

- 
- Transmission & Distribution Line Hardware
 - Power Anchors & Anchor Installation Equipment
 - Insulators
 - CPI Wedge Connectors
 - Genics Test & Treat
 - Genics Fire Mesh
 - Clampstar Connector Corrector
 - Pole Life Systems
 - Polywater Products
 - Reliaguard Equipment & Conductor Covers

LINE MATERIALS

NOTES

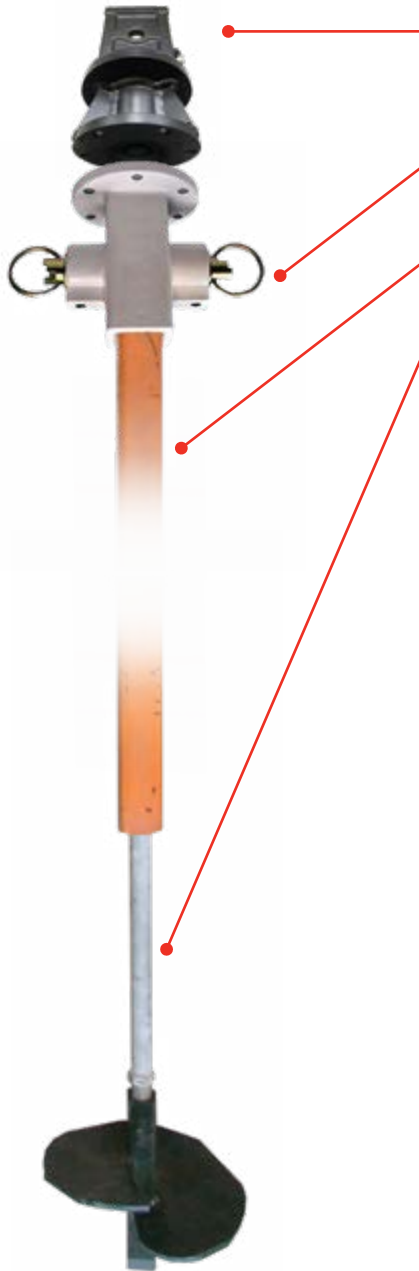
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Power Driven Anchors and Installation Equipment

Anatomy of a Utility Power Driven Anchor



Kelly Bar Adapter engages the entire installation assembly to the torque motor output shaft of the Lifter Borer's driving equipment (typically 75mm x 75mm in Australia)

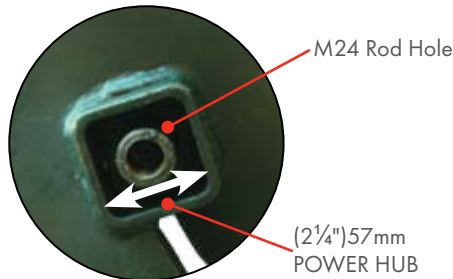
A torque limiting device can be installed between the Kelly Bar Adapter and Locking Dog assembly to monitor and control maximum torque values to prevent anchor failure

Locking dog assembly is bolted to the Kelly bar adapter. A pair of spring loaded dogs secure the Drive End Assembly and Anchor Rod

Drive End Assembly/Torque Tube engages the anchor hub & drives the anchor into the ground, either internally or externally depending on the anchor type

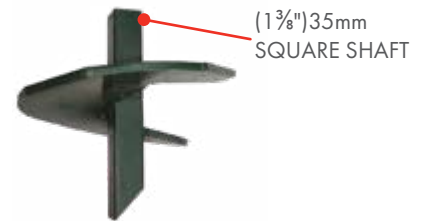
Anchor Rod connects the anchor to the eye and stay-wire, it is installed from within the drive end assembly.

There are two common anchor types used in Australian Utilities



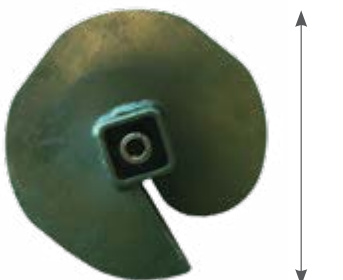
Drive End/ Torque Tube seats internally

These anchors have a 13,558Nm Ultimate Torque Capacity
Designed for Tough Terrain e.g. Rocky Ground

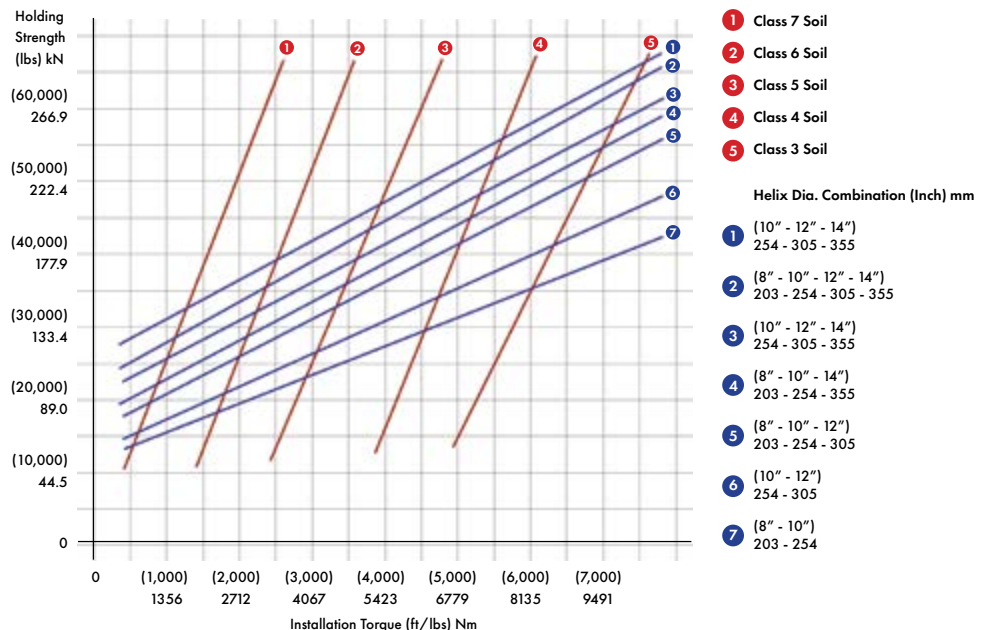


Drive End/ Torque Tube seats externally

These anchors have an 8,135Nm Ultimate Torque Capacity
Designed for Normal Ground Conditions



Holding Capacity for Multiple - Helix Power Shaft Anchors



Anchor Rods, Eye nuts and Couplers

Part No.	Description/Type	OAL (mm)	Thread	Wt (kg)
AR-242140-GS	Anchor Rod with M24 Threaded Ends	2140	M24	7.0
ENT-24	Single Thimble Eye Nut for M24 Anchor Rods	115	M24	0.8
D-354	Coupler, 102kN UTS	51	M24	0.2

Stainless Steel Rods and longer rods also available

Square Shaft - Anchors 35mm (1 3/8")

Part No.	Type	UTS Torque (Nm)	Helix Size (mm)	Thread	External Hub (mm)	Wt (kg)
D-104-6-M24	Single	8135	250	M24	35	5.9
D-114-6-M24			300			7.3
D-44-2-6-M24	Twin		100			7.7
D-104-2-6-M24L			250			15.9
D-114-2-6-M24			300			16.8
D-134-2-6-M24			355			20.3

Power Hub - Heavy Duty Anchors 57mm (2 1/4")

Part No.	Type	UTS Torque (Nm)	Helix Size (mm)	Helix Thickness (mm)	Thread	Internal Hub (mm)	Wt (kg)
TD225-64M24	Single	13558	150	9.5	M24	57	3.7
TD225-84M24			200	9.5			5.1
TD225-104M24			250	9.5			6.4
TDH225-114M24			300	12.7			9.8
TDH225-134M24			355	12.7			12.2

Swamp Anchors 38mm (1 1/2")

Used in soft ground areas where additional helices are required

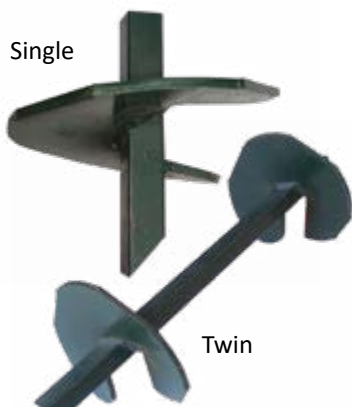
Part No.	UTS Torque (Nm)	Length (m)	Helix Size (mm)	External Hub (mm)	Wt (kg)
D-6634	7457	1.0	250 & 300	38	21.8
D-6636		1.7	200, 250 & 300		29.5
D-6625-U	8100	2.13	Extension Shaft		25.8
D6602US		0.43	Single Guy Attachment		4.2
D6606US		0.43	Triple Guy Attachment		4.2

Anchor Installation Tools

Slingco Part No.	Chance Part No.	Description	Details
SAE14309	C303-0075	Kelly Bar Adapter	Suit 75mm x 75mm Drive - 6 hole configuration
SAE10425	C303-0069HD	Locking Dog Assembly	For 133mm 5 1/4" Bolt Circle - 6 hole configuration
SAE09639	C102-1583	Drive End Wrench (Standard)	2.1m OAL, Used for both 35mm (1 3/8") Square Shaft & 57mm (2 1/4") Socket Power Hub Anchors
SAE08666	C303-1064	Drive End Wrench (Hybrid)	2.1m OAL, Used for both 38mm (1 1/2") Square Shaft Swamp Anchors & 63mm (2 1/2") Socket Power Hub Anchors



Single



Twin



Locking Dog

Kelly Bar Adapter



Drive End Wrench





Distribution and Transmission Line Hardware

Helixon Helical Fittings

- Dead Ends
- Armour Rods
- Splices
- Top Ties
- Guy Guards
- Guy Locks

Vibration Control

- Spiral Dampers
- Stockbridge Vibration Dampers
- Spacer Dampers
- Spreader Rods

Strain & Suspension Clamps

- Suspension clamps
- Pivot Suspension Clamps
- Helixon Suspension Clamps
- Cast Iron Clamps
- Strain Clamps

Fabricated Fittings

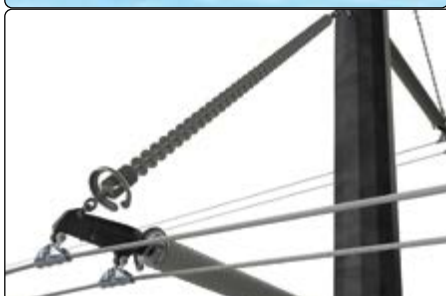
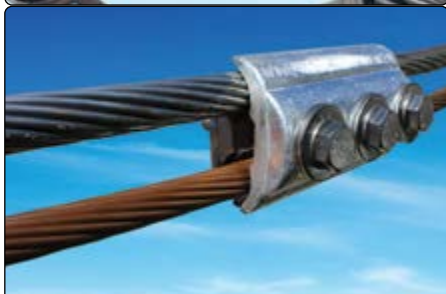
- Shackle Straps
- Cross Arm Braces
- Saglinks
- Yoke Plates
- Link Plates
- Guy Thimbles
- Eye Bolts
- Pole Steps
- Pins and Hooks

Line Hardware

- Insulator Fittings
- PG Clamps
- Split Bolts
- Compression Dead-ends
- Compression Mid-span joints
- Compression Non-Tension
- High Temperature Fittings

Insulators

- Glass Disc Insulators
- Polymer Suspension
- Porcelain Line Post
- Polymer Line Post
- Porcelain Pin Type
- Porcelain Disc
- Porcelain Strain
- Porcelain Pin Type
- Polymer Distribution
- Porcelain Station Post



Insulated Systems

- LV ABC Bolted Clamps
- LV ABC Hardware
- Installation Tools
- HV ABC Bundle Restraints
- HV ABC Suspension Assemblies
- HV ABC Brackets, Hooks and Clamps
- HV ABC Installation Rollers



Automatics

- Automatic Deadends
- Automatic Splices (Pop-up insertion verification tab)



Tower and Pole Steps

Tower Step - BuckBolt with Anchor Point

- Safe method for climbing towers
- Available in 16mm (5/8"), 19mm (3/4") 22mm (7/8") & 25mm (1")
- BuckBolt & Flanges are a 2,270kg rated Anchor point
- Optional Left & Right hand Flange
- Designed for Steel Tower



Pole Step - Removable

- "Non Slip" Step
- Captured Safety Pin
- Easy to Install 25mm Expansion Anchor Bolt
- Designed for Steel and Composite poles



Anchor Rod Pulling Eye - SPP

Anchor Rod Pulling Eye

Part No: SPP-PE1

- Designed to assist in tensioning guy wires
- Offset eye for 3 tonne hook or shackle, allows easy dead end attachment
- Adjustable wedge allows for maximum rod diameter
- Body and wedge made from ductile iron with high strength bolt
- WLL 5:1 - 26kN
- Breaking Load 133kN
- Suits Anchor Rods 13mm - 32mm Diameter
- Weight 2.3kg





MADE IN THE USA

Insulators

Polymer Insulators - MacLean Power Systems

Why Partner with MacLean?

With a proven track record of excellence, commitment to innovation, and a dedication to meeting the unique demands of the modern market, partnering with Maclean for the supply of polymer insulators is a strategic choice that promises a multitude of benefits. As industries continue to shift towards more sustainable and efficient solutions, polymer insulators have gained immense prominence due to their exceptional electrical performance, durability, and environmental advantages. At Maclean, they've harnessed years of expertise to craft polymer insulators that not only meet but exceed industry standards. Their relentless focus on research and development ensures that their products are at the forefront of technological advancements, offering you cutting-edge solutions that can enhance the reliability and efficiency of your operations.

Stacked Shed

The MPS Stacked Shed configuration offers inherent protection against material aging in critical areas of the sheath and resists the resultant material erosion when installed in highly contaminated environments (resistance to Water Droplet Corona). In addition, stacked shed profiles enhance the ability of the insulator to resist mechanical damage in these most critical areas during transportation and installation.

Silicone Rubber Sheath

Silicone Rubber

MPS uses a Silicone formulation that has been unchanged since the early 80's. The Si-O molecular bonds (inorganic backbone of Silicone) are very stable and have bond strengths higher than sunlight, making the silicone resistant to UV degradation. In addition to providing protection against the effects of ultraviolet radiation, electrical aging, and corona effect, silicone exhibits hydrophobic properties; which provide excellent recovery characteristics to control leakage currents in highly polluted or coastal environments.

The MPS silicone rubber formation has consistently outperformed other silicone formulations in its hydrophobicity, its hydrophobicity recovery rate, and enhanced electrical properties in contaminated environments.

Crimped End Fitting

Standard Silicone Shed

Primary Secondary Tertiary

CR E-Glass Core

MPS uses "Boron Free" Corrosion Resistant E-Glass on all its insulators for its High Electrical Integrity & High Resistance to acid corrosion. The boron free formulation of the fiberglass core makes it resistant to nitric acid attacks and stress corrosion. There has never been a brittle fracture of a CR E-glass Insulator in over 30 years of use.

P-S-T End Fitting Seal

The P-S-T sealing system is a triple seal design with built-in redundancies.

Primary Seal - rubber sheath compressed into chamfer of end fitting.

Secondary seal - RTV silicone applied to core / end fitting interface.

Tertiary seal - final external RTV seal applied to sheath / end fitting interface.

The P-S-T system has clearly shown its superiority to withstand moisture penetration.

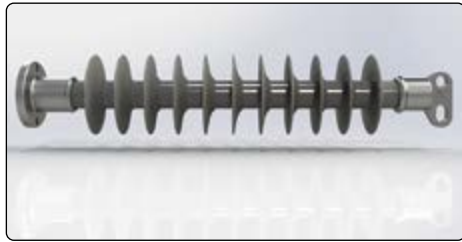
Dual Manufacturing Processes

MPS offers suspension insulators made using two unique manufacturing processes, Molded and Modular, to meet the various needs of the transmission market. Both designs use the same features and materials; MPS Silicone, PST Seal, CR E-Glass, Stacked Sheds, & Smart Fit Corona Rings.

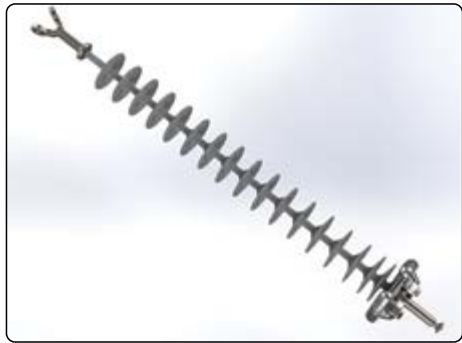


Polymer Insulator Order System - MacLean Power Systems

Line Post Insulators



Line Post Insulator Ordering System							
H2	90	10	045	V	X	SS	022
SML	Tower SF	Line EF	Rubber Length	Leakage	Corona Ring	Shed Pattern	Shed Count
H=Horiz. V=Vert. 0=1.5" 1=2.0" 2=2.5" 3=3.0" 4=3.5" 7=1.75"	1_=Flat Base 3_=3" Bolt Circle 4_=Stud Base 5_=5" Bolt Circle 6_=Swivel Base 7_=7" Bolt Circle 8_=Anchor 9_=Gain Base X0_=No EF	1_=Drop Tongue 2_=Trunion 3_=3" Bolt Circle 5_=5" Bolt Circle 6_=Vert. Trunion 7_=F-Neck C_=Ext. Drop Tongue D_=Double Trunion E_=High Str. Bracket F_=Vert. RAM Bracket H_=Horiz. RAM Bracket X0_=No EF	Linear Distance EF to EF	V=Variable M=Molded	Tower Line X= None A= None B= None C= None E= None	SS=Standard AL=Standard Alt. XG=Shed Profile XH=Shed Profile XV=Shed Profile	
				V=Variable Leakage Modular/Extruded MFG M=Molded Leakage Injection Molded MFG			



Suspension Insulators

Suspension Insulator Ordering System							
S1	40	80	045	V	X	SS	022
SML	Tower SF	Line EF	Rubber Length	Leakage	Corona Ring	Shed Pattern	Shed Count
S1=25K S5=30K S6=36K S2=50K S4=80K	4_=Y-Clevis 5_=Tongue 6_=Clevis 7_=Socket 8_=Ball 9_=Oval Eye XX=None		Linear Distance from End Fitting to End Fitting	V=Variable M=Molded	Tower Line X= None A= None B= None C= None E= None	SS = Standard 6S = Standard EHV1 9S = Standard EHV2 SS = Standard UHV AL = Standard Alt. 6L = Std. Alt. EHV1 9L = Std. Alt. EHV2 5L = Std. Alt. UHV AM = Maximum Alt. A6 = Max. Alt. EHV1 A9 = Max. Alt. EHV2 A5 = Max. Alt. UHV TS = Triple Alt. T6 = Triple Alt. EHV1 T9 = Triple Alt. EHV2 T5 = Triple Alt. UHV	
				V=Variable Leakage Modular/Extruded MFG M=Molded Leakage Injection Molded MFG			



Braced Post Insulators

Braced Post Insulator Ordering System								
B2	90	1	057	B	1	1	068	MX
LP OD	Tower SF	Line EF	Section Length	Hardware Type	Brace SML	Brace EF	Height	Custom #
B1=2.0" B2=2.5" B3=3.0" B4=3.5"	10=Flat Base Upswept 11=Flat Base 0 Deg. 1C=Flat Base Fixed 50=5" BC 6_=Swivel Base 80=Anchor only 90=Gain Base Upswept 91=Gain Base 0 Deg.	1=Drop Tongue 5=5" Bolt Circle C=Ext. Drop Tongue E=High Strength Bracket F=Vert. RAM Bracket H=Horiz. RAM Bracket	Pole to Conductor CL	V=Basic Hdwr M=Turnbuckle P=Adj. Plate X=None	1=25-27k 5=30k 6=36k 2=50k	1=Eye/Eye 2=Y/Ball 3=Eye/Ball 4=Y/Eye 5=Y/Y 6=Sock/Ball	Base to Vang Distance	V=Variable M=Molded



V-String Assemblies

A "V-String" is basically an assembly including the above Suspension Insulators, and a yoke plate.

Contact TEN with your specification and we will suggest the appropriate assembly.



Quality Toughened Glass Disc Insulators - LaGranja

LaGranja glass discs provide the most cost effective transmission insulation technology when considering safety, reliability and resilience.

Features and Benefits

- Glass shells undergoing three thermal shock cycles followed by a soak test
- Automation incorporated with cap and pin assembly and using alumina cement - hot cured
- Cap flocking (polyamide fibres) incorporated in caps reducing Corona and RIV
- Approvals for use with the most demanding utilities in the world
- Almost 90 years of manufacturing, headquartered in Spain

Standard profile insulators

These are the most common and most frequently used insulators for lines in low pollution environments, where they perform well due to their small, well-spaced ribs and a creepage distance which exceeds the requirements of the IEC 60305 and ANSI C29.2 standards.

Anti-pollution or Anti-fog profile insulators

We offer two different shapes which are recommended for areas with medium to heavy pollution. Their longer creepage distance, which exceeds the requirements of the IEC 60305 standard, is achieved due to deeper ribs and reduces the effects of pollution without increasing the length of the string.

Aerodynamic profile insulators

Due to their completely flat dielectric profile, this type of insulator is highly recommended for desert areas because the absence of ribs helps to reduce the accumulation of residues, particularly on the inner surface of the dielectric. At the same time, its shape permits regular and constant airflow which enables the wind to perform a self-cleaning process.

These can also be used in areas of critical industrial or mixed pollution (desert and industrial pollution).



Ordering Information

Capacity (kN)	STANDARD	ANTI POLLUTION	OPEN PROFILE
	Part No.	Part No.	Part No.
70	E-70-127 E-70Z-146*	E-70PPZ-146*	E-70D-146
120	E-120Z-146*	E-120PPZ-146*	E-120D-127 E-120D-146
160	E-160Z-146* E-160Z-170*	E-160PZ-146* E-160PZ-170*	E-160D-146 E-160GD-146
210	E-210Z-170*	E-210PZ-170*	E-210GD-170
240	E-240Z-170*	E-240PZ-170*	-
300	E-300-195	E-300P-195	-

* Z = Anti-corrosion zinc sleeve collar on pin

Factory Applied RTV Silicone Coating

Silicone-coated insulators offer an excellent alternative which guarantees optimum performance for high voltage overhead lines in areas with heavy pollution. They minimise leaking currents and thereby reduce operation and maintenance costs. The product used to coat the insulators is Room Temperature Vulcanization (RTV) silicone which contains mineral fillers embedded in the silicone itself. SILGLASS® insulators are made using Si-COAT® RTV Silicone HVIC Technologies by CSL Silicones Inc.

This silicone increases the hydrophobic nature of the insulator's surface, with a Lotus leaf effect, thereby improving its performance in polluted areas. Furthermore, the fillers absorb the energy of any possible electric arcs and serve to protect the integrity of the coating. Silicone-coated insulators are an economical solution because they eliminate the need to regularly clean glass insulators whilst still maintaining the mechanical reliability that glass suspension insulators have demonstrated over the years.

Industrial application: pre-coated insulators:

The inherent characteristics of an industrial process and the quality and process controls done in LGI exceed far beyond the most demanding requirements of the RTV silicone application guide. The industrial application allows to obtain even and homogeneous coating thickness, minimizing waste of material and ensuring an excellent adherence to the glass surface. This translates into a long service life.

Silicone-coated insulators are the result of bringing together high quality insulator technology and high performance silicone, combined by the most advanced application technology. It has the heritage of mechanical reliability together with excellent performance against pollution.

This is a fantastic solution being used the more and more on a large scale in the world's main Transport and Distribution Networks.

- Combines toughened glass with hydrophobic properties of polymers
- Available fully coated or undercoated shell
- Suitable in severely polluted areas where washing was previously required

High solids content RTV Silicone "Si-COAT 570 hs", with optimally-sized alumina trihydrate (ATH) particle including good tracking and erosion resistance & excellent hydrophobicity

Ordering Information

Capacity (kN)	STANDARD	ANTI POLLUTION
	Part No.	Part No.
120	E-120Z-146_SIL*	E-120PPZ-146_SIL*
160	E-160Z-146_SIL* E-160Z-170_SIL*	E-160PZ-146_SIL* E-160PZ-170_SIL*
210	E-210Z-170_SIL*	E-210PZ-170_SIL*

* Z = Anti-corrosion zinc sleeve collar on pin



SHIPPING - SPECIAL CARE IS TAKEN

Insulators are packed in short strings inside wooden crates which are custom-made for each model. The crates also have a plastic strap or band to guarantee stability and easy handling. LGI has a reinforced packing system that provides additional protection appropriate for their surface treatment.

Special care is taken during the transport and storage of these products.

iTOOLco

GRD01

12.7mm-16mm

16mm-19mm

9.5mm-12.7mm

GRDXL34
GRDXL01

19mm
(GRDXL34)

25mm
(GRDXL01)

Demo Hammer
Hex

Earth Rod Drivers - iTOOLco

Part No. Various

Safely drive 9.5mm, 12.7mm, 14mm, 16mm and 19mm Earth rods into the ground in under a minute with iTOOLco's Ground Rod Dawg™. Once the rod is driven down far enough the tool can be used to hammer from top to finish the driving.

Features

- Hardened tool steel construction for long life
- Multiple size rods can be driven
- SDS Max driver bit for positive connection and secure driving of rods

Never drive earth rods from a ladder again



Drive the rod down to a comfortable height



Then complete the driving by hammering from the top

Part No.	Description	Earth Rod Size (mm)	Driver shaft
GRD01	Earth Rod Driver	12.7 to 19	SDS Max
GRDXL34		19	Demo Hammer
GRDXL01		25	

Conductor Diameter Gauges - TEN

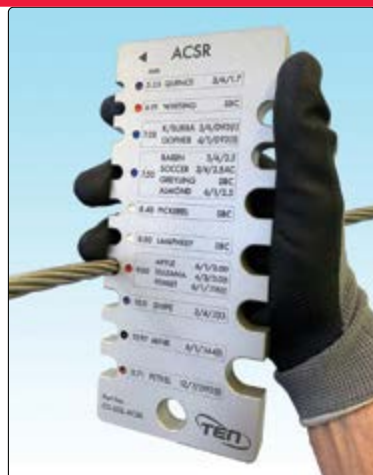
Conductor Diameter Slide Gauge - AL, CU & ACSR

Part No. CG-430-AU

- HDPE slide gauge quickly & easily identify conductor OD
- Designed for Australian AL, CU & ACSR conductors
- Measure Live Conductors
- For conductors 4.0 - 30mm Ø
- Fits universal sunrise fitting

Part No.	Dimensions (mm)	Wt (kg)
CG-430-AU	287 (L) x 104 (W) x 10 (D)	0.26

Reduce Incorrect Conductor Identification



Conductor Diameter Gauge - AL, CU & ACSR

Part No. CG-EQL-Series

Quickly & easily identify common overhead electrical distribution conductor or wire sizes in AL, CU & ACSR. Markings include conductor name, stranding and overall Diameter.

- Hole in base for use with a shotgun stick and hanging storage
- Imperial and metric sizes included
- Precision machined from lightweight aluminium alloy

Part No.	Conductor Range	Dimensions (mm)	Wt (kg)
CG-EQL-ALCU	Copper 7/.064 - 4.87mm to 19/2.75 - 13.8mm	257 (L) x 91 (W) x 14 (D)	0.75
	Aluminium Locust - 7/.093 - 7.08mm to Taurus - 19/4.75 - 23.80mm		
CG-EQL-ACSR	ACSR Quince - 5.25mm to Wolf - 18.13mm	209 (L) x 91 (W) x 14 (D)	0.65

Conductor Brushes and Cleaning

Scratch Brush - "Dog-bone and Flat Round" - Madi

- Designed to encourage linemen to brush with a more convenient and ergonomic design making it more convenient than ever before
- Replaceable brush inserts make a cost effective solution
- Suitable for use up to 45mm conductor
- Made from Non-conductive materials
- Minimise open neutrals and bad connections by brushing conductors properly

Part No. DBWB-1

- Dog-bone design, colour and marking for copper one end and aluminium the other

Part No. FRWB-1

- Designed for both flat and round connection such as palms
- Replaceable brush inserts suitable for both flat and round ends

Part No.	Description	Wt (kg)
DBWB-1	Dog-bone Scratch Brush (includes one set of inserts)	0.25
FRWB-1	Flat Round Scratch Brush (includes one set of inserts)	0.25
LWB-1	Replacement Wire Brush for DBWB-1	0.10

Scratch Brush and Safety Knife - Madi

Part No. BB-2S

- Integrated wire brush for cleaning conductors to make better connections
- Replaceable brush inserts make a cost effective solution
- Suitable for use up to 25mm conductor
- Blunt Tipped fold-away blade for added safety
- Stainless steel blade for maximum durability and sharpness

Part No.	Description	Wt (kg)
BB-2S	Fold-away Safety Knife and Round Scratch Brush	0.23
WB-1	Replacement Wire Brush for BB-2S	0.10

Conductor Scratch Brushes

Part No. SB-3 & SB-4

- Used for preparing the surface of conductor prior to applying a connector/splice
- Tough stainless steel bristles resist rust
- Copper or aluminium available - use only on specified conductor to prevent cross contamination

Part No.	Colour	Conductor Type	Wt (kg)
SB-3	White	Aluminium	0.10
SB-4	Black	Copper	0.10

Stick Scratch Brushes - Hastings

Part No. Various



DBWB-1



FRWB-1



BB-2S



Part No.	10-178	10-180	10-179
Description	Complete "V" Brush unit with Handle for Gloved Hands, Shotgun Ring, Replaceable Brushes (10-179)	Complete "V" Brush unit with Universal Head Attachment, Replaceable Brushes	Pack of 10 Replacement Brushes
Material	Thermoplastic Handle & S/S Bristles	Al Alloy Body & S/S Bristles	S/S Bristles



Connectors - CPI

Wedge Clamps

Wedge Clamp Connectors consist of a spring "C"-Body and wedge combined with a "shear-head" bolt offering a high performance permanent connection that is low resistance, durable and easy to install.

Replaces fired on connectors

Maintains low resistance connections at all times

The spring body of the connector will flex and maintain a constant force as thermal cycling causes conductors expand and contract.

Simple and safe installation

During installation, when proper spring tension is achieved, the shear head bolt will break off giving the installer a positive indication of a correctly completed connection. No special tooling required.



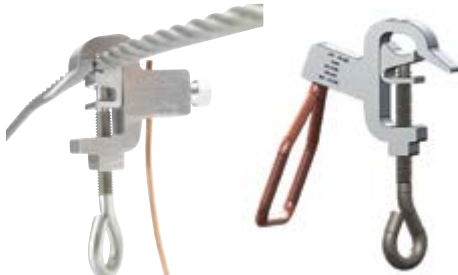
Aluminium with Bail

- Can be installed liveline with hot-sticks
- Al-Al, Cu-Cu and Bi-Metal (Al-Cu) available
- For use in all applications including critical high load areas and on overloaded circuits
- May be used in highly corrosive environments including salt laden areas to connect copper conductors
- High-conductivity grit type corrosion inhibitor is factory applied for long life
- Removable and reusable with no damage to conductor
- Remains permanently locked through fault current or power surges
- Meets or exceeds the current carrying capacity of the conductors being connected
- Complies with AS/NZS1154



Also available from Connector Products Inc

HTC SERIES HOTLINE TAP CONNECTOR



HTC SERIES HOTLINE PAD CONNECTOR



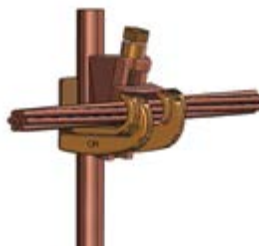
OPGW BOLTED DEAD END FIBRE OPTIC



OPGW DOWN LEAD CLAMPS FIBRE OPTIC



EARTH GRID CONNECTOR

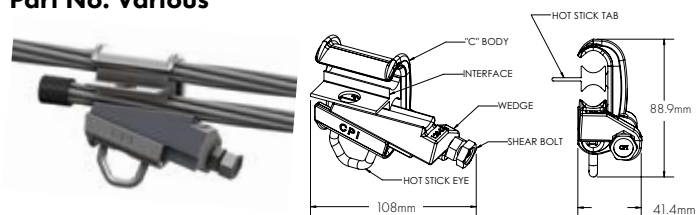


RUNNING RAIL CONNECTOR

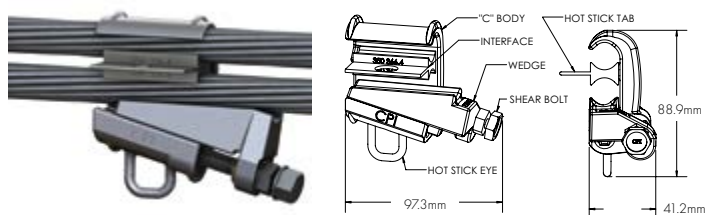


Shear Bolt Wedge Clamp Tap Connector

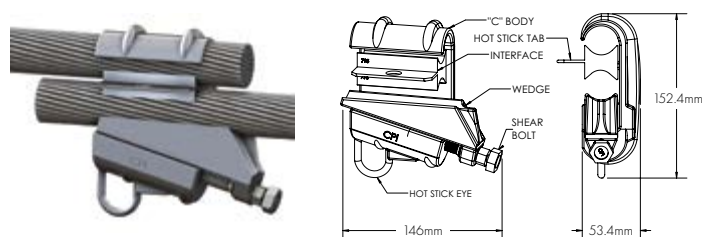
Part No. Various



Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
4 Series AL Tap Connector	4.11 to 14.57	4.11 to 14.57

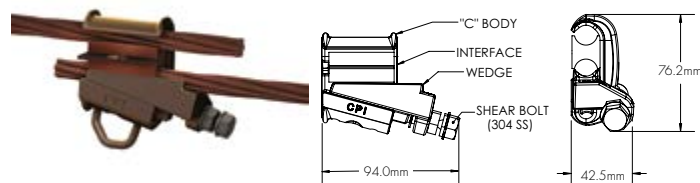


Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
350 Series AL Tap Connector	14.56 to 17.37	4.11 to 17.37

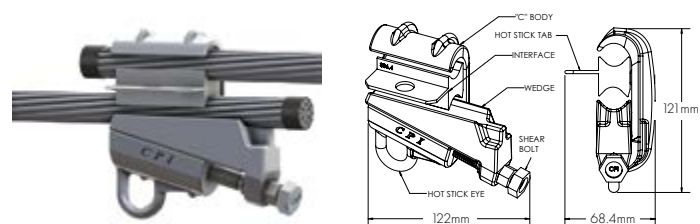


Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
795 Series AL Tap Connector	24.71 to 33.02	4.11 to 33.02

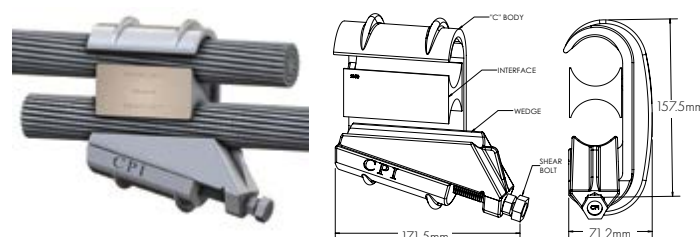
Available with Hot Stick Eyes



Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
4 Series CU Tap Connector	5.89 to 13.46	4.11 to 13.46



Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
336 Series AL Tap Connector	16.91 to 24.20	4.11 to 24.20



Description	Main Conductor Range (mm)	Tap Conductor Range (mm)
1272 Series CU Tap Connector	34.16 to 46.32	8.02 to 46.32

Contact TEN for customised Conductor Charts for your network and Crossover to Ampacts

Connectors and Splices

Stirrups



Part No.	Range (mm)	Feature
102011	4.11 - 7.42	550amp bail rating
102010	7.42 - 10.11	
102009	10.52 - 13.26	
264124	12.75 - 14.56	
336915-1	14.88 - 18.39	



Piggy Back Clamp

Part No.	Range (mm)	Feature
6002248	5.2 - 28.0	Shotgun Ring

Automatic Splices



Part No.	Range (mm)	Feature
S750	6.35 - 8.02	Lock Wedges
S1000	7.41 - 10.51	
S2000	11.78 - 14.88	
S3000	15.46 - 18.87	
S4000	18.87 - 21.79	



Earth Grid Connectors

Part No.	Main Range (mm)	Tap Range (mm)
900102	Stranded 13.26-14.61 Rod 14.12 (5/8)	Stranded 9.35-10.64
	Rod 12 (1/2)	Stranded 10.64
900103	Stranded 9.35- 0.64	Stranded 9.35-10.64
	Stranded 13.26 Rod 12 (1/2) - 14.12 (5/8)	Stranded 7.42



OPGW Joint Enclosure - Tykoflex

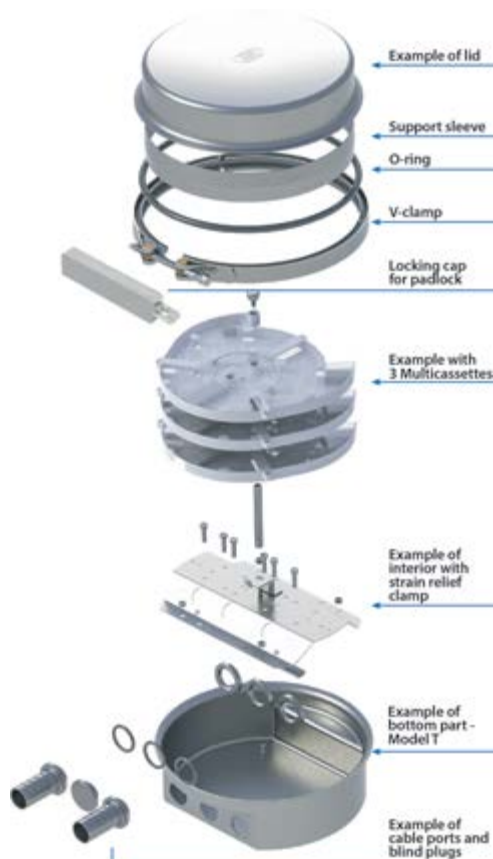
The T240 Joint Closure is part of a modular system of lockable closures made of acid proof stainless steel. The main benefits of the system are superior flexibility, easy handling, and tightness against overpressure as well as vacuum. The closures are designed for use in demanding environments. Together with desiccator the closure remains free of humidity even under extreme conditions.

The closure is suitable for use above ground attached to high voltage towers, poles, walls or other support structures. The Tykoflex closure can be tailored to almost any required configuration. It is designed to provide water and pressure-tight environmental protection for optical fibres and optical fibre splices for all cable designs. The closure is therefore suitable for ground installations in manholes, tunnel systems and sewage lines.

Joint Closure

Part No. T240

- IP69/K Rated
- 316L Acid Proof stainless steel closure
- Modular design with few parts
- Splicing in Multicassette fibre organizers
- V-clamp and EPDM rubber O-ring sealing
- Rugged design
- Quick and easy installation
- High fibre count capacity
- Suitable for use in harsh environments
- Lockable with optional locking cap and padlock



For more information or a quote on your OPGW project contact TEN with your cable specifications



Asset Life Extension - ALE

Utility grids face a host of asset management challenges as a result of the environment in which they operate. The question is always how we can mitigate the impact of these environmental conditions or events, be they planned or unplanned.

Themes arise from these issues including Network Resilience, System Hardening and Asset Life Extension. All have a particular narrative and commonality among utilities, and all are intertwined in the operation of a utility system.

TEN continues to lead and innovate this space working with global manufacturers on technologies that allow utilities to integrate these proven systems and solutions into their asset management framework. These products can be broadly considered as:

- System Hardening – Polywater duct sealants, Reliaguard & Greenjacket wildlife protection, Genics wood preservative and fire barriers
- Network Resilience – Polywater lubricants, La Granja Insulators and Tykoflex OPGW Enclosures
- Asset Life Extension – Leak repair for oil filled and SF6 Equipment, Induron corrosion protection and Clampstar connector correctors Pole Life Systems & LWS Pole Enforcer



GREENJACKET®
WILDLIFE COVERS



Clamp Star
THE CONNECTOR CORRECTOR
CONNECTOR CORRECTOR



Polywater
Solutions at work.
DUCT SEALANTS



Pole Life
systems
WOOD POLE PRESERVATION



genics
Wherever Wood Is Used™
FIRE MESH



RELIAGUARD®
WILDLIFE COVERS



LWS
LAMINATED WOOD SYSTEMS
POLE ENFORCER



genics
Wherever Wood Is Used™
COBRA RODS



INDURON
PROTECTIVE COATINGS
PROTECTIVE COATINGS



Failing connectors are repaired with NO power interruption

Install by:



Clampstar

Connector Corrector

ClampStar® is an Engineered Electrical & Mechanical Shunt also known as a Connector Corrector that is intended to correct and reinforce the deteriorated electrical and mechanical performance of hot, aged or degraded midspan joints and other connectors, clamps and fittings.

A popular use of ClampStar® is to increase the performance rating of existing midspan joints and other connectors, clamps and fittings for the purpose of increasing line ampacity that may be presently limited by current connections.

ClampStar® eliminates risk and prevents catastrophic connector failures before they happen, and are installed in just minutes.

Distribution class

Available in both standard and light configuration. Light is suitable for slack strung and lightly tension spans. Can be supplied with nickel plated keepers for copper conductors.

Transmission class

Available in standard, heavy and full tension configurations. Designed with an integral fastening assembly containing a specially designed, captive keeper assemblage that provides a high conductivity path and incorporates flat and Belleville washers to maintain compressive force regardless of temperature induced contraction and expansion. Integrated corona shield means no extra items required to complete your installation.

ClampStar Connector
Corrector selection matrix
SCAN or CLICK
the QR-Code



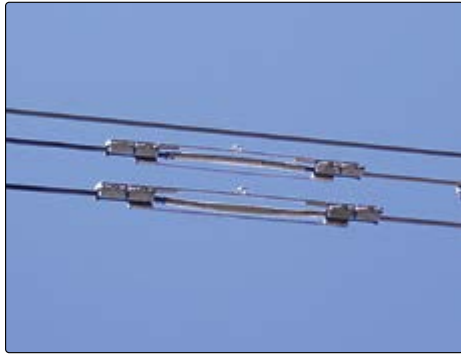
ClampStar® provides great benefit to the utility:

- Lightweight design installs in less than 10 minutes!
- Permanent installation for damaged conductors, deadends, midspan joints & suspension clamps on Aluminium, ACSR & Copper conductors, OPGW, Overhead Earth or Shield Wires.
- Easily installs over existing connectors or suspension points
- No additional rigging equipment required such as special mechanical grips, Come-Alongs, jumpers or cutters
- Can be installed with hot stick or barehand methods
- Available for copper, ACSR and all aluminium stranded conductors

SCAN or CLICK
QR-Code for a variety
of ClampsStar
instalation videos



Connector Correctors are available for all common conductors and applications. Bespoke designs available, contact TEN with your connector challenge



ClampStar Applications

Failing Mid-Span Joints

Part No. CSR Series

- Failing midspan joints are repaired with NO power interruption and splice replacement is no longer necessary
- The electrical and mechanical integrity is restored to the joint and ampacity is increased
- The units are pre-shipped with a proprietary high performing inhibitor ensuring the best possible connection at the interface
- The units are simply placed over the damaged midspan joint and the shear off bolts tightened with a battery impact drill or podger



Damage at Suspension Clamps

Part No. CSS Series

- ClampStar® provides an elegant, economical and easily installed solution for restoring the electrical and mechanical integrity of conductor damage at the suspension clamp, without the need for costly re-stringing
- Safe-T-Link Tether assemblies are available for suspension clamp applications requiring additional mechanical support where the tensile strengths of the conductor have been compromised.



Failing Dead-Ends

Part No. CSS Series

- The ClampStar® dead end assemblies can be installed from a helicopter or basket, working live, in as little 15-30 minutes
- The restoration of mechanical integrity is accomplished with the Safe-T-Link tether. The purpose of the tether is to "arrest" any possible elongation of the original deadend
- Deadend solutions can be custom designed to meet your construction



Conductor Repair

Part No. CRU Series

- Classic Connectors ClampStar® Repair Units are a cost effective and time efficient solution to repairing damaged conductors including OPGW outer strands damaged by lightning strikes
- Installation takes less than 10 minutes and units can be installed without power disruption barehand or by hot stick.
- The units are simply placed over the damaged section of conductor/OPGW and the shear off bolts tightened with a battery impact drill or podger.



Body Snatcher Gripper Tool

Part No. CS-BSGT

Utilised to hold the ClampStar body in place during installation. Installed on each end of the body of the ClampStar® Repair Units for Live Line installation.

- Constructed of Lightweight Aluminium
- Fitted with Universal Sunrise head. Suits all major Live Line stick manufactures



CLICK or SCAN the QR-Code to watch the application video

Test and Treat - Genics

Genics TEST & TREAT address each of the mould and decay degradation issues facing your wood pole network. Cobra Rods, CuB Liquid, Cobra Wrap and Cobra Cap are just some of the products in the range. If we look at combining these products for protecting and treating affected areas, this system maximises efficacy and extends the life of wood pole assets.



Cobra Rods

- Internal Co-Biocidal Diffusible Rod for remedial and preventative treatment of timber utility poles and other wood structures
- Boron and Copper complex, raw ingredients fused into an amorphous glass rod
- Product is hydrophilic and will seek out moisture
- Suitable for treatment of Basidiomycetes (Brown and White rots) and Ascomycetes (soft rot fungi)
- Safe chemical profile requiring minimal PPE
- Contact TEN for information on load rate calculators for prevention and remedial treatment



Cobra Wrap

- External Pole wrap with hydrophobic pads that are immersed in Copper Naphthenate (CuNap) solution
- Acts as a physical barrier to the soil and provides the elemental treatment of copper to the face of the pole impeding soft rot
- Long lasting plastic wrap with rechargeable pads, offering a long lasting, low cost external treatment solution
- Available option: Tough wearing tape applied in exposed areas to provide protection for the wrap against power garden tools



CuB Liquid

- Copper-borate water based liquid preservative made from the glass rod
- Contains no harmful VOC's
- Shock treatment designed to be applied to poles exhibiting active rot
- Ideal for dry environments where very little moisture content is available for rod activation
- Ideal for above ground applications
- Available option: CuB liquid applicator
- Use in combination with Cobra Rods for effective remedial treatment



Cobra Cap

- Protection against rot at the pole top
- Includes 2 x Cobra rods for treatment
- Easy to install
- Easy to replace treatment when required
- Hard durable long lasting plastic



Fire Mesh - Genics

Genics fire mesh is a protective barrier designed to protect wood structures from burning and minimise scorching!

Fire Mesh

Part No. 53076

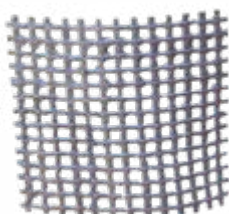
- Made up of an intumescent grid that is coated with a durable double layered intumescent polymer
- Fire mesh is breathable and allows the pole to maintain its homeostatic state
- The fibreglass mesh substrate is extremely light weight and durable and can be applied to new poles before transport
- Favourable environmental and safety profile, animal safe, there is no leaching of chemicals and it is safe to handle
- Heavily tested to the proposed ASTM Wood Pole Fire Test Standard
- Accelerated weathering testing to determine UV performance
- Intertek tested and listed
- Work practice available (included with all purchases) for easy installation
- In stock at TEN



Durable for Pre-wrapping prior to transport

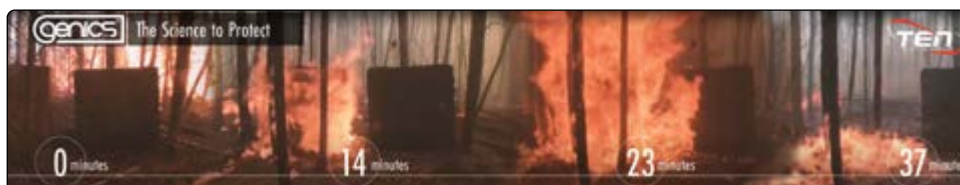


Fire Mesh Roll



Fire Mesh Patch

Part No.	Description	Size
53076	Fire Mesh Roll	0.9 x 15m
52170	Fire Mesh Patch	15 x 15cm



For a detailed presentation on how fire mesh can prevent pole and power loss in a bushfire event, contact TEN

PREVENT FIRE DAMAGE AND KEEP ALL OF YOUR WOOD ASSETS PROTECTED WITH FIRE MESH PATENTED FIRE PROTECTION SYSTEM



Pole Life Systems

Strong, Lightweight Material

Pole Life Systems are specifically designed for pole top restoration creating "pole prosthetics", the first asset life extension products for the industry. Pole Life Systems is a lightweight, non-conductive, fire retardant, low cost and structurally sound system that reinforces wood pole tops.

Features and Benefits

- Poly Fibre Resin Composite (PFRC) material that is strong, lightweight and durable with integrated UV protection, fire retardancy and immunity to rot, corrosion and insects.
- Integral fabric surfacing veil
- Resin-rich barrier
- High performing compressive strength of 2,273kg
- Long-term weather and UV resistance
- Retention of properties for decades
- Protection from surface erosion and abrasion vs. painted coatings

Insulator Support

- Reinforces and supports horizontal mounted insulators
- Use in conjunction with Vertical support or stand alone
- Simple to install

Cross Arm Reinforcement

- Simple and extremely sturdy crossarm pole top support system
- Provides structural reinforcement to degraded wood poles with cross-arms
- Suits timber, steel or fibreglass cross arms
- Flanges to support the cross arm
- Custom applications also available

Cross Arm Extension

- Bracket lifts the cross arm from the original height, up to 450mm higher
- Perfect for Conductor-to-Ground (CTG) and Conductor-to-Structure (CTS) issues
- The CA50 provides a new vertical height clearance without needing to change the pole

Pole Top Reinforcement - Vertical

- Easily installed system that lowers the structural attachment point in all decayed pole tops
- Maintains conductors in their current position
- Can be used for any wood pole damage caused by deterioration, cracking or storm damage
- Two sizes cover LV and HV poles
- Installed for a fraction of the cost of pole replacement
- System requires Insulator supports and backing plate
- Also available for pole top pin reinforcement
- Custom applications also available

Pole Life Systems have over 40 years of construction and utility engineering design experience and hold 11 patents on pole restoration solutions.

Contact TEN for more information on the Pole Life System range.



Insulator Support



Pole Top Reinforcement - Vertical



Cross Arm Reinforcement



Cross Arm Extension

Addressing CTG and CTS issues

Part No.	Description	Dimensions L x W (mm)	Material	Average Tensile Strength Exceeds (MPa)	Average Flexural Strength Exceeds (MPa)	Weight (kg)
CA26	Cross-Arm Extension	660 x 432	Composite	579	979	10.0
IS20	Insulator support Bracket, composite, 508mm, PLS	509 x 127				1.0
VR30	Pole Top reinforcement, vertical	762 x 140				3.0
VR48	Pole Top reinforcement, vertical	1219 x 140				4.9
CPF5	Channel plate, flat, suit new hardware		Gal Steel	-	-	0.3
CPR5	Channel plate, recessed, suit existing hardware	76 x 127		-	-	0.34

Laminated Wood Systems

Pole Enforcer by LWS

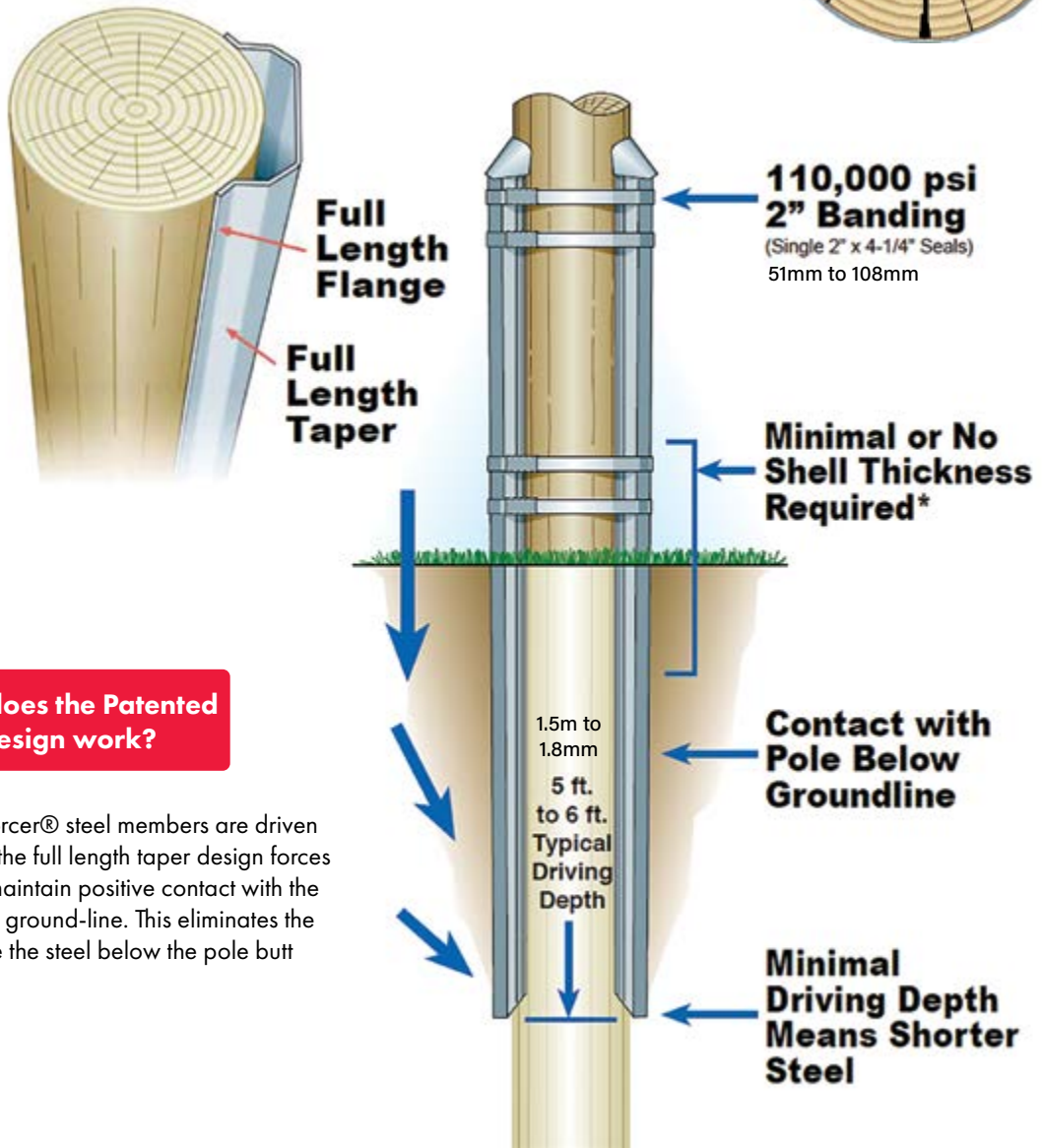
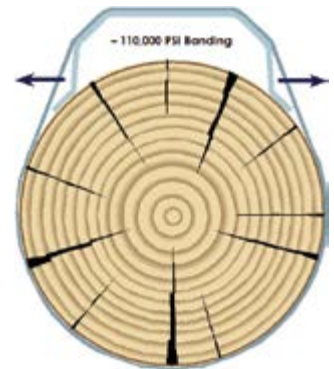
The patented PoleEnforcer® proves that **"all steel is NOT created equal"**

The PoleEnforcer's patented design ensures positive contact with the pole below the ground-line - thus bridging the decayed area and transferring the load to the pole butt - that is TRUE POLE REINFORCEMENT. Other reinforcement systems in the market can be considered "pole stubs" and not true reinforcement systems.

- The full length flange increases load bearing surface and eliminates "knife edge" contact with the pole
- Steel Unit acts as a "spring" once bands are installed following the expansion and contraction of the wood
- Contained tension keeps the bands/unit secure even if pole diameter changes.



PoleEnforcer®



GREENJACKET®

Greenjacket power outage protection

How We Work

When we set out to create an innovative solution to preventing animal outages, we knew the product was only part of the puzzle. We also needed to create a process that would allow us to assess needs, identify risks and create a complete engineered solution for preventing animal outages.

Understanding Your Needs

Step 1. Budgetary Assessment

Our needs assessment begins even before a site visit, with a thorough review of site/single line drawings, customer photos, and historical station data. With this information in hand, we can assess which equipment is vulnerable to animal or bird contact. We can also inform you right away whether Greenjacket will meet your needs and create a preliminary budget. This takes approximately 2 weeks to complete depending on the size of the station and coverage required.

Step 2. On-Site Assessment/Desktop evaluation based on diagram and photos

We then send our expert assessors to undertake a comprehensive site inspection to finalize what level of coverage you require. We then use our patent-pending 3D Photogrammetry process to retrieve accurate measurements of your equipment and create a detailed Site Protection Plan and quote. The entire assessment process – from site inspection to the creation of a Site Protection Plan – takes, on average, two weeks to complete.

Building Your Greenjacket Solution

Step 3. Design and Manufacturing

Once you've agreed to proceed, we get to work manufacturing your Greenjacket covers. Utilizing the images taken with our 3D Photogrammetry process, we use 3D CAD software to create design and shop drawings that can be used to build custom molds. We utilize a patented fabrication process and a high-performance polyurethane material that allows for flexible strength and durability. All Greenjacket covers are built to withstand a variety of weather conditions and to be UV resistant. On average, orders are processed, manufactured and delivered in four to six weeks, although rush orders are possible.

Getting Your Solution in Place

Step 4. Installation

When the custom Greenjacket covers are ready, they are shipped directly to your site with easy-to-follow instructions. We will work with you to provide training and tools to your installation crew and provide supervision of the installation. Or, we will conduct the entire installation with our crew while adhering to your site access, supervision, and work method guidelines. The choice is yours.

Our patent-pending "hot" installation tools make Greenjacket easy to install, even on energized equipment. We provide you with information on how to operate and maintain your Greenjacket covers, so you get the most from your investment. Greenjacket keeps all equipment and cover dimensions on file, so that we can fill future orders and respond quickly to requests. We also offer a comprehensive warranty that ensures you get peace of mind with your protection from animal-caused outages.

*The information given above is representative data obtained from tests commissioned by Greenjacket. Although the data is, to Greenjacket's knowledge, reliable, Greenjacket cannot assume any liability relate to the data provided, or to decisions made based on the data provided.



Product Specifications

Greenjacket protective covers are manufactured of a polyurethane flexible material with high dielectric strength and durability. Typical specifications are as follows*:

Colour:

Green Standard



Test Properties:

Tensile Strength	ASTM D-412	2000 psi (13.8MPa)
Elongation at Break		75%
Tear Strength	ASTM D-1004	270 pLi (47N/mm)
Taber Abrasion		<2 mg loss, 1000 cycles CS-17 wheel, 1 kg load
Hardness		44 shore D, 97 shore A
Dielectric Strength	ASTM D-149	609 V/mil (product is a minimum of 100 mils thick, with ideal thickness of 125 mils)

Properties After 1000 hr. Accelerated Weathering:

Tensile Strength	ASTM D-412	1400psi (9.6 MPa)
Elongation at Break		60%
Dielectric Strength	ASTM D-149	Unchanged after 1000 hours of accelerated weathering

Temperature Stability:

Maximum Recommended Service Temperature for Continuous Use:	125°C (260°F)
Maximum Service Temperature for Short-Duration Temperature Elevation (a few minutes):	200°C (390°F)
Melting Point:	205°C (400°F)

UV Rating:

Test samples were placed in an ultraviolet light aging chamber per the requirements of ASTM D-4329. In typical conditions, a rating of 25 years longevity was determined.

FR Testing:

Greenjacket is classified V-0 as per the criteria laid out in IEC 60695-11-10 Test Method B.



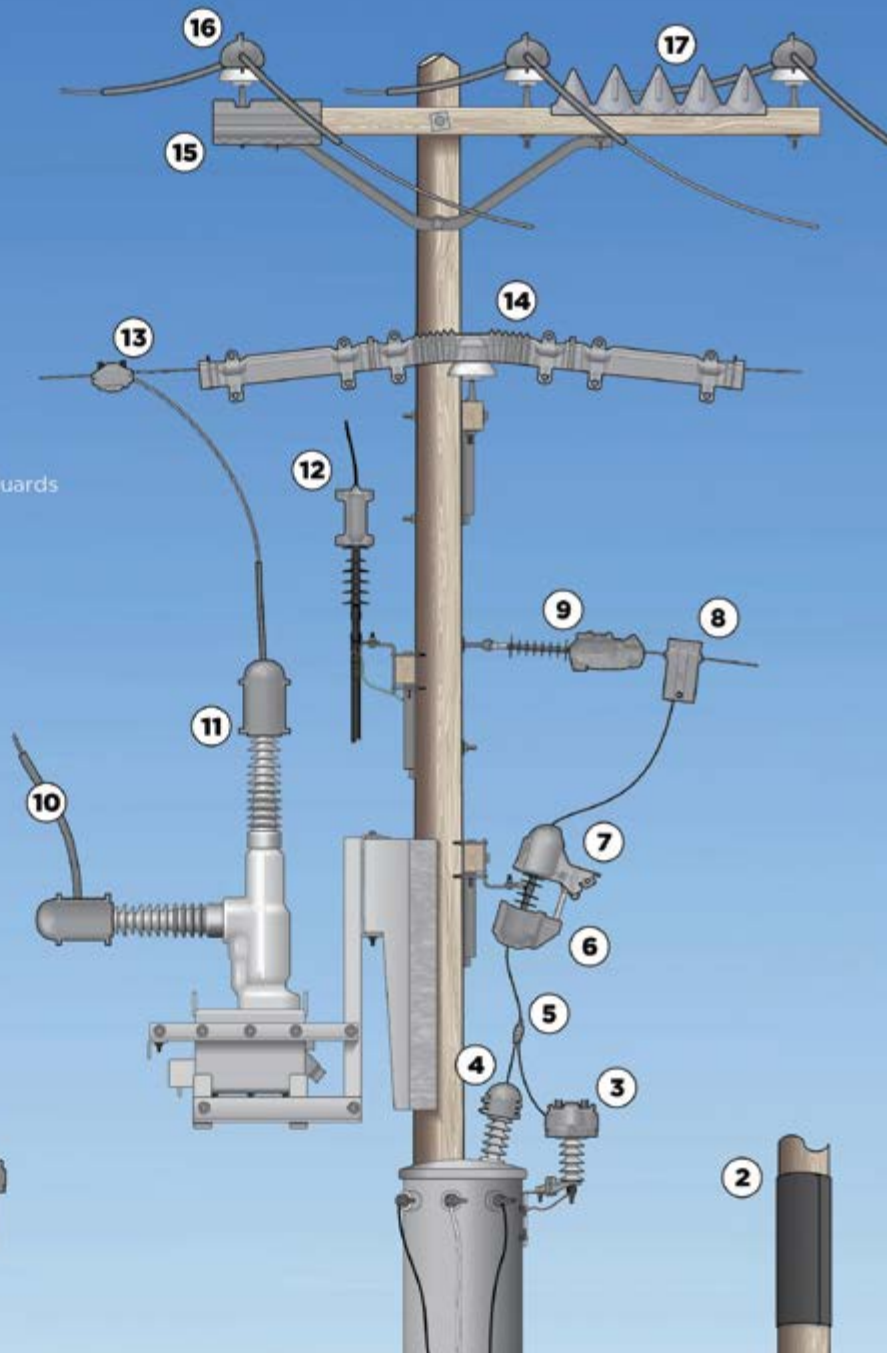
Why Greenjacket is Unique

1. It is the only industry comprehensive product line designed for energized installation.
2. It is custom designed to precisely fit each piece of equipment – "It Fits"
3. It is offered as part of a service where site plans are made to identify what exactly is needed for coverage.

*The information given above is representative data obtained from tests commissioned by Greenjacket. Although the data is, to Greenjacket's knowledge, reliable, Greenjacket cannot assume any liability relate to the data provided, or to decisions made based on the data provided.

PRODUCT SHOWCASE

1. Voltage Regulator Kits
2. ReliaWrap Pole Wrap
3. Lightning Arrester Guards
4. Transformer Bushing Guards
5. Self-Fusing Tape
6. Cutout Lower Bracket Guards
7. Cutout Guards
8. Overhead Bail Clamp Guards
9. Deadend Guards
10. GreyEEL Conductor Cover
11. Recloser Kits
12. Cable Terminator Guards
13. Wedge Clamp Guards
14. Hot Stickable Tie Top Insulator Guards
15. Cross-Arm Guards
16. Tie Top Insulator Guards
17. Perch Preventers



Lightning Arrester Guard

Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
LA-13002	Lightning Arrester - Multi Port	120.6	127	58.4	24

Bushing Guards - Small

- Manufactured with a superior closure design to ensure the bushing covers stay where they are installed
- Covers can accommodate conductor exiting at various angles
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
BC-14991	#4 Bushing Guard w/loop latch	114.8	111.8	45.7	24
BC-16003	#5 Bushing Guard - small base 45.7mm	142.2	127		
BC-16005	#5 Bushing Guard - mesh - small base 45.7mm				
BC-15010	#5 Bushing Guard - solid 57.2mm base				
BC-15008	#5 Bushing Guard - mesh - 57.2mm base				
BC-15997	#5 Bushing Guard - solid - 71.1mm base				
BC-15999	#5 Bushing Guard - mesh - 71.1mm base			71.1	
BC-15028	#7 Bushing Guard	381	210	88.9	6
BC-15030	#7 Mesh Bushing Guard				

Bushing Guards - Medium

- Secure closure and latch designs ensure guards stay in place. Push pins for extra security are standard
- Accommodates conductors exiting at various angles
- Hot stick installation option available
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
BC-14992	#4 Solid Bushing Guard w/loop latch	264.2	111.8	48.3	24
BC-16006	#5 Bushing Guard - small base	205.7	127	45.7	
BC-16008	#5 Bushing Guard - mesh - small base			57.2	
BC-15011	#5 Bushing Guard - 57.2mm base				
BC-15013	#5 Bushing Guard - mesh - 57.2mm base				
BC-16201	#5 Bushing Guard - solid - 71.1mm base			71.1	
BC-16203	#5 Bushing Guard - mesh - 71.1mm base				
BC-15021	#7 Bushing Guard	299.7	177.8	63.5	24
BC-15023	#7 Mesh Bushing Guard				
BC-15031	#8 Bushing Guard	452.1	203.2	88.9	6
BC-15033	#8 Mesh Bushing Guard				
BC-15041	#10 Bushing Guard	502.9	266.7	116.8	
BC-15043	#10 Mesh Bushing Guard				

Universal Regulator Kit

- Adjustable design to accommodate a wide variety of shunt arresters and connection angles
- Overlapping design to ensure there are no gaps in coverage
- One box solution - all parts needed to protect one single phase regulator

Part No.	Description	Height (mm)	Width (mm)	Depth (mm)	Pack size (MOQ)
RK-11101K	Universal Regulator Kit	330.2	254	177.8	1



Voltage Regulator Kit - Siemens & Cooper

- Reliaguard Regulator Guards have an overlapping design to ensure there are no gaps in coverage
- Reliaguard® Regulator Guards offer complete coverage of energized components including series arresters and brackets, bushing terminals, and wire connectors
- Designed for Siemens & Cooper
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification the highest rating for the UL 94 test standard

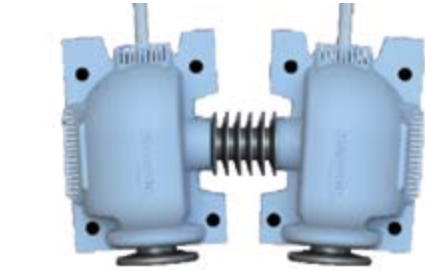
Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
RK-11021K	Voltage Regulator Kits - Siemens S400 ¹	259	196.9	66.8	1
RK-11023K	Voltage Regulator Kits - Siemens Retro ¹				
RK-11001K	Voltage Regulator Kits - Cooper C400 ³	304.8	160	69.9	1
RK-11002K	Voltage Regulator Kits - Cooper C500 ²	368.3	247.7	88.9	1

¹ Regulator Kits include: (2) Bushings and (2) 4ft pieces of 0.75" GreyEEL conductor cover and (1) EEL Slider tool S400 - (2016-Current and 187-374 kVa) S400 Retro - (before 2016 and 219-489 Amp) C400 - (50-400 Amp)

² Regulator Kit includes 2 bushing covers and 2 arrester bracket covers; fits Cooper Regulator - 500 Amp)

³ Regulator Kit includes 2 bushing covers and 2 arrester bracket covers; fits Cooper Regulators - 50 Amp to 400 Amp)

NOTE: Arrester bracket variations are possible, please contact TEN for further information.



Perch Preventer

- Discourages both perching and nesting
- Can be extended to any lengths
- Can be mounted to many different types of surfaces
- Made from Reliatanium – IEEE 1656, FR, UV Stable
- Excellent Electrical Properties
- Stackable for easy storage

Part No.	Description	Height (mm)	Width (mm)	Depth (mm)	Pack size (MOQ)
PP-10010	Perch Preventer	180.3	831.8	190.5	6



K-Line Clamp Top Insulator Guard

- The Reliaguard Clamp-Top Insulator Guard accommodates the K-Line Insulator
- When used with conductor cover the Reliaguard K-line Clamp-Top Insulator Guard provides complete coverage
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
PI-12002	K-Line Clamp Top Insulator Guard	177.8	136.4	47.8	12



Cable Terminator Guards

- Reliaguard Terminator Guards can accommodate a wide variety of conductor diameters
- Complete coverage of the bolted connection and compression cable connector
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

Part No.	Description	Height (mm)	Dia. (mm)	Base Port (mm)	Pack size (MOQ)
TC-14030	Terminator XL	549.1	156.5	66.8	12
TC-14101	Terminator 90 Degree Guard	176.8	80.3	38.1	





Tie Top Insulator Guards

- Designed to remain securely in place without compromising an insulator's BIL rating
- Accommodate a wide range of wire sizes and configurations
- Guards can be adapted to fit various insulator neck types for volume orders
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

Part No.	Description	Height (mm)	Dia. (mm)	Additional Dimension (mm)	Pack size (MOQ)
PI-12001	Tie Top Insulator Guard - K - 4.003 *	82.5	146	101.6	12
PI-12003	Tie Top Insulator Guard - C - 2.253 *			57.15	
PI-12004	Tie Top Insulator Guard - F - 2.873 *			72.90	
PI-12005	Tie Top Insulator Guard - J - 3.503 *			88.90	



Cross Arm Guard

- Cross Arm Guards effectively enclose steel cross arms and are designed to ensure long-term retention
- The push fasteners included with each guard provide a reliable method of protecting guards from being inadvertently opened and dislodged
- Manufactured from a proprietary material known as Reliatanium™
- Reliatanium achieves a V-0 flammability classification, the highest rating for the UL 94 test standard

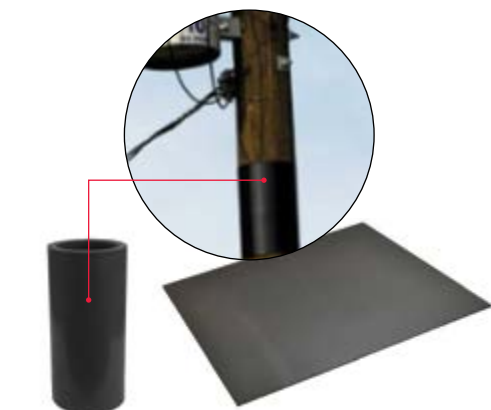
Part No.	Description	Height (mm)	Width (mm)	Length (mm)	Pack size (MOQ)
BB-30520-S	Cross arm 3x3	76.2	127	508	12
BB-50520-S	Cross arm 5x5	127			



Reliawrap™ Premium Grade Pole Wrap

- ReliaWrap is fastened with nails or screws
- ReliaWrap will not rip or tear
- Packaged in 12 pre-cut sheets of 36"x36" and 36"x48" or 30"x100' rolls

Part No.	Description
RW-30100	ReliaWrap - 762 x 2540mm
RW-36036	ReliaWrap - 914.4 x 914.4mm
RW-36048	ReliaWrap - 914.4 x 1219.2mm



Pipe Bus and Angle Bus Guards

- Pipe Bus and Angle Bus Guards are available in multiple lengths and dimensions
- Guards are clamshell design for easy opening by hand
- Easy coupling of mated connections
- Push through pins are provided to easily install the
- Pipe Bus and Angle Bus Guards by hand
- Retention of the guard once applied is a critical design feature to be considered

Part No.	Description	Dia. (mm)	Length (mm)	Pack size (MOQ)
BB-20045-R	Pipe Bus Guard - 50.8mm	50.8	1143	6
BB-25045-R	Pipe Bus Guard - 63.5mm	63.5		
BB-40045-R	Pipe Bus Guard - 101.6mm	101.6		
BB-45045-R	Pipe Bus Guard - 114.3mm	114.3		
SS-10001	T-Shape Bus Guard	190.5	558.8	
SS-20001	L-Shape Bus Guard	177.8	355.6	
BB-35045-L	L Angle Bus Guard - 88.9mm	88.9	1308.1	



RELIAGUARD®



Protection Disc

- Reliaguard® Protection Discs are designed to stay in place. Retention of the cover once applied is a critical design feature to be considered.
- Protection discs are a 2-piece adjustable size product
- Easy to install, the Protection Disc is supplied with push through pins to secure the disc for the required diameter of the center opening
- Fits a wide range of insulators

Part No.	Description	Outside Dia. (mm)	Inside Dia. (mm)	Width (mm)	Pack size (MOQ)
PD-0415F	Protection Disc - 101.6mm ID Max - 381mm OD Flat	558.8	63.5-101.6	3.2	12
PD-0522F	Protection Disc - 127mm ID Max - 558mm OD Flat	406.4	63.5-127		



Wildlife Hot Stick Disc

- Simple, one-step energized installation or removal
- No assembly required, reusable
- Easily field trimmed to suit a wide range of insulator/bushing diameters



Part No.	Description	Outside Dia. (mm)	Inside Dia. (mm)	Width (mm)	Pack size (MOQ)
PD-0624	Wildlife Hot Stick Disc - 609.6mm	609.6	63.5-152.4	12.7	8
PD-0620	Wildlife Hot Stick Disc - 508mm	508			12
PD-0616	Wildlife Hot Stick Disc - 406.4mm	406.4			

Honeywell SALISBURY



Wildlife Conductor Cover

Stinger Covers - Salisbury

Part No. Various

Stinger Covers protect against phase to phase and phase to earth wildlife contacts. The stinger cover can be installed over wire without the need to disconnect the lead wire from the bushing. Available in three diameters, it is easily cut in the field to the needed length.

Stinger covers are track resistant and made from Ozone and UV resistant SALCOR® elastomer in a grey color. The covers are proven to provide years of reliable service either independently or when used with bushing covers.



Part No.	Material	I.D. (mm)	Total Length (m)	Quantity	Flashover Test (kV)		Wt (kg)
					Phase to Earth	Phase to Phase	
58-100SC	EPDM	15.9	30.5	1 x 30.5m	12.5	22	20.5
34-25SC		19.05	15.0	2 x 7.5m	14.9	26	10.0
34-12SC-ES		19.05	14.8	4 x 3.7m	14.9	26	10.0
38-50SC-ES		9.5	15.3	1 x 15.3m	10.5	18	4.3
34-25SCS-ES	Silicon	19.5	25	1 x 25m	20	35	7.0

Other sizes in EPDM and Silicon available. Contact TEN for further information.

'GreyEEL' - Reliaguard

Prevent animal and bird related outages

Protecting conductors is an essential component in conjunction with effective guards to prevent animal and bird caused outages. Reliaguard's GreyEEL Conductor Cover helps prevent contacts by eliminating gaps in coverage. The product's improved protection is achieved with a significantly overlapped seam design and material memory technology that supports exceptional closure performance.

- Silicone rubber tubing that is highly flexible and makes application easy
- Will not burn or drip
- Does not require further de-rating of conductors as it has been proven to aid in dissipating heat from cables rather than trapping it once applied.

Part No.	Conductor Size Range (mm)	Length (m per box)	EEL Slider
EEL-02503750-50-Y	5.1 - 9.4	15	Included with Grey EEL Not sold separately
EEL-03750500-50-Y	9.5 - 12.6		
EEL-05000750-50-Y	12.7 - 18.9		
EEL-07501000-50-Y	19 - 25.4		
EEL-10001250-50-Y	25.5 - 32.9		
EEL-12501500-50-Y	33 - 36.8	7.5	Included with Grey EEL Not sold separately
EEL-15001750-25-Y	38.1 - 44.4		
EEL-17502000-25-Y	45.7 - 50.8		

The EEL Slider

- With the EEL Slider™, GreyEEL™ Conductor Cover slides onto conductors easily in a matter of seconds
- No fumbling around trying to pry conductor covers open or closing it back together
- The EEL Slider is made from a dielectric material



Included with Grey EEL
Not sold separately

Pole Repair

UPR Pole Repair - Polywater

Part No. UPR Series

Polywater® UPR™ Utility Pole Repair makes it easy to repair pole damage such as decay and splits. The two-part formula is mixed quickly and injected into the hole through the 250mm mixing nozzle.

The UPR™ Pole Repair resin and hardener were specially formulated to expand in the pole cavity rather than to just fill. Because UPR™ Pole Repair expands in the hole, it easily fills irregularly shaped cavities for solid integration with the wood. This creates superior adhesion to the wood grain compared to non-expanding products. The exothermic reaction creates an environment that reduces the presence of bacteria.

- EXPANDS - Completely fills irregularly shaped cavities
- ADHERES - Solidly integrates with surrounding wood
- QUICK - Two-part formula mixes in nozzle when applied

UPR™ Pole Repair comes in two types.

1. "PR" is a liquid formula that flows around wood block fillers to save material.
2. "NF" is a quick-gelling version that will not leak or drip out of wood cracks or holes.

Part No.	Kit Includes
UPR-PRKIT12	12 - 250-ml UPR™ Pole Repair cartridges, 16 mixing nozzles, 18 green-treated wood blocks, 1 roll of stretch wrap, 4 pair of gloves, Instructions
UPR-NFKIT12	12 - 250-m UPR™ "NO FLOW" Pole Repair cartridges, 18 mixing nozzles, 1 roll of stretch wrap, 3 pair of gloves, Instructions
TOOL-250	High Ratio Caulking Gun



SCAN or CLICK the QR Code to download a copy of their catalogue

Polywater®
Solutions at work.



Conduit / Duct Sealant Systems

AFT Sealant System - Polywater

Polywater® AFT closed-cell sealant provides 3.0m of water-blocking performance in electrical and telecommunication environments. The two-part, closed-cell AFT Sealant is durable and easy to install. AFT has excellent adhesion to a variety of conduits. AFT seals conduits with quicker installation and higher performance compared to duct putty or single-part insulating hardware store foams. The two-part aerosol foam seals any size void and cures without exposure to air. AFT expands and cures to a rigid, closed-cell structure in minutes.

AFT creates an airtight, watertight seal. AFT can be used to seal service entrances, conduit, innerducts, inverters and combiners for solar installations, and riser poles for the electrical grid. AFT protects against insects, rodents, moisture, dust, and gases. The package is reusable, and the fire-retardant seal is self-extinguishing.

Polywater™ AFT Features

- **Quick Installation:** 2-minute application time or less.
- **Multiple-Use Can:** Creates numerous seals in all types of ducts.
- **Reliable:** Holds 10 feet of continuous water head pressure.
- **Durable:** Withstands cold temperature applications.
- **Removable:** Product can easily be removed to replace cable.

Cable Compatibility: AFT two-part foam sealant is compatible with common cable jacket materials. It does not change physical or electrical properties of cable, based on tensile/elongation and volume resistivity testing. The cured foam is an inert solid that does not affect cable components.

Approvals: AFT is a UL recognised component and passed UL94 with a Class HBF fire retardant rating.

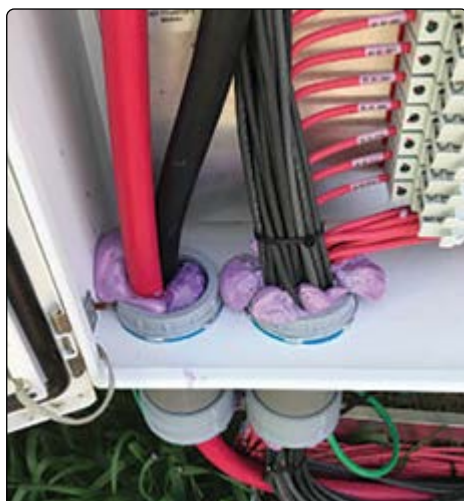
Cure Rate: AFT two-part foam sealant can be used at temperatures down to 7°C (45°F). At lower temperatures the reaction slows, but the sealant will completely foam and cure with time. AFT foam expands two times its volume as it is dispensed. Full expansion is complete in under 2 minutes at 21°C (70°F). It will take 3 to 5 minutes to be tack free. During this time do not move cables or touch foam.

For sealing conduits and risers from moisture, gases and vermin



To Watch the AFT Application Video
SCAN or CLICK
the QR-Code

Part No.	Description
AFT-16	1 x 16oz (473ml) can - 2 actuators per
AFT-16P4	4 x 16oz (473ml) can - 2 actuators per
AFT-SAE10	10 pack of actuators with STANDARD extension tube
AFT-FAE10	10 pack of actuators with FLEXIBLE extension tube





To Watch the FST
Application Video
SCAN or CLICK
the QR-Code



FST Sealing System - Polywater

FST™ Duct Seal is a “closed cell foam”, with high density properties, this keeps water, acids, greases, gases, insects and rodents out of the conduit.

The foam has good wetting and adhesion to metals, plastics, and concrete.

Features

- FST Duct Sealant™ has 98% closed-cell content for increased strength and resiliency
- FST Duct Sealant™ resists 6.7m of water-head pressure
- FST Duct Sealant™ is compatible with cable and duct materials
- FST Duct Sealant™ is chemically resistant to gasoline, oils, dilute acids and bases, and most unsaturated hydrocarbons
- Prevents the passage of gas; does not sag; will not dry out; and is re-alterable
- Quick: Foam expands and cures quickly even when water is present
- Multi-Use: Packages are resealable

FST-250KIT1 Duct Sealant - Polywater

Part No. FST-250KIT1

FST™ Quick setting Duct Sealant in a 2 part 250ml field ready cartridge kit.

Recommended for conduits 50 to 200mm

Part No.	Kit Includes
FST-250KIT1	1 x 240g two-part Foam Sealant caulking tube style with resealing cap 3 x Mixing nozzles, 4 x 600m Foam damming strips 1 x Position rod, 1 x Pre-treating wipe, Instruction Sheet



FSTBP™ Duct Sealant Burst Pack - Polywater

Part No. FSTBP-200KIT1

FSTBP Duct Sealant comes in an easy to use, self-dispensing burst pack.

Ideal for the protection of conduits 125mm to 200mm.

Part No.	Kit Includes
FSTBP-200KIT1	1 x FSTBP-200KIT1-200 Burst Pack 1x Pair of gloves, 1 x Sanding cloth 4 x Foam Strips, 1 x Prep. Wipes, 1 x Instructions

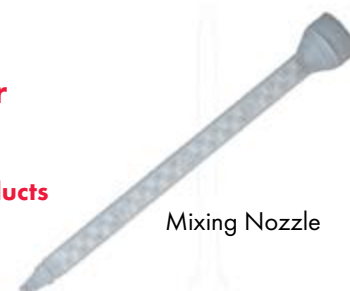
FST MINI Duct Sealant - Polywater

Part No. Various

Effectively Seals Small Conduits and Inner-ducts

Polywater® FST™ MINI is 50ml field ready kit.

Recommended for small conduits 20 to 50mm.



Mixing Nozzle

Part No.	Description
FST-MINI	1 x 50ml FST Cartridge, 2 x Mixing Nozzles, 6 x Foam Discs 1x Pair of gloves, 1 x Instructions
TOOL-50-11	Application Tool

Transformer Leak Repair - Polywater

PowerPatch™ Leak Repair Kit

Part No. EPCT Series

The PowerPatch® Sealant is provided in a kit containing the surface preparation and patching materials necessary to repair leaks in oil filled transformers, SF6 Gas, sealing lead-sheathed cables, potheads and other oil-filled electrical equipment.

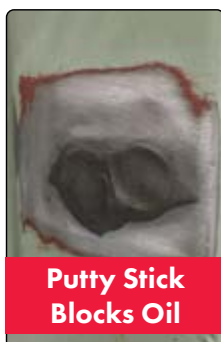


Part No. EPCT-KIT1 + TOOL-50-11

Repair active leaks



Active Leak



Putty Stick
Blocks Oil



Repaired Leak

**Non-conductive with
a dielectric strength of 43kV
(ASTM D149)**



Part No. EPCT-250KIT1

Application Tool: TOOL-50-11



Features

- **Quick plugging action** - A fast-cure putty that stops oil
- **Permanent seal** - A 2-part paste overcoat forms a permanent seal
- **Durable** - Finished seal is impervious to water, oil and weather
- **Fast** - System can plug and seal active leaks in minutes
- **Saves money** - Faster than welding. Transformer may stay in service
- **Simple** - Eliminates "bagging" or removal from field and unexpected outages
- **Convenient** - Kit contains all materials needed to fix leak while in the field

Part No.	Kit Includes
EPCT-KIT1	2 x PowerPatch® 2-Part 50ml Cartridges with 4 static mixers 2 x Putty sticks, 8 x Type TR™ cleaning and preparation wipes 1 x 600mm sandpaper strip, 4 x application sticks, and instructions
EPCT-KIT1-G	Kit As Above (EPCT-KIT1) + Application Gun (TOOL-50-11)
TOOL-50-11	Application Gun only. Suits Powerpatch EPCT-KIT1 and Mini FST
EPCT-250KIT1 (Large Format)	1 x PowerPatch® 2-Part 250ml Cartridge with 3 x static mixers 2 x Putty sticks, 8 x Type TR™ cleaning and preparation wipes 1 x 600mm sandpaper strip, 3 x application sticks, 1 x instruction sheet
EPCT-250KITB12 (Large Format)	12 x PowerPatch® 2-Part 250ml Cartridge with 12 x static mixers 24 x Nitrile Gloves, 1 x 600mm sandpaper strip 12 x application sticks, 1 x instruction sheet

SIMPLE TO APPLY

Use the PowerPatch® System's putty stick to block oil and SF6 leaks.

Then make a permanent patch with the fast cure, 2-part paste overcoat. Ensure optimal mix and performance with pre-measured packaging. It is non-conductive and has a dielectric strength of 43KV (ASTM D149).

Fixes leaks fast. At 21 °C, the putty and sealant harden in about 10 minutes.

The finished patch is resistant to transformer oil and SF6 and has held oil pressures in excess of 100 psi. Product is able to be stored and reused multiple times please refer to the SDS for shelf life information. Preparation is extremely important, and the kit provides everything needed to do the job, although in instances of excessive oil leakage or dirt accumulation, separate scrubbing rags such as Grime-Away™ Cleaning Wipes are helpful.

Contact TEN for advice on your leaking equipment

**Ideal for: Transformers
SF6 Gas Equipment
Oil-filled equipment
Pothheads (UG-HO)**



Also suitable for use with battery powered caulking guns

Cleaning wipes - Polywater

Silicon Treated Wiping Cloth

- Deposits a water repellent film while removing dust and dirt particles from the surface of hot sticks and insulated tool handles
- The 460mm x 460mm cotton cloth is an open-type weave specially selected for removing foreign material from the surface of insulated tools and has bound edges to eliminate fraying which extends the life of the cloth
- The cloth is packaged in a sealed plastic bag with instructions for compliance with OSHA regulations for cleaning and inspection of live line tools
- Regular use of the silicone treated cloth will add to the life and safety of the tools
- For added safety and increased life of live line tools

Part No.	Description	Wt (kg)
10-090	460 x 460mm Silicone Treated Wiping Cloth	0.05

Boom Cleaner Wipes

- Convenient, pre-saturated, lint-free wipes in two sizes
- Large and durable for maximum surface coverage
- Won't remove or adversely affect gel coat & prevents "build-up" over time
- Powerful cleaner removes grease, dirt, tar, and grime
- Removes road and sea spray salts (salt water is more conductive)
- Water soluble for easy water rinsing
- Designed for one time use and easy disposal
- Meets OSHA Maintenance Reg CFR 29 Part 1910

Part No.	Description	Pack
B-1	Individually saturated 610 x 610mm wipe in sealed foil	1
B-D72	Dispenser with 72 wipes	72

Hot Stick Cleaner and Water Repellent Wipe

- Convenient, pre-saturated, lint-free wipe
- Dual action - cleans and applies water repellent
- Does not remove or adversely affect gloss coat
- Evaporates quickly
- No "build-up" over time
- Removes grease, dirt, and grime
- Prevents continuous water film on stick in wet weather
- Designed for one time use and easy disposal
- Meets IEEE maintenance recommendations (Std #978)

Part No.	Description	Pack
S-1	Pre-saturated lint-free 600mm ² wipe in sealed foil (Single Pack)	1
S-1-K	Pre-saturated lint-free 600mm ² wipe in sealed foil (Box of 144)	144

Silicone Wiping Cloths - Disposable

- 50 wipes in a heavy duty cardboard dispenser box that can be installed on a wall or post in a convenient location to the line trucks, each are individually packaged
- Leaves a silicone moisture barrier which enables water to bead up. This eliminates the blanket effect when using hot sticks in wet conditions.
- Excellent for daily wiping of your hot sticks prior to use
- Removes contaminants such as dirt, oils, creosote, and other undesirable matter
- Environmentally safe, the used wipes can be disposed of in normal waste containers

Part No.	Description	Pack
10-188	Hot Stick Wipes - box	50
10-188-1	Hot Stick Wipe - individual	1

