PREFORMED LINE PRODUCTS
The connection you can count on.

TRANSMISSION
Product Catalogue

COMMUNICATIONS ENERGY SPECIAL INDUSTRIES SOLAR

New Zealand Manufacturer of

Power Line Hardware
For Transmission Networks

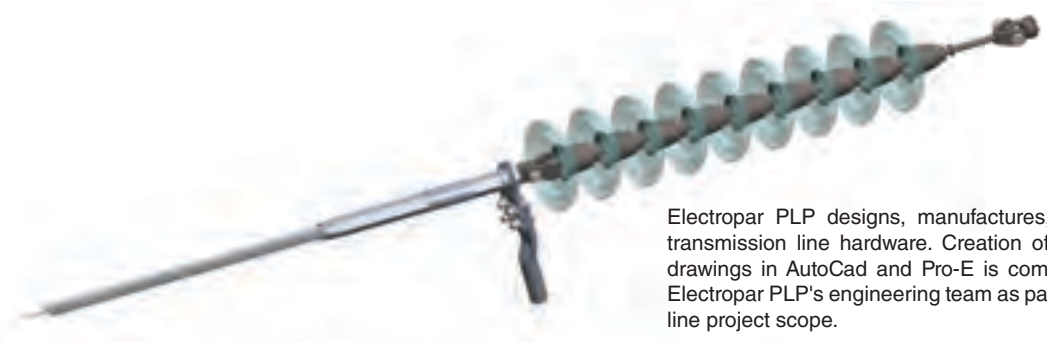
ELECTROPAR
PREFORMED LINE PRODUCTS

The Connection You Can Count On

Transmission Catalogue

Table of Contents — Sec/Page

Table of Contents — Sec/Page



Electropar PLP designs, manufactures, tests and supplies transmission line hardware. Creation of 2D or 3D stringset drawings in AutoCad and Pro-E is commonly completed by Electropar PLP's engineering team as part of the transmission line project scope.

products, services capabilites

Electropar's design, development and manufacturing strengths, together with its market leading distribution portfolio enables the company to offer a comprehensive product range through its product divisions.

ENERGY

Transmission, distribution and fibre optic solutions for the Power Utility Industry.

RACK TECHNOLOGIES

Free standing and wall mounted data cabinets with all the accessories to connect and power the electronic devices within.

COMMUNICATIONS

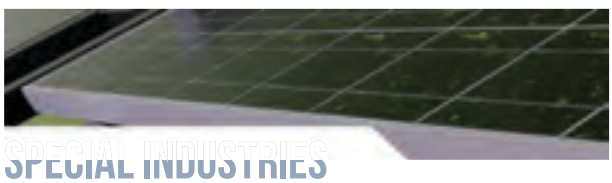
Fibre optic, copper, demarcation, bonding, strand and cable solutions for telecommunications, network operators, cable television and broadband service providers.

MARINE

Suppliers and Manufactures to the Marine, Defence and Ship Building Industry.

INDUSTRIAL

Leaders in Hazardous Area, Gas, Dust, Ex Protected Electronic Equipment. Manufacturing Safety and OEM Component Supply.



SPECIAL INDUSTRIES

Specialised industry solutions for agriculture, metal building, elevator, tower and antenna, and marine applications.

Preformed

Preformed Line Products (PLP) is a worldwide designer, manufacturer and supplier of high quality cable anchoring and control hardware and systems, fiber optic and copper splice closures, and high-speed cross-connect devices.

Our core markets are divided into four distinct categories: communications, energy, special industries and solar. Our customer base includes telecommunications network operators, cable television and broadband service providers, power utilities, corporations and enterprise networks, government agencies and educational institutions. We also serve several specialized areas under our special industries and solar market categories.

With ground-breaking and innovative solutions like our line of COYOTE® Fiber Optic Products, and our THERMOLIGN® family of power transmission products, PLP has consistently pioneered modern advances in communications and power utility networks since 1947.

You can count on our products and our people day in and day out, year after year. Not just in friendly environments, but in hostile ones. That's because a steadfast commitment to quality is not just a goal at PLP, it's an obsession. In our engineering laboratories, on the manufacturing line, all the way to field installation, it's the guiding principle of everything we do. You can rest assured that the reliability of our products and the dedication of our people are the things that make Preformed Line Products "the connection you can count on."

PLP®
PREFORMED
LINE PRODUCTS

Preformed Line Products has been a supplier to Electric Power and Telecommunications utilities in the international market since the mid-1950s.

onsite capability

engineering, research, development

Our engineering team specialises in product design for manufacture of customised solutions to meet the Electrical, Communications, Industrial and Defence Markets. We know our products meet industry standards through testing in our world class accredited Electrical Test Laboratory.

RESEARCH & DEVELOPMENT ENGINEERING

- Power Engineering: Design, manufacture and Installation of five test transformers within our laboratory.
- Electrical Testing: IANZ (ILAC MRA Signatory) accredited laboratory to heat cycle test IS / AS / ANSI / IEC / AS / NEMA / BS Stds.
- Mechanical Testing: Destructive testing to all standards.
- Failure Analysis: Specialising in failed joint investigation simulation and solutions.
- Mechanical Systems: Electropar PLP has developed numerous test methods to comply with technical specifications for EHV, HV, LV, military and communications standards.
- Engineering Standards: Thorough working knowledge of all applicable international standards and our team provide peer review services to PLP Global Subsidiaries.
- Test Method & Procedure: Peer review of client technical specification and interpretation for manufacture.
- Hardware/Software: Labview control and DAQ designed in-house.

SYSTEMS AND APPLICATION ENGINEERING

- Application Engineering: Understanding customers applications and providing engineered solutions eg. Stahl hazardous equipment, S&C electrical switchgear and mobile generation & control units (MGCU).
- System Customisation: The Electropar PLP team are highly engaged with contractors, designers and end users, facilitating project activities within practical completion milestones.
- Project Engineering: our engineers take the responsibility of connecting all internal / external project activities.
- Bill of Material Creation: Electropar is an expert of project BOM creation based on client drawings or scope of works.
- Tender Prep/Submission - Electropar routinely prepares comprehensive packages containing calculations, technical comments and itemised price schedules specific to the scope tendered.

DESIGN ENGINEERING

• Mechanical Design	100+ yrs Mech Egr Experience.
• Electrical Design	100+ yrs Elec Egr Experience.
• Integrated Solutions	15,000+ EPLP Products, within 15-20 market segments allows the team to draw on a variety of existing technology integrating novel solutions within our current customer base.
• Design Manufacture	Fit, form and function.
• Materials Selection	Polymers, metals, elastomers and coatings.
• Design Consultation	Technical design support on a contract basis.
• New Product Develop.	Design tools, machining capabilities and testing tools for rapid product development.

distribution

- Cut Out Fuses
- Helical Splices
- Tygard
- Superlocks
- Stayguards
- Armour Rods
- Line Guards
- Repair Rods
- Bird Flight Diverter
- PREFORMED™ Ties
- LV/HV ABC Fittings
- Guy Grip Dead-ends
- Spiral Vibration Dampers
- Distribution Grip Dead-ends
- Forged/Cast Hardware
- Fitting & Pole Hardware
- S&C Air Break Switches
- S&C Intellirupter switches.
- Safety Service Disconnect
- Surge Arresters
- Insulators
- Covered Conductor Systems

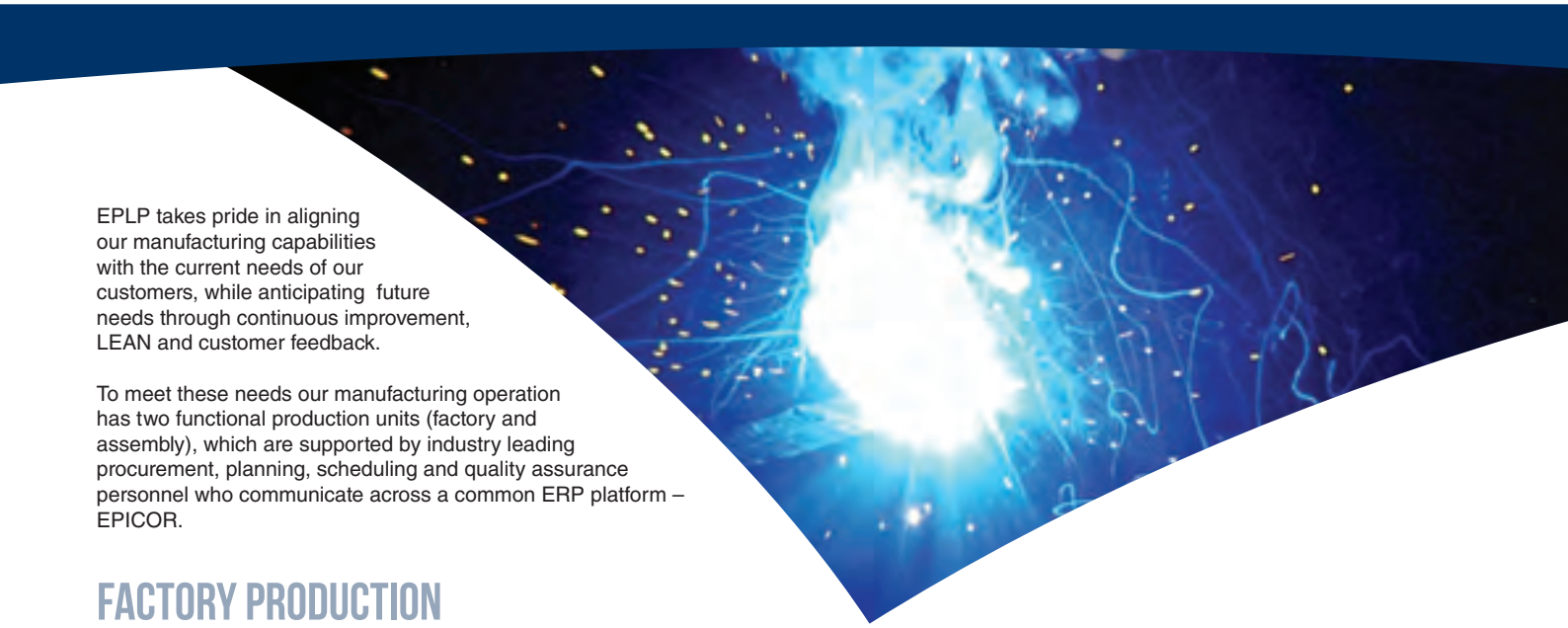
transmission

- Compression Fittings
- Helical Fittings
- OPGW & ADSS Fittings
- ARMOR-GRIP® Suspension
- ARMOR-GRIP® Support
- Spacer Dampers
- VORTX® Vibration Dampers
- Suspension Clamps
- Twinlok Spacers
- Spiral Vibration Dampers
- Yoke Plates
- Extension and Sag Links
- Guy Fittings
- Corona Grading Rings
- Polymeric Insulators
- Glass Disc Insulators
- Porcelain Disk & Post Insulators
- Substation Disconnectors

substation

- Fittings for overhead strung bus including terminations, spacers, jumper and dropper terminals as well as forged and plate steel hardware.
- Specialised quick-disconnect systems QDS® (Patent Pending) and light weight under-hung systems that reduce substation complexity and foot print by up to 30%.
- Compression, bolted, and welded conductor terminals for flexible conductors connecting circuit breakers, transformers, CVTs and disconnectors within substations.
- Busbar sliding, fixed, and expansion supports, including fasteners for the whole system.
- Full factory-fabricated busbar systems ready for final bolted or welded fabrication at the substation site.

Energy



EPLP takes pride in aligning our manufacturing capabilities with the current needs of our customers, while anticipating future needs through continuous improvement, LEAN and customer feedback.

To meet these needs our manufacturing operation has two functional production units (factory and assembly), which are supported by industry leading procurement, planning, scheduling and quality assurance personnel who communicate across a common ERP platform – EPICOR.

FACTORY PRODUCTION

Fabrication

Specialist aluminium welders certified, to AS1665 by all major australasian contractors and utilities. Each month the team fabricates over 10 Tonnes of aluminium, 1 tonne of steel and varying amounts of copper. Welding quality is tested during manufacture at random intervals by 3rd party ultrasonic inspection.

Machining

EPLP uses a mix of CNC (4-Mills, 2-Lathes) and manual (1-Mill, 5-Lathes) machining operations, optimising production runs of single or thousands of units. There has not been a machining job to date that our team have been unable to master, whether a one off job or high volume run, with market driven lead times. The team are continually developing specialised setups, applying clever tooling techniques to minimise waste while improving throughput and quality. We ensure design integrity of our products through integrated CADCAM systems, which update NC code if a product model is revised.

Forming

Cornerstone to EPLPs products are the hot and cold metal forming processes, transforming aluminium and copper tube, round and flat sections into final shapes. The workhorses of this process are our hydraulic presses from 60 to 200 ton and mechanical presses from 20 to 200 Tons, as well as pipe rollers and tube / bar bending machines. Innovative upsetting and sleeving technology is commonplace, as is captive tooling that eliminates multi-step operations.

Mixing

EPLP mixes our proprietary electrical jointing compounds for copper and aluminium joints on site, using selected base greases and compound ingredients to our type tested composition. These compounds are supplied in our products and separately within local and overseas markets through the PLP global supply chain.

Kitting

Due to the specific requirements of NZ Customers, EPLP sources the best products from local and overseas suppliers, then kits these to meet market requirements. Currently this team kit cut-out fuses, communication hardware, fibre products and a number of other key product lines. Due to the nature of these short run, customised and diverse products. The Electropar PLP team are expert at labelling, packaging, kit components, and documentation upon request.

Packing

Our packing team understands the importance of their role as they are the last persons to handle the product prior to delivery. This team packs for local and export markets, for distribution by land, sea and air. Typically the team will handle 30-60 orders a day under tight deadlines, for example export container ex-works dates are locked several weeks prior to Jobs starting on our factory floor.

Engineering Workshop

New tools, jigs and prototyping concepts are first trialled through our Engineering Workshop to ensure success of production setups and volume runs. The workshop is equipped to make one-off prototype samples as well as provide additional capacity when other production work centers are over-capacity.

Traceability and Verification

Electropar provides full traceability of current carrying and mechanical load-rated products back to the raw material used for manufacture. Our barcoded job cards are scanned throughout the manufacturing process providing verification of materials used during manufacture and operator history. Electropar carefully selects vendors and audits our supply chain regularly.

Pictorial Index

1. TERMINATION

2. SUSPENSION & SUPPORT

2. SUSPENSION & SUPPORT CONTINUED

3. JOINTNG

3. JOINTNG CONTINUED

4. PROTECTION

Pictorial Index

Pictorial Index

Pictorial Index

Pictorial Index

Section 1 - Termination

Table of Contents — Section/Page

Compression Deadends

Tongue Type

Electropar PLP manufactures a range of compression deadends for AAC, AAAC, ACSR, SC/AC and SC/GZ earth wires. Deadends are available in eye, tongue or clevis configurations. In-line or transverse palms to suit any jumper orientation are available.

In addition, Electropar PLP manufactures tubular Deadend Repair Assemblies. Deadend Repair fittings for ACSR are double the length of standard compression tubular Deadend Assemblies. Repair deadends save time at installation when a high resistance fitting needs replacing and minimise the number of joints made within a transmission or distribution system.

Electropar PLP's range of deadend fittings have been developed to suit standard Canadian, British, Australian and New Zealand ACSR conductors from 12mm to 40mm OD and many have been tested mechanically to IEC 61284 Edition 2. The fittings are all installed with industry standard tooling and can be applied to earthwires as well as phase conductors.

Oval Eye Type

Features:
- Engineered to hold 100% conductor UTS
- Designed for standard crimping dies and presses
- Tapered tube design to relieve stress at conductor/Deadend meeting point

Safety and Application Considerations:
- Do not modify this product in any way
- This product is intended for use by qualified linesmen only. When working in an area of energised lines with this product, extra care should be taken to prevent accidental electrical contact
- Ensure correct procedures are carried out for conductor preparation; incorrect preparation can cause insufficient electrical bonding and/or compromise mechanical strength
- Make certain conductor has fully entered the recommended distance into the compression sleeve
- Choose correct die size marked on the compression sleeve
  Caution: Incorrect die size may cause failure/damage in service
- Ensure compression dies are installed correctly into the compression tool
- **Important:** Ensure die faces have completely closed upon compression, if not re-check previous considerations
- Safety equipment including glasses should be worn at all times when operating the compression tool
- Compression dies are a precision tool and should be maintained and looked after accordingly

Clevis Type

Compressed AAAC

Compressed ACSR

Compression Deadends

EPTDA

Tongue Type For ACSR Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Steel Die Type	Steel Die A/F (mm)
EPTDA-MINK	1/6/3.66	10.97	JDA 6	22.00	N / A	N / A
EPTDA-PIGEON	1/6/4.25	12.75	JDA 6	22.00	N / A	N / A
EPTDA-DOG	7/1.57, 6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTDA-HARE	1/6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTDA-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPTDA-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11
EPTDA-SKUNK	7/12/2.59	12.95	JDA 7	25.43	JDS 8	12.70
EPTDA-WOLF	7/30/2.59	18.14	JDA 8	28.19	JDS 8	12.70
EPTDA-GOAT	7/30/3.71	25.96	JDA 10	36.22	JDS 10	16.05
EPTDA-ZEBRA	7/54/3.18	28.62	JDA 11	40.21	JDS 10	16.05
EPTDA-PHEASANT	19/2.33, 54/3.90	35.10	DA 13	49.71	DS 12	20.22
EPTDA-MOA	7/2.89, 76/3.72	38.40	DA 14	53.87	DS 10	16.05
EPTDA-CHUKAR	7/3.71, 84.3.70	40.70	DA 14	53.87	DS 11	17.50

EPTDAOE

Oval Eye Type For ACSR Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Steel Die Type	Steel Die A/F (mm)
EPTDAOE-MINK	1/6/3.66	10.97	JDA 6	22.00	N / A	N / A
EPTDAOE-PIGEON	1/6/4.25	12.75	JDA 6	22.00	N / A	N / A
EPTDAOE-DOG	7/1.57, 6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTDAOE-HARE	1/6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTDAOE-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPTDAOE-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11
EPTDAOE-SKUNK	7/12/2.59	12.95	JDA 7	25.43	JDS 8	12.70
EPTDAOE-WOLF	7/30/2.59	18.14	JDA 8	28.19	JDS 8	12.70
EPTDAOE-GOAT	7/30/3.71	25.96	JDA 10	36.22	JDS 10	16.05
EPTDAOE-ZEBRA	7/54/3.18	28.62	JDA 11	40.21	JDS 10	16.05
EPTDAOE-PHEASANT	19/2.33, 54/3.90	35.10	DA 13	49.71	DS 12	20.22
EPTDAOE-MOA	7/2.89,76/3.72	38.40	DA 14	53.87	DS 10	16.05
EPTDAOE-CHUKAR	7/3.71,84.3.70	40.70	DA 14	53.87	DS 11	17.50

Compression Deadends

EPCDC

Clevis Type For ACSR Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Steel Die Type	Steel Die A/F (mm)
EPCDC-MINK	1/6/3.66	10.97	JDA 6	22.00	N / A	N / A
EPCDC-PIGEON	1/6/4.25	12.75	JDA 6	22.00	N / A	N / A
EPCDC-DOG	7/1.57, 6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPCDC-HARE	1/6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPCDC-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPCDC-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11

EPTDRA

Tongue Repair Type For ACSR Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Steel Die Type	Steel Die A/F (mm)
EPTDRA-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPTDRA-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11
EPTDRA-SKUNK	7/12/2.59	12.95	JDA 7	25.43	JDS 8	12.70
EPTDRA-WOLF	7/30/2.59	18.14	JDA 8	28.19	JDS 8	12.70
EPTDRA-GOAT	7/30/3.71	25.96	JDA 10	36.22	JDS 10	16.05
EPTDRA-ZEBRA	7/54/3.18	28.62	JDA 11	40.21	JDS 10	16.05
EPTDRA-PHEASANT	19/2.33,54/3.90	35.10	DA 13	49.71	DS 12	20.22
EPTDRA-MOA	7/2.89,76/3.72	38.40	DA 14	53.87	DS 10	16.05
EPTDRA-CHUKAR	7/3.71,84.3.70	40.70	DA 14	53.87	DS 11	17.50

Compression Deadends

EPCDE

Tongue Type For AAAC Conductors

Part Number AAAC / 1120	Part Number AAAC / 6201A	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F (mm)
EPCDE-HYDROGEN-22.0AF	EPCDE-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPCDE-IODINE-22.0AF	EPCDE-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPCDE-KRYPTON-28.5AF	EPCDE-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPCDE-LUTELIUM-28.5AF	EPCDE-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPCDE-NEON-28.5AF	EPCDE-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPCDE-NITROGEN-34.5AF	EPCDE-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPCDE-NOBELIUM-40.0AF	EPCDE-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCDE-OXYGEN-40.0AF	EPCDE-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPCDE-PHOSPHORUS-40.0AF	EPCDE-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPCDE-SELENIUM-44.5AF	EPCDE-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPCDE-SILICON-44.5AF	EPCDE-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPCDE-SULPHUR-47.5AF	EPCDE-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPCDE-XENON-70.0AF	EPCDE-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPCDOE

Oval Eye Type For AAAC Conductors

Part Number AAAC / 1120	Part Number AAAC / 6201A	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F (mm)
EPCDOE-HYDROGEN-22.0AF	EPCDOE-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPCDOE-IODINE-22.0AF	EPCDOE-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPCDOE-KRYPTON-28.5AF	EPCDOE-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPCDOE-LUTELIUM-28.5AF	EPCDOE-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPCDOE-NEON-28.5AF	EPCDOE-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPCDOE-NITROGEN-34.5AF	EPCDOE-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPCDOE-NOBELIUM-40.0AF	EPCDOE-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCDOE-OXYGEN-40.0AF	EPCDOE-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPCDOE-PHOSPHORUS-40.0AF	EPCDOE-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPCDOE-SELENIUM-44.5AF	EPCDOE-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPCDOE-SILICON-44.5AF	EPCDOE-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPCDOE-SULPHUR-47.5AF	EPCDOE-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPCDOE-XENON-70.0AF	EPCDOE-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

Compression Deadends

EPCDC

Clevis Type for AAAC Conductors

Part Number AAAC / 1120	Part Number AAAC / 6201A	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F
EPCDC-HYDROGEN-22.0AF	EPCDC-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPCDC-IODINE-22.0AF	EPCDC-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPCDC-KRYPTON-28.5AF	EPCDC-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPCDC-LUTELIUM-28.5AF	EPCDC-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPCDC-NEON-28.5AF	EPCDC-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPCDC-NITROGEN-34.5AF	EPCDC-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPCDC-NOBELIUM-40.0AF	EPCDC-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCDC-OXYGEN-40.0AF	EPCDC-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPCDC-PHOSPHORUS-40.0AF	EPCDC-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPCDC-SELENIUM-44.5AF	EPCDC-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPCDC-SILICON-44.5AF	EPCDC-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPCDC-SULPHUR-47.5AF	EPCDC-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPCDC-XENON-70.0AF	EPCDC-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPCDE

Tongue Type For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F
EPCDE-WEKE	7/4.72	14.16	JDA 7	25.43
EPCDE-BEE	7/4.90	14.70	JDA 6	22.00
EPCDE-CRICKET	7/5.35	16.10	JDA 7	25.43
EPCDE-WETA	19/3.35	16.75	JDA 7	25.43
EPCDE-HUHU	37/2.52	17.60	JDA 7	25.43
EPCDE-MATA	19/3.86	19.30	JDA 7	25.43
EPCDE-COCKROACH	19/4.21	21.10	JDA 9	32.33
EPCDE-BUTTERFLY	19/4.64	23.30	JDA 9	32.33
EPCDE-CENTIPEDE	37/3.78	26.46	JDA 11	40.21
EPCDE-CICADA	37/4.65	32.60	JDA 12	45.71

Compression Deadends

EPCDOE

Oval Eye Type for AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F
EPCDOE-WEKE	7/4.72	14.16	7	25.43
EPCDOE-BEE	7/4.90	14.70	6	22.00
EPCDOE-CRICKET	7/5.35	16.10	7	25.43
EPCDOE-WETA	19/3.35	16.75	7	25.43
EPCDOE-HUHU	37/2.52	17.60	7	25.43
EPCDOE-MATA	19/3.86	19.30	7	25.43
EPCDOE-COCKROACH	19/4.21	21.10	9	32.33
EPCDOE-BUTTERFLY	19/4.64	23.30	9	32.33
EPCDOE-CENTIPEDE	37/3.78	26.46	11	40.21
EPCDOE-CICADA	37/4.65	32.60	12	45.71

EPCDC

Clevis Type For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F
EPCDC-WEKE	7/4.72	14.16	7	25.43
EPCDC-BEE	7/4.90	14.70	6	22.00
EPCDC-CRICKET	7/5.35	16.10	7	25.43
EPCDC-WETA	19/3.35	16.75	7	25.43
EPCDC-HUHU	37/2.52	17.60	7	25.43
EPCDC-MATA	19/3.86	19.30	7	25.43
EPCDC-COCKROACH	19/4.21	21.10	9	32.33
EPCDC-BUTTERFLY	19/4.64	23.30	9	32.33
EPCDC-CENTIPEDE	37/3.78	26.46	11	40.21
EPCDC-CICADA	37/4.65	32.60	12	45.71

Compression Deadends

CDS

Eye Type For SC/GZ,SC/AC and ACSR

Part Number	Conductor Stranding	A/F Die Size (mm)
CDS-083-1	7/2.75	17.0
CDS-090	4/3/3.00	17.0
CDS-098-1	7/3.25	17.0
CDS-105	19/2.00	19.0
CDS-113-2	73.75	19.0
CDS-120-1	7/4.00	19.0
CDS-128-2	7/4.25	19.0

Note: Made from 304 grade stainless steel incorporating an earth bonding point.

CDST

Tongue Type For SC/GZ and SC/SC

Part Number	Conductor Stranding	A/F Die Size (mm)
CDST-083	7/2.75	17.0
CDST-090	3/4/3.00	17.0
CDST-098	7/3.25	17.0
CDST-113	7/3.75	19.0
CDST-128	7/4.25	19.0

Note: Made from 304 grade stainless steel incorporating an earth bonding point.

Deadend Jumper Terminals

EPJT

For ACSR, AAAC & AAC Conductors

Jumper Terminals provide a reliable way of connecting the jumper to the deadend. A feature of this design is that the palm of the compression terminal is forged from the same extrusion as the barrel. For installation, the compression barrel of the EPJT connector is compressed with industry standard hexagonal dies. The EPJT connector can be ordered bent or angled or as a combination of both bent and angled as illustrated below. Although the bent (vertical) angle is designated by the catalogue number, if a horizontal angle is required it must be specified as a suffix to the catalogue number.

Note:

1. Bent Angles between 0° and 90° are available for all jumper terminals
2. Alternate terminal palm configurations can be specified if required.
3. Angled terminal palm configurations between 0°-45° are available for all jumper terminals.
4. For undrilled terminal palm add a "-u" suffix to the end at the catalogue number.
5. Bent and angled jumper terminals can also be supplied in welded terminal palm configuration.

Straight

0°

Bent

15°

30°

45°

60°

90°

Angled

15°

30°

45°

Bent & Angled

45° Bent
30° Angled

Deadend Jumper Terminals

EPJT

For ACSR Conductors

Part Number ACSR/1200 F Alloy	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Terminal Palm Detail Suit Standard Deadend
EPJT-2/M12/50-B-15-OP-MINK-6	1/6/3.66	10.97	JDA 6	22.00	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-15-OP-PIGEON-6	1/6/4.25	12.75	JDA 6	22.00	2H @ 50mm cntrs, M12
EPJT-2/M16/50-B-15-OP-DOG-7	7/1.57, 6/4.72	14.17	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-HARE-7	1/6/4.72	14.17	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-COYOTE-7	7/1.90, 26/2.54	15.88	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-HYENA-7	7/1.93, 7/4.39	14.60	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-SKUNK-7	7/12/2.59	12.95	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-WOLF-8	7/30/2.59	18.14	JDA 8	28.19	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-GOAT-10	7/30/3.71	25.96	JDA 10	36.22	3H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-ZEBRA-11	7/54/3.18	28.62	JDA 11	40.21	3H @ 50mm cntrs, M16
EPJT-4/M16/50-B-15-OP-PHEASANT-13	19/2.33, 54/3.90	35.10	DA 13	49.71	4H @ 50mm cntrs, M16
EPJT-4/M16/50-B-15-OP-MOA-14	7/2.89, 76/3.72	38.40	DA 14	53.87	4H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-CHUKAR-14	7/3.71, 84.3.70	40.70	DA 14	53.87	4H @ 50mm cntrs, M16

Note: 15 degree bent offset palm jumper terminals are standard for ACSR deadends as deadend terminal palm is also 15 degrees

Deadend Jumper Terminals

EPJT

For AAAC Conductors

Part Number AAAC /1120 Alloy	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F (mm)	Terminal Palm Detail Suit Standard Deadend
EPJT-2/M12/50-B-30-OP-HYDROGEN-22.0AF	7/4.50	13.5	111.3	22.0	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-IODINE-22.0AF	7/4.75	14.3	124.0	22.0	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-KRYPTON-28.5AF	19/3.25	16.3	157.6	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-LUTELIUM-28.5AF	19/3.50	17.5	182.8	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-NEON-28.5AF	19/3.75	18.8	209.8	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-NITROGEN-34.5AF	37/3.00	21.0	261.6	34.5	2H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-NOBELIUM-40.0AF	37/3.25	22.8	307.0	34.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-OXYGEN-40.0AF	19/4.75	23.8	336.7	40.0	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-PHOSPHORUS-40.0AF	37/3.75	26.3	408.5	40.0	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-SELENIUM-44.5AF	61/3.25	29.3	506.1	44.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-SILICON-44.5AF	61/3.50	31.5	586.9	44.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-XENON-70.0AF	91/4.50	49.5	1447.0	70.0	4H @ 50mm cntrs, M12

Note: 30 degree bent offset palm jumper terminals are standard for AAAC as deadend terminal palm is straight.

Part Number AAAC /6201A Alloy	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	A/F DIE (mm)	Terminal Palm Detail Suit Standard Deadend
EPJT-2/M12/50-B-30-OP-JADE-22.0AF	7/4.50	13.5	111.3	22.0	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-JASPER-22.0AF	7/4.75	14.3	124.0	22.0	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-OPAL-28.5AF	19/3.25	16.3	157.6	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-PEARL-28.5AF	19/3.75	18.8	209.8	28.5	2H @ 50mm cntrs, M12
EPJT-2/M12/50-B-30-OP-RUBY-34.5AF	37/3.00	21.0	261.6	34.5	2H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5	4H @ 50mm cntrs, M12
EPJT-4/M12/50-B-30-OP-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0	4H @ 50mm cntrs, M12

Note: 30 degree bent offset palm jumper terminals are standard for AAAC as deadend terminal palm is straight.

Deadend Jumper Terminals

EPJT

For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Terminal Palm Detail Suit Standard Deadend
EPJT-2/M16/50-B-15-OP-WEKE-7	7/4.72	14.16	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-BEE-6	7/4.90	14.70	JDA 6	22.00	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-CRICKET-7	7/5.35	16.10	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-WETA-7	19/3.35	16.75	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-HUHU-7	37/2.52	17.60	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-CHAFER-8	19/3.78	18.90	JDA8	28.19	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-MATA-9	19/3.86	19.30	JDA 7	25.43	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-COCKROACH-9	19/4.21	21.10	JDA 9	32.33	2H @ 50mm cntrs, M16
EPJT-2/M16/50-B-15-OP-BUTTERFLY-9	19/4.64	23.30	JDA 9	32.33	2H @ 50mm cntrs, M16
EPJT-3/M16/50-B-15-OP-CENTIPEDE-11	37/3.78	26.46	JDA 11	40.21	3H @ 50mm cntrs, M16
EPJT-4/M16/58x35-B-15-OP-CICADA-12	37/4.65	32.60	JDA 12	45.71	4H @ 58x35mm cntrs,M16

Note: 15 degree bent offset palm jumper terminals are standard for AAC deadends as deadend terminal palm is also 15 degrees

Section 2 - Suspension and Support

Table of Contents

ARMOR GRIP® Suspension

PLP ARMOR-GRIP® Suspension is intended for use on all types of overhead transmission line conductors. It has been specifically designed to reduce the static and dynamic stresses at the suspension point so that the conductor is protected against the effects of conductor motion. It also protects the conductor in the suspension area against impulse and power flash-over arcing.

ARMOR-GRIP® Suspension is a superior alternative to bolted type pivot suspension. ARMOR-GRIP® Suspension provides the best possible conductor protection from bending, compression stress and abrasion.

Line repairs:
Where a conductor has been damaged by a bolted clamp, specially designed ARMOR-GRIP® Suspension can be used to make the repair. Please contact Electropar PLP for more information.

Line Angle:
The maximum recommended line angle for a single suspension AGS is 30°. For angles between 30° and 60°, the ARMOR-GRIP® Suspension Double Assembly is recommended.

Safety and Application Considerations:
- This product is intended for a single (one-time) use and for the specified application, although it may be reapplied twice for re-tensioning within 90 days from initial installation.
- Do not modify this product in any way
- This product is intended for use by qualified linesmen only
- When working in an area of energised lines with this product, extra care should be taken to prevent accidental electrical contact
- For proper performance and personal safety, be sure to select the proper size PREFORMED™ products before application
- PREFORMED™ products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully

ARMOR GRIP® Suspension

AGS-51

AAAC, AAC, ACSR (Conductor Ø 13.48mm - 25.99mm)

For use on: ACSR, AAC, AAAC, compacted all aluminium and compacted ACSR. Conductors above 13.48 mm in diameter. Right-hand lay standard. Series 51 are single, Series 58 are double. Contact Electropar PLP to specify required bolt size. Available in M16 and M20.

Part Number (Single Unit)	Part Number (Double Unit)	Typical Conductors	Conductor Diameter Range (mm)	Colour Code
AGS-5102	AGS-5802	Hydrogen	13.48-13.77	Green
AGS-5103	AGS-5803		13.78-14.09	Brown
AGS-5104	AGS-5804	Dog / Iodine	14.10-14.59	Blue
AGS-5105	AGS-5805	Hyena / Bee	14.60-15.09	Red
AGS-5106	AGS-5806		15.10-15.39	Orange
AGS-5108	AGS-5808	Krypton / Cricket	15.80-16.39	Orange
AGS-5109	AGS-5809	Dingo	16.40-17.09	Black
AGS-5110	AGS-5810		17.10-17.59	Blue
AGS-5111	AGS-5811		17.60-18.09	Yellow
AGS-5112	AGS-5812	Wolf	18.10-18.59	Black
AGS-5113	AGS-5813	Neon	18.60-19.09	Black
AGS-5114	AGS-5814	Jaguar	19.10-19.59	White
AGS-5115	AGS-5815		19.60-20.19	Orange
AGS-5116	AGS-5816		20.20-20.99	Brown
AGS-5117	AGS-5817	Nitrogen / Cockroach	21.00-21.49	Red
AGS-5118	AGS-5818		21.50-22.09	Blue
AGS-5119	AGS-5819		22.10-22.69	Green
AGS-5120	AGS-5820	Nobelium	22.70-23.09	Orange
AGS-5121	AGS-5821	Butterfly	23.10-23.39	Yellow
AGS-5122	AGS-5822	Oxygen	23.40-23.80	Black
AGS-5124	AGS-5824		24.40-25.09	Purple
AGS-5126	AGS-5825	Goat	25.55-26.00	Purple

AGS-58

Double AGS® Suspension is used where the turning angle is greater than 30° and up to 60°. A triangular Yoke Plate is used with Double AGS.

ARMOR GRIP® Suspension

AGS-51

For AAAC, AAC, ACSR (Conductor Ø 26.50mm - 48.97mm)

For use on: ACSR, AAC, AAAC, compacted all aluminium and compacted ACSR. Conductors above 13.48 mm in diameter. Right-hand lay standard. Series 51 are single, Series 58 are double.
Note: Contact Electropar PLP to specify required bolt size. Available in M16 and M20.

Part Number (Single Unit)	Part Number (Double Unit)	Conductor Diameter Range (mm)	Colour Code
AGS-5128	AGS-5828	26.50-27.29	Red
AGS-5129	AGS-5829	27.30-27.69	Green
AGS-5130	AGS-5830	27.70-28.39	Yellow
AGS-5131	AGS-5831	28.40-28.89	Black
AGS-5132	AGS-5832	28.90-29.29	Orange
AGS-5133	AGS-5833	29.30-29.89	Brown
AGS-5134	AGS-5834	29.00-30.69	Orange
AGS-5135	AGS-5835	30.70-31.19	Purple
AGS-5136	AGS-5836	31.20-31.99	Purple
AGS-5137	AGS-5837	32.00-32.69	Blue
AGS-5138	AGS-5838	32.70-33.39	Green
AGS-5139	AGS-5839	33.40-34.39	Black
AGS-5140	AGS-5840	34.40-35.39	Black
AGS-5141	AGS-5841	35.40-35.99	White
AGS-5142	AGS-5842	36.00-36.59	Brown
AGS-5144	AGS-5844	37.50-38.49	Purple
AGS-5145	AGS-5845	38.50-39.59	Red
AGS-5146	AGS-5846	39.60-40.19	Blue
AGS-5147	AGS-5847	40.20-40.99	Green
AGS-5148	AGS-5848	41.00-41.89	Yellow
AGS-5149	AGS-5849	41.90-42.89	Blue
AGS-5150	AGS-5850	42.90-43.89	White
AGS-5151	AGS-5851	43.90-44.49	Brown
AGS-5152	AGS-5852	44.50-45.49	Orange
AGS-5153	AGS-5853	45.50-46.40	Purple

AGS-58

Double AGS® Suspension is used where the turning angle is greater than 30° and up to 60°. A triangular Yoke Plate is used with Double AGS.

ARMOR GRIP® Support

AGS-52

For AAAC, AAC and ACSR

The ARMOR-GRIP® Support is intended for use on aluminium based conductors, and is designed to be used with clamp top horizontal and vertical line post insulators. The ARMOR-GRIP® Support is designed to reduce static and dynamic stress at the support point, so that the conductor is better able to withstand the effect of vibration than with Armor Clamp attachments. ARMOR-GRIP® Support protect against clamping fatigue through bending and compression stress and against flash over arcing.

Part Number	Conductor Diameter Range (mm)	Colour Code
AGS-5204	14.10-14.59	Blue
AGS-5205	14.60-15.09	Red
AGS-5206	15.10-15.39	Orange
AGS-5207	15.40-15.79	Purple
AGS-5208	15.80-16.39	Orange
AGS-5209	16.40-17.09	Blue
AGS-5210	17.17-17.59	Blue
AGS-5211	17.60-18.09	Yellow
AGS-5212	18.10-18.59	Black
AGS-5213	18.60-19.09	Black
AGS-5214	19.10-19.59	White
AGS-5215	19.60-20.19	Orange
AGS-5216	20.20-20.99	Brown
AGS-5217	21.00-21.49	Red
AGS-5218	21.50-22.09	Blue
AGS-5219	22.10-22.69	Green
AGS-5220	22.70-23.09	Orange
AGS-5221	23.10-22.69	Yellow
AGS-5222	23.40-23.79	Blue
AGS-5223	23.80-24.39	White
AGS-5224	24.40-25.09	Purple
AGS-5226	25.60-25.99	Purple
AGS-5227	26.00-26.49	Purple
AGS-5227	26.50-27.29	Black

Part Number	Conductor Diameter Range (mm)	Colour Code
AGS-5228	26.50 - 27.29	Red
AGS-5229	27.30 - 26.69	Green
AGS-5230	27.70 - 28.39	Yellow
AGS-5231	28.40 - 28.89	Black
AGS-5232	28.90 - 29.29	Orange
AGS-5233	29.30 - 29.89	Brown
AGS-5234	29.90 - 30.69	Orange
AGS-5235	30.70 - 31.19	Purple
AGS-5236	31.20 - 31.99	Purple
AGS-5237	31.00 - 32.69	Blue
AGS-5238	32.70 - 33.39	Green
AGS-5239	33.40 - 34.39	Black
AGS-5240	34.40 - 35.39	Black
AGS-5241	35.40 - 35.99	White
AGS-5242	36.00 - 36.59	Brown
AGS-5243	36.60 - 37.49	Orange
AGS-5244	37.50 - 38.49	Purple
AGS-5245	38.50 - 39.59	Red
AGS-5246	39.60 - 40.19	Blue
AGS-5247	40.20 - 40.99	Green
AGS-5248	41.00 - 41.89	Yellow
AGS-5249	41.90 - 42.89	Blue
AGS-5250	42.90 - 43.89	White
AGS-5251	43.90-44.49	Brown
AGS-5252	44.50-45.49	Orange
AGS-5253	45.50-46.40	Purple

Suspension Clamps

D-Y11195 & SCAT

Suspension Trunnion Clamp

Electropar PLP recommends the use of Armor Rods with all bolted suspension clamps as minimum protection at a suspension point. For aluminium based conductors. The clamp is made from cast aluminium with hot dip galvanised fasteners.

Part Number (Use with Line Post Insulators)	Part Number (Suspension)	Conductor Diameter (mm)
	SCAT-1221-A	12.00 - 21.00
D-Y11195		13.00 - 35.00
	SCAT-1628-A	16.00 - 28.00
	SCAT-2838A	28.00 - 38.00
	SCAT-4652-A	46.00 - 52.00

SCIO

Offset Suspension Clamp

Manufactured from cast iron and hot dipped galvanised. For use on copper and SC/GZ.

Part Number	Conductor Diameter (mm)
SCIO-0517	5.00 - 17.00
SCIO-1727	17.00 - 27.00

Add suffix **A** to include Socket Clevis.

CUSHION-GRIP® Suspension and Support

Features:

- Shipped fully assembled with no loose parts. All fasteners are factory installed to eliminate lost hardware in the field
- Installation time is saved due to the simplicity of the product, approximately a quarter of the time to install compared to a typical ARMOUR-GRIP® Suspension unit
- Conductor bending and fatigue is reduced at critical points by the elastomer inserts

CUSHION-GRIP® Suspension:

- Designed for corona free operation in EHV applications
- Ultimate vertical load of 111kN (25 000 pounds)
- Ultimate slip load of between 10–15% of conductor UTS
- Normal operating temperature of 125°C
- Available for high temperature applications, up to 200°C utilising a high temperature insert

CUSHION-GRIP® Support:

- Ultimate vertical load of 22.4kN
- Ultimate slip load of between 10–15% of conductor UTS
- Normal operating temperature of 125°C

Safety and Application Considerations

- The CUSHION-GRIP® Suspension and Support is intended for use on all aluminium based conductors and is designed to reduce the static and dynamic stresses at the support point. The conductor is cushioned by field-proven integral elastomer inserts which guard against abrasion, wear and fatigue
- The level of protection provided by the CUSHION-GRIP® range is comparable to a bolted clamp over Armor Rods. This equates to a reduction in bending stain as high as 50% as compared to a bare conductor in a bolted clamp
- The standard CUSHION-GRIP® Suspension and Support is designed for up to 125°C continuous conductor operation. A high temperature version is available in the CUSHION-GRIP® Suspension range which can be used for applications with continuous conductor operating temperatures up to 200°C

CUSHION-GRIP® Suspension

CGS

For Aluminium Based Conductors

Armor Rods are not required with CGS. To install simply spread the body halves, place over the conductor, and tighten bolts. The CGS clamp is made from cast aluminium with hot dip galvanised fasteners.

Part Number	Conductor Range (mm)		Standard Pack Quantity
	Min	Max	
CGS-1095	7.92	15.44	3
CGS-1096	15.5	22.4	3
CGS-1097	22.5	30.4	3
CGS-1098	30.4	39.2	3
CGS-1120	39.2	39.8	3
CGS-1121	39.8	41.6	3
CGS-1122	41.7	43.3	3
CGS-1123	43.4	45	3
CGS-1124	45	46.5	3
CGS-1125	46.6	48	3
CGS-1126	48.1	49.5	3
CGS-1127	49.5	50.8	3
CGS-1128	50.8	52.1	3

CUSHION-GRIP® Support

CGS

For Aluminium Based Conductors

Part Number	Conductor Range (mm)		Standard Pack Quantity
	Min	Max	
CGS-2100	9.5	14.3	3
CGS-2101	14.3	22.4	3
CGS-2102	22.4	30.4	3

THERMOLIGN® Suspension

THERMOLIGN® Suspension is specifically designed for application on aluminium based high temperature conductors. The suspension unit is rated for a continuous conductor operating temperature of up to 250°C. Maximum 30° line angle for single suspension and up to 60° line angle for double suspension with yoke plate.

Features:

- Dual layer Armor Rod design for maximum mechanical and thermal performance.
- Minimal heat transferred to stringing hardware and insulators.
- Cushion inserts surround the conductor for ultimate protection of susceptible conductor wires against dynamic loading.

Safety and Application Considerations

- This product is intended for a single (one-time) use and for the specified application, although it may be re-applied for re-tensioning within 90 days from initial installation
- Do not modify this product in any way
- This product is intended for use by qualified linesmen only
- When working in the area of energised line with this product, extra care should be taken to prevent accidental electrical contact
- For proper performance and personal safety, be sure to select the proper size PREFORMED™ products before application
- PREFORMED™ products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully

THERMOLIGN® Suspension

TLS

For Aluminium Based Conductors

Part Number (Single Unit)	Part Number (Double Unit)	Conductor Diameter Range (mm)	Inner Colour Code	Outer Colour Code
TLS-0096	TLS-0296	18.0 - 18.4	Green	Purple
TLS-0097	TLS-0297	18.5 - 19.3	Pink	Red
TLS-0098	TLS-0298	19.3 -20.0	White	Blue
TLS-0099	TLS-0299	20.0 - 20.7	Purple	Green
TLS-0100	TLS-0300	20.7 - 21.7	Red	Yellow
TLS-0101	TLS-0301	21.7 - 22.7	Blue	Black
TLS-0102	TLS-0302	22.7 - 23.3	Black	White
TLS-0103	TLS-0303	23.3 - 23.9	Orange	Brown
TLS-0104	TLS-0304	23.9 - 24.8	Green	Orange
TLS-0105	TLS-0305	24.8 - 25.8	Pink	Purple
TLS-0106	TLS-0306	25.8 - 26.8	Purple	Red
TLS-0107	TLS-0307	26.8 - 27.4	White	Blue
TLS-0108	TLS-0308	27.4 - 28.2	White	Green
TLS-0109	TLS-0309	28.2 - 29.2	Yellow	Yellow
TLS-0110	TLS-0310	29.2 - 30.2	Yellow	Black
TLS-0111	TLS-0311	30.2 - 30.7	Yellow	White
TLS-0112	TLS-0312	30.7 - 32.1	Brown	Red
TLS-0113	TLS-0313	32.1 - 33.2	Brown	Blue
TLS-0114	TLS-0314	33.2 - 34.0	Red	Green
TLS-0115	TLS-0315	34.0 - 34.7	Red	Yellow
TLS-0116	TLS-0316	34.7 - 35.7	Blue	Black
TLS-0117	TLS-0317	35.7 - 36.8	Black	White
TLS-0118	TLS-0318	36.8 - 37.9	Orange	Brown
TLS-0119	TLS-0319	37.9 - 38.9	Green	Orange
TLS-0120	TLS-0320	38.9 - 39.9	Pink	Purple

Twin Grip

GTG

For SC/GZ

PREFORMED™ Twin-Grips are designed for SC/GZ earth wire utilising the Electropar PLP aluminium sheave. The fitting is used at support positions and is designed to provide superior mechanical strength and resilience during conductor motion.

Features:
- Easy application
- Long life
- Positive grip

Part Number	Conductor Stranding	Conductor Diameter (mm)	Standard Pack Quantity	Colour Code
GTG-043-54	3/2.00	4.25	10	Yellow
GTG-048-54	7/1.60	4.8	10	Green
GTG-060-54	7/2.00	6	25	White
GTG-075-54	7/2.50	7.5	15	Blue
GTG-083-54	7/2.75	8.25	15	White
GTG-100-54	19/2.00 7/3.25	10.00 9.75	12	Yellow Orange
GTG-113-54	7/4.50	13.5	8	Green
GTG-138-54	19/2.75	13.75	10	White

Note: Add part number AS-54-17 or AS-54-22 if sheave is required.
Standard part numbers (-54) are designed to suit 54mm sheaves.
Contact Electropar PLP for other sizes.

AWTG

For ACSR AND SC/AC

PREFORMED™ Twin-Grips are designed to support ACSR and SC/AC utilising the Electropar PLP Aluminium Sheave. The fitting is designed to be used where a high level of mechanical strength is required. It provides resilience during conductor motion and unbalanced loads.

Features:
- Easy application
- Long life
- Positive grip
- Filler rods can be supplied to allow a bond clamp to be attached for earthwire applications

Part Number	Conductor Stranding	Conductor Diameter (mm)	Standard Pack Quantity	Colour Code
AWTG-075-54	7/2.50	7.5	10	Blue
AWTG-083-54	7/2.75	8.25	10	White
AWTG-101-54	7/3.35	10.05	10	Orange
AWTG-113-54	7/3.75	11.25	10	Black
AWTG-135-54	7/4.50	13.5	8	Green
AWTG-163-54	19/3.25	16.25	6	Orange

Note: Add part number AS-54-17 or AS-54-22 if sheave is required.
Standard part numbers (-54) are designed to suit 54mm sheaves.
Contact Electropar PLP for other sizes.

PREFORMED™ Tygard

GTY

For Earthwire

The PREFORMED™ Galvanised Steel Tygard is designed for earthwire connections at suspension points utilising the Electropar PLP aluminium sheave.

The product provides superior mechanical strength during conductor motion. The fitting can be used with or without filler rods. The filler rods are utilised where an earth-bonding connection is required.

Part Number (Without Filler Rods)	Conductor Stranding	Standard Pack Quantity	Colour Code
GTY-083-54	7/2.75	60	White
GTY-098-54	7/3.25	20	Orange
GTY-113-54	7/3.75	30	Black
GTY-120-54	7/4.00	20	Black
GTY-140-54	19/2.75	20	White
GTY-150-54	7/3.25	20	Orange
GTY-163-54	19/3.25	40	Red

Note: Aluminium Sheave not included.
See page 7-6 for part number details.

Section 3 - Jointing

Table of Contents Section/Page

Midspan Joint

EPJ

For ACSR Conductors

ACSR Midspan Joints are manufactured with an aluminium sleeve and a hot-dipped galvanised steel inner sleeve. The fitting has tapered ends to reduce both compression at this point and minimise corona. ACSR Splices are clearly marked with the area for compression on both inner steel sleeve and the outer aluminium splice body. Each fitting is stamped with the conductor stranding and size, plus the recommended compression die A/F size. Electropar's full tension compression splices meet the mechanical requirements of IEC 61284.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)	Steel Die Type	Steel Die A/F (mm)
EPJ-MINK	1/6/3.66	10.97	JDA 6	22.00	N / A	N / A
EPJ-PIGEON	1/6/4.25	12.75	JDA 6	22.00	N / A	N / A
EPJ-DOG	7/1.57, 6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPJ-HARE	1/6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTJA-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPTJA-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11
EPTJA-SKUNK	7/12/2.59	12.95	JDA 7	25.43	JDS 8	12.70
EPTJA-WOLF	7/30/2.59	18.14	JDA 8	28.19	JDS 8	12.70
EPTJA-GOAT	7/30/3.71	25.96	JDA 10	36.22	JDS 10	16.05
EPTJA-ZEBRA	7/54/3.18	28.62	JDA 11	40.21	JDS 10	16.05
EPTJA-PHEASANT	19/2.33, 54/3.90	35.10	DA 13	49.71	DS 12	20.22
EPTJA-MOA	7/2.89, 76/3.72	38.40	DA 14	53.87	DS 10	16.05
EPTJA-CHUKAR	7/3.71, 84.3.70	40.70	DA 14	53.87	DS 11	17.50

Note: EPJ are one piece aluminium midspan splice fitings. EPTJA are two piece midspan splice asemblies

Cut away view of ACSR midspan joint

Midspan Joint

EPAAAJ

For AAAC Conductors

Midspan Joints for AAAC conductors are single piece fittings. Designed and manufactured to meet the requirements of IEC61284, each fitting is stamped according to conductor stranding size and the recommended compression dies A/F size.

Part Number AAAC / 1120	Part Number AAAC / 6201A	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm^2	Aluminium Die A/F (mm)
EPAAAJ-Hydrogen-22.0AF	EPAAAJ-Jade-22.0AF	7/4.50	13.5	111.3	22.0
EPAAAJ-Iodine-22.0AF	EPAAAJ-Jasper-22.0AF	7/4.75	14.3	124.0	22.0
EPAAAJ-Krypton-28.5AF	EPAAAJ-Opal-28.5AF	19/3.25	16.3	157.6	28.5
EPAAAJ-Lutelium-28.5AF	EPAAAJ-Patronite-28.5AF	19/3.50	17.5	182.8	28.5
EPAAAJ-Neon-28.5AF	EPAAAJ-Pearl-28.5AF	19/3.75	18.8	209.8	28.5
EPAAAJ-Nitrogen-34.5AF	EPAAAJ-Ruby-34.5AF	37/3.00	21.0	261.6	34.5
EPAAAJ-Nobelium-40.0AF	EPAAAJ-Ruthenium-40.0AF	37/3.25	22.8	307.0	34.5
EPAAAJ-Oxygen-40.0AF	EPAAAJ-Rutile-40.0AF	19/4.75	23.8	336.7	40.0
EPAAAJ-Phosphorus-40.0AF	EPAAAJ-Sapphire-40.0AF	37/3.75	26.3	408.5	40.0
EPAAAJ-Selenium-44.5AF	EPAAAJ-Spinel-44.5AF	61/3.25	29.3	506.1	44.5
EPAAAJ-Silicon-44.5AF	EPAAAJ-Tantalum-44.5AF	61/3.50	31.5	586.9	44.5
EPAAAJ-Sulphur-47.5AF	EPAAAJ-Topaz-47.5AF	61/3.75	33.8	673.4	47.5
EPAAAJ-Xenon-70.0AF	EPAAAJ-Zircon-70.0AF	91/4.50	49.5	1447.0	70.0

EPAAJ

For AAC Conductors

Midspan Joints for AAC conductors are single piece fittings. Designed and manufactured to meet the requirements of IEC61284, each fitting is stamped according to conductor stranding size and the recommended compression dies A/F size.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F (mm)
EPAAJ-WEKE	7/4.72	14.16	JDA 7	25.43
EPAAJ-BEE	7/4.90	14.70	JDA 6	22.00
EPAAJ-CRICKET	7/5.35	16.10	JDA 7	25.43
EPAAJ-WETA	19/3.35	16.75	JDA 7	25.43
EPAAJ-HUHU	37/2.52	17.60	JDA 7	25.43
EPAAJ-MATA	19/3.86	19.30	JDA 7	25.43
EPAAJ-COCKROACH	19/4.21	21.10	JDA 9	32.33
EPAAJ-BUTTERFLY	19/4.64	23.30	JDA 9	32.33
EPAAJ-CENTIPEDE	37/3.78	26.46	JDA 11	40.21
EPAAJ-CICADA	37/4.65	32.60	JDA 12	45.71

Midspan Joint

EPTJD / EPTJDA

For ACSR Conductor Repair

Electropar PLP's Repair Midspan Joints for ACSR are double the length of standard compression splices. The fittings are designed to remove the need to insert two new compression joints plus conductor when a midspan joint needs to be removed. Repair Midspan joints have been developed to suit standard Canadian, British, Australian and New Zealand ACSR conductors from 12mm to 40mm OD and many have been tested mechanically to IEC 61284 Edition 2. Repair Midspans save time at installation when high resistance fittings need replacing and minimises the number of joints made within a transmission or distribution system. The fittings are all installed with industry standard tooling and can be applied to earthwires as well as phase conductors.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F	Steel Die Type	Steel Die A/F
EPTJD-MINK	1/6/3.66	10.97	JDA 6	22.00	N / A	N / A
EPTJD-PIGEON	1/6/4.25	12.75	JDA 6	22.00	N / A	N / A
EPTJD-DOG	7/1.57, 6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTJD-HARE	1/6/4.72	14.17	JDA 7	25.43	N / A	N / A
EPTJD-COYOTE	7/1.90, 26/2.54	15.88	JDA 7	25.43	JDS 7	10.11
EPTJDA-HYENA	7/1.93, 7/4.39	14.60	JDA 7	25.43	JDS 7	10.11
EPTJDA-SKUNK	7/12/2.59	12.95	JDA 7	25.43	JDS 8	12.70
EPTJDA-WOLF	7/30/2.59	18.14	JDA 8	28.19	JDS 8	12.70
EPTJDA-GOAT	7/30/3.71	25.96	JDA 10	36.22	JDS 10	16.05
EPTJDA-ZEBRA	7/54/3.18	28.62	JDA 11	40.21	JDS 10	16.05
EPTJDA-PHEASANT	19/2.33, 54/3.90	35.10	DA 13	49.71	DS 12	20.22
EPTJDA-MOA	7/2.89, 76/3.72	38.40	DA 14	53.87	DS 10	16.05
EPTJDA-CHUKAR	7/3.71, 84.3.70	40.70	DA 14	53.87	DS 11	17.50

Note: EPTJD are one piece aluminium midspan repair splice fitings. EPTJDA are two piece midspan splice repair asemblies

EPJ & EPSSJ

For SC/AC and SC/GZ

These are single piece fittings for SC/AC and SC/GZ conductors. Designed and manufactured to meet the requirements of IEC 61284, each fitting is stamped according to conductor stranding size and the recommended compression die A/F size.

Part Number	Conductor Stranding	Conductor OD (mm)	Die Type	Die A/F
EPSSJ-7/2.59-7/2.64	7/2.59 & 7/2.64 SC/AC & SC/GZ	7.77 & 7.92	JDS8	12.70
EPSSJ-7/3.05	7/3.05 SC/AC & SC/GZ	9.15	JDS9	15.11
EPSSJ-7/3.18	7/3.18 SC/AC & SC/GZ	9.54	JDS10	16.05
EPSSJ-7/3.68-7/3.71	7/3.68 & 7/3.71 SC/AC & SC/GZ	11.04 - 11.13	JDS10	16.05
EPJ-7/3.71	7/3.71 SC/AC & AL	11.13	JDA5	17.88

Note: EPJ are one piece aluminium fitings. EPTSSJ are one piece stainless steel fitings

Tee Joints

EPCRPT

For ACSR Conductors

The EPCRPT closed run palm tee provides a means of making a reliable, easily disconnectable connection between a main conductor and a tap conductor. Suitable for connection of droppers to strung bus conductors or tee connections, the EPCRPT is normally installed together with a compression terminal to make the tap. Once positioned, the EPCRPT connector is installed with industry standard hexagonal compression dies.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F (mm)
EPCRPT-MINK-6	1/6/3.66	10.97	JDA 6	22.00
EPCRPT-PIGEON-6	1/6/4.25	12.75	JDA 6	22.00
EPCRPT-DOG-7	7/1.57, 6/4.72	14.17	JDA 7	25.43
EPCRPT-HARE-7	1/6/4.72	14.17	JDA 7	25.43
EPCRPT-COYOTE-7	7/1.90, 26/2.54	15.88	JDA 7	25.43
EPCRPT-HYENA-7	7/1.93, 7/4.39	14.60	JDA 7	25.43
EPCRPT-SKUNK-7	7/12/2.59	12.95	JDA 7	25.43
EPCRPT-WOLF-8	7/30/2.59	18.14	JDA 8	28.19
EPCRPT-GOAT-10	7/30/3.71	25.96	JDA 10	36.22
EPCRPT-ZEBRA-11	7/54/3.18	28.62	JDA 11	40.21
EPCRPT-PHEASANT-13	19/2.33, 54/3.90	35.10	DA 13	49.71
EPCRPT-MOA-14	7/2.89, 76/3.72	38.40	DA 14	53.87
EPCRPT-CHUKAR-14	7/3.71, 84.3.70	40.70	DA 14	53.87

EPCRPT

For AAAC/1120 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm^2	Aluminium Die A/F (mm)
EPCRPT-HYDROGEN-22.0AF	7/4.50	13.5	111.3	22.0
EPCRPT-IODINE-22.0AF	7/4.75	14.3	124.0	22.0
EPCRPT-KRYPTON-28.5AF	19/3.25	16.3	157.6	28.5
EPCRPT-LUTELIUM-28.5AF	19/3.50	17.5	182.8	28.5
EPCRPT-NEON-28.5AF	19/3.75	18.8	209.8	28.5
EPCRPT-NITROGEN-34.5AF	37/3.00	21.0	261.6	34.5
EPCRPT-NOBELIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCRPT-OXYGEN-40.0AF	19/4.75	23.8	336.7	40.0
EPCRPT-PHOSPHORUS-40.0AF	37/3.75	26.3	408.5	40.0
EPCRPT-SELENIUM-44.5AF	61/3.25	29.3	506.1	44.5
EPCRPT-SILICON-44.5AF	61/3.50	31.5	586.9	44.5
EPCRPT-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5
EPCRPT-XENON-70.0AF	91/4.50	49.5	1447.0	70.0

Tee Joints

EPCRPT

For AAAC/6201 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F
EPCRPT-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPCRPT-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPCRPT-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPCRPT-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPCRPT-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPCRPT-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPCRPT-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCRPT-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPCRPT-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPCRPT-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPCRPT-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPCRPT-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPCRPT-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPCRPT

For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F
EPCRPT-WEKE-7	7/4.72	14.16	JDA 7	25.43
EPCRPT-BEE-6	7/4.90	14.70	JDA 6	22.00
EPCRPT-CRICKET-7	7/5.35	16.10	JDA 7	25.43
EPCRPT-WETA-7	19/3.35	16.75	JDA 7	25.43
EPCRPT-HUHU-7	37/2.52	17.60	JDA 7	25.43
EPCRPT-MATA-9	19/3.86	19.30	JDA 9	25.43
EPCRPT-COCKROACH-9	19/4.21	21.10	JDA 9	32.33
EPCRPT-BUTTERFLY-9	19/4.64	23.30	JDA 9	32.33
EPCRPT-CENTIPEDE-11	37/3.78	26.46	JDA 11	40.21
EPCRPT-CICADA-12	37/4.65	32.60	JDA 12	45.71

Tee Joints

EPORPT

For ACSR Conductors

The EPORPT open run palm tee provides a convenient means of making a reliable, easily disconnectable connection between a main conductor and a tap conductor. Suitable for connection of droppers to strung bus conductors or other tee connections, the EPORPT design features an interlocking extrusion on the main conductor side. The EPORPT is normally installed together with a compression terminal to make the tap. Once finally positioned, the EPORPT connector is installed with industry standard hexagonal compression dies.

Part Number ACSR	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F
EPORPT-MINK-6	1/6/3.66	10.97	JDA 6	22.00
EPORPT-PIGEON-6	1/6/4.25	12.75	JDA 6	22.00
EPORPT-DOG-7	7/1.57, 6/4.72	14.17	JDA 7	25.43
EPORPT-HARE-7	1/6/4.72	14.17	JDA 7	25.43
EPORPT-COYOTE-7	7/1.90, 26/2.54	15.88	JDA 7	25.43
EPORPT-HYENA-7	7/1.93, 7/4.39	14.60	JDA 7	25.43
EPORPT-SKUNK-7	7/12/2.59	12.95	JDA 7	25.43
EPORPT-WOLF-8	7/30/2.59	18.14	JDA 8	28.19
EPORPT-GOAT-10	7/30/3.71	25.96	JDA 10	36.22
EPORPT-ZEBRA-11	7/54/3.18	28.62	JDA 11	40.21
EPORPT-PHEASANT-13	19/2.33, 54/3.90	35.10	DA 13	49.71
EPORPT-MOA-14	7/2.89, 76/3.72	38.40	DA 14	53.87
EPORPT-CHUKAR-14	7/3.71, 84.3.70	40.70	DA 14	53.87

EPORPT

For AAAC/1120 Conductors

Part Number AAAC/1120	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm^2	Aluminium Die A/F
EPORPT-HYDROGEN-22.0AF	7/4.50	13.5	111.3	22.0
EPORPT-IODINE-22.0AF	7/4.75	14.3	124.0	22.0
EPORPT-KRYPTON-28.5AF	19/3.25	16.3	157.6	28.5
EPORPT-LUTELIUM-28.5AF	19/3.50	17.5	182.8	28.5
EPORPT-NEON-28.5AF	19/3.75	18.8	209.8	28.5
EPORPT-NITROGEN-34.5AF	37/3.00	21.0	261.6	34.5
EPORPT-NOBELIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPORPT-OXYGEN-40.0AF	19/4.75	23.8	336.7	40.0
EPORPT-PHOSPHORUS-40.0AF	37/3.75	26.3	408.5	40.0
EPORPT-SELENIUM-44.5AF	61/3.25	29.3	506.1	44.5
EPORPT-SILICON-44.5AF	61/3.50	31.5	586.9	44.5
EPORPT-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5
EPORPT-XENON-70.0AF	91/4.50	49.5	1447.0	70.0

Tee Joints

EPORPT

For AAAC/6201 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F (mm)
EPORPT-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPORPT-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPORPT-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPORPT-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPORPT-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPORPT-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPORPT-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPORPT-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPORPT-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPORPT-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPORPT-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPORPT-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPORPT-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPORPT

For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F (mm)
EPORPT-WEKE-7	7/4.72	14.16	JDA 7	25.43
EPORPT-BEE-6	7/4.90	14.70	JDA 6	22.00
EPORPT-CRICKET-7	7/5.35	16.10	JDA 7	25.43
EPORPT-WETA-7	19/3.35	16.75	JDA 7	25.43
EPORPT-HUHU-7	37/2.52	17.60	JDA 7	25.43
EPORPT-MATA-9	19/3.86	19.30	JDA 9	25.43
EPORPT-COCKROACH-9	19/4.21	21.10	JDA 9	32.33
EPORPT-BUTTERFLY-9	19/4.64	23.30	JDA 9	32.33
EPORPT-CENTIPEDE-11	37/3.78	26.46	JDA 11	40.21
EPORPT-CICADA-12	37/4.65	32.60	JDA 12	45.71
EPORPT-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5
EPORPT-XENON-70.0AF	91/4.50	49.5	1447.0	70.0

Tee Joints

EPCRCT

For ACSR Conductors

The EPCRCT closed run compression tee provides a means of making a non disconnectable connection between a main conductor and a tap conductor. Suitable for connection of droppers to strung bus conductors or other tee connections once finally positioned, the EPCRCT connector is installed with industry standard hexagonal compression dies. Main and tap conductors can be specified at the same size or different sizes.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F
EPCRCT-MINK-6	1/6/3.66	10.97	JDA6	22.00
EPCRCT-PIGEON-6	1/6/4.25	12.75	JDA6	22.00
EPCRCT-DOG-7	7/1.57, 6/4.72	14.17	JDA7	25.43
EPCRCT-HARE-7	1/6/4.72	14.17	JDA7	25.43
EPCRCT-COYOTE-7	7/1.90, 26/2.54	15.88	JDA7	25.43
EPCRCT-HYENA-7	7/1.93, 7/4.39	14.60	JDA7	25.43
EPCRCT-SKUNK-7	7/12/2.59	12.95	JDA7	25.43
EPCRCT-WOLF-8	7/30/2.59	18.14	JDA8	28.19
EPCRCT-GOAT-10	7/30/3.71	25.96	JDA10	36.22
EPCRCT-ZEBRA-11	7/54/3.18	28.62	JDA11	40.21
EPCRCT-PHEASANT-13	19/2.33, 54/3.90	35.10	DA13	49.71
EPCRCT-MOA-14	7/2.89, 76/3.72	38.40	DA14	53.87
EPCRCT-CHUKAR-14	7/3.71, 84.3.70	40.70	DA14	53.87

EPCRCT

For AAAC/1120 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm^2	Aluminium Die A/F
EPCRCT-HYDROGEN-22.0AF	7/4.50	13.5	111.3	22.0
EPCRCT-IODINE-22.0AF	7/4.75	14.3	124.0	22.0
EPCRCT-KRYPTON-28.5AF	19/3.25	16.3	157.6	28.5
EPCRCT-LUTELIUM-28.5AF	19/3.50	17.5	182.8	28.5
EPCRCT-NEON-28.5AF	19/3.75	18.8	209.8	28.5
EPCRCT-NITROGEN-34.5AF	37/3.00	21.0	261.6	34.5
EPCRCT-NOBELIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCRCT-OXYGEN-40.0AF	19/4.75	23.8	336.7	40.0
EPCRCT-PHOSPHORUS-40.0AF	37/3.75	26.3	408.5	40.0
EPCRCT-SELENIUM-44.5AF	61/3.25	29.3	506.1	44.5
EPCRCT-SILICON-44.5AF	61/3.50	31.5	586.9	44.5
EPCRCT-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5
EPCRCT-XENON-70.0AF	91/4.50	49.5	1447.0	70.0

Tee Joints

EPCRCT

For AAAC/6201 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F
EPCRCT-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPCRCT-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPCRCT-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPCRCT-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPCRCT-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPCRCT-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPCRCT-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPCRCT-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPCRCT-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPCRCT-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPCRCT-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPCRCT-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPCRCT-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPCRCT

For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F
EPCRCT-WEKE-7	7/4.72	14.16	JDA 7	25.43
EPCRCT-BEE-6	7/4.90	14.70	JDA 6	22.00
EPCRCT-CRICKET-7	7/5.35	16.10	JDA 7	25.43
EPCRCT-WETA-7	19/3.35	16.75	JDA 7	25.43
EPCRCT-HUHU-7	37/2.52	17.60	JDA 7	25.43
EPCRCT-MATA-9	19/3.86	19.30	JDA 9	25.43
EPCRCT-COCKROACH-9	19/4.21	21.10	JDA 9	32.33
EPCRCT-BUTTERFLY-9	19/4.64	23.30	JDA 9	32.33
EPCRCT-CENTIPEDE-11	37/3.78	26.46	JDA 11	40.21
EPCRCT-CICADA-12	37/4.65	32.60	JDA 12	45.71

Tee Joints

EPORCT

For ACSR Conductors

The EPORCT open run compression tee provides a means of making a non disconnectable connection between a main conductor and a tap conductor. Suitable for connection of droppers to strung bus conductors or other tee connections, the EPORCT design features and interlocking extrusion on the main conductor side. Once finally positioned, the EPORCT connector is installed with industry standard hexagonal compression dies. Main and tap conductors can be specified as the same size or different sizes.

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Type	Aluminium Die A/F
EPORCT-MINK-6	1/6/3.66	10.97	JDA 6	22.00
EPORCT-PIGEON-6	1/6/4.25	12.75	JDA 6	22.00
EPORCT-DOG-7	7/1.57, 6/4.72	14.17	JDA 7	25.43
EPORCT-HARE-7	1/6/4.72	14.17	JDA 7	25.43
EPORCT-COYOTE-7	7/1.90, 26/2.54	15.88	JDA 7	25.43
EPORCT-HYENA-7	7/1.93, 7/4.39	14.60	JDA 7	25.43
EPORCT-SKUNK-7	7/12/2.59	12.95	JDA 7	25.43
EPORCT-WOLF-8	7/30/2.59	18.14	JDA 8	28.19
EPORCT-GOAT-10	7/30/3.71	25.96	JDA10	36.22
EPORCT-ZEBRA-11	7/54/3.18	28.62	JDA 11	40.21
EPORCT-PHEASANT-13	19/2.33, 54/3.90	35.10	DA 13	49.71
EPORCT-MOA-14	7/2.89, 76/3.72	38.40	DA 1 4	53.87
EPORCT-CHUKAR-14	7/3.71, 84.3.70	40.70	DA 14	53.87

EPORCT

For AAAC/1120 Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm^2	Aluminium Die A/F
EPORCT-HYDROGEN-22.0AF	7/4.50	13.5	111.3	22.0
EPORCT-IODINE-22.0AF	7/4.75	14.3	124.0	22.0
EPORCT-KRYPTON-28.5AF	19/3.25	16.3	157.6	28.5
EPORCT-LUTELIUM-28.5AF	19/3.50	17.5	182.8	28.5
EPORCT-NEON-28.5AF	19/3.75	18.8	209.8	28.5
EPORCT-NITROGEN-34.5AF	37/3.00	21.0	261.6	34.5
EPORCT-NOBELIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPORCT-OXYGEN-40.0AF	19/4.75	23.8	336.7	40.0
EPORCT-PHOSPHORUS-40.0AF	37/3.75	26.3	408.5	40.0
EPORCT-SELENIUM-44.5AF	61/3.25	29.3	506.1	44.5
EPORCT-SILICON-44.5AF	61/3.50	31.5	586.9	44.5
EPORCT-SULPHUR-47.5AF	61/3.75	33.8	673.4	47.5
EPORCT-XENON-70.0AF	91/4.50	49.5	1447.0	70.0

Tee Joints

EPORCT

For AAAC/6201 Conductors

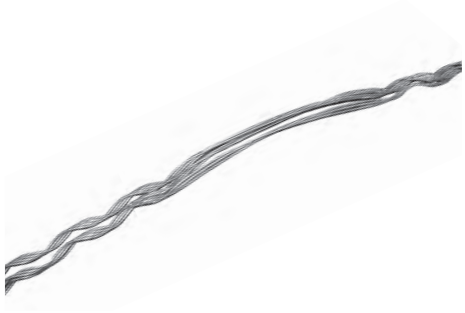
Part Number	Conductor Stranding	Conductor OD (mm)	Conductor CSA mm²	Aluminium Die A/F
EPORCT-JADE-22.0AF	7/4.50	13.5	111.3	22.0
EPORCT-JASPER-22.0AF	7/4.75	14.3	124.0	22.0
EPORCT-OPAL-28.5AF	19/3.25	16.3	157.6	28.5
EPORCT-PATRONITE-28.5AF	19/3.50	17.5	182.8	28.5
EPORCT-PEARL-28.5AF	19/3.75	18.8	209.8	28.5
EPORCT-RUBY-34.5AF	37/3.00	21.0	261.6	34.5
EPORCT-RUTHENIUM-40.0AF	37/3.25	22.8	307.0	34.5
EPORCT-RUTILE-40.0AF	19/4.75	23.8	336.7	40.0
EPORCT-SAPPHIRE-40.0AF	37/3.75	26.3	408.5	40.0
EPORCT-SPINEL-44.5AF	61/3.25	29.3	506.1	44.5
EPORCT-TANTALUM-44.5AF	61/3.50	31.5	586.9	44.5
EPORCT-TOPAZ-47.5AF	61/3.75	33.8	673.4	47.5
EPORCT-ZIRCON-70.0AF	91/4.50	49.5	1447.0	70.0

EPORCT

For AAC Conductors

Part Number	Conductor Stranding	Conductor OD (mm)	Aluminium Die Size	Aluminium Die A/F
EPORCT-WEKE-7	7/4.72	14.16	JDA 7	25.43
EPORCT-BEE-6	7/4.90	14.70	JDA 6	22.00
EPORCT-CRICKET-7	7/5.35	16.10	JDA 7	25.43
EPORCT-WETA-7	19/3.35	16.75	JDA 7	25.43
EPORCT-HUHU-7	37/2.52	17.60	JDA 7	25.43
EPORCT-MATA-9	19/3.86	19.30	JDA 9	25.43
EPORCT-COCKROACH-9	19/4.21	21.10	JDA 9	32.33
EPORCT-BUTTERFLY-9	19/4.64	23.30	JDA 9	32.33
EPORCT-CENTIPEDE-11	37/3.78	26.46	JDA 11	40.21
EPORCT-CICADA-12	37/4.65	32.60	JDA 12	45.71

Shunt Splice



ARSS

For ACSR, AAAC, AAC Conductors

Electrical connections or splices that exist on overhead electrical power lines are subject to possible degradation over long periods of time in service. The causes for the possible degradation can include inadequate or aging inhibitor, material creep, inadequate cleaning or improper installation. The result is generally an increase of electrical resistance which produces excessive heat. Over time the excessive heat further degrades the connection until ultimately a failure (electrical and/or mechanical) occurs.

PREFORMED™ Aluminium Splice Shunts have been designed to restore the electrical and mechanical integrity of compression splices and the electrical integrity of deadends that have been found in a deteriorating state, either high temperature or high resistance. The shunt is designed so that the electrical conductivity of the complete set of rods is slightly greater than the conductivity of the conductor on which it is being installed. This means that the shunt can electrically replace all of the aluminium strands of the conductor, negating the high resistance factor of the Compression Splice. As a result of the decreased resistance and the increase in aluminium mass and surface area, the temperature of the Splice/Shunt combination will be much lower than the conductor.

Because of the overall length of the shunt and the use of conductive grit on the inner bore of the rods, the shunt is designed to hold between 50% and 65% of the rated breaking strength of the conductor. This means that even if overheating has reduced the strength of or even melted some of the aluminium strands of the conductor, the shunt will restore much of the mechanical integrity.

Part Number	Suits Conductor	Conductor Stranding	Conductor OD (mm)
ARSS-110	MINK	1/6/3.66	10.97
ARSS-127	PIGEON	1/6/4.25	12.75
ARSS-126	SKUNK	7/12/2.59	12.95
ARSS-142	DOG / HARE	7/1.57, 6/4.72 & 1/6/4.72	14.17
ARSS-146	HYENA	7/1.93, 7/4.39	14.60
ARSS-159	COYOTE	7/1.90, 26/2.54	15.88
ARSS-181	WOLF	7/30/2.59	18.14
ARSS-193	JAGUAR	1/18/3.86	19.30
AESS-210	COCKROACH	19/4.21	21.10
ARSS-260	GOAT	7/30/3.71	25.96
ARSS-286	ZEBRA	7/54/3.18	28.62
ARSS-350	PHEASANT	19/2.33, 54/3.90	35.10
ARSS-384	MOA	7/2.89, 76/3.72	38.40
ARSS-407	CHUKAR	7/3.71, 84.3.70	40.70

Section 4 - Protection

Table of Contents — Section/Page

PREFORMED™ Armor Rods

PREFORMED™ Armor Rods are intended to protect against bending, compression, abrasion, arc-over whilst also being capable of providing a repair function. The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension, exposure to wind flow and vibration history on a similar construction in the same area. Armor Rods are recommended as a minimum protection for clamp type supports or suspension. Armor Rods may be used to restore full conductance and strength to AAC, AAAC and ACSR conductors, except high strength ACSR, where damage does not exceed 50% damage for 7 & 19 strand conductors or 25% damage for 37 & 61 strand conductors. PREFORMED™ Armor Rods are extremely effective in relieving or suppressing conductor strain and therefore extending conductor service life. PREFORMED™Armor Rods are chamfered and above a certain size are ball ended to create a smooth uniformed finish to minimise corona.

Safety and Application Considerations

- This product is intended for a single (one-time) use and for the specified application, although it may be re-applied twice for re-tensioning within 90 days from initial installation.
- Do not modify this product in any way.
- This product is intended for use by qualified linesmen only.
- When working in an area of energised lines with this product, extra care should be taken to prevent accidental electrical contact.
- For proper performance and personal safety, be sure to select the proper size PREFORMED™ products before application.
- PREFORMED™ products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully.

PREFORMED™ Armor Rods

AAR

For AAC, AAAC and ACSR Conductors

Part Number	Conductor Diameter Range (mm)	Standard Pack Quantity	Colour Code
AAR-075	7.00-7.59	75	Blue
AAR-090	8.85-9.39	70	Red
AAR-125	12.20-16.69	50	Blue
AAR-135	13.20-13.99	35	Green
AAR-143	14.00 - 14.89	30	Blue
AAR-157	14.90 - 15.89	30	Purple
AAR-163	15.90 - 16.64	25	Orange
AAR-169	16.65 - 17.39	25	Green
AAR-175	17.40 - 18.29	20	Blue
AAR-188	18.30 - 18.89	20	Black
AAR-192	18.90 - 19.49	20	Yellow
AAR-196-2200	19.50 - 19.89	15	Brown
AAR-201	19.90 - 21.40	15	Red
AAR-210	20.90 - 21.79	15	Red
AAR-220	21.80 - 22.59	10	Blue
AAR-230	22.60 - 23.59	10	Blue
AAR-240	23.60 - 24.79	10	Blue
AAR-250	24.80 - 26.49	10	Black
AAR-270	26.50 - 27.59	5	Red
AAR-286	27.90 - 28.59	5	Orange
AAR-293	28.60 - 29.49	5	Orange
AAR-301	29.50 - 30.10	5	Red
AAR-315	30.70 - 32.24	5	Purple
AAR-338	33.70 - 35.30	5	Yellow
AAR-495	48.20 - 50.50	3	White

AARS

For AAC, AAAC and ACSR Conductors - Subset

AARS Rods are subset for quick and easy installation by a linesman. Subsetting greatly reduces installation time and ensures that the correct number of rods are applied.

Part Number	Conductor Diameter Range (mm)	Standard Pack Quantity	Colour Code
AARS-075	7.00-7.59	35	Blue
AARS-084	8.00-8.49	50	White
AARS-090	8.85-9.39	20	Red
AARS-102	9.90-10.39	20	Purple
AARS-113	10.90-11.59	20	Black
AARS-135	13.20-13.99	20	Green
AARS-143	14.00 - 14.89	20	Blue
AARS-163	15.90 - 16.64	15	Orange
AARS-175	17.40 - 18.29	20	Blue
AARS-188	18.30 - 18.89	12	Black
AARS-196-2000	19.30 - 19.89	15	Brown

PREFORMED™ Armor Rods

GAR

For Galvanised Steel Conductors SC/GZ

Part Number	Conductor Stranding	Conductor Diameter (mm)	Standard Pack Quantity	Colour Code
GAR-055	3/2.75	5.93	50	White
GAR-083	7/2.75	8.25	30	White
GAR-098	7/3.25	9.75	30	Blue
GAR-100	19/2.00	10	30	Yellow Orange
GAR-113	7/3.75	11.3	20	Black

AWAR

For SC/AC Conductors

Part Number	Conductor Stranding	Conductor Diameter (mm)	Standard Pack Quantity	Colour Code
AWAR-K031	3/3.25	7	50	Orange
AWAR-K040	3/3.75	8	50	Black
AWAR-K050	7/2.75	8.25	50	White
AWAR-K106	7/4.25	12.8	15	Brown
GAR-113	7/3.75	11.3	20	Black

PREFORMED™ Line Guards

ALG

For AAAC, AAC and ACSR Conductors

PREFORMED™ Line Guards are commonly used in distribution networks as the minimum support protection. Line Guards may also be used in transmission network applications.

PREFORMED™ Line Guards are intended to protect against abrasion, arc-over and may be used as patch rods designed to restore full conductivity and strength to conductors where damage is located outside the support area and does not exceed 25% of the outer layer strands.

Both in initial installation cost and in long-term cost, PREFORMED™ Line Guards virtually eliminate the possibility of conductor mechanical failure at support points.

PREFORMED™ Line Guards may be used as tap armour to protect conductors from wear and flash-over damage under hot-line taps.

Safety and Application Considerations

- This product is intended for a single (one-time) use and for the specified application, although it may be re-applied twice for e-tensioning within 90days from initial installation.
- Do not modify this product in any way.
- This product is intended for use by qualified linesmen only.
- When working in an area of energised lines with this product, extra care should be taken to prevent accidental electrical contact.
- For proper performance and personal safety, be sure to select the proper size PREFORMED™ products before application.
- PREFORMED™ products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully.

Part Number	Conductor Diameter Range (mm)	Standard Pack Quantity	Colour Code
ALG-135	13.20-13.99	50	Green
ALG-143	14.00 - 14.89	50	Blue
ALG-157	15.40 - 15.89	40	Yellow
ALG-163	15.90 - 16.64	40	Orange
ALG-169	16.65 - 17.39	25	Brown
ALG-175	17.40 - 18.29	25	Blue
ALG-188	18.30 - 18.89	25	Black
ALG-192	18.90 - 19.49	25	Yellow
ALG-210	20.90 - 21.79	25	Red
ALG-230	22.60 - 23.59	20	Orange
ALG-240-4	23.60 - 24.79	20	Blue
ALG-270	26.00 - 27.29	20	Red
ALG-293	28.60 - 29.49	10	Orange
ALG-315	30.70 - 32.24	10	Purple
ALG-338	33.50 - 35.34	6	Black

PREFORMED™ Repair Rods

ARR

For Aluminium Conductors AAC, AAAC, ACSR

PREFORMED™ Aluminium Repair Rods are designed to repair damage to aluminium conductor mid-span in a quick and efficient manner. They are ideal for emergency and breakdown situations. Also for repair of mid-span damage in some instances where the outer stranding of the conductor does not exceed 50% damage for 7 & 19 strand conductors or 25% damage for 37 & 61 strand conductors. Aluminium Repair Rods are not suitable as an alternative to Armor Rods. They are not designed as under-clamp protection devices.

Repair Rods are also available for copper conductors, please contact Electropar PLP for more information.

Safety and Application Considerations

- This product is intended for a single (one-time) use and for the specified application, although it may be re-applied twice for re tensioning within 90 days from initial installation.
- Do not modify this product in any way.
- This product is intended for use by qualified linesmen only.
- When working in the area of energised line with this product, extra care should be taken to prevent accidental electrical contact.
- For proper performance and personal safety, be sure to select the proper size PREFORMED™ products before application.
- PREFORMED™ products are precision devices. To ensure proper performance, they should be stored in cartons under cover and handled carefully.

Part Number	Conductor Stranding	Standard Pack Quantity	Colour Code
ARR-135	7/4.50	15	Green
ARR-163	19/3.25	15	Orange
ARR-175	30/7/2.50	35	Blue
ARR-188	19/3.75	15	Black
ARR-210	37/3.00	15	Red
ARR-245	37/3.50	10	Purple
ARR-260	30/7/3.71	10	Black
ARR-270	54/7/3.00	10	Red/Black/Blue
ARR-286-8	54/7/3.18	10	Orange
ARR-293	61/3.25	10	Orange
ARR-315	54/7/3.50	10	Purple
ARR-338	61/3.75	4	Black/Blue
ARR-449	91/4.09	1	Orange

Aircraft Warning Sphere

AWS

300 or 600 Diameter

Part Number	Conductor Range (mm)
AWS*-300	6.00 - 25.00
AWS*-600	6.00 - 25.00

Note: UV stabilised fibreglass

D-UFO3

300 Diameter

Part Number	Conductor Range (mm)
D-UFO3060*	6.00 - 7.99
D-UFO3080*	8.00 - 9.99
D-UFO3100*	10.00 - 11.99
D-UFO3120*	12.00 - 13.99
D-UFO3140*	14.00 - 15.99
D-UFO3160*	16.00 - 18.99
D-UFO3190*	19.00 - 22.49
D-UFO3225*	22.50 - 26.49

Note: UV stabilised MD polyethylene

D-UFO6

600 Diameter

Part Number	Conductor Range (mm)
D-UFO6060*	6.00 - 7.99
D-UFO6080*	8.00 - 9.99
D-UFO6100*	10.00 - 11.99
D-UFO6120*	12.00 - 13.99
D-UFO6140*	14.00 - 15.99
D-UFO6160*	16.00 - 17.99
D-UFO6180*	18.00 - 19.99
D-UFO6200*	20.00 - 21.99
D-UFO6220*	22.00 - 23.99
D-UFO6240*	24.00 - 25.99
D-UFO6260*	26.00 - 27.99
D-UFO6280*	28.00 - 29.99
D-UFO6300*	30.00 - 31.99
D-UFO6320*	32.00 - 33.99

Note: UV stabilised MD polyethylene

*** Add suffix for colour:**
W = White
Y = Yellow
R = Red
O = Orange

Spiral Vibration Dampers

SVD

Spiral Vibration Dampers

Made from high impact, UV resistant, polyvinyl chloride (PVC), they are non-corrosive and do not abrade the conductor or require engineering calculations for positioning. Spiral Vibration Dampers are designed to reduce cable vibration at tangent supports and Deadend positions. The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension and exposure to the wind flow.

Part Number	Conductor Diameter Range (mm)	Standard Pack Quantity	Colour Code
SVD-0102	4.42 - 6.34	30	Red
SVD-0103	6.35 - 8.29	60	Blue
SVD-0104	8.30 - 11.74	60	Black
SVD-0105	11.75 - 14.30	60	Yellow
SVD-0106	14.31 - 19.30	25	Green

Spiral Vibration Damper placement guide:

Span Length (m)	Standard SVD Quantities
0 - 244	2
245 - 488	4
489 - 732	6
733 - 976	8
977 - 1220	10

1. SVD's may be subset together in sets of up to 3 a piece; do not place more than 3 SVD's together in a subset as this can cause them to bind and reduce their overall effectiveness.

2. SVD's have the advantage of being placement independent and may be placed at either end of the span, or on both ends if so desired. However, please note that SVD's are designed to be placed directly on to the conductor or shield wire and not on to rods or attachment hardware. A general recommendation, place SVD's on the bare conductor or shield wire approximately one hand's width away from Suspension Rods, deadend Rods, ties, etc.

3. Please consult Electropar PLP for recommendations when;

- Flat open Terrain, river or gully crossings
- Tensions are greater than 20% UTS
- Aerial warning spheres are installed

VORTX™ Stockbridge Damper

Aeolian vibration is a high frequency low amplitude motion caused by smooth laminar winds passing across the line. When conductors or cables are exposed to this wind a phenomenon known as eddy shedding occurs. Eddy or vortex shedding creates an alternating pressure imbalance inducing the conductor to move up and down at right angles to the direction of air flow. These vibrations take the form of discrete standing waves that can cause support hardware breakdown, conductor fatigue, abrasion and eventually conductor failure.

The VORTX™ Damper exceeds the two response performance with a multi-response design that effectively reduces vibration over a wider range of imposing frequencies. This is accomplished by a design that has unequal messenger strand lengths enhanced in most cases with unequal weights. The weight sizes and messenger strand lengths are matched to specific conductor/cable impedance and line operating conditions that achieve optimum performance.

Features:

- Contoured Clamp - Aluminium alloy extrusions offer a more “precision” fit to evenly capture the conductor. As a result, tightening the bolt brings the clamp components together with evenly distributed pressure along the conductor surface.
- Clamp Profile - The clamp profile is configured to hang from the conductor or cable during installation in accordance with IEC standards. Hands are free to wrench tighten and reach proper torque.
- Messenger Strand - Galvanised steel messenger strand absorbs the vibration energy efficiently with optimum manufacturing techniques.
- Weight - Galvanised modular iron weights hug the sides of the messenger strand, not enclosing it. The possibility of corrosion is reduced.
- Weight Attachment: - Electropar PLP offers a collet type or crimped attachment to secure the weights to the messenger. Both meet pull-off strength requirements in accordance with IEC and AS1154.1 standards without changing properties of the adjoining messenger.
- Electropar PLP uses a proprietary computer program to make product recommendations for maximising damper performance. The program input considers many variables specific to individual lines, their designs, construction, and local operating conditions. The output recommendations include specific model VORTX™ Damper, quantity and their placement location on the span.

VORTX™ Stockbridge Damper

VSD - Selection Chart

For AAC, AAAC, ACSR and OPGW

Step 1: Choose conductor diameter from range below

Step 2: Choose clamp size from range below i.e. total diameter including armor rods if applicable

Step 3: Choose corresponding part number

Conductor Selection		Clamp Range		Part Number
Min (mm)	Max (mm)	Min (mm)	Max (mm)	
9.7	11.9	9.7	12.3	VSD-1012
		15.5	20	VSD-1020*
12	18.2	12.3	15.5	VSD-2016
		15.5	20	VSD-2020
		20	25	VSD-2025*
		25	32	VSD-2032*
18.3	21.7	15.5	20	VSD-2520
		20	25	VSD-2525
		25	32	VSD-2532*
21.8	24.9	20	25	VSD-3525
		25	32	VSD-3532*
		32	40.1	VSD-3540*
		40.1	50	VSD-3550*
25	33.9	25	32	VSD-4032
		32	40.1	VSD-4040
		40.1	50	VSD-4050*
		50	61	VSD-4061*
32.1	44.7	32	40.1	VSD-5040
		40.1	50	VSD-5050
		50	61	VSD-5061*

VDSR

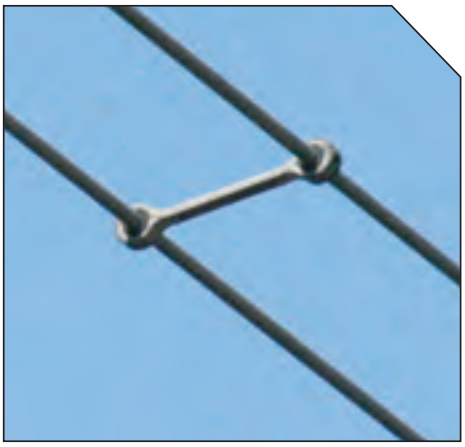
VORTX™ Damper Structural Rods

Part Number	Conductor Diameter Range (mm)	Rod Length (mm)	Standard Pack Quantity	Colour Code
VDSR-110	10.5 - 11.49	500	50	Green
VDSR-120	11.5 - 12.49	500	50	Purple
VDSR-130	12.5 - 13.79	500	50	Orange
VDSR-140	13.8 - 14.89	500	50	Blue
VDSR-150	14.9 - 15.49	500	30	Brown
VDSR-160	15.5 - 16.49	500	30	Yellow
VDSR-170	16.5 - 17.49	500	30	Red
VDSR-180	17.5 - 18.49	500	30	Yellow
VDSR-190	18.5 - 19.49	500	30	Yellow
VDSR-200	19.5 - 20.49	500	30	Yellow
VDSR-210	20.5 - 21.49	500	30	Blue
VDSR-320	31.5 - 32.49	700	30	Purple

Section 5 - Spacer Systems

Table of Contents Section/Page

Twin Spacers



PREFORMED™ Twinlok spacers are designed to meet Australian standards, combining strength and performance while still maintaining a lightweight design. Pressure diecast, the semi-conductive cushion inserts protect the outer stranding of the conductor, whilst the strengthened aluminium frame is designed to protect against conductor clashing without deformation.

A high strength quarter turn fastener is used in the conductor clamping element to insure proper installation. This design provides consistent compression of the inserts and ease of installation, without relying on specific bolt torques or bolts with breakaway heads.

SPT
Twinlok Spacer

Part Number	Conductor Diameter (mm)	Conductor Centre Spacing (mm)
SPT-210-380	21	380
SPT-263-520	26.3	520
SPT-270-380	27	380
SPT-270-460	27	460
SPT-293-460	29.3	460
SPT-315-380	31.5	380
SPT-315-460	31.5	460
SPT-338-380	33.8	380
SPT-338-460	33.8	460
SPT-338-520	33.8	520
SPT-360-460	36	460

SPT
Twinlok Spacer Installation Tool

Part Number
SPT-TOOL

Spacer Systems

SPACER DAMPERS - GENERAL RECOMMENDATIONS

Spacer Dampers are recommended for multi-conductor bundles with industry standard spacing. The Spacer Damper is designed to withstand the forces and movements caused by transient conditions such as short circuit, differential icing, and wind loading without either causing damage to the sub conductors or sustaining damage themselves. The design accommodates both longitudinal movement of the sub conductors, vertical sag differences, as well as compressive and tensile forces.

When the Spacer Dampers are installed in accordance with Electropar PLP's recommendations for sub span lengths, they will control both aeolian vibration and sub conductor oscillation. Electropar PLP will tailor spacer damper system recommendations to terrain and design parameters. Spacer Dampers are designed to have audible noise and Corona extinction performance suitable for the operating voltage of the transmission line.

Fault Currents:
All Electropar PLP Spacer Dampers are designed for minimum compressive withstand loads in accordance with IEC standards.

Placement:
Due to the many factors involved in designing an effective spacer damper system, Electropar PLP should be consulted for specific recommendations on both the choice of Spacer Dampers and the placement.

Damping:
Spacer Dampers can accommodate torsional clamp arm movement of plus or minus 15 degrees, conical clamp arm movement of plus or minus 8 degrees, and longitudinal movement of plus or minus 12.7-25.4mm. These are possible because of the properties of PLP's elastomeric damping elements. There are two per arm, one on each side. The elastometric compound is designed to provide long life under conditions of ozone, ultra violet light, anticipated temperature extremes, and continual conductor motion. Their ability to dampen over many years has been well established throughout the world in all types of climates.

Spacer Systems

SPACER DAMPER - ASSEMBLY

For use on: ACSR, All-Aluminum, Aluminum Alloy, AWAC® Compacted, All Aluminum Compacted ACSR,ACSS (AW & TW) For Continuous Operating Temperatures up to 210° C.

Type			Spacing (mm)	Normal Conductor (mm)	High Temp Conductor (mm)	Arm/Keeper		
						Metal To Metal	Rubber	Preformed
Twin Spacer		PDC (B-Type)	400	23.00-34.00		X	X	
			450	23.00-34.00		X	X	
			457	23.00-34.00		X	X	
			460	23.00-34.00		X	X	
		Damper	300	28.5-29.50		X	X	
			400	21.18-33.90	17.4-28	X	X	
			450	31.50-40.50	23.7-33.9	X		
			457	35.8-36.2	26-33.9	X		
			500	31.50-41		X		
			550	40.5-41		X		
Tri Spacer		PDC (B-Type)	400	23.00-34.00		X	X	
			457	23.00-34.00		X	X	
Quad Specer		PDC (B-Type)	457	23.00-34..00		X	X	
		Damper	400	32-33		X	X	
			457	27.72-33.9		X		
			500	32.00-33.00				X
		RIGID	300	28-29		X		
			400	23-24		X		
			457	27.7-33.9		X		

Section 6 - OPGW Fittings & Closures

Table of Contents

FIBERLIGN® Deadend

The FIBERLIGN® Deadend is designed to terminate Optical Ground Wire (OPGW) while minimising any compression stresses that may be transferred to the core or optical elements within. The combination of retaining rods, wedge and housing distribute axial and compressive loading over a large area of the OPGW cable. Left-hand or right-hand lay style is provided to suit left-hand or right-hand lay OPGW respectively.

The slotted housing design allows for the application of the FIBERLIGN® Deadend at any location on the OPGW.

Integral bonding point:
Provisions for electrically bonding the OPGW to the supporting structure or ground lead are an integral part of the housing. An earth bonding lead pre assembled with compression terminals is included in the kit. This assembly can be connected from the FIBERLIGN® Deadend to the ground point in your system.

A second earth bonding lead can be connected for higher fault current requirement. Consult Electropar PLP for recommendations.

Sag Adjustment:
The U-bolt provides up to 450 mm of take-up to allow for tension adjustment and extra clearance distance, without the need for additional hardware such as a turnbuckle or extension links.

- Product subject to cable design, constructions and testing
- Contact Electropar PLP with project and cable specification for product recommendation

FIBERLIGN® Deadend

OPGWTS

FIBERLIGN® Deadend

Assembly Part Number	Conductor Diameter Range (mm)	Colour Code
OPGWTS-0900*	9.00 - 9.49	Pink
OPGWTS-0950*	9.50 - 9.99	Orange
OPGWTS-1000*	10.00 - 10.39	Red
OPGWTS-1040*	10.40 - 10.79	Black
OPGWTS-1080*	10.80 - 11.29	Green
OPGWTS-1130*	11.30 - 11.69	Brown
OPGWTS-1170*	11.70 - 12.09	Purple
OPGWTS-1210*	12.10 - 12.59	Yellow
OPGWTS-1260*	12.60 - 12.99	Blue
OPGWTS-1300*	13.00 - 13.39	White
OPGWTS-1340*	13.40 - 13.89	Orange
OPGWTS-1390*	13.90 - 14.29	Red
OPGWTS-1430*	14.30 - 14.60	Black
OPGWTS-1461*	14.61 - 15.10	Green
OPGWTS-1511*	15.11 - 15.50	Brown
OPGWTS-1551*	15.51 - 15.99	Purple
OPGWTS-1600*	16.00 - 16.40	Yellow
OPGWTS-1641*	16.41 - 16.99	Blue
OPGWTS-1700*	17.00 - 17.20	White
OPGWTS-1721*	17.21 - 17.70	Orange
OPGWTS-1771*	17.71 - 18.00	Red
OPGWTS-1801*	18.01 - 18.50	Black
OPGWTS-1851*-2E	18.51 - 19.00	Brown
OPGWTS-1901*-2E	19.01 - 19.40	Purple
OPGWTS-1941*-2E	19.41 - 19.80	Purple
OPGWTS-1981*-2E	19.81 - 20.20	Yellow
OPGWTS-2021*-2E	20.21 - 20.70	Yellow
OPGWTS-2071*-2E	20.71 - 21.10	Blue
OPGWTS-2111*-2E	21.11 - 21.50	Blue
OPGWTS-2151*-2E	21.51 - 22.00	Orange
OPGWTS-2201*-2E	22.01 - 22.40	Orange
OPGWTS-22.41*-2E	22.41 - 22.80	Red
OPGWTS-2281*-2E	22.81 - 23.20	Red
OPGWTS-2321*-2E	23.21 - 23.80	Black

Note: -2E denotes 2 x earth bonding leads for high fault current OPGW.

* Substitute L for left hand Lay conductors.
* Substitute R for Right Hand Lay conductors.

OPGWTS - Assembly contents

- Wedge Type Deadend Assembly
- 70 kN Shackle
- Earth bonding lead with lugs

FIBERLIGN® Formed Wire Deadend

The FIBERLIGN® Formed Wire deadend offers an alternate method for deadending OPGW. Unlike the FIBERLIGN® deadend “U-Bolt Type” design shown at the beginning of this section, the Formed Wire deadend uses two helically shaped formed wire components: an inner layer of Structural Reinforcing Rods and an outer layer deadend component. The formed wire inner and outer layer components are designed to transfer axial tensile loads and distribute radial compressive forces over the surface in contact with the OPGW to minimize effects on the central core and internal optical fibers. Standard designs offered for left-hand lay single layer strand OPGW are listed in the table in this section. The standard Structural Reinforcing Rod component is right-hand lay and the standard deadend component is left-hand lay.

The rated breaking strength of OPGW with multi-layer strand construction may exceed the rated holding strength of a Formed Wire deadend. Consult Electropar PLP before using this product for multi-layer applications.Useful dimensions for VORTX™ damper placement are listed in the catalogue table and shown in a reference drawing above the catalogue table.

Current Transfer Tab:
The Current Transfer Tab provides direct electrical bonding between the OPGW and a ground lead. The Structural Reinforcing Rod Layer conveniently applies proper compression to retain the current transfer tab against the OPGW without fasteners. The current transfer tab has a ø12.5mm diameter bolt hole to accommodate a standard M10 bolt, for compatible ground lug attachment. The standard current transfer tab accommodates left-hand lay OPGW and is rated for 80 MA^2S to 150 kMA^2S depending on size of deadend unit. Right-hand lay units for special applications are also available. Consult Electropar PLP for specifics.

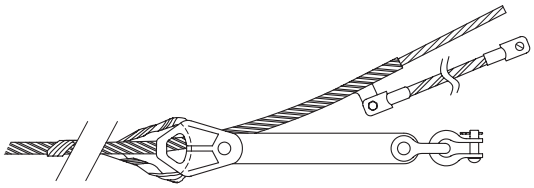
Component Strength:
The strength of the thimble clevis, extension link, and anchor shackle are designed to meet or exceed the maximum rated holding strength. Refer to Electropar PLP drawings for recommendations.

Holding Strength:
Specific holding strengths on an OPGW cable will depend upon that cable's internal construction design and composition of the materials used for the individual strands. The highest holding capabilities exist with cable that use all aluminium clad steel strands in a single layer. Use of multi- layer and/or aluminium alloy strands may reduce holding capabilities. Consult Electropar PLP for information regarding holding abilities of the FIBERLIGN® Formed Wire deadend for a specific OPGW design.

Lay Direction:
Left-hand lay is standard. Right-hand lay units for right-hand lay OPGW are available. Contact Electropar PLP with cable specifications for further information.

Component Reuse:
Once installed, structural reinforcing rods and deadend components may be removed and reinstalled once for repositioning purposes; do not reuse after this initial installation. The hardware components may be reused as long as they are in good condition. Do not modify any components.

FIBERLIGN® Formed Wire Deadend



OPGWFWTS

FIBERLIGN® Formed Wire Deadend

String Assembly Part Number	Conductor Diameter Range (mm)	Colour Code
OPGWFWTS-0900#	9.00 - 10.15	Brown
OPGWFWTS-1016#	10-16 - 11.40	Blue
OPGWFWTS-1141#	11.41 - 12.80	Red
OPGWFWTS-1281#	12.81 - 14.10	Orange
OPGWFWTS-1411#	14.11 - 15.49	Black
OPGWFWTS-1550#	15.50 - 17.27	Green
OPGWFWTS-1728#	17.28 - 19.18	Pink

FIBERLIGN® Suspension

The FIBERLIGN® Suspension provides superior cable and fibre protection at the support point. The combination of structural reinforcing rods, outer rods, 'boltless' housing and resilient inserts reduces compression, clamping, and bending stresses on cable. Negative effects of wind-induced cable motion, such as aeolian vibration, galloping, and wind sway are also minimised. Left-hand or right-hand lay style is provided to suit left-hand or right-hand lay OPGW respectively.

Integral grounding point:
The current transfer tab provides direct electrical bonding between OPGW and a ground lead. The current transfer tab eliminates current transferthrough components of the suspension unit.

Grounding wire assembly options:
An earth bonding lead with compression terminal are provided. This assembly can be connected from the FIBERLIGN® Suspension to the ground point in your system.
Higher fault current requirements can be accommodated by the use of a 'higher rated' current transfer tab or a second earth bonding lead. Consult Electropar PLP for recommendation.

Line Angles:
The maximum recommended line angle for a single FIBERLIGN® Suspension is 30˚. For OPGW line angles between 30˚ and 60˚, the FIBERLIGN® Suspension: Double is recommended, although double deadending is another option.

- Product subject to cable design, constructions and testing
- Contact Electropar PLP with project and cable specification for product recommendation

FIBERLIGN® Suspension - Single

Note: -2E denotes 2x earth bonding leads

* Substitute L for Left Hand Lay conductors
* Substitute R for Right Hand Lay conductors

OPGWSS - Assembly contents
Suspension body
Structural rods
Outer rods
Current transfer tab with M16 Assembly
70 kN shackle
70 kN eye tongue
Earth bonding lead with lugs

OPGWSS

FIBERLIGN® Suspension Single

Single Part Number	Double Part Number	Diameter Range (mm)	Colour Code Inner	Colour Code Outer
OPGWSS-0900*C	OPGWDSS-0900*	9.00 - 9.68	Blue	Blue
OPGWSS-0969*C	OPGWDSS-0969*	9.69 - 10.11	Green	Green
OPGWSS-1012*C	OPGWDSS-1012*	10.12 - 10.62	Yellow	Yellow
OPGWSS-1063*C	OPGWDSS-1063*	10.63 - 11.15	Black	Black
OPGWSS-1116*C	OPGWDSS-1116*	11.16 - 11.63	White	White
OPGWSS-1164*C	OPGWDSS-1164*	11.64 - 11.71	Purple	Orange
OPGWSS-1172*C	OPGWDSS-1172*	11.72 - 12.09	Purple	Purple
OPGWSS-1210*C	OPGWDSS-1210*	12.10 - 12.78	Orange	Orange
OPGWSS-1279*C	OPGWDSS-1279*	12.79 - 12.98	Red	Purple
OPGWSS-1299*C	OPGWDSS-1299*	12.99 - 13.61	Blue	Blue
OPGWSS-1362*C	OPGWDSS-1362*	13.62 - 14.20	Green	Green
OPGWSS-1421*C	OPGWDSS-1421*	14.21 - 14.35	Green	Green
OPGWSS-1436*C	OPGWDSS-1436*	14.36 - 14.55	Black	Black
OPGWSS-1456*C	OPGWDSS-1456*	14.56 - 15-19	Black	White
OPGWSS-1520*C	OPGWDSS-1520*	15.20 - 15-80	Brown	Brown
OPGWSS-1581*C	OPGWDSS-1581*	15.81 - 16.05	Red	Red
OPGWSS-1581*-2E	-	15.81 - 16.05	Red	Red
OPGWSS-1606*C	OPGWDSS-1606*	16.06 - 16.92	Red	Blue
OPGWSS-1606*-2E	-	16.06 - 16.92	Red	Blue
OPGWSS-1693*C	OPGWDSS-1693*	16.93 - 17.32	Yellow	Green
OPGWSS-1693*-2E	-	16.93 - 17.32	Yellow	Green
OPGWSS-1733*C	OPGWDSS-1733*	17.33 - 18.03	Yellow	Yellow
OPGWSS-1733*-2E	-	17.33 - 18.03	Yellow	Yellow
OPGWSS-1804*C	OPGWDSS-1804*	18.04 - 18.49	White	Black
OPGWSS-1804*-2E	-	18.04 - 18.49	White	Black
OPGWSS-1850*C	OPGWDSS-1850*	18.50 - 18.90	White	White
OPGWSS-1891*C	OPGWDSS-1891*	18.91 - 19.05	White	White

OPGWDSS

FIBERLIGN® Suspension Double

OPGWDSS - Assembly Contents
Suspension body x2
Structural rods
Outer rods
Triangular yoke plate
Shackles x2
Clevis tongue x2
Earth bonding lead with lugs and current transfer tab

FIBERLIGN® Cushion Clamp

The FIBERLIGN® Cushion Clamp provides excellent protection to OPGW at support points. The combination of the Structural Reinforcing Rods and the elastomer inserts at the ends of the clamp body halves reduces bending stresses on the OPGW during aeolian vibration or galloping activity. The Cushion Clamp is designed to suit LV or HV power systems with spans up to 250m. For spans greater than 250m, FIBERLIGN® Suspension or support are recommended.

Lay Direction:
The Cushion Clamp can accommodate either left-hand lay or right-hand lay OPGW.

Line Angles:
The maximum recommended line angle for a single FIBERLIGN® Cushion Clamp is 30°. For line angles up to 60°, the Double suspension cushion clamp is recommended.

- Product subject to cable design, constructions and testing
- Contact Electropar PLP with project and cable specification for product recommendation

FIBERLIGN® Cushion Clamp

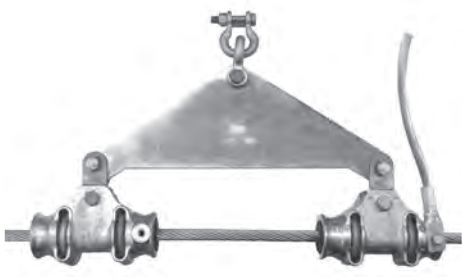
OPGWCCS

FIBERLIGN® Cushion Clamp Suspension

Assembly Part Number	Cable Diameter Range (mm)
OPGWCCS-090098	9.00 - 9.80
OPGWCCS-099109	9.90 - 10.90
OPGWCCS-110116	11.00 - 11.6
OPGWCCS-117122	11.70 - 12.20
OPGWCCS-123128	12.30 - 12.80
OPGWCCS-129136	12.90 - 13.60
OPGWCCS-137143	13.70 - 14.30
OPGWCCS-144148	14.40 - 14.80
OPGWCCS-149156	14.90 - 15.60
OPGWCCS-157163	15.70 - 16.30
OPGWCCS-164168	16.40 - 16.80
OPGWCCS-177183	17.70 - 18.30
OPGWCCS-184188	18.40 - 18.80
OPGWCCS-189196	18.90 - 19.60
OPGWCCS-197202-2E	19.61 - 20.20
OPGWCCS-209217-2E	20.90 - 21.70
OPGWCCS-232239-2E	23.20 - 23.90
OPGWCCS-256263-2E	25.60 - 26.30

OPGWCCS - Assembly contents
Cushion Clamp 70kN shackle Earth Bonding Lead

Note: -2E denotes 2x earth bonding leads



OPGWDCCS

FIBERLIGN® Double Cushion Clamp Suspension

Assembly Part Number	Cable Diameter Range (mm)
OPGWDCCS-090098	9.00 - 9.80
OPGWDCCS-099109	9.90 - 10.90
OPGWDCCS-110116	11.00 - 11.6
OPGWDCCS-117122	11.70 - 12.20
OPGWDCCS-123128	12.30 - 12.80
OPGWDCCS-129136	12.90 - 13.60
OPGWDCCS-137143	13.70 - 14.30
OPGWDCCS-144148	14.40 - 14.80
OPGWDCCS-149156	14.90 - 15.60
OPGWDCCS-157163	15.70 - 16.30
OPGWDCCS-164168	16.40 - 16.80
OPGWDCCS-177183	17.70 - 18.30
OPGWDCCS-184188	18.40 - 18.80
OPGWDCCS-189196	18.90 - 19.60
OPGWDCCS-197202-2E	19.61 - 20.20
OPGWDCCS-209217-2E	20.90 - 21.70
OPGWDCCS-232239-2E	23.20 - 23.90
OPGWDCCS-256263-2E	25.60 - 26.30

OPGWDCCS - Assembly contents
Cushion Clamp x2 70kN shackle x2 Clevis Tongue x2 Triangular Yoke Plate Earth Bonding Lead

FIBERLIGN® OPGW Accessories

OPGWRR

FIBERLIGN® Repair Rod

FIBERLIGN® Repair Rods are designed as a single component, outer layer assembly for use on OPGW. It is intended to repair the outer mechanical strand members on an OPGW cable. This is not an optical repair product.

These OPGW Repair Rods are not designed or tested as splices for use on all-metal overhead earth wire and are not intended for that application.

- Product subject to cable design, constructions and testing
- Contact Electropar PLP with project and cable specification for product recommendation

Assembly Part Number	Cable Diameter Range (mm)	Colour Code
OPGWRR-3600100*	8.90 - 9.70	Red
OPGWRR-3600101*	9.80 - 10.70	Black
OPGWRR-3600102*	10.80 - 11.60	Orange
OPGWRR-3600103*	11.70 - 12.80	Green
OPGWRR-3600104*	12.90 - 13.90	Blue
OPGWRR-3600105*	14.00 - 15.20	Yellow
OPGWRR-3600106*	15.30 - 16.70	Brown
OPGWRR-3600107*	16.80 - 18.20	Purple
OPGWRR-3600108*	18.30 - 19.90	Pink

Note:
* Substitute L for left hand Lay conductors
* Substitute R for Right Hand Lay conductors

OFDLC

FIBERLIGN® Downlead Cushion For Concrete or Steel Poles

The FIBERLIGN® Downlead Cushion will accommodate one or two OPGW or other cables as necessary. The base of the clamp is of die-cast aluminium, whereas the top is a polymeric material. The base ensures electrical bonding of the OPGW and the top minimises compressive forces which could be transferred through to the optical elements of the cable.

Part Number	Cable Diameter Range (mm)
OFDLC-8003041B	9.50 - 11.80
OFDLC-8003042B	11.90 - 14.30
OFDLC-8003043B	14.40 - 16.60
OFDLC-8003044B	16.70 - 19.10

FIBERLIGN® OPGW Accessories

EPFDCC

FIBERLIGN® Downlead Cushion Clamp

The FIBERLIGN® Downlead Cushion tower attachment will fit any steel angle size (0-40mm clamp range) to be found in a transmission line lattice-steel type tower without any drilling or other tower modification.

The parallel groove clamp will accommodate up to 4 cables one or two OPGW or other cables as necessary. The base of the clamp is of die-cast aluminium, whereas the top is a polymeric material. The base ensures electrical bonding of the OPGW and the top minimises compressive forces which could be transferred through to the optical elements of the cable.

Part Number Double Clamp	Part Number Quad Clamp	Clamp Range Minimum (mm)	Clamp Range Maximum (mm)
EPFDCC2-950	EPFDCC4-950	9.5	11.8
EPFDCC2-119	EPFDCC4-119	11.9	14.3
EPFDCC2-143	EPFDCC4-143	14.3	16.7
EPFDCC2-167	EPFDCC4-167	16.7	19.1
EPFDCC2-191	EPFDCC4-191	19.1	21.6
EPFDCC2-216	EPFDCC4-216	21.6	24.1
EPFDCC2-242	EPFDCC4-242	24.2	26.7
EPFDCC2-267	EPFDCC4-267	26.7	30.2

EPFDCCS

FIBERLIGN® Downlead Cushion Step Bolt Mounted

Part Number Double Clamp	Part Number Quad Clamp	Clamp Range Minimum (mm)	Clamp Range Maximum (mm)
EPFDCCS2-950	EPFDCCS4-950	9.5	11.8
EPFDCCS2-119	EPFDCCS4-119	11.9	14.3
EPFDCCS2-143	EPFDCCS4-143	14.3	16.7
EPFDCCS2-167	EPFDCCS4-167	16.7	19.1
EPFDCCS2-191	EPFDCCS4-191	19.1	21.6
EPFDCCS2-216	EPFDCCS4-216	21.6	24.1
EPFDCCS2-242	EPFDCCS4-242	24.2	26.7
EPFDCCS2-267	EPFDCCS4-267	26.7	30.2

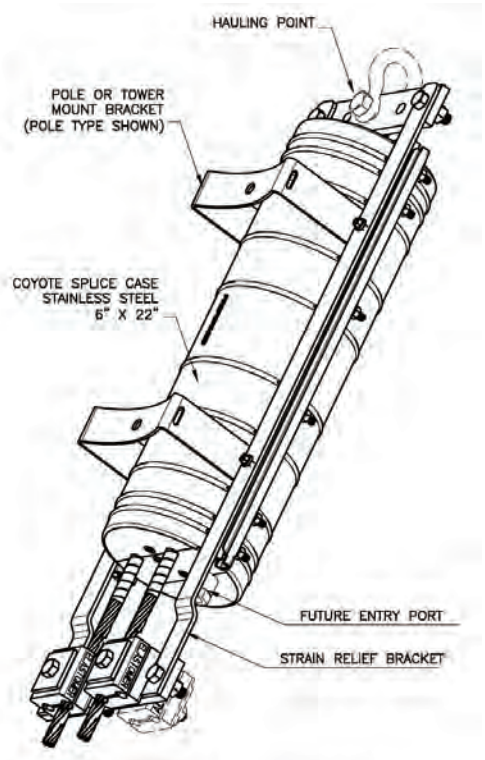
COYOTE® Splice Case

Versatile:
The COYOTE® Closure Case is very versatile means of accommodating a wide variety of optical fibre cables. It effectively maintains an airtight, watertight seal around all types of fibre optic cable.

Easy to use:
The COYOTE® Splice Case offers easy-to-use Lockbar™ fastening, reducing splice case installation and re-entry time. It can be easily re-entered without a special kit or special tools.

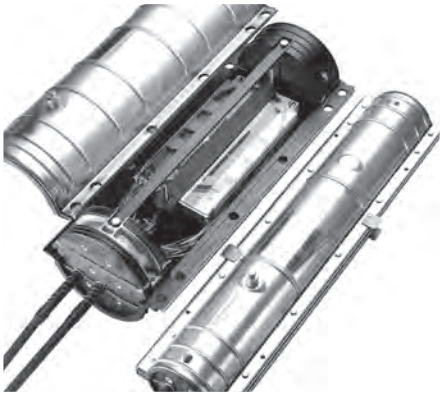
Secure:
The splice case remains secure whether the application is overhead or underground. Mounting brackets for overhead installation are available for wood poles, concrete/steel poles or transmission towers. The COYOTE® Splice Case is packaged to order for each communication application.

Features:
- Maintains an airtight and watertight seal
- Corrosion resistant
- Sealing system eliminates drilling and 'heat shrink' requirements
- Rapid installation and re-entry without special tools
- Splicing up to 864 fibres
- Versatile fibre management system



TYPICAL ASSEMBLY INCLUSIVE OF:
- COYOTE SPLICE CASE
- POLE OR TOWER MOUNT BRACKET
- STRAIN RELIEF BRACKET WITH HAULING POINT

COYOTE® Splice Case



CSL

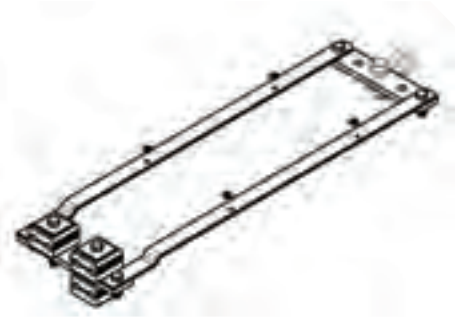
Stainless Steel For OPGW Applications - 6.5" x 22"

OPGW Kit Contents Include:
- Splice Trays – 12/24 fibres per tray standard
- Maximum of 5 standard trays – 120 fibres
- Maximum of 6 low profile trays – 144 fibres
- Tower or pole mounting bracket
- Electropar PLP lock tape sealing system with c-cement
- Strain relief bracket
- Applications procedure with every kit
- Electropar PLP future entry port

Part Number
CSL***

Please contact Electropar PLP with the following information:
- Splice capacity required
- Loose or Uni-tube storage
- Number of entries – maximum of 4
- Cable diameters
- Strain relief bracket requirements
- Mounting hardware requirements
- Future entry port requirements
- Contact Electropar PLP for higher fibre capacity

Other size stainless steel closures are available:
- 6.6" x 22" - 180 max splice count (standard tray)
- 6.5" x 28" - 180 max splice count (standard trays)
- 8" x 28" - 252 max splice count (standard trays)
- 9.5" x 28" - 360 max splice count (standard trays)



OFSRB

Strain Relief Bracket

Part Number
OFSRB-065B-######

- Securing Cables at entry point of splice case
- Strain relief

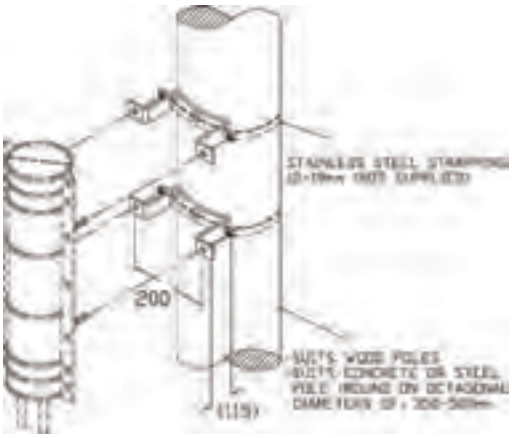
COYOTE® Splice Case Mounting Hardware

OFSCMOUNT

Pole Mounting Bracket

Features:
- Suitable for wood, concrete and steel poles
- Diameters of 350-500mm s-tandard
- 1 set includes 2 x brackets to install 1 COYOTE® Splice Case

Part Number
OFSCMOUNT-04

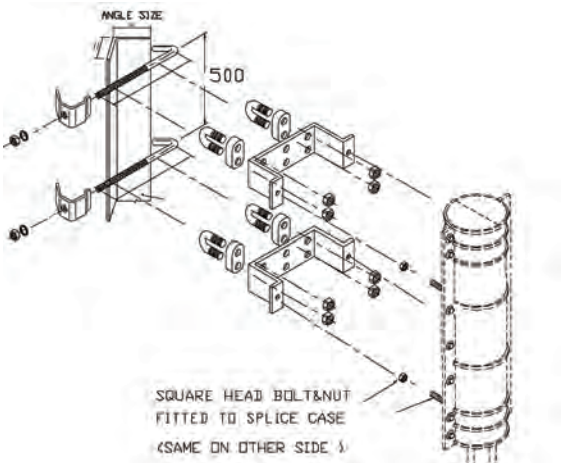


OFSCM

Tower Mounting Bracket

Features:
- Suitable for all angle type tower construction
- 1 set includes 2 x brackets to install 1 COYOTE® Splice Case

Part Number	Tower Angle Size (mm)
OFSCM-05-01	45 – 100
OFSCM-05-02	110 – 150
OFSCM-05-03	160 – 200
OFSCM-05-04	210 - 250



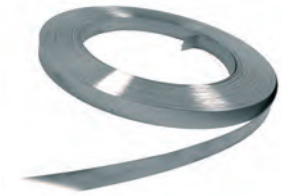
COYOTE® Splice Case Mounting Hardware

BL

Band Lock

The PLP® Band Strap System uses the unique Band Lock System to attach fittings safely and securely to steel or concrete poles. Supplied as one unit, it does not require any special tools. Quick and easy installation accepts 12, 16 or 19 mm stainless steel strapping.

Part Number
BL-10



EPASTRAP

Stainless Steel Strap S/S 304

Part Number	Reel Length (m)	Strap Width (mm)
EPASTRAP	30 m	19.0 x 0.50 mm

Note: Supplied in Plastic Tote Carry Case

OFSCCM

FIBERLIGN® Cable Storage Bracket

Part Number	Conductor Bend Radius (mm)
OFSCCM-01	530

SSSB

Stainless Steel Buckle

Part Number	Suits Strap Width (mm)
SSSB-12	12
SSSB-16	16
SSSB-19	19

OFSCCM

FIBERLIGN® Cable Storage Bracket Cover

Part Number
OFSCCM-01-C

COYOTE® SFMS (Single Fiber Management System)

Preformed Line Products new COYOTE® SFMS, Single Fiber Management System, further expands the capability of the COYOTE Fiber Optics product line.

The new system was designed to be compatible with all sizes of the COYOTE Dome Closure series, thus providing network planners with the ultimate flexibility to address network designs with varying degrees of customer density.

This modular system design, with options for multiple splice trays, provides the ability to expand closure capacity as customer demand increases. The benefits of PLP's patented segmented end plate design and its unique grommet sealing system, when combined with the features of the new COYOTE SFMS, provide endless opportunities to adapt your network.

Key Benefits

- SFMS Closure Sizes: 6.5" x 17" Dome Closure (218 mm x 453 mm) 6.5" x 22" Dome Closure (218 mm x 574 mm)
- Cable Port Quantity: 4 in the COYOTE 6.5" Dome Closures
- Configuration: Butt/Expressed Splice
- Applications: Aerial applications
- Sealable, Re-Enterable, & Re-Usable: Utilizes the same silicone grommet sealing system and segmented end plate design that is found throughout the COYOTE Dome Closure Family
- Modular: Splice Tray Modules allow you to add splice trays without having to remove previously installed splice trays
- Customizable: Create the closure that fits your application needs

COYOTE FIBER OPTICS		Support Module Type	Tray Module Capacity	Single Circuit Trays		Single Element Trays	
				4 Splice Count - Single Fusion	6 Splice Count - Single Fusion	8 Splice Count - Single Fusion	12 Splice Count - Single Fusion
							
		Catalog Number		80811409	80811933	80811934	80811935
 6.5" x 17" Dome (165 x 431 mm)	Dark Fiber Storage	 COYSFMS-617-001	3	24 Trays 96 Ct.	24 Trays 144 Ct.	12 Trays 96 Ct.	12 Trays 144 Ct.
	No Dark Fiber Storage	 COYSFMS-617-002	4	32 Trays 128 Ct.	32 Trays 192 Ct.	16 Trays 128 Ct.	16 Trays 192 Ct.
 6.5" x 22" Dome (165 x 558 mm)	Dark Fiber Storage	 COYSFMS-622-001	5	40 Trays 160 Ct.	40 Trays 240 Ct.	20 Trays 160 Ct.	20 Trays 240 Ct.
	No Dark Fiber Storage	 COYSFMS-622-002	6	48 Trays 192 Ct.	48 Trays 288 Ct.	24 Trays 192 Ct.	24 Trays 288 Ct.

Spiral Vibration Dampers

OFSVD

Spiral Vibration Dampers For OPGW

Made from high impact, UV resistant, polyvinyl chloride (PVC), they are non-corrosive and do not abrade the OPGW or require engineering calculations for positioning. Vibration dampers are designed to reduce cable vibration at tangent supports and deadend positions. The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension, exposure to the wind flow and vibration history on similar constructions in the same area.

Part Number	Cable Diameter Range (mm)	Standard Pack Quantity	Colour Code
OFSVD-0102	4.42 - 6.34	60	Red
OFSVD-0103	6.35 - 8.29	60	Blue
OFSVD-0104	8.30 - 11.74	60	Black
OFSVD-0105	11.75 - 14.30	60	Yellow
OFSVD-0106	14.31 - 19.30	25	Green

Spiral Vibration Damper Placement Guide

Span Length (m)	Standard SVD Quantities
0 - 244	2
245 - 488	4
489 - 732	6
733 - 976	8
977 - 1220	10

1. SVD's may be subsetted together in sets of up to 3 pieces. Do not place more than 3 SVD's together in a subset as this can cause them to bind and reduce their overall effectiveness.

2. SVDs have the advantage of being placement independent and may be placed at either end of the span, or on both ends if so desired. However, please note that SVDs are designed to be placed directly on to the conductor or shield wire and not on to rods or attachment hardware. A general recommendation, place SVDs on the bare conductor or shield wire approximately one hand's width away from suspension rods, dead-end rods, ties, etc.

3. Please consult Electropar PLP for recommendations when;
   * Flat open Terrain, river or gully crossings
   * Tensions are greater than 20% UTS
   * Aerial warning spheres are installed

VORTX™ Vibration Damper

Aeolian Vibration is a high frequency low amplitude motion caused by smooth laminar winds passing across the line. When conductors or cables are exposed to this wind a phenomenon known as eddy shedding occurs. Eddy or Vortex shedding creates an alternating pressure imbalance inducing the conductor to move up and down at right angles to the direction of air flow. These vibrations take the form of discrete standing waves that can cause support hardware breakdown, conductor fatigue, abrasion and eventually conductor failure.

The VORTX™ Damper exceeds the two response performance with a multi-response design that effectively reduces vibration over a wider range of imposing frequencies. This is accomplished by a design that has unequal messenger strand lengths enhanced in most cases with unequal weights. The weight sizes and messenger strand lengths are matched to specific conductor/cable impedance and line operating conditions that achieve optimum performance.

Features:

- Contoured Clamp - Aluminium alloy extrusions offer a more “precision” fit to evenly capture the conductor. As a result, tightening the bolt brings the clamp components together with evenly distributed pressure along the conductor surface.
- Clamp Profile - The clamp profile is configured to hang from the conductor or cable during installation in accordance with IEC standards. Hands are free to wrench tighten and reach proper torque.
- Messenger Strand - Galvanised steel messenger strand absorbs the vibration energy efficiently with optimum manufacturing techniques.
- Weight - Galvanised modular iron weights hug the sides of the messenger strand, not enclosing it. The possibility of corrosion is reduced.
- Weight Attachment - PLP offers a collet type or crimped attachment to secure the weights to the messenger. Both meet pull-off strength requirements in accordance with IEC and AS1154.1 standards without changing properties of the adjoining messenger.

PLP uses proprietary computer software to make VORTX™ placement recommendations for maximising damper performance. Input data considers many variables specific to individual lines, their designs, construction, and local operating conditions. The output recommendations include the specific model VORTX™ Damper, the quantity required and the damper placement within the span.

VORTX™ Stockbridge Damper

VSD - Selection Chart

For OPGW

Step 1: Choose conductor diameter from range below

Step 2: Choose clamp size from range below i.e. total diameter including armor rods if applicable

Step 3: Choose corresponding part number

Conductor Selection		Clamp Range		Part No.
Min (mm)	Max (mm)	Min (mm)	Max (mm)	
9.7	11.9	9.7	12.3	VSD-1012
		15.5	20	VSD-1020*
12	18.2	12.3	15.5	VSD-2016
		15.5	20	VSD-2020
		20	25	VSD-2025*
		25	32	VSD-2032*
18.3	21.7	15.5	20	VSD-2520
		20	25	VSD-2525
		25	32	VSD-2532*
21.8	24.9	20	25	VSD-3525
		25	32	VSD-3532*
		32	40.1	VSD-3540*
		40.1	50	VSD-3550*
25	33.9	25	32	VSD-4032
		32	40.1	VSD-4040
		40.1	50	VSD-4050*
		50	61	VSD-4061*
32.1	44.7	32	40.1	VSD-5040
		40.1	50	VSD-5050
		50	61	VSD-5061*

* Represent dampers that in most cases are placed over Armor or Structural Rods.

Note: Final selection for weight combination at merging ranges are determined from conductor type and tension. Contact Electropar PLP technical support for further recommendations.

VDSR - VORTX™ Damper Structural Rods

For OPGW

Part Number	Conductor Diameter Range (mm)	Rod Length (mm)	Standard Pack Quantity	Colour Code
VDSR-110	10.5 - 11.49	500	50	Green
VDSR-120	11.5 - 12.49	500	50	Purple
VDSR-130	12.5 - 13.79	500	50	Orange
VDSR-140	13.8 - 14.89	500	50	Blue
VDSR-150	14.9 - 15.49	500	30	Brown
VDSR-160	15.5 - 16.49	500	30	Yellow
VDSR-170	16.5 - 17.49	500	30	Red
VDSR-180	17.5 - 18.49	500	30	Yellow
VDSR-190	18.5 - 19.49	500	30	Yellow
VDSR-200	19.5 - 20.49	500	30	Yellow
VDSR-210	20.5 - 21.49	500	30	Blue
VDSR-320	31.5 - 32.49	700	30	Purple

Section 7 - Hardware & Fittings

EPSLP

Single Link Plate

Features:

• Link plates are available in 70, 120 and 160kN

Part Number	Hole Centres (mm)	Strength Rating (kN)
EPSLP70-75	75	70
EPSLP70-100	100	70
EPSLP70-150	150	70
EPSLP70-165	165	70
EPSLP70-200	200	70
EPSLP70-250	250	70
EPSLP70-300	300	70
EPSLP70-400	400	70
EPSLP70-500	500	70
EPSLP70-600	600	70
EPSLP70-700	700	70
EPSLP70-1000	1000	70
EPSLP120-75	75	120
EPSLP120-100	100	120
EPSLP120-150	150	120
EPSLP120-165	165	120
EPSLP120-200	200	120
EPSLP120-250	250	120
EPSLP120-300	300	120
EPSLP120-400	400	120
EPSLP120-500	500	120
EPSLP120-600	600	120
EPSLP120-1200	700	120
EPSLP120-1000	1000	120
EPSLP160-75	75	160
EPSLP160-100	100	160
EPSLP160-150	150	160
EPSLP160-165	165	160
EPSLP160-200	200	160
EPSLP160-250	250	160
EPSLP160-300	300	160
EPSLP160-400	400	160
EPSLP160-500	500	160
EPSLP160-600	600	160
EPSLP160-1600	700	160
EPSLP160-1000	1000	160

Note: Contact Electropar PLP if other centre distances are required.

EPDLP

Double Link Plate

Features:
• Link plates are available in 70, 120 and 160kN

Part Number	Hole Centres (mm)	Strength Rating (kN)
EPDLP70-100	100	70
EPDLP70-200	200	70
EPDLP70-300	300	70
EPDLP70-400	400	70
EPDLP70-460	460	70
EPDLP70-500	500	70
EPDLP70-600	600	70
EPDLP70-650	650	70
EPDLP120-100	100	120
EPDLP120-200	200	120
EPDLP120-300	300	120
EPDLP120-400	400	120
EPDLP120-460	460	120
EPDLP120-500	500	120
EPDLP120-600	600	120
EPDLP120-650	650	120
EPDLP160-100	100	160
EPDLP160-200	200	160
EPDLP160-300	300	160
EPDLP160-400	400	160
EPDLP160-460	460	160
EPDLP160-500	500	160
EPDLP160-600	600	160
EPDLP160-650	650	160

Note: Contact Electropar PLP if other centre distances are required.

CTSL

Sag Link

For the adjustment of conductors:
- M16 and M20 Hardware
- CTSLEW is a shorter version for Earthwire

Part Number	Rating (kN)	Range		Tower Angle width (mm)
		Minimum (mm)	Maximum (mm)	
CTSL-070-1	70	556	974	M16
CTSLEW-070-1	70	320	490	M16
CTSL-120	120	565	870	M16
CTSL-160-1	160	535	735	M20
CTSL-160-4	160	702	1075	M20
CTSL-160-30323	160	236	350	M20
CTSLEW-160-1	160	320	490	M20
CTSL-210	210	320	490	M20

EPYP

Yoke Plate - Triangular

Electropar PLP design and manufacture an extensive range of Yoke plates to suit any application. Triangular and rectangular plates are available with various hole spacing and thickness to suit either tension or suspension applications. Standard ratings available are 70, 120, 160 and 210kN. Please contact Electropar PLP with your specific requirements.

Part Number	Tension Rating (kN)	Hole Spacing (mm)
EPYP-070-060	70	60
EPYP-070-070	70	70
EPYP-070-100	70	100
EPYP-070-125	70	125
EPYP-070-150	70	150
EPYP-070-200	70	200
EPYP-070-250	70	250
EPYP-070-380	70	380
EPYP-070-460	70	460
EPYP-070-560	70	560
EPYP-070-660	70	660
EPYP-120-060	120	60
EPYP-120-100	120	100
EPYP-120-200	120	200
EPYP-120-380	120	380
EPYP-120-400	120	400

Part Number	Tension Rating (kN)	Hole Spacing (mm)
EPYP-160-125	160	125
EPYP-160-130-1	160	130
EPYP-160-180-4	160	180
EPYP-160-200	160	200
EPYP-160-250	160	250
EPYP-160-380-1	160	380
EPYP-160-460-6	160	460
EPYP-160-500	160	500
EPYP-160-520-6	160	520
EPYP-160-560-1	160	560
EPYP-160-60	160	60
EPYP-160-660	160	660
EPYP-190-380-6	190	380
EPYP-190-460-6	190	400
EPYP-210-380	210	200
EPYP-210-400	210	400
EPYP-320-380-1	320	380

MTL

Maintenance Tension Link - Galvanised Steel

Part Number	Tension Rating (kN)	Hole Spacing (mm)
MTL-070-060	70	60
MTL-160-4	160	60

BYC

Ball 'Y' Clevis

Part Number	Minimum Failing Load (kN)	Ball Size (mm)	Bolt Size (mm)
BYC-070-1	70	16	M16
BYC-120-AH	120	16	M16
BYC-160-1	160	20	M20

Note: -AH refers to ball Y clevis for arcing horn

BEAH

Ball Eye for Arcing Horn

Part Number	Minimum Failing Load (kN)	Ball Size (mm)
BEAH-070-9	70	16
BEAH-160-1	160	20
BEAH-210-1	210	20

BCAH

Ball Clevis for Arcing Horn

Part Number	Minimum Failing Load (kN)	Ball Size (mm)	Bolt Size (mm)
BCAH-070-1	70	16	M16

TSTAH

Twisted Socket Tongue for Arcing Horn

Part Number	Minimum Failing Load (kN)	Ball Size (mm)	Security Clip Type
TSTA-120-1	120	16	R

TST

Twisted Socket Tongue

Part Number	Rating a(kN)	Tongue Size (mm)	Security Clip Type
TST-070-1	70	16	R
TST-070-3	70	16	W
TST-120-1	120	16	R
TST-120-3	120	16	W
TST-160-3	160	20	W
TST-160-ACS	160	20	R
TST-210-ACS	210	20	R

AH

Arcing Horn

Arcing horns are a cost effective device for protecting valuable line equipment by allowing short circuit currents to pass across an air gap. Please advise Electropar PLP of line specifics at time of order for a recommendation on suitable products.

Part Number
AH***

S

Shackles - Galvanised Forged Steel

Part Number (Shackle)	Tension Rating (kN)	Bolt Size (mm)	Standard Pack Quantity
S-070-1	70	M16	25
S-120-1	120	M16	25
S-160-1	160	M20	15
S-210-1	210	M20	15

Part Number (Twisted)	Tension Rating (kN)	Bolt Size (mm)
TS-070-1	70	M16

DS

D - Shackles

D - Shackles are used to suspend Electropar PLP aluminium sheaves in conjunction with twin grips or tygards.

Part Number (Twisted)	Clevis Opening (mm)
DS-070-8	41±2

AS

Aluminium Sheave - 54mm

Bolt holes to suit M16 and M20 bolts.

Part Number	Bore Diameter (mm)	Standard Pack Quantity	Colour Code
AS-54-17	17	25	Red
AS-54-22	22	25	Green

THGR

Sheave - Machined Steel

Part aNumber	Hole Size (mm)	Sheave Diameter (mm)
THGR-57	21	57
THGR-75	26	75
THGR-75-18	18	75
THGR-80	32	80
THGR-146A-C	50	146
THGR-146B-C	26	146
THGR-150	32	150
THGR-150-25	26	150
THGR-150-36	38	150

CTH

Clevis Thimble - Galvanised Cast Iron

Features:
- MFL 70kN
- Used for small GZ or copper grips

Part Number	Maximum Grip Size	Thimble Bend Radius (mm)	Standard Pack Quantity
CTH-070-MCI	GFG-083 CFG-100-CL	20	25

GCT

Clevis Thimble - Galvanised Cast Iron

Features:

• Used for medium to large GZ and copper grips

Part Number	Maximum Grip Size	Thimble Bend Radius (mm)	Standard Pack Quantity
GCT-120-TC5F	GFG-163 CFG-260-LT-CL	28.5	25
GCT-120-TC6F		32.5	25

SC

Socket Clevis - Galvanised Cast Iron

Features:

• Available with 'W' or 'R' clip security pin
• 120kN available in cast steel option. Contact Electropar PLP for information

Part Number	Tension Rating (kN)	Socket Size (mm)	Bolt Size (mm)	Standard Pack Quantity
SC-070-1	70	16	M16	25
SC-120-1	120	16	M16	
SC-160-1	160	20	M20	
SC-210-1	210	20	M20	8

STH

Socket Thimble - Galvanised Cast Iron

Features:

• 'W' clip security pin

Part Number	Tension Rating (kN)	Thimble Bend Radius (mm)	Standard Pack Quantity
STH-070-1	70	20	25

ST

Socket Tongue - Galvanised Forged Steel

Features:

• Available with 'W' or 'R' clip security pin

Part Number	Tension Rating (kN)	Bolt Size (mm)	Standard Pack Quantity
ST-070-1	70	M16	25
ST-160-1	160	M20	
ST-210-1	210	M20	

SB

Socket Ball - Galvanised Forged Steel

Part Number	Rating (kN)	Socket Size (mm)	Ball Size (mm)
SB-070-1	70	16	16
SB-120-3	120	16	16
SB-160-4	160	20	20
SB-160/070-4	70	20	16

TC

Tongue Clevis - Galvanised Cast Iron

Part Number	Tension Rating (kN)	Bolt Size (mm)	Standard Pack Quantity
TC-070-1	70	M16	25
TC-120-1	120	M16	25

BC

Ball Clevis - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Bolt Size (mm)	Ball Size (mm)	Standard Pack Quantity
BC-070-1	70	M16	16	25
BC-120-1	120	M16	16	25
BC-160-3	160	M20	20	15
BC-210-1	210	M20	20	

CTY

Y Clevis Tongue - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Bolt Size (mm)	Hole Size (mm)	Standard Pack Quantity
CTY-070-1	70	M16	18	25
CTY-160-120-2	120	M20	22	

LE

Link Eye - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Standard Pack Quantity
LE-070-1	70	50
LE-120	120	
LE-160-1	160	
LE-210-1	210	
LE-320	320	

ET

Eye Tongue - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Bolt Size (mm)	Bolt Size (mm)	Standard Pack Quantity
ET-070-1	70	M16	25	25
ET-070-22	70	M20	25	
ET-120-1	120	M16		
ET-160-1	160	M20		

TET

Twisted Eye Tongue - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Bolt Size (mm)	Standard Pack Quantity
TET-070	70	M16	25
TET-120-1	120	M16	
TET-160-1	160	M20	15

BE

Ball Eye - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Ball Size (mm)	Standard Pack Quantity
BE-070-1	70	16	25
BE-120-1	120	16	
BE-160-1	160	20	15
BE-210-8	210	20	

BHL

Ball Hook Long Shank Galvanised Forged Steel

Part Number	Tension Rating (kN)	Standard Pack Quantity
BHL-070-1	70	25

Note: Safety latch available. Substitute **-1** for **-2**.

BHS

Ball Hook Short Shank - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Standard Pack Quantity
BHS-070-1	70	25

TH

Tongue Hook - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Standard Pack Quantity
TH-070-1	70	25

THL

Tongue Hook/Latched - Galvanised Forged Steel

Part Number	Tension Rating (kN)	Standard Pack Quantity
THL-070-1	70	25

BT

Ball Tongue

Part Number	Tension Rating (kN)	Ball Size (mm)	Hole Size-Tongue (mm)
BT-070-5	70	16	18
BT-160-8	160	20	21.5
BT-210-1	210	20	22
BE-210-8	210	20	

GCP

Guy Crossover Plate

Part Number	Hole Size (mm)
GCP-020-8	20
GCP-022C	22

ELEE

Extension Link Eye Eye - Galvanised Forged Steel

Part Number	Rating (kN)	Length (mm)
ELEE-160-450	160	450
ELEE-160-1170-3	16	1170
ELEE-160-1220-3	16	1220

ELBE

Extension Link Ball Eye - Galvanised Forged Steel

Part Number	Rating (kN)	Length (mm)	Ball Size (mm)
ELBE-160-250-1	160	250	20
ELBE-160-350-1	160	350	20
ELBE-160-500-1	160	500	20
ELBE-160-620-1	160	620	20
ELBE-160-800-1	160	800	20
ELBE-160-1000	160	1000	20
ELBE-160-1100-1	160	1100	20
ELBE-160-1330	160	1330	20
ELBE-160-1620	160	1620	20
ELBE-160-2000	160	2000	20

ELBC

Extension Link Ball Clevis - Galvanised Forged Steel

Part Number	Rating (kN)	Length (mm)	Ball Size (mm)	Bolt Size
ELBC160-1	160	250	20	M20

ELSC

Extension Link Socket Clevis - Galvanised Steel

Part Number	Rating (kN)	Length (mm)	Socket Size (mm)	Bolt Size	Material
ELSC-160-2	160	310	20	M20	Cast Steel
ELSC-160-4	160	310	20	M20	Forged Steel

TBCC

Turnbuckles - Clevis/Clevis - Galvanised Forged Steel

Part Number	Rating (kN)	Bolt Size (mm)	Range (mm)	
			Minimum	Maximum
TBCC-070-1	70	M16	350	480
TBCC-160-1	160	M20	480	600

TBCT

Turnbuckles - Clevis/Tongue Galvanised Forged Steel

Part Number	Rating (kN)	Bolt Size (mm)	Range (mm)	
			Minimum	Maximum
TBCT-070-1	70	M16	350	480
TBCT-160-1	160	M20	480	600

TBEC

Turnbuckles - Eye/Clevis Galvanised Forged Steel

Part Number	Rating (kN)	Bolt Size (mm)	Range (mm)	
			Minimum	Maximum
TBEC-070-1	70	M16	350	480
TBEC-160-1	160	M20	480	600

TBEE

Turnbuckles - Eye/Eye Galvanised Forged Steel

Part Number	Rating (kN)	Range (mm)	
		Minimum	Maximum
TBEE-070-1	70	510	650
TBEE-160-1	160	510	650

GADJ

Features:
- Made from galvanised steel for use on staywires and anchors.
- Used when loads exceed 140 kN.

Part Number	Tension Rating (kN)	Suits Anchor Rod Ø (mm)	Length Total (mm)	Thread Length (mm)	U-Bolt Ø (mm)
GADJ-144-350	144	M24	320	240	M20
GADJ-308-530	308	M30	530	250	M30
GADJ-320-530	320	M36	530	250	M30

GPSC

M16 Galvanised Pole Step For Concrete Poles

Part Number	Bolt Size (mm)	Length (mm)	Standard Pack Quantity
GPSC-16180	M16	180	25

GEBE

M20 and M24 Elongated Eye Bolt

Features:
- This fitting used with the Electropar PLP Anchor
- Other lengths available on request

Part Number (M20)	Part Number (M24)	Length (mm)	Threaded Length (mm)
GEBE-20150	GEBE-24150	150	150
GEBE-20200	GEBE-24200	200	150
GEBE-20250	GEBE-24250	250	150
GEBE-20300	GEBE-24300	300	150
GEBE-20350	GEBE-24350	350	150
GEBE-20400	GEBE-24400	400	150
GEBE-20420	GEBE-24420	420	150
GEBE-20450	GEBE-24450	450	150
GEBE-20500	GEBE-24500	500	150
GEBE-20550	GEBE-24550	550	150
GEBE-20600	GEBE-24600	600	150
GEBE-20650	GEBE-24650	650	150
GEBE-20700	GEBE-24700	700	150
GEBE-20750	GEBE-24750	750	150
GEBE-20800	GEBE-24800	800	150
GEBE-202500	GEBE-242500	2500	150

GEBR

M16 and M20 Round Eye Bolt

Made of galvanised steel for use with either wood or concrete poles.

Part Number	Length (mm)	Threaded Length (mm)
GEBR-16150	150	100
GEBR-16200	200	100
GEBR-16250	250	100
GEBR-16300	300	100
GEBR-16350	350	100
GEBR-16400	400	100
GEBR-16450	450	100
GEBR-16500	500	100
GEBR-20190	190	150
GEBR-20200	200	150
GEBR-20250	250	150
GEBR-20300	300	150
GEBR-20350	350	150
GEBR-20400	400	150
GEBR-20450	450	150
GEBR-20500	500	150
GEBR-20600	600	150

Note: Other lengths available on request.

GEBR

M20 Round Eye Bolt Special Assembly

Made of galvanised steel for use with either wood or concrete poles.

Part Number	Length (mm)	Threaded Length (mm)
GEBR-20400-SQW	400	100
GEBR-20425-SQW	425	100
GEBR-20450-SQW	450	100
GEBR-20475-SQW	475	100
GEBR-20500-SQW	500	100
GEBR-20525-SQW	525	150
GEBR-20550-SQW	550	150
GEBR-20575-SQW	575	150
GEBR-20600-SQW	600	150
GEBR-20650-SQW	650	150

PSG
Guy/Stay Guards

PREFORMED™ Stay Guards are for identifying guy or stay wires or other wire and cable installation. They clearly identify stays in residential, industrial and rural situations, safeguarding against accidental collision.

Features:
- Smooth - no jagged, sharp edges
- Resilient - bounces back to shape when bumped
- Withstands blows without shattering or cracking, even in sub-zero temperatures
- Lightweight and compact - easy to store or transport
- No corrosion
- Self extinguishing
- Slit type are retro-fittable

Part Number	Internal Diameter (mm)	Length (m)	Standard Pack Quantity
PSG-025-2U	22	2	50
PSG-025-2U-FH	22	2	50
PSG-025-2S-FH	22	2	50
PSG-025-2.5U	22	2.5	50
PSG-025-2.5U-FH	22	2.5	50
PSG-025-2.5S-FH	22	2.5	50
PSG-030-2U	28	2	32
PSG-030-2U-FH	28	2	32
PSG-030-2S-FH	28	2	32
PSG-030-2.5U	28	2.5	32
PSG-030-2.5S	28	2.5	32
PSG-030-2.5U-FH	28	2.5	32
PSG-030-2.5S-FH	28	2.5	32
PSG-036-2U	32	2	25
PSG-036-2U-FH	32	2	25
PSG-036-2S-FH	32	2	25

Important Note:
FH = Fixing holes
S = Slit
U = Unslit

SBFDS

Spiral Bird-Flight™ Diverter - Swan

BIRD-FLIGHT™ Diverter are designed to make overhead lines visible to birds and provide an economic means of reducing Bird-Flight hazards. The fitting is light in weight, offers little wind resistance and is easily and quickly applied by hand or by hot stick. The positive grip on the conductor ensures that the BIRD-FLIGHT™ Diverter remains in the applied position and cannot move along the span under aeolian vibration or other conditions. The diverter section increases the visible profile of the cable or conductor to a degree necessary to ensure safety, but avoids an undesirably bulky outline.

Features:

- Increased conductor profile where Bird-Flight paths are present
- Lightweight with no concentrated mass
- Manufactured from high impact, UV resistant, polyvinyl chloride (PVC)

Part Number	Conductor Diameter Range (mm)	Overall Length (mm)
SBFDS445634-#	4.42 - 6.34	675
SBFDS635829-#	6.35 - 8.29	675
SBFDS830117-#	8.30 - 11.74	725
SBFDS118143-#	11.75 - 14.30	725
SBFDS118143-#	14.40 - 19.30	725
SBFDS194235-#	19.40 - 23.50	1150
SBFDS236278-#	23.60 - 27.82	1150
SBFDS279350-#	27.83 - 35.00	1150

- Substitute either: **W** for White
G for Grey

SBFD

Spiral Bird-Flight™ Diverter

Part Number	Conductor Diameter Range (mm)	Overall Length (mm)	Colour Code
SBFD445634-#	4.45 - 6.34	220	Red
SBFD635829-#	6.35 - 8.29	260	Blue
SBFD830117-#	8.30 - 11.74	280	Black
SBFD118143-#	11.75 - 14.30	350	Yellow
SBFD144193-#	14.31 - 19.30	430	Green

- Substitute either: **W** for White
G for Grey

Cable Stockings

Cable Stockings have many uses in the areas of construction, hauling and pulling. As the type of stocking design varies with each type of cable used, Electropar PLP can supply a range of stockings to meet your requirements.

Five designs are available, in sizes to cover a wide range of distribution cables. They are to suit bare overhead, aerial bundled cable and covered conductors. Any special requirements can be met.

The five designs are made out of:

1. One open end and one closed single eye
2. Both ends open, but with a double eye at one end of the stocking
3. Flat stocking with double eye
4. Both ends open with no eyes
5. Both ends open with one eye

CSS - Cable Stockings

Steel Construction Aluminium & Steel Based Conductors

Part Number	Conductor Diameter Range (mm)	Tension Rating (kN)	Length Total (mm)
CSS-1014	10 - 14mm	5	350
CSS-1419	14 - 19mm	9	400
CSS-1928	19 - 28mm	15	500
CSS-2840	28 - 40mm	24	600
CSS-4055	40 - 55mm	35	800

CSS - Cable Stockings Steel Construction

With Thimble Eye Aluminium & Steel Based Conductors

Part Number	Conductor Diameter Range (mm)	Tension Rating (kN)	Length Total (mm)
CSS-1014TH	10 - 14mm	5	350
CSS-1419TH	14 - 19mm	9	400
CSS-1928TH	19 - 28mm	15	500
CSS-2840TH	28 - 40mm	24	600
CSS-4055TH	40 - 55mm	35	800

CSS - Cable Stockings Heavy Duty Steel Construction

Aluminium and Steel Based Conductors

Part Number	Conductor Diameter Range (mm)	Tension Rating (kN)	Length Total (mm)
CSS-0407HD	4 - 7mm	5	300
CSS-0611HD	6 - 11mm	8	350
CSS-1014HD	10 - 14mm	15	350
CSS-1419HD	14 - 19mm	20	400
CSS-1928HD	19 - 28mm	37	500
CSS-2840HD	28 - 40mm	54	600
CSS-4055HD	40 - 55mm	62	800

PB

Pole Band

Features:

- Designed for concrete, steel and wood construction poles
- Single take off point standard
- Please contact Electropar PLP for further information and suitability

Part Number	Pole Diameter (mm)	Bolt Diameter
PB-200-1WAY	200	M18
PB-230-1WAY	230	M18
PB-260-1WAY	260	M18
PB-290-1WAY	290	M18
PB-320-1WAY	320	M18
PB-350-2	350	M20
PB-425-2	425	M20
PB-450-2	450	M20
PB-500-2	500	M20

Jointing Compounds

For Aluminium and Copper Jointing

Electropar's jointing compounds are formulated to improve jointing conductivity and inhibit oxidation and corrosion between jointing contact areas. Jointing compound should always be applied to the contact surface of all aluminium to aluminium, aluminium to copper and copper to copper connections prior to compression or bolting.

EP Uniseal (Grey, 350g tube)

EP Uniseal consists of a lithium based 180° C stable grease and zinc particles. The base grease prevents water and contaminants interfering with the connection and prevents the formation of surface oxides. The zinc particles work to break down existing oxide on the conducting surfaces when those surfaces are brought together under pressure. EP Uniseal is ideal for aluminium to aluminium and aluminium to copper compression or bolted joints.

EP Joint Seal (White, 300g tube)

EP Joint seal is made up of lithium based 180° C stable grease and titanium oxide. Joint seal is recommended for copper conductors in aluminium fittings and coppper to copper connections. EP Joint seal assists the breakdown of contact resistance, fills voids left after compression and prevents water or contaminants from entering the joint.

EP Unigrip C (Brown, Black, 350g tube)

EP Unigrip C has a noticeably gritty texture being made up of lithium based 180° C stable grease and aluminium oxide particles. The compound serves as a "locking" device for aluminium conductor being jointed or terminated by compression in full tension situations. The aluminium oxide breaks down surface oxidation, while the base grease prevents water or contaminants from entering the joint.

QUICK REFERENCE CHART	
APPLICATION	**COMPOUND**
For all BOLTED joints	EP Joint seal EP Uniseal
For COPPER conductors and ALUMINIUM fittings	EP Joint seal
For all NON TENSION ALUMINIUM conductors	EP Uniseal
For all FULL TENSION ALUMINIUM conductors	EP Unigrip C
For all NON TENSION COPPER conductors	EP Joint seal

Section 8 - Insulators

Table of Contents **Section/Page**

Insulators

Electropar PLP Insulators

for Power Transmission and Distribution Networks

- Porcelain & Polymeric Insulators
- Commitment to Quality
- State-of-the-art Manufacturing and In-House Testing Facilities
- IEC & Australian Standards
- Batch Tested as per Australian Standards
- Long Life & Reliable Performance

Electropar PLP is a leading manufacturer and supplier of cable line hardware for aerial power and communications networks. Electropar PLP's products have benchmarked industry standards in technology and quality, to deliver highly dependable products, making Electropar PLP one of the most trusted names in the industry.

In a world where efficiency powers bottom lines, reliability becomes the key driver for productivity and performance, and consistent reliability can be achieved only through a focused approach and proficient implementation of world class practices. Insulators supplied by Electropar PLP meet dimensional, electrical and mechanical requirements of the Australian and IEC standards. The market demands that insulators have a minimum life of 20 years in all types of natural conditions, such as industrial pollution, salt-spray fog, rain, external heat and cold.

Electropar PLP provides Porcelain and Polymer insulators for electrical transmission, distribution, sub-station and all other applications. Tested in world class laboratory facilities to Australian and IEC Standards, Electropar PLP supply voltage ranges varying from 11kV – 500kV in both Porcelain and Polymeric designs. Electropar PLP also cater for LV/MV range insulators. Munsell Grey is the color of choice unless a special glaze requirement is requested.

Insulators

Disc Insulators

Porcelain

Features:

- Manufactured and supplied by Aditya Birla Insulators,India
- ABI- Third largest manufacturer of Insulators in the world
- World class quality Standards
- State-of-the-art manufacturing and In-House test facilities
- Manufactured from non-porous electrical porcelain
- Sacrificial "Zn" collar standard on all pins
- Insulators tested at CPRI, a NABL accredited testing facility (NATA equivalent)
- Batch tested to Australian Standards

Part Number	Fixing	Security Clip	Spacing (mm)	Creepage Distance	Electro Mechanical Strength (kN)
I-U70B-PWZ	Ball & Socket	W	146	320	70
I-U70C-PZ	Tongue & Clevis		146	320	70
I-U160BS-PRZ	Ball & Socket	R	146	320	160

Note:

• Dimensional and performance characteristics in accordance with IEC & Australian standards

• Higher rated units can be supplied upon request

Insulators

Disc Insulators - Suspension / Tension Strings

Features:

- Manufactured and supplied by NANJING ELECTRICAL GROUP, China
- Nanjing is the largest glass insulators manufacturer in China and amongst top 3 in the world
- Over 210 million units supplied since 1958, in over 60 countries in the world, NZ and Australia included
- Available for transmission lines within 35 to 1000 kV
- Available in standard profile, fog/anti-pollution profile, DC, spherical and open/aeolian profile
- Fully automated five production lines, with 12 million units production capacity per year
- State-of-the art vertically integrated manufacturing plant, world class quality standards, in-house testing facility
- Manufactured as per IEC, ANSI, BS, AS and NZ standards
- Manufactured from toughened-glass, with sacrificial Zn sleeve and various types of safety clips
- Increased galvanising thickness of both cap and pin to meet Transpower requirements
- KEMA Certificate available, batch-tested to NZ / AU standards

Part Number	Detail	Ball & Socket Size	Spacing (mm)	Diameter (mm)	Creepage Distance (mm)	Mechanical Failing Load (kN)
U70 BS - LXY-70	standard	16A/16B	127	255	295	70
U70 BL - LXY1 - 70	standard	16A/16B	146	255	295	70
U70 BLP - LXHY5 - 70	anti-pollution	16	146	280	440	70
U120 BL - LXY -120	standard	16A/16B	146	255	295	120
U120 BP - LXHY4 -120	anti-pollution	16	146	280	440	120
U160 BS - LXY4-160	standard	20	146	280	315	160
U160 BSP - LXY-160D	anti-pollution	20	155	330	440	160
U210 BS - LXY3-210	standard	20	170	280	370	210
U210 BSP - LXY-210D	anti-pollution	20	170	330	525	210
U300 B - LXY3-300	standard	24	195	330	480	300
U300 BP - LXHY4-300	anti-pollution	24	195	330	550	300

Insulators

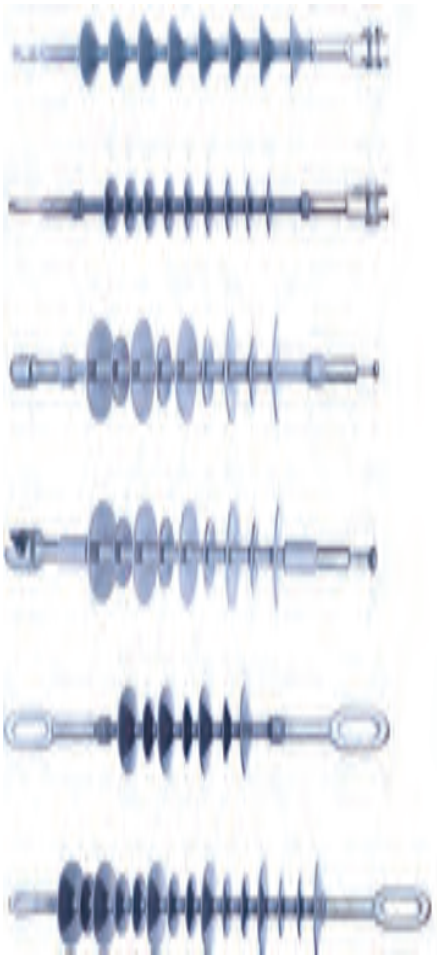
Station Post Insulators

Features:
- ABI- Third largest manufacturer of Insulators in the world
- World class quality Standards
- State-of-the-art manufacturing and In-House test facilities
- Capability up to 800kV
- Type tested at NATA equivalent laboratories
- Batch tested to Australian Standards
- Stocked at Electropar PLP

Part Number	Rated Volt. (kV)	BIL (kV)	Cantilever Strength (kN)	Polution Level	Crepage (mm)	Height
I-C6-650-4495C-1500H 127/127	132	750	6	4	4495	1500
I-C10-650-3625C-1500H 127/127	132	750	10	3	3625	1500
I-C12.5-650-3625C-1500H 127/254	132	650	12.5	3	3650	1500
I-C6-650-3730C-1473H 127/127	132	650	6	3	3733	1473
I-C8-350-II-76HT	66	350	8	2	1690	762
I-C10-325-1815C-770H 127/127	66	325	10	3	1820	770
I-C6-200-I-508HT	33	200	6	1	840	508
I-C4-200-1000C-400H 76/76	33	200	4	3	1000	400
I-C4-200-200-I-458HT	33	200	4	1	850	458
I-C10-200-II-458HT	33	200	10	2	950	458
I-C10-200-900C-475H 76/76	33	200	10	3	950	475
I-C8-225-810C-381H	36	170	3	3	810	381
I-C6-150-I-355HT	22	150	6	1	610	355
I-C4-150-500C-300H 76/76	22	150	4	3	500	300
I-C9-125-400C-254HT TR-205	11	110	10	3	400	255
I-C6-1050-7595C-2300H	220	1050	6	4	7595	2300

Notes:
- Dimensional and performance characteristics in accordance with IEC and Australian standards (AS 4395.1)
- Details of Station Posts not mentioned above can be provided upon request

Insulators



Polmeric Insulators - Suspension, Station Post

Features

- Manufactured and supplied by ECI, China (www.ec-insulators.com)
- ECI is one of the global electrical components manufacturer with plants in China and UAE
- Over 2 million pieces of silicone & polymeric insulators per year supply capacity
- Available for both distribution and transmission lines within 1 to 500 Kv range
- Available in following standards: IEC 60120, 61466-1, 61952, 61109, ANSI, GB 15166 & GB 1000
- Fully automated state of the art silicone injection production lines, sound detecting and in-house full testing facilities
- Most advanced R&D team and most consistent quality supplier of polymeric insulators in China
- 70% export markets in USA, Middle East, Europe (Spain, Italy, Czech Republic, Turkey), South America, Korea and Vietnam
- Various in-house manufactured end fittings and grading rings

Part Number	Type	End Fittings Type	Voltage (kV)	Length (mm)	Creepage Distance (mm)	SML / SCL (KN)
FXBW - 46/70	Suspension	Ball & Y-Clevis	46	675	1390	70
FXBW - 66/120	Suspension	Ball & Y-Clevis	66	815	2010	120
FXBW - 66/120A	Suspension	Ball & Socket	66	815	2010	120
FXBW - 66/120B	Suspension	Ball & Socket	66	885	2250	120
FXBW - 110/120	Suspension	Ball & Y-Clevis	110	1235	3290	120
FXBW - 110/120A	Suspension	Ball & Socket	110	1165	3290	120
FXBW - 110/120B	Suspension	Ball & Socket	110	1305	3824	120
FXBW - 110/210	Suspension	Ball & Y-Clevis	110	1335	3290	210
FXBW - 110/210A	Suspension	Ball & Socket	110	1265	3290	210
FXBW - 110/210B	Suspension	Ball & Socket	110	1405	3824	210
FXBW - 220/120	Suspension	Ball & Socket	220	1935	6140	120
FXBW - 220/120A	Suspension	Ball & Socket	220	2355	7680	120
FXBW - 220/210	Suspension	Ball & Socket	220	2035	6140	210
FXBW - 220/210A	Suspension	Ball & Socket	220	2455	7640	210
FXBW - 400/120	Suspension	Ball & Socket	400	3125	10530	120
FXBW - 400/120A	Suspension	Ball & Socket	400	3825	13100	120
FXBW - 400/210	Suspension	Ball & Socket	400	3225	10530	210
FXBW - 400/210A	Suspension	Ball & Socket	400	3925	13100	210
FZSW - 66/22	Station Post	127 PCD flange	66	837	1830	22
FZSW - 110/16	Station Post	127 PCD flange	110	1247	3200	16
FZSW - 220/8	Station Post	127 PCD flange	220	2149	6180	8

Section 9 - Condition Assessment

Table of Contents

Section/Page

Power Wands

Introduction

Electropar PLP Power Wands™ are a family of “live line” tools to measure the condition of conductor midspan joints and deadends. All Electropar PLP Power Wands can be used while the transmission line is energised. The MS Power Wand can also be used while a transmission line is de-energised. With lines alive, the work is done by live line techniques called “hotstick” or “barehand”. The work can be completed from insulated elevated working platforms, live line trolleys or from a helicopter.

The Power Wand™ Family

The AC Power Wand™ and DC Power Wand™ assist utility network asset owners to assess the condition of electrical joints and connectors on both high voltage AC and high voltage DC circuits. By understanding the resistance of a compression or bolted joint, it is possible to understand how well the joint is performing in service and even predict how much life the joint has left in it before it is likely to thermal run away takes place.

The MS Power Wand™ is used to locate the position of the steel compression sleeve that joins the steel cores of two ACSR conductors underneath the aluminium compression sleeve. Electropar PLP analysis shows that a common cause of premature electrical / mechanical failure of ACSR midspan joints is having the aluminium sleeve offset over the top of steel sleeve creating high current density on one side of the joint. Information identifying the relative location of the steel and aluminium joint sleeves can pinpoint a potential failure point and enable the

DC Power Wand

250mm & 350mm Contact Lengths supplied as standard. Custom Contacts available upon request.

Single Handed Instrument Operation.

Introduction

The purpose of this instrument is to measure the voltage drop across compression midspan splice, compression deadend, compression deadend terminal palm or jumper terminal on an HVDC line. Developed in conjunction with, and approved for use by New Zealand's National Grid Operator Transpower NZ Ltd, the DC Power Wand has been field tested on live lines up to ±350kV HVDC.

Use Of DC Power Wand

To take a resistance reading, the two contacts on the DC Power Wand are forced into contact with the HVDC line over the joint or connection to be measured. Upon contact, the measurement is made automatically however for detection, sufficient current must be flowing in the line so that the measurement will exceed 1.0mV. There is a short delay until the reading is latched and displayed on the integral LED screen.

To determine joint resistance a second reading of the conductor adjacent to the joint is necessary. The ratio of the two readings combined with the known conductor resistance then determines the joint resistance. The joint resistance is expressed as a resistance ratio. An alternative mode of operation with non-latched continuous reading is also available.

The DC Power Wand is designed for one hand operation with the READ/HOLD button close to the hand grip. Two standard probe lengths are included with the basic kit, with custom contact lengths available on request to accommodate any connector arrangement or length.

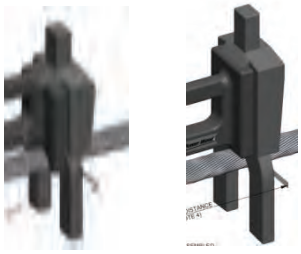
The DC Power Wand is supplied in a high quality foam protected in a hardcase. An operating procedure, list of available accessories, unique serial number and QA certificate is provided with the Equipment.

DC POWER WAND™	
Maximum Tested System Voltage	±350kV DC to ground
Maximum Tested System Current	1000A AC rms
Accuracy	±0.05mV
Dual Range	19.999mV, 199.99mV Automatic Selection
Ambient Temperature	-18ºC to +55ºC
Battery	4 cells Alkaline AA
Automatic Turn Off	2 minutes
Stock No..	3003253

AC Power Wand

250mm & 350mm Contact Lengths supplied as standard. Custom Contacts available upon request.

Single Handed Instrument Operation.



Can mount to either the SensorLINK Narrow or Wide Jaw OHMSTIKs. (Supplied Separately).

Introduction

The AC Power Wand Live -Line Micro Ohmmeter is designed to be attached directly to an energized, high voltage lines to directly read joint or connector resistance in micro-ohms. It can be applied by linesmen via either barehand or hotstick live line techniques and can be used on almost any connection within electric power utilities lines and substations. Line splices can be checked after installation, or after many years of service. Bolted terminals, taps, jumpers and substation busbars can be evaluated. Switches, fused disconnect and nor manually open switches that have been open for long periods can be measured just after closing. Each of these connections can be measured quickly after installation, or surveyed after long service, to ensure proper resistance.

The AC Power Wand is available in narrow jaw (63.5mm) and wide jaw (98.0mm) configurations. The probes on the AC Power Wand measure voltage drop and are intended to measure the micro voltage drop from the same phase. Connecting the probes in a phase to phase, phase to earth, or any application where the voltage potential between the probes is more than 2.5 volts will cause damage to the instrument.

Use Of AC Power Wand

For operation, the unit is pressed against the splice or connector in such a manner that the connection under test is between the two electrodes. In a few seconds the instrument is removed from the line and the line amperage and resistance are displayed on the front panel of the instrument. The AC Power Wand is designed to store up to nine sets of readings in its internal memory.

The AC Power Wand handle is machined from ABS plastic and fits precisely with the molded contour of the instrument. This ensures that minimal additional load is applied to the precision instrument. The Contact probe consists of a rod and head which are made from electrical grade aluminium and are fastened together with stainless steel fittings. Exposed parts of the contact rod are protected with heat shrink insulation and each contact rod is individually marked for easy identification in the field.

The probe is inserted through the handle and fastens into the instrument combining handle/probe/instrument at a fixed length between instrument and probe contact – ensuring a consistent measurement length every time. The contact head is designed to accommodate a range of bare conductors and is sufficiently durable to break the conductor oxide barrier ensuring an accurate resistance measurement.

The AC Power Wand is supplied in a high quality foam protected in a hardcase. An operating procedure, list of available accessories, unique serial number and QA certificate is provided with the Equipment.

AC POWER WAND™		
Stock No. 348002	AC Power Wand Narrow Jaw (63.5mm) Model: 222141	Supplied with 250mm and 350mm Long Contact Probes.
Stock No. 348001	AC Power Wand Wide Jaw (98.0mm) Model: 214313	Supplied with 250mm and 350mm Long Contact Probes.

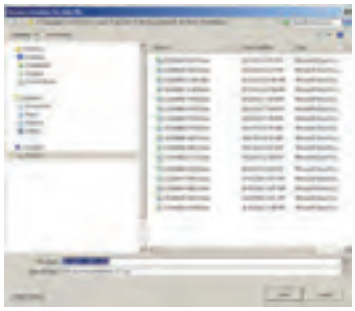
Radio Power Wand

Radio Power Wand Display

Radio Power Wand Narrow Jaw

Radio Power Wand USB GPS Antenna

Radio Power Wand USB Radio



Radio Power Wand Software

Introduction

The Radio Power Wand Live-Line Micro Ohmmeter measures the micro-ohm resistance of conductors, connectors, splices and switching devices on energized, high voltage lines. The AC Radio Power Wand calculates resistance by measuring the AC amperage in the line and the voltage drop due to the resistance of the line segment under test. Using the AC current in the line insures that realistic current distributions through the connection are being measured. The instrument is pressed against the splice or connector in such a manner that the connection under test is between the two electrodes. The Radio Power Wand is not suitable for application on HVDC circuits.

The Radio Power Wand sends its status and measurements to both the Remote Display and the AC Radio Power Wand software on a laptop computer. At the same time, the GPS device plugged into a USD port on the laptop computer sends location data to the software. When a valid measurement is received, the software writes the data to a comma separated values (csv) file. This allows the user to map the location of the connector as well as its condition.

Use Of Radio Power Wand

For operation, the unit is pressed against the splice or connector in such a manner that the connection under test is between the two electrodes. In a few seconds the instrument is removed from the line and the line amperage and resistance are displayed on the remote display.

The Radio Power Wand Handle is identical to the AC Power Wand handle, being machined from ABS plastic to fit precisely with the molded contour of the instrument. This ensures that minimal additional load is applied to the precision instrument. The Contact probe consists of a rod and head which are made from electrical grade aluminium and are fastened together with stainless steel fittings. Exposed parts of the contact rod are protected with heat shrink insulation and each contact rod is individually marked for easy identification in the field.

The probe is inserted through the handle and fastens into the instrument combining handle/probe/instrument at a fixed length between instrument and probe contact – ensuring a consistent measurement length every time. The contact head is designed to accommodate a range of bare conductors and is sufficiently durable to break the conductor oxide barrier ensuring an accurate resistance measurement.

The Radio Power Wand is supplied in a high quality foam protected in a hardcase. An operating procedure, list of available accessories, unique serial number and QA certificate is provided with the Equipment.

MS Power Wand

Harness Supplied for Single Handed Operation

Introduction

The purpose of the MS Power Wand is to detect the position of ferromagnetic (i.e. steel) components within midspan compression fittings installed on ACSR conductors on AC transmission line cables. Midspan joint installed with off centre aluminum and steel sleeves has been identified as the leading cause of thermal runaway and mechanical joint failure.

Developed in conjunction with, and approved for use by New Zealand's National Grid Operator, the MS Power Wand has been tested on live lines up to 220kV AC. The MS Power Wand is not suitable for use on live DC lines, due to the influence of DC magnetic fields.

Use Of MS Power Wand

A hand held probe is moved along the surface of the connector while the operator observes the changes displayed as numbers on the LCD display. The change in reading on the display indicates the presence of the steel sleeve of the midspan joint. In addition to the LCD display, a 3.5mm headphone jack is included on the MS Power Wand so that the operator can audibly as well as visibly detect the presence of the steel component.

The MS Power Wand can be used on live as well as de-energised lines is supplied in a high quality foam protected in a hardcase. An operating procedure, list of available accessories, unique serial number and QA certificate is provided with the Equipment.

MS POWER WAND™	
Maximum Tested System Voltage	220kV AC
Maximum Tested System Current	1500A AC rms
Ambient Temperature	-20ºC to +50ºC
Rechargeable Battery	8 hours continuous operation
Automatic Turn Off	15 minutes
Battery Charger	100-240V AC 50/60Hz 1.5hours
Stock No..	348040

Section 10 - Earthing

Table of Contents Section/Page

Transmission Line & Substation Temporary Earthing

Electropar PLP transmission earth leads and jumpers feature a 185mm^2 stranded aluminium conductor with head clamps, tail clamps or a combination of both.

Hotstick or hand applied, the sets are rated 25KA/1s. Head clamps will suit conductors with outside diameters 8mm - 28mm.

For vehicle earths with tail clamps at both ends, green heatshrink is added over the black heavy wall heatshrink that provides strain relief at the connection between the cable and the compression terminal.

All earth leads are supplied labelled and tested as shown below, with a certificate of compliance as standard. Common lead and configurations listed below, other lead lengths and configurations available on request.

Earth Lead Details

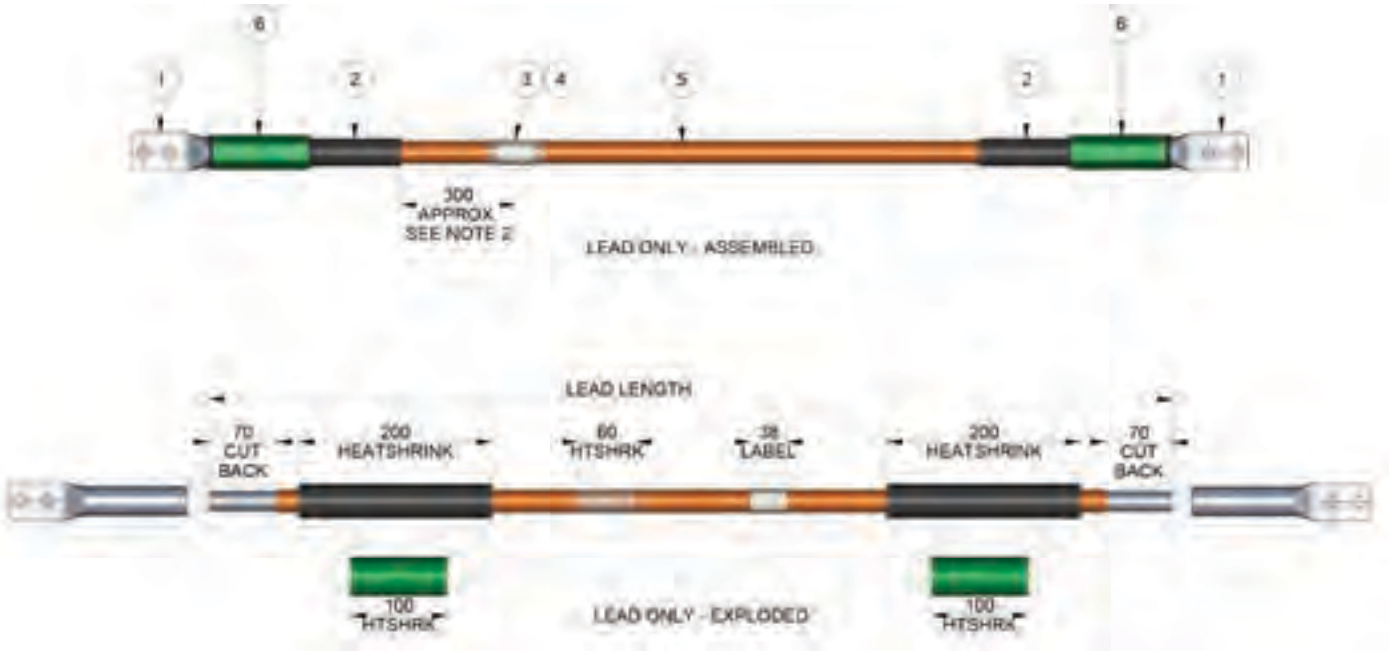


TABLE 1 - Parts List (Lead Only)			
Item	**Qty**	**Description**	**Material**
1	2	Spring Terminal - 2 Holes D11 At 28 Centres	Aluminium 1200F
2	2	Thick Wall Heatshrink - 38.1mm - Black	Polyolefin
3	1	Thin Wall Heatshrink - 25.4mm - Clear	Polyolefin
4	1	Label - Water & Tear Proof	Plastic
5	1	Fine Strand Flexible Conductor - 185mm^2	PVC / Aluminium
6	2	Thin Wall Heatshrink - 38.1mm - Green	Polyolefin

Head Clamp, Tail Clamp & Compression Terminal Details

End Option 1 - Head Clamp
Label End Description: "HEAD"

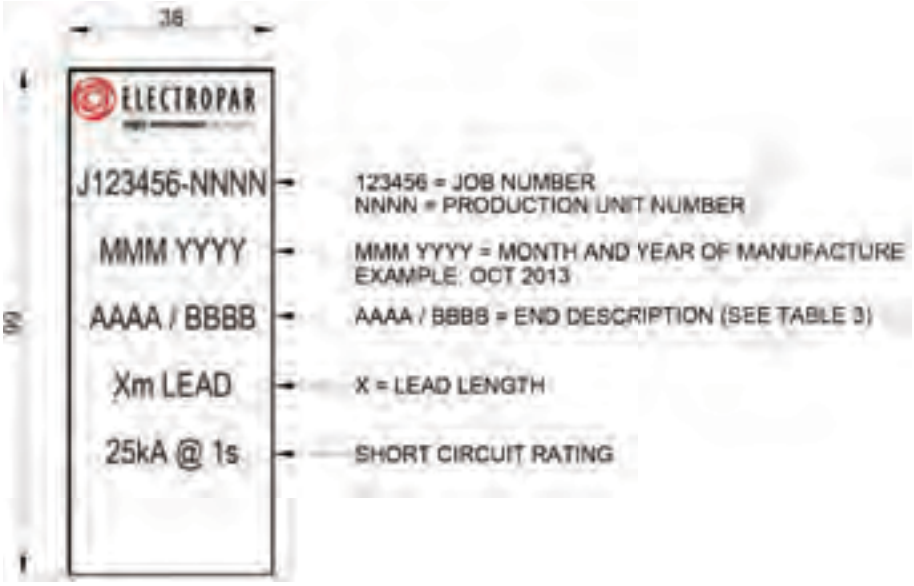
Earth Lead Assembly Part Numbers								
		Lead Lenght (M)						
		1	2	3	4	5	6	7
End Options	Head - Head	-	3003710	-	-	3003708	3001382	-
	Head - Tail	399051	3003641	3007035	387637	399388	387638	387639
	Head - Term	3003707	3007180	-	-	-	-	-
	Tail - Tail	380804	3001351	3003595	-	3003201	399833	388333
	Tail - Term	3001357	3001352	3000163	-	3003687	-	-
	Term - Term	3003272	399884	388069	3001362	3003401	388070	388363

End Option 2 - Tail Clamp
Label End Description: "TAIL"

Earth Lead Assembly Part Numbers									
		Lead Lenght (M)							
		8	9	10	12	14	16	18	20
End Options	Head - Head	-	3006616	3003709	-	-	-	-	-
	Head - Tail	387640	399533	387641	399299	3003569	3006617	386454	3003259
	Head - Term	-	-	387016	-	-	-	-	-
	Tail - Tail	3002016	3003210	3006317	3003209	3006881	-	399928	3003095
	Tail - Term	3001353	385891	3001121	-	-	-	-	399947
	Term - Term	399944	3006778	388377	399943	3003371	399845	3003402	3001111

End Option 3 - Terminal
Label End Description: "TERM"

Earth Lead Label



Typical Earth Set Configurations

Earth Lead With Removable	Earth Lead With Permanently Attached Hotstick	Vehicle Earth Lead With 2 Tail Clamps
		

Jumper Assemblies

Stock No.	Description
394995	Operating Socket
939776	1.8m Hotstick
939777	2.7m Hotstick
939778	3.6m Hotstick
939771	4.8m Hotstick

Section 9 - Conductors & OPGW

Table of Contents

Section/Page

AAC & ACSR Conductors

Type AAC 1350 – All Aluminium Conductor

Part Number	Conductor Code	Stranding and Wire Diameter (No/mm)	Nominal Overall Diameter (mm)	Cross Sectional Area (mm^2)	Approx. Mass (kg/km)	Breaking Load (kN)	Modulus of Elasticity (GPa)	Coefficient of Linear Expansion (x10-6/oC	DC Resistance (Ω/km)
AAC/1350-Namu	Namu	7/2.11	6.33	24	67	4.2	59	23	1.1700
AAC/1350-Poko	Poko	7/2.36	7.08	31	84	5.1	59	23	0.9321
AAC/1350-Ladybird	Ladybird	7/2.79	8.37	43	117	6.9	59	23	0.6700
AAC/1350-Kutu	Kutu	7/3.00	9.00	49	135	7.9	59	23	0.5784
AAC/1350-Fly	Fly	7/3.40	10.20	64	174	10.0	59	23	0.4510
AAC/1350-Honi	Honi	19/2.11	10.50	66	182	11.4	59	23	0.4335
AAC/1350-Rango	Rango	7/3.66	10.98	74	201	11.1	59	23	0.3884
AAC/1350-Grasshopper	Grasshopper	7/3.91	11.70	84	230	12.8	59	23	0.3420
AAC/1350-Wasp	Wasp	7/4.39	13.18	106	290	16.0	59	23	0.2710
AAC/1350-Beetle	Beetle	19/2.67	13.40	106	292	17.2	56	23	0.2710
AAC/1350-Weke	Weke	7/4.72	14.16	122	335	18.5	59	23	0.2328
AAC/1350-Bee	Bee	7/4.90	14.71	132	361	20.1	59	23	0.2170
AAC/1350-Cricket	Cricket	7/5.36	16.08	158	432	23.9	59	23	0.1810
AAC/1350-Weta	Weta	19/3.35	16.75	167	461	26.2	56	23	0.1711
AAC/1350-Huhu	Huhu	37/2.52	17.60	185	507	28.9	56	23	0.1636
AAC/1350-Mata	Mata	19/3.86	19.30	222	611	33.8	56	23	0.1291
AAC/1350-Cockroach	Cockroach	19/4.22	21.10	266	731	40.4	56	23	0.1083
AAC/1350-Butterfly	Butterfly	19/4.65	23.25	323	888	48.8	56	23	0.0892
AAC/1350-Centipede	Centipede	37/3.78	26.46	415	1145	63.1	56	23	0.0694
AAC/1350-Cicada	Cicada	37/4.65	32.54	628	1730	95.6	56	23	0.0460

Type ACSR-GZ 1350

Part Number	Conductor Code	Stranding and Wire Diameter (No/mm)		Nominal Overall Diameter (mm)	Cross Sectional Area (mm^2)	Approx. Mass (kg/km)	Breaking Load (kN)	Modulus of Elasticity (GPa)	Coefficient of Linear Expansion (x10-6/oC	DC Resistance (Ω/km)
		Aluminium (No/mm)	Steel (No/mm)							
ACSR/1350-Magpie	Magpie	3/2.11	4/2.11	6.33	24.5	139	17.8	136	13.9	2.2300
ACSR/1350-Squirrel	Squirrel	6/2.11	1/2.11	6.33	24.5	85	7.7	79	19.1	1.3700
ACSR/1350-Gopher	Gopher	6/2.36	1/2.36	7.09	30.6	106	9.4	79	19.1	1.0930
ACSR/1350-Ferret	Ferret	6/3.00	1/3.00	8.99	49.5	172	14.9	79	19.1	0.6776
ACSR/1350-Mink	Mink	6/3.66	1/3.66	10.97	73.6	255	21.6	79	19.1	0.4550
ACSR/1350-Raccoon	Raccoon	7/4.09	1/4.09	12.27	105.1	320	27.2	79	19.1	0.3640
ACSR/1350-Skunk	Skunk	12/2.59	7/2.59	12.95	100.2	465	53.1	108	15.8	0.4566
ACSR/1350-Dog	Dog	6/4.72	7/1.57	14.17	118.5	394	32.7	76	19.8	0.2740
ACSR/1350-Hare	Hare	6/4.72	1/4.72	14.17	122.5	405	43.7	79	19.1	0.2876
ACSR/1350-Hyena	Hyena	7/4.39	7/1.93	14.6	126.4	428	44.1	78	18.4	0.2850
ACSR/1350-Coyote	Coyote	26/2.54	7/1.91	15.88	151.8	522	46.4	76	18.9	0.2292
ACSR/1350-Dingo	Dingo	18/3.35	1/3.35	16.76	167.5	506	35.4	66	21.2	0.1820
ACSR/1350-Wolf	Wolf	30/2.59	7/2.59	18.14	194.9	726	67.4	80	17.8	0.1828
ACSR/1350-Jaguar	Jaguar	18/3.86	1/3.86	19.3	222.3	671	46.6	66	21.2	0.1367
ACSR/1350-Goat	Goat	30/3.71	7/3.71	25.96	400.0	1489	135.8	80	17.8	0.0893
ACSR/1350-Zebra	Zebra	54/3.18	7/3.18	28.62	484.5	1621	131.9	69	19.3	0.0674
ACSR/1350-Moa	Moa	76/3.72	7/2.89	38.4	871.9	2577	180.6	63	21.2	0.0366
ACSR/1350-Chukar	Chukar	84/3.70	7/3.70	33.3	759.0	2710	203.0	66.5	20.7	0.0373

AAAC Conductors

Type AAAC 1120 – All Aluminium Alloy Conductor

Part Number	Conductor Code	Stranding and Wire Diameter (No/mm)	Nominal Overall Diameter (mm)	Cross Sectional Area (mm^2)	Approx. Mass (kg/km)	Breaking Load (kN)	Modulus of Elasticity (GPa)	Coefficient of Linear Expansion (x10-6/oC	DC Resistance (Ω/km)
AAAC/1120 - 7/2.50	Chlorine	7/2.50	7.5	34.36	94.3	8.18	65	23	0.864
AAAC/1120 - 7/2.75	Chromium	7/2.75	8.25	41.58	113	9.91	65	23	0.713
AAAC/1120 - 7/3.00	Fluorine	7/3.00	9	49.48	135	11.8	65	23	0.599
AAAC/1120 - 7/3.75	Helium	7/3.75	11.3	77.28	211	17.6	65	23	0.383
AAAC/1120 - 7/4.50	Hydrogen	7/4.50	13.5	111.3	304	24.3	65	23	0.266
AAAC/1120 - 7/4.75	Iodine	7/4.75	14.3	124	339	27.1	65	23	0.239
AAAC/1120 - 19/3.25	Krypton	19/3.25	16.3	157.6	433	37.4	65	23	0.189
AAAC/1120 - 19/3.50	Lutetium	19/3.50	17.5	182.8	503	41.7	65	23	0.163
AAAC/1120 - 19/3.75	Neon	19/3.75	18.8	209.8	576	47.8	65	23	0.142
AAAC/1120 - 37/3.00	Nitrogen	37/3.00	21	261.6	721	62.2	64	23	0.114
AAAC/1120 - 37/3.25	Nobelium	37/3.25	22.8	307	845	72.8	64	23	0.0973
AAAC/1120 - 19/4.75	Oxygen	19/4.75	23.8	336.7	924	73.6	65	23	0.0884
AAAC/1120 - 37/3.75	Phosphorus	37/3.75	26.3	408.5	1120	93.1	64	23	0.0731
AAAC/1120 - 61/3.25	Selenium	61/3.25	29.3	506.1	1400	114	64	23	0.0592
AAAC/1120 - 61/3.50	Silicon	61/3.50	31.5	586.9	1620	127	64	23	0.0511
AAAC/1120 - 61/3.75	Sulphur	61/3.75	33.8	673.4	1860	145	64	23	0.0444

Type AAAC 6201A – All Aluminium Alloy Conductor

Part Number	Conductor Code	Stranding and Wire Diameter (No/mm)	Nominal Overall Diameter (mm)	Cross Sectional Area (mm^2)	Approx. Mass (kg/km)	Breaking Load (kN)	Modulus of Elasticity (GPa)	Coefficient of Linear Expansion (x10-6/oC	DC Resistance (Ω/km)
AAAC/6201 - 7/2.50	Diamond	7/2.50	7.5	34.36	94.3	9.64	65	23	0.967
AAAC/6201 - 7/2.75	Dolomite	7/2.75	8.25	41.58	113	11.6	65	23	0.799
AAAC/6201 - 7/3.00	Emerald	7/3.00	9	49.48	135	13.9	65	23	0.671
AAAC/6201 - 7/3.75	Garnet	7/3.75	11.3	77.28	211	21.7	65	23	0.43
AAAC/6201 - 7/4.50	Jade	7/4.50	13.5	111.3	304	31.2	65	23	0.298
AAAC/6201 - 7/4.75	Jasper	7/4.75	14.3	124	339	34.8	65	23	0.268
AAAC/6201 - 19/3.25	Opal	19/3.25	16.3	157.6	433	44.2	65	23	0.212
AAAC/6201 - 19/3.50	Patronite	19/3.50	17.5	182.8	503	51.3	65	23	0.183
AAAC/6201 - 19/3.75	Pearl	19/3.75	18.8	209.8	576	58.8	65	23	0.159
AAAC/6201 - 37/3.00	Ruby	37/3.00	21	261.6	721	73.5	64	23	0.128
AAAC/6201 - 37/3.25	Ruthenium	37/3.25	22.8	307	845	86.1	64	23	0.109
AAAC/6201 - 19/4.75	Rutile	19/4.75	23.8	336.7	924	94.4	65	23	0.0991
AAAC/6201 - 37/3.75	Sapphire	37/3.75	26.3	408.5	1120	115	64	23	0.0819
AAAC/6201 - 61/3.25	Spinel	61/3.25	29.3	506.1	1400	135	64	23	0.0662
AAAC/6201 - 61/3.50	Tantalum	61/3.50	31.5	586.9	1620	156	64	23	0.0572
AAAC/6201 - 61/3.75	Topaz	61/3.75	33.8	673.4	1860	179	64	23	0.0498

Guy Strand & Copper Conductors

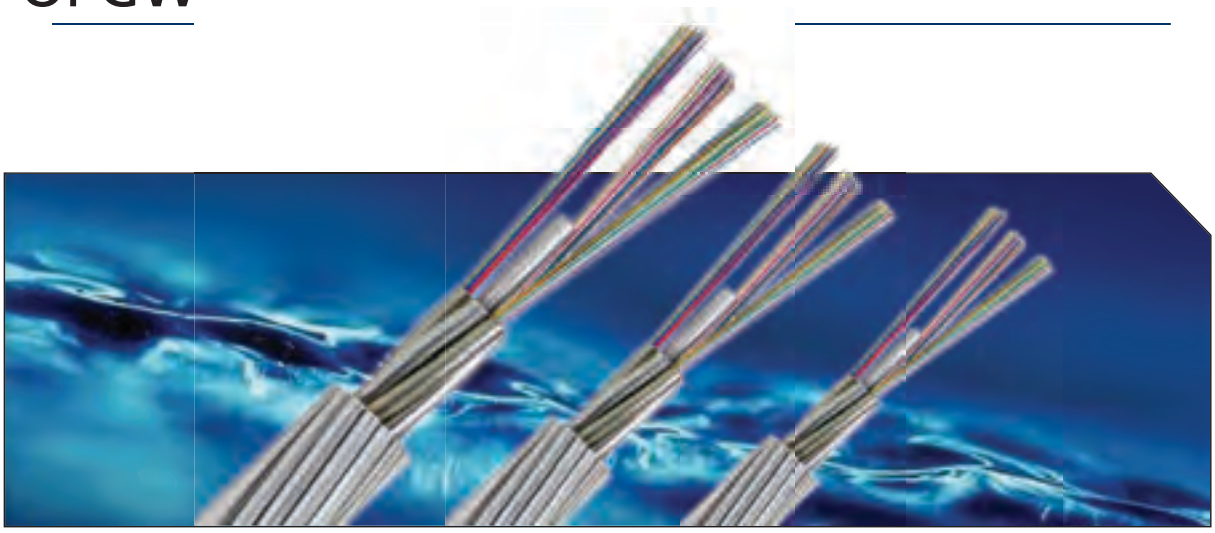
SC/GZ Steel Conductor/Galvanised
Australian Standard AS1222 Part 1

Stranding (mm)	OD (mm)	Eq. AL (mm^2)	Area (mm^2)	NBL (kN)	Mass (kg/km)
3/2.00	4.31	1.56	9.43	11.70	75.50
3/2.75	5.93	2.95	17.82	22.20	139.00
7/2.00	6.00	3.62	21.99	27.40	177.00
7/2.75	8.25	6.85	41.58	51.80	326.00
7/3.25	9.75	9.56	58.07	72.30	460.00
7/3.75	11.30	12.70	77.31	96.20	609.00
19/2.00	10.00	9.79	56.96	74.40	483.00
19/2.75	13.80	18.50	112.90	141.00	888.00
19/3.25	16.30	25.80	157.60	196.00	1250.00

HDC - Hard Drawn Copper Conductor
Australian Standard AS1746 1975

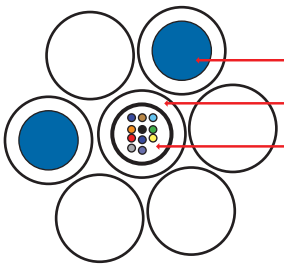
Stranding (mm)	OD (mm)	Eq. AL (mm^2)	Area (mm^2)	NBL (kN)	Mass (kg/km)
7/1.00	3.00	8.68	5.49	2.31	49.30
7/1.25	3.75	13.60	8.59	3.61	76.90
7/1.75	5.25	26.60	16.84	6.89	151.00
7/2.00	6.00	34.70	21.99	9.02	197.00
7/2.75	8.25	65.30	41.58	16.70	375.00
7/3.50	10.50	106.00	67.35	26.60	607.00
19/1.75	8.75	71.70	45.70	18.30	413.00
19/2.00	10.00	93.70	59.69	23.90	538.00
19/2.75	13.80	177.00	112.90	44.50	1020.00
19/3.00	15.00	211.00	134.30	52.80	1210.00
37/1.75	12.30	139.00	89.00	35.60	806.00
37/2.50	17.50	284.00	181.60	72.90	1640.00
37/2.75	19.30	344.00	219.80	86.60	1990.00
37/3.00	21.00	409.00	261.50	103.00	2370.00
61/2.75	24.80	566.00	362.30	143.00	3280.00

OPGW



Central Tube OPGW

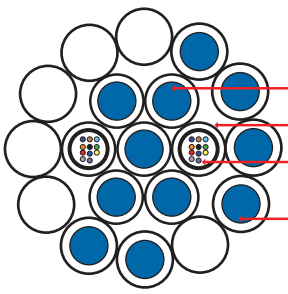
Single/Double Armour Layers



The central stainless steel tube is surrounded by single or double layers of aluminium clad steel ires (ACS) or mix ACS wires and aluminium alloy wires.

OPGW With Standard Layers, Single Tube & Multitube

Double/Three Armour Layers

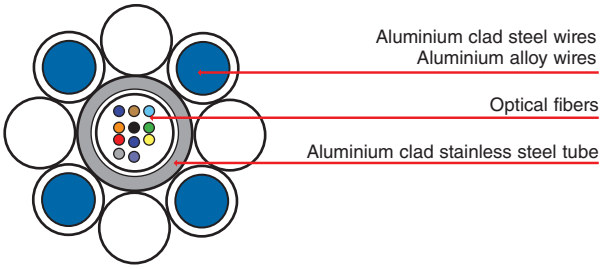


The stainless steel tube is stranded by double or three layers of aluminium clad steel wires (ACS) or mix ACS wires and aluminium alloy wires.

OPGW

Central Al-Clad Stainless Steel Tube OPGW

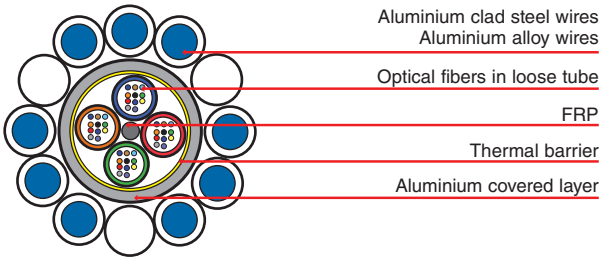
Single/Double Armour Layers



The central Al-clad steel tube is surrounded by single or double layers of aluminium clad steel wires (ACS) or mix ACS wires and aluminium alloy wires.

Aluminium Tube OPGW

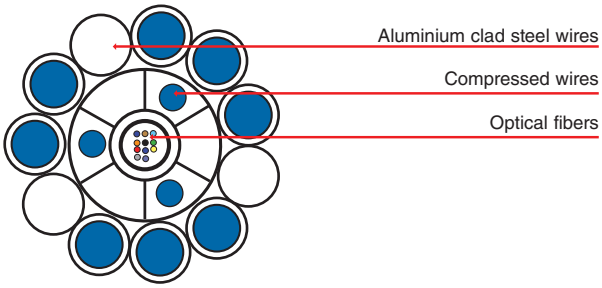
Single/Double Armour Layers



The Aluminium tube is surrounded by single or double layers of aluminium clad steel wires (ACS) or mix ACS wires and aluminium alloy wires.

Stainless Steel Tube OPGW

Double Armour Layers



The central stainless steel tube is surrounded by double layer of aluminium clad steel wires (ACS). The inner layer aluminium clad steel wires are compressed, the outer layer aluminium clad steel wires are all compressed or all round.

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