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# Electrical

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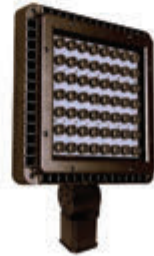
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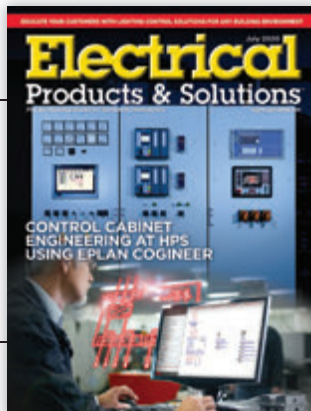
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Image courtesy of EPLAN Software & Services LLC



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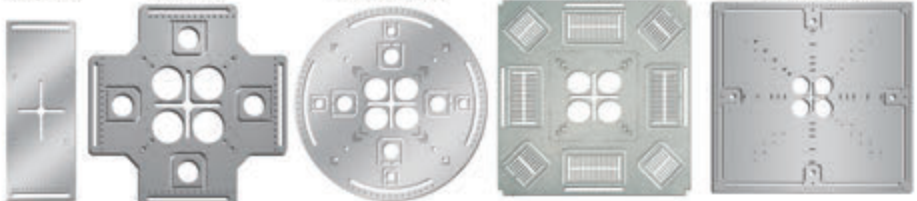
IP5  
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a

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b

PVC to EMT

c

PVC to Rigid

d

PVC to Flexible

e

PVC to Aluminum

f

PVC to Stainless

g

PVC to Lignite

h

PVC to EMT Comp.

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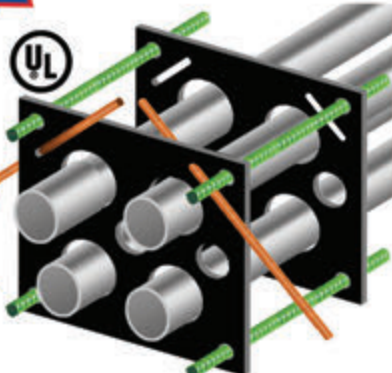


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# Generator InterLock Technologies, LLC

**Generator InterLock Technologies, LLC**, is a small-based company that manufactures and sells its products across the country. The company was founded after Hurricane Isabel hit the east coast in 2003. The product was developed to meet the need for a safe way to use portable generators to power homes in the event of power loss.

The initial inspiration for the product came from a persistent friend of an electrician working for Master Electrical Services. As electrical contractors, they had seen various unsafe and illegal methods that people had used to try to power their houses with their portable generators. The electrician set out to develop a product that would meet National Electrical Code requirements and at the same time be cost effective and convenient for the homeowner. From that original inspiration came a new company: Generator Interlock Technologies or GIT.

The Interlock Kit is a simple safety product that locks out the Main breaker in the existing home panel and allows for the portable generator to power the home through a back feed generator breaker. While many electrical inspectors liked the product; they all agreed that the product would have to be listed to UL standards. After thousands of dollars in fees, rigorous tests, a year of changes and modifications, the Interlock Kit was finally approved for production to be used with panels listed under UL Standard 67.

The company started filling orders in early 2005, using Master Electrical Services as its basis for customer awareness.

Starting with a few kits that fit the most recent Square-D and Cutler Hammer panels, the offerings grew to over 30 different models in less than one year. Generator Interlock Technologies now has kits for panels from 30 years ago to the most current and they continue to add new kits to meet their customer's needs. While contractors in Florida and the North East are the biggest customers, Interlock Kits have been sent throughout the United States and parts of Canada. Whether the power loss is due to coastal hurricanes or from crippling ice storms in the northern , GIT has a kit that will allow customers to keep the power on in their homes.

The Interlock Kits are designed to be installed by licensed electricians and are cost effective for both the customer and the installer. Other products on the market such as generator sub-panels and transfer switches require extensive rewiring of the home panel, often taking the electrical contractor 6 to 8 hours to install. With the Interlock Kit, a qualified electrician can install a complete system in 2 hours or less by simply mounting the correct kit to the face of the panel and wiring a gen-



erator convenience outlet to a breaker installed in the panel.

To use their portable generator, a homeowner plugs an extension cord from their generator to the new generator convenience outlet. He then starts the generator, turns off the main breaker, slides the Interlock Kit, turns on the generator breaker and selects the circuits for use up to the capacity of the generator.

Generator Interlock Technologies' Kit is a defining safety product that has been recognized as a Innovation Award Winner by *Electrical Contracting Products* magazine and one of the Top Products by *Electrical Products and Solutions* magazine.

Generator Interlock Technologies, LLC, has taken a problem of safety and convenience and developed a system to keep danger and expenses to a minimum. Starting with an idea of helping a friend in need, to helping thousands across the country, GIT continues to grow due to its commitment to deliver a quality product. Visit [www.interlockkit.com](http://www.interlockkit.com) for a complete list of products and details. □

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***With the Interlock Kit, a qualified electrician can install a complete system in 2 hours or less by simply mounting the correct kit to the face of the panel and wiring a generator convenience outlet to a breaker installed in the panel.***

---

# INTERLOCKKIT

A Generator InterLock Technologies Product



## Generator InterLock Technologies

**Quickly & Safely Connect  
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# Protect Yourself

## Miller Safety Consultants — A Leader in Arc Flash Protection

**Vince Miller started Miller Safety Consultants**, a veteran owned business in 1999. The goal of the business was to provide cost effective safety consulting, employee training such as: confined space entry, fall protection, electrical safety and provide sales of electrical shock and flash protective equipment and fall protection equipment to businesses in the Washington DC area.

Reliance Industries provided fall protection products and much of the sales and training was on behalf of the supplier. In 2000, the owner decided to retire from his business, and Vince decided to discontinue the fall protection line of his business and concentrate more in the electrical training and products.

Vince had been a distributor for Certified Insulated Products (CIP), a manufacturer of electrical insulated tools and electrical arc flash clothing manufactured by Otex in Rochester, New York. As a distributor, Vince provided sales through his internet website and much through relationships with electrical contractors. His training was a classroom environment and was provided directly to customers but he also taught as a sub-contractor for other safety consulting companies and the

Chesapeake Safety Council in Baltimore, Maryland. In 2005, Vince partnered with Vivid Learning Systems in Cascades, Washington to provide on-line training in safe work practices.

Training in electrical safe work practices is still provided locally in the Washington DC area and as a partner with an electrical engineering firm and online. The training is based on the Occupational Health and Safety Administration (OSHA) standards and the National Fire Protection Association (NFPA) 70E standard.

Miller Safety Consultants is now a distributor for Cementex USA, Burlington, New Jersey, for insulated tools and equipment and clothing from OTEX Protective, Rochester, New York.

The majority of his sales of products are from the web-based store. Cementex is

nationally known for their quality equipment. Otex Protective is becoming more known for their quality clothing. For years, they have manufactured their products under other provider labels. Vince chose to not create his clothing line, but to sell the manufacturer product.

Vince has worked with many electrical company employees to fine-tune the clothing to be more comfortable for the user. Working closely with the manufacturer, they have made slight changes in how the cloth pattern was modified to meet final production. An example is the lightweight 40 Calorie vented hood offered by Otex.

The material is of the latest technology. The vented assembly is constructed for balance on the back of the hardhat and the airflow is 27 CFM to prevent fogging of the face shield and provide cooling to the worker. It took over a year to develop the product with the user prior to having the hood “flash tested”. This product is now standard issue with many electrical contractors.

Being a small business and having quality providers has resulted in satisfied customers for Miller Safety Consultants. Being a direct supplier for OTEX Protective, another small business means customized customer needs can be met. □

---

*For more information, visit  
Miller Safety Consultants at:  
[www.electricalsafetysupply.com](http://www.electricalsafetysupply.com), email  
Vince at: [sales@millersafetyltd.com](mailto:sales@millersafetyltd.com)  
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# Control Cabinet Engineering at HPS Using Eplan Cogineer

Electrical Planning: Automation Saves Time –  
Also in Batch Size One



**FIGURE 1:** HPS is renowned worldwide as a specialist for power engineering, especially for sensitive and critical applications such as emergency power supplies.



**CONTROL CABINET MANUFACTURERS** who automate their planning processes will benefit from shorter project times and higher quality. Secondary processes such as documentation creation can also be simplified. But how much time really can be saved over a whole process? Hanseatic Power Solutions GmbH (HPS) automated its control cabinet engineering in several steps and has just implemented EPLAN Cogeiner. The company has now used a “before and after” comparison to record actual time savings. The results are clear. Electrical planning alone now takes only 20% of the original time.

Emergency power supplies for power stations and “power islands” for hospitals and cruise ships are the type of applications for which control cabinets from HPS are constructed. The company plans and builds control technology for the highly demanding energy sector. This is evident from HPS opening a branch in the Arab Emirates in 2017. Employees there carry out sales, project planning and service tasks for customers from the region who include power plant and refinery operators.

### Target: Maximal Automation In Control Cabinet Engineering

Since the company was founded in 2009, managing director Bernd Mähns and his team have prioritised maximum automation in the project planning, design and manufacture of control cabinets. This has resulted in the completion of even complex projects (with 80 to 100 control cabinet panels) within six to eight weeks, from receipt of the order through to delivery and installation.

One reason for this quick turnaround,

even though the projects involve batch size one products, is a consistent use of the EPLAN platform. EPLAN Pro Panel is used for 3D cabinet planning. Power distributors and busbars made of copper are designed and completed in 3D using the copper module, and (external) cable assembly is based on the routing module.

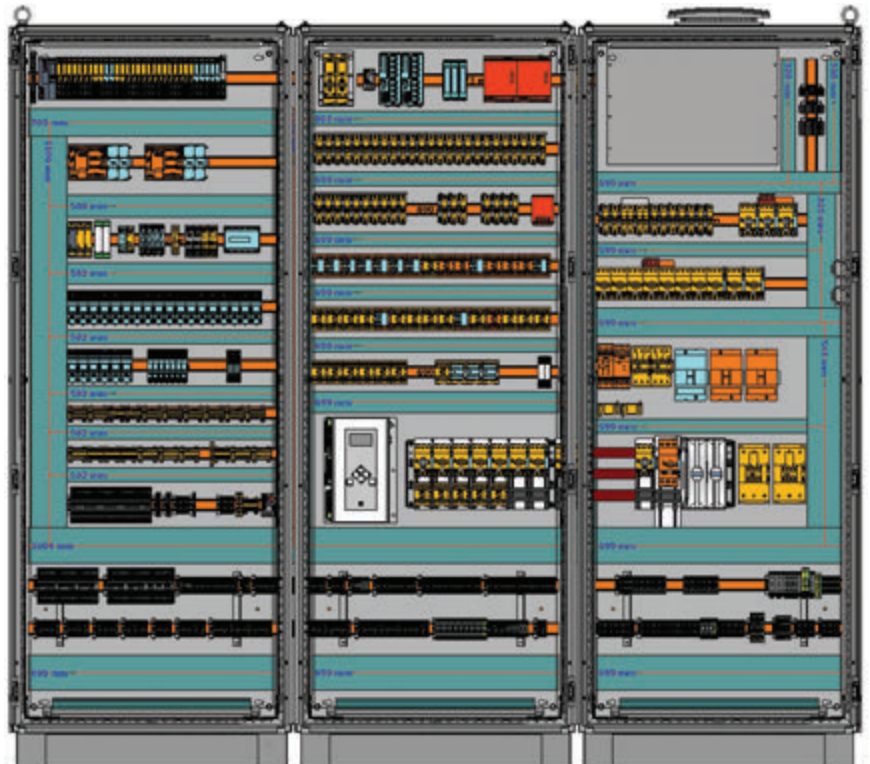
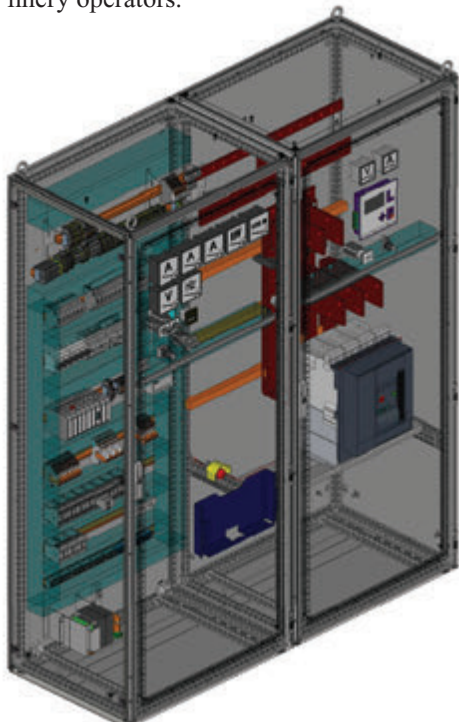
### Quickly Created Schematics

HPS (and thus also its customers) has been benefiting from even shorter throughput times for several months now. When EPLAN launched its Cogeiner software, HPS was one of the first customers to implement the module. EPLAN Cogeiner enables the automated schematic creation without any programming required and without the need for specialist knowledge in configuration and variant management. Only basic macro knowledge is needed to quickly start using the application.

### Standardisation Also For One-Off Products

It may at first be surprising that a control cabinet

(CONTINUED ON PAGE 10)



**FIGURE 2A AND 2B:** Electrical planners from HPS working with EPLAN Pro Panel in assembly



**FIGURE 3:** EPLAN Cogineer enables automated schematic creation without any programming required and without the need for specialist knowledge in configuration and variant management. (Source: EPLAN)

manufacturer working with batch size one is using automation and standardisation. Bernd Mähns, founder and managing director of HPS: “Our projects are of course always individual. But they also have recurring functions and modules such as schematics for controlling ventilation and fire dampers in building automation”. For such functions,

HPS stores macro libraries in Cogineer which electrical engineers can access when required. Dennis Burmeister, Sales Engineering/ Service at HPS and responsible for the implementation of Cogineer: “Users just need to select the required power and everything else is then determined automatically and integrated into

the schematic: from the correct switches for motor protection and repair through to the terminals and cable cross-sections.

Function designations in the schematic are also assigned automatically”.

Options can also be clicked and integrated into the plan. For example, the power supply can be selected via generator voltage or via consumer voltage with contactor.

### “Tried and Tested”, Including Routing and Thermal Properties

Depending on the options selected and power supply type, schematics are then automatically generated. Cogineer also offers other benefits in addition to design automation. Dennis Burmeister: “The macros have been tried and tested and are error-free. This gives us assurance while also improving the quality of the design. Planners no longer need to carry out time-consuming detailed work when

making subsequent changes, e.g. to a power value. The software takes over”. Routing is integrated in the automated schematic creation, and HPS can also automatically order the terminals directly from Phoenix Contact using the corresponding EPLAN module. Rittal Therm is used to calculate power dissipation of all the components selected in EPLAN. This enables the planner to identify “hotspots”.

### The Next Step: Paperless Production Using EPLAN eView

For several years, HPS has not been using standard hard copy folders and documentation unless customers request them. Instead, a QR code is attached to each control cabinet enabling users to view online the detailed documentation maintained at HPS. Dennis Burmeister: “The added benefit is that the documentation is always (CONTINUED ON PAGE 12)



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- SPECIFIED BY ENGINEERING FIRMS, HOSPITALS, UNIVERSITIES & GOVERNMENT AGENCIES

up to date in the sense of it being a ‘digital twin’ throughout the entire lifecycle of the actual cabinet”. The next step is to have a paperless “shop floor” by using EPLAN eView. Bernd Mähns: “We already only need the schematic for inspection. In production, a layout plan is sufficient. We will soon be equipping the inspection stations with eView.

Maintenance personnel can then add comments directly in the standards-compliant documentation. This saves time and again avoids duplication of work”.

**Summary: Automation Enables Major Efficiency Gains**

After implementing EPLAN Cogineer, HPS used a “before and after” comparison of the time taken for processing an order with and without automation. Taken into consideration were Cogineer as well as EPLAN links to mechanical processing and automated cable and terminal assembly. These resulted in design being faster by 25%, and electrical planning by 80%. The effort required for the mechanical production is reduced to

half, electrical production is 40% faster.

Documentation was created in a quarter of the time it normally takes. Bernd Mähns: “All in all, our delivery times - which were previously more than competitive, i.e. very short - have been reduced by around 35% thanks to automation and our integrated planning process. At the same time, documentation is more detailed and planning quality is also better because tried and tested macros and modules are being used”. It is therefore clear that HPS will continue along this path. □



**Bernd Mähns**, founder and managing director of HPS: “Our automated and integrated planning process saves around 35% of time. This is a clear competitive advantage for us”.



**Dennis Burmeister**, Engineering/Service Sales at HPS: “By using EPLAN Cogineer we don’t just save time. We also improve design quality because tried and tested, error-free components are being used which we have stored as macros. This benefits not only us, but also our customers”.

**EPLAN Software & Service**

EPLAN provides software and service solutions in the fields of electrical, automation and mechatronic engineering. The company develops one of the world’s leading design software solutions for machine and panel builders.

EPLAN is also the ideal partner to streamline challenging engineering processes. Both standardized as well as customized interfaces to ERP and PLM/PDM systems ensure data consistency along the whole value chain. Working with EPLAN means boundless communication across all engineering disciplines. No matter whether small or large enterprises: Customers can apply their expertise more efficiently. EPLAN wants to grow further with customers and partners and pushes integration and automation in engineering forward. Worldwide, EPLAN supports over 55,000 customers. Efficient engineering is the focus.



EPLAN was founded in 1984 and is part of the owner-operated Friedhelm Loh Group. The Friedhelm Loh Group operates worldwide with 18 production sites and 80 international subsidiaries. The entire group employs 12,000 people and generated revenues of around \$2,6 billion in 2018. For the eleventh time in succession, the family business has won the accolade Top German Employer in 2019. In addition Friedhelm Loh Group was recognized as Top vocational trainer» according to a study of Deutschland Test and Focus Money.

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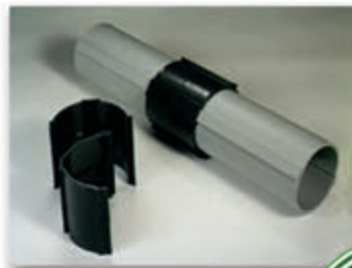
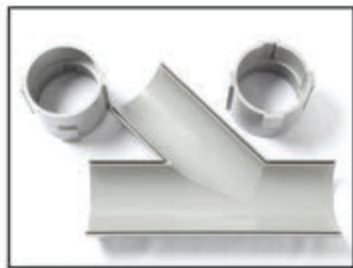


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# Educate Your Customers with Lighting Control Solutions for Any Building Environment

BY DAVID BUERER

**CONTRACTORS CAN STAND OUT** from the competition and offer tremendous value to their customers with localized expertise on how to increase energy efficiency with lighting control strategies and how to comply with local energy and building codes.

Lighting controls can be used to meet the unique lighting needs of any space in new and retrofit installations from a single room to an entire building across multiple industries. Lighting control strategies increase occupant comfort and improve productivity while complying with energy codes and delivering energy and cost savings.

Implementing efficient lighting sources and controls that turn the lights off when not being used is an easy solution to reduce energy usage. As energy costs

continue to increase, the operational advantage to reduce energy consumption combined with codes and standards promoting the use of energy-efficient products are driving the growth of the LED lighting and controls market.

But most customers are not in the position to be experts in the latest enhancements to lighting and controls. Many don't realize that they can choose from distributed, integrated, networked, stand-alone and wireless solutions to meet the unique lighting needs of their space.

This puts the contractor in the unique position to help them find the best system for their building and positions you as a local expert.

## Meeting the Specification and the Code

Staying abreast of the latest in lighting controls as well as the national, state and local codes, will position you as beyond just a contractor and ensure you are viewed as an expert who can help building owners and facility managers keep track of energy usage and costs.

Energy codes and standards like IECC, ASHRAE 90.1 and Title 24, Part 6 have become more complex over time. With each revision, more requirements must be met to comply with the increased use of lighting controls. (CONTINUED ON PAGE 18)

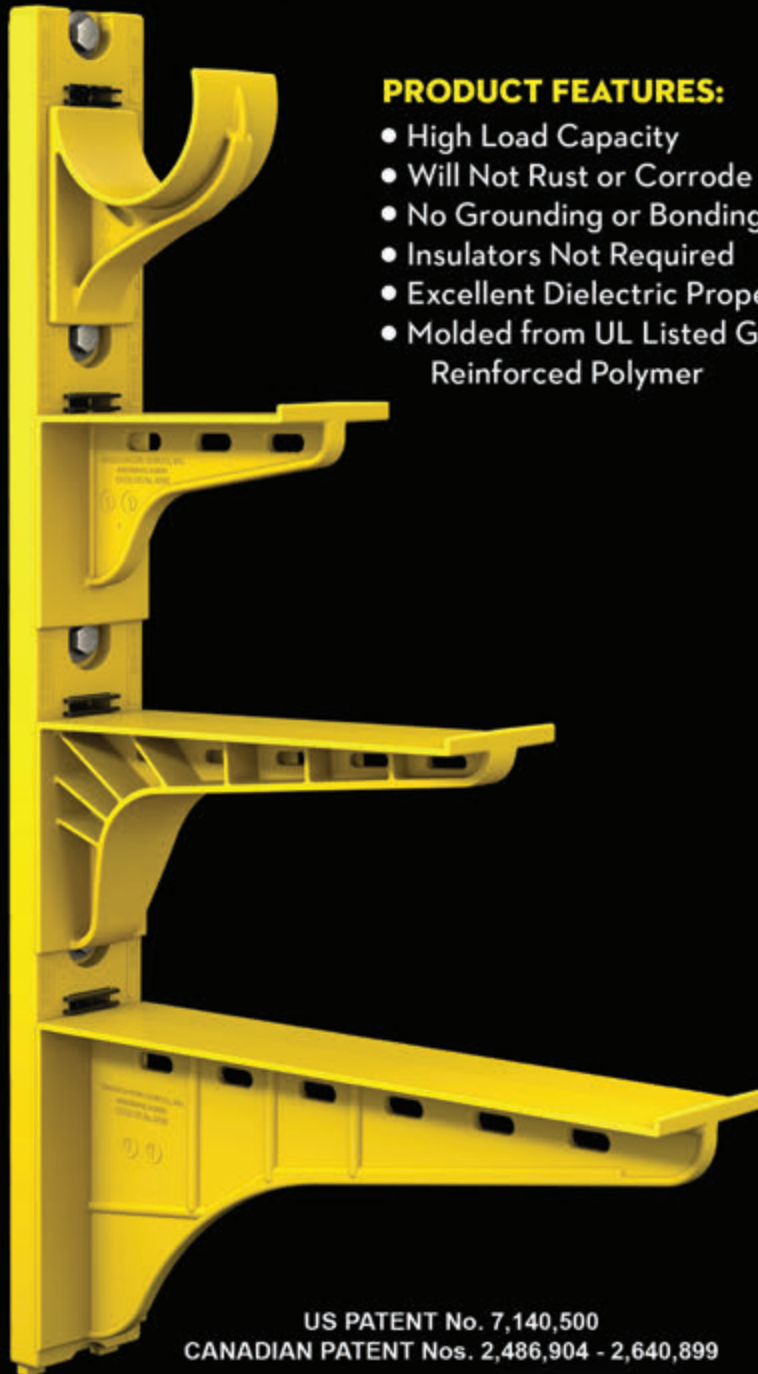




# The Heavy Duty Nonmetallic CABLE RACK



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HDL Arm Lock shown with  
RA04 Arm and CR36-B Stanchion



3HDS - 3" throat saddle shown with  
a cable secured by cable ties.



RA08 - 8" arm shown with three  
cables secured by cable ties.

US PATENT No. 7,140,500  
CANADIAN PATENT Nos. 2,486,904 - 2,640,899

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Sensors, dimmers, daylighting controls and scheduling all contribute to complying with these requirements. These solutions automatically turn off lights when a space is unoccupied or adjust lighting levels for optimal use without putting any responsibility on the occupant. More importantly – now than ever, due to COVID-19 – lighting controls add hands-free and touchless solutions. This provides added value and safety to environments that require limited contact with multiple surfaces.

Equally as important as lighting controls is ensuring that facility managers can monitor energy usage. It's important to remind customers of the latest advances made in submetering solutions so that they can provide accurate energy data for tenant billing and measurement and verification.

### Providing Long-Term Integrated Solutions Focused on the Building Occupant

The installation of LED and control strategies can produce long-term financial benefits that outweigh the initial investment. These benefits are a result of a reduction in energy usage and increased energy efficiency. In fact, as LED lamps and fixtures become more increasingly affordable, more organizations are finding the upfront investment required to see these benefits as more obtainable.

However, the LED market is constantly changing with emerging technologies and new competitors. Contractors should seek controls manufacturers that con-

sistently test for LED compatibility to ensure that the dimming performance meets expectations and fulfills its intended purpose.

Combining control strategies with LED lamps and fixtures results in additional savings and an increased functionality of the space for the occupant. Understanding the layering of different control strategies can be an advantage for contractors, allowing them to help customers select and understand the benefits each strategy provides.

The market is requesting lighting control systems that offer more functionality with less complexity. This includes easy set up with an emphasis on simple installation, commissioning tools and support. Manufacturers are hearing that call and are progressively offering controls with increased functionality that are easier to design and install—oftentimes using apps for configuration and commissioning. This allows contractors the ability to offer customers greater performance from a lighting control system while allowing them to finish projects faster.

Wireless controls allow contractors to provide more value to their customers with scalable, flexible and simple solutions. The ability to add wireless control to any switching or dimming device can be beneficial when completing projects that may be cost prohibitive or have unique installation challenges.

In addition, wireless controls are being integrated into lighting fixtures for luminaire level lighting control. Instead of installing four or more components,

contractors can install lighting fixtures that have been integrated with a sensor by the manufacturer and a keypad to get the same level of control with easier installation and configuration.

Additional savings can be realized with wireless controls by reducing installation costs and minimizing the impact to operations and on occupants in the space. Contractors can easily expand and modify systems without pulling additional wire as an organization's budgets and needs change with little to no impact to existing operations.

Installing lighting controls allows contractors to deliver enhanced benefits by improving the occupant experience while offering energy savings and meeting code compliance. The right combination can enrich the aesthetics and mood of a space, as well as create a more comfortable atmosphere and increase occupant productivity.

This focus on human-centric design can positively impact the wellbeing of occupants, while improving space functionality and reducing maintenance costs. Lighting and controls play an important role in the ability to adjust the color and intensity of lighting to mimic the natural daylight progression from warm to cool. Studies have shown that this can positively increase alertness, creativity, moods and the overall health of occupants.

### Delivering Superior Expertise and Service Takes a Team

Understanding the different lighting control strategies and being a local subject matter expert on solutions and codes offer contractors a competitive advantage.

Contractors have the challenge of keeping up with the latest in lighting and controls, while at the same time managing their business and workforce. Therefore, contractors are served well by a single source partner who can take the guesswork out of product selection, specification and offer fast delivery. Seek manufacturers that provide not only highly engineered and energy efficient products, but also offer expertise and consultative and, if needed, on the job support. □

*David Buerer is the Director of Product Management for Leviton Controls*





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# Superior Rents Sees Customer Success with Hy-Brid Lifts' PS-1930 Non-Folding Rails

Superior Rents, a Missouri-based construction equipment rental center, sees customer success with the non-folding rails of Hy-Brid Lifts' PS-1930, leading to an increase in unit rentals. This included one specific request for the models on a retail construction job.

"Hy-Brid Lifts have features that make them a top choice for customers," said Andy Galle, equipment sales specialist for Superior Rents. "The non-folding rails are just the beginning. Operators love the lightweight aspect and the high lifting capacities of the PS-1930, along with the improved drive system and the LeakGuard™ system. We can't keep these units stocked; they're always out in the field."

Steel Wall Construction is one such customer. The Springfield-based contractor found great success renting the PS-1930 through Superior Rents for a current retail construction job.

"I was using a different manufacturer's 19-foot lift and realized it required folding rails to fit under the doors," said Bill Shields, owner of Steel Wall Construction. "If guys have to tear down the railing every time they pass through a door, I might as well just scaffold it. They're almost useless. I called Andy at Superior Rents and asked if he had a solution. That was when I was introduced to the PS-1930 from Hy-Brid Lifts and I've been very impressed. I use it for framing, sheetrock, finishing — the whole job start to finish."

ANSI A92.20 standards, which went into effect June 1, require manufacturers to increase the platform rail height on their MEWPs, which means many scissor lifts will now have to fold their rails. The compact dimensions of the PS-1930 allow the unit to fit through standard



Superior Rents, a Missouri-based construction equipment rental center, sees customer success with the non-folding rails of Hy-Brid Lifts' PS-1930. This included a special request from Steel Wall Construction.

doors and elevators without an operator exiting the lift to fold down the rails.

"On a project like this, door frames are put on early in the process, right after we set the walls," Shields said. "Once the door frame is set, it's a half inch below 7 feet, and none of the other lifts can go through that opening with their rails up. The PS-1930 saves at least 15 minutes each time an operator has to go from room to room."

The PS-1930 features an industry-leading capacity of 650 pounds and is rated for one person plus materials. The PS-1930 is 69.5 inches long and 30 inches wide, with



Springfield-based contractor Steel Wall Construction found great success renting the PS-1930 through Superior Rents for a current retail construction job. Photo courtesy of Hy-Brid Lifts.



The compact dimensions of the PS-1930 allow the unit to fit through standard doors and elevators without an operator exiting the lift to fold down the rails.

PHOTOS COURTESY OF HY-BRID LIFTS.

a stowed height of 74.5 inches tall, making it compact for storage and shipping. The platform is 60 inches long by 24 inches wide, with a 30-inch slide-out platform extension, which provides plenty of working space. The lift weighs less than 2,000 pounds, which is a fraction of competitive models' weight. □

**HY-BRID LIFTS**  
BY CUSTOM EQUIPMENT LLC

## ABOUT HY-BRID LIFTS:

Hy-Brid Lifts is a brand of Custom Equipment LLC. Hy-Brid Lifts engineers and manufactures all-purpose lifts in electric self-propelled and push-around models. The low-level lifts offer exceptional capabilities in a heavy-duty but lightweight design, are easy to maneuver and reach working heights up to 25 feet. Contractors and maintenance technicians can use them from start to finish for a wide range of applications in industries as diverse as construction, drywall, electrical, HVAC, painting and plumbing, industrial manufacturing and facility maintenance. For more information: Hy-Brid Lifts, 2647 Highway 175, Richfield, Wis. 53076; 262-644-1300; fax 262-644-1320; sales@hybridlifts.com; www.hybridlifts.com.





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# Megger Donates 20 Digital Multimeters to Johnson County High School Seniors for Graduation

*Students in the Electrical, Mechanical and Plumbing Systems class benefit from the donation*

Megger recently donated 20 digital multimeters to 20 graduating high school seniors in the Electrical, Mechanical and Plumbing Systems class at Johnson County High School (JCHS) located in Mountain City, Tennessee. The AVO830 digital Trms multimeter offers a voltage range up to 1000V Trms and is designed to reduce the need for additional auxiliary instrumentation, like phase rotation detectors and non-contact voltage wands.

JCHS offers its students an excellent construction program. Through this program, led by instructor Lee Cole, students are given the opportunity to build a house from start-to-finish, sell it and then use the money from the sale of the home to start the next house project. During the Fall 2019 home build, Lee contacted Megger about having them donate insulation testers to the program. Megger obliged by giving them four insulation testers, as well as an MTR105 motor tester, along with education materials for the classroom, including Megger's ground and insulation testing guide booklets - *Getting Down to Earth* and *A Stitch in Time*. Megger was so moved by the school's commitment to its students and the wonderful projects that they do, that they decided to donate an AVO830 to 20 graduating seniors in the program.

David S. Danner, director of US distribution for Megger, who has been working with JCHS said, "We are proud to donate 20 AVO830 multimeters to these deserving students. This will help them get started on the right foot as they leave high school and embark on their next journey."



Pictured are Maretta Ferguson and Andrew Whitaker, JCHS Seniors and recipients of the AVO830.

Perfect for use by electricians, technicians, service personnel and engineers, the AVO830 is a compact, well-built, high reliability multimeter is suitable for a wide range of applications, including maintenance of electrical applications and equipment, white goods service and electrical utilities.

Lee Cole, Construction teacher at JCHS, said, "I am tickled to death that Megger donated these multimeters to our seniors. They have outfitted these kids

with the most expensive piece of equipment that they will need to start out in the workforce. They have taken away the obstacle of that expense for these students and have sent them well on their way, prepared to work with the very best equipment on the market from day one on the job." □

**Megger**®

**About Megger:** Megger is one of the world's leading manufacturers and suppliers of test and measurement equipment used within the electric power, building wiring and telecommunication industries. With research, engineering and manufacturing facilities in the USA, UK, Sweden and Germany, combined with sales and technical support in most countries, Megger is uniquely placed to meet the needs of its customers worldwide.





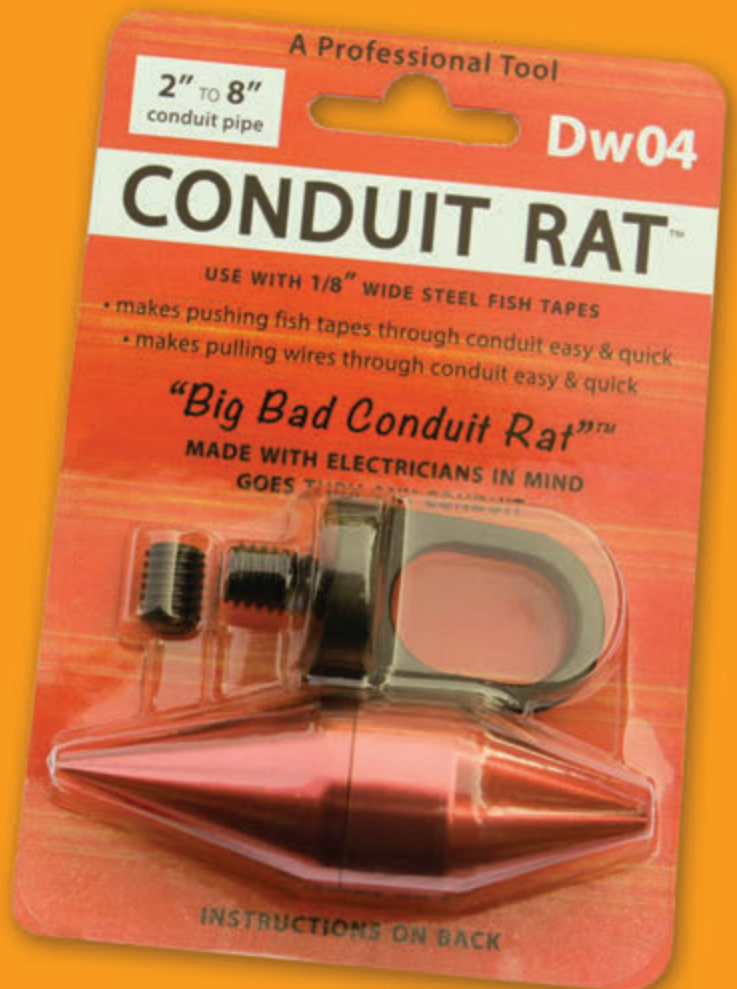
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# New, Free HDPE HDD Conduit Design Calculator Available

## Automates Conduit Selection for HDD Installation in Power and Communications Systems

The Plastics Pipe Institute, Inc. (PPI), has released a new, free software tool that aids in determining the most appropriate wall thickness of high-density polyethylene (HDPE) conduit to be installed using horizontal directional drilling (HDD) techniques.

Published on PPI's website at <https://plasticpipe.org/conduitcalc/> or at [www.conduitcalc.com](http://www.conduitcalc.com), the Conduit Design Calculator (CDC) simplifies complicated calculations into an easy-to-use online application. This tool is one of several PPI calculators available without charge that are related to the design and installation of plastic piping materials for various applications.

The PPI CDC automates the Mini-HDD calculations pioneered by Dr. Larry Slavin and described in PPI TR-46. It uses inputs such as directional changes in the underground bore path, drill rod diameter, bore depth and length to determine the Calculated Tensile Load on the selected HDPE conduit, as compared to its allowable Safe Pull Strength. The calculator gives users the options of HDPE conduit manufactured from a standard strength HDPE resin or higher strength HDPE resin.

Users can select the conduit diameter and wall thickness type from a menu with three pre-loaded sizing systems (e.g. IPS, SIDR, and True-size). All conduit dimensions and properties are in accordance

with industry standards such as ASTM F2160, NEMA TC 7, and UL 651A.

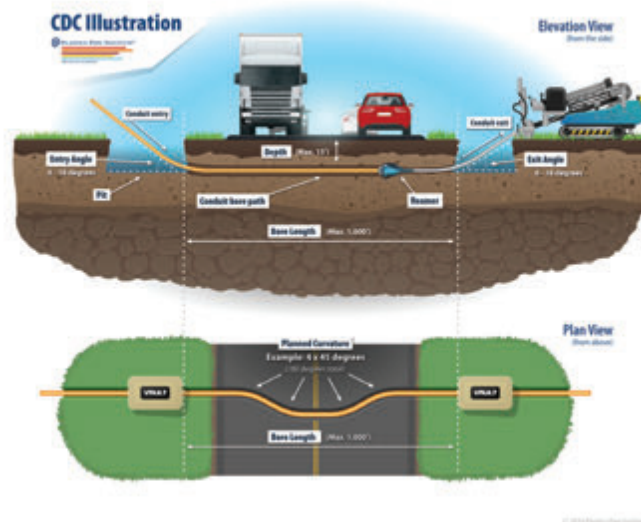
After the inputs are entered, the calculator shows the Safety Factor for the selected wall type, and potential alternatives, in a Results Table. A Safety Factor greater than 1.0 indicates that the displayed wall thickness types will have sufficient tensile strength to meet the calculated ten-

According to Patrick Vibien, P.Eng., director of engineering for PPI's Power & Communications Division (PCD), "Output can be emailed directly from the Calculator, saved as a PDF file, or printed as a paper file to simplify sharing and record keeping. We are very pleased to be able to bring another helpful tool to the industry."

High-density polyethylene or HDPE conduit, also known as PE conduit, is the preferred material to house and protect electrical power and communications cables in typical applications such as power utilities, telecommunications, CATV, SCADA, FTTH, ITS, highway lighting, and other underground utilities. Benefits of HDPE conduit, according to PPI, include availability in long lengths without joints, high strength, flexibility, proven reliability and installation toughness. PE conduit is widely used in trenching, horizontal directional drilling (HDD) and plowing installation methods.

Additional information about conduit for Power and Communications can be found online at [www.plasticpipe.org/power-comm](http://www.plasticpipe.org/power-comm).

Available free online at PPI's [www.conduitcalc.com](http://www.conduitcalc.com), the Conduit Design Calculator (CDC) simplifies complicated calculations into an easy-to-use application to determine the appropriate wall thickness of HDPE conduit to be installed using horizontal directional drilling (HDD) techniques. □



sile forces for the given installation. In some situations, more than one wall type will have sufficient tensile strength, and the user can select the wall type based on those results, and other factors.

"As long as the jobsite conditions are known, the calculation for a given installation can be completed in 2-3 minutes, for most projects", explained Lance MacNevin, P. Eng. of PPI, one of the project leaders.

**About PPI:** The Plastics Pipe Institute, Inc. (PPI) is the major North American trade association representing all segments of the plastic pipe industry and is dedicated to promoting plastic as the materials of choice for pipe and conduit applications. PPI is the premier technical, engineering and industry knowledge resource publishing data for use in the development and design of plastic pipe and conduit systems. Additionally, PPI collaborates with industry organizations that set standards for manufacturing practices and installation methods.



# Nora Lighting® Brings Davis Chastain On Board As Western Regional Commercial Sales Manager

Nora Lighting confirms the appointment of Davis Chastain as the company's new Western Regional Commercial Sales Manager, reported Fred Farzan, Nora Lighting President and CEO.

Chastain will oversee all Nora commercial sales and marketing activities throughout the West Coast, the Pacific Northwest and Rocky Mountain states, along with the upper Midwest. He is based in Seattle, Washington.

Chastain will be directing Nora's expanding network of rep agencies in those regions, and will liaison with specifiers, distributors and installers.

"Davis will be handling an important territory for Nora as we continue to introduce new LED product lines for architectural, commercial and residential

applications," said Farzan.

"He is extremely well-qualified with more than 25 years of experience – and he is an expert in LED lighting technology and energy-efficient solutions."

As a lighting sales professional, Chastain previously worked with Espen Technology as a regional vice president; and was also affiliated with Havell's SLI, Graybar and Philip's Lighting.

Nora Lighting has served the lighting industry for more than 30 years and is a recognized leader in the development and introduction of LED products. Nora offers one of the industry's most comprehensive lines of LED luminaires, including: commercial, architectural and residential downlights; track and rail lighting; panels and troffers; MLS



Davis Chastain

(multi-lighting systems); linear and under cabinet lighting; RLM, pendants and cylinders; tape lights; step lights; and emergency / exit signs.

For more information visit our website, [www.noralighting.com](http://www.noralighting.com). □

## Affordable test equipment for 2020



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- ◆ Proven reliability
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- ◆ Lightweight

### Wayfind'r - Impulse cable tracer

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- ◆ Easy to use
- ◆ Connects directly to energized cables
- ◆ Distinct signal for easy tracing
- ◆ Traces direct buried and cables in conduit
- ◆ Rugged, compact design

### Impulse Phaser - Cable / phase system

- ◆ Accurately identifies cables in trenches, vaults, conduits and enclosures
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- ◆ Easy to understand and use



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## Cementex Announces Insulating Rubber Apron Now Available with New Belt Strap

*Ideal for technicians working on or around battery storage systems*

Cementex, the safety tool specialists, announces the availability of its insulating rubber apron, now available with a new belt strap and is ideal for working on or around battery storage systems. The apron is a good choice for technicians who have to reach over energized conductors to perform standard maintenance. The new belt strap allows for easy cinching at the waist to help decrease the risk of the apron dragging across batteries.

With a base material of Cementex Class 0 Roll Blanket, the apron is composed of high-strength fabric reinforced Type II rubber. Highly puncture- and tear-resistant, the Cementex insulating rubber apron is also flame-resistant (self-extinguishing) and oil- and ozone-resistant.

Designed, manufactured, and tested in the USA, the apron meets strict ASTM F2320 specifications.

For more information about Cementex's insulating rubber apron and other specialty items, visit our online catalog.

**For more information, visit  
[www.cementexusa.com](http://www.cementexusa.com)**



## Emerson Expands Greenlee® Lineup with 10,000 Pound G10 TUGGER™ Heavy Duty Cable Puller

*Custom-designed motor delivers increased speed and versatility*

Emerson is adding a state-of-the-art puller to its reliable Greenlee lineup with the new G10 TUGGER. The Greenlee G10 TUGGER features a two-speed custom-designed motor that is capable of continuously pulling up to 8,000 pounds and a maximum pulling force of 10,000 pounds. The improved motor helps increase productivity by reducing downtime, while the force indicator display helps prevent damage to the puller and cable.

“Reducing downtime is the key to improving the pull time,” said Jae Lee, director of product management, Greenlee for Emerson. “The engineering team focused on increasing the continuous pulling force to achieve this goal. This puller gives workers the ability to better accomplish the job without the frequent downtime caused by changing the speed of the motor and giving the motor time to cool down.”

The innovative motor board design on the G10 TUGGER efficiently uses electricity to create a better pull performance. Additional key features include:

**Force Indicator Display** - Visually shows the operator the pull in increments of 1,000 pounds, giving the operator more control.

**Right-Angle Sheave** - Designed to help keep operators outside the direct line of the pull.

**Multi-Purpose Foot Switch** - Empowers the user to select between high or low speed, as well as starting and stopping the pull, while keeping the operator outside of the direct line of the pull.

The G10 TUGGER is cULus Listed and compatible with the Greenlee ULTRA TUGGER® mounting systems, allowing contractors to easily adapt the new cable puller to existing equipment. Mounting options include the Mobile VersiBoom™ providing fast, one person set up; the chain mount for tighter spaces; or the floor mount, which provides the ultimate flexibility for pulling applications. The G10 TUGGER can be purchased individually or with any of the mounting systems.

“Contractors have been asking how to make the cable pull more efficient and we designed the G10 TUGGER to address their concerns. This cable puller will benefit contractors who work in new and remodeling environments such as upgrades to hospitals, warehouses, factories and data centers,” said Lee.



**For more information, visit  
[Emerson.com](http://Emerson.com)**



## Klein Tools® New 1/4" Wide Fish Tape Keeps Flexibility While Increasing Firmness

Klein Tools, for professionals since 1857, introduces the 25-Foot Wide Steel Fish Tape, a new addition to Klein's line of fish tapes that is perfect for wire runs associated with short commercial, residential and VDV runs.

- Wide Steel Fish Tape, 1/4-Inch x 25 Foot (Cat. No. 56335)
- Durable, high carbon 1/4" wide spring steel is firm yet flexible
- Protective coating reduces non-contact moisture but is dry to touch
- Laser etched markings in 1-foot (0.3m) descending increments to measure the depth of conduit and the amount of tape left
- Slim-profile plastic tip navigates easily and reduces catching
- Smooth, easier payout with the optimized design of the tape housing
- High impact resistant case
- Easy carry, compact size

"Our goal in adding to Klein Tools' fish tape line was to give users a compact fish tape that could be a staple in their tool bags," explains Dan Pearson, product manager at Klein Tools. "Utilizing a high carbon, coated steel and slim-profile tip gives the tape the right amount of flexibility and maneuverability for pulling wire in attics, down walls, or through small branch circuits, while the laser etched markings allow you to accurately measure the depth of runs and determine the amount of tape left to pay out."



**For more information, visit  
[www.kleintools.com/new-products](http://www.kleintools.com/new-products)**



## Advanced Dual Channel TDR from Megger Can Detect Illegal Taps

*Advanced Dual Channel TDR from Megger Can Detect Illegal Taps  
TDR2050 can connect to live lines*

### TECHNICAL SPECIFICATIONS

- Built-in 600V CATIV input protection filter
- Trace tagging
- Five output impedances - 25  $\Omega$ , 50  $\Omega$ , 75  $\Omega$ , 100  $\Omega$  and 125  $\Omega$
- Velocity factor range between 0.2 and 0.99
- IP54 rated
- Megger now offers an advanced dual channel time domain reflectometer that can detect illegal taps without having to power down the line being tested. The TDR2050 has a built-in 600V CATIV input protection filter, giving it the ability to connect to known live lines.

- Easy to use equipment
- This time domain reflectometer features a large color WVGA display with easy set-up features. Directional control buttons and soft keys provide both intuitive and easy operation for the user. A built-in AutoFind mode allows for speedy identification of faults. One press of the AutoFind key automatically adjusts the range and gain, while positioning the cursor to the first major event on the cable. Press the key again and the cursor jumps to the next detected disturbance.
- Perfect for locating faults on paired metallic cables by electrical service contractors, telecommunications technicians as well as cable television companies, the TDR2050 includes an auto selection option to ensure that the most effective parameters are chosen depending on the range required, aiding rapid diagnosis of the TDR trace. A manual override on the unit allows for fine tuning to enable identification of hard to find faults.
- Trace tagging made easy
- The TDR2050 features dual trace and dual cursor capabilities allowing for full flexibility, giving the operator complete control and instant notification of the distance between two points. A trace comparison feature allows for close examination between trace conditions.
- The unit's trace tagging function is saved into Megger's TraceXpert software which gives full control over downloading, reporting and uploading of saved trace results. Up to 100 trace memories can be saved into the unit's trace storage and later be recalled to the display for analysis or can be compared with an active display to help find a fault location. These results can also be downloaded onto a computer via a USB port.

**For more information, visit  
[megger.com](http://megger.com)**

## Milwaukee® Expands Red Helix™ Drill Bit Lineup with the Next Generation of SHOCKWAVE™ RED HELIX™ Titanium Drill Bits

Milwaukee Tool continues to enhance their line of twist-drilling accessories with the next generation of their SHOCKWAVE™\* Red Helix™ Titanium Drill Bits. Engineered for extreme durability and longer life in wood, plastic, and metal applications, these new bits provide up to 5X life versus black oxide drill bits.

New to this next generation of Red Helix™ Drill Bits are two features: a Quad Edge™ Tip and Enhanced Tapered Web™. The Quad Edge™ Tip delivers a longer life with a precision start and four cutting edges to stay sharper longer. The drill bits' Enhanced Tapered Web™ acts as an internal backbone and strengthens the bit to reduce premature breakage; a common user frustration.

Like the Red Helix™ Cobalt Drill Bits that launched last year, the next generation of Red Helix™ Titanium Drill Bits are designed with a Variable Helix™ that includes an aggressive 35° helical angle that varies along the flute, ending at 15° limiting heat build-up for faster material removal.

The next generation of Milwaukee's SHOCKWAVE™ Red Helix™ Titanium Drill Bits are ideal for use with both drills and impact drivers and will be available in sizes ranging from 1/16" to 1/2", as well as in sets. The drill bits will be available for purchase at select distributors in July 2020.

\*SHOCKWAVE™ Accessories delivered the first line of power tool accessories specifically designed for use with impact drivers. As tool usage and technological advancements within impact drivers has rapidly increased, SHOCKWAVE™ has continued to innovate and provide tradesman with the best performing impact accessories available.



For more information, visit  
[www.milwaukeetool.com](http://www.milwaukeetool.com)



## Save Time and Increase Safety with WAGO's New Bulkhead Connectors

WAGO's new 22mm bulkhead connectors add convenience in connecting to devices within an electrical closure without having to open the door. These connectors, used for industrial applications, can save time and increase safety where arch flash from open enclosures is a concern.

These devices are cUL certified and rated NEMA type 2, 3R, 4, 4X, 12 and 13 or IP65 when the protective cap is closed.

The PN 8000-099/000-1764 is a CAT 6A RJ45 Female/Female bulkhead connector rated up to 10 Gbits/s.

The PN 8000-099/000-1765 is a USB 3.0 Female/Female bulkhead connector rated up to 5 Gbits/s

For more information, visit  
[www.wago.com/us](http://www.wago.com/us)



## Business Boost as CMP Launches New Cord Grip

Leading cable gland and cable cleat specialist, CMP Products, has extended its North American product range with the launch of a brand new cord grip cable gland.

CMP's latest cable glands in the CG Range are designed and engineered specifically to suit unarmored flexible cable and cord as used predominantly throughout the USA and Canada.

Manufactured from high-grade 6000 series aluminum, the glands provide excellent corrosion and ingress protection in wet, dry or hazardous environments; and have undergone testing to the latest edition of UL50E.

They join the company's suite of existing UL and CSA certified cable glands, which have undergone some of the most stringent tests for cable glands.

Jamie Hughes, head of CMP's Americas operation in Houston, explains:

"Cord grips have been used in the Americas for several years, with many designed and tested to dated standards. Conversely, the CMP CG series is tested to the very latest edition of UL514B. It's a much more challenging test and a better way to demonstrate how the cable glands will perform in real life scenarios."

The cord grip has been developed utilizing CMP's heritage of more than 60 years and covers a wider range of cables with fewer cable glands, hence reducing inventory levels and therefore cost. Available in sizes 3/8" to 2"; each product includes an entry thread seal and locknut as standard.

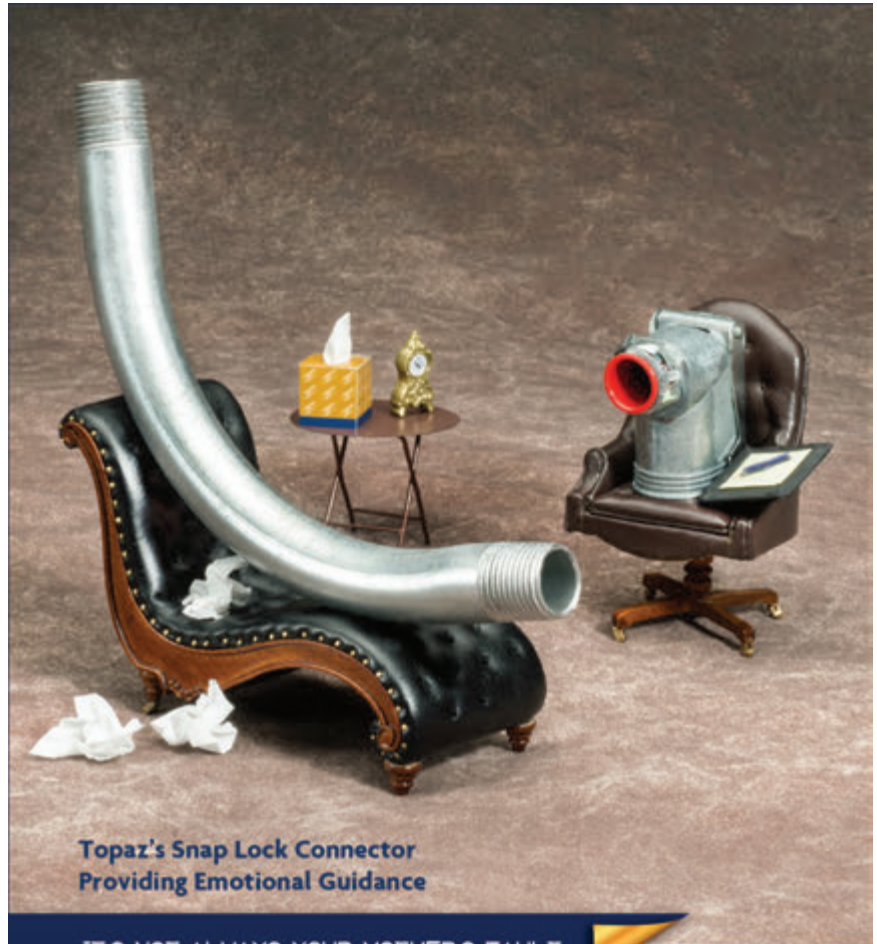
In relation to the timing of the launch Jamie added:

"The timing of the launch is crucial in these unprecedented times and it's credit to our R&D Team and manufacturing colleagues that we are able to launch and hold stock of these products for our customers despite everything that is going on in the world."

"We have been based in Houston for more than 20 years and the launch of the cord grip is a welcome addition that will give another boost to our business and that of our distributors."

Other materials available on request include zinc plated steel, stainless steel and nickel plated on request.

**For more information, visit:  
[www.cmp-products.com/  
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## Milwaukee Tool Multi-Tool Blades

Milwaukee Tool continues to enhance their line of unique cutting solutions with the introduction of carbide teeth, multi-material, metal, wood, and specialty Oscillating Multi-Tool Blades. The new multi-tool blades are complete with a Universal Fit OPEN-LOK™ Connection for quick blade changes and each blade is equipped to tackle a variety of jobsite applications.

### Wood Blades

When cutting into wood, PVC, drywall, and other soft materials, the Oscillating Multi-Tool HCS Wood Blades utilize premium, high-carbon steel with edge-ground teeth to provide users with optimal cutting performance. These multi-tool blades are designed with a longer blade body and an aggressive tooth form to deliver faster cuts than Milwaukee's previous generation of wood multi-tool blades. The blades are available in 1-3/8", 2-1/2" & 3-1/2" widths.

### Specialty Blades

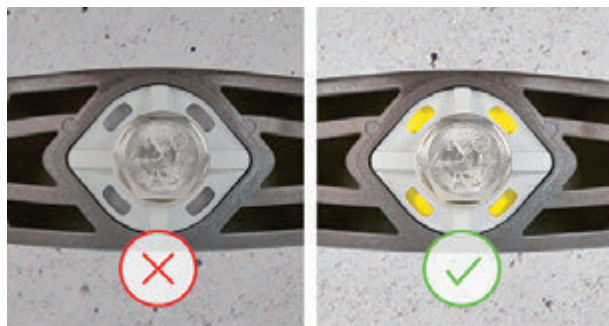
The new multi-tool blade lineup also includes oscillating multi-tool accessories for various sanding, scraping, grinding, and material removal applications:

- Triangle Sanding Pad: Utilizes a dense foam backer for flexibility and durability to sand in hard to reach places.
- Rigid & Flexible Scrapers: Constructed of solid stainless steel for versatile and quick removal of paints, adhesives and sealants.
- Multi-Cutter Scraper: Constructed of solid stainless steel with three different cutting edges for cutting through carpet, roofing paper, asphalt roofing, shingles, and cardboard.
- Sealant Cutting Blades: Equipped with a wide or tapered edge for easy sealant removal in expansion joints and a Mushroom sealant scraper is complete with a flexible mushroom sharp for delicate sealant removal around glass.
- Hybrid Carbide Grit Boot Blade: Incorporate a 2-in-1 shape for fast grout and mortar removal.
- Diamond Grit Boot Blade: Constructed with more durable diamond grit for fast grout removal and up to 5x longer life than standard carbide grit blades.
- 5-in-1 Drywall Blade: Precision laser-cut to deliver 5-in-1 functionality for all drywall cutting needs.

All specialty blades are universal fit and complete with an OPEN-LOK™ Anchor for quick blade changes.



**For more information, visit  
[www.milwaukeetool.com](http://www.milwaukeetool.com)**



## Polywater announces UL approval for conduit mechanical sealant line in the U.S.

Polywater announces that its Polywater I Hauff-Technik mechanical seals have been certified by Underwriters Laboratories (UL) to meet the requirements of Outlet Bushings and Fittings (QCRV). The PHRD seals are considered watertight and approved for use under NEC articles 230.8 and 300.5 (G), which govern the sealing of raceways entering a building or structure.

Polywater I Hauff-Technik PHRD conduit seals are the most diverse mechanical seals on the market. They can be designed to seal around any size and configuration of cables or pipes and can be manufactured for core-drilled holes or conduits with diameters of 1.5 inches to several feet.

EPDM rubber was used for the seals tested by UL, but additional rubbers are available for other applications. The PHRD mechanical seals are suitable for use in Class 1 Division 2 hazardous locations as defined by NEC.

The innovative one-piece, split design provides a simple, labor-saving sealing solution for cables or pipes that are already laid or newly laid. Stainless steel pressure plates and bolts provide durability in corrosive environments and are rodent resistant. Reliability, labor saving, and durability are criteria engineers and contractors demand when sourcing mechanical seals.

"We are pleased to obtain this certification. The UL mark represents rigorous testing that assures both the quality and safety of our product," says Sheri Dahlke, technical director. "This gives our end users the confidence of a third-party certification. Providing airtight and watertight seals for these industries is critical to engineers' needs for reliability while meeting industry guidelines," according to Dahlke.

Polywater, a leading specialty chemical manufacturer for the electrical and telecommunications industries based in Stillwater, MN, collaborates with Hauff-Technik GmbH & Co. KG, based in Hermaringen, to provide the Polywater I Hauff-Technik line of sealing systems to the U.S. market.

**For more information, visit  
[polywater.com](http://polywater.com)**

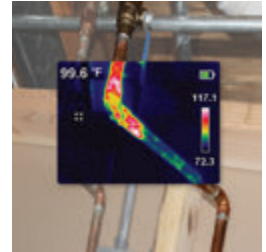


## Klein Tools® Rechargeable Thermal Imager Perfect for Wide Range of Troubleshooting

Klein Tools, for professionals since 1857, introduces the TI250 Rechargeable Thermal Imager. This affordable tool allows electricians, plumbers, HVAC professionals, home inspectors and other trade professionals to verify systems and troubleshoot problems needing maintenance via quick and easy verification of potential problems based on hot and cold spots displayed on LCD.

### Rechargeable Thermal Imager (Cat. No. TI250)

- Thermal Imager has over 10,000 pixels to troubleshoot hot and cold spots
- User selectable high and low temperature alarms from -4 to 752°F (-20 to 400°C)
- Adjustable emissivity from 0.10 to 0.00
- Select color palettes to best capture the event (Ironbow, Rainbow and Gray)
- Store and share images with optional microSD® Card
- Rechargeable lithium-ion battery
- Includes thermal imager, micro-USB charging cable, carrying case, and instructions
- CE and BC certified



“Klein Tools’ new Rechargeable Thermal Imager is the perfect troubleshooting tester, allowing trade professionals to easily view the hot spots in panels and wiring, or check for hot spots in motors, pumps and equipment,” said Sabrina Kalsi, product manager at Klein Tools. “From monitoring energy loss, viewing unseen water damage behind walls, locating clogs in pipes, to locating leaks in heating ducts, this device allows you to solve a wide range of problems and know how to provide maintenance.

**For more information, visit [www.kleintools.com/new-products](http://www.kleintools.com/new-products)**

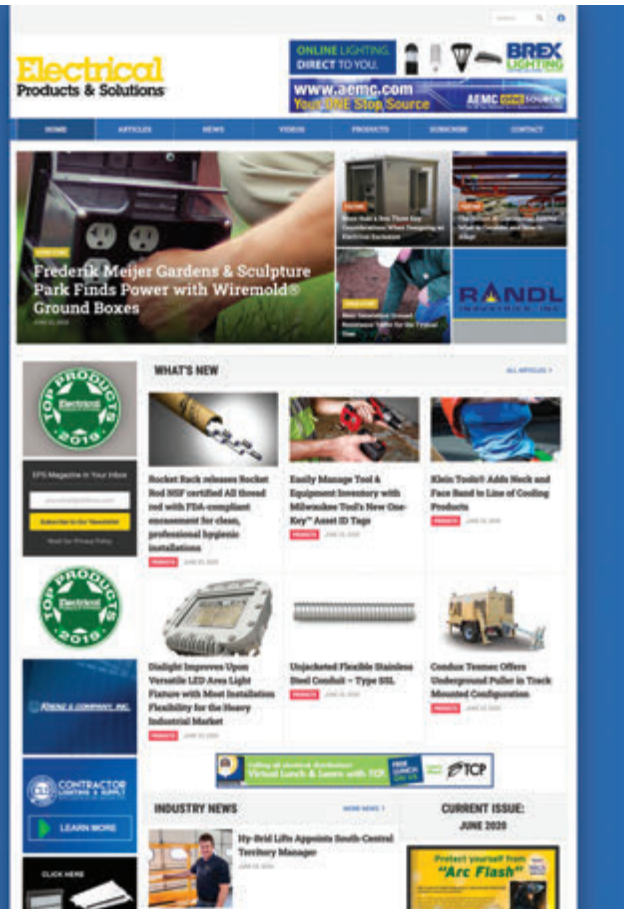
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