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- 16th Annual Electrical Wire Processing Technology Expo



Onanon

OEM innovator, designer and manufacturer of connectors and cable assemblies

By Fred Noer

High tech. Those two words inevitably come to mind when anyone mentions Silicon Valley in California.

With Onanon located in Milpitas, a city of 70,000 people 45 miles south of San Francisco in the northeastern part of Silicon Valley, the same words describe the company. It specializes in designing and manufacturing a wide assortment of cable assemblies and connectors using high-tech processes and equipment.

The extent of Onanon technology is evident in the production department that has \$12 million worth of equipment. If it were run at maximum capacity, 10 million pieces could be produced in a day. Average production is 10 million parts per month.

Another \$200,000 in equipment is in the engineering department. According

to Dennis Johnson, 48, president and CEO, it has more equipment than the mechanical engineering laboratory at Harvard University.

The annual capital equipment budget at Onanon is between \$600,000 and \$750,000, Johnson stated. Expenditures are made not only for production equipment but for machines to build equipment if none is available commercially.

Such investment serves one overarching purpose – provide exceptional value for the 240 active Onanon customers. “We always go above and beyond the call of duty,” Johnson said. “When serving our customers, we do more and give them more than they paid for. It’s all about value.

“We differentiate ourselves by looking deeper into our customers’ needs,” Johnson said. “We don’t just take a customer’s spec and build it. We look at their application and take extra steps to make it better and more reliable without adding cost. We can do an applica-



Onanon employee at a cable force testing station.

tion-specific design very fast.”

Augmenting this approach are concepts embraced by Johnson in the book Blue Ocean Strategy by W. Chan Kim and Renée Mauborgne. He also is influenced by Napoleon Hill’s ideas in such books as Think and Grow Rich, The Law of Success and Good As Gold.

The focus on value in products and service has led to \$12 million in annual sales. In five years the goal is \$24 million. Five years ago, income was \$8 million.

“Profit has been very strong and is increasing dramatically,” Johnson said. “We are super laser-focused on eliminating anything that is not value-add and shedding distractions that slow us down. We’ve made a huge leap as a company.

“Our biggest mistake was allowing ourselves to be distracted by customers that did not add value,” Johnson said. “They were high on our radar five years ago, and we used to look at anything and everything.”

Thomas Sahakian started Onanon as

West Coast Drilling in Milpitas on June 1, 1979, after obtaining funding from friends and family members. The previous three years he ran a division at the now-defunct Sayco Electronics.

West Coast Drilling cut and drilled printed circuit boards for PCB manufacturers. Back then, most of them were located in the United States and not China.

Johnson came to Onanon in October 1989 by answering an ad Sahakian placed for a programmer. Johnson did programming and CAD work for Proto Engineering in Sunnyvale, Calif., while studying for his mechanical engineering degree at San Jose (Calif.) State University.

“I was a natural fit at the company,” Johnson said. “Tom and I quickly found out we both shared the same passions, and both of us had business acumen.” They became 50-50 partners, incorporated in 1989 and changed the name to Onanon, which was suggested by

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16th Annual Electrical Wire Processing Technology Expo

Save the date for the 16th Annual Electrical Wire Processing Technology Expo, to be held on Wednesday, May 11 and Thursday, May 12, 2016 at the Wisconsin Center in Milwaukee, Wisconsin. This Expo is tailored specifically for those in the electrical wire and cable manufacturing industries, processing industries and especially wire harness services.

Expo attendees will see the latest

electrical wire processing equipment in operation, as well as various components and services that are used in the manufacture of wiring harnesses. Attendees will have the opportunity to meet one-on-one with industry experts, and can also attend valuable technical seminars focusing on emerging trends and the future of the industry.

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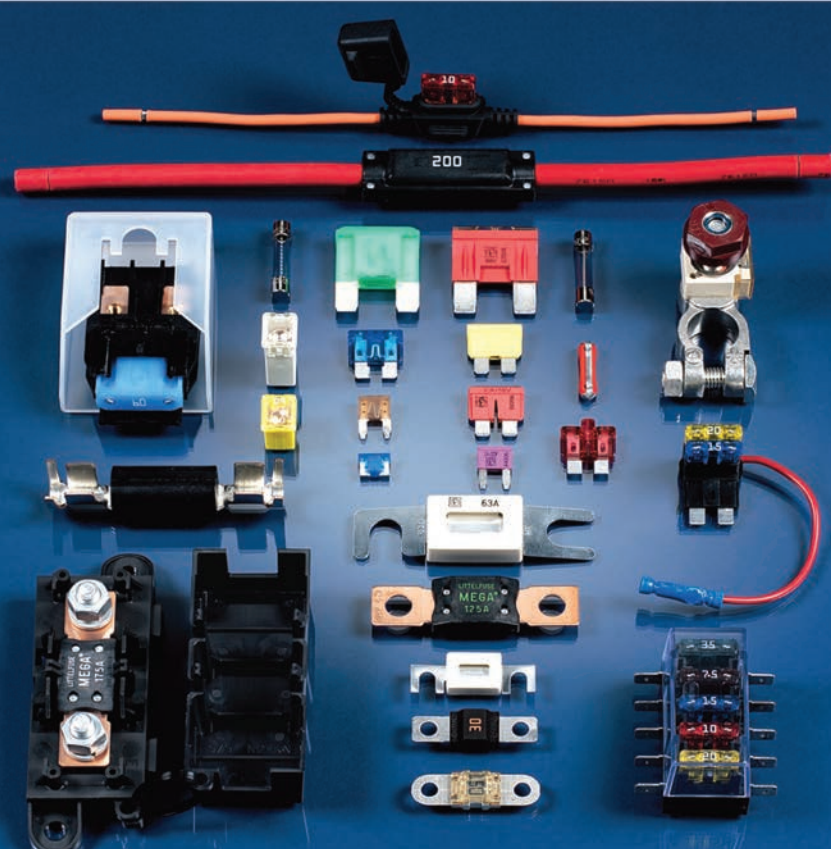
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Feeding the Wolves

By Paul Hogendoorn

There's a native American legend that explains the struggle that goes on inside of each of us and compares it to a fierce and constant battle between two wolves. The legend explains that one wolf is evil and filled with things like anger, jealousy, greed, self-pity and arrogance. The other wolf is good and filled with the opposite things, like peace, hope, serenity, humility, kindness, empathy, generosity, compassion and faith. The story is told to a young boy by an old brave or perhaps his grandfather. The young boy asks the obvious question at the end of the story: "which wolf will win?"

The question is as relevant to us today as it was when it was originally asked. The battle rages on not only in each of us individually, but it is fought in our workplaces, our communities, and even our countries too. Last month we watched the arrival of the first refugee families in Toronto. It was a small handful of people, but the press were there in droves. I watched the arrival unfold on the news - the Prime Minister of Canada was actually there, giving hugs and helping kids put on winter jackets. The battle of the wolves inside my head raged. These are a handful of people, I thought,



Paul Hogendoorn

and there's hundreds of thousands that need to be helped, and many more still waiting to escape. There's still a complicated war we are reluctant to fight in that area of the world, and it will be difficult to win, if it can be won at all. The leader I saw moments ago on TV giving out hugs and winter jackets is the same leader that withdrew our country's fighter jets from the cause. The evil wolf was clearly winning the battle in my head; the problem over there was too big, and what I was watching on TV - the arrival of a couple families to a new land - was not going to change anything

at all. But then I started to see some of the other things: the relief and joy on the faces of those first off the plane; the welcoming embrace from strangers there to greet them to a new land; the stories of communities and churches and groups of people rising up to the challenge of sponsoring a family, or multiple families. Perhaps these small acts would not change the entire world and fix the seemingly unfixable problem, but, it was changing the world for those who are

coming, and it even seemed to be changing the world for all those that are rallying their energies to receive them. The good wolf was starting to fight back. Faith, hope and love - actually put into action - is the only way to defeat the evil wolf in our heads.

It's the same with our work places. A new initiative or idea is brought forward, and the wolves start to do battle.

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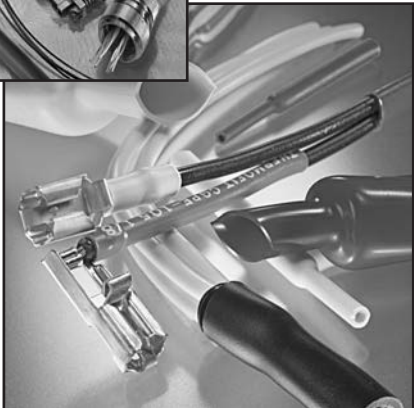
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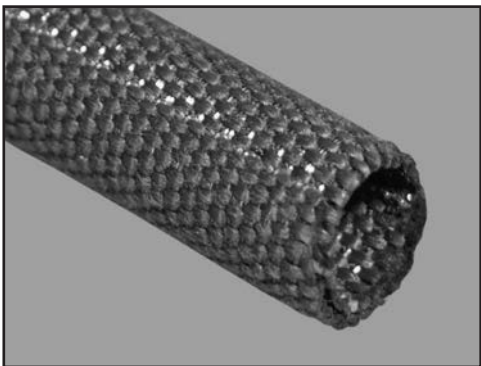
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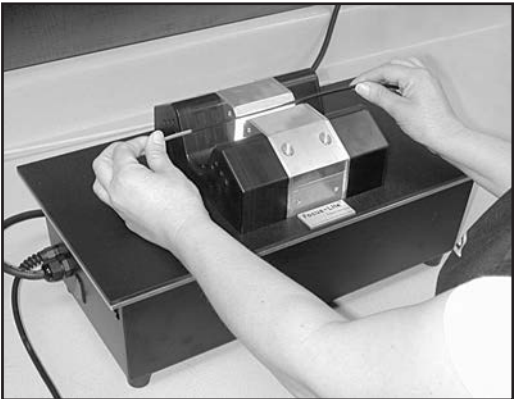
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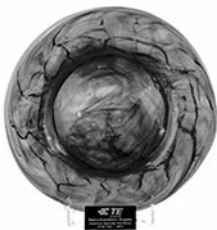
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Feeding the Wolves

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Some leadership experts suggest that a small group (perhaps only 10%) of your people will embrace it and want it to succeed, while an equally sized group will be bound and determined to see it fail. Both of these smaller groups, like the two wolves, will petition for the hearts and minds of the 80% in the middle. Which wolf will win?

Many companies I see today are hamstrung by this battle. They want to make improvements, but they don't want to incite the negative energies and influences they know lays in wait. Some might suggest that identifying and eliminating the negative influences is the answer, and perhaps in some cases that might be, but, the evil wolf always creeps back in. Focusing simply on the elimination of negative attitudes does not guarantee that good attitudes will survive, let alone thrive. The 80% in the middle are people that have been exposed to many well-intended but poorly executed plans, and they remember both of those things - the good intentions, and the negative outcomes. It's even worse when the previous changes were never ever perceived as ever being well-intended for them, but only intended for the company.

So, which wolf wins? The answer

is always the same: the wolf you feed is the wolf that will win. It's the one that gains the strength needed to prevail. You can't simply starve the other one out, because it always finds another source for food.

Which wolf are you feeding? If

we want to get anything good accomplished, it's a question we need to ask ourselves every day, because the wolf you feed is the wolf that wins.

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



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“Definition of a ‘Good’ Buyer”

By Loren Smith

When I am asked if there is such a thing as a "good" buyer, my answer is "Absolutely." But rather than try to describe the characteristics of a good buyer, let's look at a few examples.

The first comes from my sale of my own company. After our first meeting with a private equity (PI) firm that had expressed interest, it was clear that the PI CEO fully appreciated the value of our customer relationships. Even though two customers accounted for over 80% of our revenue, the CEO's interest was not dampened--while other prospective buyers, seeing

the level of customer concentration as too risky, either ran the other way or wanted a deeply discounted sale price.

In the end, the PI firm acquired us at a full multiple based on the CEO's perception that our customer concentration was not a negative. Instead, he understood that many years of performance had demonstrated the solidity of those two key relationships. In the years following, his judgment was rewarded, and our company provided his firm an exceptional return on its investment.

A second illustration grows out of a deal I was handling as a consultant in which an all-but-sold company experienced a sharp drop



Loren M. Smith, CEO
Blue Valley Capital

in revenue just before closing. For most buyers, the turn of events would have killed the deal--partic-

ularly given the cause: sudden softness with the company's major customer. My buyer, however, had the wisdom and temperament to maintain his focus on the company's top and bottom line. Confident in the company's fundamental strengths, he never wavered from his original letter of intent.

My third example of a good buyer involves another circumstance that would have derailed most sales. We were nearing completion of due diligence when the founder of a Midwest harness company announced to my buyer that he was moving to Florida and intended to work no more than three days a week. I assumed this would surely quash the deal, but my buyer believed the owner of this business had the management skills and systems in place to effectively run his company at a distance and part-time to boot. The deal closed, and performance in the several years since has been phenomenal.

What did the three buyers have in common? They all recognized the underlying value in these companies and had the savvy and calm to put into perspective factors that would have been deal killers for most other buyers. These buyers were good!

Identifying "good" buyers on the front end of the sale process is central to what I do for my clients, but it's just as critical to identify a "bad" buyer. My next column will provide a "bad" buyer case study.

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

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Yazaki rethinks wiring for autonomous age

Supplier aims to have vehicles require fewer and lighter harnesses

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Sumoto, Japan — These days, a typical luxury car is veined front to rear with miles of electrical cables. Even a compact car can have more than a mile of wire snaking through it. With the advent of connected cars, advanced safety systems and autonomous driving, demand for wiring is set to explode.

It must be a boom market for wire harness makers, right?

Yet Japanese supplier Yazaki Corp., the world's biggest maker of wire harness systems, faces a Catch 22. Yes, the coming era of increasingly electrified vehicles should spur demand for its No. 1 product. But there simply isn't room to pack in all the extra wiring that vehicles are expected to need. So the company has to find a way to reduce the number of wires in a vehicle and their weight.

If it doesn't, someone else might — and take away the business.

Noboru Osada, Yazaki's global director for R&D, is at the forefront of trying to use less wiring without undermining his company's top revenue stream. His efforts underscore the challenges facing all automakers as everything from windows to transmissions to trunk doors depends on

electric wiring for power and communications.

"It's a big opportunity," Osada told *Automotive News* at the company's technical center here southwest of Tokyo, in the foothills of Mount Fuji. "But we are trying to reduce the number of wire harnesses. Otherwise, you cannot implement the wire harnesses into the car because there's no space."

Global demand for automotive wire harnesses is expected to climb 10 percent by 2020, Osada said. The bundles of metal cables carry power and transmit signals. They also generate about 90 percent of Yazaki's global sales.

Aiming to slash weight and bulk, Yazaki is turning to aluminum, rather than copper, cables. The supplier is also looking at multiplexing — having one cable carry more than one signal at a time. Both solutions are necessary, but threaten to cut into revenue because wire harness prices are typically determined by how much metal they contain.

"For the future, we have to reduce the use of wire, but we also have to continue our business," Osada said.

Ironically for a company that has specialized in wire since 1929, Yazaki is even researching wireless networks

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1	28	28	16 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.150 mA	996 V	7 M
2	30	30	32 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.173 mA	996 V	6 M
3	32	32	63 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.189 mA	996 V	5 M
4	34	34	125 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.204 mA	996 V	5 M
5	36	36	249 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.204 mA	996 V	5 M
6	38	38	500 m Ω	✓	< 1 μ A	1499 V	> 1 G	0.200 mA	995 V	5 M



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Yazaki rethinks wiring for autonomous age

Continued from page 10

inside the car that can allow different components of the vehicle to communicate without being tied down by cabling.

“We are investing alot into r&d for developing secure and reliable wireless systems,” said Osada. “We have to be ready with new technology”

Wired reality

Yazaki is privately owned, with President Shinji Yazaki representing the owners and founding family. In the company’s fiscal yer that ended June 20,Yazaki booked global revenue of Y1.66 trillion (\$13.5 billion), up 6.8 percent.About 64 percent of that came from outside Japan. In the previous fiscal year,sales to

automakers totaled an estimated \$15.2 billion. putting the Tokyo company at No. 14 on *Automotive News’* list of Top 100 global automotive suppliers, as ranked by revenue.The seeming year-to-year drop in the dollar value reflected changes in currency rates.

Yazaki sells wire harnesses to all Japanese automakers and most overseas carmakers.Yazaki also makes meter clusters, cabin lamps, and charging connectors for plug-in vehicles. Its nonautomotive businesses include air conditioning and solar power equipment, plus health care and recycling operations.

A large premium sedan can be packed with up to 12,000 feet of cable weighing as much as 110 pounds. A small mass-market car typically has half as many cables.

The wires transmit power and signals to electronic control units,actuators and other onboard electronics.

Producing harnesses is low-tech and labor-intensive. Factories employ thousands of workers to gather and bundle the wires, shaping each harness to the design of the name-plate it will go into. A late design change by an automaker can render inventory en route to an auto plant worthless.

Anticipating an era of advanced safety systems and self-driving cars dependent on sensors, complex microprocessors and actuators, Yazaki is trying to position itself as more than a wire maker.

It wants to be a supplier of so-called electrical/electronic distriblution and display systems, which are a kind of

combined nervous and circulatory system for a vehicle, managing the onboard flow of energy and communications.

In hybrid and electric vehicles, cables gransmit high-voltage power from the battery to the electric propulsion motor. Other wires might carry electricity to dozens of electronic control units running such components as the engine, transmission or air conditioning. Yet more wires transmit orders from one electronic control unit to another, instructing it what to do next.

“How to optimize that, Osada said,“is the big mission.”

Less is more

Going wireless as a substitute for communication cables is one way to save space and weight. But it is much more difficult to tranmit power wirelessly from the vehicle’s battery to other components; wires are still optimal.

In either case, wireless communications among onboard systems still face reliability and cost concerns. The technology won’t be ready before 2030, Osada predicted.

But Yazaki is streamlining in other ways.

Switching from copper to aluminum helps save weight and trims costs. On the other hand, aluminum doesn’t conduct power as well and typically needs thicker wire to do so. Aluminum is also less flexibl than copper.


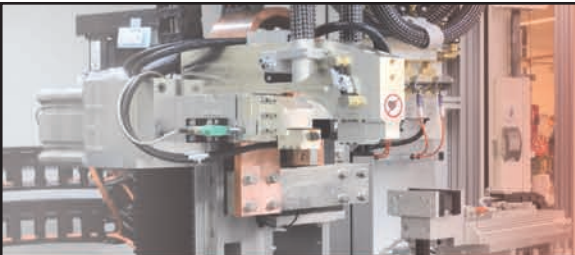
Breakthroughs have come through devising different aluminum alloys that have the best qualities of both metals, Osada said.

Yazaki is also exploring fiber optics in such components as camera sensor networks to improve networking speed.

Eking more performance out of existing cables is also on tap. That could come through multiplexing or through powerline communication, in which a single wire transmits power as well as communications. Both approaches have cost and technical concerns, though.

The biggest advances likely will come through new ways to manage the power distribution, Osada said. Layout and architecture are critical, and that is where Yazaki plans to use its decades of engineering experince.

“If you look only at the wire, there is lttle value to the end customer. Cheaper is better,” Osada said. “But if you look at the system as a whole, there is a lot of value.”



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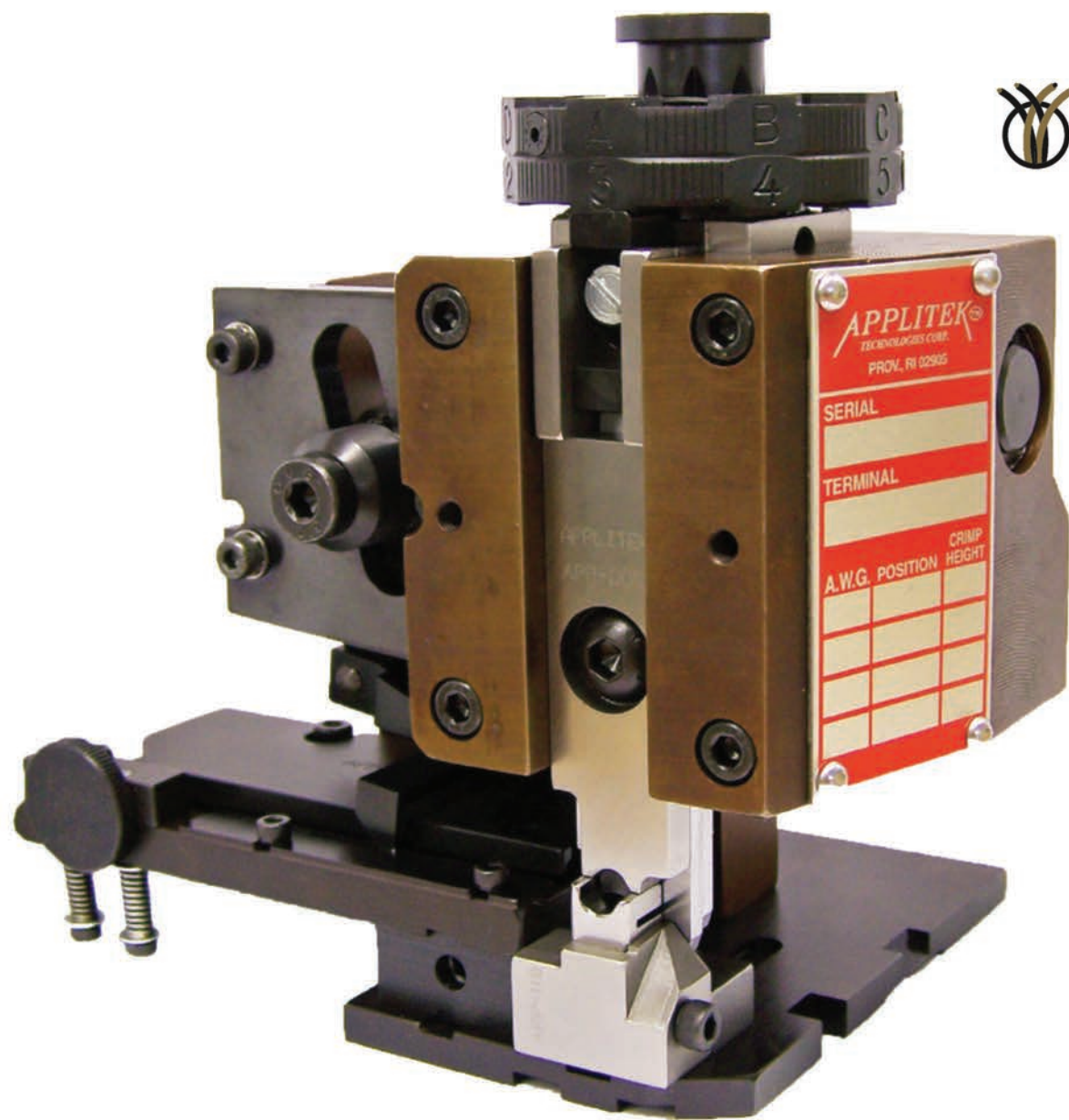


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Electrical Wire Processing Technology Expo

Continued from page 1

The seminar schedule is as follows:

Wednesday, May 11

8:30 am - The Impact of LV 214-4 – The German Automotive OEM Connector Test Specification

Presented by: Rob Boyd, Senior Product Manager of Schleuniger, Inc

LV 214-4 – The German Automotive OEM Connector Test Specification and What it Means for the North American Market. This presentation will include a discussion of the latest version of the European auto manufacturer's specification on terminal verification related to crimp force monitoring and what it means for the North American market. This will be followed by a discussion on applicator maintenance best practices to improve performance and efficiency.

Rob Boyd serves as Senior Product Manager at Schleuniger, Inc. Rob has been with Schleuniger for 15 years and in the industry for 24 years. He returned to the New Hampshire office in 2013 after three exciting years as the Global Product Manager at Schleuniger's manufacturing division for the automatic cut, strip, terminate machines in Germany. Rob oversees all activities related to Schleuniger's crimping products, including crimp quality devices as well as some business development activities for the NAFTA region. Rob has a degree in Electrical Engineering from Boston University and an MBA in Marketing from the University of New Hampshire.

Wednesday, May 11

10:30 am - The Evolution & Status of Standards for Aerospace Wiring Systems & Components

Presented by: Dave Kelly, Standards and Industry Liaison of Daniels Manufacturing Corp (DMC)

Aerospace and High Reliability Wiring System Component Standards and Installation Process Documents were originally Military Specifications. Some Remain MIL-SPECS, but the majorities are Private Standards (SAE, NAS, NEMA, etc). This presentation will provide the history, and current status of standards and QPL/QPDs. This presentation will track technol-

ogy improvements which drive changes and additions to Standards for Aerospace Wiring Components, and identify the needs of designers of Aircraft, Transportation Equipment and other High Reliability Wiring Systems. This has led to performance improvements in Wire, Connectors, Backshells, Contacts, Fiber Optics, Terminals, Splices, Hardware, & Tooling for wiring systems well into the future.

Dave Kelly studied Engineering at West Georgia University and Georgia Tech. He has been employed for 42 years with the Daniels Manufacturing Corp (DMC) where he has held positions as Engineering Manager, Product Manager, and Standards and Industry Liaison. Mr. Kelly holds seven

patents for tooling relating to wiring, and one SBIR Award for Wire Stripping Technology, he served on the Board of Directors, for the Wire Harness Manufacturers Association. His Technical Standards affiliations are: National Parts Advisory Industry Panel to the Secretary of Defense (1982 - 1989), SAE AE-8C2 Standards Committee (Terminating Devices and Tooling) Chairman 1988 - 2013 (currently Vice Chairman), Active participant in all SAE AE-8 Committees, International Standards Organization (ISO), Aerospace Industries Association (AIA) and IPC/WHMA (IPC/WHMA-A-620).

Continued on page 16

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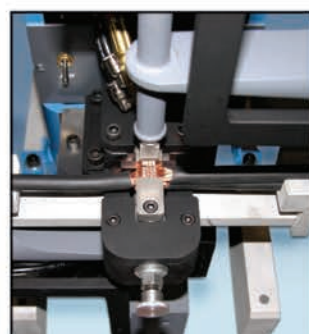
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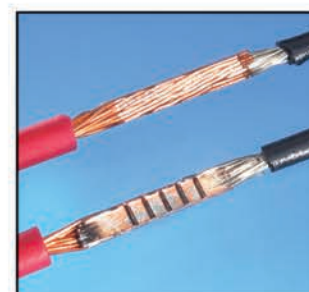
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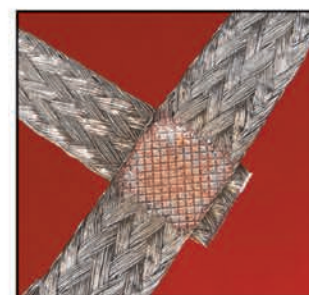
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Electrical Wire Processing Technology Expo

Continued from page 15

Wednesday, May 11
12:30 pm - Optimizing the High-Mix, Low-Volume Manufacturing Environment – Part 2

Presented by: Patrick Boyer, Special Applications Project Manager of Komax Wire

As manufacturing is beginning to re-shore in the United States, contract manufacturing is on the rise. Nevertheless, contract manufacturing faces its own daily challenges such as unpredictable sales forecasting, challenging lead times, and inventory pricing pressures. 20-year Applications Specialist, Patrick Boyer will tackle the most challenging problems and present innovative production processes for the high mix, low volume manufacturing environment. Topic highlights will include measuring overall equipment effectiveness, networking multiple work orders through software networking, and reducing unnecessary inventory levels.

Patrick Boyer currently works as an Applications Specialist Project Manager and is a 20-year veteran of Komax Wire, a global leader in wire processing equipment and solutions. Patrick started within the applications department of Komax Wire – North America and quickly accelerated his career to his current

position. He has written “The Future of Wire Harness Production”, a specialized article highlighting the future trends of wire harness manufacturing. In addition, Patrick plays a pivotal role in providing solutions to manufacturers across all industries to help innovate their manufacturing processes.

Wednesday, May 11
2:30 pm - How Well Do You Know Your Crimping Process?

Presented by: Terry Curtis, Sales Associate of Crimping and Stamping Technologies & Applitek

This seminar covers topics on crimp design, pre-production validation and in process testing of a terminal crimp. We identify the critical elements of a crimp process and their factors in contributing to a quality wire to terminal crimp. We will address the function of validating and testing a crimp to current standards required by original equipment manufacturers. Finally, we will draw a relationship between these critical crimp elements and in process crimp testing.

Terry Curtis is Sales Associate to Applitek Technologies and Crimping and Stamping Technologies has over 35 years of service to the wire processing industry. Terry has a vast knowledge of

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Electrical Wire Processing Technology Expo

Continued from page 16

processing applications through his experience in stamping of strip form contacts. Also wire cutting, stripping and terminal crimping. In addition, Terry has many years of experience in associated wire processing methods such as crimp quality validation and in process crimp testing, ultrasonic welding and laser processing.

Thursday, May 12

8:30am - **IPC/WHMA-A-A620B** –
“Why it is Important to Your Organization”

Presented by: Donnie Hill, President and COO of Precision Manufacturing Co, Rick Bromm, President of Altex Inc, & Randy Cherry, Director of Validation Services of IPC

The seminar will provide information on the A620 workmanship standard and why it is important to your organization. The presentation will cover an overview of the standard, upcoming revisions, validation program, and how it can be used as a sales and marketing tool.

Donnie Hill is the Vice Chairman of WHMA (the Wire Harness Manufacturers Association), Board member Leukemia Lymphoma Society SW Ohio, BS James Madison University, with over 35 years manufactur-

ing and executive management experience.

Rick Bromm is the Chairman of WMHA (the Wire Harness Manufacturers Association), which represents over 200 cable and harness assembly manufacturing companies in North America. He is President of Altex Inc. Altex is a manufacturer of custom wire harnesses and cable assemblies. Rick has been in the wire harness industry for over 20 years.

Randy Cherry is the Director of Validation Services for IPC which provides auditing, inspection, testing, and advisory services to manufacturers and industry professionals in accordance with IPC standards. Prior to IPC Randy worked for over 20 years in the telecommunication industry holding various engineering positions in manufacturing, SMT process, and PCB component technology. Randy has also worked in the HVAC, Consumer Appliance, and Automotive industries. Randy has been a member of IPC and is a current member of the SMTA (Surface Mount Technology Association) and past President of the Great Lakes Chapter. He holds certifications from IPC the CID (Certified Interconnect Designer), and a SMTA CSMTPE (Certified SMT Process Engineer). Randy is a former member of the Packaging Research Center at the Georgia

Institute of Technology Georgia Tech University working with developing reworkable underfills for BGA device assembly applications. Randy has a degree in Electronics Technology.

Thursday, May 12

10:30am - **The Impact of LV 214-4 – The German Automotive OEM Connector Test Specification**

Presented by: Rob Boyd, Senior Product Manager of Schleuniger, Inc

LV 214-4 - The German Automotive OEM Connector Test Specification and What It Means for the North American Market. This presentation will include a discussion of the latest version of the European auto manufacturer's specification on terminal verification related to crimp force monitoring and what it means for the North American market. This will be followed by a discussion on applicator maintenance best practices to improve performance and efficiency.

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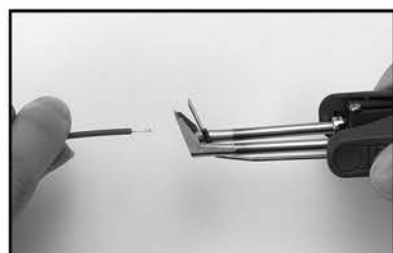
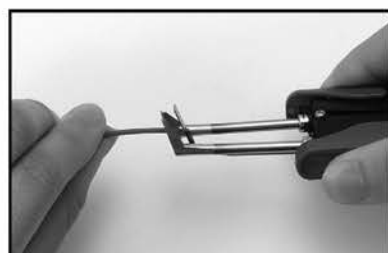
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automatic cut, strip, terminate machines in Germany. Rob oversees all activities related to Schleuniger's crimping products, including crimp quality devices as well as some business development activities for the NAFTA region. Rob has a degree in Electrical Engineering from Boston University and an MBA in Marketing from the University of New Hampshire.

Thursday, May 12
12:30pm - Automate and Error Proof Plant Floor Processes

Presented by: Michael Reeve, VP Business Development of OES Technologies, Inc

Connectivity of plant floor equipment including benchtop presses and automatic machines offers significant benefits to the wire processing industry. Capabilities including error-proofing machine setup will not only improve quality and reduce scrap, but will contribute to improved productivity and the bottom line. These benefits and more will be examined in detail including a step by step approach to connect plant floor equipment regardless of plant size.

Michael Reeve is a cofounder of OES, Inc. based in London, Canada. OES was established in 1980 as an engineering focused technology services corporation. OES has now evolved to a world-wide leading process control and technology solutions provider for a wide range of manufacturing processes. Michael has been instrumental in the growth and success of OES and shaping the company's direction for over three decades. Michael is primarily responsible for new business development. His focus is on building strategic business relationships, international sales channels, and the alignment of OES's products and technologies with the evolving needs of their global customers.

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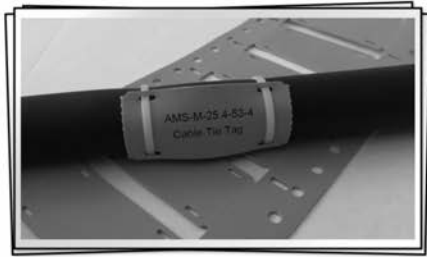


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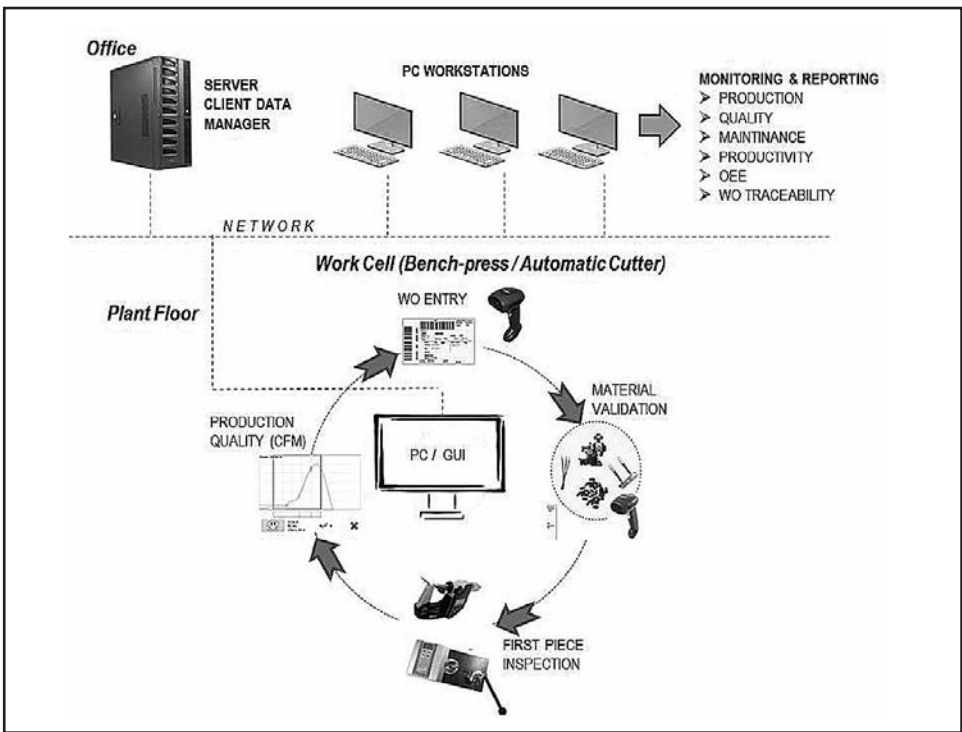
By Michael Reeve
OES, Inc

Connecting plant floor equipment and collecting production data automatically and in real time offers significant benefits for wire processing operations. A properly implemented system will provide management and the operations team with a common understanding of their quality, production, and productivity at the macro (plant) level and at the micro (machine) level. This information can be

used to monitor, measure, and continuously improve operational efficiencies plant wide, and contribute significantly to the bottom line.

Many wire harness manufacturers have already connected some or all of their machines to a central data management system, or are in the process of doing so for various reasons. A significant motivating factor is in response to automotive industry requirement for traceability for all materials feeding the automotive supply chain. Another is to improve process efficiencies in manufacturing.

Continued on page 22



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Connectivity of Plant Floor Equipment

Continued from page 20

This article highlights the many benefits of connecting wire processing equipment to a central data management system regardless of plant size.

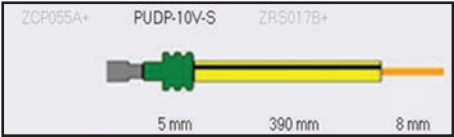
Connectivity refers to the connection of all the wire processing equipment – bench presses and automatic machines regardless of brand or model, with a central data base. The client data base contains all of product part numbers which reside on the PC server managed by the client. Each part number contains all of the information to produce the part (materials, dimensional specifications, visual aids, crimp force monitor configuration parameters, etc.).

Work orders are processed at the plant floor. The WO pulls the part number and related product specification data from the central client data base. A PC based device with an operator interface at each work cell (bench press or automatic machine) is well suited with a conventional network interface, and capability to connect with the selected devices (barcode scanner, micrometer, pull tester, CFM, label printer, etc.). See illustration on page 20

For the operator a new job starts with WO entry typically with a barcode scanner. The WO information includes the product part number and production quantity. The part number detail (mate-

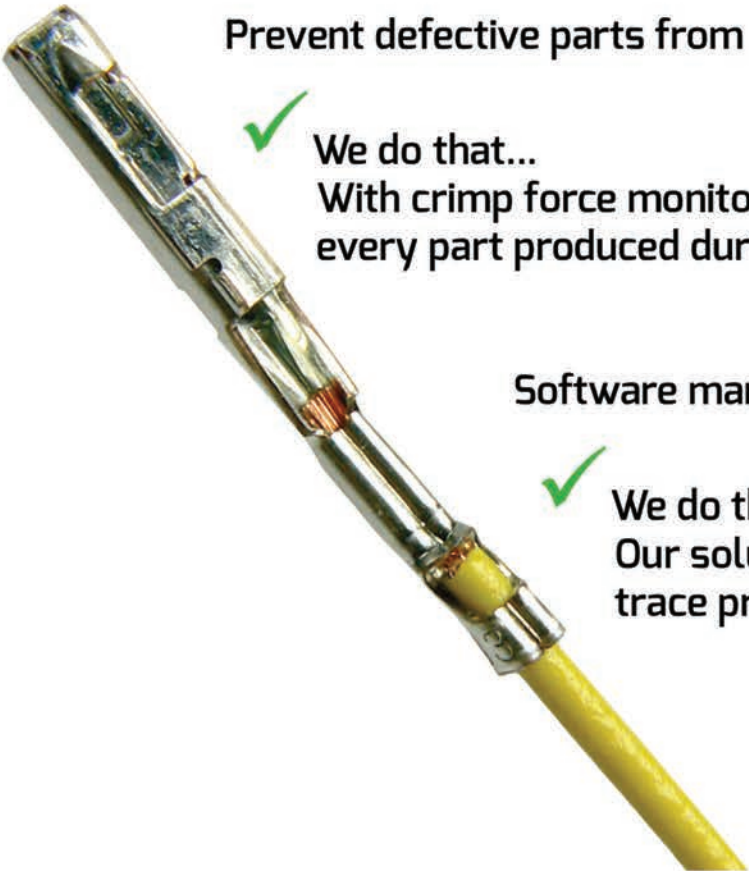
rials, part specifications, visual aids and/or any instructions specific to the assembly) is retrieved from the client data base.

Automation and error proofing machine setup is a significant benefit. Material Validation – the new materials installed on the machine including terminals, wire, and seals are scanned and validated with the product part number specification. This ensures the correct material is loaded on the machine and eliminates the possibility of producing parts with the wrong material. The applicator tool is optionally scanned to confirm the correct tooling (which also facilitates management of applicator tool maintenance). First piece Inspection – the dimensions of the first part sample (crimp height and width), are measured and compared to the crimp dimension specification (from the client data base). A Pull test process can be optionally added as part of the first piece validation before production can commence. Quality monitoring configuration -The Crimp force monitor is automatically configured with pre-established control tolerances for the terminal wire crimp combination entered in the client data base. The following process flow chart illustrates a typical machine setup process:



Continued on page 24

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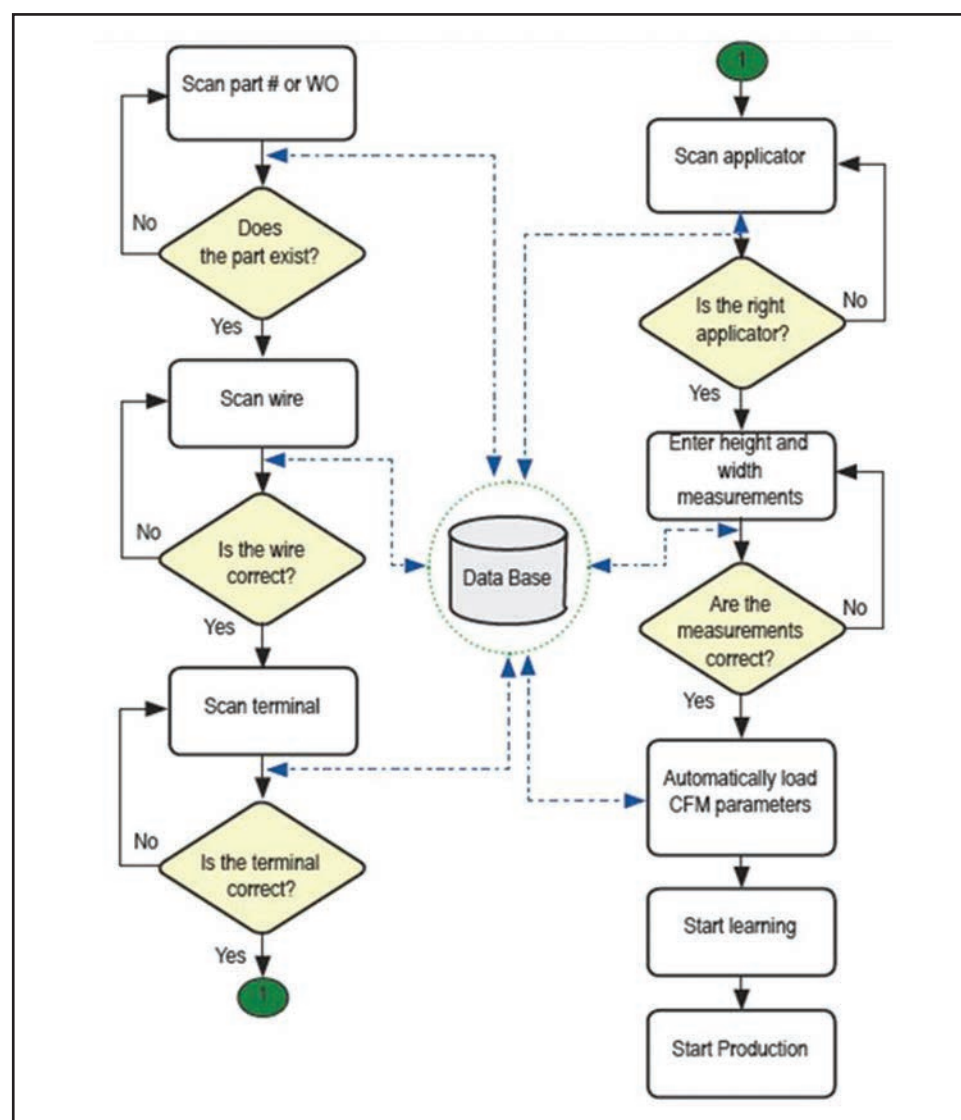
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Connectivity of Plant Floor Equipment

Continued from page 22 _____



Continued on page 26

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Connectivity of Plant Floor Equipment

Continued from page 24

Production traceability is another significant benefit. Data logging and reporting is a core element of any production management system. Production information captured automatically and accurately in real time. The total crimps produced, good and suspect/bad, ratio of scrap material can be readily compiled into reports by machine, machine grouping, time/shift period, or work order. The crimp force monitor configuration settings can be included with the production reporting which is important detail for tracing the quality of production parts that have entered the supply chain.

Productivity monitoring and reporting is a significant benefit. Machine uptime and downtime by cause, by shift, by time period, by machine, by machine grouping, is valuable information for implementing corrective action and improving overall efficiencies. Overall equipment effectiveness (OEE) is a measurable benchmark that can be shared by the entire team for improving quality, production, and maintenance.

Monitoring machines in real time is significant benefit. Monitoring the changing conditions of every machines' operational status and downtime condition (setup, waiting for material, maintenance, etc.) facilitates the configuration of

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Capability of centralized job scheduling where WO's are delegated to machines so operations personnel can see which jobs are coming next with other information that is not normally at hand.

Managing information through automation and keeping the team in sync and alerting production events in real time is essential for manufacturing today and into the future.

Michael Reeve is VP of Business Development at OES Technologies. For further information contact Michael Reeve at mreeve@oes-inc.com.



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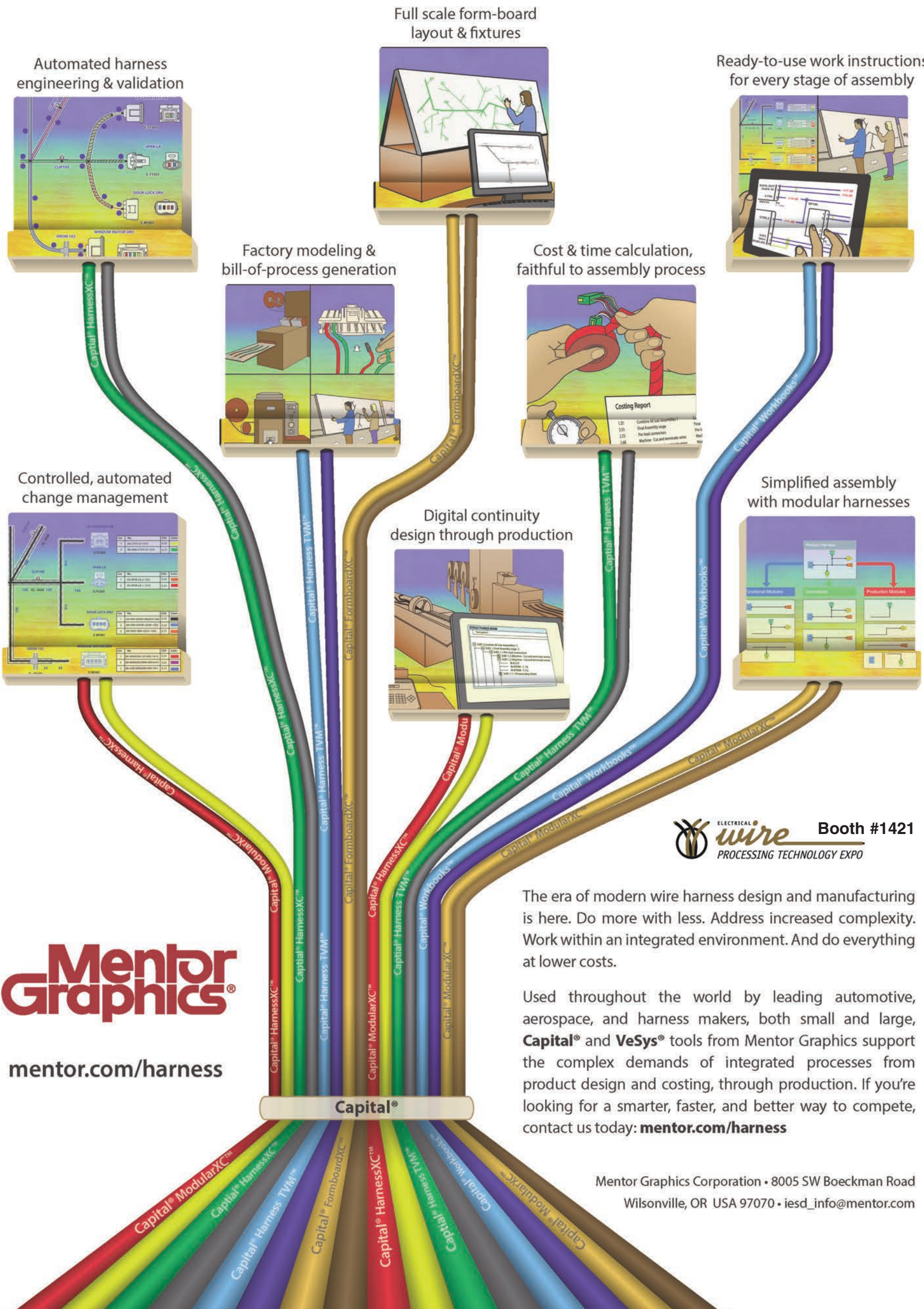
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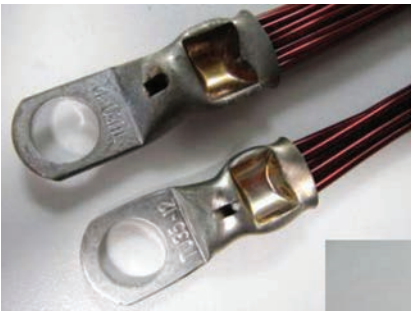
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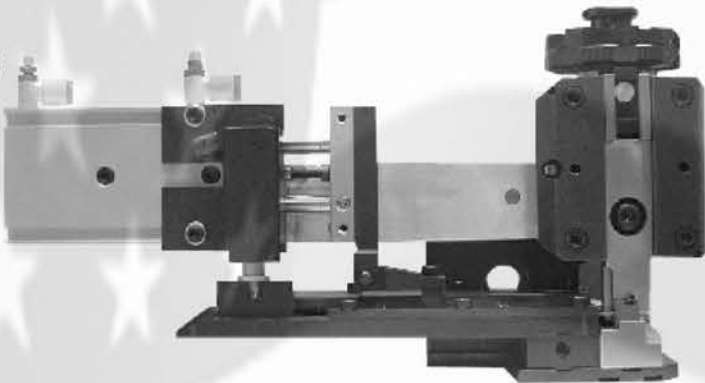


Model 1700

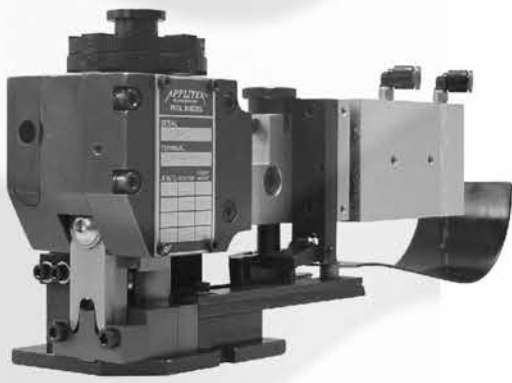


Model 2000

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

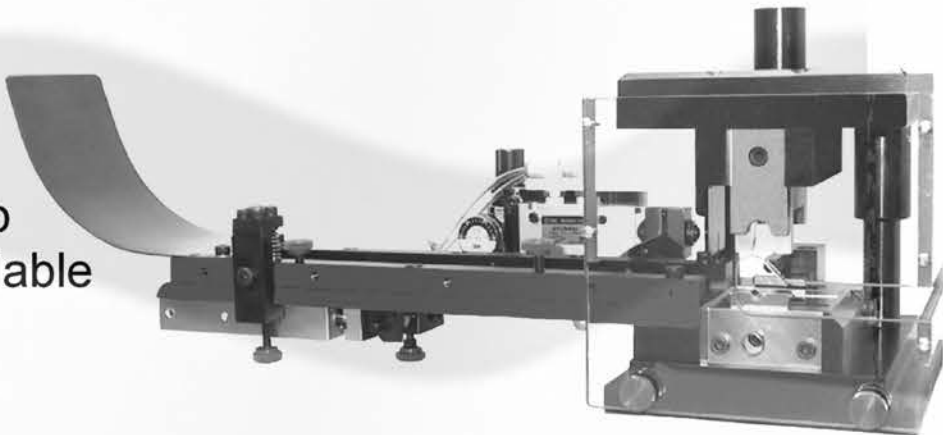


Model 1500



Model 2100

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



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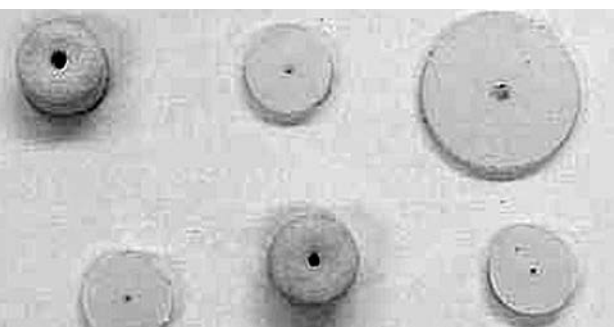
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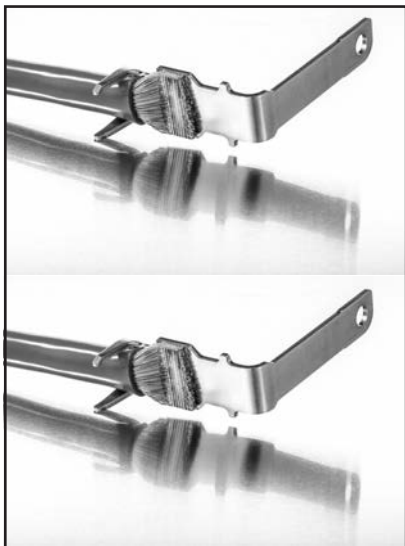
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Continued from page 30

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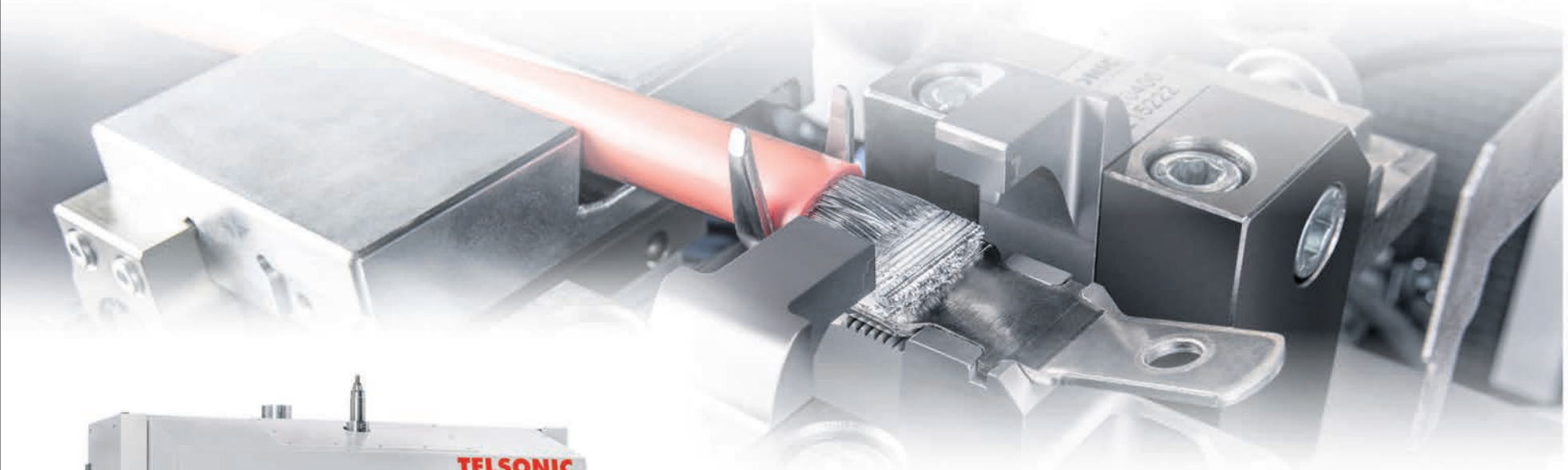
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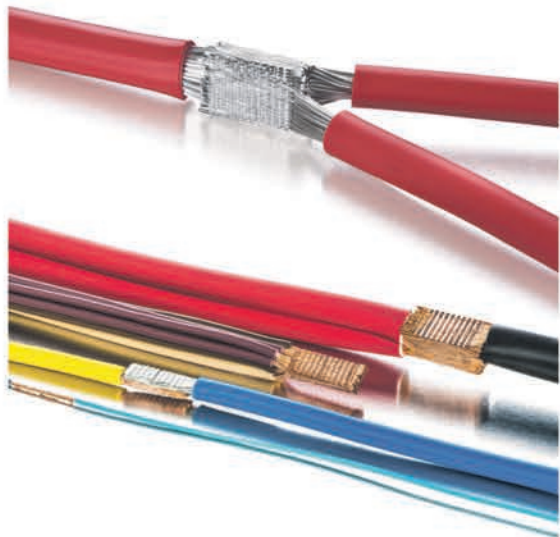
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For over a decade Cembre's revolution in identification systems, MARKINGENIUS®MG3 is a high speed desktop printer using thermal transfer technology to produce labeling media for wire & cable, terminal blocks, electrical and panel building components including push button legends and panel plates. Windows based, the high resolution plug & play MG3 printer prints monochrome True Type fonts while also reproducing Clipart images, drawings, barcodes and bitmaps down to the finest details and printed sheets are dry instantaneously for immediate use.



ROLLY2000 is designed for high speed volume printing of cable markers & adhesive labels in roll format. Thermal transfer print quality matched with robust construction and intensive Cembre reliability allow ROLLY2000 to print 1000 cable tags in less than two minutes. ROLLY2000TR1 is designed to print TERMO-ROLL heat shrinkable tubing in continuous or ladder format at high speed with precision and quality print to meet the most stringent standards. ROLLY2000TR2 is designed for double sided printing of TERMO-ROLL heat shrinkable tubing for high level applications where dual sided marking is an essential specification.

Cembre Inc.

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Tel. (732) 225-7415 - sales.us@cembreinc.com

www.cembreinc.com

NEWS PLUGS continued



HellermandTyton Ratchet P Clamp Enables Manufacturers to Cut Operational Costs

HellermandTyton, announces the release of the Ratchet P Clamp, a patent-pending cable bundle and wire management solution for heavy equipment, OEM and automotive manufacturers, and solar photovoltaic system service providers.

Engineered to streamline wire harness installation, Ratchet P Clamp also helps reduce maintenance costs. The one-piece PA66 nylon solid body and stamped metal mounting plate create a versatile, easy to use and durable alternative to traditional P clamps. Offered in four sizes and in multiple mounting configurations, the reusable design minimizes part inventory requirements.

Ratchet P Clamp's adjustable ratchet mechanism is operated manually, clicking

as it closes to signal that it is secure. It also can be closed with a HellermandTyton EVO Series hand tool, using an optional tension tab. The clamp is released by inserting a small flat-head screwdriver between the ratchet rails and pushing down.

According to Product Manager Missy DeBord, "Ratchet P Clamp was inspired by our customers' requests for a lightweight cable fixing solution that will stand up to the rigors of heavy duty applications and extreme conditions. During on-site research, we learned that they often needed to route bundles side-by-side, had to improvise to secure electrical runs as a final assembly step and find 'work arounds' for mounting challenges in constrained spaces. Ratchet P Clamp solves for all those challenges and helps you work smarter." The combination of increased efficiency and reduced inventory results in lower operational costs.

In-depth information on the design and applications for Ratchet P Clamp is found at www.hellermandtyton.us/ratchetp-clamp or by emailing contact@htamericas.com.

HellermandTyton's systems and solutions help enterprises in electrical, OEM, datacom, automotive, heavy equipment, renewable energy and other industries better manage and identify wire, cable HellermandTyton is a global manufacturer located in 35 countries, with North American headquarters in Milwaukee, Wisconsin

Visit with HellermandTyton Representatives in Booth #1205 at the Electrical Wire Expo.



Ratchet P Clamp

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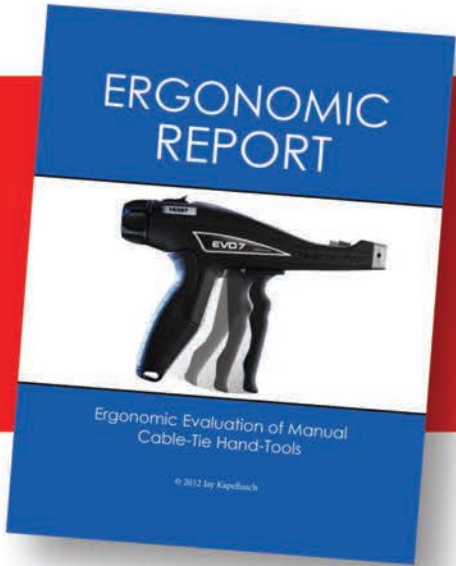
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The EcoStrip 9380 offers the most complete feature set at an economical price point. This flexible machine can be configured with rollers or belt feeding unit capable of short mode processing and is easily operated via the 5.7" color touchscreen and underlying Schleuniger S.ON software. Turn the EcoStrip 9380 into a fully automatic processing line with a wide range of accessories for prefeeding, marking, stacking, coiling and tying.

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"The displays and software are similar from machine to machine. This makes integrating a new piece of equipment into production a smooth transition."
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The MultiStrip 9480 cut & strip family offers six machine versions to cover a wide range of applications and budgets. Its high speed indexing cutter head and programmable rotary incision capability set the benchmark for high precision processing of coaxial and other shielded cables. Designed with efficiency in mind, the SmartBlade system and magnetically held guides increase output and maximize production by reducing changeover times.

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"The training provided by Schleuniger employees exceeded our expectations. We are beyond impressed. They quickly got us up and running and most importantly comfortable with technology we had little prior experience with." **C.H., Jabil**

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Exhibitor: TE Connectivity, Booth #1617



NEWS PLUGS continued



Mentor Automotive Capital Products Compress Development Cycle Times and Boost Efficiency of General Motors Vehicles

Mentor Graphics Corporation announced that General Motors is deploying Mentor® Capital® electrical systems design tools for its vehicle development projects. The tools deliver cycle time reductions and support improved engineering processes, helping General Motors efficiently deliver the new electronic features demanded by the car-buying public. This is achieved via the Capital suite's powerful design asset re-use and correct-by-construction technology that automatically gener-

ates optimized platform-level wiring.

Electrical systems for new General Motors vehicles are now being designed using Capital tools. Furthermore, design data for existing vehicles is being converted to Capital software using utilities developed by Mentor's consulting organization. This enables rapid tool adoption through the availability of infrastructure such as rule decks and libraries, and broadened user familiarity.

General Motors has further ensured a high level of skills among its user community with on-demand training, provided via the Mentor Learning Center web platform. This always-available resource delivers tutorials, hands-on exercises, and knowledge checks that have been developed by Mentor's product experts, tailored to a number of distinct user profiles.

Like many automotive OEMs, General Motors develops vehicles based on a number of core platforms, often tailored to local market preferences. This pattern brings significant cost efficiencies but also requires comprehensive data handling, and compatibility with the enterprise IT environment.

Replacement of a key part of the vehicle development process can be a daunting task. But General Motors has reached key milestones such as production design data release on schedule while transitioning to Capital. Martin O'Brien, general manager, Mentor Automotive, said,

"General Motors' adoption of Capital is a model of good practice. It has been speedy but also highly structured. We look forward to working further with GM as the applicability of additional tools within the


Capital range is explored, for example to help control electrical system configuration complexity or automatically create technical publications."

Capital is an advanced software suite supporting complex electrical systems challenges from product definition through electrical system design, harness manufacture and vehicle maintenance.

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


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Onanon

Continued from page 1

Sahakian's wife based on the last two letters of each man's last name.

"PCBs were a volatile industry, so we went in a more stable direction by dealing with OEMs and getting into designs," Johnson said. "We added value to their products by putting pins in the substrate of PCBs and doing connector manufacturing. A lot of connectors were terminated to cables, so they were a natural progression of our business."

Sahakian, 56, is still with Onanon. He serves as the chief financial officer and vice president of manufacturing. "He


runs a tight ship on manufacturing, and all of the company growth has been organic. Our R&D and expansion are based on a strong balance sheet," Johnson said.

The men's experience and expertise are complemented by those of: Robert Sobotkiewicz, chief operations officer and quality manager; Andrew Montoya, VP of sales and marketing; Mohammed Younis, production manager; Suzanne Figueroa, office manager; and Shiba Henderson, new products development manager.

Continued on page 42



Onanon makes overmolded connectors and cable assemblies. Overmolding provides water and shock proofing.



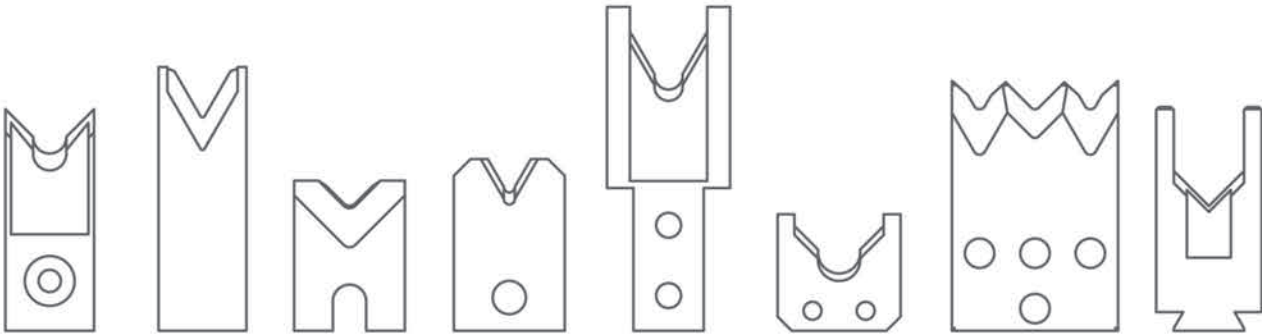
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Onanon

Continued from page 40

Johnson oversees the engineering department, which is staffed by eight persons, including senior engineers Mazyar Keshtgar and Katie Hoose. Johnson urges the staffers to use their creativity but to make sure a design can be manufactured and scalable.

“I like people to make as many mis-

takes as fast and as humanly possible,” he said. “This has served us well and breaks down human limitations that were learned at other companies or as individuals. By getting the mistakes out of the way in a design or a test you learn the what and why about something.”

The engineers double as sales consultants for Onanon customers. “They deal engineer to engineer so data is not diluted through sales teams,” Johnson said. “It is the most efficient communica-

tion and adds the most amount of value for our customers. They appreciate it because there are no middlemen.”

Of the 81 staff members, 59 are in production. They work one eight-hour shift five days a week. Besides wages, the employees have full benefits that include health and dental insurance, a 401(k) plan and annual bonuses.

“We look for people who have a strong, affable nature. That’s very important,” Johnson said. “A good personality and work ethic are needed, and we have 100-percent proficiency training that builds confidence. The more confident people are, the more they are efficient.

“We have a very pleasant environ-

ment, and we want nothing within our walls to create stress or drama,” Johnson said. “When our HR department is onboarding new employees, they get training on our culture so they know how to act.”

Johnson takes pride in the company staff. “Everybody is happy to come to work,” he said. “Several tell me this is the best place they’ve ever worked.”

The third Thursday of each month is Team Appreciation Day. All staff members meet to recognize people with birthdays and anniversaries and for persons’ innovative ideas that have saved time, improved quality or cut cost. The second Friday of every month is when

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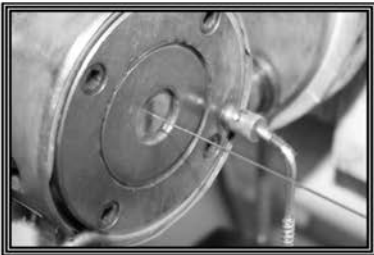
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managers and leads meet to review all aspects of production.

Johnson expects 10 more employees to be hired this year in the production and quality-control departments. He also anticipates a second shift will be needed later in 2016 or early '17.

Johnson noted the company is at 40-percent capacity of the 30,000 square feet Onanon leases in a 60,000-square-foot building, where the company has been located five years. It started in 1,200-square-foot space and spent 10 years in it before moving to a 12,000-square-foot building, which was occupied 16 years.

Production is for customers in five markets, the largest of which is medical at 45 percent. The percentages for the others are: commercial, 25; industrial, 15; military, 10; and automotive, five. The average customer tenure is 9½ years and the longest 28 years.

Customers include Boston Scientific, headquartered in Marlborough, Mass.; Johnson & Johnson, East Brunswick, N.J.; Smart Modular Technologies, Newark, Calif.; Ekos, Bothell, Wash.; Delphi Automotive, Gillingham, Kent, UK; Lockheed Martin, Bethesda, Wash.; Boeing, Chicago, Ill.; Apple, Cupertino, Calif.; IBM, Armonk, N.Y.; Intel, Santa Clara, Calif.; Medtronics, Minneapolis, Minn.; and Sikorsky Aircraft Corp., Stratford, Conn.

Johnson related that Onanon supplies parts to John Deere, headquartered in Moline, Ill., that directly lead to \$4 billion in John Deere product sales. For the last 12 years Onanon has won 170 awards for 5,000 products in the John Deere Achieving Excellence Program, the highest recognition for suppliers for their products, service and continuous improvement.

A production run can be between 10,000 pieces and 25 million pieces a year. "We're geared for high volume and repeat cycles," Johnson said. "We don't do many part numbers, and we dedicate lines for them." For example, every month two million parts are shipped to China and one million parts to India.

Engineered plastics, ceramic and PCB substrate materials are used to make custom connectors, intelligent connectors, molded products, overmolded cables, small-scale systems and related components. Wires can be from 20 to 56 gauge, and pins can be assorted counts, sizes and pitches.

Technologically

advanced equipment is used to design, prototype, develop and manufacture products. Processes are according to such standards as ISO 13485:2003, ISO 9001:2008, lean, Six Sigma, SPC and 5S and monitored by a Windows-based MRP/ERP system.

"When you really practice the standards, it makes you better all around," Johnson said. "They enable us to be lean and efficient, and they've even made our employees better in daily life."

Onanon has automated equipment to do 3-D printing, CNC machining, vacuum forming, wire stripping and terminating, PCB assembly, connector pin assembly, coating and epoxy application. Also, solder-paste dispensing, contact terminal pin stamping, in-process testing, printing and marking, batch

Continued on page 42

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Booth #1739

CERTI-CRIMP HAND TOOLS

TE Connectivity's (TE) CERTI-CRIMP hand tools are premium, hand-operated tools for crimping a broad array of terminals, contacts, and special wiring devices from TE. These are designed to exacting specifications for consistent, high-quality terminations. There are currently seven basic styles of CERTI-CRIMP hand tools. The choice depends on the product being applied.

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

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

Features:

- Dies close in a straight action
- Ejects crimped contacts
- CERTI-CRIMP ratchet
- Crimp nest wire size/crimp height laser marked on face of tool and terminal scrap chopper.
- Weight: approx. 1.3 lbs (0.6 kg)

Applications:

- Terminals
- Multiple crimping nests
- Low production runs
- Prototype work
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Booth #1650



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Onanon

Continued from page 43

cleaning, video monitoring and packaging.

The equipment may be seen in action in a video on the Onanon Web site. The video button is located in the far lower-

right corner of the home page at www.onanon.com.

“The biggest event in our company history was automating wire termination that can do up to a fully populated 400-conductor cable assembly with 56-gauge wire,” Johnson said. “It was a big investment in the equipment and the R&D, but no one has anything like it in the world.

“It opens doors to a lot of new innovation, and we can leverage automation for our design and product engineers,” Johnson said. “We’re excited about this technology in the future.”

To produce prototypes within 24 hours, the engineering department does 3-D printing, has a five-axis milling machine and can produce PCBs in a matter of hours. The department also has a unique cross-section machine.

Lead times have been as short as four weeks. For a part already designed and developed, production time is four weeks, half the industry standard.

External quality is 100 percent, and internal is 99 percent. “Our quality team is monitoring everything measurable, so we know there is a problem before there is a problem,” Johnson said. “We

have a full-time 5S team member who audits all workstations.”

Onanon has 475 suppliers. Ten years ago the number was twice that. Just 20 of them are key. “We have a very strong supply chain, and we’re very pleased with it,” Johnson said. “We need our suppliers to be nimble.”

Johnson sees the need for people in the wiring harness and cable assembly industry to be creative. “Companies big and small can be very rigid in their thinking and stuck in one mindset,” he said. “They are not nimble. Creativity has to be not just product-driven but for improving quality on the customers’ side.” For more information, call 408-262-8990, e-mail dennis@onanon.com, or write 720 S. Milpitas Blvd., Milpitas, CA 95035.



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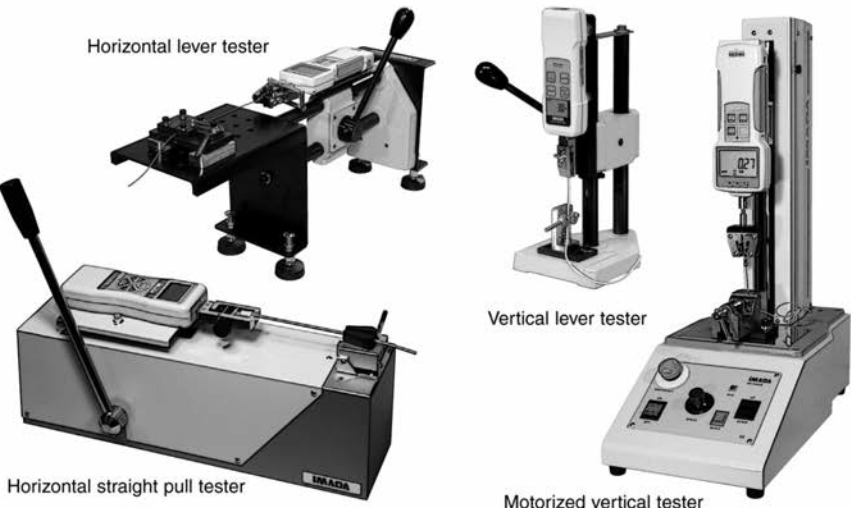
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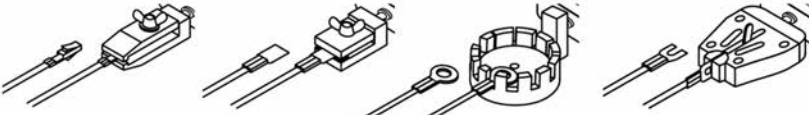
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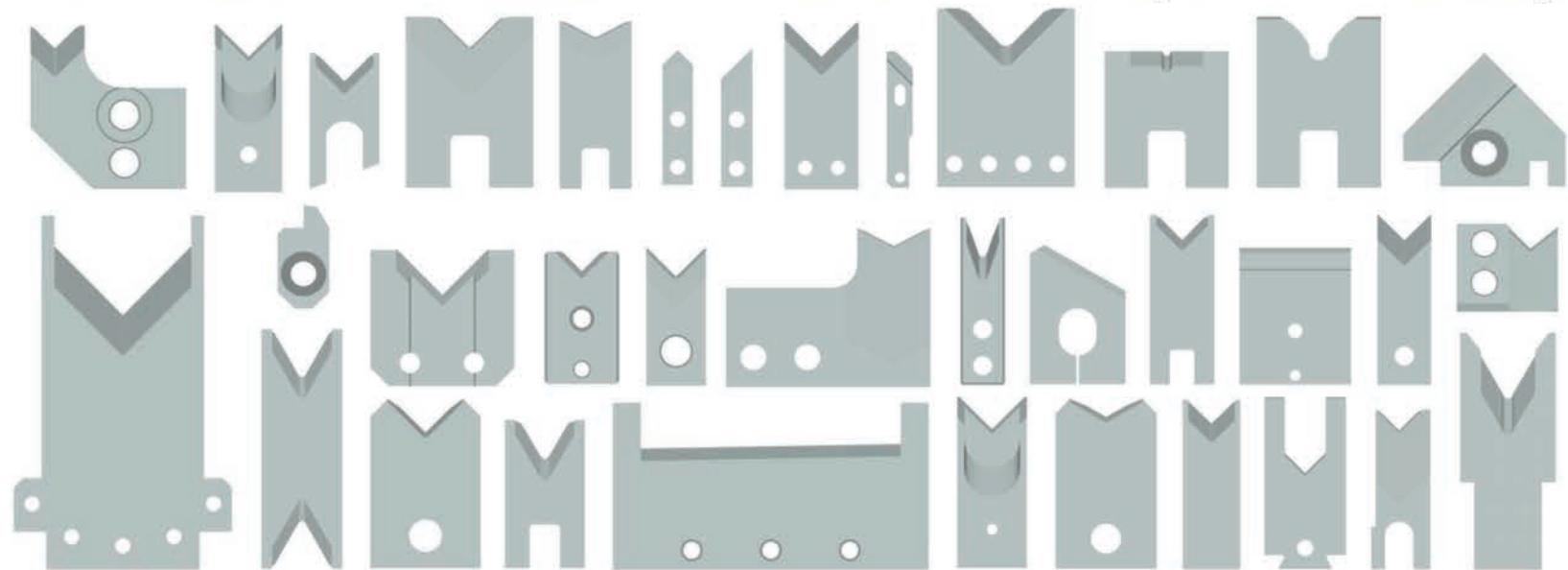
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Allied Wire & Cable Hosts 10th Annual Charity Week; Donates Over \$18,000 to Local Charities

Allied Wire & Cable hosts a charity week each year where a percentage of sales are donated to charitable organizations. This year was the electrical distributor's tenth annual charity week, which was held from December 14th through 18th. The company donated \$18,204.25 to four different charities in which an employee had a special connection.

For ten years now, Allied Wire & Cable has designated one week during the month of December to donate a percentage of sales to charity. The family-owned and operated electrical distributor has donated over \$120,000 to many charitable organizations throughout the years, including charities like its local Make-A-Wish Foundation® of Philadelphia, Northern Delaware & Susquehanna Valley, the Humane Society and the American Cancer Society.

To honor its tenth charity week, the company chose to support organizations that have a special connection with an employee from each branch. These Allied employees hold important roles in their respective charities, which range from longtime supporters to active members with leadership positions in the organization.

This year, Allied donated a total of \$18,204.25 to four different organizations local to its branches:

- **Pets for Vets:** provides American veterans with a loving companion by rescuing and training shelter animals (Collegeville, PA headquarters).
- **Marguerite's Place:** a transitional housing program that helps women and children in crisis become stable again (Merrimack, NH branch).
- **Shriners Hospitals for Children — Twin Cities:** a charitable hospital that specializes in treating children with orthopaedic conditions (Pewaukee, WI branch).
- **American Diabetes Association:** fights for those affected by diabetes and funds research to help prevent and cure the disease (Tampa, FL branch).

Thanks to the involvement of Allied employees in these organizations, each charity received a check for \$4,551.06.

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

cable with more than 25 years of experience. Allied serves all major global markets, including government and military, as well as the aerospace, automotive, and telecommunications industries. AWC is dedicated to personalized service, and assigns an individual sales rep to each and every customer. Customization services such as cut and strip, custom print, dyeing, striping, twisting, and more are available, in addition to a full range of custom cable design and manufacturing services. Allied is headquartered in Collegeville, PA, with stocking locations in Florida, Wisconsin, and Nevada. Additional sales offices are located in New Hampshire and throughout the Southeastern United States. Allied is proud to serve customers worldwide. For more information, please visit www.awcwire.com.

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President
Exhibitor: Komax Corporation, Booth #1123



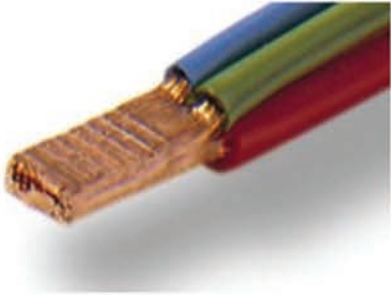
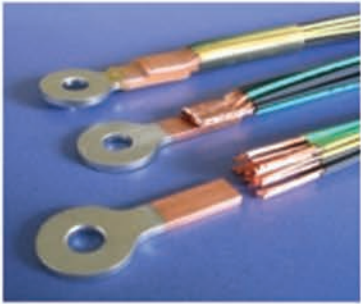
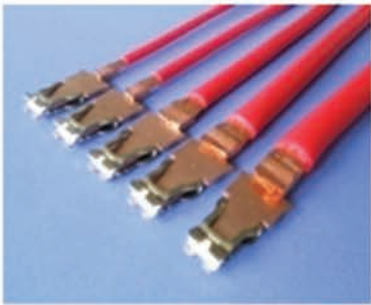


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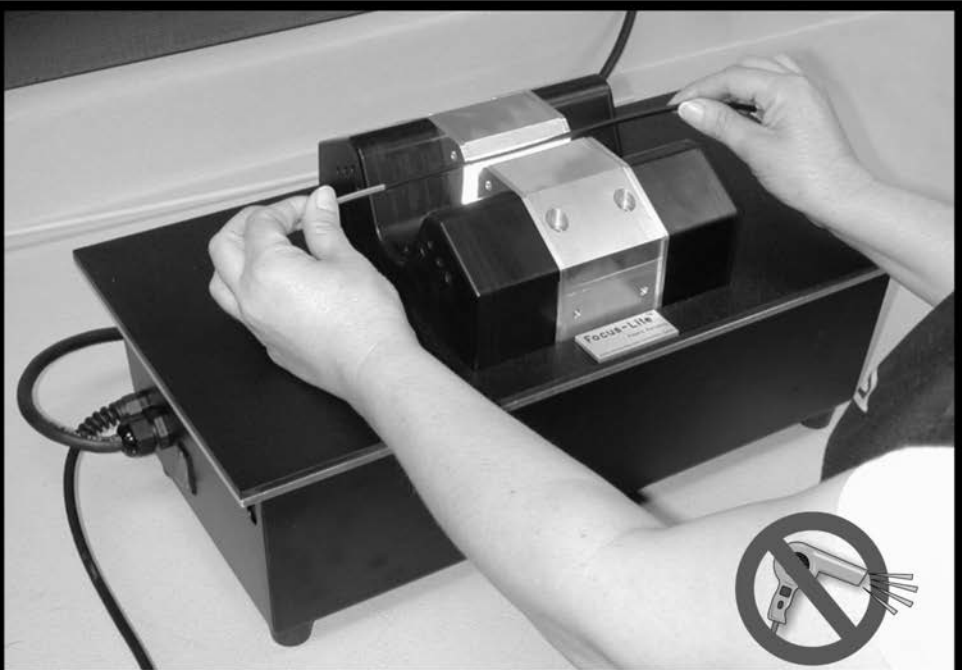
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Save up to 80% of your labor cost on heat shrink operations

The Focus-Lite™ by Judco Manufacturing, Inc., is the solution to all your heat-shrink operations. You can say goodbye to the high labor cost, excessive heat, and inefficiencies of other methods. The Focus-Lite™ reduces the time necessary to shrink most types of heat shrink tubing. It also improves the process control and overall quality of your shrink operation. The Focus-Lite™ can be used for high volume bench top applications as well as low volume prototypes and laboratory applications.

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

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

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



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Focus-Lite
Heat Shrink Processing Machines

WIREwisdom™ ANIXTER

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

CSA FLAME TESTS

The Canadian Electrical Code (CEC), published by the Canadian Standards Association, is the Canadian safety code for electrical installations that is adopted into law by each province and territory with amendments or local rules. The Code includes references to a stringent series of tests developed for flame testing of wires and cables. Cables are marked from FT1 to FT6, depending on which of the specified flame test requirements they fulfill.

APPLICABLE STANDARDS

The CSA C22.2 No.2556 wire and cable test standard is the harmonized ANCE, CSA Group, and UL standard for Wire and Cable Test Procedures. This

standard describes the apparatus, test procedures and formulas to be used in carrying out the tests and calculations required by wire and cable standards.

FT1 Flame Test

Test procedure: Cables are subjected to a 15-second duration of a 3,000 BTU/hour flame five times.

Pass/fail criteria: A finished conductor shall not convey flame or continue to burn for more than 60 seconds after five 15-second applications of the test flame. If more than 25 percent of the extended portion of the indicator is burned, the conductor shall be considered to have conveyed flame.

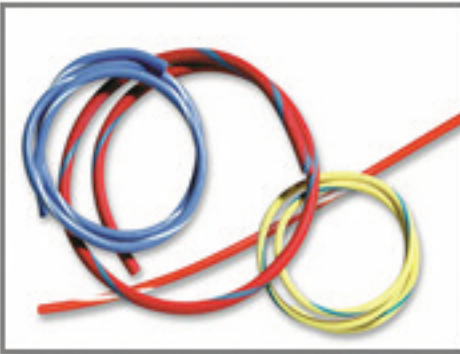
Continued on page 50

	FT1	FT2	FT4	FT5	FT6
Setup	Vertical	Horizontal	Vertical	Horizontal	Horizontal
Flame Output	3,000 BTU/hour	1,700 BTU/hour	70,000 BTU/hour	1,700 BTU/hour	300,000 BTU/hour
Duration	5 x 15 seconds	30 seconds	20 minutes	60 seconds	20 minutes
Pass/Fail Criteria	A finished conductor shall not convey flame or continue to burn for more than 60 seconds after five 15-second applications of the test flame. If more than 25 percent of the extended portion of the indicator is burned, the conductor shall be considered to have conveyed flame.	The length of the charred portion of the specimen of cord shall not exceed 100 mm nor shall it drop flaming particles.	Finished wires or cables shall not exhibit charred material beyond a length exceeding 1.5 m (5 ft.) from the lower edge of the burner face when subjected to the test.	The cable shall not have a length of burned area exceeding 150 mm and shall not continue to burn for more than four minutes when subjected to the flame test.	A flame travel distance not exceeding 1.52 m (5 ft.), a peak optical density of smoke not exceeding 0.5, and an average optical density not exceeding 0.15 are described as having adequate fire-resistant and low smoke-producing characteristics.
Applicable Standard(s)	CSA C22.2 No.38 CSA C22.2 No.75 CSA C68.5 CSA C68.10	CSA C22.2 No.49	CSA C22.2 No.38 CSA C22.2 No.51 CSA C22.2 No.75 CSA C22.2 No.123 CSA C22.2 No.131 CSA C22.2 No.230 CSA C68.10	CSA No.96	CSA C22.2 No.214 UL 444 NFPA 262

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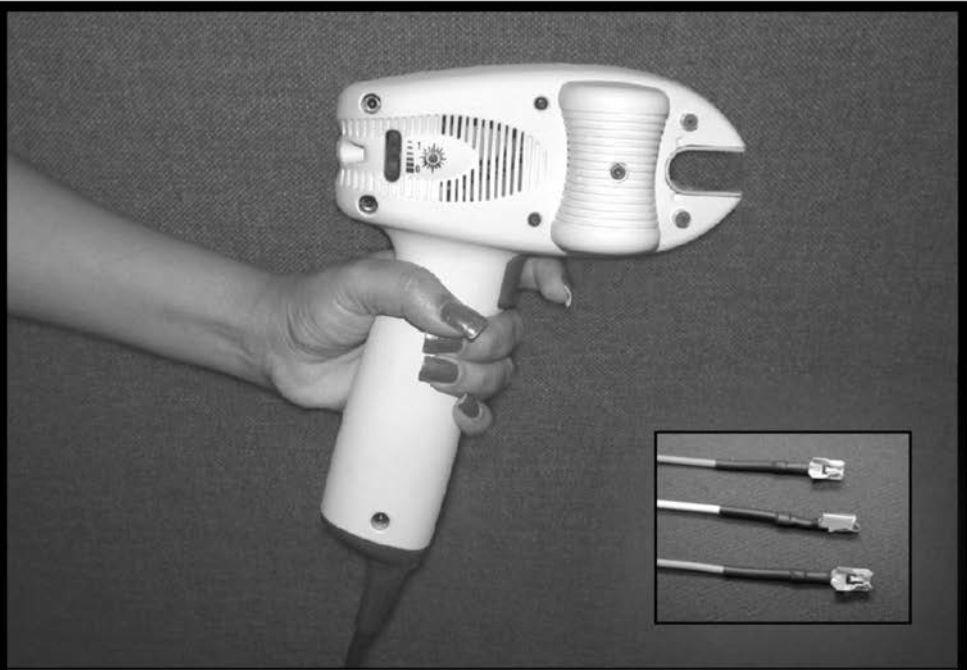
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Focus-Lite™ technology uses radiant energy to shrink heat-shrink tubing in a fraction of the time of traditional methods.

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

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



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Continued from page 48

FT2 Flame Test

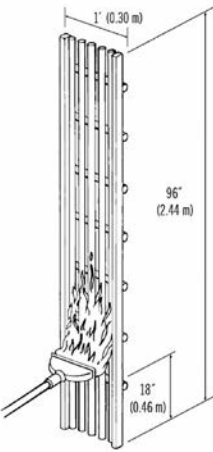
Test procedure: Cables are subjected to a 1,700 BTU/hour flame applied to a horizontal wire or cable sample for 30 seconds.

Pass/fail criteria: The length of the charred portion of the specimen of cord shall not exceed 100 mm nor shall it drop flaming particles. (Source: CSA C22.2 No.49)

FT4 Flame Test

Test procedure: Cables are mounted on a vertical tray and exposed for 20 minutes to a 70,000 BTU/hour flame. This test is the same as the IEEE 1202 flame test and both are found in the UL 1685 document. Because of the reduced char height requirements, the FT4 and IEEE 1202 tests are slightly more difficult to pass than the UL 1685 vertical tray version.

Pass/fail criteria: Finished wires or cables shall not exhibit charred material beyond a length exceeding 1.5 m (5 ft.) from the lower edge of the burner face when subjected to the test. (Source: CSA C22.2 No.38)



FT5 Flame Test

This flame test is applicable to portable power cables such as SHD-GC for use in surface or underground mining applications.

Test procedure: Three one-meter samples are required for this test and are set up horizontally. The specimens are heated with electric current (DC or AC voltage source) until the conductor temperature reaches 205° C ± 5° C. Once this conductor temperature has been reached, a 1,700 BTU/hour flame is applied for 60 seconds at the center of the cable. Upon removing the flame, the current supply is also disconnected from the sample immediately.

Pass/fail criteria: The cable shall not have a length of burned area exceeding 150 mm and shall not continue to burn for more than four minutes when subjected to the flame test. (Source: CSA No.96)

FT6 Flame Test

The U.S. version of this test is known as the NFPA 262 "Steiner Tunnel" Flame Test (formerly UL 910), which measures flame spread and smoke generation in a simulated air handling plenum.

Test procedure: A 25-foot long Steiner Tunnel is used for the test with intake and exhaust ducts and a means of regulating flow velocity of air through the tunnel. Windows at 1-foot intervals



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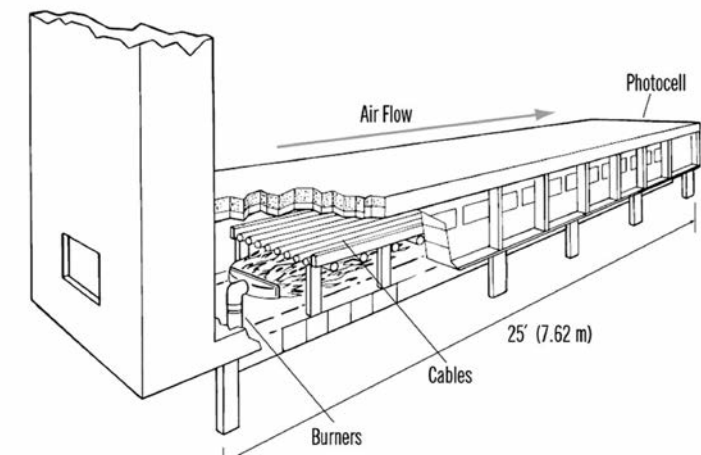
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allow for flame spread measurements, and an optical device in the exhaust of the chamber measures smoke density. The cable samples are mounted in a cable tray in one layer in the tunnel and the tunnel is sealed. Two circular burners are mounted vertically at the intake end of the tunnel just in front of the cable tray. Methane is burned along with a 240 ft./min. forced draft through the

tunnel for twenty minutes, and the flame is extinguished. Flame spread and smoke density are monitored throughout the test.

Pass/fail criteria: A flame travel distance not exceeding 1.52 m (5 ft.), a peak optical density of smoke not exceeding 0.5 and an average optical density not exceeding 0.15 are described as having adequate fire-resistant and low smoke-producing characteristics. (Source: NFPA 262)



Visit Kathy, Joe, and Marilyn in the Wiring Harness News Business Center and Lounge

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Kevin Denning
President and CEO
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"Having a trade show specifically for the wire processing industry is an invaluable resource and is the best way for us to introduce our latest products to the industry."

Micah Durham
North America Sales Manager
Exhibitor: Schleuniger Inc., Booth #1631



NEWS PLUGS continued



New Panduit GTS-E Cable Tie Hand Tool Offers Lowest Industry Handle Force and Impact Shock for Installer Productivity and Safety

Panduit Corp., an industry leader in wire harness, heavy duty cable management, and control panel solutions for over 60 years, announced the launch of its new Panduit GTS-E Cable Tie Hand Tool that offers lowest industry handle force and resulting impact shock to increase productivity and promote worker safety.

With a new ergonomic design for comfort and grip, complemented by



GTS-E Cable Tie Hand Tool

an industry low handle force that is 15% lower than comparable industry tools, the Panduit GTS-E Cable Tie

Hand Tool reduces risk of operator fatigue during repetitive tool use, as well as repetitive motion injuries to hands during cable tie cut off. The improved cable tie cut-off mechanism further increases protection by reducing impact shock to an installer's hand by more than 40%, a new industry low for comparable industry tools.

"Panduit has a long history of working closely with a diverse number of customers and partners in industries from aerospace and rail, to contract manufacturers and harness shops", said Bob Krisel, VP of Panduit OEM. "Regardless of the tooling application, comfort and safety drive increased productivity. We believe the GTS-E sets a new standard in driving that productivity."

Additional new features include:

- Single, easy-to-read, tension adjustment knob in .5" increments that speeds adjustments and accuracy of tension settings with a simple pull and twist motion.
- Beveled tie entry that allows quick side entry of tie into tool to speed installation
- Long and narrow barrel nose design that improves visibility and access to confined areas
- Lightweight, yet durable design that helps to preserve consistent performance over time, while reducing maintenance and replacement costs over years of use.

To learn more on the GTS-E Cable Tie Hand Tool, please visit www.panduit.com/ctht. See Panduit at the Electrical Wire Processing Technology Expo in Booth #1747.

New

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Wire Crimp Pull Testing



Introducing the fully integrated WT3-201M automatic wire crimp pull tester

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Allied Wire & Cable Adds Industry Vet to New Hampshire Roster

As Allied Wire & Cable continues to grow its sales team across the US, the company welcomes Russ Lawson to the Merrimack, NH branch. Russ is a seasoned veteran, who brings 20 years of experience to Allied's sales team.

Since Allied got its start in 1988 out of the Flynn's basement in Wayne, PA, there's been no looking back for the rapidly growing company. The family-owned and operated business now has several locations throughout the country and is home to over 200 employees and counting. Because business and production are at a steady increase, Allied continues to add more employees to its team. Most recently, the company welcomed Russ Lawson on board in Merrimack, NH.

Throughout his twenty years in the wire and cable industry, Russ has worked his way through the ranks of the business, holding positions in warehouse operations, sales, and supply chain roles. Russ got his start in the world of wire and cable in 1995 with Manhattan/CDT where he was a warehouse operations manager for ten years.

Following his career with Manhattan/CDT, Russ worked for A.E. Petsche Co., where he spent seven years as an inside sales representative. He then became an onsite buyer/seller later in his career with the company, which was the most recent position he held before coming on board with Allied in early January.

Russ brings several years of experience and a well-rounded wire and cable resume to Allied, and is eager to leave a positive mark on AWC customers. He assures his future customers that he will use his "product knowledge to meet and exceed expectations." The company is excited to add Russ to the team and be a part of his continued success in the wire and cable industry.

Allied Wire & Cable is a family owned and operated specialty manufacturer and distributor of wire and cable with more than 25 years of experience. Allied serves all major global markets, including government and military, as well as the aerospace, automotive, and telecommunications industries. AWC is dedicated to personalized service, and assigns an individual sales rep to each and every customer. Customization serv-

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

Jan 2016

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Inside Sales Administrator
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"From terminals to tooling to field service and installation, the Expo offers us the ability to showcase our expertise in delivering a complete wire processing solution for our customers."

Travis Benchoff
Global Product Manager
Exhibitor: TE Connectivity, Booth #1617

ElectricalWireShow.com

Fiber Optic Center Announces Splicer V-Groove Cleaning Kit Solution

Fiber Optic Center, Inc., (FOC), an international leader in distributing fiber optic components, equipment and supplies and recognized as one of the most technically savvy fiber optics companies in the world, announces the addition of Splicer V-Groove Cleaning Kit to their website.

The AFL Splicer V-Groove Cleaning Kit integrates eight components into an affordable and effective inspection and cleaning solution for any fusion splicer.

A frequent topic at FOC both in

the online AskFOC tool and on location with customers is the challenge with contamination. Contamination in the v-groove of the splicer is still a primary source of trouble for the splicing technician. This is especially problematic when splicing with a fixed v-groove fusion splicer. Environmental contamination, such as dust, dirt, and fiber coating debris,



Splicer V-Groove Cleaning Kit Solution

as well as, the silica deposits generated during the fusion process eventually find their way to the surface of the v-groove. This contamination will offset the fibers and degrade performance. To help control this problem, a disciplined cleaning regimen and specific tooling is required to ensure the splice is right the first time.

FOC has a quick link to their website now showing information on the Splicer V-Groove Cleaning Kit at: bit.ly/1OVtflp

To solve cleaning needs, the AFL Splicer V-Groove Cleaning Kit integrates eight components into an affordable and effective inspection and cleaning solution for any fusion splicer. Small and lightweight, it fits easily into transit case.

Kit Includes

- Scrubber Brush with stiff tapered nylon bristles and Sweeper Brush with soft nylon bristles
- Eye Loupe with 3X to 12X magnification
- LED Pen Light with momentary or constant on switching
- Cleaning Fluid that is nonflammable and environmentally safe and Lint-free Cotton Swabs
- Instruction Sheet with illustrations and Canvas Carrying Case

At SPIE Photonics West, FOC will have the Splicer V-Groove Cleaning Kit at their booth, #5048.

In addition to the Photonics West event, FOC will be offering technical discussion, demonstrations and the Splicer V-Groove Cleaning Kit on display at OFC in Anaheim at booth #2308 just inside the main entrance of the event.

Fiber Optic Center (FOC) is an international high technology sales, marketing, distribution, manufacturing and consulting company. In these key technology areas, FOC is "at least as technical as the manufacturer" about the products they sell. FOC also strives to "make the business part easy," offering outstanding and personal customer service, low or no minimum purchase order values, and from-stock delivery on industry-leading products and technology. Their main focus is assisting cable assembly houses with supplies, equipment, consulting and technical support in the manufacturing and testing of fiber optic cable assemblies.

For further information contact: Fiber Optic Center, Inc., 23 Centre Street, New Bedford, MA 02740-6322

Toll Free in US: 800-IS-FIBER or 800-473-4237 . Direct 508-992-6464 Email: sales@focenter.com

UNIQA-PRO SINGLE CRIMP WIRE PROCESSOR

This lead making machine combines a proven platform, with a cost-effective, multiple station design and a wide range of customer options.

TE Connectivity's UNIQA-PRO Single Crimp Wire Processor is an ideal cost-effective solution for companies looking to ramp up production from multiple bench top machines without making the large capital investment of a double ended leadmaker. With this single ended-leadmaker, you will be able to save labor costs by measuring, cutting, stripping both ends, and crimping one end of a wire lead all with a single machine.

Features:

- 20% smaller footprint than a typical double ended leadmaker.
- The UNIQA-PRO can ramp up your throughput by approximately 4X over a standard wire prep. and benchtop applicator.
- User-friendly PC control.
- Available in three different models to fit your needs: Basic machine with a passive wire collection system, basic machine with a passive wire collection system, crimp force monitor, and terminal scrap chopper, and a high force machine with an active wire collection system, crimp force monitor, and terminal scrap chopper.

Applications:

- Rugged, densely packaged RF interconnect systems
- Backplane/daughter card
- Electronic countermeasure systems
- Land and sea anti-ballistic signal processing
- Avionics and ground based radar
- Ground base stations and communication systems
- Central computing, satellite on-board and ship-board computing
- Low RF to high microwave frequencies



Electrical Wire Processing Technology Expo Booth #1650

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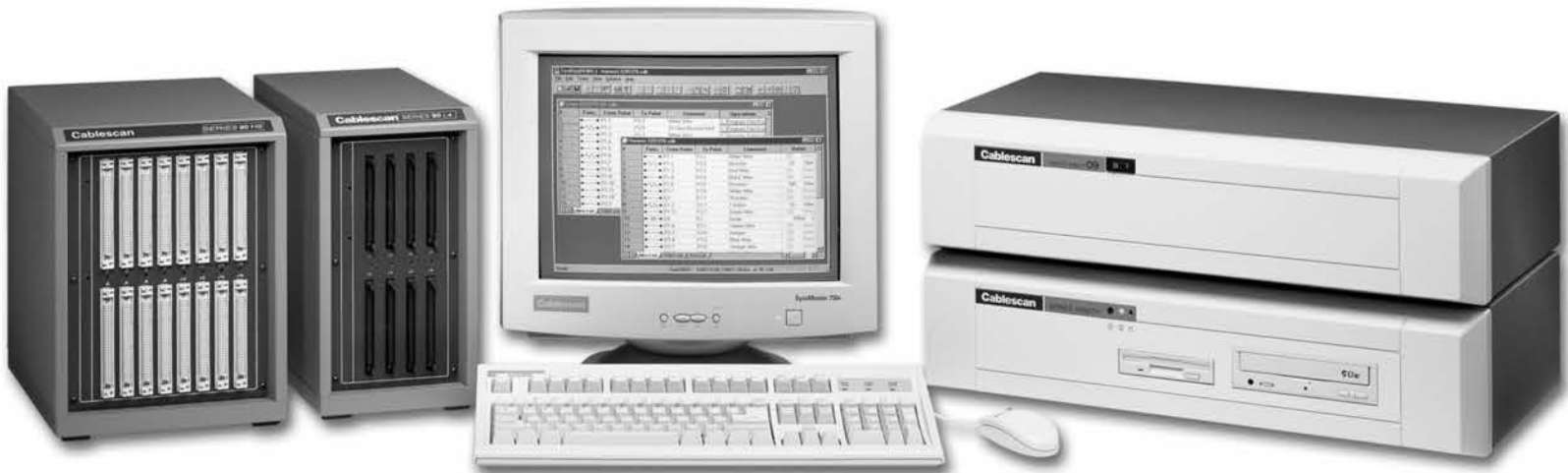
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More customers choose Cablesan Series 90 Continuity Analyzers with our unique TestRite software than any other continuity test system of its kind. Series 90 circuit analyzers provide exceptional speed, versatility, and accuracy in the testing of wire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

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



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NEWS PLUGS continued



CableEye® Calibration Verification Board, CB50

CAMI Research Inc. (Acton, MA) announces a new board for its CableEye cable and harness testing systems. Populated with precision resistors, it allows users to determine empirically whether

the tester requires calibration. The CB50 may be used on all CableEye models.

A leader in development of PC-based Cable & Wire Harness Test Systems for over 20 years, CAMI offers the CableEye suite of Low and High Voltage products complete with accessories including connector boards. The CB50 attaches to the tester like a regular connector board. When checking expansion modules, the board can be connected directly or via an extension cable.



CableEye® Calibration Verification Board

Sold as a SINGLE board, the CB50 contains a network of precision resistors for checking resistance, and two diodes for checking diode polarity. Ten different resistance values are checked in triplicate at each of the tester header's 64 test points. The values span the entire test range. The CB50 is configured to verify model M3U, while the CB50H is configured for models M3UH, HVX, and HVX-21.

The CB50 is intended for periodic verification of tester calibration. To ensure that resistance measurements remain accurate, CAMI recommends yearly calibration. However, depending on environmental conditions and usage, testers may need calibrating more or less frequently.

Certain components within models M3U, M3UH, HVX, and HVX-21 (i.e. those capable of measuring resistance) are analog components whose characteristics change slightly over time.

This aging is a natural phenomenon common to all electronic components and may cause resistance measurements or gradually deviate from normal. A tester that is out of calibration will give inaccurate results. Some (maybe all) resistance measurements will be incorrect.

Consequently, it may Pass what should Fail and, conversely, Fail what should Pass. In other words product yield will be contaminated due to unreliable quality.

Companies with quality certifications such as six sigma or ISO9001 will be required to calibrate. The CB50 will allow these quality-focussed companies to optimally determine when calibration is necessary and to schedule accordingly. Customers may purchase a kit to calibrate the tester themselves, or send the tester to CAMI for calibration.

Connector boards are included in CableEye's standard, renewable one-year warranty of the tester for which it was purchased. The warranty covers replacement of worn connectors and cleaning of connector boards.

For further information contact sales@camiresearch.com or (978) 266-2655 for a quote. Visit Cami Research at the Electrical Wire Expo in Booth #1709

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TE Connectivity's Micro-MaTch Cable Assemblies Now Available from Newark element14

Newark element14 expanded their inventory with Micro-MaTch cable assemblies from TE Connectivity (TE), a world leader in connectivity. These cable assemblies are the newest edition to TE's Micro-MaTch connector series' product portfolio. The Micro-MaTch contact spring system provides a fretting corrosion resistant solution, designed to limit movement between mating parts and establish gas tight connections, unlike tin-plated designs which wear more easily and quickly.

The connector utilizes an additional positioning spring in the female part that absorbs movements caused by vibrations and thermal expansion. This stops movement on the contact spot and allows a secure connection to form.

The system reduces free motion by equalizing tight, positional tolerances. This also applies the high contact force necessary for tin-plated systems and offers robust housings with and without latches.

These cable assemblies can be used for a variety of applications across a wide range of industries. Uses for the automotive market, for example, include motors, radios, GPS, climate controls, navigation systems and airbag units. Other applications include production and material handling equipment, alarm equipment, building surface control, AV equipment, set top boxes and more. This sturdy and multi-functional product gives engineers the flexibility to build out the projects they

imagined.

TE Micro-MaTch cable assemblies are available from Newark element14 in North America, Farnell element14 in Europe and element14 in Asia in a variety of position plugs and sizes.

For more information about TE's Micro-MaTch cable assemblies, visit www.newark.com/te-connectivity-amp.

Cut a Wide Range of Materials with Eraser's NEW Model MMC71 Multi-Material Cutter

New from The Eraser Company, Model MMC71 Multi-Material Cutter is capable of cutting a wide range of materials, including flat material up to 3.3" inches wide, tubing up to 3/16" OD, and wire up to 14 AWG stranded or 16 AWG solid.


The MMC71 works great on flat material such as heat shrink tubing, tapes, foils, ribbon cable and more, and is even capable of cutting silicone tubing.

The machine is easily programmable, offering ten fixed feed rates, ten fixed cut rates, and storage for up to 99 batches and 10 kits (depending on available memory).

Material guides are easily adjustable for each application. Additional guide kits are available to allow multiple pieces of the same material to be cut at the same time, increasing operator efficiency and production rate. The unit is fully electric and does not require an air supply.

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


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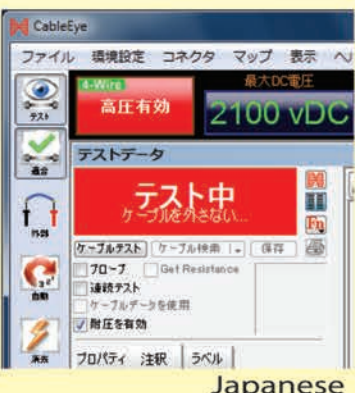
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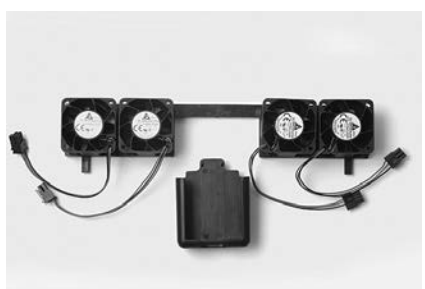
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NEWS PLUGS continued



Schleuniger, Inc. to Debut New Wire Processing Equipment at Electrical Wire Processing Technology Expo

Schleuniger, Inc., a manufacturer of high-precision wire processing machines, will be among the over 150 world-class suppliers and service companies to exhibit at the 2016 Electrical Wire Processing Technology Expo. This annual event for the wire and cable processing industry will be held May 11 – 12, 2016 at The Wisconsin Center in Milwaukee, WI. Schleuniger will be at booth #1633 providing hands-on demonstrations of innovative solutions for stripping, cutting, sealing, crimping, and marking of all types of wire and cable.

At this year's exhibition, Schleuniger will unveil many impressive wire processing innovations.

For the first time in the US Schleuniger will demonstrate the 2015 productronica innovation award winning, CoaxCenter 6000. The CoaxCenter 6000 is the first and only fully automatic machine for processing micro-coaxial and coaxial cables as well as single conductor wires. The machine's QCam 360 automatically monitors stripping quality, eliminating the need for time-consuming manual post-production monitoring processes. In addition, the CoaxCenter 6000 also achieves extremely high productivity. The output of this machine is at least three times higher than

with manual and semi-automatic equipment and requires considerably lower personnel and handling requirements.

Schleuniger will also debut its newest cut and strip machine, the EcoStrip 9380. The EcoStrip 9380 offers the most complete feature set at an economical price point. This flexible machine provides expanded capabilities. It can be configured with rollers or belt feeding and the configuration can be quickly and easily changed by the operator. The unique 3-position design of the optional belt feeding system further enhances the customer's capabilities and can be set for normal mode, roller mode or short mode processing – depending upon the application. The EcoStrip 9380 is also compatible with a wide range of accessories, including prefeeding, marking, stacking and coiling, which turn the stand-alone machine into a fully automatic processing line. The machine is easily operated via the 5.7" color touchscreen and underlying Schleuniger S.ON software, which is now standard across the entire line of Schleuniger cut & strip products. And with additional, optional Schleuniger software, the EcoStrip 9380 can easily be integrated into various networks.

Also new for 2016, the WireTwist 3300 D is an efficient machine for twisting single wires into twisted pairs. Thanks to its dual head design, the WireTwist 3300 D achieves a higher production performance than twisters with a single head design. A touch screen user interface makes it easy to enter and edit all twisting settings in a very short time. The movable

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Booth #1201

carriage with two right side wire holders can be set in a precise position for the initial wire length. The ergonomic access to the wire holders and start buttons on the cabinet and carriage allow quick and easy operation of the machine. Automatic moveable safety shields in front of the rotating wire holders provide safe and comfortable operation. Thanks to its modular design, configurations from 1.8 m (71.0") up to 11.4 m (440.0") in length are available in 2.4 m (94.5") increments.

In addition, Schleuniger will be introducing a line of Wiring Harness Board Conveyors to the North American market. Conveyor lines are typically used for high volume wiring harness assembly in automotive, appliance and other markets. In addition to the industry standard rotary type conveyor lines, Schleuniger offers space-saving transverse type and horizontal lift type conveyors, which save valuable floor space in factories due to their innovative design. Conveyor lines can be custom made to fit existing wiring harness boards or offered in a range of standard sizes. Both single and double sided versions are available. A simple user interface allows customers to set the line speed and keep track of the production rate and any stop time.

All conveyor lines can be customized with respect to the number of working stations, line speed as well as optional lighting and operator start/stop controls. With so many models and variations, Schleuniger can provide a conveyor line for your exact requirements. Visit the Schleuniger booth to learn more and to see a miniature scale version of the horizontal wire conveyor in action.

The soon to be released ShieldCut 8100 for processing shielded cables will also be highlighted. The ShieldCut 8100 can safely and quickly cut and remove the braided shield layer from most shielded cables, eliminating countless hours of manual labor.

As the only machine of its kind, the ShieldCut 8100 fills a current market need for efficient processing of shielded cables.

Schleuniger will also introduce an innovative productivity tracking product called S.RPM. With S.RPM, users will be able to easily track the utilization of their wire processing equipment, as well as other types of production equipment, via a sensor. Installation of the S.RPM sensor on each production machine does not require any electrical connection.

The production data is collected wirelessly in real time and can be viewed

using the S.RPM application. S.RPM will help customers to accurately track their machine utilization and can be a stepping stone to a more comprehensive Manufacturing Execution System, such as the Schleuniger's S.WOP (software for wire optimized production).

New this year, Schleuniger recently added barcode scanning capabilities as an optional feature on the CoaxStrip 5200, RotaryStrip 2400, JacketStrip 8310, UniStrip 2300, and UniStrip 2550 bench-top stripping machines. Once the barcode feature is activated via a license key, the operator can use the handheld scanner to scan barcodes on work orders.

The wire library within the stripping machine's internal memory is then searched for the matching file name and the correct program is immediately loaded into the machine. This greatly reduces set-up time and eliminates oper-



EcoStrip 9380

ator error when switching between jobs.

Visit the Schleuniger booth at the show to learn more.

Additional products to be demonstrated include the CrimpCenter 36 S, S.WOP software for wire optimized production,

MegaStrip 9650 and MultiStrip 9480 among many others.

In addition to exhibiting at the trade show, Schleuniger's Senior Product Manager, Rob Boyd, will present an educational seminar on "LV 214-4 – The German Automotive OEM Connector Test Specification and What it Means for the North American Market. The presentation will be held on both Wednesday, May 11, 2016 at 8:30 A.M. and Thursday, May 12, 2016 at 10:30 A.M. in room 201A & B and is open to all attendees.

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


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NEWS PLUGS *continued***Newark element14 to Distribute Autodesk MCAD Software Solutions**

Newark element14 announces the launch of a new partnership with Autodesk. This will expand the company's product offering to include mechanical design software in addition to its robust portfolio of embedded, test and EDA design software. The partnership will initially focus on six product lines, including Autodesk Fusion 360, AutoCAD LT and more. In addition, through technology collaboration formed between CadSoft, developers of the

EAGLE PCB design software, and Autodesk, Newark element14 will also offer an integrated and comprehensive ECAD-MCAD Design Suite.

Autodesk Fusion 360 brings CAD, CAE and CAM together in the cloud. The integrated, connected and accessible platform allows users to take a design from concept to physical product. In addition, Autodesk has collaborated with CadSoft Computer to create a seamless electronic-to-mechanical integration between EAGLE and Fusion360, greatly simplifying the design workflow from ECAD to MCAD. Newark element14 will offer Fusion360 an individual product and as part of an exclusive Product Design Suite, which also includes EAGLE Pro from CadSoft Computer and EAGLE's IDF-to-3D service.

"Our new partnership with Autodesk strengthens Newark element14's portfolio of professional engineering software and solidifies our position as the destination for engineering software for electronics and industrial engineers alike," said David Shen, Chief Technology Officer, Premier Farnell. "As one of the most trusted CAD tool providers in the world for all engineering disciplines, Autodesk's products complement Newark element14's existing capabilities and offerings and will also present new mechanical design opportunities for members of our element14 Community."

The full range of Autodesk products that will be available from Newark element14 include:

Fusion 360: Fusion 360 brings CAD, CAM and CAE together to provide an end-to-end product development process in a single cloud-based platform.

ECAD-MCAD Design Suite: 1 year of Fusion 360, EAGLE Pro from CadSoft Computer, and EAGLE's IDF-to-3D service integrated together to provide innovative designers a single, cohesive solution which greatly simplifies the design workflow.

AutoCAD LT: Autodesk's widely-used AutoCAD LT is a design platform technology that allows mechanical design engineers to create and share precise 2D drawings more efficiently.

AutoCAD Electrical: Part of Autodesk's Digital Prototyping solution, AutoCAD Electrical provides electrical engineers and electricians with electrical CAD design features in a familiar AutoCAD environment.

Autodesk Inventor: 3D CAD software for modeling and simulation of designs using freeform, direct and parametric modeling tools.

AutoCAD Inventor LT Suite: Bundles AutoCAD LT and Inventor to provide users with more design flexibility.

The range of Autodesk products will enhance Newark element14's portfolio of embedded, PCB and mechanical software available on the element14 Design Center. All of the main categories of design software are available through the element14 Design Center: integrated development environments & compilers, operating systems and middleware, EDA software, mechanical design software and test & simulation software. For more information, visit: <http://www.element14.com/community/docs/DOC-79277>

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Cirris Moves to Larger Facility



Cirris Systems has moved to a new, larger building not far from their old building in Salt Lake City, Utah. This new building will provide the space needed to fulfill the rising number of orders from Cirris customers. It also creates a more collaborative environment for product development, manufacturing, and other departments.

The address for this new building is:

401 North 5600 West,
Salt Lake City, UT 84116

Over the coming years, the new building will help Cirris to give customers a better experience from buying to implementing their testers.

Cirris President and CEO, Kevin Denning, says, “We have purchased and moved into a much larger building to keep up the demands of a growing company. We are working on new and innovative products and reaching markets we have not been able to serve before. Our plan is to continue to grow in the foreseeable future and to be able to offer an expanded set of products.”

Cirris looks forward to many more successful years of providing test equipment for the cable and harness industry. For further information visit www.cirris.com

Please visit Cirris Systems at the Electrical Wire Expo in Milwaukee, Wisc., May 11th and 12th - Booth #1627

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JoAnn Hinds
President
Exhibitor: Diamond Die & Mold Company, Booth #1306

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NEWS PLUGS continued

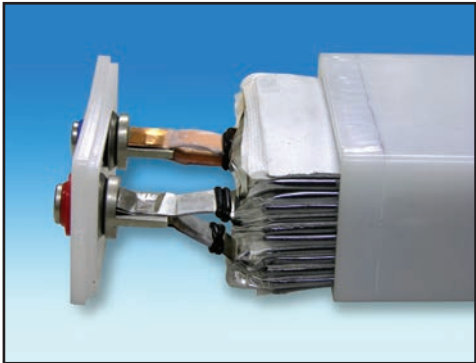
Sonobond Equipment Accommodates Manufacture of New Innovative Batteries

Innovative battery manufacturers are responding to the growing need for affordable and efficient solutions for renewable energy storage. To accommodate the demand, they are using reliable, cost-effective and environmentally friendly ultrasonic technology to assemble their products.

"Currently, wind and solar account for only about 6 percent of the United States' electrical power generation. But, as reliance on alternative sources of energy increases, storage

batteries will become essential as backup, providing power when there is no wind or sun," explains Sonobond President Janet Devine. "In fact, some battery manufacturers are already developing new formats for home and utility-sized energy storage systems that could eventually make wind and solar more consistent power resources.

"Some battery manufacturers hoping to commercialize new types of rechargeable batteries – that may eventually provide backup power, as well as grid-scale distributive storage to maintain peak power – are already employing Sonobond's ultrasonic assembly technology," notes Devine. "Additionally, we continue to supply welding units to manufacturers seeking environmentally



Sonobond's ultrasonic metal welding technology provides a cost-effective, environmentally friendly method for attaching multiple layers of foil to battery terminals, even for the assembly of new, innovative, rechargeable batteries designed to store electrical energy from alternative and conventional sources.

friendly methods for assembling existing lithium-ion and NiMH rechargeable batteries used in applications such as all-electric and hybrid automobiles, medical technology, and military and telecommunication fields."

Sonobond's ultrasonic metal spot welders require no external heat, current, fluxes or fillers and produce no arcs, sparks or fumes. Instead, the welders create durable bonds by employing the company's unique, patented Wedge-Reed ultrasonic bonding system that combines high vibratory force and low amplitude coupling. Using shear mode vibration parallel to the welding surface – while the line of force is directly over the parts to be welded – achieves precise, dependable, solid-state and highly conductive welds. Sonobond's is also the only ultrasonic assembly system that can weld most oxidized and tinned metals in one pulse without pre-cleaning.

Sonobond offers two ultrasonic spot welder models that weld multiple layers of foils to tabs or terminals, accommodate battery pouch assembly and HV termination welding. The SonoWeld® 1600 and Dual Head Spot (DHS) Welders weld foils as thin as seven microns. Also, the Dual Head Spot Welder is the first ultrasonic welder that can join up to 100 layers of copper or aluminum foil without tearing, and in just one pulse. The units use outputs of 1,500, 2,500 or 3,500 watts. Both models have digital displays that allow weld control to be selected by time, energy, or distance. Each unit has a power supply with a built-in microprocessor featuring automatic frequency control, overload protection, and storage and recall of up to 250 protocols.

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The SonoWeld® 1600 and Dual Head Spot Welders employ heat-treated tool steel Taper Lock Tips that can perform up to 30,000 welds before redressing is required and as many as 100,000 welds before being easily removed and replaced. As with all Sonobond equipment, the spot welders require only minimal training.

“It’s estimated that the market for batteries providing stationary energy storage will increase from about \$1 billion today, to approximately \$6 billion by 2020,” notes Devine. “Sonobond fully expects to help manufacturers achieve that goal, which potentially promises to make our energy grid cleaner and more resilient.”

To assist battery manufacturers in determining the benefits of ultrasonic welding for their particular applications and requirements, Sonobond offers a free Ultrasonic Welding Viability Test. Using materials provided by the manufacturer, Sonobond produces no-cost, no-obligation sample welds. If Sonobond’s equipment is incorporated into the customer’s production process, service and technical support is provided before, during and after installation.

Visit Sonobond at Electrical Wire Expo in Milwaukee, Wisconsin May 11 & 12 in Booth #1544



Sonomold® 1600 Digital Ultrasonic Spot Welder



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Don Johannes
Regional Vice President
Exhibitor: Anixter Wire & Cable, Booth #1705


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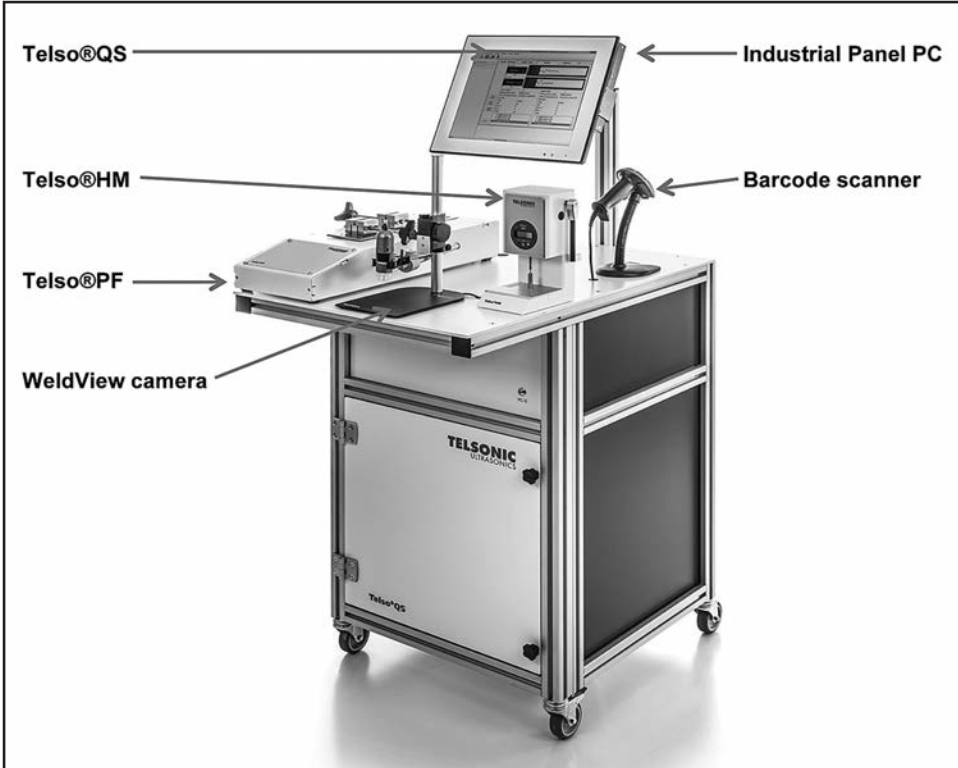


Telsonic Introduces the Telso®Scale and the Telso®Splice TQCC

Telsonic introduces 2 new products that are complementary to all Telsonic ultrasonic splicers. The Telso®Scale and

the Telso®Splice TQCC provide a failsafe method of ensuring the performance of the equipment and the verification of the splice quality in production.


The Telso®Splice Quality Control Center TQCC gives reliable quality control in the production process of the Telso®Splice product family. It stands on an ergonomic and space saving table and contains the following components:



- Telso®QS - measuring and process control software
- Industrial Panel PC
- Telso®PF - Pull & Peel force measurement device
- WeldView camera for splice inspection
- Barcode scanner
- Telso®HM -high precision distance measurement device
- Industrial Panel PC with 15" touch screen
- Fully documented – all jobs stored with picture, width, height, and pull/peel force curve
- Supervision – user and rights management
- Extendable – add additional Telso®Splice and measuring devices any time

Telso®Splice TQCC is a quality control station that can interface with multiple Telsonic splicing machines on the production floor as a failsafe Quality Control system without a QC supervisor. The operator takes a pre-specified number of splices from a given welder to Telso®Splice TQCC prior to the release of the machine for production shift. The fully self-contained Telso®Splice TQCC station includes a pull-peel force tester, a precision weld nugget measuring device and a

- Features and benefits include:
- Full control – blocks production until tests are performed successfully
 - Time saving – test splice in less than 2 minutes
 - Flexible – test procedure freely configurable



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1 - ARTOS CS336 Wire Processor

1 - ARTOS CS326A Cut and Strip Machine w/ PF6 Prefeed

1 - ARTOS CS326 Cut & Strip Machine, CD11 Coiling Bowls, w/ Prefeed

1 - ARTOS CS29 Cut & Strip Machine, #42774A

2 - ARTOS CS26A Cut and Strip Machines

1 - ARTOS CS7 Cut and Strip Machine

1 - ARTOS PF3 Prefeed

1 - ATS Crimp Press, Series T3000, with Applicator

1 - AUTOJECTOR HCS70 Injection Molding Machine

1 - BRADY ‘WRAPTOR’, approx., 2014

3 - CARPENTER Model 70B Strippers

1 - COBRA 450 36-Carrier Harness Braider, approx. 2011

1 - EUBANKS 4000-04 Tandem Cut and Strip Machine, #890-151, w/extra Blade Sets

30 - FEINTECHNIK RITTMAYER Pneumatic Strippers, Type AM.STRIP.015

1 - IDEAL Model STP Stripper, Part #45-930, Serial #4593001204, cycle count 21681

1 - IDEAL ‘Stripmaster’ Model 940 Wire Stripper, Part #45-940

1 - IMAJE Jaime 1000 S8 SI Ink Jet Printer, 2004

1 - KENCO 5T Press

1 - KINGSLEY Model KIP-20 Hot Stamp Marker w/11 Identification Discs

2 - KODERA Model C566 Processing Machines

1 - KOMAX Gamma 333PC w/2 - MCI711 Crimp Presses; 2 – OMI Crimp Force Monitors, approx. 2.5m cycles, 2007

1 - KOMAX Gamma 333PC w/2 - MCI711 Crimp Presses, 201AE Wire Marker, Tinning Station, Updated in 2008

1 - MECHTRIX Model MPF-35 Prefeeder

1 - METRONIC Alpha Jet C Inkjet Printer, currently set up for black ink, approx. 2006/07

1 - MORGAN Injection Molding Machine, Model G-100T

5 - MORGAN Injection Molding Machines, Model G-125T

1 - NEW ENGLAND BUTT 72-Carrier Braider (flat strap capability)

1 - NOVEXX I.D. Tube Printer, Model TMS 2000Plus

1 - SCHLEUNIGER CC36 CrimpCenter, 2010, w/MECHTRIX MPF-35 Prefeed

2 - SCHLEUNIGER CP1500 Heavy Duty Coilers

1 - SCHLEUNIGER CS9100 Cut/Strip Machine with a PF2000 Prefeed

2 - SCHLEUNIGER CT32 Crimp Presses, one New 2008

1 - SCHLEUNIGER ES9320 EcoStrip Cut/Strip, 2006

1 - SCHLEUNIGER HS4140 Hot Stamper

1 - SCHLEUNIGER OmniStrip 9450 Automatic Cut and Strip Machine w/PF2000 Prefeed

1 - SCHLEUNIGER PF3000 Prefeed w/Dancer

1 - SCHLEUNIGER PF2000 Prefeed

1 - SCHLEUNIGER PF1100 Prefeed

1 - SCHLEUNIGER PT26 Pull Tester


1 - SCHLEUNIGER US2100 Bench Stripper

2 - SCHLEUNIGER Uni-A Applicators


➤ App #2 – Tool 700.337.001/002 (Terminal #AMP 770901-1 and 770902-1)

➤ App #3 – Tool 700.337.001/001 (Terminal #AMP 770901 and 770902)

1 - SPECTRUM ‘Sienna 510’ Laser Printer



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weld view camera for visual inspections. The user friendly software runs on an industrial panel PC with resistive touch screen. Using a bar code, the operator recall the splice from the given splicing machine at the Telso®Splice TQCC. The pull-peel, weld width, and weld final height are measured and recorded automatically. The operator is blocked from operating the machine by Telso®Splice TQCC until the measured values are within allowed tolerances and are successfully verified by the Telso®Splice TQCC.

The Ethernet interface is routable over the company network for ease of monitoring. This fast process is very flexible and it is extendable to unlimited Telsonic splicers.

The TELSONIC Telso®Scale Test Kit, a quality assurance test kit for the Telso®Splice family has these features and benefits:

- User friendly quality assurance
- Step by step instruction with pictures and description
- Testing performed periodically and after machine maintenance
- Measuring the force in the weld area
- All measurements made with built-in weld head
- Measuring the weld width and weld height
- Test carried out with different calibre and forces
- Amplitude measurement of the horn
- Each measurement verifiable
- All results recorded and stored

Telso®Scale is a complete kit that measures and allows calibration to ensure that the ultrasonic splicer's maintenance and set up are done precisely and according to the manufacturer's settings. This user friendly kit includes the devices for accurately measuring the force, the width and the height in the weld area, as well as the amplitude of the horn. Each measurement is verified and the results are recorded and stored automatically. This verification of the equipment can be performed periodically and the onscreen step by step instructions for each measurement, makes it a great failsafe tool for consistent performance of the machine. The utilization of the Telso®Scale helps in ensuring that the ultrasonic splicers on the plant floor are running in accordance to the factory specifications.

The Telso®Scale Test Kit is recommended for use with the Telso®Splice product family TS3 and TS6. The Telso®Splice software version 3.5.50929 and SPC EPROM version 5.06 or higher are required to use the Telso®Scale Test Kit.

TELSONIC AG is an international enterprise in the field of industrial ultrasonic technology and one of the global market leaders. The company, founded in 1966 with headquarters in Bronschhofen (Switzerland), employs a staff of approximately 200 worldwide, with subsidiaries in the UK, Germany, the U.S., Serbia and China, as well as representations in many other countries. TELSONIC is dedicated to offering end-to-end solutions starting from development



TELSONIC Telso®Scale Test Kit

to production, and to implementing and optimising individual customer requirements, along with competent technical onsite service. This is possible thanks to five decades of expert knowledge.

For further information please visit Telsonic at the Electrical Wire Expo in Booth #1741 or visit website: www.telsonic.com



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"At no other time during the year is there an expo this focused on our industry. This is the place to learn about the latest products and technology for cable and harness processing."

Kevin Denning
President and CEO
Exhibitor: Cirris Systems Corp., Booth #1627

ElectricalWireShow.com

NEWS PLUGS continued

Visit Cirris at the Electrical Wire Processing Expo

While attending the Electrical Wire Processing Technology Expo in Mil-

waukee this year, Cirris Systems will feature products that have been used for decades to expose errors in cables and harnesses. Seasoned cable manufacturers will be well acquainted with the practice of testing and may be familiar with Cirris's product line. Those who are new to cable testing can learn about tools



The Cirris Smart Adapter

and best practices when they visit the Cirris booth at the show.

Since developing a high voltage tester small enough to fit on a work bench, Cirris high voltage testers have been sold to a range of industries in need of affordable test equipment.

The Cirris Easy Touch, which will be featured at the show, is one such tester. This piece of test equipment uses Cirris easy-wire Software to find errors and defects in cables and harnesses.

Cirris will also present some unique and useful accessories such as Smart-Lights, which can attach to test fixture cables and shorten test setup time.

For over thirty years, Cirris Systems has strived to ensure that the cables, wires, and harnesses in your devices are tested on quality products to guarantee functionality and accuracy. Whether you are testing the cables or using the end product, you deserve the peace of mind that comes with good cables, wires, and harnesses.

Testing requirements are changing as quickly as technology improves. Cables and harnesses demand higher voltage and more complex assemblies. Cirris manufactures products to meet these requirements providing a range of testers, software, adapters, and other tools to fulfill your testing needs.

Show participants are invited to stop by booth #1627 to see demonstrations of the Easy Touch, Smart-Lights, and other test equipment.

For further information please contact Cirris Systems, 401 North 5600 West, Salt Lake City, UT 84116. Visit www.cirris.com



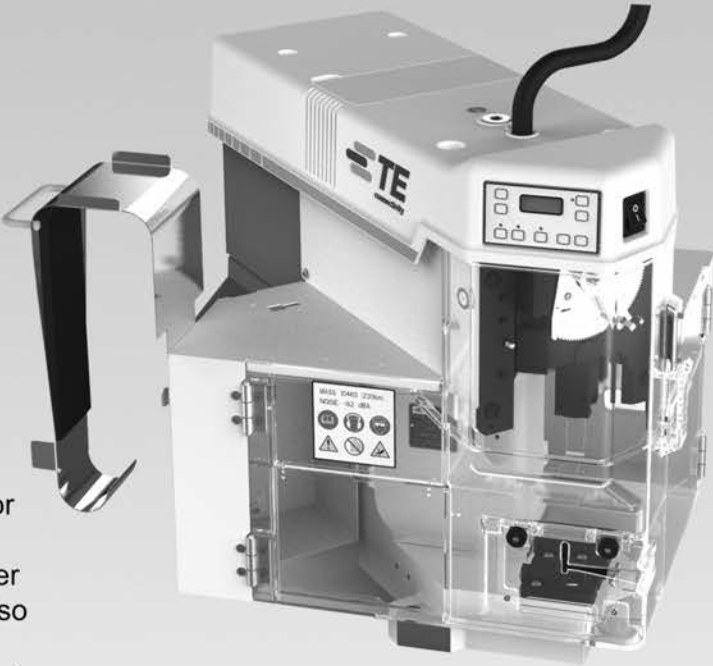
The Cirris Easy Touch

AMP-O-LECTRIC MODEL G II TERMINATOR

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

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

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



User Friendly

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

Product Features

- Quiet operation
- Improved guarding and lighting
- Tool-less changeover of applicators
- Precision manual adjust for crimp height
- Total and batch counter
- Accepts all existing TE applicators, with minor modifications
- Reduced maintenance requirements
- Split-cycle operation
- Standardized 1 5/8 [41.3] stroke
- Operates on either 120 or 220 VAC, 50 or 60 Hz



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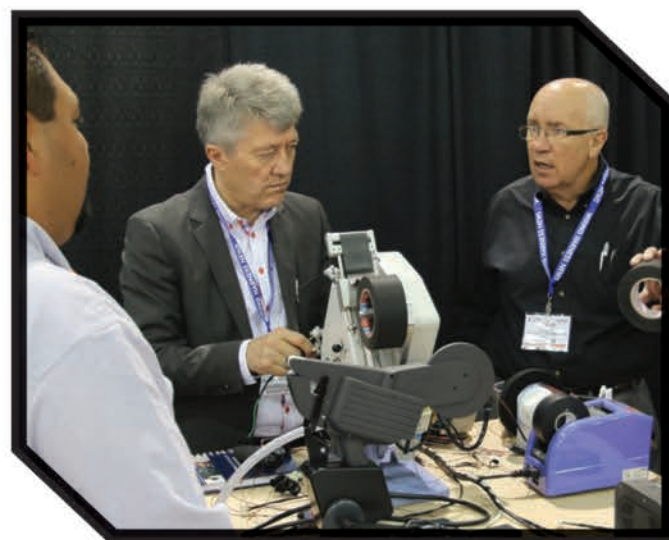
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WEDNESDAY, MAY 11

- 8:30am** *The Impact of LV 214-4—The German Automotive OEM Connector Test Specification*
Presented by Rob Boyd, Senior Product Manager of Schleuniger, Inc.
- 10:30am** *The Evolution & Status of Standards for Aerospace Wiring Systems & Components*
Presented by Dave Kelly, Standards and Industry Liaison of Daniels Manufacturing, Corp.
- 12:30am** *Optimizing the High-Mix, Low-Volume Manufacturing Environment—Part 2*
Presented by Patrick Boyer, Special Applications Project Manager of Komax Wire
- 2:30pm** *How Well Do You Know Your Crimping Process?*
Presented by Terry Curtis, Sales Associate of Crimping and Stamping Technologies & Applitek

THURSDAY, MAY 12

- 8:30am** *IPC/WHMA-A-A620B—Why It is Important to Your Organization*
Presented by Donnie Hill, President and COO of Precision Manufacturing Co, Rick Bromm, President of Altex Inc, & Randy Cherry, Director of Validation Services of IPC
- 10:30am** *The Impact of LV214-4—The German Automotive OEM Connector Test Specification*
Presented by Rob Boyd, Senior Product Manager of Schleuniger, Inc.
- 12:30pm** *Automate and Error Proof Plant Floor Processes*
Presented by Michael Reeve, VP of Business Development of OES Technologies, Inc.

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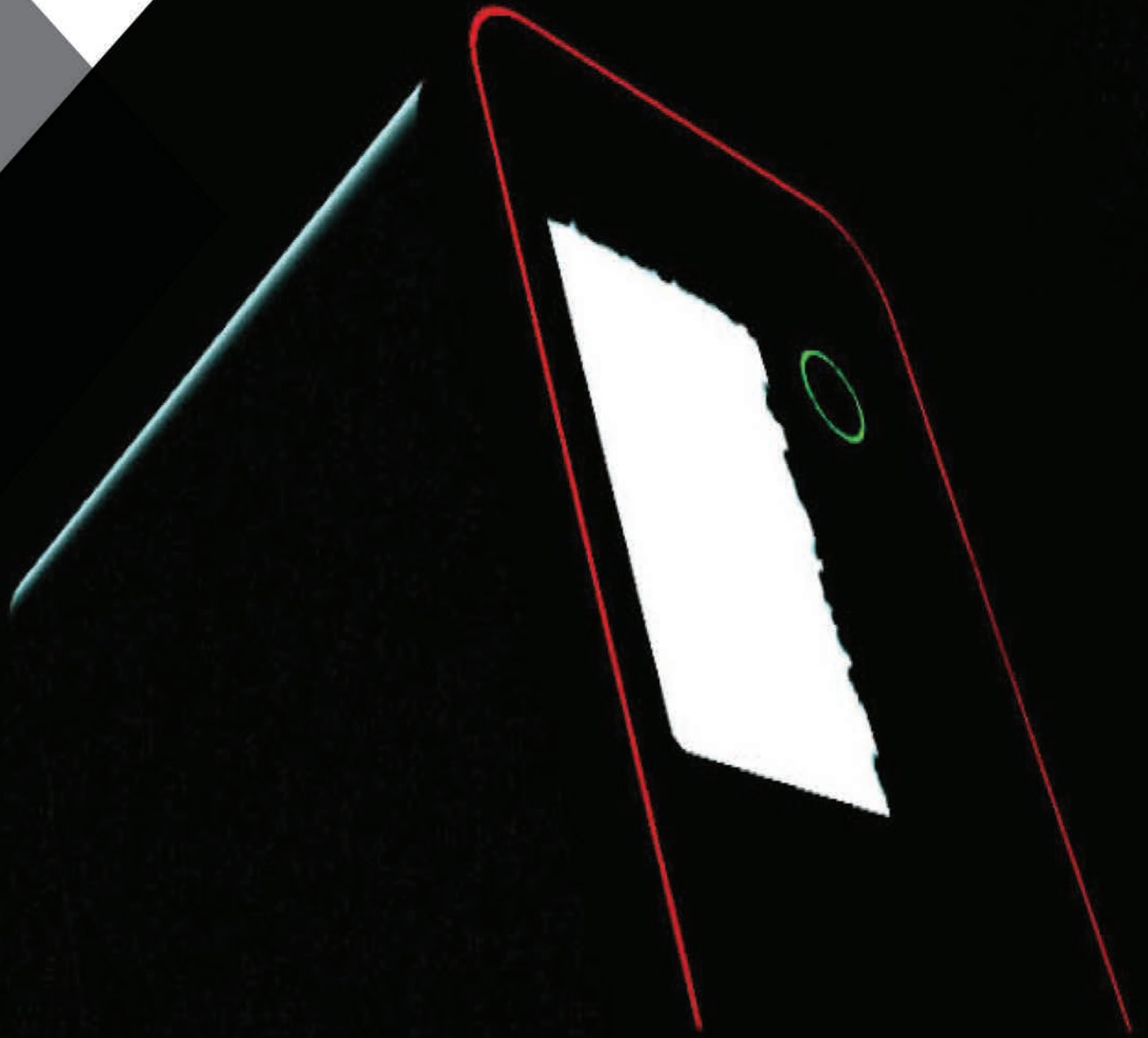
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