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# Electrical

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*A Leader in Arc Flash Protection*

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Photo courtesy of Emerson



# Electrical Products & Solutions™

The Purchasing Guide for Electrical Contractors [www.epsmag.net](http://www.epsmag.net)

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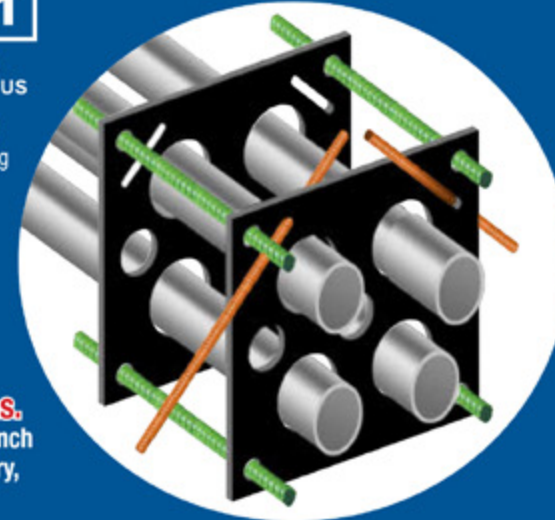
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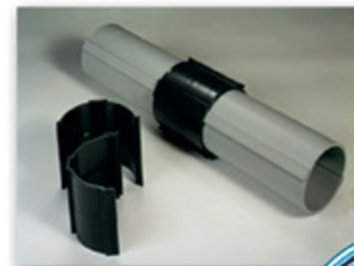
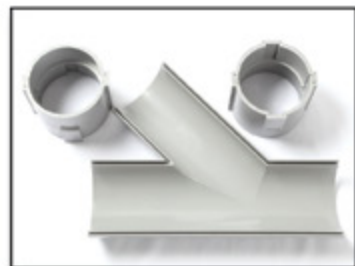
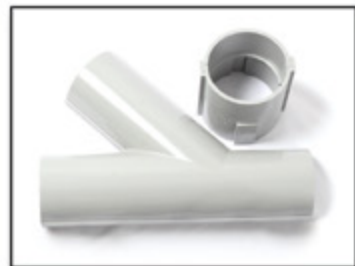


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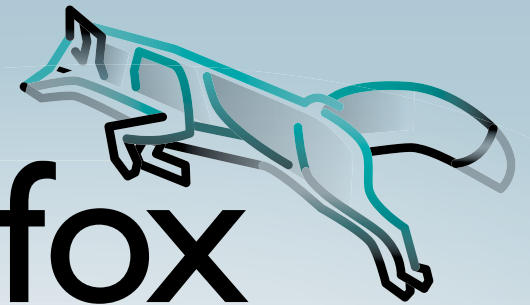


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# Protect Yourself

## 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:  
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# Specifying Industrial-Grade LED Luminaires for Your Facility

BY FRANK CUNNINGHAM, SENIOR PRODUCT MARKETING MANAGER, APPLETON GROUP AT EMERSON AUTOMATION SOLUTIONS

**INDUSTRIAL-GRADE LED LIGHTING LUMINAIRES** are exposed to some of the toughest environments on earth — from the deserts of Saudi Arabia to offshore platforms, to the North Slope of Alaska. Many of these environments are hazardous, and dependable lighting is essential to keeping workers safe.

Reliable LED lighting is key to improving operational efficiency and reducing expensive maintenance costs. Reliability begins with a rigorous process, where the electrical engineer or facilities manager must qualify which designs perform in environments relative to corrosive atmospheres, extreme temperatures, heavy vibration, and electrical disturbances. In this article, we address these essential qualities and other critical factors in specifying industrial-grade LED luminaires.

## Corrosion Resistance

Exposure to caustic chemicals and solvents, adverse weather, salt water and moisture will corrode unprotected luminaires and lead to premature failure. Therefore, it is important to understand the finishing processes a manufacturer applies to protect their luminaires from the surrounding corrosive environment. Various finishes can be applied to help isolate metallic surfaces from the surrounding corrosive environment. The most familiar example is ordinary paint applied to steel to prevent rust.

However, there are several other methods including baked enamel, epoxy powder coat and PVC coating. For effective protection, coatings must be applied properly and protected against damage during installation and use. Unlike liquid paint, powder coating uses an electrostatic process to apply a finish to metallic parts in a dry state. Once applied, the finish is heat-cured to create a finish that is thicker, tougher, more even on all outer surfaces and edges, and more durable than most paints. This makes epoxy powder coat one of the preferred protection choices for oil and gas, wastewater and other harsh, corrosive industrial applications.

## Gasket Protection

Industrial-grade LED luminaires have gaskets that keep water and dust on the outside. Critical to reliability, those gasket seals should be tested to the stringent application requirements encountered in heavy industrial and hazardous applications. Gasket performance testing is conducted according to ASTM-D-395 through ISO accredited third party laboratories. For example, aging tests





should include thermal endurance spanning -50°C to +120°C (-58°F to +248°F), humidity levels of 95% RH, and continuous Ultraviolet (UV) exposure. Top grade gasket material is composed of high-performance closed cell silicone foam. The superior low compression set characteristics deliver years of reliable service in the toughest environments on the planet.

Dust Accumulation

Dust is an especially destructive agent to LED luminaires. In addition to accelerating corrosion, dust can prevent heat from escaping, cause conductivity issues and retain moisture. Dust often contains oils, minerals, chemicals and other materials that can diminish the reliability and life span of the luminaire. To combat dust, industrial-grade LED luminaires must be designed to be IP6x Dust Tight. A superior protective coating will help prevent dust from corroding luminaires, while silicone gaskets will seal out dust particles from sensitive electronics. Another approach is to utilize vertical radiating surfaces - such as fins - to let the dust fall through rather than build up on the luminaire’s heat dissipation surfaces.

Thermal Design

LED reliability begins with good thermal design. Industrial LED luminaires must emphasize thermal performance first and foremost to provide long term field reliability. Extensive thermal simulation during the design process should be performed on the luminaire to ensure driver electronics and LED semiconductor devices operate within their thermal limits even at the fixture’s maximum rated ambient temperature. Also, no failure prone fans or other active

thermal management devices should be employed. Instead, the design must optimize housing thermal conduction, maximize radiating surface areas, and employ strategically placed thermal conduction breaks to balance heat flows.

Shock and Vibration

Industrial-grade LED lighting fixtures are designed to be used in areas where high vibration is a constant occurrence. Vibration from heavy machinery and processing equipment can disengage fixtures from mountings, endangering employees and causing lighting failures. While LEDs generate light using solid state engineering, the wires and connections in low-quality fixtures can loosen from extended vibration. Exterior features, such as captive hardware and integral redundant die cast safety retention points, will help protect workers from parts falling into work areas and production processes. Vibration tests for LED luminaires involve sweeping through a range of frequencies and resonance points in the x, y and z axis with Gs well beyond expected application levels. To ensure interior components remain protected, impact tests are performed to IEC and NEC/CEC standards after material aging and temperature cycling to verify robust enclosure performance.

Surge Suppression

Abnormalities in electrical signals can lead to lighting irregularities such as flashing, strobing, flickering, loss of brightness and premature luminaire failure. The most common electrical signal disturbances are voltage surges, also known as transients. Lightning strikes and electrical devices such as motors and circuit contactors can induce transient surges that pose a threat to

LED lighting installations. Industrial-grade LED luminaires should include a robust 6KV surge suppression circuit to protect against damage caused by surge energy, therefore enhancing reliability, minimizing maintenance and downtime, and extending the life of the lighting installation. In high surge risk areas look for luminaires offering 10KV’s urge protection.

High Quality Illumination

A key value of LED lighting is in enabling employees to comfortably and safely work in harsh industrial or hazardous environments without the challenges of bad color, shadows, glare, and inconsistent illumination. Below we explain the qualities that ensure high-quality illumination in an industrial-grade LED luminaire: secondary optics, beam pattern, color temperatures and lumen level.

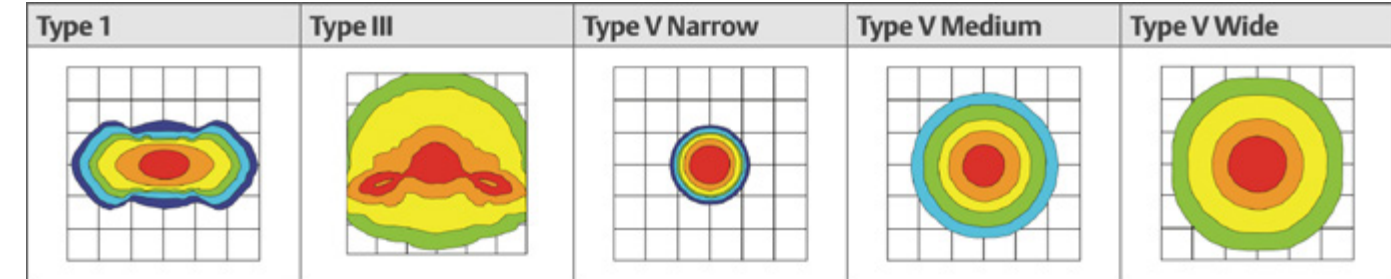
Secondary Optics

A high-quality LED luminaire maximizes usable light appropriate for the application. Secondary optics are used to direct light from the source to where it is needed. Unlike HID lamps, LEDs are highly directional, requiring specialized optics to reduce glare and provide even light distribution in a beam shape optimized for specific applications. Well-designed optics can help designers achieve ideal spacing and minimize the number of luminaires required.

Beam Pattern

The Illuminating Engineering Society of North America (IESNA), specifies different types of luminaire light distribution classifications for roadway lighting. Besides roadway lighting, they are also commonly used to describe

BEAM PATTERN CHART I



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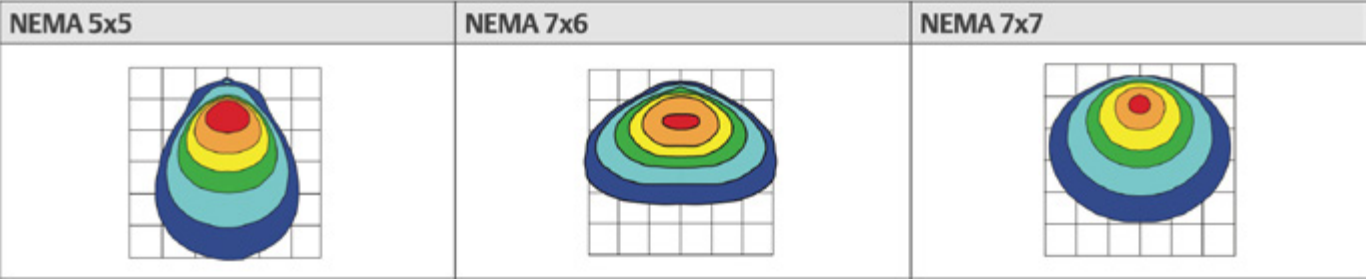
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BEAM PATTERN CHART II



the distribution of fixtures installed in industrial and hazardous applications for task, area, low bay and high bay lighting applications.

Flood lights are classified by the National Electrical Manufacturers’ Association (NEMA). The NEMA Type specifies how wide or narrow the light is projected out of a flood light. This light distribution is also referred to as beam spread or beam pattern. Typically, the greater the distance between the flood light and the ground or the object being illuminated, the narrower the beam.

Color Temperatures

Correlated Color Temperature (CCT) refers to the color appearance or the look and feel of the light source. The cooler or crisper the appearance of a light source means the higher the CCT measured in Kelvin (K). Many LED luminaires offer more than one color temperature to suit application needs and customer preferences.

Lumen Level

Because LED luminaires are more efficient than their HID predecessors, a

watt for watt replacement would yield significantly higher than desired light levels. Generally, an LED equivalent luminaire produces the same light with 1/3 to 1/2 the energy consumption of HID. Since mounting height, luminaire beam pattern, and overall lighting conditions can all affect perceived illuminance levels, it is always best to request a lighting simulation and a luminaire sample (*See chart on page 14*).

A concept that may impact lumen levels is “perceived brightness”. The human eye has two types of photoreceptors: cones, which are active in brighter light levels, and rods, which take over in darker conditions. Commercial photometry measurements are based on photopic luminous efficiency, which only involves the cones. However, recent research shows that a white light source is perceptually and functionally brighter than its High Intensity Discharge (HID) equivalent, especially in a dimly lit application, due to the difference in the spectral power distribution of these light sources. Unfortunately, no universal standard exists today to convert traditional HID measurements to their LED counterparts.

Luminaire System Life

Industrial-grade LED luminaires provide energy efficient and environmentally friendly, functionally equivalent, high quality white light

COLOR TEMPERATURE

5000K: Cool White    4000K: Neutral White    3000K: Warm White



COLOR TEMPERATURE KELVIN GUIDE

Guide to Using CCT

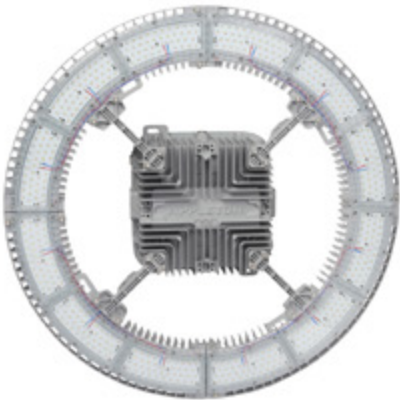
Color Temperature	Warm White	Neutral	Cool White
Kelvin	3000K	4000K	5000K
Mood and Effects	Soft, Warm, Pleasing	Neat, Clean, Efficient	Bright, Alert
Typical Applications	Interior, Fog, Dark Sky or Wildlife Friendly	Low Mounting Heights, Warehouse	Reading, Highlighting Details, Dust



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LUMEN LEVEL CHART

HID Equivalent	LED Lumen Range
70 Watt	2000–3000
100 Watt	3000–4000
150 Watt	4000–5000
175 Watt	5500–7000
250 Watt	8000–10000
350 Watt	10000–12000
400 Watt	12000–14000
600 Watt	16000–18000
750 Watt	18000–20000
1000 Watt	24000–26000
1250 Watt	29000–31000
1500 Watt	37000–39000

Guideline of the total LED luminaire output needed

with better visibility, no startup delay, no degradation in lighting quality due to on/off cycles, and no end-of-life cycling. Most engineers understand that these are benefits to switching to LED lighting. Quantifying these benefits and determining total cost of ownership, however, can be difficult due to the lack of an IES standard defining luminaire life.

While standards exist for reporting LED depreciation, no accepted standard exists for luminaire life. Manufacturers use a variety of terms to describe projected LED life. Here are a few of them and their accepted definitions:

- **LM-80 Testing Standard:** The IES LM-80 standard specifies a testing method for evaluating the useful life of an LED package or array. It requires at least 6,000 hours of actual LED operation, with lumen output measured and reported every 1,000 hours. These results can be used to interpolate the lifetime of an LED source within a system using the in-situ LED source case temperature.
- **L70 Reported Lumen Maintenance:** L70 is the time it

takes for an LED’s lumen output to depreciate to 70 percent of its original output. L70 is extrapolated per the calculator provided in IES TM-21, factoring in both application drive current and LED junction temperature. The standard limits reported lifespan to 6 times the number of LM-80 test hours, so that a 10,000 hour test can yield, at most, a 60,000 hour rating.

- **L70 Calculated Lumen Maintenance:** The TM-21 calculator allows manufacturers to calculate an estimated lumen maintenance

beyond the 6 times rule. Although this can be useful for evaluating LED performance, lifetime values that exceed the 6 times multiplier are considered high risk.

Economic Life

TM-21 outlines a standard calculation method to predict future lumen depreciation using LM-80 data. TM-21 assesses lumen maintenance, but not the performance of a complete luminaire system under real world conditions. To determine expected economic life, you must evaluate the entire system, including projected LED driver life, power line surge and noise immunity, light engine performance under thermal shock, long term gasket endurance against moisture ingress, and corrosion resistance. One key factor is operating temperature, which can vary considerably with changing daily and seasonal temperatures. When operating within ambient temperature ratings, the average temperature of the environment over time provides a suitable approximation for predicting luminaire life.

Conclusion

Heavy industrial environments like manufacturing plants and production facilities provide some of the biggest challenges for LED lighting systems. Excessive heat, moisture, vibration, dust and power fluctuations caused by harsh production processes can contribute to premature LED failure, eliminating potential maintenance and safety benefits. These demanding environments require industrial-grade LED fixtures that deliver illumination without incident. □

To determine expected economic life, you must evaluate the entire system, including projected LED driver life, power line surge and noise immunity, light engine performance under thermal shock, long term gasket endurance against moisture ingress, and corrosion resistance.

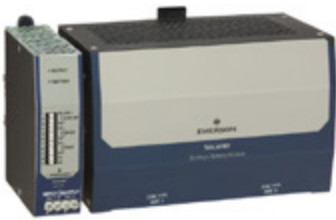


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SolaHD™ SDU DC - B Series DIN Rail UPS

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# Electri-Flex Company Announces Operations Department Leadership Changes

ELECTRI-FLEX COMPANY, Roselle, IL, announces leadership changes in the Operations Department, as Roy Hunn, VP of Operations is set to retire in June after 45 years with the Company. In his place, Dennis Pezan has joined as Director of Operations.

Roy held a lifetime 45-year career with Electri-Flex, fulfilling many roles throughout the organization. He is a compassionate leader with an ability to relate to all levels in the organization, which has helped him greatly throughout his career. As he climbed the ladder to VP of Operations, that journey has proved to be of great importance, providing insight into real problems, discovering bottom-up solutions, and building teams for the future. Roy continues to play a pivotal role within the Company, leading the charge on plant remodeling and efficiency improvements as he looks to leave his mark before retirement. “This family embraced me and provided me with new opportunities that changed the course of my journey,” stated Hunn. “I have seen a small family-owned company in Roselle, IL grow to become a powerful internationally recognized leader in the electrical industry, all while remaining vigilant and steadfast in their belief that FAMILY above everything else comes first.”

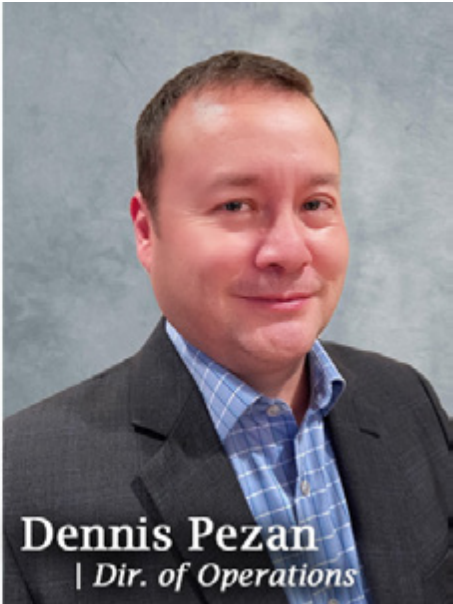
“It has been a privilege to work with someone who is so passionate about what he does. Roy has created an everlasting impact and has positively influenced our business in so many



**Roy Hunn**  
| VP of Operations

ways,” stated Jan Ruthe, COO. “We celebrate the legacy of hard work and commitment that he leaves behind. Roy has truly inspired everyone around him to be better. We wish him good health, wonderful times, and success as he begins his new adventure.”

Dennis Pezan, Director of Operations, joins the company with over 25 years of manufacturing experience in industries ranging from automotive to telecommunications. As a Lean Six Sigma Black Belt, Dennis has a quality-driven, performance-oriented approach, and specializes in process improvements to maximize business processes and resource utilization. Dennis holds a



**Dennis Pezan**  
| Dir. of Operations

bachelor’s degree in Manufacturing Engineering from California Polytechnic University, a Master of Science in Engineering Systems from the University of Southern California, and an MBA from Colorado Technical University.

Jan added, “I also would like to extend a very warm welcome to Dennis, his experience and passion for continuous improvement, positive leadership, and project management will be a great addition to the team. We are excited to start this new journey with Dennis leading the Operations team.”

Learn more about the Electri-Flex team by visiting <https://www.electriflex.com/about/meet-the-team/>. □



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Electri-Flex Company, a leader in electrical conduit design and manufacture for over 65 years, produces Liqueatite®, the most diverse line of liquidtight flexible electrical conduit in the industry. The company offers custom design, engineering, quality assurance and testing capabilities. For more information on Electri-Flex Company, call (630) 529-2920 or (800) 323-6174; fax: (630) 529-0482; e-mail: [mktg@electriflex.com](mailto:mktg@electriflex.com); visit: [www.electriflex.com](http://www.electriflex.com); or write: 222 West Central Avenue, Roselle, IL, 60172-1994.



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CONSIDER IT SOLVED™



## Legrand North America Announces Opening of Newest Distribution Center in Dayton

*Electrical Giant Expands Footprint in Centrally Located Western Ohio. The Resulting New Distribution Network Will Allow for the Majority of Customer Base to be within a 2-Day Transit Time.*

Legrand®, a world leader in electrical, digital infrastructure, and connected solutions, has officially opened a larger operations facility in the Dayton area. This latest opening will provide over 200 new jobs to the Dayton area and enhance the company's ability to serve its customers quicker in shipment times across all of America.

The 625,000 square-foot operations facility, located at 2200 Douglas Way, Union OH, is a state-of-the-art distribution center that will enhance the company's ability to meet the growing demand for electrical and digital building infrastructures as well as connected solutions across America. The facility features technology and equipment that will increase production and maintain quality control, ensuring that customers receive the best products available.

Legrand is committed to sustainability, and the opening of the Dayton facility supports that commitment through various approaches. Notably, the building is on track to receive Green Globes Level One Certification. In addition, the new centrally located facility, coupled with existing West Coast and Southern Distribution centers will service customers more efficiently reducing freight and carbon emissions.

This latest expansion will bring new jobs to Dayton, with Legrand hiring for positions ranging from production and warehouse to office and management. This growth is a testament to Legrand's



commitment to providing exceptional customer service and delivering high-quality solutions to customers.

Each aspect of the facility features and highlights Legrand's notable brands including:

- Architectural and industrial lighting from Kenall, Finelite, OCL, and Pinnacle.
- Automated window shades from Legrand Commercial Shading.
- Electrical wiring devices from Legrand's radiant Collection and Cablofil wire management.
- Data room outfitted with Legrand Minkels technology.
- Productivity enabling technologies from Legrand's AV division, such as Middle Atlantic, Chief, Vaddio, Da-Lite, C2G.

As a result, this facility truly showcases Legrand's deep expertise in the space and creates a highly functional environment for its employees.

"We are thrilled to expand our footprint in Dayton and continue to support the thriving community,"




said Dan Carsten, Vice President of Operational Excellence and Logistics of Legrand North America. "Our goal is to provide our customers with the highest quality products and exceptional customer service, and this our newest facility will allow us to do this."


"Our investment into Montgomery County worked to develop the site for long-term sustainability by putting the site into production, generating taxes into the community, and further strengthening the economy through job creation," said Matt Gaston, Vice President of Development at NorthPoint Development. "The expansion of Legrand's operations into Montgomery County further supports the thriving community here in Dayton, as well as the region as a whole." □

### ABOUT LEGRAND AND LEGRAND, NORTH AND CENTRAL AMERICA

Legrand is the global specialist in electrical and digital building infrastructures. Its comprehensive offering of solutions for commercial, industrial, and residential markets makes it a benchmark for customers worldwide. The Group harnesses technological and societal trends with lasting impacts on buildings with the purpose of improving life by transforming the spaces where people live, work and meet with electrical, digital infrastructures and connected solutions that are simple, innovative and sustainable. Drawing on an approach that involves all teams and stakeholders, Legrand is pursuing its strategy of profitable and responsible growth driven by acquisitions and innovation, with a steady flow of new offerings—including products with enhanced value in use (faster expanding segments: data centers, connected offerings and energy efficiency programs). <https://www.legrand.us/>




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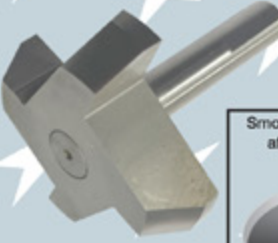
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**IP15a**

**Chamfer Bit**  
for PVC SCH 40/80




PATENT PENDING



**IP27b**

**Electro Post EP-10**  
Box Support Bracket




Mounts on all standard stud widths of 2-1/2", 3-5/8" or 6"


PATENT PENDING

**IP15b**

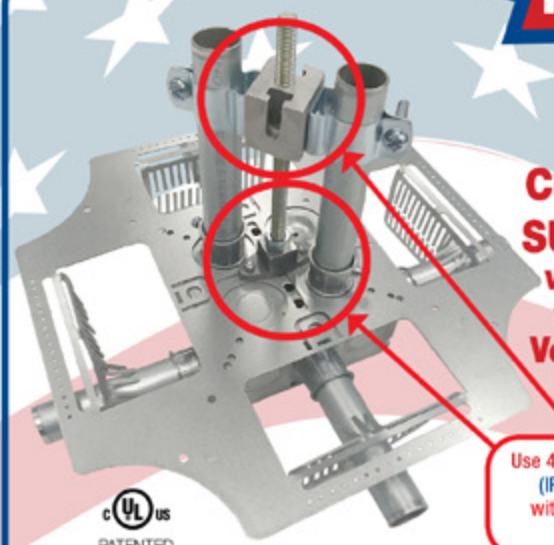
**Chamfer Bit**  
for Aluminum EMT



PATENT PENDING



## NEW PRODUCTS

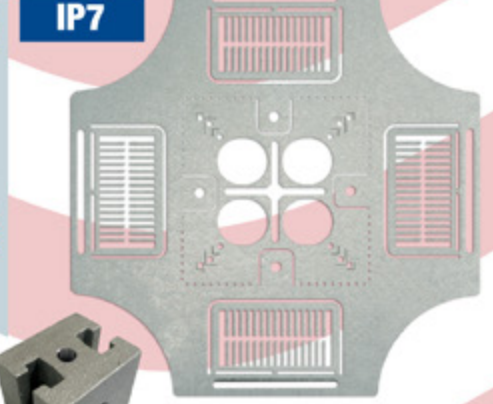


**IP7**

**4-WAY CONDUIT & BOX SUPPORT PLATE**  
with Split Fingers for Horizontal or Vertical Installation

Use 4-Conduit Block (IP19 or IP20) with QwikBlock (IP21a)

PATENTED



**IP21a**  
QwikBlock

PATENT PENDING


**IP19/20**  
4-Conduit Block

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**PVC Running Thread SCH 40/80 Up to 30" Long**

PATENT PENDING


**IP3d**



**NEW Transition Fittings**  
Saves a Great Deal of Time Repairing Conduit  
The Inside Diameter Remains the Same  
Allows for Trouble Free Wire and Cable Pulls

**IP13p**  
3/4" MC Cable to PVC

PATENT PENDING




**Male Threaded PVC Offset**

**IP3c**


1/2" thru 3" Offset for Conduit Sizes 1/2" thru 6"

PATENT PENDING




**IP13k**  
Inside PVC to Inside PVC

PATENT PENDING



**IP13q**  
PVC Reducer

PATENT PENDING



*Plus More Being Invented for SAFER BETTER FASTER Jobs . . . Call With Your Ideas!*



# Leviton Announces 2023 Captain Code Program

*New guide highlights the National Electrical Code® updates with expert analysis in print, online, or mobile app format*

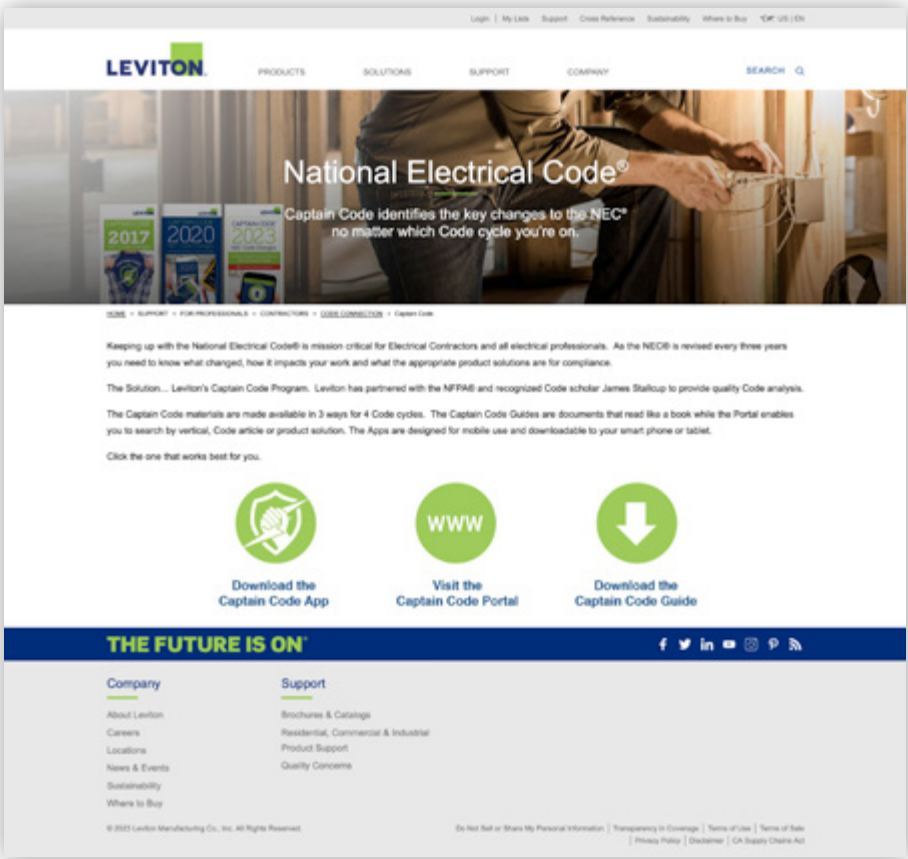
Leviton recently announced the ninth edition of its popular Captain Code Guide, featuring the 2023 changes and additions to the National Electrical Code (NEC®). The 120-page booklet is available at no cost through participating distributors, the Captain Code mobile app for Apple and Google devices or online at [leviton.com/captaincode](http://leviton.com/captaincode).

“Keeping up with the National Electrical Code is critical for electrical contractors and all electrical professionals,” said Thomas Degnan, contractor channel manager at Leviton. “When the NEC is revised every three years, those in the industry need to know what changed, how it impacts their work and what the appropriate product solutions are for compliance.”

Leviton’s Captain Code program provides electrical contractors and builders accurate and timely code analysis and helps them navigate the changes and updates as they occur within each code cycle. The program is based on a partnership between Leviton, the National Fire Protection Association® (NFPA®) and recognized code scholar James Stallcup.

“We know how busy electrical contractors are and Leviton’s free Captain Code program helps to distill volumes of information into an easy to search and consume format, added Degnan.

To keep the content manageable, each code change is tagged by vertical/application. This user-friendly approach



enables the reader to go right to the industry in which they work. For example, if a reader works in healthcare, they simply search “healthcare” and all appropriate code passages are presented.”

With more than 80 code changes detailed in the 2023 NEC, Leviton’s Captain Code Guide quickly conveys

all main code requirements on topics like the expansion of arc-fault and surge protection and new allowances for 10-amp circuits.

To learn more about the Leviton Captain Code Program or to access the guide, visit [www.leviton.com/captaincode](http://www.leviton.com/captaincode). □

## ABOUT LEVITON

Leviton is the smart choice, delivering the most comprehensive range of solutions to meet the needs of today’s residential, commercial, and industrial customers in more than 90 countries across the globe. From simple switches and receptacles, to networking systems and smart home automation, Leviton exceeds market needs by delivering innovative products to create sustainable, intelligent environments through its electrical wiring devices, network and data center connectivity solutions, LED lighting and lighting energy management systems, and security and automation applications. For Leviton, it is clear the FUTURE IS ON. For more information, visit [www.leviton.com](http://www.leviton.com), [www.facebook.com/leviton](https://www.facebook.com/leviton), [www.twitter.com/leviton](https://www.twitter.com/leviton) or [www.youtube.com/Levitonmfg](https://www.youtube.com/Levitonmfg).



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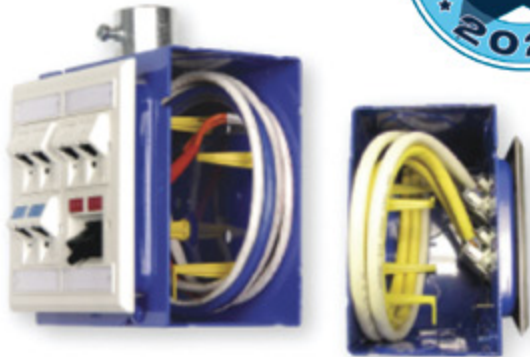


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- AVAILABLE IN ZINC OR RED

### Telecommunications



- INTEGRAL CABLE MANAGEMENT
- SAVE LABOR...INCREASE PROFITS
- FACILITATES MIN. BEND RADIUS REQUIREMENTS
- SUPPORTS CURRENT AND EVOLVING SYSTEMS
- SUPPORTS PoE PLUS
- SPECIFIED BY ENGINEERING FIRMS, HOSPITALS, UNIVERSITIES & GOVERNMENT AGENCIES

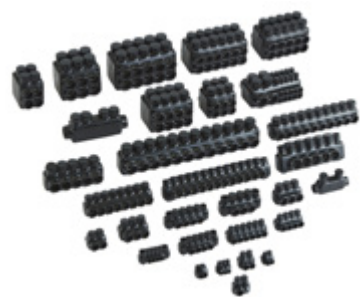
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# NSI Industries First Company NEC 230.46 Compliant with Numerous Polaris® Connectors

*Effective Jan. 1, 2023, NEC 230.46 Requires Wire Connectors  
Used for Splicing or Tapping Conductors on the Line Side of the  
Service to be Tested as Suitable for This Use*



NSI Industries, LLC, a leading provider of electrical, HVAC, and building technology product solutions for more than 45 years, is proud to announce that it is the first company to be NEC 230.46 Compliant, with a number of Polaris® UL listed connectors adhering to this new requirement.

“Effective Jan. 1, 2023, NEC 230.46 requires wire connectors used for splicing or tapping conductors on the line side of the service to be tested as suitable for this use,” explained Joseph Saganowich, NSI Electrical Division President. “NSI’s Polaris pre-insulated connectors are ideally suited for this application and our customers will be pleased to know that we’ve been actively testing sized 350-750 MCM connectors, which are now compliant with NEC requirements for connectors and devices installed on service conductors. NSI is actively working to qualify all relevant connectors to meet



the new NEC 230.46 requirement.”  
The current compliant 350-750 MCM Polaris connectors from NSI include series PL, PLH, IPL, IPLM, IPLMD, IPLD, IT, ISR, IPLH, IPLDH, IPLMDH, ISRH and ITH. Follow this link that contains an up-to-date list of part numbers that meet NEC 230.46.  
The Polaris name signifies more than 30 years of pride in innovation, quality and reliability, with products engineered and manufactured in the USA. Polaris was the original innovator in pre-insulated connectors and has continued to lead the industry with high-

quality lines including the customizable Polaris Black, the clear Vision Tap, the submersible Edge and the Grey, for fine-stranded copper wires. Additionally, its wide offering of uninsulated and mechanical connectors match the needs of any job. Polaris, a part of NSI Industries, remains the trusted brand most asked for by name.  
For more information on NSI Industries, please visit [www.nsiindustries.com](http://www.nsiindustries.com).  
For more information on Polaris®, please visit <https://www.nsiindustries.com/product-brands/polaris/>. □

### ABOUT POLARIS®

The Polaris name signifies more than 30 years of pride in innovation, quality and reliability, with products engineered and manufactured in the USA. Polaris was the original innovator in pre-insulated connectors and has continued to lead the industry with high-quality lines including the customizable Polaris Black, the clear Vision Tap, the submersible Edge and the Grey, for fine-stranded copper wires. Additionally, its wide offering of uninsulated and mechanical connectors match the needs of any job. Polaris, a part of NSI Industries, remains the trusted brand most asked for by name. [www.nsiindustries.com/product-brands/polaris/](http://www.nsiindustries.com/product-brands/polaris/)

### ABOUT NSI INDUSTRIES, LLC

NSI’s core philosophy is Making Connections. Focused on the electrical, building technology, and HVAC markets, NSI connects distributors to products, services, and technologies by providing a fresh perspective and caring approach that drives smart solutions. The driving force behind a stable of market-leading brands and a large breadth of products, the company’s primary job for more than 45 years has been to fulfill the needs of distributors and their customers. By staying grounded in the principles of service and value, NSI continues to deliver high-quality, industry-advancing, and comprehensive product solutions that enable growth. For additional information about NSI Industries and our family of brands, visit [www.nsiindustries.com](http://www.nsiindustries.com).



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**Evluma's New LED Roadway Luminaire, RoadMax RX2, replaces 150-400W HID Cobraheads**

Evluma expands their roadway product line with a new low-glare luminaire, the RoadMax RX2. With a lumen output up to 28,000 lumens, the LED RX2 is positioned to assist municipalities and utilities retire inefficient and maintenance-intensive legacy HID cobraheads.



Evluma announces the next major release in the RoadMax roadway luminaire line, the RX2. Positioned to replace 150-400W HID cobraheads, the RX2 sits between the lower-wattage RX1, released in 2022, and the forthcoming high-wattage RX3 in size. Ranging from 8,000 to 28,000 lumens, the 70-220 watt RX2 will satisfy rigorous streetlight requirements while slashing energy use in half. "The versatility of this one offering reduces the number of SKUs a roadway lighting program might have to stock. It simplifies things," stated Senior Product Manager Jason Dobbs. "Multiple luminaire configurations for Type II, Type III and Type V, all with zero-uplight (U0), are offered. "The RoadMax product line now replaces any HID cobrahead up to 400 watts with just two housing sizes. Consistent product design across models also provides aesthetic continuity." Like the RX1, the precision primary optics are designed to address Disability Glare while achieving maximum pole spacing. The RX2 is also equipped with optional secondary lenses for enhanced glare control; light trespass shields offer spill light curtailment. Evluma recently authored a white paper on LED Streetlight Glare, Causes and Solutions. "Reducing brightness and installing a secondary lens are two ways to combat Disability Glare. With an FAO (Field Adjustable Output) and secondary lens options, RoadMax offers both," stated National Sales Director Chris Lubeck. RoadMax can be customized to include Evluma's Photocontrol Failsafe, a patented technology that solves photocontrol failures on street and area lights. Compatibility with ConnectLED, Evluma's Bluetooth app for wireless lighting controls, enables dimming and dimming schedules without the need for a network. Evluma's comprehensive 10-year warranty and signature 20kV/10kA surge protection comes standard with every model.

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



**Russelectric Offers Prime Power Systems**  
*Automatic operation of on-site power generators to serve a facility's entire load*

Russelectric, A Siemens Business, a leading manufacturer of power control systems and automatic transfer switches, offers its Prime Power Systems, which are used for automatic operation of on-site power generators to serve a facility's entire load. The Prime Power Systems are used as the primary source of power to a facility. Generator paralleling controls provide active synchronization and soft loading control of the engine generators based on load demand. All Russelectric Prime Power systems are UL listed, offer programmable logic controller (PLC) system controls, and are supervisory control and data acquisition (SCADA)-capable. In prime power applications, engine generators are run in response to the connected load. If load increases to a predetermined level, the Russelectric Prime Power System automatically starts additional generators, synchronizes them to the generator bus, and shares the load with the running generators. If load decreases to a predetermined level, excess generators are automatically removed from the bus and shut down, returning them to automatic standby status.

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

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2022 NECA  
**ShowStopper**  
WINNER

# Transition Couplings PVC Bell End Adapter Galvanized Rigid Conduit



**NEW**



UL US  
PATENT  
PENDING



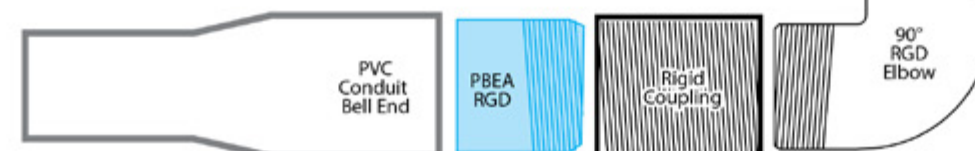
**1/2" thru 6"**

Transition fitting adapter  
from a PVC to Rigid Conduit  
without reaming PVC Conduit

Faster way to transition from a  
Schedule 40/80 PVC Conduit to a  
90° Galvanized Rigid Elbow  
without reaming PVC Conduit

Insert into Bell End of PVC and join  
threaded end into Rigid Coupling  
which joins the 90° Rigid Elbow,  
Rigid Coupling joins the other end  
of 90° Elbow to Rigid Conduit

Meets UL651 CSA CSS.L Ng83  
and US Army Corps or  
Engineers Specs.



Transition Couplings

Size	Catalog #
1/2"	PBEA/RGD 50
3/4"	PBEA/RGD 75
1"	PBEA/RGD 100
1-1/4"	PBEA/RGD 125
1 1/2"	PBEA/RGD 150
2"	PBEA/RGD 200
2-1/2"	PBEA/RGD 250
3"	PBEA/RGD 300
3-1/2"	PBEA/RGD 350
4"	PBEA/RGD 400
5"	PBEA/RGD 500
6"	PBEA/RGD 600

Customer must satisfy all codes and owners' specifications.

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**IP13r**



**new**  
PRODUCTS

**DMF Lighting Unveils 2-inch X Series Modular Downlights and 3-inch Cylinders, Providing the Ultimate in Performance, Installation and Serviceability**

DMF Lighting, a leading architectural lighting manufacturer of premium modular LED downlighting systems, today announced the introduction of the X Series, a collection of completely modular 2-inch downlights and 3-inch cylinders with field-changeable trims, modules and optics for exceptional versatility. The small-aperture series provides the ultimate in performance, installation and serviceability, as well as finish options.

A true breakthrough for error-free installation, the downlights are shipped with a patent-pending Precision Lock Collar that eliminates over-cutting and drywall repair, which can be common with small-aperture fixtures. The Precision Lock Collar provides depth adjustment and a secure fit, making flush-to-ceiling installation in drywall or millwork easy to achieve.

The modules are offered in Fixed and Adjustable (360-degree rotation and 35-degree tilt) and pair with a universal housing, offering a uniquely small footprint without sacrificing light output. Lumen outputs range from 750 to 1500 lumens – comparable performance to 3- and 4-inch downlights in ceilings up to 10 feet.

The tool-less, field-interchangeable optics allow for ultimate flexibility in aiming a project and include 15-, 25-, 40-, and 60-degrees and Linear Spread distributions. Color temperatures range from 2700K - 4000K and include Warm Dim and Tunable White with a 93+ CRI.

The X Series downlight's die-cast aluminum knife-edge trim options are available in round and square apertures, and in downlight, wall wash, flangeless and decorative choices. The trims are meticulously engineered to provide precise and exceptionally easy installation. Every element of the X Series is designed to complement or disappear into any space, creating a modern, quiet ceiling.

The X Series Cylinders include pendant, surface-mount and wall-mount solutions with field-changeable trims, decorative diffusers, snoot, and optics, providing an unmatched level of flexibility and customization with a choice of over a million configurations. The series included an ADA compliant wall sconce, as well as an uplight option for direct and indirect illumination. The X Series Cylinders are offered in 6- and 9-inch lengths with lumen outputs from 750 to 1250 lumens. Pendants cord and stem lengths can be adjusted on site for maximum flexibility.

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

**Appleton Unicode 2 Hazardous Location Control Stations Satisfy Complex Control Requirements**

Appleton Unicode™ 2 Control Stations from Emerson are rated for hazardous industrial environments. With a versatile design and corrosion-resistant enclosure, the stations provide circuit and remote motor control in utilities, chemical and petrochemical plants, reverse osmosis facilities, wastewater treatment centers, and washdown areas in food, pharmaceutical, and beverage plants.

To satisfy the most complex control requirements, the stations are highly customizable. Engineers can specify an enclosure and cover in fiberglass-reinforced polyester, 316L stainless steel, aluminum, or polyamide. Also, there is a wide selection of push buttons, illuminated push buttons, selector switches, control and load break switches, along

with LED high-intensity pilot lights for visual assurance that an electrical function is being performed. Up to three contact blocks per actuator can be installed in each station.

A global solution, Appleton Unicode 2 control stations meet NEC Class 1, Div 2, and NEMA 4X; CEC Class 1, Div 2; and ATEX and IECEx Zone 1 and 2-21 and 22 hazardous location requirements. Enclosures are IP66 rated, the highest level of waterproof protection, and IK10 rated against heavy impact.

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



# The Heavy Duty Nonmetallic CABLE RACK

For Power and Communications Manholes And Vaults



**PRODUCT FEATURES:**

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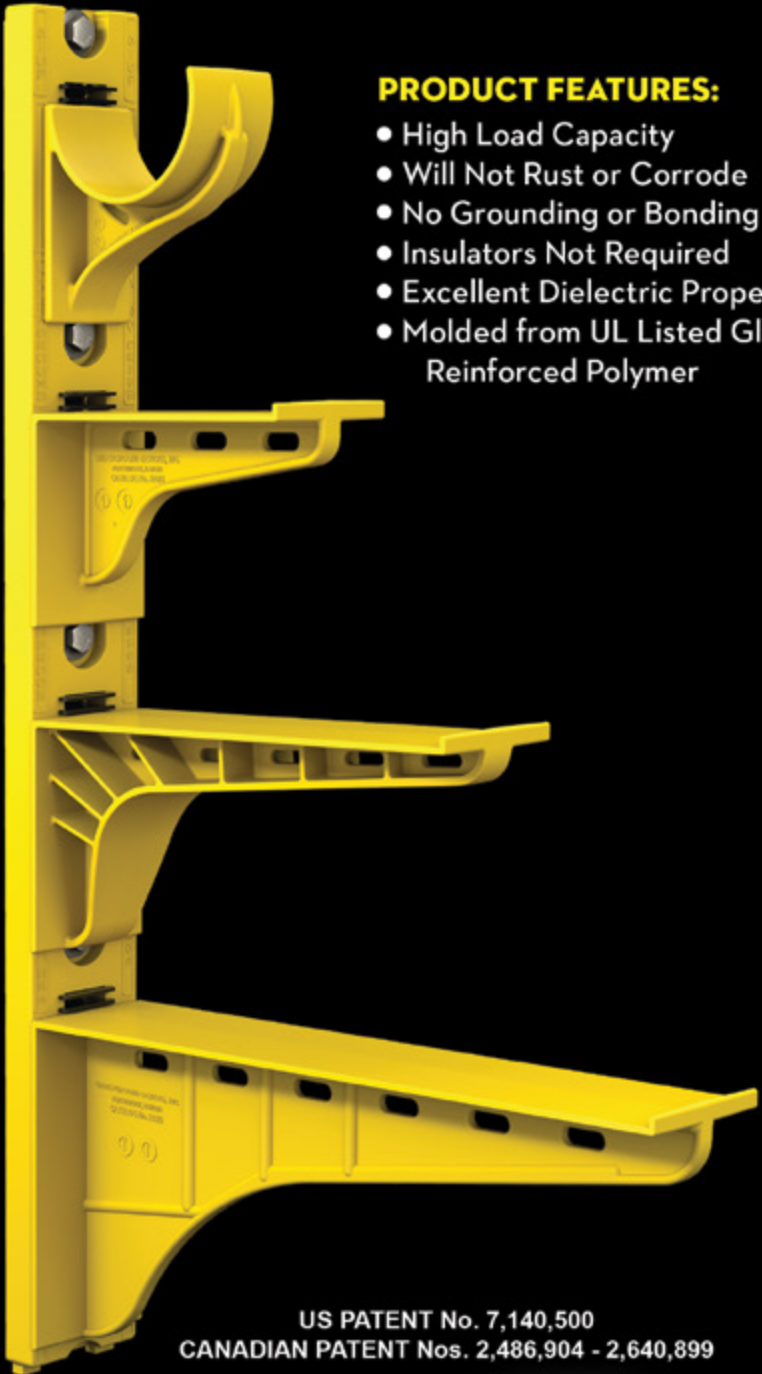
HDL Arm Lock shown with  
RA04 Arm and CR36-B Stanchion



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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**Luminus Releases SBT-10X UV-A LED  
with up to 75% Increase in Power Density**

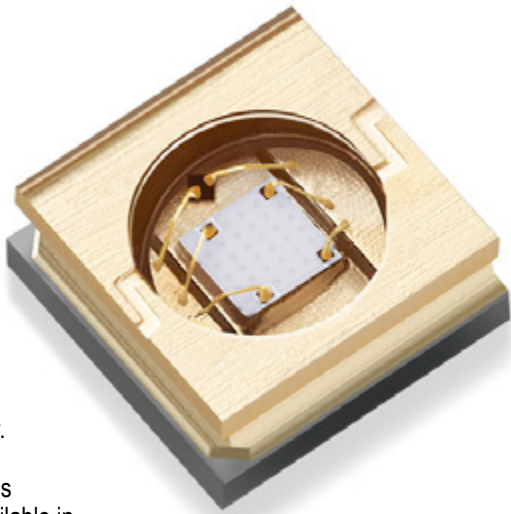
*Luminus Releases SBT-10X UV-A LED with  
up to 75% Increase in Power Density*

Luminus Devices has announced the release of the SBT-10X-UV LED series, an innovative surface mount device (SMD) that utilizes Luminus' latest Gen5 die architecture. Delivering up to 75% higher output than Luminus' Gen4 die, the Gen5 technology achieves an industry leading flux of up to 5W from a single 1 mm<sup>2</sup> class chip. As such, it improves end-system performance for the most demanding curing applications including 3D printing, curing and maskless lithography, where maximum flux density directly translates to faster curing and higher productivity.

The Gen5 technology integrates know-how in very high intensity chip structures that Luminus has developed and improved for over 15 years. This technology achieves excellent reliability at drive conditions often 2x what the competition supports. It is available in 365nm, 385nm, 395nm, 405nm and 415nm wavelengths and comes in a compact 3.5 mm x 3.5 mm surface mount cavity package with a flat borosilicate cover helping maximize optical coupling efficiency into the end system.

David Nowak, Senior Marketing Manager, comments, "The SBT-10X brings our Gen5 technology in its most compact form factor which will help accelerate adoption in a wide range of industrial systems that are starved for UV-A curing performance. We are especially excited to enable more compact, affordable high-resolution 3D printers that will help accelerate the adoption of the technology in prosumer segments thanks to affordable and compact printers that do not sacrifice quality."

The SBT-10X LEDs are immediately available through Luminus' authorized distributors.



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



**Milwaukee Tool Continues to Grow Their  
BOLT™ System with the Addition of Earmuffs**

Milwaukee® expands their BOLT™ head protection and accessories system with the addition of BOLT™ Earmuffs. BOLT™ is the first system that allows users to secure accessories to either hard hats or safety helmets simultaneously for a complete head protection solution. Milwaukee's Earmuffs are designed to be adjustable and provide comfort while reducing harmful noises on the jobsite.

The Centers for Disease Control and Prevention estimates that 22 million workers are exposed to potentially damaging noises each year. Milwaukee Tool's BOLT™ Earmuffs are a safety solution that can be used by all core trades as hearing protection against hazardous jobsite noises. Providing a better fit for the user, the BOLT™ Earmuffs are designed with an adjustable center mount, allowing the earmuff to swivel up and down to fit different head shapes and sizes. Engineered with a balanced wear design, the BOLT™ Earmuffs have a 360-degree rotational arm that pivots for multiple storage positions when not in use. The Earmuffs are constructed with pressure-reducing cushions in the cans of the earmuffs to provide comfort when worn for an extended period.

CSA (Canada Safety Association) Class A certified, the BOLT™ Earmuffs are color-coded and available in a NRR (Noise Reduction Rating) of either 24dB (Red) or 26 dB (Grey). The Earmuffs are part of the BOLT™ system, which

allows users to secure accessories simultaneously and secure into the Milwaukee BOLT™ safety helmets and hard hats.

Milwaukee Tool's new additions to their BOLT™ lineup demonstrate the company's focus on creating innovative solutions that won't slow users down, helping them STAY SAFE. STAY PRODUCTIVE™.

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

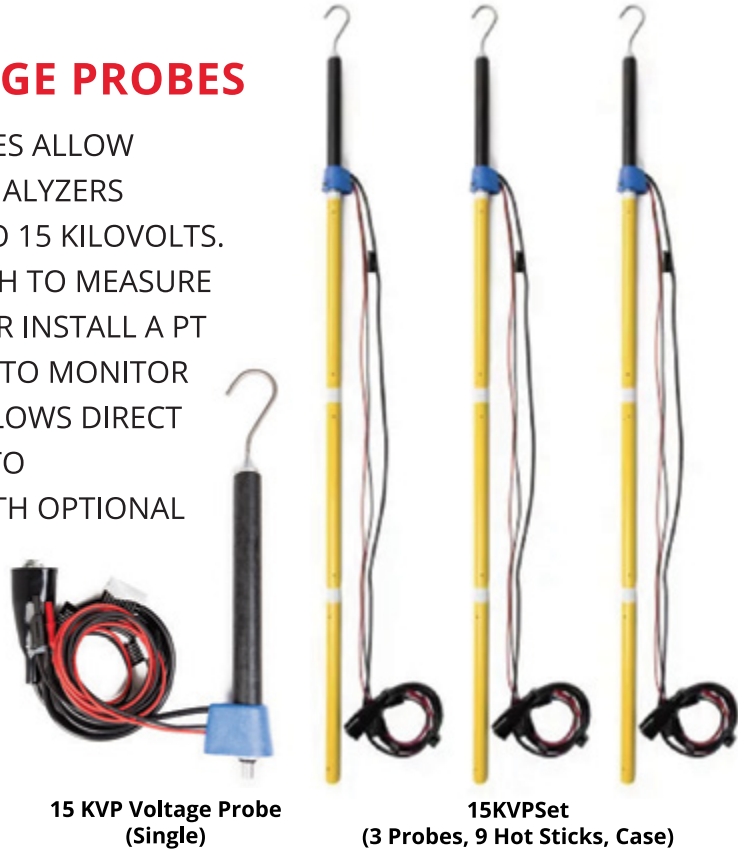


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## MODEL 15KVPSET VOLTAGE PROBES

THE MODEL 15KVPSET VOLTAGE PROBES ALLOW CONNECTING POWERSIGHT POWER ANALYZERS DIRECTLY TO 3-PHASE VOLTAGES UP TO 15 KILOVOLTS. NORMALLY, PROFESSIONALS WHO WISH TO MEASURE 12,470 VOLT LINES NEED TO LOCATE OR INSTALL A PT (POTENTIAL TRANSFORMER) IN ORDER TO MONITOR MEDIUM VOLTAGES. THE 15KVPSET ALLOWS DIRECT CONNECTION OF MEDIUM VOLTAGES TO POWERSIGHT ANALYZERS. SHOWN WITH OPTIONAL HOT STICKS, THE 15KVP HAS SHEPHERD HOOKS FOR HANGING ON BARE CABLE, TAPING OR BOLTING TO BUS BAR, OR ANY OTHER CONNECTION THAT IS NEEDED. THE 15KVPSET COMES DISASSEMBLED IN ITS OWN COMPACT CANVAS CARRYING CASE.



15 KVP Voltage Probe  
(Single)

15KVPSet  
(3 Probes, 9 Hot Sticks, Case)

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Solution for Portable  
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**IP5**

**"The Original"**

Enter Any KO on Both Sides of the Box



**IP19/20**

4-Conduit Block  
PATENTED

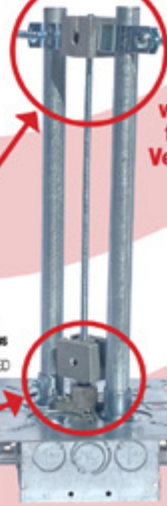
**IP21a**

QwikBlock  
PATENT PENDING

Use 4-Conduit Block  
(IP19 or IP20)  
with QwikBlock  
(IP21a)

**IP6d**

**2-Way**  
with Split Fingers  
for Horizontal or  
Vertical Installation

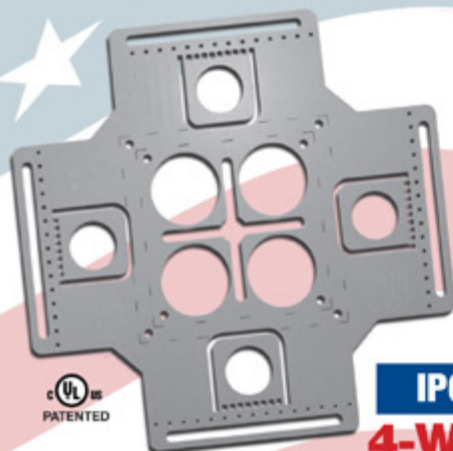


**Our Family of  
Conduit & Box  
Support Plates  
Saves Valuable  
Time & Money!**

**IP6**

**4-Way**

Enter Any KO on All 4 Sides  
of the Box Plus 4 Large Open  
KOs in Center Allows Entering  
Back of Box



**IP6a**

**2-Way/Half**

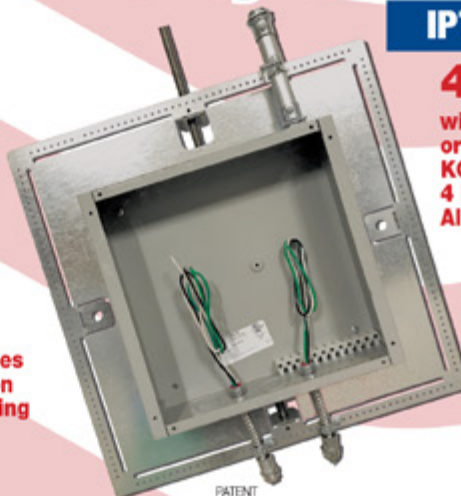
Enter Any KO on 1 or 2 Sides  
of the Box Plus Large Open  
KOs in Center Allows Entering  
Back of Box



**IP7**

**4-Way**

with Split Fingers for Horizontal  
or Vertical Installation. Enter Any  
KO on All 4 Sides of the Box Plus  
4 Large Open KOs in Center  
Allows Entering Back of Box.



PATENT PENDING

**IP8**

Mount Horizontally or Vertically  
from One Single Support

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Supports up to 12 x 12 J-Box

**28 x 28**

Supports up to 20 x 20 J-Box

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