




PREFORMED LINE PRODUCTS

The connection you can count on.

 COMMUNICATIONS

 **ENERGY**

 SYSTEM ENCLOSURES

 SPECIAL INDUSTRIES



TRANSMISSION CATALOGUE



Australian Manufacturer of
Power Line Hardware
For Transmission Networks






PREFORMED LINE PRODUCTS

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Transmission Catalogue




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PREFORMED LINE PRODUCTS



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Section 1 - Termination

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Compression Dead-ends



PLP manufacture a range of Compression Dead-ends for AAC, AAAC, AAAC/1120, ACSR, TACSR/AC based phase conductors, SC/AC and SC/GZ earth wires. Dead-ends are available with eye or tongue configurations, in conjunction with in-line or transverse palms to suit any jumper orientation. Contact PLP with specific requirements.

Features:

- Engineered to hold 100% conductor UTS
- Designed for standard crimping dies and presses
- Tapered tube design to relieve stress at conductor/Dead-end 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 the area of energised line 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



Compression Dead-ends



CDE

Eye Type For ACSR Conductors

Part Number	Conductor Stranding	A/F Die Size
CDE-113-1	6/1/3.75	18.0
CDE-125	12/7/2.50	28.5
CDE-143-1	6/4.75+7/1.60	21.0
CDE-146	7/4.39+7/1.93	22.0
CDE-159	26/2.54+7/1.90	28.5
CDE-165-1	30/7/0.093	28.5
CDE-175-1	30/7/2.50	28.5
CDE-181-1	30/7/2.59	34.5
CDE-195-1	30/7/2.79	34.5
CDE-199-1	26/3.14+7/2.44	34.5
CDE-210-1	30/7/3.00	34.5
CDE-219	26/3.45+7/2.68	31.5
CDE-224-1	30/7/3.20	34.5
CDE-235-1	30/7/0.132	40.0
CDE-236	26/3.71+7/2.89	40.0
CDE-245-1	30/7/3.50	40.0
CDE-250	48/3.00+7/2.33	34.0
CDE-260-1	30/7/3.71	40.0
CDE-270-1	54/7/3.3.00	44.5
CDE-271	45/3.38/7/2.25	44.5
CDE-286-1	54/7/3.18	41.0
CDE-293-1	54/7/3.25	44.5
CDE-300-1	54/7/3.35	44.5
CDE-308-1	45/3.85/7/2.57	44.5
CDE-315-1	54/7/3.50	47.5
CDE-318-1	54/7/3.53	47.5
CDE-324	42/2.72+19/2.59	47.5
CDE-338-1	54/3.75+19/2.25	47.5
CDE-362-1	54/4.02+19/2.41	50.0
CDE-488-2	84/4.44/19/2.66	64.5

Note: Confirm stranding when ordering. Contact PLP for transverse palm.

CDE

Tongue Type For ACSR Conductors



Part Number	Conductor Stranding	A/F Die Size
CDE-113T-1	6/1/3.75	18
CDE-165T-1-16	30/7/0.093	28.5
CDE-175T-1	30/7/2.50	28.5
CDE-181T-1	30/7/2.59	34.5
CDE-195T-1	30/7/2.79	34.5
CDE-210T-1	30/7/3.00	34.5
CDE-224T	30/7/3.20	34.5
CDE-245T-1	30/7/3.50	40
CDE-260T-1	30/7/3.71	40
CDE-270T-1	54/7/3.00	44.5
CDE-301-T	36/1/4.30	44
CDE-315T-1	54/7/3.50	47.5
CDE-318T-16	54/7/3.53	47.5

Note: Confirm stranding when ordering. Contact PLP for transverse palm.

Compression Dead-ends



CDEAAAC

Eye Type For AAAC Conductors

Suits both 1120 and 6201 grade aluminium conductors.
Contact PLP for transverse palm.

Part Number	Conductor Stranding	A/F Die Size
CDEAAAC-135-1	7/4.50	21
CDEAAAC-143	7/4.75	21
CDEAAAC-163-2	19/3.25	28.5
CDEAAAC-188-2	19/3.75	30
CDEAAAC-210-1	37/3.00	34.5
CDEAAAC-228-1	37/3.25	34.5
CDEAAAC-238-1	19/4.75	40
CDEAAAC-245-1	37/3.50	40
CDEAAAC-263-1	37/3.75	40
CDEAAAC-270	61/3.00	40
CDEAAAC-293-1	61/3.25	44.5
CDEAAAC-315-1	61/3.50	48
CDEAAAC-338-1	61/3.75	47.5



CDEAAAC

Tongue Type For AAAC Conductors

Suits both 1120 and 6201 grade aluminium conductors. **-NP** denotes no palm.
Contact PLP for transverse palm.

Part Number	Conductor Stranding	A/F Die Size
CDEAAAC-135T	7/4.50	21
CDEAAAC-143T	7/4.75	21
CDEAAAC-163T-7	19/3.25	28.5
CDEAAAC-188T-P2	19/3.75	28.5
CDEAAAC-210T-1	37/3.00	34.5
CDEAAAC-238T-NP	19/4.75	40
CDEAAAC-263-T-1	37/3.75	40
CDEAAAC-338T-1	61/3.75	47.5



CDEA

Eye Type For AAC Conductors

Part Number	Conductor Stranding	A/F Die Size
CDEA-143-1	7/4.75	21
CDEA-163-1	19/3.25	28.5
CDEA-188-1	19/3.75	34.5
CDEA-210-1	37/3.00	34.5
CDEA-235-P5	37/3.35	40
CDEA-238-1	19/4.75	40
CDEA-263-1	37/3.75	40
CDEA-293-1	61/3.25	44.5
CDEA-338-1	61/3.75	47.5

Compression Dead-ends



CDEA

Tongue Type For AAC Conductors

Part Number	Conductor Stranding	A/F Die Size
CDEA-210T-1	19/4.22	34.5

Note: -NP denotes no palm. Contact PLP for transverse palm.



CDS

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

Part Number	Conductor Stranding	A/F Die Size
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
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.

Dead-end Jumper Terminals



CDET

For ACSR, AAAC & AAC Conductors

Jumper terminals are manufactured from forged aluminium and have the compression area clearly identified. Compression jumper terminals outlined below are indicative only. Palm angle is normally 30° to match a Dead-end with an in-line palm. When ordering jumper terminals, please ensure the palm configuration matches the compression Dead-end palm to which the terminal is to be fitted.

Part Number	Conductor Stranding	Conductor Diameter (mm)	A/F Die Size
CDET-113	6/1/3.75	11.3	18.0
CDET-135	7/4.50	13.5	22.0
CDET-143-1	6/4.75+7/1.60	14.3	22.0
CDET-146	7/4.39+7/1.93	14.6	22.0
CDET-163	19/3.25	16.3	28.5
CDET-175	30/7/2.50	17.5	28.5
CDET-188	19/3.75	18.8	28.5
CDET-195	30/7/2.79	19.5	28.5
CDET-210-1	30/7/3.00	21.0	34.5
CDET-219	26/3.45+7/2.68	21.9	31.5
CDET-224	30/7/3.20	22.4	34.5
CDET-235	30/7/3.35	23.5	40.0
CDET-238-2	19/4.75	23.8	40.0
CDET-245	30/7/3.50	24.5	40.0
CDET-250	48/3.00+7/2.33	25.0	34.0
CDET-260	30/7/3.71	26.0	40.0
CDET-263	37/3.75	26.3	44.5
CDET-270-1	54/7/3.00	27.0	44.5
CDET-286	54/7/3.18	28.6	41.0
CDET-293	54/7/3.25	29.3	44.5
CDET-295	54/7/3.28	29.5	40.0
CDET-298	37/0.168	29.8	44.5
CDET-308-1	45/3.85+7/2.57	30.8	44.5
CDET-315	54/7/3.50	31.5	48.0
CDET-318-1	54/7/3.53	31.8	47.5
CDET-324	42/2.72+19/2.59	32.4	47.5
CDET-338	54/3.75+19/2.25	33.8	47.5
CDET-362-1	54/4.02+19/2.41	36.2	50.0
CDET-413-2	91/3.76	41.3	58.5
CDET-488-2	84/4.44+19/2.66	48.8	64.5



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Section 2 - Suspension and Support

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ARMOR GRIP® Suspension



The ARMOR-GRIP® Suspension unit is intended for use on all material types and conductor constructions. 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.

The ARMOR-GRIP® Suspension is superior to bolted alternative combinations for protecting conductors from bending, compression stress and abrasion.

Line repairs:

Where a conductor has been damaged by a bolted clamp, special design ARMOR-GRIP® Suspension can be used in the repair. Please contact 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 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

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 PLP to specify required bolt size. Available in M16 and M20.

Part Number (Single Unit)	Part Number (Double Unit)	Typical Australian Conductors	Conductor Diameter Range (mm)	Colour Code
AGS-5102	AGS-5802	7/4.50	13.48-13.77	Green
AGS-5103	AGS-5803		13.78-14.09	Brown
AGS-5104	AGS-5804	6/4.75/7/1.60	14.10-14.59	Blue
AGS-5105	AGS-5805	7/4.75	14.60-15.09	Red
AGS-5106	AGS-5806		15.10-15.39	Orange
AGS-5108	AGS-5808	19/3.25	15.80-16.39	Orange
AGS-5109	AGS-5809		16.40-17.09	Black
AGS-5110	AGS-5810	30/7/2.50	17.10-17.59	Blue
AGS-5111	AGS-5811		17.60-18.09	Yellow
AGS-5112	AGS-5812	30/7/2.59	18.10-18.59	Black
AGS-5113	AGS-5813	19/3.75	18.60-19.09	Black
AGS-5114	AGS-5814		19.10-19.59	White
AGS-5115	AGS-5815		19.60-20.19	Orange
	AGS-5816		20.20-20.99	Brown
AGS-5117	AGS-5817	30/7/3.00		
37/3.00	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	30/7/3.25	22.70-23.09	Orange
AGS-5121	AGS-5821		23.10-23.39	Yellow
AGS-5122	AGS-5822	19/4.75	23.40-23.80	Black
AGS-5124	AGS-5824		24.40-25.09	Purple
AGS-5126	AGS-5825		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 PLP to specify required bolt size. Available in M16 and M20.

Part Number (Single Unit)	Part Number (Double Unit)	Typical Australian Conductors	Conductor Diameter Range (mm)	Colour Code
AGS-5128	AGS-5828	54/7/3.00	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	54/7/3.25	28.90-29.29	Orange
AGS-5133	AGS-5833	61/3.25	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	54/7/3.50	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	54/3.75-19/2.25	33.40-34.39	Black
AGS-5140	AGS-5840	61/3.75	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	54/4.75-19/2.85	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-5569			47.83-48.97	

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-61 & AGS-68

For SC/AC

For use on: SC/AC conductors. Left hand lay standard. 61 series are single. Contact PLP for other conductor sizes. Contact PLP for AGS units to suit right hand lay conductors.

Part Number (Single Unit)	Part Number (Double Unit)	Conductor Stranding	Standard Pack Quantity	Colour Code
AGS-6101-5	AGS-6801	7/2.75	15	White
AGS-6105	AGS-6805	7/3.25	15	Orange
AGS-6109	AGS-6809	7/3.75	15	Black
AGS-6112-16-2		7/4.25		Brown

AGS-71 & AGS-78

For Galvanised Steel SC/GZ

For use on: Galvanised steel conductors. Right hand lay standard. 71 series are single, 78 series are double. Contact PLP for other conductor sizes.



Part Number (Single Unit)	Part Number (Double Unit)	Conductor Stranding	Standard Pack Quantity	Colour Code
AGS-7101	AGS-7801	7/2.75	15	White
AGS-7105	AGS-7805	7/3.25	15	Orange
AGS-7106	AGS-7806	19/2.00	15	Yellow
AGS-7109	AGS-7809	7/3.75	15	Black

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 Armour Clamp attachments. ARMOR-GRIP® Support protect against clamping fatigue through bending and compression stress and against flash over arcing.

Part Number	Typical Australian Conductors	Conductor Diameter Range (mm)	Colour Code
AGS-5204	6/4.75/7/1.60	14.10-14.59	Blue
AGS-5205	7/4.75	14.60-15.09	Red
AGS-5206		15.10-15.39	Orange
AGS-5207		15.40-15.79	Purple
AGS-5208	19/3.25	15.80-16.39	Orange
AGS-5209		16.40-17.09	Blue
AGS-5210	30/7/2.50	17.17-17.59	Blue
AGS-5211		17.60-18.09	Yellow
AGS-5212		18.10-18.59	Black
AGS-5213	19/3.75	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	30/7/3.00 37/3.00	21.00-21.49	Red
AGS-5218		21.50-22.09	Blue
AGS-5219		22.10-22.69	Green
AGS-5220	30/7/3.25	22.70-23.09	Orange
AGS-5221		23.10-22.69	Yellow
AGS-5222	19/4.75	23.40-23.79	Blue
AGS-5223		23.80-24.39	White
AGS-5224	30/7/3.50	24.40-25.09	Purple
AGS-5226		25.60-25.99	Purple
AGS-5227		26.00-26.49	Purple
AGS-5227	37/3.75	26.50-27.29	Black

Part Number	Typical Australian Conductors	Conductor Diameter Range (mm)	Colour Code
AGS-5228	54/7/3.00	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	54/7/3.25	29.30 - 29.89	Brown
AGS-5234	61/3.25	29.90 - 30.69	Orange
AGS-5235		30.70 - 31.19	Purple
AGS-5236	54/7/3.50	31.20 - 31.99	Purple
AGS-5237		31.00 - 32.69	Blue
AGS-5238		32.70 - 33.39	Green
AGS-5239	54/3.75/19/2.25	33.40 - 34.39	Black
AGS-5240	61/3.75	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	54/4.75/19/2.85	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

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 H.L.P Ins.)	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
- 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 strain 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

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	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 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 PLP for other sizes.

AWTG

For ACSR AND SC/AC

PREFORMED™ Twin-Grips are designed to support ACSR and SC/AC utilising the 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:

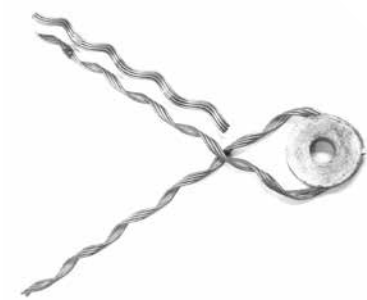
- Easy application
- Long life
- Positive grip
- Filler rods can be supplied to allow a bond clamp to be attached for earthwire applications



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 PLP for other sizes.

PREFORMED™ Tygard



GTY

For Earthwire

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





PREFORMED LINE PRODUCTS
The connection you can count on.

Section 3 - Joining

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Compression Splice - Full Tension



CMSJ

For ACSR Conductors

ACSR Compression Splices are manufactured with an aluminium sleeve and a hot-dipped galvanised steel inner sleeve. These are designed to take the loading equivalent of the conductor. 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. The table of fittings as shown suits Australian Standard ACSR conductors.

Part Number	Conductor Stranding	A/F Steel	A/F Alum.
CMSJ-075-X	3/4/2.50 or 6/1/2.75		18
CMSJ-090-X	4/3/3.00		18
CMSJ-113-4	6/1/3.75	9.5	18
CMSJ-143-2	6/4.75+7/1.60	9.5	22
CMSJ-143-X	6/4.75+7/1.60		21
CMSJ-146	7/4.39+7/1.93	9.5	21
CMSJ-159	26/2.54+7/1.90	11	28.5
CMSJ-165-8	30/7/1.093"	13	28.5
CMSJ-175	30/7/2.50	16	28.5
CMSJ-175-2	30/7/2.50	16	34.5
CMSJ-181	30/7/2.59	16	28.5
CMSJ-195	30/7/2.79	6	34.5
CMSJ-199	26/3.14+7/2.44	16	34.5
CMSJ-210-1	30/7/3.00	17	34.5
CMSJ-210-6	18/19/3.00	28	44.5
CMSJ-219	26/3.45+7/2.68	19	31.5
CMSJ-227	30/7/3.25	19	34.5
CMSJ-233	12/7/4.65	26	41
CMSJ-235	30/7/3.35	19	40
CMSJ-245	30/7/3.50	19	40
CMSJ-250	48/3.00+2.33	17.3	34
CMSJ-260	30/7/3.71	19	40
CMSJ-270-1	54/7/3.00	17	44.5
CMSJ-270-2	54/7/3.00	17	44.5
CMSJ-286	54/7/3.18	19	41
CMSJ-293	54/7/3.25	19	44.5
CMSJ-300-1	54/7/3.35	19	44.5
CMSJ-301-T	36/1/4.30	10.4	44
CMSJ-315-1	54/7/3.50	19	47.5
CMSJ-324-1	42/2.72+19/2.59	26	47.5
CMSJ-338-1	54/3.75+19/2.25	26	47.5
CMSJ-342-1	45/4.27+7/2.85	20	47.5
CMSJ-362-1	54/4.02+19/2.41	20.5	50
CMSJ-488-2	84/4.44+19/2.66	21.5	64.4

Note: -X denotes a single piece fitting.

For other sizes or international standard conductors, please contact PLP.

Compression Splice - Full Tension



CMSA & CMSAAAC

For AAAC, AAC Conductors

Single piece fittings for AAC and AAAC conductors. Designed and manufactured to meet Australian Standards, each fitting is stamped according to conductor stranding size and the recommended compression die A/F size.

Part Number		Conductor Stranding	A/F Alum.
AAC	AAAC		
CMSA-090		7/3.00	17.3
CMSA-102	CMSAAAC-102-FT	7/3.40	18
CMSA-113	CMSAAAC-113	7/3.75	18
CMSA-135	CMSAAAC-135	7/4.50	21
	CMSAAAC-140-1	7/4.65	19
CMSA-143		7/4.75	21
	CMSAAAC-143-1	7/4.75	22
CMSA-163	CMSAAAC-163-2	19/3.25	28.5
CMSA-188		19/3.75	28.5
	CMSAAAC-188-1	19/3.75	30
CMSA-210	CMSAAAC-210-1	37/3.00	34.5
CMSA-211-FT		19/4.22	34.5
CMSA-228	CMSAAAC-228-1	37/3.25	34.5
CMSA-238-3		19/4.75	44.2
	CMSAAAC-238-1	19/4.75	40
	CMSAAAC-245-1	37/3.50	40
CMSA-263-3	CMSAAAC-263-1	37/3.75	40
	CMSAAAC-270	61/3.00	40
CMSA-293	CMSAAAC-293	61/3.25	44.5
	CMSAAAC-315	61/3.50	48
	CMSAAAC-338-1	61/3.75	47.5
CMSA-368-2		61/4.09	52.5
	CMSAAAC-413-2	91/3.76	58.5
	CMSAAAC-450-2	91/.161"	62

Note: For other sizes or international standard conductors, please contact PLP.



CMS

For SC/AC and SC/GZ

Made from 304 stainless steel, these are single piece fittings for SC/AC and SC/GZ conductors. Designed and manufactured to meet Australian Standards, each fitting is stamped according to conductor stranding size and the recommended compression die A/F size.

Part Number	Conductor Stranding	A/F Steel
CMS-083-1	7/2.75	17
CMS-098-1	7/3.25	17
CMS-105-1	19/2.00	19
CMS-113-1	7/3.75	19
CMS-128-2	7/4.25	19

Compression Splice - Non Tension



CMSA

For ACSR, AAAC, AAC Conductors

This is a single piece design manufactured in aluminium. Crimp area is clearly identified and each fitting is stamped with the manufacturer's name, the size and recommended compression die A/F size.

Part Number	Conductor Stranding	A/F Alum.
CMSA-075-NT	3/4/2.50	18
CMSA-090-NT	4/3/3.00	18
CMSA-113-NT	6/1/3.75	18
CMSA-135-NT	7/4.50	21
CMSA-143-NT	7/4.75	22
CMSA-163-NT	19/3.25	28.5
CMSA-175-NT	37/2.50	28.5
CMSA-188-NT	19/3.75	28.5
CMSA-210-NT	37/3.00	34.5
CMSA-238-NT	19/4.75	40
CMSA-263-NT	37/3.75	40
CMSA-293-NT	61/3.25	44.5
CMSA-338-NT	61/3.75	47.5

Shunt Splice



ARSS

For ACSR, AAAC, AAC Conductors

Any 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 Dead-ends 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 shunt can electrically replace all of the aluminium strands of the conductor, and the resulting resistance 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	Conductor Stranding	Colour Code
ARSS-075	3/4/2.50	Blue
ARSS-113	7/3.75	Black
ARSS-132	8/3.60/7/2.00	Purple
ARSS-210-2	37/3.00	Red
ARSS-260	30/7/3.71	Black
ARSS-270-2	54/7/3.00	Red
ARSS-286	54/7/3.18	Orange
ARSS-315-2	54/7/3.50	Purple





PREFORMED LINE PRODUCTS
The connection you can count on.

Section 4 - Protection

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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 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.

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 has a 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 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 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 an under-clamp protection device.

Repair Rods are also available for copper conductors, please contact 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 linemen 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

* Add suffix for colour:

W = White

Y = Yellow

R = Red

O = Orange

Note: UV stabilised MD polyethylene

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 Dead-end 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

- 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.
- 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, Dead-end Rods, ties, etc.
- Please consult 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: - 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 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

DOGBONE® Vibration Damper



Dogbone® Vibration Dampers are designed to eliminate conductor fatigue damage and line maintenance costs by effectively diminishing aeolian vibration, thereby allowing increased line tensions. The messenger cable and unique Dogbone® shape of the masses are designed to achieve optimal energy dissipation for minimal clamp movement. The messenger cable and dogbone weights are matched to give additional resonant modes and wider effective frequency response. The mechanical impedance of the damper is matched to the conductor to optimise performance. The offset Dogbone® shaped masses introduces a torsional mode of vibration damping not present in conventional Stockbridge type dampers.

The range of Dogbone® Vibration Dampers is a development resulting from our extensive experience and research in the field of conductor vibration control. The Dogbone® concept is based on the known and proven principles of the Stockbridge Damper but embodies improvements which increase both power dissipation and range of frequency response beyond those of a Stockbridge Damper. The performance of the Dogbone® Vibration Damper has been further improved using the latest CIGRE and IEEE recommended methods including I.S.W.R. Power Dissipation and Mechanical Impedance Testing.

Materials:

- Clamp - cast of high strength aluminium alloy.
- Bolt - stainless steel bolt
- Flat Washer - stainless steel
- Spring Washer - stainless steel
- Messenger - exclusive 19 strand EHS - galvanised steel
- Masses - high grade zinc

Radio Interference Voltage (RIV):

- DOGBONE® Vibration Dampers are designed to be corona free at all operating voltages.

Placement:

- Due to the many parameters involved and the exhaustive tests conducted by DULMISON® for optimum damper placement and performance, it is recommended that PLP be consulted for exact damper requirements.

Part Number	Clamp Dia. Range (mm)	Conductor Type			
		AAC	AAAC	ACSR	SC/GZ
DB05B07SS	7.1-10.0				7/2.75 7/3.25
DB05B10SS	10.1-12.0			Banana	7/3.75 7/4.00
DB05B12SS	12.1-15.0	Mercury moon	Hydrogen Iodine Jade Jasper	Cherry	19/2.75
DB05B15SS	15.1-18.0	Neptune	Krypton Opal	Grape	19/3.25
DB05B18SS	18.1-21.0	Pluto	Neon Pearl		
DB05B21SS	21.1-24.0	Only used for OPGW			
DB05B24SS	24.1-27.0	Only used for OPGW			
DB1B18SS	18.1-21.0	Saturn	Nitrogen Ruby	Lemon	
DB1B21SS	21.1-24.0	Taurus	Oxygen Rutile		
DB2B21SS	21.1-24.0				
DB2B24SS	24.1-27.0	Triton	Phosphorus Sapphire	Lime Mango	
DB2B27SS	27.1-31.0	Uranus	Spinel Selenium	Orange	
DB3B31SS	31.1-34.0	Venus	Silicon Topaz	Olive Paw Paw	

Grading Rings



Corona forms when the voltage gradient at the surface of a conducting material exceeds a critical value and ionises the surrounding air. Corona becomes a great concern at extra high voltages where precautionary measures are necessary. Effects of corona include radio and television interference, voltage loss and audible noise on the line. PLP manufactures grading rings to suit EHV transmission lines for both suspension and tension configurations. Typical designs are shown below for demonstration of PLP's ability to manufacture to customer requirements. Please contact PLP for further information and design suited to your string configuration.

GRT

Grading Ring Tension



Part Number	Description
GRT-330-1	330kV Grading Ring
GRT-500-2	500kV Grading Ring

GRS

Grading Ring Suspension



Part Number	Description
GRS-330-1	330kV Suspension Grading Ring
GRS-500-2	500kV Suspension Grading Ring

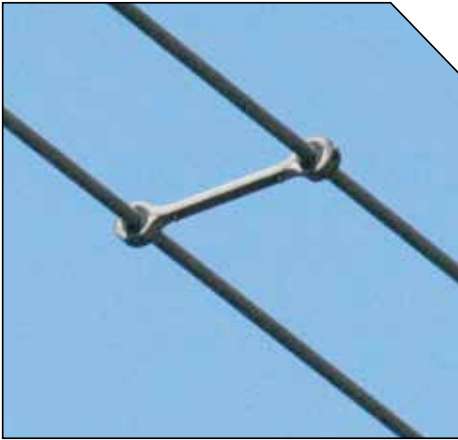


PREFORMED LINE PRODUCTS
The connection you can count on.

Section 5 - Spacer Systems

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Twin Spacers



PREFORMED™ Twinlok spacer is designed to meet Australian standards combining strength and performance, while still maintaining a lightweight design. 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

SPB

Rigid Spacer



Part Number	Conductor Diameter (mm)	Conductor Centre Spacing (mm)
SPB-210-380	21	380
SPB-270-380	27	380
SPB-315-380	31.5	380
SPB-338-520	33.8	520

CUSHION-GRIP® Spacer Damper



PLP's range of CUSHION-GRIP® Spacer Dampers feature elastomer damping elements engineered to absorb maximum energy and protect valuable line hardware. The design provides utmost resistance to conductor fatigue and eliminates the need for additional Stockbridge type dampers. The Cushion-Grip® range is available for Twin, Tri, Quad and Hex bundle configurations.

Design:

PLP Australia's current design was developed in conjunction with PLP Brazil and America to meet the demanding requirements of IEC specification 61854 and Australian Standards 1154. The damper was designed to be light weight for ease of installation while maintaining exceptional performance. Standard designs have a continuous thermal rating of 125 °C, however high temperature inserts are available for 200 °C temperatures. 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

Patented Damping Elements:

The design utilises unique damping elements which are captured in a way that assures the elastomer is always in compression, consequently providing maximum service life. PLP's CUSHION-GRIP® Spacer Damper has been used extensively throughout the world since its introduction in the early 1990's.

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 Spacer Damper, quantity and their placement location on the span.

SPQQ

CUSHION-GRIP® Quad Spacer damper



Part Number	Conductor Diameter (mm)	Conductor Centre Spacing (mm)
SPQQ-245-460	24.5	460
SPQQ-245-500	24.5	500
SPQQ-263-460	26.3	460
SPQQ-263-500	26.3	500
SPQQ-293-460-2	29.3	460
SPQQ-293-500-2	29.3	500
SPQQ-317-460	31.7	460
SPQQ-338-460	33.8	460



PREFORMED LINE PRODUCTS



PREFORMED LINE PRODUCTS
The connection you can count on.

Section 6 - OPGW Fittings & Closures

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FIBERLIGN® Dead-end



The FIBERLIGN® Dead-end 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® Dead-end 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® Dead-end to the ground point in your system.

A second earth bonding lead can be connected for higher fault current requirement. Consult 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 PLP with project and cable specification for product recommendation

FIBERLIGN® Dead-end



OPGWTS

FIBERLIGN® Dead-end

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 Dead-end Assembly
- 70 kN Shackle
- Earth bonding lead with lugs

FIBERLIGN® Formed Wire Dead-end



The FIBERLIGN® Formed Wire Dead-end offers an alternate method for dead-ending OPGW. Unlike the FIBERLIGN® Dead-end “U-Bolt Type” design shown at the beginning of this section, the Formed Wire Dead-end uses two helically shaped formed wire components: an inner layer of Structural Reinforcing Rods and an outer layer Dead-end 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 Dead-end 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 Dead-end. Consult 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 $\varnothing 12.5\text{mm}$ 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 kA2S to 150 kA2S depending on size of dead-end unit. Right-hand lay units for special applications are also available. Consult 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 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 PLP for information regarding holding abilities of the FIBERLIGN® Formed Wire Dead-end for a specific OPGW design.

Lay Direction:

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

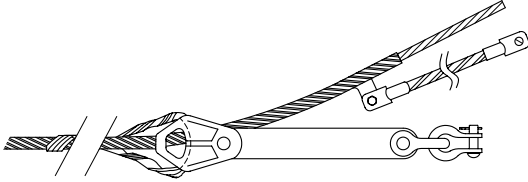
Component Reuse:

Once installed, structural reinforcing rods and dead-end 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 Dead-end

OPGWFWTS

FIBERLIGN® Formed Wire Dead-end



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 transfer through 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 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 dead-ending is another option.

- Product subject to cable design, constructions and testing
- Contact 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 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

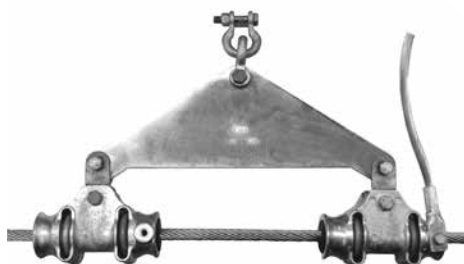
OPGWCCS - Assembly contents

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 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

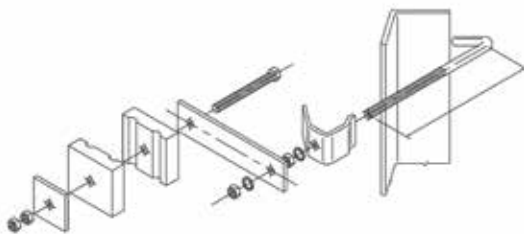
OFDLM

FIBERLIGN® Downlead Cushion



The FIBERLIGN® Downlead Cushion tower attachment will, with the change of only one component, fit any steel angle size to be found in a transmission line lattice-steel type tower without any drilling or other tower modification.

The actual clamping device 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)	Tower Angle Width (mm)
OFDLM-01-A	9.50 - 11.80	45 - 100
OFDLM-01-B	11.90 - 14.30	45 - 100
OFDLM-01-C	14.40 - 16.60	45 - 100
OFDLM-01-D	16.70 - 19.10	45 - 100
OFDLM-02-A	9.50 - 11.80	110 - 150
OFDLM-02-B	11.90 - 14.30	110 - 150
OFDLM-02-C	14.40 - 16.60	110 - 150
OFDLM-02-D	16.70 - 19.10	110 - 150
OFDLM-03-A	9.50 - 11.80	160 - 200
OFDLM-03-B	11.90 - 14.30	160 - 200
OFDLM-03-C	14.40 - 16.60	160 - 200
OFDLM-03-D	16.70 - 19.10	160 - 200
OFDLM-04-A	9.50 - 11.80	210 - 250
OFDLM-04-B	11.90 - 14.30	210 - 250
OFDLM-04-C	14.40 - 16.60	210 - 250
OFDLM-04-D	16.70 - 19.10	210 - 250

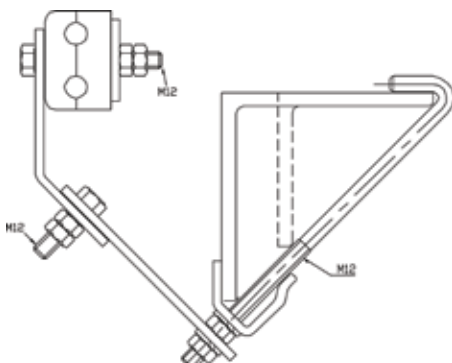
OFDLM

FIBERLIGN® Downlead Cushion With 45° Extension



Features:

- For extra extension and greater mobility
- Available in either 2 or 4 cable clamping configuration

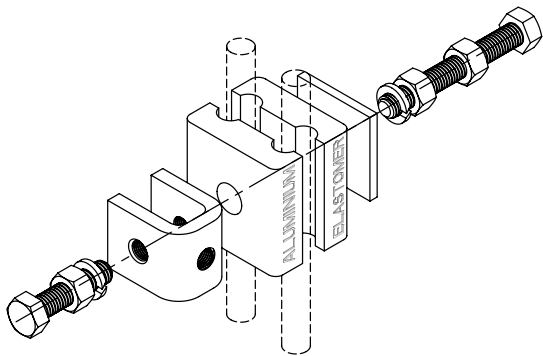


Part Number Double Clamp	Part Number Quad Clamp	Cable Diameter Range (mm)	Tower Angle Width (mm)
OFDLM-01-A-2	OFDLM-01-A-4	9.50 - 11.80	45 - 100
OFDLM-01-B-2	OFDLM-01-B-4	11.90 - 14.30	45 - 100
OFDLM-01-C-2	OFDLM-01-C-4	14.40 - 16.60	45 - 100
OFDLM-01-D-2	OFDLM-01-D-4	16.70 - 19.10	45 - 100
OFDLM-02-A-2	OFDLM-02-A-4	9.50 - 11.80	110 - 150
OFDLM-02-B-2	OFDLM-02-B-4	11.90 - 14.30	110 - 150
OFDLM-02-C-2	OFDLM-02-C-4	14.40 - 16.60	110 - 150
OFDLM-02-D-2	OFDLM-02-D-4	16.70 - 19.10	110 - 150
OFDLM-03-A-2	OFDLM-03-A-4	9.50 - 11.80	160 - 200
OFDLM-03-B-2	OFDLM-03-B-4	11.90 - 14.30	160 - 200
OFDLM-03-C-2	OFDLM-03-C-4	14.40 - 16.60	160 - 200
OFDLM-03-D-2	OFDLM-03-D-4	16.70 - 19.10	160 - 200
OFDLM-04-A-2	OFDLM-04-A-4	9.50 - 11.80	210 - 250
OFDLM-04-B-2	OFDLM-04-B-4	11.90 - 14.30	210 - 250
OFDLM-04-C-2	OFDLM-04-C-4	14.40 - 16.60	210 - 250
OFDLM-04-D-2	OFDLM-04-D-4	16.70 - 19.10	210 - 250

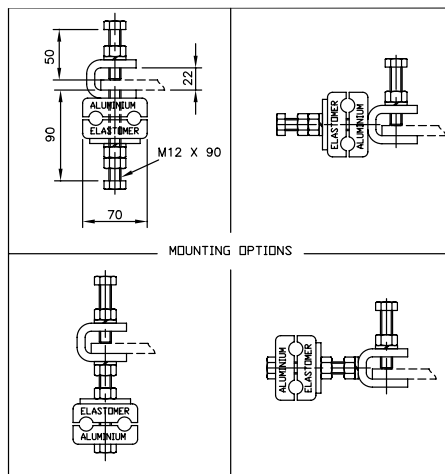
FIBERLIGN® OPGW Accessories

OFDLM-22

FIBERLIGN® Downlead Cushion Mount For Tower/Stobie Pole

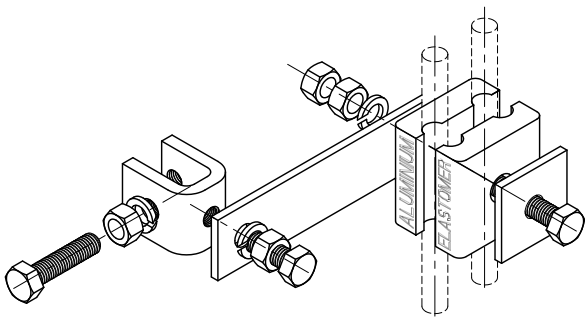


Part Number	Conductor Diameter Range (mm)
OFDLM-22-095118	9.5 - 11.8
OFDLM-22-119143	11.9 - 14.3
OFDLM-22-144166	14.4 - 16.6
OFDLM-22-167191	16.7 - 19.11
OFDLM-22-192215	9.2 - 21.5
OFDLM-22-216241	21.6 - 24.1

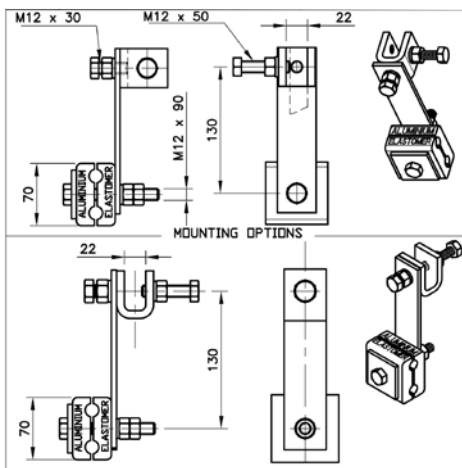


OFDLM-22E

FIBERLIGN® Downlead Tower 22mm, 130mm Extension



Part Number	Conductor Diameter Range (mm)
OFDLM-22E-095118	9.5 - 11.8
OFDLM-22E-119143	11.9 - 14.3
OFDLM-22E-144166	14.4 - 16.6
OFDLM-22E-167191	16.7 - 19.11
OFDLM-22E-192215	9.2 - 21.5
OFDLM-22E-216241	21.6 - 24.1



COYOTE® Splice Case



Versatile:

The COYOTE® Closure Case is very versatile 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:

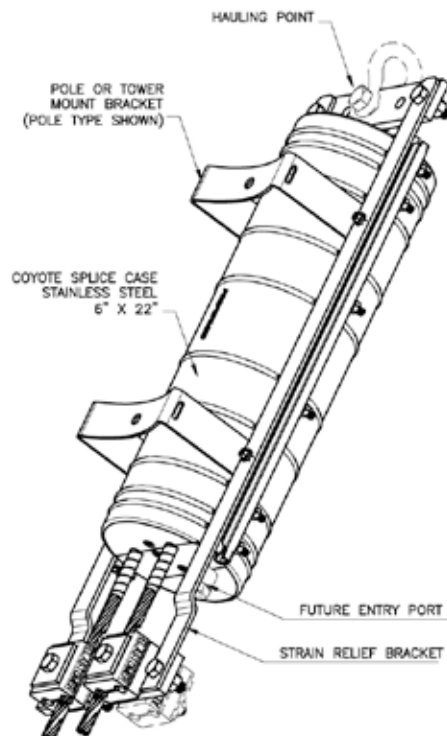
The COYOTE® Splice Case offers easy-to-use Lockbar™ fastening, reducing splice case installation and re-entry time. It can be easily re-entered without a special kit or special tools.

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
- PLP lock tape sealing system with c-cement
- Strain relief bracket
- Applications procedure with every kit
- PLP future entry port

Part Number

CSL***



Please contact PLP with the following information:

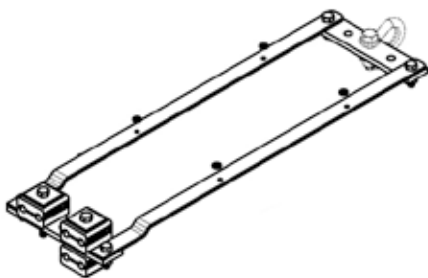
- Splice capacity required
- Loose or Uni-tube storage
- Number of entries – maximum of 4
- Cable diameters
- Strain relief bracket requirements
- Mounting hardware requirements
- Future entry port requirements
- Contact PLP for higher fibre capacity

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

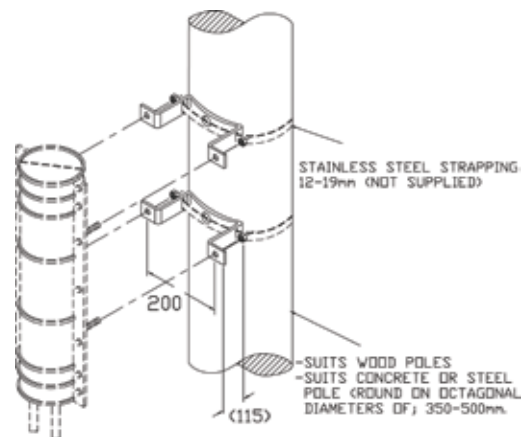
OFSCMOUNT Pole Mounting Bracket



Features:

- Suitable for wood, Concrete and Steel Poles
- Diameters of 350-500mm Standard
- 1 set includes 2 x brackets to install 1 COYOTE® Splice Case

Part Number
OFSCMOUNT-04



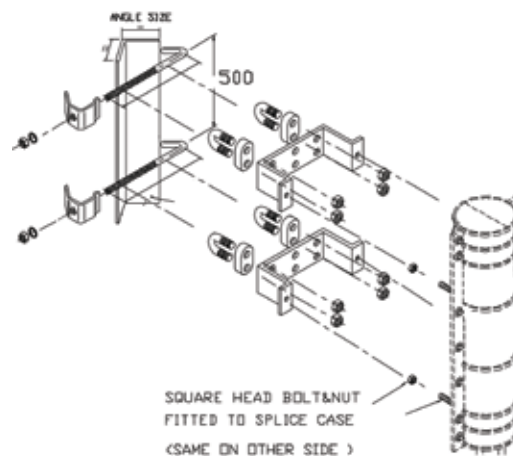
OFSCM Tower Mounting Bracket



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



SSS Stainless Steel Strap

Part Number	Reel Length (m)	Strap Width (mm)
SSS-1230	30	12
SSS-1630	30	16
SSS-1930	30	19



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

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 dead-end 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

- SVDs may be subset 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.
- 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.
- Please consult 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 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 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 PLP technical support for further recommendations.



VDSR - VORTX™ Damper Structural Rods

For OPGW & High Temperature Conductors.

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



PREFORMED LINE PRODUCTS



PP PREFORMED LINE PRODUCTS
The connection you can count on.

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Hardware & Fittings



LSP

Link (Single Plate)

Features:

- Link plates are available in 70, 120 and 160kN
- Substitute -070 for -120 or -160 respectively

Part Number Double Clamp	Rating (kN)	Hole Separation (mm)
LSP-070-100	70	100
LSP-070-150	70	150
LSP-070-200	70	200
LSP-070-250	70	250
LSP-070-300	70	300
LSP-070-350	70	350

Note: Contact PLP if other centre distances are required.



L

Link (Double Plate)

Features:

- Link plates are available in 70, 120 and 160kN
- Substitute -070 for -120 or -160 respectively

Part Number Double Clamp	Rating (kN)	Hole Separation (mm)
L-070-100	70	100
L-070-150	70	150
L-070-200	70	200
L-070-250	70	250
L-070-300	70	300
L-070-350	70	350



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

Hardware & Fittings



YPT

Yoke Plate - Triangular

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 PLP with your specific requirements.

Part Number	Tension Rating (kN)	Hole Spacing (mm)	Part Number	Tension Rating (kN)	Hole Spacing (mm)
YPT-070-060	70	60	YPT-160-125	160	125
YPT-070-070	70	70	YPT-160-130-1	160	130
YPT-070-100	70	100	YPT-160-180-4	160	180
YPT-070-125	70	125	YPT-160-200	160	200
YPT-070-150	70	150	YPT-160-250	160	250
YPT-070-200	70	200	YPT-160-380-1	160	380
YPT-070-250	70	250	YPT-160-460-6	160	460
YPT-070-380	70	380	YPT-160-500	160	500
YPT-070-460	70	460	YPT-160-520-6	160	520
YPT-070-560	70	560	YPT-160-560-1	160	560
YPT-070-660	70	660	YPT-160-60	160	60
YPT-120-060	120	60	YPT-160-660	160	660
YPT-120-100	120	100	YPT-190-380-6	190	380
YPT-120-200	120	200	YPT-190-460-6	190	400
YPT-120-380	120	380	YPT-210-380	210	200
YPT-120-400	120	400	YPT-210-400	210	400
			YPT-320-380-1	320	380



YPR

Yoke Plate Rectangular

Part Number
YPR-***

Note: Please contact PLP with your specific requirements.



MTL

Maintenance Tension Link - Galvanised Steel

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

Hardware & Fittings



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
BYE-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



TSTA

Twisted Socket Tongue for Arcing Horn

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

Hardware & Fittings



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 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

Hardware & Fittings



DS

D - Shackles

D - Shackles are used to suspend 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

Hardware & Fittings



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 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	

Hardware & Fittings



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	

Hardware & Fittings



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 Eyes - 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	

Hardware & Fittings



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

Hardware & Fittings



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	



CW

Counterweight Assembly

Counterweight assemblies are custom designed for installation on transmission line suspension points. Typical designs are shown below as an illustration of the design and manufacturing capabilities of PLP. Please contact PLP with line specifics at time of order for a recommendation on suitable products.

Part Number
CW***



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

Hardware & Fittings



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

Hardware & Fittings



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)	Suites 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

Hardware & Fittings



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 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

Hardware & Fittings

7



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

Hardware & Fittings



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

Hardware & Fittings



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

Hardware & Fittings



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, 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

Hardware & Fittings



PB

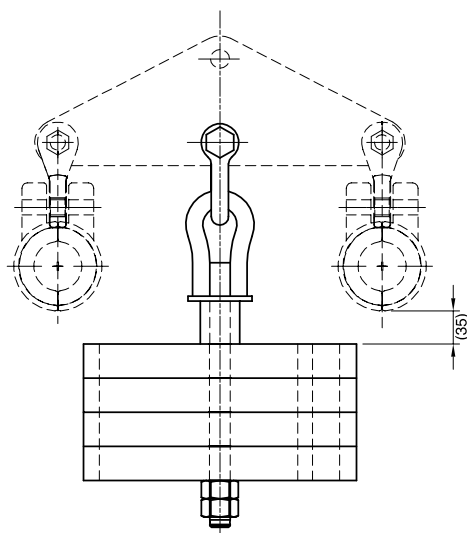
Pole Band

Features:

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

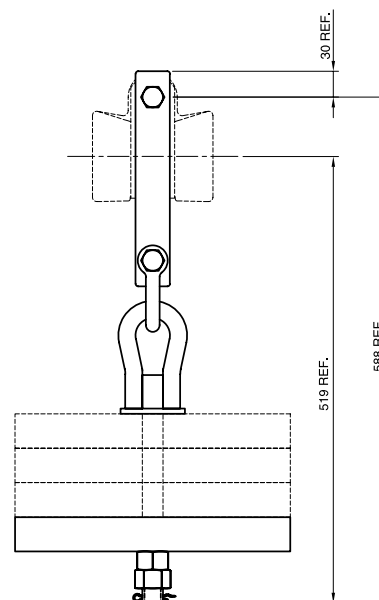
Part Number	Pole Diameter (mm)	Bolt Diameter
PB-200-1WAY	200	M18
PB-230-1WAY	230	M18
PB-260-1WAY	260	M18
PB-290-1WAY	290	M18
PB-320-1WAY	320	M18
PB-350-2	350	M20
PB-425-2	425	M20
PB-450-2	450	M20
PB-500-2	500	M20

Typical Counterweight



FRONT VIEW

Ref: 050543



SIDE VIEW

Ref: 050545



PREFORMED LINE PRODUCTS



PREFORMED LINE PRODUCTS
The connection you can count on.

Section 8 - Insulators

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Insulators



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

Preformed Line Products (Australia) Pty Ltd (PLP) is Australia's leading manufacturer and supplier of cable line hardware for aerial power and communications networks. Preformed Line Products products have benchmarked industry standards in technology and quality, to deliver highly dependable products, making 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 PLP are designed to meet dimensional, electrical and mechanical requirements of the Australian and IEC standards. The market demands that insulators supplied 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.

PLP's focus is to provide 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, PLP supply voltage ranges varying from 11kV – 500kV in both Porcelain and Polymeric designs. 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	Tounge & 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



Disc Insulators

Glass

Part Number	Fixing	Security Clip	Spacing (mm)	Creepage Distance	Electro Mechanical Strength (kN)
I-U70B-GWZ	Ball & Socket	R	146	320	70
I-U120B-GWZ	Ball & Socket	R	146	320	120
I-U160B-GWZ	Ball & Socket	R	146	400	160

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 PLP Australia

Part Number	Rated Volt. (kV)	BIL (kV)	Canilever 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



Composite Insulators (Long Rod 4 Line Post Type)

Features:

- Wide product range
- Substation, Traction, Line Post and Transmission Insulators
- Insulators manufactured and tested per IEC and Australian Standards
- Tested at NATA equivalent testing facilities

Part Number	Rated Voltage (kV)	Min Creepage Distance (mm)	SML (kV)	Critical Impulse Voltage (kV)	Length (mm)	End Fittings
I-CS70-15-CT-H	15	425	70	155	330+-15	Clevis-Tounge
I-CS70-25-CT-H	25	645	70	220	430+-20	Clevis-Tounge
I-CS70-35-CT-H	35	859	70	275	525+-25	Clevis-Tounge
I-CS70-36-BS	36	1180	70	275	610+-10	Ball-Socket
I-CS70-36-CT-H	36	1180	70	275	635+-10	Clevis-Tounge
I-CS120-36-BS	36	1180	120	275	640+-10	Ball-Socket
I-CS120-36-CT-H	36	1180	120	275	655+-10	Clevis-Tounge
I-CS70-36-BS	36	1180	70	410	640	Ball-Socket
I-CS70-36-CT-H	36	1180	70	410	640	Clevis-Tongue
I-CS120-36-BS	36	1180	120	410	640	Ball-Socket
I-CS120-36-CT-H	36	1180	120	410	640	Clevis-Tongue
I-LPO-36-TT-1140C	36	1140	12.5	210	480	Tie-Top
I-CS140-69-SB*	69	1790	140	395	750+-5	Clevis-Tounge
I-CS120-135-SB*	135	3520	120	735	1329	Clevis-Tounge

* Non stocked item

Notes:

- Dimensional and performance characteristics in accordance with IEC and Australian standards
- Other voltages and SML's available on request



PREFORMED LINE PRODUCTS



PREFORMED LINE PRODUCTS
The connection you can count on.

Section 9 - Cables

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Conductors

Type AAC 1350 – All Aluminium Conductor

AS 1531-1991

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-7/2.50	Leo	7/2.50	7.5	34.36	94.3	5.71	65	23	0.833
AAC-7/2.75	Leonids	7/2.75	8.25	41.58	113	6.72	65	23	0.689
AAC-7/3.00	Libra	7/3.00	9	49.48	135	7.98	65	23	0.579
AAC-7/3.75	Mars	7/3.75	11.3	77.28	211	11.8	65	23	0.37
AAC-7/4.50	Mercury	7/4.50	13.5	111.3	304	16.9	65	23	0.258
AAC-7/4.75	Moon	7/4.75	14.3	124	339	18.9	65	23	0.232
AAC-19/3.25	Neptune	19/3.25	16.3	157.6	433	24.7	65	23	0.183
AAC-19/3.50	Orion	19/3.50	17.5	182.8	503	28.7	65	23	0.157
AAC-19/3.75	Pluto	19/3.75	18.8	209.8	576	31.9	65	23	0.137
AAC-37/3.00	Saturn	37/3.00	21	261.6	721	42.2	64	23	0.11
AAC-37/3.25	Sirius	37/3.25	22.8	307	845	48.2	64	23	0.094
AAC-19/4.75	Taurus	19/4.75	23.8	336.7	924	51.3	65	23	0.0857
AAC-37/3.75	Triton	37/3.75	26.3	408.5	1120	62.2	64	23	0.0706
AAC-61/3.25	Uranus	61/3.25	29.3	506.1	1400	75.2	64	23	0.0573
AAC-61/3.50	Ursula	61/3.50	31.5	586.9	1620	87.3	64	23	0.0493
AAC-61/3.75	Venus	61/3.75	33.8	673.4	1860	97.2	64	23	0.0429

Type AAAC 1120 – All Aluminium Alloy Conductor

AS 1531-1991

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

Conductors

Type AAAC 6201A – All Aluminium Alloy Conductor

AS 1531-1991

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

Type ACSR-GZ 1350

AS 1531-1991

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 - 61/2.50	Almond	6/2.50	1/2.50	7.5	34.36	119	10.5	83	19.3	0.975
ACSR - 61/2.75	Apricot	6/2.75	1/2.75	8.3	41.58	144	12.6	83	19.3	0.805
ACSR - 61/3.00	Apple	6/3.00	1/3.00	9	49.48	171	14.9	83	19.3	0.677
ACSR - 61/3.75	Banana	6/3.75	1/3.75	11.3	77.31	268	22.7	83	19.3	0.433
ACSR - 6/4.75 /7/1.60	Cherry	6/4.75	7/1.60	14.3	120.4	402	33.4	80	19.9	0.271
ACSR - 30/7/2.50	Grape	30/2.50	7/2.50	17.5	181.6	677	63.5	88	18.4	0.196
ACSR - 30/7/3.00	Lemon	30/3.00	7/3.00	21	261.5	973	90.4	88	18.4	0.136
ACSR - 30/7/3.25	Lychee	30/3.25	7/3.25	22.8	306.9	1140	105	88	18.4	0.116
ACSR - 30/7/3.50	Lime	30/3.50	7/3.50	24.5	356	1320	122	88	18.4	0.1
ACSR - 54/7/3.00	Mango	54/3.00	7/3.00	27	431.2	1440	119	78	19.9	0.0758
ACSR - 54/7/3.25	Orange	54/3.25	7/3.25	29.3	506	1690	137	78	19.9	0.0646
ACSR - 54/7/3.50	Olive	54/3.50	7/3.50	31.5	586.9	1960	159	78	19.9	0.0557
ACSR - 54/3.719/2.25	Pawpaw	54/3.75	19/2.25	33.8	672	2240	178	77	20	0.0485
ACSR - 3/4/2.50	Rasin	3/2.50	4/2.50	7.5	34.36	195	24.4	136	13.9	1.59
ACSR - 4/3/3.00	Sultana	4/3.00	3/3.00	9	49.48	243	28.3	119	15.2	0.897
ACSR - 4/3/3.75	Walnut	4/3.75	3/3.75	11.3	77.31	380	43.9	119	15.2	0.573



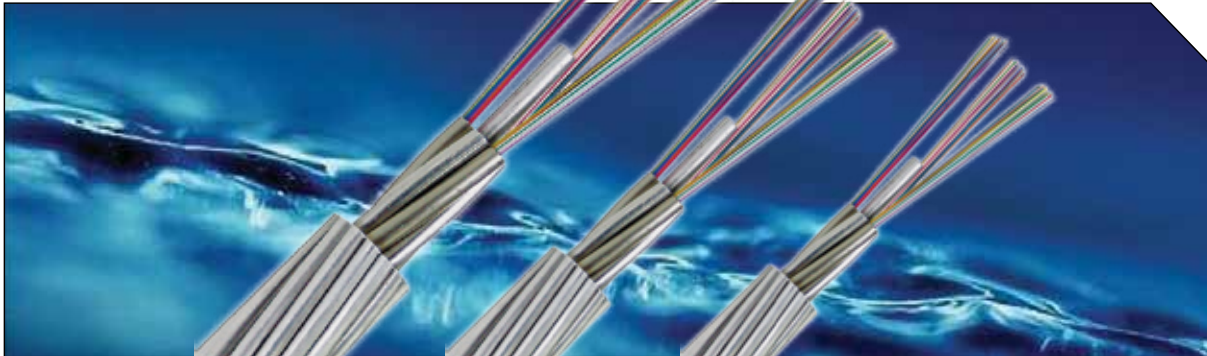
Conductors

Type ACSR/AC/1350

AS 3607-1989

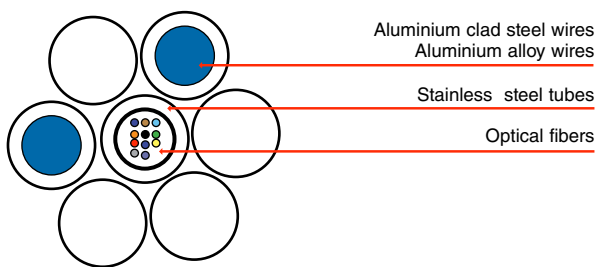
Part Number	Conductor Code	Stranding and Wire Diameter (No/mm)		Nominal Overall Diameter (mm)	Cross Sectional Area (mm ²)	Approx. Mass (kg/km)	Breaking Load (kN)	Modulus of Elasticity (GPa)	Coefficient of Linear Expansion (x10 ⁻⁶ /oC)	DC Resistance (Ω/km)
		Aluminium (No/mm)	Steel (No/mm)							
ACSRAC - 6/1/2.50	Angling	6/2.50	1/2.50	7.5	34.36	113	10.6	79	20.1	0.923
ACSRAC - 6/1/2.75	Aquatics	6/2.75	1/2.75	8.3	41.58	137	12.7	79	20.1	0.763
ACSRAC - 6/1/3.00	Archery	6/3.00	1/3.00	9	49.48	163	15.1	79	20.1	0.641
ACSRAC - 6/1/3.75	Baseball	6/3.75	1/3.75	11.3	77.31	254	22.3	79	20.1	0.41
ACSRAC - 6/7/1.60	Bowls	6/4.75	7/1.60	14.3	120.4	385	32.7	76	20.6	0.259
ACSRAC - 30/7/2.50	Cricket	30/2.50	7/2.50	17.5	181.6	636	64.4	82	19.4	0.182
ACSRAC - 30/7/3.00	Darts	30/3.00	7/3.00	21	261.5	913	91.6	82	19.4	0.126
ACSRAC - 30/7/3.25	Dice	30/3.25	7/3.25	22.8	306.9	1070	106	82	19.4	0.108
ACSRAC - 30/7/3.50	Diving	30/3.50	7/3.50	24.5	356	1240	122	82	19.4	0.0928
ACSRAC - 54/7/3.00	Golf	54/3.00	7/3.00	27	431.2	1380	120	75	20.6	0.0726
ACSRAC - 54/7/3.25	Gymnastics	54/3.25	7/3.25	29.3	506	1620	139	75	20.6	0.0619
ACSRAC - 54/7/3.50	Hurdles	54/3.50	7/3.50	31.5	586.9	1880	159	75	20.6	0.0533
ACSRAC - 54/19/2.25	Lacrosse	54/3.75	19/2.25	33.8	672	2150	180	74	20.7	0.0465
ACSRAC - 3/4/2.50	Soccer	3/2.50	4/2.50	7.5	34.36	171	24.9	119	15.3	1.34
ACSRAC - 4/3/3.00	Swimming	4/3.00	3/3.00	9	49.48	218	28.9	106	16.5	0.807
ACSRAC - 4/3/3.75	Tennis	4/3.75	3/3.75	11.3	77.31	340	42.6	106	16.5	0.517

OPGW



Central Tube OPGW

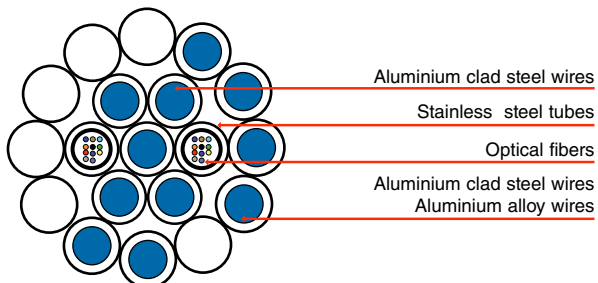
Single/Double Armour Layers



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

OPGW With Standard Layers, Single Tube & Multitube

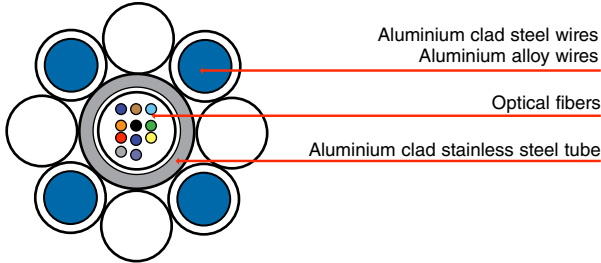
Double/Three Armour Layers



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.

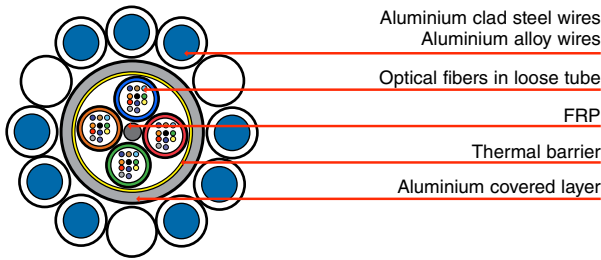
OPGW

Central Al-Clad Stainless Steel Tube OPGW Single/Double Armour Layers



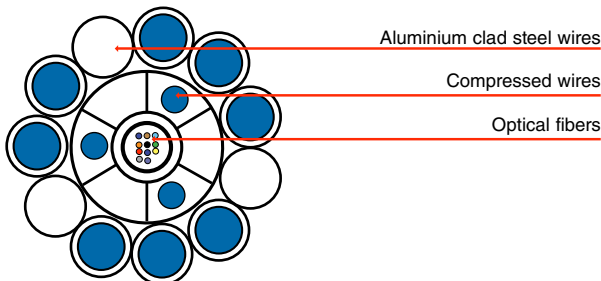
The central Al-clad steel tube is surrounded by single or double layers of aluminium clad steel wires (ACS) or mix ACS wires and aluminium alloy wires.

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.



PREFORMED LINE PRODUCTS
The connection you can count on.

Section 10 - Appendix

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Conductor Protection & Repair Data Card

Product	Protecting New or old undamaged conductor	Repairing New or old conductor	
	Location	Location	Degree of damage
Repair Rods	Support or suspension point ^{(A)(B)(C)(D)}	Support or suspension point or mid-span	50% of outer layer of aluminium or copper stranding for 7 & 19 strand conductors.
Armor Rods	Support or suspension point ^{(A)(B)(C)(D)}	Support point or mid-span	25% of outer layer of aluminium or copper stranding for 37 & 61 strand conductors.
Line Guard	Support point ^{(B)(C)(D)}	Mid-span	

Type of protection

- (A) Vibration damage
- (B) Chafing damage
- (C) Arc-over burning
- (D) Clamping stresses

To identify the correct fitting, the following information is required:

- 1** Is the requirement for protection or repair?
 - 2** Is the position of use at the support point or mid-span?
 - 3** Degree of damage?
- FOR EMERGENCY REPAIRS WHERE (2) AND (3) ARE UNKNOWN USE LINE SPLICE**

Conductor Jointing Data Card

Product	Joining New conductor	Repairing New or old conductor	
	Location	Location	Degree of damage
Line Splice	Mid-span (Homogeneous conductor)	Mid-span (Homogeneous or ACSR)	100% of aluminium or copper stranding
Splice ACSR Full Tension	Mid-span (ACSR)	Mid-span (ACSR)	100% of aluminium and steel stranding

Cleaning and preparation: Optimum electrical performance from current carrying repair fittings can only be achieved if the following instructions are observed.

- 1 Wire brushing** - All conductors, new or weathered, **MUST** be thoroughly wire brushed before the fitting is applied.
- 2 Inhibitors** - All conductors, new or weathered, **MUST** be coated with a quality inhibitor along the area where the fitting is to be applied.



Product Selection Chart

Finding a PLP Product Part Number

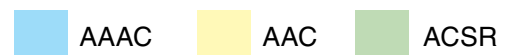
1. Please choose your conductor from the list in the far left columns - which is partitioned into conductor types.

2. Next select your product type from the very top row. Match up the conductor with the corresponding product to give the required PLP part number.

3. Please contact PLP if your required product is not listed or if a conductor size is not present.

Code	Stranding	Type	O/D (mm)	Compression Dead-end	Jumper Terminal	Compression Midspan	Armor Rods	Armor Rods Subset	Vibration Damper	Armor Grip Suspension (AGS), (Single, Double)
Hydrogen	7/4.50	AAAC/1120	13.5	CDEAAAC-135T	CDET-135	CMFT61A, CMSAAAC-135	AAR-135	AARS-135	SVD-0105	AGS-5102, AGS-5802
Iodine	7/4.75	AAAC/1120	14.25	CDEAAAC-143	CDET-143-1	CMFT61A, CMSAAAC-143	AAR-143	AARS-143	SVD-0105	AGS-5104, AGS-5804
Krypton	19/3.25	AAAC/1120	16.3	CDEAAAC-163-2	CDET-163	CMFT68A, CMSAAAC-163	AAR-163	AARS-163	SVD-0106	AGS-5108, AGS-5808
Neon	19/3.75	AAAC/1120	18.8	CDEAAAC-188-2	CDET-188	CMSAAAC-188-1	AAR-188	AARS-188	SVD-0106	AGS-5113, AGS-5813
Nitrogen	37/3.00	AAAC/1120	21.0	CDEAAAC-210-1	CDET-210-1	CMSAAAC-210-1	AAR-210		VORTX (Contact PLP)	AGS-5117, AGS-5817
Nobelium	37/3.25	AAAC/1120	22.8	CDEAAAC-228-1	CDET-228-P5	CMSAAAC-228-1	AAR-230		VORTX (Contact PLP)	AGS-5120, AGS-5820
Oxygen	19/4.75	AAAC/1120	23.8	CDEAAAC-238-1	CDET-238-P1	CMSAAAC-238-1	AAR-240		VORTX (Contact PLP)	AGS-5123, AGS-5823
Phosphorus	37/3.75	AAAC/1120	26.3	CDEAAAC-263-4	CDET-263	CMSAAAC-263-1	AAR-250		VORTX (Contact PLP)	AGS-5127, AGS-5827
Rhodium	61/3.00	AAAC/1120	27	CDEAAAC-270	CDET-270-1	CMSAAAC-270	AAR-270		VORTX (Contact PLP)	AGS-5128, AGS-5828
Selenium	61/3.25	AAAC/1120	29.25	CDEAAAC-293-1	CDET-293	CMSAAAC-293	AAR-293		VORTX (Contact PLP)	AGS-5123, AGS-5823
Silicon	61/3.50	AAAC/1120	31.5	CDEAAAC-315	CDET-315	CMSAAAC-315	AAR-315		VORTX (Contact PLP)	AGS-5136, AGS-5836
Sulphur	61/3.75	AAAC/1120	33.75	CDEAAAC-338-1	CDET-338	CMSAAAC-338-1	AAR-338		VORTX (Contact PLP)	AGS-5139, AGS-5839
Mercury	7/4.50	AAC	13.5		CDET-135	CMFT61A, CMSA-132	AAR-135	AARS-135	SVD-0105	AGS-5102, AGS-5802
Moon	7/4.75	AAC	14.25	CDEA-143-1	CDET-143-1	CMFT61A, CMSA-143	AAR-143	AARS-143	SVD-0105	AGS-5104, AGS-5804
Cricket	7/5.36	AAC	16.08				AAR-163	AARS-163	SVD-0106	AGS-5108, AGS-5808
Hornet	19/3.25	AAC	16.3	CDEA-163-1	CDET-163	CMSA-163	AAR-163	AARS-163	SVD-0106	AGS-5108, AGS-5808
Neptune	19/3.25	AAC	16.3	CDEA-163-1	CDET-163	CMFT68A,	AAR-163	AARS-163	SVD-0106	AGS-5108, AGS-5808
Pluto	19/3.75	AAC	18.8	CDEA-188-1	CDET-188	CMSA-188, CMSA-188-NT	AAR-188	AARS-188	SVD-0106	AGS-5113, AGS-5813
Saturn	37/3.00	AAC	21.0	CDEA-210-1	CDET-210-1	CMSA-210, CMSA-210-NT	AAR-210		VORTX (Contact PLP)	AGS-5119, AGS-5819
Cockroach	19/4.22	AAC	21.1	CDEA-210T-1	CDET-210-1	CMSA-211-FT	AAR-210		VORTX (Contact PLP)	AGS-5119, AGS-5819
Taurus	19/4.75	AAC	23.8	CDEA-238-1	CDET-238-P1	CMSA-238-3, CMSA-238-NT	AAR-240		VORTX (Contact PLP)	AGS-5123, AGS-5123
Triton	37/3.75	AAC	26.3	CDEA-263-1	CDET-263	CMSA-263-3, CMSA-263-NT	AAR-250		VORTX (Contact PLP)	AGS-5127, AGS-5827
Uranus	61/3.25	AAC	29.25	CDEA-293-1	CDET-293	CMSA-293, CMSA-293-NT	AAR-293		VORTX (Contact PLP)	AGS-5132, AGS-5832
Venus	61/3.75	AAC	33.75	CDEA-338-1	CDET-338	CMSA-338-NT	AAR-338		VORTX (Contact PLP)	AGS-5139, AGS-5839
Virgo	91/4.50	AAC	49.5	CDEA-495-1			AAR-495		VORTX (Contact PLP)	
Dog	6/4.72/7/1.57	ACSR	14.15	CDE-143-1-A			AAR-143	AARS-143	SVD-0105	AGS-5104, AGS-5804
Cherry	6/4.75/7/1.60	ACSR	14.3	CDE-143-1	CDET-143-1	CMSJ-143-2, CMSJ-143-X	AAR-143	AARS-143	SVD-0105	AGS-5104, AGS-5804
Cockatoo	12/7/3.00	ACSR	15.00				AAR-157		SVD-0106	AGS-5105, AGS-5805
Grape	30/7/2.50	ACSR	17.5	CDE-175-1		CMSA-175-NT, CMSJ-175	AAR-175	AARS-175	SVD-0106	AGS-5110, AGS-5810
Wolf	30/7/2.59	ACSR	18.13	CDE-181-1	CDET-181-4	CMSJ-181	AAR-175	AARS-175	SVD-0106	AGS-5112, AGS-5812
Ibis	26/3.14/7/2.44	ACSR	19.88	CDE-199-1		CMSJ-199			VORTX (Contact PLP)	AGS-5115, AGS-5815
Ibis (Super)	26/3.14/7/2.50	ACSR	20.1				AAR-201		VORTX (Contact PLP)	AGS-5115, AGS-5815
Lemon	30/7/3.00	ACSR	21.0	CDE-210-1	CDET-210-1	CMSJ-210	AAR-210		VORTX (Contact PLP)	AGS-5117, AGS-5817
Hen	30/7/3.20	ACSR	22.4	CDE-224-1	CDET-224		AAR-220		VORTX (Contact PLP)	AGS-5119, AGS-5819
Bear	30/7/3.35	ACSR	23.45	CDE-235-1		CMSJ-235	AAR-230		VORTX (Contact PLP)	AGS-5122, AGS-5822
Lime	30/7/3.50	ACSR	24.5	CDE-245-1	CDET-245	CMSJ-245	AAR-240		VORTX (Contact PLP)	AGS-5124, AGS-5824
Gannet	26/4.07/7/3.16	ACSR	25.8				AAR-250		VORTX (Contact PLP)	AGS-5126, AGS-5826
Goat	30/7/3.71	ACSR	25.97	CDE-260-1	CDET-260	CMSJ-260	AAR-250		VORTX (Contact PLP)	AGS-5126, AGS-5826
Mango	54/7/3.00	ACSR	27	CDE-270-1		CMSJ-270-1	AAR-270		VORTX (Contact PLP)	AGS-5128, AGS-5828
Tern	45/3.38/7/2.25	ACSR	27.03	CDE-271	CDET-270-1	CMSJ-271-1	AAR-270		VORTX (Contact PLP)	AGS-5128, AGS-5828
Zebra	54/7/3.18	ACSR	28.62	CDE-286-1	CDET-286	CMSJ-286	AAR-293		VORTX (Contact PLP)	AGS-5131, AGS-5831
Orange	54/7/3.25	ACSR	29.25	CDE-293-1	CDET-293	CMSJ-293	AAR-293		VORTX (Contact PLP)	AGS-5132, AGS-5832
Camel	54/7/3.35	ACSR	30.15	CDE-300-1	CDET-300-4				VORTX (Contact PLP)	AGS-5134, AGS-5834
Ortolan	45/3.85/7/2.57	ACSR	30.81	CDE-308-1	CDET-308-1		AAR-315		VORTX (Contact PLP)	AGS-5135, AGS-5835
Olive	54/7/3.50	ACSR	31.5	CDE-315-1	CDET-315	CMSJ-315-1	AAR-315		VORTX (Contact PLP)	AGS-5136, AGS-5836
Curlew	54/7/3.52	ACSR	31.68	CDE-317-8	CDET-317-8	CMSJ-317-8	AAR-315		VORTX (Contact PLP)	AGS-5136, AGS-5836
Pawpaw	54/3.75/19/2.25	ACSR	33.75	CDE-338-1	CDET-338	CMSJ-338-1	AAR-338		VORTX (Contact PLP)	AGS-5139, AGS-5839

Shaded conductor types as follows:



Product Selection Chart

Stranding	Type	O/D (mm)	Compression Dead-end Earthwire	Vibration Damper	Armor Grip Suspension (AGS), (Single, Double)	Compression Midspan	Armor Rods	Armor Rods Subset
7/2.75	SC/AC	8.25	CDST-083	SVD-0103	AGS-6101, AGS-6801		AWAR-K050	
7/3.00	SC/AC	9	CDST-090	SVD-0104				
7/3.05	SC/AC	9.15		SVD-0104			AWAR-091	
7/3.25	SC/AC	9.75	CDST-098	SVD-0104	AGS-6105, AGS-6805	CMS-098-1		
7/3.75	SC/AC	11.3		SVD-0104	AGS-6109, AGS-6805	CMS-113-1	AWAR-K088-8	AARS-113
7/4.25	SC/AC	12.8	CDST-128	SVD-0105	AGS-6112	CMS-128-2	AWAR-K106	
19/2.75	SC/AC	13.8		SVD-0105				
19/3.00	SC/AC	15.00		SVD-0106				
19/3.25	SC/AC	16.3		SVD-0106				
19/3.75	SC/AC	18.8		SVD-0106				
19/4.25	SC/AC	21.3		VORTX				
7/2.75	SC/GZ	8.25	CDS-083-1	SVD-0103	AGS-7101, AGS-7801	CMS-083-1	GAR-083	
7/3.00	SC/GZ	9		SVD-0104				
7/3.25	SC/GZ	9.75	CDS-098-1	SVD-0104	AGS-7105, AGS-7805		GAR-098	
19/2.00	SC/GZ	10.00		SVD-0104	AGS-7106	CMS-105-1	GAR-100	
7/3.75	SC/GZ	11.3	CDS-113-1	SVD-0104	AGS-7109		GAR-113	
7/4.00	SC/GZ	12.00		SVD-0105				
19/2.55	SC/GZ	12.75	CDS-128-2	SVD-0105				
19/2.75	SC/GZ	13.8		SVD-0105				
19/3.20	SC/GZ	16.0		SVD-0106				
19/3.25	SC/GZ	16.3		SVD-0106				

Shaded conductor types as follows:

 SC/AC
  SC/GZ
  HDC

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TERMS & CONDITIONS OF SALE

1. APPLICATION

- 1.1. These Terms apply to all goods sold by the Company.
- 1.2. No amendment, alteration, waiver or cancellation of any of these Terms is binding on the Company unless confirmed by the Company in writing.
- 1.3. The Customer acknowledges that no employee or agent of the Company has any right to make any representation, warranty or promise in relation of the Goods or the sale of the Goods other than as contained in these Terms.

2. TERMS OF PAYMENT

- 2.1. Prices are subject to change on thirty (30) days notice.
- 2.2. Payments are to be made direct to the Company, strictly net, without any deduction or discount other than as stated in these Terms or in the relevant invoice or statement.
- 2.3. Payments are to be made within thirty (30) days of the date of the Company's statement or invoice, whichever is the earlier.
- 2.4. Interest is payable on all overdue accounts calculated on a daily basis at the rate of 2% per month as from the due date for payment until payment is received by the Company.
- 2.5. The Company will charge a handling fee of \$100 or such other greater amount for orders of an invoice value under \$1,000 or such higher amount as the Company determines.

3. PROPERTY IN GOODS

Legal and beneficial ownership of Goods supplied by the Company will not pass to the Customer until such time as the Goods so supplied have been paid in full in cash or cleared funds.

4. RE-SALE OF GOODS

- 4.1. If the Customer is a re-seller then, subject to sub-clause 4.2.4, the Customer has the right to sell the Goods in its own name at full market value and in the ordinary course of business.
- 4.2. Until the amount payable to the Company in respect of the Goods has been paid in full in cash or cleared fund:
 - 4.2.1. the Customer will hold the Goods only as bailee for the Company;
 - 4.2.2. the Goods must be stored in such manner that they are readily distinguishable from other goods owned by the Customer or other persons and so as to clearly show that they are the property of the Company;
 - 4.2.3. the Customer must indemnify the Company from and against any Claim incurred or suffered by the Company arising out of the possession, use or disposal of the Goods by the Customer or repossession or attempted repossession of them by the Company; and
 - 4.2.4. any sale of the Goods under clause 4.1 will only be effected by the Customer as trustee for the Company and the proceeds of such sale and the rights of the Company's Customer against its customer arising from such sale will be held on trust for the Company. The said proceeds must be held in a separate account or otherwise clearly identified in the books and records of the Customer.
- 4.3. The Customer must ensure that the Goods are stored in accordance with any reasonable direction or instructions from the Company and, without the prior written consent of the Company, must not treat, alter, or incorporate the Goods into or with another product of the Company or any third party, or otherwise vary the Goods as supplied by the Company.

- 4.4. If the Customer resells any Goods then, unless the Goods are clearly identifiable by serial numbers or other distinguishing marks, the Customer is deemed to have disposed of the Goods in the chronological order of supply by the Company to the Customer (oldest to most recent).
- 4.5. On the resale of the Goods by the Customer, the Customer must ensure that any contract between the Customer and its customer limits or excludes any liability of the Company to such customer on no less favourable terms than the Company's liability to the Customer under clause 19 or on more limiting terms.
- 4.6. Despite clause 4.5, the Customer must indemnify the Company from and against any Claim incurred or suffered by the Company arising out of the resale of the Goods by the Customer.

5. INCORPORATION OF GOODS

- 5.1. If the Customer uses the Goods in some manufacturing or construction process of its own or on behalf of some third party and receives monies from time to time in respect of such use then the Customer must hold a portion of such monies received, calculated in accordance with clause 5.2, in trust for the Company.
- 5.2. The portion referred to in clause 5.1 will be so much of the monies received as equals the amount owing by the Customer to the Company at the time of the receipt of such monies by the Customer.
- 5.3. Money received by the Customer excludes any debts due to other parties by the customer but not yet paid by the Customer.
- 5.4. In the circumstances outlined in clause 5.1, the Customer must not assign or deal with its debts in any way prior to payment of the moneys receivable by the Customer in respect of the Goods as their use as described in clause 5.1 prior to their payment to the Company.

6. INSTALLATION OF GOODS

- 6.1. All Goods must be handled, mounted and installed:
 - 6.1.1. by an appropriately licensed technician/tradesman; and
 - 6.1.2. in accordance with:
 - 6.1.2.1. the manufacturer's directions, if any;
 - 6.1.2.2. the relevant Application Procedure found at http://www.phhttp://www.preformed.com/index.php?option=com_phocadownload&view=category&id=29&Itemid=194refor med.com/index.php?option=com_phocadownload&view=category&id=29&Itemid=194; and/or
 - 6.1.2.3. the applicable industry standard, as the case may be.
- 6.2. If any Goods are not handled, mounted or installed in accordance with clause 6.1 then, subject to any statutory provision or other general law obligation to the contrary, the Company will not be liable for any defect or fault in the Goods or for any loss or damage to the Customer caused by the Goods.

7. DEFAULT

- If:**
- 7.1. the Goods are not paid for in accordance with these Terms or any other written agreement between the Company and the Customer;
 - 7.2. the Company receives notice of, or reasonably believes that a third party may attempt to levy execution against or attach the Goods; or
 - 7.3. any other event occurs which in the Company's opinion is likely to adversely affect the Customer's ability to pay for the Goods (including but not limited to the appointment of Insolvency Representative to the Customer's undertaking),

then the Company may at any time thereafter, without notice to the Customer and without prejudice to any other rights which it may have against the Customer, terminate any Contract relating to the Goods and the bailment referred to in clause 4.2.1.

8. RIGHT TO ENTER PREMISES

In any of the circumstances referred to in clause 7, the Customer:

- 8.1. authorises the Company by itself, its agents or representatives at all reasonable times, without notice, to enter onto (with force if reasonably necessary) and at all necessary time(s), to remain in and on any premises where the Goods are located in order to collect the Goods, without being guilty of any manner of trespass; and
- 8.2. assigns to the Company all the Customer's rights to enter onto and remain in and on such premises until all the Goods have been collected.

9. ADMINISTRATION & RECEIVERSHIP

In any of the circumstances referred to in clause 7.3:

- 9.1. neither the Customer nor its Insolvency Representative or any other person acting for the Customer and/or its creditors is entitled to sell, charge, remove, dispose of, use or otherwise deal with the Goods in any way inconsistent with the Company's ownership of the Goods, without the Company's prior written approval;
- 9.2. the Customer, its Insolvency Representative and every other person acting for or on behalf of the Customer and/or its creditors is obliged to re-deliver the Goods to the Company immediately or immediately on his appointment, as the case may be, at its or his expense; and
- 9.3. if the Goods are returned to or collected by the Company, the Company will within twenty-eight (28) days, account to the Customer or its Insolvency Representative for all monies received for the Goods from the Customer less the Company's reasonable administration charges, expenses incurred and loss of profits involved.

10. CUSTOMER AS TRUSTEE

If the Customer carries on business as trustee of a trust then the Customer warrants that:

- 10.1. the Customer enters into a Contract or Contracts to purchase the Goods as trustee of a trust;
- 10.2. the Customer has all requisite powers to enter into a Contract under these Terms;
- 10.3. the beneficiary of the trust approves the purchase of the Goods on the terms of the Contract; and
- 10.4. the assets of the trust are available to the Company in satisfaction of any debt incurred by the Customer for the purchase of the Goods.

11. GOODS AND SERVICES TAX

- 11.1. GST is not included in the quoted price.
- 11.2. If GST is imposed on the Company in respect of the Goods then the Customer must pay the amount of such GST to the Company in addition to the quoted price.
- 11.3. The Company must give the Customer written notice of the amount of any GST payable under this clause and provide a tax invoice showing the amount of GST payable.

12. CUSTOMS DUTIES, TARIFFS AND LEVIES

All applicable customs duties, tariffs and levies are payable by the Customer unless the order, order confirmation, invoice or other writing indicates otherwise.

13. DELIVERY

- 13.1. Availability dates are estimates only, but the Company will use its best endeavours to maintain these estimates.
- 13.2. If the place of delivery to or collection of the Goods by the Customer is within Australia then the Company will, at the Customer's request, arrange for the delivery of the Goods at the Company's expense.

14. DELIVERY BY INSTALMENTS

- 14.1. The Company reserves the right to deliver the Goods in whole or by instalments as well as to deliver prior to the date for delivery and in any such event the Customer must not refuse to take delivery of the Goods.
- 14.2. Where the Goods are delivered by instalments, each instalment is sold under a separate Contract.
- 14.3. Any failure on the part of the Company to deliver instalments within any specified time does not entitle the Customer to repudiate the Contract with regard to the balance of the Goods remaining undelivered.

15. RISK

- 15.1. The Goods are entirely at the risk of the Customer from the moment the Goods leave the Company's premises or physical custody.
- 15.2. The Customer must at its own expense, maintain the Goods and insure them for the benefit of the Company for their full replacement value against theft, destructions, fire, water and other risks, as from the moment of delivery to or collection by the Customer until property of and title to the Goods have passed to the Customer.
- 15.3. The Customer must take all reasonable measures to ensure that the Company's title to the Goods is in no way prejudiced. If any of the Goods are lost, destroyed or damaged, any insurance proceeds relating to the Goods in respect of such event that are received by the Customer are held on trust for the Company and must be paid to the Company immediately on receipt but only up to the amount that the Customer owes the Company in respect of those Goods.

16. INSPECTION

Unless the Customer has inspected the Goods and given written notice to the Company within seven (7) days after collection or delivery that the Goods do not comply with the relevant specifications or descriptions, the Goods are deemed to have been accepted in good order and condition.

17. RETURN OF GOODS

- 17.1. No returns will be accepted unless the Company has previously agreed in writing. If the Company agrees to the return of Goods, they must be unsoiled, undamaged and in a resaleable condition (or Customer pays for all costs of replacement or repair) and delivered at the Customer's expense to the Company's premises unless otherwise agreed by the Company in writing.
- 17.2. Goods imported especially for the Customer or non-standard equipment made to special order cannot under any circumstances be returned and/or credited.

18. CANCELLATION OF ORDER

No order may be cancelled, modified or deferred without the prior written consent of the Company (which is at the Company's sole discretion) and if consent is given, then such consent will, at the Company's election, be subject to the Company being reimbursed all losses, including loss of profits, and paid a cancellation and restocking fee (being not less than 10% of the invoice value of the Goods).

19. COMPANY'S LIABILITY LIMITED

- 19.1. The Customer acknowledges and agrees that:
- 19.1.1. the Customer has determined that the Goods are fit for the purpose for which the Customer requires them;
 - 19.1.2. the Customer has the right to inspect the Goods in accordance with clause 19 to satisfy itself that the Goods are fit for purpose and/or are of merchantable and acceptable quality;
 - 19.1.3. the Customer has not relied on the Company's skill and judgment in selecting the Goods; and
 - 19.1.4. the Company is not responsible if the Goods do not comply with any applicable safety standard(s) or similar regulation(s), and that the Company is not liable for any Claim resulting from such non-compliance.
- 19.2. The Company is not subject to, and the Customer releases the Company from any liability (including but not limited to Consequential Loss or Damage, removal costs or re-installation costs or liability for loss of use or profit) arising from any delay in delivery or defect or fault in the Goods or any negligence by the Company in relation to the Goods (including but not limited to their manufacture), to the full extent permitted by law.
- 19.3. If, despite clause 19.2, the statutory provisions under the *Competition and Consumer Act 2010* (Cth), the *Sale of Goods Act 1923* (NSW) or any other act or the general law impose on the Company a liability for a defect or fault in the Goods then, to the extent to which the Company is entitled to do so, the Company's liability under the statutory provisions is limited, at the Company's option, to:
- 19.3.1. replacement or repair of the Goods;
 - 19.3.2. supply of equivalent Goods; or
 - 19.3.3. payment of the cost of replacing or repairing the Goods or of acquiring equivalent Goods,
- and in any case:
- 19.3.4. the Company will not be liable for any Consequential Loss or Damage or any other loss or damage; and
 - 19.3.5. the Company's total liability to the Customer is limited to the invoice value of the Goods.

20. WARRANTIES AND WARRANTY CLAIMS

- 20.1. The Company warrants that the Goods are free of substantive defects.
- 20.2. The Company also warrants to the Customer that the Goods will be supplied in an undamaged condition.
- 20.3. Except for any guarantees imposed by the *Competition and Consumer Act 2010* (Cth) and the warranties stated in clauses 20.1 and 20.2, the provision of any other act or law implying terms, conditions, guarantees and/or warranties which might otherwise apply to or arise out of the Contract are hereby expressly negated and excluded to the full extent permitted by law.
- 20.4. On discovery of any defect in the Goods, the Customer must notify the Company in writing of such defect.
- 20.5. All warranty claims must be received by the Company within thirty (30) days of the day of delivery. This warranty extends only to the Customer and to no other person.
- 20.6. The Customer's failure to provide written notice to the Company within the required time of any alleged breach of the above warranty will release and discharge the Company from any obligation or liability for that breach of warranty.
- 20.7. The Customer must not carry out any remedial work to allegedly defective Goods without first obtaining the written consent of the Company to do so

otherwise all of the Company's warranties will be voided to the full extent permitted by law.

- 20.8. The warranties stated in clauses 20.1 and 20.2 do not apply in circumstances where the Customer treats, alters, incorporates the Goods into or with another product of the Company or any third party, or otherwise varies the Goods as supplied by the Company.

21. CATALOGUES

Particulars in leaflets, catalogues, drawings, brochures and other printed material are illustrations only, form no part of the Contract between the Company and the Customer, and are not binding on the Company.

22. CUSTOMER'S PROPERTY

- 22.1. All Customer's property in or under the Company's custody or control will be entirely at the Customer's risk in regard to loss or damage from any cause whatsoever.
- 22.2. The Company will have a first and paramount lien upon all Customer's property (including but not limited to dies provided by or manufactured for the Customer) which is in the Company's possession or control until all accounts due to the Company by the Customer are paid in full.
- 22.3. The Company may sell any of the Customer's property on which the Company has a lien if:
- 22.3.1. a sum in respect of which the lien exists is presently payable;
- 22.3.2. the Company has, not less than fourteen (14) days before the date of the sale, given the Customer a written notice setting out, and demanding payment of such part of the sum in respect of which the lien exists as is presently payable; and
- the Customer has failed to pay the sum referred to in the notice.
- 22.4. The proceeds of the sale will be applied by the Company:
- 22.4.1. firstly to cover the costs of the sale;
- 22.4.2. secondly in payment of such part of the sum in respect of which the lien exists as is presently payable; and
- 22.4.3. by way of accounting to the Customer.

23. TOOLING

- 23.1. If the Company agrees to supply Tooling to the Customer then the Tooling remains the property of the Company and despite the fact that the Customer may have borne or contributed to the cost of the development and manufacture of the Tooling.
- 23.2. The Company reserves the right to recall the Tooling from the Customer at any time.

24. PERSONAL PROPERTY SECURITY

- 24.1. The Customer acknowledges that if the Company has a security interest in:
- 24.1.1. the Goods;
- 24.1.2. the proceeds of the Goods;
- 24.1.3. the Customer's property referred to in clause 22.1; and/or
- 24.1.4. the Tooling,
- for the purposes of the PPSA then the Company may register its security interest in the Goods, proceeds, Customer's property and/or Tooling, as the case may be, on the PPSR.
- 24.2. The Customer undertakes, at its own expense, to promptly do anything (such as supplying information) which the Company requests and reasonably requires the Customer to do for the purposes of ensuring that the security interest is enforceable, perfected or otherwise effective.

- 24.3. The Customer acknowledges that if the Company has a security interest in the Goods, proceeds, Customer's property and/or Tooling, as the case may be, then the Company may register its security interest on the PPSR and the Customer, in accordance with section 157(3)(b) of the PPSA, waives the right to receive notification of the registration.

25. COPYRIGHT

- 25.1. The Customer warrants that:
- 25.1.1. the drawing of any extruded shape submitted by the Customer; and
 - 25.1.2. any Tooling made in accordance with such drawing; and
 - 25.1.3. any article of extruded design made from such Tooling,
- does not infringe the rights of any third party (whether copyright, registered design pattern, trademark, confidential information or otherwise) or breach any applicable law.
- 25.2. In the event of any Claim or order for costs (including legal expenses on a solicitor and client basis) referable to the rights and/or laws referred to in clause 25.1 being made or brought against the Company, the Customer must fully indemnify the Company and keep the Company indemnified from and against same.

26. SAMPLES

Any sample inspected by the Customer is solely for the Customer's convenience and does not constitute a sale by sample. All samples remain the property of the Company.

27. SPECIFICATIONS

- 27.1. Unless otherwise agreed in writing, the Goods are supplied subject to any specification as to weight, quantity, size, dimensions, finishes, chemical composition and physical properties as may be published generally by the Company or as may be set out in any specification issued by the Company in relation to the Goods or, if no such specification has been published or set out, subject to such specification as is normally regarded as being commercially acceptable.
- 27.2. Where any specification for the Goods are to be supplied by the Customer, they must be supplied in a reasonable time to enable the Company to complete delivery by the date for delivery.

28. CONTRACT

- 28.1. The terms of the Contract between the parties are wholly contained in these Terms and any other writing signed by both parties.
- 28.2. The Contract under these Terms is deemed to have been made at the Company's place of business in Sydney, New South Wales and any cause of action is deemed to have arisen there.
- 28.3. The Contract is governed by the law of New South Wales.
- 28.4. The Customer irrevocably and unconditionally submits to the non-exclusive jurisdiction of the courts of New South Wales and any courts which have jurisdiction to hear appeals from those courts about any proceedings in connection with these Terms and waives any right to object to proceedings being brought in those courts for any reason.
- 28.5. The provisions of the United Nations Convention on Contracts for the International Sale of Goods adopted at Vienna, Austria on 10 April 1980 does not apply to any Goods supplied by the Company to the Customer.

29. FORCE MAJEURE

The Company will not be liable for any breach of contract due to any matter or thing beyond the Company's control (including but not limited to transport stoppages,

transport breakdown, fire, flood, earthquake, acts of God, strikes, lock-outs, work stoppages, wars, riots or civil commotion, intervention of public authority, explosion or accident).

30. DISPUTE RESOLUTION

- 30.1. The Company and/or the Customer must not commence any court proceedings in respect of a dispute arising out of these Terms unless it has complied with this clause 30.
- 30.2. Should at any time a party assert that a dispute exists between the parties arising out of or in connection with these Terms, then that party must submit a written notice ("**Notice of Dispute**") to the other party specifying:
 - 30.2.1. the nature of the dispute that has arisen;
 - 30.2.2. the major issues for determination; and
 - 30.2.3. the relief or outcome being sought.
- 30.3. Within seven (7) days from receipt of the Notice of Dispute, the other party must provide a written response ("**Notice of Response**") stating its position in relation to the dispute, including:
 - 30.3.1. any additional issues that should be referred for determination; and
 - 30.3.2. any comment on the relief or outcome referred to in the Notice of Dispute.
- 30.4. During the fourteen (14) day period after the Notice of Response is issued, the parties must take reasonable steps to seek to resolve the dispute.
- 30.5. If the dispute is not resolved within the period referred to in clause 30.4 then the parties must, within an additional fourteen (14) days agree to refer the dispute to a single expert for determination.
- 30.6. If the parties are unable to agree on a expert within the time stipulated in clause 30.5, then either party may refer the dispute to an expert as nominated by Unisearch Expert Opinion Services, for determination.
- 30.7. The determination of the expert:
 - 30.7.1. must be in writing, accompanied by reasons; and
 - 30.7.2. will be final and binding on the parties as to any findings of fact relating to any matter arising from these Terms.
- 30.8. The parties are to bear their own costs of the dispute and the costs of the expert are to be borne by the party found to be at fault by the expert and, in the event that no such finding is made, the costs are to be borne by the parties equally.

31. WAIVER OF BREACH

No failure by the Company to insist on strict performances of any of these Terms is a waiver of any right or remedy which the Company may have, and is not a waiver of any subsequent breach or default by the Customer.

32. NO ASSIGNMENT

Neither the Contract nor any rights arising under the Contract may be assigned by the Customer without the prior written consent of the Company which is at the Company's absolute discretion.

33. SEVERABILITY

If any provision contained in these Terms is held by a court to be unlawful, invalid or unenforceable, the validity and enforceability of the remaining provisions are not affected.

34. INTERPRETATION

In these Terms:

- 34.1. "**Claim**" means a claim, action, suit, demand, proceeding, damage, loss, cost, expense or liability incurred or suffered by the Company.

-
- 34.2. **“Company”** means Preformed Line Products (Australia) Pty Limited ABN 27 004 533 877 and its successors and assigns.
- 34.3. **“Consequential Loss or Damages”** means all or any of the following:
- 34.3.1. loss of profit;
 - 34.3.2. loss or denial of opportunity;
 - 34.3.3. loss of use;
 - 34.3.4. loss of revenue;
 - 34.3.5. loss of production;
 - 34.3.6. loss of labour;
 - 34.3.7. loss of access to markets;
 - 34.3.8. loss of goodwill;
 - 34.3.9. loss of anticipated savings;
 - 34.3.10. loss of business reputation including future reputation;
 - 34.3.11. loss arising from adverse publicity;
 - 34.3.12. damage to credit rating;
 - 34.3.13. removal costs;
 - 34.3.14. re-installation costs;
 - 34.3.15. commissioning costs;
 - 34.3.16. increase in operating costs;
 - 34.3.17. increase in maintenance costs;
 - 34.3.18. financial costs;
 - 34.3.19. any indirect, remote, abnormal or unforeseeable loss;
 - 34.3.20. any consequential loss or damage not included in the above; and
 - 34.3.21. any similar loss whether or not in the reasonable contemplation of the parties at the time entry into the Contract, and in any case whether arising out of contract or tort (including negligence) or by statute or otherwise, at law or in equity.
- 34.4. **“Contract”** means the contract for the sale of the Goods by the Company to the Customer.
- 34.5. **“Customer”** means the party to whom the Company has agreed to sell the Goods.
- 34.6. **“Goods”** means the goods agreed to be sold by the Company to the Customer.
- 34.7. **“GST”** means the Goods and Services Tax imposed by a *New Tax System (Goods and Services Tax) Act 1999* (Cth) and any related act and/or regulations.
- 34.8. **“Insolvency Representative”** includes but is not limited to a receiver, receiver and manager, administrator, controller, liquidator, provisional liquidator, trustee or similar person.
- 34.9. **“PPSA”** means the *Personal Property Securities Act 2009* (Cth).
- 34.10. **“PPSR”** means the personal property security register created under the PPSA.
- 34.11. **“Terms”** means these terms and conditions of sale as amended from time to time.
- 34.12. **“Tooling”** means any tooling supplied by the Company to the Customer from time to time.



TRANSMISSION CATALOGUE



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