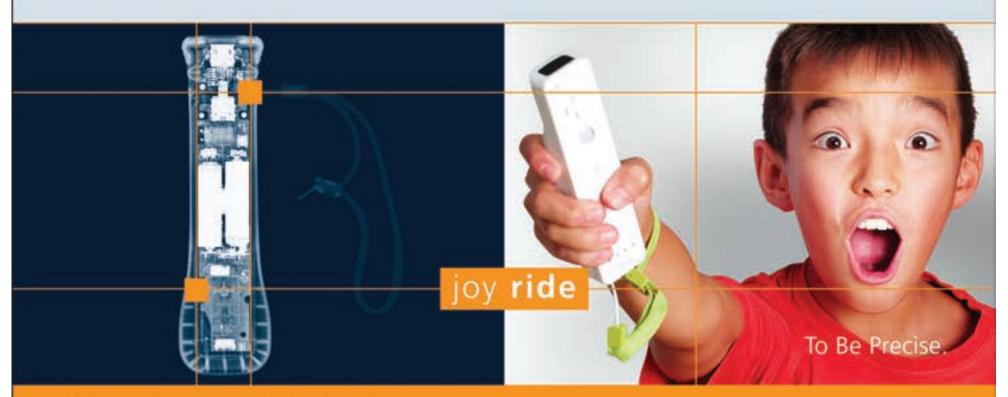


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Unique and intuitive programmable cable stripping machine designed to strip aluminum or copper jacketed semi-rigid coaxial cable.

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- High precision and flexibility
- Appealing design and ergonomics

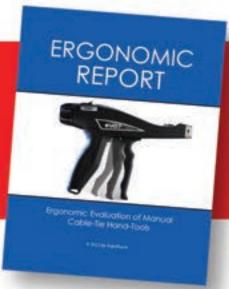


ART MEETS SCIENCE

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



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





Study participants rated the EVO 7:

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- · Best in overall ease of tension setting
- · Best in overall ease of use
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Visit:

hellermann.tyton.com/EVO7

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

www.hellermann.tyton.com



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SealLoad 3100: Precise Weather **Seal Loading Station**

The new SealLoad 3100 seal loading station applies weather seals to wire ends automatically. This new machine features a novel seal feeding system, excellent quality and repeatability, significantly higher productivity, increased user-friendliness, low energy consumption, and a new design.



SealLoad 3100 Seal Loading Station

The field proven components of the SLU 3000 (previous model) have been combined with new technologies. The new SealLoad 3100 seal loading station reaches the highest level of productivity and precision. Efficient processing requires quick, trouble-free conveyance of the seals. The new belt conveyor carefully conveys the seals from the storage container quickly and reliably. The seal storage volume is now twice as large compared to the SLU 3000, enabling longer intervals between fillings. The new SealKit has a transparent storage container and can be equipped with the optional Seal Level Monitor.

Compared to its predecessor, the Seal-Load 3100 has been optimized and equipped with a broader range of capabilities to apply longer, wider, and smaller seals at higher production rates. The total cycle time of the new SL 3100 has been reduced by 27% and the changeover time

An optional adapter enables the customer to use existing seal kits from third party suppliers, minimizing their investment for new production equipment. Using the setup gauge, the AdapterKit and the existing 3rd party feed track can be prepared in advance outside of the production machine. This ensures that there are no interruptions in production and leaves the feed tracks unmodified so they can still be used with their original third party supplier machines at any time. This feature provides great flexibility that translates into higher efficiency. The SealLoad

_Continued on page 40



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Problem #1:

Not sure of machine utilization numbers?

Reported claim: 80%

Suspected OEE:

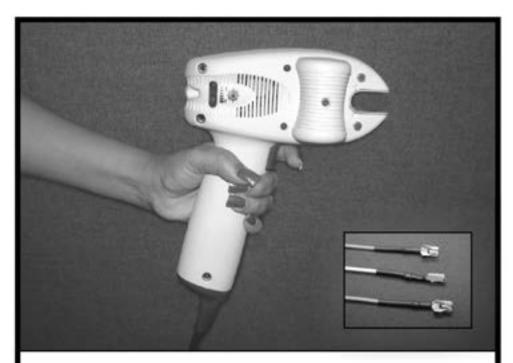
Actual OEE:



Getting the numbers right...

Because you can't improve what you don't measure.





Our Gun out-shrinks the competition 5 seconds vs. 12 seconds*

"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.

Focus-Lite™ technology uses radiant energy to shrink heat-shrink tubing in a fraction of the time of traditional methods.

Here's why it works: Dual Quartz Halogen bulbs are focused to direct all of the usable radiant energy to the cable/wire diameter covered by shrink tube. This allows for 10 times the

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

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.







NEWS PLUGS continued



Continued from page 39

3100 is fully integrated into the Schleuniger CrimpCenter family. The design of the SealLoad 3100 is optimized for the CrimpCenter and requires minimal space due to its narrow design.

With complete software integration into the CrimpCenter EASY interface, the user can set up and control the SealLoad 3100 directly from CrimpCenter user interface. Error messages and assistance are presented in the information window and are easy to understand. A complete diagnostics tool enables the technician to control every aspect of the SealLoad 3100 including monitoring and testing of all input and output signals.

Customer Benefits:

- Full integration with the CrimpCenter family
 - Quick & precise seal loading
- Energy efficient & careful conveyance of the seal
 - Short changeover times
 - Easy replacement of the SealKits

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

JAC Motors Sees Multiple Benefits from Deployment of Mentor Graphics Software Tools for Network and Electrical Platform Design

Mentor Graphics Corporation and Chinese automaker Jianghuai Automobile Co Ltd announced the successful deployment of the Mentor® Volcano™ and Capital® tool suites. As one of China's leading automotive OEMs, JAC uses the Mentor Capital suite for electrical system design and Volcano products for in-vehicle communications implementation.

Now deployed into both passenger and commercial vehicle projects, the Mentor technology delivers benefits to JAC ranging from enhanced design quality to reduced power consumption within the vehicles. These benefits are amplified because the deployment of the Mentor tools is now extending to JAC's supply chain.

JAC uses several Mentor products for electrical system design including the Capital Logic™ product, Capital HarnessXC™ product and mechanical CAD integration products. Following a successful pilot project, JAC has now standardized the Capital suite for all production platforms. This allows JAC to rigorously apply its intellectual property such as component definitions, design constraints, and rule checks. Use of the Capital tool suite by JAC's wire harness suppliers extends data continuity to the manufacturing domain. Together with the Capital tool suite's advanced data management capabilities, these factors help ensure data consistency and promote design quality. Furthermore, JAC's electrical engineers are able to reduce overall

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harness cost and weight by exploring alternative implementations using metrics generated dynamically by the Capital InsightTM product. Wire harnesses are both expensive and heavy, and while cost reduction is always a key driver, weight reduction is now receiving close attention in order to boost fuel efficiency and minimize emissions.

JAC also uses the Mentor products for in-vehicle communications. Specifically, JAC's LIN and CAN communications are designed using Volcano Network ArchitectTM (VNA), which helps automate network design and provides deterministic analysis such as end-to-end timing verification. In addition, JAC is now adopting the Mentor Volcano Target PackageTM

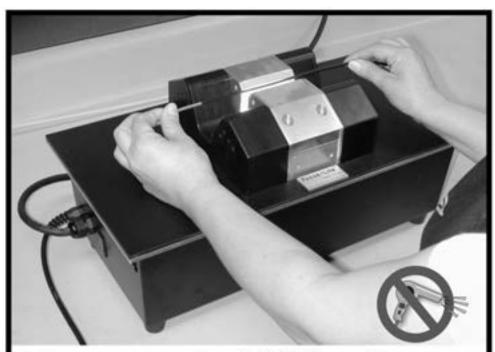
(VTP) embedded communications software for several ECUs. The VTP software is helping JAC realize important benefits such as reduced ECU power consumption and improved diagnostic capability.

Mr. Yan Gang, deputy general manager, JAC said, "Mentor's technology for automotive electrical and electronics design is world leading. Given the importance of electronic systems in modern vehicles, products such as Capital and Volcano clearly boost JAC's competitive position, not only in China but also worldwide." This point was amplified by Danny Perng, Mentor Graphics vice president for the

__Continued on page 42



As one of China's leading automotive OEMs, JAC uses the Mentor Graphics Capital suite for electrical system design and Volcano products for in-vehicle communications implementation.



Save up to 80% of your labor cost on heat shrink operations

The Focus-Lite** 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 The Focus-Lite** can be used for high volume bench top applications as well as low volume prototypes and laboratory applications.

Focus-Lite™ technology uses radiant energy to shrink heat-shrink tubing in a fraction of the time of traditional methods.

Here's why it works: Dual Quartz Halogen bulbs are focused to direct all of the usable radiant energy to the cable/wire diameter covered by shrink tube. This allows for 10 times the average energy expended by the bulbs to be delivered to the target zone. What you will see is an amazing difference in shrink time!

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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Signature * Easy Touch
High-voltage Benchtop Cable Tester



NEWS PLUGS continued fiscal year of nearly \$1,090 million.

Continued from page 41 _

PacRim region, who commented "Electrical and electronics design are clearly intertwined. JAC provides a great example of how Mentor's extensive product range can deliver tangible benefits in these critical domains."

Mentor Graphics Corporation is a world leader in electronic hardware and software design solutions, providing products, consulting services and award-winning support for the world's most successful electronic, semiconductor and systems companies. Established in 1981, the company reported revenues in the last

fiscal year of nearly \$1,090 million. Corporate headquarters are located at 8005 S.W. Boeckman Road, Wilsonville, Oregon 97070-7777. World Wide Web site: http://www.mentor.com.

Pasternack Releases New Lines of Multi-Octave Wilkinson Power Dividers

Pasternack Enterprises, Inc., an industry leading manufacturer and global supplier of RF and microwave products, introduces a brand new line of Wilkinson power dividers (also referred to as Wilkinson power splitters). These multi-octave power dividers cover popular communications bands from 0.5 to 2.7 GHz including 3G and 4G, plus WiFi bands and are well suited for applications such as in-building distributed antenna systems (DAS) or test

environments.

Pasternack is offering two Wilkinson designs covering 0.5 to 2 GHz and 0.7 to 2.7 GHz bands. The 0.5 to 2 GHz band power dividers utilize SMA connectors and are available as 2-way, 4-way and 8-way configurations. The 0.7 to 2.7 GHz band power dividers are available with SMA or N connectors, and are available in 2-way, 3-way, 4-way and 8way configurations. Both Wilkinson splitter designs provide accurate performance across their designed frequency bands, making them ideal for many wireless applications including in-building DAS.

Pasternack's new offering of Wilkinson power splitters consists of eleven part numbers total. Power ratings for the group range from 10 to 30 Watts and have maximum insertion loss of 1.2 dB. Maximum VSWR

> is 1.4:1 and phase balance ranges between 2 and 8 degrees. Each of the eleven new power dividers meets MIL-STD-348 standards and is RoHS compliant.

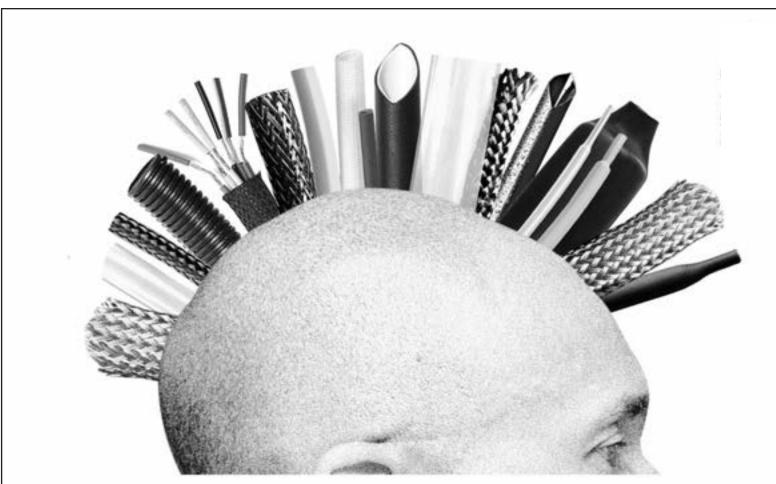
> "These new Wilkinson power dividers complement our breadth of RF power dividers and couplers, expanding our offering of options from 2 MHz to 50 GHz," says Gerry Camacho, VP of Technical Marketing at Pasternack Enterprises, Inc.

You can view these products by visiting http://www.pasternack.com/pag es/Featured_Products/multi-octave-wilkinson-power-dividers.htm directly. Pasternack can be contacted at +1-949-261-1920.

Nordson Advanced Technology Systems Expands to New Facilities in Taiwan

Nordson Corporation has announced that Advanced Technology Systems operation in Taiwan has moved to a new facility that doubles its footprint and will encompass enhanced engineering, applications, sales, service and support for its electronics manufacturing customers. Nordson's Advanced Technology Systems operation manufactures precision dispensing, fluid management, test and inspection, and surface treatment products for a wide variety of high-tech industries and includes the Nordson ASYMTEK, DAGE, EFD, MARCH, and YESTECH lines of business.

"Our upgraded facility will give us the ability to develop deeper process solutions for our customers by using equipment from one line of business to



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If you're manufacturing wire harnesses, rest assured Thermosleeve USA probably offers a tubing to meet your requirements.

To view our complete line of products you can either scan the QR code or visit us at www.thermosleeve-usa.com/catalog. To request a quote, con-

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improve or verify the performance of another," explained Greg Wood, vice president, Nordson Advanced Technology, Asia. "We have seen strong growth in Taiwan over the past few years. We anticipate that growth rate will continue as we launch new products aimed specifically at PCBs, semiconductor and LED packages, and wafer level processing and assembly."

The new address is: Nordson Pacific, Inc., Taiwan Branch, 3F, No. 657-12, Chung Chen Rd., Hsin Chuang Dist., New Taipei City, Taiwan, R.O.C. 24257. The telephone number (+886.2.2902.1860) and fax number (+886.2.2902.1859) remain the same.

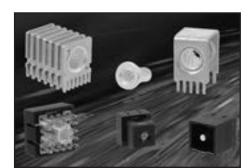
RADSOK R4 Can Deliver Connections Up to 200A

Amphenol Industrial Global Operations, a global leader in interconnect systems, has enhanced its RADSOK technology high current contact system to RADSOK R4. This improved system is available in board-to-board, wire-to-board and busbar-to-board configurations.

Ideal for use by both server and board manufacturers, RADSOK R4 delivers connections up to 200A. The system's hyperbolic grid contact provides multiple points of contact and a high contact surface area for efficient and low resistance power transmission.

RADSOK R4 features a lower temperature rise than other traditional contact systems in its class, enabling smaller overall connector packaging and compact footprints. With a 25% reduction in outside diameter over previous models, the new R4 helps to further increase power density and save space.

Amphenol's RADSOK R4 is easily configured to specific application requirements. The versatile RADSOK contact can be efficiently adapted to custom packaging with minimal non-recurring engineering costs. The proven RADSOK radial contact design offers superior mechanical and electrical performance for high current board termination. The system offers more consistent performance as well as lower voltage drop and contact resistance.



Amphenol Industrial's RADSOK R4

For enhanced radial float tolerance in applications that require blind mate or mechanical robustness, RADSOK Super Twist R4 contacts are available.

RADSOK R4's laser welded assembly offers better mechanical strength than other contact systems on the market.

__Continued on page 42



Nordson's new facilities provides enhanced engineering, applications, sales, service, and support for precision dispensing, fluid management, test and inspection, and surface treatment products







Continued from page 43

The following all use Amphenol's RAD-SOK 4 technology:

- RADSTACK, a high current mezzanine board stacking system;
- RADFIN, a low profile, right angle receptacle; sizes up to 200A
- PowerBlok, a connector that provides a high current single-point connection of up to 150A to the PCB utilizing the RAD-SOK Super Twist contact system;
- RADSERT, contacts that provides a high power-to-board interconnect;
- PGY, an orthogonal connector series available in multiples sizes from 35A to 150A

Amphenol RADSOK, RADSOK R4, Super Twist, RADSTACK, RADFIN, PowerBlok, RADSERT, PGY and Amphenol are trademarks or registered trademarks of Amphenol Corporation.

For more information, please visit http://www.amphenol-industrial.com or e-mail jgriffiths@amphenol-aio.com.

BURNDY Organizational Announcement

BURNDY is pleased to announce the addition of Mr. Vance Smith to the US Sales organization as the South Central Regional Sales Manager. Vance joined the team effective September 16, 2013 and will report to Warren Jenkins, Vice President Sales & Marketing. Vance will be responsible for leading the South Central Region CM&R sales force. This region includes Colorado, Kansas, Louisiana, Missouri, New Mexico, Oklahoma, Texas and Wyoming.



Vance Smith, South Central Regional Sales Manager, BURNDY.

Vance comes to BURNDY from Rockwell Automation where he served as Channel Manager-Gulf Coast Region. While at Rockwell, Vance was an active leader in the Sales Mentorship Program Rockwell uses to develop sales talent. His responsibilities included building market focus business plans, developing customer distributor training courses and facilitating quarterly business reviews with the management teams. Previously, Vance worked at Panduit for five years in numerous sales roles including Manager of Strategic Accounts and Territory Manager.

Vance has a strong background with a consistent record of achieving objectives and holds a BS in Agricultural Development from Texas A&M University. He is an active member in several professional organizations and lives in the Houston area.

Contact BURNDY at 47 E. Industrial Park Drive, Manchester, New Hampshire, 03109, call Customer Service at 1-800-346-4175, or visit our website at www.BURNDY.com

Since 2009, BURNDY LLC has been a key brand under the Electrical Systems Platform of Hubbell Incorporated. More information can be found at www.Hubbell.com

May Deadline for Conflict Minerals Reporting

May 31, 2014, is the deadline for U.S. Securities and Exchange (SEC) listed companies to file conflict minerals reports required by Section 1502 of the 2010 Dodd-Frank Wall Street Reform and Consumer Protection Act. Although companies that are not listed on U.S. stock exchanges are not required to file conflict minerals reports, they likely have customers or customers' customers that are required to file. As a result, companies throughout the world are receiving inquiries about their uses of conflict miner-

With 2013, the first year for which conflict minerals information must be reported coming to an end, conflict minerals inquiries are proliferating throughout the supply chain. Many companies which have been responding to inquiries one by one are quickly realizing the need to develop a conflict minerals strategy.

In order to help its members who continue to struggle with conflict minerals reporting, IPC is partnering with consulting firm, Tetra Tech to offer an intensive, one-day conflict minerals workshop to help companies prepare for conflict minerals reporting and customer inquiries. For the past year, Tetra Tech has held workshops focused on reporting within the automotive industry supply chain. By partnering with Tetra



TE Connectivity Ocean Applicator Series

New Applicator Developed to Provide Improved Precision and Reduced Setup Times

Crimping standards continue to rise to higher levels of quality and repeatability. Taking customer input and market demands into consideration, TE Connectivity (TE) has created the new Ocean Applicator series to meet those higher demands and to take terminal crimping to a new level.

By consolidating its past applicator offering, TE was able to provide design consistency and tooling standardization to the market. One of the resulting benefits to customers of this consolidation is flexibility in the choice of feeding options: new and improved mechanical and pneumatic feeds along with the innovative and precise servo feed option. The new Ocean Applicator series design also allows customers to perform field upgrades to system III and Smart Applicator technology. It provides an upgrade path for terminal intelligence that allows the machine to obtain setup features as the applicator is upgraded.

- · One applicator platform modular family design
- Two ram interface styles
- · Three interchangeable feed options (mechanical, pneumatic or servo)
- Smart Applicator Integration

For your application tooling needs, contact Heilind Electronics or visit www.heilind.com/rpages/te_oceanapp_whn







Tech, IPC will combine its extensive knowledge of the electronics supply chain with Tetra Tech's experience in providing hands-on compliance and implementation strategies.

During the workshop, instructors with experience in conflict minerals regulations and compliance will review the SEC conflict minerals rule and Section 1502 of Dodd-Frank in detail, providing a compliance roadmap for workshop attendees to follow. Additional topics include:

OEM programs and requirements conducting a reasonable country of origin inquiry (RCOI) supplier outreach the IPC-1755 Conflict Minerals Data Exchange Standard,

Confict Free Smelter Initiative (CFSI) (formerly known as EICC/GeSI) reporting template other software tools real-life industry best practices.

Additionally, participants will have a chance to actively engage with other attendees to benchmark industry practices. Given the significant degree of flexibility provided by the SEC conflict minerals rules, it is critical to understand industry practices.

Workshops will be held January 30, 2014, in Needham, Mass.; February 4, in Irvine, Calif.; February 6, in Milpitas, Calif.; February 19, in Bannockburn, III.; and March 4, in Austin, Texas. For more information on or to register for a conflict minerals workshop, visit www.ipc.org/cm-work-shop.

Diversified Technologies Upgrades ISIS Linear Accelerator at RAL

Diversified Technologies, Inc., (DTI) developer of PowerMod™ high voltage, high power pulse modulators, DC power supplies, and process control systems, has recently installed two solid-state switches at the Rutherford Appleton Laboratory (RAL) to eliminate numerous operating difficulties with their legacy systems and reduce operating costs.

RAL, one of the national scientific research laboratories in the UK, has been operating the ISIS Linear Accelerator since 1984. Recent tetrode switch tube failures, however, prompted them to replace their legacy,low power cathode modulators used on its 2 MW RF triodes with high power, solid-state anode modulators from Diversified Technologies, Inc.

DTI installed the solidstate switches between the power supplies and tetrode which prevented high fault energy from destroying the tetrode, saved approxi-



ISIS Linear Accelerator

mately 25% in electricity costs, and increased the overall reliability of their older generation ISIS Linear Accelerator.

According to Michael Kempkes, DTI VP, "the solid-state switches are drop-in replacements. DTI specializes in modernizing any vacuum tube RF amplifier or transmitter such as Klystrons, TWTs, and magnetrons."

For more information contact: Diversified Technologies, Inc. 35 Wiggins Ave. Bedford, MA 01730-2345. Phone (781) 275-9444 or FAX (781) 275-6081. Visit www.divtecs.com

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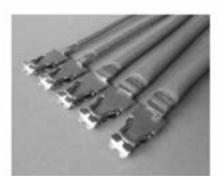
www.WHMA.org



Ultrasonic Metal Welding Technology

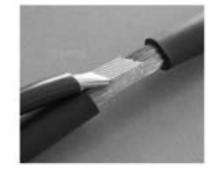






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- •Wire Termination to 120mm²
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- •Flat Conductor Ribbon Cable
- ·Switches, PCB's
- •Tube Sealing, Shunts
- Integrated Systems















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Northwire-NWI Lab360 Collaborates with Boeing to Modernize Air Refueling Boom System for the U.S. Air Force on New Tanker Program

KC-46A Tanker Program bigblights NWI's rugged tech insertions for barsh environments

orthwire, Inc. (NWI) A woman-owned small business responds to growing demands for new aircraft and increasing requirements from the U.S. Air Force to upgrade obsolescent aircraft and technologies with fuel efficient, capable and mission ready aircraft. Northwire's certi-

fied project managers are working with Boeing's program managers to develop the next generation air to air refueling system for the U.S.Air Force. Northwire-NWI Lab360 is the premier partner for the design, manufacture and contract engineering services of custom technical products for global diverse markets. ITAR and EAR Registered, NWI Lab360 leverages professional certifications in Six Sigma®, Lean, Project Management and the American Society for Quality to optimize design, manufacturing and quality to achieve the highest quality and the shortest lead times for any volume of custom wire and cable, retractiles, assemblies, connectors, harnesses,

injection and over-molded products.

Maintenance, repairs and operation costs increase dramatically with aging aircraft, making the sustainment of current platforms mission-critical. Collaborating with engineers from Boeing, Northwire's certified project managers are innovating highly customized tech insertions for extreme conditions.

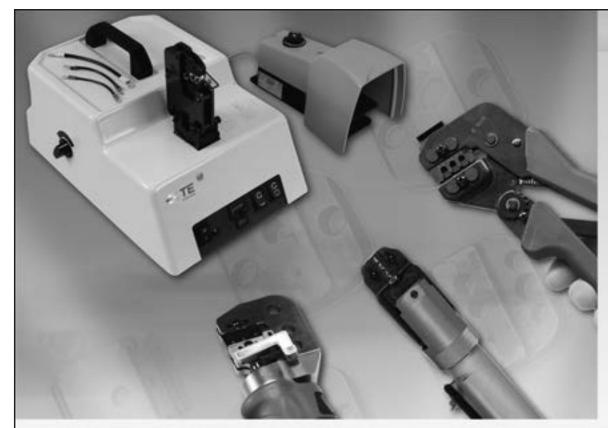
"Emerging technology aids our forces' ability to flex and adapt to their rapidly changing technical environments. Our use of technology through simulation, in design, material selection, manufacturing and test and develop helps to develop a superior product faster with fewer redesigns and greater

reliability." explains Harold Nevin (Retired Brigadier General), Senior Vice President of Operations, "Northwire is pleased to engage with Boeing to support this new Program and modernization efforts," states Nevin. "We design and manufacture innovative solutions, advance existing technologies and diversify our product portfolios to achieve optimal levels of integration, interoperability and interdependencies in our efforts to satisfy the demanding requirements in the equipment modernization spectrum," affirmed Nevin. The synchronization of requirements and resources through project management highlights not only the disciplined approach to the

> KC-46A Tanker Program co-development effort; it also reveals the rigorous demands of the application while meeting the short development cycle schedule constraints. Achieving maximum useful life requires the team to employ engineering extremes; tests include temperatures at -65°C and endurance approaching one half-million cycles. Resistance to oil, fuel, flame, cut, abrasion and the ability to withstand lighting strikes capstone the critical to quality specifications.

To ensure rapid technological advancement and quick fielding to forces, Northwire offers custom cable and military wire solutions design-to-deliver in 5 days or fewer as well as combat-proven off-theshelf technologies (COTS). NWI's no minimum order quantities support the optimization of resources sponsored by the 'buy less more often' campaign. While Northwire's free design and rapid cable prototyping expedites equipment to field environments for critical 'try before you buy' assessments, as well as reducing NRE and risk. CAGE Code 7V821, Northwire has been meeting defense, maritime and aerospace technical custom cable, military wire, retractiles, assemblies, connectors, harness, injection and over-molded requirements and contract engineering and manufacturing needs for nearly four decades. Made in the USA, cost-

Made in the USA, costeffective and budget-compliant, Northwire mil spec wire and cable products are field-proven to with-



WORLDWIDE
LEADERSHIP IN
WIRE AND PCB
MANUFACTURING
PRODUCTS

COMMITTED TO MEETING MANUFACTURING NEEDS WORLDWIDE WITH TECHNOLOGY, PRODUCTS AND SYSTEMS, AND SERVICE

TE Connectivity has been recognized as a leader in providing the tools for wire harness and printed circuit manufacturing. Our products are designed to meet and anticipate our customers' ever-changing requirements and built to the highest quality standards, for longest, most productive performance lifetimes.

Whatever your production volume and job mix, we can offer the tools to get it done. With a full range of tooling from hand tools to high volume, fully automated systems, TE is able to meet manufacturing demands worldwide. Our experince has given us a unique view of the trends and challenges in wire harness and PCB manufacturing. It all derives from our commitment to your manufacturing challenges, giving you the advantage in your marketplace.

- Hand tools combine ease of use with reliability and precision.
- Applicators and tooling from TE can be your key to productive wire harness manufacturing. These
 applicators come from a long tradition of quality, reliability, and precision.
- Insertion Machine platforms combined with performance enhancing accessories provide flexibility to meet a wide range of customer requirements in the manufacturing of printed circuit boards.



For all your application tooling needs, contact Heilind Electronics or visit www.heilind.com/rpages/gatd



TE Connectivity, TE connectivity (logo) and TE (logo) are trademarks



866-887-2189 www.heilind.com/rpages/gatd stand the toughest military harsh duty applications, saving time and money in maintenance and operations costs, ensuring security and resiliency for the future. Designed for use throughout the United States Armed Forces, Northwire's long wire and cable product life endures the most extreme environments, temperatures and hazardous materials in a wide variety of applications including, ground combat vehicles, force protection, ISR, EW and rugged communications, maritime (signal, control, instrumentation and power), aerospace (airframe point to point, avionics systems, missiles, aerospace flight, combat rescue vehicles, refueling and GPS satellites) and C4ISR (armament, sensor systems,

radar systems, platform connectivity, communication satellites, unmanned aerial vehicles, military headsets, field, specialty and nuclear). Application analysis, free sample wire and cable, rapid cable prototyping, bar coding, RFID tags, packaging to mil spec requirements, stocking programs are also available.

For maximum performance, select from 8,000 standard products or design a custom cable solution, protect from RFI, EMI, crush, cut, impact, flame, chemicals, hazardous area, oil, rodents, fungus, water, abrasion, compression and more. Extreme flex capabilities including torsional, rolling, variable, bending and continuous.

From Concept to Completion, Northwire - NWI Lab360 design engineers engage with customers through every process phase from R&D, new product development, rapid cable prototyping, pilot models, clinical trials, low volume through high volume production, life-cycle innovation and logistics.

Cable manufacturer, Northwire Inc., offers same day custom products, no minimum order quantity, quotes in 24 hours or less, rapid solutions for assemblies, connectors, harnesses, injection, over-molding and contract manufacturing.

Northwire is ISO 13485:2003and ISO 9001:2008-certified and is engaged in professional company-wide certifications in Six Sigma®, Lean, Project Management, and American Society for Quality. The company's quality control laboratory ISO 17025 qualified by CSA International. This laboratory subjects the company's wire and cable products to tests that surpass real-world conditions, including the extremes of bending, flexing, flame,

impact, crush, oil, and temperature resistance and more. ITAR registered, Northwire's CAGE Code is 7V821. Northwire also maintains various UL, ANSI, CSA, cUL, CE, NFPA, ABS, IEEE, and MSHA approvals and works closely with strategic supply chain partners to offer FDA-approved and RoHS2- and REACH-compliant and food grade materials.

Northwire, Inc., celebrating over 41 years of innovation, is a registered woman-owned small business with corporate headquarters and manufacturing in Osceola, Wisconsin, a professional sales & design engineering center in Carson City, Nevada and manufacturing in Santa Teresa, New Mexico. The cable engineering company is the premier

partner for the design, manufacture and contract services of custom technical products including wire and cable, retractiles, assemblies, connectors, harnesses, injection molding, over-molding and contract engineering and OEM (Original Equipment Manufacturer) for diverse applications in life sciences, energy, mil spec, industrial, machine vision, architectural lighting, underwa-

ter, and more. Northwire is a member of NDIA (National Defense Industrial Association), NCMA (National Contract Management Association), RIA (Robotics Industries Association), AIA (Automated Imaging Association), Fieldbus Foundation, ODVA (Open DeviceNet Vendors Associations) and WAI (Wire Association International), among others. For more information, visit www.northwire.com.

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New Junction Box Meets Stringent Requirements of the Solar Industry from Amphenol

Amphenol Industrial Global Operations, a global leader in interconnect systems, now offers a new junction box in the Hercules series designed to meet the stringent technical requirements of the solar industry. The UL/TUV approved Hercules II provides a smaller overall footprint of 84.9 mm x 80.9 mm x 19.5 mm with a current rating of 10 A and a rated voltage of 1,000 VDC (TUV) and 1,000 VDC (UL).

Hercules II offers design flexibility and value. Ideal for use on rigid silicon panels throughout PV applications, this enhanced junction box features a stan-

dardized exterior box geometry for automated assembly.

To ensure the long life and quality of the solar module, Hercules II features rear alignment with tape and tabs to maintain a low breakage rate during robotic assem-



UL/TUV Approved Hercules II

The junction box's diodes can be paired with any PV panel's specifications for optimal electrical protection.

Hercules II sealed design offers

improved heat dissipation for better temperature cycling. The new box offers either a spring clamp termination with leads that clamp to the inside of the junction box or the ability to terminate leads with solder. Hercules II allows for the use of potting compound to seal the inside of the junction box, keeping moisture out.

With an EP rating to IP67, Hercules II can be used in conjunction with Amphenol's H4 PV connectors and Amphenol's PowerLink certified PV cable. The connectors meet NEC2008/2011 standards.

For more information, please visit http://www.amphenol-industrial.com

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NEWS PLUGS continued



TOPJOB®S Current Transformer Disconnect Terminal Blocks

WAGO Corporation's new TOPJOB®S current transformer disconnect terminal blocks simplify current transformer testing, as well as increase safety, within power monitoring applications.

Designated the 2007 Series, these CT disconnect terminal blocks feature an intuitive orange three-position (Operating, Shorting and Measuring) disconnect lever. Engaging the lever fully automatically short-circuits the transformer when using the required adjacent push-in jumper.

"This is vital, as transformers must be short-circuited on the secondary side prior to testing," said Michelle Goeman, Product Manager for WAGO Corporation. "If a low-resistance load is absent, a significant increase in voltage could occur, posing a threat to people and equipment, when troubleshooting or calibrating relays, meters, instruments, and control systems."

At just 99mm long and 8mm wide, the 2007 Series CT Disconnect Terminal Blocks reduce panel space by up to 55% and

associated costs by up to 25% when compared to traditional test switch products. Its touch proof design does not require a separate cover to be installed which eases access to test plugs and meter connections. Four marking locations help ensure wiring accuracy: on the disconnect link, on top of the terminal block and on the sides. Marking is provided via WMB marker tags or a continuous marking strip.

Available in through or ground connection versions, the 2007 Series employ CAGE CLAMP®S Spring Pressure Technology for conductor sizes 20-8 AWG. This eliminates lugs, crimps and torqueing to make all connections maintenance-free. A full complement of accessories is available; including test plugs, a lock-out plug and an optional mechanical link to gang disconnect levers together.

WAGO is the leader in spring pressure connection technology that eliminates loose wires resulting from vibration and temperature cycling, while providing highly reliable, corrosion-resistant and maintenance-free connections. Products: DIN-rail, PCB and chassis mount terminal blocks; signal conditioners; the WAGO-I/O-SYSTEM and more. For additional information, visit www.wago.us . Contact WAGO 1-800-DIN-RAIL info.us@wago.com.

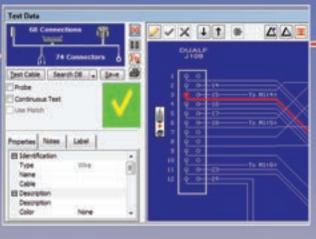
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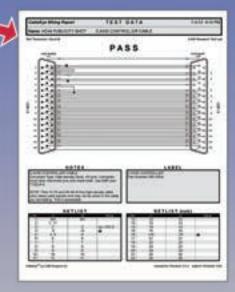
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In every issue of Wiring Harness News Anixter will bring you informative articles about wire and cable technology.

Current

WHAT IS CURRENT?

Electrical current is the flow of electrons through a conductor. Electrons are submicroscopic particles of matter that exist in all conductors such as copper and aluminum. Current flows when electrons are pushed by the force of an applied voltage. Current is measured in units of amperes or amps (usually abbreviated as A). Engineers generally use the symbol I to represent current in mathematical expressions. The magnitude of the current is directly proportional to the volume of electrons moving through a wire per unit of time.

ALTERNATING AND DIRECT CURRENT

Electric current can come in two different forms: direct current (DC) and alternating current (AC). Direct current flows in a constant direction and polarity and is generally produced by batteries or solar cells. Alternating current reverses flow in a cyclical manner. The voltage of alternating current can be changed via a power transformer, which is why most long-distance transmission of electricity is carried out with AC. Alternating current is typically supplied to business-

es and residences and is the kind of current available at a standard household wall outlet.

HOW DOES CURRENT RELATE TO WIRE AND CABLE?

The best way to understand current is to use an analogy. Insulated wire can be viewed as a garden hose in which the electrical current is represented by the flow of water. Each electron is represented by individual drops of water. To increase the volume of water flowing through the hose, the diameter of the hose needs to be increased, say 3/4 inch instead of 1/2 inch.

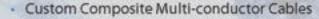
Likewise with wire, if more electrical current is needed, the conductor's diameter needs to be increased, say a 10 AWG instead of a 16 AWG. If the cable's cross-sectional area is doubled, the current carrying capacity (also known as the ampacity) of the wire is also approximately doubled. For example, a 2 AWG wire with 66,360 circular mils of cross-sectional area can carry more than twice as much current as a 6 AWG wire with only 26,240 circular mils.

Undersized conductors are dangerous because the conductor can heat up and the insulation could start to deteriorate. Copper or aluminum conductors



Why Teledyne Cable Solutions?

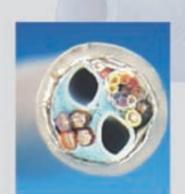
We build cables that solve cable problems.



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HOW TO SELECT AN APPROPRIATE CABLE?

Ampacity is the maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations. The ampacity of the cable should equal or exceed the maximum current the cable will be expected to carry during its service life. Conductors that are undersized can overheat, cause damage to the insulation or jacket of the cable, and potentially cause harm to equipment or people. General ampacity ratings for con-

ductors can be found in the National Electric Code 2012 Article 310 Conductors for General Wiring.

Depending on the installation environment of the cable, ampacity ratings may need to be adjusted or derated. Temperature ratings depend on the heat resistance of the materials used for the insulation and jacket of the cable. The higher a material's heat resistance, the more the material resists the flow of heat and the less likely it will deteriorate in higher temperatures. Just like undersized conductors, if incorrect insulation and jacket materials are used, damage via heat transfer can occur.

There are many factors that affect the appropriate conductor and cable selection, and incorrect product selection can be costly.

Additional Wire Wisdoms can be found at https://www.anixter.com/ techrefs/wire-wisdom.

For more information, contact your local Anixter sales representative at 1.800.ANIXTER or visit anixter.com.

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WAGO Corporation Announces Addition of Mark Joseph as Regional Sales Manager for New England

Joseph joins WAGO after an established career in industrial distribution/ sales, industrial maintenance, reliability engineering and plant operations.

Joseph studied nuclear engineering at the Naval Nuclear Power School in Orlando. Fla. as well as East Asian studies through the University of Maryland where he studied abroad in Japan. Prior to joining WAGO, Joseph was an automation specialist on drives and motor controls at Horizon Solutions and Rexel Incorporated. He began his career working on submarines in the U.S. Navy and transitioned to industrial maintenance 13 years later.





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Mark Joseph, WAGO Corporation **Regional Sales Manager**

"Mark brings more than ten years of experience in industrial distribution and sales," said Toby Thomann, VP Sales. "This combined with a strong commitment in developing long-term relationships will make Mark an excellent addition to the WAGO team."

WAGO is a leader in spring pressure connection technology that eliminates loose wires resulting from vibration and temperature cycling, while providing highly reliable, corrosion-resistant and maintenance-free connections. Products: DIN-rail, PCB and chassis mount terminal blocks; signal conditioners; the WAGO-I/O-SYSTEM and more.

For additional information, visit www.wago.us . Contact WAGO at 1-800-DIN-RAIL or info.us@wago.com.



Amphenol NEPTUNE Series Connectors

NEPTUNE Series of Connectors from Amphenol Now listed to UL 1682

Amphenol Industrial Global Operations, a global leader in interconnect systems, announces that its NEPTUNE connectors are now listed to UL1682. These connectors, with ratings from 30 A to 400 A at 600 V, are offered in plugs, mount receptacles and inline receptacles.

Featuring Amphenol's Starline series contact system, which allows for more amperage and voltage through a smaller connector, the enhanced NEPTUNE line of connectors are half the size and weight of other connectors in its class and feature a reduced footprint option allowing for more flexibility during system design.

NEPTUNE is designed to perform in demanding environments including land and offshore oil exploration equipment, modular power generation equipment, portable diesel and turbine generator equipment, pumps, welders, compressors, cell base stations, shipping docks, ports power distribution and petrochemical applications.

NEPTUNE's contact inserts are reversible and interchangeable to accommodate each application's specific needs. Standard models are made from copper with silver plating, but are also available with optional gold plating. NEPTUNE's aluminum hardware, which is precision machined from high-tensile strength bar stock and finished with a hard coating to

> 40 points on the Rockwell C scale, is both lightweight and rugged.

> Amphenol's NEPTUNE series of connectors provide safe interconnections to modular power equipment in all environments. These enhanced connectors are rated IP-68-8 and have a dielectric strength of 1,800 V.

> For more information, please visit http://www.amphenol-industrial.com

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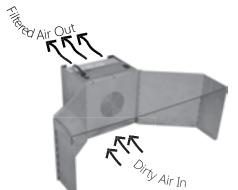
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When Armando Zacarias goes out on a Eubanks service call, unusual things happen.

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

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

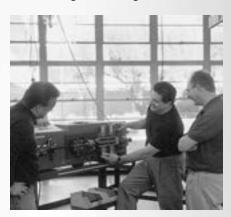
Customers report something unusual too: Mando's "can-do" attitude.

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

"Can't be done" is not in Mando's vocabulary—either English or Spanish. On his own initiative, he solves problems, leads training classes, helps boost plant

efficiencies, and makes lasting friendships while doing it.

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PolySwitch™ Circuit Protection Devices Outlast MINI Fuses & Circuit Breakers

Waytek, Inc. introduces PolySwitch circuit protection devices as a resettable over-current protection solution in vehicle, heavy truck and equipment wire harnesses.

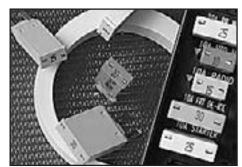
Waytek's new PolySwitch™ circuit protection devices provide resettable overcurrent protection in a 2.8mm footprint and solid state design. They are an easy drop-in replacement for mini fuses and type II circuit breakers in 12V vehicle systems.

Unlike Type II bimetal circuit breakers,

which typically cycle several times before latching, the PolySwitch BD280 devices features a solid state design with no moving parts or contacts to arc, erode or weld together. This makes resettable PolySwitches a longer lasting and more reliable circuit protection device than circuit breakers or fuses.

The PolySwitches operate with a resistance switching action that latches immediately following an overcurrent tripping condition. Such latching occurs at a lower battery voltage and lower environmental temperature than circuit breakers and fuses.

The PolySwitchTM devices provide virtually constant power consumption across a voltage range of 4V to 14V. They have less thermal cross talk between devices than Type II bimetal circuit breakers due to their low power dissipation and flatter



New PolySwitch Circuit Protection Devices

thermal derating. Rated for temperatures between - 40° F and + 257° F, the Poly-SwitchTM BD280 devices pass more current at higher temperatures than bimetal circuit breakers and are suitable for harsh underhood applications.

Bright color-coded housings and rated current values printed on the top of the devices make replacement of automotive fuses and bimetal breakers easy, and help prevent installation errors. PolySwitches also have exposed probe points to facilitate inspection and faultfinding, helping lower labor time and costs.

Waytek, Inc. carries more than 10,000 electrical supplies, including wire and cable, terminals and connectors, circuit protection parts, switches and more, for OEM and MRO mobile equipment markets

Founded in 1970, the company has seen continued expansion in the electrical supplies industry. Waytek carries large quantities of stock items and is able to ship most stock items the same day, allowing customers to carry smaller inventory, yet still have products when they need them. Browse our electrical solutions at www.waytekwire.com, or call 800-328-



The all-new WT3-200 wire terminal tester is an integrated solution for measuring wire and tube termination pull force. An ergonomic lever easily produces up to 200 lbF (1,000 N) of force for wire diameters up to 0.25 in (6.3 mm). The WT3-200 includes a long list of features and functions, such as data outputs via USB, RS-232, and Mitutoyo, on-board data storage for 1,000 readings with statistical calculations, password protection, and more. It can be operated on a rechargeable battery power, or AC. All at a competitive price of just \$2,195.

Find out more at www.mark-10.com or call us at 888-MARK-TEN.





Nelco Products, Inc. Expands Offering Of Heat Shrinkable Tubing

Nelco Products, Inc. (http://www.nelcoprod-ucts.com), a manufacturer and distributor of cable ties, wire ties, heat shrink tubing, wire connectors, cable tie mounts, HVAC supply products and related wiring accessories worldwide, has announced that the company has expanded its selection of heat shrinkable tubing with the launch of food grade heat shrinkable tubing.

Specifically engineered to be used in applications involving contact with food, water, beverages and nontoxic materials, this unique form of shrinkable tubing is specifically for those building beer-brewing or sousvide projects using Nelco Products' waterproof DS18B20+ digital temperature sensors.

This heat shrinkable tubing is FDA compliant for contact with food and is flexible, non-toxic and resistant to ultraviolet light, moisture, fungus and a wide variety of chemicals and oils

Food grade heat shrinkable tubing is extremely environmentally friendly, as it breaks down to carbon dioxide and water when properly incinerated. Additionally, this tubing meets USP Class IV requirements.

For more information and to view Nelco Products' food grade heat shrinkable tubing, visit http://bit.ly/12GkX7P, or call toll-free at (800) 505-6352.

Additionally, to view Nelco Products new product video, visit http://www.youtube.com/watch?v=TOV_luveU7Q.



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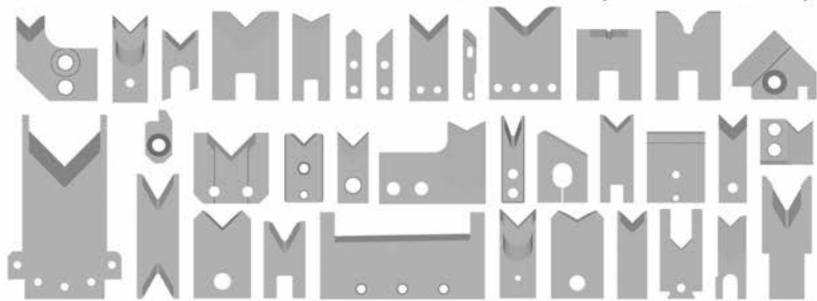
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Cicoil Introduces New High Temperature FireWire Cable and Assemblies

Cicoil, a leading manufacturer of High Performance Flexx-Sil™ Flat Cables and Assemblies, is pleased to announce the introduction of its ultra-flexible FireWire Cable. Unlike typical FireWire cables, the Cicoil cable has been designed for high flexibility, mechanical stress, temperature extremes (-65 °C to +165 °C) and harsh environments. And the flat cable construction guarantees clear, high speed data transmission, even in the toughest of environments.

Cicoil's patented extrusion process allows 2 individually shielded 28 AWG

100 Ohm pairs and 2 shielded 22 AWG power wires to be placed in a flat profile, precisely controlling the spacing of each component, insulation thickness and the overall cable shape. The compact, Flexx-SilTM encased cable solution is engineered to provide weight & space savings, consistent electrical characteristics, premium current carrying capacity, reduced skewing effects and EMI/RFI suppression.

Cicoil's tear resistant Flexx-Sil™ jacket is self-healing from small punctures and will not wear, crack or deform due to long term exposure to vibration, water, ice, weld spark, steam, humidity, ozone, UV light, autoclave and many chemicals. The halogen-free & flame retardant flat design is an excellent alternative to bulky round cables in tight routing, continuous motion and mission critical applications.

Standard "off the shelf" FireWire cables are available for immediate delivery and cable assemblies, complete with connectors are offered in 3 foot, 6 foot and 12 foot lengths. Custom designs are also available with minimum lead times. In addition, Cicoil offers anti-friction coatings, impact resistant Super TuffTM jacketing and custom shape designs by request.

Cicoil's Flexx-Sil™ Jacketed Cables are UL & CSA Recognized, CE Conforming, RoHS & REACH Compliant, Class 1 Clean Room Rated and are manufactured in an automated, climate controlled environment.

Cicoil has been a leader in designing and manufacturing high performance cable assemblies for over fifty years. The company's Patented Flexx-SilTM Flat Cable

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

New additions to Push-In Terminal Block Line

Phoenix Contact has expanded its line of push-in technology (PT) terminal blocks to include a smaller version of the popular STIO 2.5 series. The PTIO 1.5/S series is only 3.5 mm wide with a new top-level location for the power wiring. The blocks offer the market's highest density power distribution for field sensors and actuators

The compact double-level terminals are available in three-wire and four-wire versions. The upper level is for signal feed-through and is available with or without an LED. Continuous bridge shafts allow a quick and simple potential distribution of power using push-in bridges.

The PT terminal blocks allow easy and fast termination of ferruled wire by simply pushing the wire for a complete termination. Stranded wire is terminated by pushing the orange actuator, opening the spring for the insertion of the wire. All new



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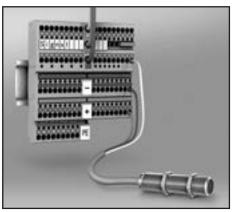
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PTIO 1.5/S Terminal Bocks

versions are compatible with the Clipline Complete system of bridging, marking and test accessories.

The PT 1.5/S series features up to 50 percent reduction push-in force compared to other push-in type terminal blocks and allows for up to 35 percent faster termination than standard spring cage due to the short push button activation stroke. It is five times the IEC requirement for retention force and is the most compact solution available.

Phoenix Contact develops and manufactures industrial electrical and electronic technology products that power, protect, connect and automate systems and equipment for a wide range of industries. Phoenix Contact GmbH & Co. KG, Blomberg, Germany, operates 50 international subsidiaries, including Phoenix Contact USA in Middletown, Pa.

For more information about Phoenix Contact or its products, visit http://www. phoenixcontact.com, call technical service at 800-322-3225.

New DVD Helps Industry Understand Requirements of Conflict Minerals Regulation

As the first filing deadline approaches, electronics manufacturers and suppliers preparing for compliance with the U.S. SEC conflict minerals regulation have a new resource for answers and facts with IPC's 2013 Conflict Minerals Conference Proceedings. IPC's Proceedings DVD is a compilation of audio and slide presentations recorded during its popular summer conflict minerals conference and features top experts on the conflict minerals regulation.

For companies seeking guidance on compliance with the new regulation, IPC's 2013 Conflict Minerals Conference Proceedings provides the facts on regulatory requirements, customer requirements and emerging industry practices. In addition to a brief history of the conflict minerals rule and an overview of regulatory requirements, topics covered include due diligence and audit preparation, risk mitigation, data management, enterprise social responsibility and building compliance roadmaps.

"The Proceedings DVD gives those who could not attend the event the opportunity to benefit from the knowledge shared by industry experts and the experiences of those in the trenches who are developing or have developed compliance plans for their companies," said Fern Abrams, IPC's director of government relations and environmental policy. She adds, "IPC is fortunate to work with these experts and tapping into their wealth of knowledge is a clear benefit we can share with our industry members."

IPC's 2013 Conflict Minerals Conference Proceedings is available for \$100 for IPC members; \$200 industry rate. For more information or to purchase the DVD, visit www.ipc.org/proceedings-conflict-min-

Molded Nylon Special Standard Round Spacers

Micro Plastics' announces a new product line of "Special Standard Round Spacers". The new line of molded nylon round spacers include over 250 sizes, with

diameters of 1/8" through 1 1/2" and lengths from 1/8" to 2 3/4". These tough resilient spacers can be used in a variety of assemblies. Useful in electronic and electrical applications, they may also be used as bushings, bearings, rollers, gliders and

Micro Plastics' nylon round spacers are resistant to vibration, abrasion and corrosion. They are electrically insulating and have a high strength-to-weight ratio.

Continued on page 60



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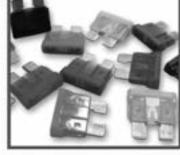
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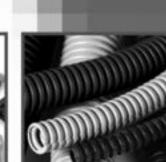
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Continued from page 59

Priced relatively low, these spacers can be shipped from an inventory of over 1,500 standard sizes stocked in depth. Custom sizes can be tooled on request.

Micro Plastics' manufactures millions upon millions of fasteners daily. They offer over 20,000 items and maintain an inventory of over 250 million parts.



Special Standard Round Spacers

See their full line catalog #39 for a complete list of nylon fasteners that are available. FREE samples are available upon request. Contents include: standard and metric machine screws, cap screws, nuts, washers, spacers, insulators, grommets, bushings, rivets, hole plugs, clamps, printed circuit board accessories, suspended ceiling hooks, wire routing kits and many other hardware items.

For a copy of their new full line catalog #39 contact Micro Plastics', PO Box 149, Flippin, Arkansas 72634. Visit www.microplastics.com.

New Underwater Connector from Amphenol Ideal for Deep Submersion Applications

Amphenol Industrial Global Operations, a global leader in interconnect systems, now offers a line of high performance, rugged and reliable underwater electrical connectors for deep submersion applications. The Submariner series

nectors can be used in depths up to 6,000 meters (underwater pressure of up to 600 bar).

The connector is ideal for use by the military and government, diving equipment manufacturers, remotely operated vehicle (ROV) and autonomous underwater vehicle (AUV) manufacturers as well as deep submergence science and research projects.

The Submariner series is a full line of deep submersion connectors that include dry-mate connectors that are fully compatible with similar products in the industry. For example, these new connectors can be interchanged with existing connections in an ROV, without having to replace all of the vehicle's connections.

Designed to meet the rapid growth and rising demand in the global ROV market, the new Submariner series uses Amphenoi's molding and adhesion expertise to

ture. This feature ensures that the seal between the cable and connector remains intact under water. All polymer-to-metal bonding surfaces are carefully sandblasted, cleaned, primed and molded. The rugged metal shells and recessed pins assure reliable performance in the most demanding environments.

Available in three different shell sizes and a variety of configurations, Amphenol's Submariner series features wire gauges from 10 AWG to 20 AWG, a maximum operating voltage of 600 V and operating temperatures ranging from -5°C to 65°C.

For longer life and prolonged mating cycles, each connector is designed with gold-plated contacts per MIL-G 45204 at 30 microns. Cable assemblies and pigtails are available.

For more information, visit http://www.amphenol-industrial.com.

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They are designed to exacting specifications to produce consistent, high-quality terminations. A potential service life of over 50,000 cycles is possible, depending on operator care.



Other features include insulation crimp adjustment on most tools for different insulation thicknesses, a locator for properly positioning and supporting the terminal or contact in the tool, a wire stop, and color coding and/or wire size information on the head of the tool or on the handles.

All CERTI-CRIMP hand tools feature the reliable ratchet control. The ratchet will not release until the handles are fully closed and the dies bottomed. This helps eliminate partial crimps.

CERTI-CRIMP hand tools are well suited for low production runs, prototype work, and repairs - almost any application requiring consistent, highly-reliable terminations.

CERTI-CRIMP hand tools are designed to meet all feature requirements listed on applicable TE Application Specifications.

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New Littelfuse Terra Power Systems Battery Disconnect Switches

Waytek introduces new Master Disconnect Switches from Littelfuse Terra Power Systems to help increase the life of your batteries in trucks, emergency vehicles, off-road and industrial mobile equipment

Waytek carries a new line of Littelfuse Terra Power Systems Battery Disconnect Switches to cut-off electrical power, protect against electrical fires and theft when equipment is not in use, provide reliable shut-down of power during maintenance and protect batteries from excessive drain. New master disconnect switches isolate high current DC circuits from battery sources and are capable of carrying 300 amp continuous current. Ignition protected to SAE J1171 and ISO 8846 for operation in hazardous atmospheric environments in battery box or on vehicles carrying hazardous loads.

Waytek offers three case design options in surface mount, panel mount or floor padding trim mount. Many features on the master disconnect switches were designed for harsh environments, including tin-plated copper studs to provide maximum conductivity, stainless steel hardware for corrosion resistance and IP67 rated housing for moisture and dust protection.

Founded in 1970, the company has seen continued expansion in the electrical supplies industry. Waytek carries large quantities of stock items and is able to ship most stock items the same day, allowing customers to carry smaller inventory, yet still have products when they need them. Browse our electrical solutions at www.waytekwire.com, or call 800-328-2724.



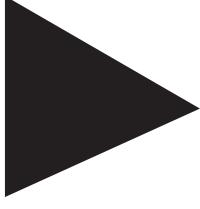
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♦he third annual IPC APEX EXPO® Hand Soldering Competition will be held March 25-26, 2014, at the Mandalay Bay Resort and Convention Center, Las Vegas, Nevada. This year's challenge will be to build a functional electronics assembly in a 30-minute time period with a chance to compete in the IPC World Championship on March 27. Soldering technicians who can "bring it" are encouraged to sign up for one of a limited number of competition slots.

IPC Master Instructors will judge assemblies on soldering in accordance with IPC-A-610E, overall electrical functionality of assembly and the speed upon which the assembly was pro-

Cash prizes of \$500, \$250 and \$100 will be awarded to the top three finalists at the close of the competition on March 26. In addition to receiving the cash award, the winner will move on to the IPC World Championship to face off with winners from IPC hand soldering competitions from around the world, including the United States, Asia and Europe. The winner of the IPC Hand Soldering World Championship will be awarded a \$1,000 cash prize.

IPC APEX EXPO Hand Soldering Competition entries will be accepted until January 31, 2014. To submit an entry, visit www.IPCAPEXEXPO.org/soldering.

The hand soldering competitions will be held on the show floor. A free exhibits-only registration to IPC APEX

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IPC APEX EXPO® Opening Keynote Speaker Announced

CREATING A WORLD OF ABUN-**DANCE: Exponential Technologies Caus**ing Disruptive Innovations

Peter Diamandis, M.D. Chairman/ CEO, X PRIZE Foundation and Chairman/Co-Founder, Singularity University

Tuesday, March 25 | 8:30-9:30 am

A dynamic inspirational speaker and tech entrepreneur, Dr. Diamandis will share his insights into how breakthroughs in exponentially growing technologies like artificial intelligence, nanomaterials, 3-D printing, robotics and digital medicine will re-engineer products, companies, industries — and even society — over the next 20 years.

Swarm Robotics and the Toys, Movies and Insects that Made it All Possible

James McLurkin, Roboticist, Inventor, Researcher and Teacher

Wednesday, March 26, 2013 9:00-10:00 am

They will flock. They will swarm. And they will tackle the dangerous, dirty and

dull jobs for which humans are inherently illsuited. They're multirobot systems — and one day they will become the norm, according to roboticist and inventor James McLurkin. Inspired by the complex group behaviors found in ants, bees, wasps and termites, McLurkin's work focuses on developing software and programtechniques groups of autonomous robots with populations ranging from 10 to 10,000.

The Physics of NASCAR

Diandra Leslie-Pelecky, Ph.D. Physicist, Researcher and Author

Thursday, March 27 9:00-10:00 am

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