

Earthing and Lightning protection

PG-Petrolia Global Ltd

A variety of electrical products, make
your installation easier

petrolia-global.co.uk





Earthing & Lightning Protection

PG provides high-quality earthing and lightning protection materials, including lightning arresters, down conductors, earth rods, and accessories. These products safely channel electrical energy from lightning, short circuits, and leakage currents to the ground, protecting buildings, equipment, and people. They meet global standards and ensure reliable performance.

Earthing and lightning protection materials are essential to safeguarding buildings and facilities from the potentially catastrophic effects of lightning strikes, electrical short circuits, and leakage currents. These materials play a crucial role in minimizing damage to structures, equipment, and the safety of people within. They serve as a robust defense mechanism, ensuring the smooth dissipation of dangerous electrical energy into the earth, thereby preventing severe damage and loss.

A lightning strike carries an electric potential in the range of thousands of volts. If this massive surge of electrical energy is not grounded effectively, it can cause extensive destruction to buildings, expensive equipment, and even endanger human lives. The importance of earthing and lightning protection materials lies in their ability to act as conductors of this high potential energy, safely transferring it to the ground. These materials, often made of high-quality copper and copper alloys, form the backbone of a building's electrical safety system.

The installation of a lightning protection system begins with lightning arresters, which are placed at the highest points of a building. These arresters are designed to intercept lightning strikes and provide a

direct path for the electrical energy to flow safely to the ground. They work in conjunction with down conductors, clips, and an earthing system to create a low-resistance path for the electrical current. The earthing system, comprising earth rods and other accessories, ensures that the energy is dispersed deep into the earth. This setup not only grounds lightning energy but also handles electrical short circuits and leakage currents, providing comprehensive protection to the structure.

The concept of grounding or earthing is based on the principle that the earth acts as a universal condenser, capable of absorbing any amount of electrical energy. This fundamental idea underscores the development of earthing and lightning protection materials, which are designed to channel dangerous electrical energy away from critical systems and into the ground safely.

Lightning arresters, a key component of this system, are made from high-conductivity copper, ensuring efficient energy transfer. These arresters are installed in combination with sturdy bases and are connected to the earthing system through copper down conductors. The earthing system itself consists of earth rods driven deep into the ground, which work in tandem with various clamps and fittings to securely join all components. These accessories play a crucial role in maintaining the integrity and efficiency of the system, ensuring a seamless connection from the lightning arrester to the grounding rods.

The manufacturing process begins with the development of patterns or dies for each product and size. Skilled professionals design these patterns to meet exact specifications, ensuring accuracy in the final product. The raw materials, such as brass or gunmetal, are melted in a furnace at carefully controlled temperatures and compositions. Simultaneously, impressions are created in heated sand using the prepared patterns. The molten metal is then poured into these sand impressions, forming the basic shape of the component.

Once the casting has solidified, it is machined using advanced turning, grinding, and blasting equipment to refine its shape and finish. The machined parts are then assembled to create the final product. This meticulous process ensures that each component meets stringent quality standards and performs reliably in the field.

PG is a leader in the production of earthing and lightning protection materials, offering a

comprehensive range of products to meet diverse application requirements. PG's products include lightning arresters, copper down conductors, earth rods, clamps, and fittings, all designed to deliver optimal performance and reliability. These materials are manufactured using state-of-the-art technology and undergo rigorous quality control to ensure they adhere to globally accepted standards.

The earthing and lightning protection materials produced by PG are known for their defect-free finish and durability. They are widely used across various industries, including industrial, commercial, and residential applications. PG's commitment to quality and innovation ensures that its products meet even the most demanding application criteria, providing customers with reliable solutions for their electrical safety needs.

One of the standout features of PG's products is their ability to withstand harsh environmental conditions while maintaining peak performance. The use of high-quality raw materials, combined with precision engineering, ensures that these components can handle high stress, wear, and corrosion. This durability makes PG's earthing and lightning protection materials a preferred choice for professionals worldwide.



Pure Copper Earth Rod & Acc.



Pure Copper Earth Rods are made of pure (100%) electrolytic copper. The Earth Rods are hard drawn from extruded copper bars. Pure copper earth rods are preferred where soil conditions are very aggressive & corrosive. The rods are threaded internally to make it extensible for deep driving with the help of couplers.



Part No.	Earth Rod Dia	Length	Thread
PCR 1512	15mm	1200mm	M10
PCR 1515	15mm	1500mm	M10
PCR 1524	15mm	2400mm	M10
PCR 1612	16mm	1200mm	M10
PCR 1615	16mm	1500mm	M10
PCR 1624	16mm	2400mm	M10
PCR 2012	20mm	1200mm	M10
PCR 2015	20mm	1500mm	M10
PCR 2024	20mm	2400mm	M10

* other sizes available on request

Coupling Dowel

Part No.	Tread Dia	Length	Material
PCD10	M10	40mm	Brass



Driving Head

Part No.	Tread Dia
PDH10	M10



Driving Spike

Part No.	Tread Dia
PDS10	M10





Copper Bonded Steel Earth Rod & Acc.



Copper bonded steel earth rods are the most commonly used earth electrode. They are suitable for most application, compatible for deep driving & are economical. Copper bonded steel earth rods are made by molecularly bonding 99.9% pure copper onto high carbon, low tensile steel rods.

Part No.	Thread Size	Length	Rod Dia
PSER 5812	5/8"	1200mm	13.70mm
PSER 5815	5/8"	1500mm	13.70mm
PSER 5818	5/8"	1800mm	13.70mm
PSER 5824	5/8"	2400mm	13.70mm
PSER 5830	5/8"	3000mm	13.70mm
PSER 3412	3/4"	1200mm	16.70mm
PSER 3415	3/4"	1500mm	16.70mm
PSER 3418	3/4"	1800mm	16.70mm
PSER 3424	3/4"	2400mm	16.70mm
PSER 3430	3/4"	3000mm	16.70mm

* other sizes available on request

** we provide upto 250 micron copper coating on earth rods

*** actual size may vary by +/- 5%

Coupler



Part No.	Size	MATERIAL
CG142	5/8"	Brass
CG172	3/4"	Brass

* other sizes available on request

** coupler available in other materials, Phosphour Bronze / Silicon Bronze / Gunmetal

Driving Head

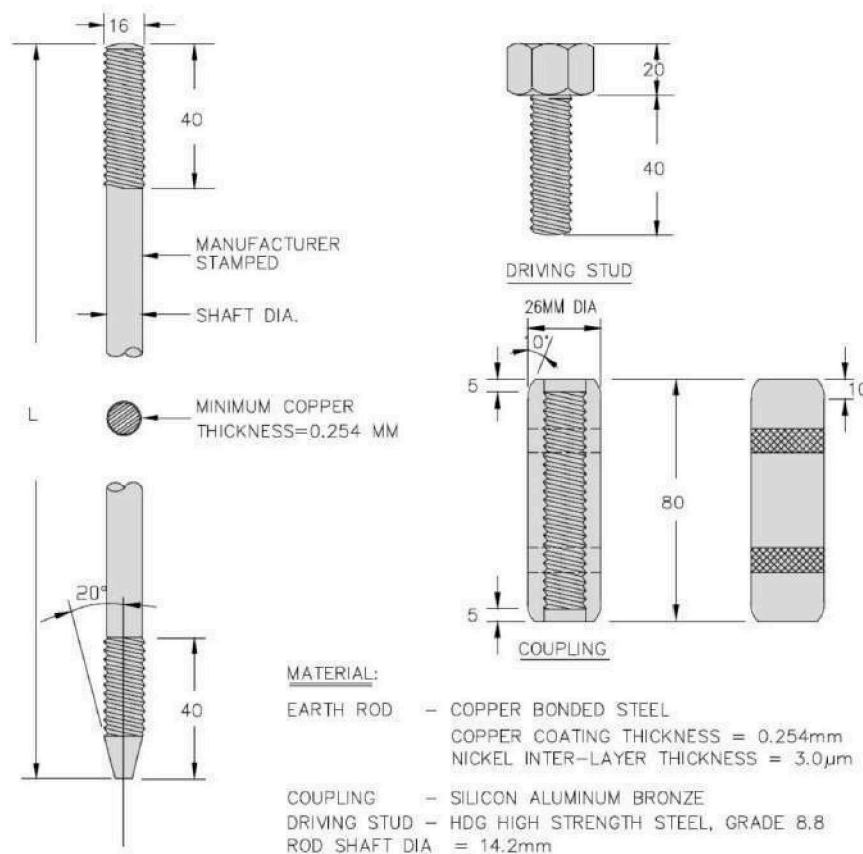


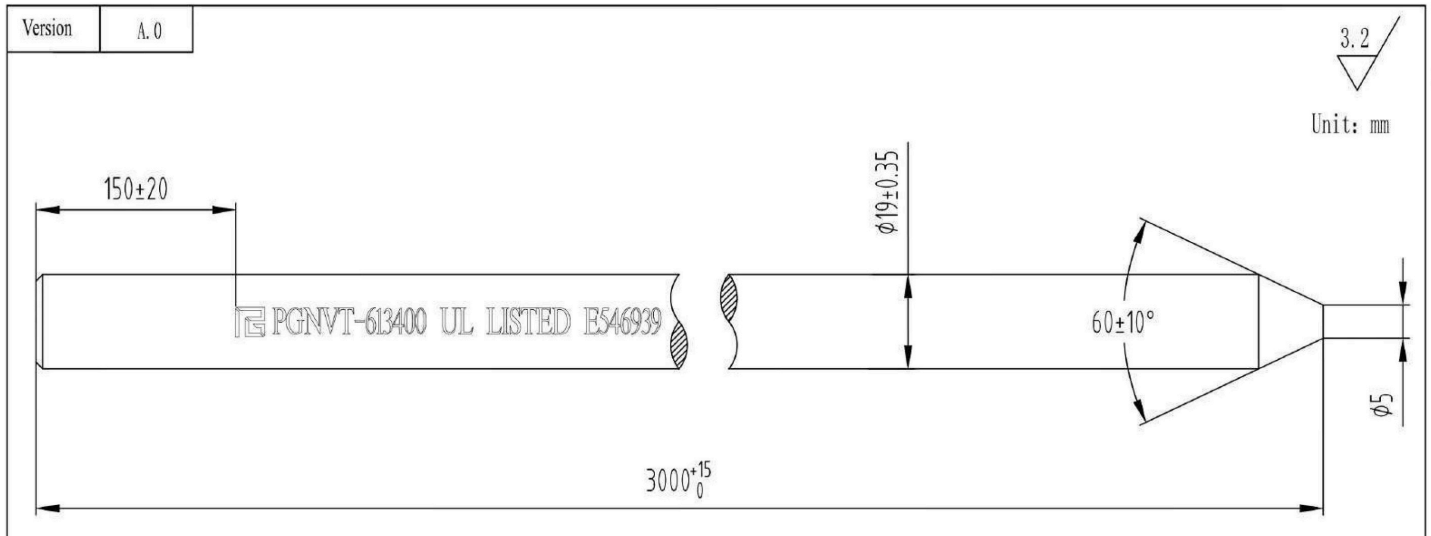
Part No.	SIZE	Material
PDH 58	5/8"	Steel
PDH 34	3/4"	Steel

* other sizes available on request

Copper Bonded Steel Earth Rod :

Technical Information:	
Design Specification	IEEE 837, IEC 62561-2, UL 467
UL Certification	E546939
Tensile strength $R_m \geq$	600 Mpa
Cross Sectional Area of Earth Rod	$\geq 150 \text{mm}^2$
Minimum Radial Copper Coating thickness	$\geq 0.254 \text{ mm}$
Configuration	Solid Round
Yield/tensile ratio	0.85-0.90
Diameter of Earth Rod	$\geq 14 \text{mm}$
Application	Indoor and Outdoor
Accessories	Coupler , Driving Stud/Head
Additional accessories	Can be provided upon request .



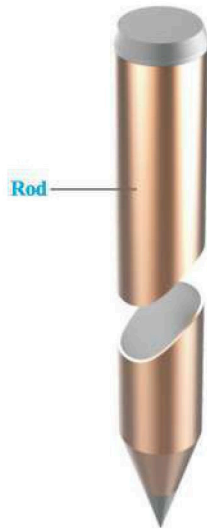


Technical requirements:

1. Copper content 99.9%, copper layer single point thickness 0.254mm;
2. Uninjected tolerance ± 2 mm;
3. Surface clean and free of dirt;
4. Clear marking.

Mark	Number of places	Zone	Document NO.	Signature	Date	 59 RAYMOND ROAD, UPTON PARK, LONDON E13 0SP			Copper bonded Steel earth Rod without Thread ,250 microns
Design		25/4/27	Standardization			Stage marker	Weight	Ratio	
Review								1:1	EARTHING ROD
Craftwork			Approval			Total 1 sheet	No. 1 sheet		PGNVT 613400

COPPER-BONDED GROUND ROD, UNTHREADED POINTED



CERTIFICATIONS



FEATURES

99.9% pure electrolytic copper coating

Rods have a high carbon steel core and tip that provide superior strength when driving

Copper coating will not crack when bent or tear when driven

Minimum copper coating of 10 mils on rods listed to UL® 467

Part Number will be mentioned .

UL logo where applicable stamped on each rod for easy inspection after installation

Molecular bond to nickel-sealed high strength steel core

SPECIFICATIONS

Material: Copper-Bonded Steel

Tensile Strength: 80000 lbf/in² Min

Table 1/2

Catalog Number	Ground Rod Diameter, Nominal	Ground Rod Diameter, Actual (Ø)	Length (L)	Plating Thickness	Unit Weight
PGNVT-613840	3/8"	0.36"	4'	10mil	1.3 lb

Catalog Number	Ground Rod Diameter, Nominal	Ground Rod Diameter, Actual (Ø)	Length (L)	Plating Thickness	Unit Weight
PGNVT-613850	3/8"	0.36"	5'	10mil	1.6 lb
PGNVT-613860	3/8"	0.36"	6'	10mil	2 lb
PGNVT-613880	3/8"	0.36"	8'	10mil	2.7 lb
PGNVT-611300	1/2"	0.51"	10'	10mil	6.9 lb
PGNVT-611303	1/2"	0.51"	10'	13mil	7.4 lb
PGNVT-611330	1/2"	0.51"	3'	10mil	2.2 lb
PGNVT-6113330	1/2"	0.51"	3.3'	10mil	2.21 lb
PGNVT-611340	1/2"	0.51"	4'	10mil	2.8 lb
PGNVT-611350	1/2"	0.51"	5'	10mil	3.5 lb
PGNVT-611353	1/2"	0.51"	5'	13mil	3.7 lb
PGNVT-611360	1/2"	0.51"	6'	10mil	4.4 lb
PGNVT-611370	1/2"	0.51"	6.9'	10mil	4.65 lb
PGNVT-611380	1/2"	0.51"	8'	10mil	5.5 lb
PGNVT-615800	5/8"	0.56"	10'	10mil	8.5 lb
PGNVT-615803	5/8"	0.56"	10'	13mil	8.4 lb
PGNVT-615812	5/8"	0.56"	12'	10mil	10 lb
PGNVT-615815	5/8"	0.56"	15'	10mil	12.8 lb
PGNVT-615830	5/8"	0.56"	3'	10mil	2.5 lb
PGNVT-6158330	5/8"	0.56"	3.3'	10mil	2.73 lb
PGNVT-615840	5/8"	0.56"	4'	10mil	3.4 lb
PGNVT-615843	5/8"	0.56"	4'	13mil	3.4 lb
PGNVT-615850	5/8"	0.56"	5'	10mil	4.2 lb
PGNVT-615853	5/8"	0.56"	5'	13mil	4.5 lb
PGNVT-615860	5/8"	0.56"	6'	10mil	5.1 lb
PGNVT-615863	5/8"	0.56"	6'	13mil	5.4 lb
PGNVT-6158660	5/8"	0.56"	6.6'	10mil	5.46 lb
PGNVT-615880	5/8"	0.56"	8'	10mil	6.8 lb

Catalog Number	Ground Rod Diameter, Nominal	Ground Rod Diameter, Actual (Ø)	Length (L)	Plating Thickness	Unit Weight	UPC Label
PGNVT-615883	5/8"	0.56"	8'	13mil	6.8 lb	No
PGNVT-615950	5/8"	0.62"	4.9'	10mil	5.18 lb	No
PGNVT-615900	5/8"	0.63"	10'	10mil	10.5 lb	No
PGNVT-615980	5/8"	0.63"	8'	10mil	8.5 lb	No
PGNVT-613400	3/4"	0.68"	10'	10mil	12.6 lb	No
PGNVT-613403	3/4"	0.68"	10'	13mil	12.4 lb	No
PGNVT-613412	3/4"	0.68"	12'	10mil	14.9 lb	No
PGNVT-613415	3/4"	0.68"	15'	10mil	18.5 lb	No
PGNVT-613440	3/4"	0.68"	4'	10mil	5.6 lb	No
PGNVT-613450	3/4"	0.68"	5'	10mil	6.2 lb	No
PGNVT-613460	3/4"	0.68"	6'	10mil	7.5 lb	No
PGNVT-613470	3/4"	0.68"	6.9'	10mil	8.45 lb	No
PGNVT-613480	3/4"	0.68"	8'	10mil	10.1 lb	No
PGNVT-613483	3/4"	0.68"	8'	13mil	10 lb	No
PGNVT-614400	1"	0.91"	10'	10mil	22 lb	No

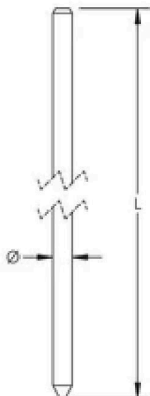
ADDITIONAL PRODUCT DETAILS

For rods to be listed to UL® 467, they must be at least 8' (2.44 m) in length.

IEC® EN 62561-2 supercedes EN 50164-2.

Additional lengths available.

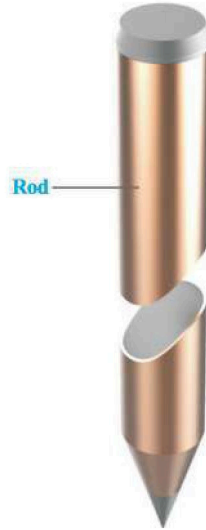
DIAGRAMS



COPPER-BONDED GROUND ROD, UNTHREADED POINTED, 3/4" DIA, 10', 10 MIL PLATING, 12.6 LB

CATALOG NUMBER

PGNVT-613400



CERTIFICATIONS



FEATURES

99.9% pure electrolytic copper coating

Rods have a high carbon steel core and tip that provide superior strength when driving

Copper coating will not crack when bent or tear when driven

Minimum copper coating of 10 mils on rods listed to UL® 467

Part Number will be mentioned .

UL logo where applicable stamped on each rod for easy inspection after installation

PRODUCT ATTRIBUTES

Material: Copper-Bonded Steel

Tensile Strength: 80000 lbf/in² Min

Ground Rod Diameter, Nominal: 3/4"

Ground Rod Diameter, Actual (Ø): 0.68"

Length (L): 10'

Plating Thickness: 10mil

Unit Weight: 12.6 lb

UPC Label: No

Complies With: IEC® EN 62561-2;ANSI®/NEMA® GR1

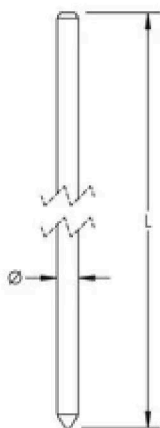
ADDITIONAL PRODUCT DETAILS

For rods to be listed to UL® 467, they must be at least 8' (2.44 m) in length.

IEC® EN 62561-2 supercedes EN 50164-2.

Additional lengths available.

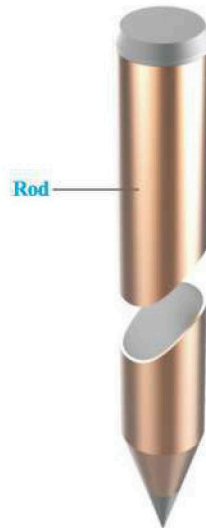
DIAGRAMS



COPPER-BONDED GROUND ROD, UNTHREADED POINTED, 3/4" DIA, 8', 10 MIL PLATING, 10.1 LB

CATALOG NUMBER

PGNVT-613480



CERTIFICATIONS



FEATURES

99.9% pure electrolytic copper coating

Rods have a high carbon steel core and tip that provide superior strength when driving

Copper coating will not crack when bent or tear when driven

Minimum copper coating of 10 mils on rods listed to UL® 467

Part Number will be mentioned .

UL logo where applicable stamped on each rod for easy inspection after installation

PRODUCT ATTRIBUTES

Material: Copper-Bonded Steel

Tensile Strength: 80000 lbf/in² Min

Ground Rod Diameter, Nominal: 3/4"

Ground Rod Diameter, Actual (Ø): 0.68"

Length (L): 8'

Plating Thickness: 10mil

Unit Weight: 10.1 lb

UPC Label: No

Complies With: IEC® EN 62561-2;ANSI®/NEMA® GR1

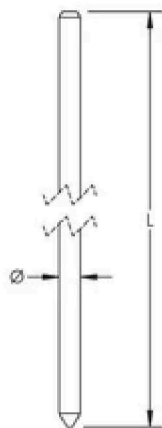
ADDITIONAL PRODUCT DETAILS

For rods to be listed to UL® 467, they must be at least 8' (2.44 m) in length.

IEC® EN 62561-2 supercedes EN 50164-2.

Additional lengths available.

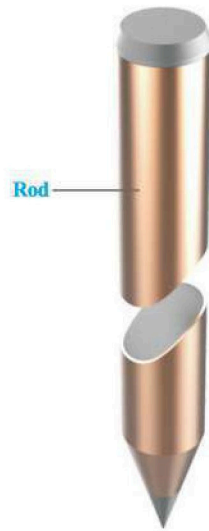
DIAGRAMS



COPPER-BONDED GROUND ROD, UNTHREADED POINTED, 5/8" DIA, 10', 10 MIL PLATING, 8.5 LB

CATALOG NUMBER

PGNVT-615800



CERTIFICATIONS



FEATURES

99.9% pure electrolytic copper coating

Rods have a high carbon steel core and tip that provide superior strength when driving

Copper coating will not crack when bent or tear when driven

Minimum copper coating of 10 mils on rods listed to UL® 467

Part Number will be mentioned .

UL logo where applicable stamped on each rod for easy inspection after installation

PRODUCT ATTRIBUTES

Material: Copper-Bonded Steel

Tensile Strength: 80000 lbf/in² Min

Ground Rod Diameter, Nominal: 5/8"

Ground Rod Diameter, Actual (Ø): 0.56"

Length (L): 10'

Plating Thickness: 10mil

Unit Weight: 8.5 lb

UPC Label: No

Complies With: IEC® EN 62561-2;ANSI®/NEMA® GR1

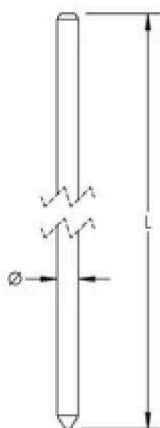
ADDITIONAL PRODUCT DETAILS

For rods to be listed to UL® 467, they must be at least 8' (2.44 m) in length.

IEC® EN 62561-2 supercedes EN 50164-2.

Additional lengths available.

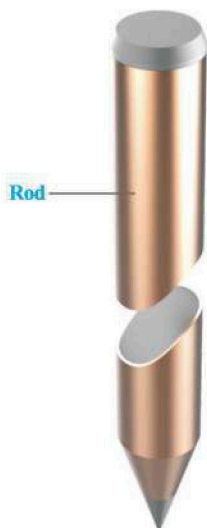
DIAGRAMS



COPPER-BONDED GROUND ROD, UNTHREADED POINTED, 5/8" DIA, 8', 13 MIL PLATING, 6.8 LB

CATALOG NUMBER

PGNVT-615883



CERTIFICATIONS



FEATURES

99.9% pure electrolytic copper coating

Rods have a high carbon steel core and tip that provide superior strength when driving

Copper coating will not crack when bent or tear when driven

Minimum copper coating of 10 mils on rods listed to UL® 467

Part Number will be mentioned .

UL logo where applicable stamped on each rod for easy inspection after installation

PRODUCT ATTRIBUTES

Material: Copper-Bonded Steel

Tensile Strength: 80000 lbf/in² Min

Ground Rod Diameter, Nominal: 5/8"

Ground Rod Diameter, Actual (Ø): 0.56"

Length (L): 8'

Plating Thickness: 13mil

Unit Weight: 6.8 lb

UPC Label: No

Complies With: IEC® EN 62561-2;ANSI®/NEMA® GR1

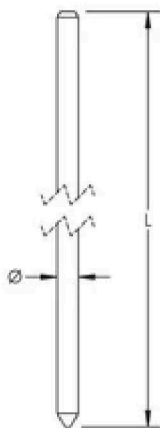
ADDITIONAL PRODUCT DETAILS

For rods to be listed to UL® 467, they must be at least 8' (2.44 m) in length.

IEC® EN 62561-2 supercedes EN 50164-2.

Additional lengths available.

DIAGRAMS





Get In Touch

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