

This Issue Features:

- Pandemic Realities
- Pushing the Reset Button
- Industry Profile: Kinney Industries
- Safety Labeling Reduces Liability
- 2020 EWPT Inside the Juggling Act
- Harness Builder for E³.series 2020
- Maintaining Focus in Turbulent Times
- Sequel Wire - A New Player with Deep Roots

SUBSCRIBE FREE

WiringHarnessNews.com



Industry Profile Kinney Industries

By Joe Tito
Wiring Harness News

Huntsville Alabama is nicknamed “The Rocket City” and it’s long been the home of many Department of Defense contractors. It’s a great place to be in the Wire Harness Industry, and it’s the home of this issue’s Profile company, Kinney Industries. It was a pleasure speaking with Todd Westbrook, President at Kinney Industries, as he took some time to tell us about the company’s history and what makes them unmistakable to their customers.

The company was established in 1972 by a gentleman named Gary Kinney, and Todd told us how Gary

came to start the business. Gary was a technician for a large company in Huntsville and liked to race motorcycles on the weekends. “I guess he was injured a lot, and his recuperation time often extended to the beginning of the work week,” Todd said. “Eventually Gary and the company decided on a parting of the ways, and he found himself needing a job.”

A friend of Gary’s gave him a lead on a Midwestern company that had a requirement for some cables they needed built quickly. Gary quoted the job and won the bid. He cleaned out an old van and fitted it with a workbench. His wife drove to the customer’s site while Gary built the cables in the back of the van. It was the only way he could complete the order and



Custom cord sets at Kinney Industries.

meet the delivery schedule. “When they got there, he had finished building the lot of cables,” Todd chronicled. “They liked the cables and gave him more orders, and that’s how Kinney Industries started.”

Gary picked up other business along the way. The company did well and eventually grew to about 50 employees. “Huntsville is a DOD oriented town, so the company grew in that path,” Todd described. By the early

2000’s, the company had dwindled down to about five employees. “Gary had gotten into some other ventures and I think his interest in this business had waned a little.” The company still had a great reputation building quality products in town, however. So, Todd, along with some investors, acquired the company in 2005. “We bought the company with the intent

Continued on page 21

2020 EWPT Expo Inside the Juggling Act

By Joe Tito
Wiring Harness News

By now, you are all aware that the 2020 EWPT Expo has been canceled. Galant attempts to reschedule the show hit too many road blocks. EPI Shows, along with their partners at the Wisconsin Center were forced to cancel.

A great deal goes into planning this show. If you’ve attended, you have witnessed the hard work of Jay Partington and Cheryl Luck of EPI Shows. I joke with them that they each have a twin, because they seem to be in two places at the same time. The quality of the show certainly

bears witness to their diligence.

Having been involved in some of the discussions that were held surrounding the cancellation, and attempted rescheduling of the 2020 show, I wanted everyone to know just how hard Jay and Cheryl worked over the past couple of months. I bugged Jay until he relented to speak with me about all the hoops they had to jump through.

“Like everyone else, we thought it would be over by May. But by late February, we started getting some input from our larger exhibitors and attendees from Europe that we ought to think about postpon-

Continued on page 4

Sequel Wire - A New Player with Deep Roots

Sequel

[ˈsē-kwəl] noun. A work of literature, film, theatre, television or music that continues the story of, or expands upon, some earlier work.

If you’ve ever had the pleasure of working with a great team at some point in your life, you might dream about reassembling that team and creating a new and reimagined company. That’s exactly what Rich Carr did with a new wire and cable manufacturing company. It’s also why he chose the name Sequel.

A few weeks ago, I had the pleasure of speaking with Rich Carr and

Denise Feece to discuss the creation of Sequel. They were excited about exhibiting at the EWPT Expo, and had an exciting story to tell about their launch. First, let’s cover Rich and Denise’s background. Their individual stories reveal a great deal about why they created Sequel Wire and Cable.

Rich has been in the Wire and cable business since 1973 when he began working for a company called Ristance. “We were originally a harness manufacturer to the appliance marketplace,” he recalled, “but grew to do a number of things.” The com-

Continued on page 10



Sequel’s new state-of-the-art facility.



WE PROCESS
THE WIDEST
RANGE
OF WIRE
BAR NONE



CrX-44HD: BUILT FOR THE BIG STUFF, PROCESS UP TO 95mm².



Artos CRX-44HD



FULLY AUTOMATIC, HEAVY DUTY COPPER AND ALUMINUM LARGE WIRE PROCESSING.

The CrX-44HD: For the first time, a large-gauge, fully automatic processor has been built from the ground up to handle the largest-gauge applications.

Where other machines may be upgraded from light-wire units, the CrX-44HD handles the heavy-duty jobs with ease. It leads the industry by taking on large-gauge copper and aluminum wires of up to 95mm² (000 AWG), with fully automatic crimping to 70mm² (00 AWG).

The powerful processor features a heavy-duty feed drive, cutter

head and wire grippers. The “Pick and Place” terminal technology allows for fast changeovers of the terminal gripper and die set and lower tooling costs. Different loose-terminal feeding systems can be incorporated, including feeding bowls and feeding tracks, both of which can be easily exchanged for different terminal set-ups.

To see how the CrX-44HD stands alone in fully-automatic processing of large-gauge wires call 262.252.4545 now.



Artos Engineering Company | 21605 Gateway Ct. | Brookfield, WI 53045 USA
Phone 262.252.4545 | www.artosengineering.com | e-mail sales@artosnet.com

May/June 2020

FEATURES

Industry Profile: Kinney Industries... 1
Location is helpful for Kinney Industries, but the ability to solve complicated problems is the key to their success.

Sequel Wire - A New Player with Deep Roots..... 1
A familiar team sets up a new business with tried and true principles. Read about this new supplier of wire for the harness industry.

2020 EWPT Expo Inside the Juggling Act1
A look behind the scenes at everything that went into the attempt to reschedule the 2020 EWPT Expo.

Safety Labeling Reduces Liability ..16
June is National Safety Month in the U.S. and our friends at Heller-mannTyton have some great tips.

Case Study - CAJO Technologies ... 26
CAJO Technologies designs marking solutions for this large harness manufacturer.

Maintaining Focus in Turbulent Times 27
Managing in crisis. Atul Minocha discusses the importance of focusing on these two key elements.

Harness Builder for E3.series 2020 29
An in-depth look at Zuken’s new Harness Builder for E3.series 2020 and how it integrates with their partners’ equipment in the harness industry.

ShiftWorx Production Software..... 38
A deeper dive into FreePoint Technologies’ recent development of ShiftWorx Plus.

Dealing With Scrap 52
If you have a facility in Mexico, you will want to read this important article on managing recyclables.

2020 WHMA Conference 58-59
A look back at another successful WHMA Annual Conference. See what you missed and why you should attend next year.

IN EVERY ISSUE

M & A 101 6
Delaying is not always possible when selling a business. Loren Smith guides folks through trying times.

Leadership 8
Paul Hogendoorn discusses decision making in the current crisis.

WHMA - Wired In15
Read about the new Revision D changes to the IPC/WHMA-A-620 specification.

Back to Basics18
A quick look at this important safety rating from our friends at Flux Connectivity.

The Power Women of the Wire Harness Industry42
Melissa Femia takes a broader look at trends for women in engineering.



EDITORIAL CONTENT MANAGER
Joe Tito
joe@wiringharnessnews.com
Phone (407) 739-9811

ACCOUNT MANAGER
Jim Brown
jim@wiringharnessnews.com
Phone (708) 594-7764

Wiring Harness News (ISSN 1097-0789) is distributed bi-monthly to wiring harness & cable assembly shops, cord set manufacturers, and to companies (OEMs) that process electric and optical wire & cable.

Copyright 2020
International Harness Resources Inc., (IHR Inc.)

Wiring Harness News
PO Box 669 • Schererville, IN 46375 USA
wiringharnessnews.com

Office Hours: 8:00 a.m. - 4:00 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.

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

TaskMASTER Tools
from **ILSCO**

Part Number: THT-SC-CC

FTZ INDUSTRIES
HEAVY DUTY CABLE CUTTERS

CONDUCTOR CUTTER AND CRIMPER

ELECTRICIAN SCISSORS + SAFETY HOLSTER

EXCLUSIVELY OFFERED BY FTZ IN NA

CUTS UP TO 2 AWG COPPER OR ALUMINUM CABLE

THE PERFECT SOLUTION FOR CONFINED SPACES

HEAVY DUTY STAINLESS STEEL BLADES

50% LESS CUTTING FORCE REQUIRED

BLADE WITH MICRO-INDENTATIONS

MANUFACTURER OF COOL SEAL & CLEAR SEAL

CLEAR SEAL **COOL SEAL**

FTZ INDUSTRIES/515 PALMETTO DRIVE
SIMPSONVILLE, SC 29283/T.864.963.5000
WWW.FTZIND.COM/INFO@FTZIND.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
Email: compositewire@aol.com

ASK ABOUT OUR NEW DESIGN DRIVE SYSTEM

2020 EWPT Expo Inside the Juggling Act

Continued from page 1

ing,” Jay began. By early March they were caught between two disparate views. “Cheryl and I were in contact with many exhibitors. Some were emphatic the show go on, and others were wondering how we could even think about going forward with it.” Making the decision even more

treacherous was the fact that this years show was tracking to be one of the best ever. “We had already spent over \$100,000 in advertising, and our preregistrations in February were the highest they’ve ever been in the 20 years of the show - almost double!” Exhibit sales were also way up from 2019, and the hotels had been calling Jay to inform him they had hit the

block reserve, and asking if he wanted to add rooms.

As daily discussions were going on between the Wisconsin Center, exhibitors and sponsors, Jay was also reaching out to some of his peers. Having been in event management for 38 years, he knows a lot of folks who run shows or manage associations. Many were saying they’d had shows in early March where attendance was very low.

The picture began to get more bleak by the day. A March 15 meeting with Jay, Cheryl and the Wisconsin Center yielded a decision to postpone the show. “We were looking at September 23 & 24 but would have to move some [smaller] shows around, and also coordinate with exhibitors, contractors and hotels,” Jay explained.

But the Ryder Cup had booked up the rooms for that time period. Since those dates wouldn’t work, they had to look at other possibilities. “We spent days with the Wisconsin Center to determine dates for our show, and there just weren’t a lot of them.” Many of the March/April shows had rescheduled for the September/October time frame.

They finally ended up with August 19 & 20. There are a number of festivals going on in Milwaukee during that time of year. The hotels would be busy, but it was doable. Jay and Cheryl

were having a bit of difficulty getting enthusiasm from exhibitors for those dates, but they continued to rally. “Then the Democratic Convention decided to take those dates, and that was it,” Jay lamented. “And we really couldn’t go past September, because how could you put on a show, then immediately ask folks for a deposit for May 2021?” And thus, on April 6th the decision was made to cancel, and concentrate on the 2021 show.

In his final remarks, Jay wished to express special gratitude to Marty Brooks, President and CEO of the Wisconsin Center, and also to Megan Seppmann, the venue’s Vice President of Sales. “Marty was emphatic that everyone be reimbursed. His main concern was that the people who trusted us through the years should have all their money back to help keep their businesses afloat in these times. Megan and I spoke every day throughout the process, and she worked really hard on this.”

From all of us here at *Wiring Harness News*, we would like to express our deep appreciation to Jay, Cheryl and everyone at EPI Shows for their tireless efforts throughout this ordeal. When you see them next year, please take the opportunity to thank them. Their efforts often go unnoticed, but they are key in making the EWPT Expo the success it has been for 20 years.

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 or s_malloy@iwgbwd.com
Home Page: <http://www.hamprods.com>





LAKES PRECISION INC.

Your Global Source for Wire Processing Perishable Tooling

- ✓ COST EFFICIENT TOOLING TO OEM SPECIFICATIONS
- ✓ CUSTOM BLADE DESIGN & MANUFACTURING
- ✓ APPLICATION ENGINEERING
- ✓ STOCKING PROGRAMS

GLOBAL HEADQUARTERS
1900 Epler Court, Three Lakes, WI 54562
P: (715) 546-3070 | F: (715) 546-2565 | blades@lakesprecision.com

EL PASO, TX | 12350 Montwood, Suite 200 | El Paso, TX 79928, U.S.A.
P: (915) 856-6606 | F: (915) 856-6608 | laura@lakesprecision.com

WWW.LAKESPRECISION.COM
9001-2015 ISO CERTIFIED



Schaefer Technologies LLC

751 N. Raddant Road
Batavia, IL 60510, USA

Phone: +1 630 406 9377
Fax: +1 630 406 938

E-Mail: batavia@schaefer.biz
Web: www.schaefer.biz



SEAL-CRIMP MACHINE SSC3
SEALING OF THREE-CORE CABLES

- Stripping, sealing and crimping of multi-core cables
- Wide range of potential applications
- Short set-up time and high flexibility
- Powerful touch interface for intuitive operating
- Integrated vacuum cleaner
- Optional quality equipment
- Useable with all common seal types



Samec Machine s.r.l.

Via delle Prese, 45
36014 Santorso (VI) - Italy

Phone: +39 445 576 149
Fax: +39 445 501 255

E-Mail: service@samecmachine.it
Web: www.samecmachine.it



Cutting-Stripping Machine TSA-25

Automatic processing of cables with large diameters with batch collection options



Crimping Machine Megomat 800

Processing of wires with cross sections of 0.20 - 6 mm² for individual applications

M & A 101: Lessons learned from decades of deals

Pandemic Realities

By Loren Smith

As one would expect, our business is not different from most during this time of extreme disruption caused by the coronavirus. I continue to stay in close contact with a number of wire harness manufacturers, and each reports changes that we all hope are reversed before long.

As I write this, I am aware of companies asking their administrative employees to work from home ... companies implementing contagious

workplace disease practices, such as reconfiguring their facilities to allow for additional space between workers ... and companies preparing contingency plans to be executed in the event of significant reductions in demand. And many companies are taking more than one of these steps.

Although the impact of the coronavirus varies from region to region and company to company, and no one knows the eventual impact on different segments of the economy, I can tell you one dynamic of our wire harness industry that will remain constant: *Even in a time of unprec-*

edented uncertainty, some owners will want to sell--and they will find buyers.

My years of helping craft deals have revealed that when an owner is intent on selling, delaying may not be possible, even in the face of something as seemingly obstructive as a national crisis or recession. Many harness owners, because of their age or health issues, need or want to retire before a temporary circumstance runs its course. So the critical question is whether there are any potential buyers when the climate for selling turns bleak. And the answer is yes, but they must be buyers who do not require bank financing to fund a deal.

Granted, a pandemic or recession is hardly the ideal time to sell a business, but it is not impossible. Prospective buyers can be interested in harness acquisitions for all sorts of reasons, and these reasons often remain in place regardless of the state of the economy. Therefore, if an owner needs to sell, and if her business is fundamentally sound, finding a match is entirely doable--especially with the benefit of experienced help in sourcing prospects. It's possible to craft a deal that includes allowanc-



Loren Smith CEO
Blue Valley Capital

es for a circumstance that will turn around with time.

The word "unprecedented" is being used a lot these days, for good reason. Based on my current observation of the wire harness industry, I feel secure in saying that even in this uncertain period ownership of some wire harness companies will change hands.

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

CABLE SUPPLIER OF CHOICE!



With Multi/Cable YOU get to choose high quality, speciality 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
info@multicable.com

TRD701

ShinMaywa New Automatic Wire Terminating Machine

High speed processing (5,300 pcs/ H)
Accurate sensors to detect tiny defects
Quick changeover & shorter adjustment
Ready for extra built-in options



Tradition and Innovation
Celebrating 100 years in business



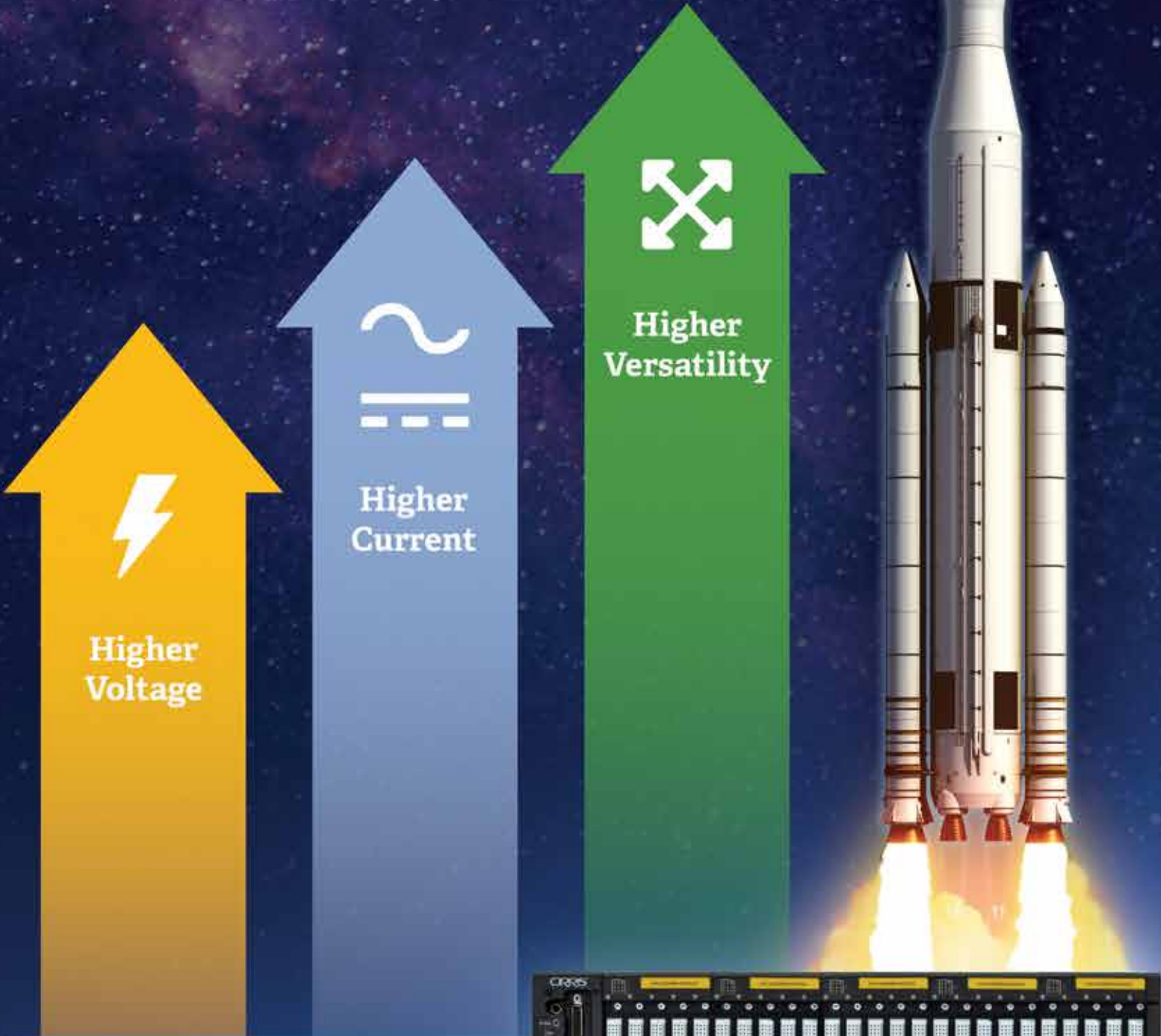
ShinMaywa

Brighten Your Future

ShinMaywa (America), Ltd.
10737 Gateway West, Suite 240 El Paso, Texas 79935, U.S.A.
TEL: +1-915-594-9862 FAX: +1-915-594-9866
E-mail: info@shinmaywaamerica.com
<https://www.shinmaywa.co.jp/america/>

The Cirris CH2 xHVC

High Voltage Cable Tester



Whether building harnesses for aerospace or manufacturing cables for household appliances, you depend on quality test equipment to validate the safety and reliability of your cable assemblies.

The CH2 xHVC covers all your testing needs from low voltage continuity to high voltage isolation. Test simple and complex assemblies with this versatile system.



- Hipot up to 1500 VAC and 2120 VDC
- Apply current up to 30 mA AC and 10 mA DC
- Scale from 160 to 100,000 test point
- Controlled by the powerful Easy-Wire™ Software
- Test complex assemblies with components
- Integrate external instruments for advanced measurements

FIND OUT MORE AT XHVC.CIRRIS.COM





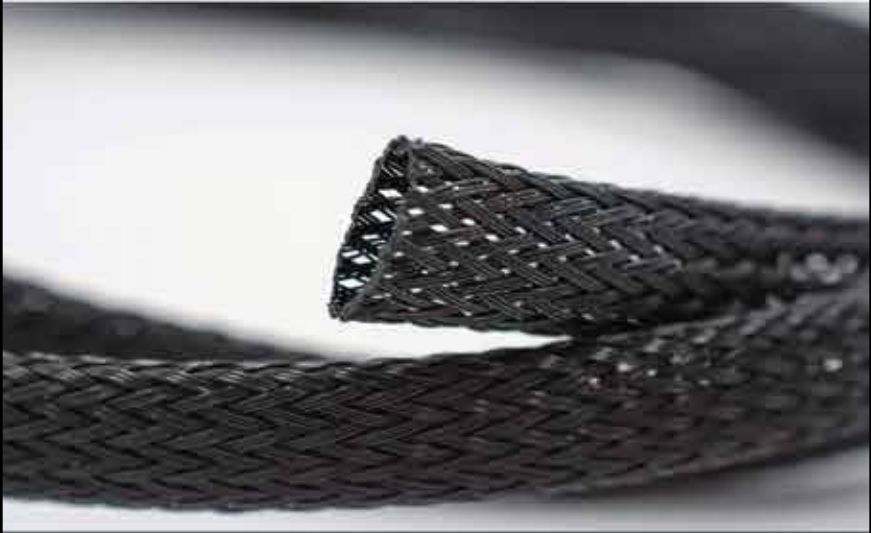
Power & Signal Group now has a full range of the following products in stock:

Nu-Guard SCP and Nu-Guard SC2P

- Knitted, self-closing sleeving for easy harness bundling
- High abrasion resistance -40c to 150c operating temperature range
- Drop-in replacement for competitive products like TwistTube

Langoflex G and Langoflex G/FR

- Tough, lightweight, expandable open-weave sleeve
- Well suited for harsh automotive applications
- Provides complete drainage
- Flame retardant version



Delfingen has developed global innovative protection solutions for the Transportation market for over 60 years. Their wide range of convolute and sleeving products and accessories makes them the ideal choice for your requirements in electrical wiring protection and routing.



Power & Signal Group

Delivering world-class solutions for the transportation industry.



www.powerandsignal.com
(800) 722-5273

LEADERSHIP
PUTTING INSIGHTS INTO ACTION

Pushing the Reset Button

By Paul Hogendoorn

I write this column as I enjoy 14 days of self-isolation. It is a forced (and not entirely unwelcomed) “pause” that has given me much time for reflection. It’s sort of like pushing the reset button.

Its been sometimes said that “a crisis is too valuable a thing to waste”, or words to that effect. Crises always come at a very high cost, but we seldom look to extract the highest value that can come of them. A couple of days into my 14 day pause, I took the time to watch the movie “Eric Clapton: Life in 12 Bars”. It struck me that it took the biggest crisis in his life to change his life’s trajectory. It came at a very high cost – a cost that no one would want to pay, the death of his four-year-old son. His friends that had watched him through many a smaller crisis believed that this one would be the one that ultimately defeated him. But it didn’t; it set him on an entirely different trajectory, and he arrived at an outcome he wouldn’t have otherwise arrived at. It took a crisis, and it required making a determined choice.

And so, it will be with the current crisis. The cost will be very high and the trajectory of a lot of businesses will be altered. The outcome they arrive at will be to a large degree affected by the decisions and choices they make. Some are just aiming to survive it, and of those, some will and some won’t. Some will be aiming to get back to where they once were and to recapture lost ground and momentum. But there will be some others that recognize the present situation presents an opportunity to do things they otherwise wouldn’t do and make decisions they otherwise couldn’t make. They get the chance to alter their trajectory.

What keeps companies from making these kinds of trajectory changing choices? I suspect it is because they are either modestly successful, or they are moderately failing – they are just managing to avoid complete failure. It takes a tremendous amount of desire, and courage, to abandon a comfortable position of moderate success. It is equally hard to let go of a failing situation, if you are somehow managing to hold on and survive. And that’s why a crisis is often a very valuable thing. We are forced to make a choice: simple survival, return to status quo, aiming for something else, or charting out a new route to get to where you are aiming to go.

Crises also have the effect of bringing out the best in people. (The worst too – like hoarding toilet paper, of all things). Its a good time to assess your people and see who you want to go into battle with. Character, dedication, and their response to the vision, will all be clearly evident. Who rallies to the cause, and who rallies to their own cause? A crisis is a defining mo-



Paul Hogendoorn

ment, not just for the company, but for individuals themselves.

Every company is different, and their response to this current crisis will be different too, but every company has the opportunity to assess at least a few things they can do to make their company better. The three most common conversations I have had with manufacturers before this crisis were about the challenge of digitizing their work flow, gaining visibility into their production condition in real time, and the need to make their factories and jobs more attractive to a younger work force.

The first two topics fall squarely into the “Industry 4.0” conversation. Perhaps this crisis is the singular event that causes many companies to actually take a first, concrete step. It doesn’t have to be big, and it doesn’t have to go plant wide, but it just has to be something tactile – something that gives everyone confidence that bigger steps can be taken and bigger plans should be made. The last topic however, is key, and needs to be considered inside or outside of the Industry 4.0 conversation. The manufacturing industry has been aware of a looming skills and labour shortage as the current generation retires and the uptake for their jobs by the new generation is unenthusiastic. The Coronavirus crisis will exasperate this problem as the older generation will reassess what is truly important in their lives and many will opt to retire even earlier. Unfortunately, the way to address this problem is not by trying to change the younger workforce to fit our factories and jobs, it has to be by changing our factories and jobs to fit the next generation of workers. Our employment model hasn’t really changed since the later 60’s, 70’s and early 80’s, although technology has. It is time to push the reset button, and put our focus back on our people. And sometimes, it takes a good crisis to make it happen.

Paul Hogendoorn is cofounder of FreePoint Technologies. For more information on gamification or “re-connecting meaning with work”, contact Paul at paul.hogendoorn@getfreepoint.com

MODULAR AND FLEXIBLE FOR CHALLENGING CONDUCTORS



KAPPA 330 Cut and Strip

Available as Single Head or Dual Head, the Kappa 330 is extremely flexible and offers various special knives for simultaneous cutting and stripping. Up to three processing steps can be carried out in one pass. The optional slitting unit, the inner conductor separation unit and the ribbon cable processing are perfect for customers who want to process a very wide range of challenging cables.



to the live experience

komax
komaxgroup.com

Sequel Wire - A New Player with Deep Roots

Continued from page 1

pany began to make ignition wire sets, then became a PVC compounder with sights set on producing their own insulated wire. “We eventually fabricated our own copper and became fully vertically integrated,” he said. He served in many capacities, and eventually the company was sold to ECHLIN.

Rich stayed until 1990 when he and two other gentlemen started a wire company called Copperfield. “We operated Copperfield until 2007 when we sold it to Coleman,” Rich chronicled. “I stayed with Coleman until 2014 when that company was sold to Southwire.” Rich remained onboard for about three years. By that time, the company had migrated quite far from his original concept

with Copperfield, so Rich decided to leave. As he served out his noncompete, he dreamed about recreating the magic he had with his team at Copperfield.

Denise then described her experience. “I started with Copperfield in 2005 and then transitioned to Coleman when the acquisition happened,” she remembered. “I worked out of the Coleman corporate office in Waukegan, IL, but when the Southwire acquisition occurred, I began to bounce around within the organization, doing a lot of traveling.” She decided the traveling was too much, and left Southwire in 2015. Denise worked for a couple of manufacturing concerns but never lost sight of those happy days at Copperfield. She constantly thought about being part of a similar business from an ownership position.

Having made the decision to create a new company with Copperfield as a model, Rich began to assemble the ownership team. In addition to Denise, with strengths in the operational and financial areas, he rounded out the ownership team with financial guidance from Jim Merritt, the former CFO of Copperfield, and Greg Miller, a seasoned business person with specialties in the insurance and benefits area. The facility will be managed by Andy Carr, Rich’s son. Andy boasts over 20 years of plant

management experience with Copperfield/Coleman/Southwire. Sequel will be Andy’s third greenfield start-up in his career.

In order to grasp what Rich and his team aim to achieve with Sequel, it’s important to understand the niche they carved out at Copperfield, and why the formula worked so well. “Copperfield was a primary wire supplier to the OEM and distribution market,” he described. “It was mostly single conductor in the 26 to 4/0 AWG, with various insulation types; mostly PVC and crosslink polyethylene wire.”

It was this schematic, along with Copperfield’s unique commitment to customer service and special requests, that made them so attractive to Coleman, and eventually Southwire. “It’s a difficult footprint to operate in,” Rich outlined, “because even though the wire that the customer buys is very similar, each one wants them packaged a little differently, or has other special requirements.” He further explained that the OEM customer tends to be more demanding than other consumers of wire. “Most companies lack the capacity to put the programs together to give those customers the exact products they want at the right price, and with excellent quality and customer service.”

Continued on page 13

Wire & Cable Management Solutions

- ▶ Extendo® Expandable Sleeving
- ▶ Ben-Har™ & Suflex® Fiberglass Sleeving
- ▶ Mil-Spec Lacing Tape
- ▶ Enclose® Wrappable Sleeving

200 YEARS

Atkins & Pearce

GENERATIONS OF GREATNESS

Phone: 859.356.4204

Website: www.atkinsandpearce.com

Email: ron.dallas@atkinsandpearce.com

Intelligent Cable Management and Test

Sample Customizable 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	28	28	4W 16 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.150 mA	996 V	7 M
2	30	30	4W 32 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.173 mA	996 V	6 M
3	32	32	4W 63 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.189 mA	996 V	5 M
4	34	34	4W 125 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.204 mA	996 V	5 M
5	36	36	4W 249 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.204 mA	996 V	5 M
6	38	38	4W 500 mΩ	Pass	< 1 μA	1499 V	> 1 G	0.200 mA	995 V	5 M

CableEye® HVX Systems

The Smarter HIPOT Tester!

See What It Can Do for You...

- Test continuity and HiPot in sequence. Check shorts, opens, miswires, components, leakage current and insulation resistance in one step - fully automated.
- Amazing graphics & reports.
- Display image-rich work instructions to reduce operator errors.
- Adjust ramp time and trip current to compensate for capacitive loads.
- Measure leakage to 0.1μA, Zener diode breakdown voltage, 4-wire to 1mΩ, twist pairing in cables ≥ 6ft.
- External terminals for single-channel electrical safety tests of chassis, transformers, panels, etc.
- View, record, and create reports of your tests for each connection ... including test voltage, leakage current and insulation resistance.
- Program automatic test procedures with Macros or JavaScript. LabVIEW and C ++ / .NET API interface available.
- Control external devices with unlimited relay outputs.
- Remote voltage activation control for operator safety.
- Up to 2100Vdc/1200Vac. Expandable to 1024 Test Points.
- User control to protect data.
- Operating software included. READY TO USE!

1 Yr Renewable Warranty

Free Tech Support!

camiresearch.com/hipot

MX: +52 81-8421-2847

Demo Systems Available!

CAMI Research Inc.

+1 978-266-2655

sales@camiresearch.com

PC-Based System compatible with Win 7 or later & touch screen computers. Superb Customer Service!

Wire Crimp Pull Testing



Whether pulling to a break, pulling to a force, or holding at a force, rely on Mark-10 pull testers to satisfy your UL, ISO, ASTM, SAE, MIL, and other testing requirements up to 1,500 lbf / 6.7 kN of force.

Select from manually operated, motorized, or handheld solutions - all engineered, manufactured, and supported in the USA.

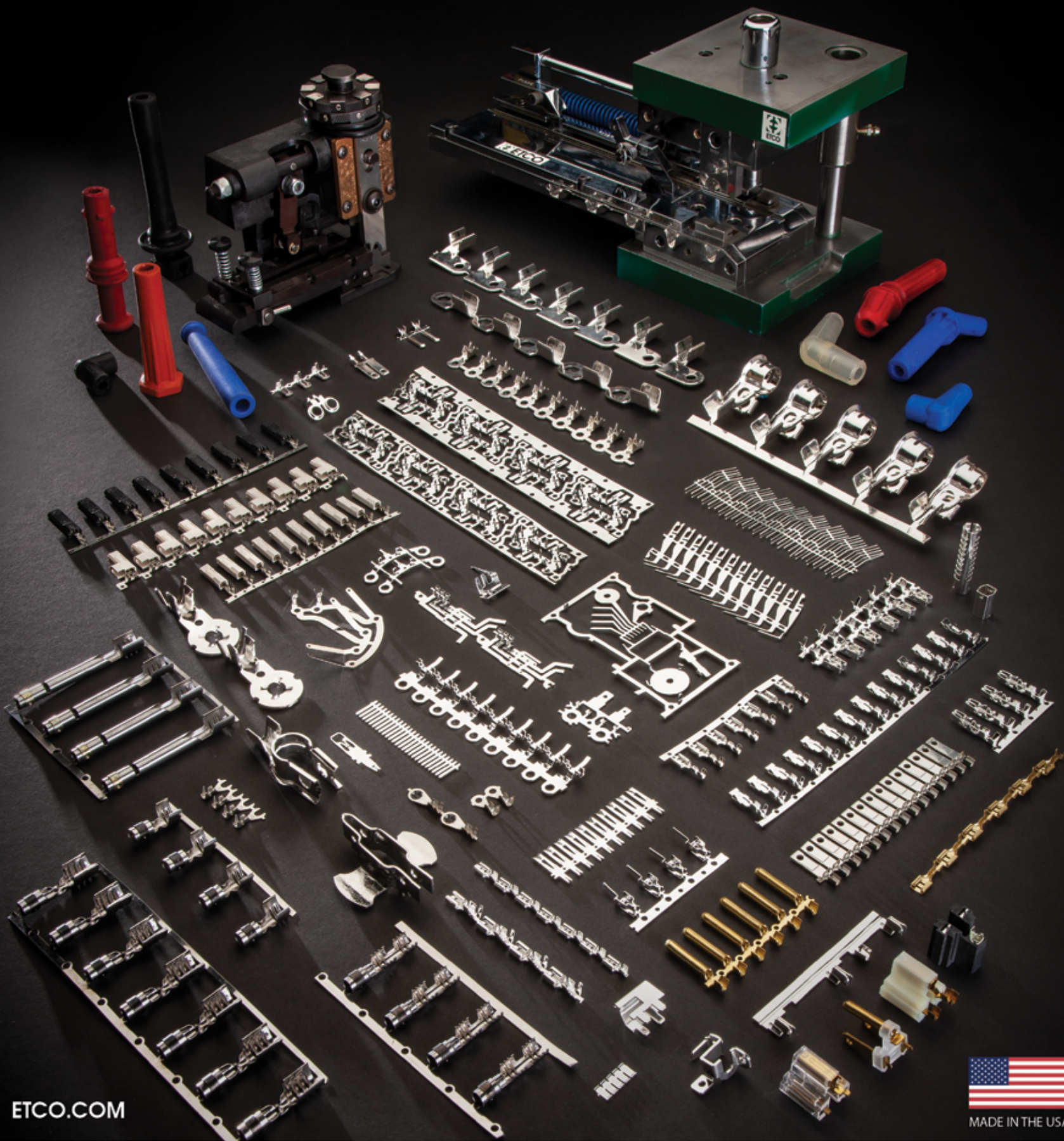
► Visit www.mark-10.com for videos, complete specifications, and pricing.

MARK-10
www.mark-10.com ■ 888-MARK-TEN



Our Product Line Is Our Spokesperson

ETCO Now Manufactures PANCON Terminals



ETCO.COM



ETCO has begun manufacturing Pancon's electric terminal product line utilizing dies purchased from Pancon, which had phased out production in its two manufacturing facilities in Massachusetts and California. ETCO can now serve the production needs of former Pancon customers and help minimize any disruption to manufacturing facilities.

Pancon's products are largely complimentary to ETCO's 1800 standard products but there are some differences in the end product depending on the product line. In addition, ETCO's ability to engineer custom products means that we can meet almost any product need.

Interested parties should contact Sean Dunn, Vice President of Marketing at 1.941.756.8426 or sdunn@ETCO.com.



Sequel Wire - A New Player with Deep Roots

Continued from page 10

This, Rich indicated, was Copperfield’s true calling.

From our conversation, it seemed reasonable that, although quality remained high, some of the attention to these niche needs waned as the company passed through subsequent owners. It’s that perceived void that propelled Rich and his crew to pursue that level of excellence once again. “That’s why we called our company Sequel,” he explained. “We think we can do the same thing over again. The market is ready for a good, sustainable supplier that will focus on their needs and give them the quality and service they desire and frankly, came to expect.”

“When I started Copperfield, I had a dream that a wire company could actually be different about the way they treated customers and employees.” Rich beamed. He aspires to what he calls the ‘two kings philosophy’, and plans to do the same at Sequel. “I believe you can treat your customers like kings and your production employees like kings, and so we will

run the company with a servant mentality.”

But Sequel is not just a clone of Copperfield, as Rich revealed. “I don’t want to reproduce Copperfield, I want to build an even better version with Sequel.” Rich and his team are technologically savvy enough to realize that today’s manufacturing customer expects a high level of information that is fresh and readily available. “If they want to place an order or get an update at two o’clock in the morning, they can do that,” he informed. “People operate 24/7 these days, and they use their phones for everything, so our systems and culture will be very much aligned with that. If they would rather have human interaction, they’re able to do that as well,” he explained.

In deciding where to open up shop, the group was looking for the right community, with the right incentives, to start this business. Since they would be a big power user, electricity costs were crucial. They spent a great deal of time interviewing communities and settled on Argos Indiana. “It’s a very small community, about 1,500

people, and there’s not much industry, so we’re definitely the talk of the town,” Rich mentioned. The town of Argos had purchased some farmland and developed a new industrial park. Sequel will be the first tenant.

Sequel is in the process of making wire, and is in the final approval stage. They had a booth secured at the EWPT Expo, and were poised to be ready to take orders at that time.

Although the show won’t happen in May, they are well on track to reach that goal. You can hear the excitement in their voices as they embark on this new venture, and they seem well poised for success. If you’d like more information on Sequel Wire and Cable, check out their website at www.sequelwire.com, or contact them at sales@sequelwire.com, 574-626-1515.

SUBSCRIBE FREE

WiringHarnessNews.com

ATLAS WIRE LLC

Insulators of Electrical Wires & Cables

✓ ISO 9001:2000 Certified

✓ Facilities in Illinois & Arizona

✓ Huge Inventory of Conductor

✓ Customized Print & Packaging

✓ Striping (Spiral & Extruded Line)

✓ Bonding & Twisting

✓ Drum Pack

✓ Small Min. Order Quantities

✓ Short Lead Times

➤ Lead & Hook Up Wire

➤ 125C & 150C Cross-Link

➤ UL & CSA

➤ MTW

➤ Building & Fixture Wire

➤ Military

➤ Automotive/Marine

➤ Nylon

➤ Speaker Wire

www.atlaswirecorp.com

1601 Glenlake Ave
Itasca, IL 60143
(847) 678-1210
(847) 678-1281 fax
info@atlaswirecorp.com

ATLAS WIRE LLC
Registered to ISO9001
Certificate No. 10000854 IATF16

4705 S. Coach Drive
Tucson, AZ 85714
(520) 747-4500
(520) 747-5800 fax
info@atlaswirecorp.com

New Models!

Model 930
Cut & Strip

Model 970
Cut & Strip

ENGINEERED
TO BE EASY!

Easy to Program • Easy to Maintain

DURABLE MACHINES MADE IN THE USA

Call 315-682-9176 or visit
www.carpentermfg.com

• FREE 24-Hour turn around on 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

Visit carpentermfg.com to see our entire line of wire processing equipment, including detailed specifications and videos.

110 Fairgrounds Drive • PO Box 188 • Manlius, NY 13104-0188 • P: 315.682.9176 • F: 315.682.9160 • wire@carpentermfg.com • www.carpentermfg.com



THE EXPERTS IN CONNECTION.
WWW.STRUNK-CONNECT.COM



TECHNOLOGIES, THAT CREATE CONNECTIONS. FROM MANUAL TO AUTOMATIC.

E-MOBILITY: E-DRIVES - POWER DISTRIBUTION - BATTERY - INVERTER

E-DRIVES & CHARGING SYSTEMS



STATOR & ROTORS



MAGNET WIRES
&
COMBINATIONS



HF - LITZ WIRES / HAIRPIN



CU - WIRES

POWER DISTRIBUTION: HV-CONNECTORS TO WIRES & BUSBARS CONNECTIONS



BUSBARS TO CONNECTORS



BUSBARS TO CONNECTORS



STAR&PHASE CONNECTION BY BUSBAR



HV - WIRES

HV-STORAGE, BATTERY & INVERTER: MODULE CONNECTORS & FILTER SYSTEMS



HV - BUSBARS CONNECTIONS



HV - MODULE BUTT CONNECTORS



NEW !! BUTT WELDED
BATTERY CONNECTORS



INVERTER BUSBARS



FILTER SYSTEMS



HOT CRIMPING



BRAZING
SPLICING



BUTT WELDING
HOT STACKING



HOT CRIMPING



BRAZING
SPLICING



BUTT WELDING
HOT STACKING



HOT CRIMPING



BRAZING
SPLICING



BUTT WELDING
HOT STACKING

STRUNK CONNECT
AUTOMATED SOLUTIONS, INC.
(860) 227 0683



Just Released - IPC/WHMA-A620 Revision D

By Christine Siebert

Important criteria updates, reducing unnecessary rework for products, greater ease-of-use and enhancing the acceptability with other key standards are among the changes users will find in the newly released D revision of IPC/WHMA-A-620, Requirements and Acceptance for Cable and Wire Harness Assemblies. This important industry standard is a joint effort of IPC and the Wire Harness Manufacturer's Association (WHMA).

This revision addresses more than 375 documented comments and recommendations from users throughout the industry and features a number of new or revised graphics. This is a heavily involved process managed by committee members from 15 different countries. The process for revising this standard begins with items/comments sent to the committee for discussion. The committee then reviews and perhaps modifies the comments and eventually votes on for inclusion into the standard. The line items spanned 176, 11x17 pages. All of this was accomplished, and the standard was ready to be published 11 days ahead of the three-year goal for publishing. Congratulations to all involved in this intense, significant and time-consuming process.

The major change in this revision was to remove the "target condition" from the entire standard. The committee addressed the challenges that some organizations had with defining "close to perfect" criteria. This can often cause unnecessary rework to products. This change moved much of the target criteria to acceptable criteria. Many of the pictures associated with target criteria were retained since they would apply to acceptable criteria. Any pictures or criteria that were removed will be sent over to the next revision of the handbook, IPC-HDBK-620.

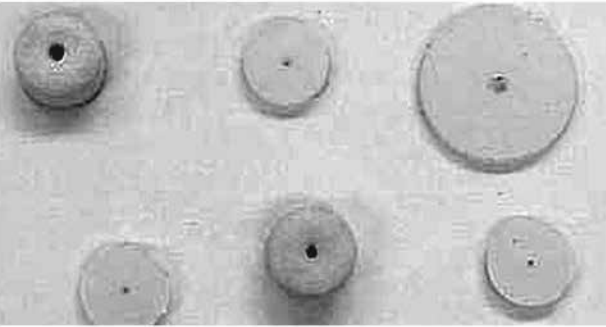
Some other major changes that were made was the revision of Section 18 solderless wrap criteria and a new section for over-molding of flexible flat ribbon. A redline document outlining all the changes will be available in the next few weeks.

IPC/WHMA-A-620D is 420 pages long. IPC/WHMA-A-620D, Requirements and Acceptance for Cable and Wire Harness Assemblies is available now at <https://shop.ipc.org/WHMA>.

IPC/WHMA members can purchase the hardcopy for \$145 or the single-user download for \$130. The industry price for the hardcopy is \$290 or the single-user download for \$260. For more information or to purchase a copy of IPC/WHMA-A-620D, visit <https://shop.ipc.org/WHMA>.

If you have any questions or comments, please email us at contact.us@whma.org.

ELC Wipers



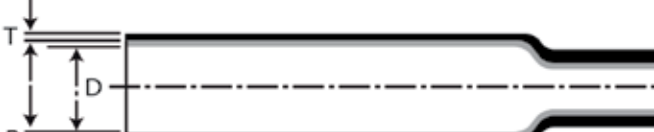
WIRE CODING WIPERS

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

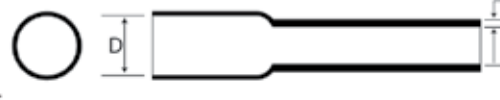
For complete list & prices go to
WWW.EICWIPERS.COM
Tel: 619-303-7924
Fax: 619-303-7925

Same Day Shipping Ask for Chuck

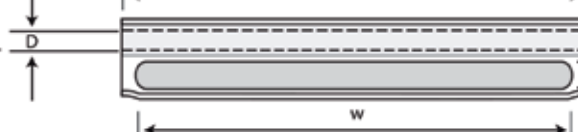
CUT PIECES




MIL-SPEC MEDIUM THIN WALL HEAVY WALL SINGLE WALL ADHESIVE-LINED DUAL WALL



EXTRUSION TUBING

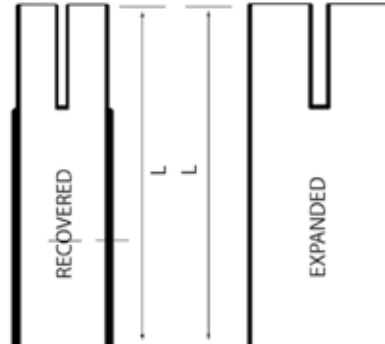


2X/3X 4X/6X 4-FOOT STICKS




WE ARE TUBING


POLYOLEFIN SILICONE KYNAR150 & KYNAR175




RECOVERED EXPANDED



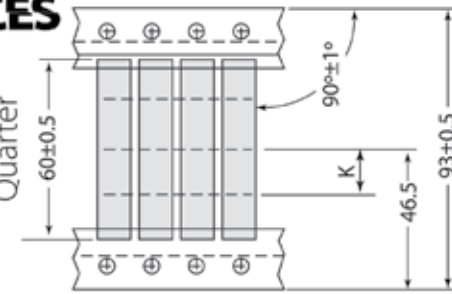
BREAKOUTS



CABLE SLEEVING MARKERS SPOOL SLEEVES



Quarter



HEAT SHRINK TUBING &
CABLE SLEEVING SPECIALIST
CALL US TODAY: (800) 421-3536



Safety Labeling Reduces Liability

By Todd Fries
HellermannTyton North America

Safety comes in many forms, but from a general perspective, accident prevention is where safety begins. And this is a critical point, especially when you consider that more workers died in 2019 than in any year since 1995.

If that's not enough to raise eyebrows, last year, OSHA fines rose to \$13,260 per violation, which is repeated for every day a company fails to correct the violation. Complying with ANSI and OSHA requirements makes "getting it right" all that much more important.

Today, there is a perception that electrical labeling is well established, that no new information affects what is already being implemented or enforced. Many inspectors and electricians, when confronted with the codes and the reason for the label requirements, are the first to admit they either do not label properly 100 percent of the time or are ignoring key code requirements. Facilities managers and companies manufacturing industrial automation equipment are sometimes lulled into a false sense of security when it comes to labeling equipment. This puts them and the companies they represent both financially and physically at risk.

Safety labeling needn't be a mystery. Of course, it does help if your supplier can lend support in terms of verbiage, visuals and what labels are needed where. The design is more than a matter of word choice. It must comply with ANSI Z535.4, which defines the signal word text (Danger, Warning, Caution, Notice and Safety) along with the colors and newly required safety alert symbol. The old-style designs that did not include the safety alert symbol were made obsolete in 2002. However, they are still allowed for pre-existing installations that incorporated the old designs prior to 2002 to maintain consistency in the facility.

Once the format is selected, the safety manager must determine the level of hazard. Danger, for example,

is reserved for situations that are likely to cause death or serious injury, while Caution is reserved for situations that could cause minor to moderate injury. That said, making this decision is somewhat subjective though critical. You are ultimately responsible for ensuring the equipment you manufacture, install or service has proper labeling. OSHA 29 U.S.C 654.5(a)1 states: "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees."

Code compliance is made more complex considering all of the various sources of information that define proper and code compliant labeling. In addition to the newer National Electrical Codes, such as NEC 2017/2020, customers must also consider OSHA, ANSI and NFPA as well as UL for labeling requirements and specifications.

Given the seriousness of the issue, effectively communicating safety threats is only part of the challenge. Learning to recognize potential hazards in unique applications is yet another. When auditing your own facility, here are some things to consider for safety labeling:

1. Are they consistent within the facility (new ANSI vs old ANSI)?
2. Are they still legible (damaged or worn signs must be replaced)?
3. Are they accurate and do they effectively communicate the message? It is important that the message be presented in either pictograms, text or both to ensure the operator understands the hazard immediately.
4. Do they meet OSHA and ANSI standards? For example, is the signal word readable from a distance of five feet? Does the labeling need to be multilingual?
5. Are existing signs affixed as close as possible to the hazard and not easy to remove?

Finding the right tools to help manage the constant changes, updates and new signage is a never-ending



Good Labeling

task. The responsibility of communicating hazards in and around the facility and particularly the equipment is a constant challenge.

It more than justifies the development of a continuous improvement program. When an internal auditor finally thinks your signage is up to date is often the last time anybody checks it for the next several years. This is what often leads to accidents,

so maintaining a consistent policy on safety is critical.

Make safety as easy on your team as possible. Don't rely solely on your own experience (or worse, beliefs), but instead, leverage the knowledge of the many experts at your disposal. Take advantage of any tools, procedures or tips that can augment your routine or challenge your own perceptions. If you are unsure, get a set of fresh eyes to review the situation. Failure to do so could end up tragically, and while OSHA does not accept excuses, none will relieve you of the financial and personal loss that could result from relying on inadequate or faulty assumptions.

Todd Fries is product category manager - identification systems for HellermannTyton North America. Todd has led the innovation of HellermannTyton's identification products and programs for over 30 years, including a mobile labeling app designed to help installers remain code compliant. He has served on Code Making Panel 4 for NEC 2014, NEC 2017 and NEC 2020.



Bad Labeling

SUBSCRIBE FREE

WiringHarnessNews.com

Real Time Actionable Machine Data Delivered To The People Who Can Make A Difference Right Away

Find out how.

FreePoint Technologies Inc.

Wire Harness Design, Quoting, Manufacturing, & Documentation

Automate your processes to quickly and easily create harness documentation from drawings or wirelists.

zukenusa.com/harnessbuilder

Talk with us to
learn more about
Harness Builder
for E³.series

ZUKEN®

Back to Basics

What is NEMA?

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".

PROLINE
THE LEADING EDGE IN MODULAR ERGONOMICS



The Leading Edge in Modular Ergonomics
**10 Avco Road
Haverhill, MA 01835
Ph: 800-739-9067
Fx: 978-374-4885
E-mail Bench@1proline.com**

www.1proline.com
www.industrialworkbenches.com

In the world of manufacturing, the words “safety first” couldn’t have bigger implications. One must always consider the harsh environments within which many electrical connections are used. With the help of NEMA, a “safety first” mentality is commonplace in manufacturing companies all throughout North America.

What does NEMA stand for?

Founded in 1926 and based in Rosslyn, Virginia, NEMA is the National Electrical Manufacturers Association. Developed to create the technical standards for the manufacturing of both electrical and medical imaging

equipment, NEMA is known as the largest trade association of electrical equipment manufacturers in the United States.

The primary focus of the organization is to set industry standards for safety and innovation within the world of manufacturing. NEMA’s membership is made up of about 350 different companies that manufacture products used in utility, commercial, industrial, commercial, residential and institutional applications.

What are the different NEMA ratings?

Every five years, NEMA publishes new ratings that are used

to protect electrical equipment from damage due to dust, liquids and corrosive materials. The ratings are based on the types of enclosures that electrical components are manufactured with. While not all electrical components are designed with NEMA enclosures, the ratings are meant to be used as industry standards on a voluntary basis. There are no less than 13 NEMA ratings with some being broken down into several subgroups.

NEMA 1 refers to general purpose enclosures that are constructed for indoor use. They protect human contact from electrical charges and protect the electrical components

against dust, light, dirt and debris. NEMA 2 is much like NEMA 1 except this rating stipulates protection from light dripping and splashing of water. It’s referred to as “drip-tight”.


NEMA 3 is regarded as “weather-resistant” and is divided into a number of subsections. These enclosures are created for both indoor and outdoor use, especially on ship docks, construction sites, tunnels and subways. They protect against falling dirt, windblown dust, rain, sleet and snow. The 3R subsection omits protection against windblown dust. 3S also protects from ice while 3X, 3RX and 3SX offer additional corrosion protection (especially from salt water).

NEMA 4 and 4X enclosures provide the same protection as a NEMA 3 enclosure with additional protection against water ingress and/or hose-directed water. They’re referred to as “water-tight”. NEMA 5 is “dust-tight” and is commonly used in steel mills and cement plants.


NEMA 6 and 6P are “submersible”. They offer the same protection as NEMA 4 enclosures, but also protect against temporary or prolonged submersion in water or oil. NEMA

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 alert if harness is removed prematurely?



Connect to a network for file transfers and data collection?




Work as a standalone system without needing a computer?

If not, contact Dynalab today for more information!
www.DynalabTesters.com

Wiring Harness and Hipot Testers

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



Dynalab
TEST SYSTEMS

Dynalab Test Systems, Inc. | Reynoldsburg, OH USA | www.DynalabTesters.com | 614.729.6550

Continued on page 20 _

Just Say
NO

NEW

World's lowest-price
laser wire marker

ECONOLASE.
AFFORDABLE. PORTABLE.

Call for details.

NO to old laser technology

NO to high maintenance costs

NO to lower performance

NO to expensive consumables

NO to limited font choices

Say

Yes

Yes to the ultimate laser wire marker, Tri-Star's M-100L FG-TT, most advanced, cost-effective marker on the planet.

Maintenance free **YES**

Proven industrial grade system **YES**

Diode pumped solid state UV laser **YES**

Proof against dust and vibration **YES**

Unlimited software-linked font choices **YES**

Superfast 150 high-speed option **YES**

Made in USA **YES**

With nothing to slow down production and everything to speed it up, the M-100L FG-TT is the fast, low-cost high performer. Now the world's favorite laser wire marker.



M-100L FG-TT

The ultimate laser wire marker

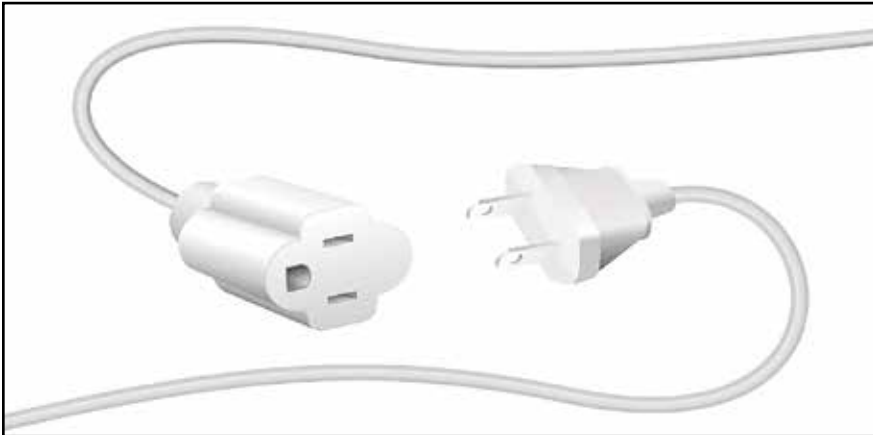


Tri-Star Technologies

Contact us at: www.tri-star-technologies.com
alex.kerner@tri-star-technologies.com • 323-347-5737



What is NEMA?



Continued from page 18

6 is temporarily submersible while 6P withstands occasional prolonged submersion. NEMA 7 is built for hazardous locations that are primarily indoors. NEMA 8 offers the same protection as NEMA 7 but can be used either indoor or outdoor.

NEMA 9 enclosures are dust ignition proof and intended for indoor use in hazardous locations. NEMA 10 enclosures meet MSHA (Mine Safety and Health Administration) standards. NEMA 11 protects against the corrosive effects of liquids and gases while meeting drip and corrosion-resistance tests.

NEMA 12 and 12K enclosures are intended for indoor use and protect against dripping and splashing water. They are also rust resistant. Finally, NEMA 13 enclosures provide the same protection as NEMA 12 enclosures, but with added protection against dripping and/or sprayed oils and coolants.

For more information about NEMA and their various ratings, please don't hesitate to give Flux Connectivity a call at 1-800-557-FLUX or email us at connect@fluxconnectivity.com.

(Part 2 of the series *Basics of Wire Stripping* will appear in the July/Aug Issue)

The image shows a multi-colored wire harness connected to a black connector. Above the harness are the logos for WHMA (Wiring Harness Manufacturers' Association) and IPC (Interconnect Products Corporation). Below the logos is the text "An Affiliate of IPC". At the bottom of the image, it says "Connecting you to resources that make you an industry leader".

JOIN WHMA TODAY! www.WHMA.org

A close-up image shows a blue syringe-like applicator dispensing a purple sealant into the gap between a wire and its terminal. A blue circle highlights the application point.

End Water Intrusion in Wire Terminals and Splices

BluSeal by Eurotech provides superior protection against water ingress and contaminants that can destroy your wire harness.

Drip or dip applied, BluSeal penetrates between each wire strand and the insulating jacket, and cures to a durable and flexible barrier. BluSeal's unique low-viscosity automotive-grade formulation has robust moisture and chemical resistance across a wide range of temperatures.

BluSeal provides a permanent and effective seal, preventing corrosion failures over the life of the vehicle even on high wire count junctions.

The BluSeal logo features a stylized blue 'B' inside a circle, followed by the text "BluSeal" and "sealing system" below it.

Email or call us for more information.
bluseal@eurotechdirect.com
+1-330-467-0205

The Eurotech logo features a stylized blue 'e' inside a circle, followed by the text "eurotech" and "eurotechdirect.com/BluSeal" below it.

A photograph of the Gettig #2000 Drive Unit, an orange rectangular device with various knobs and a pressure gauge. It is surrounded by a roll of blue and white tape, a roll of clear tape, and several wires (green, blue, black) that have been wrapped with tape. The background is a collage of US dollar bills.

Save \$'s Wrap A Spot Tape Automatically

Gettig Taping Equipment measures and cuts from a roll, a piece of plain or preprinted pressure sensitive tape and wraps it around an object in about **One Second**.

Object Diameter:
1/16" to 1-1/2"

Tape Widths:
1/2" to 2"

SPRING MILLS MANUFACTURING, INC.
104 East Streamside Place • PO Box 85 • Spring Mills, PA 16875-0085
P: (814)422-8892 • F: (814)422-8011 • info@SpringMillsMfg.com
www.SpringMillsMfg.com

Kinney Industries

Continued from page 1

to use the goodwill Gary had established to reconnect with customers and revitalize the business.”

And that’s exactly what they did. “We started with five employees, and today we are somewhere just under 50,” Todd sighted. About 80% of Kinney Industries’ business is DOD related, with another 20% being commercial and medical. “We don’t operate under the medical certifications that you generally need, but we sell to customers who do,” he explained.

Within their realm, Kinney Industries has developed the reputation of being a versatile supplier with a wide range of capabilities. “We have a lot of capabilities for a company our size, and that’s because we get a lot of interest from people who have odd requests. We do injection mold-

ing, over-molding, insert molding and a lot of potting. Basically, if it has anything to do with copper wiring, we have some level of experience with it,” Todd elaborated. Many companies develop an expertise, then go chasing after business. But for Kinney Industries, it’s been the opposite. These capabilities have all been the derivative of problems the company has solved for customers.

The company does all this without a sales force. “My partner Tim and I are the internal sales force,” Todd explained. “We get calls from customers looking for companies who do what we do. We happen to be in a great town for what we do, and that helps a lot.” They also have a couple of sales reps who are experts in seeking out the types of problems Kinney Industries can solve.

Continued on page 22



Custom molding assembly in production.

Schedule Your Orders

"Before, it was all tribal knowledge planning materials, WIP, and staging delays. This system drives the forward planning of our company."

- Joshua F., HCOA Inc.

www.cetecerp.com

Supply chain management has never been this easy. Until now.

AIM

A TTI, INC PRODUCTION
STARRING: THE TTI, INC ADVANCED INVENTORY MANAGEMENT SPECIALISTS

Experience the High-tech Excitement of TTI Advanced Inventory Management.

Let the TTI Specialists help you develop a supply chain program that’s flexible, scalable and tailored to your requirements.

Visit ttiinc.com or call 1.800.CALL.TTI to learn more

"The AIM Specialists at TTI will have you cheering!"
Phil N. Orders, Tech Times

"I laughed. I cried. I took control of my SCM!"
Joanna Solution, Inventory Today

TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company
1.800.CALL.TTI • ttiinc.com



Large Raychem Product Inventory

- Heat-Shrinkable Tubing
- Medical-Grade Tubing
- Heat-Shrinkable Molded Parts
- Adhesives
- Adaptors
- High Voltage Splice Kits
- Electrical Interconnects, MTC Connectors
- Wire Termination Devices, Solder & Crimp
- Application Equipment for heating, crimping, shrinking and dispensing
- Wire & Cable
- Wire & Cable Identification Solutions Software, Printers, Labels and Ribbons



- Competitive Pricing
- Experienced Technical Sales Staff
- Bar Coding
- Kitting
- Custom Cut Tubing & Sleeving, Hot Stamp & Thermal Transfer Printing
- Dock to Stock
- Electronic Data Interchange (EDI)
- Kanban

For Raychem Product Solutions Contact:



insulation supply company
Since 1952



800-457-7715
310-533-0783 Fax

www.inscoinc.com

ISO 9001:2008/AS9100C

Kinney Industries

Continued from page 21

Stand-Alone Product Development

Serving the role of ‘problem solver’ has allowed Kinney Industries to develop some stand-alone products for their customers. “The first one we did was back in 2008 for a communication equipment supplier to the Army,” Todd mentioned. They developed and sold about 14,000 wireless push-to-talk units that affix to a gun mount or on the soldier themselves. “Designing and building that product paved the way for us to get into injection molding and insert molding, so the project really opened up other pathways to do things we hadn’t done before. It’s symbiotic in that we had the opportunity to do some design work,

and then the capital equipment that came along with that work allowed us to offer new capabilities to our customer base,” he asserted.

By far, the most successful product development is a hand-held wire harness tester that is known as the DIT-MCO HT-128. “Back in 2014, we had a customer who made mining equipment and they were having problems diagnosing hardware issues in the mines. They were making wrong and expensive decisions as to whether problems were being caused by electronic hardware or a faulty wire harness,” Todd described. The equipment that was available to test the units was cumbersome and required carrying 40 ft. of heavy test



Cable testing at Kinney Industries.

Due to the critical nature of so many of our customer products we are considered essential and

OPEN FOR BUSINESS.

Best wishes to all & stay safe - We are in this together!

Applicators



3 week lead time on standard applicators



Visit our updated website: mecalbystarn.com

OFFERS CRIMPING Solutions

CRIMPING EQUIPMENT. LEASING OPTIONS.

Response time: 24/hrs. OR LESS

Presses



2, 4, 8, 12 & 20 Ton Presses (2 ton in stock)

The Mecal By Starn Difference

BEFORE, DURING, & AFTER the sale, quick responsiveness to quotes and inquires, a clear explanation of what you are getting with your purchase, and the support you get with ordering through Mecal by Starn.

- ★ 2 WEEK LEAD TIME ON STANDARD CRIMP TOOLING
- ★ 2 - 3 DAY TURNAROUND FOR RUSH ORDERS on Standard Crimp Tooling with no expediting fees

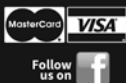
- ★ TECHNICAL ASSISTANCE
- ★ DOCUMENTATION & TRACEABILITY
- ★ QUALITY ASSURANCE EVERY TIME
- ★ FASTER TURNAROUND TIME
- ★ WARRANTY SUPPORT
- ★ EQUIPMENT TRAINING

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

OEM APPROVED APPLICATOR PROVIDER FOR TERMINALS.

MECAL BY STARN
20524 BLOOMING VALLEY RD.
MEADVILLE, PA 16335

Contacts: Nick Nahay | 814.724.1057 x 123 | nnahay@starn.com | mecalbystarn.com
Gavin Wasko | 814.724.1057 x 203 | gavinw@starn.com | mecalbystarn.com





DIT-MCO HT-128 from Kinney Industries.

cables deep into the mines. They desperately needed a more portable test solution. “And so, we conceived a hand-held 128-test node product to do a full range of low-voltage testing.” Today, a single HT-128 tester can be wirelessly linked to up to eight more testers in order to test up 1000 wiring nodes at a time.

After a couple years of refinement, Todd got a call from Brent Stringham of DIT-MCO who expressed interest in having Kinney Industries private label the tester under the DIT-MCO brand. “We were very fortunate to hook up with DIT-MCO. They are the Cadillac of the testing industry and they have the brand recognition and market penetration that would have been very difficult for us to develop on our own,” Todd stressed. He and his team enjoy the relationship they have cultivated with DIT-MCO. “They

are a very well run and disciplined company and have the customers we want to sell to. It makes it a lot easier for us, and we’re thankful to have them as a partner.”

That was their entry into the bespoke product arena, and they are already working on another one. They are in the midst of doing a power distribution product for the Army and Marines. He warned, however, that product development is not without peril. “It’s expensive to develop markets for a new product, and nothing is a sure thing. Product development, while exciting, is both a blessing and a bit of a curse as you never truly know how things will turn out.”

Kinney Industries is able to do all this without a large in-house engineering department. “We do not have

Continued on page 25




Track Your Inventory

"Our Prime defense auditors are blown away. They said the audit would take four days; it took us twenty minutes. Why isn't everyone running this system?"

- Keith V., ConexSmart

www.cetecerp.com



And the Specialist for:

Best Director in a Cable Production

goes to...

PANDUIT PRESENTS

CABLE TIE


BOND AT ITS BEST!

PTS

A TTI, INC PRODUCTION
STARRING THE PANDUIT CABLE TIE CREW

PANDUIT


Ergonomic Cable Tie Installation Hand Tools



Panduit's ergonomic series of hand-operated, tool-controlled tension, and cut-off cable tie installation tools will keep you in control of your cable requirements while minimizing downtime, and improving productivity. These versatile, medium volume tools can be used for production, maintenance, or construction applications.

Visit ttiinc.com or call 1.800.CALL.TTI to learn more

"Finally! A story that ties them all together."
Ellie C. Trishan, WeWire.com



TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company
1.800.CALL.TTI • ttiinc.com



TOOLS you can TRUST



Cut, strip, and crimp with tools from Phoenix Contact

No matter what the application, the TOOL fox family of industrial hand tools from Phoenix Contact is guaranteed to get the job done. Each wire cutter, cable stripper, and crimper is designed with quality you can feel, from the moment you pick it up.

Constructed with robust, high-quality components and raw materials, the TOOL fox line features ergonomic handle design for natural hand posture and fatigue-free work, with easy, interchangeable dies and blades. And select crimpers carry UL listing with Phoenix Contact's wide variety of ferrules. Covered by Phoenix Contact's Limited Lifetime Warranty (LLW) program, TOOL fox tools provide a comprehensive lineup for one-stop shopping.

To learn more, call 1-800-322-3225 or request a free sample book at www.phoenixcontact.com/toolfox

Kinney Industries

Continued from page 23

development engineers on staff, but we leverage resources from a network of engineers and programmers who work as independent contractors.” Todd again credits their key location in Huntsville for the availability of talented engineers who work well with the company.

Tragedy struck Kinney Industries in 2013 when a fire virtually destroyed their building. “We had to move what we could out of our building and rebuild. To add to the stress, in the midst of this, we started the development of the handheld tester.” It was a very difficult time for the company both financially and managerial-ly. “It challenged our team, but we got through it with loyal customers who

stayed with us.” Todd has always been thankful no one was injured, and knows the experience made them a stronger team and a better company.

Kinney industries seems to do well in the problem-solving lane of the cable and harness industry. This approach affords Kinney the opportunity to try many new things. “We don’t try to be who we’re not, though,” Todd advised. “I always tell people cables and harnesses are the core of our business, and that’s what pays the bills. We try new things that make sense respecting that we are ultimately a cable and harness shop, and anything we’ve don’t outside that is because our base business has allowed it.”



Soldering operations at Kinney Industries.

CETEC ERP

Executive Dashboard Pulse

Prior Month & MTD Shipments

Ship Date: Month	Resale (\$)	Cost (\$)
Oct, 2019	\$1,058,272.88	\$369,058.21

Prior Year & YTD Shipments

Ship Date: Year	Resale (\$)	Cost (\$)
2019	\$12,178,444.47	\$1,876,948.41

Current Invent...

\$1,605,818.58

Prior YTD Breakout (Cumulative)

Resale (\$), Cost (\$), Gross Profit

Current YTD Breakout

Resale (\$), Cost (\$), Gross Profit (\$)

Total Sales Booked (Next 9 Months)

Prior Date, Promise Date

Run Your Business

"This system controls everything in one central location. It lets us focus on what we do best, which is supporting our customer's needs."

- Todd M., Tack Electronics

www.cetecerp.com

And the Specialist for:

Flexible Connectivity in Full Color

goes to...

BRINGING WORLDS TOGETHER

TE connectivity

RAYCHEM HEAT SHRINK TUBING

A TTI, INC PRODUCTION

Starring: TE CONNECTIVITY and RAYCHEM HEAT SHRINK TUBING

TE Connectivity's Raychem Heat Shrink Tubing

AUTHORIZED DISTRIBUTOR

TE's color coded heat shrink tubing products provide electrical insulation and environmental protection while simplifying transitions and preventing connection cross up.

- 8:1** Ultra-high shrink rate tubing offers heat shrink ratios up to 8:1
- RoHS** RoHS-compliant products for automotive applications and consumer goods
- 260°C** Survives high-temperature excursion up to 260°C

Visit ttiinc.com or call 1.800.CALL.TTI to learn more

TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company
1.800.CALL.TTI • ttiinc.com

CAJO Technologies Designed a Dedicated Solution for Marking Wire Harnesses in Collaboration with PKC Group



Experts in ThermoPlasticElastomer and Flexible PVC Electrical plugs and receptacles



An-Mar Wiring Systems, Inc.
711 E. Grove St. • Mishawaka, IN 46545
Phone: 574-255-5523 Fax: 574-255-5355
Email: sales@anmarwiring.com
www.AnMarWiring.com

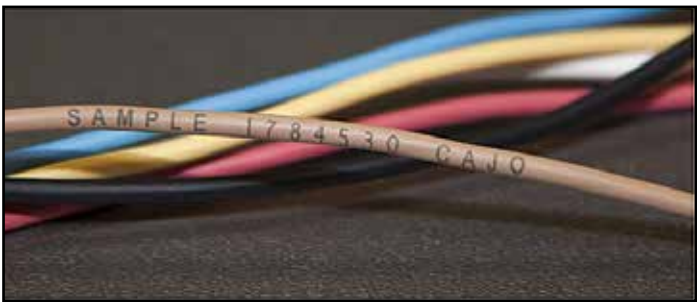
PKC Group is a global supplier of automotive electronics and one of the leading wire harness manufacturers in the world. PKC designs, manufactures and integrates customized wire harnesses, related architectural components, vehicle electronics, wires and cables, especially for commercial vehicles and agricultural and forestry machinery. PKC Group is part of the Samvardhana Motherson Group, one of the world's 26 largest automotive compa-

nies worldwide. PKC customizes wire harnesses for their customers, and the marking process of these customized wire harnesses was rather inefficient and costly. Two different methods had to be used for marking: CO2 laser and heat-shrink tubing. CO2 covered less than 10% of all the materials being used, and the rest had to be identified with heat-shrink tubing. The use of heat-shrink tubing causes a number of additional manual work phases, as they

need to be cut to the correct size, marked with an ink jet, threaded around the wire and heated for shrinking. The manual multi-stage process increases the chances of error, causing unnecessary risks for electronics provided to the vehicle industry.

Cajo designed a dedicated solution for fast and cost-effective marking of wire harnesses. One fiber laser system is capable of marking the entire material range being used. The parameter set has been defined already for around 300 different wires, and this allows for quick implementation when new systems are required around the world in PKC production sites.

The dedicated interface for marking wire harnesses was designed in collaboration with PKC. Now, instead of looking for the right heat-



CAJO Laser Wire Marking

APPLICATORS / CRIMPING PRESSES / TOOLING



Mini Left to Right



Mini (2 Post) Air Left to Right



Heavy Duty Slide Quick Change Tool Pack



ODYSSEY TOOL

Mini (Power Drive II)



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

ODYSSEY CRIMPING PRESSES



2.2 Ton



4 Ton



8 Ton



20 Ton

For details visit our website, or contact a sales representative.

See More @ WWW.ODYSSEYTOOL.COM

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

shrink tubing, the operator reads the bar code from the cable bundle, and the dedicated user interface CajoMark retrieves the order information directly from PKC's ERP system. The UI indicates with color code, which is the next wire to be marked. As a whole, the process minimizes the possibility of errors and, with ease of use, anyone is capable of using the system.

"We have recently developed dedicated marking solutions for various industries to better meet customer needs. For example, in the cable and wire harness industry, this means close cooperation with the world's leading manufacturers, such as PKC Group and Prysmian Group. When PKC updated from two separate marking technologies into one Cajo fiber laser system, this decreased the amount of separate work phases, which allowed for payback time less than 8 months", explained Cajo CEO, Niko Karsikas.

For more information contact Niko at niko.karsikas@cajo-technologies.com. Cajo Technologies, www.cajotechnologies.com

Maintaining Focus in Turbulent Times

Customers and Strategy Hold the Key

By Atul Minocha
Chief Outsiders

The more things change, the more they stay the same; it is an axiom that is true—and even comforting—during dark times and good.

In fact, even at a time when the world is completely consumed, and seemingly transformed, by the Coronavirus, many of us can take stock in this generationally-tested truism.

When the clouds part (which they will), and we are buoyed by the silver lining of commerce, the two most vital elements of growth will, once again, separate the contenders from the pretenders:

Always focus on the customer, and;

Hone your strategy—in a reasoned way—rather than simply execute on ill-conceived, reactionary tactics.

The persistent relevance of these tenets of marketing were recently affirmed in a landmark 2020 market outlook survey conducted by Chief Outsiders of its more than 70 fractional chief marketing officers (CMOs) with Fortune 500 experience.

So, in these uncertain times, when we all have an inordinate amount of time to focus on the future, how can you get a head start toward embracing these growth essentials? Here's some advice to help you get started:

Focus on Customer:

Often companies don't take the time to understand who their customer is. It's a narrow perspective that forsakes some very important intangibles. When working with a B2B or B2C buyer, dealing with intermediaries who facilitate the value and distribution chain is likely; and the end user, whose consumption of the product or service is ultimately what pays the bills.

That intermediary, though critical to cracking open the window, is your partner – and though elemental to the business, they are not your customers. Instead, you want to focus on the end user – the person or group that ultimately pays the bills. Once this customer is identified, examine a set of essentials to ensure ongoing relevance to them, including:

Is everything being done to maximize the value delivered to the customer, both through the product, and the ongoing service?

Does your company ensure that each step of the delivery chain adds clear value to the customer? If you find that any link is not holding up the rest of the chain, it's likely to come back to bite you – potentially in the form of your competition, who will capitalize on this weakness.

How is the relationship with channel partners? Remember, they hold the key to direct, deep, and meaningful understanding of your mutual customers. They can help connect with customers through things like regular surveys and focus groups. If your relationship is strong, the business can both benefit from the findings in the form of an even deeper understanding of customers' needs and wants.

Strategy Before Tactics:

Whether you've been warned that forsaking strategy is like a "Fire, Ready, Aim" approach, or if you see it as committing "random acts of marketing" – either way, it will quickly be apparent that not having a clear and well-thought-out roadmap in place before execution is a surefire recipe for disappointment.

Has this happened? You've had a success where the company admittedly got lucky and managed to stumble upon the right results. Count your blessings, but this, in the overall analysis, is not a good thing: In fact, it's a disappointment.

Here's why: Because the results were achieved by committing random acts of marketing, and you likely have no idea what worked and what didn't. And it's rare that the same formula, or even another spin of the marketing roulette wheel, would be successful next time. As a result, you will not know what to STOP doing from your randomly created potion that seems to work.

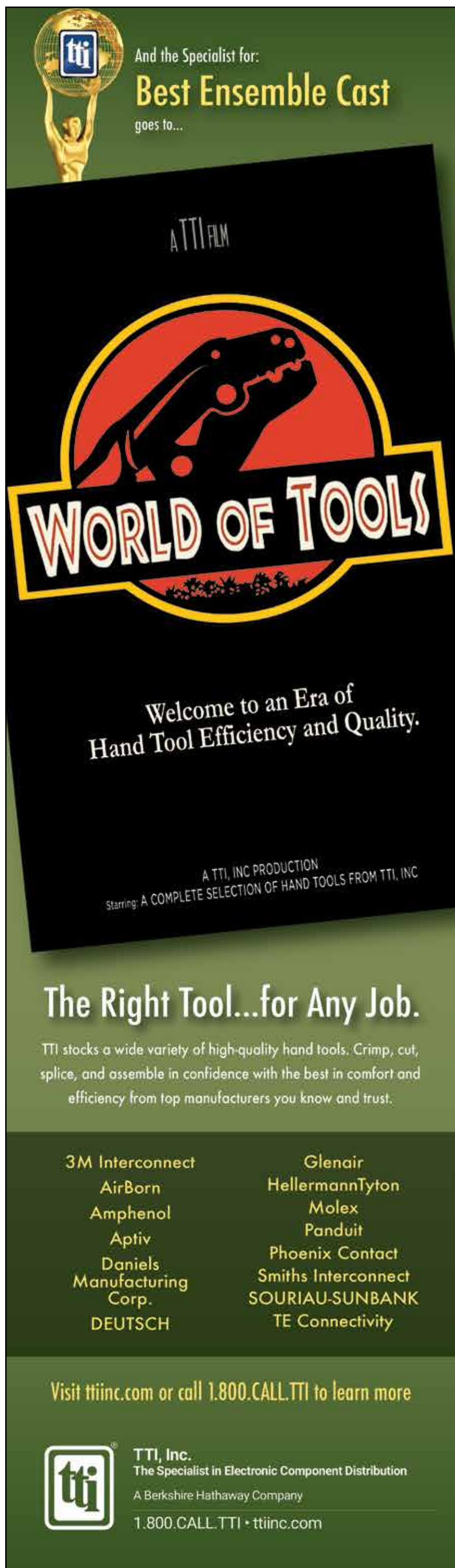
As the classic adage of advertising – uttered nearly a century ago by John Wannamaker – goes: "Half the money I spend on advertising is wasted; the trouble is I don't know which half." Doing strategic thinking before execution will significantly reduce your "wasted" dollars, while allowing you to track and measure success and to continue to refine your marketing machine.

Bottom Line

If history tells us anything, it's that consistency is key to surviving, and thriving, the most difficult times. By taking some time now to renew your focus on what's important to your business, you'll be ready to embrace growth, no matter what the season.

So, in these turbulent times, what actions have you taken today that were strategically focused on the customer?

Atul Minocha is Partner & CMO with Chief Outsiders, the nation's leading fractional CMO firm focused on mid-size company growth. He works with global healthcare, automotive, technology, software and industrial goods companies to solve seemingly inextricable growth challenges. More information at www.chiefoutsiders.com



And the Specialist for:
Best Ensemble Cast
goes to...

A TTI FILM

WORLD OF TOOLS

Welcome to an Era of
Hand Tool Efficiency and Quality.

A TTI, INC PRODUCTION
Starring: A COMPLETE SELECTION OF HAND TOOLS FROM TTI, INC

The Right Tool...for Any Job.

TTI stocks a wide variety of high-quality hand tools. Crimp, cut, splice, and assemble in confidence with the best in comfort and efficiency from top manufacturers you know and trust.

3M Interconnect	Glenair
AirBorn	HellermannTyton
Amphenol	Molex
Aptiv	Panduit
Daniels	Phoenix Contact
Manufacturing Corp.	Smiths Interconnect
DEUTSCH	SOURIAU-SUNBANK
	TE Connectivity

Visit ttiinc.com or call 1.800.CALL.TTI to learn more

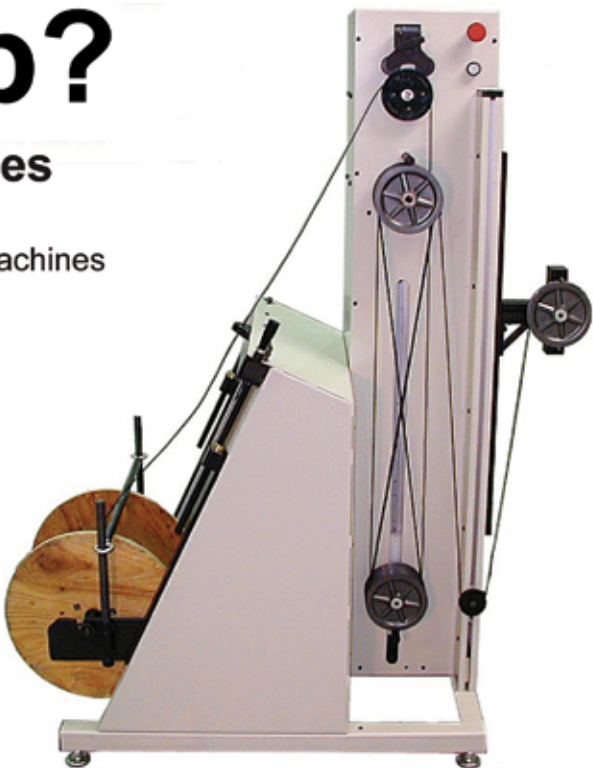
tti TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company
1.800.CALL.TTI • ttiinc.com



Can You Keep Up?

Mechtrix Prefeeders Optimize Your Capabilities

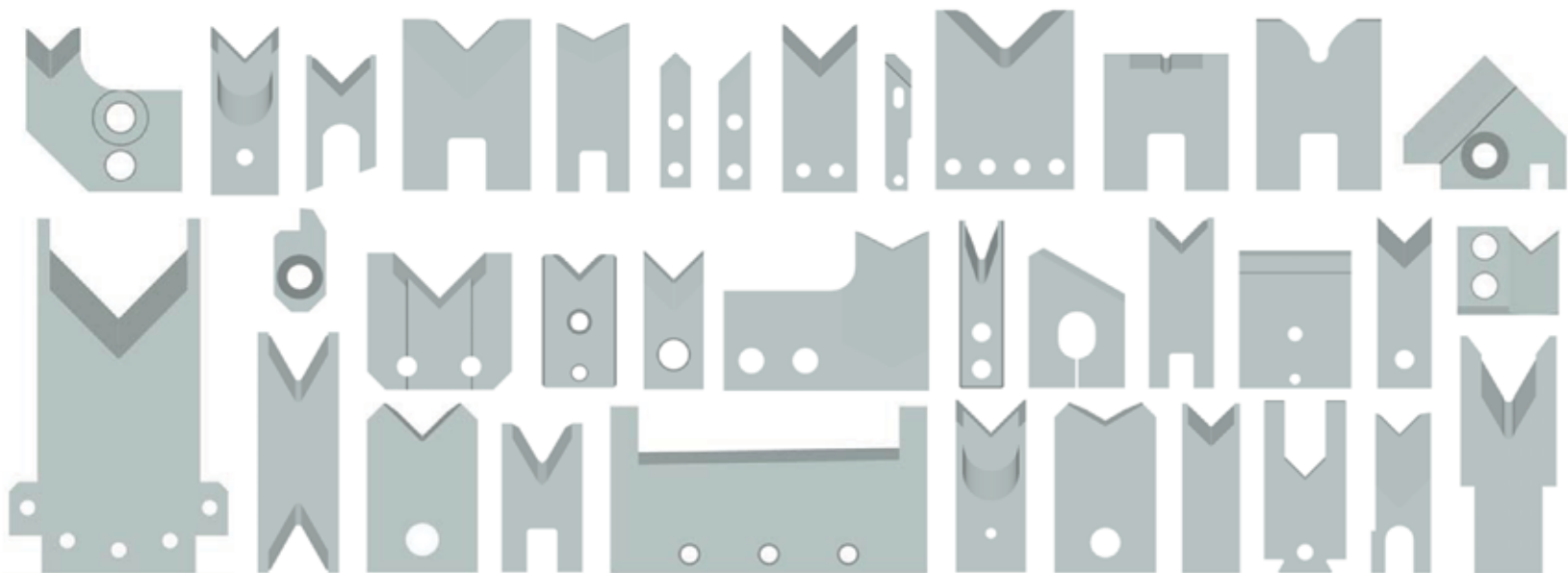
- MPF-33 Prefeeders for bench-top wire processing machines
- MPF-35 Prefeeders for high speed fully automatic wire processing machines



Mechtrix Stripping Blades

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

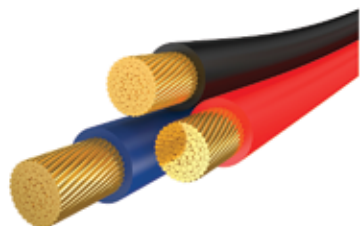
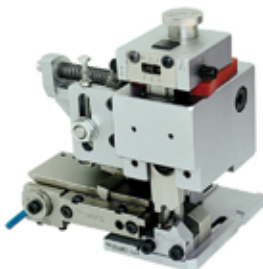
- | | | | | | |
|---------------|---------------|-----------|-----------------|-------------------|----------------------|
| • Amp/Tyco/TE | • Ideal | • Kirsten | • Kut-Rite/Weix | • Schäfer/Megomat | • Tekuwa/Dorema |
| • Artos | • KM Digitech | • Koderä | • Makfil | • Schleuniger | • Toyojamco/JAM |
| • 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 and include the following:

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

Harness Builder for E³.series 2020 Design to Quote

With the introduction of Harness Builder for E³.series 2020, Paul Harvell, the Director for the E³.series product range at Zuken USA, feels it is edging closer to the perfect answer to the problem of creating wire harness quotations faster, and more accurately. He stresses it has the extra bonus of entering the manufacturing stage much earlier by using the same tool for the two jobs. Specifically, He had this to say:

“It is so important to get the wire harness quotation created quickly for the potential job and have it be as accurate as possible so there is no monetary loss from a discrepancy, such as a long lead time item not being flagged, or protracted assembly time for complicated parts not being highlighted. What we have with Harness Builder for E³.series is a system that allows accurate quotations to be driven from a design database that can be reused and not reinvented for the actual manifesting formboard design.”

This will save time and maintain the accuracy of the product, he maintains. There is always a balance in the quotation process. On the one hand, you must avoid over-engineering a quote, but on the other, you must avoid doing just enough to return accurate costing and labor rates. Harness Builder for E³.series offers different levels of data input to achieve this balance.

Auto Selection and Placement of Labels

New auto placement of device and cable labels along with heat shrinks should vastly increase the tedious job of manual measurement and placement on the drawing (Figure 1).

User-definable content is extracted directly from the design for printing or exported to the vital build documentation. This negates the chore of checking for compatibility and accuracy of information to the design.

Different label families can be selected and automatically sized to the harness bundle, then placed at set distances or locations defined in the interface.

The labels can be sent out directly to a variety of different printers and print software. Zuken has recently been working with Dasco to generate data directly to be used in their latest printers (Figure 2).

Harness Builder for E³.series also exports to Brady, Brother, Epson and Phoenix printers and can create data that can be directly loaded into other larger machines such as the Sumitomo range of thermal printers.

Tape Auto Placement

Zuken has also added new auto placement of tape or fixings in pre-defined positions on nets and set distances from connector ends. This eliminates the need for manual calculations and measurements. Tape, labels and heat shrinks are automatically added to the quotation and or the bills of materials if desired (Figure 3 Page 30).

Design Aids

Through the years, Zuken has made it a priority to listen to their customers. In doing so, they discovered an important problem: one of the more difficult parts of designing the harness on any CAD/CAE design system, is the issue of adding pre-defined lengths of cables that might wind around a pin or peg and are not at just straight paths.

Continued on page 30

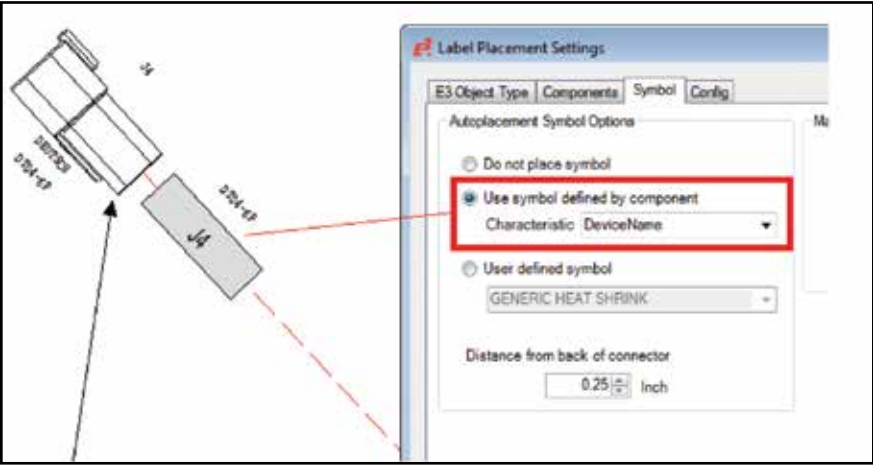


Figure 1. Auto Selection Label

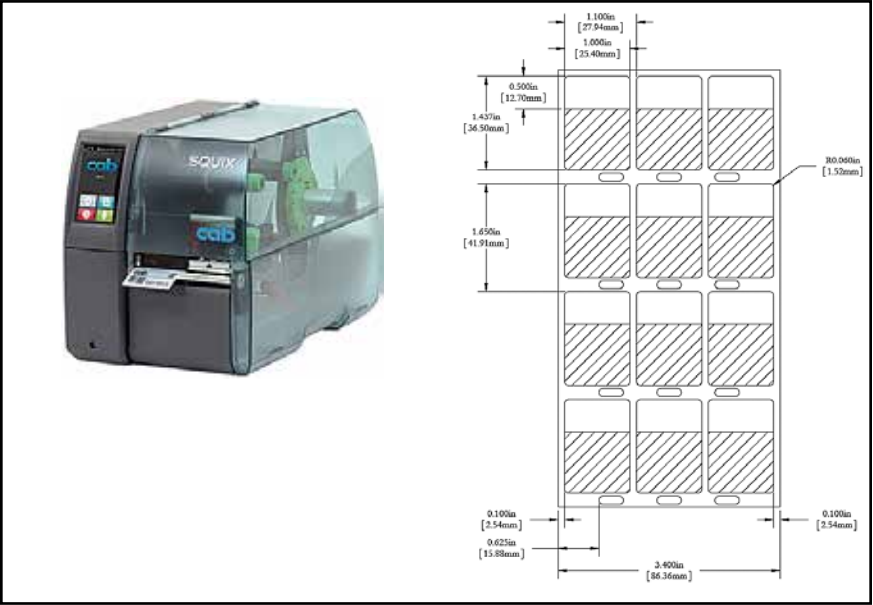



Figure 2. Dasco Printer Integration




And the Specialist for:

Best Application of Solder-free Convenience

goes to...

A TERMINAL CONNECTION



MOLEX

FREE YOUR MIND.
PUT AWAY THE SOLDER.

A TTI, INC PRODUCTION
STARRING MOLEX SOLDERLESS TERMINALS AND CONNECTORS


molex

TTI Carries a Broad Line of Molex Solderless Terminals and Connectors.

Make the right connections simple with a wide variety of reliable, high-quality solderless solutions that include terminals, splices, quick disconnects and wire management products that meet the interconnect needs of the electrical and industrial markets.

- Perma-Seal Terminals
- Battery Cable Lugs
- Krimptite Terminals
- InsulKrimp Terminals
- VersaKrimp Terminals
- NylaKrimp Terminals
- MagKrimp Terminals
- High-temp Terminals


Visit ttiinc.com or call 1.800.CALL.TTI to learn more



TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company
1.800.CALL.TTI • ttiinc.com




Harness Builder for E³.series 2020

Continued from page 29



Brady has been a source of ideas and innovation in the identification business since 1914. Let Insulation Supply and Brady solve all of your identification problems

- Portable Printers
- Thermal Transfer Printers, Labels, Ribbons
- Software, Services & Data Collection
- Pre-Printed Wire Markers, Labels & Tags
- Health and Safety Signs, Security & Property Identification
- Visual Warning, Lockout/Tagout & Regulatory Markings
- Numbers and Letters




800-457-7715
310-533-0783 Fax

www.inscoinc.com

Massive Brady Inventory

- Competitive Pricing
- Experienced Technical Sales Staff
- Value-Added Services: Bar Coding & Custom Labels Unique Applications? Just Ask Us
- Dock to Stock



insco
insulation supply company
Since 1952

ISO 9001:2008/AS9100C

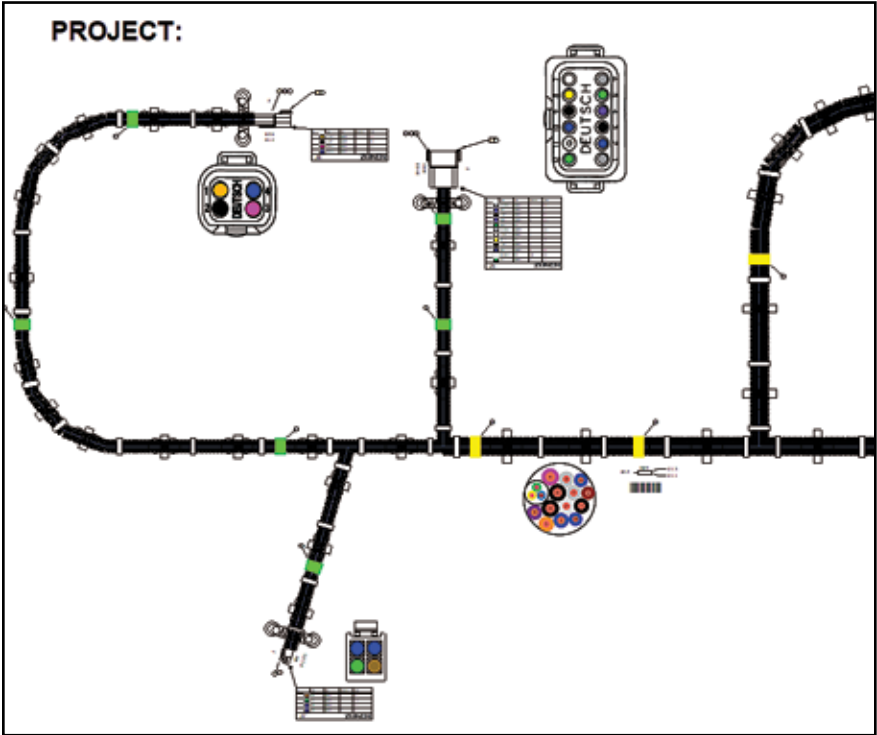


Figure 3. Tape Auto Placement

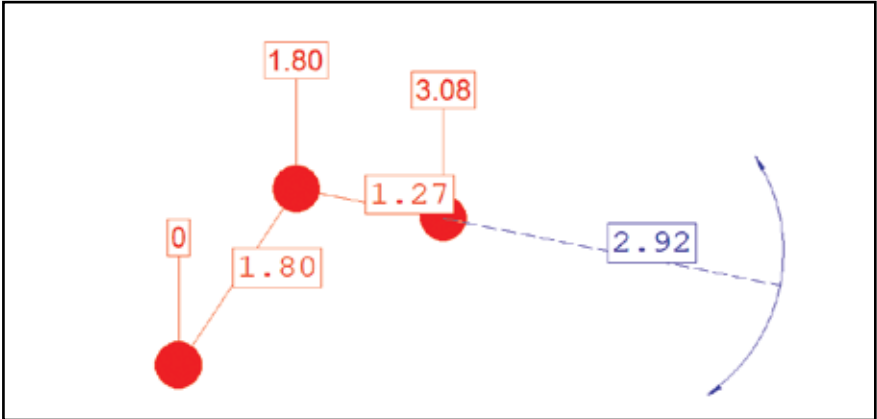


Figure 4. Co-pilot Tool

In response to this, the new 2020 version of Harness Builder for E3.series includes a new co-pilot tool. This allows the user to enter in a pre-defined length, and then freely draw that length around curves or along straight paths on the formboard sheet in order to maintain the length (Figure 4).

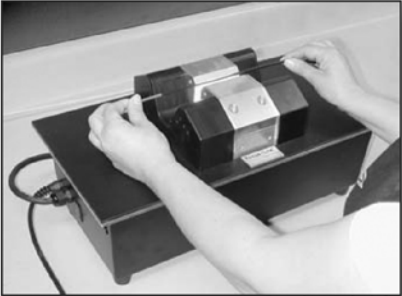
Testing Times
This year Zuken has also added support for the CableScanTest equipment. This joins existing export options to Cirris, Cami Research and Dynalab. They have also collaborated with DIT-MCO, expanding the information interface to their test equipment. Zuken developers worked with

SAVE UP TO 80% OF YOUR LABOR COST ON HEAT SHRINK OPERATIONS

The Focus-Lite will shrink all types of heat shrink tube with consistent quality and none of the drawbacks of conventional heat guns.

OURS

2 SECONDS




Based on Polyolefin

- Zero Noise / No Heat at Work Station
- Foot Pedal activated for ease of use
- Superior, consistent shrink
- Time and Heat control
- Uses much less energy (200-300 watts), only on when you need it.
- Low Maintenance
- Long Life / Rugged Design

THEIRS

13 SECONDS



Based on Polyolefin

- Excessive noise and heat
- Operator fatigue
- Inconsistent shrinking
- No control
- Uses up to 1500 watts (always on)
- Frequent Replacment
- Short Life Span

The Focus-Lite™, by Judco Manufacturing, Inc., is the solution to the outdated heat gun. You can say goodbye to the high labor cost, excessive heat, and inefficiency. **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.

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. Choose from 1", 2.5", 8", & 15.5" models. Any length of shrink tube can be processed in each machine, with the shrink time the same for all lengths. The Focus-Lite™ will improve both the quality and consistency of your shrink operation. Visit our website at www.judco.net and *Focus-in* on the savings.

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

Focus-Lite™
Heat Shrink Processing Machines



Figure 5. Integration with DIT-MCO Equipment

the skilled staff at DIT-MCO to create the right level of integration to their tools, including passing pin, connector and netlist information necessary for the machine to create test files (Figure 5).

Brent Stringham, Marketing Customers service at DIT-MCO recently said:

“This partnership allows customers using Zuken’s Harness Builder for E3.series and DITMCO wiring analyzers to save time and money by helping them quickly and easily create test programs. You’ve already invested the time and effort to design the wire harness in Harness Builder for E3.series, why not take advantage of that data to more quickly create your (DITMCO) test programs? This partnership allows two of the leading companies in the Mil/Aero wiring harness industry, Zuken and DIT-MCO, to provide a higher level of integration to their joint customer base.”

The new interface will export the drive file directly to the equipment and deliver a reference map for the connection pins. This makes it much easier to ‘fault’ find the build.

DIT-MCO wiring analyzers are used world around, primarily by customers in the Defense, Aerospace and Rail industries, to assure quality in the wiring systems of their products. From DOD and commercial end-customers, to their key suppliers, thousands of customers rely on DIT-MCO for their wiring harness and interconnect testing.

Zuken had planned to show the new Harness Builder for E3.series 2020 and the link to the DIT-MCO XXX equipment at the Wire Processing Show in Milwaukee and also at the annual Zuken Innovation World conference in San Diego. Unfortunately, both events were cancelled. However, the system is ready for demonstration and will be presented in a future webinar.

Long Term Projections

Zuken and Delta Sigma are continuing their close partnership by adding more diagnostic projections in the interchange of data from Harness Builder for E3.series 2020 to the ProjectionWorks 2020 version (Figure 6). The new outplacement of the taping functionality has really increased the accuracy of placement and dramatically increased the speed of design, which can then be transferred directly to ProjectionWorks

Craig Cappai, President of Delta Systems recently said this:

“DSC was introduced to the Zuken sales team at the Milwaukee Wire Conference in 2018. During our discussions with Zuken and current customers, we felt that Zuken was the best fit for providing a simple, clean integration of the two products. In these past months, we have found that the Zuken development team is willing to help DSC and its customers provide a simple solution during this collaborative effort. We are incredibly excited about the future of this relationship and what new business opportunities it will provide.”

Continued on page 34

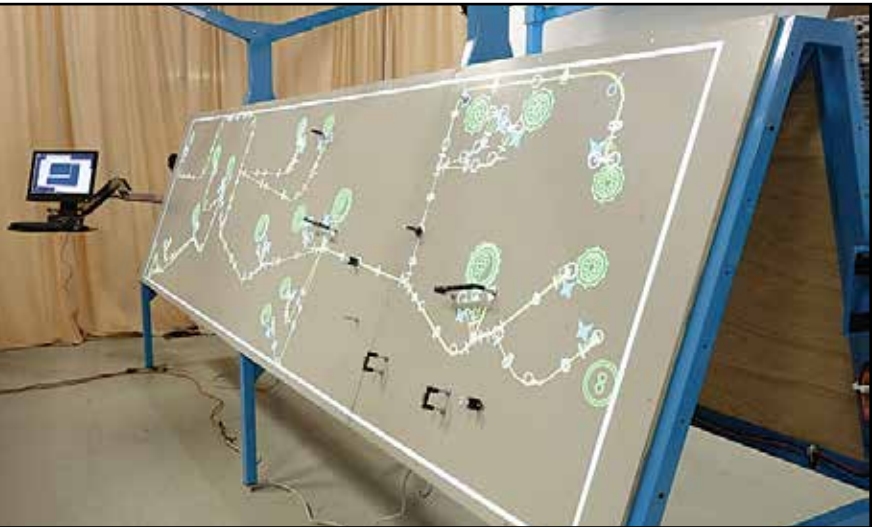



Figure 6. HarnessWorks Formboard



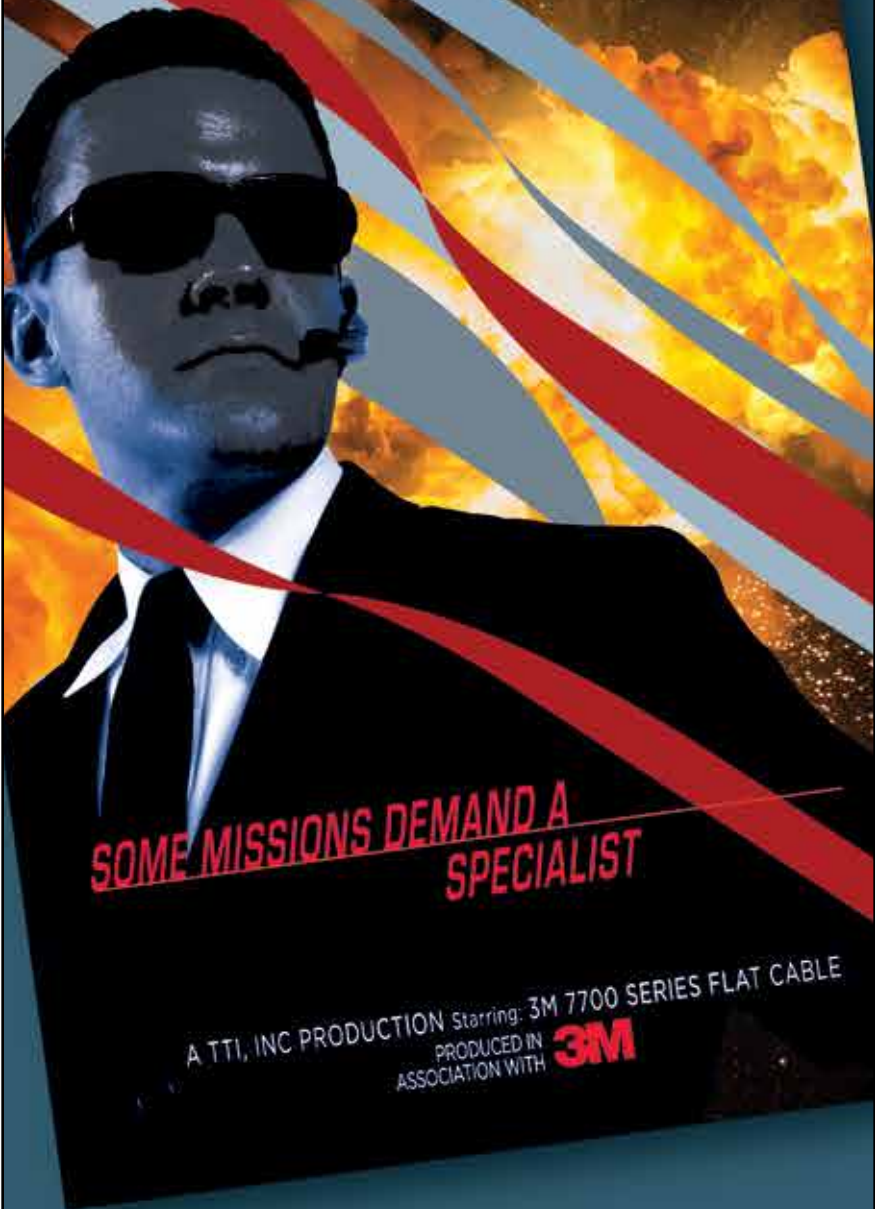
And the Specialist for:

Most Versatile Performer

goes to...

WIRING: IMPROBABLE

3M™ 7700 FLAT CABLE



SOME MISSIONS DEMAND A SPECIALIST

A TTI, INC PRODUCTION Starring: 3M 7700 SERIES FLAT CABLE
PRODUCED IN ASSOCIATION WITH **3M**

3M™ 7700 Series Flat Cable

3M™ 7700 Series Round Conductor, Controlled Impedance Flat Cable, is an excellent choice for a wide range of controlled impedance, wire-to-board applications, designed for low-voltage differential signaling applications.

The cable's quick installation and exceptional versatility means it offers a variety of connection options, including up to 50 positions of programmable differential pairs, grounds and power – in end-to-end terminations or direct-solder PCB applications.


FAST – The Speed You Need, Up to 20 Gbps

FLAT – 0.025" Cable for Tight Spaces

FOLDABLE – "L" or "S" Bends Don't Hamper Cable Performance

FIT – for IDC on .050" (1.27mm) Pitch

Visit ttiinc.com or call 1.800.CALL.TTI to learn more



TTI, Inc.
The Specialist in Electronic Component Distribution
A Berkshire Hathaway Company

1.800.CALL.TTI • ttiinc.com



To Be
Reliable

SmartDetect for
the MultiStrip 9480



Highly Innovative Quality
Monitoring Option

The MultiStrip 9480 cut and strip machine is now being offered with SmartDetect for advanced quality monitoring. The sensor-controlled system monitors the complete stripping process in real time and detects any contact between the stripping blades and the conductor, improving production quality without sacrificing high performance.

- The wide monitoring range allows the processing of discrete wire as well as coaxial and multiconductor cables
- Continuously performs a self-test
- Retrofittable to existing MultiStrip 9480 machines at any time
- The S.ON software allows individual tolerance adjustments for each processing layer of the programmed wires

Wire Solutions for a Connected World



To Be Strategic

CrimpCenter 64 SP



Produce Faster, More Precisely, and More Cost Effectively

The CrimpCenter 64 SP processes wires with conductor cross sections from 0.13 to 6 mm² and features the latest quality assurance options, such as SmartDetect, WireCam and Guided Feasibility Study, to ensure transparency and traceability of important production data. These features, along with a number of performance enhancements, qualify the CrimpCenter 64 SP as a first-class machine for complex, high-precision production with high quality requirements.

- Reliable, high precision technology
- Increased effective performance
- Minimized setup times
- Significant cost-per-lead advantage
- Optimized parameter settings
- Enhanced deposit quality

Wire Solutions for a Connected World

Harness Builder for E³.series 2020

Continued from page 31

**ZEUS[®]**

**"Largest Zeus Inventory
in The West"**

**Quality Fluoropolymer
Extrusions for Medical,
Aircraft & Aerospace
Applications:**

Heat Shrink Tubing, Dual Shrink (PTFE Outside, FEP Inside), Tubing, Convoluted Tubing, Spiral-Wrap Tubing, Spaghetti Tubing, Thin Wall Tubing, Lay-Flat Tubing, Industrial & Heavy Construction Tubing and Custom Constructions.

Fluoropolymer Resins Used
ePTFE, PTFE, FEP, PFA, ETFE, PVDF,
PAI, PE, PEEK, PET, Pebax and More.

- Competitive Pricing
- Experienced Technical Sales Force
- Bar Coding
- Custom Cutting
- Custom Kitting
- Dock to Stock
- Electronic Data Interchange (EDI)
- JIT Delivery
- Kanban





insco
insulation supply company
Since 1952

800-457-7715
310-533-0783 Fax

www.inscoinc.com

ISO 9001:2008/AS9100C

HarnessWorks was developed with the help of the United States Air Force Research Laboratory. The project's focus is on delivering a low-cost method of providing clear and specific "optically projected" work instructions. Files can be imported from popular harness design software or existing DSX files.

ProjectionWorks then allows the software to project step by step instructions for building your wire harness, directly on the board. Each step shows CAD data, colors, line widths, sizes, and part numbers. Any notes or annotations can be included in any stage where deemed necessary for the assembler. Projectors can be added to accommodate any length board you require

Wire Seal Support

Wire seal support was added to Harness Builder for E3.series 2020, along with more examples added to the delivered database (Figure 7).

Figure 7. Wire Seal Support



Save \$\$\$\$
by Applying a Custom Label

- Computer Generated
- Printed & Applied in only 1 second
- Costs start at four-tenths of a cent depending on the size
- Replaces expensive peel-off labels, while **drastically** reducing labor costs
- Print one, or thousands, of the same label



SPRING MILLS MANUFACTURING, INC.
104 East Streamside Place • PO Box 85 • Spring Mills, PA 16875-0085
P: (814)422-8892 • F: (814)422-8011 • info@SpringMillsMfg.com
www.SpringMillsMfg.com

This means the seals and the terminal crimps are automatically selected when the wires are added into the harness. Connector within connectors is also supported to allow complex modeling of connectors like the ARINC 600/NSX Avionics series. Zuken maintains this is a substantial timesaving function that will help build the complete bills of material.

Those very same terminals can also be linked to PDF documentation detailing how the terminal is crimped or assembled. The manufacturing companies can also link their own important documentation to the parts and drawings. Even the stock room locations of certain crimping tools, or detailed assembly notes for complicated items can be added.

Wire Processing Integration - Komax

From initial quote, all the way through to direct manufacturing export, Zuken's Harness Builder for E3.series design software is well-suited for wire harness production automation. It is designed to work in conjunction with most brands of wire processing equipment. Wire cutting, stripping, termination, and even connector block loading can be altered directly in the design and the changes sent directly to the Komax machines, for example. Whether the customer owns a benchtop Komax Kappa machine or one of the fully automated Omega or Zeta platforms, Harness Builder for E3.series 2020 will drive it (Figure 8).

Zuken and Komax enjoy a strong partnership and offer their mutual customers a fully interactive experience between Harness Builder for E3.series and the extensive Komax range of automatic cutting, stripping,

bundling and marking systems. The link to the Komax Zeta and Omega platforms allows for direct connection from the Harness Builder for E3.series design to those wire processing systems. Detailed drive files are passed directly to the machine to setup seals, terminals and wire dimension details, eliminating the need to manually program the machine.

Tim Crider, National Sales Director of Komax Corporation:
"We are encouraged by the results of our collaborative activities with Zuken. Our mutual customers are best served with a complete design and manufacturing system to cost effectively produce wire harnesses. We have successfully demonstrated Zuken's Harness Builder for E3.series at several industry events and hope to do so again in the near future."

Harness Builder for E3.series 2020

There was a general realization that the harness manufacturing team might not necessarily have the same skill sets as the engineering companies that were designing the products. In addition, they might not be afforded the time to train on and learn complicated interfaces. So, emphasis was placed on "ease of use" and the tool was created with concise easy-to-locate functions with pictures and videos available for on-line help. That, coupled with Zuken's hotline support and online user community, make for a quick startup and ramp up time with the new software tool.

One of the key features for the product is that it does not require or force the harness manufacturer to create a schematic in order to create


a harness, but it does offer a schematic dynamically created from the harness after it has been drawn. The single object technology of E3.series makes it flexible enough for a design engineer, or a harness manufacturer, to detail the same drawing sets and have a sense of comfort that all views of the same information are updated automatically. Thus, if a connector is added to a schematic, it will also be present on the formboard. If a wire is added into the harness, it will appear in the schematic.

This single object approach means that bills of materials and detailed wire cutting information are always in synch.

Scalability of Design
The E3.series tool can work as a standalone with single user input to determine quotations and design. It can also be used as a full multi-user, enterprise application platform to allow more than one person at a time access to the design process. This can be useful when more than one harness is being designed at the same time.
Paul Harvell and his team at Zuken USA are based in Westford MA. More information on this Windows-based application can be sourced from Zuken at www.zuken.com



Figure 8. Komax Wire Processing Station



insco
insulation supply company
Established 1952

- Competitive Pricing
- Just-In-Time Delivery
- Special Packaging
- Custom Kitting
- Bonded Inventory
- Kanban

We are constantly working to improve and add value to the products we distribute.


Wire and Cable Identification:





- Hot stamp printing of wire lists on heat shrink tubing & cable ties
- Thermal transfer printing on shrink tubing & self laminating wire markers
- Logos printed on shrink tubing & labels
- Software, printers, ribbons and wire I.D. markers

Stock & Custom Labels and Nameplates:

- Logos
- Warranty
- Tamper-proof
- High performance materials and adhesives
- Software, printers, ribbons and labels

We Cut and Slit Tubing and Sleeving



TUV USA Inc.
ISO 9001:2008/AS9100C
Certificate Registration No.14-1561

Corporate Offices 1901 Harpers Way Torrance, CA 90501 (310) 320-9400 (800) 457-7715 Fax (310) 533-0783	San Jose, CA 2001 O'Toole Avenue San Jose, CA 95131 (408) 435-1244 Fax (408) 435-5079	San Diego, CA 5694 Mission Center Dr. Suite 204 San Diego, CA 92108 (858) 467-6890 Fax (858) 467-6894	Dallas, TX 13600 Midway Rd. Suite 500 Dallas, TX 75244 (972) 716-0055 Fax (972) 716-0056
--	--	---	--

www.inscoinc.com

(800) 457-7715

**With machine monitoring,
we'll help you increase your
production performance.**

Find out how.



FreePoint
Technologies Inc.

Wardwell Braiding Co. Continues to Offer Refurbishing and Upgrading Program

We have you covered



Your Metri-Pack connector Our ES10 CAP

Use your connector with our ES10 CAP to create a SEALED MINI FUSE HOLDER.

For harsh environments and engine compartment conditions • IMDS certified

Call (440) 871-0800 • Email sales@whiteproducts.com
www.whiteproducts.com

WHITE PRODUCTS

Refurbishing offers a less expensive option during these uncertain economic times.

Wardwell Braiding Co., Rhode Island, a world leading manufacturer of wire braiding equipment for over 100 years, wants to extend its support to customers during this uncertain time and will continue to operate at full capacity. Wardwell understands that many companies have a hold on their budget for new equipment and will continue to offer its refurbishing and upgrading program on all Wardwell Braiding machines with original, new parts as a more cost-effective option.

As machinery ages, it begins to decline in performance and

consume more replacement parts. Wardwell's braiding machines are excellent candidates to be refurbished with new parts and updated features. Options can include high-efficiency motors, drives, broken wire detection, empty bobbin detection, core run-out sensors and longitudinal taping systems. The advancements in mechanical and electronic components make retrofit a cost-effective option to improve performance on existing machines.

Retrofitting is a safer option than purchasing used equipment and offers the additional benefits of reduced machine downtime and increased output, often, at a lower cost. Reconditioning is particularly suitable for Wardwell machines



because wear is, generally, limited to the braiding head and rotating parts. These are easily removed, shipped to Wardwell for refurbishing, and re-installed when complete. The work is carried out by Wardwell's trained technicians, who evaluate the machine's mechanical components and advise customers on the condition and options available. Electrical and safety systems are replaced with factory-original parts and modernized to comply with current standards. Machine functions are tested and validated after completion.

Retrofitting reduces or eliminates the costs associated with acquiring and evaluating used equipment, purchasing of additional replacement parts to achieve the required performance plus the training needed by operators and maintenance personnel. This process is an excellent option, especially in these times of economic uncertainty.

Wardwell, Central Falls, Rhode Island, began in 1911 as a supplier of braiding machines to the manufacturers of textile products and later developed machinery models for reinforced hose and composite structures. Since the 1970s, the company's focus has been on specialized braiding machines that serve the wire and cable industry. Today, Wardwell is a global supplier of braiders, winders and payoffs for the wire and cable industry.

For more information, please visit www.wardwell.com

Wardwell Harness Braiding Machine



The Wardwell Harness Braider is the ideal machine for over braiding on harnesses. It works equally well with wire materials or with textile and synthetic threads. The improvements to this type of standard machine include: a motor driven capstan take-up for accurate coverage of the harness, a new tubular frame, a self lubricating horn gear, a new operator station and sound reduction, among many others.

Technical Features

- ◆ Carriers for both textile and wire
- ◆ Infinitely variable motorized take-off system (18" capstan)
- ◆ Variable speed drive with foot potentiometer
- ◆ Self lubrication horn gears

Remote Operator Station equipped with

- ◆ Siemens OP3 Display with alphanumeric fault annunciation for pitch set and fault messaging.
- ◆ Start, stop, jog and Emergency Stop
- ◆ Optional Speed potentiometer
- ◆ Articulated Arm
- ◆ Empty bobbin and material break detection

Original!!!

Stolberger Inc. DBA Wardwell Braiding Co.

1211 High Street, Central Falls, RI 02863

Tel: 401 724 8800 Fax: 401 723 2690 www.wardwell.com





Schunk Sonosystems North America

With COVID-19 affecting everyone all over the world. Schunk Sonosystems is still here to support your equipment and service needs. We have taken the necessary steps to ensure our employees and customers are safe through various means and to ensure we can continue providing you the support you have come to depend on for Ultrasonic Welding .



250 Andover Street
Wilmington, MA 01887
p. 978-658-9400
f. 978-658-6550

www.schunksonosystemsnorthamerica.com
sales.sso-us@schunk-group.com
parts.sales-us@schunk-group.com
service.sales-us@schunk-group.com
ISO 9001:2015 Certified Company



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



FreePoint Ups the Ante on ShiftWorx Production Software

Often, we run across press releases at WHN that pique our curiosity. Such was the case with the new ShiftWorx Plus production data software package. We had a conversation with Lisa Bailey, Director of FreePoint Technologies about the reasoning for the enhancement and more of the details. Following are excerpts from that conversation, followed by FreePoint's official press release.

Lisa began by discussing the rationale for the "Plus" in ShiftWorx Plus. "We're always talk-

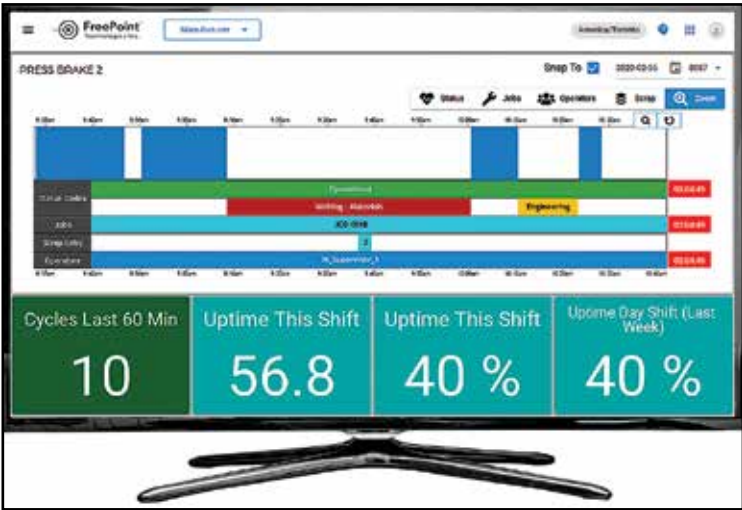



Figure 1. ShiftWorx Plus Dashboard with KPIs



WIRE & CABLE

for every industry





JAMES MONROE

WIRE & CABLE CORPORATION

A CUSTOM CABLE MANUFACTURER FOR OVER 40 YEARS

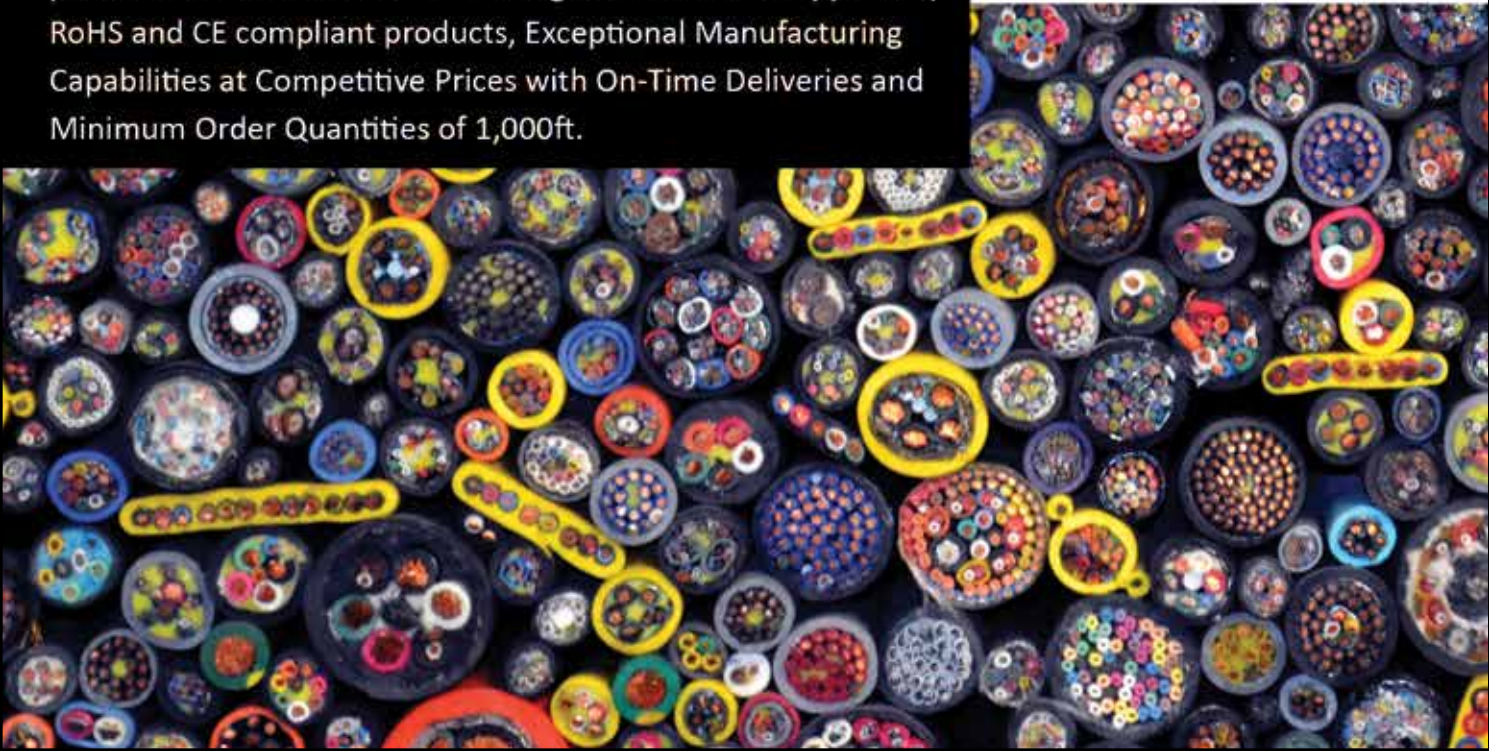


- Solar & Wind
- Elevator & Lift
- Crane & Hoist
- Mining
- Specialty Military
- Electrical & Electronics
- Industrial Automation
- Specialty Oil & Gas
- Specialty Communications
- Custom & Specialty Cable

Custom Cable Solutions

We Design, Manufacture and Deliver Solutions for a wide variety of Specialized Wire and Cable Applications. We also provide customers with a broad range of UL and CSA approvals, RoHS and CE compliant products, Exceptional Manufacturing Capabilities at Competitive Prices with On-Time Deliveries and Minimum Order Quantities of 1,000ft.

www.jamesmonroewire.com
info@jamesmonroewire.com
978-368-0131 / 800-316-8877



ing with our customers about how they are using the product, and how we can connect with other systems within their companies," she informed. They found two very separate islands of information within the manufacturing environment. "One is the plan, and it generally comes from the MRP/ERP/MES systems, and it tells me things like what is my job, how many hours, materials required, etc.," she detailed. The missing link, or other island of data, is what is actually happening on the shop floor. "How do we connect the plan to actual? That's where we had to fill in the blanks."

FreePoint released a new version of ShiftWorx in general, and also released a new bundle being ShiftWorx Plus. Lisa tells us that with ShiftWorx Plus, you are able to track things like job information, machine activity, scrap and other real-time data. This key information can be shared with MRP/ERP/MES systems.

If you've ever seen a ShiftWorx demo at one of the shows, you will, no doubt, be familiar with the blue bar charts it uses to display data. "It's the exact same concept," Lisa described, "but now you are able to put a particular job/machine/operator on a screen and have that visible to the operator, or from a higher-level [manager] standpoint." You can still have the graphical representation as before, but now you can have key performance indicators displayed on tiles (Figure 1). She underscored the ability to fully customize and organize the screen to the user's preferences.

_Continued on page 40



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.

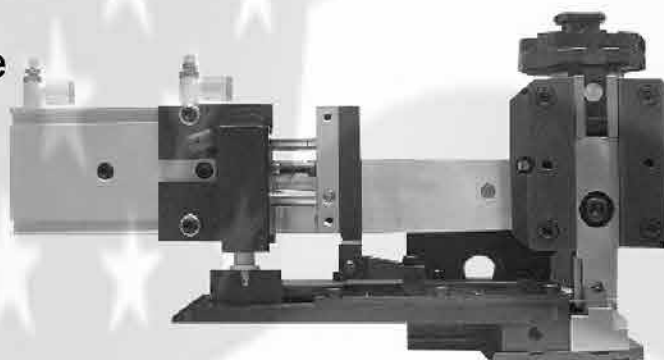


Model 1700

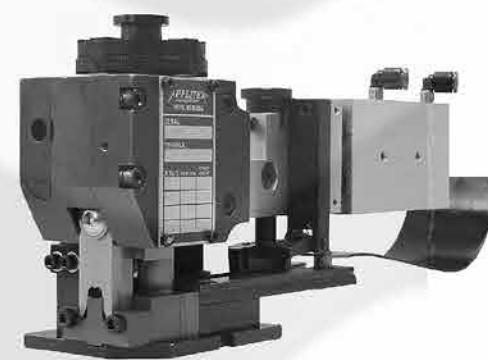


Model 2000

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

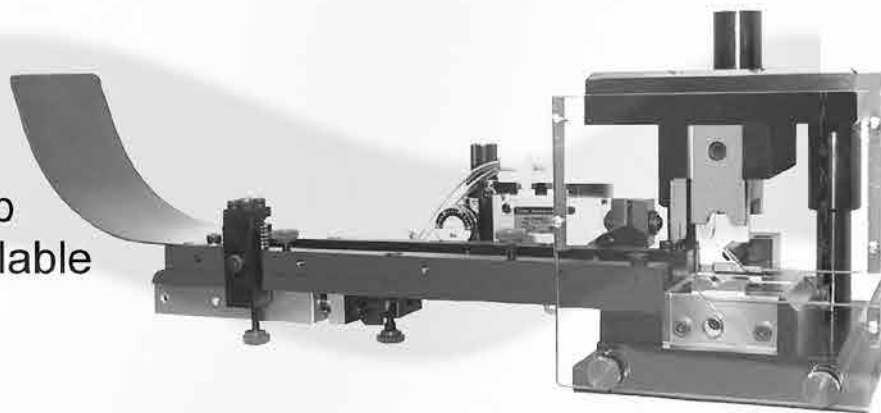


Model 1500



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.



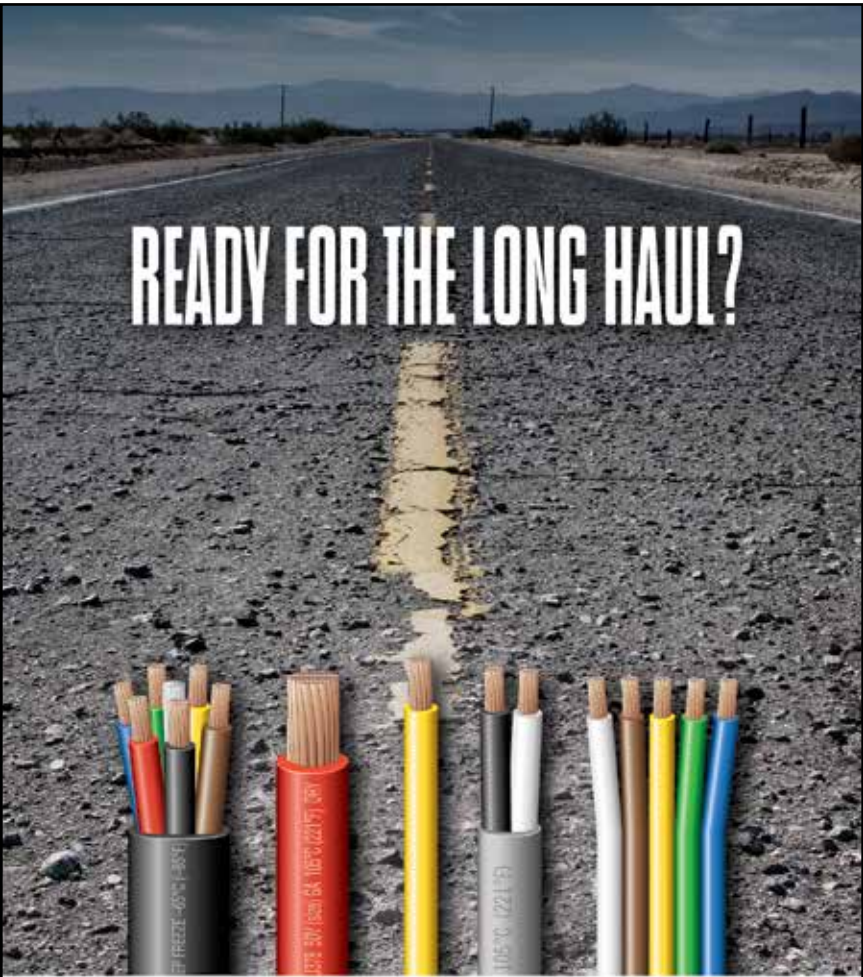
DSA Series

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

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



READY FOR THE LONG HAUL?

Whatever you pull, tug or lug we'll get you
WIRED for maximum power.

100% pure copper conductor trailer cable, starter cable, primary wire,
jacketed duplex wire, bonded parallel wire and many more styles and sizes.
Custom orders for unique needs. Built in the USA and built to last.



Lyon Station, PA • www.dekabatteries.com • 610-682-6361

ShiftWorx

Continued from page 38

Another interesting key feature of ShiftWorx Plus is its ability to be used as a digital call box system. It can totally replace expensive hardwired andon lights in the production setting. “We actually created a digital version so that, at the tap of a screen or click of a mouse, you can activate a call to engineering, maintenance, quality control or to a supervisor,” she announced.

Lisa concluded our conversation relating the success story of an early adopter to the system:

“We have one manufacturer in New York who used to outsource 30% of their work because they didn’t have capacity on their machines. Since they’ve installed our system they’ve actually eliminated outsourcing and now they’ve opened up enough capacity to our source for other companies. They were able to visualize and change their processes and behaviors enough to increase their capacity.”

Following is the official press release:

FreePointTechnologies,an award-winning industry leader in the industrial internet of things, announces the release of ShiftWorx Plus; an advanced machine monitoring solution that manufacturers are using to greatly increase their production capacity. Existing customers using FreePoint ShiftWorx have seen production improvements of up to 50%. Now, in addition to tracking and explaining machine downtime, manufacturers can use the new product to track production and machine uptime by job, part, and operator, and to document scrap, workorders and more. Now manufac-

turers can significantly increase the amount of actionable data being collected.

With ShiftWorx Plus, manufacturers see machine data presented in easy-to-understand dashboards that can be tailored to operators, supervisors and managers. With live, actionable data immediately visible on the shop floor, workers and managers alike become more engaged and can quickly take action to keep production moving at full speed. Collecting more data leads to richer reports, and deeper insight into the manufacturing process—highlighting nay bottlenecks that are present. And by displaying relevant metrics for everybody to see, manufacturers can produce more with less while driving meaningful, continuous improvement throughout their shop. With highly flexible configuration options, each manufacturer can scale out a ShiftWorx Plus solution that’s tailored to their unique needs.

“Customers are telling us ShiftWorx Plus is a game changer” says John Traynor, CEO of FreePoint Technologies:

“We’re always looking to provide manufacturers with the metrics they need to be successful. With the latest addition to our machine monitoring platform, we’re helping manufacturers better understand their data, while getting a 360° view of their downtime.”

Manufacturers can use FreePoint ShiftWorx Plus to identify and eliminate bottlenecks, inefficiencies and production issues within their shops. Now, manufacturers can experience end-to-end visibility on their shop floor, with no blind spots.

Harber Industrials, Inc

www.harberconnect.com



Independent Stocking Distributor
specializing in
Electronic Interconnecting
Materials
since 1947.



- Standard Cable Connectors
- Ribbon Cable Connectors
- D-Subminiature
- I/O Connectors
- Headers, Housing & Contacts
- Circular Plastic Connectors & Accessories
- Pins & Sockets
- Ultra Fast Receptacles & Tabs
- Terminals
- Splices
- Superseal 1.5

Large Inventory - Same Day Shipping!
Competitive Pricing!

phone: 708-594-7744
fax: 708-594-7761

email: info@harberconnect.com
www.harberconnect.com



Harness design, manufacturing engineering and costing

Transform manufacturing engineering, costing, and performance with digitalization, data reuse, and automation. Our solutions boost performance and profitability by enabling manufacturers to develop fully validated harness models along with the most efficient production processes. Speak to us about Capital, VeSys, and Solid Edge Wiring and Harness Design.

[siemens.com/electrical-systems](https://www.siemens.com/electrical-systems)



HEAT SHRINK SYSTEMS



 **MECALBI ENGINEERING SOLUTIONS, LDA**
Castelo Branco, Portugal

 **MECALBI USA, LLC**
9100 Mayflower Ave., Suite H, El Paso, TX 79925, USA
T. +1 915 227 5885 E. sales.usa@mecalbi.us

 **MECALBI - ENGINEERING SOLUTIONS MEXICO S. DE R.L. DE C.V.**
Avenida Reforma, #3131 - 5C, Colonia Melchor Ocampo,
CP. 32380 Cd. Juárez - Chihuahua - México
T. +52 (1) 656 611 6477 E. sales.mexico@mecalbi.mx



 **MECALBI**

WWW.MECALBI.COM



THE POWER WOMEN OF THE WIRE HARNESS INDUSTRY

Power Women: An Engineering Road *Taken*

By Melissa Femia


After reading about the numerous individuals highlighted in the Power Women series, I hope that readers are sharing the various engineering success stories with the young females in their lives. While highlighting the accomplishments of the engineers, the articles seek to encourage students to take a path that they may otherwise not have chosen. Instead of showcasing one engineer in this edition, I am instead providing historical data that confirms incremental increases in female engineering graduate percentages and will also draw a metaphorical comparison to a literary work. Choosing a path in engineering is akin to Robert Frost's road taken—certainly more complex, perhaps more challenging, and clearly less-traveled than many other fields, especially for women.

Robert's classic poem was written in 1915, published in 1916, and contemplates which path to walk (figuratively) or literally—which decision to make. While the literary analyses of the poem vary, an interpretation is that the walker could have chosen either path and perhaps would have been equally successful. However, the last line “And that has made all the difference” ultimately leads the reader to believe that the alternative path would not have yielded such positive



Melissa Femia

Continued on page 44



Keeping Your Operation Lean and Green

With skilled labor in short supply, manufacturers are adopting new operational efficiencies to meet performance expectations. Partner with Anixter, your trusted full-line distributor, for global procurement, engineering alternatives, inventory solutions and environmental compliance expertise. We'll help you optimize the flow of raw materials to improve your efficiency and profitability so you can be more competitive in the OEM marketplace.

For more information, contact your Anixter representative or visit anixter.com/oem.

anixter.com

Products. Technology. Services. Delivered Globally.



ULTRASONIC METAL WELDING

Wire splicing | Wire to terminal | IGBT | Special applications



- Wire splicing
from 0.26 – 75 mm²
- Wire to terminal
up to 160 mm² with 10 kW power
- IGBT and special applications
gentle ultrasonic welding

Telsonic takes an innovative path to new solutions in ultrasonic metal welding. Our high powered systems and **unique torsional welding** expand the metal welding spectrum, facilitating the joining of a wide range of materials, sizes and geometries previously outside the capability of ultrasonic metal welding.



TELSONIC Solutions, LLC | 16 Esquire Road | Billerica, MA 01862 | USA
Tel. +1 617 244 0400 | Fax +1 617 415 1555 | E-Mail info.boston(at)telsonic.com | www.telsonic.com

THE POWERHOUSE OF ULTRASONICS

Power Women

Continued from page 42

results. In relating this poem to the choice of whether to become an engineer or not, excellent students generally exhibit key skills and strengths that would help them succeed in or out of engineering. The karat, however, is that the opportunity in engineering is not only satisfying, but also offers easier job placement and higher starting salaries than most other fields. As cited in *The Guardian*, “more than 80% of female engineers are either happy or extremely happy with their career choice” according to a 2013 survey by the Royal Academy of Engineering (2019). Further, studies indicate that many female engineers who leave the technical field do so only to advance in to management or executive positions (National Academies Press, 2014).

The following chart (Chart 1) updated July 15, 2019 by Joseph Roy, provides the historical percentage of United States-based degrees awarded

to males and females, respectively, from 2009 through 2018 (Roy, 2019). With the exception of 2009 to 2010, the data indicate that there has been a gradual, year over year, increase in the percentage of degrees granted to females. While the trend is positive, females still only account for about 22% of the degrees awarded in the USA. Thus, pursuing an engineering degree still represents the road less traveled. In reviewing Chart 2, one can see that some fields such as environmental and biomedical engineering are nearly at parity between males and females. More traditional forms of engineering such as mechanical and electrical engineering still show significant gaps between females and their male counterparts.

In summary, engineering offers countless opportunities for females—within various types and sizes of companies and also via limitless

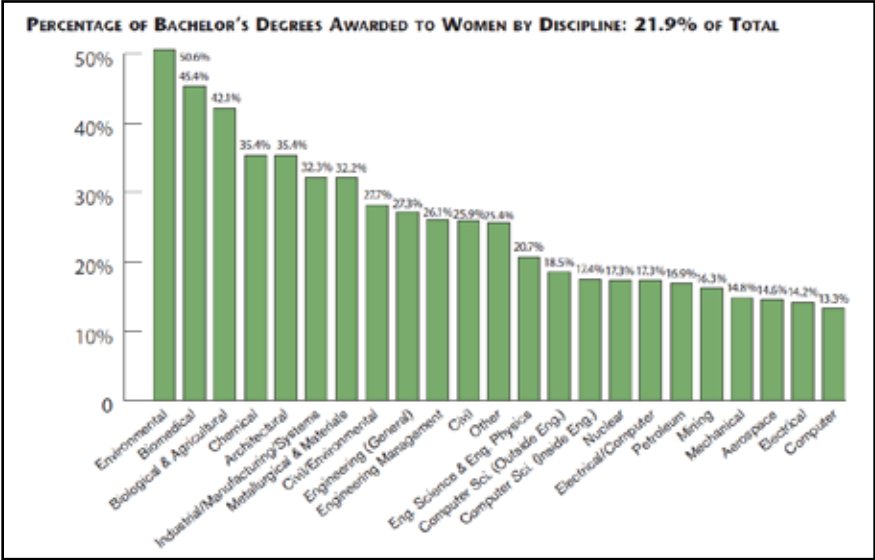


Chart 2 (Roy, 2019)

positions and work concentrations. From a financial standpoint, engineering also offers one of the highest post-collegiate starting salaries and boasts a high rate of employment. I hope that engineering will be your path *taken*.

References:

Scringeour, Heidi. (June 26, 2019). How changing attitudes are closing the gender gap in engineering. *The Guardian*.

Retrieved from <https://www.theguardian.com/careers/2019/jun/26/how-changing-attitudes-are-closing-the-gender-gap-in-engineering>

Roy, Joseph. Engineering by the Numbers. *American Society of Engineering Education*. Retrieved from <https://ira.asee.org/wp-content/uploads/2019/07/2018-Engi->

[neering-by-Numbers-Engineering-Statistics-UPDATED-15-July-2019.pdf](https://www.janadiversity.com/engineering-by-numbers-engineering-statistics-updated-15-july-2019.pdf)

Fouad, Nadya A. and Singh, Romila. 2014. Appendix D Stemming the Tide: Why Women Engineers Stay in, or Leave, the Engineering Profession. National Academies Press. Retrieved from <https://www.nap.edu/read/18810/chapter/11>

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

If you know a female engineer who would make a great candidate to feature in the PowerWomen series, please direct them to me at melissa.femia@janadiversity.com

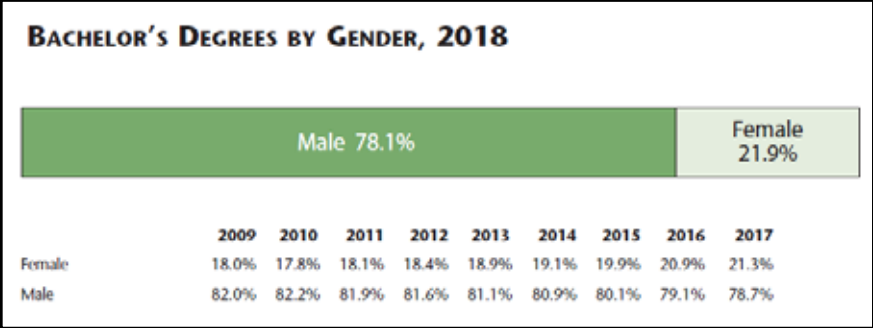


Chart 1 (Roy, 2019)

XURON[®] CORP.

Quality, precision hand tools for wire harness, cable assembly and electronics manufacturing applications.

#9180 Kevlar[®] Scissor

#2175 Maxi-Shear[™] Flush Cutter

#501 Wire Stripper

Made in the USA

For a demonstration or a listing of authorized distributors, please contact sales@xuron.com

To see our full range of products, please visit www.xuron.com
TEL: 207-283-1401

The Road Not Taken

BY ROBERT FROST

Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked down one as far as I could
To where it bent in the undergrowth;

Then took the other, as just as fair,
And having perhaps the better claim,
Because it was grassy and wanted wear;
Though as for that the passing there
Had worn them really about the same,

And both that morning equally lay
In leaves no step had trodden black.
Oh, I kept the first for another day!
Yet knowing how way leads on to way,
I doubted if I should ever come back.

I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference.

KEEP MOVING FORWARD

TECHFLEX[®] IS WORKING TO KEEP YOUR PROJECTS ON TRACK ...EVEN WHEN IT'S HARD TO SEE THE ROAD.

TECHFLEX
Braided Sleeving Products

HellermannTyton
www.HellermannTyton.com

**Because you do
this thousands of
times a day.**

Your identification workflow is a complex process. Welcome to true Print Automation. HellermannTyton's TagPrint® Pro 4.0 software, printers and labels will reduce or eliminate user error and time-consuming print tasks. It's all replaced with a single job number or swipe of a barcode reader. Even on multi-label, multi-printer jobs. One swipe, done. Enjoy effortless label design and print simplicity in one, powerful solution.

MADE FOR REAL 



To learn more about TagPrint Pro 4.0
or schedule a demo, call 800.822.4352
or email inside-sales@htamericas.com





Prints in-line with most major wire processors and a wide range of wire size.



Kingsley Ribbon
Specially formulated to print on a variety of substrates

KINGSLEY KIP-20
HOT STAMP WIRE PRINTER

Call or E-mail for a quote!
866-421-9898
kingsley@diagrammsp.com

NEWS PLUGS



Flux Connectivity Appoints Chief Innovation Officer

Jonathan Regidor has joined Flux Connectivity as Chief Innovation Officer.

In this newly designed executive leadership role, Jonathan will champion both external and internal innovation in alignment with Flux’s customer-centric model. Reporting to the CEO, Jonathan’s leadership will include the development and execution of commercial activities that strategically position

Flux to become a premier contract manufacturing provider.

A strong passion and wealth of experience

Jonathan brings a unique perspective that combines diverse career experience and a passion for enabling customer success. In 2011, Jonathan started as a warehouse technician at Delco Wire & Cable, where he began to learn the internal workings of the industry and open his eyes to opportunity. Since then, Jonathan has successfully held multiple roles in the electrical distribution business that consisted of a \$15M privately held, a \$400M employee-owned, and a \$9B publicly traded organiza-



Jonathan Regidor

tion. Each instance providing him with deeper insights into the strengths and weaknesses of each operating model. It is this experience that fuels Jonathan’s belief that to create long-term sustainability you must marry the delivery of value with transactional excellence.

In his spare time, Jonathan dreams about the future of manufacturing, the possibilities of space travel and also song writes on his piano and guitar. We welcome Jonathan on this exciting journey.



Try one on us, for Free!*



If you’re not familiar with KM Applicators, now is the time to try one, on us! If you are not satisfied with our applicators performance within 30 days, simply send it back. If you like our applicator, we’ll bill you for it. Contact KM for more details about our trial program. Standard side feed and end feed applicators normally cost **\$1699** and include a spare set of punches and anvils and a **5 Year Warranty!**

Application Range

We can build applicators for any brand terminal such as TE®, Molex®, Deutsch®, Delphi®(APTIV®), JST®, JAE®, HIROSE®, Yazaki®, Amphenol®, FCI®/Berg®, ITT Cannon®, Wurth®, Stocko®, Sumitomo®, KET®, Samtec®, Kostal®, and too many others to list!

Features

- 135.78 Industry Standard Shut Height
- 40 or 30MM Stroke
- Continuous adjustable crimp dials
- AMP® Style Baseplate to fit into crimping presses
- Lower cost for replacement parts (than most brands)
- Easy Feeding Adjustment
- Optional Parts Counter
- Spare set of punches and anvils

KM USA - 6479 M 66 North - Charlevoix, MI 49720 PH: (231) 237-9060 info@kmusallic.com www.kmusallic.com

* If you decide to keep the applicator after 30 days, KM USA will charge you for the applicator at a 10% discount as a new customer introductory price

Advertise in Wiring Harness News
www.jim@wiringharnessnews.com

Heilind Signs Agreement with Smiths Interconnect to Expand Americas Connector Portfolio

Heilind Electronics, a premier global distributor of electronic components, has expanded its Americas connector portfolio with the addition of Smiths Interconnect – a global manufacturer of advanced connector solutions. This new agreement positions Heilind as a global partner for Smiths Interconnect, expanding upon current distribution agreements in both Europe and Asia.

In the Americas, the distribution agreement includes both Heilind Electronics and Interstate Connecting Components (ICC), the mil-aero division of Heilind. The Smiths Interconnect offering will include the Hypertac and Sabritec technology brands, providing a robust offering of harsh environment interconnect products for aerospace, defense, medical, space, industrial and rail applications.

“As the largest electronics component distributor specializing in interconnect products in North America, we are thrilled to add Smiths Interconnect’s comprehensive product portfolio to our broad line of interconnect products,” stated Alan Clapp, Vice President of Supplier Business, Heilind Electronics. “The advanced technologies that Smiths products provide, cou-

pled with Heilind’s position in North America, further our value proposition with our customers across multiple markets.

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

About Smiths Interconnect
Smiths Interconnect is a leading provider of technically differentiated electronic components, subsystems, microwave and radio frequency products that connect, protect and control critical applications in the commercial aviation, defense, space, medical, rail, semiconductor test, wireless telecommunications and industrial markets. Smiths Interconnect has 25 Sales, R&D and Manufacturing locations in 12 countries. For more information, visit <http://www.smithsinterconnect.com>.

"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
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



QUALITY HAND TOOLS

Shears • Pliers • Strippers • Cutters • Depaneling

Along with our impressive hand tools selection, American Hakko Products, Inc. also has a thermal wire stripper, the **FT-802**. The **FT-802** sports a new ergonomic handpiece design, with improved blade alignment and performance.




P/N: FT802-03



P/N: CHP-170





SALES AND SERVICE BY
AMERICAN HAKKO PRODUCTS, INC.

American Hakko Products, Inc. • 28920 Avenue Williams, Valencia CA 91355 • Tel. 661.294.0090 • www.HakkoUSA.com

NEWS PLUGS continued



ICC Introduces SOURIAU Hermetic Connectors SOURIAU D38999 Hermetic connectors

LUMBERTON, N.J. Interstate Connecting Components, (ICC), a division of Heilind Mil-Aero and a leading distributor of military-aerospace connectors and accessories worldwide, has expanded its portfolio of harsh environment interconnects with SOURIAU's D38999 hermetic connectors.

The recently expanded hermetic line is qualified to MIL-DTL-38999 Series III specification and features glass-to-metal seal technology to counter extreme changes in temperature and pressure. The connectors are constructed with stainless steel housing

for corrosion resistance and threaded coupling for quick and reliable mating. These high-density connectors also feature an extremely low leak rate, as well as a 30 percent space savings over standard versions.

As with their non-hermetic counterparts, SOURIAU's D38999 hermetic connectors feature a robust mating cycle, 360-degree EMI-RFI shielding and an operating temperature range of -65 degrees Celsius to 200 degrees Celsius.

D38999 hermetic connectors are ideal for applications like military and civil aeronautics, military ground vehicles and offshore marine vessels. Specific uses include sensors, actuators, valves and fuel tanks.

Interstate Connecting Components is currently stocking an extensive selection of SOURIAU D38999 hermetic connectors, with many popular part numbers and layouts available for immediate shipment. Visit ICC's website

for more information about SOURIAU D38999 hermetic connectors.

About Interstate Connecting Components (ICC)

A division of Heilind Electronics, North America's largest interconnect distributor, Interstate Connecting Components (<http://www.connecticc.com>) is an AS9100D-certified value-added distributor for the entire spectrum of electronic connectors, fiber optic connectors, backshells, tools, identification solutions and connector contacts. ICC specializes in the military-aerospace market and offers T'DA® 2-day assembly on 26482, 26500, 5015, D38999, M28840, M83513 and many other MIL-SPEC connector lines. Follow ICC on Facebook at facebook.com/connecticc and on Twitter at twitter.com/connecticc.

About SOURIAU

SOURIAU-SUNBANK is a global leader in harsh environment interconnect technologies. SOURIAU designs and manufactures solutions for a wide range of industries, including aeronautics, space, defense, transportation, energy and industrial equipment.

TTI Introduces Sensor Market and Technology Resource Center

TTI, Inc., a leading specialty distributor of electronic components, is pleased to introduce the new Sen-

sor Market and Technology Resource Center. Just as a sensor collects and communicates critical data on its environment, TTI's new resource center collects literature, video, white papers, line cards and other resources all in one place. Growing technological trends, such as the Internet of Things and artificial intelligence, rely heavily on sensors to gather the data needed to carry out "smart" or autonomous capabilities such as assisted vehicle operation or automatic temperature adjustment. If you would like technical information on any of those markets, check out TTI's Sensor Market and Technology Resource Center found under the Technical Resources tab on www.ttiinc.com

About TTI

TTI, Inc., a Berkshire Hathaway company, is an authorized, specialty distributor of interconnect, passive and electromechanical (IP&E) components and the distributor of choice for industrial and consumer electronics manufacturers worldwide. Broader and deeper inventory, leading-edge products and custom supply chain solutions have established TTI as the leading specialist in electronic component distribution. Globally, the company maintains over 2 million square feet of dedicated warehouse space containing over 850,000 component part numbers. Along with its subsidiaries, Mouser Electronics, Sager Elec-



SOURIAU-D38999 Hermetic Connectors

Wire Crimp Pull Testers

Automatic Testers

One Button Operation!

Test Condition < B >
Mode BREAK
Speed 50
Force 5

- Program Destructive or Non-Destructive Modes, Force, Speed and Time
- Save up to 26 Test Configurations • Quick Change Attachments Available

Manual Testers

Simple One Stroke Operation
Economical Solution
Up to 220 lbf

NIST Traceable Cert Included!

Many Types of Gripping Attachments & Fixtures Available

Call 800-373-9989 or Visit imada.com

ISO 9001 Registered ISO/IEC 17025 Accredited

IMADA, Inc.®

3100 Dundee Rd., Suite 707, Northbrook, IL 60062
Tel: 847-562-0834 Fax: 847-562-0839
imada.com E-mail: imada@imada.com

WHMA
Wiring Harness Manufacturer's Association
An Affiliate of IPC

IPC
Institute for Connected Vehicles

"Connecting you to resources that make you an industry leader"

JOIN WHMA TODAY!
www.WHMA.org

AEROSPACE
WIRE & CABLE INC.

FEP (UL) AWM
HI-TEMP HOOK UP WIRE

32 YEARS
1988-2019
WIRE & CABLE

PRODUCT HIGHLIGHTS

- 1 Suitable in industrial or commercial environments
- 2 Used in internal wiring of appliances, electronic components, signal, control, and power applications
- 3 EU RoHS and Reach Compliant
- 4 1,000' minimum runs for smaller sized projects

EMPOWERING YOU TO DESIGN

- CONDUCTOR MATERIAL AND SIZE
- CONDUCTOR STRANDING
- SPECIAL COLOR CODES INCLUDING STRIPES

PHONE: 1800-395-0200 FAX: 1718-358-2522 EMAIL: SALES@AEROSPACEWIRE.COM

tronics, and TTI Semiconductor Group, TTI employs more than 7,000 people at more than 133 locations throughout North America, South America, Europe, Asia and Africa. For more information about TTI, visit www.ttiinc.com.

WAGO Unveils Next Generation I/O System Controller with PROFINET

WAGO extends their family of PFC200 Generation 2 controllers with the release of the new 750-8215. The 750-8215 is IIoT-ready, comes with two Ethernet ports, two PROFINET ports, and is programmable with WAGO's e!COCKPIT software (CODESYS 3.5).

The PROFINET ports are switched for use as a line configuration enabling the controller to function as an I/O device connected to a PROFIBUS master. The two Ethernet ports can be used in a switched configuration or separated, and support other protocols such as EtherCat and Sparkplug (with additional licenses).

Other features of the 705-8215 controller include:

- USB-A port with removable memory to extend memory capabilities of the controller
- High Speed processor for complex applications
- Large on-board memory plus SD card slot
- Built-in Web server
- CANopen port allows connection to other devices on a CAN network

This controller can be used for multiple applications and is available now.

For more on the latest from WAGO, visit www.wago.com/us/press-contact

About WAGO:

Innovation is at the heart of everything we do at WAGO. From our pioneering CAGE CLAMP® spring pressure connection technology to our extensive range of Interconnect, Interface and Automation solutions, such as the fieldbus independent WAGO-I/O-SYSTEM, our customers count on the unconditional performance and reliability of our products to ensure the safe, efficient operation of their systems every time.



750-8215 PFC200 Generation Controller



CHIEF SUPPLY INC.

EMPTY REELS WANTED

We buy empty reels...

Plastic • Wood • Cardboard
Almost any size or shape

CHIEF SUPPLY INC.

(847) 290-8686

145 S. Lively Boulevard
Elk Grove Village, IL 60007

chiefsupply@att.net
Phone: (847) 290-8686

Connect

MACHINE NETWORKING PLATFORM

CENTRAL INTERFACE FOR CONTROL AND MONITORING

- Networking to higher-level customer IT systems (e.g. MES/ ERP)
- Actual monitoring of wire processing machines
- Event notification as required, e.g. in the event of errors or malfunctions
- Order processing, quality management and production optimization
- Increased efficiency and productivity by low installation costs

INDIVIDUAL SOLUTIONS

FOR YOUR WIRE AND TERMINAL PROCESSING

Schaefer Megomat USA Inc.

W233 N2830 Roundy Circle West
Pewaukee, WI 53072, USA

Phone: +1 262 524 1100
Fax: +1 262 524 1133
E-Mail: pewaukee@schaefer.biz
Web: www.schaefer.biz

NEWS PLUGS continued



Available at TTI – New FINEPITCH Connectors from Phoenix Contact

Fort Worth, Texas – TTI, Inc., a leading specialty distributor of electronic components, offers Phoenix Contact's FINEPITCH connector range of prod-

ucts and they are available off the shelf, ready to ship.

With board-to-board connectors from the FINEPITCH series, Phoenix Contact provides shielded and unshielded solutions for signal and data transmission. This allows you to realize individual PCB orientations with different designs, stack heights, and numbers of positions in compact 0.80mm and 1.27mm pitches.

Thanks to its double-sided contact system, the high-position FINEPITCH

series offers the ideal solution for industrial PCB connections. You have maximum flexibility when it comes to arranging the PCBs in your device, and the wide range of FINEPITCH products enables space-saving signal and data transmission. In addition, the shielded versions offer excellent EMC properties.

Learn more on the Phoenix Contact FINEPITCH Connectors page.

About TTI

TTI, Inc., a Berkshire Hathaway company, is an authorized, specialty distributor of interconnect, passive and electromechanical (IP&E) components and the distributor of choice for industrial and consumer electronics manufacturers worldwide. Broader and deeper inventory, leading-edge products and custom supply chain solutions have established TTI as the leading specialist in electronic component distribution. Globally, the company maintains over 2 million square feet of dedicated warehouse space containing over 850,000 component part numbers. Along with its subsidiaries, Mouser Electronics, Sager Electronics, and TTI Semiconductor Group, TTI employs more than 7,000 people at more than 133 locations throughout North America, South America, Europe, Asia and Africa. For more information about TTI, visit www.ttiinc.com

DROSSBACH

DROSSBACH, WHO WE ARE: (where we've been and where we're going)

Drossbach, is a proud Delfingen partner, and exclusive North America's distributor of Reiku products. Combined, our companies bring you over

200 years of knowledge and experience in the cable management and protection profession. Our founder's ideals, history, hard work, dedication, and unsurpassed products have brought us where we are now... a world leader in our industry. Today, we are continually growing, developing new and modern products, technologies, and solutions while still believing in the tenets of honesty, integrity, and trust in our business relationships.

DROSSBACH, WHAT WE DO: (why you should get to know us)

We know from experience that there is no "one-size-fits-all" answer to every issue. Instead, we provide the correct solution and recommendations by listening to you, and learning about your specific application or problem. Be it a, heavy equipment, automotive, rail-mass trans, electrical, industrial robotic, collaborative robotic, or wire harness cable management/protection issue we can help. We can also provide no-charge Engineering support, 3-D project simulation videos and product data sheets. It's alright if you currently use other sources but, we welcome the opportunity to talk with you about your next project. We sincerely believe by doing so, you'll get to know our customer-centric staff and we'll earn your business.

DROSSBACH, GET TO KNOW US: (how to get in touch)

Please feel free to reach out to us at any time, we look forward to it!

Phone: (330) 688-8460 or toll-free (800) 841-5804. Visit www.drossbach.com or www.reikuna.com.

CrimpCenter 64 SP – Produce



Stapla Direct Factory Service and Support

We're Here For You

- One on One Technical Phone Support
- Email Support
- Next Day Standard Parts and Tooling
- Factory Repair and Refurbishment
- Quick Turn around Time
- Onsite Training and Repair
- Spanish Speaking Technical Support

Stapla Ultrasonics Corporation
A Global Leader in Ultrasonic Metal Welding
+1 978 658 9400
www.staplaultrasonics.com
contact us at service@staplausa.com

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
- Cross 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: 847-726-7644

Visit our website
www.industwire.com




Industrial Wire and Cable Corp.

66 N Buesching Road • Lake Zurich, IL 60047




The Circuit Protection Specialist




AUTOMOTIVE FUSE PRODUCTS

Authorized Master Distributor for:



AUTOMOTIVE FUSES AND RELATED CIRCUIT PROTECTION PRODUCTS

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



ISO 9001:2015 Registered



**DANIELS
MANUFACTURING
CORPORATION**



No matter what you're building, DMC has the tools to support you every step of the way. For over 70 years, we have been the world leader in tools for high reliability electrical systems.



Wire Prep



Crimp



BETA Backshell Tooling



Insertion/Removal



Dealing with Scrap

Discussion with W. Silver Recycling, Inc.

At the recent WHMA Conference, WHN met Joe Foytek, Regional Sales Manager for W. Silver Recycling, Inc. The company handles ferrous and non-ferrous metals in the harness and electronics industry in Mexico. He introduced us to Lane Gaddy, CEO of W. Silver. Lane told us about the company and the services they offer. Most notably, he gave some great tips on dealing with scrap metals in Mexico that can be useful anywhere in the world.

WHN: Tell us about W. Silver.

Lane: We started in El Paso Texas 99 years ago, so we're coming up on our centennial. We have a total of 11 locations, and we have always done business in Mexico. In fact, all of our facilities are tied into US-Mexico cross-border business.

After NAFTA came into place in the 90s we saw the textile industry move out, and the automotive industry move in. That's when we got more specific with our niche and moved into servicing integrated manufacturers in Mexico.

These are predominantly Fortune 500 or Russell 2000 companies, mostly US-based, but with Mexico operations. That really started changing in the last few years as we've seen more FDI (foreign direct investment) coming into Mexico.

We are in a little over 225 plants

throughout Mexico, and we have enjoyed a lot of growth there. We've seen a lot of the challenges, but certainly there continues to be strong interest to manufacture in Mexico.

WHN: Has the recent trend towards near-shoring lifted your business?

Lane: Yes. We're seeing a ton of that right now, even in the last few weeks given shut downs in Asian production. With the MCA deal in the rearview mirror, it will continue to pay dividends for North American manufacturing.

WHN: Tell us about what you folks do to improve your customer's value stream.

Lane: First, we do a free assessment to make sure there is value that W. Silver recycling can bring. Once we do the preliminary vetting, we will come in and look at all the processes and procedures, and ultimately come back with a full scope of work. And that's not just about pricing. Of course, pricing is a big part of it, and everyone wants to get the best price. But there's a lot more that goes into making sure you have a trusted scrap company. Do you have a company that is looking at marrying proper procedures in place for internal theft? Do you have sufficient audit



ASTRO TOOL CORP.

CONNECTOR ASSEMBLY TOOLING

Electrical Connector Tooling

FOR MILITARY, AEROSPACE, MEDICAL AND TELECOMMUNICATION INDUSTRIES.



ASTRO TOOLS AND SERVICES:

- Crimp Tool Products
- Pneumatic Crimp Tools
- Insertion and Removal Tools
- Custom Designing for Special Tooling Requirements
- MIL-Spec Tool Kits
- Custom Tool Kits
- FREE Cross-Reference Services
- Made in the USA

Need proven connector assembly and service tooling quickly & reliably?

Contact Astro Tool Corp.

We have been designing, qualifying and manufacturing a wide variety of crimping and insertion/removal tools for more than 50 years.

Items in stock ship right away!

Lead times are short and reliable!

Astro Tool Corporation
sales@astrotool.com

www.astrotool.com
503-642-9853

\$6 TO \$8 HOURLY

OPERATING COSTS



Want to learn more?

➔ www.entradagroup.com/whn

Entrada Group

Mexico, Delivered

controls? It's not just about the best price, but ultimately the best return. At the end of the day, if your material is going out the back door, and not being accounted for, well then whatever price you're supposedly getting is not the price you're realizing. Unfortunately, that's a very common issue in Mexico.

WHN: What sets you folks apart?

Lane: We think like a manufacturer and we have the systems and procedures that are different than a traditional scrap company. We don't service the public and we don't buy cars. All W. Silver does is service cross-border manufacturing and utilities, and our systems are very much married to those of our accounts. Cross border commerce is not exactly the easiest or most common sense type of transaction to begin with. When you layer country of origin, scrap and recovery, and all the different layers of risk and variables...well that's really the niche that we've carved out.

We have border to border coverage. We have a facility Calexico California for servicing Tijuana Mexicali and the broader Baja and all the way to South Texas. Then we have our facilities in Mexico. If you're manufacturing it within Mexico, we have a facility to service it.

WHN: So, you folks specifically accommodate wire harness manufacturers?

Lane: Yes. If you look at the large manufacturing companies out there,

they may have a harness division, but they also have a seating division or other divisions under one umbrella. We specialize in wire harnesses. We have also developed a niche for what are called #2 copper products. These are things like brass connectors or any sort of tinned wire, so it is very specific. It's not just that W. Silver takes wire. We have carved out the actual harness side as our bread-and-butter. So, if you are stamping terminals for applications in the harness industry, that would also fall under W. Silver's electrical products division. Electrical products for us is probably about half of our business.

We also have other metal segments that fall under a different division, so we can certainly handle everything, as long as there some derivative value in it. If it's just a bunch of trash going into a landfill, then we're probably not the right company to call. What we do is make sure that we extract all of that value by putting layered internal controls and processes in place.

WHN: Are there misconceptions about the value of other materials like plastics?

Lane: I think everyone's gotten pretty realistic over the last two years with plastics. There was a time three or four years ago where everyone was saying, 'I know my plastic is gold, come buy it!' They thought they were going to completely change their P&L statement based on selling plastic. I think everyone has really come

Continued on page 55

★★★ FOR SALE ★★★

- 30 - Applicators - **SCHLEUNIGER, MECAL, KM USA**
 1 - **ARTOS** MTX5 Multi-Task Wire Processor
 1 - **ARTOS** CS338 Cut & Strip Machine, 2014
 2 - **CARPENTER** Model 39, 36A Cut & Strip Machines
 3 - **COBRA** 450 24-C, 32-Carrier Braiders
 2 - **GETTIG** #2000 Tape Machines
 2 - **HELLERMANN-TYTON** TT230SM, TT330SM Thermal Transfer Printers
 4 - **HAAKO** FX300 Solder Pots
 1 - **HANKE** 963 Crimp Press, 2011 (ARTOS Crimpmatic 963)
 1 - **JUNQUAN** 2T Semi-Auto Crimping Machine, Model SATC-20, 2007
 1 - **KM** Model 3011 Stripper/Crimper, 2015
 1 - **KODERA** C551 Cut/Strip/Crimp Machine
 1 - **KODERA** C377 Wire Stripper
 1 - **KODERA** C373 Cut & Strip Machine
 1 - **KOMAX** Gamma 333LCD Crimping Machine
 1 - **KOMAX** Gamma 311 Automatic Crimping Machine
 4 - **KOMAX** Kappa 325, 310, 225 Cut & Strip Machines
 1 - **LOEPFE** Thermal Transfer Printer, Model TTP4000 (Schleuniger TTP4000)
 1 - **MARKEM IMAJE** 9040 Ink Jet Printer, 2009
 1 - **MOLEX** TM3000 2T Press (P/N 63801-7200)
 4 - **NEW ENGLAND BUTT** 16-C, 24-C, 48-Carrier Braiders
 1 - **ONDAL** Linear TaperS, 2016
 1 - **PANDUIT** CP-871 Crimp Press w/CA-9 Applicator
 1 - **RAMATECH** Prefeed, Model ABW 800/300, 2005
 1 - **SCHLEUNIGER** CC36S CrimpCenter
 1 - **SCHLEUNIGER** CC60 CrimpCenter
 1 - **SCHLEUNIGER** CC500 CableCoiler
 1 - **SCHLEUNIGER** CP1500 Heavy Duty Coiler
 1 - **SCHLEUNIGER** CS5500 CoaxStrip, 2018
 1 - **SCHLEUNIGER** CS5300 CoaxStrip
 1 - **SCHLEUNIGER** CT60 Heavy Duty Crimper
 1 - **SCHLEUNIGER** ES9300 EcoStrip
 1 - **SCHLEUNIGER** MS9600 Megastrip w/PF4600 Prefeed
 1 - **SCHLEUNIGER** MS9600 Megastrip w/PF4000 Prefeed, CC4000 Coiler
 1 - **SCHLEUNIGER** OS9400 OmniStrip
 9 - **SCHLEUNIGER** PF4000, PF2000, PF2200, PF1000, PF1100 Prefeeds
 2 - **SCHLEUNIGER** PS9500 PowerStrippers w/PF2200 Prefeeds, CC1400 Coilers
 4 - **SCHLEUNIGER** SC750 StripperCrimpers
 2 - **SCHLEUNIGER** SC200 StripperCrimpers
 1 - **SCHLEUNIGER** TS60 Shuttle Rack w/6-Tooling Shuttles
 6 - **SCHLEUNIGER** US2300, US2300D Wire Strippers, 2018, 2019
 1 - **SONOBOND** Model SM86 SeamMaster Knitter
 1 - **STAPLA** 'Raptor II' Ultrasonic Welder
 1 - **SPECTRUM** 'Sienna 210S' Radial & Axis Laser Wire Stripper (modified to 210D)
 2 - **TRI-STAR** Auto Crimp Systems, Models TAC-7AE, TAC-10AE
 1 - **TRI-STAR** Laser Marker, Model M-100L/FG-TT
 1 - **WDT** Model GST-32/N Prefeed



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
 E-mail: marty137@aol.com

BEST. CRIMPER. EVER.



Tri-Star Technologies' demonstrated track record of over 1000 systems sold globally now culminates in the remarkable next generation X Series Automatic Contact Crimper.

- **Fully automatic.** No foot pedal, wire triggered operation.
- **Fast.** Up to 1,800 crimps an hour.
- **Mil-Spec approved.** Meets Mil-C-22520/7.
- **Versatile.** Accepts 16-26 AWG wire.
- **Compact.** Fits into small spaces.
- **Built-in quality controls.**
- **Dual bowl option.** Easy switch between pins & sockets.

TAC X Series
 Automatic Contact Crimper
 Now even better.



Tri-Star Technologies

Contact us at:

www.tri-star-technologies.com

Roger.Lewin@tri-star-technologies.com • 917-972-4133





Always with you.




New
Products


Industry
News


Current
Trends

Read Past Issues:



Dealing with Scrap

Continued from page 53

to understand that, at one point, there was some value there. But that equation has changed.

WHN: What are some of the perils of picking the wrong recycling company?

Lane: A lot of what happens in Mexico is crazy, particularly with wire. It's literally taken into a field and put in barrels. They'll add gasoline, burn off the insulation, and scrape out the copper. That's about the worst thing you could possibly do for the environment. So, if you're a harness producer, and you're selling your [scrap] harnesses out of the back door to a company you've never visited, you should probably take another look at that risk profile. There could be severe fines, or certainly it could be a black eye in the media, etc. It's best to have someone, particularly a US based company, who has EPA permits, and where you can look at their processing equipment to make sure that you know exactly where your material is going. It is very important, and we process everything in El Paso Texas.

WHN: Have you had some new clients come to you who have had bad experiences?

Lane: Yes, absolutely! We're having people coming to us saying, 'you

know, this didn't end up the way we thought it would.' Ultimately this stuff is a commodity. There's plenty of transparency regarding pricing. If someone is telling you all you need to do is put your material in a container, extend them credit, and they'll pay you double what you're getting, you should be dubious. You only do that once before you realize it's not a good practice.

WHN: So what's really the bottom line with respect to recycling?

Lane: There's a lot happening right now in the world-wide supply chain. Knowing that the company your dealing with has a strong balance sheet, that they're going to pay you, and they're going have control of your material - I mean if that wasn't important before, it certainly will be moving forward.

You have to ask the right questions and conduct site visits. It's important to treat scrap just like you would any other supplier. For some reason when comes to scrap, all of those best practices sometimes fall off the radar. Yes, its scrap, but it shouldn't be treated any different than any other product or service coming in the plant door.

If you'd like to learn more about W. Silver, visit them at <http://www.wsilver.com>. There, you can follow current pricing for copper, nickel and aluminum. You can contact Lane at: lgaddy@wsilver.com

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

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



Production Continuity & HiPot Pass/Fail Check GUI

• If you want a clear, simple operator interface for production workers, it's easy!

• If you need to display work instructions with images, or change the screen language, we have your back.

• If you need measurement data in a report showing resistances, voltages, and leakage current for every connection, we can provide this, automatically.

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

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

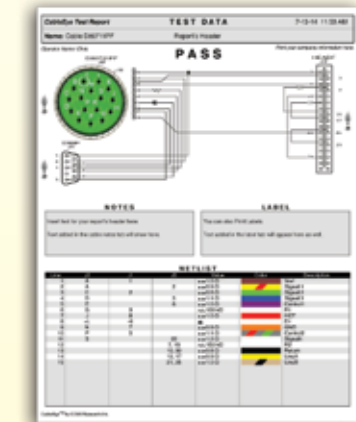
• If you prefer to readily share files and auto-detected fixtures between different models, our common software platform and network interface makes that a cinch.

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

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

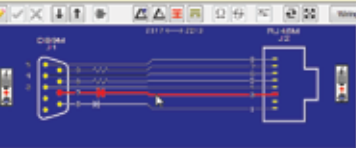
Output Options	Example
Ready, Pass & Fail Signals	Tower Light, LEDs, Audible Tone
Trigger Test Signal	Foot pedal, remote control
Relay Control	Lock & Release Latches, Diverter Gates
Printing	Reports & Labels
Speech	Guided Assembly
GUI	Schematic, Netlist
Export Files	csv, xml, Excel, Archival Data-Logging

Automation-Ready



Out-of-the-box, Customizable Reports

Line	AT	BT	Value	Tolerance	Color	Power	Description
1	5	8	N/A	100.0	+15.7/40	Power	Power
2	4	6	N/A	100.0	+15.7/40	Ground	Ground
3	4	5	N/A	100.0	+15.7/40	Control Loop	Control Loop
4	5	6	N/A	100.0	+15.7/40	Alarm	Alarm
5	7	+2	N/A	N/A	N/A	LED	LED
7	+6	-5	N/A	N/A	N/A	OV Clamp	OV Clamp



Diagnostic Netlist/Schematic



Multilingual

1 Yr Renewable Warranty
Free Tech Support!

Experience CableEye's impact on your productivity first-hand:

Try a Free Demo Unit Today!



MX: +52 81-8421-2847

Continuity • Resistance • 4 Wire • Capacitance • HiPot • Components

CableEye®
CAMI Research Inc.

+1 978-266-2655 | sales@camiresearch.com

©CableEye is a registered trademark of CAMI Research Inc.

See the VALUE of VERSATILITY

Eraser's M700 Series is a wire and tube processing system unlike anything in the industry. Thanks to an innovative modular design, preparing to cut different materials or gauges takes just seconds. Simply swap out separate cutting modules to meet **your changing needs.**

LEARN MORE ABOUT THE M700 SERIES TODAY:
call a sales engineer at 1-800-724-0594 or email us at info@eraser.com

Be Heard **ERASER** USER LISTENING PANEL
www.eraser.com/panel



Waytek carries a variety of Techflex braided sleeving products that are engineered for a wide range of applications from wire, hose and cable bundling protection solutions to automotive, marine and industrial wire harnessing applications.



For stocking information call 800-328-2724 or visit www.waytekwire.com/techflex



NEWS PLUGS continued



Faster, More Precisely, More Cost Effectively

With the CrimpCenter 64 SP you not only produce more precisely, quality consciously and between 8 and 14 percent faster, the latest creation from Schleuniger has also been designed with a focus on achieving your production goals more cost effectively. The innovative, fully automatic crimping machine provides you with a significant cost-per-lead advantage of 5 percent compared to its predecessor, remarkably efficient setup times, as well as numerous innovations that have a positive effect on your work process and daily routine.

The new CrimpCenter 64 SP bears an SP on its cover, which stands for outstanding performance. This isn't just a decorative element but above all a hint as to its substance. The ingenious attributes of the Schleuniger Group's latest innovation ensure highly efficient machine setup processes and provide you with a significant cost-per-lead advantage of typically 5 percent as well as 8 to 14 percent faster production compared to its predecessor. With the newly developed Dual ToolingShuttle quick-change system for example, you

can prepare a new job while production is still running, change applicators and terminals in only 30 seconds and save more than one minute per terminal changeover compared to conventional methods. And the new CommandPod control device helps you to achieve fast and uncomplicated setup processes.

Furthermore, the new CrimpCenter 64 SP offers an extensive list of innovations: Application-specific default values for process parameters, automatic control of the pneumatic pressure of feeding belts and gripper systems, a sophisticated straightening unit and a newly developed roller design for very thin, demanding cables. Add to this a newly developed deposit gripper system that ensures perfectly aligned production batches for easy removal. And with integrated crimp-force monitoring for multiple stamped terminals as well as a split-cycle function, it is possible to process belted, preinsulated, closed-barrel type terminals as standard.

Monitor all quality-relevant processes

The CrimpCenter 64 SP offers several quality-monitoring options to enable you to provide your customers with a high-precision manufactured product that meets the high quality requirements of OEMs. The optional, fully integrated process-monitoring sensor system SmartDetect, for example, monitors the complete stripping



CrimpCenter 64 SP

Looking to Sell Your Cable Assembly Business?

Looking for an experienced buyer to keep the business open?

We are a privately-owned small group of cable assembly and harness facilities looking to acquire a \$3-10M total revenue cable assembly business.

- In house engineering capability is a plus
- Overmold capability is a plus
- ISO 9001, 13485, 14000 is a plus
- Experience in robotics cable is a plus

If you are thinking about selling and want to ensure continuity and investment for your business and employees.

We are interested in talking.

Please email us at mark.aurel@quaestinternational.com

process in real time, detects contacts between the stripping blade and the wire and automatically finds the best stripping parameters for the wire to be processed. The new WireCam (available in 2Q 2020) ensures — without loss of performance in crimp and seal applications — traceable production quality, precise repeatability of desired results as well as impeccable monitoring of stripping results and seal positions with 100 percent inline quality control. And with the integrated CFM 20 crimp-force monitoring system, which tracks signals during the crimping process with a sensor and compares them with the reference signal, you can measure, compare and monitor up to 4 signatures for multistamped terminal applications. But that's not all:

To ensure that correct production materials are used, the CrimpCenter 64 SP employs Material Change Detection to register changeovers of wires, terminals or crimp applicators during production and thus meets the standards set by end users. The crimp-force monitoring Guided Feasibility Study evaluates the monitorability of solderless, electrical crimp connections and ensures the reliability of the monitoring parameters. In addition, the motorized PullTester 320 measuring device determines pull-off-force values of crimp and ultrasonic welding connections, and the CHM measuring system is responsible for simple and user-friendly crimp-height measurement. In addition, the Error-Expert for the EASY software ensures simple resolution of errors by means of

detailed images and notes.

The software of the CrimpCenter 64 SP runs independently of PC operating system and hardware and allows intuitive management of your production orders.

Maximum productivity and control

The new CrimpCenter 64 SP ensures maximum productivity thanks to various combination options with crimp and sealing stations, a double gripper module, a twisting and a tinning station. Four processing stations can be installed simultaneously on the fully automatic crimping machine. But it gets even better: With the DiIT 4Wire software solutions for manufacturing execution systems (MES), KSK production and logistics, you keep your wire harness production under control and

can optimally manage all production areas — from assembly, production and installation to shipping — flexibly and entirely according to your needs.

The CrimpCenter 64 SP excels furthermore with an integrated signal light (TowerLight), whose signals indicate the current machine status and can be programmed according to customer requirements. Moreover, the globally standardized transformer guarantees easy changeover to the required voltage, no matter where in the world your production plant is located.

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



JOIN WHMA/IPC

SAVE
50% ON
Your First Year's
Membership

HARNESS THE POWER OF TWO INDUSTRY ORGANIZATION WITH ONE MEMBERSHIP

The Wiring Harness Manufacturer's Association (WHMA) is dedicated to providing members technical support, access to leading edge technology, benchmarking and peer knowledge that can't be found anywhere else in our industry.

Why WHMA/IPC membership?

WHMA/IPC membership allows you to:

- Enjoy a free single-user download of every new or updated IPC standard
- Receive exclusive member rates on all standards, registration for in-person events such as WHMA Annual Conference and IPC APEX EXPO, certification, and much more
- Listen to experts discuss the latest issues in our industry through our FREE Wisdom Wednesday webinars
- Receive 50% discount on all IPC/WHMA-A-620 standards
- Receive 25% discount on all training materials
- Post your company job openings for **FREE** on WHMA's Exclusive Industry Job Posting Page
- Enjoy a complimentary listing on the WHMA Online Directory and IPC Global Marketplace
- Receive exclusive access to health plans you typically only find with larger manufacturing companies. Visit IPC.NAMHealthcare.com, to learn more about NAM Health Care and to get a quote!

www.WHMA.org/Join

Save 50% on Your First Year's Membership!

Sign up as a first-time IPC member and receive 50% off your first year's membership. Applicable toward site-base or enterprise membership. Sign up for multiple years to save more.

2020 WHMA 27th Annual Wire Harness Conference, One of WHMA’s Most Successful Events to Date

The 2020 WHMA 27th Annual Wire Harness Conference held in Las Vegas, Nevada on February 18-20, 2020 at the JW Marriott Las Vegas Resort & Spa was a huge success. With a record-breaking number of 41 exhibitors, more than 60 first-time attendees and nearly 200 total attendees, this was one of WHMA’s best conferences to date.

Another first this year was the technical education workshop held February 18, “The Evolution of IPC’s Cable and Wire Harness Documents: IPC-D-620, IPC/WHMA-A-620 and IPC-HDBK-62” presented by Robert Cooke, NASA Johnson Space center. Twenty-five attendees learned about IPC’s cable and harness assembly documents, how they are used and plans for revisions.

Space fans were awed by keynote speaker B, Gentry Lee’s presentation, “A Passion for Space Exploration.” He captivated his audience by highlighting his exploration career and discussing his role of wires and harnesses with spacecrafts. His responsibilities included engineering integrity of all robotic planetary missions man-



aged by JPL for NASA, Lee provided engineering oversight for the Curiosity rover mission to Mars in 2012, the Dawn mission to the asteroids Vesta and Ceres, the Juno mission to Jupiter and the GRAIL missions to the Moon.

Additional presentations included:

- “Wire Harness Industry Economics – Managing in an Uncertain Economy” presented by Taylor St. Germain, ITR Economics
- “Space Challenges from Wire Harness” presented by Bob Cooke, Johnson Space Center

- “Megatrends of CASE (Connected, Autonomous, Shared and Electrification)” presented by Jim Hawersaat, TTI, Inc.
- “Micro Trends and Mega Changes” presented by Shawn Dubravac, IPC
- “Electric Mobility will Change your Business,” presented by Benoit Dagenais, Innovative Vehicle Institute

Roundtable topics included using the IPC/WHMA-A-620 standard as a marketing tool, growth strategies, wire harness industry economics,

low pressure molding, and high-performance teams and trends in direct labor affecting wire harness operations in Mexico.

“This year’s event was very successful thanks to WHMA/IPC staff, our stellar lineup of presenters, and event sponsors and exhibitors,” said Rick Bromm, WHMA chair and president of ALTEX. “We’re already planning for the 2021 conference which will take place February 18-21 at the Westin La Paloma Resort & Spa in Tucson, Arizona.”





CLASSIFIEDS

**Prototype Technician
For Cable Assemblies**

Must have 5-10 years experience. Person will construct all work instructions with photos. Central Florida area.

Please respond to
Wiring Harness News • PO Box 669
Schererville, IN 46375 • Attn: Classified Ad #28862
Email: info@wiringharnessnews.com

**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 (315) 653-7211

**Top place Your Classified Ad
in Wiring Harness News
contact Jim Brown**



Phone (708) 594-7764
Email jim@wiringharnessnews.com



Trouble controlling your cable?
**A new wire straightener
can help!**

To find the best straightener
for your needs, visit:
J2Xsystems.com

LOOKING TO EXPAND INTO EUROPE?
Have Eurotech Represent Your Company in Europe

With a highly qualified and experience staff of sales engineers currently calling on many German OEMs and Tier 1 suppliers.

Contact us by email:
Steve@eurotechdirect.com or call +1.216.235.7129

WWW.DRUMCONE.COM

**HIGH SPEED WIRE FEED SYSTEM FOR
AUTOMATED PROCESSING MACHINES**



- Heavy-Duty Steel Construction
- Open Frame Design
- Fits Standard 24" Wire Drums
- Easy-to-Install Kit
- Quick Change Mounting
- Custom Sizes Available
- Made in USA

info@drumcone.com
678-929-5502 Ext 101

RLO - Consulting
for the Wire Harness Industry

- Strategic Market Planning
- Lean Initiatives
- Overall Equipment Efficiency
- Standards & Qualifications
- Lead-Time Reduction
- Quality Improvement

With over 35 years in this industry, I can help you identify markets you're missing, streamline your facility, and show you how to get quality products out the door!

Randy Olson (503) 320-9040
rlo4242@gmail.com
"The Slicker Stripper, Quicker Shipper"



CLASSIFIEDS

SALES REPS

Established manufacturer of lead/hook-up wire and multi-conductor products including cords is seeking both sales rep firms and sales people to further expand our growing business. Various territories are available. If interested, please contact us via:

Wiring Harness News
PO Box 669 • Schererville, IN 46375
Classified ad #86434

Email: info@wiringharnessnews.com

SALES REPS WANTED

KM USA is seeking additional outside independent sales representation throughout the North American market. Join our team that offers some of the best products with the lowest prices, great customer service all backed by the longest warranties in the industry!

Please contact us by email at sales@kmusallc.com or call us at (231) 237-9060.

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; 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 to:

Wiring Harness News • PO Box 669
Schererville, IN 46375 • Attn: Classified Ad #13263
Email: info@wiringharnessnews.com

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



Merger & Acquisition Advisory
Serving the Wire Harness Industry



Loren M. Smith, CEO

lms@blvcapital.com
www.bluevalleycapital.com
913-660-8039

crimptools.com

“Specializing in Crimp Tool Needs”

Authorized Distributor For:

Pico Corp, Burndy, Rennsteig Tools,
Thomas and Betts, Sargent

Many Other Manufacturers:

Amp/Tyco, Daniels, Astro, Raychem, Kings,
Molex, Panduit, and many more

Stocking: Same Day Shipping

AMP Hand Tools 1000’s
Hydraulic Crimpers/Crimp Heads and Dies
Pneumatic Crimpers
Hand Crimp Tools & Positioners
Install & Removal Tools
Raychem Heating Tools AA400, IR550, IR1759

ALWAYS LOOKING TO
BUY EXCESS INVENTORY

Dakota Electronics Inc.
512-852-8119
sales@crimptools.com

ADVERTISERS DIRECTORY

Aerospace Wire & Cable	48	Eraser Company	55	Phoenix Contact	24
American Hakko	47	Etco Inc.	12	Power & Signal Group.....	8
Anixter	42	Eurotech Distributors Inc	20	Pro-Line	18
AnMar	26	FreePoint Technologies Inc.....	16, 35	Schaefer Megomat USA Inc.	49
Applitek Technologies Corp	39	FTZ	3	Schaefer Technologies LLC.....	5
Artos Engineering Company.....	2	Fuses Unlimited	50	Schleuniger Inc	32-33
Astro Tool Corp	52	Hamilton Products, Inc	4	Schunk Sonosystems North America.....	37, 50
Atkins & Pearce	10	HellermannTyton	45	ShinMaywa	6
Atlas Wire LLC.....	13	Harber Industrials.....	40	Siemens	41
CAMI Research, Inc	10, 55	Imada, Inc	48	Solers Inc USA	56
Carpenter Mfg. Co., Inc	13	Industrial Wire & Cable Corp	50	Spring Mills Manufacturing.....	20, 34
Cetec Erp.....	21, 23, 25	INSCO/Insulation Supply	22, 30, 34, 35	Strunk Connect Automated Solutions Inc.....	14
Chief Supply Inc.	49	James Monroe Wire	38	Techflex	44
Cirris System.....	7	Judco Manufacturing Inc.	30	TE Connectivity	63
Commission Brokers Inc.....	53	KM USA	46	Telsonic Solutions	43
Composite & Wire Machinery, Inc	3	Komax Wire	9, 64	Thermosleeve	15
Daniels Manufacturing Corp.....	51	Lakes Precision Inc	4	Tri-Star Technologies.....	19, 53
Diagraph	46	Mark-10.....	11	TTI	21, 23, 25, 27, 29, 31
Dynalab Test Systems	18	Mecalbi	42	Wardwell Braiding Machine Co	36
East Penn Manufacturing Co, Inc.	40	Mecal by Starn	22	Waytek Wire Inc	56
ECC.....	38	Mechtrix Corporation.....	28	White Products.....	36
EIC Wipers.....	15	Mello Company Inc The	3	Wiring Harness Maufacturing Association....	57
Electrical Products Sales.....	47	Multi/Cable Corp.	6	Xuron Corp	44
Entrada	52	Odyssey Tool.....	26	Zuken	17



Subscribe to Wiring Harness News
www.wiringharnessnews.com

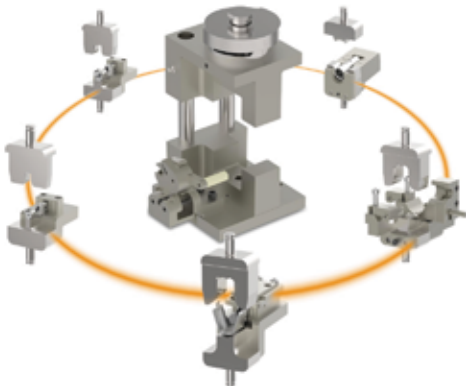


YOUR WORLD OF HIGH VOLTAGE POSSIBILITIES JUST GOT WIDER

Increase production with powerful, flexible and affordable high voltage wire prep and crimping solutions from TE Connectivity (TE). Our new HV-CP cable prep machine can take the complexity and long preparation times out of your high voltage cable processing. It can process (10 - 120mm²) multi-layered conductors in as fast as 30 seconds. And, our compact HV-20 bench-top terminator is powerful enough to produce up to 178 kN (20 tons) of crimp force in order to process wires up to 120mm². But don't let their compact size fool you, our high voltage machines are loaded with additional features like integrated vacuum systems, crimp quality monitoring and Industry 4.0 compatibility.

Download our whitepaper on the Challenges of Large Wire Crimping at te.com/hvtooling

Let us put a driving force behind your production by contacting our sales team at 717-810-2082 or ToolingSales@te.com



For added flexibility, our unique modular platform accomodates a wide variety of die sets with different processing orientations to handle both TE and non-TE terminals.

EVERY CONNECTION COUNTS

© 2020 TE Connectivity Ltd. family of companies. All Rights Reserved. TE Connectivity and the TE connectivity (logo) are trademarks.



REDUCED TO THE MAX

THE COMPACT CLASS
FOR FULLY AUTOMATIC,
DOUBLE-SIDED CRIMP
AND SEAL INSERTION



GAMMA 450

The compact Gamma 450 processes and assembles cables fully automatically on both sides. 2 crimp and 2 seal modules each handle conductor cross-sections from 0.13 to 4 mm². A fully integrated monitoring system guarantees the complete traceable quality. Supported by innovative HMI touchscreen operation and quick-change systems, the machine allows the quickest possible set-up and changeover.

komax
komaxgroup.com