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Cesar-Scott

A progressive, flexible growing company

By Fred Noer

Opportunity does not have to knock at Cesar-Scott. The door already is open, and inside the company headquarters in El Paso, Texas, the staff members are taking advantage of every opportunity presented to them.

They also are making their own opportunities, a proactive approach reflective of founder and president Gustavo Farell. His broad background and open-mindedness enable his firm to be progressive and flexible.

“The best thing about what I do is that I do not ever worry about the day going by slow,” Farell, 50, said. “I like that we do a little bit of everything. We adapt quick, and we are a small company, so we can react fast. We have big-company thinking because I kept all the things I learned at Honeywell about infrastructure.”

Cesar-Scott is diversified. Wiring harnesses and cable assemblies account for 80 percent of sales, and heat-shrink tubing is 15 percent. The remaining five percent primarily is in the distribution of electronic components.

Farell, who is the sole owner of the



Mr. Francisco Armendariz Payan (left) manager of Cesar-Scott's Juarez harness and cable facility and Mr. Cesar Gustavo Farell.

firm, expects it to hit \$3 million in sales this year, the highest in company history. The number will be the third consecutive annual sales record, based on \$2.5 million last year and \$2.25 million in 2010.

Growth in such a difficult economy can be attributed to Farell's approach to doing business due to his expertise and experience. Formally, he gained expertise by earning a bachelor's degree in mechanical engineering from the University of Minnesota-Twin Cities and an MBA from the UM Carlson School of Management.

Farell's first job was as a process engineer at Honeywell in Minneapolis in 1983. Three years later Farell became a project engineer at Honeywell in Chihuahua, Mexico, to use his education, newly gained process engineering experience and knowledge of Spanish. He was born in Uruguay, lived in France for a time and is trilingual in English, Spanish and French.

The Honeywell branch in Chihuahua manufactured test sets for the F-15 Eagle fighter jet that included cable, chassis

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Funding Your R&D Through Government Requirements

By Joe Tito

In 1982, Ronald Reagan signed the Small Business Innovation Development Act into law. The act was designed to enhance the research and development function of American small business by providing Small Business Innovation Research (SBIR) grants tied to specific government agency needs. This article seeks to define some of the specifics of the SBIR legislation and process. Broad Agency Announcements as a source of R & D will be reviewed briefly. The focus will then turn to Minnesota Wire for a look at how they have taken advantage of these programs, along with advice for beginners.

Any U.S. Government agency whose outside R&D budget exceeds \$100M, must allocate 3.2 percent of budget to participation in the SBIR program. There are currently eleven such agencies that include the Departments of Defense, Commerce, Transportation, Energy, Homeland Security; as well as the EPA, and NASA. Each agency runs its own distinct SBIR program guided by the legislation, and publishes written solicitations. The solicitations outline a call for solutions to satisfy specific agency needs. These are needs not currently met with existing, off-the-shelf, technologies.

Once an agency establishes the specific need, and the parameters of the R&D, a written request (SBIR) is published.

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Frontier Airlines Center, Milwaukee, Wisconsin.

Wire Processing Expo Offers Free Technical Seminars

The nation's largest dedicated wire processing event, the Electrical Wire Processing Technology Expo, will be held Wednesday, May 9 and Thursday, May 10 at the Frontier Airlines Center in Milwaukee, Wisconsin. Celebrating 12 years of the event, the Expo features industry specif-

ic seminars on new products, services and technology as well as future trends for the wire harness and electronic cable assembly industries.

“The seminars are chosen by the Show's Exhibitor Advisory Committee

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Wire Expo

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and run by top industry experts to address the issues faced by manufacturing today,” says Jay Partington, Show Manager. The seminars are free with admission to the Expo and provide attendees with information that can positively affect their competitive edge.

The seminars are sponsored by Wire & Cable Technology International Magazine and are held in the seminar room on the 2nd floor of the Frontier Airlines Center.

WEDNESDAY, MAY 9

8:30 am - Automotive Aluminum Wire...in Your Future? Presented by Don Price, Ford Motor Co. & Rakesh Patel, ISO Automotive Electrical Cables Committee

10:30 am - Processing the Wire: Essential Principles, Copper or Aluminum. Presented by Ruben Lozano, Lakes Precision, Inc.

12:30 pm - Crimping & Processing Technology for Turned Contacts and Wire Ferrules. Presented by Eric De Jans, Z+F USA, Inc.

THURSDAY, MAY 10

8:30 am - IPC/WHMA-A-620 Update & How to Use This Tool. Presented by Lyle Fahning, Wire Harness Manufacturers Association

10:30 am - Quality Crimping - How Do I Keep the Quality in the Crimp? Presented by Keith Nicholas, TE Connectivity

12:30 pm - Choosing the Right Heat Shrink Product. Presented by Joe Porter, Grayline, Inc.

Registration for the 12th annual Electrical Wire Processing Technology Expo will be \$15.00 at the door, good for both days of the show. Admission is free with a pre-registration ticket provided by any of the exhibitors. Free registration is also provided online at www.Electrical-WireShow.com until Friday, April 20, 2012.

Attendees of the Expo will have the opportunity to meet more than 100 world-class suppliers and service companies in the wire and cable processing industry as well as network with their peers and discover best practice applications to solve wire-processing problems.

New for 2012, the Electrical Wire Processing Technology Expo will co-locate with the Electrical Manufacturing & Coil Winding Expo 2012 to run side-by-side events with cross-over admission for all attendees - one badge gets attendees into both shows. For detailed information on the seminars, workshops, or registration, visit the 12th annual Electrical Wire Processing Technology Expo's website at www.ElectricalWireShow.com or call 800-367-5520.

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MARCH/APRIL
2012

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1 Wire Processing Expo
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4 Expo Time
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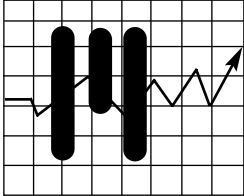
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Who is Your Customer?

By Joe Tito

I recently read an intriguing blog post from Seth Godin titled, “Who is your customer.” In the post, Godin postulates that the answer to this question might not be so straight forward, and I agree. He cites Zappos, the online shoe retailer, as an example of a company where the person buying the shoes is truly the customer. Indeed, Zappos has built a culture around excellence in customer service, and books have been published on their successful efforts. He then turned his attention to Nike, and boldly stated they care not so much about the the person who buys the shoes, but rather the athletes who wear them. He explains how they court them, name buildings after them, and build statues in their honor. But I think

my favorite quote from his article was: “Apple had just one customer. He passed away last year.”

That got me thinking about my experience. In my first marketing position, I worked for a large beer wholesaler here in Central Florida. Our customer wasn’t the guy at the bar, or even the grocery or convenience store chain. It was the brewery, and keeping them happy was job one. I suspect this is true in many franchise situations. I would wager that a McDonalds franchisee might look at it the same way.

Later, I worked for a manufacturer of telecommunication components, and our customer was Nortel. Even if the item being shipped was not going to Nortel, it was scheduled around their work, made with equipment designed for their process, and even tested and packaged the same way. This turned out to be a very bad strategy, incidentally.

I also worked for a commercial appliance manufacturer, and the customer was the guy who scheduled production. The reps actually contacted him before quoting a particular configuration to see what the lead time would be, and made adjustments to proposals accordingly. He was a great guy and extremely good at his job, but the situation always befuddled me. Even though the company was moderately successful, I always knew sales could be optimized with a better structure.

I did a marketing project for a power company a couple of years ago, and I can tell you with great certainty that their customer is the regulatory agency. Trust me, the only reason your power company wants to keep YOU happy is that, Heaven forbid, you might go calling the Utilities Commission!

So I’ll ask the same question Godin did. Who is your customer? Is it your largest customer? Is it UL? Is it the company who registers you for ISO? Is it you? Give some thought to that the next time you sit down to do some market planning. You might come up with some interesting answers. And that’s not to say your model is a bad one. You certainly can’t argue the success of Apple. I just think it helps to make an honest assessment to make sure your day-to-day priorities; the squeaky wheels that get the grease; are aligned with your corporate objectives. You can view Seth Godin’s article at sethgodin.typepad.com.

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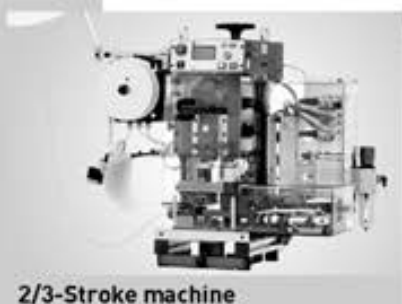
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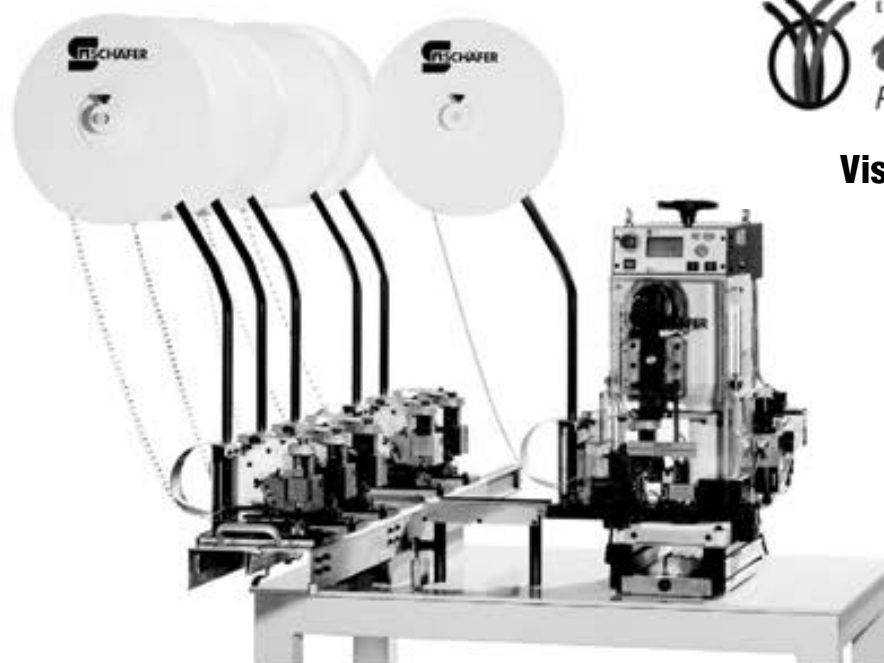
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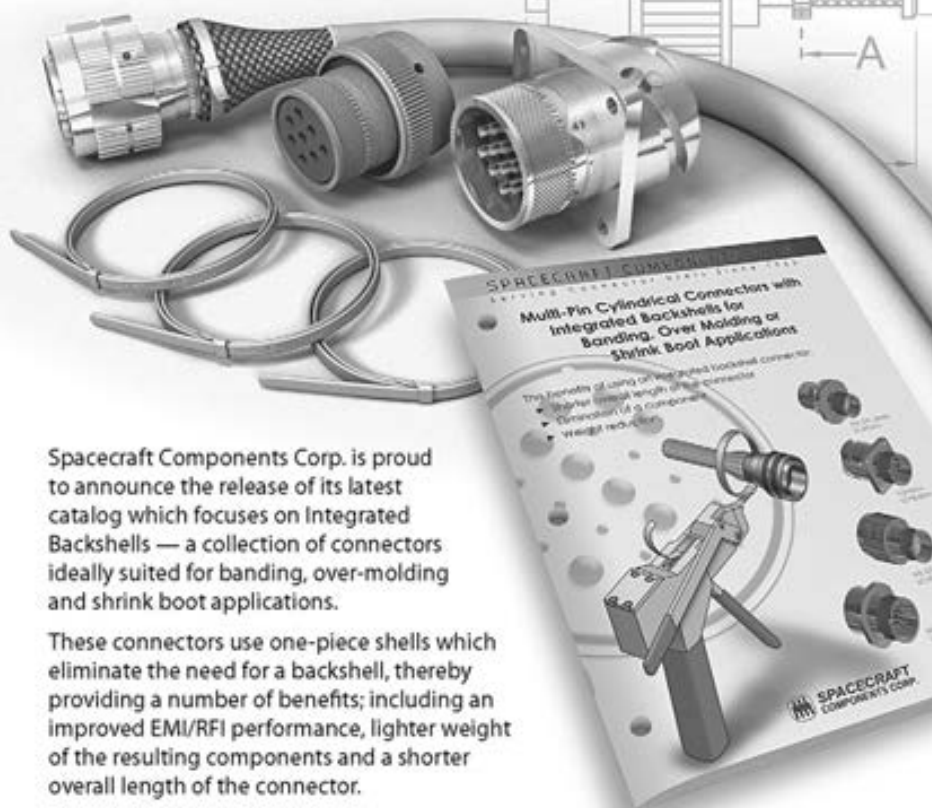
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Mark Wood Elected WHMA Chairman of the Board



Mark Wood
WHMA Chairman of the Board

The Wiring Harness Manufacturers Association (WHMA) elected Mark Wood as their new Chairman of the Board at the association's 2012 annual wire harness conference in Orlando. The WHMA is dedicated to providing members the technical support, access to leading edge technology, benchmarking and peer knowledge that cannot be found anywhere else in the industry.

Mark Wood runs his own consulting firm in Phoenix, Arizona. Previously, he spent 7 years as Senior Vice-President of Sales and Marketing at a manufacturer of wiring harnesses and cable assemblies.

Earlier in his career, Wood worked on the agency side of the advertising and marketing communications business and prior to that, he spent 15 years at Avnet, Inc, where he was Vice-President of Corporate Communications.

Wood succeeds Lyle Fahning as the WHMA Chairman. Having served two years as Vice Chairman under Fahning he wants to continue and improve the current portfolio of programs, products and services offered through the WHMA to its members. "Everything we do as an

association," Wood says, "has to support our promise statement to the membership: WHMA connects you to resources that make you an industry leader."

One of the major initiatives in 2012, which also marks the 20th anniversary of WHMA, is to increase the member participation on the joint IPC / WHMA technical and training committees around the A-620 workmanship standard.

"2012 is the 10th anniversary of the standard. The Revision B will be published mid-year," says Wood. "This standard has changed our industry like nothing else. We are committed to our partnership with IPC in continuing our joint goal of making this a true worldwide standard for quality in our industry."

For more information on the WHMA go to: www.whma.org.



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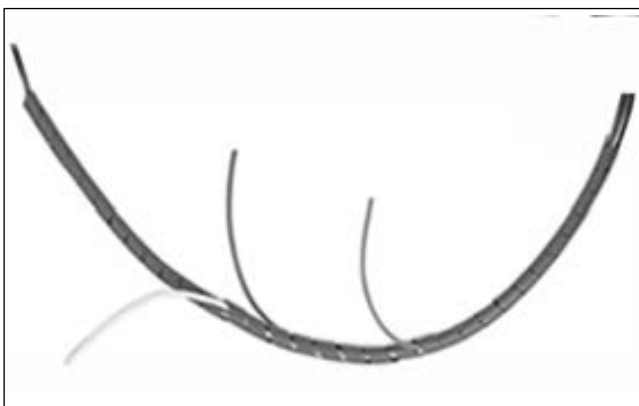
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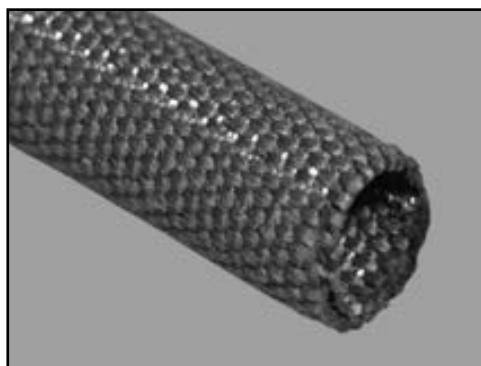
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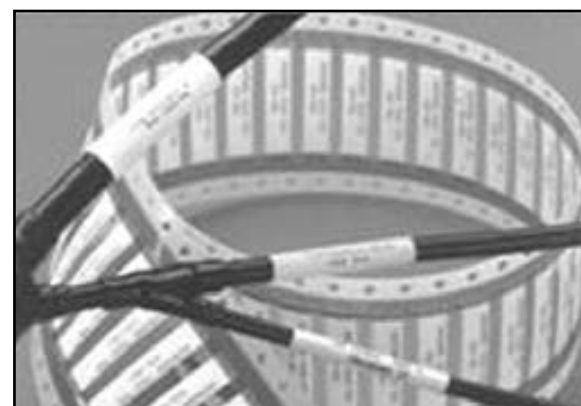
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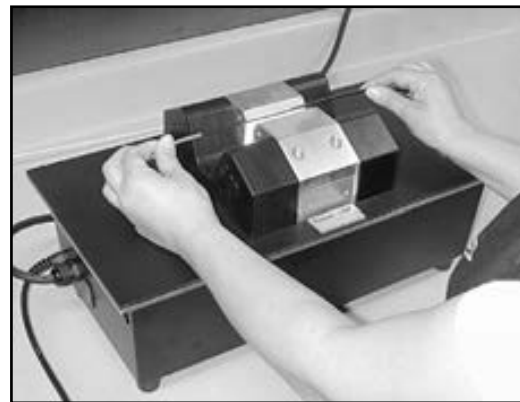
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“Expo Time”

Time to Dream Big Dreams and Make Big Plans

By Paul Hogendoorn

Since it’s “expo” time again – a time to challenge ourselves to bigger and brighter futures – let’s begin this column with a challenging quote, and see where it goes from there.

“If you lead your company, it can become what you dream it will become; if you manage your company, it will become only what it happens to become.”

I know there is far more to building a successful business than just dreaming about it, and more often than not, dreams don’t come true. Business success takes planning, and effort, and strategy; it takes team work, and finances, and support; it takes opportunity, and customers, and it also takes a bit of good luck. With a healthy dose of all of these ingredients, success often occurs – with, or without, an enabling dream.

When I was far younger, barely more than just an eager entrepreneur, I would often be embarrassed hearing my mother describe the company I was building to our neighbours and friends. She wasn’t really describing the way the company was at that particular moment; she was describing the way I was dreaming it would be in 2 years, or perhaps 5 years’ time. She saw the company only



Paul Hogendoorn

through my eyes, and when I was discussing the fledgling business with her, my eyes were usually focused on some distant point on the horizon – a point down the road, well past whatever challenges stood in the way at that time, to a point that I was confident that we would arrive at some time in the future.

Now, a few short decades later, I recognize the effect and importance of those types of dreams. Our desires dictate our thoughts, and our thoughts precede and dictate our actions. Effective

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Time to Dream Big Dreams and Make Big Plans

Continued from page 9

management starts at the thought level; building a new business, or taking one in a new direction to a new and different destination, starts at the dream level.

Later in my career, I had the privilege of mentoring and coaching several young entrepreneurs in the same fashion that I was fortunate to be mentored by others earlier in my career. I learned that having a “vision” for the company was a matter of having a clear picture in mind of what the company could, and should, look like in 2 years’ time, in 5 years’ time, and in 20 years’ time. Articulating that picture, and then engaging enough individuals to develop the roadmap to get there, are of equal importance, but the size of the dream dictates the scope of the plans, and the scope of the plans set the parameters for the investment of energy, finances and time.

Many businesses succeed without these kinds of visionary dreams, and simply having a visionary dream doesn’t guarantee success. Engineering types won’t like this (not to mention accounting or banking types), but I don’t think there is a formula for success when it comes to building a business based on something as non-tactile as a vision or a dream. We can all read the books out now on Steve Jobs and Apple, but doing

everything exactly the way he did would not guarantee any form of success, much less even a glimmer of a chance of the type of success he achieved. When reading excerpts from his story, it seems clear to me that he didn’t just know what his company was capable of that particular day, every day he also had a clear picture in his mind of what his company would be like in the future.

If we don’t want our companies to become simply “me-too” players, or the “low cost” player, in already crowded industries, our company leaders have to keep on dreaming. Striving to be the best, and succeeding at it, can, and frequently does, result in incremental gains when compared to the competition. But, if you are aiming for exponential gains, or breaking entirely new ground, it means setting yourself out on a course where you are following no one else, and nothing else, other than your dreams. That doesn’t mean that due diligence and prudent management are abandoned. Good management is always needed in concert with good leadership. Setting the right course is good leadership, and following it well is good management.

Many of you that have been reading my column over the years know that the topics of leadership, entrepreneurship, and internal motivation are my favourite topics to write on. Indeed, I can boil

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most columns down to one of two primary themes – either what keeps me awake at night, or what motivates me to go to work in the morning. If these topics are of interest to you, and you would like to chat a bit more about them, I invite you to come visit me at the *Wiring Harness News* booth at this

year’s event in Milwaukee. (If you are not attending the show, feel free to contact me at the email below, as always.)
Contact Paul Hogendoorn at hogendoorn.paul@gmail.com or visit him at the WHN booth at the National Electrical Wire Processing Technology Expo in Milwaukee, May 9th and 10th.

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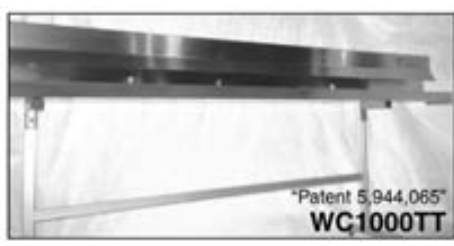


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Continued from page 1

lished. The actual solicitations can be viewed on the agency websites, and collectively by going to SBIR.gov. The SBIR.gov website is very informative and user friendly. Searches can be set up by agency, or by key word.

There are three important benchmarks to clarify in the SBIR process: the Release Date, the Open Date, and the Close Date. During the period between the Release Date and the Open Date, informal requests for information and clarification can be made to the SBIR administrator via phone or email. This is referred to as the Open Period. During

the period between the Open Date and the Close Date, any questions must be submitted to the research contact/s (listed on the SBIR) in writing. These questions are shared in an open forum along with the agency response. The duration of these periods varies among individual SBIRs. (Fig. 1)

A large part of SBIR is the establishment of commercial off-the-shelf components for government procurements. To that end, companies compiling proposals must define a path to commercialization for the proposed technology or solution.

Continued on page 14

Informal Q&A Via
Phone or Email
(Open Period)

Formal &
Published Q&A
(Closed Period)

Release Date



Open Date



Close Date

Figure 1

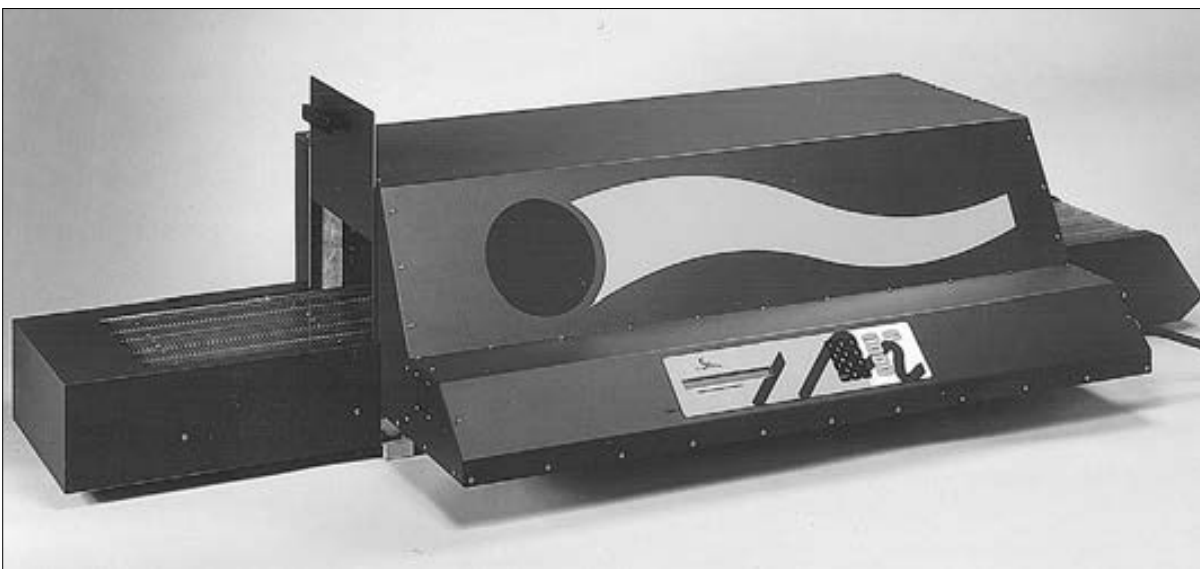
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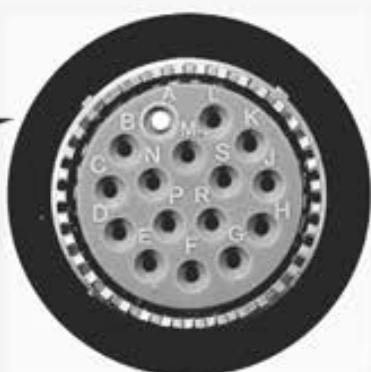
1

Touch wire.



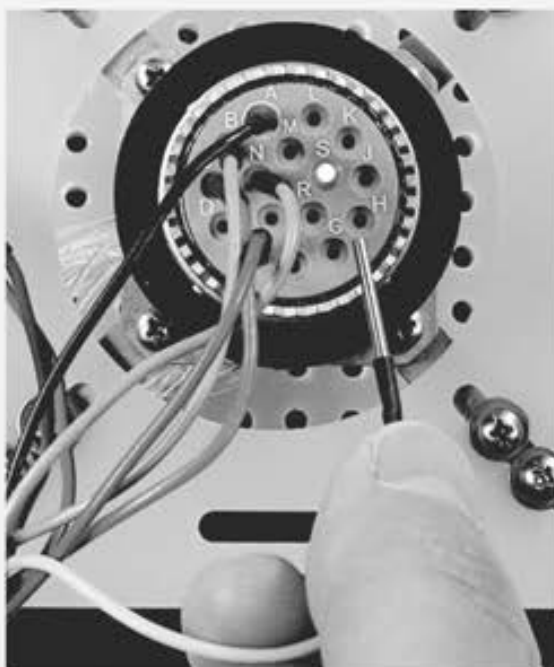
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3

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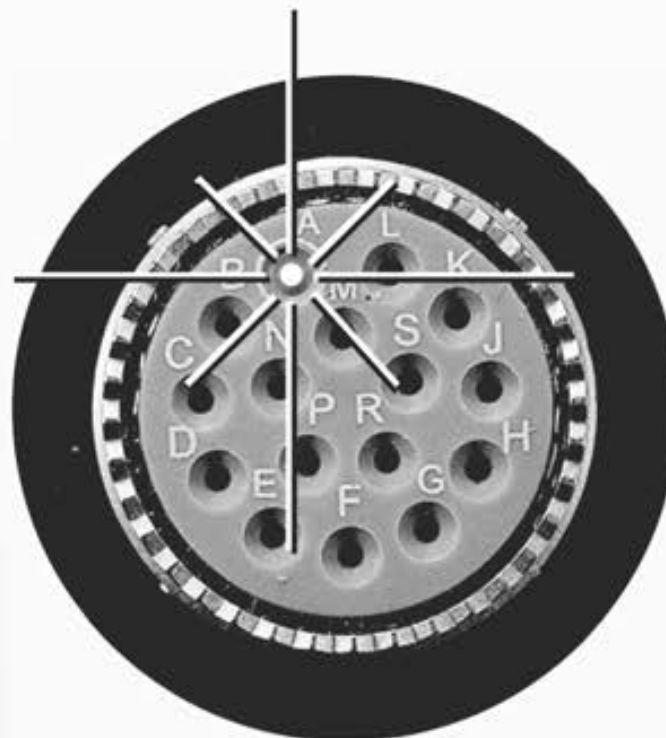
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Continued from page 12

Once a contract is awarded, the SBIR process follows three phases. A Phase I award provides funding, not to exceed \$150K, to determine the technical merit, feasibility, and commercial potential for the proposed concept. The Phase I period is usually six months.

Upon successful completion and documentation of Phase I, companies proceed to Phase II where further funding,

not to exceed \$1M, is provided for R&D and other defined objectives. Actual deliverables, including samples or prototype runs, vary among SBIRs, and are usually spelled out in the initial solicitation.

Phase III of the process happens absent of any funding, and is outside the legislation guidelines. This is where the business pursues full commercialization from the R&D activities of Phases I and II.

The SBIR website also covers the

Small Business Technology Transfer program (STTR). STTR mimics SBIR and is governed by the same legislation. The principle difference is that STTR seeks to expand the partnership between US small businesses, and nonprofit research institutions. As such, companies must partner with nonprofit colleges or universities. Partners are required to detail an intellectual property agreement.

In addition to the SBIR legislation, the Competition in Contracting Act of 1984

established Broad Agency Announcements as another way for government agencies to solicit research proposals. BAAs have a much broader scope, but have a similar solicitation and proposal process as SBIRs. A BAA might set a general goal, such as going to Mars, and seek technologies to attain that goal. SBIRs would seek a more specified objective, such as a need for carbon dioxide containment tank on board a space craft. Readers should visit FedBizOpps.gov for

more details and specific BAA solicitations. Additional resources for all of these programs are listed at the end of this article.

A few months ago, WHN covered new technological developments at Minnesota Wire. The technology was fascinating, but so was their journey through government funded R&D programs. For this reason, the discussion was recently reopened with Chip Laingen, Communications Director at Minnesota Wire and Executive Director for Minnesota Wire's Defense Alliance.

Through long range strategic market planning several years ago, Minnesota Wire looked at their traditional product offering and saw impediments to growth. They perceived minimal change in traditional conductors through the years, and noted the intense price competition by foreign competitors. "Strategically, we looked at our business and markets and knew we had to change to survive," said Laingen. Innovation was adopted as a growth strategy, and they began to build an organization around that principle.

Their first foray was through a traditional networking contact at Army NADIC, where they learned about problems with an Army program called Land Warrior. Land Warrior is a modular fighting system incorporating advanced computer systems and GPS monitoring in a battle-ready soldier vest. "As good as the vests were," noted Laingen, "they were failing because of the interconnect system." Through funding provided by a BAA, they developed their iStretch® line of elastomeric wire. Laingen furthered, "through that effort, we also learned about SBIRs,



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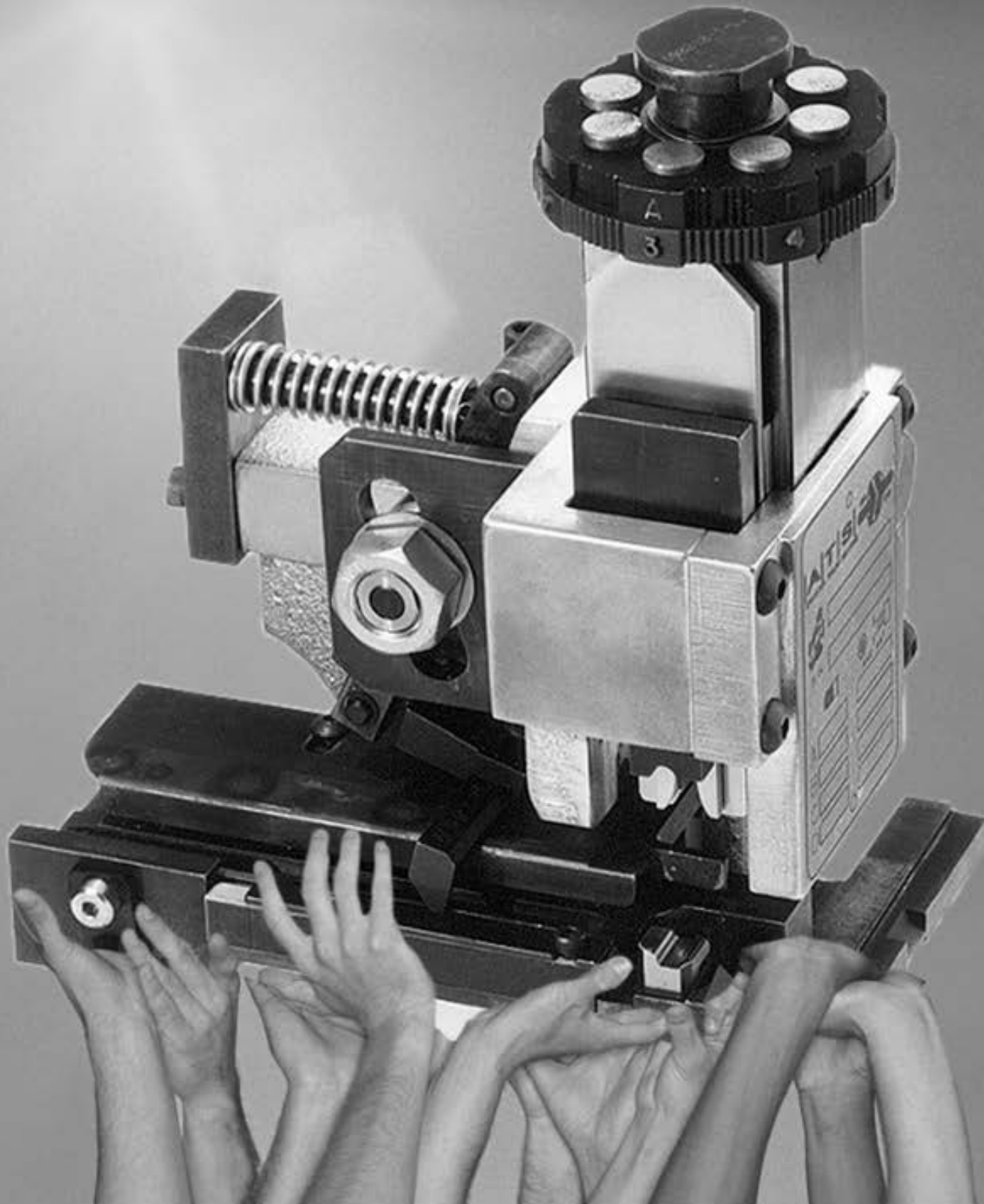


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and were pretty excited that we had these two paths of projects on which to bid." Laingen likes the fact that the SBIR framework forces a company into a clear path to commercialization, but added "it's a challenge too because some of the technologies are very specific to the military."

The journey was initially slow for Minnesota Wire, and Laingen admitted their capture rate was about 10 percent (congruent with the national average). "But as we began to win these things," he noted, "we gained the skills to write better proposals and increased our credibility to the point where our capture rate is now 85 percent." He outlined more good news for companies as they

begin to win bids. Although it's not really discussed, Laingen indicated as a company's credibility builds, agencies begin to write SBIRs with particular companies in mind. "They have to be competitive by law, so they can't say 'I'm going to give this to a particular company,' but [I think] they do tailor them hoping certain companies will bid."

Another result of the initial success, he revealed, is that the SBIRs tend to interconnect. Laingen discussed an Army SBIR that requested a method for spraying a carbon nanotube (CNT) coating on the head of a missile. "Since we were already working with CNTs because of our [iStealth®] conductors, we were able to pick that one up too." The iStealth® CNT conductors were themselves part a previous Navy SBIR. The

Army coating research then allowed them to come full circle by developing CNT wire and coated connectors. "So we were able to leverage different agencies with similar technologies to build our own portfolio with commercialization in mind," Laingen explained.

They have also attracted prime contractors like Raytheon, Lockheed, and Boeing, who look to small companies like Minnesota Wire for innovation. "These contractors represent the Phase III investors who can help us take our Phase II SBIRs to full commercialization," he said.

Laingen stressed that an essential to success once a company gets rolling, is showing up to conferences and getting involved with committees. "Our senior engineer, who runs all of our SBIR pro-

grams, ended up on a board for the military that is essentially the final arbiter on new certifications for wire and cable standards." He added, "that gives us a voice as to what the standards will be; and it happened because of painstaking attention to this over the years."

The discussion then turned to the resources Minnesota Wire has used for help. He lamented that many small companies might "look at this and say 'gee, I don't even speak defense.'" Laingen's company found a consultant on the east coast who was a huge part of their capture rate, but he did admit it was expensive. "I think it was a couple grand just to help us write a Phase I."

Other than consultants, Laingen noted there are many Procurement Technical Assistance Centers (PTACs) around the country. These are publicly funded centers designed to help businesses compete successfully in federal, state, and local government contracting. "They won't write the proposals for you," he advised, "but they do provide services that help you build a proposal, and they connect you to additional resources." Although Minnesota is not among them, Laingen noted that several states provide matching funds for Phase I and II SBIR wins.

One additional tool utilized by Minnesota Wire is govwin.com (previously input.com). "It's probably the best in the industry for searching everything from R &D to standard contracts across all government channels." Laingen admitted it is expensive but worthwhile and described it as FedBizOps.gov on steroids. "It even predicts solicitations before they come out," he revealed.

Laingen felt strongly that the entire SBIR/BAA process, even failure, provides great benefits in developing a company's market strategy. "Just the exercise of going through the proposals, and seeing what is out there, can provide a treasure trove of business intelligence." He added that, although rare, "every once in a while a company can look at a project and say 'hey, I'm doing that right now.'" In that instance, they could likely get involved directly, outside the SBIR realm.

Pursuing these government sources of R&D funding has worked well at Minnesota Wire, and has

Continued on page 18



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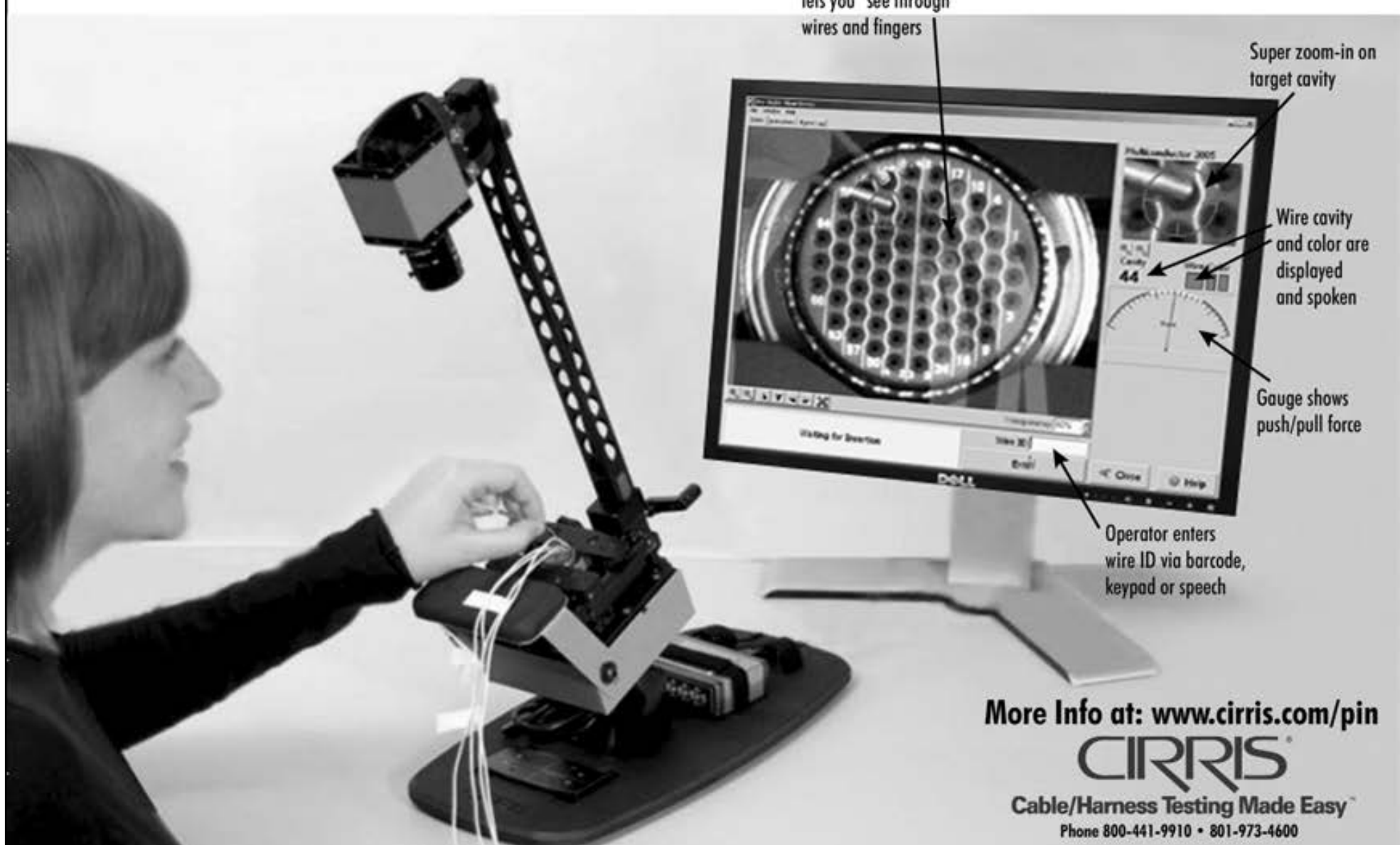
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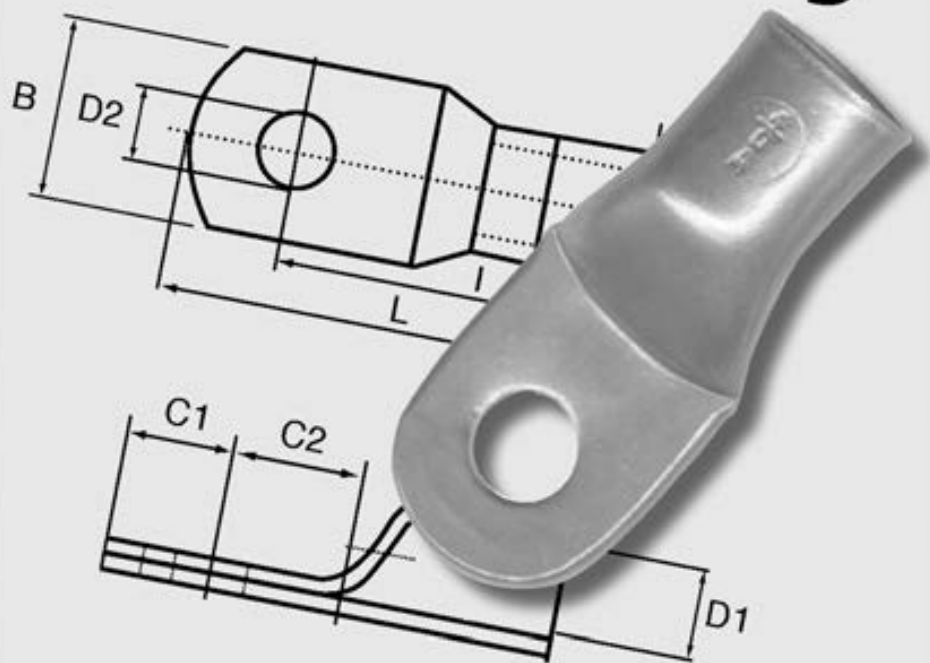
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been the key to their success over recent years. Laingen concluded with some compelling remarks saying:

Big companies tend to outsource or bolt things together. The innovation and real technology changes are happening with small business, and that's where the money is now. If you look at the field and say 'I'm not a big company so I can't play in that arena,' I think that you're looking at it wrong. This is where the solutions are going to come from. It's hard. It takes persistence and some resources, but it is well worth the effort.

For more information on BAAs and SBIRs and other government contract opportunities, please visit these sites.

Some offer fee services, but all are full of great information.

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www.fedbizopps.gov

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Wiring Harness News also interviewed Brian Vetter with CIV NAVAIR. Brian is the technical point of contact on wiring system SBIRs for the Navy. He provided a unique view from the other side of the coin. Look for the April/May issue for an insight as to what agencies look for in a winning proposal.



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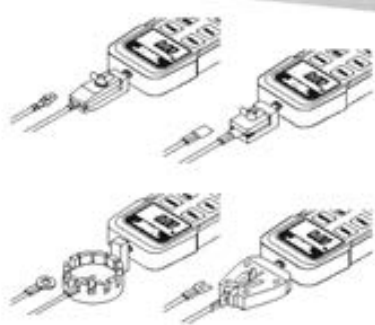
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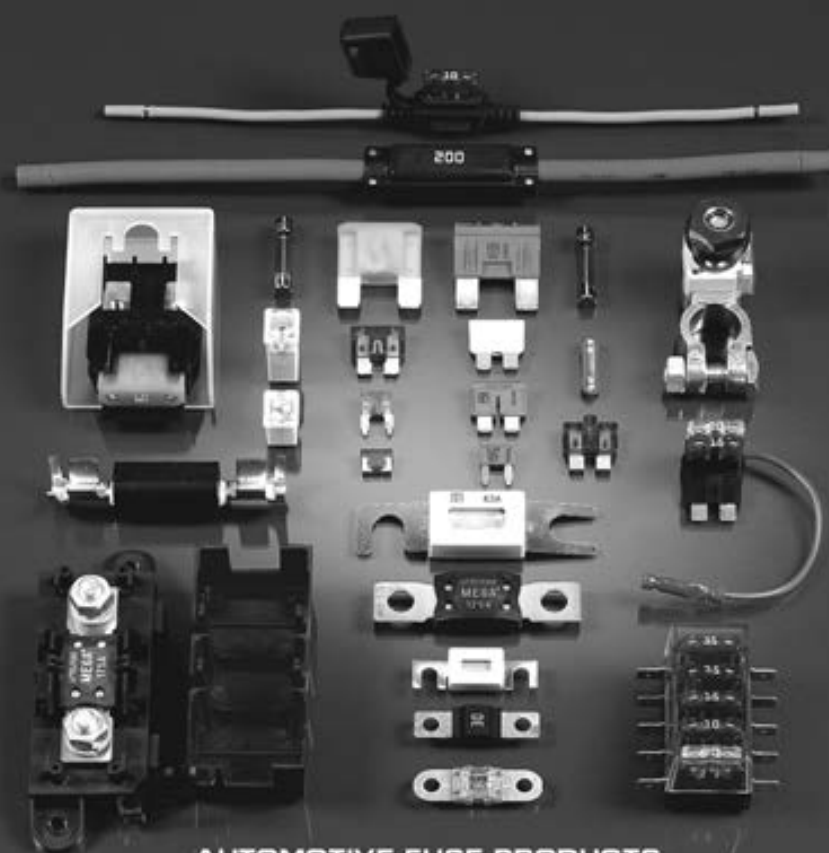
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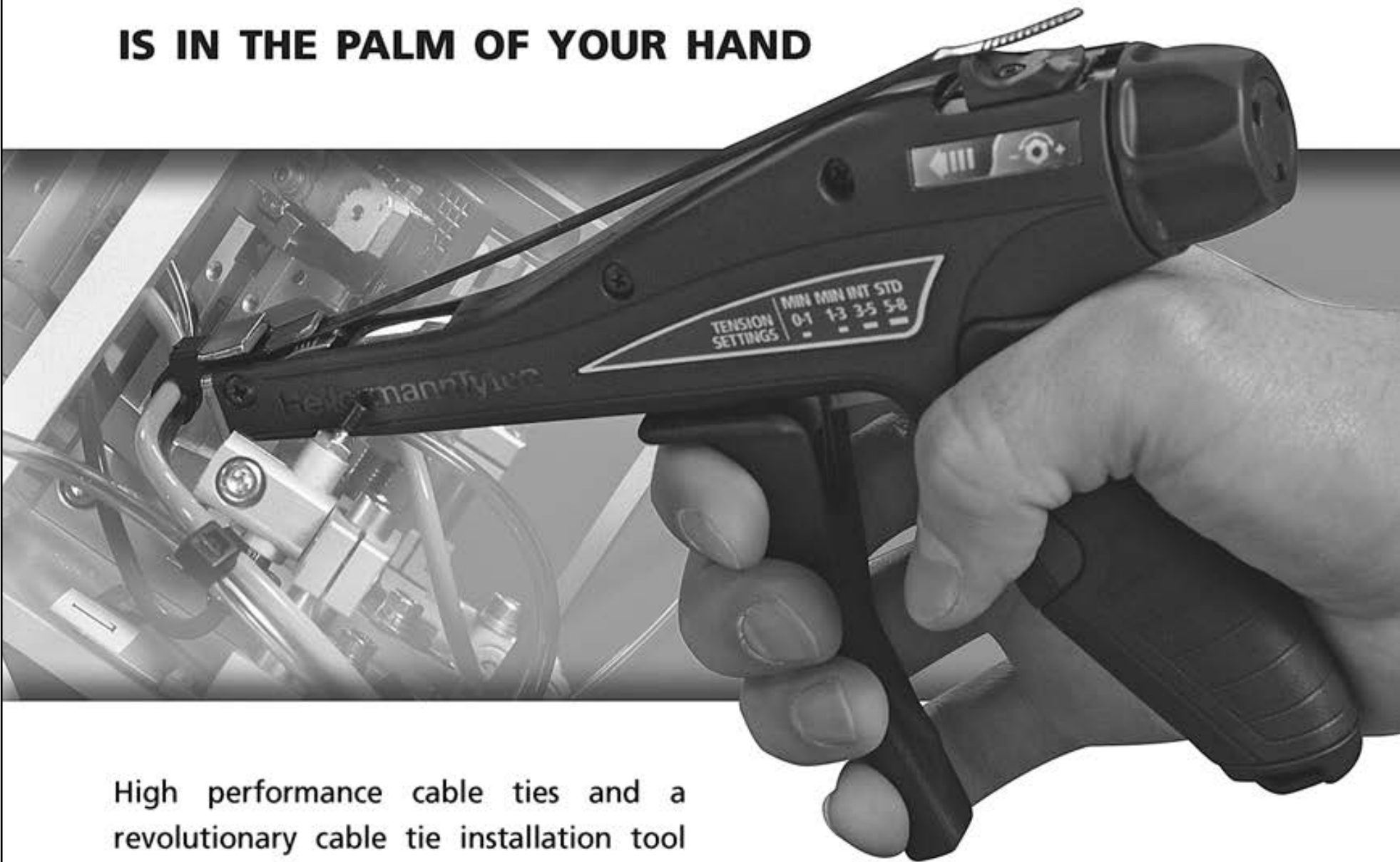
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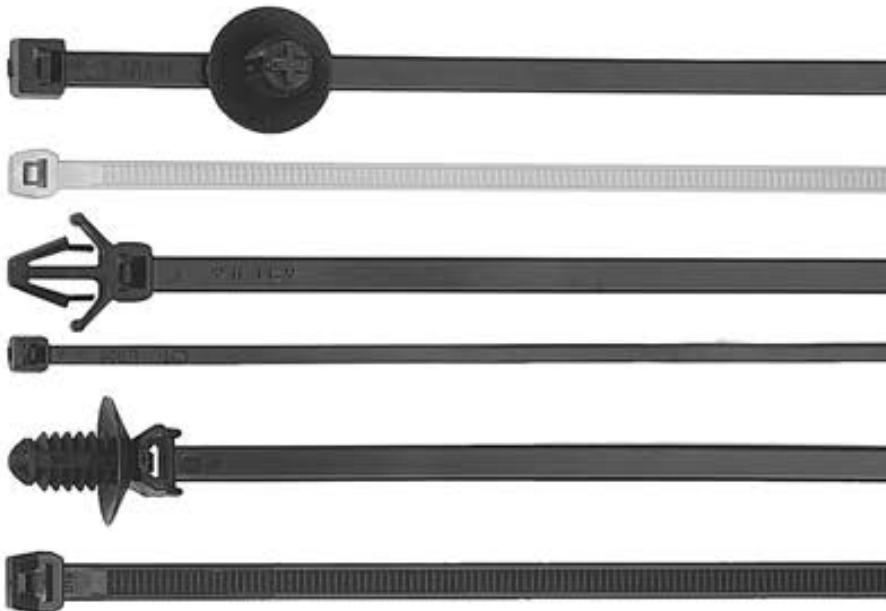
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Who are we?
We are a mission-based organization

comprised of people who have professional, family or personal experience with mental illness. In addition to causing human suffering, untreated mental illness is a significant business issue that exacts an enormous financial toll on companies. Our mission is to create a win-win situation for employers and employees by addressing mental illness in the workplace. When workers are effectively treated for mental illness, lives are improved, productivity goes up, and companies save money. We recognize that mental illnesses are biologically based and when diagnosed early, can be treated effectively and at a reasonable cost. Our program is designed to provide education to help overcome stigma surrounding mental illness, connect

employees to services that alleviate needless suffering, and improve your company's financial bottom line.

Did you know?
One in four adults—about 57.7 million Americans—experience a mental health disorder in a given year. All told, the annual economic cost of mental illness in the U.S. is an estimated \$79 billion. Approximately \$63 billion reflects the loss of productivity as a result of mental illness.

We can help
The good news is that treatments for mental illnesses are just as effective as treatments for other biologically-based illnesses, like diabetes, for example. With

proper care, 70 to 90 percent of persons with mental illnesses experience a significant reduction of symptoms and an improved quality of life. Yet despite effective treatments, there are typically long delays between the first onset of symptoms and when people seek and receive treatment – if they seek it at all. Our goal is to help employees suffering from mental illness self-identify and then find and receive the treatment they need and deserve. Not only can the DO program help companies save countless dollars in lost productivity, but we also believe it's the right thing to do.

Why the workplace?
We believe there is an urgent need to systematically address mental illness in the workplace. Ignoring the problem is all too common and extremely costly – in terms of lost revenue and broken lives. Additionally, mental health disorders are the fastest rising cause of disability claims in the U.S. The answer is simple. When employees are successfully treated, marked productivity gains are the result. There are also substantial savings related to reduced firing, hiring and training costs, and a decrease in expenses associated with legal, pension and severance requirements. By implementing this program, we believe you will save 3 to 5 percent of payroll, net of treatment costs. You will also help foster and promote a psychologically healthy workplace that helps all employees perform effectively, and feel valued and supported.

Doesn't my company's Employee Assistance Program already address this need?
No. In our experience, EAP programs can help employees deal with personal problems, but are not designed to address mental illness. Mental illnesses are disorders of the brain, and like any medical illness, require specialists who have the experience and training to treat them.

How does the program work?
Education and awareness, mental illness screening, and encouraging self





Visit us in Booth #1607

BT 3500 Battery-Hydraulic Hand Tool

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

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

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

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

We are now accepting orders for the BT 3500 Battery-Hydraulic Hand Tool.
Call Us — We're Well Connected!
For more information, visit www.heilind.com/te_wnh or call us at 866-887-2189.

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TECHNOLOGIES CORPORATION

Crimping Applicators

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

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

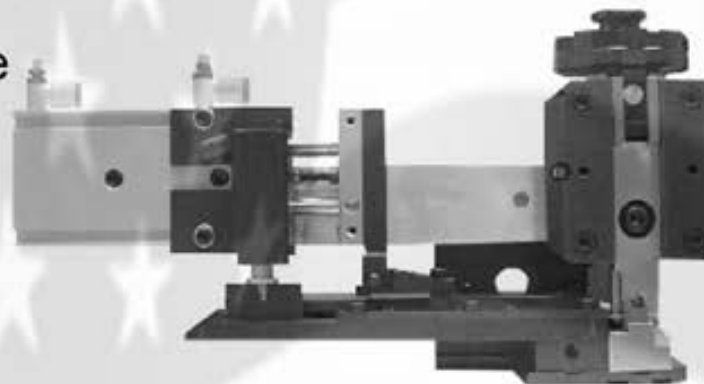


Model 1700



Model 2000

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

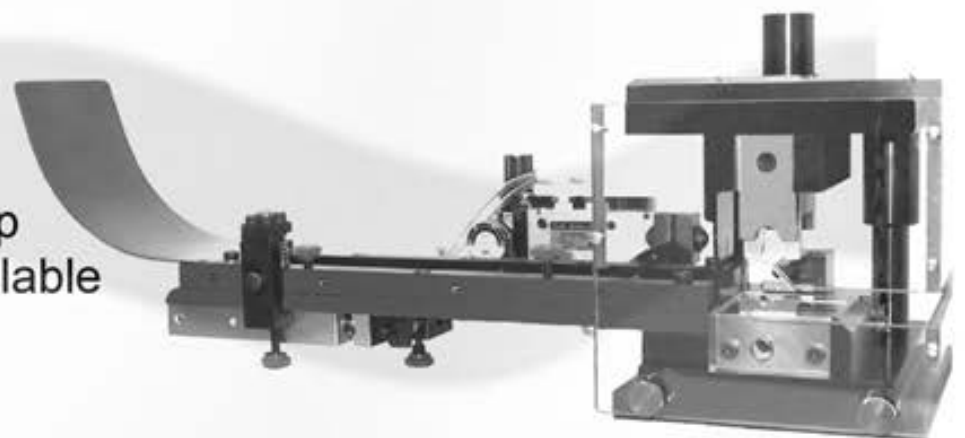


Model 1500



Model 2100

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



DSA Series

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



Visit us in Booth #1303

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

Visit our web site: www.applitek-usa.com

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- Automotive
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NationalWire.com 323-225-5611

The Diagnostic Organization

Continued from page 20

referrals for treatment are the cornerstones of our program.

We provide customizable training to senior management, middle management, and employees, which includes an overview of the four most common mental illnesses: depression, anxiety disorders, bipolar disorder, and attention deficit-hyperactivity disorder (ADHD). We also discuss the impact of untreated mental illness on productivity; the importance of overcoming stigma surrounding mental illness; and an overview of our web-based tools, including:


- **Mental Illness 101** - This section of the website is dedicated to providing information on the major mental illnesses, effective treatments, and encouraging testimonials from people living with mental illness.

- **Productivity and Symptom Questionnaire** - This confidential and anonymous


web-based survey asks employees to rate numerous aspects of their job performance and psychological health. The questionnaire is designed to measure psychological distress that would indicate a high probability that an employee is suffering from a mental illness. Upon completion of the survey, employees receive immediate results. Those who score a high probability for mental illness are encouraged to privately visit the “resources” section of the website, where they will find information on how to find a qualified provider and other mental health resources in their community.

- **Resources** - This section of the website offers detailed information on how to select a mental health provider; desirable qualities of a provider; and what to expect during treatment. We also offer a list of community organizations that provide support services to people living with mental illness.

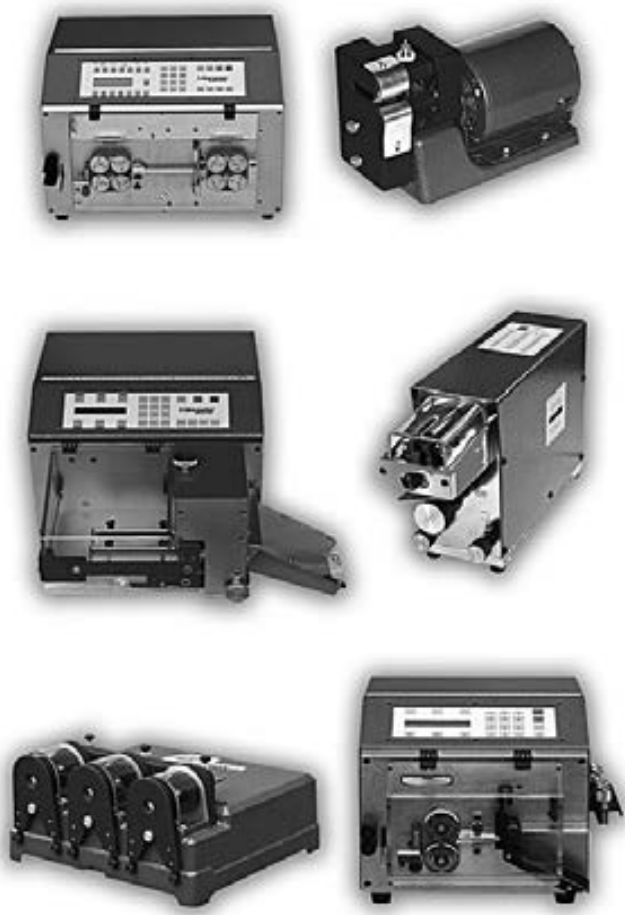
- **Support tools** - We offer communication support tools to encourage



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employees to visit the website, take the assessment and seek referral when appropriate. These tools include printable PDF flyers and check stuffers, brochures, and text and graphics that can be included in company communications and newsletters.

The team consists of:

Mike Williams, president - Following a career as a successful business owner, Mike Williams and his wife, Sharon, volunteer for NAMI (National Alliance on Mental Illness) Fox Valley, where Mike is also an active board member. Mike, who has personally witnessed the devastating impact of mental illness in both the workplace and at home, is passionate about helping others live well in spite of mental illness. Email: mnwilliams67@new.rr.com

Sharon Williams, director - Sharon Williams is a dedicated volunteer at NAMI Fox Valley, where she and husband, Mike, work as “Family-to-Family” trainers and facilitators. This free course is often considered a lifeline for those in need of support and problem-solving skills to help deal with a loved one’s mental illness. In addition, Sharon manages an after-hours help line for NAMI Fox Valley, helping people in crisis find the services and support they need. Sharon also draws from her personal journey of caring for mentally ill family members to offer immense compassion, empathy and advocacy to those dealing with mental illness. Email: swilliams9@new.rr.com

Dr. Brad Lyles, director and research coordinator - Brad Lyles, MD, FAACAP, DFAPA, is a fellow of the American Academy of Child and Adolescent Psychiatry and a distinguished fellow of the American Psychiatric Association. He practices child/adolescent and general psychiatry with Child and Family Consultants in Green Bay, Wis. Dr. Lyles is a tireless advocate for the mentally ill, their families, their loved ones and those who care for them. Email: williamlyles@hotmail.com

Bill Kime, director - Bill Kime, a certified professional engineer, has a rich history of continuous improvement in process and leadership. He is currently the vice president of Lean Six Sigma and Quality at Menasha Packaging LLC

in Neenah, Wis. Bill, who has worked with thousands of people throughout his career, has repeatedly witnessed employees who struggled with untreated mental illness. “We wouldn’t throw people out due to a sore wrist or shoulder,” says Kime. “So why would we do it for a mental health issue. The DO process can be a win-win for both the company and the employee.” Email: bill.kime@menasha.com

Doug Maki, director - Doug Maki is the director of business development at Optima Associates, Inc. in De Pere, Wis., where he assists a variety of businesses and organizations offering products and services for continuous improvement and continuous improvement consortiums. His many years of experience with a wide variety of

businesses have proven to him the vast hidden costs in the area of employee involvement and the lack of a people-centric culture. Email: makid@sbcglobal.net

Cheryl Rotherham, director - Cheryl, a Green Bay psychotherapist with more than 20 years clinical practice, is skilled in the most scientifically-based psychotherapies and provides her patients with the most comprehensive, immediate and effective treatment available. Through training, experience and continued education, Cheryl is an expert in bipolar disorder, major depression and ADHD.

For further information please contact The Diagnostic Organization, LLC, W4847 Blackberry Ct., Sherwood, Wi 54169. Phone (920) 989-1739.

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Booth #1120

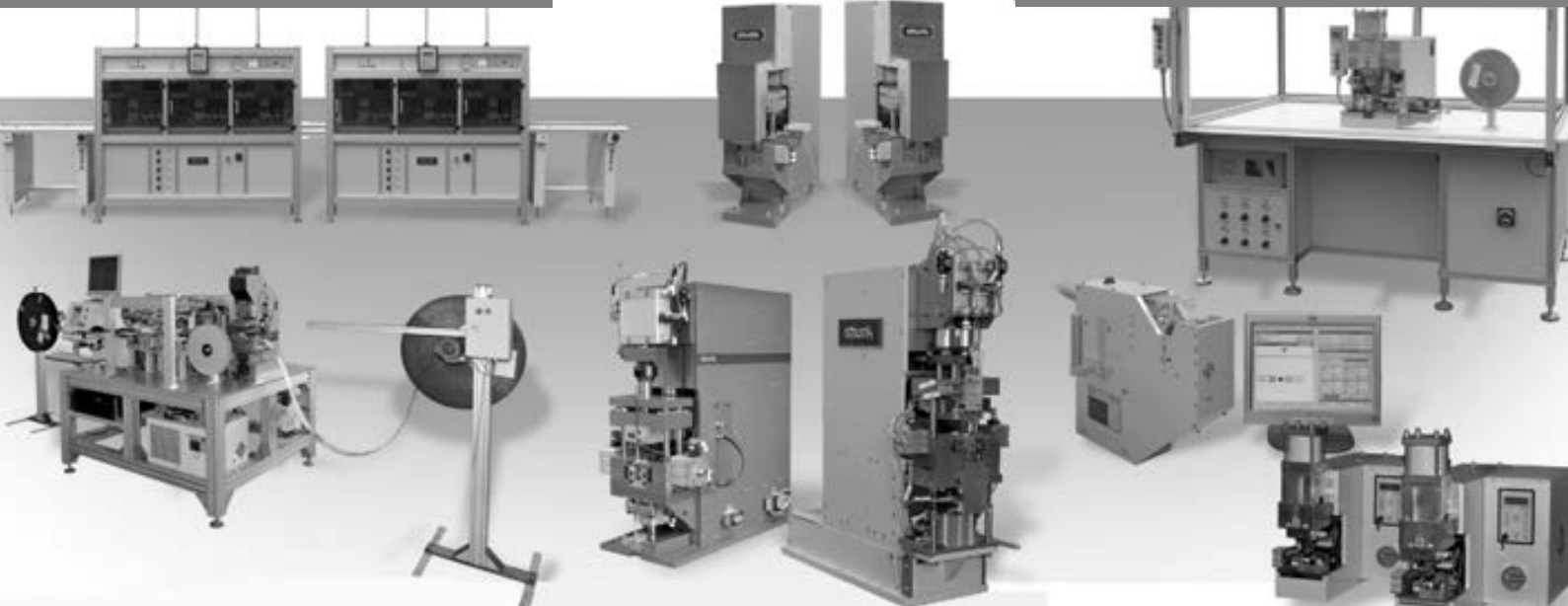


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NEWS PLUGS

Precision Welder Joins Wires for Photovoltaic Applications

The STRUNK SPECIAL WELDING SYSTEMS uses resistance welding to splice one or more wires and to join one or more wires to other components. The technology welds both solid and stranded wire, from 0.01 millimeter to 150 square millimeters, at rates up to 800 parts per



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minute by special cam driven systems for automotive, medical and solar applications.

The joints for solar applications with wire diameters of 2 mm² to 10 mm² made by resistance welding have near-zero electrical resistance and are highly resistant to both shear and peel forces. Parts joined by resistance welding also exhibit no aging of the connection. This has direct impact on the energy efficiency of the solar panel. As well STRUNK control and monitoring systems guarantee a reliable and repeatable quality incl. reporting and documentation.

Typical applications include welding solar cables to connectors, solar cables to the lead frames of junction boxes; strings to junction boxes and other strings; and diodes to the lead frames inside the junction boxes.

The welders are available as manual benchtop units and in other configurations up to completely automated turnkey systems.

Strunk Connect, Automated Solutions, Inc., 39 Scenic View Drive, Deep River, CT 06517. Phone (860) 227-0683 or Fax (860) 526-9296. Email Heinz Bockard at h.bockard@strunk-connect.com or visit www.strunk-connect.com.

Visit Strunk Connect at the Electrical Wire Processing Technology Expo, Booth #1120.



Visit Grayline Inc., Booth #1513



STEINEL

Steinel IntelliTemp™ HL2010E Heat Gun Features:

- LCD display allows for temperature selection in 10°F increments
- Applications include applying shrink tubing/connectors, softening adhesives and working with heat sensitive materials
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**MASTER
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Master Appliance Master-Mite™ 10008 Heat Gun Features:

- Compact, yet rugged design for electrical benchwork
- Uses include shrink tubing, melting solder, preheating flux and activating and curing adhesives/epoxies
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Eraser's Model HTS1C Thermal Wire Stripper

Eraser's Model HTS1C Thermal Wire Stripper is a lightweight hand held wire strippers for stripping solid and stranded wires. The HTS Series is especially effective on insulations such as P.T.F.E. and Teflon. The model HTS1C strips 1/2" to 43 AWG and can



Model HTS1C Thermal Wire Stripper

strip lengths from 0 to 2" and it comes with a removable length stop which is used when shorter strip lengths are needed.

The temperature at the stripping elements is variable up to 1100°F (594°C). The HTS1C has a cradle switch; when the tool is placed in the cradle, heat to the elements is disconnected.

The Eraser Company, Inc., celebrating its 101th anniversary in business, manufactures a wide range of industrial products including wire, cable and tubing cutters, wire and cable strippers, wire twisters, wire brush wheels, dereelers, infrared heating equipment, measuring tools, and FybRglass® erasers. The company is ISO 9001:2008 certified. The company offers Free E.S.P. (Eraser Sample Program). Send a 10-20 foot sample of your material and Eraser will recommend the best solution for your processing needs from its line of more than 200 products.

For more information on Eraser's entire product line visit www.eraser.com or call 315-454-3237. Visit Eraser at the Electrical Wire Processing Expo in Booth #1245.

ETCO Inc. Promotes Two to Senior Management Positions

ETCO Inc. announced the appointment of Mr. John Macaluso, the company's current General Manager to the position of President. ETCO also announced the appointment of Mr. Sean Dunn, the company's current Vice President of Marketing, to the position of Executive Vice President.

ETCO is one of the world's leading manufacturers of precision metal stampings (both commodi-

ty & customized), ignition components, silicone components and assembly equipment based in the United States today.

Mr. David Dunn, the former President of ETCO and now current Chairman said, "John and Sean have a combined two decades of experience in the industry and working at ETCO. I have watched them lead the growth of ETCO both in operations and marketing, and I am confident they will carry on the traditions of customers and quality first."

ETCO is focused on rapidly becoming a premier manufacturer of precision metal stampings and ignition components in the automotive industry. Some of the company's newer products include the ETCO Flat Snap product, which is a replacement for the highly successful ETCO Generic Splice connections



**John Macaluso,
President ETCO Inc.**

product and the new UL approved ETCO Insulated Product line.

Continued on page 27

WIRE HARNESS ASSEMBLY STATIONS

Designed for the ergonomic assembly of wire harnesses

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



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Booth #1120

11 Superb Reasons To Always Use Wire Markers

- 1. SAFETY**— Supports proper installation to allow for greater safety to the installer, user, and product. Also reduces the risk of any potential legal liability.
- 2. EASY INSTALLATION**— Markers simply snap or slide into place on any gauge wire, cable, pipe, electrical component, etc.
- 3. IDENTIFICATION**— Allows the correct wires to be quickly located, which speeds up installation, troubleshooting, or updating.
- 4. HIGH VISIBILITY**— A selection of bright colored markers provides fast and accurate locating, with a well organized look.
- 5. INCREASED EFFICIENCY**— Creates a smarter, labor-saving approach through all phases of wiring.
- 6. COST-EFFECTIVE**— Wire markers, systems, printers and accessories are affordably priced for your greater business efficiency.
- 7. FLEXIBILITY**— There are a variety of marker profiles for virtually every different application.
- 8. ACCURACY**— Eliminates or reduces troubleshooting errors.
- 9. LONG LIFE**— Decades of life have been reported from the field and test labs.
- 10. PERMANENTLY AFFIXED**— When necessary, to prevent tampering.
- 11. TOLERANT TO CHEMICALS**— Materials used have a high tolerance to a variety of chemicals and oils, for normal and harsh environment applications.



**Any item on this list is reason enough to always use wire markers.
The combination of all of them just makes good business sense.**



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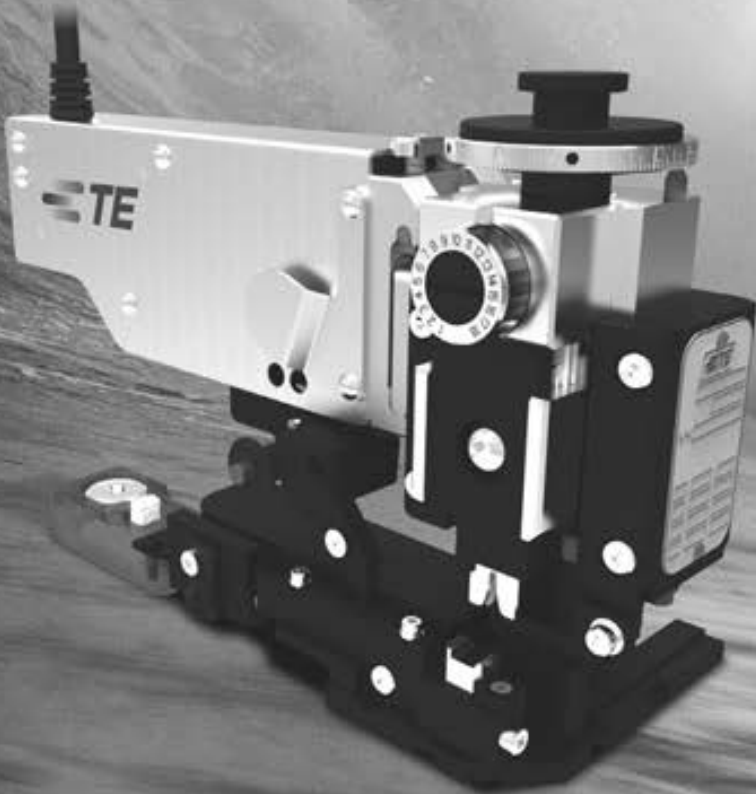
BETTER

TE Connectivity's New Ocean Applicator Series

We listened to our customers, who told us they wanted a simplified modular applicator design with increased flexibility. With this information and years of development, our engineers designed a state of the art applicator with easy adjustments, design consistency and global standardization, which in turn provides you with the benefits and quality you've come to expect from TE Connectivity.

TE's Ocean applicators are designed to be backward compatible to run all common terminators and leadmakers. It can also be upgraded to run on servo intelligent machines.

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Pneumatic Feed



Servo Feed

Call your TE Connectivity sales professional at 888-777-5917 or 1-717-810-2080 for a demonstration of TE's Ocean Applicator Series and see how your manufacturing can improve with its use.

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

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NEWS PLUGS continued



Continued from page 7



Sean Dunn, Executive Vice President ETCO Inc.

Mr. John Stiness of will continue as VP in charge of Sales and Mr. Steve Segerson will continue as VP of Finance and CFO.

Founded in 1947, ETCO is a privately owned company. The Company manufactures precision stampings and rubber and plastic molded products used principally by major automotive and appliance manufacturers. ETCO also has major customers in a variety of other industries in the USA and over 30 countries throughout the world.

ETCO has factories and a research complex in Bradenton, Florida and a factory and engineering center in Warwick, Rhode Island.

For more information on ETCO, visit the Company website online at www.etcocom.com.

TE Connectivity Presents the P50 Pin Insertion Machine

The successful product line of single pin insertion machines has been expanded with the addition of a manual operated bench machine for low volume production, repair work and sample production.

The P50 manual bench insertion machine uses a tracer slide to position the PCB under the pneumatic insertion head. A regular PCB is used as master to position the indexing pin above the insertion hole. When activating the two-hand start, the indexing pin extracts. If a hole is detected, the terminal is inserted into the board in production.

To fulfill automotive requirements, the P50 insertion machine can be

equipped with an insertion force monitoring system. In cooperation with an optional barcode scanner, the insertion forces can be stored for traceability purposes.

The newly designed pneumatic insertion head uses the well-known conversion kits from the upper range of P300 / P350 machines and can also be used on other machines of the product line. These conversion kits can easily be changed to run different terminal types and provide all features to feed, cut and insert the terminal.

The rotary insertion finger is a standard feature of the pneumatic insertion head to allow the terminal insertion at different angles without the need to re-load the PCB in different orientations. A simple mechanical pin is used to switch from one insertion angle to the other.

To speak to a technical representative, contact the Tooling Assistance Center at 1-888-777-5917 or 717-810-2080. TE Connectivity will be exhibiting the P50 Pin Insertion Machine at the Electrical Wire Processing Expo in Booth #1619.



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8577 Great Reasons To Always Use Partex Wire Markers

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You see, we have something that no one else has...a complete dedication to making and selling wire markers and accessories. It's all we do. We have no other product lines that can steal away our time and distract our focus. That's why we believe we do it better.



What does that mean to you?

It should mean a lot. Great service. Fast delivery. Quality Products. Competitive pricing. And the list goes on. We are what you want us to be - A great supplier who cares about you.



8577 great products.

Pictured here are just a handful of items representing what we offer. Besides standard markers and products, our complete line includes:

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 Terminal Block Markers
 Stainless Steel Markers
 PVC and Heat Shrink Tubing
 PVC Markers
 Plotters
 Heat Transfer Printers



Ink Ribbons
 Cable Ties
 Tension Tool for SS Markers
 Reel Stands
 Installation Tools
 Storage Boxes
 Replacement Blades
 Pens for Plotters

Want more? Just call us and speak to any of our friendly and knowledgeable employees. Or contact any of our exceptional distributors located across the country.



But that's not all.

We give you more choices and services, like Customized Marking that allows for your special requirements. Same Day Shipping when you need it NOW! Stainless Steel markers for harsh environments. A choice of PVC or Halogen free material, depending on your needs.



Plus, with Partex you can choose from 3 marking methods: Single Character, Multi Character, or Do-It-Yourself with our line of high efficiency printers.



Call us for your first or next order.

New customers are always welcome to the Partex family.



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Wire Terminal Pull Testers

Motorized WTTM-110/220



NEW

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

Two motorized models offer

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

Manual WTT-110

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



Fast, Accurate, Repeatable and Very Easy To Use

CHECK•LINE'S® WTT Wire Terminal Pull Testers accurately measure the pull-off force on soldered and solderless wire terminals. These all in one solutions don't require additional grips, fixtures or accessories.

- Current force and breaking force appear on the digital display.
- Conforms to all international test standards: MIL, UL, SAE, DIN, IEC, BS and EN.
- Operates on AC power or built-in rechargeable battery (adapter/charger supplied).
- RS-232 and analog outputs available for data transfer.



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

DISTRIBUTORS WANTED

For more information, contact Andrew Kaner, Product Manager, at 1-800-645-4330, 1-516-295-4399 (fax)

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NEWS PLUGS continued

Rugged, High-Density Amphenol Connectors Offer Increased Power and Durability

Amphenol Aerospace, now offers a series of rugged, micro-miniature connectors that provide more power throughput and consistent coupling by incorporating more electrical connections in compact form factor. Available in shell sizes from 5 to 23, the new high-density 2M Series weighs 72% less and is 52% smaller than standard MIL-DTL-38999 connectors.

The connectors are intermateable and intermountable with existing micro-miniature high-density connectors typically used in aerospace and defense applications. The lightweight 2M Series maximizes SWaP (size, weight and power) in a variety of high-reliability, harsh environments.

Designed for durability, the new 2M Series uses advanced bonding techniques to increase adhesion properties and reduce the risk of fod (foreign object debris). The enhanced process makes the new connectors even more reliable in the harsh conditions found throughout soldier-wearable, missile and ordnance, communication systems and avionics applications.

Each of the four coupling styles currently available combine more than 40 years of Amphenol design expertise to offer consistent coupling torque on every



**Amphenol Aerospace
Micro-miniature Connectors**

connector as well as withstand up to 37 g's of random vibration and 300 g's of shock.

The fast-mating 2M801 dual-start ACME thread connector offers a Duallok plug that exceeds MIL-DTL-38999 vibration levels and offers the highest coupling torque currently available in a micro-miniature connector. The 2M803 features a 1/4 turn bayonet coupling for quick mating in general avionics and weaponry applications.

For breakaway applications, such as soldier-worn equipment, the 2M804's push-pull coupling offers quick disconnect. Conversely, the tri-start ACME thread-style 2M805 uses an anti-decoupling ratchet for exceptionally secure mating.

AAO offers the 2M connectors in its Durmalon aluminum/nickel-PTFE plating, the only mil-qualified RoHS-compliant plating in the industry. The micro-miniature connectors come in various other common platings, including stainless steel/passivated, non-conductive alu-

Continued on page 32

VIEW

from

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FT-801 THERMAL WIRE STRIPPER

Cuts insulation like a hot knife through butter!

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



For complete information visit



www.HakkoUSA.com





Booth #1313



Stripping Blades, Applicators and
Special Wire Processing Equipment

THB® Applicators by Mechtrix (Starting at \$1675)

Mechtrix is proud to offer the full line of THB Mechanical and Air-feed Applicators. With more than 20 years of tooling experience utilizing our Mechtrix CrimpCADD® design and analysis software, Mechtrix can design and supply you with the perfect solution to even your most difficult wire terminating projects. Ask us about our special reduced pricing on spare tooling with your initial order.

Innovative wedge adjustment design provides positive, precise, tool-less
crimp height adjustment with visual confirmation of settings

Insulation Crimp Height adjustment
range of 2mm in 0.02mm increments

Conductor Crimp Height adjustment
range of 2mm in 0.02mm increments

All replacement parts
clearly laser engraved

Rubber shipping and storage
collar prevents accidental
tooling collision damage

All applicators include:
• Owner's Manual
• Complete BOM
• Terminal Cross-
Section Analysis

Rugged cast and fully
machined body for
rigidity and durability

Special corrosion
resistant plating

3-point quick change base

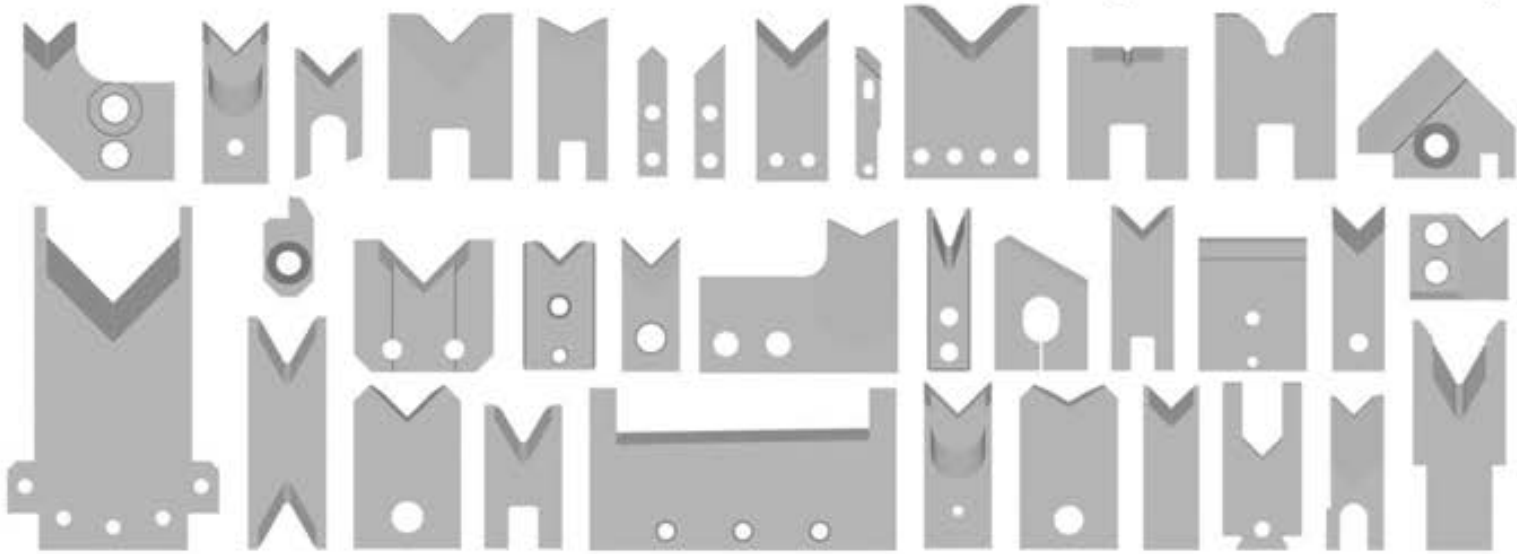
Adjustable guide track

Split anvil design to
reduce tooling costs

Mechtrix Stripping Blades

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

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



Mechtrix Equipment

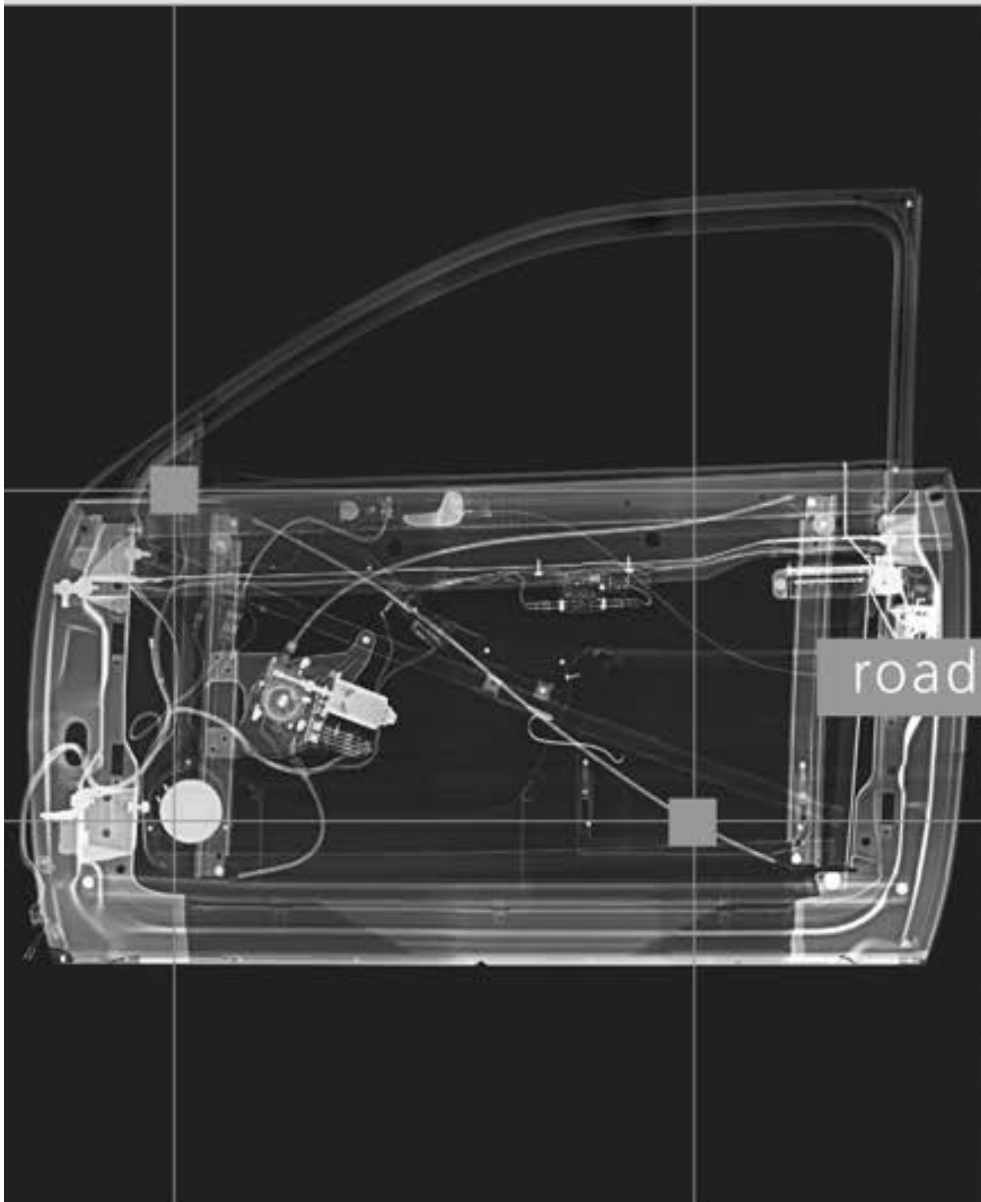
Mechtrix has designed a number of unique machines to solve specific wire processing problems. These machines range in complexity from our patented center stripping machines to terminal paper winding machines. These machines include:

- Wire Prefeeding Equipment
 - Heavy Duty Benchtop Wire Stripping Machine
 - Automatic & Manual Center Stripping Machines
- Terminal Carrier Strip Cut-off Devices
 - Terminal Paper Winding Machines
 - Terminal Applicators & Crimping Presses



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Menomonee Falls, WI 53051
Tel (262) 255-6555
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www.mechtrix.com

Schleuniger



Innovators in Wire Processing



Booth 1641 – Take the new CrimpCenter 36S for a test drive!

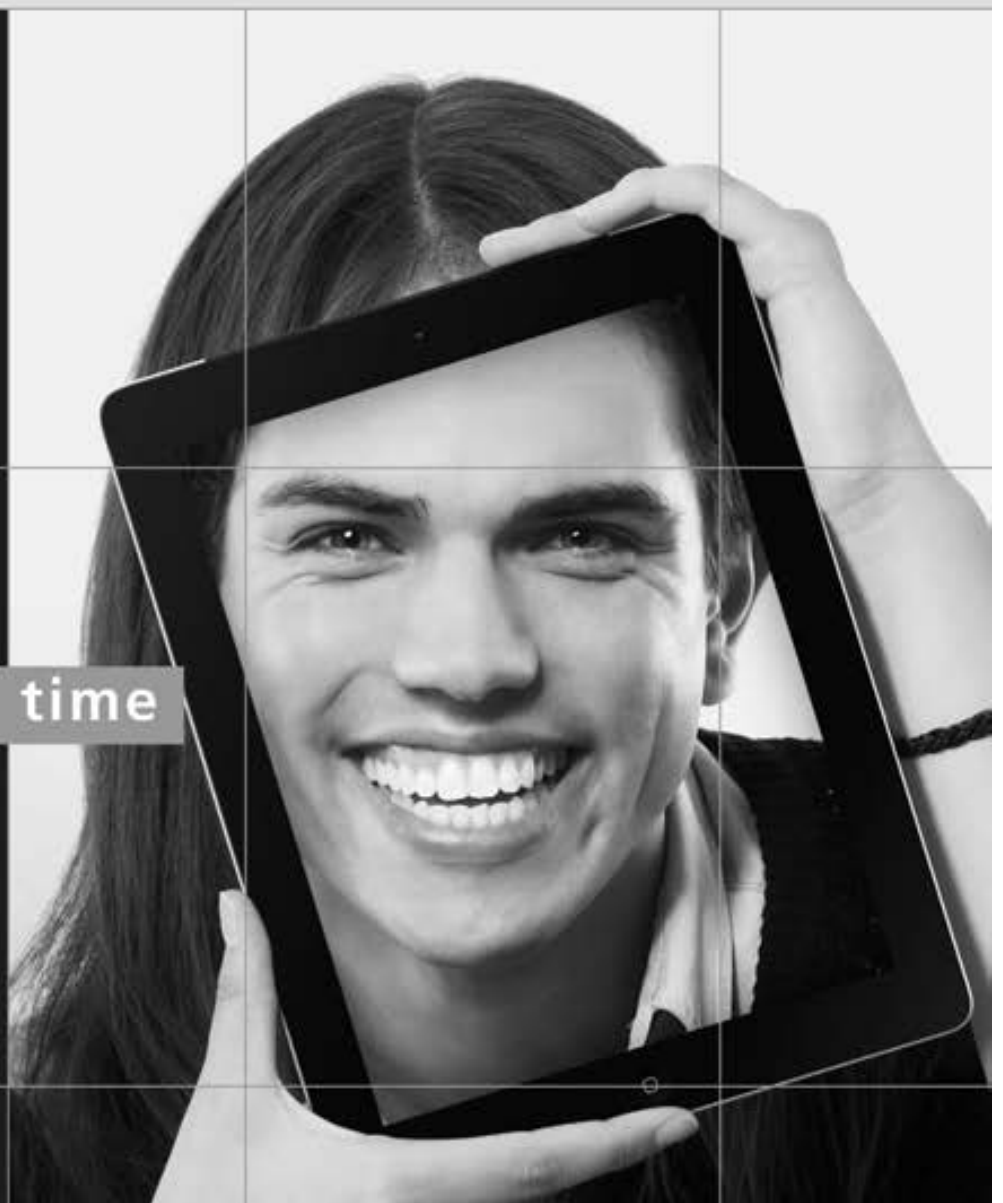
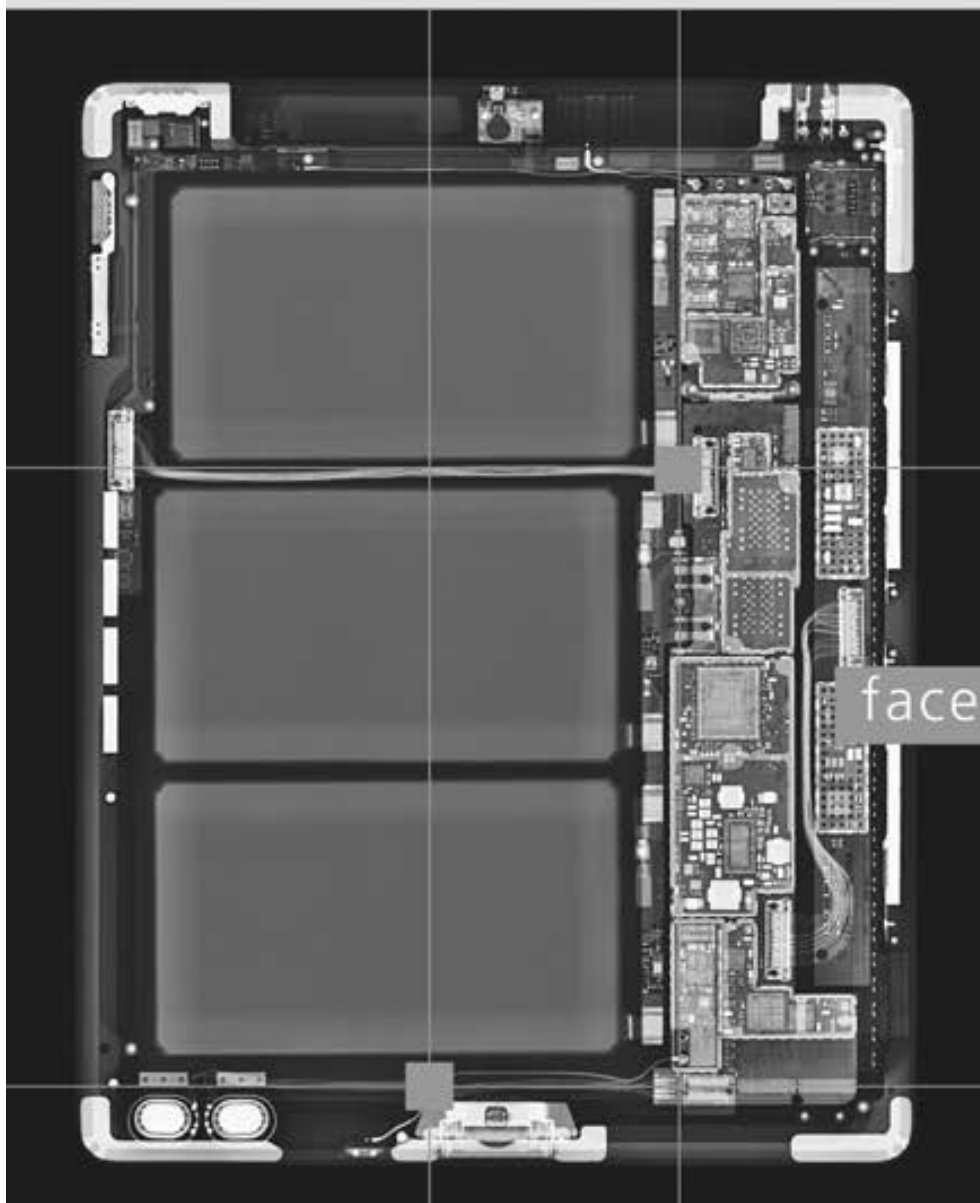
Cut, strip, and terminate wires with the fully automatic **CrimpCenter 36S**. Equipped with high precision technology, it features a compact modular design offering space for up to 6 processing stations, such as seal loaders, twisting and tinning stations, doubling unit, etc. Dynamic and powerful servo motors combined with an intelligent control system provide high output rates to meet even the most demanding production schedules. Quick changeovers make it ideal for low volume, high-mix jobs as well as larger production runs. The **CrimpCenter 36S** is the perfect passenger for your road trip to success.



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Schleuniger



Innovators in Wire Processing



Booth 1641 – Spend some quality face time with one of these new strippers!

The new **RotaryStrip 2400** and **UniStrip 2550** are fully programmable wire stripping machines with color touchscreens and provide the highest precision and quality available on the market. The **RotaryStrip 2400** can easily strip Teflon, Kapton and Fiberglass insulated wires with optional twisting of the inner strands. The **UniStrip 2550** comes standard with V blades, but can be equipped with radius, die or custom blades, expanding its application range even further. High reliability, flexibility, productivity and user-friendliness, make either machine a wise investment for the future.



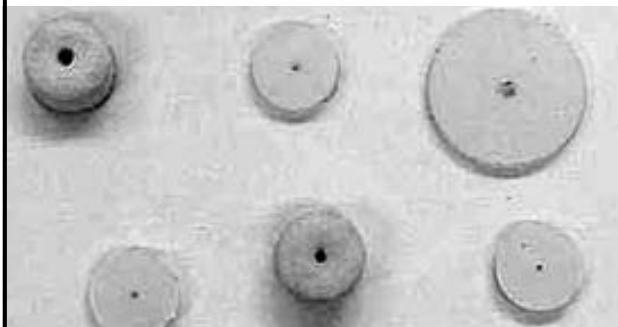
RotaryStrip 2400

UniStrip 2550

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NEWS PLUGS continued



Continued from page 28

minum/black anodize, aluminum/electroless nickel and aluminum/zinc-nickel with black chromate or olive drab.

The connectors can be internally-filtered for radiated and conducted EMI to increase system efficiency and reduce overall system size, weight and components.

Amphenol's full line of complementary accessories for the 2M Series includes protection caps and strain relief, EMI and environmental back shells, flange gaskets, hex nuts, O-rings and heat shrink boots.

Pricing for the 2M Micro-miniature connectors is dependent upon insert and contact arrangement. Delivery is 8-10 weeks ARO.

For more information, please visit http://www.amphenol-aerospace.com/circular_2m.asp or e-mail scurtis@amphenol-ao.com.

Mecal by Starn Making Changes

Mecal by Starn is pleased to announce a change in the Mecal by Starn, TSR and CYG USA business model. We understand that lead time and simplicity are key factors in managing a business in the fast paced world we live and work in. In the past the process of Quoting and Purchase Order placement was through TSR. We are making a change that will reduce the time and improve the communications when you are inter-

ested in using products produced by Mecal by Starn. We also understand the importance of the time spent with knowledgeable sales people. If you have a sales representative for any of our products, and you are happy with the relationship, that will not change. We also want everyone to know that CYG USA will still be an important part of our team of Partners along with their long standing expertise in the industry.

As of 2/1/2012 all quoting, order placement, and account management will be direct with Mecal by Starn. This will have a positive impact on our ability to maintain the fastest delivery in the market and help us control the cost of our products. What will change is the direct customer service and technical assistance that we can provide. Mecal by Starn will also be doing the invoicing and managing the payments for products. We look forward to working with you and your staff to provide the best products in shortest time possible and for a great value.

Visit our Web Site at www.mecalbystarn.com to identify your sales representative on the interactive map of USA and Canada.

Visit with Mecal by Starn Reps at the Electrical Wire Processing Expo, Booth #1721

Telsonic Introduces the World's First Power Wheel® Ultrasonic Welding System

This ultrasonic welding system has been designed and manufactured based on the principals of Torsional welding technology that is exclusively offered by Telsonic. Its main applications are in the field of wire termination, where there is a growing demand for larger cables to be welded to various terminals. Automotive, Green Energy, and Aerospace are among the industries where the Power Wheel approach can offer very attractive solutions in the assembly of wire harnesses.

Thanks to the ground breaking design of the sonotrode and its unique pattern of movement, it is now feasible to apply much higher levels of welding energy than previously possible (up to 10 KN of force and 13 KW of power). This system is suitable for welding dissimilar non-ferrous metals such as copper, aluminum, nickel and brass.

Power Wheel utilizes the vibratory motion of the sonotrode in a new orientation which is initiated by the

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Power Wheel® Ultrasonic Welding System

Torsional oscillator. The welding occurs as a result of high frequency swinging / rolling motion that are applied to the work pieces while the clamping force is applied in a normal direction directly above the weld area. As a result, the maximum amplitude is always concentrated at the center of the weld, and the power is delivered with absolute precision and efficiency.

The new welding dynamics that are inherent to this new process, currently allow copper cables as large as 160mm \varnothing in cross section and aluminum cables as large as 200mm \varnothing to be easily welded with unsurpassed quality. It is now possible to weld considerably thicker substrates and also terminals with complex spring configurations without the fear of damage or fractures. One of the big advantages of

the Power Wheel technology is its ability to achieve very high tensile strengths as well as excellent electrical characteristics with about a 30% smaller weld foot print. This can translate to substantial cost and space savings, when it comes to designing terminals and connectors.

The ergonomic design and construction of the Power Wheel provides ample room around the tooling for the insertion of the terminals and cables. PLC controls ensure the every individual weld is made according to the pre-programmed parameters, and the resulting data is collected for quality measurements. The rigid anvil fixture, combined with pneumatically activated gathering blocks have been designed to withstand the rigors of high volume production environment.

Power Wheel offers all the advantages that have made ultrasonic welding the preferred method of joining when quality welds are a must, and at the same time it opens new possibilities that are beyond the capabilities of the conventional linear welding machines. This innovative approach holds the promise of revolutionizing the wire harness industry.

For further information contact Telsonic Solutions Inc., 10 Ossipee Rd, PO Box 38, Newton Upper Falls, MA 02464. Visit www.ultrasonicsolutions.com or email Saeed Mogadam at smogadam@telsonicmetal.com. Visit Telsonic Solutions at the Electrical Wire Processing Expo in Booth #1644.

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Booth #1721

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NEWS PLUGS continued



BURNDY® Installs Solar PV System at their Manufacturing Facility in Littleton, NH

BURNDY® continues to support the renewable energy market by designing, testing and offering new products that provide electrical connectivity to these markets. Whether it's wind or solar, BURNDY® has a team to stand behind the green initiatives our customers are focused on to help reduce carbon emissions and make our planet more environmentally safe.

With this dedicated support, BURNDY® has put its money where its mouth is by installing a 24-Series AllSun TRACKER™ System at its Littleton, NH facility. Completed in December 2011, this new solar panel system is designed to produce approximately 9,600 KWH of clean energy each year while offsetting approximately 12,600 lbs. of CO2 emissions. With a net metering device, BURNDY® will also see a credit from its local Utility for those days when production exceeds demand. Rick Robicheau, Project Manager for BURNDY®, points out: "This newly installed system is a triple-win for BURNDY® as we are able to reduce our environmental footprint while supporting our ongoing green initiatives, and promote our products designed for



BURNDY® Installed Solar PV System at their Manufacturing Facility in Littleton, NH.

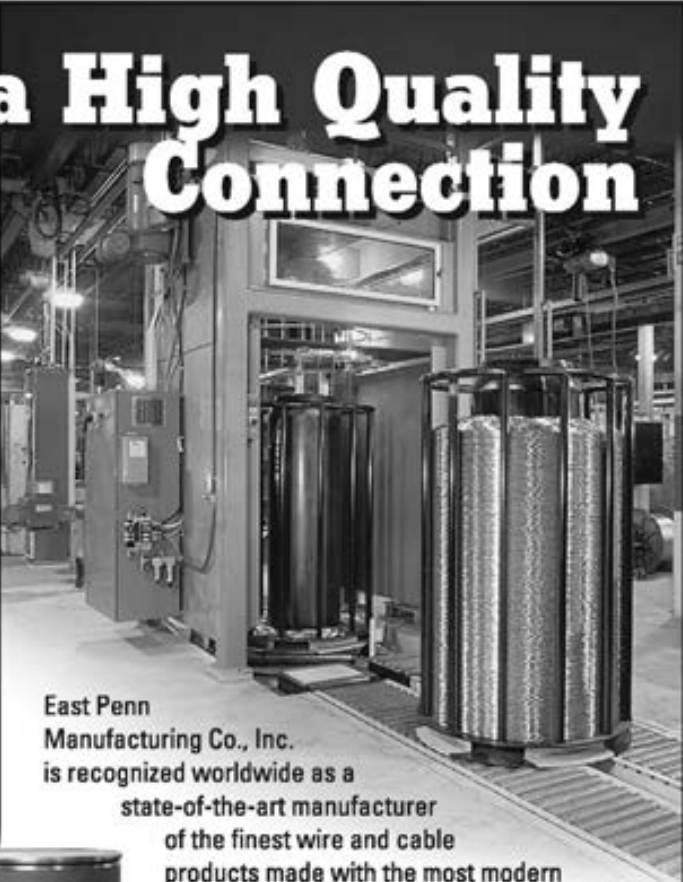


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East Penn Manufacturing Co., Inc. is recognized worldwide as a state-of-the-art manufacturer of the finest wire and cable products made with the most modern equipment. Our products meet rigid quality and performance standards such as Underwriters Laboratories (UL), Canadian Standards Association (CSA), Society of Automotive Engineers (SAE), and RoHS compliance.

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

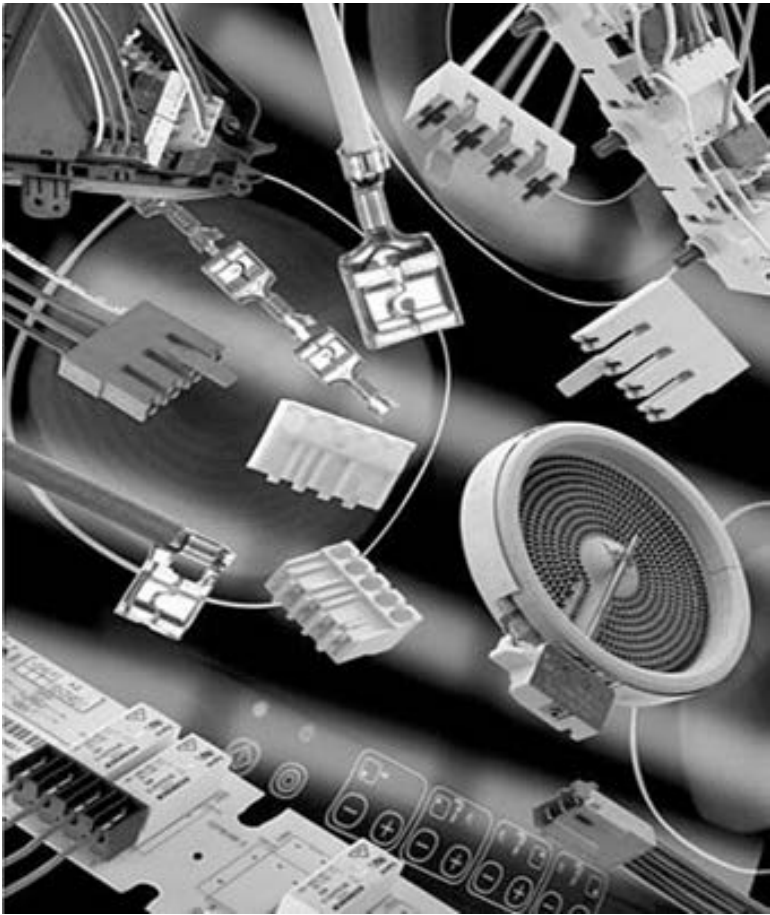


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these systems."

When it comes to grounding and bonding, BURNDY® is most commonly known for grounding systems such as HYGROUND® and BURNDYWeld®. However, with its recent acquisition of the Wiley WEEB technology, BURNDY® now provides an additional bonding and grounding system specific to the solar pv industry. Used on the recent installation in Littleton NH, the patented Wiley WEEB product offering provides an electrical bond between the solar modules and the mounting systems ensuring that the entire assembly is properly grounded. The BURNDY® Littleton, NH facility is now the manufacturing operations base for the Wiley product offering.

Headquartered in Manchester, New Hampshire with over 85 years of dedicated customer support in both service and product, our customers need look no further than BURNDY for all their connector, tool, and accessory needs with our BURNDY Engineered System of coordinating dies, connectors and tools. Contact us at 47 E. Industrial Park Drive, Manchester, New Hampshire, 03109, call Customer Service at 1-800-346-4175, or visit our website at www.burndy.com.

Since 2009, BURNDY has been one of the key brands under the Hubbell Electrical Systems group of Hubbell Incorporated. More information can be found at www.hubbell.com.

LH115 Hand Glo-Ring® Infrared Heat Tool

Eraser's Model LH115 Hand Glo-Ring® Infrared Heat Tool is ideal for many applications including heat shrinking, plastic tube bending, soldering, adhesive curing, solder pre-forms, butt welding and more. Model LH115 incorporates quartz encapsulated heating elements (Glo-Rings®) which open and close to encircle work pieces with instant radiant heat at adjustable temperatures up to 1500°F (815°C). No R.F. interference is generated with the Glo-Rings® and they are suitable for use in clean rooms and testing areas. Model LH115 is an excellent alternative to a heat gun, as it uses less electrical energy, does not blow hot air, is extremely quiet, and is simple to maintain.

The Eraser Company, Inc., now celebrating its 101st anniversary in business, manufactures a wide range of industrial products including wire, cable, and tubing cutters, wire and



Model LH115 Hand Glo-Ring®

cable strippers, wire twisters, wire brush wheels, dereelers, infrared heating equipment, measuring tools, and FybRglass® erasers. The company is ISO 9001:2008 certified. The company offers free E.S.P. (Eraser Sample Program). Send a 10-20 foot sample of your material and Eraser will recommend the best solution for your processing needs from its line of more than 200 products. For more information visit www.eraser.com, or call 315-454-3237.

Thermosleeve-USA to be Present at the 2012 Electrical Wire Processing Technology Expo

Thermosleeve-USA is excited to exhibit once again at the 12th annual Electrical Wire Processing Technology Expo being held in Milwaukee Wisconsin this May. Whether your primary focus is automotive, communications, construction, electrical, electronic or energy, Thermosleeve-USA offers you a wide range of heat shrink related products. We would love to see you at booth 1502.

For more information and appointments or for all your Heat Shrink needs please contact us at (800) 421-3536 ext 137, by email at sales@thermosleeve-usa.com or via our website at www.thermosleeve-usa.com

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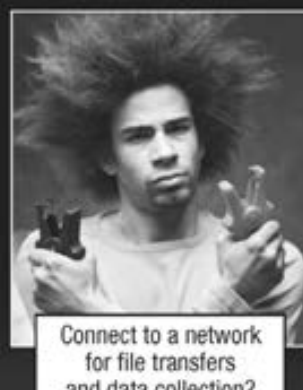
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TEST SYSTEMS



Booth #1507

Sonobond's President Authors Chapter on Ultrasonic Metal Welding for New ASM International Handbook

Sonobond Ultrasonics has announced that the company's President, Janet Devine, authored the chapter on "Ultrasonic Welding" for the ASM International Handbook, Volume 6A-Welding Fundamentals and Processes, printed in November 2011. This publication is a focused revision of the welding information in the 1993 Volume 6—Welding, Brazing, and Soldering, for which Ms. Devine also contributed the chapter on Ultrasonic Welding.

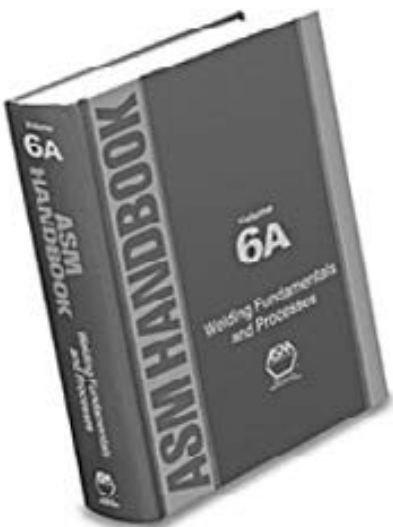
ASM International, The Materials Information Society, has 36,000 members worldwide and was formerly known as the American Society for Metals. It is a professional organization for

materials scientists, engineers, metallurgists, and others working with metals. The newly released Volume 6A is the most complete and up-to-date reference source on welding processes available today. Copies of this expert-written and peer-reviewed publication can be obtained by going to the Society's website at www.asminternational.org.

Janet Devine was born and educated in England. A graduate of the prestigious Imperial College of the University of London, she has a B.Sc. Degree in Mathematics and Physics. Prior to coming to the United States in 1959, she worked for Bristol Aero-Engine Group (now Rolls-Royce). She joined Sonobond, then known as Aeroprojects, in 1960

when ultrasonic metal welding was in its infancy. Ms. Devine has been an active participant in the development of many of the most significant commercial and industrial uses of ultrasonic energy for metal welding and metal forming. Before being named Sonobond's President in 1990, she served as the company's Vice President and Technical Director.

Ms. Devine holds several patents. She has also authored numerous papers in the field of ultrasonic metal welding, textile bonding, and ultrasonic processing (e.g., extrusion and wire drawing). In 1991, she was a member of the committee that authored the chapter on Ultrasonic Welding for Volume 2, Eighth Edi-



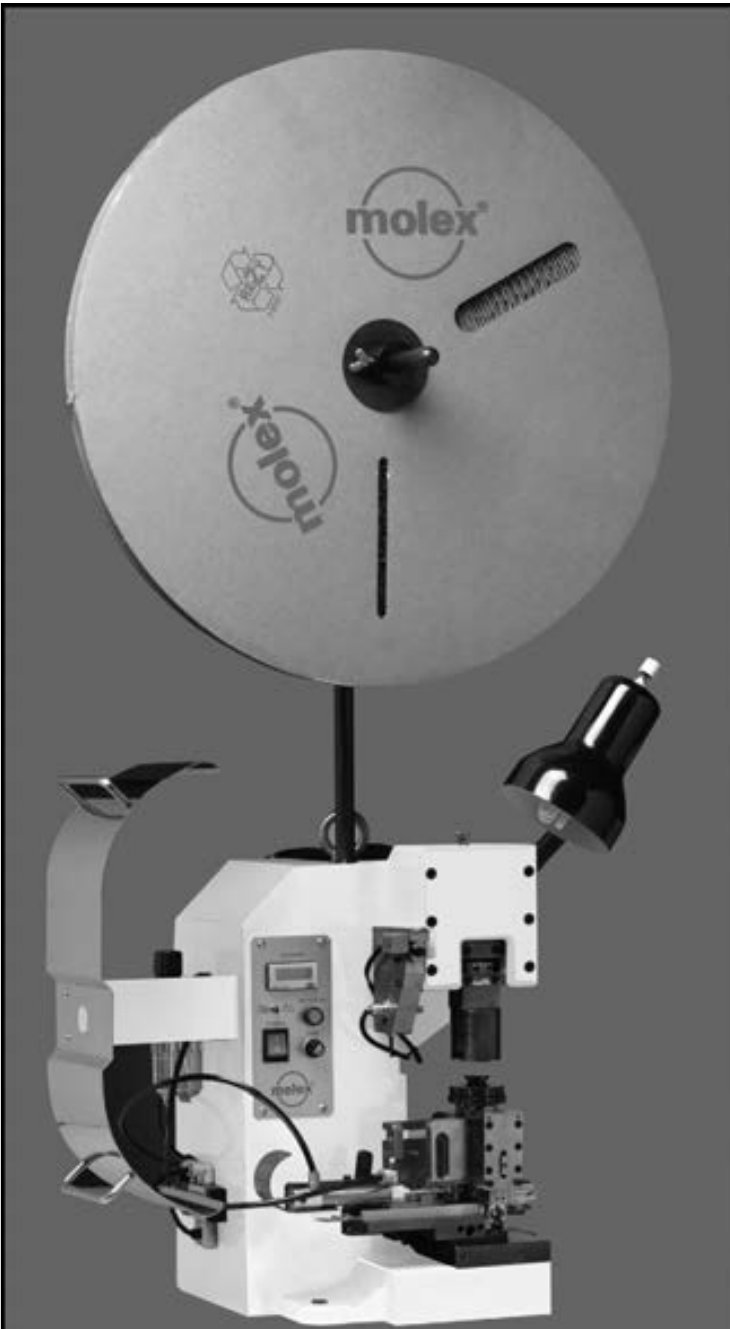
tion of the American Welding Society's

Welding Handbook. Ms. Devine serves on the Board of Directors of the Ultrasonic Industry Association (UIA) and was President of that organization from 1997-1999. In describing her reaction to being asked to contribute the chapter on Ultrasonic Welding for the new ASM handbook, she said, "I was honored to be of service in this way. I was also pleased to once again to be working with Karl Graff of the Edison Welding Institute, who authored the chapter on ultrasonic additive manufacturing that follows mine in the new handbook."

Ultrasonic Metal Welding Offers Important Advantages

Ultrasonic metal welding is a solid-state welding process that uses localized high-frequency vibratory energy in conjunction with moderate clamping force. It does not require consumables—such as welding rods, fluxes, fillers, or solders—or special cleaning methods. This energy-efficient, environmentally-friendly system produces no arcs or sparks. It is ideal for joining non-ferrous dissimilar metals, for welding thin sections to thicker sections, for joining multiple layers of thin materials, and for welding through most oxides and surface oils. Ultrasonic metal welding produces strong joints that have good thermal and electrical conductivity. Only a modest amount of space is needed for the equipment.

Additional information about Sonobond's ultrasonic metal welding equipment can be obtained by visiting www.SonobondUltrasonics.com.



The **TM-4000™ Universal Crimp Press** is an industry-standard, bench-top press that terminates large lug products on Mylar tape up to 4 AWG insulated and some 2 AWG uninsulated, resulting in lower overall applied costs. The **TM-4000™** has electrical requirements of 240 AC 50/60Hz.

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Features and Benefits of the TM-4000™ Universal Crimp Press Include:

- Provides 3.5 tons (31 kN) of crimp force
- Accepts any Molex applicator and most industry-standard applicators
- Can be used with Molex Tape Module (64016-2000)
- Meets OSHA safety and noise requirements and is CE approved
- Two safety interlock switches attached to the guard prevent press from cycling if guard is open during operation

The **Tape-Terminal Crimp Module** efficiently crimps terminals to wires from 4 to 30 AWG with minimal setup adjustments and achieves optimal cycle rates for mid-to-high volume, semi-automatic operations.

Features and Benefits of the Tape Terminal Crimp Module Include:

- Quick-change modular tooling accepts all existing ATP-201 and ATP-301 die sets
- Used in Molex **TM-3000™** and **TM-4000™** presses, which accept Molex applicators and most industry standard applicators
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- Quick tool changeover from die set to die set for increased productivity

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NEWS PLUGS **continued****TE Connectivity Presents the AMP 5K/40 Splice Terminator**

Applying thru-splices is fast and efficient when you have access to both sides of the applicator for placing and holding the wires. TE Connectivity's AMP 5K/40 splice terminator and splice applicator have been designed with this efficiency in mind. Specifically designed for thru-splice and short lead length applications, the AMP 5K/40 splice terminator combined with a splice applicator provides open access in front of and behind the crimper for controlled wire placement close to the crimping area in order to maximize production efficiency. The splice terminator also has full guarding with interlocks that meet the latest CE requirements for operator safety.

The splice terminator is offered in two versions, with and without crimp quality monitoring (CQM II). Equipped with optional CQM II, five different crimp analysis methods, including crimp height, can be used during every crimp cycle, providing real-time monitoring.

Each unit includes fine crimp height adjustment; total/batch counters and capabilities for jog operation. The AMP 5K/40 splice terminator does not accept heavy-duty (HDM or HDI) applicators.

To speak to a technical representative, contact the Tooling Assistance Center at 1-888-777-5917 or 717-810-2080.

Visit TE Connectivity at the Electrical Wire Processing Expo in Booth #1619.

Alpha Wire Adds CSA Tray Cable Rating to Series F, P, SF Cables

Alpha Wire has added the Canadian tray cable rating c(UL) TC/CIC to its line of Industrial Series F, Series P, and Series SF cables. Per the Canadian Electrical Code (CEC), this rating is required when installing cables into tray applications.

Cable systems that use tray cables have significant advantages over systems that use pipes or conduits.

Not only is it less expensive to use tray cables, it is also very useful for situations where wiring changes are common, as the new cable can simply be installed in the tray instead of having to pull it through a conduit.

This new cable rating will

apply to the following cables from Alpha Wire:

Industrial Series F: Series F cables are our most flexible and robust control cables – providing reliable flexing day in and day out. Designed for a variety of flexing styles, they have been tested to exceed over 20 million rolling flex cycles, making them ideal for both single-axis and multi-axis motion control and robotic applications where continuous flexing is required.

Industrial Series P: Series P cables combine exceptional oil and chemical resistance with a specially formulated thermoplastic elastomer jacket for additional flexibility. This flexibility makes it easier to install and route the cable in tight spaces.

Industrial Series SF: Series SF power servo cables bring a new level of flexibility to the integration and

monitoring of servo drives. Designed specifically for connecting power between the supply and servo motors, drives, and controllers, Series SF cables feature a flexible TPE jacket and PVC/nylon insulation, making them suitable for flexing applications that require continuous movement.

For additional information, contact Alpha Wire at 800-52-ALPHA (522-5742) or visit the Company's Web site at www.alphawire.com



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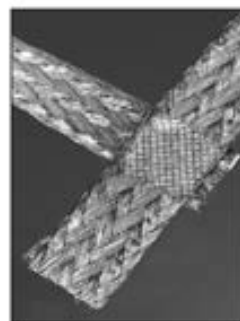
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Cesar-Scott

Continued from page 1

and PC board assemblies. Eventually, the F-15 project ended due to military budget cuts.

After having relocated to Ciudad Juarez with the Honeywell Keyboard Division, Farrell left the company in 1990 to do Cesar-Scott full time. He started the firm in December 1988 and initially worked at it part time while keeping his Honeywell job.

"There was a lot of politics at Honeywell, and I had frustrations because the overhead rates were so high," Farrell said. "It was impossible to suggest new ideas and bring them in house, so a lot of things were bought outside. It led me to say, 'I can do this on my own.' I'm a doer, not a talker."

Although harnesses and cable assemblies are the bulk of Cesar-Scott's business,

Continued on page 40



Isabel Morales, a Cesar-Scott employee, on the electronic gas igniter production line.

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

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

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

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

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Cesar-Scott

Continued from page 38

ness, Farell first specialized in heat-shrink tubing, which was used extensively at Honeywell. He initially bought two tubing processing machines and set them up in his El Paso garage.

Farell's partner during start-up was Scott Schmidt, a University of Minnesota fraternity brother who worked as a financial advisor from his Minneapolis office. Farell wanted Schmidt to move to El Paso, but he declined, and the partnership was dissolved.

The first few years of business were difficult for Farell. For a while he assisted manufacturers rep Don Trendera, a retired Honeywell employee and friend who was selling PCBs and other components to companies in Juarez, Mexico.

Farell's fortunes changed when he

met Francisco Armendariz, a quality engineer working at a Juarez company. He offered to operate Farell's equipment, and the arrangement worked well – so well that he eventually left his position and became Farell's partner. Their partnership has lasted 20 years, and Armendariz manages Cesar-Scott's Juarez harness and cable plant.

Other key staff members are: Laura Mendoza, administration and customs in Juarez; Ingrid Flores, marketing manager; Ricardo Aguirre, heat-shrink tubing manager; Velia Fernandez, senior account executive; Claudia Carrillo, materials and supply chain engineer; Fernando Moreno, process engineer; and Miguel Barrera, Juarez production superintendent, Mr. Jose Jesus Muñoz, Receiving Inspection.



Wiring harness assembly line at Cesar-Scott de Juarez.

"I am most proud of my people who have been with me through all the times and are still with me," Farell said. "That shows success. We've been able to keep a group working towards success.

"I emphasize the need to communicate, and I push people to do the same," Farell said. "I'm very results oriented, but

it's a very relaxed environment at the office. As long as the customers are happy, I'm happy."

Of the harnesses and assemblies, appliance, automotive and industrial are split evenly at 30 percent, and the 10-percent balance is spread among such markets as communication, consumer

goods, custom applications, lighting, medical, military, safety and transportation. Each item is custom made from a customer's print.

By the end of this year the markets and percentages will have shifted, according to Farell. Appliance will jump to 50 percent, while automotive will drop to 25 percent and industrial to 15 percent. Much of the appliance growth is due to Cesar-Scott producing electronic gas igniters and switch harnesses for Burner Systems International in Chattanooga, Tenn.

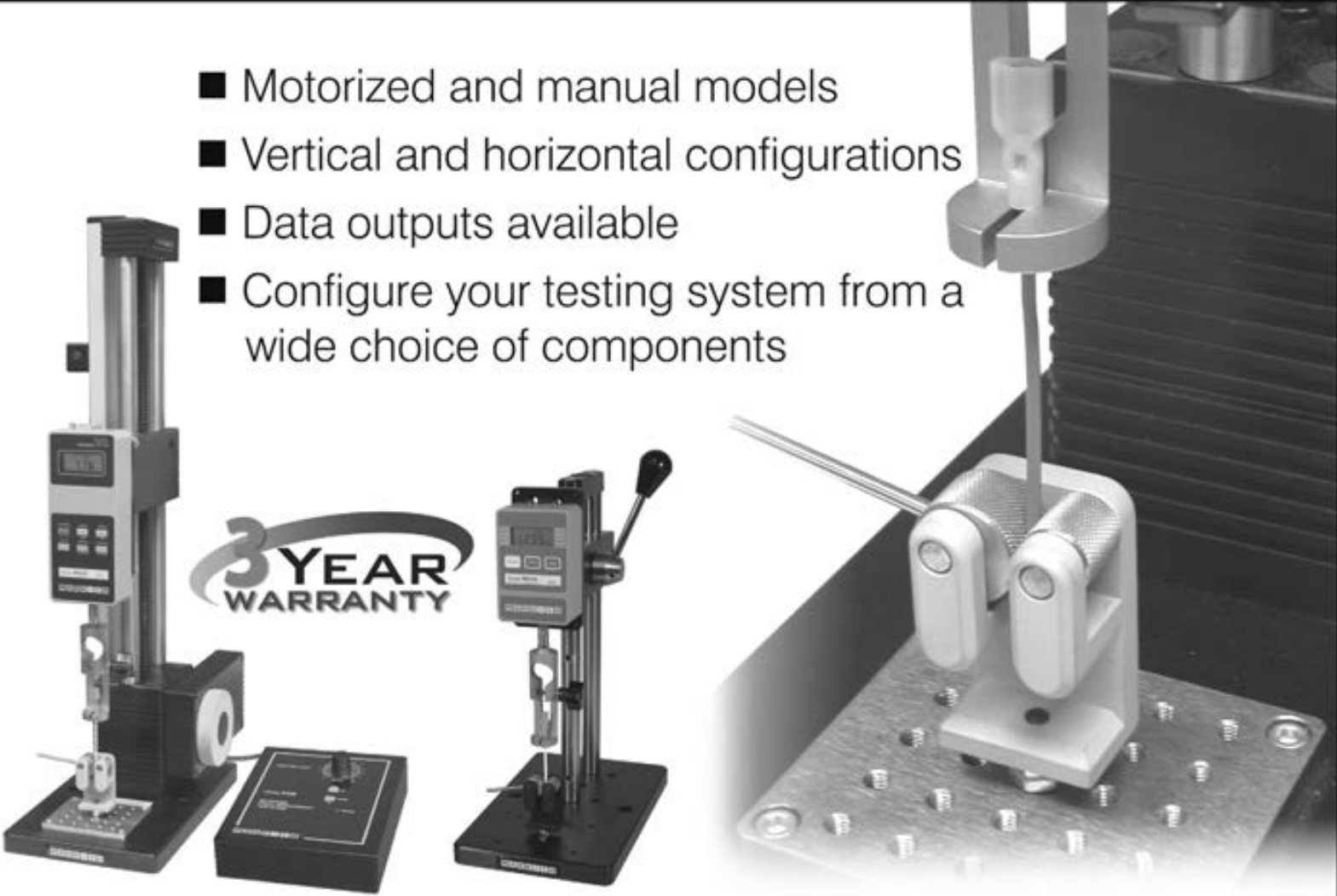
Cesar-Scott, which gained ISO 9001 and 14001 certifications in 2002, has 15 wiring harness and cable assembly customers, three of them major – Burner, Harman Automotive and Goodman Manufacturing Company. Others are Epic, Toro, Federal-Mogul and First Texas Products, all in the El Paso and Ciudad Juarez area.

Farell pointed out many customers have been with his company up to 12 years. "I tell everybody here that we have to earn our customers' business every day," he said. "You need to stay in touch with your customers because when you're not hearing from them, the competition is. You can't take anything for granted."

Long customer retention is attributed by Farell to a thorough understanding of all aspects of his and his customers' operations. "I am emphatic in knowing your costs," he

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said. “You need to know your total cost that takes into account quality, product cost, delivery and service.” This understanding also includes processes, customers and suppliers.

Of the 400 part numbers, the simplest product is a two-inch wire that has been cut, stripped and tinned and costs less than two cents. The most complex harness consists of 10-15 wires four feet long and sells for \$5. Quantities range from 25 for one customer to 12,000 or 15,000 per month for another customer.

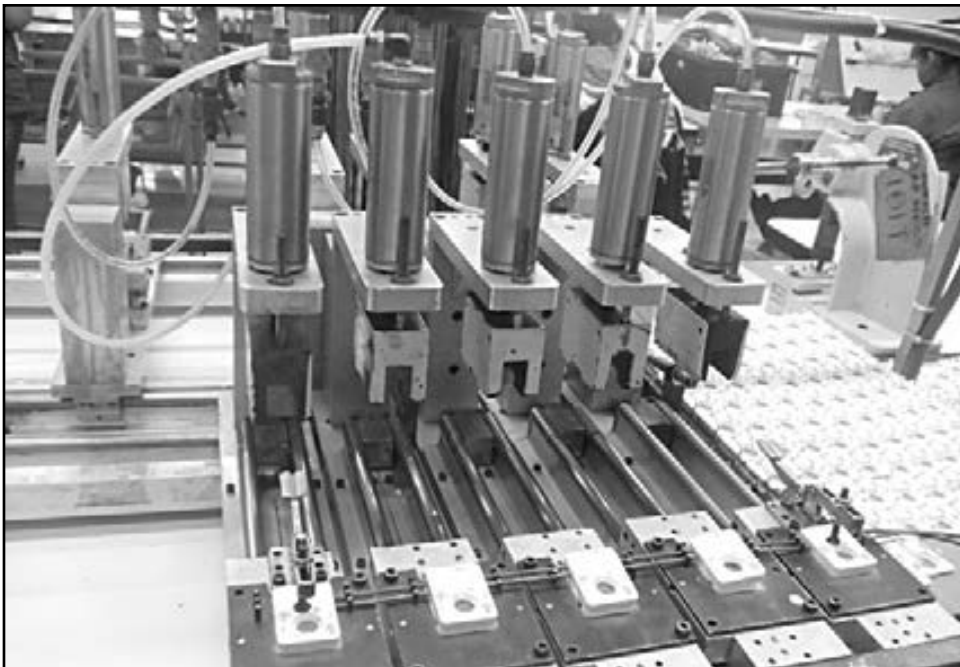
Cesar-Scott’s niche is manufacturing 20-26 gauge discrete and multiconductor assemblies that average 2-6 minutes per piece or 33-100 hours per thousand pieces. The firm also specializes in higher mix and low-to-medium volumes that use a combination of automated and

manual processes.

“Our batch sizes have made us successful,” Farell said. “We can change parts quickly. We anticipate what our customers need based on historical data. We have 3-4 weeks of inventory and produce in advance. It’s a risk, but there’s a bigger risk of not having it and having production shut down.”

While Cesar-Scott is based in El Paso, which has 12 employees, all manufacturing is done in Juarez by 45 employees in a 10,000 square-foot building leased in an industrial park. All materials are shipped to El Paso and then forwarded to Juarez as needed. Such inventory control reduces the amount of space in

Continued on page 42



Switch harness assembly station for gas stove at Cesar-Scott de Juarez.

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Cesar-Scott

Continued from page 41

Juarez, where the cost of space is high.

Heat-shrink tubing is a separate division with 100 customers. All its wholesale and distribution operations are in El Paso and include cutting, printing and stocking.

Industries served range widely from audio, marine and food and beverage to lighting, personal protection and tools. Tubing materials include single-wall and dual-wall polyolefin, shrinkable and non-shrinkable PVC, Teflon, Kynar and Neoprene, and some materials can be up to 11 inches in diameter. Cesar-Scott sells shrinking and marking equipment to handle small and large volumes.

What Farell describes as his "big break" occurred in 1995 when Toshiba in Ciudad Juarez needed harnesses. "We were in the right place at the right time," he said. "Heat-shrink tubing was the only basis for the business at first, and I never imagined that I would make it more than a simple operation."

A Saturday phone call in 1999 from a

buyer for Oxford Speaker (now Harman) led to Cesar-Scott's niche in small-gauge harnesses such as 20-26 AWG. A critical supplier for Oxford was not delivering parts on time, thus shutting down an Oxford production line. So, Oxford needed a new supplier. Opportunity knocked, and Farell answered.

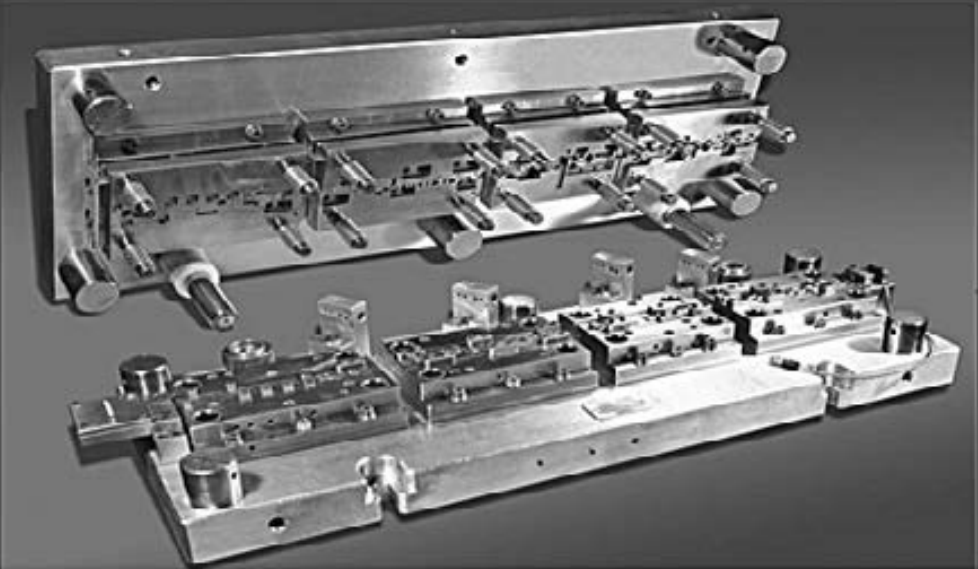
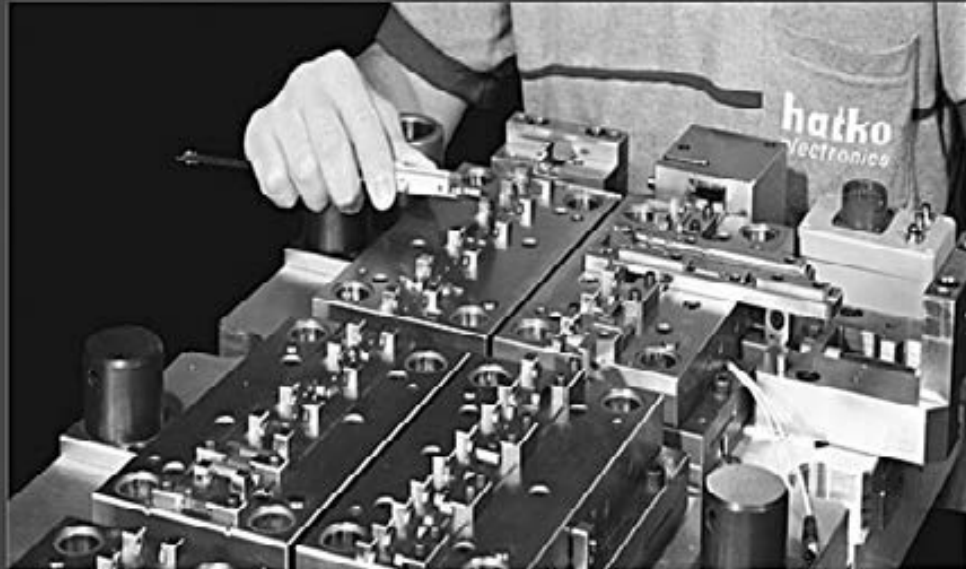
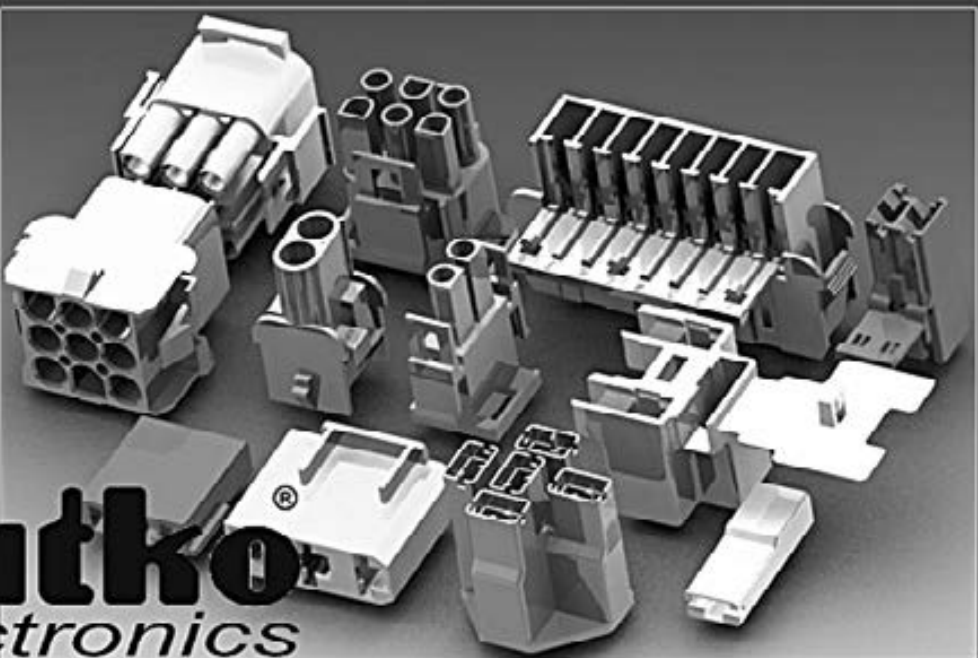
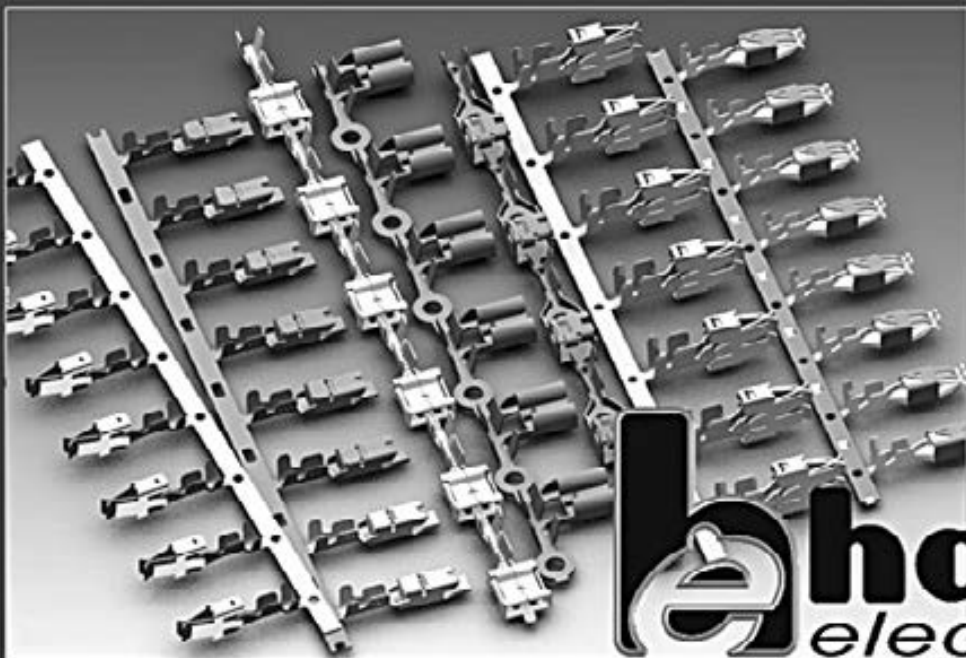
"Sometimes customers take you in a direction that you really didn't think you'd go in," he said. "We've become adept at small gauge, and it's our most profitable business because of less copper and less competition."

Cesar-Scott's competitiveness is aided by paying extra attention to suppliers, which number 40. "Suppliers sometimes are more important than the customer itself," Farell said. "Without good suppliers we don't have anything. We work with our suppliers to understand what they do to help them understand the needs of our customers. You need to adapt to what your customers and suppliers are asking and not dictate to your suppliers."

Relationships with customers and suppliers only will gain in importance as



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Four soldering assembly lines at Cesar-Scott de Juarez

Cesar-Scott moves forward. Farell related that this year and the next five years are critical to the company and its future.

“I’m looking for an opportunity with a partner with similar processes,” Farell said. “I would like to share some of the responsibility and keep working because I enjoy it.”

Farell was speaking specifically about the harness and cable assembly division. He would like to turn over the heat-shrink tubing division to employees. They probably would be working with a major tubing manufacturer in China that is interested in funding a partnership.

“That part of the business could grow quickly in the next few years,” Farell said. “Tubing margins are much greater because you don’t have to add value to the process. You just cut, print and repackage.”

Besides the challenge of finding a suitable partner, Farell is faced with continually improving his company. “We’re

mature in our industry, so it’s hard to improve,” he said. “We need to find small ways to improve. We’ve got to look deep within, and we’ve got to seek new opportunities.”

Ever the analyst, Farell sees more harness and cable assembly business coming back from overseas because of increasing costs there. Also of major significance is the movement of Chinese manufacturers to the United States.

“They have tremendous knowledge of materials and processes, so the possibility is to find the right company to merge with in China to produce in Mexico,” Farell said. “They want to do things here the way they are done over there, but they must operate by the rules here.”

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NEWS PLUGS continued

Allied Wire & Cable's Charity Week Raises Over \$15,500

Allied Wire & Cable donates \$15,818.78 to charities chosen by employees and customers: CureSearch for Children's Cancer, Autism Speaks, and the ASPCA.

Each year, Allied designates one week in December as Charity Week, during which a percentage of all sales is donated to charity. This year, Allied's 6th Annual Charity Week ran from December 19th to the 23rd, and raised a total of \$15,818.78.

To decide how these funds would be donated, Allied asked employees to nominate their favorite charities. Once nomina-

tions were in, customers voted online to decide which organization would receive the largest donation. Ultimately, CureSearch for Children's Cancer was voted as the main beneficiary.

Allied employee, Stephanie Thomas has a special place in her heart for CureSearch, and nominated the organization. She explains in her nomination letter, "My son, Michael died from an ATRT when he was only 2 years old...The money CureSearch raises goes towards finding a cure for all kinds of childhood cancer so that no parent has to deal with the loss of a child."

On January 19th, Allied presented representatives from CureSearch with a check for \$13,318.78. This donation will not only help to fund important cancer research, but will also help CureSearch provide information and resources to the children and families affected by childhood can-



Allied Management with Stephanie Thomas (holding daughter, Marlee and photo of son, Michael) and Kelli Very (Regional Development Manager, CureSearch).

cer. CureSearch strives to create a supportive community, so that no family has to face the disease alone.

One of the ways CureSearch fosters this

sense of community is through its CureSearch Walk event. These events are held across the country throughout the year, and are designed to gather and honor the children and families at the center of the CureSearch mission, and to raise money for its cause. Allied is proud to be a presenting sponsor at the Philadelphia CureSearch Walk on May 20, 2012.

However, the CureSearch event isn't the only charitable walk Allied will play a role in this year. One of the runners-up in the Charity Week vote was Autism Speaks, nominated by Rebecca Mertens, an employee in Allied's Wisconsin branch. Mertens will be walking in the Walk Now for Autism Speaks event in Milwaukee on April 28. Allied is donating \$1,000 to her walk team, to support autism research, awareness, and advocacy.

An additional \$1,000 donation will be made to the American Society for the Prevention of Cruelty to Animals (ASPCA), the other runner-up in the Charity Week vote. Allied is proud to help in the fight against animal cruelty, and to support the goals of providing healthcare and safe, loving homes to all pets.

The MS Society and the American Diabetes Association, the final two organizations included in the vote, will each receive \$250, so no charity is over-looked or forgotten.

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- Smart Applicator Integration

"Smart Applicator" – System III Applicator Data Has Been Extended to the New Ocean Applicator Series

TE Connectivity now makes it possible to have "smart applicators" on any of the feed styles of the new TE Ocean applicator series. The System III applicator data is now extended to an entire "smart applicator" strategy. This now allows the operator to conveniently view all the data about the applicator. The data contains serial numbers, part numbers, wearable tooling part numbers (and tooling cycle counters), strip length, instruction sheet numbers and more. This data includes the terminals, with acceptable crimp heights, that can be terminated with the applicator. With this information conveniently available to the operator, programming and verifying the crimp application has never been easier. Setup will be less time consuming and more accurate. This system also extends the availability of the high precision servo feeder technology recently developed by TE Connectivity.

To speak to a technical representative, contact the Tooling Assistance Center at 1-888-777-5917 or 717-810-2080.

TE Connectivity is a global, \$14 billion company that designs and manufactures approximately 500,000 products that connect and protect the flow of power and data inside the products that touch every aspect of our lives. Our nearly 100,000 employees partner with customers in virtually every industry—from consumer electronics, energy and health-care, to automotive, aerospace and communication networks—enabling smarter, faster, better technologies to connect products to possibilities. More information on TE Connectivity can be found at <http://www.te.com>.

TE Connectivity will be exhibiting the new Ocean Applicator Series at the Electrical Wire Processing Expo in Booth #1619. Stop by and talk with a technical representative.



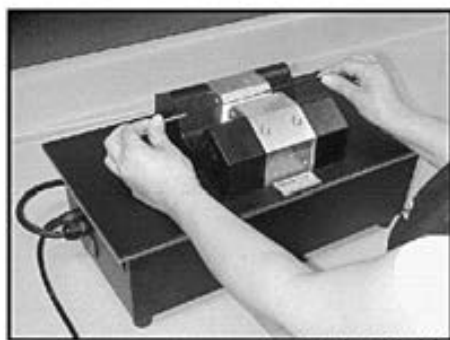
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Cicoil's light-weight cables can incorporate any variety of power, data and video conductors in a single compact cable design. In addition to every type of electrical conductor, the cables can also include single and multi-lumen tubing for air or liquid transfer, fiber optics, and other design elements like Cicoil's patent-

ed StripMount™ fastening strip, all in the same cable.

The cables are 100% contaminant-free, as they are rated for Class 1 clean room use. Cables are available in continuous lengths, cut to order, or as assemblies, complete with connectors of your choice, 100% tested and inspected.

Cicoil's UL Recognized, RoHS Compliant & CE Conforming cables are manufactured in an automated, climate controlled environment, and exceed ASTM E-595 outgassing specifications. In addition, Cicoil offers anti-friction coating options and custom shaped cable designs by request.

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



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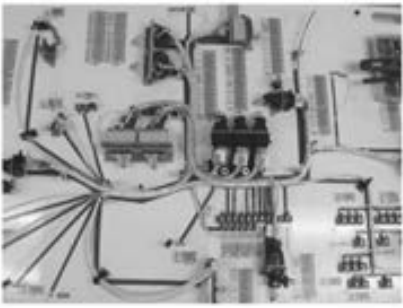


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In every issue of Wiring Harness News Anixter will bring you informative articles about wire and cable technology.

Industrial Control Panel Internal Wiring

The harmonization of UL 508 with IEC 60947 will result in a gradual transition to a new series of UL standards for Switchgear and Controlgear, UL 60497. Some existing users of the UL 508 standard wonder what the most appropriate wiring methods are. The standard provides many different options to accommodate a range of construction requirements. This Wire Wisdom addresses the existing options and outlines the changes for the new standards.

Field Wiring – Power Circuits

Wiring between the branch circuit supply and the control panel should be done in accordance with the local electrical code, which is usually some variation of the NEC (National Electrical Code). However, UL 508 clearly allows the use of portable cord for cabinets that are portable, or mobile with the use of a hand truck or fork lift, where there are no other provisions for conduit or permanent connection to the building.

Field Wiring – Control Circuits

The type of cord permitted is a hard service or junior hard service cord such as an SO or SJO (or other similar variation) that terminates in a listed attachment plug. For more information on listed and recognized components, see UL.com.

Wiring within the Panel – Power Circuits

There are two primary things to consider regarding wiring within the panel: what type of wiring to use, and how to apply it. The current and new standards

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address the types of wire permitted. To generalize, they are UL listed thermoplastic or thermoset insulated building wire types, UL recognized wires, machine tool wires¹, and welding cable.

Generally speaking, users prefer the more flexible wires such as MTW or welding cable for power circuits as they are easier to route and facilitate improved cable management inside the cabinet. Routing, fastening, terminating, splicing, and sizing requirements are all detailed in the standards. Of specific interest is the requirement that power conductors shall not be smaller than 14 AWG.

Wiring within the Panel – Control Circuits

Control wiring can be any of the wiring methods allowed for power circuits within the panel with the addition of power limited circuit cable such as Type PLTC, CL2, or CL3 and communication cable such as types CM, CMR, or CMP.² Control circuits are unique in that many controls now use industrial networking cabling technology. Because of this, it is important that the cabling within the panel maintains the signal integrity. In such cases, it is generally necessary to use specialty cabling between the cabinet entrance point and the end device. Most of the cables needed for this task are available with a PLTC or CM rating. Because of the sheer volume of control wiring that

may be present, thin walled, flexible AWM (appliance wiring material) is often used. It is inexpensive, easy to terminate, available in a wide range of colors and can be custom ordered with many different identification methods.

Also unique to the control circuits are the types of modular connectors used on the cabinets. There are thousands of varieties that range from low-cost simple to install and use; to very expensive, highly engineered solutions for the most severe conditions and demanding communication requirements. Some applications use preassembled cords for Ethernet, DeviceNet, Profibus or a myriad of other networks. While there are new products being developed everyday, the industry is also pushing hard to standardize on basic formats such as the M-8 and M-12.³

Harmonizing with IEC

The industry has been asking for harmonization between the UL 508 standards for Industrial Control Equipment and the IEC 60947 series of standards for Low Voltage Switchgear and Controlgear.⁴ This harmonization effort has taken place by UL, and the resulting new standards are: UL 60947-1 Low Voltage Switchgear and Controlgear - Part 1, which addresses general rules for the series of standards. The other standards within the series address circuit breakers, contactors and motor-starters, control circuit

devices and switching elements, terminal blocks, protective conductor terminal blocks, safety requirements for fuse terminal blocks, and ancillary equipment.

There are many differences between the 508 and 60947 standards but the most significant difference consists of specific practices used more so than the type of wires being used. Circuit classifications and separation requirements remain, but spacing, lengths, and even insulation thickness requirements vary. Most wire, cable and connectors used will not be affected by a change in the standard unless it happens to be built to a minimally compliant specification. In those cases, it may be wise to sit down with a copy of the new harmonized standard and plan your migration path. For more information on the wire, cable or standards mentioned in this Wire Wisdom, please contact your local Anixter representative.

¹Special installation requirements are to be followed for flexing or Class K machine tool wires.

²For more information on these wire types refer to UL 13 and UL 444 respectively.

³For more information on the M-8 and M-12 formats see IEC 60947-5-2 and IEC 61076-2-104 and -2-101 respectively.

⁴<http://www.ul.com/global/eng/pages/offerings/industries/powerandcontrols/industrialcontrolequipment/transition>.

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NEWS PLUGS continued

TE Connectivity Presents New Tooling for High Voltage Applications

With fossil fuels in increasingly short supply and a growing environmental awareness, almost all car manufacturers are now offering electric powered vehicles. The current focus is on hybrid technology. To direct the power created to the various units, the contact components need to be sized accordingly. The

new high voltage contact system covers the 16–50 mm² cross section range.

To date the batch totals have been relatively small, which means that the manufacturing process has been carried out by hand in several stages. Special stripping devices with a coil mechanism are used in the wire preparation, which consists of separate phases of marking the wire, stripping, trimming and reeling. The challenge here is to handle this kind of wire dimension, as the process can quickly produce wire weighing in excess of 30 kg. Another challenge is to process the braid.

Here we now apply the process-

ing concept developed by TE, thus making the process steps of crimping the wire and shield into a semi-automated and checked process operation.

The crimping machine uses applied encodings to detect whether the right tool has been used. The operator now joins the contact part to the wire in the specified crimp position and fixes the wire with a clamping device. The crimping process can now begin through two-handed operation. When the wire has been crimped, the crimp cavity carriage is moved to crimp the braid. Monitoring the crimping process with proven crimp monitor-

ing systems and using a PLC ensures a high quality crimp connection; it also ensures that the operator carries out the processing stages in the right order using all the components. Only when the crimp monitoring system certifies a good crimp and the programmed process stages have been observed can the fully crimped wire be removed. The crimping machine used has been designed to allow the applicator to be replaced by another without too much effort. This allows all the latest high voltage contact systems to be processed.

Depending on the contact being used, crimping force monitoring can be used for checking the wire crimp. The PLC that is used ensures that all the processing steps are performed in the specified sequence and with the necessary care.

To speak to a technical representative, contact the Tooling Assistance Center at 1-888-777-5917 or 717-810-2080. More information on TE Connectivity can be found at <http://www.te.com>.

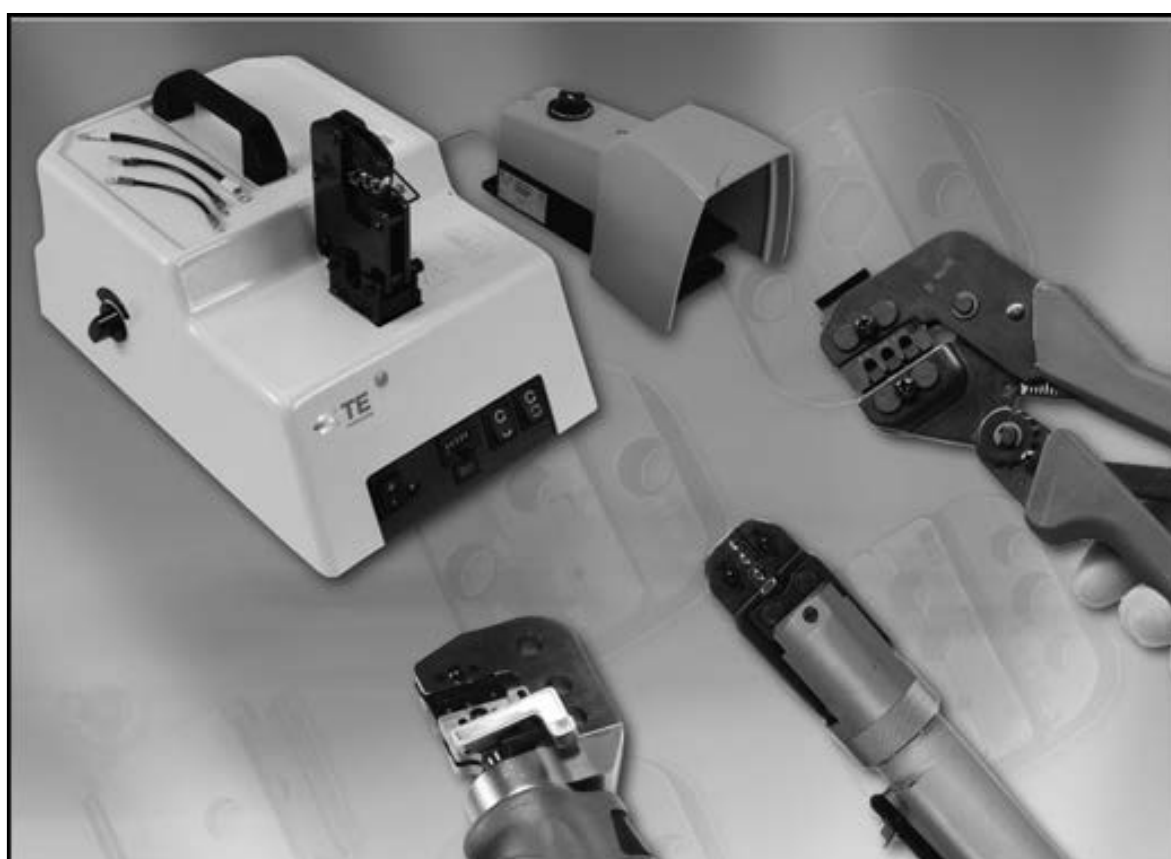
TE Connectivity will be exhibiting at the Electrical Wire Processing Expo in Booth #1619. Stop by and talk with a technical representative.

RUSSTECH Engineering Co., Inc. Receives Gold Boeing Performance Excellence Award

RUSSTECH Engineering Co., Inc. announced that it has received a 2011 Boeing, Gold Level, Performance Excellence Award. The Boeing Company issues the award annually to recognize suppliers who have achieved superior performance. RUSSTECH Engineering Co., Inc. maintained a Gold performance composite performance rating for each month of the 12-month performance period,



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

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

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

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

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from October 1, 2010 to September 30, 2011. This is RUSSTECH's 5th consecutive Performance Excellence Award and our second Gold.

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This year, RUSSTECH Engineering Company, Inc. enters the IFE market with our inflite® line of light weight, EMI rated, composite Back Shells for D-Sub connectors. This innovative product saves up to 40% compared to competitive metal systems and is EMI rated to 10GHz.

RUSSTECH Engineering Co., Inc. offers Connector Tooling Solutions, advancing the art with many ergonomic, efficient and patented designs. As an example, our RTCRT™ patented Contact Retention Test Tool and associated process has become an industry standard, greatly improving connector reliability and first time quality.

RUSSTECH maintains a quality system that is ISO 9001:2008 / AS9100 REV B registered. All of our products are manufactured in California.

BURNDY® Announces the Appointment of Stewart Gale to the Position of Sr. Product Manager

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**Stewart Gale
Burndy Sr. Product Manager**

and application tooling, announces the appointment of Stewart Gale in the role of Senior Product Manager.


Stewart is no stranger to the electrical industry and brings with him an impressive background with Electrical distribution and industry knowledge. For the last four years, Stewart has owned and operated Force 9 Consulting, providing a portfolio of marketing services ranging from sales leadership training, strategic planning, market analysis, customer loyalty pro-

grams, project management and public relations. Prior to that, Stewart led the marketing effort for Affiliated Distributors as VP Marketing and Business Development. Stewart began his career in the electrical industry with Rockingham Electric where he worked in many positions eventually becoming the VP of Sales and Marketing.

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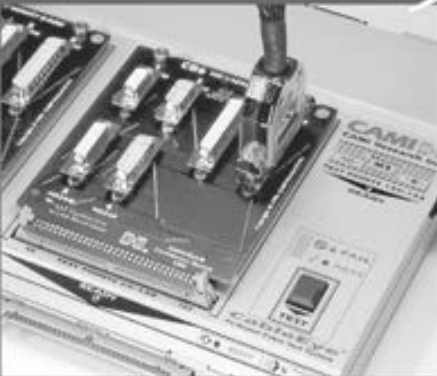
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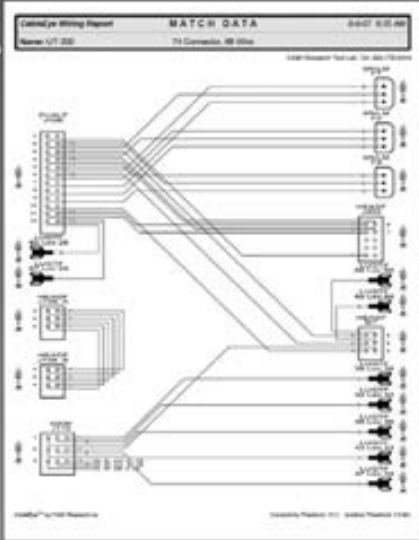
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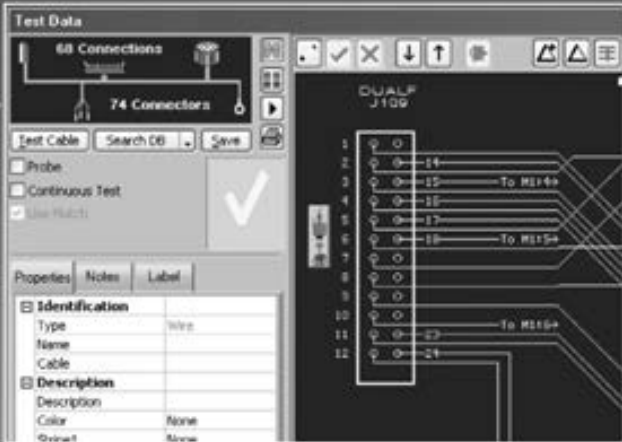
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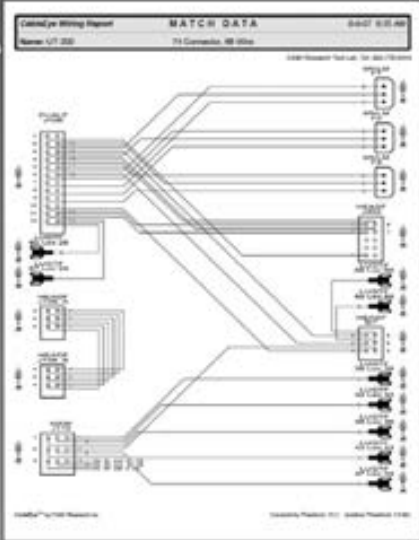
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NEWS PLUGS continued

Electronic Technologies International (ETI) acquires CMK Enterprises, Inc.

ETI, through its subsidiary American Cable & Harness LLC (ACH), Fort Atkinson WI, has acquired the assets of CMK Enterprises, Inc. and Calmer Industries LLC, Eagle, WI, a leading supplier for wire processing, custom wire and cable harness assembly, and UL 508A control box design and assembly. The combined company will continue to operate from the current locations in Fort Atkinson and Eagle.

Bill Brink, President of ETI, states, "This acquisition supports our commitment to provide exceptional value of one-stop-manufacturing and speed-to-market. The

acquisition provides ETI with greater capacity, increased machine automation, and a stronger market position. CMK Calmer fits well with our existing high-tech services of engineering, prototyping and production for printed circuit board assembly, wire harness/cable assembly, and box build assembly. This acquisition will offer increased resources for our existing customer base, as well as to new customers."

ETI, along with CMK Calmer, have scalable manufacturing systems that can be optimized and configured to adapt quickly to volume changes that are frequent and common within Original Equipment Manufacturers. The acquisition provides ETI with state-of-the-art, high-speed wire processing equipment, an integral part of meeting customer deliveries.

ETI is a high-tech, electronics assembler for printed circuit boards, wire har-

nesses/cables, and box builds. For over 20 years, ETI has provided high-level services of engineering, prototyping, and production to some of the best OEM's in the USA. ETI adheres to ISO 9001:2008 guidelines, IPC Class II and III workmanship standards, and UL 508A Panel Shop.

For more information about ETI visit www.etimfg.com.

TE Connectivity Presents the APT-5A Amplivar Product Terminator

The newly designed APT-5A AMPLIVAR product terminator, magnet wire splicing machine for pigtail splicing or direct connection of contacts to magnet wire. The APT-5A machine offers a fast and efficient system, with no need to strip magnet wire insulation.

The APT semi-automatic bench machines provide CE compliance and are available in two versions:

- APT-5A with automatic precision

adjustment controlled by the crimp quality monitor (CQM), and improved efficiency when running customer-motor assemblies.

- APT-5E with manual precision adjustment.

In addition to providing 100% inspection and automatic adjustment of crimp heights as needed, the new Crimp Quality Monitor II (CQM II) also evaluates the quality of each crimp. In addition to the ability to auto adjust for a given crimp height, the APT-5A also provides the ability to program various crimp heights and automatically sequence through them as required to terminate different wire combinations on a given motor.

The lower cost, manual adjust APT-5E is a simpler version without CQM capability, with the advantage of faster set-up times. Both machines are built with the quality and reliability our customers come to expect from TE Connectivity.

To speak to a technical representative, contact the Tooling Assistance Center at 1-888-777-5917 or 717-810-2080.

Visit TE Connectivity at the Electrical Wire Processing Expo in Booth #1619.

Eraser's Model FTC1 is the Perfect Tool for Flexible Tube Cutting

Eraser's model FTC1 Manual Feed Flexible Tubing Cutter cuts material from 1/4" to 1 1/8" (6.4mm to 28.6mm). The unit is capable of processing a wide range of material types including tygon, radiator hose, flexible PVC, polyurethane, silicone, nylon, PTFE, FEP, PFA, polyethylene, polypropylene, rubber, vinyl and polystyrene. The FTC1 comes with an adjustable length stop but has an unlimited cut length capability, is easy to use and offers production flexibility. The perfect tool for flexible tube cutting!

The Eraser Company, Inc., celebrating its 101st anniversary in business, manufactures a wide range of industrial products including wire, cable and tubing cutters, wire and cable strippers, wire twisters, wire brush wheels, dereelers, infrared heating equipment, measuring tools, and FyBrglass® erasers.

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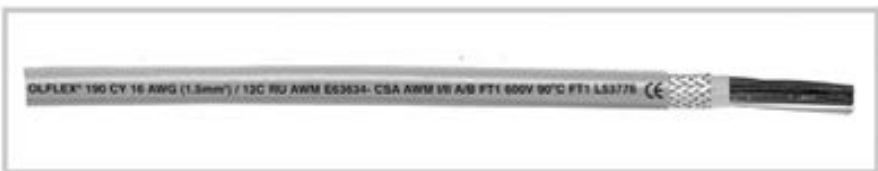
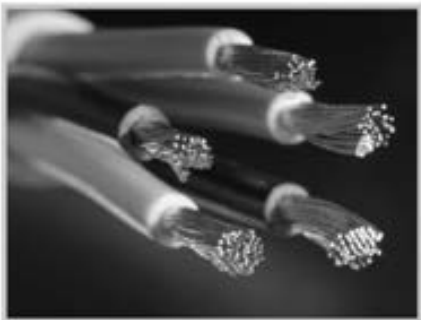
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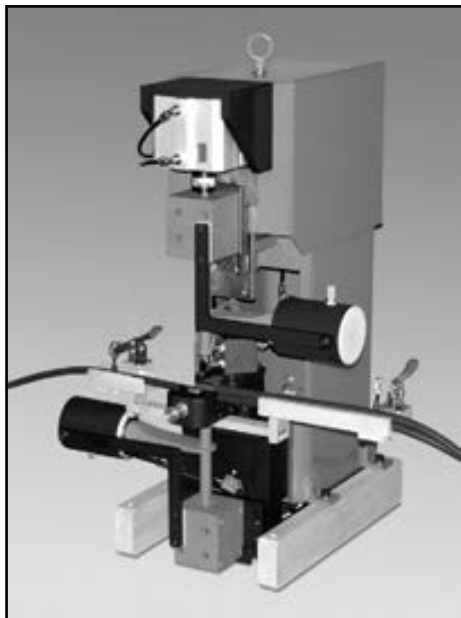
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Sonobond to Display Dual Head SpliceRite™ at Electrical Wire Processing Expo

Sonobond's Dual Head SpliceRite™ continues to be the industry leader for ultrasonic splicing of wire harness assemblies. According to Sonobond's Vice President, Melissa Alleman, the Dual Head SpliceRite is unequalled in its handling of large wire bundles. She says, "This ultra-

sonic wire splicer is the latest in our SpliceRite™ series. It can reliably weld stranded copper wire bundles having cross-sections of 48 to 100 square millimeters. It even accommodates lightly tinned or oxidized wires up to 60 square



Sonobond's Dual Head SpliceRite

millimeters without pre-cleaning. No other ultrasonic metal welder can accomplish these splices in a single pulse. All this makes the Dual Head SpliceRite ideal for fast, dependable, cost-efficient ultrasonic splicing of the heavy-duty cables used in wire harnesses for cars, trucks, trains, industrial machinery, and similar applications.

"Sonobond is looking forward to exhibiting the Dual Head SpliceRite at the 2012 National Electrical Wire Processing

Expo in Milwaukee this May. Expo attendees are invited to come to Booth #1540 to see this equipment in operation and inspect sample welds. Once they witness a demonstration of the machine's wire splicing capabilities, they'll understand why the Dual Head SpliceRite is the ultra-

sonic metal welder of choice for so many wire harness assemblers."

For further information contact Sonobond Ultrasonics at (610) 696-4710 or Fax (610) 692-0674. Visit www.SonobondUltrasonics.com or email Sales@SonobondUltrasonics.com

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IPC Releases PCB Industry Results for January 2012

IPC — Association Connecting Electronics Industries® announced the January findings from its monthly North American Printed Circuit Board (PCB) Statistical Program.

PCB Industry Growth Rates and Book-to-Bill Ratios Announced

Rigid PCB shipments were down 3.1 percent in January 2012 from January 2011, but bookings increased 10.9 percent year over year. The book-to-bill ratio for the North American rigid PCB industry in January 2012 strengthened to 1.01.

Flexible circuit shipments in January 2012 were down 7.9 percent and bookings were down 29.4 percent compared to January 2011. The North American flexible circuit book-to-bill ratio rose to 1.05.

For rigid PCBs and flexible circuits combined, industry shipments in January 2012 decreased 3.5 percent from January 2011, while orders booked increased 6.2 percent from January 2011. The combined (rigid and flex) industry book-to-bill ratio in January 2012 continued to inch up and now stands at 1.01.

They are now just above parity, which suggests a return to modest growth in the next few months.”

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

Book-to-bill ratios and growth rates for rigid PCBs and flexible circuits com-

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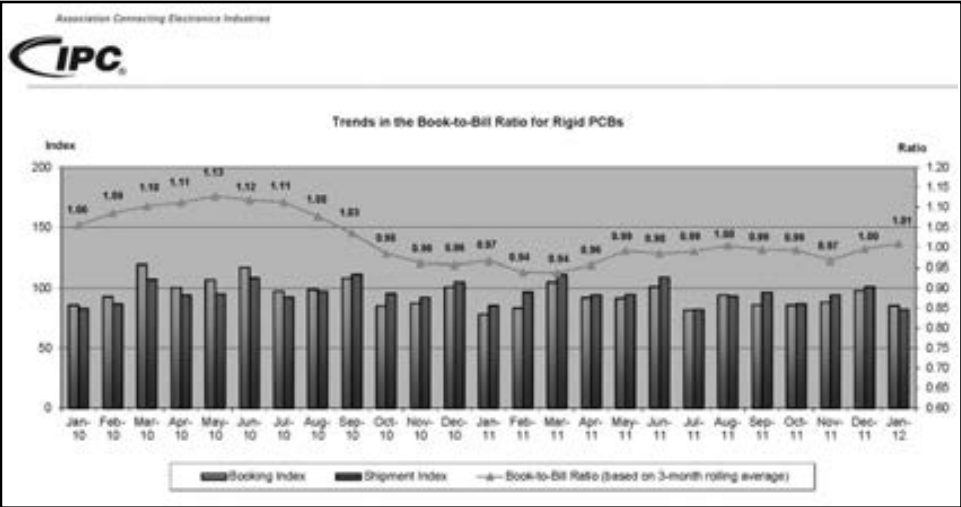
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bined are heavily affected by the rigid PCB segment. Rigid PCBs represent an estimated 89 percent of the current PCB industry in North America, according to IPC's World PCB Production Report.

The Role of Domestic Production

IPC's monthly survey of the North American PCB industry tracks bookings and shipments from U.S. and Canadian facilities, which provide indicators of regional demand. These numbers do not measure U.S. and Canadian PCB production. To track regional production trends, IPC asks survey participants for the percent of their reported shipments that were produced domestically (i.e., in the USA or Canada). In January 2012, 82 percent of total PCB shipments reported by survey participants in both the rigid PCB and flexible circuit categories were domestically produced. These numbers are significantly affected by the mix of companies in IPC's survey sample, which change slightly in January, but are kept constant through the remainder of the year.

Bare Circuits versus Assembly

Flexible circuit sales typically include

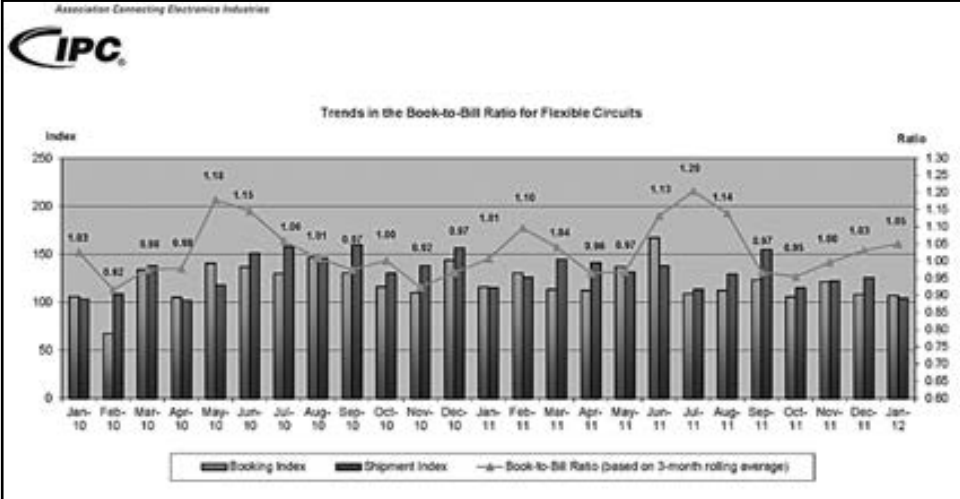
value-added services such as assembly, in addition to the bare flexible circuits. In January, the flexible circuit manufacturers in IPC's survey sample indicated that bare circuits accounted for about 41 percent of their shipment value reported for the month. Assembly and other services make up a large and growing segment of flexible circuit producers' businesses. This figure is also sensitive to changes in the survey sample, which may occur at the beginning of each calendar year.

Interpreting the Data

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

The information in IPC's monthly PCB industry statistics is based on data provided by a representative sample of both rigid and flexible PCB manufacturers in the USA and Canada. IPC publish-

es the PCB Book-to-Bill Ratio and the PCB Statistical Program Report each month. Statistics for the previous month are not available until the last week of the following month.



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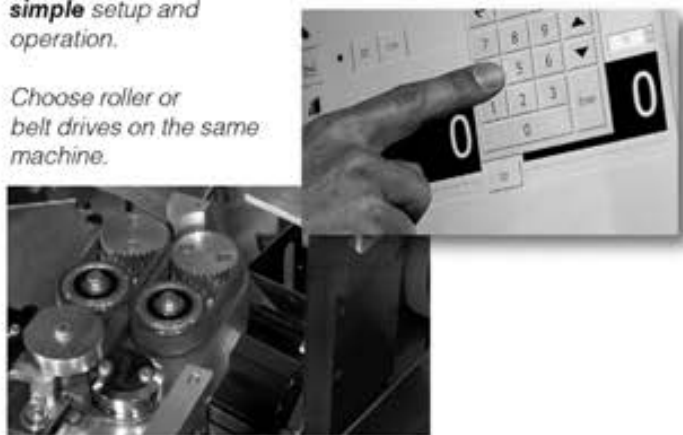


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