

This  
Issue  
Features:

- The Car
- 2013 Electrical Wire Processing Expo
- Is Bigger Better in the Wire Harness Business?
- Wire Wisdom - Over View of Common Field Tests
- Six Road Blocks When Designing High Voltage Connectors and Assemblies



# Altex

By Fred Noer

## “Work smarter, not harder.”

If Altex were to adopt a slogan, this may very well be it. The phrase aptly describes the prevailing philosophy at the company, which manufactures custom wiring harnesses, cable assemblies and electromechanical assemblies. The firm is headquartered in Westfield, Ind., (at the far north end of the Indianapolis metropolitan area) and has a plant in Nogales, Sonora, Mexico.

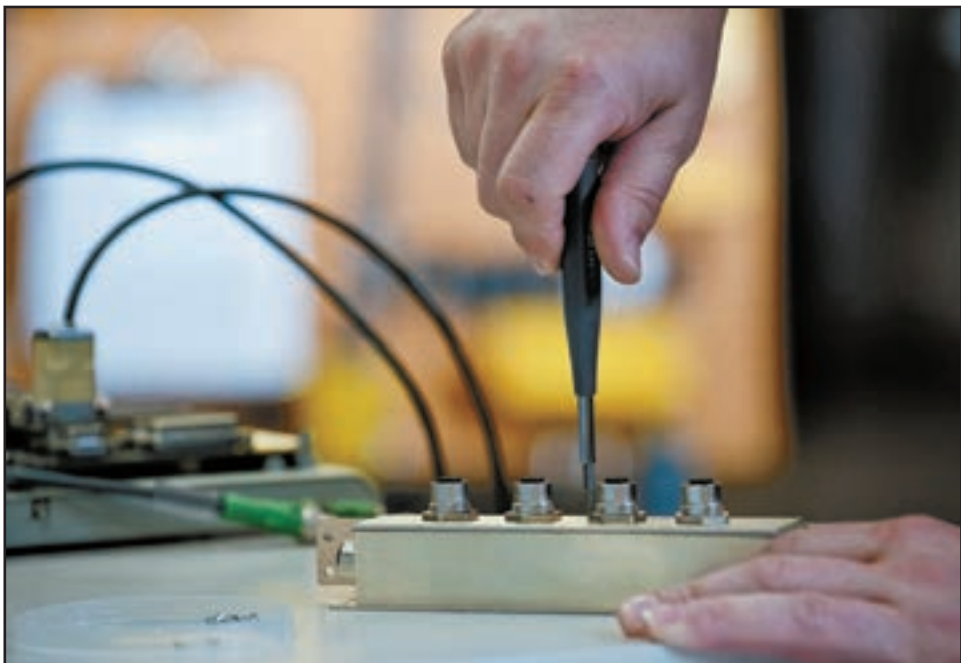
To be able to work smarter, transparency is emphasized at the company. “There is a lot of sharing of information,” said Rick Bromm, 51, vice president of business development. “We need every-

one to be critical thinkers. If people are without a good understanding of the whole company, they can’t make good decisions about what they do and how it affects the big picture.

“Ultimately their understanding flows down from the corporate goals and objectives,” Bromm said. “Then they can make better decisions at the front lines and have autonomy to what they’re doing. It definitely has contributed to our execution and performance.”

Such a focus on intelligence and empowerment of the 57 people (17 in administration, 40 in production) at the two facilities has proven effective. Bromm stated Altex should gross \$9 million in sales by the end of the year. That would represent an 11-percent gain over 2012. He foresees the same growth next year. In 2009-12 the company grew 37 percent.

When Altex concentrated on making



**ALTEX builds electro-mechanical assemblies— including circuit boards, instrument panels and cable harnesses — to customer specifications.**

passenger car wiring harnesses and seat-belt lock systems in the 2000s, company sales peaked at \$13 million. “We grew at a good clip when we rode the automotive industry wave,” Bromm said. “Our revenues were higher, but now we’re making better profit. When automotive declined, so did we. It’s good we saw that, managed it and diversified.”

Even with the recession at its height

in 2008-09, Altex made money, according to Bromm. “We’ve always had a strong balance sheet,” he said. “We finance our operations through cash flow and cash on hand.”

Such overall expert financial management is attributed to Altex president Ben Weidberg, 64, MBA and CPA. He bought

Continued on page 50

## 6 Road Blocks when Designing High Voltage Connectors and Assemblies

By David Galambos, President  
Canton Connector Corp

Designing a High Voltage cable assembly and connectors can be very challenging. There are many aspects of the cable assembly that must be considered. Before beginning the design you must answer some general, but very important questions like: What is the operating voltage and current? What type of environment will the cable be operating in? Will the cable be required to meet any specifications? Are there any specific requirements from the customer? After you have answered these first round questions you can begin drafting a design. We have come up with the six most common design road blocks and tips on how to avoid and overcome them.

### Size Constraints:

Size constraints often make the challenge of designing a High Voltage connector and cable assembly extremely difficult. Generally the High voltage cable assembly is the last piece of the puzzle that customer’s think about when designing their equipment. Often times the space required for a high voltage connection that meets their operating requirements isn’t available. The industry is constantly moving towards smaller lighter assemblies with increased oper-

ating thresholds. Using spacing to offset high voltages has become a thing of the past. Companies now look to the design team to come up with a solution that will resolve these issues and still keep the cost of the cable assembly down. Generally a custom connector design is required to achieve this goal.

### Designing around an existing connector:

Designing around an existing connector can prove to be extremely difficult. Customer’s come in with an existing connector that they cannot deviate from. Generally these connectors are not performing up to their requirements, or mates to another component which is a grandfathered part of their design. Another reason could be the connector needs to perform at an increased performance threshold that cannot be met with the current configuration. Whatever the case may be an in depth analysis of the inner working of the connector assembly is required. Working closely with the customer, the engineering team will analyze all aspects of the design what materials are utilized? What are the mechanical and electrical properties of the materials? What aspects of the design can be changed to meet the required specification without effecting

Continued on page 4



**The 2013 National Electrical Wire Processing Technology Expo broke records once again as it was held May 8 and 9 at the Delta Center in Milwaukee. See page 29.**



WE PROCESS  
THE WIDEST  
RANGE  
OF WIRE  
BAR NONE



# HEAVY DUTY, EXTRA LARGE REEL CAPACITY, SIMPLE LOADING AND SHORT SET-UP TIMES. YOU CAN HAVE IT ALL.



## INTRODUCING THE NEW ARTOS PF-10

The new Artos PF-10 is the latest generation of prefeeding equipment designed for heavy duty reel applications. Featuring a shaft driven system for precision wire unwinding it is the ideal companion to our CS-327 large wire processing machine.

Set up and reel change-over is simple, just lift the safety guard for easy access and press one button to raise and lower reels. With only two pulleys, wire threading is minimized shortening set-up time and short set-up time means more production time.

Intelligent control senses wire reel diameter and automatically adjusts spool RPM to create a steady outflow of material.

Heavy duty, extra-large capacity, easy to use with short set-up times—you really can have it all with the new Artos PF-10.

**For details, contact us at  
262-252-4545 or online  
[www.artosengineering.com](http://www.artosengineering.com).**



The Artos CS-327

*The first name in wire processing*  
**ARTOS**  
ENGINEERING COMPANY

Artos Engineering Company | 21605 Gateway Ct. | Brookfield, WI 53045 USA  
Phone 262.252.4545 | [www.artosengineering.com](http://www.artosengineering.com) | e-mail [sales@artosnet.com](mailto:sales@artosnet.com)



INSIDE

**1 Altex**  
Altex, headquartered in Westfield, Indiana manufactures custom wiring harnesses, cable assemblies and electromechanical assemblies.

**1 6 Road Blocks When Designing High Voltage Connectors and Assemblies**  
Six of the most common design road blocks and tips on how to avoid and overcome them.

**4 The Car**  
Paul Hogendoorn reminds readers of the many impacts that cars have made in our society.

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

**19 Is Bigger Better in the Wire Harness Business?**  
In a world economy that often favors the “big guy”, the wire harness industry is still a place where the creative entrepreneur can find exceptional growth opportunities.

**29 2013 Electrical Wire Processing Expo**  
The 2013 National Electrical Wire Processing Expo broke records once again. For photo coverage please see pages 34-35.

**42 Wire Wisdom**  
This Wire Wisdom provides a summary of three key regulations that apply to products used in the European Union.

Classified

- 59-60 ..... Machinery, Job Line & Misc.
- 62 ..... Advertisers Index
- 62 ..... Subscription Order Form



**MANAGING EDITOR**  
Marilyn Magowan  
mjmagowan@yahoo.com  
Phone (262) 394-5558

**ADVERTISING/CIRCULATION MANAGER**  
Kathy Freund  
kfreund2000@yahoo.com  
Phone (815) 337-7885

**INTERNET**  
<http://www.wiringharnessnews.com>

**SUBSCRIPTION RATE:**  
1 Year, U.S. & Territories \$39.00  
Canada & Mexico \$54.00 U.S. Funds

All other countries \$64.00  
Internet Subscription Only \$34.00

**Credit Card Only**  
Please use the subscription order form located inside back cover.  
Back issues, bulk subscriptions, special subscriptions, call Circulation Department.

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

Copyright 2013  
International Harness Resources Inc., (IHR Inc.)

*Wiring Harness News*  
P.O. Box 527,  
Richmond, IL 60071 USA  
<http://www.wiringharnessnews.com>

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

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

**Industrial Heat Guns Aimed at Your Needs**

Variable Temperatures, Powerful Air Flow and Specialized Attachments for Your Wiring Harness Production Applications

**NEW** VTS Model with pivoting stand

Benchtop Performers

HG Model with adjustable base

- Up to 1000°F
- 3000 FPM, 23 CFM
- Rugged die-cast Aluminum housing
- Replaceable ceramic heating elements

**MASTER APPLIANCE**  
Designers and Manufacturers of Heat Tools for Industry

[www.masterappliance.com](http://www.masterappliance.com)

See our website for more Heat Shrink Systems for Wiring Harness Assembly

**HARNES**  
**Braiding & Shielding**

As the industry leader in cable harness shielding, Hamilton Products will meet your most demanding requirements for textile and/or wire shields.

Our capacity of 1 to 1,000 harnesses and our extensive knowledge of specialty braiding and shielding allows us to manufacture to your specifications, or custom design to meet your installation requirements.

*For the best, call the best. Call Hamilton Products.*

**HAMILTON PRODUCTS, INC.**  
P.O. Box 1100 • 43A Rte 12 South • Sherburne, New York 13460  
**Phone: (607) 674-2030 • FAX (607) 674-9367**  
**E-Mail: [a\\_critton@iwgbwd.com](mailto:a_critton@iwgbwd.com) or [s\\_mallo@iwgbwd.com](mailto:s_mallo@iwgbwd.com)**  
**Home Page: <http://www.hamprods.com>**

**BRAIDERS – NEW & REBUILT**

**Specializing in New England Butt:**

- #2 Harness Braiders
- CB1 Cable Braiders
- Specialty Application Braiders

**We Purchase  
Good Used  
Braiders**

**SHORTEST  
POSSIBLE DELIVERY!!!**

**Contact: Jack Dennehy**  
**COMPOSITE & WIRE  
MACHINERY, INC.**  
490 Old Baptist Road,  
North Kingstown, RI 02852  
**Phone: (401) 884-4760 • FAX: (401) 885-2499**  
**Visit: [www.compositewire.com](http://www.compositewire.com)**  
**Email: [compositewire@aol.com](mailto:compositewire@aol.com)**

**ASK ABOUT OUR NEW DESIGN DRIVE SYSTEM**



**Delivering High Quality Products Worldwide**  
“The Blade People”

A full line manufacturer of wire  
Cutting & Stripping Blades for all  
types of wire processing equipment.

**www.jwbmanufacturing.com**

841 W Fairmont Dr, Ste 103  
Tempe, AZ 85282  
Tel. 480.967.4600      Fax 480.967.4466  
Email: [sales@jwbmanufacturing.com](mailto:sales@jwbmanufacturing.com)

# 6 Road Blocks when Designing High Voltage Connectors and Assemblies

Continued from page 1

the fit, form and function of the design?

**Cost:**

With the economy in its current state a major hurdle in HV design can be keeping the cost down. This can prove to be difficult when trying to design a reliable, effective, robust connector that meets or exceeds the customer's requirements. A lot of times performance ends up taking a backseat to reduced cost. There are a few techniques used to minimizing cost without compromising on performance. By uti-

lizing existing materials that are stocked and readily available, using hardware from existing designs and incorporating them into the new design. By using existing tools, molds, and jigs and designing new components from cost effective materials that won't compromise on performance.

**Manufacturability:**

The manufacturability of the design is a key component. The design may look good on paper but can it be built easily. The difficulty of the design effects the direct labor time required to build the cable assembly which affects the cost. The difficulty of

the design also affects the ability to maintain a repeatable, reliable process. If the process is not repeatable you will have inherent cable failures. These potential processing issues should be caught and addressed during the design review

**Materials:**

Selecting the correct material with the required performance characteristic and maintaining design effectiveness is critical. High voltage cable assemblies and connectors require materials to perform well both electrically as well as mechanically. A careful analysis of the operating environ-

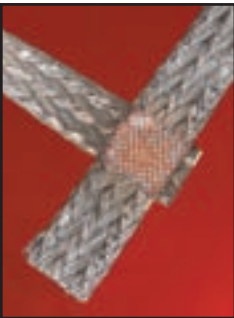
ment and how it will affect the materials is key. Using dissimilar materials can prove to be problematic. A good adhesion between materials is critical when trying to offset high voltages. Without a good adhesion between the materials there is nothing to offset the voltage except the air which requires designing components with greater distances between the high voltage and ground. Using similar materials allows for a cohesive bond between them effectively offsetting the high voltage allowing for smaller connectors. If dissimilar materials are to be utilized in the design the use of primers and adhesion promoters has proved useful depending on the material you are trying to bond to.



## Sonobond ultrasonic welders can handle even your toughest wire welding challenges.

### We'll prove it with *free sample welds.*

Our ultrasonic welders are quality engineered to take on the most difficult metal welding applications. Consider these heavy-weight advantages that only Sonobond can offer...



- The ability to confidently handle the widest spectrum of welds — including *tin-coated wires and terminals*, as well as aluminum, copper, nickel alloys, precious metals, and dissimilar metals.
- *Fast, easy tooling changes* that take only a minute or less and require *no calibration*.
- Tough, durable Taper Lock tips with the staying power to provide up to 100,000 welds. You also save money because you replace just the tips—not the entire horn.
- The capacity to perform spot welds, wire-to-terminal welds, and wire-to-wire welds (with cross-sectional areas up to 100 sq. mm)—all in *a single pulse*.
- Welding modes by time, energy, or distance.

### The Sonobond Advantage

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

Sonobond uses the unique, patented Wedge Reed bonding system that combines high vibratory force and low amplitude coupling to deliver precise results every time. Our units are made in the USA and require only minimal operator training. Sonobond also goes the distance by providing the very finest technical support and customer service—before, during, and after installation.

### Put Us to the Test

We are so confident that our welders can deliver a quick one-two punch to your toughest application that we encourage you to put us to the test.

Just supply us with your metal components. We'll weld them in our Applications Lab, show you the results, and recommend the machine that's best for your specific product. There's no cost or obligation.

When it comes to reliable metal welding, you want the champion in your corner. So contact us today. Discover how Sonobond can put over 50 years of expertise to work for you.



**Corona:**

A corona free design can sometimes prove to be extremely difficult. A well designed corona free cable assembly will ensure reliable, resilient cable assemblies that stand the test of time. There are many aspects that must be considered when designing a corona free design. The first thing is choosing the right cable. Most designs utilize a triple extruded cable. This ensures the conductor and ground is smooth and uniform. Next is the connector interface. The interface should allow for adequate distance to offset the applied voltage and also to remove any air.

For further information contact Caton Connector Corp, 26 Wrapping Rd, Kingston, MA 02364. Phone (781) 585-4315 or Fax (781) 585-2973. Visit [www.canton.com](http://www.canton.com).



800-323-1269 • 610-696-4710 • Fax 610-692-0674  
Web: [www.SonobondUltrasonics.com](http://www.SonobondUltrasonics.com)  
Email: [Sales@SonobondUltrasonics.com](mailto:Sales@SonobondUltrasonics.com)

© 2013 Sonobond Ultrasonics, Inc.





Your One Source

## Wire Processing Equipment Partner



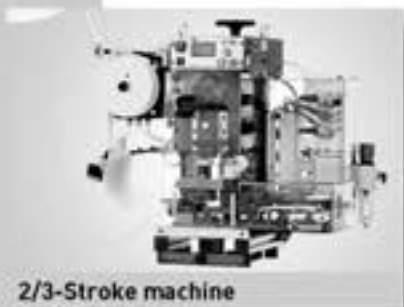
Standard applicator



Stripper Crimper



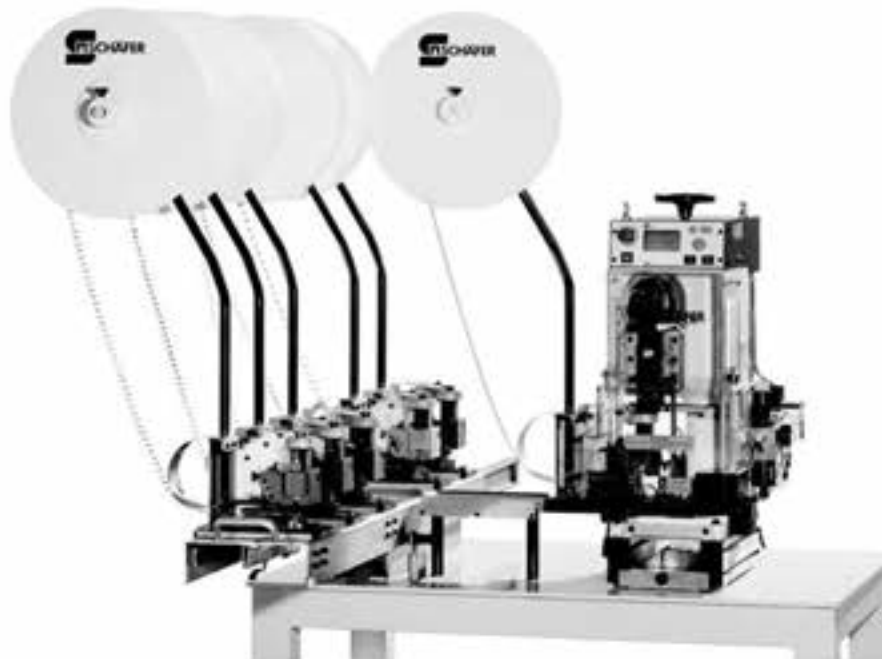
Cross-section lab



2/3-Stroke machine



Automatic crimp machines



### Crimping Machine with Quick Change System

#### Our Innovation

The customized crimp work table consist of a sliding table which is mounted perpendicular and next to the crimping press EPS 2003. The sliding table can be equipped with multiple combinations of applicators and the appropriate terminal reels. The user can now simply select the preset applicator and slide it into the crimping press. A total of five side feed and one rear feed applicator can be installed on the sliding table. The identification of the tooling is provided by the RFID technology.

#### Your Advantage

- integrated RFID tooling identification system
- reduction of the set up time
- considerable reduction of down time
- reduction of setup mistakes
- pre-setup at an external station

visit [www.schaefer.biz](http://www.schaefer.biz)  
for more information

#### Schaefer Megomat USA, Inc.

W233 N2830 Roundy Circle W.  
Pewaukee, WI 53072  
USA  
Phone: +1 262 524-1100  
Fax: +1 262 524-1133  
Email: [pewaukee@schaefer.biz](mailto:pewaukee@schaefer.biz)  
Web: [www.schaefer.biz](http://www.schaefer.biz)

#### Schaefer Technologies, LLC

751 N. Raddant Road  
Batavia, IL 60510  
USA  
Phone: +1 630 406-9377  
Fax: +1 630 406-9381  
Email: [batavia@schaefer.biz](mailto:batavia@schaefer.biz)  
Web: [www.schaefer.biz](http://www.schaefer.biz)

#### Schaefer Megomat USA, Inc.

10767 Gateway Blvd, W - Ste. 510  
El Paso, TX 79935  
USA  
Phone: +1 915-598-3037  
Fax: +1 915-598-5374  
Email: [elpaso@schaefer.biz](mailto:elpaso@schaefer.biz)  
Web: [www.schaefer.biz](http://www.schaefer.biz)



THE

# 3 MOST COMMON Causes of Failure in Flexible Electrical Cable

AND

## 4 WAYS to Avoid Them

DOWNLOAD THE FREE REPORT  
from our Technical Knowledge Base



[NationalWire.com/AvoidCableFailure](http://NationalWire.com/AvoidCableFailure)



**National Wire & Cable**  
Custom Manufacturing, Molding & Assembly

**NationalWire.com 323-225-5611**



# The Car

By Paul Hogendoorn

## Cars.

If it wasn't for cars, our society wouldn't be what it is. There is far more to that statement, however, than just the obvious. Cars have made such a significant impact in our society, far more than we ever may have realized. Aside from transportation and the convenience we often take for granted, and the creation of the suburbs and highway systems that make our worlds smaller and distant points more accessible, the existence of cars has positively affected our society's economy in ways no other single device or industry ever has, or may ever do.

Manufacturing creates more direct and indirect employment than any other sector. For every direct manufacturing job, there is said to be up to 7 indirect jobs. Every one of those jobs creates personal wealth and income, mostly for people in the middle class. And automotive manufacturing is the largest sector within manufacturing, as well as being one of the best paying.

But automobile manufacturing benefits our economy in far more ways than just the 7 times employment factor of the major factories. Steel companies produce the steel needed by the suppliers



Paul Hogendoorn

and assembly operations; mining companies mine and deliver the raw material for the steel industries; rail systems are operated and built to support the mining industries. From the mining of ore, to its conveyance to the steel plant, and its subsequent transport to the automobile factory, many hard working people receive a fair remuneration for their daily efforts.

And beyond that, the economic contributions of the car continue. Dealerships and service centres abound, each one employing several dozen people, selling and servicing them. Fuel stations outnumber service centers, and each of them employs people and provides a

*Continued on page 9*



**GRAYLINE  
INC**

**MANUFACTURING  
WIRE HARNESS  
TUBING SINCE 1966!**

**For a FREE copy of Grayline's  
Heat Shrink User's Guide  
please email us at  
[sales@graylineinc.com](mailto:sales@graylineinc.com)**

**Two-week Lead Time on  
Everything We Manufacture**

**100% On-Time Shipping Guarantee**

2101 AIRPORT ROAD ► WAUKESHA, WISCONSIN 53188-2455  
[www.graylineinc.com](http://www.graylineinc.com) ► 1-800-394-5762 ► [sales@graylineinc.com](mailto:sales@graylineinc.com)

## Braiding Machinery for Harnesses



*High speed operation*

*Reduced downtime*

*Low operational noise*

*Minimized reworking*

*Comprehensive support*

Improve efficiency and profitability with a market-leading COBRA machine.

All our products use modern design and materials, and have an innovative control system. With speeds of up to 600 picks per minute, the ability to accept larger yarn and wire packages and the "jog forward and back" COBRA ensures higher productivity, reduced reworking and lower downtime.

For further details contact us on: [office@cobrabraids.com](mailto:office@cobrabraids.com)

**COBRA**

BRAIDING MACHINERY

[www.cobrabraids.com](http://www.cobrabraids.com)





# Mando Can Do.



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

“Once I helped round up a cow that got loose in a customer’s plant.

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

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

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

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

Mando exemplifies the Eubanks

business experience—highest-quality, U.S.A.-built wire strippers and markers backed by dedicated people itching to solve your wire problems.

Call us today. We’ll put this “can do” attitude to work for you till the cows come home.



## Eubanks®

### HAPPY ENDINGS

Eubanks Engineering Co.  
950 E. Royal Oaks Drive, Monrovia, CA 91016  
(626) 357-7011 Fax (626) 357-4718  
[www.eubanks.com](http://www.eubanks.com)



# CHIEF SUPPLY INC.

EMPTY REELS WANTED

We buy  
empty reels...

Plastic • Wood • Cardboard  
Almost any size or shape

CHIEF SUPPLY INC.  
(847) 290-8686

185 Martin Lane  
Elk Grove Village, IL 60007

Fax: (847) 290-8689  
Phone: (847) 290-8686

# Your Next Car's Electrical System Will be Designed Completely Over the Internet!

The UK based software developer Cadonix, chose the Electrical Wire Processing Technology Expo (EWPT Expo) for the worldwide launch of Arcadia, their ground breaking Cloud based wire harness design and analysis tool that will change the way automotive design is performed.

Arcadia is the world's first cloud-based general & automotive CAD tool, offering schematic design, animated circuit simulation & analysis, electrical networking, harness design and full design rule checking.

Using a fine balance of cloud back-end and HTML5 front-end the team at Cadonix have achieved what would have thought to be impossible even a year ago, fully scalable vector graphic CAD editing at an enterprise level all accessible from a compliant web browser.

Traditionally such software required a large client footprint, network based licensing servers, a large IT support presence and was file-based with long response times from the software manufacturer to upgrade features and functionality. In a single blow Cadonix have removed all the customers pain

points to present a scalable, future-proof solution.

Offering an end-to-end solution from conception to fully produced harness design, cutting lists, bill of materials and design rule reporting from anywhere an engineer cares to be located, Arcadia offers a quantum leap in flexibility over the competition.

For ease of distribution, licence management and minuscule footprint Arcadia is set to be a hit with IT support as well as engineers.

There is even an Arcadia 'app' to keep those engineers and service technicians on the road happy by

providing full access to their schematic and harness designs; hinting a mobile future for the platform.

Currently launching right now at the 13(th) annual Electrical Wire Processing Technology Expo in the Milwaukee - USA, Arcadia is proving that UK companies can still turn out world class engineering solutions.

With several of the biggest UK and international automotive companies interested in the product, it looks like the next car you will be driving could well have been designed using Arcadia.

When asked, a company founder, Andrew Armstrong stated that harness wiring was merely the beginning of the toolset that will be provided by Arcadia and that CAD and design management tools for all industry sectors are on their way, including aeronautical, rail and military wiring solutions.

Check out the website at <http://www.cadonix.com> or via international Distributor Caresoft at <http://www.caresoftglobal.com/arcadia.html>.

Those who were unable to make it to the show are welcome to ask for a demonstration via any of the contact methods on the website or by contacting:

USA: Mr. Devendra Auti, Senior Director, Sales. Phone: +1-630-273-3222 Email: [Arcadia@caresoft-global.com](mailto:Arcadia@caresoft-global.com)

UK & Europe: Jon Collins, Phone: +44-1795-842-702 Email: [Arcadia@caresoftglobal.com](mailto:Arcadia@caresoftglobal.com)

# DIRECT



**Disconnects** for Appliances, Home Electronics, Custom Applications and more



**Ring Terminals** for Appliances, Heating Elements, Automotive, Aviation and more



**Distributor Terminals** for Automotive Applications



**Applicators** custom, low cost, fast turnaround and high quality applicators for a variety of applications

view our full product line at  
<http://products.etco.com>

What's it like contacting ETCO? In a word. Simple.

ETCO has standard off the shelf solutions for basic low cost manufacturing applications.

ETCO also gives you the freedom to design, develop, engineer and customize our solutions into your products. With an entire team of representatives and engineers available to answer your questions and build your wire termination, tooling and custom application equipment needs, ETCO is the answer.

Since 1947 we've been helping companies compete globally with quality, competitive pricing and unmatched logistics.

What can ETCO do for you?

Call ETCO now at 800-689-ETCO or visit us online at <http://products.etco.com>

Made in the USA



Appliance  
Automotive  
Medical  
LED/Lighting  
Custom





# The Car

Continued from page 6

convenient refilling service. Refineries work 24/7 turning crude into useable fuel to keep the gas stations supplied, and oil drilling operations offer many lucrative employment opportunities to keep the supply of crude flowing to the refineries. From the harvesting and conversion of natural resources, turning oil and ore into fuel and metals, the automobile industry creates an enormous amount of society's wealth. Converting the raw materials into finished products then increases that value exponentially. Add to that the ongoing economic benefit of the automotive support industries, and it's hard to imagine where we would be without the car.

Our roads and highway systems would not be what they are, if we didn't have the cars to use them. Infrastructure projects include more than just roads and bridges, but it's easy for me to believe that building and maintaining our car related infrastructure employs more people than all the other public infrastructure projects combined.

Our middle class is eroding, and so is our government's ability to fund the social safety nets that our society enjoyed for what may soon seem like a historical anomaly. Public education and healthcare, transportation and public

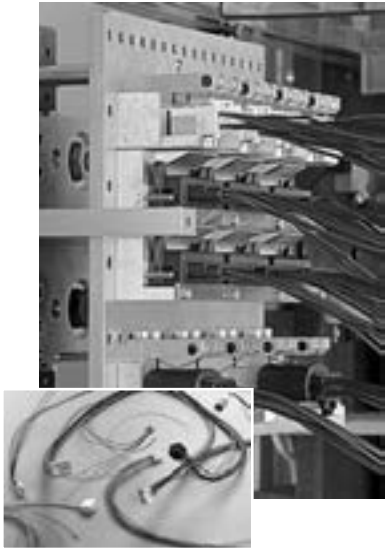
infrastructure, ample clean water and sanitation, pensions for the old and safety nets for those unable - all of those wonderful things may have been created by inspired leaders and put into place by motivated governments, but they were paid for by the wealth created in our society by our wealth creating industries. And the biggest among these is - or was - our automotive industry.

As I sit in the driver's seat of my car, comfortably traveling from point A to point B, I think about these things. We passively watched our once great industries leave our shores, and we educated our kids to believe many of these jobs were below them. Now we wonder why we can't afford what it is we have come to expect.

If there is another industry out there that can generate the kind of individual and collective wealth that the car did for the last hundred years, I say "bring it on!". But until one emerges, let's hold on a little tighter to the industries we have. They are what brought us here, and it was the car, more than anything else.

Paul Hogendoorn is a self-described "incurable entrepreneur". He recently founded TPI Associates to help emerging business leaders achieve their vision. For more information on these topics, please visit [www.tpi-3.com](http://www.tpi-3.com). He can be reached at [paul@tpi-3.com](mailto:paul@tpi-3.com)

## Completely automated wire harness production.



Small production batches? **No problem.**  
Broader variety of harnesses? **Done.**  
Changeover times? **Virtually none.**  
Workweek? **No overtime.**

The fully-automatic Zeta 655 Block Loader requires no application specific parts to change from one setup to another. The operator simply switches between two carousel pallets. Software automatically calculates the order of loading for the assembly process.

Komax's patented measuring system monitors the entire block loading operation from the wire's entry into the cavity to its correct interlocking in the block. Force sensors control each and every insertion.

Contact us for all the details.



[www.komaxusa.com](http://www.komaxusa.com)



THE WAY TO MAKE IT

**komax WIRE**

**AMTI** is announcing a great new way to get a **SLICE**



**NEW!**

**ECONO SLICE**

**SLICE 135**

**THE SLICE MACHINES**  
Automatically cuts Heat Shrink Tubing, Convolution Tubing, Spiral Wrap, Hose, Wire Gasketing, Braided Bus, Multi-conductor Cable and can pull from a Gaylord

**THE SHRINK CONVEYOR OVEN**  
Utilizes Hi-Velocity Heated Air to quickly cure your Heat Shrink Tubing, increasing your production, reducing your labor cost and is extremely repeatable. The oven is 92" long with conveyor with speeds up to 100'/minute with adjustable operating temperature up to 350° F.

**LEAN MACHINE PRODUCTION CELL WORKSTATION**  


**NEW!**

**LEAN MACHINE PRODUCTION CELL WORKSTATION**  
Paperless Manufacturing  
Two-Way Video Conferencing  
All-in-One Computer or Thin Client Terminal Versions  
Mobile Configurations  
Works With All ERP and SPC Software  
Wall mountable

DISTRIBUTED BY  
**Komax Corporation**  
1100 E. Corporate Grove Dr.  
Buffalo Grove, IL 60089  
[www.komaxusa.com](http://www.komaxusa.com)

**AMTI**  
847.588.7090  
[thanlon@amtproducts.com](mailto:thanlon@amtproducts.com)  
[www.AMTIproducts.com](http://www.AMTIproducts.com)



# Insulation Supply Company

## *An Electrical Interconnect Distributor*

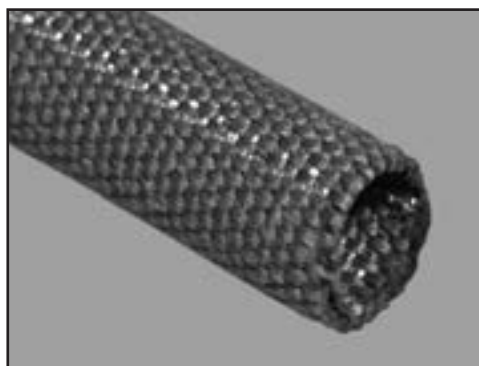
We Stock and Distribute Heat-Shrinkable Tubing, Adhesive Coated Heat-Shrinkable Tubing, Heat-Shrinkable Molded Parts, Crimp Splices, Solder Splices, Heat Guns, Wire Identification Solutions - Labels, Software, Label Printers, Tape, Electrical Protection Sleeve, Lacing & Tying Cord, Cable Ties, Spiral Cut Tubing, Split Loom Tubing, Corrugated Tubing, Medical Grade Tubing, PVC Tubing, PTFE Tubing, PEEK Tubing and Value Added Services.

### *Industries We Support:*

- Aerospace
- Aircraft
- Automotive
- Defense
- Electrical Appliance
- Electronics
- Energy
- Medical
- Rail
- Utilities



Electrical Interconnect  
Heat-Shrinkable Solutions



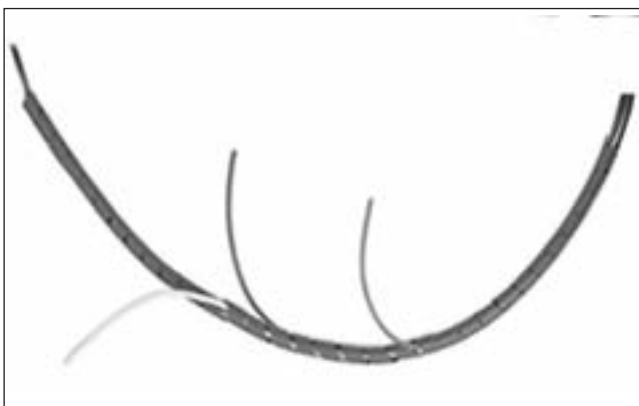
Nomex & PPS  
Abrasion & Bundling Solutions



Heavy Wall Heat-Shrinkable Tubing



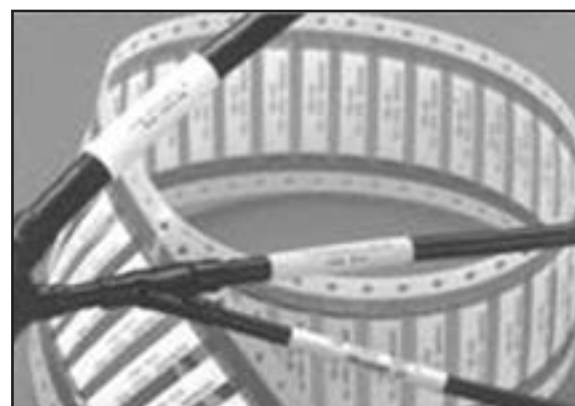
Thermal Transfer Printers, Software,  
Labels and Wire Markers



PTFE Spiral-Cut Cable Wrap



PTFE Heat-Shrinkable Tubing



Heat-Shrinkable Wire Identification

### *Our Top Product Lines:*

- Atkins & Pearce/Ben-Har & Suflex
- Brady Product, Facility & Safety Identification
- Breyden/Gudebrod
- CYG/THERMOSLEEVE/USA
- DSG-CANUSA
- Federal Mogul/Bentley Harris Protection Products
- Grayline
- Hilec/Delfingen
- Insultab
- Judco/Focus-Lite
- LS Cable/Dunbar
- Panduit
- Permacel
- Steinel
- TE Connectivity/Raychem
- Thomas & Betts
- Varflex
- Western Filament
- Zeus



Judco/Focus-Lite  
Heat-Shrinkable Tubing Processing Machine

10008370

ISO9001:2008  
AS9100C:2009

insulation supply company

Since 1952

TE Connectivity (Raychem Products)  
Americas Specialty Distributor of the Year – 2012
[www.inscoinc.com](http://www.inscoinc.com)

(800) 457-7715

[info@inscoinc.com](mailto:info@inscoinc.com)



NEWS PLUGS

Flexx-Sil™ Flat Cables Ideal for Critical Applications in Automotive Assembly Plants

Ideal for critical applications in Automotive Assembly Plants, Cicoil's highly durable Flexx-Sil™ Flat Cables are the optimal alternative to cumbersome round cables, unprotected wire harnesses and space consuming cable carriers. In addition, these highly flexible cables are designed to provide premium current carrying capacity, excellent heat dissipation, consistent electrical characteristics, weight & space savings and are ideal to meet the reliability requirements of continuous motion, welding robots and automation assembly systems.

Even under extensive tight bending and high speed flexing, Cicoil's exclusive, crystal-clear, Flexx-Sil™ Flat Cable Technology does not require conduit for protection and will not wear, tear or deform during a lifetime of more than 10 million cycles. These Halogen & Talc-free cables are "self-healing" from small punctures and will withstand repetitive exposure to severe vibration, shock, flames (UL 94V-0 & FAA), electrical & mechanical stress, humidity, steam, weld spark, temperature extremes (-65°C to +260°C), oil, water and many chemicals. For applications that require resistance to adhesion and friction, Cicoil offers coating options by request.

Through the use of a patented process of encasing individual components, each Flexx-Sil™ Cable can incorporate any of the following: feedback pairs, shielded control wires, power conductors, tubing for liquid or air transfer, video conductors, FlexRail™ Self-Supporting Flat Cable System and Cicoil's Patented StripMount™ Fastening Strip, all combined in a single condensed cable design, precisely controlling the inner component spacing, jacket thickness and the overall cable shape. Custom and Standard Cables are available in continuous lengths, cut to order, or as assemblies, complete with connectors of your choice,

100% tested and inspected for peak electrical performance, quality and reliability.

Cicoil's Flexx-Sil™ Jacketed Cables are UL Recognized, Class 1 Clean Room Rated, CE Conforming, RoHS & REACH Compliant, and are manufactured in an automated, climate controlled environment. In addition, these environment-friendly cables are 100% contaminant-free and exceed the outgassing requirements of ASTM E-595.

Cicoil has been a leader in designing and manufacturing high performance cable assemblies for over fifty years. The company's unique Flexx-Sil™ flat cables provide 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 applica-



Flexx-Sil™ Flat Cables

tions; 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](http://www.cicoil.com) for more information, or call 661-295-1295 to speak to an application engineer.

WIRE HARNESS ASSEMBLY STATIONS  
Designed for the ergonomic assembly of wire harnesses

Surfaces tilt and adjust up and down  
Holds boards from 24" x 24" up to 48" x 96".  
Two models to choose from — Electric or Manual adjust  
Adjustable front lip holds boards from .250" to .750".



The Leading Edge in Modular Ergonomics

10 Avco Road  
Haverhill, MA 01835  
Ph: 800-739-9067  
Fx: 978-374-4885

[www.1proline.com](http://www.1proline.com) [www.industrialworkbenches.com](http://www.industrialworkbenches.com)  
E-mail [Bench@1proline.com](mailto:Bench@1proline.com)



TE OCEAN APPLICATOR SERIES

NEW APPLICATOR FEATURES 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 our 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 set-up 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 all your application tooling needs, contact Heilind Electronics or visit [heilind.com/rpages/te\\_oceanapp](http://heilind.com/rpages/te_oceanapp).



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





HEILIND  
Performance. Trust. Innovation.

866-887-2189  
[heilind.com/rpages/te\\_oceanapp](http://heilind.com/rpages/te_oceanapp)



# We Manufacture Spring Test Probes



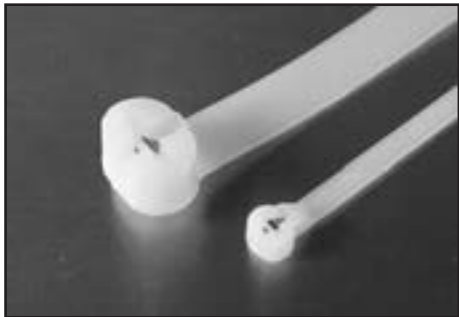
**LONE STAR INDUSTRIAL®**  
6985 Industrial • El Paso, Texas 79915  
Tel: (915) 779-7255 • Fax: (915) 779-7328  
Email: sales@lonestarindustrial.com  
Website: www.lonestarindustrial.com  
Made in the USA

NEWS PLUGS continued

**BURNDY Announces Addition of Stainless Steel Barb Cable Ties (Type CT-SSB)**

BURNDY, a leading manufacturer and provider of connector solutions to the industrial, energy, construction, telecommunication, petrochemical, data center, and transportation industries, announces the addition of Stainless Steel Barb cable ties to their wire management system. Stainless Steel Barb cable ties are designed and manufactured to meet or exceed industry standards to deliver maximum reliability.

The Stainless Steel Barb Cable Ties (type CT-SSB) are Nylon 6/6 with self locking stainless steel barbs and an oval low profile head. There are no sharp edges which helps prevent damaged cables. CT-SSB ties have a low threading force of any one piece design cable tie in the industry. CT-SSB ties have a curved tip for faster initial threading to help speed installation and a no slip tail for easy grip during tensioning. CT-SSB ties are currently avail-



Stainless Steel Barb Cable Ties

able in Natural and UV Black.

Headquartered in Manchester, New Hampshire BURNDY has over 85 years of dedicated customer support in both service and product. Our customers need to look no further than BURNDY for all their connector, tool, and accessory needs with our BURNDY Engineered Systems of coordinating dies, connectors and tools. The three elements have been specifically designed to work together and engineered to meet stringent, accepted quality standards – providing the user complete confidence in the integrity of the connection.

Contact BURNDY at 47 E. Industrial Park Dr, Manchester, NH 03109. Call Customer Service at 1-800-346-4175, or visit website [www.BURNDY.com](http://www.BURNDY.com)

**FTZ Industries Launches Patented Cool Seal® Connector in Europe**

FTZ Industries launched its Cool Seal® connector product line on the European continent at the Commercial Vehicle Show, with support from Wessex Technical Products Ltd., Cool Seal® distributor for the United Kingdom. “The Cool Seal® product line was enthusiastically received during the three day event,” said Thomas “T” Quinn – FTZ President & CEO. “This heat-less splice is the most innovative and cost effective sealed electrical connector to be introduced into the market in 30 years.” The Commercial Vehicle Show is highly regarded as the most productive sourcing and selling trade show opportunity for the entire UK road freight transport and logistics industry.

Continued on page 14



# DO YOU HAVE THE RIGHT WIRE PROCESSING EQUIPMENT?



**CARPENTER MANUFACTURING COMPANY, INC. CAN HELP.**

With over 50 years of experience, we have built an enviable reputation in the wire processing industry through our quality, value and service. Additionally, as the marketplace continues to evolve, we have been able to quickly respond to a variety of industrial needs and deliver superior solutions. Best of all, our user-friendly applications ensure our clients many years of worry-free operation.

- >> FREE 24-Hour Wire Evaluation Service
- >> All wire processing equipment designed, engineered and manufactured in-house
- >> Outstanding customer service
- >> Affordable solutions for both small and large companies
- >> Nation-wide sales representatives and global distributors

LEARN MORE ABOUT THE CARPENTER MANUFACTURING COMPANY PRODUCT LINE AND THE **FREE WIRE EVALUATION SERVICE** BY CALLING 315.682.9176 OR VISIT US ONLINE AT [CARPENTERMFG.COM](http://CARPENTERMFG.COM).

MEASURE/CUT/STRIP >> CRIMPING >> HOOK-UP WIRE STRIPPING >> MATERIAL CUTTING



# WIRE MANAGEMENT SOLUTIONS . . .



**Feed-it**

**Wrap-it**

**Zip-it**

**Mount-it**



**microplastics.com**

800.466.1467





# Kingsley

Providing printing solutions to the wire marking industry for over 80 years.

**KINGSLEY FOIL-FORMULATED TO PRINT ON A VARIETY OF SUBSTRATES, INCLUDING:**

- Anodized aluminum foil labels
- Crosslinked neoprene
- Crosslinked polyolefin
- XLPE
- XLPVC
- KYNAR XLPVF
- Polyethylene
- KYNAR
- PVC
- FEP
- TEFZEL ETFE
- TEFZEL XETFE

Call or e-mail for a quote!  
ribbon@itwnorwood.com  
**800.225.8283**

Electrical Wire Processing Technology Expo, Booth Number 1416





FTZ Industries Director of Sales and Marketing Stuart Pinholster and WTP Ltd. President Steve Wevill, launched the Cool Seal product line in Europe during the Commercial Vehicle Show held at the NEC Convention Center, Birmingham, England.

Continued from page 12

FTZ's patented Cool Seal® utilizes a revolutionary anaerobic sealant technology that installs in a fraction of the time of comparable heat seal connectors. Requiring no heating tools, the user simply strips the wire and crimps, activating the sealant, to create a moisture resistant sealed connection. The advantages of the splice include significant labor savings, increased safety as no heat is required, and ease of use in the field. The splice is available in three international sizes: 22-18AWG (0.5-1mmsq), 16-14AWG (1.5-2.5mmsq), and 12-10AWG (4-6mmsq).

Headquartered in Simpsonville, SC, FTZ Industries is a division of ILSCO Corporation and an ISO 9001 manufacturer and distributor of electrical connectivity products for the automotive, marine, heavy

duty trucking and industrial plant maintenance industries. ILSCO Corporation, privately held and headquartered in Cincinnati, OH, serves the following markets in the electrical industry: OEM's, MRO's Utilities, Construction & Industrial (C&I), Residential, Telecom and Renewable Energy. Established in 1894, ILSCO Corporation has manufacturing in the USA, Canada and Mexico.

For information contact FTZ Industries, 515 Pallmetto Dr., Simpsonville, SC 29681. Phone (864) 963-5000 or Fax (864) 963-5352. Email info@ftzind.com or visit www.ftzind.com.

In the United Kingdom/Europe contact Steve Wevill, President WTP Ltd. 28 Oakgrove Rd, Bishopstoke, Eastleigh, Hants, England SO50 6LL. Phone 023 8064 2707 or Email: steve.wevill@wtppltd.co.uk. Visit website: 222.cool-seal.co.uk.



**FUSES UNLIMITED**  
*The Circuit Protection Specialist*



**AUTOMOTIVE FUSE PRODUCTS**

Authorized Master Distributor for:



**Littelfuse®**  
AUTOMOTIVE FUSES AND  
RELATED CIRCUIT PROTECTION PRODUCTS

Check our inventory on-line at:  
**www.fusesunlimited.com**  
TEL: (800) 255-1919



ISO 9001:2008 Registered



EDITOR'S CHOICE AWARDS 2007



**COOL SEAL** BY FTZ INDUSTRIES

FTZ's patented Cool Seal is the most innovative and cost effective sealed electrical connector to hit the market in 25 years. A heat-less, solderless terminal, it utilizes revolutionary anaerobic sealant technology that installs in a fraction of the time of comparable heat seal connectors. Simply strip the wire and crimp, activating the sealant, to create an environmentally sealed connection. The innovative new sealant prevents the ingress of moisture and air, the nylon insulation provides maximum abrasion and puncture resistance, while the seamless, 99.9% ETP, copper connector offers optimal electrical conductivity. Requiring no heat, the Cool Seal will reduce overall costs by eliminating the need for torches or heat guns, reducing the installation time, and improving productivity.

**FEATURES & BENEFITS**

- Seals Out Moisture Causing Corrosion
- A Heat-Less/Solderless Connection
- Patented Anaerobic Technology
- Simply Strip and Crimp
- Installs in a Fraction of the Time of Comparable Heat Shrink Terminals
- Improved Productivity
- No Heat Tools Required
- Nylon Insulation
- 99.9% ETP Copper Terminal
- Cool Seal Butt Splice Part Numbers: 33130(22-18GA); 33330(16-14GA); 33430(12-10GA)

Installs with FTZ Tools:



94145



94130



FTZ INDUSTRIES 515 Pallmetto Drive Simpsonville, SC 29681 864.963.5000 fax 864.963.5352 www.ftzind.com



Cable and Harness Testing Made Easy

# CIRRIS®



## Simplicity

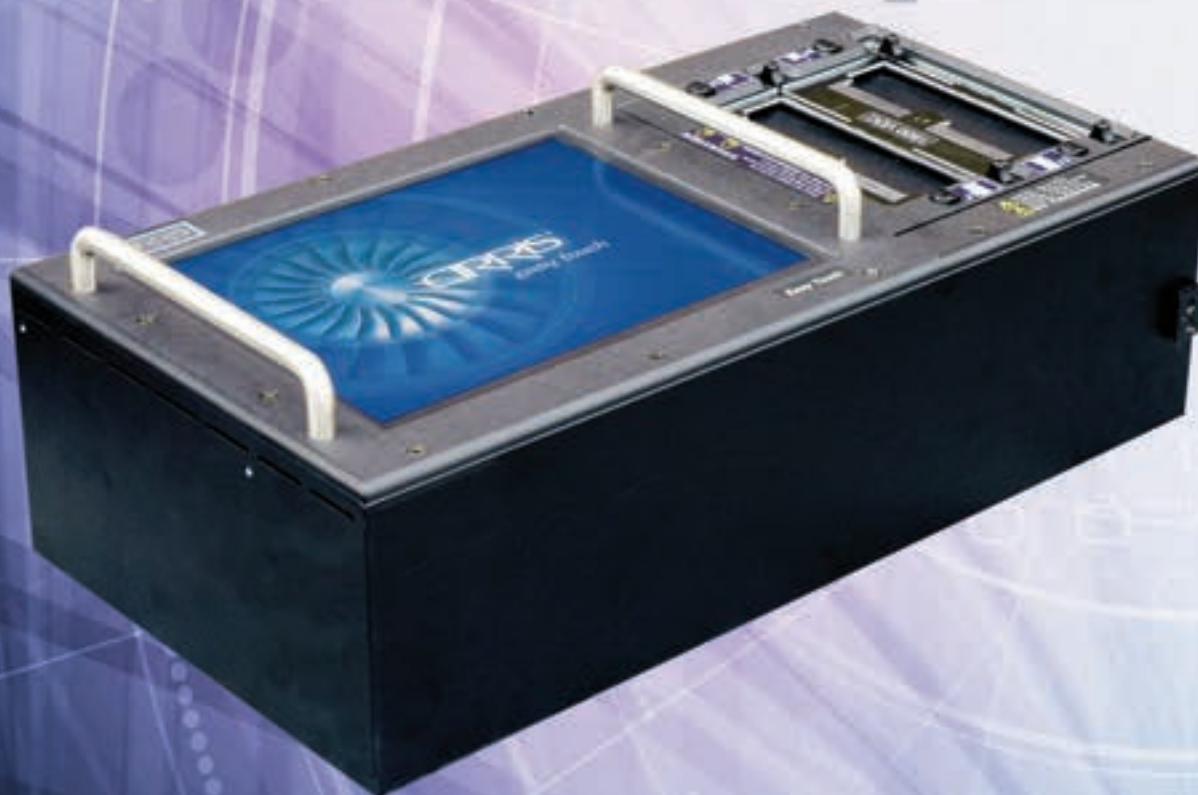
We engineered the tester to do the work so you don't have to

## Reliability

Proven Equipment, proven results, over 8,000 customers and 30,000 testers

## Engineering

Peace of Mind Since 1984



# Easy Touch

1-800-424-7747

[www.cirris.com](http://www.cirris.com)



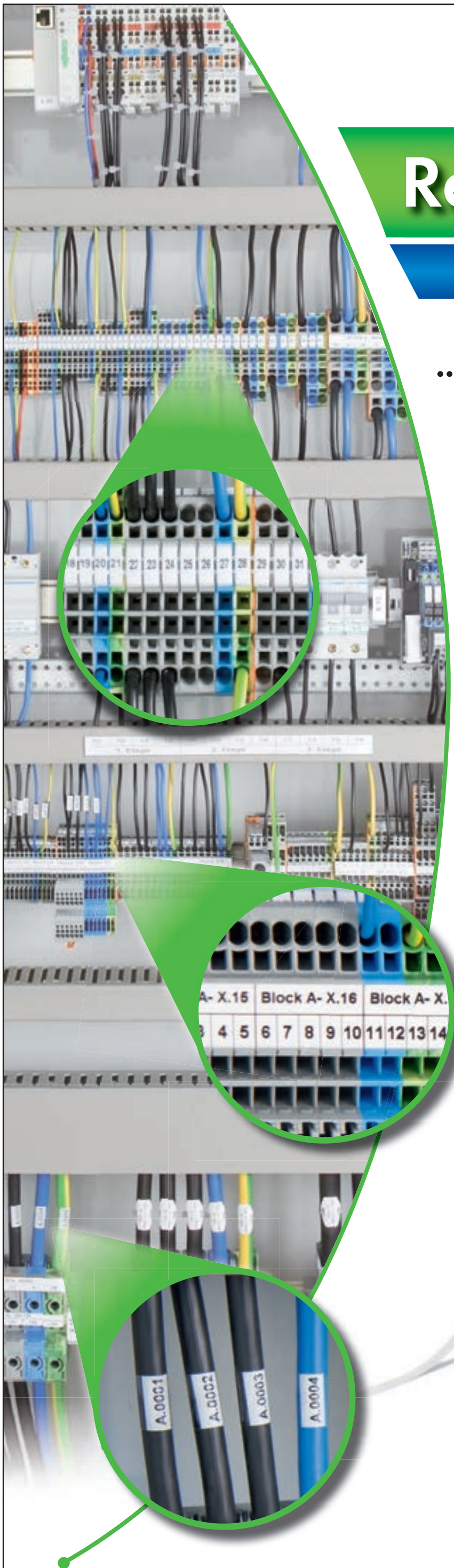
# Ready, Set, Mark...

## ...with *smart*PRINTER™ from WAGO

Now you can cost effectively mark terminal blocks, wire markers, push button plates, adhesive labels, and more in half the time.

- Print on both strip and tag style markers for terminal blocks, relays, etc.
- Multi-line marking capable – more detail means less wiring errors
- Clear, smudge resistant thermal printing – no drying time
- All marking materials on continuous reel – reduces reload for faster marking
- Mark up to 9,615 terminal blocks on a single reel

Watch us go from 0 to 100 in 10 seconds:  
[www.smartprinter.us/video](http://www.smartprinter.us/video)



**WAGO**®  
 INNOVATIVE CONNECTIONS



NEWS PLUGS continued

CaetanoBus Streamlines its Electrical Design Processes Using Capital Software from Mentor Graphics

Mentor Graphics Corp. and CaetanoBus announced successful application of the company's Capital® software suite to the development of CaetanoBus' flagship C5 coach. The C5 coach offers a wide range of configuration options and includes innovative electrical/electronic systems that significantly boost efficiency, safety, and reliability. The sophisticated nature of these systems drives challenges for the coach's electrical design, particularly with

respect to systems integration, design validation and configuration management. To solve these challenges, the Portugal-based company used the Capital tools.

The Capital suite spans an extended electrical systems, "Define – Design – Build – Service" flow, and is particularly targeted at transportation applications. Combining powerful design automation and modern enterprise integration capabilities, the software creates digital continuity within the electrical domain to compress development cycle time and deliver significant cost reductions.

"To develop such an advanced coach requires not only powerful design automation, but also a comprehensive

Continued on page 18



CaetanoBus streamlined its electrical design processes using Capital Software from Mentor Graphics.

# When you need a commitment to quality...

102<sup>nd</sup> ANNIVERSARY 1911-2013

Cutters, strippers, & twisters

Infrared heating equipment

Reelers, dereelers, straighteners, & winders

Mention ad code: WHN13 to receive your FREE mini toolkit!

**ERASER**  
Always Moving Forward®

**Contact Us Today!**  
(800) 724-0594  
info@eraser.com  
www.eraser.com

# CableEye® . . . Much More Than a Harness Tester!

- Shared Cable Database on Your Server
- Built-In Report and Label Printing
- Built-In Scripting for Test Control
- Automatic Serial Number Generation
- Permanent Archival Database
- Bar Code Scanning and Printing
- Data Logging with Batch Reports
- Login Controls for Data Security
- Export-Import in CSV or XML Form
- Guided Assembly Available
- English, Spanish Screen Labels
- Voice Commands Available

Comments from a CableEye User:

"I found the testing system intuitive and well-rounded to serve many applications. I once again would like to tell you how impressed I am with your customer service and overall product presentation. Life would be much easier if more of my vendors operated in the same manner."

[www.cableeye.com/comments](http://www.cableeye.com/comments)  
**(800) 776-0414**  
Click here to see more comments from our customers!

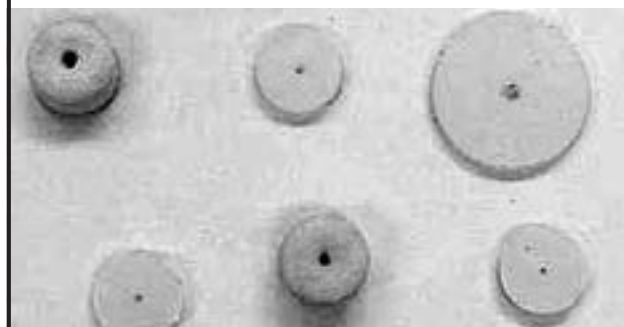
**Try a FREE Demo System Today!**

**CAMI**  
**CAMI Research Inc.**  
42 Nagog Park, Acton, Massachusetts 01720  
e-mail: sales@camiresearch.com

PC-Based System Compatible with Win XP, Vista, Win 7, Win 8. Demo Units Available!



## EIC Wipers



### WIRE CODING WIPERS

1/2" & 1" Dia in silicone, foam & felt  
Also 1-3/16" Dia gum rubber scrubbers.

For complete list & prices go to

**WWW.EICWIPERS.COM**

**Tel: 619-303-7924**

**Fax: 619-303-7925**

Same Day Shipping

Ask for Pete

## NEWS PLUGS continued



Continued from page 17

and robust electrical design data foundation for all stages of design, manufacturing and after-sales support," said José Costa, director of Vehicles and Chassis Development, CaetanoBus. "We have initially applied the Capital software to create electrical schematics and harness designs. The modularity of the system is important to us because it allows us to extend the scope progressively with everything using the same data foundation - we have plans to extend our virtual prototyping capability using advanced elec-

trical simulation and validation tools. We are also investigating how to streamline our service documentation authoring process using the Capital publication tool which can reprocess our wiring diagrams."

Electrical engineering is becoming more complicated because of the rapid increase in customer options, which is driving an explosion in the number of configurations that need to be designed and manufactured. "Engineers can use the Capital suite to design multiple configurations with the same ease as creating a single configuration because the system can capture and automatically apply the engineering constraints needed. They can work faster and more accurately than with traditional systems," said Emilio Villa, managing director of Har-Tech S.r.l., Mentor Graphics' distributor in Portugal.

"Capital software is broadly adopted across several major truck brands and by an increasing number of bus and coach manufacturers. In part, this is because the tool suite supports a number of different design flows," said Martin O'Brien, general manager of the Integrated Electrical Systems Division at Mentor Graphics. "The toolset is both flexible and easily adaptable to changing future needs, as well as being highly productive. This flexibility and power explains why many of the world's leading truck, bus and coach manufacturers have adopted the Capital suite, with deployments in multiple locations in Europe, USA, Asia and Japan."

Mentor Graphics is a world leader in electronic hardware and software design solutions, providing products, consulting services and award-winning support for electronic, semiconductor and systems companies

For further information contact Mentor Graphics Corp., 8005 S.W. Boeckman Rd, Wilsonville, OR 97070-7777. Website: [www.mentor.com](http://www.mentor.com).

### SEA Wire and Cable, Inc. Receives Notice of Qualification to WC27500-2012

SEA Wire and Cable, Inc. announced that it has received approval from Naval Air Command to manufacture products in accordance with WC 27500-2012. This initial approval is effective as of the date of the Qualification Test Reference 15443801. AAI05-31-13.

"The SEA team has worked diligently to acquire this certification to satisfy our customer's needs for flexible solutions," stated Marty Clark President and COO of SEA Wire and Cable, Inc. "More importantly, it demonstrates that SEA is committed to maintaining its position as a world-class mil-spec cable supplier," Clark said.

The approval applies to all products produced in the Madison, Alabama facility for groups 1, 6, 8, 10, and 12.

SEA Wire and Cable, Inc is a leading supplier of wire, cable, tubing, termination sleeves, cable ties, EMI/RFI back shells, connectors and other cable assemblies for the aerospace and military markets. Founded in 1970, SEA has served for 40 years as a premier distributor in the military and aerospace industry.

For more information on SEA Wire and Cable: [www.sea-wire.com](http://www.sea-wire.com).



## METRIC RING TERMINALS

Introducing high-quality metric-size solderless ring terminals featuring insulated Avikrimp™ and un-insulated VersaKrimp™ seamless barrel types. The terminals provide maximum electrical performance for metric crimps using studs up to 10mm in diameter and wire size up to 6mm².

Solderless ring terminals meet UL requirements only when crimped using Molex recommended tooling; however terminals may be crimped with a variety of industry-standard tooling.

### Applications:

Industrial - Electrical panels, Wiring harnesses, Terminal blocks

Automotive Aftermarket - Wiring harnesses, After-market audio or video

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



**molex**  
one company > a world of innovation

**HEILIND**  
Performance. Trust. Innovation.

866-887-2189

[www.heilind.com/rpages/metringterm\\_wn](http://www.heilind.com/rpages/metringterm_wn)



# Is Bigger Better in The Wire Harness Business?

Loren M. Smith, CEO  
Blue Valley Capital

Many sectors of our economy are populated with huge multi multinational companies whose very size creates a defensible competitive advantage. In many industries the immensity of these companies create competitive barriers that make it impossible for smaller companies to compete successfully. We hear that phrase, “Too Big to Kill”.

If this real size advantage applied to the wire harness industry, we would have seen a consolidation years ago. Instead, the wire harness industry continues to be highly fragmented with literally hundreds of small and medium size harness manufacturers (under \$50M revenue) serving a plethora of niche markets. The linkage between the wire harness manufacturers and their customers requires a level of service and flexibility that very large (billion dollar revenue) organizations struggle to provide.

While there are some very large wire harness manufacturers, it’s not clear their size is an advantage. It’s interesting to note that several of the largest harness companies have gone through bankruptcy and or been bought out at a



Loren M. Smith, CEO  
Blue Valley Capital

bargain price.

Although it’s conceivable that large organizations can always develop and maintain highly responsive customer driven cultures, it’s not clear that has occurred in the wire harness industry. What I have observed is in fact quite the opposite; it’s not uncommon for small harness companies to be given the opportunity to replace their very large competitors. When this happens it’s because a customer perceives a service/flexibility/and attitude deficiency.

Continued on page 20

DELFINGEN, A GLOBAL LEADER AND  
PARTNER IN ELECTRICAL WIRING HARNESS PROTECTION

Wire bundling  
& abrasion  
protection

**NU-GUARD**  
expandable &  
wrappable sleeves  
braided • knitted

Thermal  
protection

**NU-FLEX**  
fiberglass sleeves  
heat treated • saturated

Electrical &  
Thermal insulation

**NU-SLEEVE**  
coated fiberglass sleeve  
silicone • acrylic • vinyl

Delfingen US - New York, Niagara Falls. Phone: (716) 215 0300

[nfcs@delfingen.com](mailto:nfcs@delfingen.com)  
[www.delfingen.com](http://www.delfingen.com)

★

MANUFACTURER AND DISTRIBUTOR OF ALL MECAL PRODUCTS IN THE U.S. & CANADA FOR THE WIRE HARNESS INDUSTRY

★

PRESSES | APPLICATORS | SPECIALTY EQUIPMENT | CUTTER/STRIP ACCESSORIES

CELEBRATING 5 YEARS  
WITH DEVOTED PARTNERS & CUSTOMERS

**Mecal**  
BY STARN

Thank you to our devoted partners and customers for 5 successful years!

“We have always received excellent customer service and technical knowledge from Mecal.”

— Shane, Agora Leather Products

“Mecal by Starn has given me fast, friendly, and custom service that I could not find in any of the competition. Any problems I have had, Mecal was always very fast to react with a solution.”

— Josh

“Great company, fun to work with and have a great training program. Reliable and stand buy their product.”

— Ray, AIM

[www.mecalbystarn.com](http://www.mecalbystarn.com) • 814-724-1057

Follow us on





# TO BE SURE

**DSG-Canusa**  
Insulate. Seal. Protect.

From equipment to tubing, DSG-Canusa is your one-stop partner for all of your sealing, insulating and protection needs. An impressive selection of heat shrink ovens compliment an extensive heat shrinkable product line. When quality is your priority, DSG-Canusa is your choice.

**ShawCor - when you need to be sure**



# Is Bigger Better in The Wire Harness Business?

Continued from page 19

The lesson is that the dysfunction associated with multiple layers of management can create competitive disadvantage.

I you are a small or medium harness manufacturer why might this be interesting to you? Because if you are looking for growth opportunities, you should not discount your ability to compete with the “big guys”.

Wire harnesses customers care about one thing; getting the highest quality and best service at the lowest cost. There are absolutely no cost advantages very large harness manufacturers possess compared to their much smaller competitors. There are plenty of small harness companies who have created business models with cost structures that can beat the big guys hands down. When it comes to service and flexibility in particular, a small harness company can run circles around a much larger competitor.


I am by no means suggesting this is an easy path for small or medium size harness manufacturers to find the cracks that provide an opening to outperform the big guys; it takes a comprehensive sales/marketing effort because it’s not possible to predict when you might find that opening. In a world economy that often favors the “big guy”, the wire harness industry is still a place where the creative entrepreneur can find exceptional growth opportunities if he or she is truly focused on finding ever better ways to serve their customers.

After decades in the industry, I am still excited to see small entrepreneurs finding new ways every day to keep an American manufacturing industry, which is often overlooked because of the negatives of high customer concentration and labor intensity, strongly competitive in the global market place.

Loren Smith can be reached at [lms@blvcapital.com](mailto:lms@blvcapital.com) or [www.bluevalley-capital.com](http://www.bluevalley-capital.com)

## The ASSEMBLY Show


**Monday, October 28 – Wednesday, October 30, 2013**  
**Rosemont Convention Center in Illinois**  
**[www.theassemblyshow.com](http://www.theassemblyshow.com)**




### CONTACT LAKES PRECISION:

1900 Epler Court | P.O. Box 630  
Three Lakes, WI 54562  
Phone: (715) 546-3070 | Fax: (715) 546-2565  
[tonya@lakesprecision.com](mailto:tonya@lakesprecision.com)

1370 Pullman Building B, Suite F  
El Paso, TX 79936  
Phone: (915) 856-6606 | Fax: (915) 856-6608  
[laura@lakesprecision.com](mailto:laura@lakesprecision.com)



## PYRAMID TO PRODUCTIVITY!



**OUR GOAL**  
Quality tooling with customer satisfaction

**OPTIONS**  
20,000 plus blade & tooling variations

**EXPERIENCE**  
Over 20 years of blade design & manufacturing

**ANALYZE**  
Understanding your requirements

**SERVICE**  
Committed staff to help you meet & exceed your expectations

**SUPPORT**  
Global representation and distribution

*AMP • Artos • Carpenter • Eubanks • Kodera • Toyolamco • Komax • Schleuniger • Shinmaywa • Schäfer Megomat*

Visit our website for global location information: [www.lakesprecision.com](http://www.lakesprecision.com)

ISO 9001-2008 CERTIFIED





**Applitek**  
TECHNOLOGIES CORPORATION

## Crimping Applicators

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

Mini style applicators with mechanical feed mechanisms are supplied in a variety of feed configurations. Adaptable to most crimping presses.



Model 1700



Model 2000

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

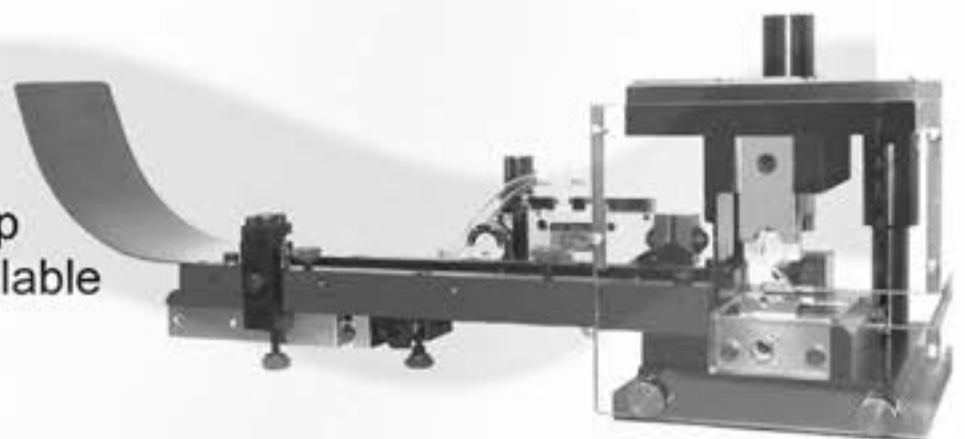


Model 1500



Model 2100

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



DSA Series

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

Give us a call at (401) 467-0007. Our business is applicators, not terminals, not wire, not connectors, etc., etc. It's our only business.

Visit our web site: [www.applitek-usa.com](http://www.applitek-usa.com)

Applitek Technologies Corporation, 174 Georgia Avenue, Providence, RI 02905 Tel: 401-467-0007 Fax: 401-467-5525



## MINI FUSE HOLDER CAP



IMDS CERTIFIED

Use with Delphi/Packard components to build a 280 Series Sealed Metri-Pack MINI Fuse Holder

Designed for harsh environments and engine compartment conditions

Phone: (440) 871-0800 • Fax (440) 871-0799  
E-mail: sales@whiteproducts.com



925 Bassett Road, Unit D, Westlake, OH 44145  
www.whiteproducts.com

## NEWS PLUGS continued

### Development Board for Xtrinsic sensors now available from Newark element14

Newark element14 announced the launch of its multi MEMS development board for Xtrinsic sensors, a low cost enablement solution that allows designers to easily understand and test the latest sensing technologies with a next generation accelerometer, pressure sensor and a magnetometer to measure motion, altitude or pressure, detect magnetic fields and determine physical position.

This new board, which retails at \$26.99 is available through Newark element14 in North America, Farnell

element14 in Europe, and element14 in Asia Pacific.

Designed to work with a range of key applications including mobile phones and tablets, remote controls, game consoles, navigation and medical devices, the new development board for Xtrinsic sensors offers design engineers real flexibility and comes with a Freescale Freedom FRDM-KL25Z platform to help demonstrate the sensor board functionality. The FRDM-KL25Z is an ultra-low-cost development platform enabled by the energy-efficient Kinetis L Series KL1x and KL2x MCUs families built on the ARM Cortex-M0+ processor.

Device drivers and sample codes are also included to cater for the easy evaluation and demonstration of the performance of the sensors to measure motion, altitude, pressure, the

detection of magnetic fields and physical position. In addition, each of the development boards comes equipped with a USB cable and quick start guide.

"With its precision sensing capabilities the new development board for Xtrinsic sensors is an ideal companion for the Freedom platform and gives developers a low cost, low barrier to entry solution for evaluation and development," said David Shen, Group CTO at Premier Farnell. Newark element14 is the North American operating brand of Premier Farnell, plc [LSE: PFL], one of the world's largest distributors of electronics components. "The need for accurate, real-time sensing is becoming pervasive and we are excited about the opportunities this new platform offers our customers."

"We are looking forward to seeing the kind of ideas design engineers will produce using this new platform, and Premier Farnell [Newark element14]'s proven distribution channels and lively element14 community will play a significant role in fuelling those concepts," said Babak Taheri, vice president and general manager of Freescale's Sensor and Actuator Solutions Division. "With its intelligent integration and next-generation sensor tools, this new Board delivers smart, differentiated applications to users in a wide range of focus areas, helping them maximize the design potential of their projects."

Newark element14 offers design engineers a space to share project concepts with 170,000 members in its award-winning online community element14, the first of its kind. Additionally the industry's most comprehensive online knowledge resource for electronic design, the Knode on element14, is a first stop for any engineer undertaking a design project with a development kit.

Key features of the multi MEMS development board for Xtrinsic sensors include:

- Xtrinsic MPL3115 high-precision pressure sensor
- Xtrinsic MAG3110 low-power 3D magnetometer
- Xtrinsic MMA8491Q 3-axis digital accelerometer
- FRDM-KL25Z Freescale Freedom Development Platform:
- ARM Cortex-M0+ MCU, up to 48 MHz
- 128 KB Flash, 16 KB SRAM

Newark element14 is a high-service distributor of technology products and

# Does your Cable Tester:



Print a bar code label only if the harness passes?



Restrict an operator from altering the program?



Identify the operator for labels and data collection?



Verify the bar code label is applied to the harness?



Transfer programs to tester via a memory card?



Send alerts if harness is removed prematurely?



Connect to a network for file transfers and data collection?



Function as a standalone system, without needing a computer?

If not, contact Dynalab today for more information!

[www.DynalabTesters.com](http://www.DynalabTesters.com)

Wiring Harness and Hipot Testers

Resistance: 1Ω-2MΩ  
Capacitance: 100pF-500pF  
High Voltage: 50-1500VDC  
Insulation Resistance: 5MΩ- 1GΩ  
Test Points: 64 to 32,768

**Dynalab**  
TEST SYSTEMS





# With ATS, It's Like My Tool Room Just Got Bigger.

"When I need an applicator, I can't afford to wait for a quote or for a long delivery time. I need it now, and dealing with ATS is practically as fast as pulling a new unit from the tool room."



When you go to the tool room for an applicator, you don't expect to wait weeks for a quotation and weeks more for your tooling. You don't have to wait when you count on ATS for your application tooling needs, either. Just a quick phone call gives you access to high quality, in-stock applicators for thousands of common terminals and contact styles. There's a full selection of replaceable tooling, too. And if we don't stock it, we'll make it for you fast. In fact, we offer a full range of tooling, from hand tools to leadmakers.

You get quick, effective response whether you need a quote, fast shipment, technical field support, or just some expert advice.

So if the tooling you need, and need right now, isn't in your tool room, we can put it there fast. Call us when you're in a hurry...or even if you're not.

**Responsive. It's our way of life.**

Call us at 1-877-671-2955 or Fax to 1-717-810-2862  
E-mail us at [custserv@applicationtooling.com](mailto:custserv@applicationtooling.com)  
Mail to P.O. Box 6780, Harrisburg PA 17112

[www.applicationtooling.com](http://www.applicationtooling.com)



Fulfillment provided by your distribution partner, Heilind Electronics

**HEILIND**  
Performance. Trust. Innovation.



NEWS PLUGS continued

Continued from page 22

engineering solutions for electronic system design, maintenance and repair. Newark element14 brings together the latest products, services and development software, all connected to an innovative online engineering community where purchasers and engineers can access peers and experts, a wide range of independent technical information and helpful tools. Newark element14 is the operating business of Premier Farnell plc (LSE:pfl) in North America and Mexico.

Derek Laffey Joins Teknor Apex as Western Region Market Development Representative for the Vinyl Division

Teknor Apex Company has appointed Derek Laffey market development representative for the Vinyl Division, focusing on the western U.S. and Mexico, it was announced by David Cobb, western regional sales manager.

Mr. Laffey will play a key role in developing new business for PVC products manufactured by the division, including Apex flexible and rigid vinyl, BioVinyl™ compounds with bio-based plasticizers, Flexalloy vinyl elastomers, and Fireguard low-flame, low-smoke compounds for wire and cable.

“Derek brings valuable experience from a recent successful career as an entrepreneur and from previous sales positions

with responsibility for serving the Mexican market—one of them being with Teknor Apex in the 1990s,” said Mr. Cobb. “He combines technical expertise with an excellent understanding of new business development, marketing, and sales.”

Derek Laffey first joined Teknor Apex in 1992, serving as a technical service engineer and then as area sales manager for Mexico and Canada. He left the company in 1999 to enter a full-time MBA program that included a six-month internship in Argentina. Subsequently he was a product manager for Rain Bird Corporation, with responsibility for international sales in the U.S. and Mexico. Starting in 2004, he founded, developed, and eventually sold two successful internet startup companies.


Mr. Laffey holds a BSc degree in



Derek Laffey, Teknor Apex Western Region Market Development Representative




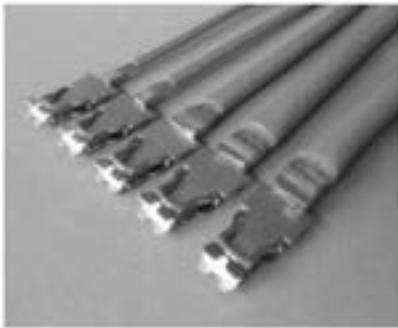
### Ultrasonic Metal Welding Technology



### Schunk Sonosystems

**APPLICATIONS INCLUDE:**

- Wire Splicing to 60mm<sup>2</sup>
- Wire Termination to 120mm<sup>2</sup>
- Li-Ion Battery Cells and Packs
- Flat Conductor Ribbon Cable
- Switches, PCB's
- Tube Sealing, Shunts
- Integrated Systems



**At Stapla, our experience, our technicians, and our applications laboratory, are the tools and reasons why we excel at providing the best welding solutions for our customers. The Stapla advantage: excellent products and service , offered with pride and dedication of our employees.**



**Stapla Ultrasonics** 250 Andover St, Wilmington, MA 01887 **978-658-9400**  
[Info@staplausa.com](mailto:Info@staplausa.com) [www.staplaultrasonics.com](http://www.staplaultrasonics.com) [www.schunk-group.com](http://www.schunk-group.com)

mechanical engineering from Villanova University and an MBA in international business from the University of South Carolina and speaks fluent Spanish

The VINYL DIVISION of Teknor Apex Company is a leading manufacturer of compounds based on PVC. Headquartered in Pawtucket, Rhode Island, U.S.A., the Division is an international supplier to the appliance, automotive, construction, medical device, wire and cable, and other industries. Parent company Teknor Apex operates manufacturing facilities around the world and sells in 90 countries. Six of the eight Teknor Apex business units focus on plastics compounding, including bioplastics; color concentrates; nylon; thermoplastic elastomers; toll and specialty compounds; and vinyl. Visit [www.tekno-rapex.com](http://www.tekno-rapex.com).

Scott Pihl promoted to V.P. of Operations for PJC Technologies, Inc.

Burhan Capar, CEO of PJC Technologies owners of Metro Circuits of Rochester, New York and Speedy Circuits of Huntington Beach, California has announced the promotion of Scott Pihl to the position of Vice President of Operations.

In his new position Mr. Pihl will be responsible for all operations including Production, Engineering, and Quality for both divisions owned by PJC Technologies.

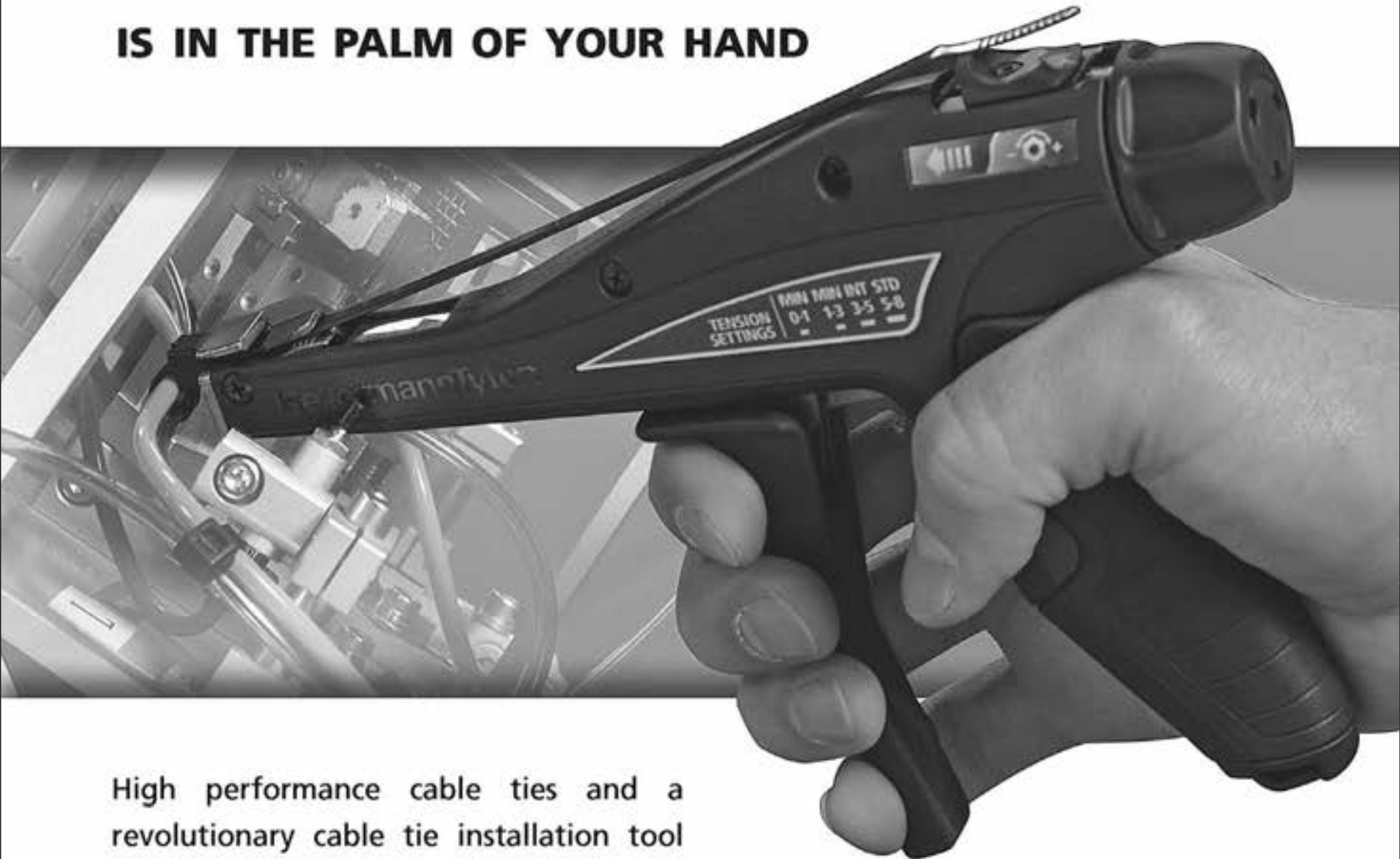
Mr. Pihl has been with the company for twenty vice years, during that time he has held a number of key positions including Plant Manager, General Manager and most recently Corporate General Manager.

Continued on page 26



# THE EVOLUTION OF FASTENING

IS IN THE PALM OF YOUR HAND



High performance cable ties and a revolutionary cable tie installation tool come together as a unified solution to deliver the most precise and reliable fastening and bundling system worldwide

## EVO<sup>7</sup>

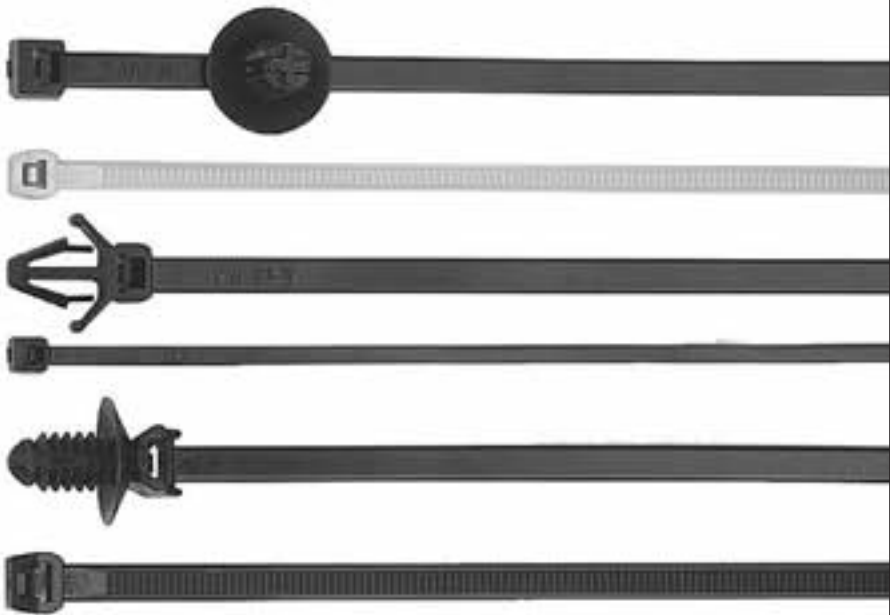
### ERGONOMICS

HellermannTyton's EVO 7 offers the most ergonomic cable tie installation tool in the market. Period. Comfort and operability are combined in one revolutionary tool.

### PERFORMANCE

At the heart of the EVO 7 lies patent-pending Tension/Lock/Cut (TLC) technology; the unbeatable ability to accurately and consistently cut a cable tie flush at the exact tension specified without any operator strain.

### TENSION • LOCK • CUT



HellermannTyton is globally recognized for manufacturing a full line of high quality cable ties and fastening systems. Manufactured in the USA, the EVO 7 cable tie tool and HellermannTyton's cable ties together produce bundling and fastening systems of unparalleled quality. Learn more about HellermannTyton at:

[www.hellermann.tyton.com](http://www.hellermann.tyton.com)

## HellermannTyton

800.822.4352 | e-mail: [info@htamericas.com](mailto:info@htamericas.com)



YOUR CONNECTION FOR...



ITT Cannon

Engineered for life

As a Cannon Authorized Plug Specialist (CAPS), our assembly capabilities and extensive inventory allow us to quickly fulfill your commercial or Mil-C 5015 and 26482 circular connector requirements. Call us for your MS, CA, KPT and KPSE needs. We also support ITT Cannon's commercial product lines including D subminiatures, audio, zero insertion force (ZIF) and other specialty connectors.

For responsive, experienced service, call Electronic Connector at

800-742-3262

FAX: 773-767-9634 e-mail [sales@eccoichicago.com](mailto:sales@eccoichicago.com)  
[www.eccoichicago.com](http://www.eccoichicago.com)

CONNECTORS FOR ALL REASONS

ISO 9001  
Certified

## NEWS PLUGS continued



Continued from page 24

When making the appointment Mr. Capar commented, "Scott certainly has paid his dues with us. He has proven himself to be a key player in the corporation's success and that's why we are very excited about his assuming this new position in the company as we move forward with our initiative to develop a more synergistic and cohesive corporate structure by combining both divisions of our management team into one."

Mr. Pihl added, "I consider it an honor to be promoted to this corporate position, of which will allow for our two factories to leverage best practices and strategic resource deployment, hence enabling our success in delivering world class products and services to our customers."

Speedy Circuits & Metro Circuits are industry leading fabricators of high reliability advanced interconnect technology for high frequency microminiaturization, phased array & AESA radars, sensors, antennas, manifolds, radiators, tiles, MCM substrates, and high speed flip chip applications utilizing Flex, Rigid Flex, and Rigid / Hybrid constructions that are produced in QTA cycle times allowing for time to market execution; as well as production volumes with standard delivery

enabling affordability and seamless technology insertion. For more information visit: [www.speedycircuits.com](http://www.speedycircuits.com) or [www.metrocircuits.com](http://www.metrocircuits.com)

## SEA Wire and Cable, Inc. Receives Notice of Qualification to WC27500-2012

SEA Wire and Cable, Inc. announced that it has received approval from Naval Air Command to manufacture products in accordance with WC 27500-2012. This initial approval is effective as of the date of the Qualification Test Reference 15443801. AAI05-31-13.

"The SEA team has worked diligently to acquire this certification to satisfy our customer's needs for flexible solutions," stated Marty Clark President and COO of SEA Wire and Cable, Inc. "More importantly, it demonstrates that SEA is committed to maintaining its position as a world-class mil-spec cable supplier," Clark said.

The approval applies to all products produced in the Madison, Alabama facility for groups 1, 6, 8, 10, and 12.

SEA Wire and Cable, Inc is a leading supplier of wire, cable, tubing, termination sleeves, cable ties, EMI/RFI back shells, connectors and other cable assemblies for the aerospace and military markets. The company is headquartered in Madison, AL with offices worldwide.

Founded in 1970, SEA has served for 40 years as a premier distributor in the military and aerospace industry. For more information on SEA Wire and Cable: [www.sea-wire.com](http://www.sea-wire.com).

ShinMaywa

Creating Solution Advantages "Gentle to the wire and Operators"

NEW  
TRD401 Series

New Generation Wire Terminating Machine with Great Variety of Advanced Functions (24-14 AWG)

Excellent precision and quality in wire measuring and crimping. Thanks to the combination of automatic wire changer and manual applicator changer, change over time has reduced to 1/8th!



## TRD301 Series

To meet Comprehensive Range of wire Processing Requirement (24-14 AWG)

High processing capability and more stable processing precision. Single end, both ends seal insertion can be processed by TRD301WPSA/ TRD301WPSB/TRD301WPA



## TR201 Series

High Precision Crimping for Small and smart Wire Gauges 36-18 AWG

Both twisting / tinning and crimping can be changeable with quick change (TR201SS). Lead-free and regular tinning can be handled with the tinning unit.



## TR202 Series

High Precision Crimping For Medium and Large Wire Gauges 28-16 AWG

Stylish body with white and stainless steel color. Single end twisting/tinning and crimping can be changeable with quick change (TR202S). Lead-free tinning can be also processed.

ShinMaywa automatic wire terminating machine guarantees high quality not only in automotive industries but in household appliances. Halogen free wires can be processed by above all series.

ShinMaywa

●ShinMaywa (America), Ltd.

10737 Gateway West, Suite 240 El Paso, Texas 79935, U.S.A  
 TEL : +1-915-594-9882 FAX : +1-915-594-9886

E-mail: [info@shinmaywaamerica.com](mailto:info@shinmaywaamerica.com)HP: <http://www.shinmaywa.co.jp/english/index.htm>



# FreePoint I/O Solutions

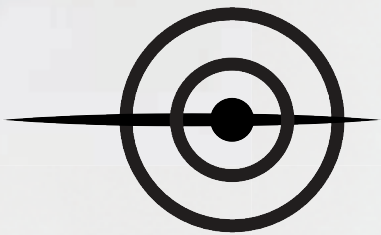
Connecting you to your critical processes, in real-time

- **MEASURE AND IMPROVE**

*"FreePoint helps management to **know**" - Jim Miller*

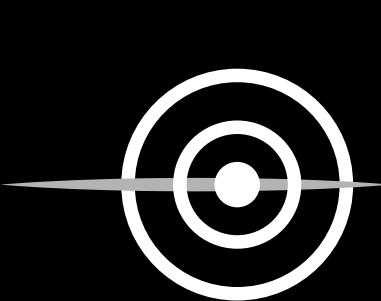
- **FREEPOINT SOLUTIONS EASILY MONITORS CRITICAL PROCESSES...EVEN MANUAL ASSEMBLY PROCESSES, WIRELESSLY**
- **CUSTOM FREEPOINT I/O SOLUTIONS CAN BE YOUR BEST IRREVERSIBLE CORRECTIVE ACTION SOLUTION. (ASK US HOW IT CAN HELP SOLVE YOUR ISSUE!)**

*Monitoring and reporting critical manufacturing processes has never been easier!  
Use your reporting preferences via open and industry standard protocols*



**FreePoint**  
Technologies Inc.

[freepointtech.co](http://freepointtech.co)



**BRAVA**  
Soluti/ons

*By FreePoint Technologies Inc.*

*Better tools - for better performance*

**B**uild *YOUR* product right

**R**eport *YOUR* status in real time

**A**dapt the technology to *YOUR* system and requirements

**V**alidate *YOUR* solutions effectiveness

**A**id *YOUR* Assemblers, Supervisors and Managers

**Build Better Harnesses Wirelessly**

*Flexible:*



Small sub assemblies to complex harnesses, high volume to VIN sequencing

*Save time:*



Set up and Engineering changes to build tools have never been easier

*Save money:*



Powerful visual aids and media increase productivity, eliminate mistakes, reduce changeover times and eliminate waste

[freepointtech.co](http://freepointtech.co)





## 90 SERIES Fast Wire Harness Testing SYSTEMS

**Test Continuity,  
Display Work  
Instructions,  
Specify Test  
Parameters,  
Test High  
Voltage  
Isolation**

- 500 Points Per Second
- PC-Based Simplicity
- Test Wire Harnesses & Backplanes
- Audio/Visual Work Instructions
- Store Test Results

**SERIES  
90**

More customers choose Cablesan Series 90 Continuity Analyzers with our unique TestRite software than any other continuity test system of its kind. Series 90 circuit analyzers provide exceptional speed, versatility, and accuracy in the testing of wire harnesses, backplanes, and other interconnects. Results are 200 times faster than hand buzzing and shorts are tested in the process. The testers provide resistance and capacitance measurements, diode testing, and guided harness assembly. You can locate wires by touch and verify terminations.

Cablesan's Series 90 TestRite programs run under the most popular Windows operating systems, and can import wire lists, net lists, and CAD data. TestRite's browser window allows you to provide setup and work instructions using HTML, image, and audio files. With a simple click, everything is displayed, stored, and can be printed in seconds. High voltage and high current models are also available. Put simply, you reduce test and assembly cost dramatically. Visit our website or call us at (909) 483-2436 for more details. Cablesan, Inc., 3022 Inland Empire Blvd., Ontario, CA 91764



**Cablesan**  
A EUBANKS COMPANY

[www.cablesan.com](http://www.cablesan.com)



# The 2013 Electrical Wire Processing Technology Expo

By Joe Tito  
Wiring Harness News

The 2013 National Electrical Wire Processing Technology Expo broke records once again as it was held May 8 and 9 at the Delta Center (formerly Frontier Airlines Center) in Milwaukee. A total of 2,257 attendees from OEM's and harness manufacturers combed over 43,000 square feet of exhibit space at the 13th annual event. Total traffic was up 22% from the previous year, with 870 attending the show for the first time.

There were 163 exhibitors at this years show, representing a 20% increase. The Delta Center opened an additional hall to accommodate larger booth requests, along with the plethora of new exhibitors. Still, even that wasn't enough to handle exhibitors pouring in at the last minute wishing to exhibit in this increasingly popular show. Cheryl Luck, Sales Manager for Expo Productions, Inc. (EPI), the shows producer, mentioned, "Even with the increased space, this is the first time in the show's history I had to turn folks away."

The Exhibitor Advisory Committee goes to great lengths to provide an informative array of free seminars for attendees. Certificates of Completion are provided after all of the seminars as

they are designed to provide continuing education credits for various industry accreditations.

Day one began with an update on aluminum wire from Don Price of USCAR, and continued with a look at crimp validation by Keith Nicholas of TE Connectivity. Josef Liebl of SLE rounded out the day, speaking on the integration of micrograph laboratories in harness production.

Day two kicked off with a survey of the Revision B updates of IPC/WHMA-A-620, given by Jack Crawford of IPC International. Gustavo Garcia-Cota of Schulenburg guided attendees through a discussion of crimp force monitoring, and John Crawford of Anixter reviewed materials on environmental compliance. The seminar rooms were provided courtesy of *Wire and Cable Technology*.

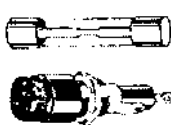
EWPT Expo sponsors provide attendees and exhibitors to some wonderful entertainment and hospitality perks that just aren't available at other shows. *Assembly Magazine* provided the popular Beer-N-Brats party during exhibitor set-up, and an Exhibitors Breakfast was sponsored by The Delta Center on Day 1. The Day 2 Exhibitors Breakfast was presented by *Wiring Harness News*.

Continued on page 31

## "WORLD'S LARGEST INVENTORY OF TERMINALS AND FUSES" ELECTRICAL PRODUCTS SALES CORP.



1333 S.W. 30th Avenue  
Deerfield Beach, Florida 33442  
Established 1947



Tel: 954-428-1788 • Fax: 954-429-1511  
Toll Free: 1-800-342-1422

E-mail: [sales@electricalproducts.com](mailto:sales@electricalproducts.com) • [www.electricalproducts.com](http://www.electricalproducts.com)

LUGS • TERMINALS • SPLICES • FERRULES • DISCONNECTS  
END CAPS • JUMPERS • CABLE TIES • SOLDER SLEEVES  
HEAT SHRINKABLE TUBING • FUSES • FUSEHOLDERS  
FUSE CLIPS • MIL SPECS OUR SPECIALTY

MS25036 • MS20659 • MS17143 • MS3367 • MS3368 • MS3339 - MS3341  
MS21980 • MS21981 • MS35431 • MS77066 - MS77074 • MS25274  
MS25435 - MS25439 • M83519 • M23053 • MS21266 • M23190  
NAS1744-NAS1746 • MS25083 • MIL-C-83413/8 AND MANY OTHERS

### AUTHORIZED DISTRIBUTORS FOR:



ELECTRICAL PRODUCTS SALES CORP. has one of the largest inventories of terminals and fuses in the United States. When you receive requests for these items, use our vast inventory to draw from.

Access our Line Card and Inventory on the World Wide Web:  
<http://www.electricalproducts.com>

Your Best Source Since 1947

Call Today 1-800-342-1422

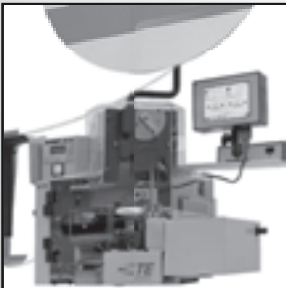
Fast Delivery!

Please visit our new on-line store at [electricalproductsstore.com](http://electricalproductsstore.com)

## TE Connectivity

# Global Field Services

WHEN YOUR TOOLING **HAS** TO WORK EVERY TIME



TE Application Toolings' experienced Field Service Specialists are located across North America to provide timely response to your needs. In addition to installation, warranty and repair service, we can help with **equipment selection, training, troubleshooting, service contracts and spare parts.**

To learn how TE Application Tooling can deliver the right service solutions for all your tooling needs, call 888-777-5917 or 1-717-810-2080 or visit our web-site at <http://www.tooling.te.com/service.asp>

EVERY CONNECTION COUNTS



TE Connectivity's only obligations are those stated in TE's General Terms and Conditions of Business (<http://www.te.com/aboutus/tandc.asp>). TE expressly disclaims any implied warranty regarding the information contained herein, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose. © 2013 All rights reserved. TE Connectivity (logo), TE Connectivity and EVERY CONNECTION COUNTS are trademarks.



# Industrial Wire and Cable Corp.

Premier manufacturer of high quality copper wire and cable products

- Bare Copper Wire 8AWG – 40AWG soft and hard
- Building Wire 600V
- Fixture Wire 600V
- Machine Tool Wire 600V
- Power and Control Tray Cables 600V
- Appliance Wire & Cable
- Crossed Linked Polyethylene 150C°
- Irrigation Cable
- Pet Wire
- Thermoset Insulated Wire
- Communication Cable
- Plenum Cables
- Our products meet or exceed RoHS requirements.



Industrial Wire and Cable Corp. has been manufacturing wire and cable products for over 40 years. We only produce the highest quality products at competitive prices. Our manufacturing process begins with 5/16 copper rod so we can control all tolerances to the highest standards in our state-of-the-art facility, located in Lake Zurich, IL.

Request a complete catalog by phone, fax, or email today!

Phone: 847-726-8910  
800-878- WIRE  
Fax: 847-726-7544

Visit our website  
[www.industwire.com](http://www.industwire.com)



Industrial Wire and Cable Corp.  
66 N. Buesching Road  
Lake Zurich, IL 60047



More photo's from the 2013 Electrical Wire Processing Expo are on pages 34-35.

# The World's Most Popular Hipot Cable Tester...



The Signature 1100H+ is our most popular high-voltage benchtop cable tester ever. Now look what we've added...

## ...Keeps Getting Better

Network all your benchtop testers together and share data from one server.



2 USB ports (standard) and an ethernet port (optional) allow you to store test programs, SPC data, custom test scripts, and much more on any standard USB thumb drive.



Print custom labels with barcodes and graphics using our scripting capabilities.

- Combine this with all of the 1100H+'s Standard Features:
- 1000, 1500 or 2000VDC - 700 or 1000VAC Hipot Testing
  - Continuity Resistance from .001 to 1M Ohms
  - IR Resistance from 5M to 1000M Ohms
  - Accepts Interchangeable Adapter Cards
  - Overnight Service - 24/7 Support
  - Expandable from 64 to 1024 Points
  - Call for a Free Demo. Mention Assembly Magazine to recieve two day shipping



[www.cirris.com/cabletesters.html](http://www.cirris.com/cabletesters.html)

**CIRRI'S**  
Cable and Harness Tester Experts  
Phone 800-424-7747



# Electrical Wire Processing Technology Expo

Continued from page 29

Attendees also enjoyed stellar hospitality with a Day 1 AM Break sponsored by Komax and a PM Break held by Schafer. Always a great networking event, the After Hours VIP Party was co-sponsored by Komax and *Wiring Harness News*. It featured incredible buffet stations and live jazz music. There was an AM Break for Day 2 attendees provided by Mechtrix, and WHMA provided Lobby Coffee both days. Another favorite of attendees was the Day 2 Bloody Mary Bar provided by Mecal by Starn. *Wiring Harness News* also provided a Business Center, Cyber Cafe and massage services at the show.

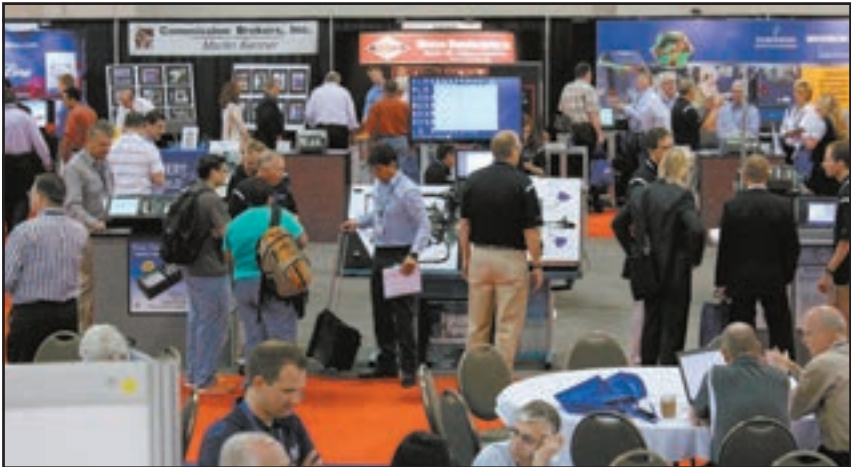
Marilyn Magowan, Editor for *Wiring Harness News* described the show as the seminal showcase in technology development for the wire harness industry. "It's certainly our pinnacle event, and it gives us a chance to thank our readers and learn about trends in the industry." She feels confident the expo provides a unique opportunity for members of the industry to connect, and added, "When the industry achieves its goals, then we certainly have achieved ours."

EPI, the shows managing partner, provides a level of service to both exhibitors and attendees that is beyond comparison. Their friendliness and high level of attention keeps both coming back. But Jay Partington, President of EPI, is quick to share the glory. "A lot of the things we do that folks enjoy happen because of our sponsors; especially *Wiring Harness News*," he stated. He also points to the efforts of a very active Advisory Committee in shaping the ever increasing success of the show.

Jay is very excited about the direction of the show for 2014, as he plans to add more educational opportunities to the already dynamic schedule. But the most notable change for 2014 will be efforts made on the international scene, as the show changes it's name from the National Electrical Wire Processing Technology Expo, to International. EPI intends to place much more effort in promoting the show internationally. "Our larger exhibitors said our show is now recognized as a major event with worldwide prominence," said Jay, "and it's very exciting to attract this audience."

There was one additional record broken at the 2013 show that would make residents of the host city proud. Last year, exhibitors and attendees enjoyed 12 kegs of the city's finest brew. With expanded overall attendance, and some additional hospitality venues, this years

show boasted a 50% increase, with 18 kegs served over the two day event. It might be the beer that made Milwaukee famous, but the efforts of the sponsors, EPI, and The Delta Center, will keep folks coming to the International Electrical Wire Processing Technology Expo.



## ECC

### Innovative Fixture Solutions for Your Critical Testing Issues


- Continuity Test Fixtures
- Slave Cables for Functional Testing
- "Burn-in" Test Fixtures
- Terminal Seating Testing
- Component Presence Detection
- Color Detection
- Wire Routing Products



- Reduce Cycle Time
- Reduce Maintenance Time
- Reduce Operator Fatigue
- Improve Quality

**Your Wiring Harness Solution Provider**

**ELECTRICAL CONTINUITY & COMPONENTS**  
Ph. 614•409•9104 Fax. 614•409•9115  
[www.eccco.com](http://www.eccco.com)




## stunkConnect

automated solutions, Inc.


### YOUR PARTNER FOR TURNKEY SOLUTIONS SINCE 1972

RESISTANCE WELDED CONNECTIONS FROM 0.01 MM<sup>2</sup> UP TO 300 MM<sup>2</sup>


HOT CRIMPING




RESISTANCE BRAZING




WIRE TERMINATION




WIRE SPLICING




MICRO SPOT WELDING





TURNKEY CELL for E-DRIVE production



MANUAL module / Hot crimping / wire termination

### RESISTANCE WELDING FEATURES:



- ▶ RELEASED by automotive and medical industry
- ▶ welding **MAGNET WIRES** without stripping
- ▶ **NO AGING** of the connection / **TIME SAVING** process
- ▶ **LOWER RESISTANCE** than crimping plus soldering
- ▶ welding **COPPER, TIN** or different **COATINGS**
- ▶ welding **MIXED MATERIAL** combinations
- ▶ **WIRE SPLICING** 0,05 mm<sup>2</sup> to 120 mm<sup>2</sup>
- ▶ **WIRE TERMINATION** up to 150 mm<sup>2</sup>
- ▶ **HOT CRIMPING** up to 300 mm<sup>2</sup>
- ▶ manual, semi- and full automatic stations available
- ▶ **TURNKEY SOLUTIONS** with system integration
- ▶ **RELIABILITY** by process monitoring via PC controllers

### APPLIATION RANGE:

- ▶ E-DRIVES
- ▶ HF WIRES
- ▶ TRANSFORMERS
- ▶ WIRE HARNESS
- ▶ HV - CONNECTORS

- ▶ EV - CHARGING PLUGS
- ▶ LI BATTERY CELLS
- ▶ FLAT RIBBON CABLE
- ▶ BUS BAR WELDING
- ▶ INTEGRATED SYSTEMS

beneficial easy welder KM 15 for compacting wires



**stunkConnect**  
automated solutions, Inc.

39 Scenic View Dr. | Deep River, CT 06417  
Phone: +1 860 227 0683 | Fax: +1 860 526 9296  
Info@stunk.de | [www.stunk-connect.com](http://www.stunk-connect.com)

**AUTOMOTIVE / MEDICAL / SOLAR**





Innovators in Wire Processing

## CoaxStrip 5200



**Economic and fully programmable rotary cable stripping machine with a high level of flexibility, productivity and user-friendliness.**

- Semi-automatic, multi-step stripping machine for coaxial, multi-conductor cable and single conductor wire
- Intuitive color touchscreen user interface
- No mechanical adjustments required when changing wire sizes
- Very sensitive trigger sensor
- LED lighting
- Best price/performance ratio on the market





drive in

To Be Precise.

Innovators in Wire Processing

## MegaStrip 9650

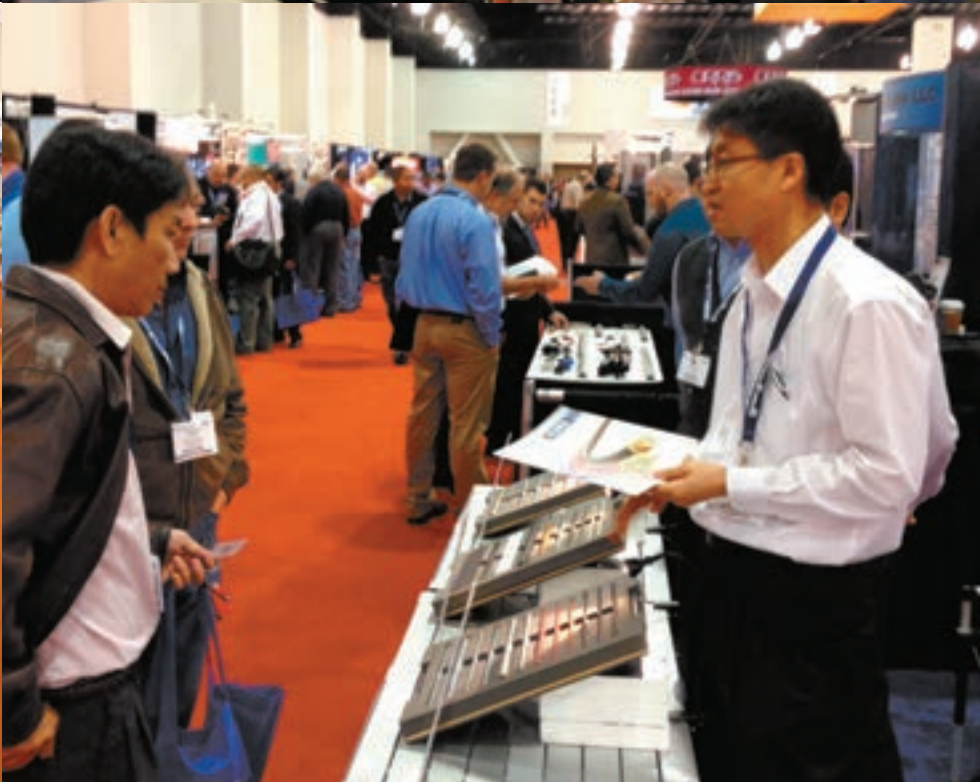


**High performance automatic cut and strip machine featuring intuitive programming and a wide range of processing options that make it a wise investment.**

- Measures, cuts and strips up to 600 MCM and jacketed cables up to 1.38" in diameter
- Modular, open system architecture offers supreme flexibility
- Indexing cutterhead with up to 4 blade sets
- Programmable rotary cutting unit for precise shield cutting
- Automatic locking guide system













# COMMISSION BROKERS INC.

SPECIALIZING IN EQUIPMENT FOR THE WIRE AND CABLE, PROCESSING, ASSEMBLY, AND BRAIDING INDUSTRIES

APPRAISERS • COMMISSION BROKERS • INDIVIDUAL PIECES OR ENTIRE PLANTS

**\*\*YOUR ONE-CALL SPECIALIST\*\***

OVER 44 YEARS OF SERVICE TO THE WIRE AND CABLE INDUSTRY

- COMMISSION BROKERS INC .....**BROKERS**

COMMISSION BROKERS INC .....**LIQUIDATES**

COMMISSION BROKERS INC .....**APPRAISES**

COMMISSION BROKERS INC .....**PURCHASES**

COMMISSION BROKERS INC .....**REBUILDS**

COMMISSION BROKERS INC .....**NEW ENGLAND BUTT BRAIDER SPECIALISTS**
- Equipment relating to the Wire & Cable Industry, from individual components to an entire warehouse. We are specialists in "High Book-Value" assets.

- Entire manufacturing facilities; non-use production departments or individual pieces.

- Complete plant appraisal services available.

- Complete plant and individual pieces.

- Complete rebuilding and reconditioning services are offered. Send for our rebuilt machinery catalog.

- In conjunction with Composite and Wire Machinery Inc., we provide total rebuilding, reconditioning, remodification, upgrading, and purchasing of New England Butt Braiders. Braiders are provided for wire, textile, harness, and composite braid. All Braiders are Totally reconditioned and rebuilt.



Contact: Martin Kenner  
**COMMISSION BROKERS, INC.**

P.O. Box 8456 • Cranston, RI 02920-0456  
Tel: (401) 943-3777 • Fax: (401) 943-3670

Website: [www.commissionbrokers.com](http://www.commissionbrokers.com) • E-mail: [marty137@aol.com](mailto:marty137@aol.com)

[www.commissionbrokers.com](http://www.commissionbrokers.com)

**DMC Introduces One-Step Application Tools for EMI/RFI Shield Termination Bands**

Daniels Manufacturing Corp in Orlando, FL introduces One-Step Application Tools for applying "stamped-low-profile" style EMI/RFI Shield Termination Bands. These tools provide an option/solution for users accommodating to the new AS85049/128 specification which assigned dedicated tooling for the two different band styles (stamped-low-profile and welded buckle).

DMC's One-Step Banding Tools tension, secure, and cut the band without the use of a secondary tool to secure the band. The DBS-2100 applies the .250 wide M85049/128-3 and M85049/128-4 bands and meets the requirements of

M81306/1-01. The DBS-2200 applies the .125 wide M85049/128-7 and M85049/128-8 mini-bands and meets the requirements of M81306/1-02.

The One-Step Band Application Tools are built to M81306/1, constructed to survive the demands of production and maintenance use, and remain precisely adjusted to provide a quality band termination. The tension-lock system gives the operator a positive indication when the precise tension has been applied. The Cut-Off handle easily cuts, bends, and locks the shield band in one step.

For more information, contact Daniels Manufacturing Corp (DMC), 526 Thorpe Road, Orlando, FL 32824, 407-855-6161. Email [dmc@dmctools.com](mailto:dmc@dmctools.com) or visit [www.dmctools.com](http://www.dmctools.com)



One-Step Application Tools for EMI/RFI Shield Termination Bands

# **HOT** from **HAKKO** **FT-801** THERMAL WIRE STRIPPER

*Cuts insulation like a hot knife through butter!*

- Eliminate wire nicks
- Strips fine wire gauge easily
- Digital power display
- Lock in a set power level with a password
- Ergonomic hand piece
- Continuous stripping without hand fatigue
- Adjustable wire stopper for repeatable wire stripping length
- Replace the blades without replacing the hand piece!
- Special tool removes hot blades safely and easily
- Holder with protective cover
- Flexible 4mm diameter cord for working comfort
- Part Number: FT801-02



For complete information, visit

→ [HakkoUSA.com/wire](http://HakkoUSA.com/wire)





# A Superior Wire Harness Begins With the Selection of Quality Tooling



**DMC** DANIELS  
MANUFACTURING  
CORPORATION

With 60 years of industry experience, Daniels Manufacturing Corporation is the leading manufacturer of Mil-Qualified Crimp Termination Tools and Insertion/Removal Tools. DMC also supplies BETA Backshell Torque Tools and ALPHATRON Wire Crimp Pull Testers. DMC products are used on virtually every defense system, aircraft program, land or sea transport system, and space exploration program.

Visit our web-site or call for prices and more information.

**[www.dmctools.com](http://www.dmctools.com)**

**E-mail: [dmc@dmctools.com](mailto:dmc@dmctools.com) • Telephone: 407.855.6161**

An ISO9001:2008,  
AS9100:2009 REV C  
Registered Company







2288 Graffenburg Road  
Sauquoit, New York 13456  
(315) 794-0161  
E-mail: wiresystems@verizon.net



- Designed to collect wires up to 12 feet in length
- Lightweight, portable, adapts to fit most wire cutting equipment
- Greatly reduces the labor involved in handling long wires
- Designed and built for millions of trouble-free cycles
- Can be run either (left to right) or (right to left) direction
- Wire Collectors can be put in tandem for longer length wires
- Swivel lock casters standard
- Stainless steel guard and tray
- Can be activated directly from the wire cutter or as a stand-alone unit
- Height adjustable from 24 to 42 inches
- Standard Collector lengths  
(WC 1000 TT - 10 FT.) (WC 500 TT - 5 FT.)

CONTACT US TO DISCUSS YOUR WIRE CUTTING NEEDS!

**(315) 794-0161**  
**wiresystems@verizon.net**

## NEWS PLUGS continued

### Wider Protection with connectPower from Weidmuller

In efforts to strengthen an already extensive circuit protection product offering, Weidmuller introduces two new models to the connectPower line of DIN-rail mounted circuit breakers. Weidmuller's new BR Series circuit breakers are UL 489 Branch rated and the new SU Series circuit breakers are UL 1077 approved for Supplementary protection.

Weidmuller's lever-operated breakers



**Weidmuller's connectPower circuit breakers are designed to tackle industry's dirty jobs.**

use thermal-magnetic technology, having ratings up to 277/480V and 60A in 1, 2 and 3 pole formats, and are available immediately with C or D trip characteristics. The ranges are designed for industrial control applications, especially where the control equipment may be in an environment that needs to resist vibration and mechanical shock.

A compact 17.5mm width on the rail is part of an attractive package for the connectPower circuit breakers. Weidmuller's BR Series and SU Series circuit breakers give users the option of using either wire-end ferrules or ring lug terminations for the supply and load, as well as UL-approved bus-bar accessories to simplify and reduce the installation time. To maximize security and safety, the operating lever can be locked, off or on, and even the IP20 connections can be supplied with optional touch protection caps.

Weidmuller supports customers and partners around the world with products, solutions and services in the industrial environment of power, signal and data. The company develops innovative, sustainable and useful solutions that set standards in Industrial Connectivity today and continually work toward providing solutions for the technology challenges of tomorrow.

The Weidmuller Group owns manufacturing plants, sales companies and representatives in more than 80 countries.

For further details on Weidmuller's circuit protection range visit [www.weidmuller.com](http://www.weidmuller.com).

## DON'T LET UNSEATED CONTACTS **MONKEY AROUND** WITH YOUR HARNESS PROFITS!

### Contact Retention Testing The Right Way With The RUSSTECH RTCRT<sup>®</sup> Test Tool And Test Kits



- Fast, Safe and Easy to Use
- Test Both Pins and Sockets
- Pre-set and Non-Adjustable
- Easy To Certify and Failsafe
- Cannot Damage Connector
- Audible and Physical Feedback

#### STOP COSTLY CONNECTOR REWORK

With the increasing complexity of today's wiring systems, one unseated contact in a connector can mean, at the very least, costly field repair or worse, complete mission loss. Use our proven RUSSTECH RTCRT series retention testers and test kits. Add a contact retention test process to your system at the point of connector assembly. Find unseated contacts before your CUSTOMER does!



**RUSSTECH Engineering Co. Inc.**  
**[www.russtechengineering.com](http://www.russtechengineering.com)**

e-mail: [russtengr@aol.com](mailto:russtengr@aol.com) Ph: (949) 472-0880



**WAYTEK, INC.**

[www.waytekwire.com](http://www.waytekwire.com)  
800-328-2724



## RIGHT PARTS. IN STOCK. ON TIME.

#### Waytek, Inc. has:

- Over 10,000 products in stock
- Same day shipping of any in stock order received by 4:30 P.M. central time
- Knowledgeable customer service representatives to answer your calls and questions, quickly





**TE Connectivity Offers Closer Look at Advanced End-to-End Connectivity Solutions**

TE Connectivity (TE), along with newly acquired DEUTSCH, featured the latest ruggedized, next-generation, high-speed connectivity solutions at the 2013 Paris Air Show Exhibit, Hall 2B, Stand G121, June 17-23 in Paris, France.

TE featured the following connectivity solutions:

Solutions for Avionics – Reduce SWaP with open architecture and eliminate bottlenecks from backplane to I/O. Achieve the full capabilities of sophisticated avionics with high-speed connectivity to help enable excellent monitoring and control of flight systems. Come see our advanced fiber optic, high-speed copper systems, and the next generation of industry-standard connectors and cables.

Solutions for C4ISR – End-to-end connectivity for communications, command/control, computing, intelligence, surveillance and reconnaissance. Package your electronics with high-performance interconnection solutions that help make it easier to create Line Replaceable Units (LRUs) and Line Replaceable Modules (LRMs) from the board to the box to the I/O. Help protect cabling with rugged, sealed harnessing components and still meet future needs for higher bandwidth, lighter weight and easier handling.

Electrical Wiring Interconnection System – Optimized performance and reliability in severe aviation environments with system and component compatibility. Save significant space and weight with our thin-wall cables, composite connectors, and optical interconnects—all offering advanced performance based on our expertise in materials science to create highly reliable next generation products.

Engine Power and Distribution Interconnects – Helps provide improved survivability in harsh environments and wide operational temperature ranges, also high-

vibration certified. Manage power more cleanly, efficiently and reliably with relays and contactors in compact, lightweight packages in aircraft switching applications for low, medium and high current and high voltage.

In-Flight Entertainment and Cabin Systems – Boost cabin performance with flexible in-flight entertainment, web access, automated gallery systems, and high-speed networking. Provides interconnection solutions based on standards such as ARINC 664, GAIN, and 4GCN to achieve the right combination of performance, modularity and flexibility.

For more information on any of these connectivity solutions, contact the Product Information Center at 1-800-522-6752 or visit [www.TE.com/ParisAirShow](http://www.TE.com/ParisAirShow).

**Fujikura Introduces the FOCIS PRO**

Fujikura Europe Ltd (FEL) introduces the family of FOCIS PRO automatic fibre inspection solutions. Providing network

personnel with an automated solution for analysis and documentation of fibre connector cleanliness and integrity, the FOCIS PRO completely eliminates the subjective aspect of fibre inspection.

Designed for all inspection tasks, FOCIS PRO is a powerful, easy-to-use alternative to existing inspection solutions. The optical resolution and detection specifications exceed current international standards, and software-based applications are upgradeable making FOCIS PRO solutions truly future-proof.

“With the substantial growth in data traffic and associated higher data rates, the demand for exceptional performance of network systems is becoming more and more crucial,” explained Ian Tweedle, Sales Manager for FEL’s test equipment division. “It is therefore imperative that fibres are clean and free from defects. The FOCIS PRO delivers a solution for these specific requirements.”

The FOCIS PRO System consists of the



**The FOCIS PRO is the latest addition to the Fibre Optic Connector Inspection Scope Range**

DFD1 Touch Screen Tablet, DFS1 Digital FibreScope, and the new SimpleView™ PRO software. The system is capable of

*Continued on page 40*



The “quick take-up” terminal retention feature

The Ram Retract Safety Button

# BT 3500 Battery-Hydraulic Hand Tool

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

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


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

Despite the lightweight of the power unit, the tool can produce approximately 250 crimps between charges. This is made possible through a ten ounce, 10.8 Volt Lithium-Ion battery that can re-charge in only 25 minutes, thereby giving plenty of time for production.

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

**Call Us — We're Well Connected!**


**For more information, visit [www.heilind.com/te\\_wn](http://www.heilind.com/te_wn) or call us at 866-887-2189.**



Easy portability and use with the harness, strap and belt accessories.



BT 3500 Port with multiple storage pockets.



Performance. Trust. Innovation.

© 2011 Tyco Electronics Corporation. All rights reserved.  
CERTI-CRIMP, TE (logo) and TE Connectivity are trademarks of the TE Connectivity group of companies and its licensors.



Authorized Distributor






### ON TIME. UNDER BUDGET.

This is what we promise to our customers. We have over 50,000 items in stock to ship same day, including all of the harness components you need most from the quality manufacturers you trust.

We have a knowledgeable & friendly team that offers unparalleled customer service & over 40 years of experience. Experience that helps us find you the connector, wire, terminal, loom or shrink tube to meet your exact specifications.

Make your connections tough, flame & oil resistant & environmentally sealed, not to mention inexpensive & efficient with this pre-cut **PROFESSIONAL GRADE ADHESIVE LINED SHRINK TUBING.**



- Pre-cut 1.5" pieces, 1000pc. qty.
- Shrink ratio: 3:1 @ 212° to 284°F
- Temperature range: -67° to 275°F
- UL224 & MIL-SAE-AMS-DTL23053/4

Part Number	Supplied I.D.	Shrink I.D.	Price (1000pc. bag)
MW3-150-3/16	3/16"	.0625"	<b>\$47.24</b>
MW3-150-1/4	1/4"	.0833"	<b>\$64.96</b>
MW3-150-3/8	3/8"	.1250"	<b>\$97.43</b>
MW3-150-1/2	1/2"	.1667"	<b>\$106.29</b>

For more information or to receive a **FREE** copy of our 2013 catalog contact us at:  
800-989-9632 ♦ [Sales@TerminalSupplyCo.com](mailto:Sales@TerminalSupplyCo.com) ♦ [www.Go2TSC.com](http://www.Go2TSC.com)

NEWS PLUGS continued



Continued from page 40

centring a fibre image, identifying critical core, cladding, adhesive and contact zones, while detecting and categorising the types of defects found. The software analyses a typical fibre in less than five seconds. Its 'Zoom/Pan' feature combined with a large, clear and robust display enables users to identify the smallest particles, scratches and imperfections.

Unique to FOCIS and FOCIS PRO products is the patent-pending paired image feature which allows users to make immediate fibre cleanliness comparisons. FOCIS PRO users can capture and save up to 1000 fibre images, review images on-site,

and share images via USB memory sticks or SD flash cards. All basic FOCIS units can be upgraded to the functionality of FOCIS PRO.

FOCIS PRO is the most advanced Fujikura fibre inspection product on the market, unique in its ability to combine automatic analysis, inspection and reporting features, with superior handheld ergonomics.

Established in 1885, Fujikura is a world leading manufacturers of communication and electronics products offering a diverse product range from its core business of electric wire and cables to fibre optic and related products.

For more information about FEL products and services, visit [www.fujikura.co.uk](http://www.fujikura.co.uk)

**KOA Speer Receives Top Supplier TTI Awards for 2012**

KOA Speer Electronics, a leading supplier of passive electronic components,



KOA Speer Electronics received the Platinum Level, Diamond, and Best Quality Awards from TTI.

# Everyday Convenience

When the alarm goes off in the morning, the coffee maker turns on and your smart phone is fully charged, it's a direct effect of the work we all do—and that's just in the first few seconds of your day.

No matter the source, enabling the electricity to flow requires millions of tiny terminals. At BURNDY, we've been improving the results since our founding in 1924.

- With every year, BURNDY continues to invest in and strengthen our Small HYDENT™ terminal options with:
- New technology that provides better quality control
  - The full-cycle ratchet HYTOOL™ that allows for an easy, one-hand crimping operation thanks to an ergonomic design—without sacrificing inspectability
  - Jars that have an engineered design, making it easy to see, store and use Small HYDENT™ terminals

With a foundation in simple, copper solderless terminals, today's Small HYDENT™ terminal line responds to 21<sup>st</sup>-century needs.

Making Your World Easier



Scan this code or go to **burndy.com** to learn more about BURNDY and our Small HYDENT™ terminals.

## Connecting Power to Your World™





announces that they have once again received the Platinum Level, Diamond, and Best Quality Awards from TTI. The TTI Supplier Excellence Award Program represents the highest recognition possible of a supplier's performance within TTI. The program is centered on quality measurements that include: on-time delivery, receiving quality, customer-reported quality, administrative quality, operations and business systems.

KOA Speer has been a Supplier Excellence Award recipient in 17 of 18 years that TTI has presented the awards. The Platinum Level Excellence Award is an honor that can only be achieved after superior performance for a minimum of 5 consecutive years. This year also marks the third consecutive year that KOA Speer receives the Diamond and Best Quality awards, which are awarded to the supplier with the overall highest point achievement, and to the supplier who scores the highest in each of the possible Quality categories.

Melanie Pizzey, TTI Vice President Global Product Operations, said, "The TTI Supplier Excellence program has been instrumental in fostering continuous improvement in supplier and distributor performance since the program's inception in 1995. Each year we raise the bar in our program and the suppliers who earned recognition for 2012 performance have demonstrated their dedication and commitment to excellence."

"We are extremely pleased to receive these three awards from TTI," Christopher Forbes, KOA Speer National Distributor Sales Manager stated. "Additionally, achieving these awards not only represents the dedication of all KOA employees to TTI, but also management's commitment and overall operating philosophy for excellence."

TTI, Inc., a Berkshire Hathaway company, is a specialty distributor of passive, interconnect, electro-mechanical and discrete semiconductor components. TTI is the distributor of choice for industrial and consumer electronics manufacturers worldwide. TTI's extensive product line includes: resistors, capacitors, connectors, potentiometers, trimmers, magnetics, circuit protection, filters, electromechanical and discrete semiconductor devices. TTI provides a broad array of supply chain services to its customer base. TTI along with its subsidiary Mouser Electronics, employs 3,800 with 100

locations throughout North America, Europe and Asia. TTI's previous acquisitions include Mouser Electronics, Sager Electronics, Mateleco, France, Net-Aye, Israel, Campbell Collins, U.K., and NPCS Autotronics, China. For more information about TTI, visit [www.ttiinc.com](http://www.ttiinc.com).

KOA Speer Electronics, an ISO 9001:2000 and TS-16949 certified company, has served the electronics industry since 1980. KOA Speer's wide range of products includes thick and thin film resistors, current sensing resistors and resistor arrays; thermal sensors, fuses and varistors for circuit protection; wire wound, multilayer, power and thin film inductors; ceramic capacitors and ferrite bead EMI/EMC filters; and diodes, LTCC's and modules. The company has introduced over 200 new products in the

past few years.

KOA Speer Electronics is an affiliate of KOA Corporation, whose global presence includes corporate headquarters in Japan, a European sales office and twenty-four manufacturing facilities located through-

out the Pacific Rim. The KOA Speer product family of surface mount and leaded passive components is ideal for diverse markets including telecommunications, computers, automotive, consumer and industrial controls.

# The ASSEMBLY Show

Monday, October 28 – Wednesday, October 30, 2013  
Rosemont Convention Center in Illinois

visit [www.theassemblyshow.com](http://www.theassemblyshow.com)

## Wire Terminal Testing



Made simple

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](http://www.mark-10.com) or call us at 888-MARK-TEN.





# Wire Crimp Pull Testers

- Manual and motorized testers, vertical or horizontal
- Manual and automatic wire-gripping fixtures
- Destructive and force controlled non-destructive testing
- Capacities up to 1,100 lbf

Create your own custom configuration.  
Application specialists are ready to assist you.

**Call 800-373-9989 or Visit [www.imada.com](http://www.imada.com)**

**IMADA, Inc.®**  
3100 Dundee Rd., Suite 707, Northbrook, IL 60062  
Tel: 847-562-0834 Fax: 847-562-0839  
[www.imada.com](http://www.imada.com) E-mail: [wire@imada.com](mailto:wire@imada.com)

# ANIXTER

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

## Over View of Common Field Tests

Field tests can be broadly grouped into three categories: acceptance, maintenance and fault location testing. Conducted on wire or cable after an installation but before placing it into service, an acceptance test detects installation or shipping damage that might affect cable performance. After the cable has been placed in service, maintenance tests detect in-service deterioration. On the other hand, fault location tests pinpoint the exact failure site in a cable. Knowing exactly where the cable has failed permits the cable to be repaired or replaced as necessary.

A few of the most common test methods are described below.

### MEGGER TESTING

A Megger® test uses a megohm meter to test the insulation properties of such things as electrical wiring, motor windings and high-power antenna mounts. Normally conducted on 600-volt power cable for either acceptance or maintenance purposes, a megohm meter typically applies 600 to 2,500 DC voltages

for several minutes to the cable. The megohm meter measures the current “leaking” through the insulation and displays the results in units of resistance (i.e., megohms or millions of ohms). A reading less than 100 megohms indicates a possible cable problem. Even though Megger is a registered trademark of Megger Limited Group, the term is widely used for all similar tests regardless of manufacturer.

### HIPOT TESTING

The hipot (high potential) test is an acceptance or maintenance test and is normally used on cables rated 5 through 35 kV and higher. Like the Megger test, this device applies DC voltage to a cable and measures current leakage through the insulation. Unlike the Megger test, the applied voltage is considerably higher (up to 65 kV for a 15 kV cable, for example) and the results are displayed in units of microamps (µA). With the hipot test, a high reading (for example greater than 100 µA) indicates a possible problem. Because of the potentially lethal high voltages involved, this test must be performed only by qualified personnel.

*Continued on page 44*

# Nu-Tech.us

## High Ratio 6:1 Heat Shrink Products Manufacturer

**Rugged Sealing Products that Shrink to Encapsulate**

- Cable Entry Seals
- High Ratio Tubing
- Breakout & Transition Boots
- End Caps
- Wire Management Products
- Flame retarded Materials

- Meets Military Approval with MIL I-81765/1A
- Solvent Resistant with good flexibility at Low Temperatures ASTM D-2671C
- Excellent Heat Resistance no dripping flowing or even cracking at 225C ASTM D-2671
- Dielectric properties up to 7,880/mm Minimum ASTM D-876
- Resistant to all known types of corrosion ASTM D-2671A
- High Tensile strength rubber compound 1,200 to 1,500 psi ASTM D-412

**FREE Catalog Online**

**Reps & Distributors Wanted**

**Www.Nu-Tech.us**

**Call Today (336) 725-4700**





# Can You Keep Up?

## Mechtrix Prefeeders Optimize Your Capabilities

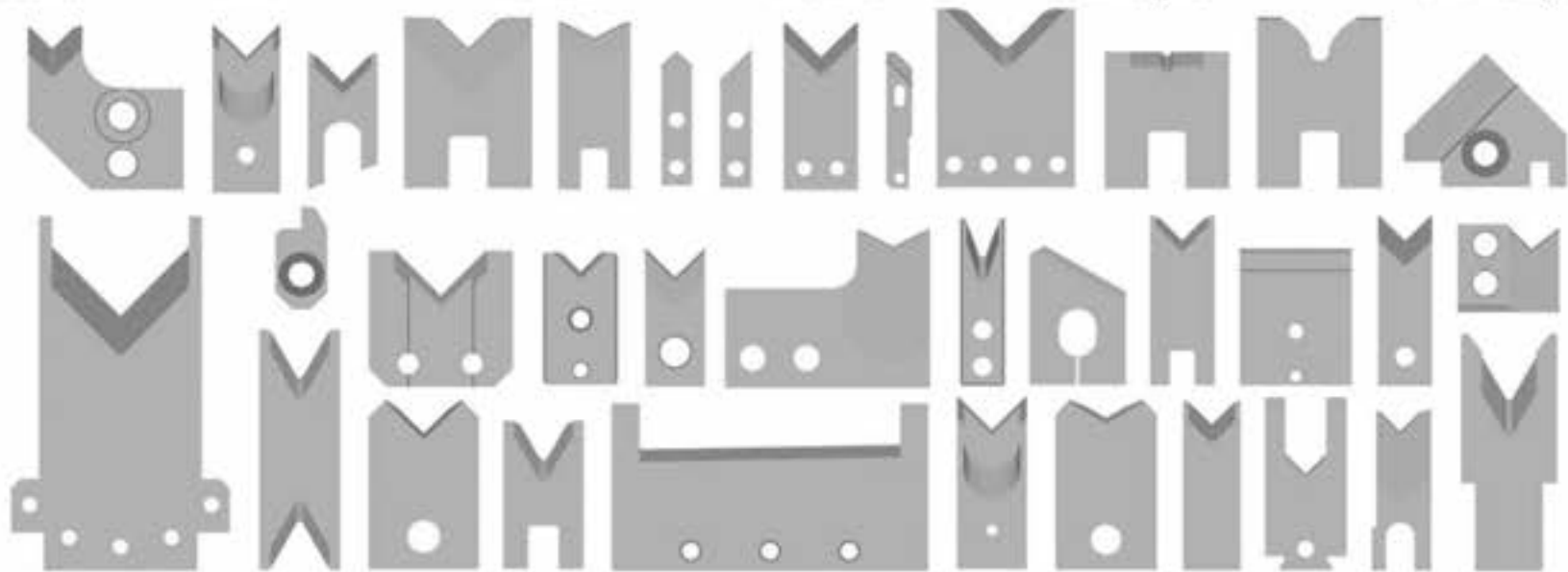
- MPF-33 Prefeeders for bench-top wire processing machines
- MPF-35 Prefeeders for high speed fully automatic wire processing machines



## Mechtrix Stripping Blades

Mechtrix designs and manufactures standard replacement and custom stripping blades for:

- |               |               |           |                 |                   |                      |
|---------------|---------------|-----------|-----------------|-------------------|----------------------|
| • Amp/Tyco/TE | • Ideal       | • Kirsten | • Kut-Rite/Weix | • Schäfer/Megomat | • Tekuwa/Dorema      |
| • Artos       | • KM Digitech | • Koderä  | • Makfil        | • Schleuniger     | • Toyojamco/JAM      |
| • Eubanks     | • KMI         | • Komax   | • Metzner       | • ShinMaywa       | • and many others... |



## Mechtrix Equipment

Mechtrix has designed a number of unique machines to solve specific wire processing problems. These machines range in complexity from our patented center stripping machines to terminal paper winding machines. These machines include:

- |   |  |
|---|--|
| • Wire Prefeeding Equipment                   | • Terminal Carrier Strip Cut-off Devices |
| • Heavy Duty Benchtop Wire Stripping Machines | • Terminal Paper Winding Machines        |
| • Automatic Center Stripping Machines         | • Terminal Applicators                   |



**MECHTRIX**

Mechtrix Corporation  
W147 N9461 Held Drive  
Menomonee Falls, WI 53051  
Tel (262) 255-6555  
Fax (262) 255-2628  
sales@mechtrix.com  
www.mechtrix.com





Continued from page 42

CONTINUITY TESTING

The continuity test, which can be used on virtually every type of wire and cable except optical fiber, is probably the easiest and least expensive field test available. A handheld multimeter con-

ducts the test by using a resistance setting to check the wire or cable for accidental contact between copper conductors due to damaged or defective insulation. A multimeter can also be used to check for conductors that have been broken somewhere along the cable's length. The continuity test can be used

for acceptance, maintenance or fault location testing.

THUMPER TESTING

A thumper is a fault location device that applies a high-voltage pulse to a cable to determine the exact location of a cable failure. It works by applying a brief (millisecond) high-energy pulse to the cable. At the point of the cable failure, the injected energy is released with a loud bang similar to that of a firecracker. When the test is performed on cable buried several feet underground, a muf-

fled thump is usually heard above ground. The cable is usually thumped several times a minute until someone walking the length of the cable run can locate the point of failure.

OTHER TEST METHODS

- LAN cable testers (measure attenuation, crosstalk, and impedance)
- Time domain reflectometers
- Optical time domain reflectometers
- Resistance-based fault location equipment
- Capacitance-based fault location equipment
- Arc-pulse fault location equipment
- Very low frequency AC test
- Online/offline partial discharge
- Series resonant AC test set

Additional Information on field test can be found on pages 122-127 of Anixter's 2013 Wire & Cable Technical Information Handbook. To order your copy, visit [Anixter.com/literature/wchandbook](http://Anixter.com/literature/wchandbook).



The One Source for All Your Wire, Cable and Supply Chain Needs.

With Anixter, You Keep Your Attention Where It Needs to Be.

With over 260 locations in 50 countries and more than \$1 billion of inventory, Anixter is a global leader in the distribution of electrical and electronic wire and cable, industrial automation products, network cabling solutions and supporting products. Anixter's unparalleled industry expertise and highly trained sales specialists can help you find the best solutions for all of your product and service requirements.

Teaming with Anixter allows you to shift the responsibility of your current supply chain processes, so you can better focus on your core competencies. Through its **READY!™ Material Management Services**, Anixter will work with you to design a program that makes sure you receive the right materials when, where and how you need them.



If you have the responsibility of designing, specifying or ordering wire and cable, visit [anixter.com/literature/wchandbook](http://anixter.com/literature/wchandbook) to download a copy of the **Electrical and Electronic Wire & Cable Technical Handbook**.

Anixter  
6055 Nathan Lane N | Plymouth, MN 55442  
763.559.2417 | 1.800.838.7575

**ANIXTER**  
1.800.ANIXTER [anixter.com](http://anixter.com)

Anixter is a leading global supplier of communications and security products, electrical and electronic wire and cable, fasteners and other small components. We help our customers specify solutions and make informed purchasing decisions around technology, applications and relevant standards. Throughout the world, we provide innovative supply chain management solutions to reduce our customers' total cost of production and implementation.

Products. Technology. Services. Delivered Globally.



## NEWS PLUGS continued

### How Export Control Reform Will Impact Business

Recent and additional expected changes to International Traffic in Arms Regulations (ITAR) and Export Administration Regulations (EAR) will impact electronics companies that manufacture for the aerospace and defense markets. These regulations specifically address printed boards and printed board designs and affect the entire electronics supply chain, from OEMs to printed board manufacturers and designers.

This July, IPC — Association Connecting Electronics Industries® will offer an ITAR/EAR webinar series, bringing the latest information on current changes, possible upcoming changes and the impact these regulations may have on the supply chain.

On July 9, 2013, Fern Abrams, IPC director of government relations and environmental policy, will present, "U.S. Export Control Reform Efforts & Next Steps: Current and Future Impacts on the Electronics Industry." Abrams will cover the implications of export control reform (ECR) for PCB manufacturers and suppliers, status of the ECR process and when final regulations are expected to be announced and the status of IPC's initiatives.

On July 16, Kerry Scarlott, Esq., a director at the law firm of Goulston and Storrs, will present, "The Importance of Complying with U.S. Export Controls While Reform is Underway — Lessons Learned from Recent Enforcement Actions & Tips for the Unwary." During the webcast, he will address change in enforcement priorities, how to make a smooth transition during the ECR process and how recent enforcement actions will impact the supply chain.

On July 23, the third and final webcast of the series, "Practical Steps for Complying with U.S. Export Controls," Scarlott will provide information on determining which regulation applies to products, critical elements of an effective compliance program and determining when a license is needed and how to create one that is effective.

All three webcasts will take place from 1:00 pm–2:00 pm Central Time. The cost for a single webinar is \$50 for IPC members and \$75 for standard industry members. A package price (all three webinars)

for IPC members is \$120; standard industry price is \$195. For additional information or to register, visit [www.ipc.org/itar-ear](http://www.ipc.org/itar-ear).

### WAGO Wire, Vertical Jumpers for DIN-Rail Terminal Blocks

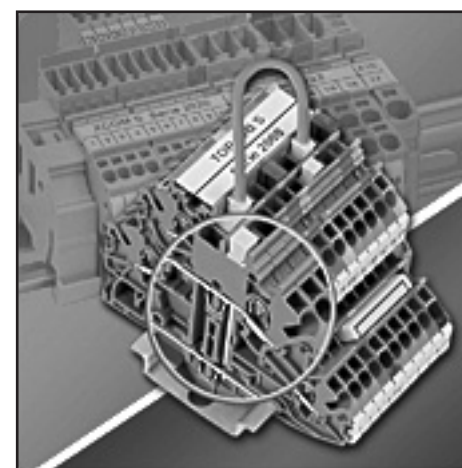
New jumpers provide horizontal and vertical potential commoning for WAGO Corporation's Double-Deck TOPJOB®S 2000 Series and X-COM®S MINI 2020 Series DIN-rail Terminal Blocks. Users can vertically common both levels of a double-deck terminal block or multiply potential over several adjacent DIN-rail terminal blocks. This can extend the functionality of select terminal blocks to help streamline BOMs, stock and designs.

The Vertical Jumper carries a 13.5 A/500 V rating. The Push-in Wire Jumpers feature a 9 A/800 V rating (AWG 18) and are offered in 60 mm, 110 mm and 250 mm lengths to meet varying requirements.

The new jumpers join the growing TOPJOB®S portfolio of commoning options, including:

- Adjacent Jumpers for continuous commoning of one potential in a single jumper slot.
- Push-in Jumper bars for standard connection of different DIN-rail terminal blocks.
- Staggered Jumpers for commoning different potentials in a single jumper slot.
- Step-down Jumpers for combining different cross sections.

Spanning from AWG 20–4, TOPJOB® S DIN-rail terminal blocks provide one of the industry's widest application ranges. The blocks support diverse industries/applications in process, building automation, traffic engineering and more.



**Vertical Jumpers for DIN-Rail Terminal Blocks**

X-COM®S fuses TOPJOB®S DIN-rail terminal blocks with touch-proof, pre-wired assemblies to streamline and eliminate wiring errors during panel- and machine-building. For additional information, visit [www.wago.us](http://www.wago.us). Contact WAGO at 1-800-DIN-RAIL or [info.us@wago.com](mailto:info.us@wago.com).

**LOOKING FOR  
UNIQUE  
WIRE PROCESSING  
SOLUTIONS?**

**CALL SCHAEFER!**

**SCHAEFER**

[www.schaefer.biz](http://www.schaefer.biz)

**INNOVATIONS IN WIRE PROCESSING**



LTL Tooling

STOP

Hand Injuries  
AND Increase Production

Call  
for our  
FREE  
demo CD



HCAP-02  
Split-Cycle Hand Crimp Press  
Patented Design Made in U.S.A.

30 second tool change-overs.

Make your hand tools semi-automatic.

Secures terminal in tool before crimping.

Use your tools by hand or in-press with modification.

Three (3) FREE tool modifications with purchase.

Your best source for:

Cable and Wire Pull Testers  
Pneumatic Cable Cutters  
Center Strip Equipment  
Cable & Wire Strippers  
Wire Twisters



LTL's PT Series  
Cable & Wire  
Pull Testers  
  
PT-1000  
PT-500  
PT-200

Call or visit our re-designed website for  
more information. [www.LTLTooling.com](http://www.LTLTooling.com)

LeTroLaq Tooling & Assembly

P.O. Box 1976 | Manitowoc, WI 54221-1976  
Phone:920.739.9265 | Fax:920.954.8729  
[www.LTLTooling.com](http://www.LTLTooling.com) | e-mail: [claudel@ltooling.com](mailto:claudel@ltooling.com)

NEWS PLUGS continued

US Demand for Insulated Wire & Cable to Exceed \$29 Billion in 2017

US demand for insulated wire and cable is projected to increase 5.8 percent per year through 2017 to \$29.2 billion, recovering from declines during the 2007-2012 period. Building construction, particularly new housing, will drive demand for many types of wire and cable, including building, electronic, and power wire and cable products. In addition, upgrades to the aging US power transmission and distribution network will stimulate gains for power wire and cable and a turnaround in motor vehicle production will benefit advances for primary,

ignition, and battery wire and cable. These and other trends are presented in Insulated Wire & Cable, a new study from The Freedonia Group, Inc., a Cleveland-based industry market research firm.

Fiber optic cable is a vital component of the telecommunications market. After bottoming out in 2003, demand for fiber optic cable picked up at a rapid rate as telecommunications providers invested heavily in laying a fiber optic network to deliver data, television, and voice signals to consumers. The majority of this backbone infrastructure was installed during the past decade. As a result, although fiber optic cable demand will continue to record strong growth, demand increases will moderate through the forecast period. A large share of demand gains going for-

ward will come from last-mile applications, which are still primarily comprised of copper coaxial cable.

Building wire and cable accounted for the largest share of product demand in 2012, as it is used in nearly all residential and non-residential structures. As a result, the recovering US construction industry will cause demand for building wire and cable to advance at the fastest rate.

Power wire & cable demand will also benefit from growth in construction expenditures. Underground cable will experience the strongest segment gains, due to its aesthetic advantages over aerial cable. However, due to the higher costs of installing underground cable, it will experience only modest growth in replacement applications.

US INSULATED WIRE & CABLE DEMAND (million dollars)					
Item	2007	2012	2017 2012	% Annual Growth 2007- 2017-	2012
Insulated Wire & Cable Demand	22570	22000	29200	-0.5	5.8
Building	5435	4130	6275	-5.3	8.7
Power	3685	3475	4600	-1.2	5.8
Electronic	3320	3385	4450	0.4	5.6
Fiber Optic	1795	2460	3100	6.5	4.7
Other	8335	8550	10775	0.5	4.7

Get a High Quality Connection

East Penn Manufacturing is recognized worldwide as a state-of-the-art manufacturer of the finest wire and cable products. Our products meet rigid quality and performance standards, which include Underwriters Laboratories (UL), Canadian Standards Association (CSA), Society of Automotive Engineers (SAE), and are RoHS compliant.

East Penn's facility has been certified to ISO 9001:2008, ISO/TS 16949:2009, and ISO14001:2004 Management System Standards to assure customers a high quality connection with premium wire and cable products.

- Primary Wire
- SXL/GXL Cross-Linked Wire
- Starter Cable
- UL/CSA 1015 Machine Tool Wire
- Jacketed Auto-Plex Wire
- UL Listed 1426 Boat Cable
- Bonded Parallel Wire
- Trailer Lighting Cable
- Welding Cable
- Dual Booster Cable

Lyon Station, PA 19536  
Order dept. Hotline: 610-682-4231  
[www.eastpenn-deka.com](http://www.eastpenn-deka.com)

EAST PENN manufacturing co., inc.

ESCUBEDO TP SERIES

LOW INSERTION FORCE QUICK CONNECT TERMINALS

- STANDARD OR POSITIVE LOCKING
- HEADLAMP PROGRAMS FOR - H1 H4 H7 PY21 PY24
- .110" (2.8mm) .187" (4.8mm) & .250" (6.3mm)
- STRAIGHT OR FLAG STYLE WITH CONVENTIONAL B CRIMP
- CUSTOM ALLOYS AND PLATING AVAILABLE FOR EVERY APPLICATION
- UL AND cUL CERTIFICATION AND EXTENSIVE OEM APPROVALS
- ALWAYS ROHS COMPLIANT

Escubedo Global Sales Office

Call (623) 587-4757 or visit us @ [www.escubedo.com](http://www.escubedo.com)



As the nation's infrastructure ages, necessary upgrades to the current power transmission and distribution network will boost aftermarket gains. Electronic wire and cable demand will be spurred by advances in the telecommunications market, as well as by a turnaround in electronic equipment shipments.

Insulated Wire & Cable (published 06/2013, 252 pages) is available for \$4900 from The Freedonia Group, Inc., 767 Beta Drive, Cleveland, OH 44143-2326. For further details, please contact Corinne Gangloff by phone 440.684.9600, fax 440.646.0484 or e-mail [pr@freedoniagroup.com](mailto:pr@freedoniagroup.com). Information may also be obtained through [www.freedoniagroup.com](http://www.freedoniagroup.com).

**New Self-Closing Nu-Guard Braided Sleeving**

Waytek now offers Nu-Guard PET self-closing braided sleeving to help save labor time and costs in the production of wire harnesses and in future maintenance projects in trucks, buses, off-road and industrial equipment.

Nu-Guard self-closing braided sleeving is lightweight and made of a black PET mono-filament and a textured multi-filament combination. It is knitted with a rugged, but smooth texture and appearance. The knitted construction provides good drainage, while maintaining superior abrasion resistance.

Nu-Guard is a cylindrical shape with an overlap self-closing sleeve. It allows you to wrap the sleeving around your wire harness, and is ideal for re-working components without disconnecting them. It ensures a protection of wires with a 90 degree minimum overlap.

Wrap Nu-Guard self-closing sleeving directly around wires, cable assemblies and hoses to protect from cutting, abrasion and chafing. For more information on Nu-Guard or any other braided sleeving options Waytek carries, call 800.328.2724.

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, allow-

ing customers to carry smaller inventory, yet still have products when they need them.

Browse our electrical solutions at [www.waytekwire.com](http://www.waytekwire.com), or call 800-328-2724.

**Wire Stripper and Cutter Easily Handles 12 to 26 AWG stranded Wire**

A combination wire cutter and stripper for stranded wire featuring a thumb-adjustable dial cam for easily setting wire sizes from 12 to 26 AWG and storing the tool closed is being introduced by Xuron Corporation of Saco, Maine.

The Xuron Model 505ST Adjustable Stranded Wire Stripper-Cutter features a thumb-adjustable dial cam for changing wire sizes from 12 to 26 AWG (2.05 mm to 0.405 mm) that also acts as a closure, keeping the tool closed for storage.



**Xuron Model 505ST Adjustable Stranded Wire Stripper-Cutter**

Designed for repeated cutting and stripping, this ergonomic hand tool has a Light-Touch™ return spring and non-slip Xuro-Rubber™ handle grips.

Made from alloyed steel, the Xuron Model 505ST Adjustable Stranded Wire Stripper-Cutter replaces the need for multiple tools and locks shut to easily fit into a tool kit or pocket. Ideally suited for assembly and field service use, this industrial-duty tool is comfortable to hold in small and large hands and is designed to provide optimum working leverage.

Xuron Model 505ST Adjustable Stranded Wire Stripper-Cutter is priced at \$17.85 (list).

For more information contact Xuron Corporation, 62 Industrial Park Rd, Saco, ME 04072-1840. Phone (207) 283-1401 or FAX (207) 283-0594 Visit [www.xuron.com](http://www.xuron.com)



**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 experience 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](http://www.heilind.com/rpages/gatd)

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



**HEILIND**  
Performance. Trust. Innovation.

866-887-2189  
[www.heilind.com/rpages/gatd](http://www.heilind.com/rpages/gatd)



NEWS PLUGS continued

Get the NEW Cicoil Flat Cable & Assemblies Catalog!

Cicoil, a leading manufacturer of high Performance Flexx-Sil™ Flat Cables and Assemblies, is pleased to announce the release of its New Master Catalog. Available in print and web-ready downloadable format, the 52 page, full color catalog offers an extensive selection of 700+ standard part numbers, 27 New Products, custom capabilities, specification tables and technical field sales support tools.

Organized by product category, the innovative catalog features a one page outline for each product, including product features & benefits, specifications, applications, photos and ordering infor-

mation for each bulk cable and cable assembly design. Features include the following:

- Motion Control Cables: Motion Series, Motion Series Plus, Motor Power and Shielded Signal Cables
- Video & Data Cables: Cat 5e & Cat 6, Camera Link™, Controlled Impedance, USB 2.0 & 3.0, Flexible Coax and Fire Wire Cables
- Highly Flexible Unshielded Cables: Continuous Flex Control & Power, Hi-Temp IDC Ribbon, Hi-Temp Festoon, High Voltage Single Conductor and Thermocouple Cables



- Standard cable assemblies, complete with connectors, available for EVERY Cicoil flat cable (3, 6 and 12 foot lengths)
- Customizing Flat Cables and Assemblies with The Online Cable Configurator, Low Friction Options, StripMount™ Integrated Mounting Strip, SuperTuff™ Jack-

eting, Tubing and FlexRail™ Trackless Self-Supporting Cable System.

- Complete technical information, including our “Patented Extrusion Process”, “Comparisons to other Technologies” and “Top 10 Reason Why to Use Cicoil Flat cables”

Howard Lind, Cicoil's President & CEO,

stated that “the New Catalog represents many months of work by our design, engineering and marketing team. It is targeted at engineers, designers and customers for flexible flat cable, with the goal to give users detailed, beneficial information and tools that they can use to understand and specify our products. The New Catalog has a tremendous amount of technical information, along with pictures and assembly illustrations, to aid in the specification process. And standard bulk cables are listed, along with cable assemblies with standard connectors to make it a fast and simple process for people that want to order in bulk, value added, or as complete assemblies.”

Cicoil has been a leader in designing and manufacturing high performance cable assemblies for over fifty years.

The company's Patented Flexx-Sil™ Flat Cable Technology provides high flexibility, extremely long life, and they can withstand temperature extremes from -65 degrees to +260 degrees Celsius.

Cicoil's flat cables are used in thousands of demanding applications; including aircraft fuel control cells, semiconductor automation, and the Space Shuttle. Cicoil designs and manufactures its Flexx-Sil™ jacketed cables and cable assemblies in an automated facility in Valencia, California. Cicoil's quality assurance system is certified to the ISO 9001 (AS9100) standard.

Visit [www.cicoil.com](http://www.cicoil.com) for more information, or call 661-295-1295 to speak to an application engineer.



ELECTRICAL  
*wire*  
PROCESSING  
TECHNOLOGY  
EXPO  
VISIT US  
AT BOOTH  
1602

# Tubing on your mind?

## EXPAND YOUR OPTIONS WITH THERMOSLEEVE USA

At Thermosleeve USA, our goal is to make your job easier. With one of the widest selections of both heat shrink and non-heat shrink tubing products, Thermosleeve-USA should be your first option when you have tubing on your mind.

Manufactured under TS16949 Quality System and ISO14001/ISO9001 Environment System certifications, Thermosleeve USA's products are produced to meet or exceed UL/224/MIL approval requirements.



Thermosleeve USA products are also certified under the following agencies, U/L, TUV, VDE, C-UL, F-Mark and are registered "Green Partners" with Sony and Samsung Electronics.

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](http://www.thermosleeve-usa.com/catalog). To request a quote, contact us at [sales@thermosleeve-usa.com](mailto:sales@thermosleeve-usa.com) or by calling (800) 421-3536 and **expand your options.**

**THERMOSLEEVE USA**  
THE TUBING SPECIALIST  
A DIVISION OF DLC, INC.  
12753 Moore St., Cerritos, CA 90703  
Local: 562-404-9998 • Fax: (562)404-9698  
Email: [sales@Thermosleeve-USA.com](mailto:sales@Thermosleeve-USA.com)  
Web: <http://www.thermosleeve-usa.com>





Application  
Tooling

MOLEX APPLICATION  
TOOLING AND  
CONNECTORS > ESSENTIAL  
FOR HIGH-QUALITY  
ELECTRICAL CONNECTIONS

[molex.com/pa/apptooling1.com](http://molex.com/pa/apptooling1.com)



**molex**<sup>®</sup>  
one company > a world of innovation



# Altex

Continued from page 1

the firm in 1990 after working in 1984-90 for Borns Management Corp., an Indianapolis real-estate management company. In 1979-84 he was at Price Waterhouse Coopers, the international corporation that provides such services as

accounting, consulting and financial and tax advising. Bromm, who joined Altex in 1986, became a minority company owner in 1995. He has been business development VP for 10 years. In May he was

elected to a two-year term on the Wiring Harness Manufacturers Association Board of Directors. According to Bromm, he and Weidberg have steered Altex toward in-depth relationships with its customers. “We integrate with each customer, so Altex is really an extension of their production floor,” Bromm said. “We don’t want to be a contract manufacturer alone. We want to bring more value in the ways we deploy our resources. “We are focused on what our customers’ needs and strategies are,” Bromm said. “We have a customer-centered culture, and everything works backwards from the customer. We want to provide

support and the best possible cost of product ownership in the most cost-effective way through such things as engineering, resources, turns and carrying costs. We need to understand how we fit into their manufacturing strategies.” Future customers are targeted by their interest in outsourcing their harnesses, cables and electromechanical assemblies (EMAs) because, as Bromm pointed out, many times they are not “their core competency. With the health-care situation and cost, head count is paramount. Companies are asking themselves if they really want to staff for wiring harnesses.”

## STORMTRONICS

SEMI-AUTOMATIC WIRE TWISTING SYSTEMS

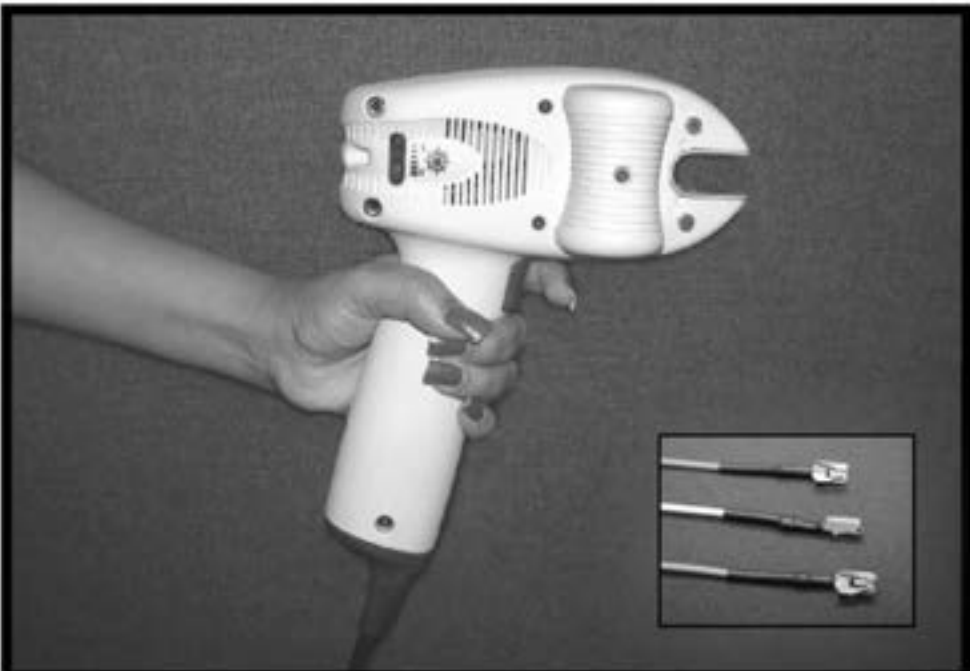
### MINI-TWISTER II

- Automatic Programmable Counter
- Air Pressure Gauge & Regulator
- Variable Speed & Reversible
- Automatic Batch Counter
- Foot Switch Activated
- Repeatable Accuracy
- Rugged Construction
- Automatic Resetting
- Low Maintenance
- Simple Operation
- Custom Adapters

**NOW...**  
a low cost, highly reliable wire twisting system designed and built to meet your specific needs.



**THE MELLO COMPANY, INC.**  
P.O. Box 29301 • Dallas, TX 75229  
PH: 214-350-7377 FX: 214-350-0521  
[www.themellocompany.com](http://www.themellocompany.com)



## 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](http://www.judco.net) and see our full line of Focus-Lite™ products.



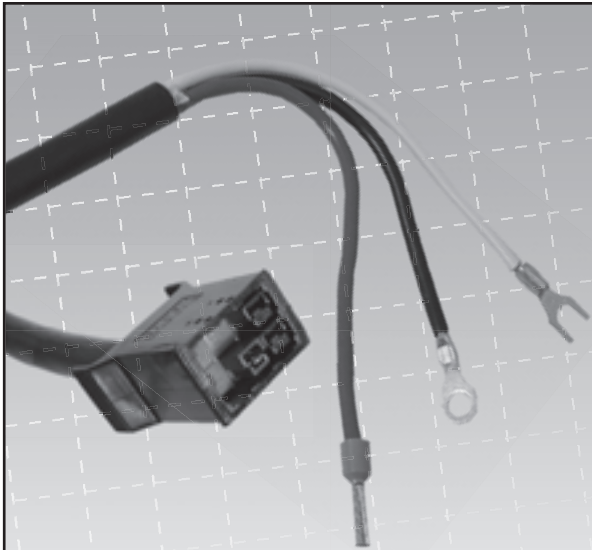
**Judco Manufacturing, Inc.**  
1429 W. 240th St., Harbor City, CA 90710 (310) 534-0959 [www.judco.net](http://www.judco.net)

## Focus-Lite™

Heat Shrink Processing Machines



Team collaboration is an integral part of the company’s lean philosophy.




## OEM AC POWER CORDS


Custom Built To Your Specifications

**QUESTIONS**  
Design Phase?  
OEM Powercord Needs?  
Quick Turns, No Minimums?

**ANSWERS**  
Stay Online - OEM Division



**WE USE QUALITY PARTS**  
including Hubbell



COVERING YOUR OEM AC POWER CORD NEEDS SINCE 1987    [WWW.STAYONLINE.COM](http://WWW.STAYONLINE.COM)    (888) 346 - 4688





Team members are cross-trained in a number of disciplines to maximize flexibility on the production floor.

At 59 percent, harnesses are the biggest production segment at Altex, followed by cables at 21 percent and EMAs at 20 percent. The breakdowns have remained steady the last several years, but cables and EMAs are trending up, Bromm stated. Most run sizes are between 1,000 and 10,000 but can be as few as five a year or as many as 50,000 a week.

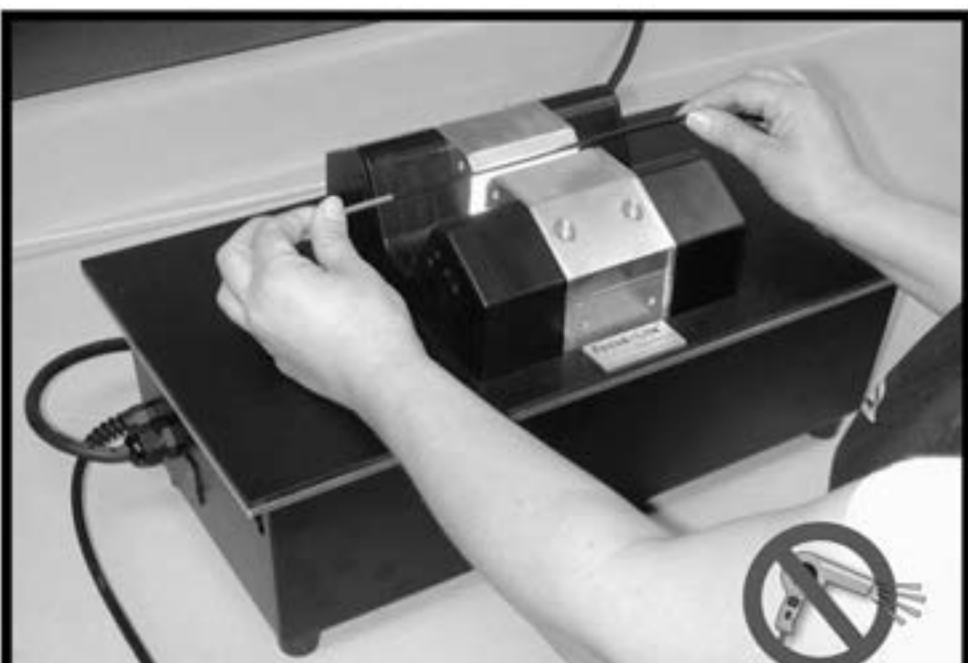
The simplest product is a stripped and crimped wire costing 15 cents. A harness of 18-gauge wire and 75 breakouts may cost up to \$3,000. Other harnesses may be 170 feet long with 15 breakouts of four-gauge wire.

Cable assemblies between one foot and 50 feet long may have 2-4 conductors. EMAs, including DIN rail assemblies

and box builds, may be as big as 3x4 feet, with 1x1 and 2x4 feet most common, and cost \$10-500.

The products are used by the following markets: industrial, 26 percent; transportation (including automotive), 20; HVAC, 19; power generation, 18; security, 14; and agriculture, 3. Applications include power generation, furnace and air-conditioner controls, car seatbelt systems, heated grips on motorcycles, power generation for offshore oil and gas mining, elevators, SUV running-board lights, boat dashboard systems, railway safety crossings and electrical hybrid systems.

Continued on page 52



# 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 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](http://www.judco.net) and see our full line of Focus-Lite™ products.

Judco Manufacturing, Inc.  
1429 W. 240th St., Harbor City, CA 90710 (310) 534-0959 [www.judco.net](http://www.judco.net)

**Focus-Lite**  
Heat Shrink Processing Machines

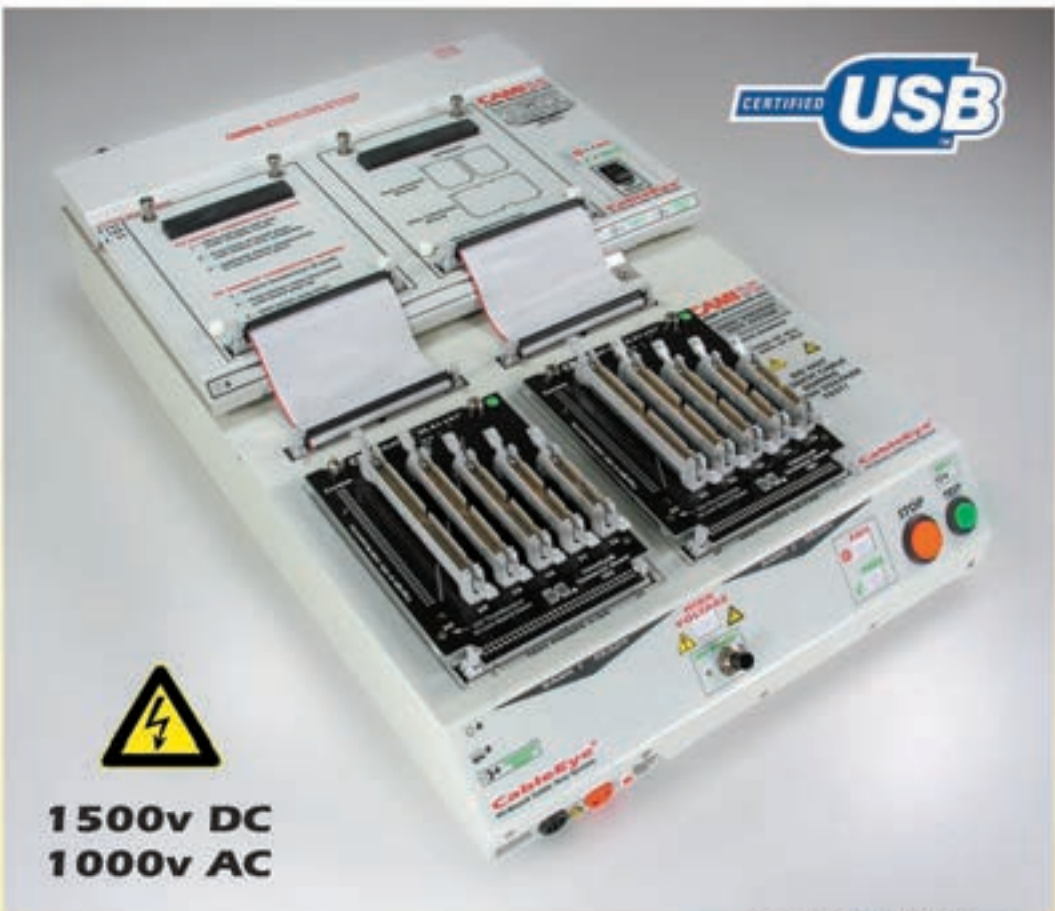
## CableEye® HVX System The Smarter HIPOT Tester!

See What It Can Do for You!

- Fastest HIPOT Pulse Test Available
- Set Ramp Time and Trip Current to Adjust for Capacitive Loads (150 - 5000v/Sec, 50-1500µA)
- Measure Leakage to 0.1µa, Resistance to 1GΩ
- External Terminals Available for Transformer and Other Component Testing
- Full Measurement Data Available Including Test Voltage, Leakage Current, Insulation Resistance; Pass/Fail Report, Data Logging
- Program Automatic Test Procedures with Macros or JavaScript; LabVIEW Interface Available
- External Relay Boards Available to Automatically Switch Different Circuits in UUT During Test
- Remote Control Option for Dead-Man Switch and Control from Your Own Connector Panel
- Expandable to 512 Test Points
- Compatible with All Existing CableEye Connector Boards, Cable Files, Maps, Macros
- Login Control for Operator Safety
- Low-Voltage Test Without Hipot If Desired
- One-Year Warranty, Free Tech Support

[www.cableeye.com](http://www.cableeye.com)  
Tel: (800) 776-0414

Demo  
Systems  
Available!



Sample Screen Report ▼

Line	HDR-64 B1	HDR-64 B2	Value	HiPot Results	DC Current	DC Voltage	DC Isolation	AC Current	AC Voltage	AC Isolation
1	1	65	↔ 0.1 Ω	✓	< 1 µA	1200 V	> 1 GΩ	0.064 mA	818 V	13 MΩ
2	2	66	↔ 0.3 Ω	✓	< 1 µA	1200 V	> 1 GΩ	0.067 mA	818 V	12 MΩ
3	3	67	↔ 0.1 Ω	✓	< 1 µA	1200 V	> 1 GΩ	0.071 mA	820 V	12 MΩ
4	4	68	↔ 0.2 Ω	✓	< 1 µA	1200 V	> 1 GΩ	0.071 mA	818 V	13 MΩ



**CAMI**  
CAMI Research Inc.  
42 Nagog Park, Acton, Massachusetts 01720  
e-mail: [sales@camiresearch.com](mailto:sales@camiresearch.com)

PC-Based System Compatible with Win XP, Vista, Win 7, Win 8. Demo Units Available!



# Altex

Continued from page 51

Altex has more than 100 customers, ranging from Fortune 50 corporations to small firms. The customers are all over the United States and into Mexico, but most are in the Midwest and South. Many customers have been with Altex more than 10 years.

The customer number has remained steady. An increase would be based on “how a customer fits into our strategy,” Bromm said. “We look at the manufacturing strategies of a customer and whether we can have a long-term relationship and a good fit. Our value to a customer can be on a much broader spectrum than unit cost.”

Efforts are being made to boost sales in such industries as transportation, agri-

culture, security and military. “We have stayed away from solar and wind because we’re not yet sure how they will do. We are taking a wait-and-see approach,” Bromm said.

Most leads for new business come from networking and a marketing program. Altex is represented by R.O. White-sell & Associates headquartered in Carmel, Ind. The manufacturers rep firm has 33 sales engineers specializing in the electronics industry.

Marketing efforts are focused on creating an inbound marketing program. The Altex Web site and other tools, such as LinkedIn, help produce inbound leads. Industry trade shows also are attended to network with potential



Lee Payton, process engineering, analyzes a current build for process improvements.

customers.

“We use some e-mail, but it is very focused so we create inbound traffic,”

Bromm said. “Overall, we want to put our messaging in all the right places, and then when companies need us they will contact us.” Assistance with marketing is provided by WhiteHot Marketing of Carmel, Indiana.

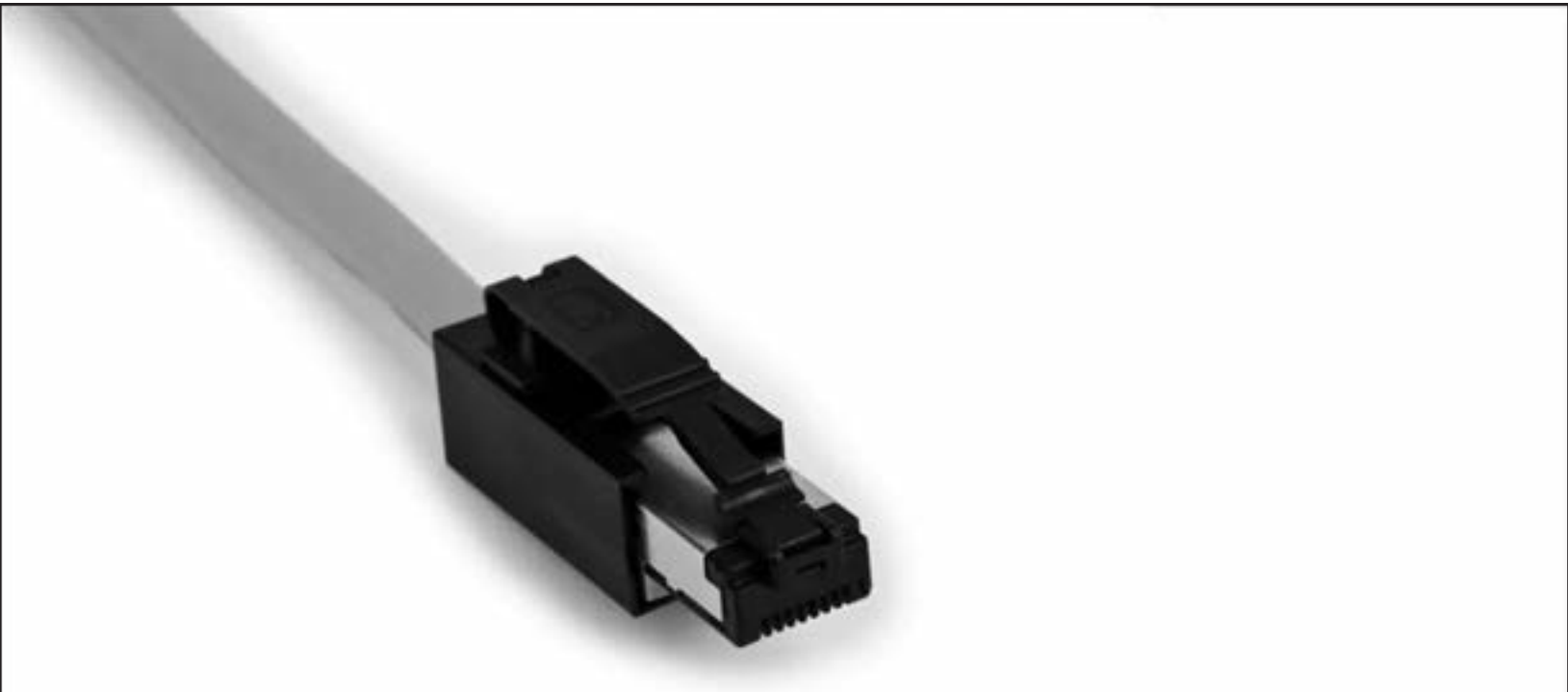
Once Altex is contacted, more than one person responds, since “by philosophy, our entire company is in customer service,” Bromm said. “We want to be an extension of a customer’s manufacturing floor, so we go out in teams to customers with our people from such areas as engineering, operations and quality.”

Besides Weidberg and Bromm, the key managers in Indiana are Chris Gates, director of engineering and manufacturing; Lisa Thornberry, customer service manager; Tom James, materials manager; and Susan Watson, controller. The Mexico operation is managed by Pat Serrano, who oversees quality, and Alfonso Soriano, process engineering.

Of 57 total staff members, 30 are in Indiana and 27 in Mexico. Before 2009 the total number was 30 percent higher. The recession took its toll, but “when we analyzed our operations and made adjustments, our productivity went up substantially,” Bromm said, noting that employee turnover is rare.

Production is split 60-40 between Indiana and Mexico. Both facilities have the same capabilities, and customers’ products are manufactured in both places. Bromm related that total cost is considered in determining what to produce where. Factors include customer preference, labor content, volume, raw material availability and transportation costs.

Altex was founded in



## 3M™ INDUSTRIAL RJ45 MODULAR PLUG, 3R108 SERIES

The 3M Industrial RJ45 Modular Plug is based on the standard RJ45 pin profile and was developed specifically for use in rugged industrial IP 20 environments using double-shielded, four twisted pair enhanced category 5 (Cat5e) cabling. 3M’s 50-year, award-winning, insulation displacement contact (IDC) technology incorporated into the RJ45 modular plug allows a reliable and easy termination process without the need to strip the wires. This RJ45 modular plug can be terminated in the field using only a pair of pliers.

The 3M Industrial RJ45 Modular Plug is designed to be used mainly in industrial atmospheres as an interface for industrial ethernet. More and more industrial machines are connected and controlled using ethernet technology to optimize factory and process automation.



**HEILIND**  
Performance. Trust. Innovation.

866-887-2189  
[www.heilind.com/rpages/3M\\_rj45\\_wn](http://www.heilind.com/rpages/3M_rj45_wn)



1981 in Carmel, Ind., as a wholesale distributor of electronic components with an emphasis on product design support. In 1993 the company moved to Westfield into a 10,000-square-foot building, and manufacturing operations were started. Building size was doubled in 2000, and another 10,000 square feet will be added in the near future.

In 1998 the Mexico operation was begun in Nogales in a 10,000-square-foot building. Two years ago the business was relocated to another 10,000-square-foot building in Nogales that provided advantages over the original location. The structure could be doubled in size, if necessary.

The buildings contain equipment from such companies as Komax, Schleuniger, TE, Artos, Ideal, Stormtronics, Ideal Precision, Pneumatech, Kaeser, Cirris, Mitutoyo and Fluke. Both facilities are ISO 9001:2008 certified, and assemblies are built to meet IPC-WHMA

A-620 standards. Quality is measured by the number of mistakes reported by customers. As of June 12, only six minor ones occurred in 2013. “We react to what they are, look for any trends and take internal corrective actions,” Bromm said. “We review all metrics in leadership meetings.”

Lead times to launch projects are between three weeks and six months, depending on numerous variables such as design and materials availability. Shipping dates are met 99 percent of the time.

Altex has 100-plus suppliers, and approximately 20 percent of them receive 80 percent of company orders. “We want to be strategically important to our suppliers to give us the best possible advantage,” Bromm said. “It can be costly to change or consolidate suppliers because there can be unique characteristics and requirements of customers and products. Suppliers have gotten better since the recession. It changed people and their attitudes.”

Significant change will occur at Altex over the next 12 months because Bromm and Weidberg want to acquire another company. They are looking for one that fits well into their long-range strategies.

“It is not a prerequisite that the location be close by,” Bromm said. “Actually, another part of the United States might be better. It all depends on the capabilities of the site to service

OEMs and maintain that comfort level of being an extension of the manufacturing floor.”

Such an acquisition would boost Weidberg and Bromm’s five-year goal of Altex exceeding \$20 million in sales. Regardless of company size, “we want to be relevant in the industry,” Bromm said. “We want to be the best in process and execution and delivering what is promised to the customer.

“We also have a vision of a place where people want to come to work

and get a lot of satisfaction out of it by creating opportunities for them financially, personally and professionally,” Bromm said. “My advice to anyone in the industry is to have a vision and commit to it. You also have to be proactive and do what you are good at.”

For more information about Altex, call 317-804-3800, e-mail [rbromm@altex-engineered.com](mailto:rbromm@altex-engineered.com), visit [www.altexwire-andcable.com](http://www.altexwire-andcable.com) or write 17201 Westfield Park Rd., Westfield, IN 46074.



Jeff Schelling, lead equipment technician, validates the setup for a new process.



## ATLAS WIRE CORPORATION

### Insulators of Electrical Wires & Cables

✓ ISO 9001:2000 Certified	➤ Lead & Hook Up Wire
✓ Facilities in Illinois & Arizona	➤ 125C & 150C Cross-Link
✓ Huge Inventory of Conductor	➤ UL & CSA
✓ Customized Print & Packaging	➤ MTW
✓ Striping (Spiral & Extruded Line)	➤ Building & Fixture Wire
✓ Bonding & Twisting	➤ Military
✓ Drum Pack	➤ Automotive/Marine
✓ Small Min. Order Quantities	➤ Nylon
✓ Short Lead Times	➤ Speaker Wire

[www.atlaswirecorp.com](http://www.atlaswirecorp.com)

9525 River Street  
Schiller Park, IL 60176  
(847) 678-1210  
(847) 678-1281 fax  
[info@atlaswirecorp.com](mailto:info@atlaswirecorp.com)



ATLAS WIRE CORPORATION  
Registered to ISO9001:2000  
Certificate No. A4894

4705 S. Coach Drive  
Tucson, AZ 85714  
(520) 747-4500  
(520) 747-5800 fax  
[tomatlas@worldnet.att.net](mailto:tomatlas@worldnet.att.net)

★ MANUFACTURER AND DISTRIBUTOR OF ALL MECAL PRODUCTS IN THE U.S. & CANADA FOR THE WIRE HARNESS INDUSTRY ★

PRESSES | APPLICATORS | SPECIALTY EQUIPMENT | CUTTER/STRIP ACCESSORIES




## Mecal BY STARN

### THE FOLLOWING AREAS ARE COVERED IN THE MECAL BY STARN TRAINING WE OFFER OUR CUSTOMERS:

- Mini-Applicator Assembly
- Mini-Applicator Operation
- Mini-Applicator Testing
- Wire Crimp Validation

### CUSTOMER TRAINING COURSE

 <p><b>MRS</b> Restyling Left Side Feed</p>	 <p><b>MRSP</b> Restyling Pneumatic Left Side Feed</p>	 <p><b>MRF</b> Restyling End Feed</p>	 <p><b>MRSP</b> Restyling Pneumatic End Feed</p>
--	---	--	---

**MINI APPLICATOR ASSEMBLY & TESTING:**  
A basic introductory course that covers assembly and testing of the following mini applicators:

*Contact: (814) 724-1057*

20524 Blooming Valley Rd., Meadville, PA 16335 · [www.mecalbystarn.com](http://www.mecalbystarn.com)

Follow us on 



NEWS PLUGS continued

Introbotix launches  
ACCU-Prober™ for SET2SEIL

The ACCU-Prober™ Open Platform expands with the latest Intel® created high frequency testing method for manufacturers and designers.

Introbotix announces the launch of ACCU-Prober™ for SET2SEIL as a new configuration to the successful ACCU-Prober™ Open Platform. SET2SEIL is an Intel® created testing method for measuring Single-Ended Interconnect Loss in the

quality control of printed wiring board manufacturing. ACCU-Prober™ for SET2SEIL is available, as a new configuration, as well as an upgrade for existing ACCU-Prober™ for SET2DIL systems.

“We are excited to be adding SET2SEIL capabilities to the ACCU-Prober™ Open Platform. When we released the ACCU-Prober™ as an open ended platform, we wanted to ensure it could grow with the industry as new methodologies are developed. With the addition of SET2SEIL, we are able to give manufacturers and designers the ability to perform a variety of high-frequency testing in house,” says Brian Butler, President of Introbotix.

As printed circuit board frequencies

have increased, measuring attenuation or signal loss, has become an essential metric of product development, as well as manufacturing quality control. The ACCU-Prober™ Open Platform has become a trusted tool for engineers and leading wiring board manufacturers in China, Taiwan, South Korea, Japan, Germany, and in the United States.

“The ACCU-Prober™ is a system that can be deployed in many configurations. Manufacturing facilities can standardize on a single device with a consistent interface and footprint to measure impedance, prop delay, SET2DIL, SET2SEIL, EBW, SPP, and future standards currently in development,” says Brian Butler. “Existing ACCU-Prober™ systems are easily upgradable to SET2SEIL, which gives manufacturers and designers the opportunity to meet the needs of today and tomorrow.”

The ACCU-Prober™ for SET2SEIL is available as an add-on to any ACCU-Prober™ configuration:

- ACCU-Prober™ Standard measures impedance, propagation delay and velocity, as well as equivalent bandwidth loss (EBW).
- ACCU-Prober™ for SPP - Fully licensed by IBM to measure Short Pulse Propagation (SPP), and capabilities of ACCU-Prober™ for SET2DIL and ACCU-Prober™ Standard.
- ACCU-Prober™ for SET2DIL - Includes compliance with Intel-created SET2DIL (Sdd21 Differential Insertion Loss), and capabilities of ACCU-Prober™ Standard.

All configurations of ACCU-Prober™ are available today, details are available at [introbotix.com](http://introbotix.com).

Introbotix is an award winning pioneer and industry leader in High Frequency Testing—providing testing services for circuit board development and now delivering solutions for manufacturing with the ACCU-Prober™ Open Platform.

For further information contact Introbotix, 4208 Balloon Park Road NE, Albuquerque, NM 87109. Phone (505-345-7785 or International 00-1-505-345-7785. Visit [www.introbotix.com](http://www.introbotix.com).


PCB Book-To-Bill Ratio  
Reaches 34-Month High

IPC — Association Connecting Electronics Industries® announced the April findings from its monthly North American Printed Circuit Board (PCB) Statistical Program. Notable among the month’s findings is the PCB book-to-bill ratio, which reached 1.10, its highest level since July 2010.

PCB Bookings Gain Strength

Total North American PCB shipments were down 7.0 percent in April 2013 from April 2012, but bookings increased 7.2 percent year over year. Year to date, PCB industry shipments were down 5.1 percent and bookings were down 2.3 percent. Compared to the previous month, PCB shipments in April decreased 9.9 percent, and bookings declined 14.3 percent. Bookings have outpaced shipments for the past five months.

# CABLE SUPPLIER OF CHOICE!



**With Multi/Cable YOU get to choose high quality, specialty cable, and receive exceptional service, and fast turnaround at competitive pricing!**


**THE ADVANTAGE OF CHOICE**  
With off-the-shelf cable products you don't get the chance to decide on many critical features of the finished product such as: design, materials, tolerances, and manufacturing techniques.

**Custom designed and manufactured cables:**

- Special Constructions • Instrumentation • Control • Tray
- Thermocouple • High Temperature • Audio & Sound
- Shielded • Direct Burial • Underwater

**Multi/Cable Corporation**

37 Horizon Dr. Bristol, CT 06010  
Tel: 860.589.9035  
Fax: 860.589.7520  
[www.MultiCable.com](http://www.MultiCable.com)  
[info@multicable.com](mailto:info@multicable.com)



# INTRO CORPORATION

Integrity, Value and Quality since 1976

**RMS**

International authorized distributor for:  
**RMS Connectors**  
Mil-C 26500 Series  
Boeing Qualified  
BACC45's/BACC63's  
MS24264R's/MS24266R's

MIL-C-5015, MIL-C-24308, MIL-C-26482,  
MIL-C-26500, MIL-C-38999, MIL-C-39029,  
MIL-C-81511, MIL-I-81969, MIL-C-83723,  
MIL-C-83733, MIL-C-85049, ARINC 404,  
ARINC 600

- ARRAY Galley/Buffer Connectors
- THE PHOENIX COMPANY D-Sub Connectors
- MIL-CON Audio Connectors

## CONNECTING THE WORLD

CONNECTORS • CONTACTS • ACCESSORIES • TOOLS

ISO 9001

5121 Industry Drive, Unit 104 Melbourne, FL 32940  
TEL: 321-757-6330 • FAX: 321-757-8973 • TOLL-FREE: 1-800-722-2233  
[www.introcorp.com](http://www.introcorp.com) • [info@introcorp.com](mailto:info@introcorp.com)



# TO BE SURE

## DSG-Canusa

Insulate. Seal. Protect.

30 years of manufacturing innovative heat shrinkable products to exacting customer & industry specifications has positioned DSG-Canusa at the front of the pack. An extensive product offering is made with integrity within our own North American facilities. Our close supply chain partnerships ensure that you receive the products that you need, when you need them, every time!



USA: 1 800 422-6872  
Canada: 1 800 845-6808

**ShawCor - when you need to be sure**

**DSG-CANUSA**  
A ShawCor Company  
[dsgcanusa.com](http://dsgcanusa.com)

**SHAWCOR**  
Shrink Services - Global Solutions  
[shawcor.com](http://shawcor.com)





“North American PCB sales in April continued to lag behind 2012 levels, although sales in the flexible circuit segment are strengthening,” said Sharon Starr, IPC director of market research. “Rigid PCB orders for the month exceeded last year’s orders and continued to push the book-to-bill ratio up to a strong 1.10. This is the fifth consecutive monthly increase in the ratio, which reinforces our hope that PCB sales will strengthen during the coming months.”

The book-to-bill ratios are calculated by dividing the value of orders booked over the past three months by the value of sales billed during the same period from companies in IPC’s survey sample. A ratio of more than 1.00 suggests that current demand is ahead of supply, which is a positive indicator for sales growth over the next three to six months.

Domestic Production Holds Steady

IPC’s monthly survey of the North American PCB industry tracks bookings and shipments from U.S. and Canadian facilities, which provide indicators of regional demand. These numbers do not measure U.S. and Canadian PCB production. To track regional production trends, IPC asks survey participants for the percent of their reported shipments that were produced domestically (i.e., in the USA or Canada). In April 2013, 85 percent of total PCB shipments reported by survey participants were domestically produced. These numbers are significantly affected by the mix of companies in IPC’s survey sample, which change slightly in January, but are kept constant through the remainder of the year.

Continued on page 57

**YOUR CONNECTION FOR...  
Amphenol® Industrial**

Amphenol Industrial's innovative products include **Amphe-Lite** composite, **ACA-B & GT** reverse coupling bayonet, & **Amphe-Com & Amphe-PD** connectors enhanced with **RADSOK®** high amperage low insertion force contacts.

ECCO's extensive Amphenol inventory includes the popular **5015 style 97 A & B** in standard, **RoHS** compliant, & reverse bayonet versions. We also stock the **Mil-C-5015 (E, F, & R)** miniature cylindrical **PT (MS26482-I)**, **48**, environment resistant **Mini E 67**, miniature standard **165**, & high density circular **348 (M81511)** series.

Our assembly capabilities allow us to quickly fulfill your requirements.

For responsive, experienced service, call Electronic Connector at

**800-742-3262**

FAX: 773-767-9634  
e-mail [sales@eccoichicago.com](mailto:sales@eccoichicago.com)  
[www.eccoichicago.com](http://www.eccoichicago.com)

CONNECTORS FOR ALL REASONS



ELECTRONIC CONNECTOR CO.

6332 S. Central Ave. • Chicago, IL 60638  
773-767-2200



© 2012 ECCO



# TE Connectivity OCEAN Applicator Rental Program



**Exceeding the Requirements of Today  
to Meet the Demands of Tomorrow!**

- Significantly lowered monthly rates
- Most popular terminals have applicators in stock
- Increase your business with a limited monthly expense
- Competitive pricing and short term commitments

Take a step into the Ocean of possibilities with our latest applicator development and see your business grow! Call your TE Connectivity Tooling Specialist at 1-888-777-5917 or 1-717-810-2080 or visit [www.tooling.te.com/oceanrental](http://www.tooling.te.com/oceanrental)



TE Connectivity's only obligations are those stated in TE's General Terms and Conditions of Business (<http://www.te.com/aboutus/tandc.asp>). TE expressly disclaims any implied warranty regarding the information contained herein, including, but not limited to, the implied warranties of merchantability or fitness for a particular purpose.  
© 2013 All rights reserved. TE Connectivity (logo), TE Connectivity are trademarks.



# Make your mark

with

## Thermomark Roll

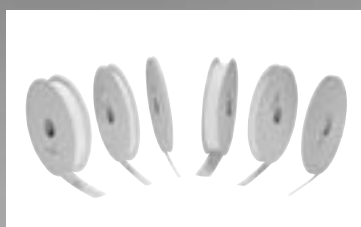


### Create and print cable labels and markers easily.

Our Thermomark Roll wire marking systems deliver clear, permanent identification of wires and bundled cables. Phoenix Contact offers many different material types and styles, with heat-shrink tubing and self-laminating wire wrap labels being two of our most popular.

- **Save money, decrease inventory with continuous heat shrink tubing**
- **Customize exact sleeve length using our CLIP PROJECT marking software**
- **All shrink tubing is halogen-free, MIL-STD-202G, SAE AMSDTL-23053 and SAE AS-81531**

To learn more, call **1-800-322-3225** or request a free sample book at [www.phoenixcontact.com/wiremarking](http://www.phoenixcontact.com/wiremarking)





## NEWS PLUGS continued



Continued from page 55

### Interpreting the Data

Year-on-year and year-to-date growth rates provide the most meaningful view of industry growth. Month-to-month comparisons should be made with caution as they may reflect cyclical effects and short-term volatility. Because bookings tend to be more volatile than shipments, changes in the book-to-bill ratios from month to month may not be significant unless a trend of more than three consecutive months is apparent. It is also important to consider changes in bookings and shipments to understand what is driving changes in the book-to-bill ratio.

The information in IPC's monthly PCB industry statistics is based on data provided by a representative sample of both rigid PCB and flexible circuit manufacturers selling in the USA and Canada. IPC publishes the PCB book-to-bill ratio near the end of each month. Statistics for the current month are not available until the last week of the following month.

### Detailed Data Available

More detailed monthly findings on rigid PCB and flexible circuit sales and orders, including separate rigid and flex book-to-bill ratios, military and medical market growth, demand for prototypes, total market size and forecasts, are published monthly in IPC's North American PCB Market Report. This report is available free to current participants in IPC's PCB Statistical Program and by subscription to others.

More information about this report can be found at [www.ipc.org/market-research-subscriptions](http://www.ipc.org/market-research-subscriptions).

### Stewart Connector's New RJ45 Plugs for Large Diameter CAT6a Horizontal Cables

Stewart Connector, a division of Bel Fuse Inc., announced the release of large diameter Category 6a 8P8C modular plug (SS-39200-027). The new RJ45 plugs are the latest addition to Stewart Connector's extensive portfolio of connectors designed to support Gigabit Ethernet (1000Base-T) and 10 Gigabit Ethernet (10GBase-T) transfer rates, along with PoE (Power over Ethernet). They notably accept a cable diameter range of AWG23 to AWG24 and accommodate conductor sizes up to 0.048" in diameter. The UL Listed, RoHS-compliant connectors are specifically offered to support terminations requiring horizontal cabling, which extends from the telecommunications outlet in the work area to the horizontal cross-connect in the telecommunications room. Horizontal cabling is often specified in direct connect or consolidation point applications where link lengths exceed 10 meters (33 feet). Since the cabling used in these systems is typically made of AWG23 or AWG24 solid con-

ductor copper and is larger than traditional patch cable, standard modular plugs cannot be used. Due to Stewart's proprietary contact design and unique conductor load bar, the SS-39200-027 large diameter plug is able to terminate the large diameter horizontal cabling in the same form factor as traditional RJ45 modular plugs.

Stewart Connector's low-profile, large diameter, modular plugs are well suited for high-density switches and routers, and can be used in both shielded and unshielded applications. They feature a snag-less strain relief boot to prevent plug tab damage during installation and a wire aligner to ensure precise conductor placement during assembly. Moreover, the CAT6a connectors boast 360-degrees of shielding to protect signals from external noise.

Plug, load bar and wire aligner are manufactured of UL94-V0 polycarbonate and feature 50 microinches gold-plated contacts for robust, long-lasting connections.

Additional specifications include an operating temperature range of -40 degrees C to +85 degrees C, and durability of 750 matching cycles. Voltage rating is 150 VAC, and current rating is 1.5 A @ 25 degrees C. Parts are field installable with standard Stewart Connector's termination tooling. Plug kits are offered individually bagged in packaging suited for field installation as well as bulk packaged for factory terminations. For detailed information on Stewart Connector's complete modular plug offering, visit <http://belfuse.com/ethernet/modular-plugs/>



RJ45 Plugs for Large Diameter CAT6a Horizontal Cables

Average pricing for Stewart Connector's large diameter RJ45 CAT6a (SS-39200-027) plugs is \$1.93 each in quantities of 500. Delivery is from stock. Samples are available.

Bel ([www.belfuse.com](http://www.belfuse.com)) and its divisions are primarily engaged in the design, manufacture, and sale of products used in networking, telecommunications, high-speed data transmission, commercial aerospace, military, transportation, and consumer electronics. Products include magnetics (discrete components, power transformers and MagJack® connectors with integrated magnetics), modules (DC-DC converters and AC-DC power supplies, integrated analog front-end modules and custom designs), circuit protection (miniature, micro and surface mount fuses) and interconnect devices (micro, circular and filtered D-Sub connectors, fiber optic connectors, passive jacks, plugs and high-speed cable assemblies). The Company operates facilities around the world.

## APPLICATORS / CRIMPING PRESSES / TOOLING



Mini  
Left to Right



Mini (2 Post) Air  
Left to Right



Heavy Duty Slide  
Quick Change Tool Pack



### NEW Mini (Power Drive)



1 Applicator Base, Many Terminals

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

Quick Change Tool Packs  
Change Over in 5 Minutes or Less!  
**Reduced Cost and Down Time!**



Mini  
End Feed



Med. Duty Air  
End Feed  
Quick Change Tool Pack



Med. Duty Slide  
Quick Change Tool Pack

## NEW ODYSSEY CRIMPING PRESSES



2 Ton



4 Ton



8 Ton

Also available:  
15 and 20 ton presses

For detailed information,  
visit our website, or contact  
a sales representative.

See More @ [WWW.ODYSSEYTOOL.COM](http://WWW.ODYSSEYTOOL.COM)

Phone:(586)-468-6696  
Fax:(586)-468-8422





Blue Valley Capital LLC  
Merger & Acquisition Services

## Serving the Wire Harness Industry for Over 30 Years

[www.bluevalleycapital.com](http://www.bluevalleycapital.com)

### NEWS PLUGS continued



MegaStrip 9650 Programmable  
Cut and Strip Machine

#### MegaStrip 9650: In a class of its own

The MegaStrip 9650 introduces new technologies to the market at a favorable price. With its modular system architecture, modern technology and easy operation, the new MegaStrip 9650 is in a class of its own!

The MegaStrip 9650 sets new standards for programmable cut and strip machines for processing stranded wires, multi-conductor cables and shielded cables up to 35 mm (1.38") in diameter.

The machine can be configured to handle anything from simple stripping to multi-stage operations. Schleuniger's tested and qualified RX technology is available for concentric, rotary shield cutting.

A wide range of options such as high-precision axial slitting, inner-conductor processing and special blades deliver professional results and allow multiple steps to be included in a single pass, resulting in reliable quality and shorter processing times.

The clearly arranged 10" color touchscreen features self-explanatory icons and intuitive navigation, offering a fast track to professional, error-free programming.

Libraries for raw materials, processing methods and predefined cable ends help to reduce secondary processing times and therefore minimize downtime.

Quick-change blade cartridges and cable guides are additional user-friendly features. Up to two independent inkjet printers for cable marking can be positioned downstream of the cutting head in order to eliminate any cable waste and the associated high costs.

Of course, even the standard version of the MegaStrip 9650 has a wide range of interfaces for the extensive range of peripheral devices.

- user-friendly
- reliable
- powerful
- economical

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

# All Roads Lead to IESF

Free Admission

**iesf**  
AUTOMOTIVE 2013

**Mentor  
Graphics®**

## INTEGRATED ELECTRICAL SOLUTIONS FORUM

THURSDAY, SEPTEMBER 19, 2013 • DEARBORN, MI

Come be a part of the premier conference and expo for electrical systems design and wire harness engineering for the automotive, commercial vehicle, and off-highway industry—now in its 13<sup>th</sup> year.

Reserve your spot at:  
**[mentor.com/iesf](http://mentor.com/iesf)**

Premier Partner

**IBM**

Supporting Organization

**SAE** International®

Media Sponsor

**automotive  
ENGINEERING**  
international



# CLASSIFIEDS

## SALES REPRESENTATIVE AVAILABLE FOR WIRE HARNESS / CABLE ASSEMBLY

Well established "hands on" personable individual with a very strong industry knowledge and proven experienced professional contract Sales / Marketing Representative for the Electrical Wire Harness, Electronic Cable Assembly along with Value Added product applications. My objective is seeking a long term business relationship with your organization that is presently challenged with future additional sales growth in your company's new business development efforts within the various marketplaces. Please submit your company's interest of requirements, whereby we can mutually explore and strategies these great business opportunities confidentially.

Wiring Harness News • PO Box 527 • Richmond, IL 60071  
Attn: DL13263

**Huge  
Inventory!!**

**Surplus  
RAYCHEM**

**Great  
Prices!!!**

**Sleeves • Connectors • Contacts  
Tools • Accessories**

Contact Beulah at Electro Mavin. E-mail beulah@mavin.com

**Fax (310) 632-3557  
BUY & SELL**

## REPS WANTED

American Manufacturing Technologies Inc., a 7 Mile Solutions company, is seeking energetic sales representatives in North America. America Manufacturing Technologies Inc. manufactures the Shrink conveyor oven and the LEAN Machine production cell computer work stations at its' Niles Illinois facility.

Check us out at [www.amti-products.com](http://www.amti-products.com).

Please contact Thomas E. Hanlon at (847)588-7090 or  
email: [thanlon@amtproducts.com](mailto:thanlon@amtproducts.com)

## BRAIDERS NEW & REBUILT

*Specializing in New England Butt:*

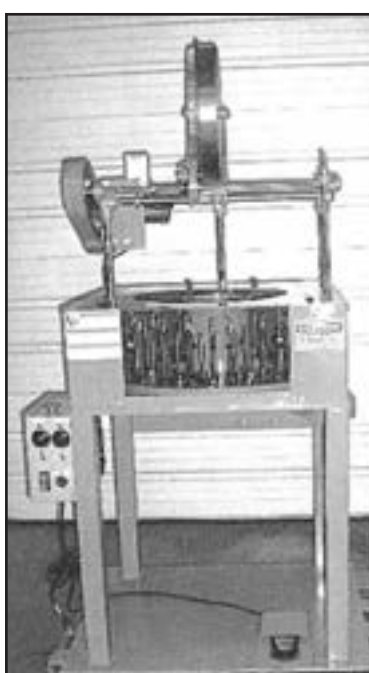
**"OUR 25<sup>TH</sup> YEAR"**

- #2 Harness Braiders

**REBUILT  
MACHINES**

**IN STOCK 16-24-32  
One Week Ship Time**

**NEW MACHINES  
Four Weeks Ship Time**



## COMPOSITE & WIRE MACHINERY, INC.

490 Old Baptist Road • No. Kingstown, RI 02852 USA  
Tel: 401-884-4760 Fax: 401-885-2499  
Email Jack Dennehy at: [compositewire@aol.com](mailto:compositewire@aol.com)  
[www.compositewire.com](http://www.compositewire.com)

**Ask About Our New Design  
Drive System**

## crimptools.com

**Check Out Our Newly Designed Website**

***"Specializing in Crimp Tools & Wire Marking Machines"***

- ★ AMP
- ★ Daniels
- ★ Pico
- ★ Raychem

### **Stocking: Same Day Shipping**

- ☐ AMP Hand Tools 1000's
- ☐ AMP Hydraulic Crimpers 8-4/0 ga. dies  
250 mcm - 1000 mcm dies
- ☐ Daniels Pneumatic Crimpers WA22 & WA27F
- ☐ Daniels Hand Crimp Tools & Positioners
- ☐ Pico Pneumatic Crimpers 400B HD
- ☐ Pico Install & Removal Tools
- ☐ Raychem Heating Tools AA400, IR550, HT900B
- ☐ Raychem Environmental Crimpers

**ALWAYS LOOKING TO  
BUY OR SWAP**

Dakota Electronics Inc.

**512-852-8119 • Fax 512-852-8129  
[crimptools@att.net](mailto:crimptools@att.net)**





# CLASSIFIEDS

## BRAIDERS WANTED

**ALL SIZES, TYPES, OR QUANTITIES.  
ANY CONDITION**

**Call: Tony Ross, Hamilton Products**  
**Voice: 607-674-2030**  
**Fax: 607-674-9367**  
**E-mail: t\_ross@iwgbwd.com**

## Thinking About Selling Your Business?

Your business may be worth more than you think. If you have built a successful wire harness business, now may be a great time to profit from your hard work and investment.

We are a profitable company with 20 years of experience in the wire harness industry and positioned to provide capital, financial expertise and operational support to every purchase. To preserve your legacy long term, we customize our offers to suit the owner’s needs and to preserve the company’s entrepreneurial spirit. We handle all inquiries with discretion and respect to insure your key relationships are maintained.

If you are interested in selling your business, or looking for a life style change, we are interested in talking with you.

*Please reply in confidence to:*  
Wiring Harness News  
PO Box 527 • Richmond, IL 60071  
Attn: BB#dl5084

## CMS TECHNOLOGY, INC.

*“SPECIALIZING IN AMP EQUIPMENT, PARTS, & SERVICES”*

**Phone: 336-853-7435    Fax: 336-853-1120**  
**jddavis@cmstechnologyinc.com**

### FOR SALE

### RECONDITIONED AMP “K” PRESSES

(Remanufactured by factory trained Field Engineer)  
Completely reconditioned-- includes work lamp & all fixtures  
Shut height set and ready for production-Six months parts warranty

<b>AMP APPLICATORS</b>	<b>AMP MTA / IDC TOOLS</b>
<b>AMP HAND TOOLS</b>	<b>MOLEX HAND TOOLS</b>
<b>AMP MACHINE PARTS</b>	<b>AMP STRIPPER CRIMPERS</b>
<b>MOLEX APPLICATORS</b>	<b>AMP APPL. COMMON PARTS</b>

### NEW TOOLING FOR AMP & MOLEX APPLICATORS

### CRIMPING & WIRE PROCESSING EQUIPMENT-REFURBISHED

MECAL CRIMPING PRESS-220 VOLTS-1 PH  
EUBANKS MODEL 4600 CUTTER  
AMP/TYCO ELT PRESS W/STRIP MODULE  
LARGE CABLE STRIPPERS-MECHTRIX MX9000B & MEGAMAT AM2  
AMP 2.5 CHAMPOMATOR NEW INSERTERS/PARTS  
KOMAX KAPPA 220 CUT/STRIP MACHINE  
KINGSLEY SL-14 HOT STAMP WIRE MARKER  
KOMAX 125L WIRE DEREELER

*WE WILL REPAIR YOUR APPLICATOR IN OUR SHOP*

[www.cmstechnologyinc.com](http://www.cmstechnologyinc.com)

**SEE OUR WEBSITE FOR COMPLETE LISTINGS & PHOTOS**



## GLADDING BRAIDING MACHINES

**We Build, Buy & Sell Harness Braiders**  
We also supply braider bobbins wound with material.

Products and Services

• Braids; Wire and Textile	• Bobbin Winding
• Harness, Overbraiding, & Shielding	• Buss Wire

Visit [www.gladdingbraid.com](http://www.gladdingbraid.com) (315) 653-7211

## CONNECTOR DISTRIBUTION CORPORATION

**2985 E. HARCOURT STREET  
RANCHO DOMINGUEZ, CA 90221**

**310-632-2466 • Fax: 310-632-5413**  
<http://www.cdc-online.com>

### MILITARY PREFIXES

MS3100	- MS3108
MS3400	- MS3456
M3933	
M21097	
M24308	
MS3110	- MS3128
MS3470	- MS3476
MS24264	- MS24266
MS24285	- MS24286
MS20026	- MS27478
M28731	
M28748	
M28804	
M28840	
MS27466	- MS27515
D38999	
M38999	
M39012	
M39024	
M39029	
M55302	
M55339	
M81511	
M81659	
M83723	
M83733	
M85049	
MS90555	- MS90558

### Connectors

### Contacts

### Accessories



# MARK YOUR CALENDAR NOW FOR THE NATION'S LARGEST DEDICATED WIRE PROCESSING EVENT OF 2014!

## MAY 14 & 15, 2014

### WISCONSIN CENTER MILWAUKEE, WISCONSIN



Since 2001, the Electrical Wire Processing Technology Expo has grown into a **comprehensive resource** for the electrical wire harness, wire and cable processing industries.

**This Expo is the only event where all meet as a whole to present and access new technologies, best practice applications, and discover solutions to challenging wire processing problems. Spend two days meeting and networking with 160+ top suppliers and service companies, see machines onsite and up and running, and attend free, industry specific seminars. Again this year, the Electrical Manufacturing & Coil Winding Expo will be co-locating with our Expo. One badge gets you into both shows.**

**The industry will be in Milwaukee in May. Will you? The Expo sells out quickly, so REGISTER TO EXHIBIT today! For more information, contact Cheryl at [cheryl@epishows.com](mailto:cheryl@epishows.com).**

**800-367-5520**



**[www.ElectricalWireShow.com](http://www.ElectricalWireShow.com)**



ADVERTISERS DIRECTORY

American Hakko .....	36	Etco.....	8	Mentor Graphics.....	58
AMTI American Mfg & Technologies Inc.....	9	Eubanks .....	7	Micro Plastics.....	13
Anixter.....	44	FreePoint Technologies Inc.....	27	Milwaukee Photos.....	34-34
Applitek Technologies Corp.....	21	FTZ Industries .....	14	Molex.....	49
Artos Engineering Company.....	2	Fuses Unlimited.....	14	Multi/Cable Corp. ....	54
Atlas Wire Corporation.....	53	Grayline.....	6	National Wire & Cable .....	6
Blue Valley Capital LLC.....	58	Hamilton Products, Inc .....	3	Nu-Tech, US.....	42
Burndy.....	40	Heilind Electronics .....	11, 18, 23, 39, 47, 52	Odyssey Tool.....	57
Cablescan.....	28	HellermannTyton.....	25	Phoenix Contact.....	56
CAMI Research, Inc.....	17, 51	Industrial Wire and Cable Corp.....	30	Pro-Line .....	11
Carpenter Mfg. Co., Inc.....	12	Imada .....	42	Russtech Engineering Co.....	38
Cirris Systems Corp.....	15, 30	INSCO .....	10	Schaefer Megomat USA Inc.....	45
Chief Supply Inc.....	8	Insulation Supply.....	10	Schaefer Technologies LLC .....	5
Cobra Braiding .....	6	Intro Corporation .....	54	Schleuniger Inc .....	32-33
Commission Brokers Inc.....	36	Judco Manufacturing Inc. ....	50, 51	ShinMaywa .....	26
Composite & Wire Machinery, Inc.....	3	JWB Manufacturing, LLC.....	4	Sonobond Ultrasonics.....	4
Daniels Manufacturing Corp.....	37	Kingsley Machines.....	14	Stapla .....	24
Delfingen Industry.....	19	Komax Wire.....	9, 64	Strunk Connect.....	31
DSG Canusa .....	20, 54	Lakes Precision Inc.....	20	Stay Online.....	50
Dynalab Test Systems.....	22	Fuses Unlimited .....	14	TechLace .....	44
East Penn Manufacturing Co, Inc.....	46	Lone Star Industrial.....	12	TE Connectivity .....	29, 55, 63
ECC.....	31	LTL Tooling & Assembly.....	46	Terminal Supply.....	40
EIC Wipers.....	18	Mark-10.....	41	Thermosleeve USA. ....	48
Electrical Products Sales Corp.....	29	Master Appliance Corp.....	3	Wago.....	16
Electronic Connector Corp .....	26, 55	Mecal by Starn.....	19, 53	Waytek, Inc.....	38
Eraser Company, The.....	17	Mechtrix Corporation.....	43	White Products Division (J.R.Greenleaf).....	22
Escubedo .....	46	Mello Company Inc., The.....	50	Wire Systems.....	38

DON'T RUIN YOUR PAPER! COPY THIS FORM AND MAIL OR FAX TODAY.



**IMPORTANT...** *Wiring Harness News* has a very large promotional list which we use on a rotating basis. You may *occasionally* receive a complimentary copy of this paper but a subscription will insure that you receive *every* information packed issue.

**DON'T DELAY... SUBSCRIBE TODAY!**

SUBSCRIPTION ORDER FORM

JULY/AUGUST 2013

Dear Kathy:

Yes, keep me informed on the latest trends in the Wire Processing Industry. Please sign me up for a one-year subscription to Wiring Harness News for \$39.00\*. (You may fax in your charge orders to 888-709-8179.)

\*Canada & Mexico=\$54.00 (U.S.) All other countries=\$64.00 (U.S.).

\*Internet Subscription Only=\$34.00

Foreign subscriptions must use a credit card or U.S. dollars drawn on a U.S. bank.

☐ Visa ☐ MasterCard ☐ Discover ☐ American Express ☐ Check enclosed.

Card No. \_\_\_\_\_ Name On Card \_\_\_\_\_

Exp. Date \_\_\_\_\_ CVG Code \_\_\_\_\_

Name \_\_\_\_\_ Title \_\_\_\_\_

Company Name \_\_\_\_\_

Street Address \_\_\_\_\_ P.O.Box \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Country \_\_\_\_\_

Phone \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_ Internet \_\_\_\_\_

\$39<sup>00</sup>

My company is involved in the industry as:  
(Please check one)

- ☐ Wire and/or Fiber Optic Processor, Cable Assembly or Harness Mfgr.
- ☐ Distributor Performing Value-Added Wire and/or Fiber Optic Processing
- ☐ Buyers of Wire and/or Fiber Optic Processing Services
- ☐ Suppliers to the Wire and/or Fiber Optic Processor  
Supply what? \_\_\_\_\_
- ☐ Other (please explain) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- ☐ Send advertising rates and circulation information.
- ☐ Send Wiring Harness Manufacturers Association (WHMA) Information.

Wiring Harness News  
is published bi-monthly.

JANUARY/FEBRUARY  
MARCH/APRIL  
MAY/JUNE  
JULY/AUGUST  
SEPTEMBER/OCTOBER  
NOVEMBER/DECEMBER

Please make your check payable to Wiring Harness News  
MAIL YOUR COMPLETED SUBSCRIPTION FORM TO:

WIRING HARNESS NEWS, P.O. Box 527, Richmond, IL 60071 OR FAX IT TO: (888) 709-8179  
We also offer bulk copy subscription rates – call for rate card.



# AMP CLS Lead Maker TE 263 Lead Maker Replacement Program



Under this new **AMP CLS Lead Maker / TE 263 Lead Maker replacement program**, existing customers of the AMP CLS machines that trade in their current machine will receive a credit up to \$22,800 (USD) toward the purchase of a **NEW** TE 263 fully automatic lead maker.

- Gain High Production Output
- Proven Crimping Press Technology
- Developed with Belt & Roller Drives

We at TE Application Tooling want our customer's manufacturing processes to run faster with greater efficiency and profitability.

Learn how your production can be more efficient than ever with the TE 263 Lead Maker

Call 1-888-777-5917 or visit [www.tooling.te.com](http://www.tooling.te.com)





# Expose the Competition

Experience the Kappa 320 Automatic Cut and Strip Machine today and decrease costly changeover times, reduce operating costs, and expose your competition



- Measures, cuts, and strips a broad range of wires and cables from 30 – 7 AWG
- Optical cable detector continuously monitors for any damaged stripping materials during production
- Easy to operate color touch screen interface
- Integrated TopWin computer software allows for customized applications such as inkjet marking and sequence production

[www.komaxusa.com](http://www.komaxusa.com)



**komax WIRE**

THE WAY TO MAKE IT

1100 E. Corporate Grove Drive, Buffalo Grove, IL 60089  
847-537-6640 Email: [news.buf@komaxgroup.com](mailto:news.buf@komaxgroup.com)