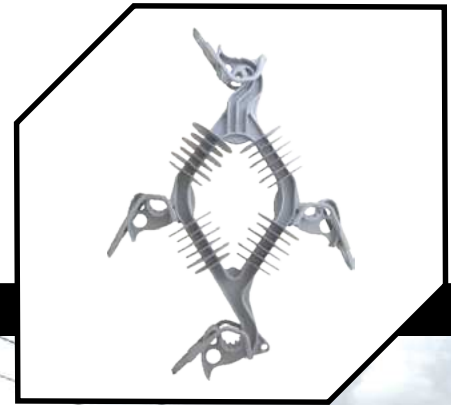




**PPF** **PREFORMED** LINE PRODUCTS  
The connection you can count on.

# POWER DISTRIBUTION Product Catalogue

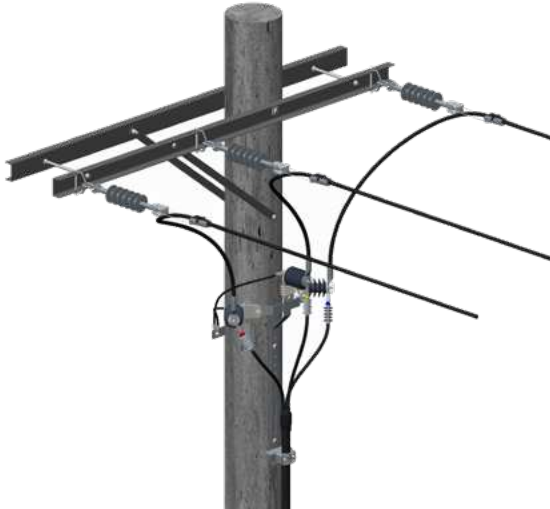
 COMMUNICATIONS  **ENERGY**  SPECIAL INDUSTRIES  SOLAR



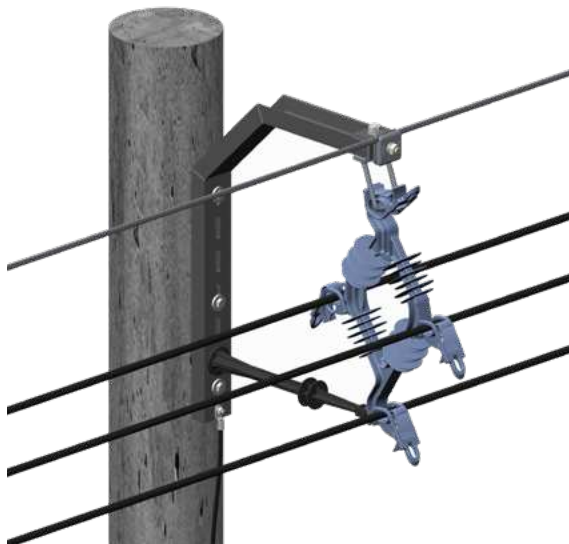
Medium voltage bare wire and  
covered conductor systems for  
the power utility industry



# INTRODUCTION TO PLP



**COVEREDLIGN™**



**COMPACTLIGN™**



**PREFORMED  
LINE PRODUCTS**

The connection you can count on.

PLP Thailand is a designer, manufacturer and supplier of high quality products for the Power Distribution and Transmission Industry. This catalogue has been designed to document PLP's products and systems for bare wire and partially insulated overhead distribution networks in Asia Pacific at voltages between 11kV and 35kV.

Located in Latkrabang, Bangkok, the PLP Thailand manufacturing operation includes helical products manufacturing, aluminium casting, aluminium and steel fabrication as well as machining and toolmaking.

The manufacturing operation is supported by an experienced engineering team using some of the latest software design and modeling systems available. The engineering expertise, together with an electrical and mechanical test laboratory that is used for both product verification and research and development means that PLP Thailand can provide **"The Connection You Can Count On"**.

# INTRODUCTION TO PLP



## PLP DISTRIBUTION

Since 1947, PLP has invented and evolved the helical technology that is used to terminate, join, suspend and support medium voltage distribution lines all over the world today. Whether the overhead distribution system consists of insulated or bare wire conductors, PLP's offering which includes GUY-GRIP® Deadends and WRAPLOCK® Ties are benchmarks for performance and reliability.

## PLP TRANSFORMER

PLP's Amorphous Metal Distribution Transformers (AMDTs) are highly efficient, cost-effective devices for overhead or ground mounted installation, reducing no load losses by 65-75%. Via a core manufactured from a ferrous, boron and silicon metal alloy, AMDTs feature more efficient magnetisation and faster flex reversal for lowered total cost of asset ownership.

## PLP TRANSMISSION

PLP is a worldwide designer, manufacturer and supplier of high quality products for high voltage electric power transmission. PLP has consistently demonstrated transmission industry leadership by introducing innovation: ARMOR-GRIP® and CUSHION-GRIP® Suspension and Support, VORTX™ Vibration Dampers and THERMOLIGN® products for high temperature transmission lines.

## PLP OVERHEAD FIBRE

PLP is a global fibre infrastructure specialist having been founded on technology for supporting, protecting, terminating and splicing OPGW (Optical Ground Wire) and ADSS (All Dielectric Self Supporting) fibre optic cables. FIBERLIGN® hardware for overhead fibre is the market leader, delivering long term reliability in service performance for valuable fibre assets.

# INTRODUCTION TO PLP



## PLP COMMUNICATIONS CLOSURES

COYOTE® Fibre Optic Closure products have consistently pioneered advances in communications networks. Via the segmented endplate and grommet technology, COYOTE® Closures are not only acknowledged as reliable, the craft-friendly fiber management technology permitting easy re-entry is among the most respected in the telecommunications industry.

## PLP SUBSTATION

PLP's POWERFORMED™ BUSLIGN™ and SUBLIGN™ aluminium and copper substation fittings ranges include bolted, welded and compression solutions. Designed to be used to create high current interconnection systems in high voltage AC and DC Substations, PLP has some of the most unique and flexible designs available. Installation is fast, easy and, most importantly, reliable for critical substation assets.

## PLP ALTERNATIVE ENERGY

PLP Solar supplies integrated turn-key engineered photovoltaic solutions to the residential, commercial/industrial and utility sectors. PLP has a team of highly trained electrical engineering staff specialising in photovoltaic design, and mechanical engineering staff specialising in solar panel racking solutions.



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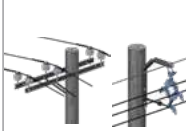


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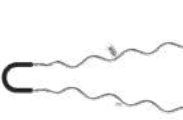


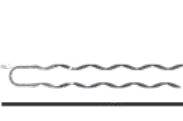








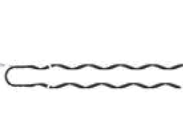


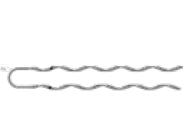





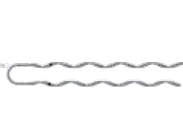








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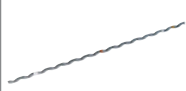
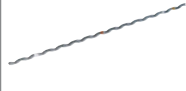
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# SECTION 2 - CABLES

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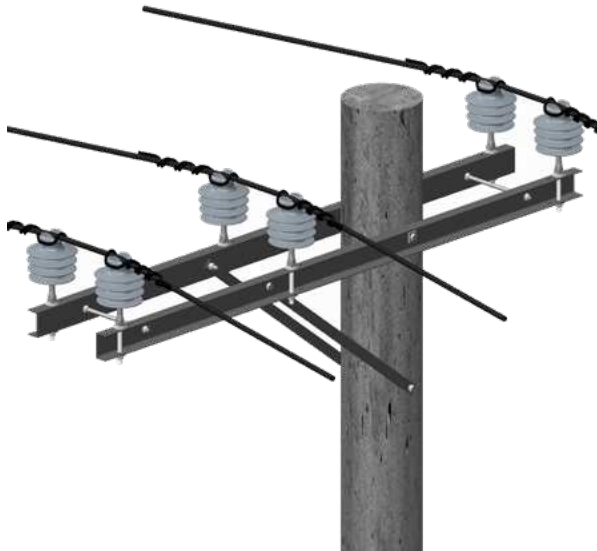


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# CABLES

## INTRODUCTION TO COVERED OVERHEAD CABLES



### COVEREDLIGN™

The Preformed Line Products (PLP) COVEREDLIGN™ medium voltage insulated overhead cable system is designed for open wire type single, 2 or 3 phase construction. The system can be built during new line construction or retrofitted to existing poles and crossarms. Replacement of existing bare wire circuits with partially insulated COVEREDLIGN™ cable is an asset management strategy to improve SAIDI (System Average Interruption Duration Index) and SAIFI (System Average Interruption Frequency Index) performance.

The basis of the COVEREDLIGN™ system is a family of insulated overhead cables that have been designed for continuous operation at 80°C. The three distinct specifications for COVEREDLIGN™ cables allows electric power utilities to gain the reliability benefits of insulated overhead cables across their networks, but with specific vegetation management strategies as well as cost in mind. PLP's COVEREDLIGN™ system includes the insulated overhead cable together with all of the pole line hardware and equipment to install and maintain the medium voltage distribution system.

Cable Type	Network Application	Network Benefit	Total Nominal Thickness of Insulation Covering		
			15kV	25kV	35kV
COVEREDLIGN™ LITE	<ul style="list-style-type: none"> <li>Open areas only</li> <li>No vegetation</li> </ul>	<ul style="list-style-type: none"> <li>Improved SAIDI and SAIFI</li> <li>Protects against phase to phase clashing</li> <li>Less outages due to phase to phase and phase to phase flashover</li> <li>Typically 40% less interruptions of supply</li> </ul>	2.3mm		
COVEREDLIGN™ SUPER	<ul style="list-style-type: none"> <li>Predominantly open areas with little vegetation</li> </ul>	<ul style="list-style-type: none"> <li>Improved SAIDI and SAIFI</li> <li>Protects against phase to phase clashing</li> <li>Less outages due to phase to phase and phase to phase flashover</li> <li>For phase to earth voltage of 8kV or lower, occasional tree contact possible</li> </ul>	3.0mm		
COVEREDLIGN™ MAX	<ul style="list-style-type: none"> <li>For areas with trees and vegetation</li> <li>Recommended vegetation maintenance clearance 300mm</li> </ul>	<ul style="list-style-type: none"> <li>Improved SAIDI and SAIFI</li> <li>Protects against phase to phase clashing</li> <li>Less outages due to phase to phase and phase to phase flashover</li> <li>Usually no fault if a tree branch contacts the line for several days or even weeks</li> </ul>	3.8mm	6.0mm	8.5mm

Current ratings based on 80°C conductor temperature.

Calculation method as used for the ratings in **AS/NZS 3675** (Conductors - Covered overhead) and AS/NZS 3008.1.1 Electrical installations - Selection of cables - etc.

Note 1: The maximum permitted normal operating conductor temperature for AAC or AAAC bare or covered conductors must be limited to 80°C to avoid loss of strength. Refer **AS/NZS 3675**.

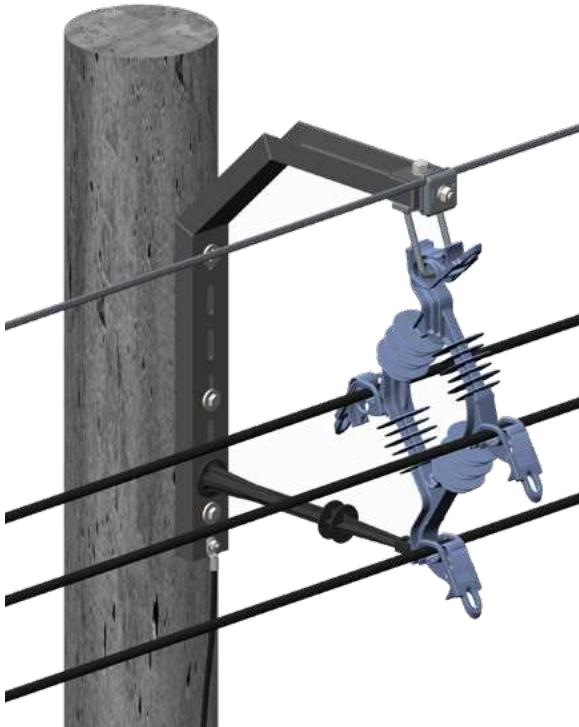
Note 2: The conductor temperature for ACSR bare or ACSR covered conductors can be 90°C because the steel limits the loss of strength on these conductors.

Note 3: See appendix BB5 of **AS/NZS 7000** for explanation regarding loss of strength due to operating temperature.



# CABLES

## INTRODUCTION TO COVERED OVERHEAD CABLES



### COMPACTLIGN™

Development of the Preformed Line Products (PLP) COMPACTLIGN™ system was pioneered by PLP Brazil to address distribution network reliability and load growth issues. Strung underneath a messenger wire, the COMPACTLIGN™ system is rated for continuous operation at 90°C and is ideal for areas of high load density or heavy vegetation. When installed in areas with many trees, COMPACTLIGN™ requires the smallest vegetation corridor of any PLP insulated overhead cable system; just 300mm clearance between phase cables and vegetation is recommended.

In towns, cities or areas of high load density, the small size of the three phase COMPACTLIGN™ medium voltage bundle allows more circuits than open wire type construction to be attached to standard height utility poles. When easements for new overhead pole lines are not available owing to lack of physical space, this means that additional medium voltage circuits can be added to existing electric utility pole lines with a minimum of poles being replaced. PLP's COMPACTLIGN™ system includes the insulated overhead cable together with all of the pole line hardware and equipment to install and maintain the medium voltage distribution system.

Cable Type	Network Application	Network Benefit	Total Nominal Thickness of Insulation Covering		
			15kV	25kV	35kV
COMPACTLIGN™	<ul style="list-style-type: none"> <li>For areas with trees and vegetation</li> <li>Recommended vegetation maintenance clearance 300mm</li> </ul>	<ul style="list-style-type: none"> <li>Improved SAIDI and SAIFI</li> <li>Protects against phase to phase clashing</li> <li>Less outages due to phase to phase and phase to phase flashover</li> <li>Usually no fault if a tree is touching the line for several days or even weeks</li> <li>Enhanced lightning protection owing to the presence of a messenger wire acting as a shielding wire</li> <li>Increased circuit density on new or existing pole lines over COVEREDLIGN™ or open wire type construction</li> </ul>	4.0mm	6.4mm	7.7mm

Current ratings based on 90°C conductor temperature.  
 Calculation method as used for the ratings in **AS/NZS 3675** (Conductors - Covered overhead) and AS/NZS 3008.1.1 Electrical installations - Selection of cables - etc.

Note 1: These cables are designed only for use with approved PLP SPACER systems and as such any loss of strength when operating at 90°C is permitted with these systems.

# CABLES

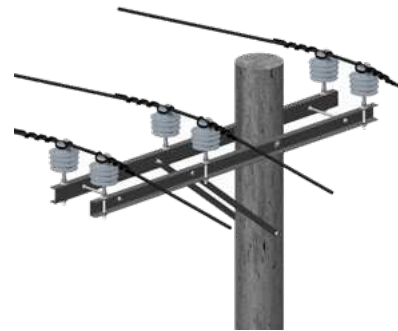
# COVEREDLIGN™

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED

## LITE

15kV, 25kV AND 35kV APPLICABLE

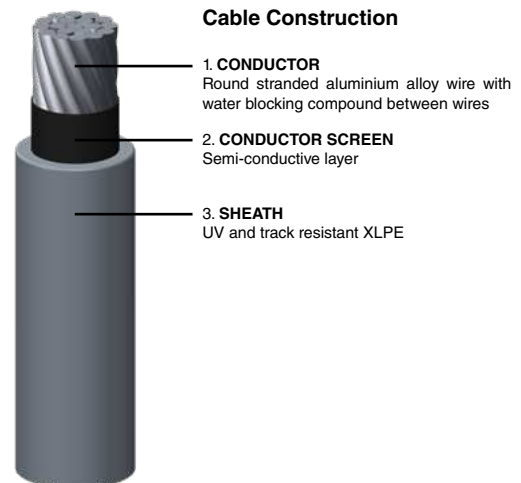
COVEREDLIGN™ medium voltage overhead construction is similar to bare wire construction except the cables are insulated. COVEREDLIGN™ cables are usually supported by polymeric pin insulators or polymeric post insulators and terminated using PREFORMED™ deadends. Lightning protection is essential to prevent insulation breakdown at support positions during the passage of lightning surges.



### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness	
			Conductor Screen (mm)	XLPE Insulation (mm)
40	7/2.75	8.25	0.3	2.3
50	7/3.00	9.00	0.3	2.3
80	7/3.75	11.25	0.3	2.3
100	7/4.25	12.75	0.3	2.3
120	7/4.75	14.25	0.3	2.3
150	19/3.25	16.25	0.3	2.3
180	19/3.50	17.50	0.3	2.3
240	19/4.00	20.00	0.3	2.3
300	19/4.50	22.50	0.3	2.3

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
40	13.45	202
50	14.20	230
80	16.45	325
100	17.95	397
120	19.45	477
150	21.45	585
180	22.70	664
240	25.20	838
300	27.70	1,033



Generally to AS/NZS 3675: 2002

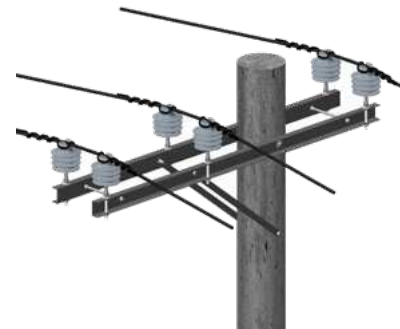
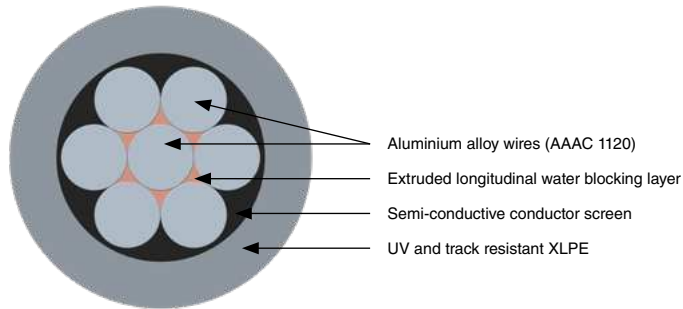
# CABLES

# COVEREDLIGN™

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED

## LITE

15kV, 25kV AND 35kV APPLICABLE



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
40	11,600	5,800	1,510
50	13,900	6,950	1,805
80	21,700	10,850	2,820
100	27,900	13,950	3,625
120	34,800	17,400	4,525
150	44,200	22,100	5,745
180	51,300	25,650	6,670
240	67,000	33,500	8,710
300	84,700	42,350	11,010

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
40	137	186	210	236	110	162	184	208	0.799
50	154	208	235	264	123	181	206	233	0.665
80	204	271	307	346	162	235	269	304	0.430
100	240	317	360	405	190	275	314	357	0.332
120	277	362	411	464	219	313	359	407	0.268
150	325	421	478	541	256	364	417	475	0.210
180	357	459	522	590	281	397	455	518	0.183
240	430	548	622	705	337	472	542	618	0.137
300	498	628	714	810	390	541	621	709	0.110

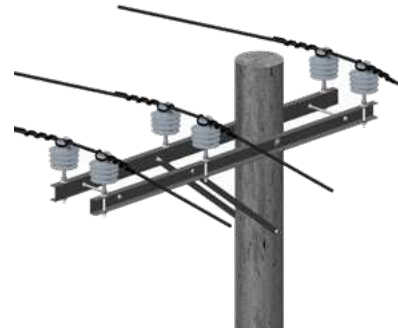
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 80°C conductor temperature)

# CABLES

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED 15kV, 25kV AND 35kV APPLICABLE

# COVEREDLIGN™ SUPER

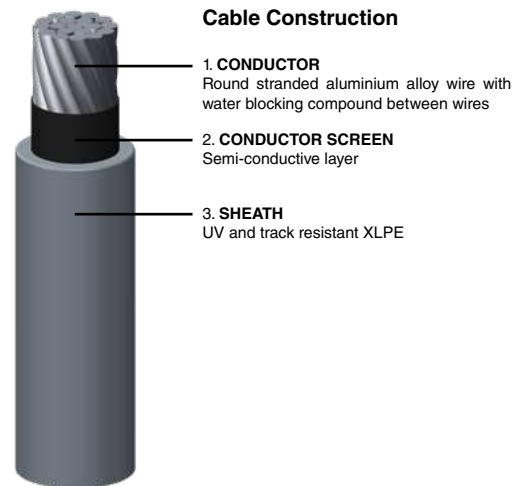
COVEREDLIGN™ medium voltage overhead construction is similar to bare wire construction except the cables are insulated. COVEREDLIGN™ cables are usually supported by polymeric pin insulators or polymeric post insulators and terminated using PREFORMED™ deadends. Lightning protection is essential to prevent insulation breakdown at support positions during the passage of lightning surges.



### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness	
			Conductor Screen (mm)	XLPE Insulation (mm)
35	7/2.75	8.25	0.3	3.0
50	7/3.00	9.00	0.3	3.0
70	7/3.75	11.25	0.3	3.0
95	7/4.25	12.75	0.3	3.0
120	7/4.75	14.25	0.3	3.0
150	19/3.25	16.25	0.3 </td <td>3.0</td>	3.0
185	19/3.50	17.50	0.3	3.0
240	19/4.00	20.00	0.3	3.0
300	19/4.50	22.50	0.3	3.0

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
35	14.85	230
50	15.60	260
70	17.85	360
95	19.35	435
120	20.85	519
150	22.85	630
185	24.10	712
240	26.60	891
300	29.10	1,091

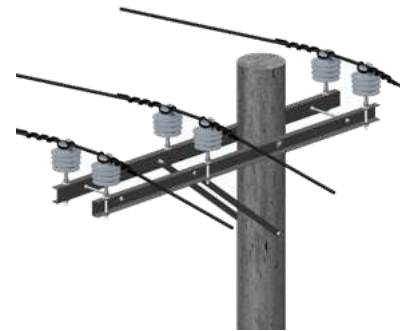
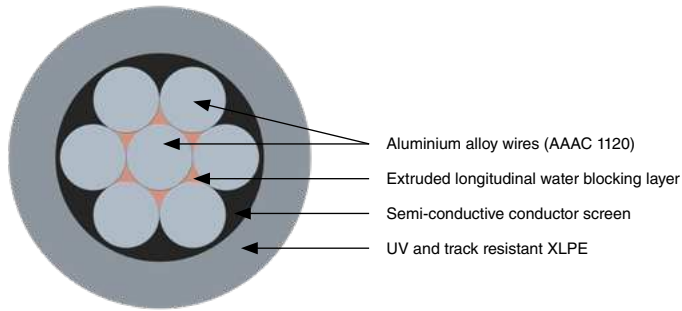


Generally to SPLN 71.10 and SPLN 41-8

# CABLES

## COVEREDLIGN™ SUPER

OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED  
15kV, 25kV AND 35kV APPLICABLE



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
35	11,600	5,800	1,510
50	13,900	6,950	1,805
70	21,700	10,850	2,820
95	27,900	13,950	3,625
120	34,800	17,400	4,525
150	44,200	22,100	5,745
185	51,300	25,650	6,670
240	67,000	33,500	8,710
300	84,700	42,350	11,010

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
35	139	185	208	231	111	161	182	204	0.799
50	155	206	232	259	124	179	203	228	0.665
70	205	269	303	339	163	233	264	298	0.430
95	241	314	354	397	191	272	309	349	0.332
120	277	358	404	454	219	310	353	399	0.268
150	326	417	471	529	256	360	410	464	0.210
185	357	454	513	577	280	392	447	506	0.183
240	429	542	612	690	337	466	533	604	0.137
300	497	621	703	793	389	534	611	694	0.110

(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 80°C conductor temperature)

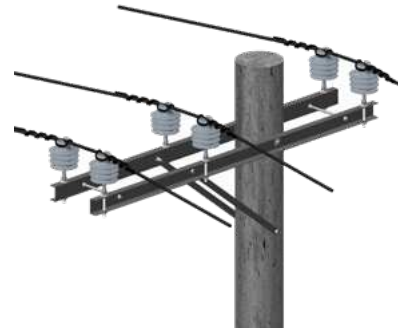
# CABLES

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED 15kV RATED

**COVEREDLIGN™**

**MAX**

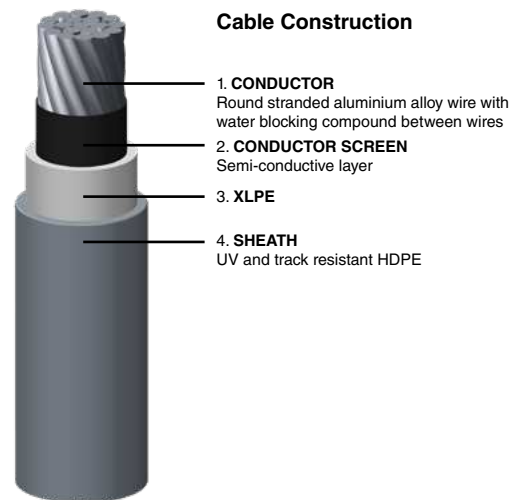
COVEREDLIGN™ medium voltage overhead construction is similar to bare wire construction except the cables are insulated. COVEREDLIGN™ cables are usually supported by polymeric pin insulators or polymeric post insulators and terminated using PREFORMED™ deadends. Lightning protection is essential to prevent insulation breakdown at support positions during the passage of lightning surges.



### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
40	7/2.75	8.25	0.3	1.9	1.9
50	7/3.00	9.00	0.3	1.9	1.9
80	7/3.75	11.25	0.3	1.9	1.9
100	7/4.25	12.75	0.3	1.9	1.9
120	7/4.75	14.25	0.3	1.9	1.9
150	19/3.25	16.25	0.3	1.9	1.9
180	19/3.50	17.50	0.3	1.9	1.9
240	19/4.00	20.00	0.3	1.9	1.9
300	19/4.50	22.50	0.3	1.9	1.9

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
40	16.45	269
50	17.20	301
80	19.45	405
100	20.95	485
120	22.45	572
150	24.45	690
180	25.70	775
240	28.20	961
300	30.70	1,166

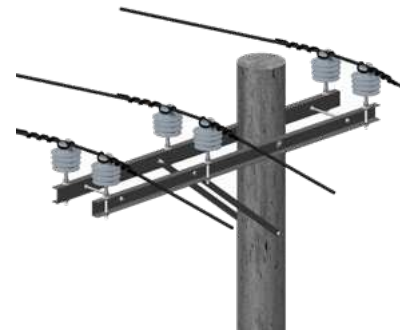
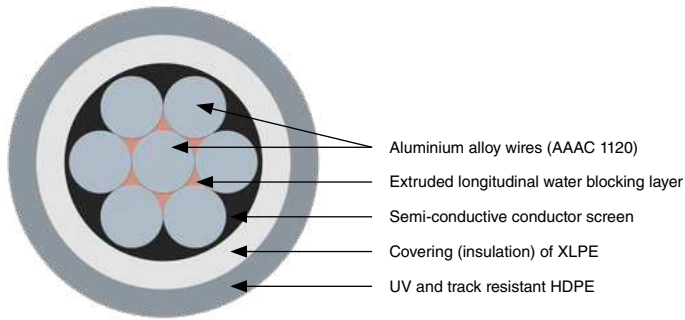


# CABLES

# COVEREDLIGN™

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED 15KV RATED

# MAX



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
40	11,600	5,800	1,510
50	13,900	6,950	1,805
80	21,700	10,850	2,820
100	27,900	13,950	3,625
120	34,800	17,400	4,525
150	44,200	22,100	5,745
180	51,300	25,650	6,670
240	67,000	33,500	8,710
300	84,700	42,350	11,010

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
40	140	183	204	226	111	159	179	199	0.799
50	157	204	228	253	124	177	200	223	0.665
80	206	266	298	331	163	230	260	291	0.430
100	242	311	348	388	191	269	304	341	0.332
120	278	354	398	444	219	306	347	389	0.268
150	326	412	463	517	256	355	403	454	0.210
180	356	449	505	565	280	387	439	495	0.183
240	428	535	602	674	336	460	523	590	0.137
300	495	613	691	775	387	526	599	678	0.110

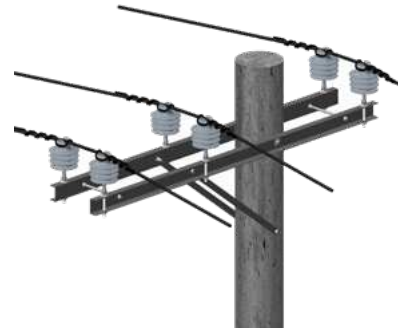
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 80°C conductor temperature)

# CABLES

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED 25kV RATED

# COVEREDLIGN™ MAX

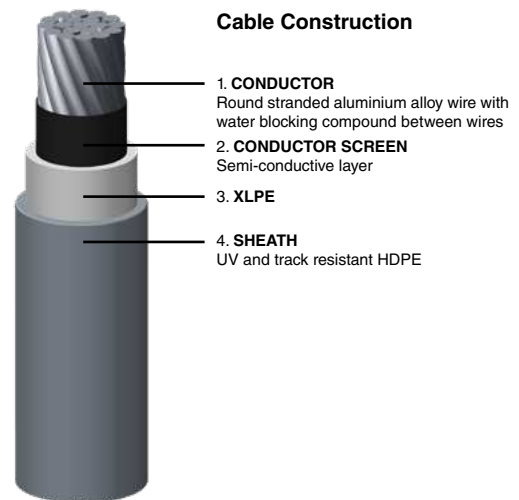
COVEREDLIGN™ medium voltage overhead construction is similar to bare wire construction except the cables are insulated. COVEREDLIGN™ cables are usually supported by polymeric pin insulators or polymeric post insulators and terminated using PREFORMED™ deadends. Lightning protection is essential to prevent insulation breakdown at support positions during the passage of lightning surges.



### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
40	7/2.75	8.25	0.3	3.0	3.0
50	7/3.00	9.00	0.3	3.0	3.0
80	7/3.75	11.25	0.3	3.0	3.0
100	7/4.25	12.75	0.3	3.0	3.0
120	7/4.75	14.25	0.3	3.0	3.0
150	19/3.25	16.25	0.3	3.0	3.0
180	19/3.50	17.50	0.3	3.0	3.0
240	19/4.00	20.00	0.3	3.0	3.0
300	19/4.50	22.50	0.3	3.0	3.0

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
40	20.85	391
50	21.60	427
80	23.85	547
100	25.35	636
120	26.85	732
150	28.85	864
180	30.10	957
240	32.60	1,158
300	35.10	1,380





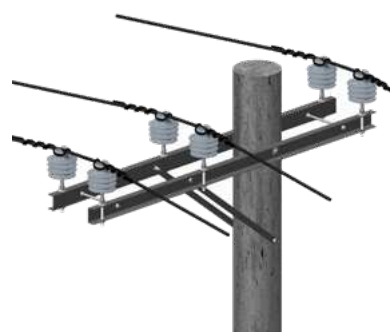
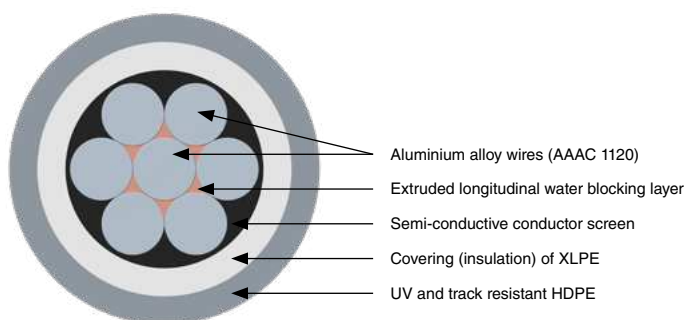
# CABLES

# COVEREDLIGN™

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED

## MAX

### 25kV RATED



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
40	11,600	5,800	1,510
50	13,900	6,950	1,805
80	21,700	10,850	2,820
100	27,900	13,950	3,625
120	34,800	17,400	4,525
150	44,200	22,100	5,745
180	51,300	25,650	6,670
240	67,000	33,500	8,710
300	84,700	42,350	11,010

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
40	142	178	197	215	114	154	172	189	0.799
50	158	199	220	240	127	172	191	211	0.665
80	207	258	286	314	163	223	249	275	0.430
100	242	302	335	368	191	260	291	322	0.332
120	277	344	382	421	218	296	332	368	0.268
150	324	399	444	490	255	343	385	429	0.210
180	354	435	484	535	278	373	420	468	0.183
240	424	518	577	638	332	444	500	558	0.137
300	490	593	662	733	382	507	573	640	0.110

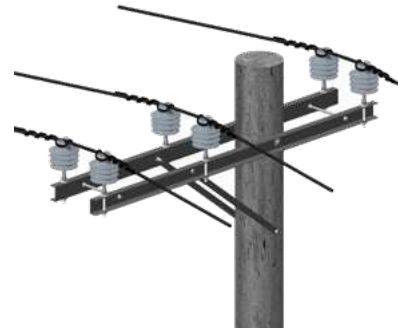
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 80°C conductor temperature)

# CABLES

## OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED 35kV RATED

# COVEREDLIGN™ MAX

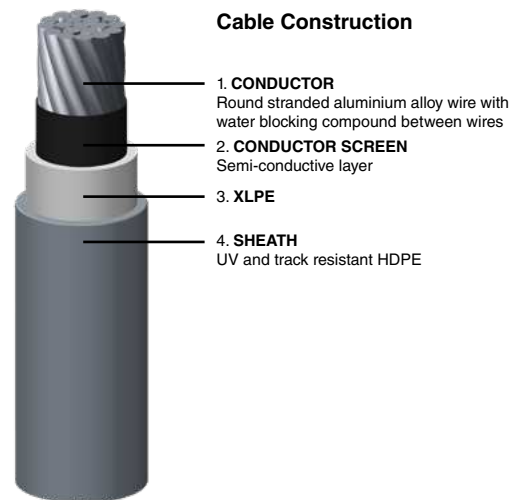
COVEREDLIGN™ medium voltage overhead construction is similar to bare wire construction except the cables are insulated. COVEREDLIGN™ cables are usually supported by polymeric pin insulators or polymeric post insulators and terminated using PREFORMED™ deadends. Lightning protection is essential to prevent insulation breakdown at support positions during the passage of lightning surges.



### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
40	7/2.75	8.25	0.3	4.25	4.25
50	7/3.00	9.00	0.3	4.25	4.25
80	7/3.75	11.25	0.3	4.25	4.25
100	7/4.25	12.75	0.3	4.25	4.25
120	7/4.75	14.25	0.3	4.25	4.25
150	19/3.25	16.25	0.3	4.25	4.25
180	19/3.50	17.50	0.3	4.25	4.25
240	19/4.00	20.00	0.3	4.25	4.25
300	19/4.50	22.50	0.3	4.25	4.25

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
40	25.85	564
50	26.60	606
80	28.85	741
100	30.35	841
120	31.85	950
150	33.85	1,096
180	35.10	1,198
240	37.60	1,418
300	40.10	1,659

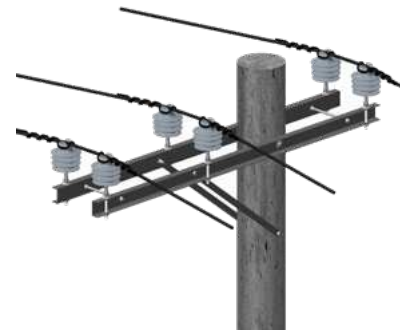
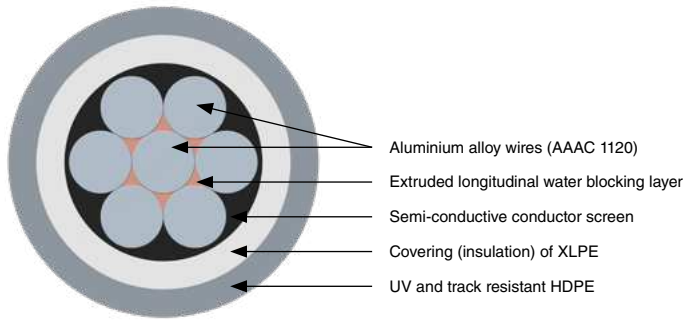


# CABLES

**COVEREDLIGN™**

OPEN WIRE CONSTRUCTION - PARTIALLY INSULATED  
35kV RATED

**MAX**



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
40	11,600	5,800	1,510
50	13,900	6,950	1,805
80	21,700	10,850	2,820
100	27,900	13,950	3,625
120	34,800	17,400	4,525
150	44,200	22,100	5,745
180	51,300	25,650	6,670
240	67,000	33,500	8,710
300	84,700	42,350	11,010

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
40	141	173	190	205	112	149	165	180	0.799
50	158	193	211	229	125	166	183	201	0.665
80	206	250	275	299	163	215	239	262	0.430
100	241	292	321	350	192	251	279	306	0.332
120	275	333	366	400	219	285	317	349	0.268
150	321	386	426	466	255	331	369	407	0.210
180	350	421	464	508	278	360	401	443	0.183
240	419	500	553	607	332	427	478	529	0.137
300	482	573	634	697	381	489	547	607	0.110

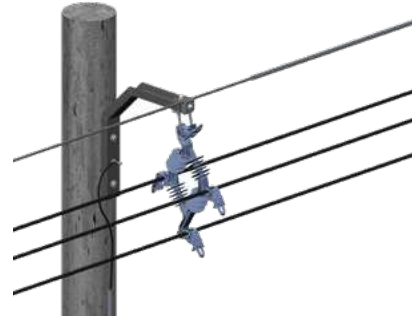
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 80°C conductor temperature)

# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 15kV RATED

COMPACTLIGN™ medium voltage overhead construction system utilises a messenger wire for mechanical support. With much of the mechanical load carried by the messenger wire, the phase conductors are able to be manufactured from compacted, high conductivity aluminium. Suspended from the messenger wire by polymeric cable spacers, COMPACTLIGN™ cables are supported at crossarms by polymeric pin insulators or polymeric post insulators when lines are angled. COMPACTLIGN™ cables are terminated using PREFORMED™ deadends. While lightning protection is essential for COMPACTLIGN™, the messenger wire also acts as lightning shield wire making COMPACTLIGN™ a robust insulated conductor system for high lightning areas.

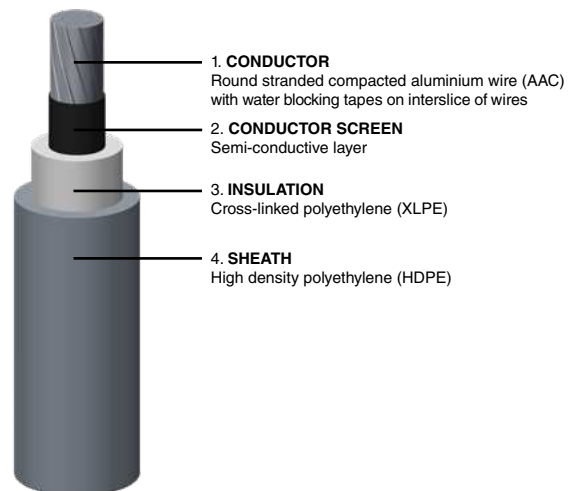


### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
35	7 (1+6)	7.0	0.5	2.0	2.0
50	7 (1+6)	8.2	0.5	2.0	2.0
70	18 (1+6+11)	9.8	0.5	2.0	2.0
95	18 (1+6+11)	11.5	0.5	2.0	2.0
120	18 (1+6+11)	12.9	0.5	2.0	2.0
150	34 (1+6+11+16)	14.1	0.5	2.0	2.0
185	34 (1+6+11+16)	16.1	0.5	2.0	2.0
240	34 (1+6+11+16)	18.0	0.5	2.0	2.0
300	55 (1+6+11+16+21)	20.6	0.5	2.0	2.0

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
35	16.4	263
50	17.6	313
70	19.2	390
95	20.9	484
120	22.3	574
150	23.5	670
185	25.5	793
240	27.4	976
300	30.0	1,187

### Cable Construction

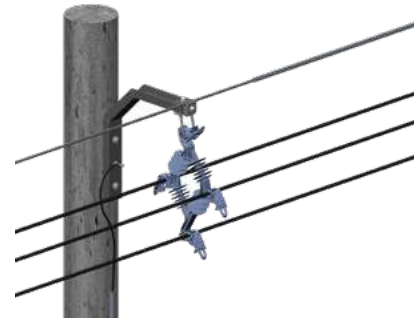
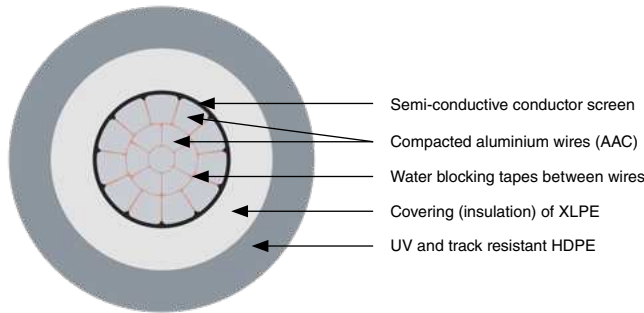


Generally to IEC 60502-2  
Also AS/NZS 1429 and 3675 where applicable

# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 15kV RATED



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
35	4,200	1,750	875
50	6,000	2,500	1,250
70	8,400	3,500	1,750
95	11,400	4,750	2,375
120	14,400	6,000	3,000
150	18,000	7,500	3,750
185	22,200	9,250	4,625
240	28,800	12,000	6,000
300	36,000	15,000	7,500

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
35	149	187	206	225	127	168	185	204	0.868
50	179	223	247	271	152	201	222	245	0.641
70	225	279	308	339	191	250	278	307	0.443
95	275	339	376	414	234	304	339	374	0.320
120	319	391	434	479	271	351	391	433	0.253
150	365	445	494	545	310	398	444	492	0.206
185	422	511	568	628	358	458	511	567	0.164
240	503	604	672	744	425	541	604	671	0.125
300	581	694	772	856	491	621	694	772	0.100

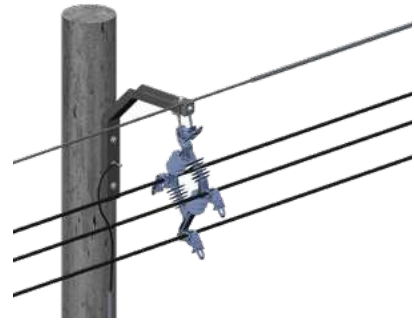
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 90°C conductor temperature)

# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 25kV RATED

COMPACTLIGN™ medium voltage overhead construction system utilises a messenger wire for mechanical support. With much of the mechanical load carried by the messenger wire, the phase conductors are able to be manufactured from compacted, high conductivity aluminium. Suspended from the messenger wire by polymeric cable spacers, COMPACTLIGN™ cables are supported at crossarms by polymeric pin insulators or polymeric post insulators when lines are angled. COMPACTLIGN™ cables are terminated using PREFORMED™ deadends. While lightning protection is essential for COMPACTLIGN™, the messenger wire also acts as lightning shield wire making COMPACTLIGN™ a robust insulated conductor system for high lightning areas.

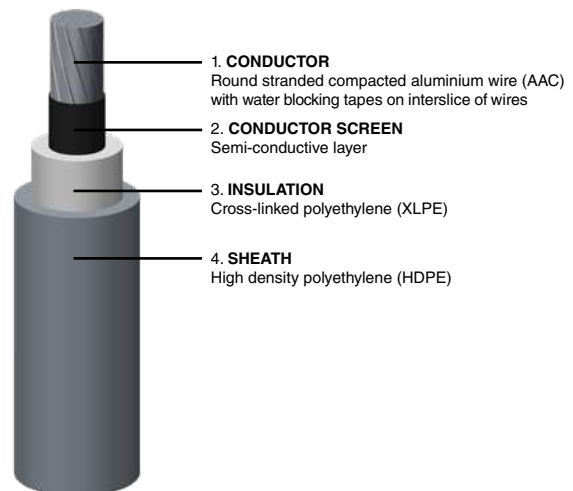


### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
35	7 (1+6)	7.0	0.5	3.2	3.2
50	7 (1+6)	8.2	0.5	3.2	3.2
70	18 (1+6+11)	9.8	0.5	3.2	3.2
95	18 (1+6+11)	11.5	0.5	3.2	3.2
120	18 (1+6+11)	12.9	0.5	3.2	3.2
150	34 (1+6+11+16)	14.1	0.5	3.2	3.2
185	34 (1+6+11+16)	16.1	0.5	3.2	3.2
240	34 (1+6+11+16)	18.0	0.5	3.2	3.2
300	55 (1+6+11+16+21)	20.6	0.5	3.2	3.2

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
35	21.2	396
50	22.4	456
70	24.0	544
95	25.7	653
120	27.1	749
150	28.3	854
185	30.3	997
240	32.2	1,187
300	34.8	1,417

### Cable Construction

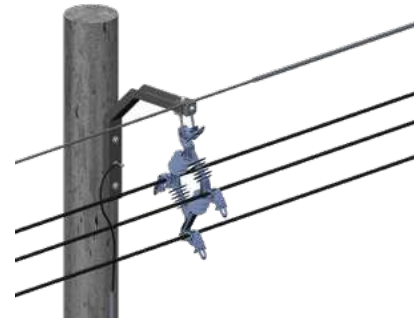
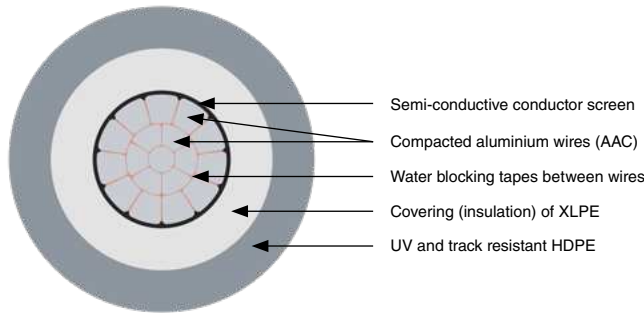


Generally to IEC 60502-2  
Also AS/NZS 1429 and 3675 where applicable  
These dimensions comply with MEA and PEA specifications

# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 25kV RATED



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
35	4,200	1,750	875
50	6,000	2,500	1,250
70	8,400	3,500	1,750
95	11,400	4,750	2,375
120	14,400	6,000	3,000
150	18,000	7,500	3,750
185	22,200	9,250	4,625
240	28,800	12,000	6,000
300	36,000	15,000	7,500

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
35	151	182	198	214	128	163	178	194	0.868
50	181	218	237	257	154	195	214	232	0.641
70	226	271	296	322	192	243	266	290	0.443
95	276	330	361	393	234	295	324	354	0.320
120	319	380	416	454	271	340	374	409	0.253
150	364	431	473	516	308	386	425	465	0.206
185	420	495	544	595	356	443	489	536	0.164
240	498	585	643	704	422	522	577	634	0.125
300	575	671	739	809	486	599	662	729	0.100

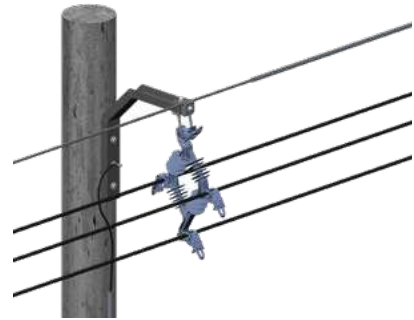
(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 90°C conductor temperature)

# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 35kV RATED

COMPACTLIGN™ medium voltage overhead construction system utilises a messenger wire for mechanical support. With much of the mechanical load carried by the messenger wire, the phase conductors are able to be manufactured from compacted, high conductivity aluminium. Suspended from the messenger wire by polymeric cable spacers, COMPACTLIGN™ cables are supported at crossarms by polymeric pin insulators or polymeric post insulators when lines are angled. COMPACTLIGN™ cables are terminated using PREFORMED™ deadends. While lightning protection is essential for COMPACTLIGN™, the messenger wire also acts as lightning shield wire making COMPACTLIGN™ a robust insulated conductor system for high lightning areas.

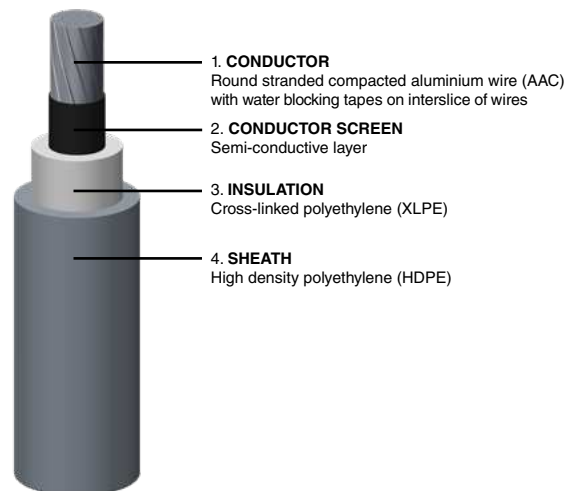


### Conductor and Insulation Details

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Nominal Conductor Diameter (mm)	Nominal Wall Thickness		
			Conductor Screen (mm)	XLPE Insulation (mm)	HDPE Sheath (mm)
35	7 (1+6)	7.0	0.5	4.5	3.2
50	7 (1+6)	8.2	0.5	4.5	3.2
70	18 (1+6+11)	9.8	0.5	4.5	3.2
95	18 (1+6+11)	11.5	0.5	4.5 </td <td>3.2</td>	3.2
120	18 (1+6+11)	12.9	0.5	4.5	3.2
150	34 (1+6+11+16)	14.1	0.5	4.5	3.2
185	34 (1+6+11+16)	16.1	0.5	4.5	3.2
240	34 (1+6+11+16)	18.0	0.5	4.5	3.2
300	55 (1+6+11+16+21)	20.6	0.5	4.5	3.2

Nominal Conductor Area (mm <sup>2</sup> )	Approximate Overall Diameter (mm)	Approximate Cable Net Weight (kg/km)
35	23.4	468
50	24.6	531
70	26.2	627
95	27.9	739
120	29.3	840
150	30.5	948
185	32.5	1,098
240	34.4	1,294
300	37.0	1,532

### Cable Construction



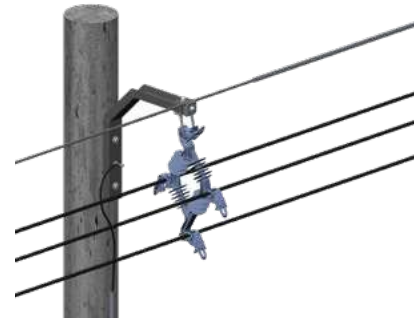
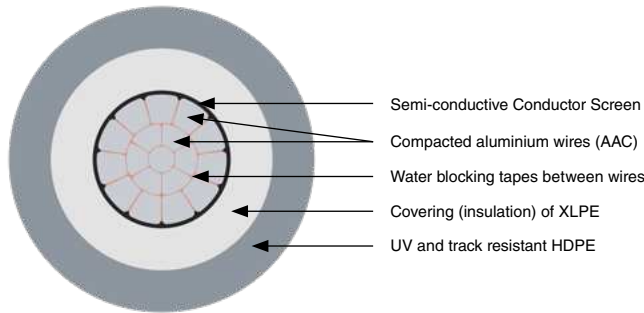
Generally to IEC 60502-2  
Also AS/NZS 1429 and 3675 where applicable  
These dimensions comply with PEA STD



# CABLES

# COMPACTLIGN™

## SPACER CONSTRUCTION - PARTIALLY INSULATED 35kV RATED



### Cable Tensions

Nominal Conductor Area (mm <sup>2</sup> )	Calculated Breaking Load of Conductor (N)	Maximum Cable Tension at Installation (N)	Maximum Everyday Tension (N)
35	4,200	1,750	875
50	6,000	2,500	1,250
70	8,400	3,500	1,750
95	11,400	4,750	2,375
120	14,400	6,000	3,000
150	18,000	7,500	3,750
185	22,200	9,250	4,625
240	28,800	12,000	6,000
300	36,000	15,000	7,500

### Current Ratings

Nominal Conductor Area (mm <sup>2</sup> )	Current Rating for 30°C Ambient (A)				Current Rating for 40°C Ambient (A)				DC Resistance at 20°C (Ω/km)
	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	Still Air	0.5m/s wind	1 m/s wind	2 m/s wind	
35	151	179	195	210	128	161	175	189	0.868
50	181	215	233	251	154	192	209	227	0.641
70	226	267	291	314	192	239	261	283	0.443
95	275	325	354	383	234	290	318	345	0.320
120	318	374	408	443	270	334	366	399	0.253
150	362	425	464	503	307	379	416	454	0.206
185	418	488	533	580	354	435	478	522	0.164
240	495	575	630	686	419	513	565	617	0.125
300	571	660	723	788	482	588	648	709	0.100

(Ratings based on 1000w/m<sup>2</sup> solar radiation intensity and 90°C conductor temperature)

# CABLES

## METROPOLITAN ELECTRICITY AUTHORITY (MEA) STANDARD PROVINCIAL ELECTRICITY AUTHORITY (PEA) STANDARD

### MEA: Technical Data of 25kV Spaced Aerial Cable

Conductor				Insulation Thickness (mm)	Jacket Thickness (mm)	Cable Overall Outer Diameter Range (mm)
Nominal Cross-Sectional Area (mm <sup>2</sup> )	Minimum Number of Wires	Outside Diameter ± 1% (mm)	Minimum Thickness of Conductor Shield (mm)			
35	7	7.0	0.0635	3.175	3.175	19.91 - 21.48
70	7	9.7	0.0635	3.175	3.175	23.00 - 25.00
185	30	16.0	0.0635	3.175	3.175	28.93 - 31.08

### PEA: Technical Data of 22kV and 33kV Spaced Aerial Cables

Conductor				Insulation Thickness (mm)	Jacket Thickness (mm)	Approximate Cable Overall Outer Diameter (mm)
Nominal Cross-Sectional Area (mm <sup>2</sup> )	Stranding	Outside Diameter ± 1% (mm)	Minimum Calculated Breaking Strength (N)			
<b>22kV - Aluminium</b>						
50	Compact-Stranded Alloy	8.33	7,890	3.175	3.175	22.0
95		11.45	14,380	3.175	3.175	25.2
120		12.95	19,110	3.175	3.175	26.7
185		15.98	29,600	3.175	3.175	29.7
<b>33kV - Aluminium</b>						
50	Compact-Stranded Alloy	8.33	7,890	4.445	3.175	24.6
95		11.45	14,380	4.445	3.175	27.7
120		12.95	19,110	4.445	3.175	29.2
185		15.98	29,600	4.445	3.175	32.2

# CABLES

## PROVINCIAL ELECTRICITY AUTHORITY (PEA) STANDARD BARE WIRE SPECIFICATIONS

### PEA All Aluminium Conductor (A1)

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Conductor Outer Diameter (mm)	Approximate Cable Net Weight (kg/km)	Rated Strength (kN)	DC Resistance (Ω/km)
35	7/2.52	7.56	96	5.94	0.8202
50	7/3.02	9.06	137	8.27	0.5711
95	19/2.52	12.60	261	16.11	0.3036
120	19/2.85	14.25	333	20.61	0.2374
185	37/2.52	17.64	509	31.37	0.1563
240	61/2.25	20.25	670	43.66	0.1191
400	61/2.85	25.65	1,075	66.15	0.0742

### PEA All Aluminium Alloy Conductor (A3)

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding	Conductor Outer Diameter (mm)	Approximate Cable Net Weight (kg/km)	Rated Strength (kN)	DC Resistance (Ω/km)
35	7/2.50	7.50	94	11.17	0.9682
50	7/3.00	9.00	135	16.08	0.6724
95	19/2.50	12.50	256	30.31	0.3584

### PEA Aluminium Conductor Steel Reinforced (A1/S1A)

Nominal Conductor Area (mm <sup>2</sup> )	Typical Conductor Stranding		Conductor Outer Diameter (mm)	Approximate Cable Net Weight (kg/km)	Rated Strength (kN)	DC Resistance (Ω/km)
	Aluminium	Steel				
35	6/2.70	1/2.70	8.10	139	12.37	0.8352
50	6/3.20	1/3.20	9.60	195	16.81	0.5946
95	26/2.15	7/1.67	13.60	381	34.93	0.3059
120	26/2.44	7/1.90	15.50	491	44.50	0.2375
185	26/3.00	7/2.33	19.00	741	65.27	0.1571
380	54/3.00	7/3.00	27.00	1,443	121.30	0.0757

# CABLES

## MESSANGER WIRE - GALVANISED STEEL CONDUCTOR (SC/GZ)

### Galvanised Steel Wire Strand - Utility Grade, Class 1

Nominal Cross-Sectional Area (mm <sup>2</sup> )	Overall Diameter (mm)	Individual Strand Diameter (mm)	Number of Wires	Approximate Mass (kg/km)	Minimum Breaking Strength (N)	Standard Drum Length (m)	Standard Messenger Wire for
22	6.10	2.03 ± 0.03	7	179	21,129	5,000	MEA
25	6.30	2.10 ± 0.08	7	192	16,150	5,000	PEA
35	7.50	2.50 ± 0.10	7	272	22,850	3,000	PEA
40	7.90	2.64 ± 0.10	7	303	35,586	3,000	MEA
50	9.00	3.00 ± 0.10	7	392	32,900	2,000	PEA
55	9.20	3.05 ± 0.10	7	405	48,040	2,000	MEA
95	12.50	2.50 ± 0.10	19	740	62,000	1,000	PEA
95	12.60	4.19 ± 0.13	7	764	83,627	1,000	MEA

# SECTION 3 - INSULATORS

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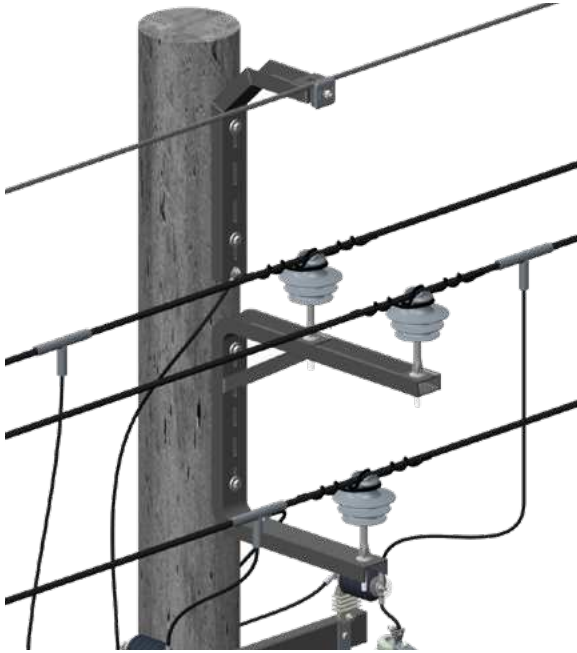
### **PREFORMED** LINE PRODUCTS

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Tie Top Polymer Pin Insulator for 25kV or 35kV Systems.....	3	40
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## INSULATORS AND INSULATOR PINS

### TIE TOP POLYMER PIN INSULATOR FOR 15KV OR 25KV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)



PLP Polymer Insulators are for use in overhead distribution lines using bare or covered conductors. They are particularly suited for use with covered conductor, spacer cable and tree wire as a better electrical alternative to porcelain insulators.

PLP insulators are made from a proprietary, high-density polyethylene (HDPE) based compound with a dielectric constant compatible with polyethylene covered conductors (XLPE and HDPE). They are designed to meet most of the dimensional, electrical, and mechanical requirements of the ANSI C29.5 insulator standards, even though this standard applies only to Wet-Process Porcelain Insulators. These insulators can be used in any application that calls for porcelain insulators requiring adherence to this ANSI standard.

The tie top design offered is available for application on 1 inch or 1-3/8 inch pins depending upon the specific ANSI class or voltage application.

Tie top insulators are designed to meet most ANSI C29.5 insulator head dimensional standards for appropriate insulator classes with C or F necks. Therefore they are compatible with all PLP Formed Wire, Coated Wire and Plastic Ties as well as covered or bare tie wire.

#### Benefits:

- The polymer insulators match the dielectric properties of the covered conductor jacket.
- The polyethylene surface coupled with the multiple skirt design with descending skirt diameters and long leakage distances provides superior moisture and contamination shedding properties.
- UV Stabilised for long-term service.
- High impact resistance – designed to reduce breakage and vandal/gun shot damage.
- The lightweight design reduces shipping costs and lineman handling requirements.
- ANSI compliant tie top head design facilitates the use of factory-formed ties for exceptional fit and performance.
- Polyethylene material eliminates abrasion at the insulator/conductor interface.

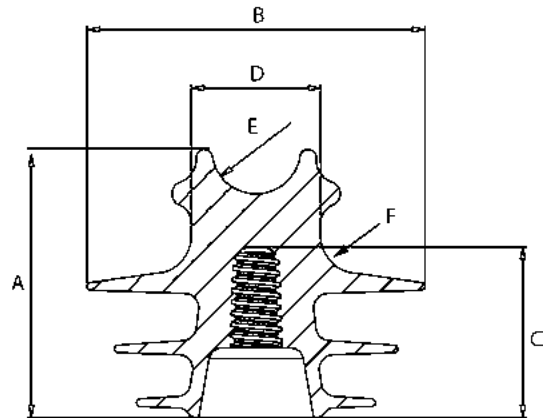
# INSULATORS AND INSULATOR PINS

## TIE TOP POLYMER PIN INSULATOR FOR 15KV OR 25KV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)

PLP Tie Top Polymer Insulators are designed to match most Head and Neck dimensional standards for ANSI C29.5, class 55-5 or 55-6, 55-7, 56-1 pin type insulators. C neck (Ø 57.2mm nominal) and F neck (Ø 73.0mm nominal) sizes are available.

By using ANSI head and neck dimensional standards, PLP coated metal or plastic factory formed ties will install easily and provide superior holding and electrical performance on PLP Tie Top Polymer Insulators.

Covered or bare hand tie wire is also suitable for use with PLP Tie Top Polymer Insulators depending upon conductor type.



PLP Polymer Insulator Ordering Guide				
Application	PLP Catalogue Number	Approximate Unit Weight (kg)	Carton Quantity	Pallet Quantity
25kV F Neck Tie Top ANSI Class 55-5/56-1 1 inch Pin	IP-25-F1	1.9	12	195
25kV F Neck Tie Top ANSI Class 55-5/56-1 1-3/8 inch Pin	IP-25-F2	1.8	12	195

### Nominal Dimensions

Insulator Type PLP Catalogue Number	Nominal Insulator Dimensions Tie Top (mm) IP-25-F1 and IP-25-F2
A	152.4
B	190.5
C	116.8
D	73.0
E	25.4
F	19.1
Number of Skirts	3
Maximum Conductor Outer Diameter, Top Groove	44.5
Maximum Conductor Outer Diameter, Side Groove	41.3
IP-25-F1 Insulator Pin Size/Type	1 inch per ANSI Standard C135.17 with nylon head
IP-25-F2 Insulator Pin Size/Type	1-3/8 inch per ANSI Standard C135.17 with nylon head



## INSULATORS AND INSULATOR PINS

### TIE TOP POLYMER PIN INSULATOR FOR 15kV OR 25kV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)

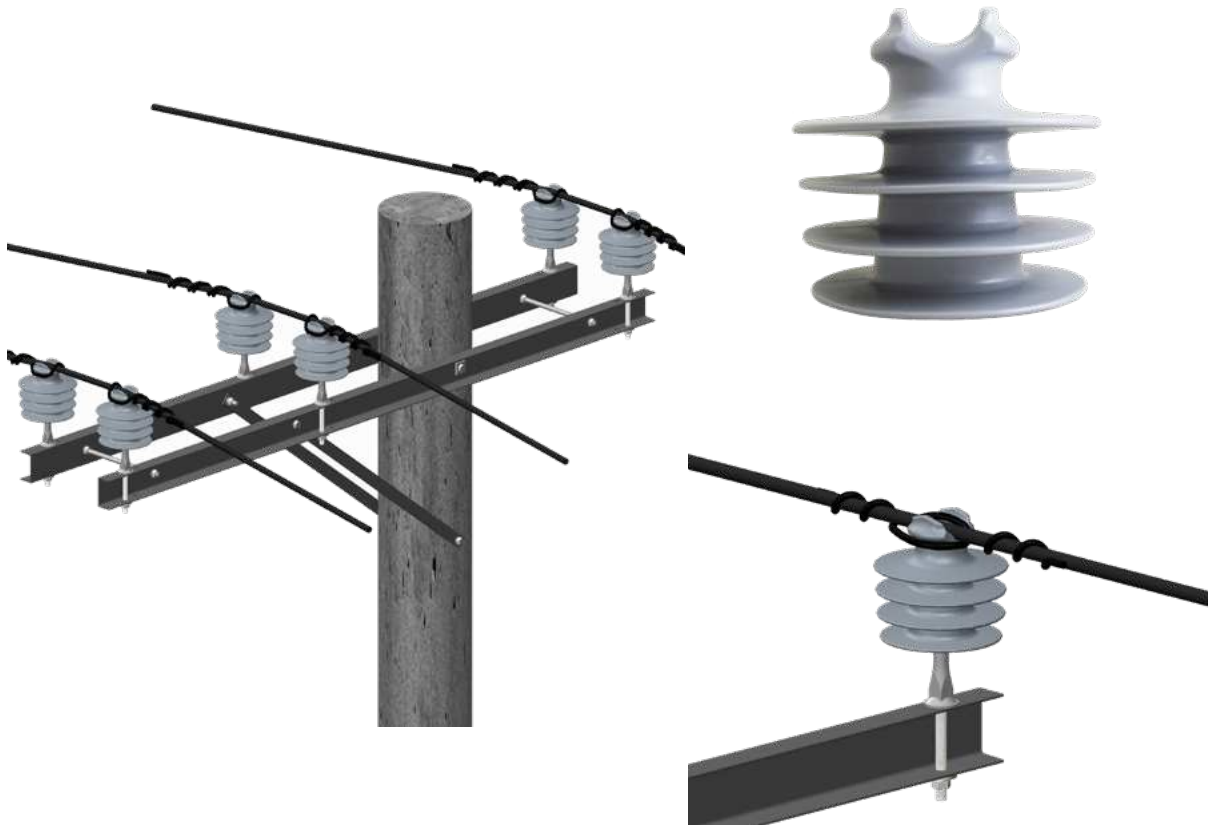
#### Performance Data for Covered Conductor or Bare Wire Applications

PLP Catalogue Number and Application	IP-25-F1 Tie Top	IP-25-F2 Tie Top
"Nominal" ANSI Class	55-5/56-1 (F neck)	55-5/56-1 (F neck)
Neck Size	F	F
Typical Operating Voltage Application, -Q-Q	25kV	25kV
Leakage Distance	388mm	388mm
Dry Arcing Distance	183mm	183mm
Pin Hole Diameter	25.4mm	34.9mm
Suggested Minimum Pin Length	190mm	190mm
60Hz Dry Flashover	87kV <sup>(1)</sup>	87kV
60Hz Wet Flashover	50 kV <sup>(1)</sup>	82kV
Positive Impulse Flashover	141kV <sup>(1)</sup>	141kV
Negative Impulse Flashover	-235kV <sup>(1)</sup>	-235kV
Low Frequency Puncture	197kV	197kV
RIV @ 1MHz 15kV to Earth	<5µV <sup>(1)</sup>	<5µV
Cantilever Strength	12.5kN	12.5kN
Approximate Weight	1.9kg	1.8kg
Maximum Operating Temperature	120°C	120°C

<sup>(1)</sup> Electrical test data extrapolated from similar design pin insulators with 1-3/8 inch pin

# INSULATORS AND INSULATOR PINS

## TIE TOP POLYMER PIN INSULATOR FOR 25KV OR 35KV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)



PLP Polymer Insulators are for use in overhead distribution lines using bare or covered conductors. They are particularly suited for use with covered conductor, spacer cable and tree wire as a better electrical alternative to porcelain insulators.

PLP insulators are made from a proprietary, high-density polyethylene (HDPE) based compound with a dielectric constant compatible with polyethylene covered conductors (XLPE and HDPE). They are designed to meet most of the dimensional, electrical, and mechanical requirements of the ANSI C29.5 insulator standards, even though this standard applies only to Wet-Process Porcelain Insulators. These insulators can be used in any application that calls for porcelain insulators requiring adherence to this ANSI standard.

The tie top design offered is available for application on 1 inch or 1-3/8 inch pins depending upon the specific ANSI class or voltage application.

Tie top insulators are designed to meet most ANSI C29.5 insulator head dimensional standards for appropriate insulator classes with C or F necks. Therefore they are compatible with all PLP Formed Wire, Coated Wire and Plastic Ties as well as covered or bare tie wire.

### Benefits:

- The polymer insulators match the dielectric properties of the covered conductor jacket.
- The polyethylene surface coupled with the multiple skirt design with descending skirt diameters and long leakage distances provides superior moisture and contamination shedding properties.
- UV Stabilised for long-term service.
- High impact resistance – designed to reduce breakage and vandal/gun shot damage.
- The light weight design reduces shipping costs and lineman handling requirements.
- ANSI compliant tie top head design facilitates the use of factory-formed ties for exceptional fit and performance.
- Polyethylene material eliminates abrasion at the insulator/ conductor interface.

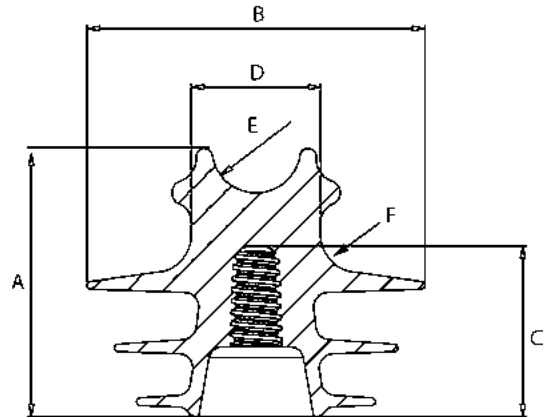
# INSULATORS AND INSULATOR PINS

## TIE TOP POLYMER PIN INSULATOR FOR 25KV OR 35KV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)

PLP Tie Top Polymer Insulators are designed to match most Head and Neck dimensional standards for ANSI C29.5, class 55-5 or 55-6, 55-7, 56-1 pin type insulators. C neck (Ø 57.2mm nominal) and F neck (Ø 73.0mm nominal) sizes are available.

By using ANSI head and neck dimensional standards, PLP coated metal or plastic factory formed ties will install easily and provide superior holding and electrical performance on PLP Tie Top Polymer Insulators.

Covered or bare hand tie wire is also suitable for use with PLP Tie Top Polymer Insulators depending upon conductor type.



PLP Polymer Insulator Ordering Guide				
Application	PLP Catalogue Number	Approximate Unit Weight (kg)	Carton Quantity	Pallet Quantity
35kV F Neck Tie Top ANSI Class 55-6 1 inch Pin	IP-35-F1	1.27	12	216
35kV F Neck Tie Top ANSI Class 55-7 1-3/8 inch Pin	IP-35-F2	1.27	12	216

### Nominal Dimensions

Insulator Type PLP Catalogue Number	Nominal Insulator Dimensions Tie Top (mm) IP-35-F1 and IP-35-F2
A	185.4
B	193.0
C	139.5
D	73.0
E	25.4
F	19.1
Number of Skirts	4
Maximum Conductor Outer Diameter, Top Groove	44.5
Maximum Conductor Outer Diameter, Side Groove	41.3
IP-35-F1 Insulator Pin Size/Type	1 inch per ANSI Standard C135.17 with nylon head
IP-35-F2 Insulator Pin Size/Type	1-3/8 inch per ANSI Standard C135.17 with nylon head

# INSULATORS AND INSULATOR PINS

## TIE TOP POLYMER PIN INSULATOR FOR 25kV OR 35kV SYSTEMS HIGH DENSITY POLYETHYLENE (HDPE)

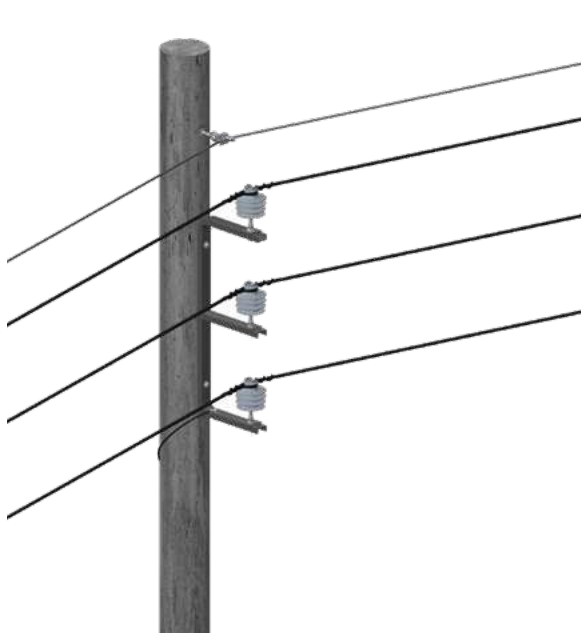
### Performance Data for Covered Conductor or Bare Wire Applications

PLP Catalogue Number and Application	IP-35-F1 Tie Top	IP-35-F2 Tie Top
"Nominal" ANSI Class	55-6 (F neck)	55-7 (F neck)
Neck Size	F	F
Typical Operating Voltage Application, -Q-Q	35kV	35kV
Leakage Distance	530mm	530mm
Dry Arcing Distance	241mm	241mm
Pin Hole Diameter	25.4mm	34.9mm
Suggested Minimum Pin Length	190mm	190mm
60Hz Dry Flashover	126kV <sup>(1)</sup>	126kV
60Hz Wet Flashover	82kV <sup>(1)</sup>	82kV
Positive Impulse Flashover	175kV <sup>(1)</sup>	175kV
Negative Impulse Flashover	-238kV <sup>(1)</sup>	-238kV
Low Frequency Puncture	223kV	235kV
RIV @ 1MHz 15kV to Earth	<5µV <sup>(1)</sup>	<5µV
Cantilever Strength	12.5kN	12.5kN
Approximate Weight	1.27kg	1.27kg
Maximum Operating Temperature	120° C	120° C

<sup>(1)</sup> Electrical test data extrapolated from similar design pin insulators with 1-3/8 inch pin

# INSULATORS AND INSULATOR PINS

## INSULATOR PIN - NYLON HEAD, M16 STUD



PLP's forged steel insulator pins are designed to be used in conjunction with medium voltage distribution pin insulators. The pin is designed so that a spanner can be applied to the bottom of the shank with a wide base to distribute load stresses.

PLP insulator pins have a nylon thread over-moulded onto the steel forging which screws into the pin insulator. Insulator pins are supplied in accordance with ANSI Standard C135.17, galvanised and with hardware that includes spring washer and nut as shown.

PLP insulator pins can be used with steel or wooden crossarms and are attached to the crossarm by an M16 stud. The length of the stud can be customised to suit any utility crossarm dimensions, with standard stud lengths being listed in the table below.

### Steel Crossarm Application

PLP Catalogue Number		Insulator Pin Thread Type (ANSI)	Crossarm Height (mm)	Stud Length (mm)	Pin Base Diameter (mm)
Stud - Fully Threaded	Stud - with Clear Shank		-B	-C	-D
FIP1-216-M16-1	FIP1-216-M16-3	1 inch	80	150 ± 10	50
FIP1-216-M16-2	FIP1-216-M16-4	1 inch	100	150 ± 10	50
FIP2-216-M16-1	FIP2-216-M16-3	1-3/8 inch	80	150 ± 10	50
FIP2-216-M16-2	FIP2-216-M16-4	1-3/8 inch	100	150 ± 10	50

### Spacer Cable Bracket Application

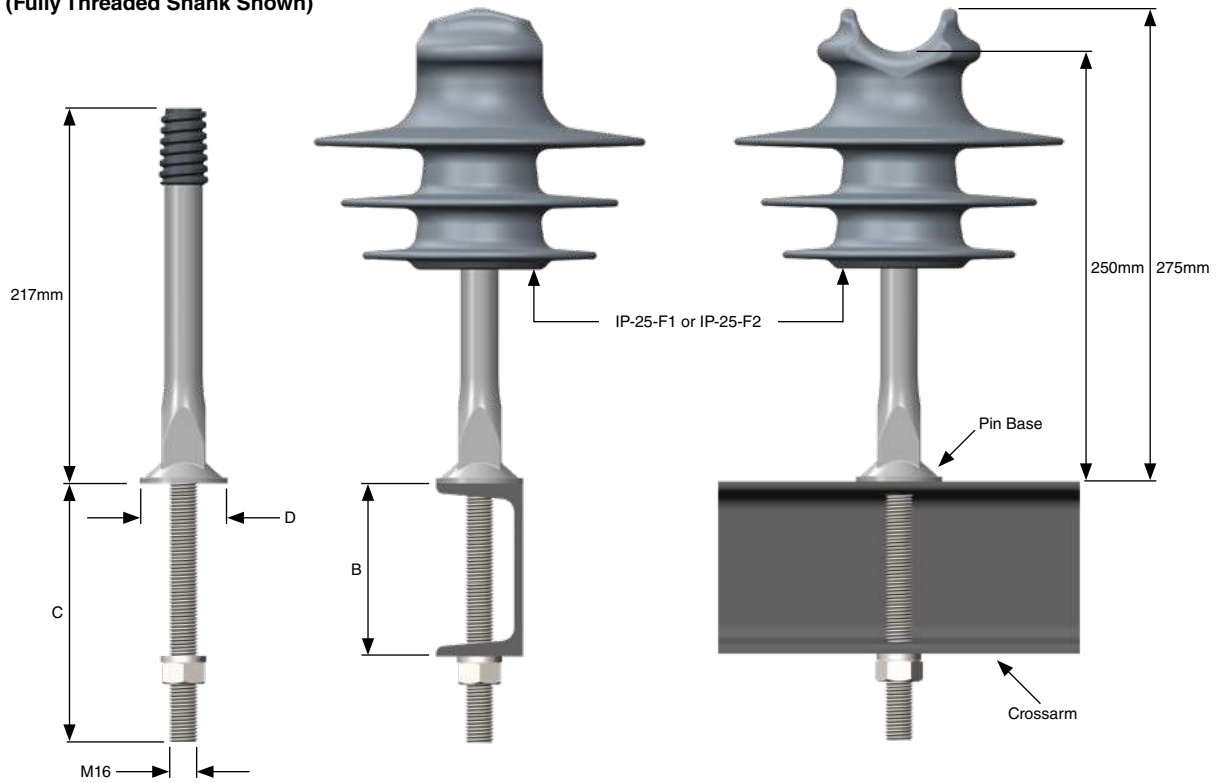
PLP Catalogue Number	Insulator Pin Thread Type (ANSI)	Stud Length (mm)	Pin Base Diameter (mm)
Stud - Fully Threaded		-C	-D
FIP1-216-M16-5	1 inch	100 ± 5	50
FIP2-216-M16-6	1-3/8 inch	100 ± 5	50

# INSULATORS AND INSULATOR PINS

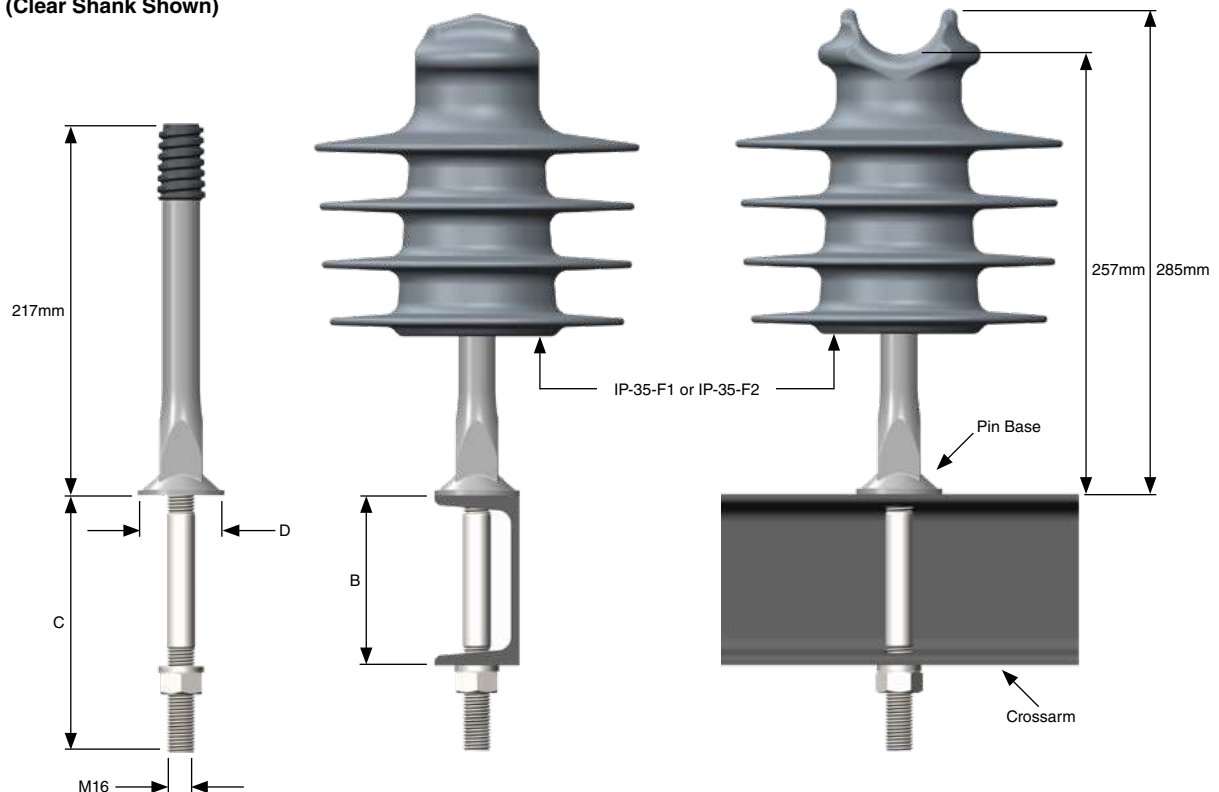
## INSULATOR PIN - NYLON HEAD, M16 STUD

### Steel Crossarm Application

High Voltage Forged Steel Insulator Pins - FIP1-216-M16-1/2/3/4 or FIP2-216-M16-1/2/3/4 with IP-25-F1 or IP-25-F2 Insulator  
(Fully Threaded Shank Shown)



High Voltage Forged Steel Insulator Pins - FIP1-216-M16-1/2/3/4 or FIP2-216-M16-1/2/3/4 with IP-35-F1 or IP-35-F2 Insulator  
(Clear Shank Shown)

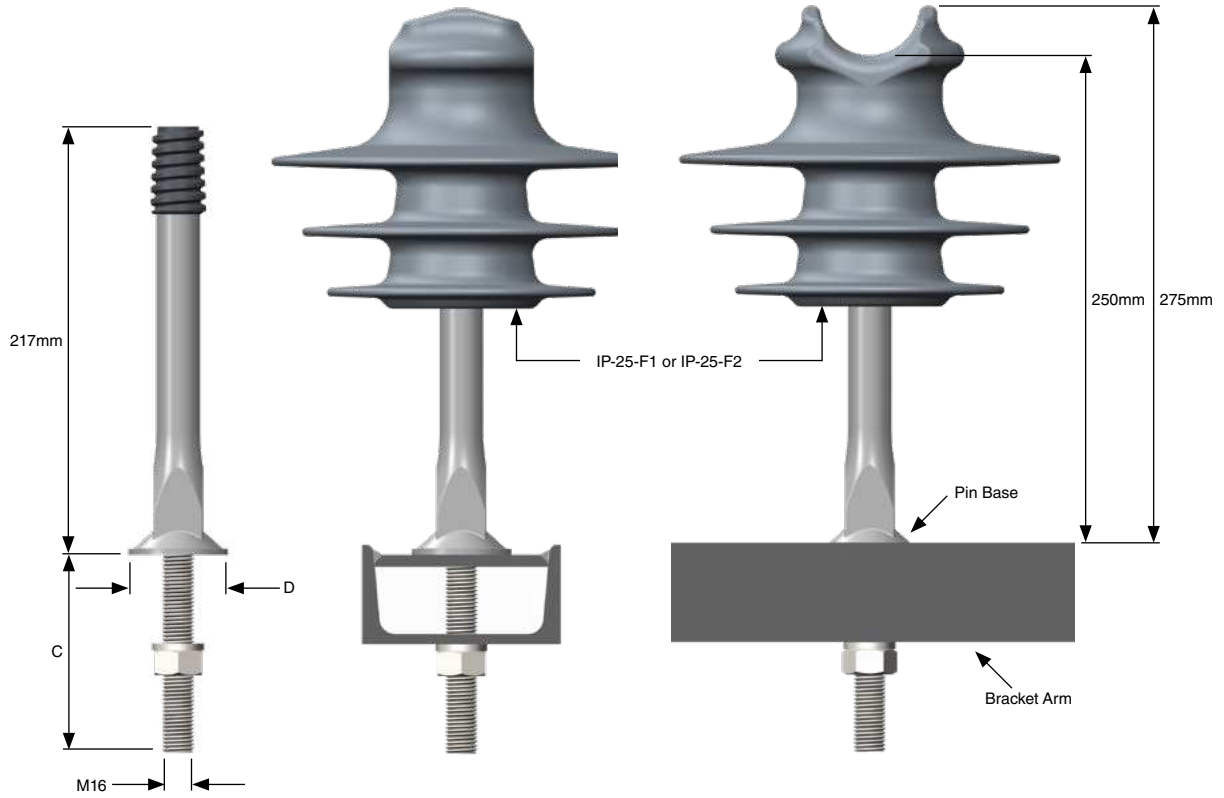


# INSULATORS AND INSULATOR PINS

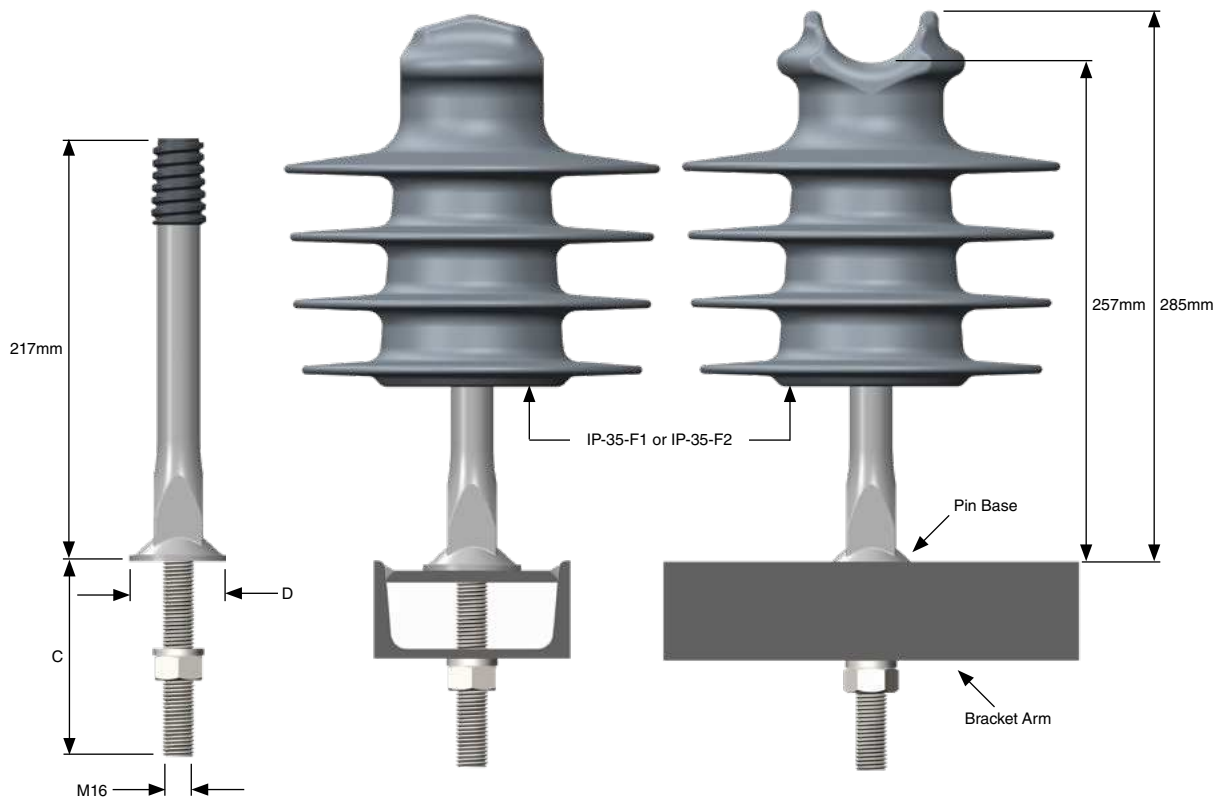
## INSULATOR PIN - NYLON HEAD, M16 STUD

### Spacer Cable Bracket Application

#### High Voltage Forged Steel Insulator Pins - FIP1-216-M16-5 or FIP2-216-M16-6 with IP-25-F1 or IP-25-F2 Insulator

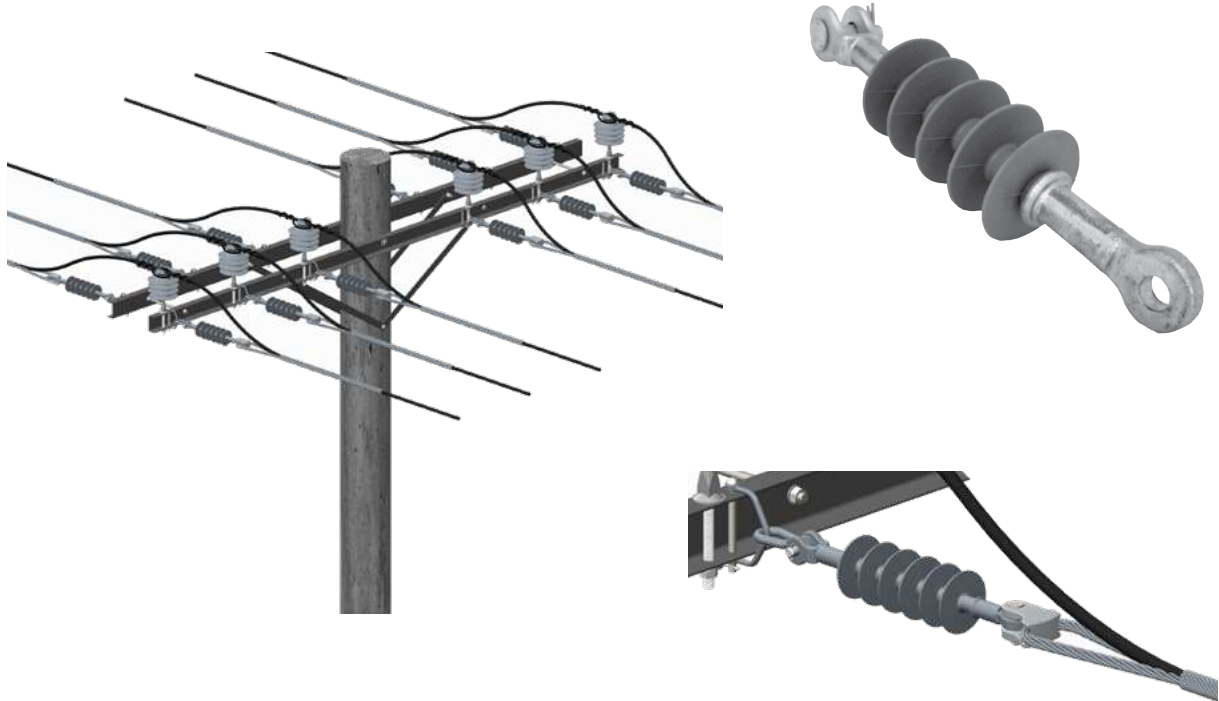


#### High Voltage Forged Steel Insulator Pins - FIP1-216-M16-5 or FIP2-216-M16-6 with IP-35-F1 or IP-35-F2 Insulator



# INSULATORS AND INSULATOR PINS

## TENSION INSULATOR - SILICONE RUBBER, 70 kN



PLP's silicone rubber longrod insulators are designed for tension or suspension applications in utility distribution networks. Suitable for both bare wire and covered conductor applications, the insulator weather sheds are manufactured from hydrophobic silicone rubber.

PLP longrod insulators are type tested in accordance with the requirements of IEC 61109:2008. The insulator has a minimum failing load of 70kN and features clevis and tongue end fittings that are hot dip galvanised and designed to work seamlessly with PLP Clevis Thimbles.

PLP Catalogue Number	FBX 25/70	FBX 35/70
Application Voltage	25kV	35kV
Creepage Distance	645mm	860mm
Dry Arcing Distance	300mm	380mm
Lightning Flashover Impulse Voltage (Positive)	230kV	275kV
Wet Power Frequency Flashover Voltage	110kV	145kV
Dry Power Frequency Flashover Voltage	130kV	165kV
Overall Length	450mm	536mm
Specified Mechanical Load	70kN	70kN
Weathershed Material	Silicone Rubber	Silicone Rubber
Clevis Opening	21mm	21mm
Clevis Pin Diameter	16mm	16mm
Tongue Hole Diameter	18mm	18mm



# SECTION 4 - INSULATOR TIES

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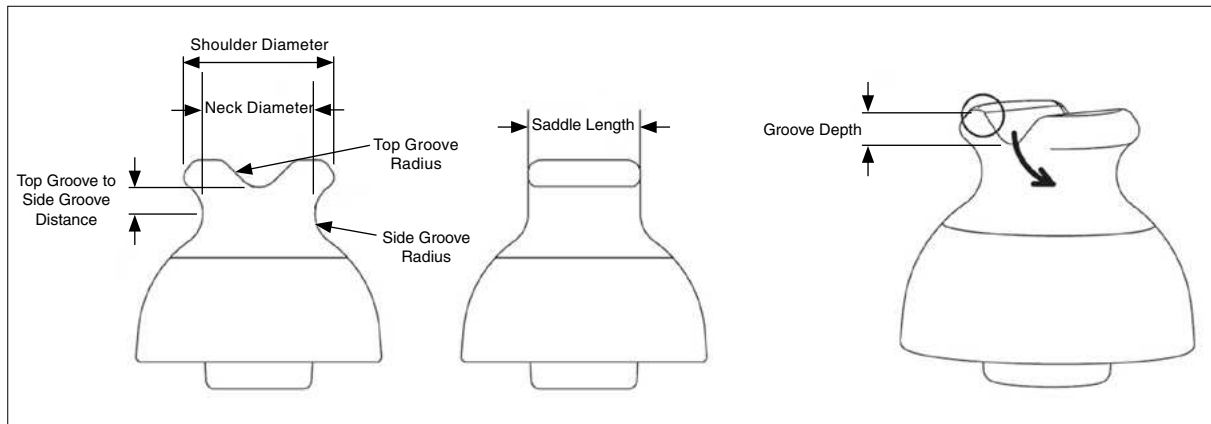
### **PREFORMED** LINE PRODUCTS

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# INSULATOR TIES

## INSULATOR FIT

### Dimensional Factors that Affect Tie Application and Performance



It is recommended that only insulators meeting the dimensional requirements of the most recent ANSI® C29.3, C29.5, C29.6 and C29.7 specifications be used with the appropriate PLP ties.

### ANSI C29 Insulator Specifications and their Effects on PLP Ties

ANSI C29 specifies and defines dimensions for insulator heads that are crucial to the proper application and lifetime performance of PLP factory formed ties. These dimensions include:

- Neck Diameter - nominal
  - C Neck - 57.2mm
  - F Neck - 73.0mm
  - J Neck - 88.9mm
  - K Neck - 101.6mm
- Top groove radius (minimum)
- Side groove radius (minimum)
- Maximum shoulder diameter (maximum)
- Top groove to side groove vertical spacing

Some of the specified dimensions are simply maximum or minimum allowable values. The dimensions for the vertical distance from the bottom of the top groove to the middle of the side groove and the neck diameter have minimum and maximum values designated.

These dimensions and insulator designations determine the proper tie to be used and the maximum conductor size for the groove application. Review the individual tie sections for groove/conductor diameter limitations.

### Insulator characteristics that are not part of the ANSI C29 Specifications

Some of the insulator characteristics that have an impact on the application and performance of PLP Ties are not included in the ANSI specification. These characteristics include:

- The transition contour of the top groove into side groove
- Length of the saddle or top groove
- Extension of shoulders past the edge of the top groove
- Depth of the top groove

Each of these items has different results on a factory formed tie's performance. Combinations of several of these characteristics could result in initial tie damage and incorrect application.

1. The transition contour of the top groove into the side groove is important due to the tie's shape. If an edge is created instead of a smooth rounded transition, the tie's formed wire is forced to bend over a fulcrum point resulting in a high concentration of stress. This is detrimental for both the insulator and tie.

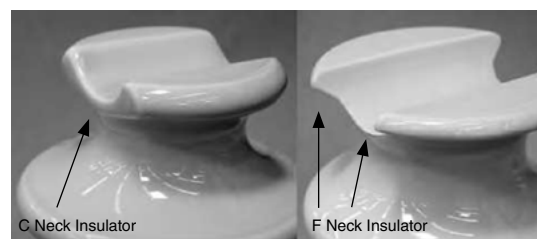


Figure 1a

Note the edge that exists between the top groove and the side groove above. Figure 1b shows a smooth transition.

# INSULATOR TIES

## INSULATOR FIT



Figure 1b

2. A top groove length longer than the insulator's neck diameter results in an edge. This edge creates a high stress contact point and results in an abnormal tie application. As an example, Figure 2 illustrates how a Line Tie/Top Tie reacts to this configuration (the tie tube was omitted to illustrate the gap beneath the conductor). Note the point contact at the insulator tie interface.



Figure 2

3. The shoulder extensions result in difficulty in application of top ties. As the tie is rotated the added protrusions from the shoulders past the end of the top groove provide catch points for the tie (see F Neck Insulator in Figure 1a).



Figure 3

4. The top groove of the insulator can cause installation difficulties of top ties when its diameter is at the minimum ANSI designation. This is especially troublesome when installing the WRAPLOCK® Line Tie/Top Tie. Figure 3 illustrates the application on a C Neck Insulator on 1/0 ACSR 6/1 conductor.

The circled area in Figure 3 illustrates that the covered centre section of the WRAPLOCK® Line Tie/Top Tie is wedged between the conductor and the inner surface of the insulator. This increases the installation difficulty of the tie.

In many instances the transition of the grooves can have a great impact on the form, fit and function of a factory formed tie and hand tie wire. The sharp edge of a long top groove saddle (see Figure 1) can be especially hazardous to the soft hand tie wire as well as a factory formed tie.

### Insulator Review and Trial Applications

It is recommended the user conduct a thorough review of the insulator size, shape and geometry and conduct trial fits with the ties, prior to full scale field installations. Consult PLP for assistance, especially if there are any doubts concerning tie and insulator fit or performance.

### Non-ANSI C29 Insulators

Some insulators that do not technically meet all the ANSI C29 Wet Process Porcelain Insulator standards may be suitable for use with PLP factory formed ties depending on their head and neck dimensions and geometry.

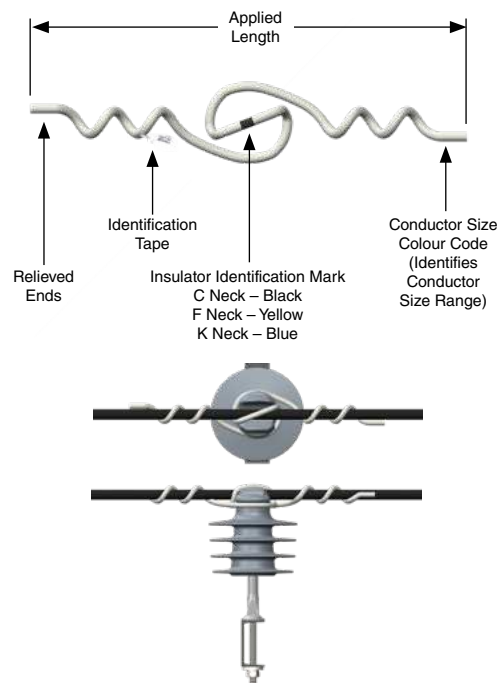
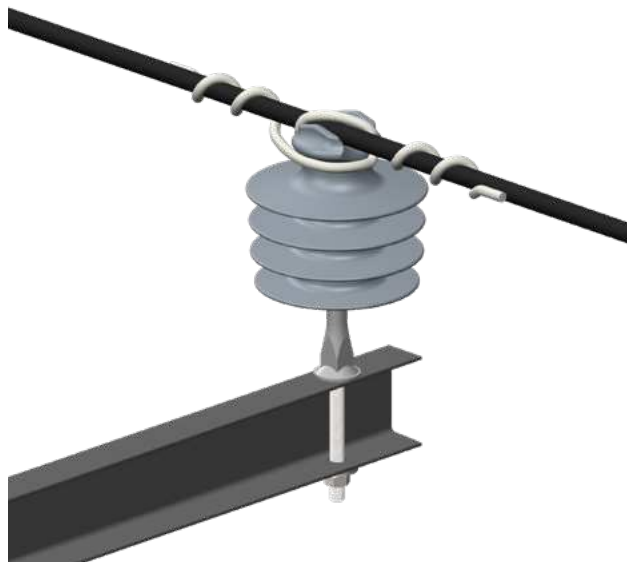
An example is the PLP polymer C Neck and F Neck tie top insulators. These insulators have head and neck designs for use with PLP factory formed ties or PLP Ring Ties. The head and neck dimensions of the PLP Polymer C Neck and F Neck insulators have been designed to match critical ANSI C29 dimensional specifications and meet or exceed most of the mechanical and electrical performance requirements specified in that standard.



PLP Polymer 15 kV and 35 kV Insulators

# INSULATOR TIES - PLASTIC

## PVC PLASTIC LINE TIE/TOP TIE - 15KV RATED



PVC Plastic Line Ties/Top Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. Line angles of up to 15° can be accommodated when used with any plastic covered conductor such as COVEREDLIGN™ or COMPACTLIGN™.

**Material:** PVC Plastic Line Ties/Top Ties are made from white PVC. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that PVC Plastic Line Ties/Top Ties can be applied up to 15kV.

**Mechanical:** Testing has shown PVC Plastic Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. PVC Plastic Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

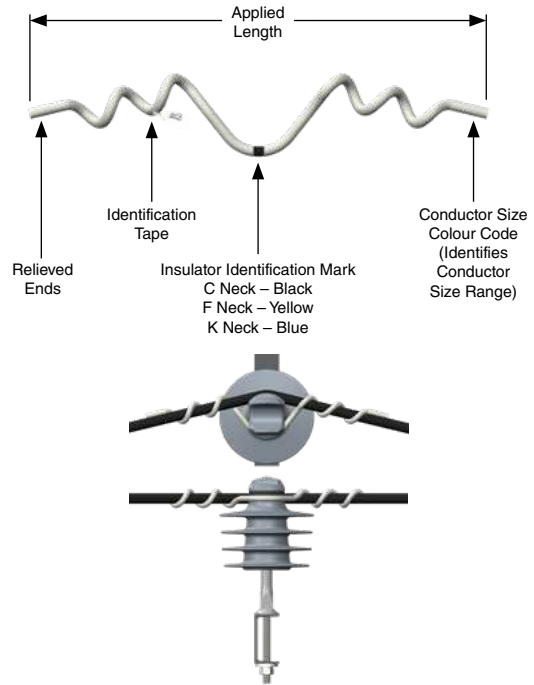
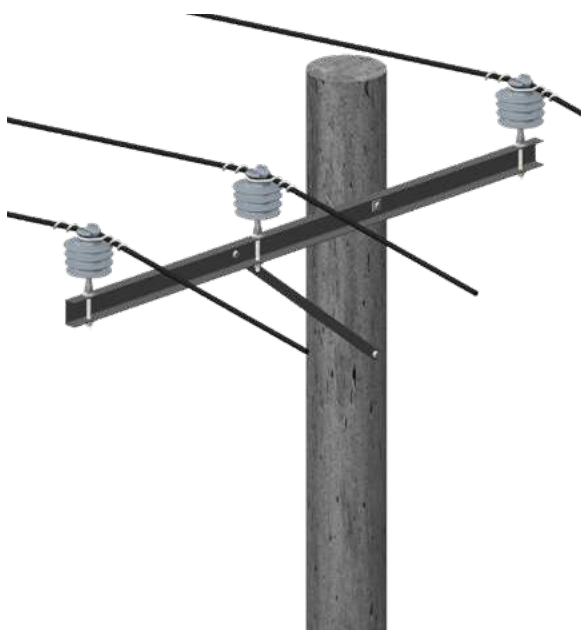
### PVC Plastic Line Ties/Top Ties to Suit ANSI C29.5 Neck Insulators

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
TTF-1205	0.296-0.400	07.52-10.17	Yellow	White
TTF-1200	0.401-0.540	10.18-13.73	Yellow	Green
TTF-1201	0.541-0.730	13.74-18.55	Yellow	Blue
TTF-1202	0.731-0.920	18.56-23.38	Yellow	Orange
TTF-1203	0.921-1.100	23.39-27.94	Yellow	Red
TTF-1204	1.101-1.300	27.95-33.03	Yellow	Black/None
TTF-1206	1.301-1.500	33.04-38.10	Yellow	Green
TTF-11373	1.346-1.472	34.20-37.40	Yellow	Yellow

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
TTC-1104	0.296-0.400	07.52-10.17	Black/None	White
TTC-1100	0.401-0.540	10.18-13.73	Black/None	Green
TTC-1101	0.541-0.730	13.74-18.55	Black/None	Blue
TTC-1102	0.731-0.920	18.56-23.38	Black/None	Orange
TTC-1103	0.921-1.100	23.39-27.94	Black/None	Red
TTC-1105	1.101-1.300	27.95-33.03	Black/None	Black/None
TTC-1106	1.301-1.500	33.04-38.10	Black/None	Green

# INSULATOR TIES - PLASTIC

## PVC PLASTIC ANGLE SIDE TIE - 15KV RATED



PVC Plastic Angle Side Ties are intended for use on “angle” construction with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. Line angles from 11° to 40° can be accommodated when used with any plastic covered conductor such as COVEREDLIGN™ or COMPACTLIGN™.

**Material:** PVC Plastic Angle Side Ties are made from white PVC. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that PVC Plastic Angle Side Ties can be applied up to 15kV.

**Mechanical:** Testing has shown PVC Plastic Angle Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. PVC Plastic Angle Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

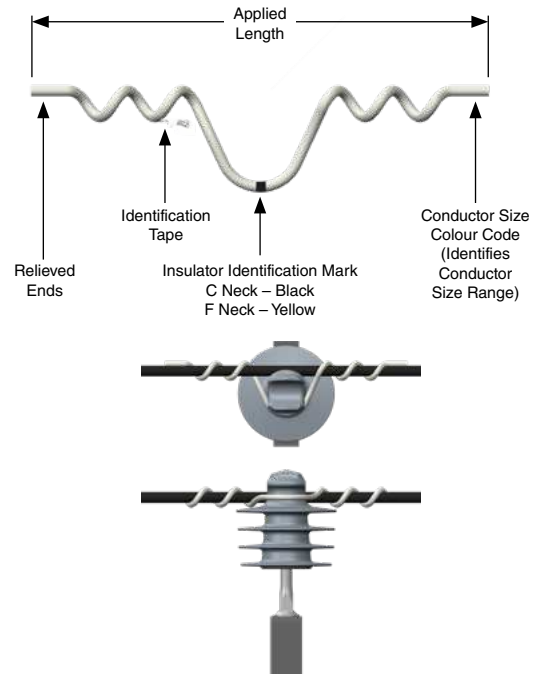
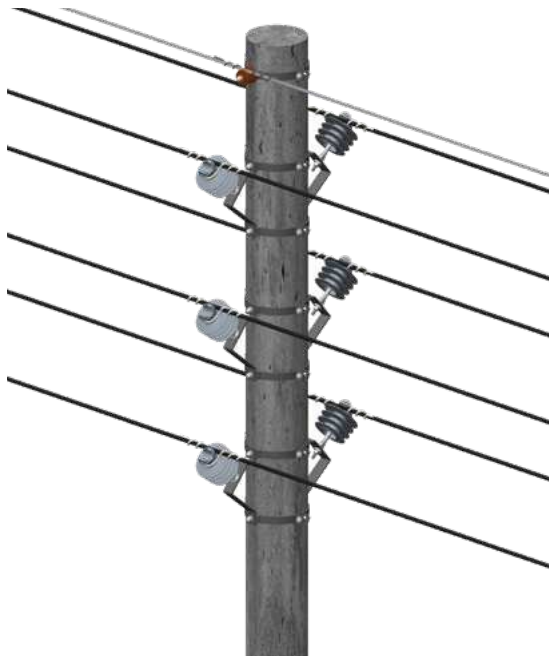
### PVC Plastic Angle Side Ties to Suit ANSI C29.5 Neck Insulators

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSF-2205	0.296-0.400	07.52-10.17	Yellow	White
SSF-2200	0.401-0.540	10.18-13.73	Yellow	Green
SSF-2201	0.541-0.730	13.74-18.55	Yellow	Blue
SSF-2202	0.731-0.920	18.56-23.38	Yellow	Orange
SSF-2203	0.921-1.100	23.39-27.94	Yellow	Red
SSF-2204	1.101-1.300	27.95-33.03	Yellow	Black/None

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSC-2105	0.296-0.400	07.52-10.17	Black/None	White
SSC-2100	0.401-0.540	10.18-13.73	Black/None	Green
SSC-2101	0.541-0.730	13.74-18.55	Black/None	Blue
SSC-2102	0.731-0.920	18.56-23.38	Black/None	Orange
SSC-2103	0.921-1.100	23.39-27.94	Black/None	Red
SSC-2104	1.101-1.300	27.95-33.03	Black/None	Black/None

# INSULATOR TIES - PLASTIC

## PVC PLASTIC TANGENT SIDE TIE - 15KV RATED



PVC Plastic Tangent Side Ties are intended for use with covered conductors and side-mounted tie top insulators on armless construction. Line angles of up to 15° can be accommodated when used with any plastic covered conductor such as COVERDLIGN™ or COMPACTLIGN™.

**Material:** PVC Plastic Tangent Side Ties are made from white PVC. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that PVC Plastic Tangent Side Ties can be applied up to 15kV.

**Mechanical:** Testing has shown PVC Plastic Tangent Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck) and Ø 73.0mm (F Neck) be used. PVC Plastic Tangent Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

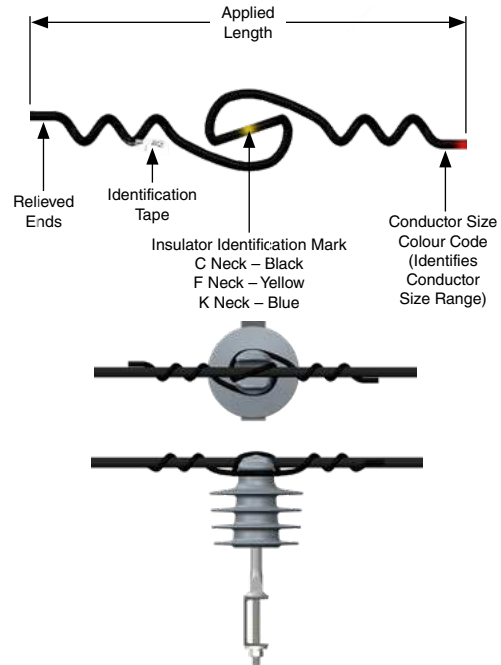
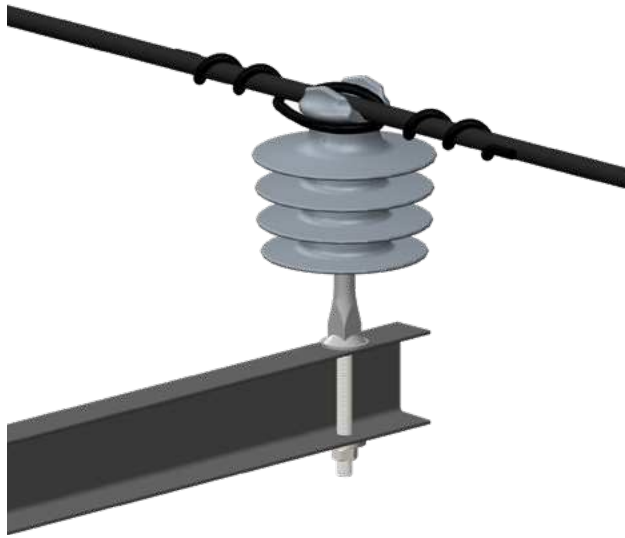
### PVC Plastic Tangent Side Ties to Suit ANSI C29.5 Neck Insulators

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSF-2250	0.296-0.400	07.52-10.17	Yellow	White
SSF-2251	0.401-0.540	10.18-13.73	Yellow	Green
SSF-2252	0.541-0.730	13.74-18.55	Yellow	Blue
SSF-2253	0.731-0.920	18.56-23.38	Yellow	Orange
SSF-2254	0.921-1.100	23.39-27.94	Yellow	Red
SSF-2255	1.101-1.300	27.95-33.03	Yellow	Black/None

PVC Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSC-2150	0.296-0.400	07.52-10.17	Black/None	White
SSC-2151	0.401-0.540	10.18-13.73	Black/None	Green
SSC-2152	0.541-0.730	13.74-18.55	Black/None	Blue
SSC-2153	0.731-0.920	18.56-23.38	Black/None	Orange
SSC-2154	0.921-1.100	23.39-27.94	Black/None	Red
SSC-2155	1.101-1.300	27.95-33.03	Black/None	Black/None

# INSULATOR TIES - PLASTIC

## SEMI-CONDUCTIVE PLASTIC LINE TIE/TOP TIE - 35kV RATED



Semi-Conductive (Semi-Con) Plastic Line Ties/Top Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. Line angles of up to 15° can be accommodated when used with any plastic covered conductor such as COVEREDLIGN™ or COMPACTLIGN™.

**Material:** Semi-Con Plastic Line Ties/Top Ties are made from a base of clear PVC with a proprietary black co-extruded outer covering selected for its superior electrical tracking resistance properties. Use of this co-extruded material allows application on higher voltages and/or more stressful electrical environments. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Plastic Line Ties/Top Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Plastic Line Ties/Top Ties and Plastic Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Plastic Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

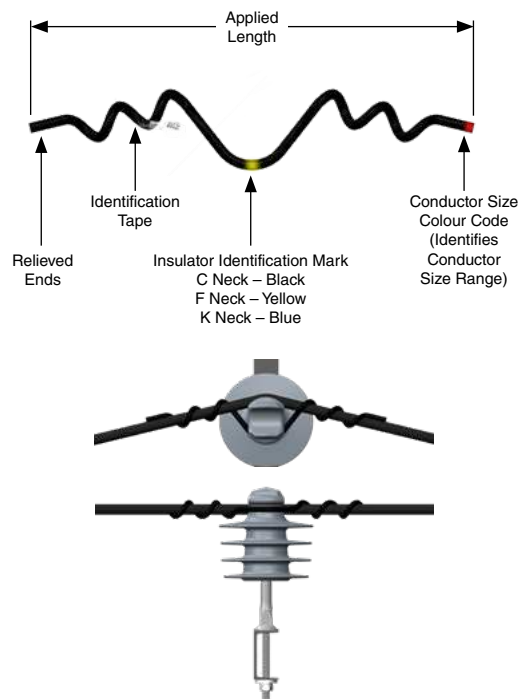
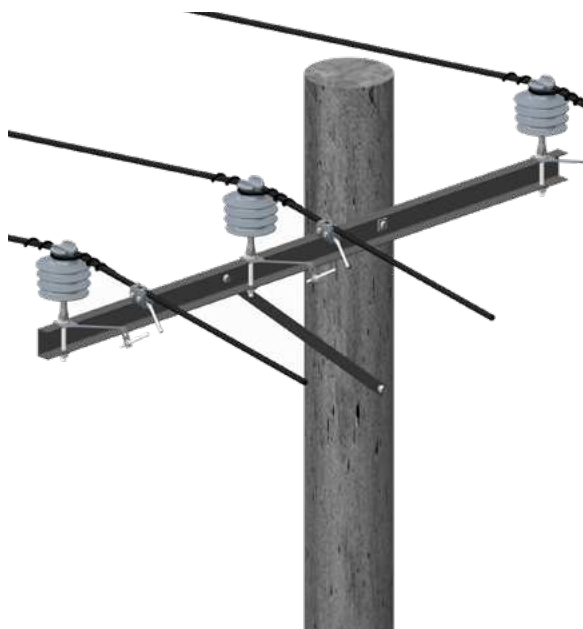
### Semi-Conductive Plastic Line Ties/Top Ties to Suit ANSI C29.5 Neck Insulators

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
TTF-1205SC	0.296-0.400	07.52-10.17	Yellow	White
TTF-1200SC	0.401-0.540	10.18-13.73	Yellow	Green
TTF-1201SC	0.541-0.730	13.74-18.55	Yellow	Blue
TTF-1202SC	0.731-0.920	18.56-23.38	Yellow	Orange
TTF-1203SC	0.921-1.100	23.39-27.94	Yellow	Red
TTF-1204SC	1.101-1.300	27.95-33.03	Yellow	Black/None
TTF-1206SC	1.301-1.500	33.04-38.10	Yellow	Green
TTF-11373SC	1.346-1.472	34.20-37.40	Yellow	Yellow

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
TTC-1104SC	0.296-0.400	07.52-10.17	Black/None	White
TTC-1100SC	0.401-0.540	10.18-13.73	Black/None	Green
TTC-1101SC	0.541-0.730	13.74-18.55	Black/None	Blue
TTC-1102SC	0.731-0.920	18.56-23.38	Black/None	Orange
TTC-1103SC	0.921-1.100	23.39-27.94	Black/None	Red
TTC-1105SC	1.101-1.300	27.95-33.03	Black/None	Black/None
TTC-1106SC	1.301-1.500	33.04-38.10	Black/None	Green

# INSULATOR TIES - PLASTIC

## SEMI-CONDUCTIVE PLASTIC ANGLE SIDE TIE - 35kV RATED



Semi-Conductive (Semi-Con) Plastic Angle Side Ties are intended for use on “angle” construction with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. Line angles from 11° to 40° can be accommodated when used with any plastic covered conductor such as COVEREDLIGN™ or COMPACTLIGN™.

**Material:** Semi-Con Plastic Angle Side Ties are made from a base of clear PVC with a proprietary black co-extruded outer covering selected for its superior electrical tracking resistance properties. Use of this co-extruded material allows application on higher voltages and/or more stressful electrical environments. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Plastic Angle Side Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Plastic Angle Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Plastic Angle Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

### Semi-Conductive Plastic Angle Side Ties to Suit ANSI C29.5 Neck Insulators

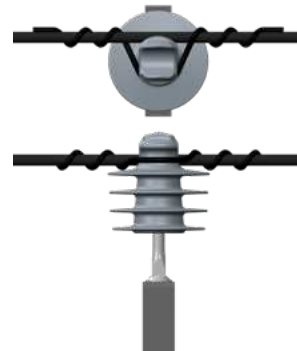
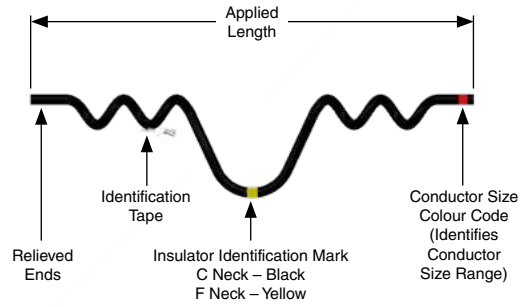
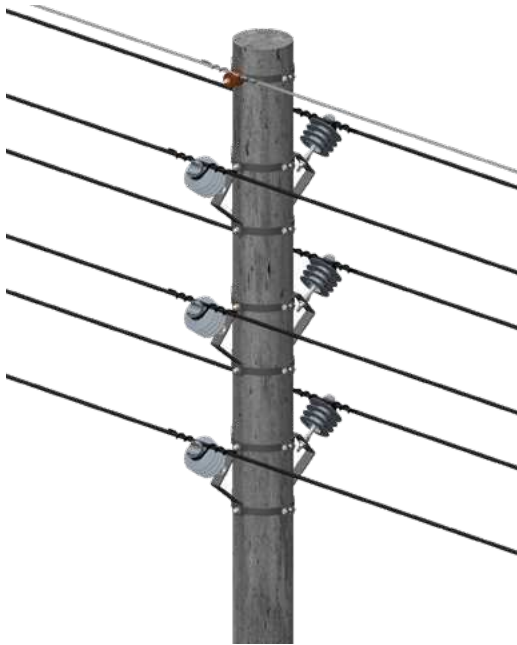
Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSF-2205SC	0.296-0.400	07.52-10.17	Yellow	White
SSF-2200SC	0.401-0.540	10.18-13.73	Yellow	Green
SSF-2201SC	0.541-0.730	13.74-18.55	Yellow	Blue
SSF-2202SC	0.731-0.920	18.56-23.38	Yellow	Orange
SSF-2203SC	0.921-1.100	23.39-27.94	Yellow	Red
SSF-2204SC	1.101-1.300	27.95-33.03	Yellow	Black/None

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSC-2105SC	0.296-0.400	07.52-10.17	Black/None	White
SSC-2100SC	0.401-0.540	10.18-13.73	Black/None	Green
SSC-2101SC	0.541-0.730	13.74-18.55	Black/None	Blue
SSC-2102SC	0.731-0.920	18.56-23.38	Black/None	Orange
SSC-2103SC	0.921-1.100	23.39-27.94	Black/None	Red
SSC-2104SC	1.101-1.300	27.95-33.03	Black/None	Black/None



# INSULATOR TIES - PLASTIC

## SEMI-CONDUCTIVE PLASTIC TANGENT SIDE TIE - 35KV RATED



Semi-Conductive (Semi-Con) Plastic Tangent Side Ties are intended for use with covered conductors and side-mounted tie top insulators on an armless construction. Line angles of up to 15° can be accommodated when used with any plastic covered conductor such as COVEREDLIGN™ or COMPACTLIGN™.

**Material:** Semi-Con Plastic Tangent Side Ties are made from a base of clear PVC with a proprietary black co-extruded outer covering selected for its superior electrical tracking resistance properties. Use of this co-extruded material allows application on higher voltages and/or more stressful electrical environments. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Plastic Tangent Side Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Plastic Tangent Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck) and Ø 73.0mm (F Neck) be used. Semi-Con Plastic Tangent Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

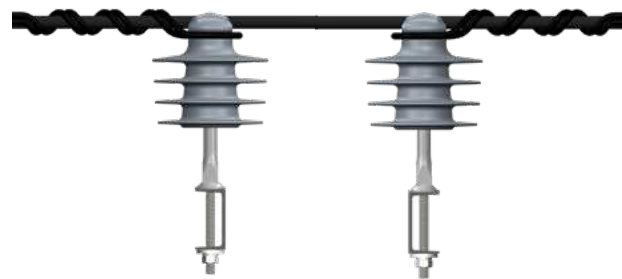
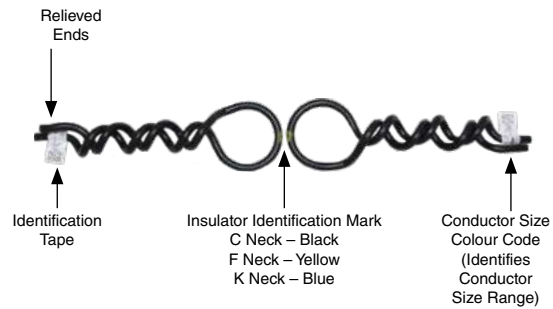
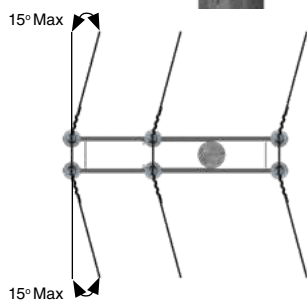
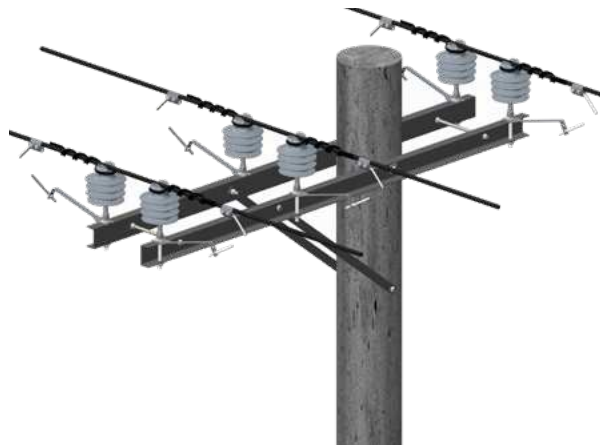
### Semi-Conductive Plastic Tangent Side Ties to Suit ANSI C29.5 Neck Insulators

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSF-2250SC	0.296-0.400	07.52-10.17	Yellow	White
SSF-2251SC	0.401-0.540	10.18-13.73	Yellow	Green
SSF-2252SC	0.541-0.730	13.74-18.55	Yellow	Blue
SSF-2253SC	0.731-0.920	18.56-23.38	Yellow	Orange
SSF-2254SC	0.921-1.100	23.39-27.94	Yellow	Red
SSF-2255SC	1.101-1.300	27.95-33.03	Yellow	Black/None

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
SSC-2150SC	0.296-0.400	07.52-10.17	Black/None	White
SSC-2151SC	0.401-0.540	10.18-13.73	Black/None	Green
SSC-2152SC	0.541-0.730	13.74-18.55	Black/None	Blue
SSC-2153SC	0.731-0.920	18.56-23.38	Black/None	Orange
SSC-2154SC	0.921-1.100	23.39-27.94	Black/None	Red
SSC-2155SC	1.101-1.300	27.95-33.03	Black/None	Black/None

# INSULATOR TIES - PLASTIC

## SEMI-CONDUCTIVE PLASTIC DOUBLE LINE TIE/TOP TIE - 35kV RATED



Semi-Conductive (Semi-Con) Plastic Double Line Ties/Top Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. When utilised within double crossarm construction as illustrated, line angles from 0° to 30° can be comfortably accommodated.

**Material:** Semi-Con Plastic Double Line Ties/Top Ties are made from a base of clear PVC with a proprietary black co-extruded outer covering selected for its superior electrical tracking resistance properties. Use of this co-extruded material allows application on higher voltages and/or more stressful electrical environments. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Plastic Double Line Ties/Top Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Plastic Double Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Plastic Double Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

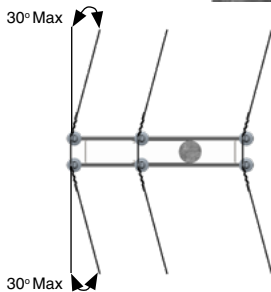
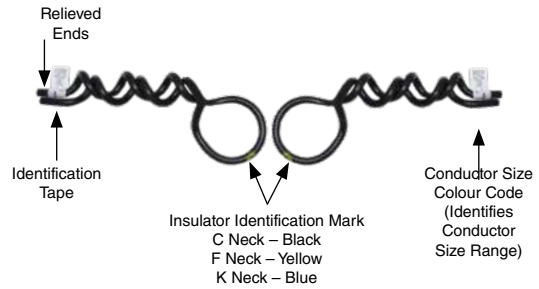
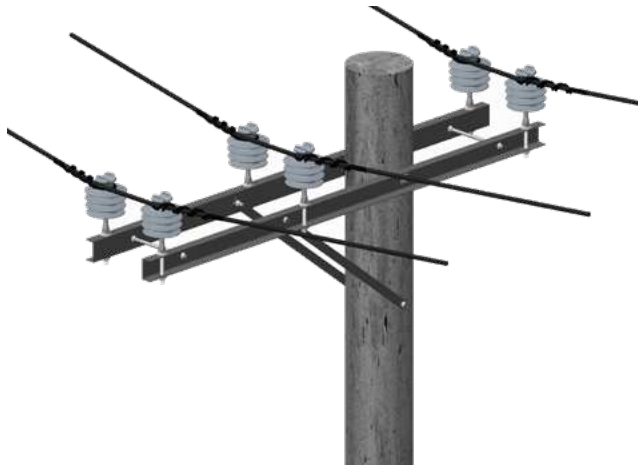
### Semi-Conductive Plastic Double Line Ties/ Top Ties to suit ANSI C29.5 Neck Insulators

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
DTTF-1201SC	0.541-0.730	13.74-18.55	Yellow	Blue
DTTF-1202SC	0.731-0.920	18.56-23.38	Yellow	Orange
DTTF-1203SC	0.921-1.100	23.39-27.94	Yellow	Red
DTTF-1204SC	1.101-1.300	27.95-33.03	Yellow	None
DTTF-1206SC	1.301-1.500	33.04-38.10	Yellow	Green

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
DTTC-1101SC	0.541-0.730	13.74-18.55	Black	Blue
DTTC-1102SC	0.731-0.920	18.56-23.38	Black	Orange
DTTC-1103SC	0.921-1.100	23.39-27.94	Black	Red
DTTC-1105SC	1.101-1.300	27.95-33.03	Black	None
DTTC-1106SC	1.301-1.500	33.04-38.10	Black	Green

# INSULATOR TIES - PLASTIC

## SEMI-CONDUCTIVE PLASTIC DOUBLE ANGLE SIDE TIE - 35KV RATED



Semi-Conductive (Semi-Con) Plastic Double Angle Side Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted insulators. When utilised within double crossarm construction as illustrated, line angles from 22° to 60° can be comfortably accommodated.

**Material:** Semi-Con Plastic Double Angle Side Ties are made from a base of clear PVC with a proprietary black co-extruded outer covering selected for its superior electrical tracking resistance properties. Use of this co-extruded material allows application on higher voltages and/or more stressful electrical environments. This material was selected because of its UV resistance, tensile strength, impact strength, flexural strength and self extinguishing properties.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Plastic Double Angle Side Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Plastic Double Angle Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over jacketed conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Plastic Double Angle Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

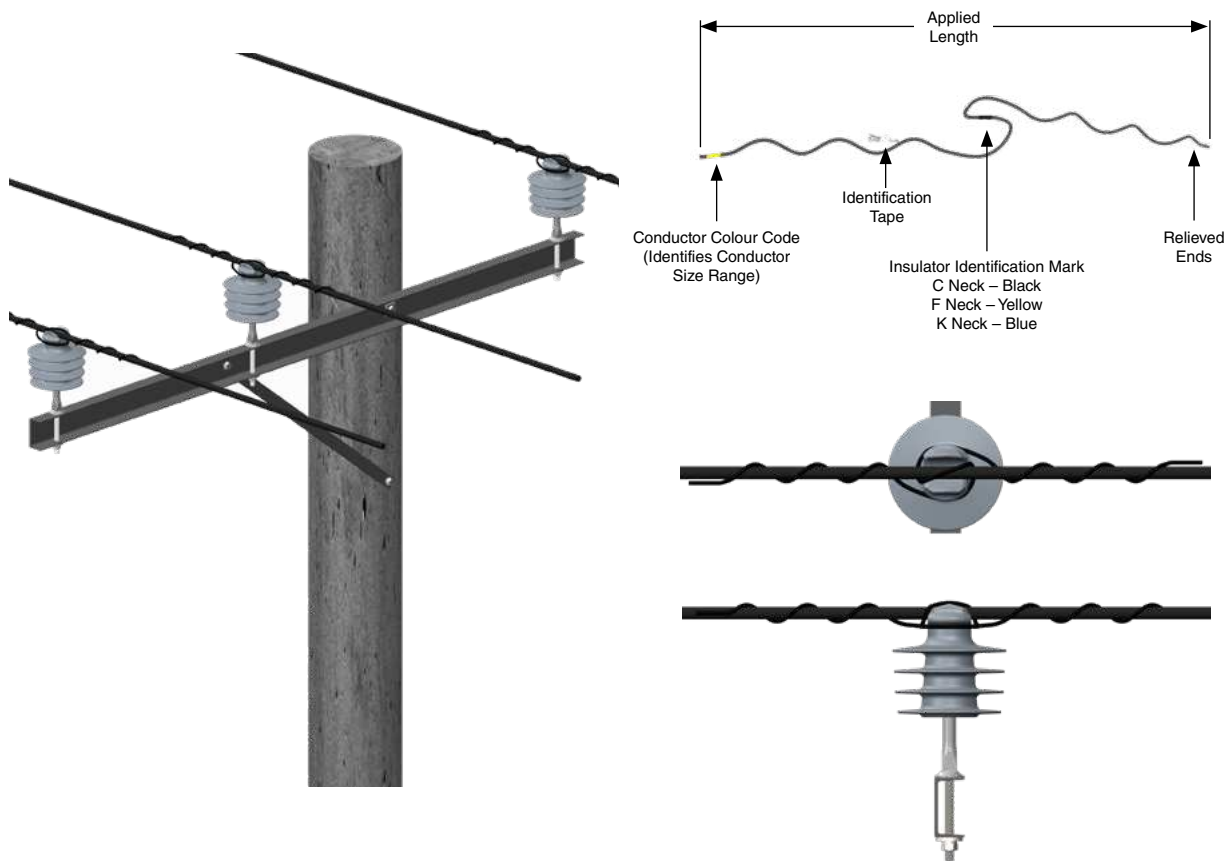
### Semi - Conductive Plastic Double Angle Side Ties to Suit ANSI C29.5 Neck Insulators

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
DSSF-1201SC	0.541-0.730	13.74-18.55	Yellow	Blue
DSSF-1202SC	0.731-0.920	18.56-23.38	Yellow	Orange
DSSF-1203SC	0.921-1.100	23.39-27.94	Yellow	Red
DSSF-1204SC	1.101-1.300	27.95-33.03	Yellow	None
DSSF-1206SC	1.301-1.500	33.04-38.10	Yellow	Green

Semi-Conductive Ties Catalog Number	Diameter Range		Insulator Color ID Mark	Conductor Color Code
	Inches	mm.		
DSSC-2101SC	0.541-0.730	13.74-18.55	Black	Blue
DSSC-2102SC	0.731-0.920	18.56-23.38	Black	Orange
DSSC-2103SC	0.921-1.100	23.39-27.94	Black	Red
DSSC-2105SC	1.101-1.300	27.95-33.03	Black	None
DSSC-2106SC	1.301-1.500	33.04-38.10	Black	Green

# INSULATOR TIES - COATED METAL

## SEMI-CONDUCTIVE COATED WIRE LINE TIE/TOP TIE - 35kV RATED



Semi-Conductive (Semi-Con) Coated Wire Line Ties/Top Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted ANSI C29.5 specification insulators. On vertically-mounted insulators, Semi-Con Coated Wire Line Ties/Top Ties can normally accommodate line angles up to 10°. Larger angles may be accommodated when the insulator is mounted at varying degrees of cant from the vertical.

**Material:** Semi-Con Coated Wire Line Ties/Top Ties are manufactured with a semi-conductive plastic coating selected for its superior electrical tracking resistance properties. The semi-conductive covering coats a formed steel wire with relieved ends to ensure the tie can be quickly and easily installed without damaging the conductor jacket while at the same time eliminating electrical tracking.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Coated Wire Line Ties/Top Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Coated Wire Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. The Semi-Con Coated Wire Line Tie/Top Tie is designed to permit controlled and limited movement of unbroken conductor and under certain conditions, return the conductor to its originally installed position. The ability of the tie to give and return under differential loading conditions is called “resiliency” and is designed into each coated tie.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Coated Wire Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - COATED METAL

## SEMI-CONDUCTIVE COATED WIRE LINE TIE/TOP TIE - 35kV RATED

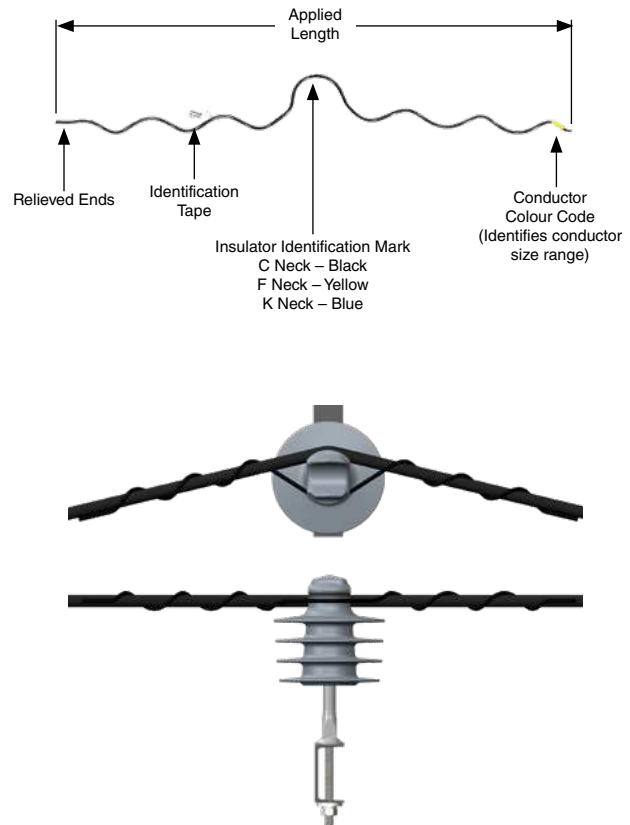
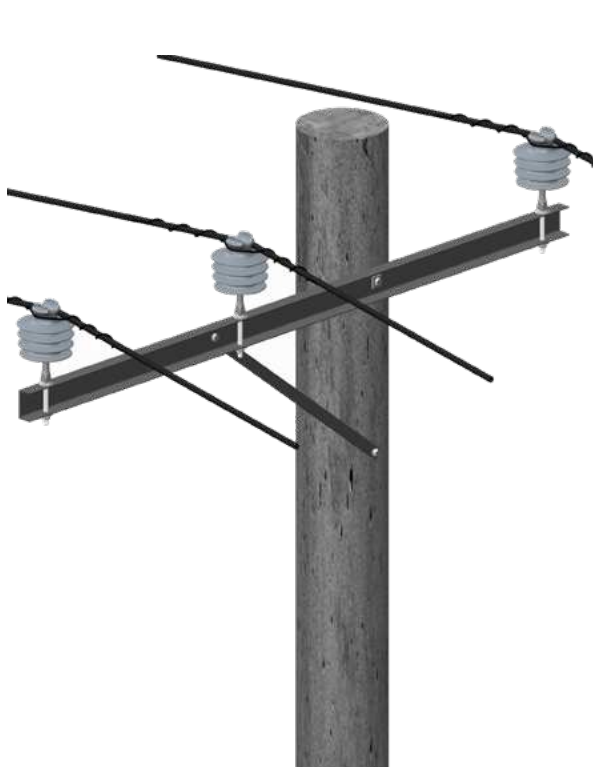


### Semi-Conductive Coated Wire Top Ties to Suit ANSI C29.5 Neck Insulators

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)	Conductor Colour Code
C Neck Insulators Ø 57.2mm	F Neck Insulators Ø 73.0mm	K Neck Insulators Ø 101.6mm	Minimum	Maximum		
CTC-0201	CTF-0101	CTK-0301	7.06	8.00	710	Purple
CTC-0202	CTF-0102	CTK-0302	8.03	9.07	710	Red
CTC-0203	CTF-0103	CTK-0303	9.09	10.29	760	Yellow
CTC-0204	CTF-0104	CTK-0304	10.31	11.66	760	Blue
CTC-0205	CTF-0105	CTK-0305	11.68	13.21	810	Orange
CTC-0206	CTF-0106	CTK-0306	13.23	14.94	840	Red
CTC-0207	CTF-0107	CTK-0307	14.96	16.89	865	Purple
CTC-0208	CTF-0108	CTK-0308	16.92	19.18	915	Brown
CTC-0209	CTF-0109	CTK-0309	19.20	21.79	915	Red
CTC-0210	CTF-0110	CTK-0310	21.82	24.59	1,015	Blue
CTC-0211	CTF-0111	CTK-0311	24.61	27.84	1,115	Green
CTC-0212	CTF-0112	CTK-0312	27.86	31.50	1,220	Yellow
CTC-0213	CTF-0113	CTK-0313	31.52	35.61	1,220	Orange
CTC-0214	CTF-0114	CTK-0314	35.64	40.26	1,220	Black/None

# INSULATOR TIES - COATED METAL

## SEMI-CONDUCTIVE COATED WIRE ANGLE SIDE TIE - 35KV RATED



Semi-Conductive (Semi-Con) Coated Wire Angle Side Ties are intended for use with covered conductors and vertically-mounted tie top insulators on crossarms or pole-top-mounted ANSI C29.5 specification insulators. On horizontally-mounted insulators, Semi-Con Coated Wire Angle Side Ties can normally accommodate line angles up to 10°. On vertically-mounted insulators, line angles up to 40° can normally be achieved. When insulators are mounted at various degrees of cant between the horizontal and the vertical, line angles between 0° and 40° may be accommodated, depending upon the actual cant of the insulator.

**Material:** Semi-Con Coated Wire Angle Side Ties are manufactured with a semi-conductive plastic coating selected for its superior electrical tracking resistance properties. The semi-conductive covering coats a formed steel wire with relieved ends to ensure the tie can be quickly and easily installed without damaging the conductor jacket while at the same time eliminating electrical tracking.

**Voltage Applications:** Electrical performance of any tie for covered conductors made from plastic materials (or metal) is dependent upon a number of factors, such as the line voltage, insulator style, the BIL of the line/pole, atmospheric contamination levels, type and condition of the covered conductor, etc.

The design of the insulator being used will affect the electric stress environment of an installation. PLP HDPE type polymer pin insulators will provide a less electrically stressful environment due to the similar dielectric characteristics of the materials used to make polymer insulators, the plastic conductor jacket, and a plastic tie. Because of the complex, interwoven nature of these factors, it is difficult to make absolute voltage application recommendations for plastic ties on covered conductors. However as a general policy, PLP suggests that Semi-Con Coated Wire Angle Side Ties can be applied up to 35kV.

**Mechanical:** Testing has shown Semi-Con Coated Wire Angle Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. The Semi-Con Coated Wire Angle Side Tie is designed to permit controlled and limited movement of unbroken conductor and under certain conditions, return the conductor to its originally installed position. The ability of the tie to give and return under differential loading conditions is called "resiliency" and is designed into each coated tie.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 101.6mm (K Neck) be used. Semi-Con Coated Wire Angle Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

## INSULATOR TIES - COATED METAL

### SEMI-CONDUCTIVE COATED WIRE ANGLE SIDE TIE - 35KV RATED

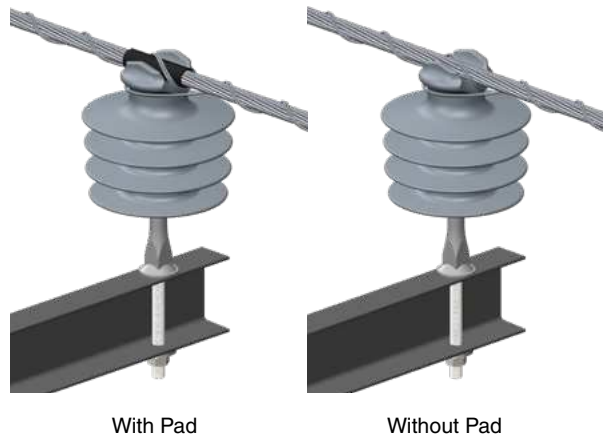
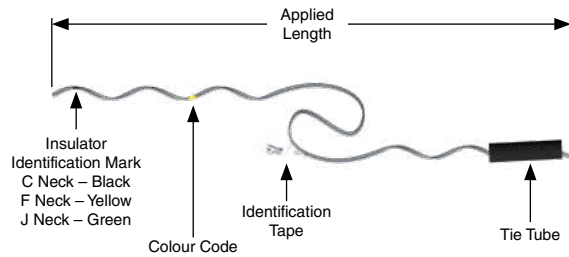
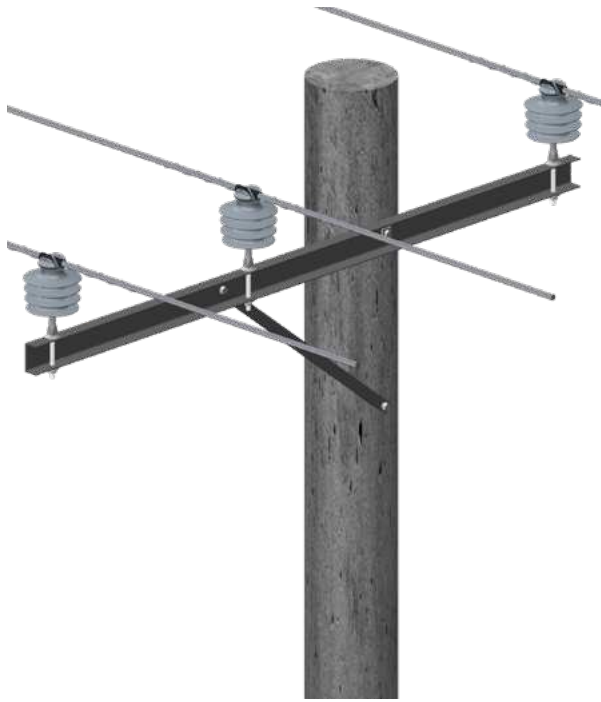


#### Semi-Conductive Coated Wire Angle Side Ties to Suit ANSI C29.5 Neck Insulators

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)	Conductor Colour Code
C Neck Insulators Ø 57.2mm	F Neck Insulators Ø 73.0mm	K Neck Insulators Ø 101.6mm	Minimum	Maximum		
CSTC-0201	CSTF-0101	CSTK-0301	7.06	8.00	710	Purple
CSTC-0202	CSTF-0102	CSTK-0302	8.03	9.07	710	Red
CSTC-0203	CSTF-0103	CSTK-0303	9.09	10.29	760	Yellow
CSTC-0204	CSTF-0104	CSTK-0304	10.31	11.66	760	Blue
CSTC-0205	CSTF-0105	CSTK-0305	11.68	13.21	810	Orange
CSTC-0206	CSTF-0106	CSTK-0306	13.23	14.94	840	Red
CSTC-0207	CSTF-0107	CSTK-0307	14.96	16.89	865	Purple
CSTC-0208	CSTF-0108	CSTK-0308	16.92	19.18	915	Brown
CSTC-0209	CSTF-0109	CSTK-0309	19.20	21.79	915	Red
CSTC-0210	CSTF-0110	CSTK-0310	21.82	24.59	1,015	Blue
CSTC-0211	CSTF-0111	CSTK-0311	24.61	27.84	1,115	Green
CSTC-0212	CSTF-0112	CSTK-0312	27.86	31.50	1,220	Yellow
CSTC-0213	CSTF-0113	CSTK-0313	31.52	35.61	1,220	Orange
CSTC-0214	CSTF-0114	CSTK-0314	35.64	40.26	1,220	Black/None

# INSULATOR TIES - METAL

## LINE TIE/TOP TIE



PLP's Line Ties/Top Ties are intended for securing bare conductors in the top groove of insulators. On vertically-mounted insulators, Line Ties/Top Ties can normally accommodate line angles of up to 10° depending on insulator orientation. Larger angles may be accommodated when the insulator is mounted at varying degrees of cant from the vertical, depending upon the actual cant of the insulator.

**Material:** Line Ties/Top Ties are made from aluminised steel, and are supplied with or without an elastomer pad. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, Line Ties/Top Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator.

Line Ties/Top Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the Line Tie/Top Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.



# INSULATOR TIES - METAL

## LINE TIE/TOP TIE - WITHOUT PAD



### C, F and J Neck Without Pad Plastic Jacketed or Bare Conductor

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)		Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C and F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>							
DTC0485T	DTF0485T	DTJ0485T	4.83	5.46	635	660	Blue
DTC0550T	DTF0550T	DTJ0550T	5.49	6.20	660	685	Brown
DTC0620T	DTF0620T	DTJ0620T	6.22	7.04	685	710	Orange
DTC0705T	DTF0705T	DTJ0705T	7.06	8.00	735	760	Purple
DTC0805T	DTF0805T	DTJ0805T	8.03	9.07	785	815	Red
DTC0910T	DTF0910T	DTJ0910T	9.09	10.29	815	840	Yellow
DTC1030T	DTF1030T	DTJ1030T	10.31	11.66	660	685	Blue
DTC1170T	DTF1170T	DTJ1170T	11.68	13.21	685	710	Orange
DTC1325T	DTF1325T	DTJ1325T	13.23	14.94	735	760	Red
DTC1495T	DTF1495T	DTJ1495T	14.96	16.89	815	840	Purple
DTC1695T	DTF1695T	DTJ1695T	16.92	19.18	815	840	Brown
DTC1920T	DTF1920T	DTJ1920T	19.20	21.72	835	865	Red
<b>15.9mm Minimum Groove Radius</b>							
DTC2175T	DTF2175T	DTJ2175T	21.74	24.59	890	915	Blue
<b>17.5mm Minimum Groove Radius</b>							
DTC2460T	DTF2460T	DTJ2460T	24.61	27.84	965	990	Green
<b>19.1mm Minimum Groove Radius</b>							
DTC2785T	DTF2785T	DTJ2785T	27.86	31.50	1,040	1,065	Yellow

**C Neck:** 57.2mm Diameter ANSI Class 55-2 and 55-3 Pin Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

**F Neck:** 73.0mm Neck Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

**J Neck:** 88.9mm Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

# INSULATOR TIES - METAL

## LINE TIE/TOP TIE - WITH PAD



### C, F and J Neck With Pad

ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>								
DTC0485P	DTF0485P	DTJ0485P	4.83	5.46	610	635	660	Blue
DTC0550P	DTF0550P	DTJ0550P	5.49	6.20	635	660	685	Brown
DTC0620P	DTF0620P	DTJ0620P	6.22	7.04	660	685	710	Orange
DTC0705P	DTF0705P	DTJ0705P	7.06	8.00	660	735	760	Purple
DTC0805P	DTF0805P	DTJ0805P	8.03	9.07	710	785	815	Red
DTC0910P	DTF0910P	DTJ0910P	9.09	10.29	760	815	840	Yellow
DTC1030P	DTF1030P	DTJ1030P	10.31	11.66	635	660	685	Blue
DTC1170P	DTF1170P	DTJ1170P	11.68	13.21	635	685	710	Orange
DTC1325P	DTF1325P	DTJ1325P	13.23	14.94	710	735	760	Red
DTC1495P	DTF1495P	DTJ1495P	14.96	16.89	760	815	840	Purple
DTC1695P	DTF1695P	DTJ1695P	16.92	19.18	785	815	840	Brown
DTC1920P	DTF1920P	DTJ1920P	19.20	21.72	815	840	865	Red
<b>15.9mm Minimum Groove Radius</b>								
DTC2175P	DTF2175P	DTJ2175P	21.74	24.59	865	890	915	Blue
<b>19.1mm Minimum Groove Radius</b>								
DTC2460P	DTF2460P	DTJ2460P	24.61	27.84	940	965	990	Green
DTC2785P	DTF2785P	DTJ2785P	27.86	31.50	1,015	1,040	1,065	Yellow

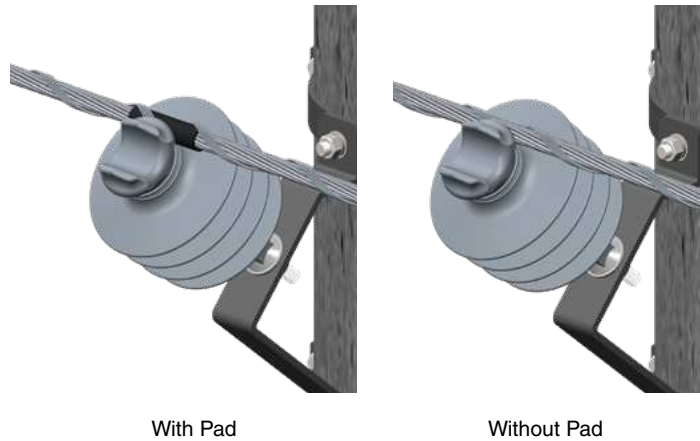
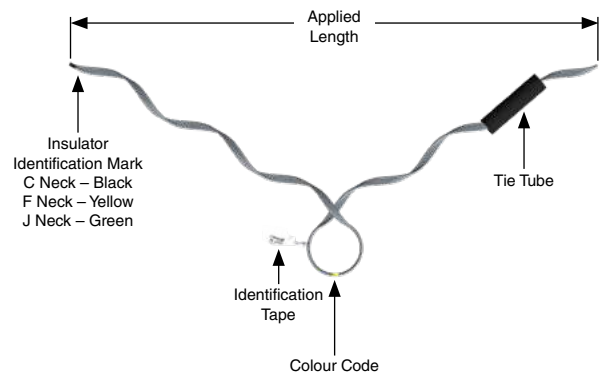
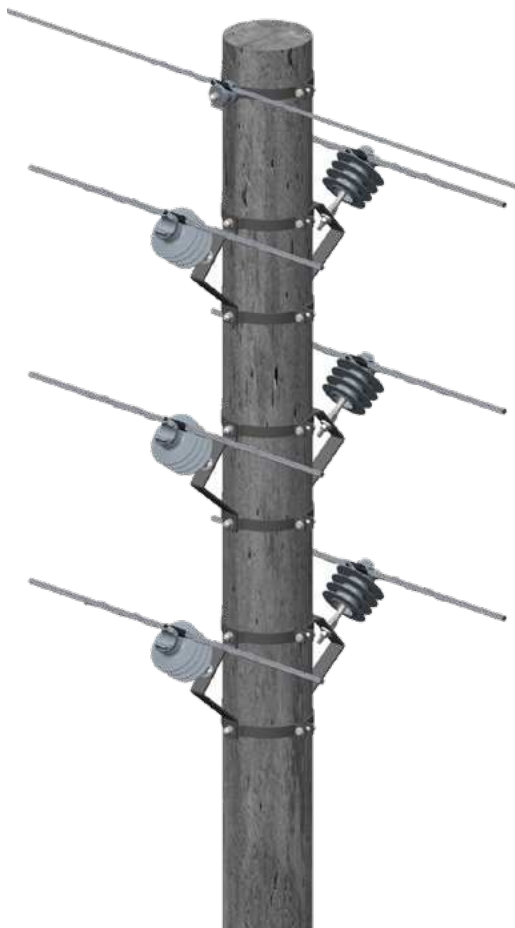
**C Neck:** 57.2mm Neck Diameter ANSI Class 55-2 and 55-3/Groove Height Relationship 14.3mm Min. 22.2mm Max.

**F Neck:** 73.0mm Neck Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

**J Neck:** 88.9mm Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

## INSULATOR TIES - METAL

### SIDE TIE



PLP's Side Ties are intended for securing bare conductors into the side groove of insulators. On horizontally-mounted insulators, Side Ties can normally accommodate line angles of up to 10°. On vertically-mounted insulators, line angles up to 40° can normally be achieved. When insulators are mounted at various degrees of cant between the horizontal and the vertical, line angles between 0° and 40° may be accommodated depending on the actual cant of the insulator.

**Material:** Side Ties are made from aluminised steel, and are supplied with or without an elastomer pad. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, Side Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator. Side Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the Side Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - METAL

## SIDE TIE - WITHOUT PAD



**C, F and J Neck Without Pad  
Plastic Jacketed or Bare Conductor**

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>								
STC0485T	STF0485T	STJ0485T	4.83	5.46	405	405	405	Blue
STC0550T	STF0550T	STJ0550T	5.49	6.20	430	430	430	Brown
STC0620T	STF0620T	STJ0620T	6.22	7.04	485	485	485	Orange
STC0705T	STF0705T	STJ0705T	7.06	8.00	535	535	535	Purple
STC0805T	STF0805T	STJ0805T	8.03	9.07	610	610	610	Red
STC0910T	STF0910T	STJ0910T	9.09	10.29	660	660	660	Yellow
STC1030T	STF1030T	STJ1030T	10.31	11.66	660	710	785	Blue
STC1170T	STF1170T	STJ1170T	11.68	13.21	735	760	815	Orange
STC1325T	STF1325T	STJ1325T	13.23	14.94	785	815	865	Red
STC1495T	STF1495T	STJ1495T	14.96	16.89	585	585	585	Purple
STC1695T	STF1695T	-	16.92	19.18	635	635	-	Brown
STC1920T	STF1920T	-	19.20	21.72	660	660	-	Red
<b>15.9mm Minimum Groove Radius</b>								
-	-	STJ1695T	16.92	19.18	-	-	635	Brown
-	-	STJ1920T	19.20	21.72	-	-	660	Red
STC2175T	STF2175T	STJ2175T	21.74	24.59	710	710	710	Blue
-	-	STJ2460T	24.61	27.84	-	-	735	Green
-	-	STJ2785T	27.86	31.50	-	-	840	Yellow
<b>17.5mm Minimum Groove Radius</b>								
STC2460T	STF2460T	-	24.61	27.84	735	735	-	Green
<b>19.1mm Minimum Groove Radius</b>								
STC2785T	STF2785T	-	27.86	31.50	840	840	-	Yellow

**C Neck:** 57.2mm Diameter ANSI Class 55-2 and 55-3 Pin Type/Groove Height Relationship 14.3mm Min. 22.2mm Max.

**F Neck:** 73.0mm Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

**J Neck:** 88.9mm Neck Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type Groove Height Relationship 14.3mm Min. 22.2mm Max.

# INSULATOR TIES - METAL

## SIDE TIE - WITH PAD



**C, F and J Neck With Pad**  
**ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR**

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>								
STC0485P	STF0485P	STJ0485P	4.83	5.46	405	405	405	Blue
STC0550P	STF0550P	STJ0550P	5.49	6.20	430	430	430	Brown
STC0620P	STF0620P	STJ0620P	6.22	7.04	485	485	485	Orange
STC0705P	STF0705P	STJ0705P	7.06	8.00	535	535	535	Purple
STC0805P	STF0805P	STJ0805P	8.03	9.07	610	610	610	Red
STC0910P	STF0910P	STJ0910P	9.09	10.29	660	660	660	Yellow
STC1030P	STF1030P	STJ1030P	10.31	11.66	660	785	785	Blue
STC1170P	STF1170TP	STJ1170TP	11.68	13.21	735	760	815	Orange
STC1325P	STF1325P	STJ1325P	13.23	14.94	785	815	865	Red
STC1495P	STF1495P	STJ1495P	14.96	16.89	585	585	585	Purple
STC1695P	STF1695P	-	16.92	19.18	635	635	-	Brown
STC-1920P	STF1920P	-	19.20	21.72	660	660	-	Red
<b>15.9mm Minimum Groove Radius</b>								
-	-	STJ1695P	16.92	19.18	-	-	635	Brown
-	-	STJ1920P	19.20	21.72	-	-	660	Red
STC2175P	STF2175P	STJ2175P	21.74	24.59	710	710	710	Blue
-	-	STJ2460P	24.61	27.84	-	-	735	Green
-	-	STJ2785P	27.86	31.50	-	-	840	Yellow
<b>17.5mm Minimum Groove Radius</b>								
STC2460P	STF2460P	-	24.61	27.84	735	735	-	Green
<b>19.1mm Minimum Groove Radius</b>								
STC2785P	STF2785P	-	27.86	31.50	840	840	-	Yellow

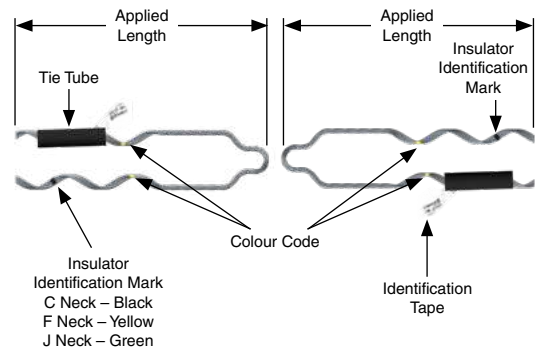
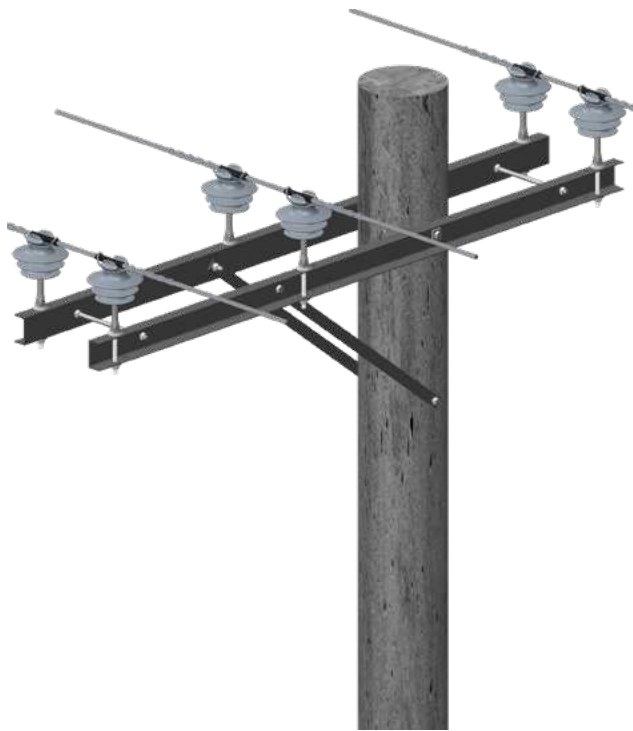
**C Neck:** 57.2mm Neck Diameter ANSI Class 55-2 and 55-3/Groove Height Relationship 14.3mm Min. 22.2mm Max.

**F Neck:** 73.0mm Neck Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type  
 Groove Height Relationship 14.3mm Min. 22.2mm Max.

**J Neck:** 88.9mm Neck Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type  
 Groove Height Relationship 6.4mm Min. 15.9mm Max.

# INSULATOR TIES - METAL

## DOUBLE LINE TIE/TOP TIE



PLP's Double Line Ties/Top Ties are intended for securing bare conductors into the top grooves of insulators. On vertically-mounted insulators at double crossarms or brackets, the Double Line Tie/Top Tie can normally accommodate line angles of up to a total of 20°, with no more than a 10° angle at each insulator. Larger angles may be accommodated when the insulators are mounted at varying degrees of cant from the vertical, depending upon the actual cant of the insulators.

**Material:** Double Line Ties/Top Ties are made from aluminium alloy, and include an elastomer pad as standard. Aluminium alloy was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

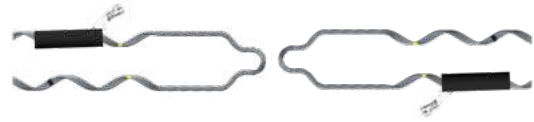
**Mechanical:** Testing has shown Double Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, Double Line Ties/Top Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator.

Double Line Ties/Top Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the Double Line Tie/Top Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. Double Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - METAL

## DOUBLE LINE TIE/TOP TIE



**C, F and J Neck**

**ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR**

PLP Catalogue Number		Outer Diameter Range (mm)		Approximate Applied Length (mm)		Conductor Colour Code
C and F Neck	J Neck	Minimum	Maximum	C and F Neck	J Neck	
DSTCF0620	DSTJ0620	6.22	7.04	330	355	Orange
DSTCF0705	DSTJ0705	7.06	8.00	330	355	Purple
DSTCF0800	DSTJ0800	8.03	9.07	355	380	Red
DSTCF0910	DSTJ0910	9.09	10.29	355	380	Yellow
DSTCF1030	DSTJ1030	10.31	11.66	380	405	Blue
DSTCF1170	DSTJ1170	11.68	13.21	405	405	Orange
DSTCF1325	DSTJ1325	13.23	14.94	430	455	Red
DSTCF1495	DSTJ1495	14.96	16.89	430	455	Purple
DSTCF1695	DSTJ1695	16.92	19.18	455	485	Brown
DSTCF1920	DSTJ1920	19.20	21.72	510	535	Red
DSTCF2175	DSTJ2175	21.74	24.59	535	560	Blue
DSTCF2460	DSTJ2460	24.61	27.84	560	585	Green
DSTCF2785	DSTJ2785	27.86	31.50	585	610	Yellow
DSTCF3140	-	31.52	35.61	660	-	Red

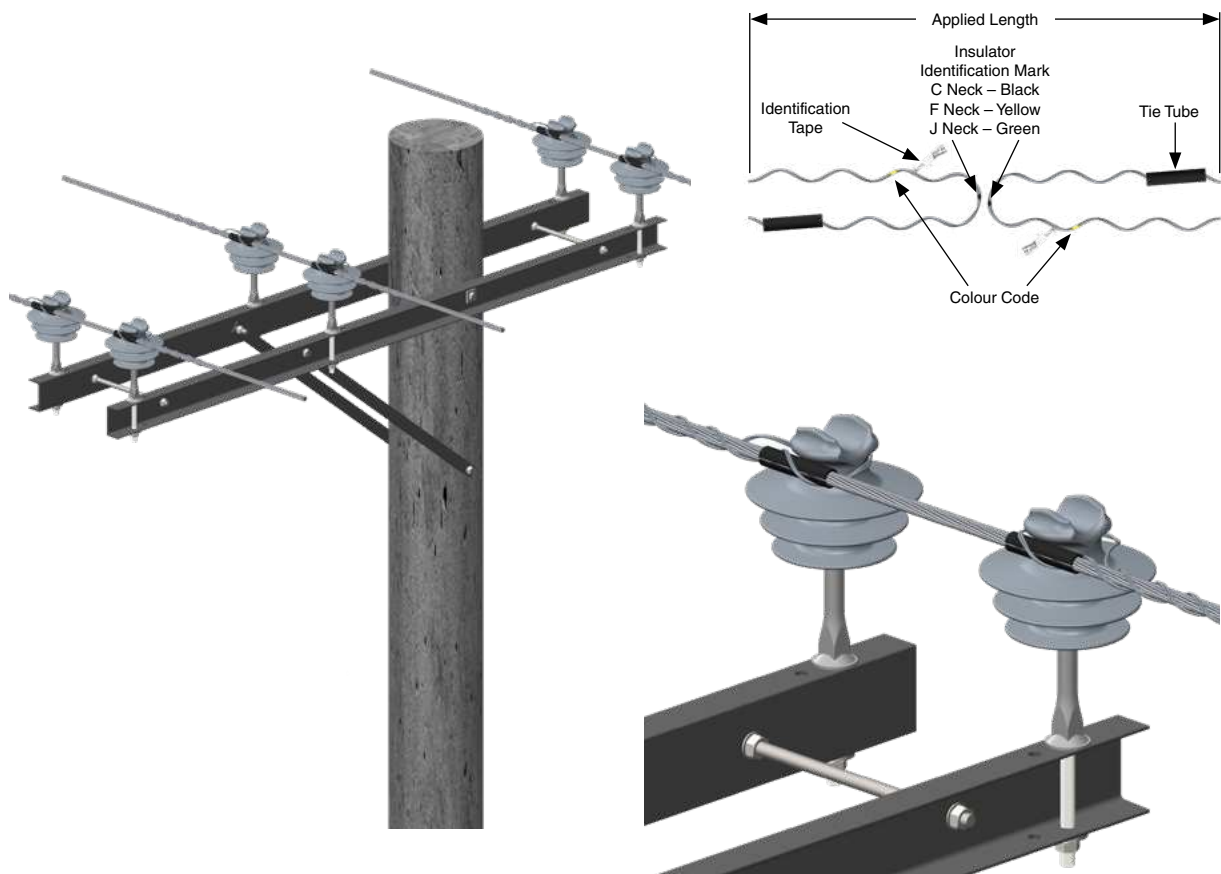
**C Neck:** 57.2mm Neck Diameter ANSI Class 55-2 and 55-3

**F Neck:** 73.0mm Neck Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type

**J Neck:** 88.9mm Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type Groove Height Relationship 6.4mm Min. 15.9mm Max.

# INSULATOR TIES - METAL

## DOUBLE SIDE TIE



PLP's Double Side Ties are intended for securing bare conductors into the side grooves of insulators. On vertically-mounted insulators at double crossarms or brackets, the Double Side Tie can normally accommodate line angles of between 0° and 80°, with no more than a 40° angle at each insulator. When insulators are mounted at various degrees of cant from the vertical, various line angles may be accommodated depending upon the actual cant of the insulators.

**Material:** Double Side Ties are made from aluminised steel, and include an elastomer pad as standard. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown Double Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, Double Side Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator. Double Side Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the Double Side Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. Double Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.



# INSULATOR TIES - METAL

## DOUBLE SIDE TIE



**C, F and J Neck**

**ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR, ACAR**

PLP Catalogue Number		Outer Diameter Range (mm)		Approximate Applied Length (mm)		Conductor Colour Code
C and F Neck	J Neck	Minimum	Maximum	C and F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>						
DBST0620	DBSTJ0620	6.22	7.04	405	485	Orange
DBST0705	DBSTJ0705	7.06	8.00	405	430	Purple
DBST0805	DBSTJ0805	8.03	9.07	430	560	Red
DBST0910	DBSTJ0910	9.09	10.29	405	535	Yellow
DBST1030	DBSTJ1030	10.31	11.66	455	485	Blue
DBST1170	DBSTJ1170	11.68	13.21	485	510	Orange
DBST1325	DBSTJ1325	13.23	14.94	485	535	Red
DBST1495	DBSTJ1495	14.96	16.89	510	610	Purple
DBST1695	DBSTJ1695	16.92	19.18	510	635	Brown
DBST1920	DBSTJ1920	19.20	21.72	510	610	Red
<b>15.9mm Minimum Groove Radius</b>						
DBST2175	DBSTJ2175	21.74	24.59	560	585	Blue
<b>17.5mm Minimum Groove Radius</b>						
DBST2460	DBSTJ2460	24.61	27.84	610	585	Green
-	DBSTJ2785	27.86	31.50	-	635	Yellow
<b>19.1mm Minimum Groove Radius</b>						
DBST2785	-	27.86	31.50	610	-	Yellow
DBST3150	-	31.52	35.61	710	-	Orange

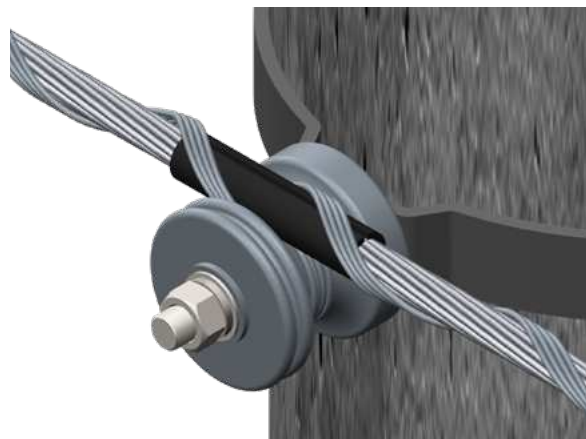
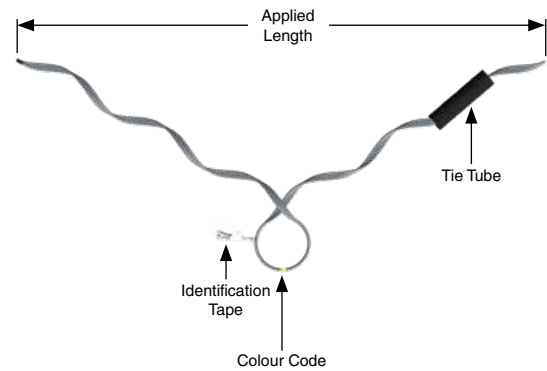
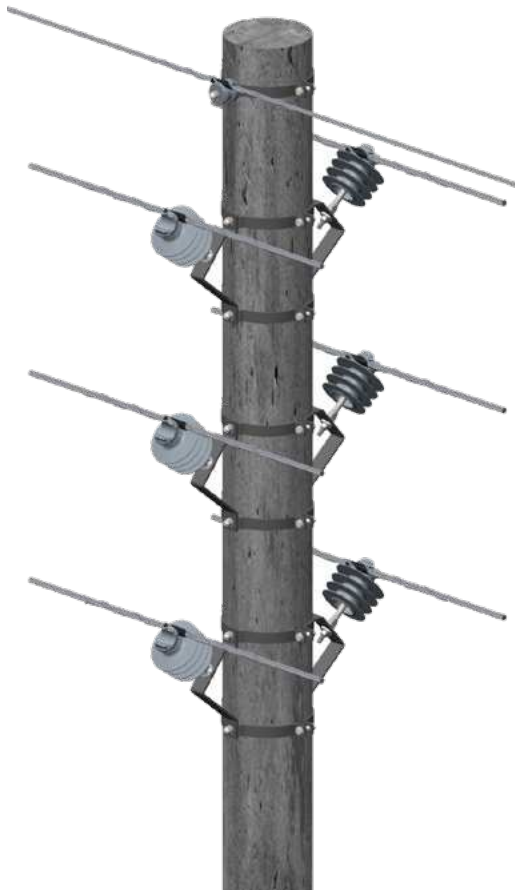
**C Neck** 57.2mm Neck Diameter ANSI Class 55-2 and 55-3

**F Neck:** 73.0mm Neck Diameter ANSI Class 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type

**J Neck:** 88.9mm Neck Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type

# INSULATOR TIES - METAL

## SPOOL TIE



PLP's Spool Ties are intended for securing bare conductors to the side groove of spool insulators. On horizontally-mounted insulators, Spool Ties can normally accommodate line angles up to 10°. On vertically-mounted insulators, line angles up to 40° can normally be achieved.

**Material:** Spool Ties are made from aluminised steel, and include an elastomer pad as standard. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown Spool Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, Spool Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator.

Spool Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the Spool Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI compliant insulators having nominal neck diameters of Ø 44.5mm be used.

# INSULATOR TIES - METAL

## SPOOL TIE



### 44.5mm Neck with Pad

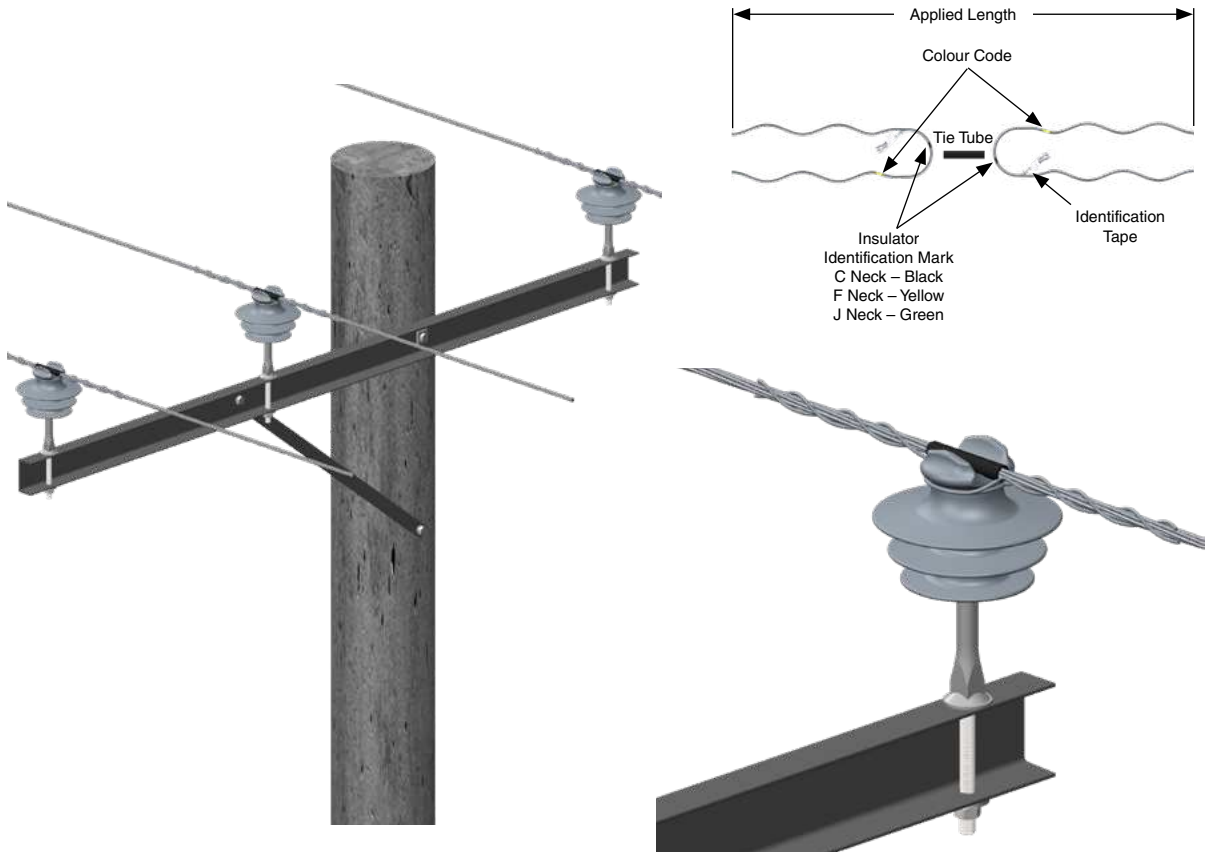
ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR, ACAR

PLP Catalogue Number	Outer Diameter Range (mm)		Approximate Applied Length (mm)	Conductor Colour Code
	Minimum	Maximum		
SPL0480P	4.83	5.46	405	Blue
SPL0550P	5.49	6.20	430	Brown
SPL0620P	6.22	7.04	485	Orange
SPL0705P	7.06	8.00	535	Purple
SPL0800P	8.03	9.07	610	Red
SPL0910P	9.09	10.29	660	Yellow
SPL1030P	10.31	11.66	710	Blue
SPL1170P	11.68	13.21	785	Orange
SPL1325P	13.23	14.94	815	Red
SPL1495P	14.96	16.89	585	Purple
SPL1695P	16.92	19.18	635	Brown
SPL1920P	19.20	21.72	660	Red
SPL2175P	21.74	24.59	710	Blue

44.5mm Neck Diameter ANSI Class 53-1, 53-2 and 53-3

# INSULATOR TIES - METAL

## EZ-WRAP® LINE TIE/TOP TIE



EZ-WRAP® Top Ties (also known as EZ-WRAP® Twin Ties) are intended for securing bare conductors into the top groove of insulators. On vertically-mounted insulators, EZ-WRAP® Top Ties can normally accommodate line angles of up to 10°. Larger angles may be accommodated when the insulator is mounted at varying degrees of cant from the vertical, depending upon the actual cant of the insulator.

**Material:** EZ-WRAP® Top Ties are made from aluminised steel, and include an elastomer pad as standard. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown EZ-WRAP® Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, EZ-WRAP® Top Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator.

EZ-WRAP® Top Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the EZ-WRAP® Top Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. EZ-WRAP® Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - METAL

## EZ-WRAP® LINE TIE/TOP TIE



**C Neck and F Neck**

**F Neck and J Neck**

**ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted All-Aluminium, Compacted ACSR**

PLP Catalogue Number		Outer Diameter Range (mm)		Approximate Applied Length (mm)		Insulator Identification Mark		Conductor Colour Code
C and F Neck	F and J Neck	Minimum	Maximum	C and F Neck	F and J Neck	C and F Neck	F and J Neck	
<b>14.3mm Minimum Groove Radius</b>								
TTCF-102	TTFJ-202	6.22	7.04	535	585	Black/Yellow	Yellow/Green	Orange
TTCF-103	TTFJ-203	7.06	8.00	560	610	Black/Yellow	Yellow/Green	Purple
TTCF-104	TTFJ-204	8.03	9.07	585	635	Black/Yellow	Yellow/Green	Red
TTCF-105	TTFJ-205	9.09	10.29	635	685	Black/Yellow	Yellow/Green	Yellow
TTCF-106	TTFJ-206	10.31	11.66	660	710	Black/Yellow	Yellow/Green	Blue
TTCF-107	TTFJ-207	11.68	13.21	685	735	Black/Yellow	Yellow/Green	Orange
TTCF-108	TTFJ-208	13.23	14.94	710	760	Black/Yellow	Yellow/Green	Red
TTCF-109	TTFJ-209	14.96	16.89	735	785	Black/Yellow	Yellow/Green	Purple
TTCF-110	TTFJ-210	16.92	19.18	785	840	Black/Yellow	Yellow/Green	Brown
TTCF-111	TTFJ-211	19.20	21.72	815	865	Black/Yellow	Yellow/Green	Red
<b>15.9mm Minimum Groove Radius</b>								
TTCF-112*	TTFJ-212**	21.74	24.59	890	940	Yellow	Green	Blue
<b>19.1mm Minimum Groove Radius</b>								
TTCF-113*	TTFJ-213**	24.61	27.84	940	990	Yellow	Green	Green
TTCF-114*	TTFJ-214**	27.86	31.50	990	1,040	Yellow	Green	Yellow

\* These sizes are recommended for use with F Neck insulators only due to C Neck insulator top groove space limitations.

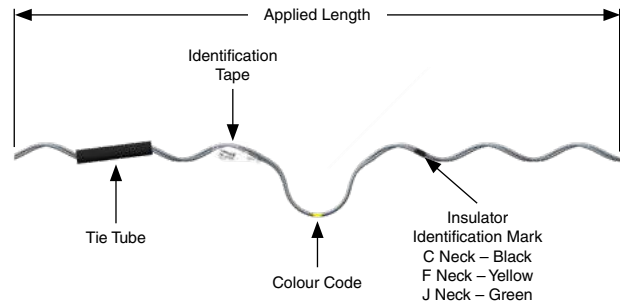
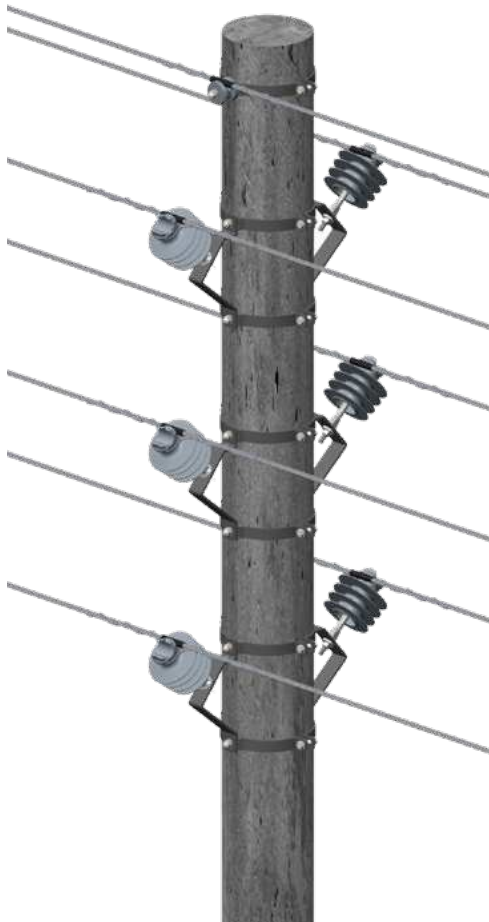
\*\* These sizes are recommended for use with J Neck insulators only. For F Neck insulator applications, use F Neck catalogue numbers.

**C Neck and F Neck:** 57.2mm and 73.0mm Neck Diameter Class ANSI 55-2, 55-3, 55-4 and 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type

**F Neck and J Neck:** 73.0mm and 88.9mm Neck Diameter Class ANSI 55-4, 55-5, 57-1, 57-2 and 57-3 Pin Type/55-6 and 55-7 Single Skirt Pin Type, 56-1 Double Skirt Pin Type

# INSULATOR TIES - METAL

## EZ-WRAP® SIDE TIE



EZ-WRAP® Side Ties are intended for securing bare conductors to the side groove of insulators. On horizontally-mounted insulators, EZ-WRAP® Side Ties can normally accommodate line angles up to 10°. On vertically-mounted insulators, line angles up to 40° can normally be achieved. When insulators are mounted at varying degrees of cant between the horizontal and the vertical, line angles between 0° and 40° may be accommodated, depending upon the actual cant of the insulator.

**Material:** EZ-WRAP® Side Ties are made from aluminised steel, and include an elastomer pad as standard. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown EZ-WRAP® Side Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, EZ-WRAP® Side Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator. EZ-WRAP® Side Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the EZ-WRAP® Side Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. EZ-WRAP® Side Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - METAL

## EZ-WRAP® SIDE TIE



**C, F and J Neck**  
**ACAR, ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted ACSR**

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>								
EZSTC-270	EZSTF-170	EZSTJ-570	4.83	5.46	535	535	610	Blue
EZSTC-271	EZSTF-171	EZSTJ-571	5.49	6.20	560	560	635	Brown
EZSTC-272	EZSTF-172	EZSTJ-572	6.22	7.04	585	585	660	Orange
EZSTC-273	EZSTF-173	EZSTJ-573	7.06	8.00	610	610	685	Purple
EZSTC-274	EZSTF-174	EZSTJ-574	8.03	9.07	635	635	710	Red
EZSTC-275	EZSTF-175	EZSTJ-575	9.09	10.29	585	585	660	Yellow
EZSTC-276	EZSTF-176	EZSTJ-576	10.31	11.66	635	635	710	Blue
EZSTC-277	EZSTF-177	EZSTJ-577	11.68	13.21	685	685	760	Orange
EZSTC-278	EZSTF-178	EZSTJ-578	13.23	14.94	710	710	785	Red
EZSTC-279	EZSTF-179	EZSTJ-579	14.96	16.89	785	785	865	Purple
EZSTC-280	EZSTF-180	-	16.92	19.18	840	865	-	Brown
EZSTC-281	EZSTF-181	-	19.20	21.72	890	915	-	Red
<b>15.9mm Minimum Groove Radius</b>								
-	-	EZSTJ-580	16.92	19.18	-	-	915	Brown
-	-	EZSTJ-581	19.20	21.72	-	-	965	Red
EZSTC-282	EZSTF-182	EZSTJ-582	21.74	24.59	915	940	990	Blue
-	-	EZSTJ-583	24.61	27.84	-	-	1,040	Green
-	-	EZSTJ-584	27.86	31.50	-	-	1,065	Yellow
<b>17.5mm Minimum Groove Radius</b>								
EZSTC-283	EZSTF-183	-	24.61	27.84	965	990	-	Green
<b>19.1mm Minimum Groove Radius</b>								
EZSTC-284	EZSTF-184	-	27.86	31.50	990	1,015	-	Yellow

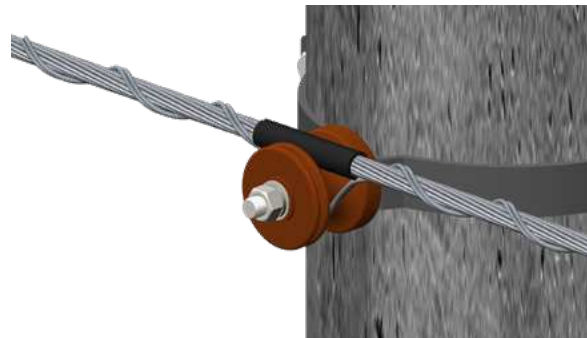
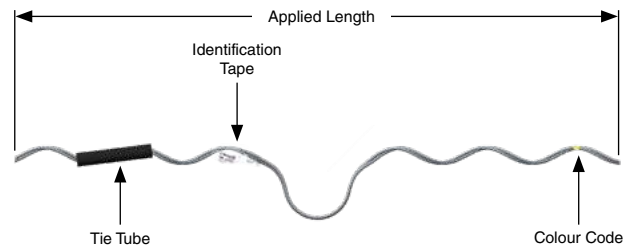
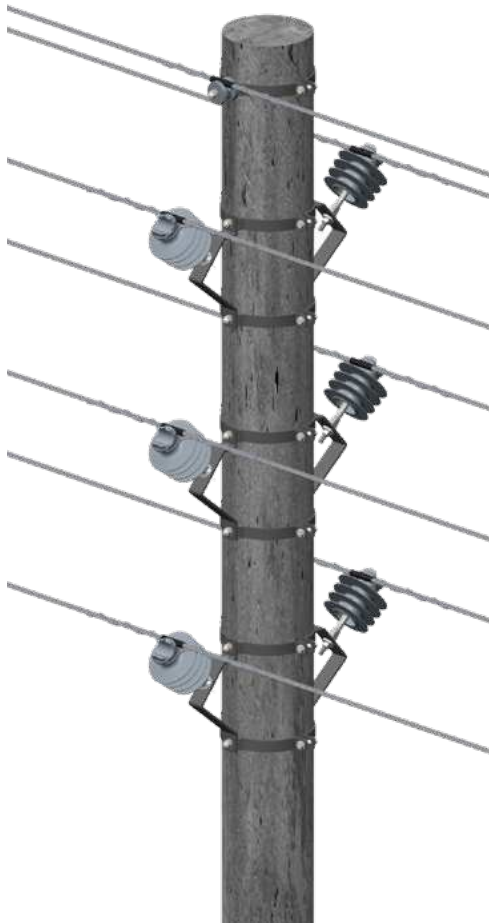
**C Neck:** 57.2mm Neck Diameter Class ANSI 55-2 and 55-3 Pin Type

**F Neck:** 73.0mm Neck Diameter Class ANSI 53-4 and 53-5 Spool/55-4 Pin Type/57-1, 57-2 and 57-3 Post Type

**J Neck:** 88.9mm Neck Diameter Class ANSI 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type

# INSULATOR TIES - METAL

## EZ-WRAP® SPOOL TIE



EZ-WRAP® Spool Ties are intended for securing bare conductors to the side groove of spool insulators. On horizontally-mounted insulators, EZ-WRAP® Spool Ties can normally accommodate line angles up to 10°. On vertically-mounted insulators, line angles up to 40° can normally be achieved.

**Material:** EZ-WRAP® Spool Ties are made from aluminised steel, and include an elastomer pad as standard. Aluminised steel was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown EZ-WRAP® Spool Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. When installed with a pad on bare conductor, EZ-WRAP® Ties provide superior protection against abrasion and all types of conductor motion. The pad is a resilient cushion at the point of contact between conductor and insulator.

EZ-WRAP® Spool Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the EZ-WRAP® Spool Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI compliant insulators having nominal neck diameters of Ø 44.5mm be used.



# INSULATOR TIES - METAL

## EZ-WRAP® SPOOL TIE



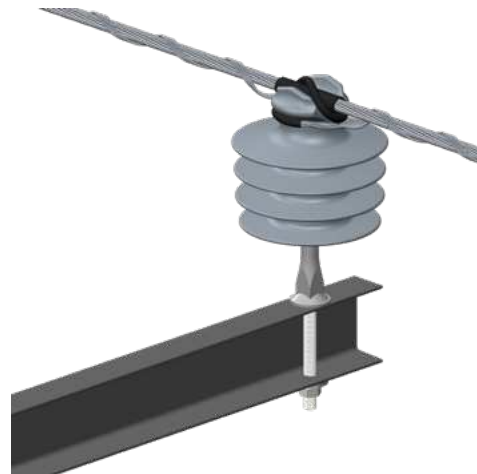
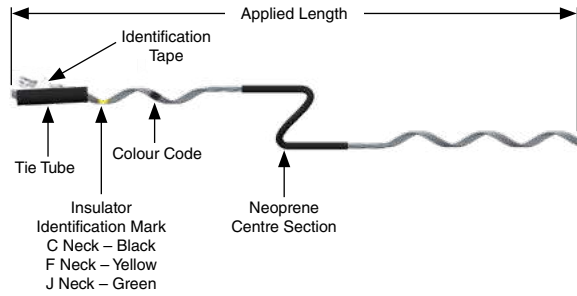
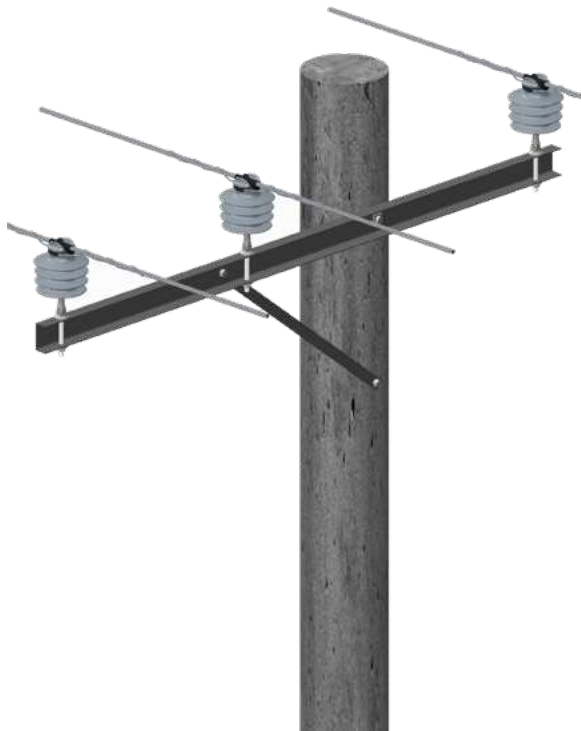
**Spool Insulator**  
**ACAR, ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted ACSR**

PLP Catalogue Number	Outer Diameter Range (mm)		Approximate Applied Length (mm)	Conductor Colour Code
	Minimum	Maximum		
EZSP-4372	6.22	7.04	485	Orange
EZSP-4374	8.03	9.07	610	Red
EZSP-4375	9.09	10.29	660	Yellow
EZSP-4376	10.31	11.66	710	Blue
EZSP-4377	11.68	13.21	785	Orange
EZSP-4378	13.23	14.94	815	Red
EZSP-4379	14.96	16.89	585	Purple
EZSP-4380	16.92	19.18	635	Brown
EZSP-4381	19.20	21.72	660	Red
EZSP-4382	21.74	24.59	710	Blue
EZ-MS-10279	24.61	27.84	965	Green

44.5mm Neck Diameter Class ANSI 53-1, 53-2 and 53-3 Pin Type

# INSULATOR TIES - METAL

## WRAPLOCK® LINE TIE/TOP TIE



WRAPLOCK® Line Ties/Top Ties are intended for securing bare conductors to the top groove of insulators. On vertically-mounted insulators, WRAPLOCK® Line Ties/Top Ties can normally accommodate line angles of up to 10°. Larger angles may be accommodated when the insulator is mounted at varying degrees of cant from the vertical, depending upon the actual cant of the insulator.

**Material:** WRAPLOCK® Line Ties/Top Ties are made from aluminium alloy, and include an elastomer pad as standard. Aluminium alloy was selected because of its tensile strength, impact strength, flexural strength and corrosion-resistant properties.

**Mechanical:** Testing has shown WRAPLOCK® Line Ties/Top Ties will develop unbalanced and lift-off loads equivalent to, or in excess of, a hand tie over covered conductor. The moulded centre section completely surrounds the conductor with a protective cushion and, when installed with a pad on bare conductor, WRAPLOCK® Line Ties/Top Ties provide maximum protection against abrasion and all types of conductor motion.

The combination of moulded centre section and pad creates a super-resilient cushion at the point of contact between conductor and insulator.

WRAPLOCK® Line Ties/Top Ties without pads are suitable for use on low voltage PVC insulated conductors and may also be used to replace hand tie wire in areas where abrasion damage has not been experienced. Under unbalanced load conditions, the WRAPLOCK® Line Tie/Top Tie has the resiliency to permit some longitudinal displacement of the conductor over the insulator without loosening the tie or damaging the conductor.

**Insulators:** To ensure proper fit and performance, it is recommended that only ANSI C29.5 or C29.7 compliant insulators having nominal neck diameters corresponding to Ø 57.2mm (C Neck), Ø 73.0mm (F Neck) and Ø 88.9mm (J Neck) be used. WRAPLOCK® Line Ties/Top Ties are suitable for use with either ANSI compliant polymer or porcelain insulators.

# INSULATOR TIES - METAL

## WRAPLOCK® LINE TIE/TOP TIE



### C, F and J Neck

ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted ACSR, Compacted All-Aluminium

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>14.3mm Minimum Groove Radius</b>								
WTC-0100	WTF-0200	WTJ-0400	6.30	6.58	485	525	535	Orange
WTC-0101	WTF-0201	WTJ-0401	6.60	6.83	485	525	535	Green
WTC-0102	WTF-0202	WTJ-0402	6.86	7.11	485	525	535	Yellow
WTC-0103	WTF-0203	WTJ-0403	7.14	7.39	520	555	535	White
WTC-0104	WTF-0204	WTJ-0244	7.42	7.70	520	555	560	Purple
WTC-0105	WTF-0205	WTJ-0405	7.72	7.98	545	580	560	Brown
WTC-0106	WTF-0206	WTJ-0406	8.00	8.31	545	580	585	Red
WTC-0107	WTF-0207	WTJ-0407	8.33	8.64	570	605	585	Blue
WTC-0108	WTF-0208	WTJ-0408	8.66	8.97	570	605	610	Orange
WTC-0109	WTF-0209	WTJ-0409	8.99	9.32	595	630	610	Green
WTC-0110	WTF-0210	WTJ-0410	9.35	9.68	510	545	635	Black
WTC-0111	WTF-0211	WTJ-0411	9.70	10.01	535	570	585	White
WTC-0112	WTF-0212	WTJ-0412	10.03	10.44	535	570	610	Yellow
WTC-0113	WTF-0213	WTJ-0413	10.46	11.10	560	595	635	Brown
WTC-0114	WTF-0214	WTJ-0414	11.13	11.76	585	620	660	Blue
WTC-0115	WTF-0215	WTJ-0415	11.79	12.50	620	650	710	Green
WTC-0116	WTF-0216	WTJ-0416	12.52	13.26	620	650	710	Orange
WTC-0117	WTF-0217	WTJ-0417	13.28	14.07	675	650	710	Black
WTC-0118	WTF-0218	WTJ-0418	14.10	15.09	700	675	735	Red
WTC-0119	WTF-0219	WTJ-0419	15.11	16.00	725	710	760	Purple

**C Neck:** 57.2 mm Neck Diameter Class ANSI 55-2 and 55-3 Pin Type

**F Neck:** 73.0mm Neck Diameter Class ANSI 55-4, 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type

**J Neck:** 88.9mm Neck Diameter Class ANSI 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type

# INSULATOR TIES - METAL

## WRAPLOCK® LINE TIE/TOP TIE



### C, F and J Neck

ACSR, All-Aluminium, Aluminium Alloy, AWAC®, Compacted ACSR, Compacted All-Aluminium

PLP Catalogue Number			Outer Diameter Range (mm)		Approximate Applied Length (mm)			Conductor Colour Code
C Neck	F Neck	J Neck	Minimum	Maximum	C Neck	F Neck	J Neck	
<b>15.9mm Minimum Groove Radius</b>								
WTC-0120	WTF-0220	WTJ-0420	16.03	16.87	725	735	785	Yellow
WTC-0121	WTF-0221	WTJ-0421	16.89	17.91	750	735	785	Brown
WTC-0122	WTF-0222	WTJ-0422	17.93	18.97	775	760	815	Green
<b>19.1mm Minimum Groove Radius</b>								
WTC-0123	WTF-0223	WTJ-0423	19.00	20.19	840	825	865	Orange
WTC-0124	WTF-0224	WTJ-0424	20.22	21.49	940	940	1,005	Purple
WTC-0125	WTF-0225	WTJ-0425	21.51	22.86	990	990	1,040	Blue
WTC-0126	WTF-0226	WTJ-0426	22.89	24.33	1,040	1,040	1,090	Green
WTC-0127	WTF-0227	WTJ-0427	24.36	25.86	1,090	1,090	1,145	White
<b>20.6mm Minimum Groove Radius</b>								
WTC-0128	WTF-0228	WTJ-0428	25.88	27.51	1,145	1,145	1,195	Brown
<b>22.2mm or 25.40mm Minimum Groove Radius</b>								
WTC-0129	WTF-0229	WTJ-0429	27.53	29.24	1,195	1,195	1,245	Orange
WTC-0130	WTF-0230	WTJ-0430	29.26	31.06	1,245	1,245	1,295	Purple
WTC-0131	WTF-0231	WTJ-0431	31.09	31.50	1,500	1,500	1,510	Black

**C Neck:** 57.2mm Neck Diameter Class ANSI 55-2 and 55-3 Pin Type

**F Neck:** 73.0mm Neck Diameter Class ANSI 55-4, 55-5 Pin Type/57-1, 57-2 and 57-3 Post Type

**J Neck:** 88.9mm Neck Diameter Class ANSI 55-6 and 55-7 Single Skirt Pin Type/56-1 Double Skirt Pin Type

# SECTION 5 - DEADENDS

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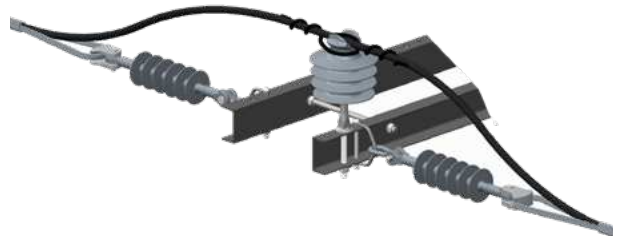
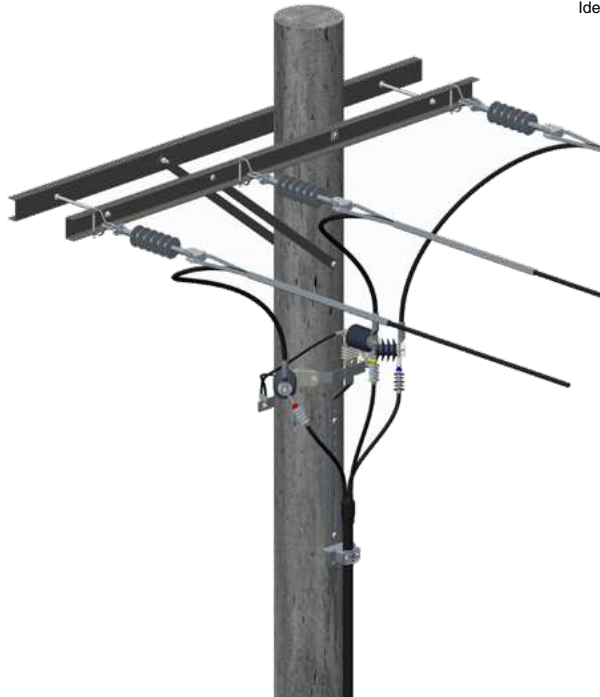
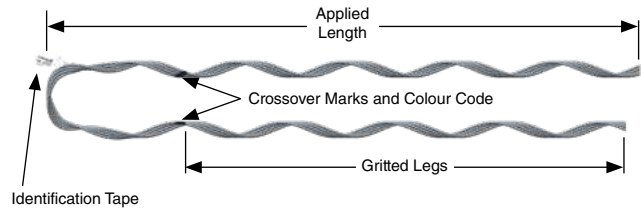
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# PREFORMED™ DEADENDS

## DISTRIBUTION-GRIP DEADEND FOR BARE PHASE CONDUCTORS

### ALUMINIUM ALLOY



#### Distribution-Grip Deadends

PLP's PREFORMED™ Distribution-Grip Deadends are designed to be applied directly to bare AAC, AAAC or ACSR conductor. Distribution-Grip Deadends can be applied to covered conductor, but only after the sheath has been removed. PREFORMED™ Distribution-Grip Deadends must never be applied over the sheath of a covered conductor.

PREFORMED™ Distribution-Grip Deadends will hold 95% of the specified conductor breaking load (CBL) when directly applied to AAC, AAAC and small ACSR conductors.

All Distribution-Grip fittings have colour coded markings to indicate the starting point for application and to assist in product identification.

#### Multi Piece Full Tension Deadends (ACSR)

PLP's full tension deadends will hold 100% of the Conductor Breaking Load (CBL) when applied to ACSR conductors. Full tension deadends are a multi-piece assembly. Installation requires that a short section of the conductor's aluminium strands are removed from the steel core and a Preformed deadend fitted directly to the steel core. Depending on the construction of the ACSR conductor, installation of a filler rod may be required over the deadend that has been applied to the steel core. Thereafter, a larger aluminium deadend is applied over the steel core deadend, the filler rod and the aluminium strands of the conductor. By fitting the loops of each deadend into the clevis thimble and gripping both the steel core and the aluminium strands of the conductor, the full tension Preformed deadend assembly allows an ACSR conductor to be quickly and easily terminated without the use of special tools or equipment.

# PREFORMED™ DEADENDS

## DISTRIBUTION-GRIP DEADEND FOR BARE PHASE CONDUCTORS ALUMINIUM ALLOY

PLP Catalogue Number	Outer Diameter Range (mm)		Standard Pack Quantity	Conductor Colour Code
	Minimum	Maximum		
ADE0525	5.15	5.39	50	Purple
ADE0560	5.60	5.79	50	White
ADE0625	6.25	6.54	50	Orange
ADE0675	6.55	6.89	50	Brown
ADE0690	6.90	7.14	50	Orange
ADE0750	7.35	7.59	50	Blue
ADE0760	7.60	7.89	50	Brown
ADE0830	8.30	8.64	40	Blue
ADE0900	8.65	9.35	50	Red
ADE0970	9.70	10.15	30	Yellow
ADE1015	10.15	10.49	40	Blue
ADE1050	10.50	10.79	25	Brown
ADE1125	10.80	11.29	25	Black
ADE1130	11.30	11.74	25	Blue
ADE1225	12.25	12.79	25	Orange
ADE1350	13.24	13.84	20	Green
ADE1430	13.85	14.44	20	Blue
ADE1625	15.70	16.39	15	Orange
ADE1750	17.05	17.79	10	Blue
ADE1780	17.80	18.54	10	Blue
ADE1875	18.55	19.34	10	Black
ADE1989	19.35	20.39	10	Red
ADE2100	20.40	21.82	10	Red
ADE2375	23.75	25.29	10	Blue
ADE2625	25.30	27.27	10	Black
ADE2930	28.60	30.83	10	Orange

### Multi Piece Full Tension Deadends

For Bare ACSR Phase Conductors  
Aluminium Clad Steel and Galvanised Steel

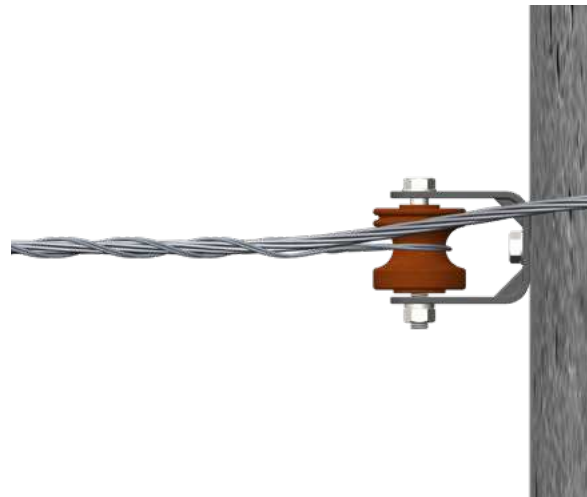
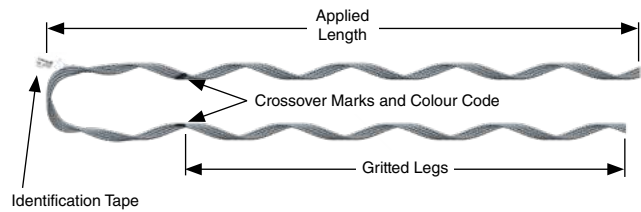
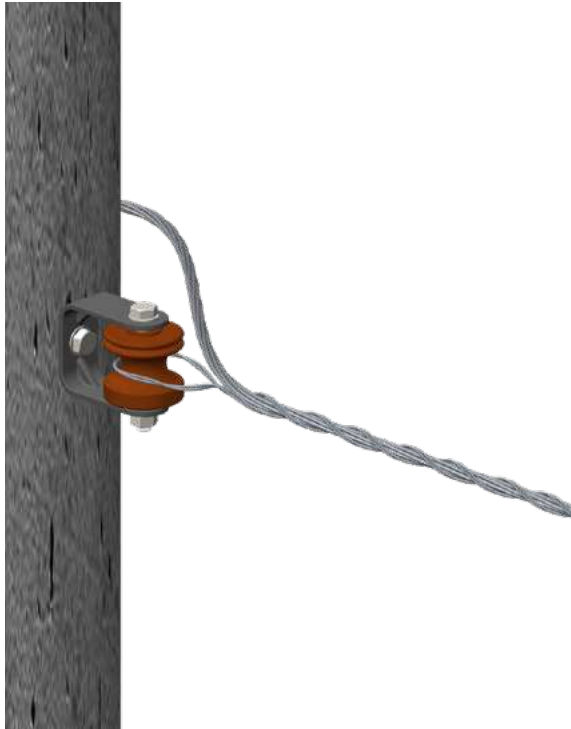
PLP Catalogue Number	ACSR Conductor Stranding	Standard Pack Quantity
FTDE0900	6/1/3.00	25
FTDE1250	12/7/2.50	25
FTDE1675	18/1/3.35	20





## PREFORMED™ DEADENDS

### SERVICE-GRIP DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM CLAD STEEL



The Service-Grip Deadend, manufactured of aluminium-clad steel, is designed for bare neutral messengers or self-supporting cable used in making service drops. The deadend is recommended for service drops as a result of its minimum length, economy and neatness of appearance.

Recommended for spans not exceeding 45m. For service drops exceeding 45m, the Distribution-Grip Deadend is recommended.

Neoprene Dipped NDE Type deadends are recommended for direct application over plastic jacketed open-wire service drops.

**Rated Holding Strength:** Actual results of tests on unweathered conductor are studied, and consideration is given to dimensional tolerances for the sizes encompassed. These minimum values are conservative when compared to "typical" values, or actual tests on conductor which has been in service.

**Tapping:** Tapping over the applied legs of the Service-Grip Deadend is not recommended. Taps can be made on the conductor, ahead of the deadend, or the conductor can continue through the crossover point of the grip with connectors applied to the continued tail.

**Vibration Dampers:** No consideration of dampening devices with Service-Grip Deadends is made since Distribution-Grip Deadends are recommended when vibration is suspected.

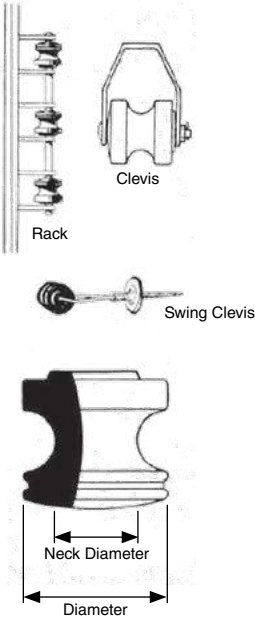
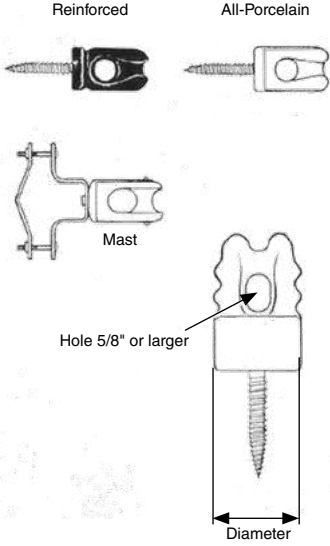
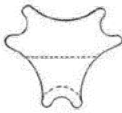
**Application - Inspection:** Deadends should not be re-used after original installation.

Lay direction of both the deadend and the conductor should be the same. Lay direction of most neutral-messengers is right hand lay.

The loops of Service-Grip Deadends should not be crisscrossed, when two or more are applied to the same spool.

# PREFORMED™ DEADENDS

## SERVICE-GRIP DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM CLAD STEEL

Acceptable Fittings		
Spool Insulators	Wire Holders	Triplex Separator
		
Diameters 57.2mm - 101.2mm	Diameters 49.2mm - 76.2mm	Diameters 38.1mm - 76.2mm
Neck Diameters: 28.6mm min. - 76.2mm max.	Neck Diameters: 28.6mm min. - 76.2mm max.	Neck Diameters: 28.6mm min. - 76.2mm max.

**Note:** Loops of the Service-Grip Deadend are designed for use with a variety of porcelain fittings. These fittings are recommended because they have smoothly contoured diameters between 28.6mm minimum and 76.2mm maximum. Refer to catalogue pages for maximum neck diameters for specific Service-Grip Deadends. Consult PLP for fittings not appearing in this table.

# PREFORMED™ DEADENDS

## SERVICE-GRIP DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM CLAD STEEL

### Aluminium Clad Steel

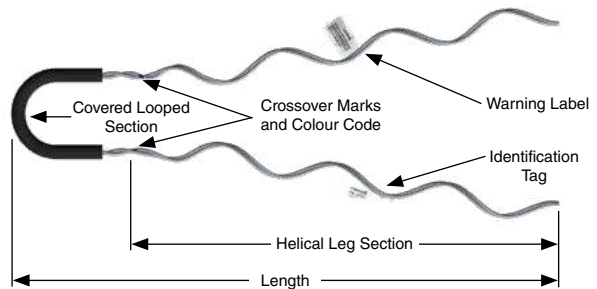
PLP Catalogue Number	Outer Diameter Range (mm)		Standard Pack Quantity	Weight per Carton (kg)	Approximate Applied Length (mm)	Deadend Colour Code	Maximum Neck Diameter (mm)
	Minimum	Maximum					
SG0430	4.29	5.03	300	10.9	280	Blue	60.3
SG0505	5.05	5.69	300	12.3	305	White	60.3
SG0570	5.72	6.53	300	13.2	330	Orange	60.3
SG0655	6.55	7.34	200	12.3	355	Black	66.7
SG0735	7.37	8.26	200	12.7	380	Red	66.7
SG0830	8.28	9.14	200	14.1	430	Green	66.7
SG0915	9.17	10.16	100	12.7	480	Yellow	73.0
SG1020	10.19	11.43	100	14.1	535	Blue	73.0
SG1145	11.46	12.95	100	15.0	585	Orange	73.0
SG1300	12.98	14.73	100	16.8	660	Red	76.2

### Rated Holding Strength for Aluminium Based Conductor

PLP Catalogue Number	ACSR	All Aluminium	Aluminium Alloy
SG0430	#6, 6/1 265kg (50%)	#6, 7W 203kg (88%) #5, Solid 249kg (88%)	#6, 7W 381kg (80%)
SG0505	#5, 6/1 331kg (50%)	#4, Solid 350kg (88%)	#5, 7W 490kg (50%)
SG0570	#4, 6/1 415kg (50%) #4, 7/1 519kg (50%)	#4, 7W 349kg (88%) #3 Solid 387kg (88%)	#4, 7W 606kg (80%)
SG0655	#3, 6/1 510kg (50%)	#3, 7W 408kg (88%) #2 Solid 489kg (88%)	#3, 7W 780kg (80%)
SG0735	#2, 6/1 633kg (50%)	#2, 7W 533kg (88%)	#2, 7W 963kg (80%)
SG0830	#1, 6/1 789kg (50%)	#1, 6/1 649kg (88%)	#1, 7W 1,240kg (80%)
SG0915	1/0, 6/1 971kg (50%) 1/0, 5/1 770kg (50%)	1/0, 7W 787kg (88%)	1/0, 7W 1,535kg (80%)
SG1020	2/0, 6/1 1,212kg (50%)	2/0, 7W 990kg (88%)	2/0, 7W 1,834kg (80%)
SG1145	3/0, 6/1 1,514kg (50%)	3/0, 7W 1,199kg (88%)	3/0, 7W 2,310kg (80%)
SG1300	4/0, 6/1 1,910kg (50%) 4/0, 18/1 1,326kg (50%)	4/0, 7W 1,513kg (88%)	4/0, 7W 2,912kg (80%)

# PREFORMED™ DEADENDS

## SLACK SPAN DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM CLAD STEEL WITH INSULATED LOOP



The Slack Span Deadend is intended for use on aluminium based conductors with diameter ranges from 5.8mm to 30.9mm. It is specifically designed to terminate primary, secondary and neutral conductors.

An aluminium alloy version is available for corrosive environments. Contact PLP.

**Conductor Tension Limitations:** The Slack Span Deadend is specifically designed for limited tension applications. It should not be used as a full tension deadend.

The Slack Span Deadend is intended for use where guying (or other) restrictions prevent full tension spans. While individual utility construction and safety practices should dictate actual installations, each Slack Span Deadend has a warning label attached suggesting a maximum allowable loaded tension of 450kg. This value does not indicate a holding strength rating for Slack Span Deadends; rather, it suggests a practical limit for tensions in this type of construction.

The Slack Span Deadend is specifically designed to be installed on pin, line post or spool insulators when used in limited tension construction.

**Covered Loop Section:** The loop of the deadend is covered with an elastomer to provide protection against abrasion and damage to the glaze of the insulator. It also helps minimise RFI, TVI, etc.

Where requirements call for increased tension applications, use either the Distribution-Grip Deadend or the Overhead Deadend. On covered conductors, use Neoprene Dipped Deadends.

**Conductor Compatibility:** Slack Span Deadends should be used only on the size and type of conductor for which they are designed. They must have the same lay as the conductor to which they are being applied. When ordering Slack Span Deadends, make sure to specify the conductor size and type they are to be used on. When using types and/or sizes of conductors not mentioned in these catalogue pages, consult PLP.

During installation, and at all times, care should be taken to avoid gouging or damaging the protective coating of the Slack Span Deadend or the conductor itself. Slack Span Deadends should not be used as tools; i.e. come-alongs, pulling-in grips, etc. Tools are not required to install Slack Span Deadends, except for hot stick applications. For additional information regarding installation, refer to the Slack Span Deadend application procedure.

**Tapping:** Tapping over the legs of the Slack Span Deadend is not recommended. Taps can be made beyond the ends of the deadend on the conductor or on the conductor tail that extends through the loop.

Slack Span Deadends should not be used on overhead shield wires.

## PREFORMED™ DEADENDS

### SLACK SPAN DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM CLAD STEEL WITH INSULATED LOOP

**C Neck and F Neck, J Neck**  
**ACAR, All-Aluminium, ACSR, Aluminium Alloy, AWAC®, Compacted ACSR**

PLP Catalogue Number		Outer Diameter Range (mm)		Nominal Size	Standard Pack Quantity	Approximate Length (mm)		Deadend Colour Code
C and F Neck	J Neck	Minimum	Maximum			C and F Neck	J Neck	
SSDE-9122	SSDE-9142	5.82	6.53	#4 AWG	25	405	460	Orange
SSDE-9124	SSDE-9144	7.37	8.26	#2 AWG	25	460	480	Red
SSDE-9125	SSDE-9145	8.28	9.25	#1 AWG	25	480	510	Green
SSDE-9126	SSDE-9146	9.27	10.39	1/0 AWG	25	510	535	Yellow
SSDE-9127	SSDE-9147	10.41	11.68	2/0 AWG	25	460	480	Blue
SSDE-9128	SSDE-9148	11.71	13.11	3/0 AWG	25	460	510	Orange
SSDE-9129	SSDE-9149	13.13	14.66	4/0 AWG	25	480	535	Red
SSDE-9130	SSDE-9150	14.68	16.89	266.8 kcmil	25	535	560	Black
SSDE-9131	SSDE-9151	16.92	19.89	336.4 kcmil	25	535	585	Green
SSDE-9132	SSDE-9152	19.91	22.43	477 kcmil	25	560	610	Orange
SSDE-9133	SSDE-9153	22.45	26.04	636 kcmil	25	635	685	Brown
SSDE-9134	SSDE-9154	26.06	30.89	795 kcmil	25	660	710	Orange

**C Neck and F Neck:** 57.2mm and 73.0mm Neck Diameter

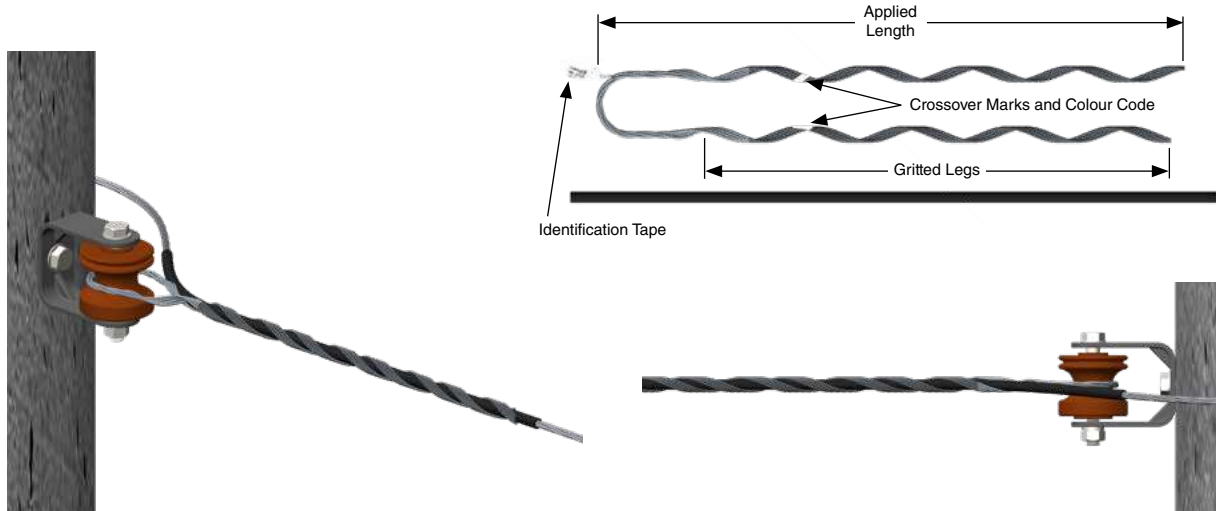
#### Spool Insulators

44.5mm Neck Diameter ANSI Class 53-1, 53-2 and 53-3  
73.0mm Neck Diameter ANSI Class 53-4 and 53-5

**J Neck:** 88.9mm Neck Diameter ANSI Class 55-6 and 55-7 Single Skirt Pin Type/55-8 Double Skirt Pin Type

# PREFORMED™ DEADENDS

## DOUBLE INSULATED DEADEND FOR SHORT SPAN BARE PHASE CONDUCTORS ALUMINIUM ALLOY



PLP's Double Insulated Deadends are designed to be used to terminate each end of overhead low voltage (230V/415V) PVC insulated conductors that are typically installed between an electric utility power pole and a home or business.

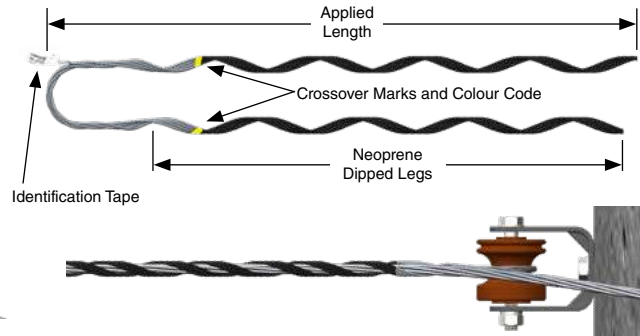
Double Insulated Deadends are suitable for application with insulated single phase conductors, multi-core 2 phase or 3 phase low voltage conductors and neutral screened low voltage conductors. The deadend is neoprene dipped and a sleeve is applied over the length of the conductor under the deadend to provide additional "double" insulation at the interface between the deadend and the conductor. Double Insulated Deadends are not rated for full line tension of the conductor.

### Double Insulated Deadends For Copper and Aluminium Aerial Service Cables

PLP Catalogue Number	Area (mm <sup>2</sup> )	Stranding	Number of Conductors	Standard Pack Quantity	Deadend Colour Code
<b>Twisted Conductors</b>					
DIS1400N	6	7/1.04	2,3 & 4	25	Red
DIS1400N	10	7/1.35	2,3 & 4	25	Red
DIS1600N	10	7/1.35	4	25	White
DIS1400N	16	7/1.70	2	25	Red
DIS1600N	16	7/1.35	3 & 4	25	White
DIS1600N	25	7/2.00	2	25	White
DIS1900N	25	7/2.00	3 & 4	20	Blue
DIS1600N	35	19/1.35	2	25	White
<b>Webbed Conductors</b>					
DIS80610	6	7/ 1.04	-	25	Red
DIS80610	10	7/ 1.35	-	25	Red
DIS81600	16	7/ 1.70	-	25	White
<b>Neutral Screened Conductors</b>					
DIS1400N	6	7/1.04	2	25	Red
DIS1900N	6	7/1.04	3 & 4	20	Blue
DIS1400N	10	7/1.35	2	25	Red
DIS1900N	10	7/1.35	3 & 4	20	Blue
DIS1600N	16	7/1.70	2	25	White
DIS1900N	16	7/1.70	3 & 4	20	Blue

# PREFORMED™ DEADENDS

## FOR SHORT SPAN LOW VOLTAGE INSULATED PHASE CONDUCTORS NEOPRENE DIPPED ALUMINIUM ALLOY



PLP's Short Span Neoprene Coated Deadends are designed to terminate each end of overhead low voltage (230V/415V) PVC insulated conductors that are typically installed between an electric utility power pole and a home or business.

Suitable for application with insulated single phase conductors, multi-core 2 phase or 3 phase low voltage conductors and neutral screened low voltage conductors, the neoprene coating applied to the deadends legs allows gentle but uniform radial compression between the fitting and the conductor ensuring long service life. Low voltage neoprene deadends are not rated for full line tension of the conductor and are supplied without grit applied to the inside of the helix.

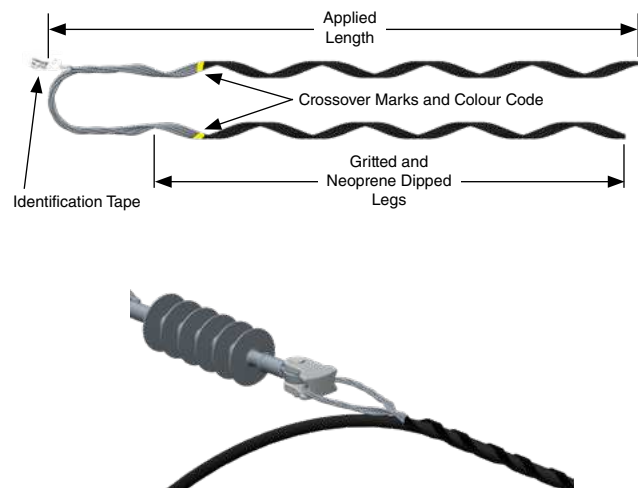
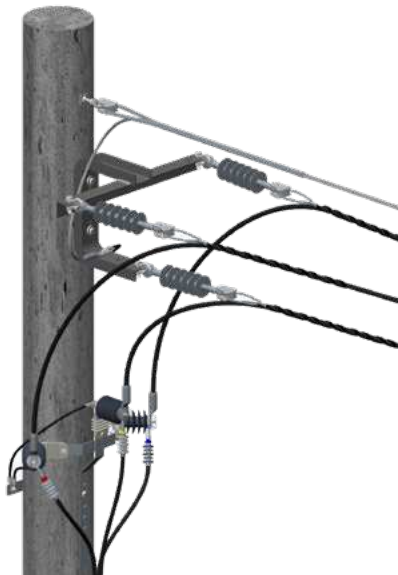
### For Copper and Aluminium Aerial Service Cables

PLP Catalogue Number	Area (mm <sup>2</sup> )	Stranding	Outer Diameter Range (mm)		Number of Conductors	Standard Pack Quantity	Deadend Colour Code
			Minimum	Maximum			
<b>Twisted Conductors</b>							
NDE1036	6	7/1.04	9.6	11.4	2 & 3	25	Blue
NDE1369	6	7/1.04	12.1	14.2	4	25	Red
NDE1036	10	7/1.35	9.6	11.4	2	25	Blue
NDE1369	10	7/1.35	12.1	14.2	2 & 3	25	Red
NDE1369	16	7/1.70	12.1	14.2	2	25	Red
NDE1554	16	7/1.35	14.7	16.6	2 & 3	20	Black
NDE1554	25	7/2.00	14.7	16.6	2	20	Black
NDE1973	25	7/2.00	18.8	20.2	3	15	Yellow
NDE2216	35	19/1.35	22.2	23.6	4	10	Blue
NDE2216	35	19/1.35	22.2	23.6	2,2 & 3	10	Blue
<b>Webbed Conductors</b>							
NDE1036	6	7/ 1.04	9.6	11.4	-	25	Blue
NDE1369	10	7/ 1.35	12.1	14.2	-	25	Red
NDE1369	16	7/ 1.70	12.1	14.2	-	25	Red
NDE1554	25	7/ 2.00	14.7	16.6	-	20	Black
<b>Neutral Screened Conductors</b>							
NDE1036	6	7/1.04	9.6	11.4	2	25	Blue
NDE1554	6	7/1.04	14.7	16.6	2 & 3	20	Black
NDE1036	10	7/1.35	9.6	11.4	2	25	Blue
NDE1554	10	7/1.35	14.7	16.6	3	20	Black
NDE1973	10	7/1.35	18.8	20.2	4	15	Yellow
NDE1369	16	7/1.70	12.1	14.2	2	25	Red
NDE1554	16	7/1.70	14.7	16.6	3	20	Black
NDE2216	16	7/1.70	22.2	23.6	4	10	Blue

# PREFORMED™ DEADENDS

## FOR COMPACTLIGN™ SPACER CABLES

### NEOPRENE DIPPED ALUMINIUM ALLOY



PLP's Neoprene Coated Deadend is manufactured from aluminium alloy wire. It is designed for direct application over conductors jacketed with neoprene, polyethylene, vinyl or rubber. The sub-setted rods in each leg, bonded together with neoprene, exert sufficient radial pressure without damaging the jacket. Because it is not necessary to skin the plastic covering, the same deadend can be used for either aluminium or copper conductors.

Neoprene Coated Deadends should not be used over fabric braided conductor. In this case, the fabric should be skinned and a Distribution-Grip Deadend applied.

**Rated Holding Strength:** Holding values of Neoprene Coated Deadends are dependent on a combination of several factors:

- Conductor size, type, stranding
- Thickness of jacket
- Type of jacket
- Specific density of various polyethylenes

As a general guide, the following considerations may be adapted for a certain conductor and construction practice.

When tested under static tension (ram speed of 50mm per minute), Coated Deadends will hold the full rated breaking strength of all-aluminium and copper conductors, jacketed with neoprene or medium density polyethylene. Static tension results on ACSR approximates the full strength of the aluminium strands plus 10% of the steel core strength.

**Tapping:** Coated Deadends allow the plastic jacket to remain intact and the conductor continues through the crossover point of the grip. Connectors are applied to the continued tail, with minimum stripping and exposure to corrosion.

PLP Catalogue Number	Outer Diameter Range (mm)		Nominal Conductor Size	Standard Pack Quantity	Weight per Carton (kg)	Approximate Applied Length (mm)	Deadend Colour Code
	Minimum	Maximum					
<b>Open Helix Loop</b>							
AND0615	6.17	6.43	#6, 7W, 2/64s	100	5.9	430	Green
AND0645	6.45	6.71	#6, Solid, 3/64s #6, 6/1, 2/64s	100	6.4	430	Red
AND0675	6.73	6.91	#4, Solid, 2/64s	100	6.4	460	Blue
AND0695	6.93	7.21	#6, 7W, 3/64s	100	6.4	460	Orange
<b>Cabled Loop</b>							
AND0725	7.24	7.54	#6, 6/1, 3/64s #6, 6/1, 3/64s	100	6.8	485	Black
AND0755	7.57	7.87	#4, Solid, 3/64s #6, 7W, 4/64s	100	7.7	485	Yellow
AND0790	7.90	8.20	#4, 7W, 2/64s, Alum. Alloy #4, 6/1, 2/64s	100	8.2	510	Blue
AND0825	8.23	8.59	#6, 7W, 4/64s, Alum. Alloy #4, 7W, 3/64s	100	8.2	510	Orange



# PREFORMED™ DEADENDS

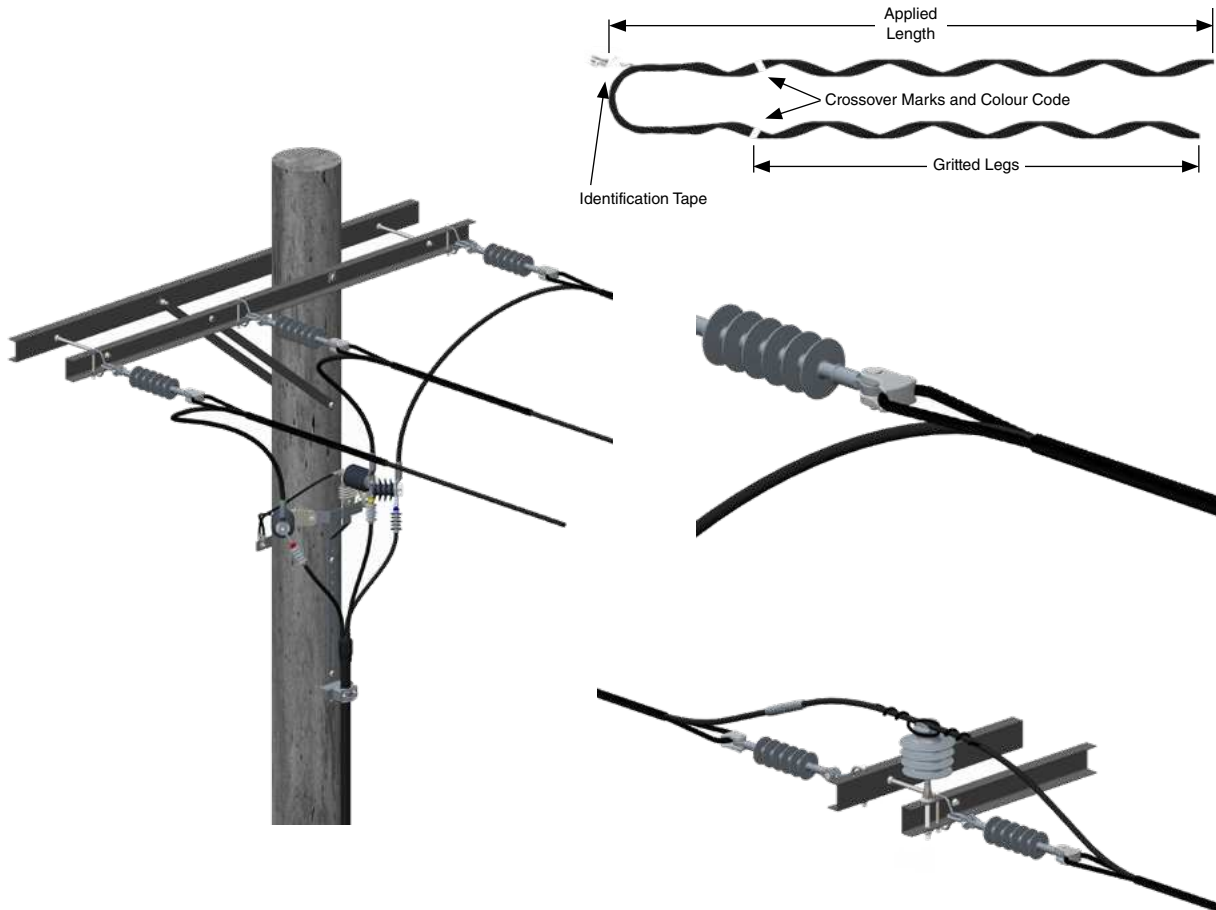
## FOR COMPACTLIGN™ SPACER CABLES

### NEOPRENE DIPPED ALUMINIUM ALLOY

PLP Catalogue Number	Outer Diameter Range (mm)		Nominal Conductor Size	Standard Pack Quantity	Weight per Carton (kg)	Approximate Applied Length (mm)	Deadend Colour Code
	Minimum	Maximum					
<b>Cabled Loop Continued</b>							
AND0860	8.61	8.99	#4, 7W, 3/64s, Alum. Alloy #4, 6/1, 3/64s	100	9.1	535	Black
AND0900	9.02	9.50	#4, 7W, 4/64s	100	9.1	560	Yellow
AND0955	9.53	10.08	#4, 7W, 4/64s #4, 7W, 5/64s	100	11.3	585	Red
AND1010	10.11	10.67	#2, 6/1, 3/64s #2, 7/1, 3/64s	100	11.8	610	Green
AND1070	10.69	11.30	#2, 7W, 4/64s, Alum. Alloy #1, 7W, 3/64s	50	9.1	685	Black
AND1135	11.33	12.07	#1, 7W, 4/64s #4, 7W, 8/64s	50	10.0	710	Orange
AND1210	12.09	12.88	#1, 19W, 5/64s 1/0, 7W, 4/64s	50	13.6	760	Blue
AND1290	12.90	13.61	1/0, 19W, 6/64s 1/0, 19W, 5/64s	50	13.2	760	Red
AND1365	13.64	14.50	2/0, 7W, 4/64s 2/0, 19W, 6/64s, Compacted	25	15.4	785	Black
AND1455	14.53	15.44	3/0, 19W, 4/64s 2/0, 19W, 5/64s	25	16.3	840	Yellow
AND1545	15.47	16.46	1/0, 7W, 8/64s 4/0, 7W, 4/64s	25	10.9	840	Red
AND1650	16.48	17.53	1/0, 7W, 10/64s 4/0, 19W, 4/64s	25	11.8	865	Green
AND1755	23.11	18.67	250, 19W, 23468 266.8, 18/1, 4/64s	25	13.6	890	Black
AND1870	18.69	19.89	3/0, 7W, 10/64s	25	14.5	915	Orange
AND1990	19.91	21.18	300, 19W, 5/64s 336.4, 19W, 5/64s	25	15.4	965	Blue
AND2120	21.21	22.56	350, 19W, 5/64s 300, 19W, 10/64s, Compacted	25	18.1	1,015	Black
AND2260	22.58	24.00	250, 19W, 10/64s 300, 19W, 10/64s	25	20.0	1,065	Yellow
AND2405	24.03	25.53	450, 37W, 6/64s 500, 37W, 6/64s	25	23.6	1,120	Green
AND2555	25.55	27.18	450, 37W, 8/64s 336.4, 19W, 12/64s	10	10.9	1,145	Red
AND2720	27.20	28.91	350, 19W, 12/64s 500, 37W, 10/64s	10	10.9	1,195	Blue
AND2895	28.93	30.78	636, 37W, 10/64s, Compacted 500, 37W, 12/64s	10	13.6	1,220	Orange
AND3080	30.81	32.72	795, 61W, 6/64s 795, 37W, 10/64s, Compacted	10	13.6	1,245	Black
AND3275	32.74	34.85	1033.5, 61W, 6/64s	10	14.5	1,295	Yellow
AND3485	34.87	37.03	715, 37W, 14/64s	10	17.2	1,345	Green
AND3705	37.06	39.37	795, 37W, 14/64s	10	18.1	1,420	Red

# PREFORMED™ DEADENDS

FOR COVEREDLIGN™ OR COMPACTLIGN™ CABLES  
SEMI-CONDUCTIVE PLASTIC COATED STEEL



PLP's PREFORMED™ Semi-Conductive (Semi-Con) Deadends are designed to be applied over the sheath of insulated overhead conductors. Ideal for COVEREDLIGN™ cables, the Preformed deadend uniformly covers the conductor and applies uniform radial compression to the cable to hold line tension without damaging the sheath.

The fact that the sheath of the cable does not need to be stripped from the conductor makes the installation easier, especially if re-sagging the conductor is required after initial application and tension. Leaving the sheath on the conductor also keeps water out of the conductor, prolonging its life and reducing the possibility of failure owing to corrosion and tracking.

Semi-Con Deadends are manufactured from steel wire covered with a semi-conductive plastic selected for its superior electrical tracking resistance properties. The semi-conductive coating eliminates the concentration of voltage stress in the sheath of the conductor. By eliminating the voltage stress, the potential for tracking across the sheath and covered conductor "burn down" is eliminated.

Preformed deadends offer a unique design that eliminates bolts, nuts, washers and other component parts that may become lost or damaged during installation or in service. Deadends should be installed with clevis thimbles and used only on the size and type of conductors for which they are designed. All deadend fittings have colour coded markings to indicate starting point for application and to assist in identification.

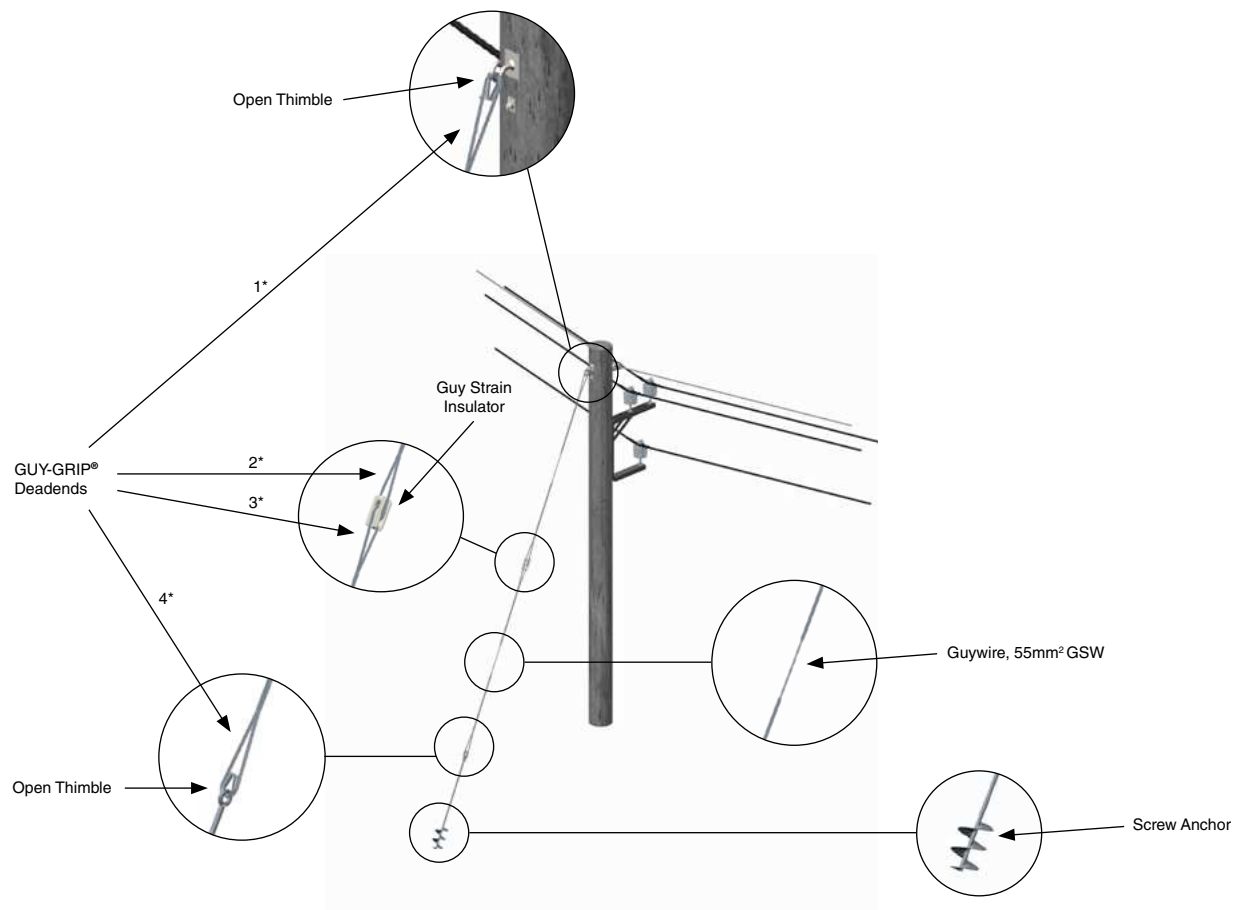
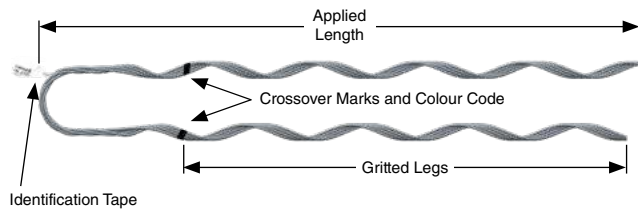
## PREFORMED™ DEADENDS

FOR COVERDLIGN™ OR COMPACTLIGN™ CABLES  
SEMI-CONDUCTIVE PLASTIC COATED STEEL

PLP Catalogue Number	Outer Diameter Range (mm)		Standard Pack Quantity	Deadend Colour Code
	Minimum	Maximum		
CSDE-053-CL	5.05	5.45	100	Purple
CSDE-063-CL	6.13	6.53	100	Yellow
CSDE-068-CL	6.55	6.95	100	Brown
CSDE-075-CL	7.30	7.70	100	Blue
CSDE-080-CL	7.80	8.20	100	Black
CSDE-083-CL	8.10	8.50	100	White
CSDE-087-CL	8.50	8.90	100	Green
CSDE-090-CL	8.80	9.20	100	Red
CSDE-102-CL	10.00	10.40	50	Purple
CSDE-105-CL	10.30	10.70	50	Blue
CSDE-113-CL	11.05	11.45	50	Black
CSDE-118-CL	11.60	12.00	50	Brown
CSDE-128-CL	12.60	13.00	50	Yellow
CSDE-135-CL	13.30	13.70	50	Green
CSDE-143-CL	14.10	14.50	25	Blue
CSDE-163-CL	16.10	16.60	25	Orange
CSDE-169-CL	16.70	17.10	25	Orange
CSDE-175-CL	17.30	17.70	25	Blue
CSDE-180-CL	17.80	18.20	25	Brown
CSDE-188-CL	18.60	19.00	25	Black
CSDE-206-CL	20.40	20.80	10	Yellow
CSDE-210-CL	20.80	21.20	10	Red
CSDE-232-CL	23.05	23.45	10	Green
CSDE-240-CL	23.60	24.00	10	Blue
CSDE-263-CL	26.10	26.50	10	Black

# PREFORMED™ DEADENDS

## GUY-GRIP® FOR STEEL GUYWIRES AND MESSENGER WIRES GALVANISED STEEL



**Note:** \* 2 GUY-GRIP® Deadends required per Staywire if Guy Strain Insulator not used (i.e. only numbers 1 and 4 required)

\* 4 GUY-GRIP® deadends required per Staywire if Guy Strain Insulator used (numbers 1, 2, 3 and 4 required)

PLP's PREFORMED™ GUY-GRIP® Deadends are designed to be applied directly to bare galvanised steel guywire, overhead earthwire and wire rope. GUY-GRIP® Deadends must only be used once and will hold 100% of the guywire's rated strength when correctly installed. Manufactured from galvanised steel wire strand, GUY-GRIP® Deadends offer a unique design that eliminates bolts, nuts, washers and other component parts that may become lost or damaged during installation or in service.

GUY-GRIP® Deadends should be used only on the size and type of guywires for which they are designed. All GUY-GRIP® Deadends have colour coded markings to indicate the starting point for application and to assist in product identification.

## PREFORMED™ DEADENDS

### GUY-GRIP® FOR STEEL GUYWIRES AND MESSENGER WIRES GALVANISED STEEL

PLP Catalogue Number	Outer Diameter Range (mm)		Standard Pack Quantity	Deadend Colour Code
	Minimum	Maximum		
SGG0245	2.41	2.60	50	Blue
SGG0315	2.80	3.15	50	Orange
SGG0345	3.16	3.54	50	Blue
SGG0375	3.70	3.84	50	Green
SGG0431	4.20	4.39	50	Yellow
SGG0480	4.63	4.84	50	Black
SGG0485	4.85	5.04	50	Black
SGG0593	5.50	5.94	50	White
SGG0600	5.95	6.19	50	Yellow
SGG0620	6.20	6.49	40	Brown
SGG0750	7.35	7.64	30	Blue
SGG0765	7.65	7.99	30	White
SGG0825	8.00	8.29	20	White
SGG0895	8.95	9.29	20	Red
SGG0930	9.30	9.69	15	Blue
SGG0975	9.70	10.20	15	Yellow/Orange
SGG1125	10.84	11.69	20	Black
SGG1200	11.85	12.19	15	Black
SGG1220	12.20	12.54	15	Black
SGG1375	13.06	13.97	5	White
SGG1625	16.00	16.40	5	Orange

# PREFORMED™ DEADENDS

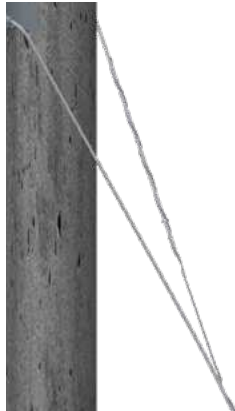
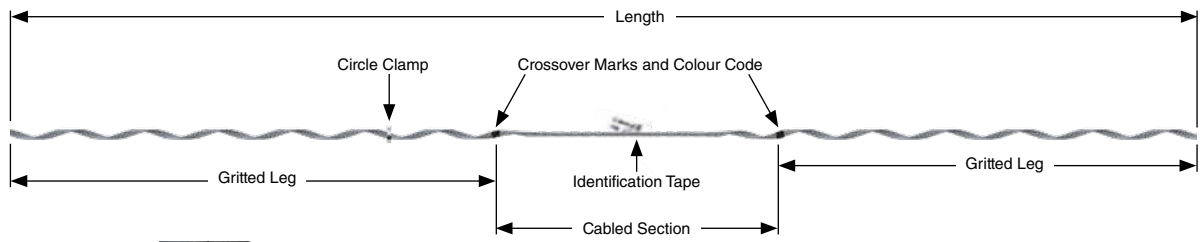
## GUY-GRIP® FOR STEEL GUYWIRES AND MESSENGER WIRES GALVANISED STEEL

PLP Catalogue Number	Strand Size (inches)	Strand Construction	Mean Diameter (mm)	Standard Pack Quantity	Colour Code
SGG0340	1/8	7W	3.15	100	Blue
SGG0470	3/16	7W 7W	4.72 4.95	100	Red
SGG0550	7/32	7W	5.49	50	Green
SGG0610	1/4	3W 7W	6.58 6.10	50	Yellow
SGG0710	9/32	7W	7.03	50	Blue
SGG0790	5/16	3W 7W 7W	7.92 7.92 8.31	50	Black
SGG0915	3/8	3W 7W	9.04 9.14	50	Orange
SGG1105	7/16	7W	11.05	25	Green
SGG1255 (HS)	1/2	7W 19W	11.66 12.70	20	Blue
*SGG1255-C	1/2	7W 19W	11.66 12.70	20	Blue
*SGG1435-C	9/16	7W 19W	14.33 14.35	10	Yellow
*SGG1575-C	5/8	7W 19W	15.77 15.88	10	Black
*SGG1905-C	3/4	19W	19.05	5	Orange
*SGG2250-C	7/8	19W	22.48	3	Green
*SGG2540-C	1	19W 37W	25.40 25.43	3	Blue

**Note:** \* "C" Coat Standard, Cabled Loop Standard/Left Hand Lay Standard

# PREFORMED™ DEADENDS

## WRAP GUY LINK FOR GUYWIRES GALVANISED STEEL



Circle Clamp

**Intended Use:** Wrap Guy Links are designed as an alternate for GUY-GRIP® Deadends, for use at the pole only, when the guy strand is wrapped around the pole. Recommended for any size pole, single or double wrapped, the Wrap Guy Link neatly secures the tail of the guy strand to the load portion of the down guy.

**Application - Inspection:** Either of the gritted leg sections can be applied to the tail-end of the strand. The end of the strand should coincide with the crossover mark on the gritted leg. The Circle Clamp, a component part of each Wrap Guy Link, is then crimped one inch above the crossover mark. The strand, with one of the gritted legs applied, is now ready to be wrapped around the pole. The purposes of the Circle Clamp is to assure that the gritted legs remain applied when single or double turns are wrapped around the pole.

After wrapping the strand around the pole, the remaining gritted leg is applied to the continued strand, or load portion of the down guy. The completed application should be inspected for two conditions:

1. The Wrap Guy Link itself should be free of the pole. Only the wrapped portion of the strand should make contact with the pole.
2. The distance between the pole and the crossover mark on the continued strand should approximate 1-1/2 pole diameters.

The purpose of these two conditions is to assure that the angle formed by the loop will not exceed 30°.

**Acceptable Fittings:** Contrary to recommendations for GUY-GRIP® Deadends, Guy Hooks are acceptable for use with Wrap Guy Links.

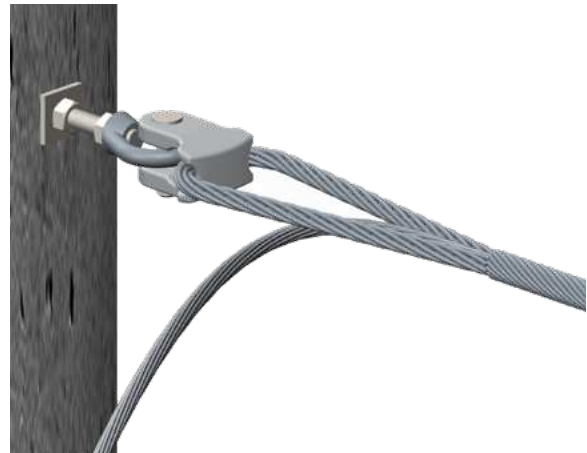
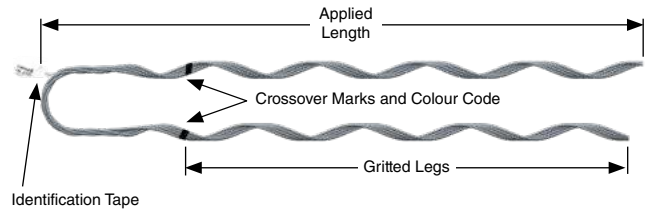
**For use on Galvanised Steel, Extra High Strength, High Strength and Utility Grade Guywire**

PLP Catalogue Number	Guywire		Approximate Length (mm)	Colour Code	Rated Holding Strength (kg)
	Number of Strands	Diameter (mm)			
WGL-2100	7W 3W	6.1 6.9	1,220	Yellow	3,016
WGL-2101	7W	7.1	1,370	Blue	4,060
WGL-2102	7W 3W	7.9 7.9	1,525	Black	5,080
WGL-2103	7W 3W	9.1 9.0	1,750	Orange	6,985
WGL-2104	7W	11.1	2,030	Green	9,435
WGL-2105	7W 19W	12.6 12.7	2,285	Blue	12,202
WGL-2106	7W 19W	14.3 14.4	2,540	Yellow	15,876
WGL-2107	7W 19W	15.8 15.9	2,820	Black	19,232

# PREFORMED™ DEADENDS

## FOR ALUMINIUM CLAD STEEL MESSENGER WIRES

### ALUMINIUM CLAD STEEL



PLP's PREFORMED™ Messenger Wire Deadends are designed to be applied directly to Aluminium Clad (AW) or Aluminium Clad and Aluminium (AWA) Messenger Wire. Messenger Wire Deadends must only be used once and will hold 100% of the messenger wire's rated strength when correctly installed. Manufactured from aluminium clad steel wire strand, Messenger Wire Deadends offer a unique design that eliminates bolts, nuts, washers and other component parts that may become lost or damaged during installation or in service.

Messenger Wire Deadends should be used only on the size and type of messenger wires for which they are designed. All Messenger Wire Deadends have colour coded markings to indicate the starting point for application and to assist in product identification.

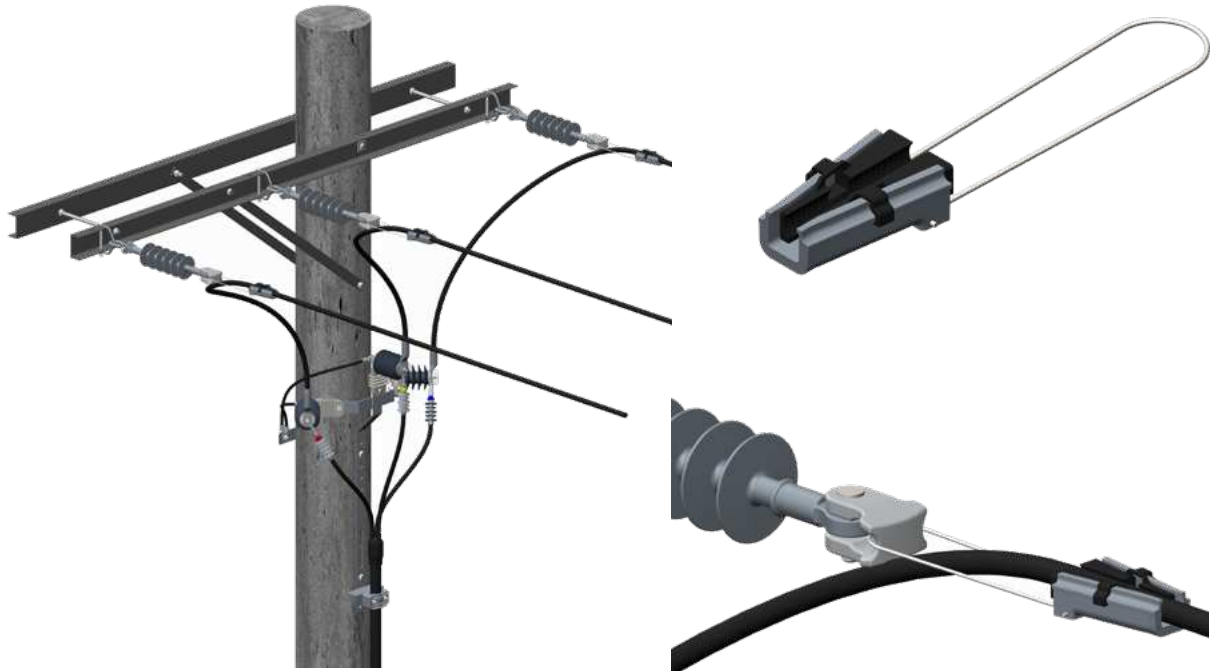
PLP Catalogue Number	Conductor Diameter Range (mm)		Standard Pack Quantity	Deadend Colour Code
	Minimum	Maximum		
LDE0462	4.62	5.15	50	Black
LDE0593	5.70	6.14	50	Black/Green
LDE0675	6.55	7.34	50	Brown
LDE0750	7.36	8.26	50	Blue
LDE0900	8.27	9.25	50	Red
LDE1125	10.41	11.68	25	Black
LDE1255	12.47	13.44	25	Purple
LDE1350D	13.12	14.66	15	Green/Blue
LDE1625	14.64	16.59	10	Orange
LDE2100C	20.34	21.92	10	Brown
LDE2625	25.30	27.27	5	Black



# WEDGE DEADENDS

## FOR COMPACTLIGN™ SPACER CABLES

### ALUMINIUM ALLOY AND RE-INFORCED PLASTIC



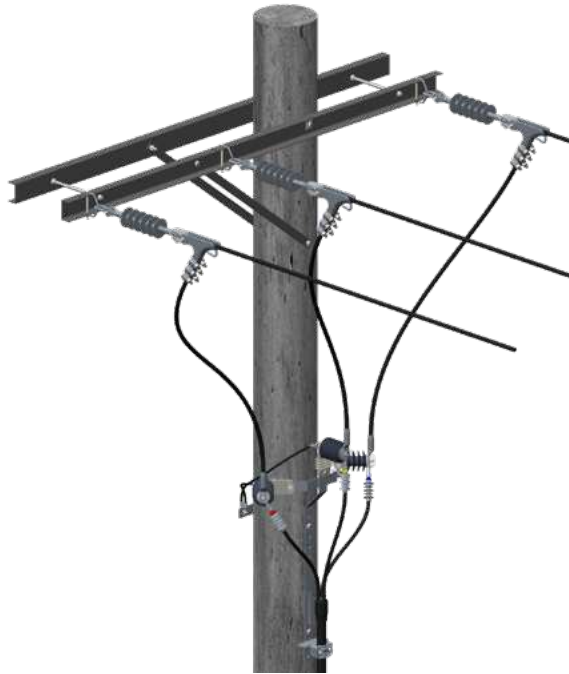
PLP's GD5 (rated 5kN) and GD8 (rated 8kN) series Wedge Deadends are designed to be used for termination of COMPACTLIGN™ or spacer type cables. Wedge Deadends are limited tension devices because, within spacer cable systems, the galvanised steel or aluminised steel messenger wire supports the static weight of the spacer cable.

Manufactured with a cast aluminium body, a UV resistant polyamide wedge and a stainless steel strap to attach the deadend to the pole or crossarm fittings, Wedge Deadends may be used in low tension applications. Wedge Deadends are fast and easy to install permitting easy re-sagging. Wedge Deadends do not require the sheath of an insulated conductor to be stripped before installation.

PLP Catalogue Number		Outer Diameter Range (mm)	
5kN	8kN	Minimum	Maximum
GD5-1316	GD8-1316	13.0	16.0
GD5-1619	GD8-1619	16.0	19.0
GD5-1922	GD8-1922	19.0	22.0
GD5-2225	GD8-2225	22.0	25.0
GD5-2528	GD8-2528	25.0	28.0

# BOLTED DEADENDS

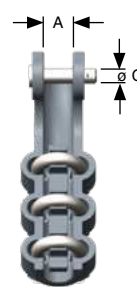
STRAIN CLAMPS FOR BARE PHASE CONDUCTORS  
ALUMINIUM ALLOY OR GALVANISED DUCTILE IRON



3 U-Bolt Type



Straight Type



Bolted Deadends are manufactured from cast aluminium or ductile iron materials suitable for terminating bare conductors.

If a Bolted Deadend is used with a COVERDLIGN™ or COMPACTLIGN™ type insulated overhead conductor, the cable jacket must be removed before Bolted Deadend installation onto the conductor.

PLP Catalogue Number	Material	Minimum Breaking Strength (kN)	Outer Diameter Range (mm)	Dimensions (mm)		
				A	B	C
<b>2 U-Bolt Type</b>						
E23449-000	Galvanised Ductile Iron	70	6.0 - 11.0	21	150	16
<b>3 U-Bolt Type</b>						
E71830-000	Galvanised Ductile Iron	70	5.0 - 15.0	19	200	16
173246-000	Aluminium	59	10.0 - 16.0	19	203	16
200226-000	Aluminium	59	10.0 - 16.0	19	203	16
A35453-000	Aluminium	59	10.0 - 16.0	19	203	16
<b>4 U-Bolt Type</b>						
478326-000	Aluminium	78	16.0 - 21.0	27	209	16
<b>5 U-Bolt Type</b>						
824700-000	Aluminium	80	13.0 - 30.0	34	330	16
732170-000	Aluminium	80	13.0 - 30.0	34	330	16
<b>Strain Clamp Straight Type</b>						
P03403-000	Aluminium and Galvanised Steel	22	4.1 - 10.2	-	-	-
P03404-000		26	9.1 - 15.2	-	-	-

# SECTION 6 - COMPACTLIGN™ SYSTEM COMPONENTS

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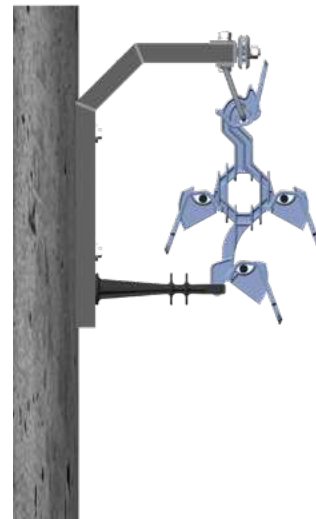
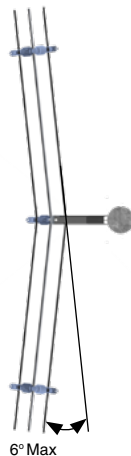
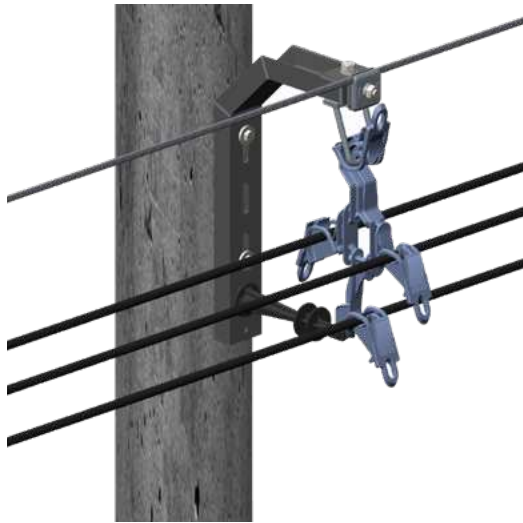


## **PREFORMED** LINE PRODUCTS

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# COMPACTLIGN™ SYSTEM COMPONENTS

## 15kV RATED CABLE SPACER - RATCHET ATTACHMENT



PLP's 15kV Cable Spacers are used within COMPACTLIGN™ type electrical systems at voltages up to and including 15kV. Produced using high pressure injection moulding technology and manufactured from PLP's time tested High Density Polyethylene (HDPE) formulation, PLP's cable spacer is mechanically strong and highly resistant to electrical tracking.

Attachment to either the cable spacer system messenger wire (mid-span) or the tangent bracket stirrup at the pole is made via same type of ratchet mechanism that attaches the cable spacer to the covered conductor. When attached to the tangent bracket stirrup, cable spacer construction can accommodate line angles of up to 6° as illustrated.

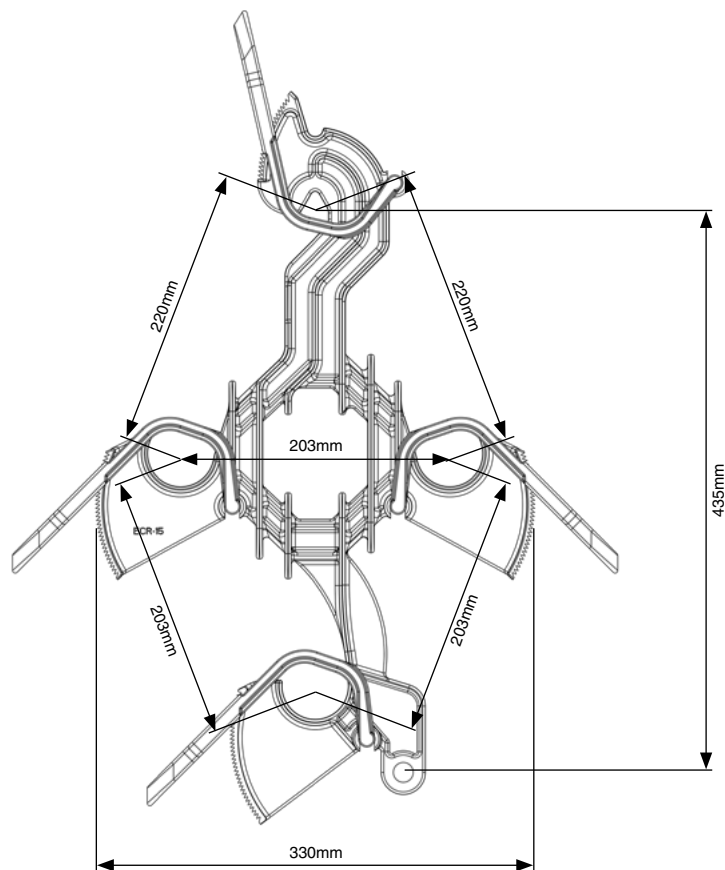
PLP's cable spacers must only be used with a triple insulated COMPACTLIGN™ type spacer cable which has a construction that includes a semi-conductive layer.

Ratchet attachment cable spacers provide excellent reliability and short circuit withstand. PLP recommends a cable spacer subspan of 5m within 200m of a substation. Thereafter, spacers should be placed every 7-10m depending on fault level. To accommodate a fault level of 10kA, the cable spacer subspan should be 8m. To accommodate a fault level of 12kA, the cable spacer subspan should be 5m.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 15kV RATED CABLE SPACER - RATCHET ATTACHMENT

PLP Catalogue Number	ECR-15
Voltage Class	15kV
Production Material	HDPE
Weight	1.05kg
Conductor Spacing Ø to Earth (minimum)	219.5mm
Conductor Spacing Ø to Ø (minimum)	203.0mm
Phase Conductor Diameter Range	11.00mm - 48.00mm
Messenger Cable Diameter Range	6.35mm - 19.05mm
Creepage Distance (minimum)	290mm
Basic Insulation Level (BIL)	110kV
Wet Voltage Withstand	34kV
UV Exposure Testing per ASTM-G-155	2,160 hours



## COMPACTLIGN™ SYSTEM COMPONENTS

### 15KV RATED CABLE SPACER - RATCHET ATTACHMENT

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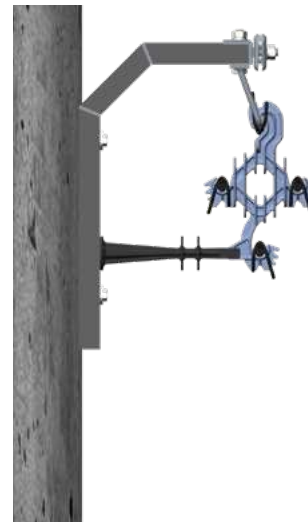
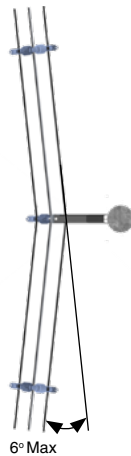
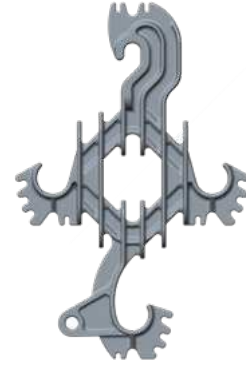
COMPACTLIGN™ conductors and the messenger wire are attached to the ECR-15 cable spacer using PLP's ratchet mechanism. In the photo above, the ratchet mechanism is open and ready to accept a phase conductor.



In the photo above, the ratchet mechanism is installed on a COMPACTLIGN™ phase conductor.

## COMPACTLIGN™ SYSTEM COMPONENTS

### 15kV RATED CABLE SPACER - SNAP TIE ATTACHMENT



PLP's 15kV Cable Spacers are used within COMPACTLIGN™ type electrical systems at voltages up to and including 15kV. Produced using high pressure injection moulding technology and manufactured from PLP's time tested High Density Polyethylene (HDPE) formulation, PLP's cable spacer is mechanically strong and highly resistant to electrical tracking.

Attachment of the ECL-15 snap tie attached cable spacer is made to either the cable spacer system messenger wire (mid-span) or to the tangent bracket stirrup at the pole. Attachment to the phase conductor, messenger wire and tangent bracket stirrup is made with easy-to-install silicone rubber snap ties that are sold separately from the cable spacer (see elsewhere in this catalogue for snap tie information). Alternatively, installation to the messenger can be made with a metallic cable spacer tie. When attached to the tangent bracket stirrup, cable spacer construction can accommodate line angles of up to 6° as illustrated.

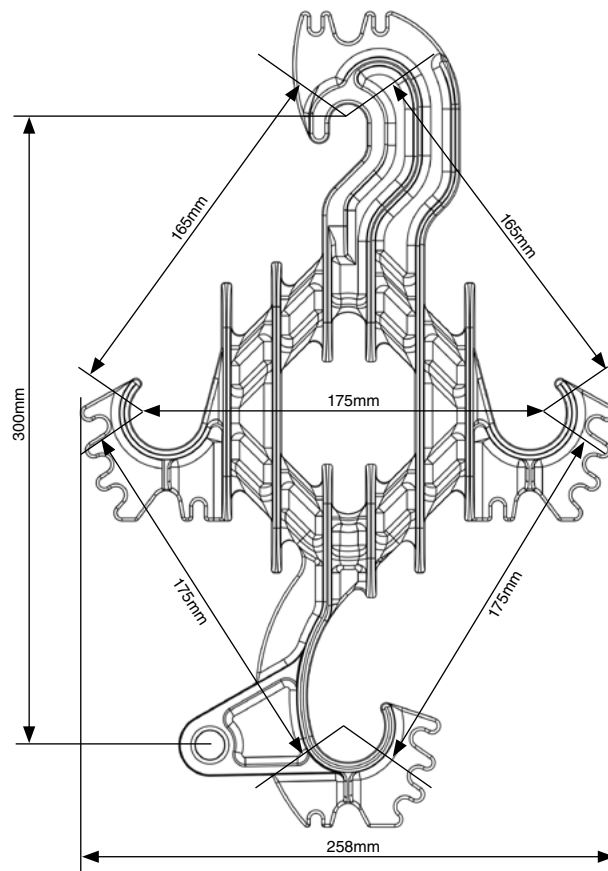
PLP's cable spacers must only be used with a triple insulated COMPACTLIGN™ type spacer cable which has a construction that includes a semi-conductive layer.

Snap tie attached cable spacers provide excellent reliability and short circuit withstand. PLP recommends a cable spacer subspan of 5m within 200m of a substation. Thereafter, spacers should be placed every 7-10m depending on fault level. To accommodate a fault level of 10kA, the cable spacer subspan should be 8m. To accommodate a fault level of 12kA, the cable spacer subspan should be 5m.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 15kV RATED CABLE SPACER - SNAP TIE ATTACHMENT

PLP Catalogue Number	ECL-15
Voltage Class	15kV
Production Material	HDPE
Weight	0.50kg
Conductor Spacing $\emptyset$ to Earth (minimum)	165.0mm
Conductor Spacing $\emptyset$ to $\emptyset$ (minimum)	175.0mm
Phase Conductor Diameter Range	11.00mm – 30.00mm
Messenger Cable Diameter Range	6.35mm – 19.05mm
Creepage Distance (minimum)	280mm
Basic Insulation Level (BIL)	110kV
Wet Voltage Withstand	34kV
UV Exposure Testing per ASTM-G-155	2,160 hours



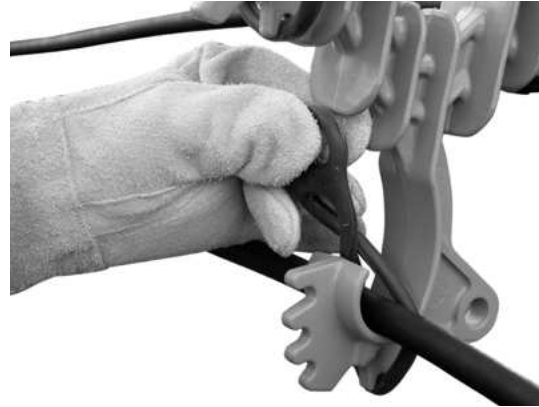


# COMPACTLIGN™ SYSTEM COMPONENTS

## 15kV RATED CABLE SPACER - SNAP TIE ATTACHMENT



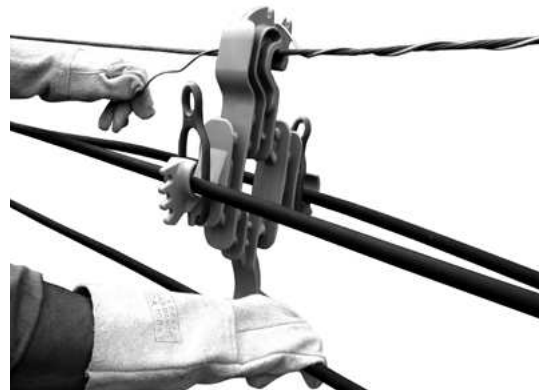
COMPACTLIGN™ conductors are attached to the ECL-15 cable spacer using silicone rubber snap ties. In this photo, the cable spacer and snap ties are positioned ready for final installation.



To install the snap tie, loop it over the phase conductor or messenger wire and stretch it, at the same time slotting it into one of the grooves on the cable spacer arm.



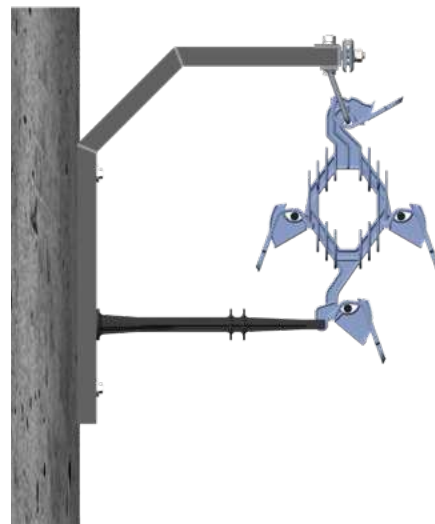
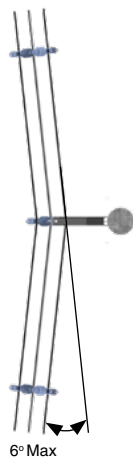
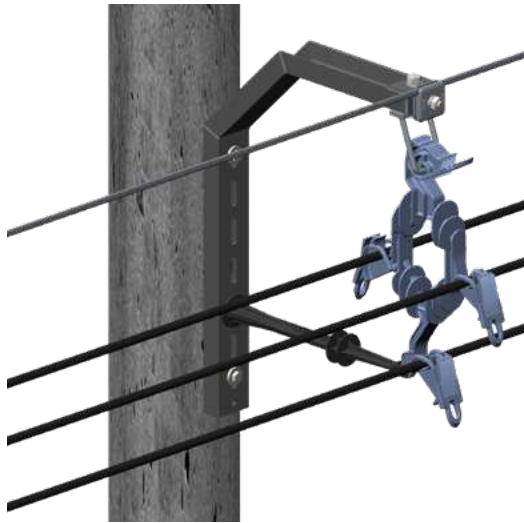
The ECL-15 cable spacer can be attached to the messenger wire with a snap tie.



The ECL-15 cable spacer can be attached to the messenger wire with a wire tie.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 25kV RATED CABLE SPACER - RATCHET ATTACHMENT



PLP's 25kV Cable Spacers are used within COMPACTLIGN™ type electrical systems at voltages up to and including 25kV. Produced using high pressure injection moulding technology and manufactured from PLP's time tested High Density Polyethylene (HDPE) formulation, PLP's cable spacer is mechanically strong and highly resistant to electrical tracking.

Attachment to either the cable spacer system messenger wire (mid-span) or the tangent bracket stirrup at the pole is made via same type of ratchet mechanism that attaches the cable spacer to the covered conductor. When attached to the tangent bracket stirrup, cable spacer construction can accommodate line angles of up to 6° as illustrated.

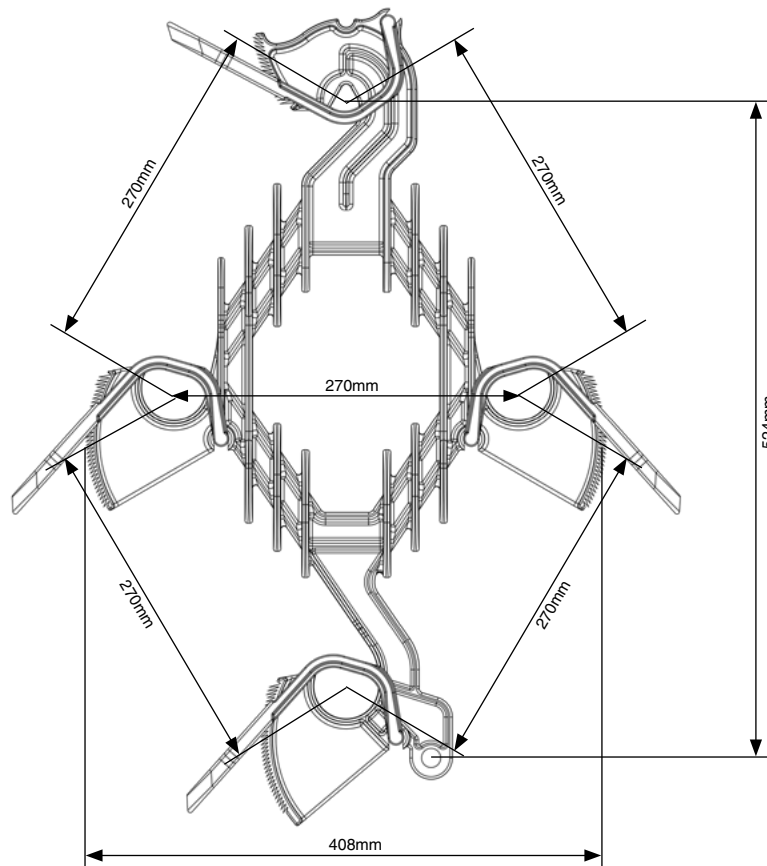
PLP's cable spacers must only be used with a triple insulated COMPACTLIGN™ type spacer cable which has a construction that includes a semi-conductive layer.

Ratchet attachment cable spacers provide excellent reliability and short circuit withstand. PLP recommends a cable spacer subspan of 5m within 200m of a substation. Thereafter, spacers should be placed every 7-10m depending on fault level. To accommodate a fault level of 10kA, the cable spacer subspan should be 8m. To accommodate a fault level of 12kA, the cable spacer subspan should be 5m.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 25kV RATED CABLE SPACER - RATCHET ATTACHMENT

PLP Catalogue Number	ECR-25
Voltage Class	25kV
Production Material	HDPE
Weight	1.55kg
Conductor Spacing Ø to Earth (minimum)	270.0mm
Conductor Spacing Ø to Ø (minimum)	270.0mm
Phase Conductor Diameter Range	11.00mm – 50.80mm
Messenger Cable Diameter Range	6.35mm – 19.05mm
Creepage Distance (minimum)	522mm
Basic Insulation Level (BIL)	125kV
UV Exposure Testing per ASTM-G-155	2,160 hours



## COMPACTLIGN™ SYSTEM COMPONENTS

### 25kV RATED CABLE SPACER - RATCHET ATTACHMENT

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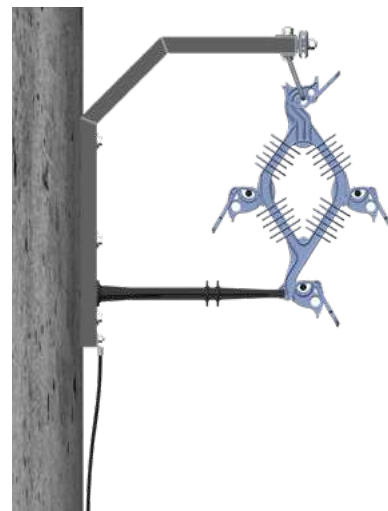
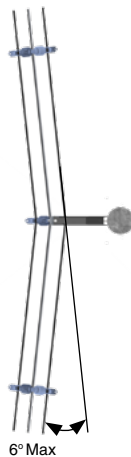
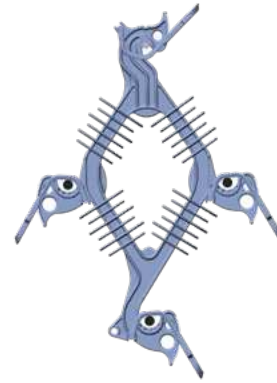
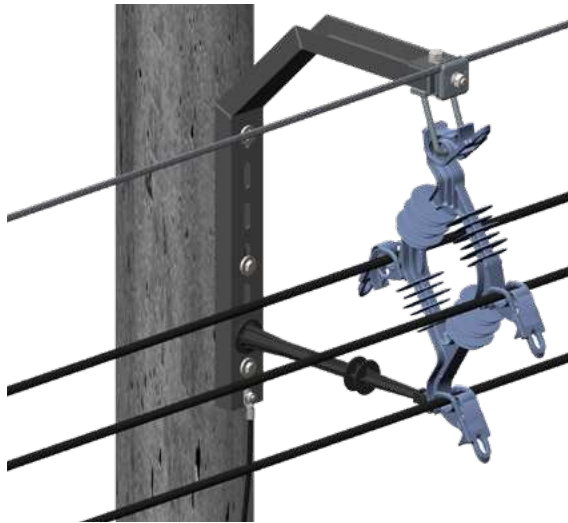
COMPACTLIGN™ conductors and the messenger wire are attached to the ECR-25 cable spacer using PLP's ratchet mechanism. In the photo above, the ratchet mechanism is open and ready to accept a phase conductor.



In the photo above, the ratchet mechanism is installed on a COMPACTLIGN™ phase conductor.

## COMPACTLIGN™ SYSTEM COMPONENTS

### 35kV RATED CABLE SPACER - RATCHET ATTACHMENT



PLP's 35kV Cable Spacers are used within COMPACTLIGN™ type electrical systems at voltages up to and including 35kV. Produced using high pressure injection moulding technology and manufactured from PLP's time tested High Density Polyethylene (HDPE) formulation, PLP's cable spacer is mechanically strong and highly resistant to electrical tracking.

Attachment to either the cable spacer system messenger wire (mid-span) or the tangent bracket stirrup at the pole is made via same type of ratchet mechanism that attaches the cable spacer to the covered conductor. When attached to the tangent bracket stirrup, cable spacer construction can accommodate line angles of up to 6° as illustrated.

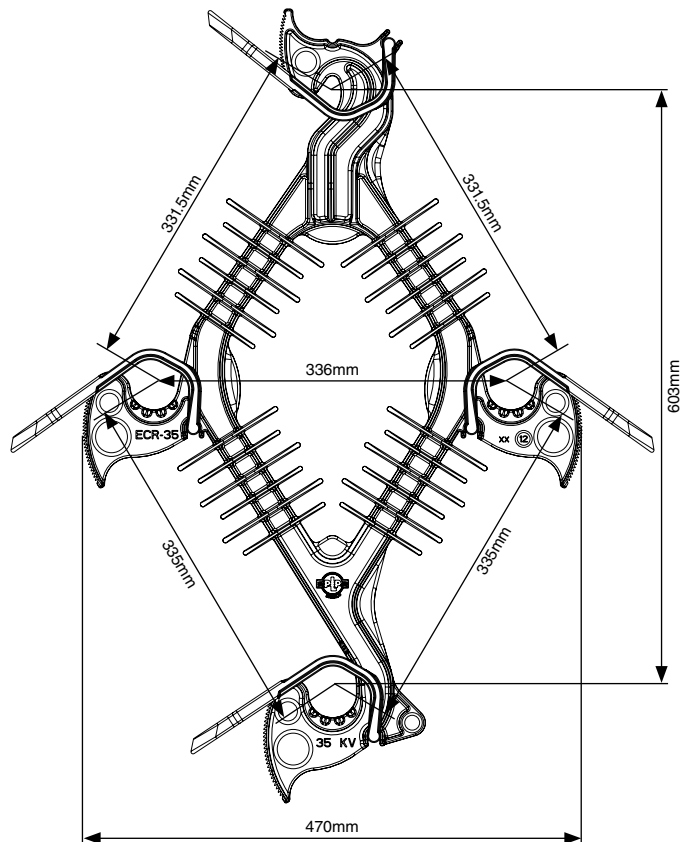
PLP's cable spacers must only be used with a triple insulated COMPACTLIGN™ type spacer cable which has a construction that includes a semi-conductive layer.

Ratchet attachment cable spacers provide excellent reliability and short circuit withstand. PLP recommends a cable spacer subspan of 5m within 200m of a substation. Thereafter, spacers should be placed every 7-10m depending on fault level. To accommodate a fault level of 10kA, the cable spacer subspan should be 8m. To accommodate a fault level of 12kA, the cable spacer subspan should be 5m.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 35kV RATED CABLE SPACER - RATCHET ATTACHMENT

PLP Catalogue Number	ECR-35
Voltage Class	35kV
Production Material	HDPE
Weight	1.98kg
Conductor Spacing Ø to Earth (minimum)	331.5mm
Conductor Spacing Ø to Ø (minimum)	335.0mm
Phase Conductor Diameter Range	11.00mm – 40.00mm
Messenger Cable Diameter Range	6.35mm – 19.05mm
Creepage Distance (minimum)	715mm
Basic Insulation Level (BIL)	180kV
Wet Voltage Withstand	70kV
Wet Flashover Voltage	80kV
UV Exposure Testing per ASTM-G-155	2,160 hours



## COMPACTLIGN™ SYSTEM COMPONENTS

### 35kV RATED CABLE SPACER - RATCHET ATTACHMENT



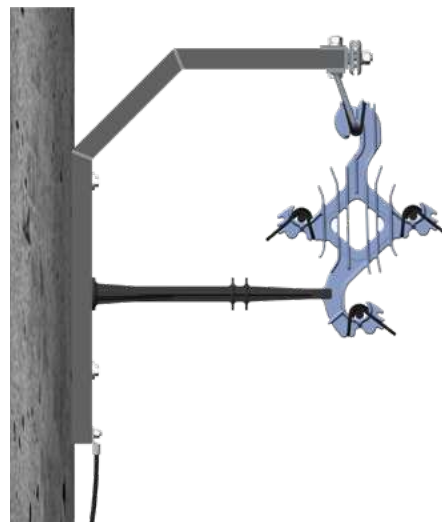
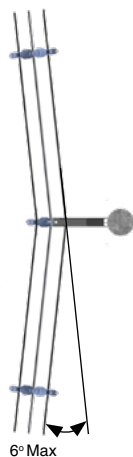
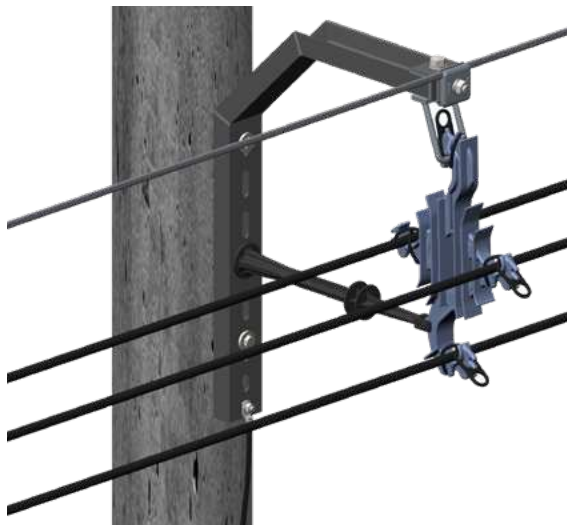
COMPACTLIGN™ conductors and the messenger wire are attached to the ECR-35 cable spacer using PLP's ratchet mechanism. In the photo above, the ratchet mechanism is open and ready to accept a phase conductor.



In the photo above, the ratchet mechanism is installed on a COMPACTLIGN™ phase conductor.

# COMPACTLIGN™ SYSTEM COMPONENTS

## 35kV RATED CABLE SPACER - SNAP TIE ATTACHMENT



PLP's 35kV Cable Spacers are used within COMPACTLIGN™ type electrical systems at voltages up to and including 35kV. Produced using high pressure injection moulding technology and manufactured from PLP's time tested High Density Polyethylene (HDPE) formulation, PLP's cable spacer is mechanically strong and highly resistant to electrical tracking.

Attachment of the ECL-35 snap tie attached cable spacer is made to either the cable spacer system messenger wire (mid-span) or to the tangent bracket stirrup at the pole. Attachment to the phase conductor, messenger wire and tangent bracket stirrup is made with easy to install silicone rubber snap ties that are sold separately from the cable spacer (see elsewhere in this catalogue for snap tie information). Alternatively, installation to the messenger can be made with a metallic cable spacer tie. When attached to the tangent bracket stirrup, cable spacer construction can accommodate line angles of up to 6° as illustrated.

PLP's cable spacers must only be used with a triple insulated COMPACTLIGN™ type spacer cable which has a construction that includes a semi-conductive layer.

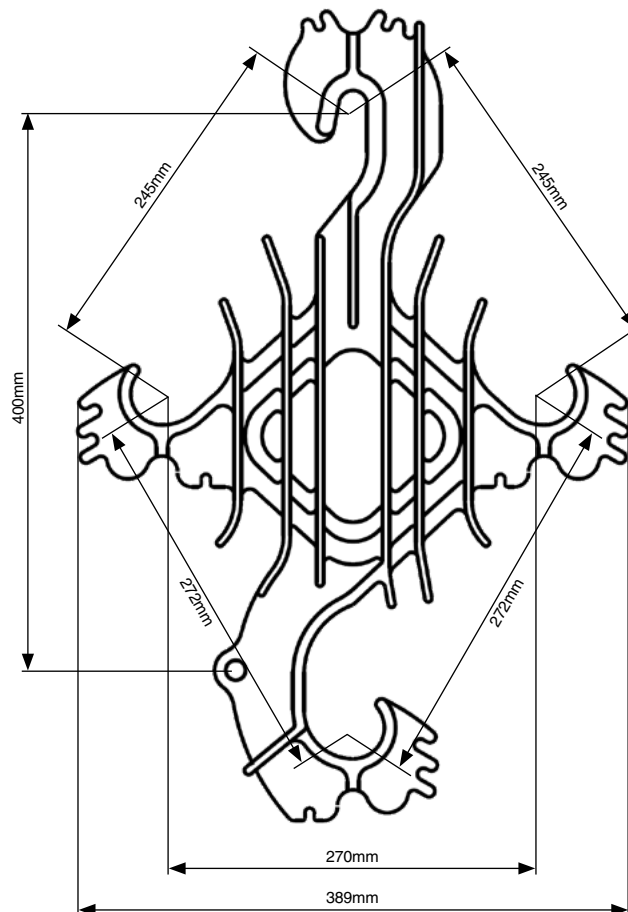
Snap tie attached cable spacers provide excellent reliability and short circuit withstand. PLP recommends a cable spacer subspan of 5m within 200m of a substation. Thereafter, spacers should be placed every 7-10m depending on fault level. To accommodate a fault level of 10kA, the cable spacer subspan should be 8m. To accommodate a fault level of 12kA, the cable spacer subspan should be 5m.



# COMPACTLIGN™ SYSTEM COMPONENTS

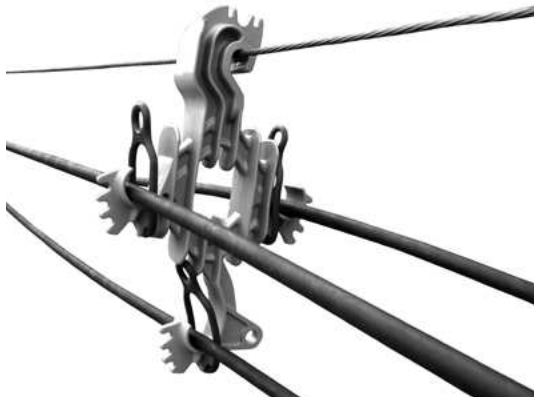
## 35kV RATED CABLE SPACER - SNAP TIE ATTACHMENT

PLP Catalogue Number	ECL-35
Voltage Class	35kV
Production Material	HDPE
Weight	1.50kg
Conductor Spacing Ø to Earth (minimum)	245.0mm
Conductor Spacing Ø to Ø (minimum)	272.0mm
Phase Conductor Diameter Range	10.00mm – 38.00mm
Messenger Cable Diameter Range	6.35mm – 19.05mm
Creepage Distance (minimum)	450mm
Basic Insulation Level (BIL)	150kV
Wet Voltage Withstand	50kV
Wet Flashover Voltage	60kV
UV Exposure Testing per ASTM-G-155	2,160 hours



# COMPACTLIGN™ SYSTEM COMPONENTS

## 35kV RATED CABLE SPACER - SNAP TIE ATTACHMENT



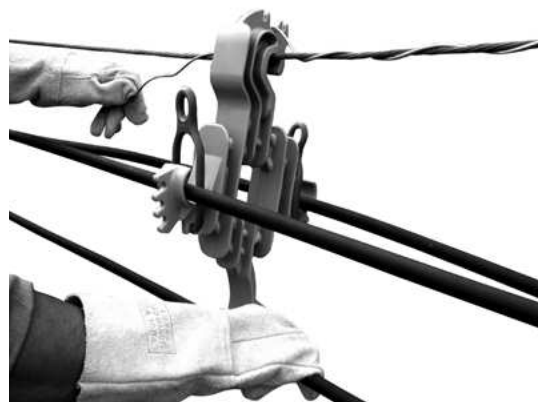
COMPACTLIGN™ conductors are attached to the ECL-35 cable spacer using silicone rubber snap ties. In this photo, the cable spacer and snap ties are positioned ready for final installation.



To install the snap tie, loop it over the phase conductor or messenger wire and stretch it, at the same time slotting it into one of the grooves on the cable spacer arm.



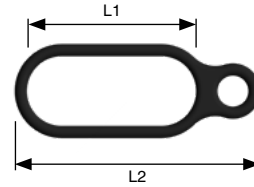
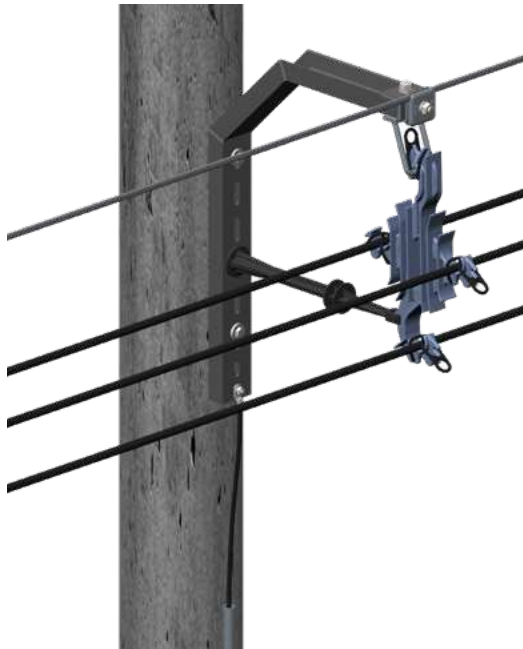
The ECL-35 cable spacer can be attached to the messenger wire with a snap tie.



The ECL-35 cable spacer can be attached to the messenger wire with a wire tie.

# COMPACTLIGN™ SYSTEM COMPONENTS

## SNAP TIE



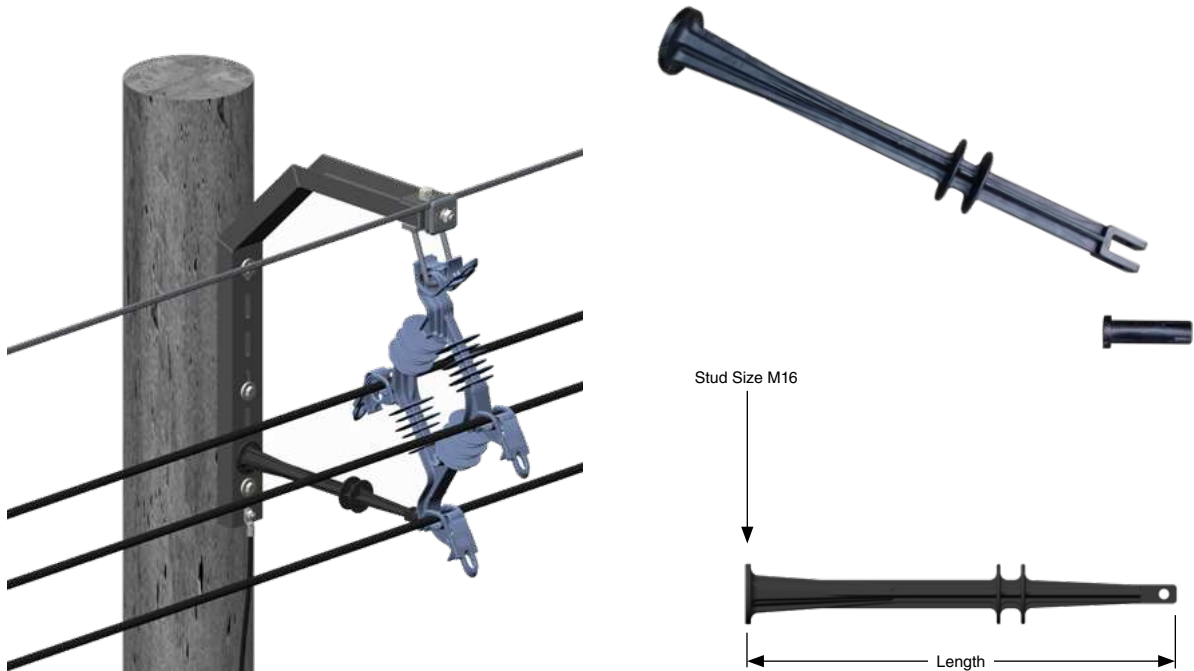
PLP's snap ties are designed to attach an ECL-15 or ECL-35 cable spacer to a messenger wire or an overhead COMPACTLIGN™ type spacer cable. Manufactured from silicone rubber, PLP's snap ties have been specially developed to meet critical electrical, mechanical and environmental performance standards and have been tested for Ultraviolet (UV) light withstand.

Available in three sizes, the AN-02 snap tie is most commonly used for spacer cable systems rated 25kV to 35kV.

PLP Catalogue Number	AN-01	AN-02	AN-03
Dimension "L1"	90	110	182
Dimension "L2"	140	160	245
Electrical Tracking Resistance Voltage (4 hours)	2.75kV		
Minimum Snap Tie Breakdown Load	4MPa		
Minimum Snap Tie Breakdown Load	400%		
Average Snap Tie Material Tensile Strength As Supplied	26.1MPa		
Average Snap Tie Material Tensile Strength After 2000hrs UV Aging	26.5MPa		
Average Snap Tie Material Tensile Strength After 168hrs @ 1100C	27.9MPa		
Average Snap Tie Material Elongation As Supplied	374.6%		
Average Snap Tie Material Elongation After UV Aging	297.5%		
Average Snap Tie Material Elongation After 168hrs @ 1100C	296.4%		

# COMPACTLIGN™ SYSTEM COMPONENTS

## ANTI-SWAY BRACKET



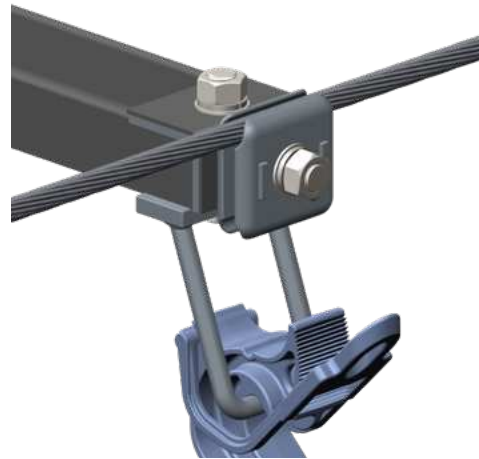
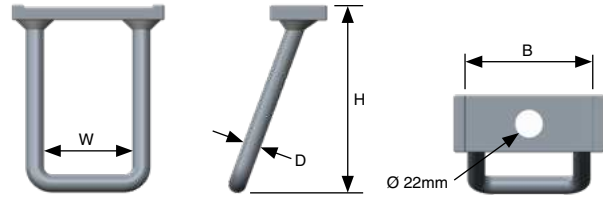
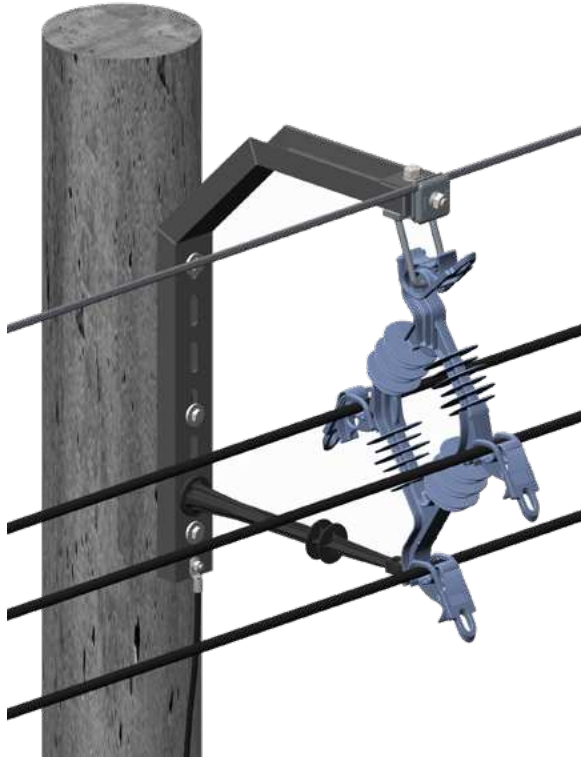
PLP's anti-sway brackets are designed to be used together with PLP's cable spacers. PLP recommends that an anti-sway bracket is installed as part of a cable spacer compact line type system at every fifth distribution pole or every 200m.

The anti-sway bracket has two main functions. Firstly, it maintains electrical clearance between the phase conductors and the utility pole. Secondly, it prevents longitudinal movement of the spacer cables. Normally caused by wind, longitudinal movement of the spacer cables can damage or break the cable spacer where it connects to the tangent bracket stirrup.

PLP Catalogue Number	BAB-02	BAB-01
Voltage Class	15kV	25kV/35kV
Production Material	Glass Re-Enforced Polyamide	
Length	305mm	550mm
Weight	0.25kg	0.35kg
Maximum Line Installation Angle	6°	6°
Maximum Compression Load - No Permanent Deformation	1.26kN	1.26kN
Flexural Load - No Permanent Deformation	0.5kN	0.5kN
Ultimate Compression Load (Minimum)	1.80kN	1.80kN
Ultimate Breaking Load (Minimum)	1.80kN	1.80kN

# COMPACTLIGN™ SYSTEM COMPONENTS

## TANGENT BRACKET STIRRUP



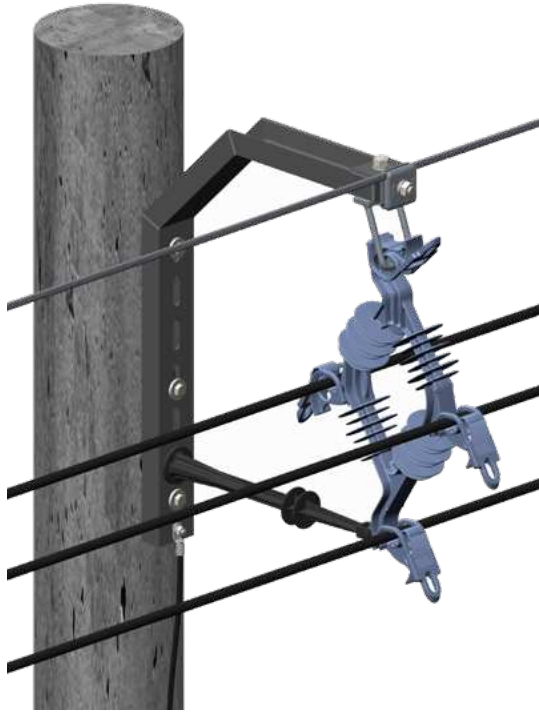
PLP's tangent bracket stirrup is designed to hang a cable spacer from the end of a cable spacer tangent bracket. Always used in conjunction with the tangent bracket clamp and often used with an anti-sway bracket when the cable spacer is located at the pole, the tangent bracket stirrup is manufactured from galvanised steel and supplied with the M20 hot dipped galvanised fastening set for attaching it to the tangent bracket.

Tangent bracket stirrups can be used with either ratchet attached or snap tie attached PLP cable spacers. The tangent bracket stirrup should always be attached to the tangent bracket using the hole closest to the end of the tangent bracket.

PLP Catalogue Number	TBS-01
Production Material	Galvanised Steel
Stirrup Diameter "D"	14mm
Stirrup Height "H"	150mm
Stirrup Internal Width "W"	70mm
Stirrup Gauge "B"	102mm
Stirrup Bolt Size	M20

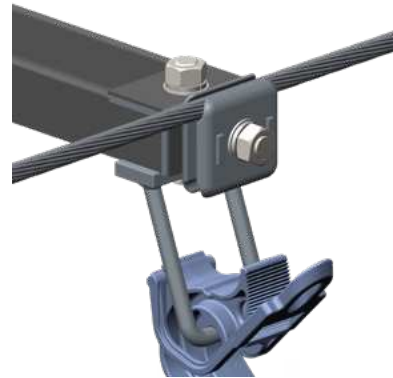
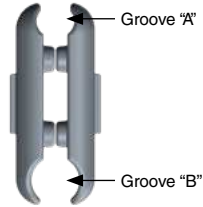
# COMPACTLIGN™ SYSTEM COMPONENTS

## TANGENT BRACKET CLAMP



TBC-01

TBC-02



PLP's tangent bracket clamps are designed to attach the messenger wire of the spacer cable system to the end of a cable spacer tangent bracket. Often used in conjunction with a tangent bracket stirrup, the clamps are manufactured from ductile iron and are galvanised after fabrication.

The TBC-01 tangent bracket clamp features two different sized grooves to accommodate a wide range of messenger wire sizes. The outside diameter of the messenger wire that each groove will accept is marked on the tangent bracket clamp casting.

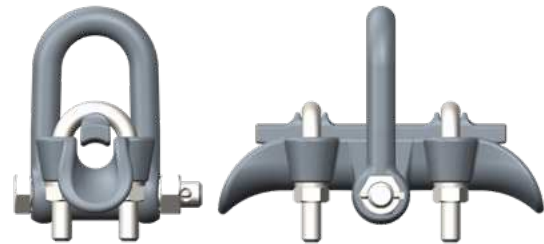
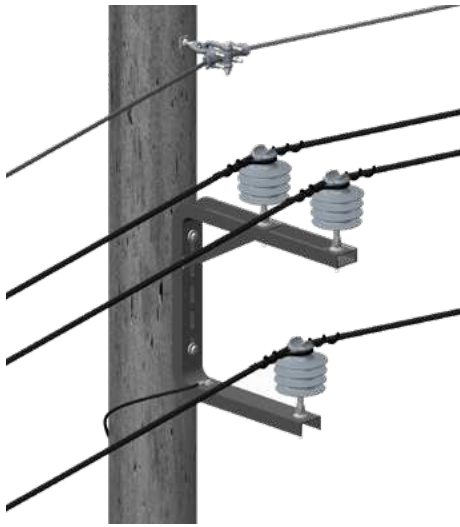
The TBC-02 tangent bracket clamp has been designed specifically for 7/3.75 SC/GZ wire and will apply sufficient clamping pressure to the messenger wire so that slip does not occur until 15.0kN (minimum). The TBC-02 is particularly suited to long span applications where tangent construction is being employed.

PLP supplies the tangent bracket clamp with the M20 hot dipped galvanised fastening sets for attachment to the tangent bracket.

PLP Catalogue Number	TBC-01	TBC-02
Production Material	Galvanised Ductile Iron	Galvanised Ductile Iron
Groove "A" Messenger Wire Diameter Acceptance	7.90mm – 11.10mm	Suit 11.25mm
Groove "B" Messenger Wire Diameter Acceptance	8.45mm – 19.05mm	N/A
Tangent Bracket Clamp Bolt Size	1 only M20	3 only M20

# COMPACTLIGN™ SYSTEM COMPONENTS

## MESSENGER ANGLE CLAMP



PLP's swivelling messenger angle clamp provides an alternative to terminating the messenger wire with a deadend at an angle pole. Manufactured as a forged steel casting, the messenger angle clamps are supplied hot dipped galvanised and are normally installed on an eyebolt or bolt with eye nut that is bolted right through the pole.

PLP's messenger angle clamp can be installed to accommodate vertical or horizontal swivel requirements.

PLP Catalogue Number	MAC-V
Production Material	Galvanised Forged Steel
Ultimate Strength	70kN
Messenger Wire Diameter Acceptance	9.6mm – 21.0mm





# SECTION 7 - COMPACTLIGN™ SYSTEM BRACKETS

## TABLE OF CONTENTS

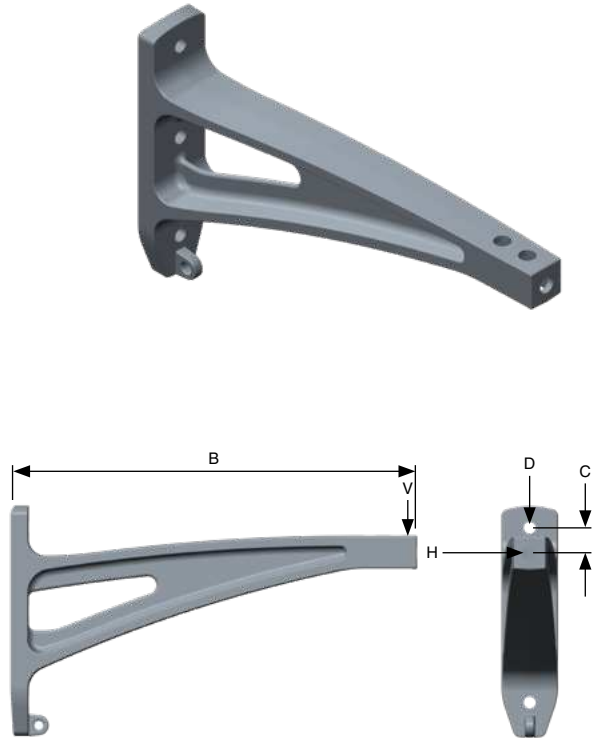
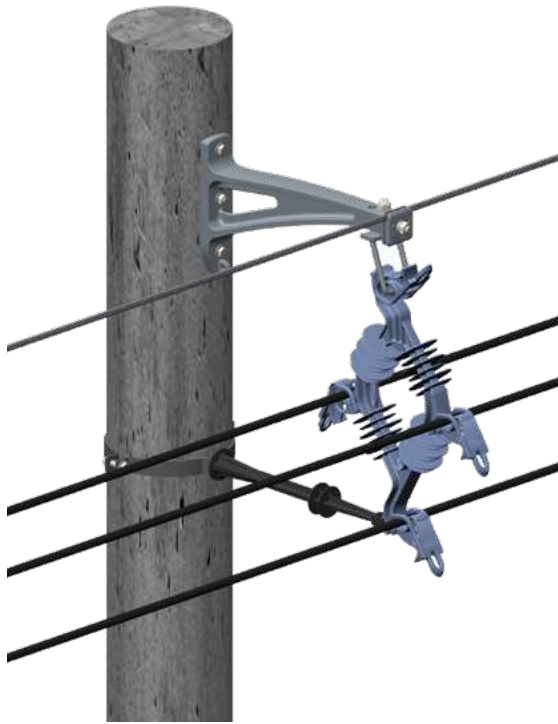


### **PREFORMED** LINE PRODUCTS

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Light Duty Tangent Bracket.....	7	130
Heavy Duty Tangent Bracket.....	7	132
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Deadend Bracket.....	7	142
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# COMPACTLIGN™ SYSTEM BRACKETS

## ALUMINIUM CAST TANGENT BRACKET



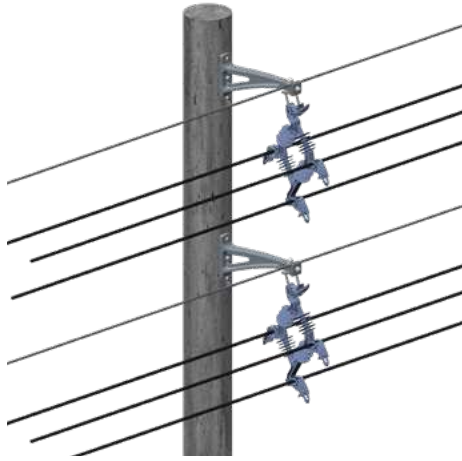
PLP's cast aluminium tangent brackets are a more elegant-looking alternative to fabricated steel tangent brackets. Available for 15kV, 25kV and 35kV COMPACTLIGN™ systems, a high strength model is available in addition to the standard model for 25kV and 35kV applications. The high strength model will accommodate longer spans and higher horizontal and vertical loads and is commonly deployed with the heavy duty tangent bracket clamp detailed elsewhere in this catalogue.

Cast aluminium tangent brackets can be bolted directly to the pole or attached with pole bands. They are suitable for round or square, wooden, concrete or steel poles and attach to the pole in a vertically compact manner. This means that mounting flexibility is maximised and the potential for interference with other hardware items bolted to the pole is minimised.

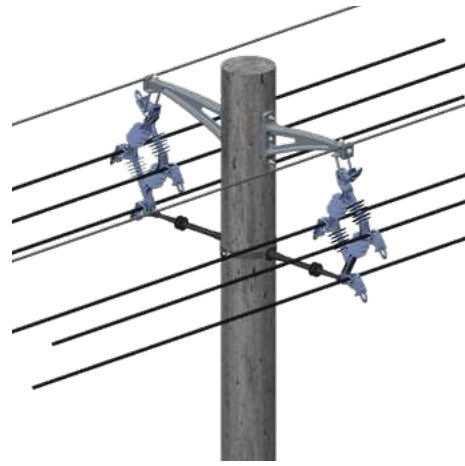
PLP Catalogue Number	TBAL-02	TBAL-01	TBAH-01
Voltage Class	15kV	25/35kV	25/35kV
Production Material	Aluminium	Aluminium	Aluminium
Approximate Weight	1.3kg	3kg	6kg
Pole Mounting Hole Size "D"	Suits M16	Suits M16	Suits M16
Overall Width "B"	362mm	615mm	615mm
Top Pole Mounting Slot to Tangent Bracket Clamp Offset "C"	40mm	40mm	40mm
Maximum Vertical Safe Working Load "V"	4.5kN	4.5kN	9.0kN
Ultimate Vertical Load "V"	9kN	9kN	18.0kN
Maximum Horizontal Safe Working Load "H"	1.5kN	1.5kN	6.0kN
Ultimate Horizontal Load "H"	3.0kN	3.0kN	12.0kN

# COMPACTLIGN™ SYSTEM BRACKETS

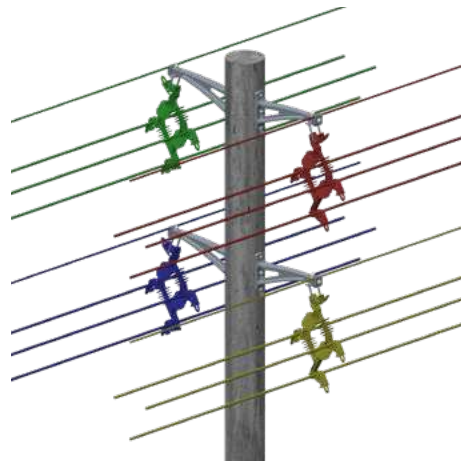
## ALUMINIUM CAST TANGENT BRACKET



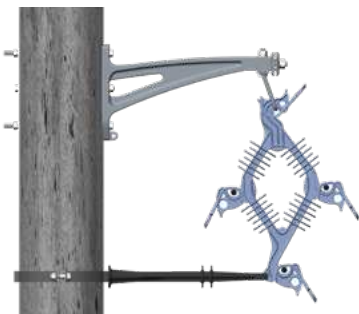
Double Circuit Spacer Cable System Installation;  
Same Side of Pole



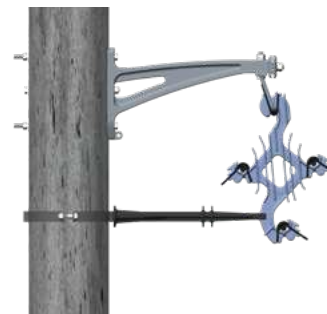
Double Circuit Spacer Cable System Installation;  
Different Side of Pole



Quad Circuit Spacer Cable System Installation



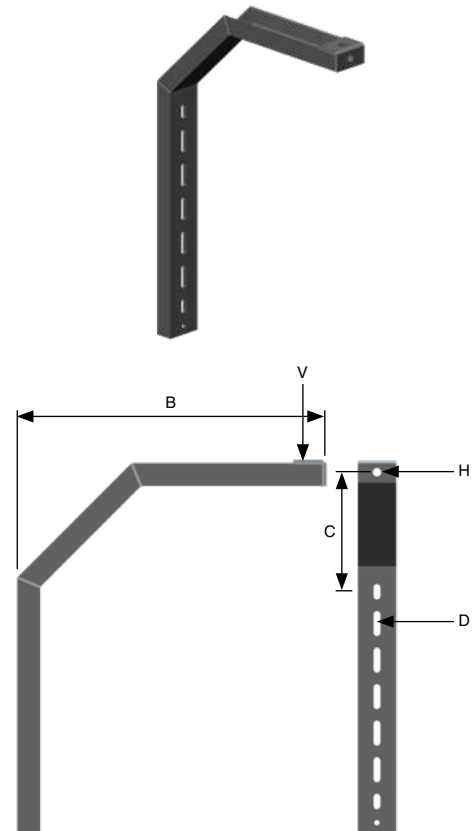
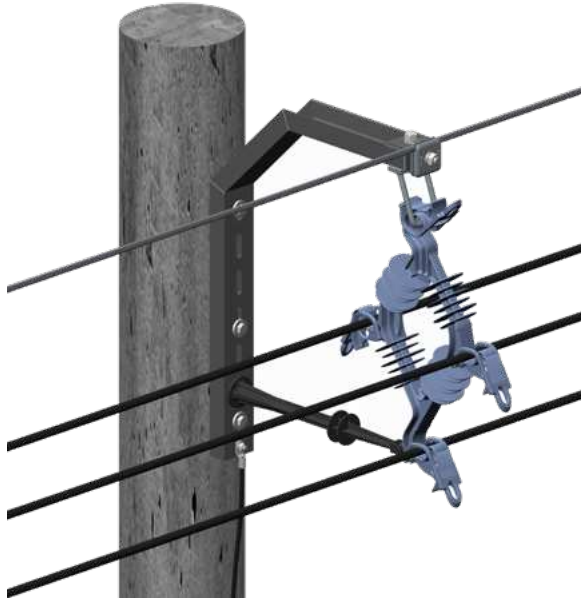
Minimum Phase to Earth Electrical Clearance  
Using ECR-35 Cable Spacer



Minimum Phase to Earth Electrical Clearance  
Using ECL-35 Cable Spacer

# COMPACTLIGN™ SYSTEM BRACKETS

## LIGHT DUTY TANGENT BRACKET



Designed to attach PLP ECR-25 ratchet type, ECR-35 ratchet type or ECL-35 snap tie type cable spacers to either wooden, concrete or steel poles, tangent brackets are fabricated from hot dip galvanised steel channel.

PLP's economical design of the tangent bracket maximises pole space and will often allow a pole carrying 2 circuits to be upgraded so that it carries 4 circuits. Carefully fabricated and cleverly designed, when deployed with either type of cable spacer, the tangent bracket can accommodate line angles up to 6°.

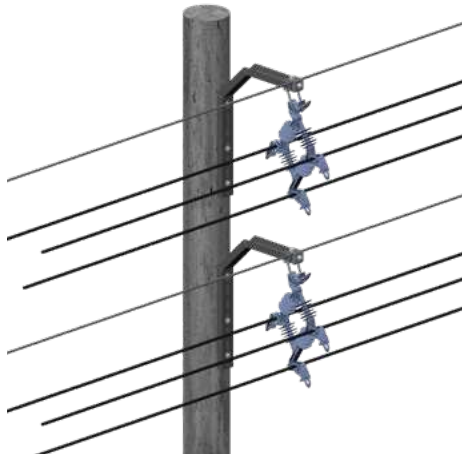
PLP's tangent brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the tangent bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the tangent bracket, making installation fast and easy.

A feature of PLP's tangent bracket is that it accommodates attachment of the anti-sway bracket. For installation, the polymeric anti-sway bracket is attached to the galvanised steel tangent bracket via an M16 bolt inserted through the back of the tangent bracket. Anti-sway bracket mounting holes are included in the tangent bracket for both the ratchet type cable spacers and the snap tie attached cable spacers.

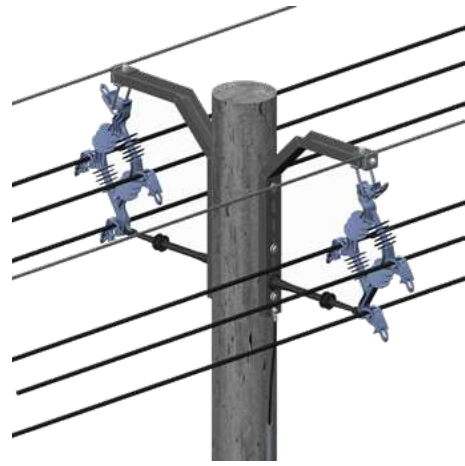
PLP Catalogue Number	TBL-02	TBL-01
Voltage Class	15kV	25/35kV
Production Material	Galvanised Steel	Galvanised Steel
Approximate Weight	9kg	14kg
Pole Mounting Slot Size "D"	Suits M16	Suits M16
Overall Width "B"	405mm	670mm
Top Pole Mounting Slot to Tangent Bracket Clamp Offset "C"	205mm	300mm
Maximum Vertical Safe Working Load "V"	>3.2kN	3.2kN
Ultimate Vertical Load "V"	>4.7kN	4.7kN
Tip Displacement with Unbalanced Horizontal Load, "H" = 1.5kN	<28mm	28mm
Tip Displacement with Unbalanced Horizontal Load, "H" = 3.0kN	<57mm	57mm

# COMPACTLIGN™ SYSTEM BRACKETS

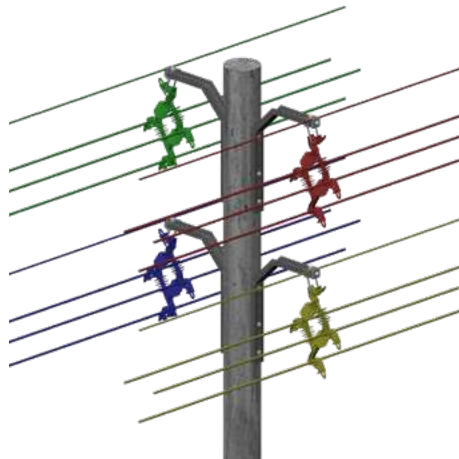
## LIGHT DUTY TANGENT BRACKET



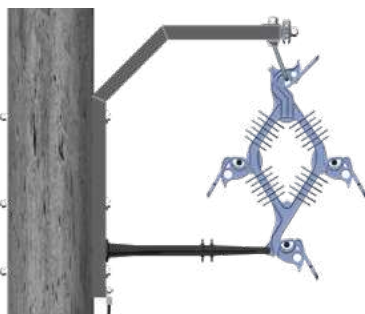
Double Circuit Spacer Cable System Installation;  
Same Side of Pole



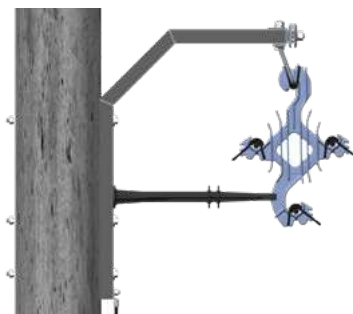
Double Circuit Spacer Cable System Installation;  
Different Side of Pole



Quad Circuit Spacer Cable System Installation



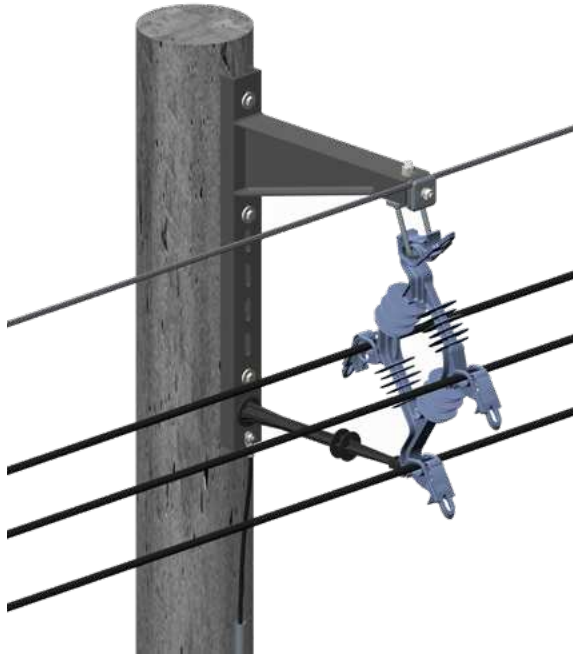
Minimum Phase to Earth Electrical Clearance  
Using ECR-35 Cable Spacer



Minimum Phase to Earth Electrical Clearance  
Using ECL-35 Cable Spacer

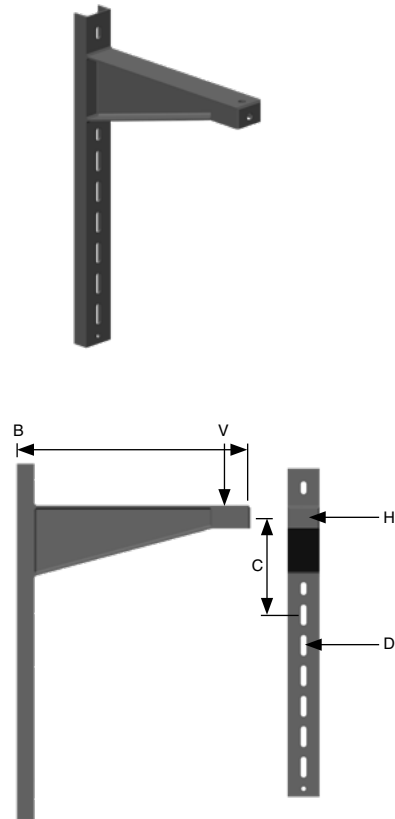
# COMPACTLIGN™ SYSTEM BRACKETS

## HEAVY DUTY TANGENT BRACKET



Designed to attach PLP ECR-25 ratchet type, ECR-35 ratchet type or ECL-35 snap tie type cable spacers to either wooden, concrete or steel poles, heavy duty tangent brackets are fabricated from hot dip galvanised steel channel.

The design of the heavy duty tangent bracket maximises pole space and will often allow a pole carrying 2 circuits to be upgraded so that it carries 4 circuits. Carefully fabricated and cleverly designed, when deployed with either type of cable spacer, the tangent bracket can accommodate line angles up to 6°.



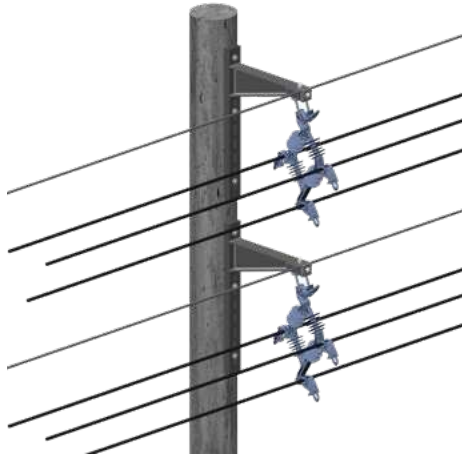
PLP's tangent brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the tangent bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the tangent bracket, making installation fast and easy.

A feature of PLP's heavy duty tangent bracket is that it accommodates attachment of the anti-sway bracket type BAB-02. For installation, the polymeric anti-sway bracket is attached to the galvanised steel tangent bracket via an M16 bolt inserted through the back of the tangent bracket. Anti-sway bracket mounting holes are included in the tangent bracket for both the ratchet type cable spacers and the snap tie attached cable spacers.

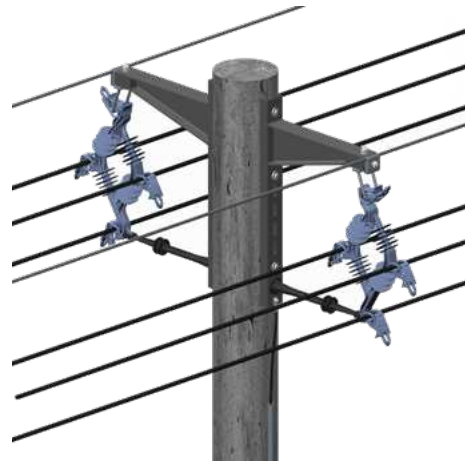
PLP Catalogue Number	TBH-01
Voltage Class	25/35kV
Production Material	Galvanised Steel
Approximate Weight	19kg
Pole Mounting Slot Size "D"	Suits M16
Overall Width "B"	670mm
Top Pole Mounting Slot to Tangent Bracket Clamp Offset "C"	205mm
Maximum Vertical Safe Working Load "V"	5.0kN
Ultimate Vertical Load "V"	10.0kN
Tip Displacement with Unbalanced Horizontal Load, "H" = 1.5kN	< 28mm
Tip Displacement with Unbalanced Horizontal Load, "H" = 3.0kN	< 57mm

# COMPACTLIGN™ SYSTEM BRACKETS

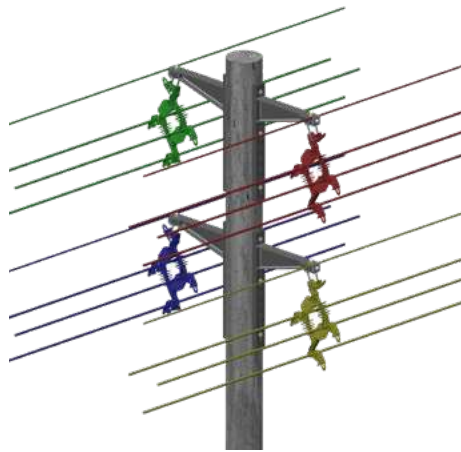
## HEAVY DUTY TANGENT BRACKET



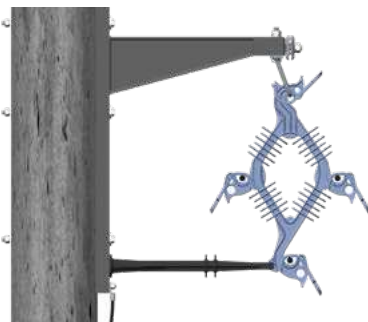
Double Circuit Spacer Cable System Installation;  
Same Side of Pole



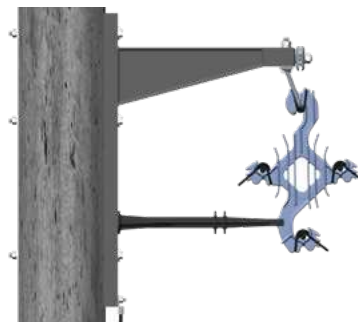
Double Circuit Spacer Cable System Installation;  
Different Side of Pole



Quad Circuit Spacer Cable System Installation



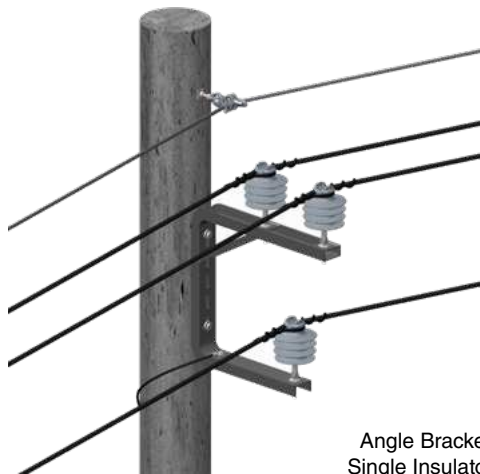
Minimum Phase to Earth Electrical Clearance  
Using ECR-35 Cable Spacer



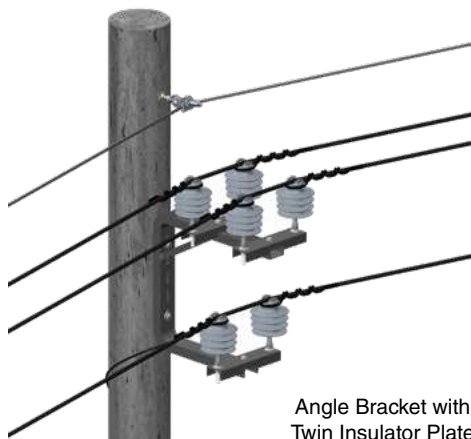
Minimum Phase to Earth Electrical Clearance  
Using ECL-35 Cable Spacer

# COMPACTLIGN™ SYSTEM BRACKETS

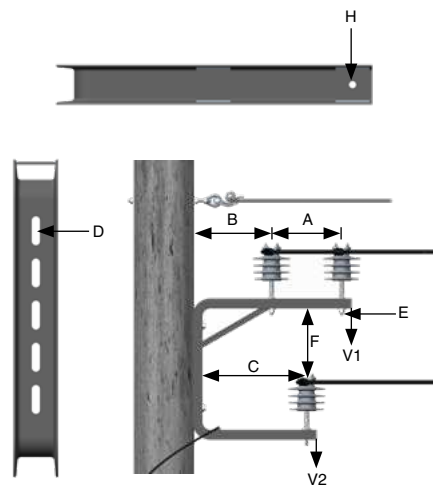
## ANGLE BRACKET



Angle Bracket  
Single Insulators



Angle Bracket with  
Twin Insulator Plate



Angle bracket construction for PLP's COMPACTLIGN™ systems should be used instead of tangent bracket construction where line angles exceed 6°. Manufactured from heavy duty galvanised steel channel, PLP angle brackets are designed so that single pin insulators or twin pin insulators can be installed on each phase (as illustrated). Angle brackets maintain the compact triangular construction of COMPACTLIGN™ systems and are simple to install for single or multiple circuits on a single pole.

PLP's angle brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the angle bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the angle bracket.

When installed with single insulators and Semi-Conductive Plastic Top Ties, angle brackets within COMPACTLIGN™ systems can accommodate line angles of up to 15°. Replace the Semi-Conductive Plastic Top Ties with Semi-Conductive Plastic Angle Side Ties and this type of construction can accommodate line angles of 11° to 40°.

When installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated via angle bracket construction. Replace the Semi-Conductive Plastic Double Top Ties with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°. For twin insulator pin installation, the double insulator plate that is detailed elsewhere in this catalogue must be used with the angle bracket.



# COMPACTLIGN™ SYSTEM BRACKETS

## ANGLE BRACKET

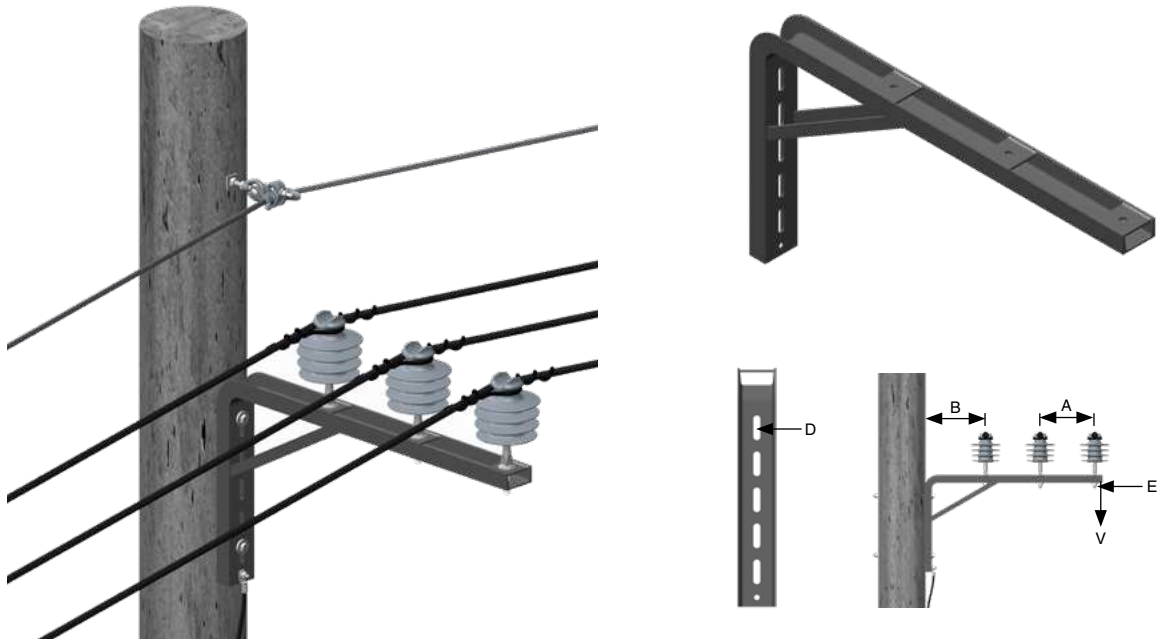
PLP Catalogue Number	AB-02	AB-01
Voltage Class	15kV	25/35kV
Production Material	Galvanised Steel	Galvanised Steel
Approximate Weight	19kg	21kg
Phase Spacing "A" <sup>1</sup>	270mm	355mm
Phase to Earth Clearance "B" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	375mm	390mm
Phase to Earth Clearance "C" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	470mm	530mm
Phase to Earth Clearance "F" Using Single PLP IP-35-F1 Insulator <sup>2</sup>	350mm	355mm
Pole Mounting Slot Size "D"	Suits M16	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16	Suits M16
Maximum Vertical Safe Working Load "V1"	>3.8kN	3.8kN
Ultimate Vertical Load "V1"	>7.6kN	7.6kN
Maximum Vertical Safe Working Load "V2"	>4.4kN	4.4kN
Ultimate Vertical Load "V2"	>7.9kN	7.9kN
Tip Displacement with Unbalanced Horizontal Load, "H" = 1.5kN	<20mm	20mm

**Note:** <sup>1</sup> Dimensions to centre of insulator

<sup>2</sup> Dimensions to bottom surface of top groove of insulator

# COMPACTLIGN™ SYSTEM BRACKETS

## FLAT ANGLE BRACKET



Angle bracket construction for PLP's COMPACTLIGN™ systems should be used instead of tangent bracket construction where line angles exceed 6°. The flat angle bracket is a compact angled mounting configuration for one circuit of spacer cable. The main advantage of the flat angle bracket over a standard angle bracket is vertical space saving. This is particularly important if COMPACTLIGN™ systems are being retrofitted to existing poles.

Manufactured from heavy duty galvanised steel channel, the PLP flat angle bracket is designed so that single pin insulators can be installed on each phase (as illustrated). For twin insulator pin installation, the double insulator plate that is detailed elsewhere in this catalogue must be used with the flat angle bracket.

PLP's flat angle brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the angle bracket attaches to the pole via a series of slots on the back of the bracket.

This means that new holes will not normally need to be drilled in the pole to attach the angle bracket.

When installed with single insulators and Semi-Conductive Plastic Top Ties, angle brackets within COMPACTLIGN™ systems can accommodate line angles of up to 15°. Replace the Semi-Conductive Plastic Top Ties with Semi-Conductive Plastic Angle Side Ties and this type of construction can accommodate line angles of 11° to 40°.

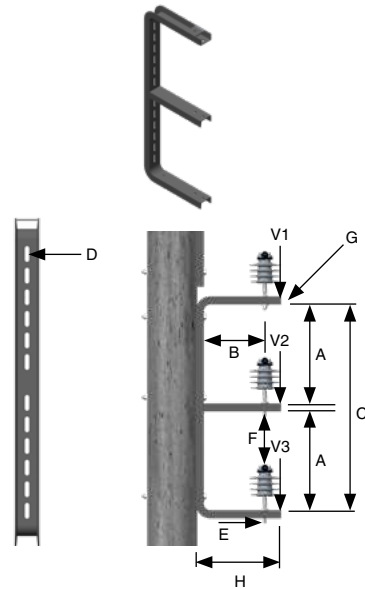
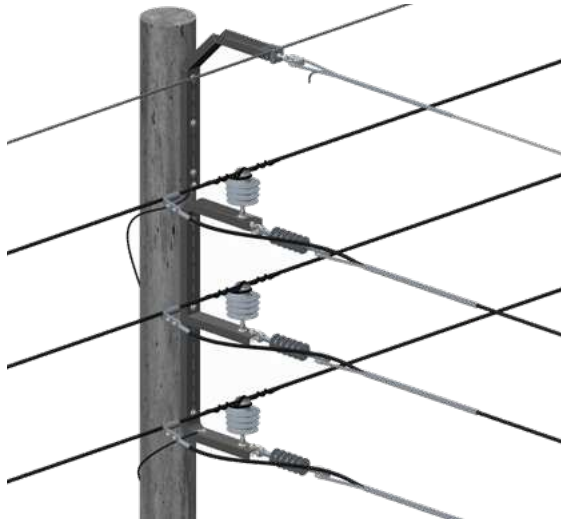
When installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated via angle bracket construction. Replace the Semi-Conductive Plastic Double Top Ties with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°. For twin insulator pin installation, the double insulator plate that is detailed elsewhere in this catalogue must be used with the angle bracket.

PLP Catalogue Number	FAB-02	FAB-01
Voltage Class	15kV	25/35kV
Production Material	Galvanised Steel	Galvanised Steel
Approximate Weight	16kg	19kg
Phase Spacing "A" <sup>1</sup>	270mm	355mm
Phase to Earth Clearance "B" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	325mm	390mm
Pole Mounting Slot Size "D"	Suits M16	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16	Suits M16
Maximum Vertical Safe Working Load "V"	3.3kN	3.3kN
Ultimate Vertical Load "V"	6.7kN	6.7kN

**Note:** <sup>1</sup> Dimensions to centre of insulator

# COMPACTLIGN™ SYSTEM BRACKETS

## VERTICAL ANGLE BRACKET



Vertical angle bracket construction for PLP's COMPACTLIGN™ systems can be used to facilitate construction of line angles or a single 3 phase tee connection to a COMPACTLIGN™ circuit. Manufactured from heavy duty galvanised steel channel.

When used at a tee intersection, vertical angle brackets accommodate termination of the phase conductors consisting the tee. However, messenger wires from both the tee off and the main line must be controlled and terminated using a PLP tangent bracket that must be ordered separately to the vertical angle bracket.

When installed with single insulators and Semi-Conductive Plastic Top Ties, angle brackets within COMPACTLIGN™ systems can accommodate line angles of up to 15°. Replace

the Semi-Conductive Plastic Top Ties with Semi-Conductive Plastic Angle Side Ties and this type of construction can accommodate line angles of 11° to 40°. When installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated. Replace with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°. For twin insulator pin installation, the double insulator plate must be used with the angle bracket.

PLP's vertical angle brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the vertical angle bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the angle bracket.

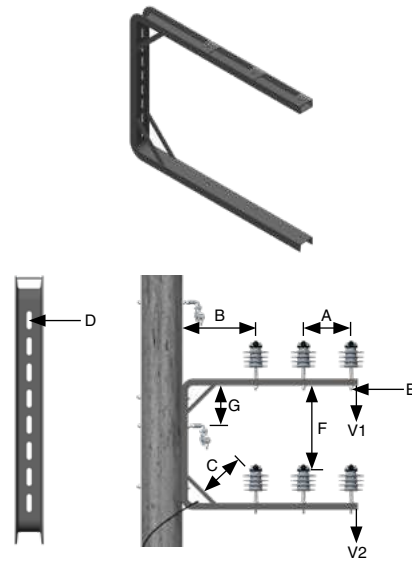
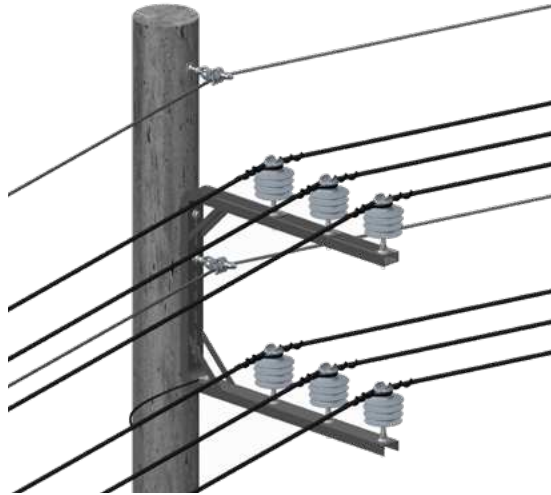
PLP Catalogue Number	VAB-01
Voltage Class	15/25/35kV
Production Material	Galvanised Steel
Approximate Weight	25kg
Crossarm Spacing "A"	610mm
Phase to Earth Clearance "B" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	390mm
Phase to Earth Clearance "F" Using Single PLP IP-35-F1 Insulator <sup>2</sup>	355mm
Total Height "C"	1270mm
Total Width "H"	525mm
Pole Mounting Slot Size "D"	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16
Dead End Mounting Hole "G"	Suits M16
Maximum Vertical Safe Working Load "V1"	2.5kN
Ultimate Vertical Load "V1"	5.0kN
Maximum Vertical Safe Working Load "V2"	2.5kN
Ultimate Vertical Load "V2"	5.0kN
Maximum Vertical Safe Working Load "V3"	2.5kN
Ultimate Vertical Load "V3"	5.0kN

**Note:** <sup>1</sup> Dimensions to centre of insulator

<sup>2</sup> Dimensions to bottom surface of top groove of insulator

# COMPACTLIGN™ SYSTEM BRACKETS

## TWIN CIRCUIT ANGLE BRACKET



Angle bracket construction for PLP's COMPACTLIGN™ systems should be used instead of tangent bracket construction where line angles exceed 6°. The twin circuit angle bracket is a compact angled mounting configuration for two circuits of COMPACTLIGN™. The main advantage of the twin circuit angle bracket over two standard angle brackets is vertical space saving. This can be particularly important if COMPACTLIGN™ systems are being retrofitted to existing poles.

Manufactured from heavy duty galvanised steel channel, PLP's twin circuit angle bracket is designed so that single pin insulators can be installed on each phase (as illustrated). For twin pin insulator installation, a twin insulator bracket which is detailed elsewhere in this catalogue must be used with the twin circuit angle bracket.

PLP's twin circuit angle brackets are ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the

existing crossarms are removed, the angle bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the angle bracket.

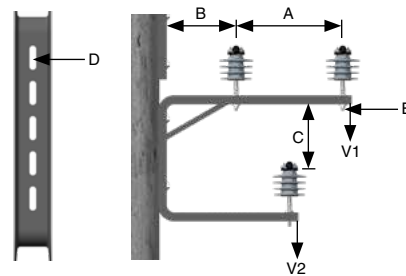
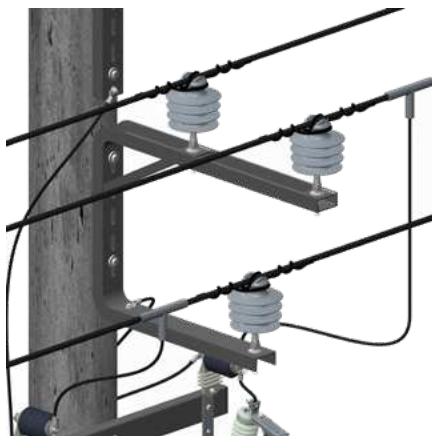
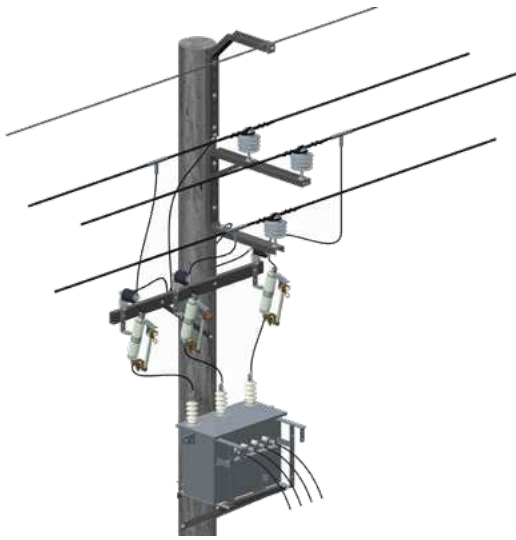
When installed with single insulators and Semi-Conductive Plastic Top Ties, angle brackets within COMPACTLIGN™ systems can accommodate line angles of up to 15°. Replace the Semi-Conductive Plastic Top Ties with Semi-Conductive Plastic Angle Side Ties and this type of construction can accommodate line angles of 11° to 40°. When installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated. Replace with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°. For twin insulator pin installation, the double insulator plate must be used with the angle bracket.

PLP Catalogue Number	TCAB-02	TCAB-01
Voltage Class	15kV	25/35kV
Production Material	Galvanised Steel	Galvanised Steel
Approximate Weight	30kg	35kg
Phase Spacing "A" <sup>1</sup>	270mm	355mm
Phase to Earth Clearance "B" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	460mm	550mm
Phase to Earth Clearance "C" Using Single PLP IP-35-F1 Insulator <sup>2</sup>	280mm	345mm
Phase to Earth Clearance "F" Using Single PLP IP-35-F1 Insulator <sup>3</sup>	550mm	620mm
Pole Mounting Slot Size "D"	Suits M16	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16	Suits M16
Messenger Clamp Mounting "G"	250mm	300mm
Maximum Vertical Safe Working Load "V1"	3.0kN	3.0kN
Ultimate Vertical Load "V1"	6.0kN	6.0kN
Maximum Vertical Safe Working Load "V2"	3.0kN	3.0kN
Ultimate Vertical Load "V2"	6.0kN	6.0kN

**Note:** <sup>1</sup> Dimensions to centre of insulator  
<sup>2</sup> Dimensions to centre of insulator side groove  
<sup>3</sup> Dimensions to bottom surface of top groove of insulator

## COMPACTLIGN™ SYSTEM BRACKETS

### TRANSFORMER TAP BRACKET



The transformer tap bracket performs a dual function within PLP's COMPACTLIGN™ system. It can be used simply as an increased phase clearance, heavy duty angle bracket or it can be used to facilitate the connection of tap conductors between the COMPACTLIGN™ system and transformers, switchgear or fuses. In a tap connection situation, the transformer tap bracket provides increased phase separation and increased safe working clearance, while at the same time ensuring that the tap connections are controlled and free from wind induced mechanical loads.

For angled line construction, the transformer tap bracket can be used as an increased clearance angle bracket where line angles exceed 6°. Angle brackets maintain the compact triangular construction of spacer cable systems and are simple to install for single or multiple circuits on a single pole.

Manufactured from heavy duty galvanised steel channel, PLP's transformer tap brackets are normally deployed with single polymeric pin insulators (as illustrated). If required, twin insulators can be installed for additional support of each phase by using a twin insulator bracket type TIB. Transformer tap brackets are

ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the angle bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the angle bracket.

When installed with single insulators and Semi-Conductive Plastic Top Ties, COMPACTLIGN™ systems can accommodate line angles of up to 15°. Replace the Semi-Conductive Plastic Top Ties with Semi-Conductive Plastic Angle Side Ties and this type of construction can accommodate line angles of 11° to 40°.

When used for angled line construction and when installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated. Replace the Semi-Conductive Plastic Double Top Ties with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°. For twin insulator pin installation, the double insulator plate that is detailed elsewhere in this catalogue must be used with this bracket.

# COMPACTLIGN™ SYSTEM BRACKETS

## TRANSFORMER TAP BRACKET

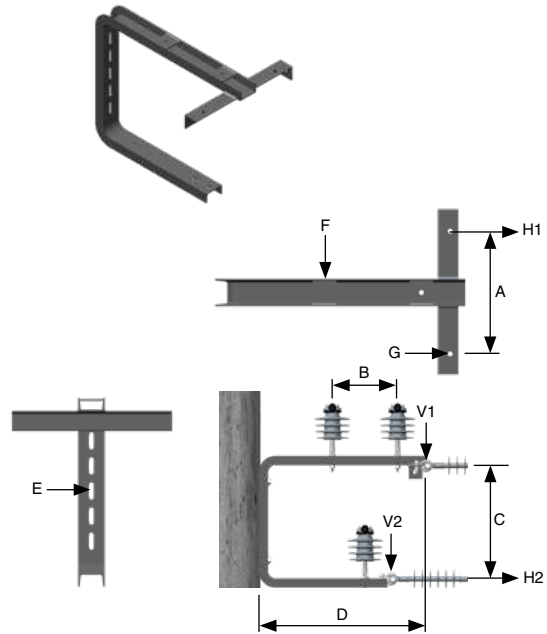
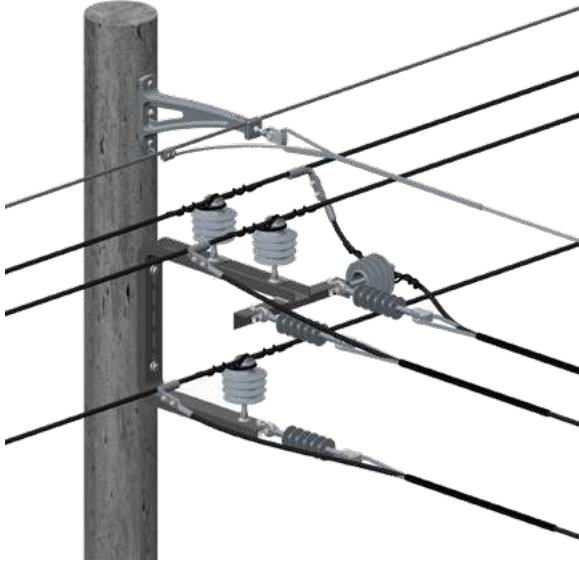
PLP Catalogue Number	TTB-02	TTB-01
Voltage Class	15kV	25/35kV
Production Material	Galvanised Steel	Galvanised Steel
Approximate Weight	22kg	25kg
Phase Spacing "A" <sup>1</sup>	450mm	600mm
Phase to Earth Clearance "B" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	320mm	390mm
Phase to Earth Clearance "C" Using Single PLP IP-35-F1 Insulator <sup>2</sup>	350mm	360mm
Pole Mounting Slot Size "D"	Suits M16	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16	Suits M16
Maximum Vertical Safe Working Load "V1"	3.0kN	3.0kN
Ultimate Vertical Load "V1"	6.0kN	6.0kN
Maximum Vertical Safe Working Load "V2"	2.5kN	2.5kN
Ultimate Vertical Load "V2"	5.0kN	5.0kN

**Note:** <sup>1</sup> Dimensions to centre of insulator

<sup>2</sup> Dimensions to bottom surface of top groove of insulator

# COMPACTLIGN™ SYSTEM BRACKETS

## DEADEND TEE BRACKET



PLP's COMPACTLIGN™ system deadend tee bracket is designed to facilitate construction of a single 3 phase tee connection to a triangular bundled COMPACTLIGN™ circuit. Manufactured from heavy duty galvanised steel channel, PLP deadend tee brackets are normally deployed with single polymeric pin insulators (as illustrated) but, if required, twin insulators can be installed for each phase by using a twin insulator bracket type TIB.

Used at a tee intersection, deadend tee brackets accommodate termination of the phase conductors consisting the tee. However, messenger wires from both the tee off and the main line must be controlled and terminated using a PLP tangent bracket which must be ordered separately to the deadend tee bracket.

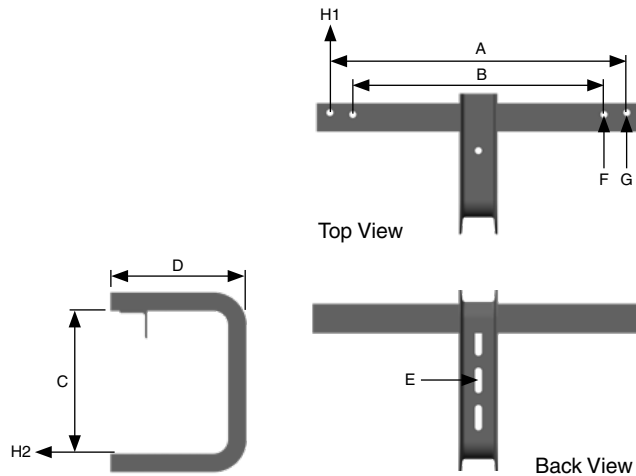
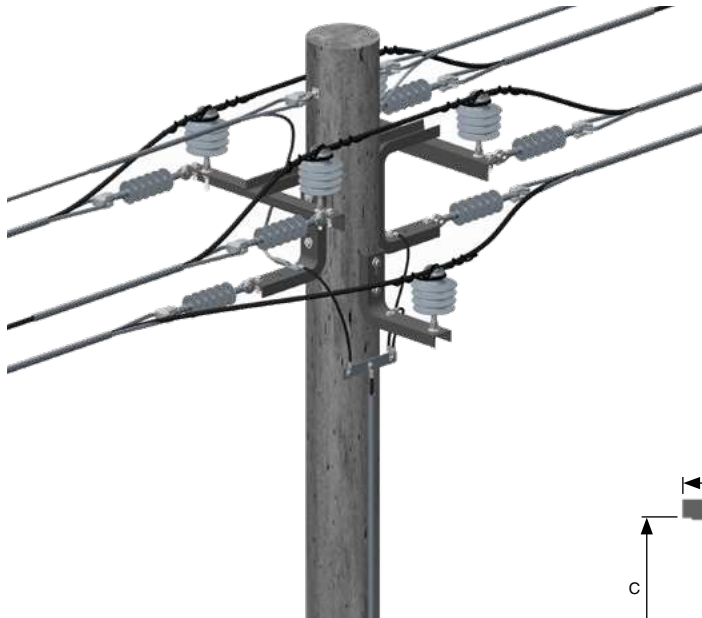
Utilising the deadend tee bracket maintains the spacer cable system's compact bundle construction and simplifies installation.

The PLP deadend tee bracket is ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the deadend bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the deadend bracket.

PLP Catalogue Number	DTB-01
Voltage Class	15/25/35kV
Production Material	Galvanised Steel
Approximate Weight	25kg
Deadend Phase Spacing "A"	450mm
Pin Insulator Phase Spacing "B"	335mm
Height "C"	615mm
Width "D"	915mm
Pole Mounting Slot Size "E"	Suits M16
Pin Insulator Mounting Hole "F"	Suits M16
Deadend Insulator Mounting Hole "G"	Suits M16
Maximum Horizontal Safe Working Load "H1"	2.5kN
Ultimate Horizontal Load "H1"	5.0kN
Maximum Horizontal Safe Working Load "H2"	2.5kN
Ultimate Horizontal Load "H2"	5.0kN
Maximum Vertical Safe Working Load "V1"	3.8kN
Ultimate Vertical Load "V1"	7.6kN
Maximum Vertical Safe Working Load "V2"	4.4kN
Ultimate Vertical Load "V2"	7.9kN

# COMPACTLIGN™ SYSTEM BRACKETS

## DEADEND BRACKET



PLP's COMPACTLIGN™ system deadend bracket is designed to be installed both at a circuit's end and as part of a double deadend straight or angled line construction assembly (as illustrated). Utilising the type DB deadend bracket maintains the spacer cable system's compact bundle construction and simplifies installation, particularly in a double deadend situation.

Probably the most complex of all COMPACTLIGN™ pole mounting assemblies is the double deadend. Normally only required for very heavily angled line construction, two deadend brackets are required.

Each deadend bracket accommodates mounting of PLP's polymeric pin and tension insulators for the two topmost phases. For the lower phase, the tension insulator can be attached to the deadend bracket but the lower phase requires a separate type JB "Jumper Bracket" which is detailed elsewhere in this catalogue.

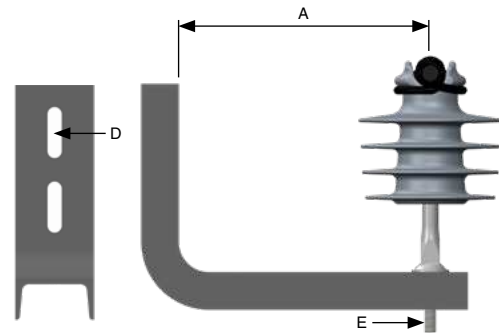
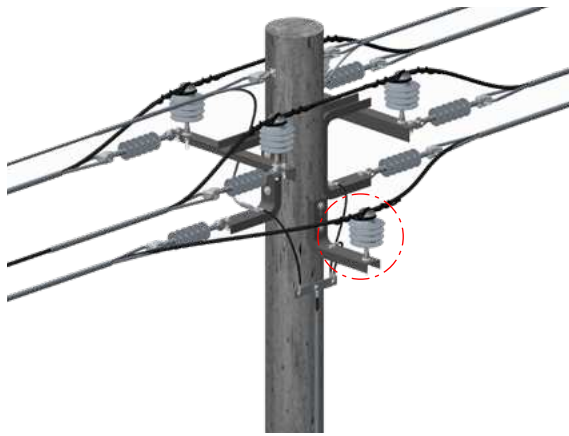
Manufactured from heavy duty galvanised steel channel, the PLP deadend bracket is ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the deadend bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the deadend bracket.

PLP Catalogue Number	DB-01
Voltage Class	15/25/35kV
Production Material	Galvanised Steel
Approximate Weight	16kg
Deadend Phase Spacing "A"	780mm
Pin Insulator Phase Spacing "B"	660mm
Height "C"	390mm
Width "D"	370mm
Pole Mounting Slot Size "E"	Suits M16
Pin Insulator Mounting Hole "F"	Suits M16
Deadend Insulator Mounting Hole "G"	Suits M16
Maximum Horizontal Safe Working Load "H1"	9.0kN
Ultimate Horizontal Load "H1"	15.0kN
Maximum Horizontal Safe Working Load "H2"	10.0kN
Ultimate Horizontal Load "H2"	15.0kN



# COMPACTLIGN™ SYSTEM BRACKETS

## JUMPER BRACKET



PLP's COMPACTLIGN™ system jumper bracket is designed to be installed as part of a double deadend angled line construction assembly (as illustrated). Utilised with the type DB deadend bracket, the jumper bracket attaches the pin insulator supporting the lower phase to the pole, thereby maintaining the COMPACTLIGN™ system's electrical clearances.

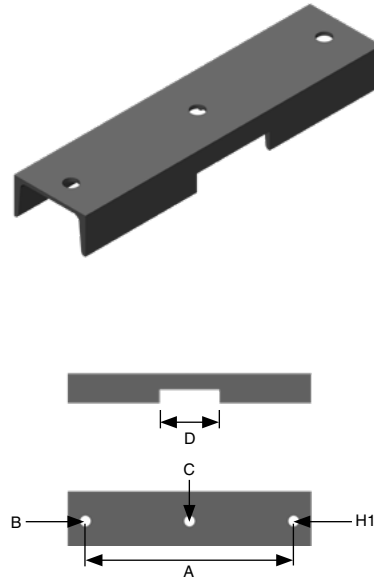
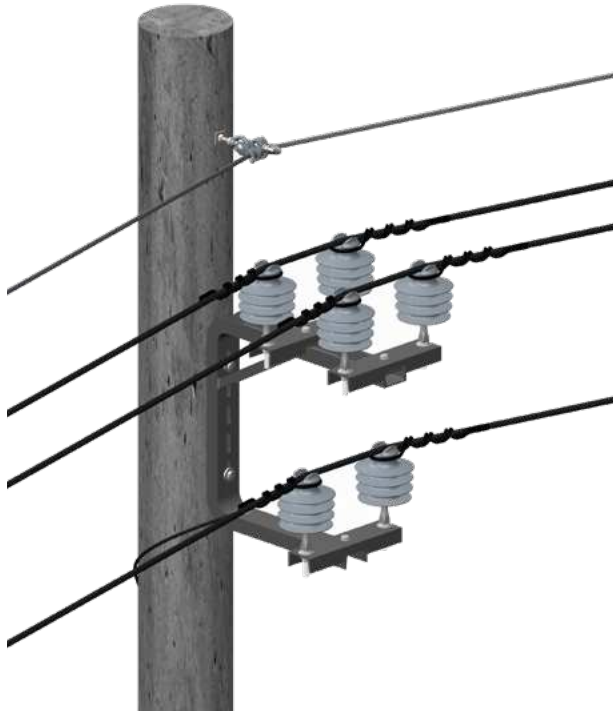
Manufactured from heavy duty galvanised steel channel, the PLP jumper bracket is ideal for retrofitting COMPACTLIGN™ systems to existing pole lines. Once the existing crossarms are removed, the jumper bracket attaches to the pole via a series of slots on the back of the bracket. This means that new holes will not normally need to be drilled in the pole to attach the jumper bracket.

PLP Catalogue Number	JB-01
Voltage Class	35kV
Production Material	Galvanised Steel
Approximate Weight	6kg
Phase to Earth Clearance "A" Using Single PLP IP-35-F1 Insulator <sup>1</sup>	335mm
Pole Mounting Slot Size "D"	Suits M16
Pin Insulator Mounting Hole "E"	Suits M16

**Note:** <sup>1</sup> Dimensions to centre of insulator

# COMPACTLIGN™ SYSTEM BRACKETS

## TWIN INSULATOR BRACKET



Designed for use with PLP's HDPE polymeric insulators and 1-inch or 1-3/8 inch ANSI specification nylon head insulator pins, the twin insulator bracket is used to convert COMPACTLIGN™ system angle brackets (Type AB, FAB and VAB) or transformer tap brackets (Type TTB) from a single pin insulator attachment to a twin pin insulator attachment.

Carefully gauged during manufacture, PLP's twin insulator bracket simply fits over the angle bracket or transformer tap bracket. Once fitted, it is locked in place with the single fixing bolt that is supplied as part of the twin insulator bracket assembly.

Commonly used where spans are long or in situations where lines are heavily angled, twin insulator construction creates an increased bending radius for the phase conductors reducing mechanical stress.

In addition, twin insulator construction provides increased system security by dividing the cantilever load generated by the line angle over two insulator and insulator pin assemblies.

When installed with twin insulators and Semi-Conductive Plastic Double Top Ties, line angles of up to 30° can be accommodated via angle bracket construction. Replace the Semi-Conductive Plastic Double Top Ties with Semi-Conductive Plastic Double Angle Side Ties and this type of construction can accommodate line angles of 22° to 60°.

PLP Catalogue Number	TIB-01
Voltage Class	15/25/35kV
Production Material	Galvanised Steel
Approximate Weight	3.6kg
Insulator Spacing "A" <sup>1</sup>	355mm
Insulator Pin Hole "B"	Suits M16
Crossarm Mounting Hole "C"	Suits M16
Bracket Gauge "D"	102mm
Maximum Horizontal Safe Working Load "H1"	2.5kN
Ultimate Horizontal Load "H1"	5.0kN

**Note:** <sup>1</sup> Dimensions to centre of insulator

# SECTION 8 - CONNECTORS

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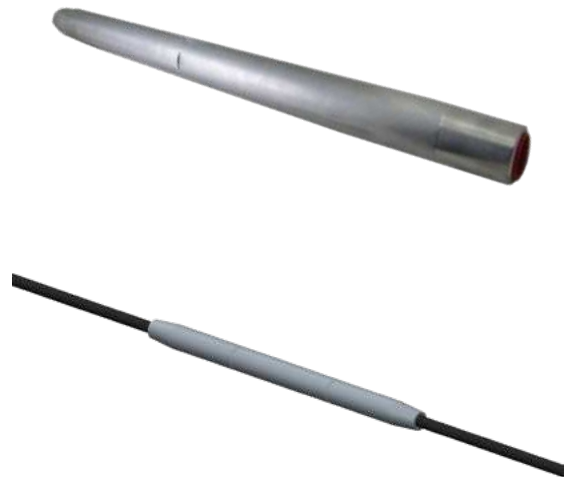
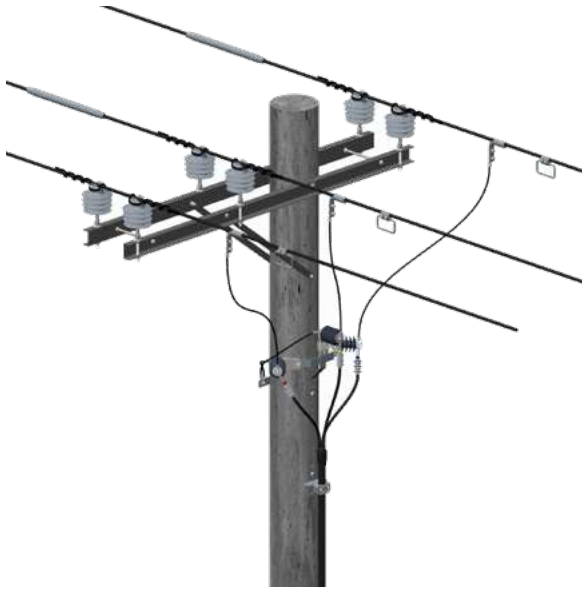


### **PREFORMED** LINE PRODUCTS

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# CONNECTORS

## FULL TENSION COMPRESSION



PLP's full tension compression joints are designed for mid-span jointing of same sized distribution overhead conductors. Suitable for both bare and covered conductors, PLP's full tension compression joints are manufactured from extruded aluminium tube and rated to 95% of the minimum failing load of the conductor. Full tension joints are supplied with centre stop indents to prevent unequal insertion of conductors. Each joint is prefilled with jointing compound, sealed at both ends with plastic caps and labelled with the conductor size and die size. Installation is completed with industry standard hexagonal compression dies.

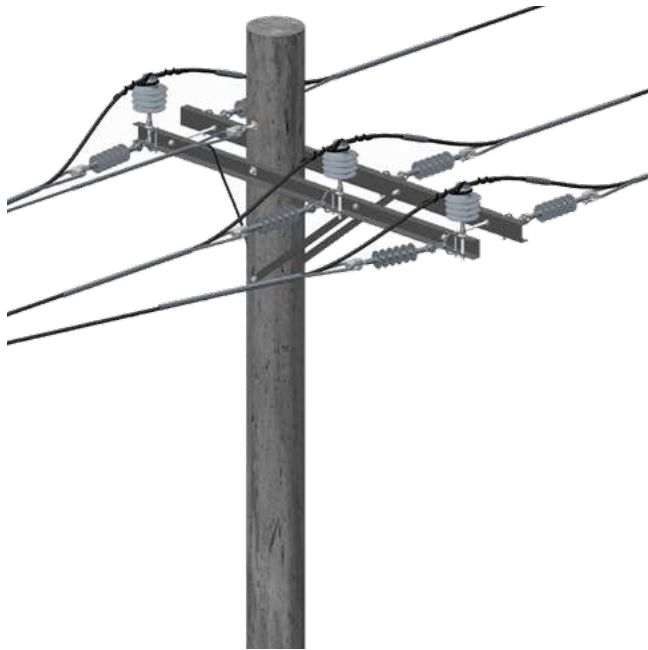
For application on covered conductors, PLP recommends insulating the full tension compression joint with an insulation tape system after installation (see elsewhere in this catalogue for details).

### Full Tension Compression Mid-span Joints for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series) and Compacted AAC Spacer Cables

PLP Catalogue Number		Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Bare or COVEREDLIGN™ Open Wire Conductors	Spacer Cables		
FTJ35	FTJSC35	35	14.0
FTJ40	-	40	14.0
FTJ50	FTJSC50	50	14.0
FTJ70	FTJSC70	70	18.0
FTJ80	-	80	18.0
-	FTJSC95	95	18.0
FTJ95	-	95	22.0
FTJ100	-	100	22.0
FTJ120	FTJSC120	120	22.0
-	FTJSC150	150	22.0
FTJ150	-	150	28.5
FTJ180	-	180	28.5
FTJ185	FTJSC185	185	28.5
-	FTJSC240	240	28.5
FTJ240	-	240	34.5
-	FTJSC300	300	34.5

# CONNECTORS

## NON TENSION COMPRESSION



PLP's non tension compression joints are designed for joining same sized distribution overhead conductors. Suitable for both bare and covered conductors, non tension compression joints are manufactured from extruded aluminium tube. Non tension joints are supplied with centre stop indents to prevent unequal insertion of conductors. Each joint is prefilled with jointing compound, sealed at both ends with plastic caps and labelled with the conductor size and die size. Installation is completed with industry standard hexagonal compression dies.

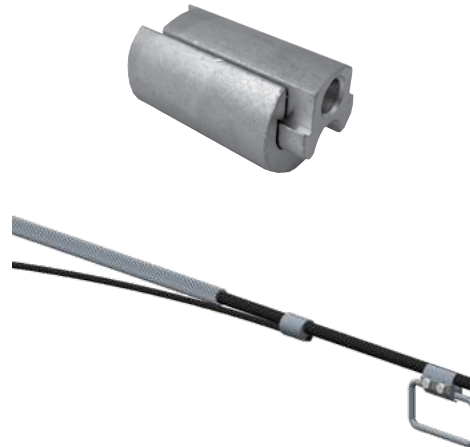
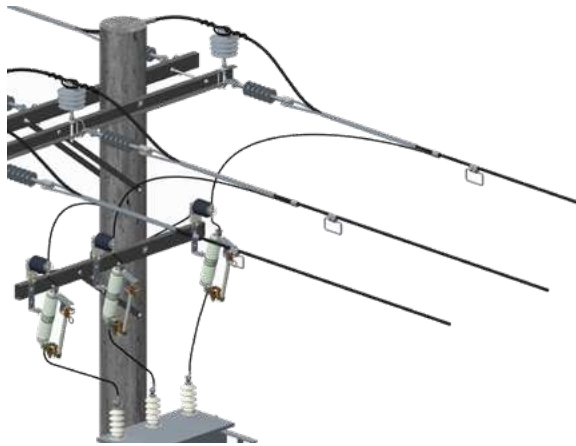
For application on covered conductors, PLP recommends insulating the full tension compression joint with an insulation tape system after installation (see elsewhere in this catalogue for details).

### Non Tension Joints for Bare or COVERDLIGN™ Open Wire Conductors (6000 Series) and Compacted AAC Spacer Cables

PLP Catalogue Number		Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Bare or COVERDLIGN™ Open Wire Conductors	Spacer Cables		
NTJ35	NTJSC35	35	14.0
NTJ40	-	40	14.0
NTJ50	NTJSC50	50	14.0
NTJ70	NTJSC70	70	18.0
NTJ80	-	80	18.0
-	NTJSC95	95	18.0
NTJ95	-	95	22.0
NTJ100	-	100	22.0
NTJ120	NTJSC120	120	22.0
-	NTJSC150	150	22.0
NTJ150	-	150	28.5
NTJ180	-	180	28.5
NTJ185	NTJSC185	185	28.5
-	NTJSC240	240	28.5
NTJ240	-	240	34.5
-	NTJSC300	300	34.5

# CONNECTORS

## LINE TAP COMPRESSION



PLP's line tap compression connectors are designed for making all kinds of tap connections from main distribution line conductors. Suitable for use on both bare and covered conductors, line tap compression connectors can be used to connect transformers, surge arrestors and fuses. The main advantage of this type of connector is that it fits quickly and easily onto the main conductor without having to cut it.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to installation of the line tap and use PLP Uniseal jointing compound on both the main and tap conductors. Compress the entire length of the line tap to install it and, if being installed on covered conductor, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details).

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

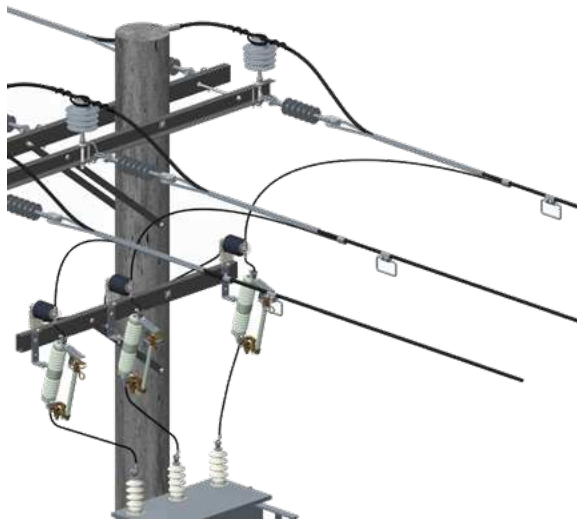
### Line Tap Compression Connectors for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series) and Compacted AAC Spacer Cables

		Tap Conductor Size						Die AF (mm)
		35mm <sup>2</sup>	40mm <sup>2</sup>	50mm <sup>2</sup>	70mm <sup>2</sup>	80mm <sup>2</sup>	95mm <sup>2</sup>	
Main Conductor Size - Bare or COVEREDLIGN™ Open Wire Conductors	35mm <sup>2</sup>	LT3535	-	-	-	-	-	28.5
	40mm <sup>2</sup>	LT4035	LT4040	-	-	-	-	28.5
	50mm <sup>2</sup>	LT5035	LT5040	LT5050	-	-	-	28.5
	70mm <sup>2</sup>	LT7035	LT7040	LT7050	LT7070	-	-	28.5
	80mm <sup>2</sup>	LT8035	LT8040	LT8050	LT8070	-	-	28.5
	95mm <sup>2</sup>	LT9535	LT9540	LT9550	LT9570	LT9580	LT9595	34.5
	100mm <sup>2</sup>	LT10035	LT10040	LT10050	LT10070	LT9580	-	34.5
	120mm <sup>2</sup>	LT12035	LT12040	LT12050	LT12070	-	-	34.5
	150mm <sup>2</sup>	LT15035	LT15040	LT15050	-	-	-	34.5
	180mm <sup>2</sup>	LT18035	LT18040	-	-	-	-	34.5
Main Conductor Size - COMPACTLIGN™ Cables	35mm <sup>2</sup>	LTSC3535	-	-	-	-	-	28.5
	50mm <sup>2</sup>	LTSC5035	-	LTSC5050	-	-	-	28.5
	70mm <sup>2</sup>	LTSC7035	-	LTSC7050	LTSC7070	-	-	28.5
	95mm <sup>2</sup>	LTSC9535	-	LTSC9550	LTSC9570	-	LTSC9595	34.5
	120mm <sup>2</sup>	LTSC12035	-	LTSC12050	LTSC12070	-	-	34.5
	150mm <sup>2</sup>	LTSC15035	-	LTSC15050	-	-	-	34.5
	185mm <sup>2</sup>	LTSC18535	-	-	-	-	-	34.5

**Note:** Line Tap Connectors are not available for all combinations of main and tap conductors. The capability of the installation tooling is a limiting factor. For a detailed explanation, contact PLP.

# CONNECTORS

## H TYPE COMPRESSION



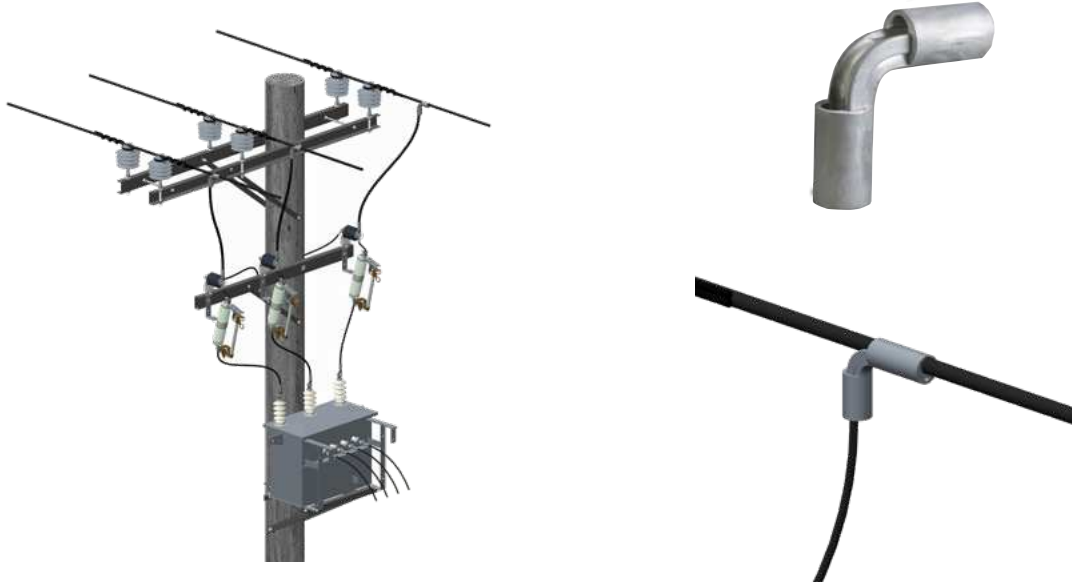
H type compression linetaps (HTaps) are a simple, reliable and low cost means of making a connection between a mainline conductor and a tap conductor. Manufactured from high strength, high conductivity aluminium alloy, HTaps provide a low resistance contact without distorting the conductor's shape. H Taps can be installed with hydraulic or mechanical indent type tools.

The fold in tabs provides an interlock between the connector and the conductor as the tool closes. H Taps can be easily insulated with an insulation tape system or a snap-on type cover after installation.

PLP Catalogue Number	Conductor Range	
	Main Size (mm <sup>2</sup> )	Tap Size (mm <sup>2</sup> )
P02100-000	10 - 16	4 - 10
P02101-000	25 - 50	2.5 - 6
P02102-000	25 - 50	16 - 35
P02103-000	70 - 95	16 - 35
P02104-000	50 - 95	50 - 95
P02128-000	35 - 50	6 - 10
P02129-000	70 - 95	6 - 10

# CONNECTORS

## L JOINT COMPRESSION



PLP's L Joint compression tap connectors are designed for making tap connections to main distribution line conductors. L Joint connectors can be used to connect conductors up to 185mm<sup>2</sup> on both bare and covered conductors when the main conductor and tap conductor are the same size. As such, L Joint compression connectors can be used to connect transformers, surge arrestors and fuses. The main advantage of this type of connector is that it fits quickly and easily onto the main conductor without having to cut it.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to installation of the L Joint and use PLP Uniseal jointing compound on both the main and tap conductors. Compress the entire length of each side of the L Joint to install it and, if the connector is being installed on covered conductor, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details).

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

### L Joint Compression Connectors for Bare or COVERDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )	Die AF (mm)
LJ70	70	28.5
LJ80	80	28.5
LJ95	95	34.5
LJ100	100	34.5
LJ120	120	34.5
LJ150	150	34.5
LJ180	180	34.5
LJ185	185	34.5

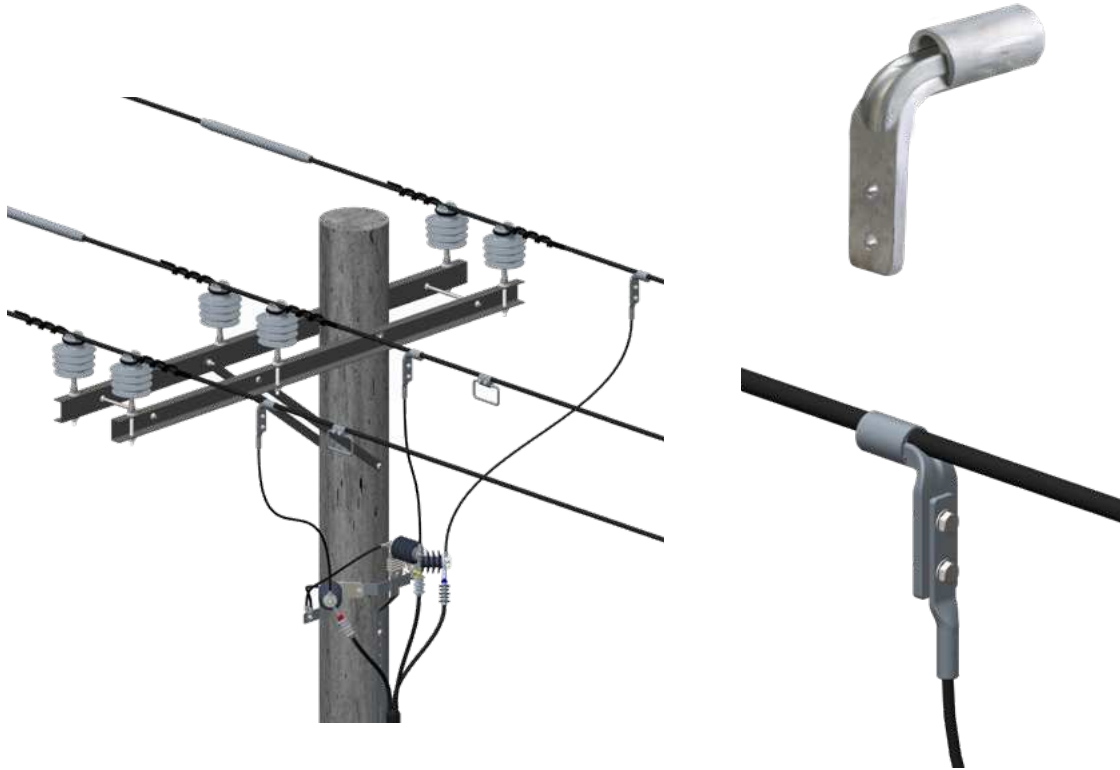
### L Joint Compression Connectors for Compacted AAC Spacer Cable Covered Conductors

PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )	Die AF (mm)
LJSC70	70	28.5
LJSC95	95	34.5
LJSC120	120	34.5
LJSC150	150	34.5
LJSC185	185	34.5



# CONNECTORS

## L PALM COMPRESSION



PLP's L Palm compression connectors are designed for making tap connections to main distribution line conductors. L Palm connectors can be used for conductors up to 185mm<sup>2</sup> on both bare and covered conductors and are designed so that the tap conductor can be easily disconnected. L Palm compression connectors can be used to connect transformers, surge arrestors and fuses. The main advantage of this type of connector is that it fits quickly and easily onto the main conductor without having to cut it.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to installation of the L Palm tap and use PLP's Uniseal jointing compound on both the main and tap conductors. Compress the entire length of the compression area to install it and, if the connector is being installed on covered conductors, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details).

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

### L Palm Compression Connectors for Bare or COVERDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )	Palm Size (mm)	Hole Centres (mm)	Suit Bolt Size	Die AF (mm)
LP70-1	70	100 x 40	40	M10	28.5
LP70-2	70	100 x 40	45	M10	28.5
LP70-3	70	100 x 40	50	M10	28.5
LP70-4	70	100 x 40	40	M12	28.5
LP70-5	70	100 x 40	45	M12	28.5
LP70-6	70	100 x 40	50	M12	28.5
LP80-1	80	100 x 40	40	M10	28.5
LP80-2	80	100 x 40	45	M10	28.5
LP80-3	80	100 x 40	50	M10	28.5
LP80-4	80	100 x 40	40	M12	28.5
LP80-5	80	100 x 40	45	M12	28.5
LP80-6	80	100 x 40	50	M12	28.5

# CONNECTORS

## L PALM COMPRESSION

### L Palm Compression Connectors for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )	Palm Size (mm)	Hole Centres (mm)	Suit Bolt Size	Die AF (mm)
LP95-1	95	100 x 40	40	M10	34.5
LP95-2	95	100 x 40	45	M10	34.5
LP95-3	95	100 x 40	50	M10	34.5
LP95-4	95	100 x 40	40	M12	34.5
LP95-5	95	100 x 40	45	M12	34.5
LP95-6	95	100 x 40	50	M12	34.5
LP100-1	100	100 x 40	40	M10	34.5
LP100-2	100	100 x 40	45	M10	34.5
LP100-3	100	100 x 40	50	M10	34.5
LP100-4	100	100 x 40	40	M12	34.5
LP100-5	100	100 x 40	45	M12	34.5
LP100-6	100	100 x 40	50	M12	34.5
LP120-1	120	100 x 40	40	M10	34.5
LP120-2	120	100 x 40	45	M10	34.5
LP120-3	120	100 x 40	50	M10	34.5
LP120-4	120	100 x 40	40	M12	34.5
LP120-5	120	100 x 40	45	M12	34.5
LP120-6	120	100 x 40	50	M12	34.5
LP150-1	150	100 x 40	40	M10	34.5
LP150-2	150	100 x 40	45	M10	34.5
LP150-3	150	100 x 40	50	M10	34.5
LP150-4	150	100 x 40	40	M12	34.5
LP150-5	150	100 x 40	45	M12	34.5
LP150-6	150	100 x 40	50	M12	34.5
LP180-1	180	100 x 40	40	M10	34.5
LP180-2	180	100 x 40	45	M10	34.5
LP180-3	180	100 x 40	50	M10	34.5
LP180-4	180	100 x 40	40	M12	34.5
LP180-5	180	100 x 40	45	M12	34.5
LP180-6	180	100 x 40	50	M12	34.5
LP185-1	185	100 x 40	40	M10	34.5
LP185-2	185	100 x 40	45	M10	34.5
LP185-3	185	100 x 40	50	M10	34.5
LP185-4	185	100 x 40	40	M12	34.5
LP185-5	185	100 x 40	45	M12	34.5
LP185-6	185	100 x 40	50	M12	34.5

# CONNECTORS

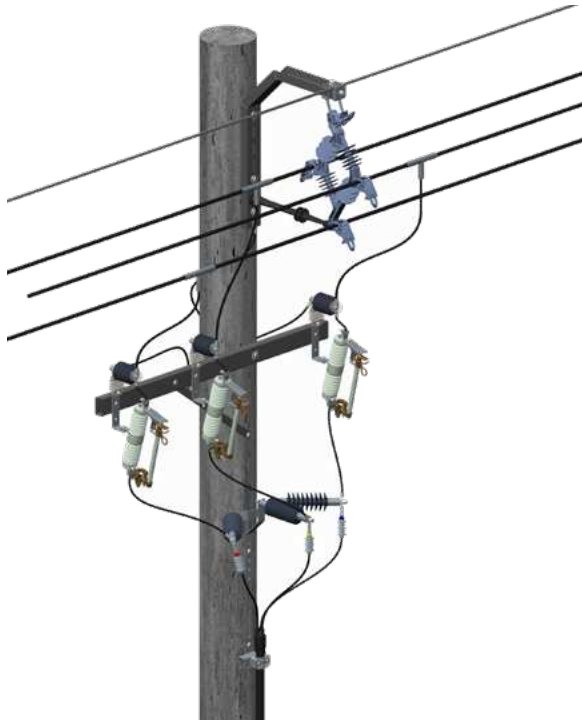
## L PALM COMPRESSION

### L Palm Compression Connectors for Compacted AAC Spacer Cable Covered Conductors

PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )	Palm Size (mm)	Hole Centres (mm)	Suit Bolt Size	Die AF (mm)
LPSC70-1	70	100 x 40	40	M10	28.5
LPSC70-2	70	100 x 40	45	M10	28.5
LPSC70-3	70	100 x 40	50	M10	28.5
LPSC70-4	70	100 x 40	40	M12	28.5
LPSC70-5	70	100 x 40	45	M12	28.5
LPSC70-6	70	100 x 40	50	M12	28.5
LPSC95-1	95	100 x 40	40	M10	34.5
LPSC95-2	95	100 x 40	45	M10	34.5
LPSC95-3	95	100 x 40	50	M10	34.5
LPSC95-4	95	100 x 40	40	M12	34.5
LPSC95-5	95	100 x 40	45	M12	34.5
LPSC95-6	95	100 x 40	50	M12	34.5
LPSC120-1	120	100 x 40	40	M10	34.5
LPSC120-2	120	100 x 40	45	M10	34.5
LPSC120-3	120	100 x 40	50	M10	34.5
LPSC120-4	120	100 x 40	40	M12	34.5
LPSC120-5	120	100 x 40	45	M12	34.5
LPSC120-6	120	100 x 40	50	M12	34.5
LPSC150-1	150	100 x 40	40	M10	34.5
LPSC150-2	150	100 x 40	45	M10	34.5
LPSC150-3	150	100 x 40	50	M10	34.5
LPSC150-4	150	100 x 40	40	M12	34.5
LPSC150-5	150	100 x 40	45	M12	34.5
LPSC150-6	150	100 x 40	50	M12	34.5
LPSC185-1	185	100 x 40	40	M10	34.5
LPSC185-2	185	100 x 40	45	M10	34.5
LPSC185-3	185	100 x 40	50	M10	34.5
LPSC185-4	185	100 x 40	40	M12	34.5
LPSC185-5	185	100 x 40	45	M12	34.5
LPSC185-6	185	100 x 40	50	M12	34.5

# CONNECTORS

## T JOINT COMPRESSION



PLP's T Joint compression connectors are designed for making tap connections to main distribution line conductors. T Joint connectors can be used for conductors up to 240mm<sup>2</sup> on both bare and covered conductors. T Joint compression connectors can be used to connect transformers, surge arrestors, cables and fuses. The main advantage of this type of connector is that it fits quickly and easily onto the main conductor without having to cut it.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to installation and use PLP Uniseal jointing compound on both the main and tap conductors. Compress the compression areas of the T Joint to install it and, if it is being installed on covered conductor, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details).

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

### T Joint Compression Connectors for Bare or COVERDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number	Main Conductor Size (mm <sup>2</sup> )	Tap Conductor Size (mm <sup>2</sup> )	Main Conductor Die AF (mm)	Tap Conductor Die AF (mm)
TJ70	70	70	18.0	18.0
TJ8070	80	70	18.0	18.0
TJ80	80	80	18.0	18.0
TJ9570	95	70	22.0	18.0
TJ95	95	95	22.0	22.0
TJ10070	100	70	22.0	18.0
TJ10080	100	80	22.0	18.0
TJ10095	100	95	22.0	22.0
TJ100100	100	100	22.0	22.0

# CONNECTORS

## T JOINT COMPRESSION

### T Joint Compression Connectors for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number	Main Conductor Size (mm <sup>2</sup> )	Tap Conductor Size (mm <sup>2</sup> )	Main Conductor Die AF (mm)	Tap Conductor Die AF (mm)
TJ12070	120	70	22.0	18.0
TJ12080	120	80	22.0	18.0
TJ12095	120	95	22.0	22.0
TJ120100	120	100	22.0	22.0
TJ120	120	120	22.0	22.0
TJ15070	150	70	28.5	18.0
TJ15080	150	80	28.5	18.0
TJ15095	150	95	28.5	22.0
TJ150100	150	100	28.5	22.0
TJ150120	150	120	28.5	22.0
TJ150	150	150	28.5	28.5
TJ18070	180	70	28.5	18.0
TJ18080	180	80	28.5	18.0
TJ18095	180	95	28.5	22.0
TJ180100	180	100	28.5	22.0
TJ180120	180	120	28.5	22.0
TJ180150	180	150	28.5	28.5
TJ180180	180	180	28.5	28.5
TJ18570	185	70	28.5	18.0
TJ18580	185	80	28.5	18.0
TJ18595	185	95	28.5	22.0
TJ185100	185	100	28.5	22.0
TJ185120	185	120	28.5	22.0
TJ185150	185	150	28.5	28.5
TJ185180	185	180	28.5	28.5
TJ185	185	185	34.5	28.5
TJ24070	240	70	34.5	18.0
TJ24095	240	95	34.5	22.0
TJ240120	240	120	34.5	22.0
TJ240150	240	150	34.5	28.5
TJ240180	240	180	34.5	28.5
TJ240185	240	185	34.5	28.5
TJ240	240	240	34.5	34.5

# CONNECTORS

## T JOINT COMPRESSION

### T Joint Compression Connectors for Compacted AAC Spacer Cable Covered Conductors

PLP Catalogue Number	Main Conductor Size (mm <sup>2</sup> )	Tap Conductor Size (mm <sup>2</sup> )	Main Conductor Die AF (mm)	Tap Conductor Die AF (mm)
TJSC70	70	70	18.0	18.0
TJSC9570	95	70	22.0	18.0
TJSC95	95	95	22.0	22.0
TJSC12070	120	70	22.0	18.0
TJSC12095	120	95	22.0	22.0
TJSC120	120	120	22.0	22.0
TJSC15070	150	70	28.5	18.0
TJSC15095	150	95	28.5	22.0
TJSC150120	150	120	28.5	22.0
TJSC150	150	150	28.5	28.5
TJSC18570	185	70	28.5	18.0
TJSC18595	185	95	28.5	22.0
TJSC185120	185	120	28.5	22.0
TJSC185150	185	150	28.5	28.5
TJSC185	185	185	34.5	28.5
TJSC24070	240	70	34.5	18.0
TJSC24095	240	95	34.5	22.0
TJSC240120	240	120	34.5	22.0
TJSC240150	240	150	34.5	28.5
TJSC240185	240	185	34.5	28.5
TJS-C240	240	240	34.5	34.5
TJSC30070	300	70	34.5	18.0
TJSC30095	300	95	34.5	22.0
TJSC300120	300	120	34.5	22.0
TJSC300150	300	150	34.5	28.5
TJSC300185	300	185	34.5	28.5
TJSC300240	300	240	34.5	34.5
TJSC300	300	300	34.5	34.5

# CONNECTORS

## COMPRESSION TERMINAL - 1 BOLT



PLP's 1 Bolt Compression Terminals are designed for terminating distribution line conductors at line taps, fuses or switchgear. 1 Bolt Compression Terminals can be used for conductors up to 240mm<sup>2</sup> on both bare and covered conductors. As standard, PLP manufactures these items to suit M8, M10, M12 and M16 bolts.

Compress the entire length of the terminal to install it and, if it is being installed on covered conductor, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details) after compression.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to compression terminal installation and use PLP Uniseal jointing compound on the bolted and compressed contact surfaces.

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

### 1 Bolt Compression Terminals for Bare or COVERDLIGN™ Open Wire Conductors (6000 Series)

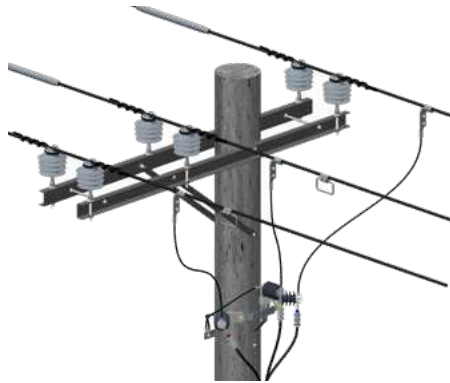
PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolts	Suit M16 Bolts		
CT35-M8	CT35-M10	CT35-M12	-	35	14.0
CT40-M8	CT40-M10	CT40-M12	-	40	14.0
CT50-M8	CT50-M10	CT50-M12	-	50	14.0
CT70-M8	CT70-M10	CT70-M12	-	70	18.0
CT80-M8	CT80-M10	CT80-M12	-	80	18.0
CT95-M8	CT95-M10	CT95-M12	CT95-M16	95	22.0
CT100-M8	CT100-M10	CT100-M12	CT100-M16	100	22.0
CT120-M8	CT120-M10	CT120-M12	CT120-M16	120	22.0
CT150-M8	CT150-M10	CT150-M12	CT150-M16	150	28.5
CT80-M8	CT180-M10	CT180-M12	CT180-M16	180	28.5
CT185-M8	CT185-M10	CT185-M12	CT185-M16	185	28.5
CT240-M8	CT240-M10	CT240-M12	CT240-M16	240	34.5

### 1 Bolt Compression Terminals for Compacted AAC Spacer Cable Covered Conductors

PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolts	Suit M16 Bolts		
CTSC35-M8	CTSC35-M10	CTSC35-M12	-	35	14.0
CTSC50-M8	CTSC50-M10	CTSC50-M12	-	50	14.0
CTSC70-M8	CTSC70-M10	CTSC70-M12	-	70	18.0
CTSC95-M8	CTSC95-M10	CTSC95-M12	CTSC95-M16	95	22.0
CTSC120-M8	CTSC120-M10	CTSC120-M12	CTSC120-M16	120	22.0
CTSC150-M8	CTSC150-M10	CTSC150-M12	CTSC150-M16	150	28.5
CTSC185-M8	CTSC185-M10	CTSC185-M12	CTSC185-M16	185	28.5
CTSC240-M8	CTSC240-M10	CTSC240-M12	CTSC240-M16	240	34.5

# CONNECTORS

## COMPRESSION TERMINAL - 2 BOLT



PLP's 2 Bolt Compression Terminals are designed for terminating distribution line conductors at line taps, fuses or switchgear. 2 Bolt Compression Terminals can be used for conductors up to 240mm<sup>2</sup> on both bare and covered AAAC conductors. As standard, PLP manufactures terminals to suit M8, M10, M12 and M16 bolts at both 45mm and 50mm bolt centres and these are listed below. Other bolt sizes and hole centres available on request.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to compression terminal installation and use PLP Uniseal jointing compound on the bolted and compressed contact surfaces. Compress the entire length of the terminal to install it and, if it is being installed on covered conductor, insulate the connector with an insulation tape system (see elsewhere in this catalogue for details) after compression.

Installation should be completed with a 12 tonne or 14 tonne hydraulic compression tool and hexagonal compression dies.

### 2 Bolt 45mm Hole Centres Compression Terminals for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolt	Suit M16 Bolts		
CT235-2/45/M8	CT235-2/45/M10	CT235-2/45/M12	-	35	14.0
CT250-2/45/M8	CT250-2/45/M10	CT250-2/45/M12	-	50	14.0
CT270-2/45/M8	CT270-2/45/M10	CT270-2/45/M12	-	70	18.0
CT295-2/45/M8	CT295-2/45/M10	CT295-2/45/M12	CT295-2/45/M16	95	22.0
CT2120-2/45/M8	CT2120-2/45/M10	CT2120-2/45/M12	CT2120-2/45/M16	120	22.0
CT2150-2/45/M8	CT2150-2/45/M10	CT2150-2/45/M12	CT2150-2/45/M16	150	28.5
CT2185-2/45/M8	CT2185-2/45/M10	CT2185-2/45/M12	CT2185-2/45/M16	185	28.5
CT2240-2/45/M8	CT2240-2/45/M10	CT2240-2/45/M12	CT2240-2/45/M16	240	34.5

### 2 Bolt 50mm Hole Centres Compression Terminals for Bare or COVEREDLIGN™ Open Wire Conductors (6000 Series)

PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolt	Suit M16 Bolts		
CT235-2/50/M8	CT235-2/50/M10	CT235-2/50/M12	-	35	14.0
CT240-2/50/M8	CT240-2/50/M10	CT240-2/50/M12	-	40	14.0
CT250-2/50/M8	CT250-2/50/M10	CT250-2/50/M12	-	50	14.0
CT270-2/50/M8	CT270-2/50/M10	CT270-2/50/M12	-	70	18.0
CT280-2/50/M8	CT280-2/50/M10	CT280-2/50/M12	-	80	18.0
CT295-2/50/M8	CT295-2/50/M10	CT295-2/50/M12	CT295-2/50/M16	95	22.0
CT2100-2/50/M8	CT2100-2/50/M10	CT100-2/50/M12	CT2100-2/50/M16	100	22.0
CT2120-2/50/M8	CT2120-2/50/M10	CT2120-2/50/M12	CT2120-2/50/M16	120	22.0
CT2150-2/50/M8	CT2150-2/50/M10	CT2150-2/50/M12	CT2150-2/50/M16	150	28.5
CT2180-2/50/M8	CT2180-2/50/M10	CT2180-2/50/M12	CT2180-2/50/M16	180	28.5
CT2185-2/50/M8	CT2185-2/50/M10	CT2185-2/50/M12	CT2185-2/50/M16	185	28.5
CT2240-2/50/M8	CT2240-2/50/M10	CT2240-2/50/M12	CT2240-2/50/M16	240	34.5



# CONNECTORS

## COMPRESSION TERMINAL - 2 BOLT

### 2 Bolt 45mm Hole Centres Compression Terminals for Compacted AAC Spacer Cable Covered Conductors

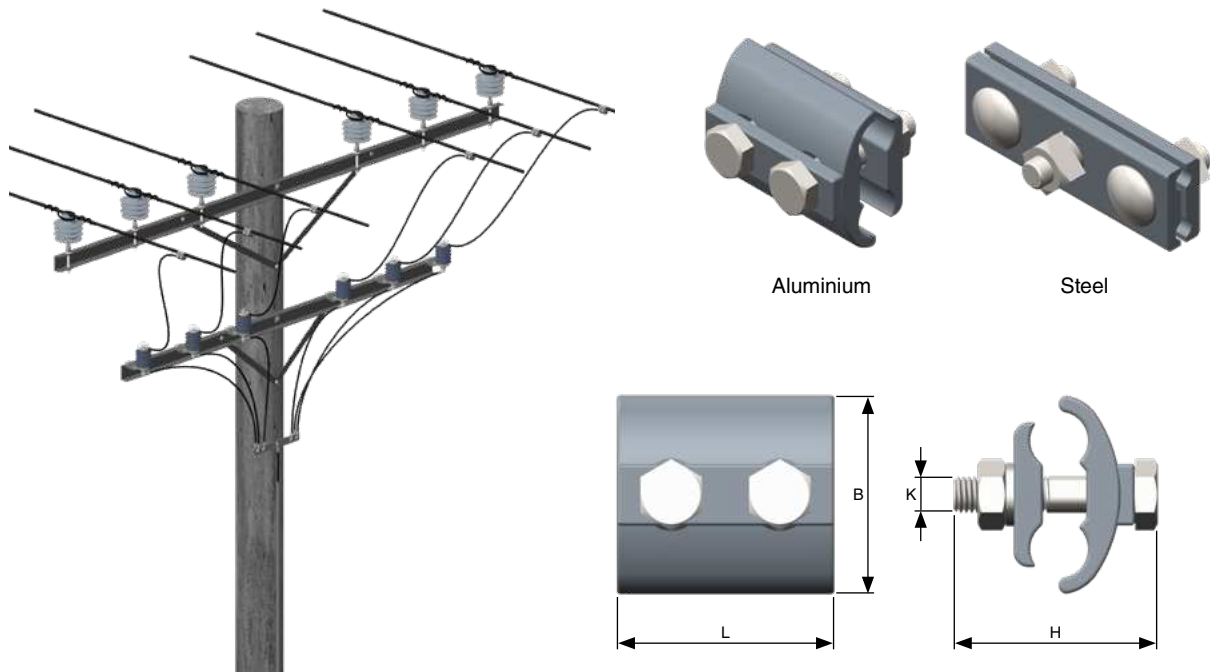
PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolt	Suit M16 Bolts		
CTSC235-2/45/M8	CTSC235-2/45/M10	CTSC235-2/45/M12	-	35	14.0
CTSC250-2/45/M8	CTSC250-2/45/M10	CTSC250-2/45/M12	-	50	14.0
CTSC270-2/45/M8	CTSC270-2/45/M10	CTSC270-2/45/M12	-	70	18.0
CTSC295-2/45/M8	CTSC295-2/45/M10	CTSC295-2/45/M12	CTSC295-2/45/M16	95	22.0
CTSC2120-2/45/M8	CTSC2120-2/45/M10	CTSC2120-2/45/M12	CTSC2120-2/45/M16	120	22.0
CTSC2150-2/45/M8	CTSC2150-2/45/M10	CTSC2150-2/45/M12	CTSC2150-2/45/M16	150	28.5
CTSC2185-2/45/M8	CTSC2185-2/45/M10	CTSC2185-2/45/M12	CTSC2185-2/45/M16	185	28.5
CTSC2240-2/45/M8	CTSC2240-2/45/M10	CTSC2240-2/45/M12	CTSC2240-2/45/M16	240	34.5

### 2 Bolt 50mm Hole Centres Compression Terminals for Compacted AAC Spacer Cable Covered Conductors

PLP Catalogue Number				Main Conductor Size (mm <sup>2</sup> )	Die AF (mm)
Suit M8 Bolts	Suit M10 Bolts	Suit M12 Bolt	Suit M16 Bolts		
CTSC235-2/50/M8	CTSC235-2/50/M10	CTSC235-2/50/M12	-	35	14.0
CTSC250-2/50/M8	CTSC250-2/50/M10	CTSC250-2/50/M12	-	50	14.0
CTSC270-2/50/M8	CTSC270-2/50/M10	CTSC270-2/50/M12	-	70	18.0
CTSC295-2/50/M8	CTSC295-2/50/M10	CTSC295-2/50/M12	CTSC295-2/50/M16	95	22.0
CTSC2120-2/50/M8	CTSC2120-2/50/M10	CTSC2120-2/50/M12	CTSC2120-2/50/M16	120	22.0
CTSC2150-2/50/M8	CTSC2150-2/50/M10	CTSC2150-2/50/M12	CTSC2150-2/50/M16	150	28.5
CTSC2185-2/50/M8	CTSC2185-2/50/M10	CTSC2185-2/50/M12	CTSC2185-2/50/M16	185	28.5
CTSC2240-2/50/M8	CTSC2240-2/50/M10	CTSC2240-2/50/M12	CTSC2240-2/50/M16	240	34.5

# CONNECTORS

## PARALLEL GROOVE CONNECTOR



PLP's Parallel Groove Connectors are designed to have a wide main and tap conductor acceptance range and can be used on bare AAC, ACSR and covered AAAC conductors. PLP's Parallel Groove Connectors are suitable for both equal and unequal conductor combinations.

Always prepare the aluminium conductor by cleaning it with a wire brush prior to installation and use PLP Uniseal jointing compound on both the main and tap conductors. If it is being installed on covered conductor, insulate the Parallel Groove Connector with an insulation tape system (see elsewhere in this catalogue for details).

### Aluminium Parallel Groove Clamp for Phase Connectors

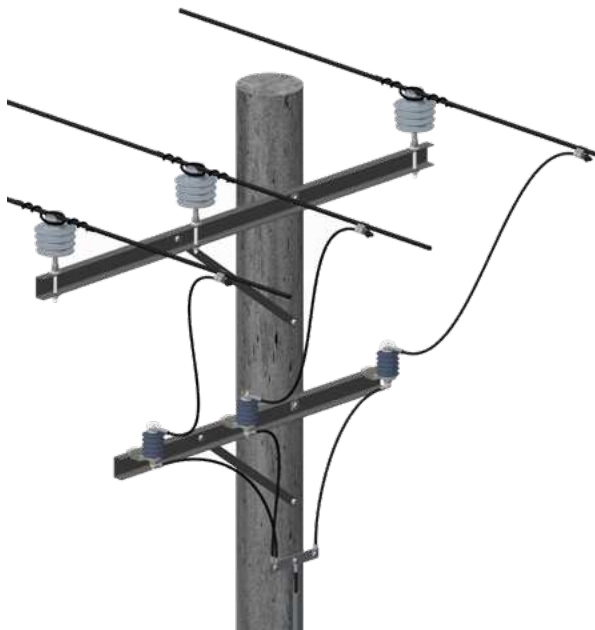
PLP Catalogue Number	Description	Conductor Range (mm <sup>2</sup> )		Overall Diameter (mm)		Dimensions (mm)			
		Min.	Max.	Min.	Max.	L	B	H	K
P02130-000	PLP-PGC16-120-1B-08119T	16	120	5.1	14.5	35	45	50	1xM10
P02131-000	PLP-PGC16-120-2B-08119T	16	120	5.1	14.5	55	45	50	2xM10
548470-000	PLP-PGC35-240-1B-08119T	35	240	7.5	20.2	45	65	77	1xM10
554284-000	PLP-PGC35-240-2B-08119T	35	240	7.5	20.2	70	65	77	2xM10
830766-000	PLP-PGC35-240-3B-08119T	35	240	7.5	20.2	105	65	77	3xM10
P02132-000	PLP-PGC95-300-3B-08119T	95	300	12.5	24.5	105	65	77	3xM10

### Steel Parallel Groove Clamp for Messenger Wires

PLP Catalogue Number	Description	Conductor Range (mm <sup>2</sup> )		Dimensions (mm)	
		Min.	Max.	B	C
P03401-000	PLP-CGT06-10-19145T	6	10	150	42
P03402-000	PLP-CGT10-14-19145T	10	14	150	50

# CONNECTORS




## INSULATION PIERCING CONNECTOR



Tested in accordance with standard EN50397-2, the medium voltage insulation piercing parallel groove type connector is designed for making non tension connections between aluminium conductors at voltages up to 36kV. Ideal for tap connection to transformers, switchgear, cables or fuses, the advantage of this type of connector is that the insulation does not need to be peeled from the cable.

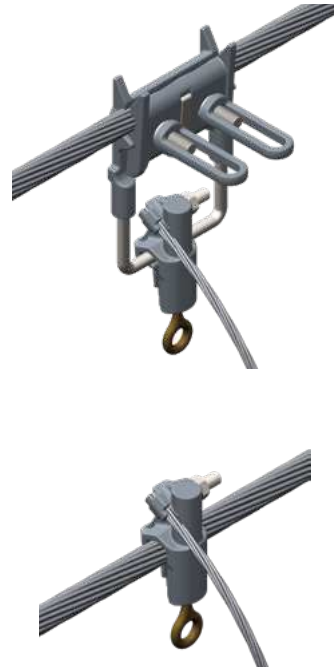
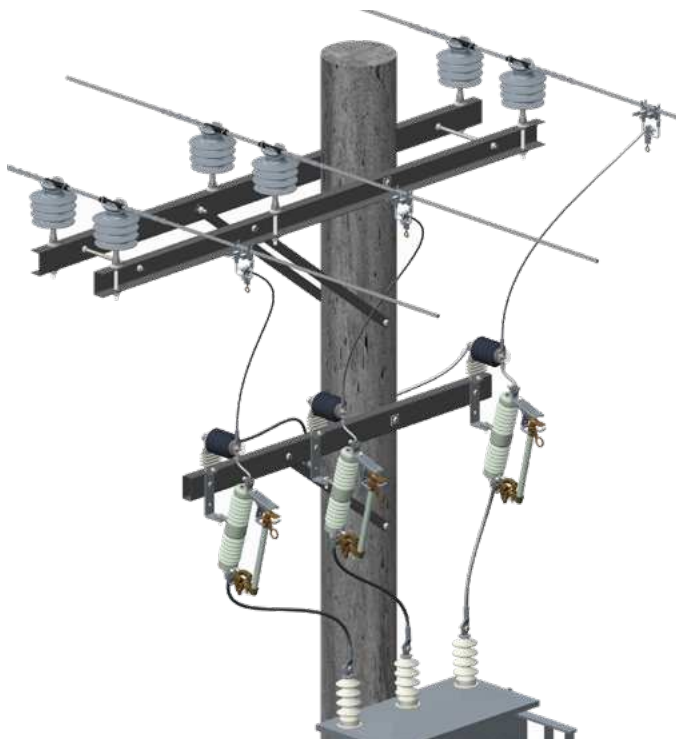
Once installed, the connection between the connector and the cable is made watertight by silicone grease that fills any gaps in the insulation around the connector's teeth. Designed for use with covered conductors that have diameters between 12.7mm and 22.3mm, the insulation piercing connector is perfectly suited to conductors sized between 35mm<sup>2</sup> and 150mm<sup>2</sup> with insulation thickness between 2.3 and 3.3mm.

PLP Catalogue Number	Main Conductor Size (mm <sup>2</sup> ) (Min./Max.)	Tap Conductor Size (mm <sup>2</sup> ) (Min./Max.)	Bolt Installation Torque (Nm)
MVIPPG35/150	35 – 150	35 – 150	40

MVIPPG35/150 ready to install on conductor. Insulation does not need to be removed	MVIPPG35/150 installed on conductor	MVIPPG35/150 removed from conductor. Silicone grease acts as sealant
		

# CONNECTORS

## BAIL CLAMP AND LIVE LINE CLAMP



### Bail Clamp (Stirrup Clamp)

Bail Clamps protect overhead distribution lines by allowing hot line clamp connections to be made without contacting the main line. Made from high strength, high conductivity aluminium alloy, PLP's Bail Clamps accept a wide range of mainline conductor sizes.

Designed for installation via hotstick, both sizes of Bail Clamp are perfectly suited to installation with standard linesman's tools.



PLP Catalogue Number	Conductor Size (mm <sup>2</sup> )
P03270-000	25 - 50
P03271-000	70 - 185

### Live Line Clamp

Live Line Clamps provide the means of connecting line, fuse or transformer taps to mainline aluminium or ACSR conductors. Live Line Clamps can be installed directly onto the mainline conductor or onto a Bail Clamp (Stirrup Clamp).

Designed for installation on energised conductor via hotstick, the body and keeper of the connector are aluminium alloy, the eye-stem is bronze alloy and the eye-stem spring which maintains continuous contact pressure at the connector is stainless steel.



PLP Catalogue Number	Conductor Outer Diameter (mm)
P03272-000	5 - 32

# SECTION 9 - SPLICES

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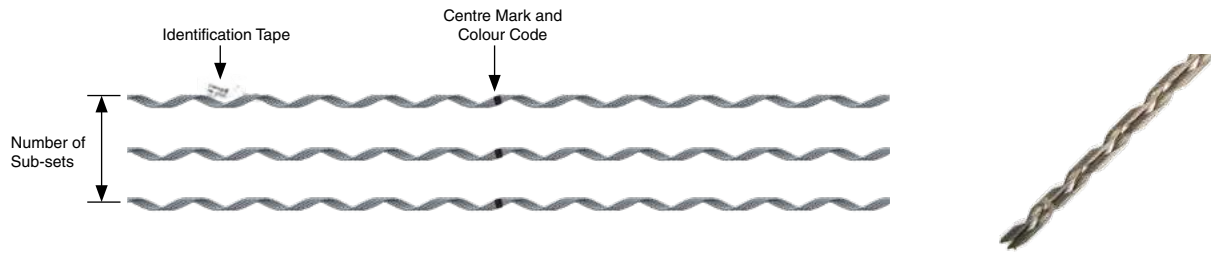


### **PREFORMED** LINE PRODUCTS

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# SPLICES

## CONDUCTOR SPLICE - ALUMINIUM



PLP's PREFORMED™ Conductor Splices are used for making mid-span between two bare conductors. PLP's mid-span conductor splices will restore full mechanical and electrical properties and provide an economical and highly efficient splicing method.

Used with AAC and AAAC conductors, the Conductor Splice will hold a minimum of 90% of the conductor's rated breaking strength, although most splices will hold 100%. Contact PLP for ratings of specific conductor splices. The conductor splices listed below for ACSR conductors will hold 100% of the conductor's rated breaking strength.

### Aluminium Line Splices for AAC and AAAC Conductors

PLP Catalogue Number	Conductor Diameter Range (mm)		Standard Pack Quantity
	Minimum	Maximum	
ALS0525	5.00	5.39	50
ALS0560	5.40	5.79	50
ALS0625	6.25	6.54	50
ALS0675	6.55	6.89	50
ALS0690	6.90	7.14	50
ALS0750	7.35	7.59	50
ALS0830	8.30	8.64	40
ALS0900	8.95	9.35	40
ALS1015	10.15	10.49	20
ALS1125	10.80	11.29	15
ALS1225	12.25	12.79	15
ALS1350	13.24	13.84	10
ALS1430	13.85	14.44	10
ALS1625	15.70	16.39	5
ALS1750	17.05	17.79	5
ALS1875	18.55	19.34	5
ALS2100	21.00	21.59	5

# SPLICES

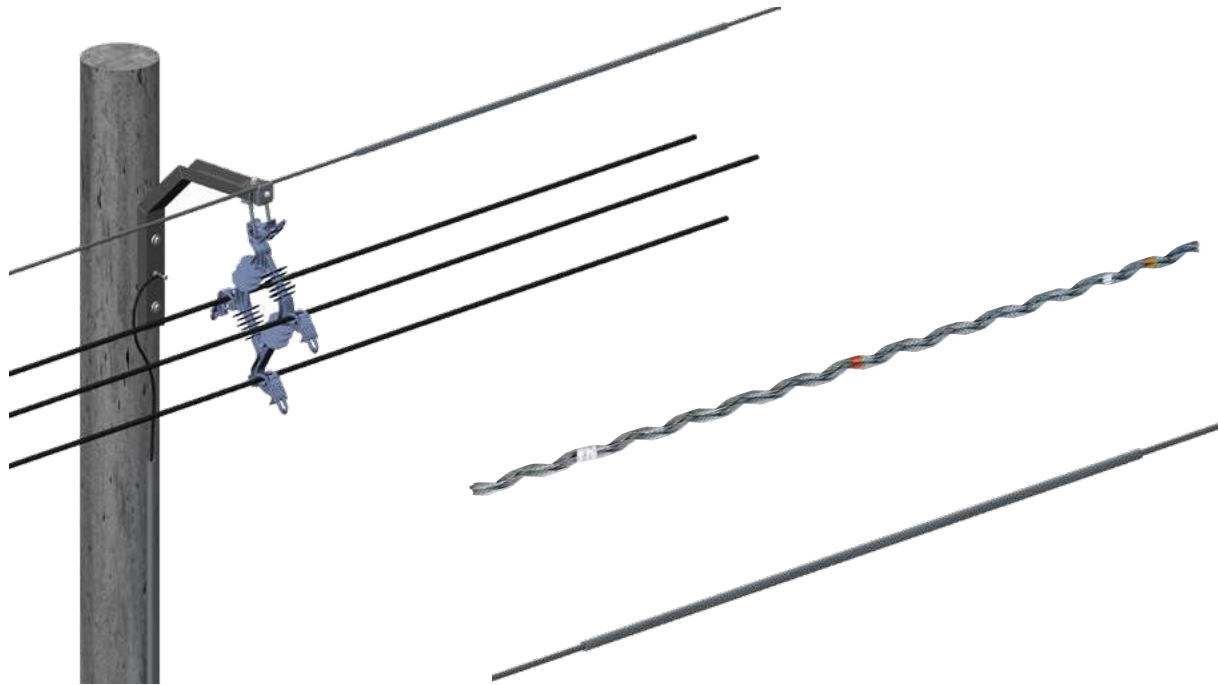
## CONDUCTOR SPLICE - ALUMINIUM

### Full Tension Line Splices for ACSR Conductors

PLP Catalogue Number	ACSR Conductor Stranding	Standard Pack Quantity
FTCS0635	#4, 6/1	100
FTCS0655	#4, 7/1	100
FTCS0805	#2, 6/1	100
FTCS0825	#2, 7/1	100
FTCS1010	1/0, 6/1	50
FTCS1135	2/0, 6/1	50
FTCS1275	3/0, 6/1	25
FTCS1220	110.8, 12/7	25
FTCS1170	101.8, 12/7	25
FTCS1430	4/0, 6/1	25
FTCS1345	134.6, 12/7	10
FTCS1630	266.8, 26/7	10
FTCS1735	336.4, 18/1	10
FTCS1830	336.4, 26/7	10
FTCS1880	336.4, 30/7	10
FTCS1990	397.5, 26/7	5
FTCS2150	477, 24/7	5
FTCS2180	477, 26/7	5
FTCS2355	556.5, 26/7	3
FTCS2480	636, 26/7	3
FTCS2515	636, 26/7	3
FTCS2700	795, 45/7	3
FTCS2815	795, 26/7	3
FTCS3415	1272, 45/7	3

# SPLICES

## MESSENGER WIRE SPLICE - ALUMINIUM CLAD STEEL



PLP's PREFORMED™ MessengerWire splices are designed to join two messenger wires, being applied directly to Aluminium Clad (AW) or Aluminium Clad and Aluminium (AWA) Messenger Wire. Manufactured as standard to suit left hand lay AW or AWA messenger wires, messenger wire splices must only be used once and will hold 100% of the messenger wire's rated strength when correctly installed.

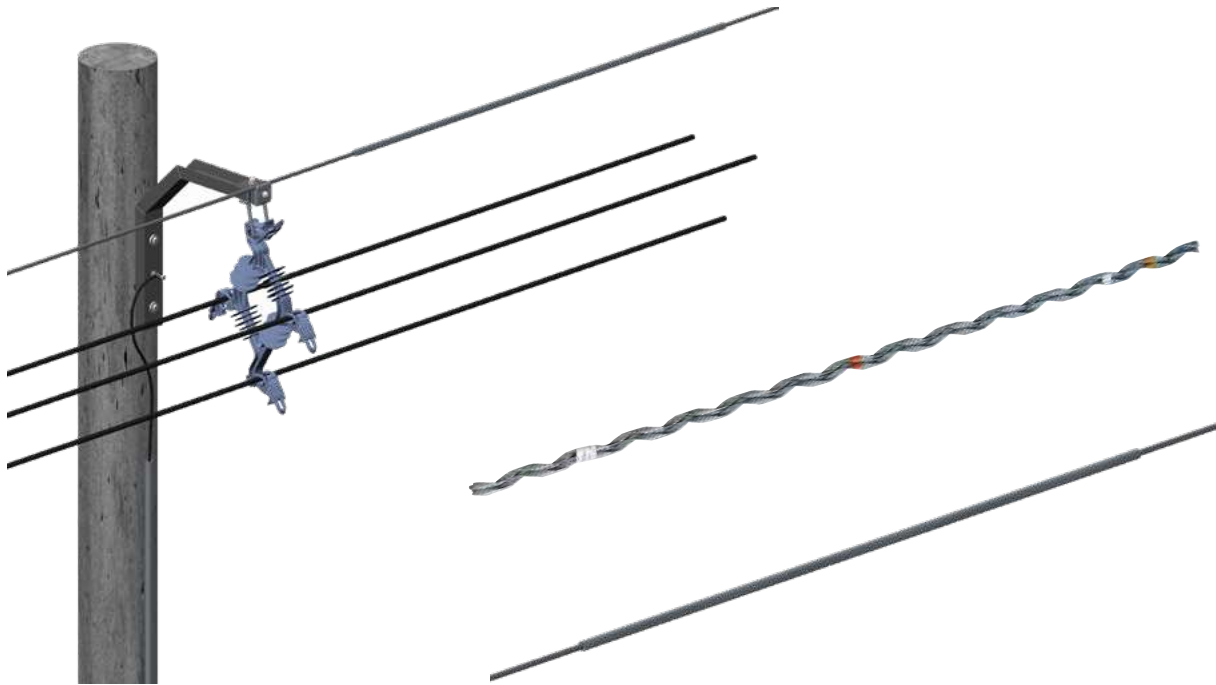
Manufactured from aluminium clad steel wire strand, messenger wire splices offer a unique design that eliminates bolts, nuts, washers and other component parts that may become lost or damaged during installation or in service. Messenger wire splices should be used only on the size and type of messenger wires for which they are designed. All messenger wire deadends have colour coded markings to indicate the starting point for application and to assist in product identification.

PLP Catalogue Number	Messenger Wire Diameter Range (mm)		Standard Pack Quantity	Colour Code
	Minimum	Maximum		
LLS0593L	5.60	5.94	50	White/Green
LLS0700L	6.75	7.27	50	Orange/Green
LLS0825L	8.00	8.29	20	Green/White
LLS0975L	9.70	10.04	20	Green/Orange
LLS1125L	10.84	11.69	20	Black/Black



# SPLICES

## MESSENGER WIRE SPLICE - GALVANISED STEEL



PLP's PREFORMED™ MessengerWire splices are designed to join two messenger wires, being applied directly to galvanised steel. Messenger wire splices must only be used once and will hold 100% of the messenger wire's rated strength when correctly installed.

Manufactured from galvanised steel wire strand, messenger wire splices offer a unique design that eliminates bolts, nuts, washers and other component parts that may become lost or damaged during installation or in service. Messenger wire splices should be used only on the size and type of messenger wires for which they are designed. All messenger wire deadends have colour coded markings to indicate the starting point for application and to assist in product identification.

PLP Catalogue Number	Messenger Wire Diameter Range (mm)		Standard Pack Quantity	Colour Code
	Minimum	Maximum		
SLS0385	3.85	4.04	50	Black
SLS0431	4.15	4.49	50	Yellow
SLS0480	4.50	4.99	50	Black
SLS0593	5.50	5.94	50	White
SLS0600	5.95	6.19	50	Yellow
SLS0735S	7.35	7.64	30	Blue
SLS0825	7.92	8.29	30	White
SLS0975D	9.70	10.04	20	Yellow/Orange
SLS1125	11.15	11.49	20	Black
SLS1200	11.85	12.19	10	Black
SLS1375	13.05	13.99	10	White
SLS1625	16.00	16.44	5	Orange



# SECTION 10 - HARDWARE

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# HARDWARE

## OPEN AND CLOSED THIMBLES



Closed Thimble

PLP open and closed thimbles are used together with GUY-GRIP® deadends to protect the loop of the deadend from wear and abrasion.

Closed thimbles are generally used when the guy attachment to the pole is a hook. When the guy attachment to the pole is an eyebolt, the open type is most suitable.

### Wire Rope Thimble - Closed

PLP Catalogue Number	Bend Radius (mm)	Seat Width (mm)	Threaded Length (mm)
THWC-10	12.5	11	150
THWC-12	15.0	13	150
THWC-16	20.0	18	150
THWC-20	25.0	22	150



Open Thimble

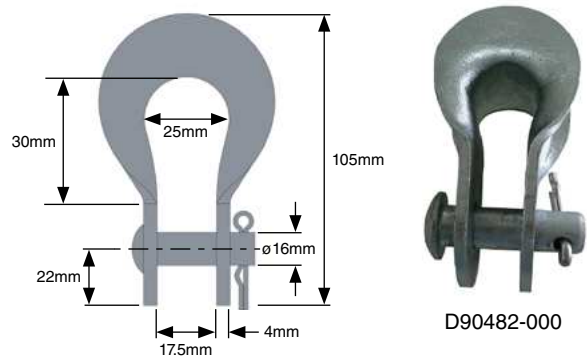
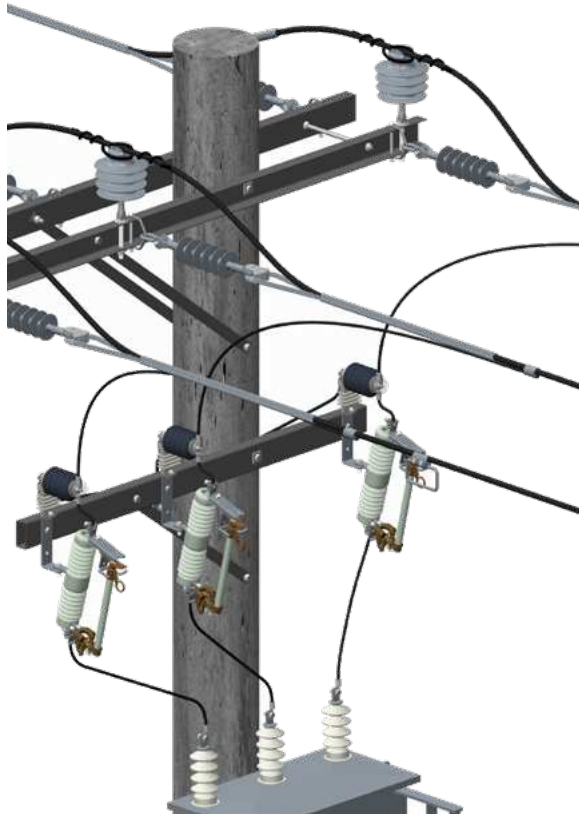
### Wire Rope Thimble - Open

PLP Catalogue Number	Bend Radius (mm)	Seat Width (mm)	Opened Width (mm)
THWO-10	12.5*	11	14
THWO-12	15.0*	13	17
THWO-16	20.0*	18	21
THWO-20-4	25.0*	22	24
THWO-22	27.5*	24	28

**Note:** \*Bend radius will be slightly larger on open thimbles

# HARDWARE

## CLEVIS THIMBLE



PLP clevis type thimbles are designed to be used with Distribution-Grip, GUY-GRIP® and Coated Deadends as part of a termination assembly for bare conductors or covered conductors.

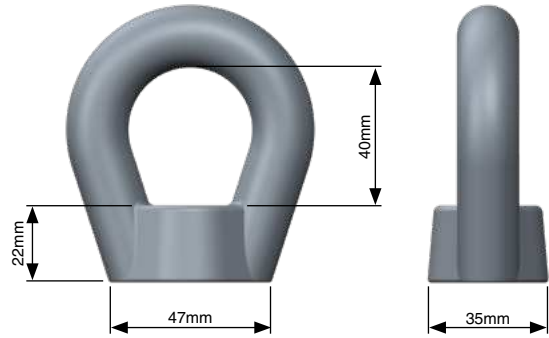
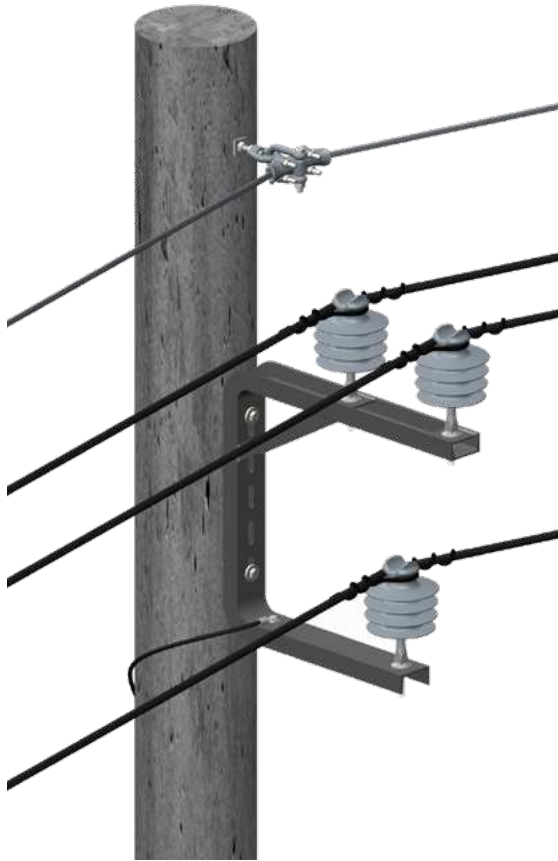
The clevis thimble body is manufactured from corrosion resistant aluminium alloy and the unit is supplied with a 16mm outside diameter galvanised steel clevis pin and stainless steel split pin.



PLP Catalogue Number	PREFORMED™ Conductor Deadends	Thimble Width "W" (mm)	Clevis Opening (mm)	Thimble Bend Radius (mm)	Rated Strength (kN)
ACT 27-16	Type AND	28	20.0	36	70.0
ACT 37-16	Type CSDE	36	20.0	36	80.0
	Type ADE				
D90482-000	Type SGG	54-55	17.5	-	35.6
	Type LDE				

# HARDWARE

## OVAL EYE NUT



PLP's Oval Eye Nuts are manufactured from cast iron.

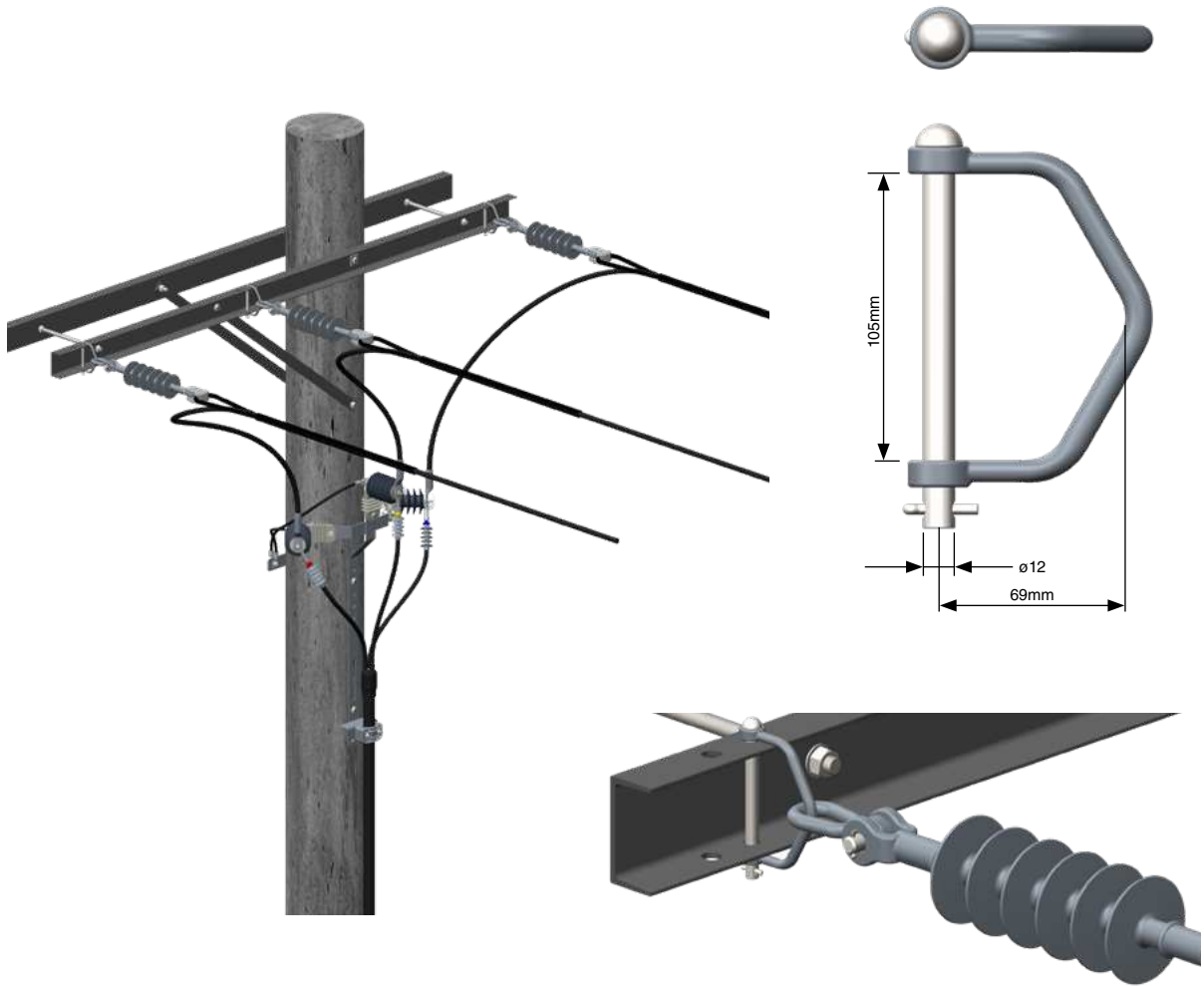
Manufactured as standard to suit common metric and imperial sizes, threads are tapped 0.4 oversize to accommodate galvanised bolts.

Metric Sizes	Metric Sizes	UTS (kN)
EN10	M10	52
EN12	M12	
EN16	M16	
EN20	M20	

Imperial Sizes	Imperial Sizes (Inch)	UTS (kN)
EN38	3/8	52
EN50	1/2	
EN58	5/8	
EN75	3/4	

# HARDWARE

## VEE SHACKLE



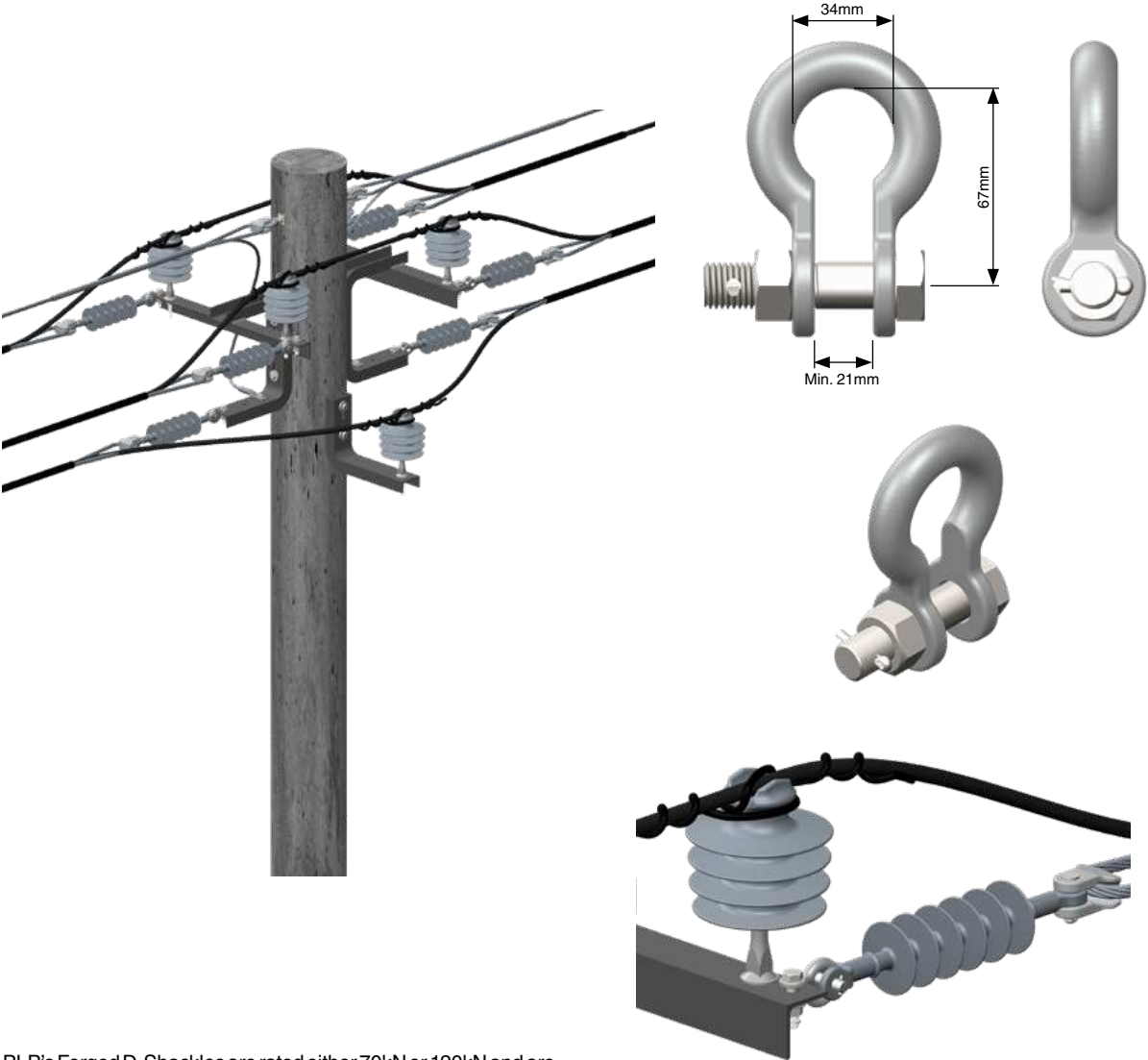
PLP's Forged Vee Shackles have been designed specifically for use with steel U Channel crossarms as part of deadend assemblies.

Simple and low cost, the Vee Shackle is rated 70kN and is supplied galvanised and complete with stainless steel split pin as standard.

PLP Catalogue Number	Size	Opening (mm)	Width (mm)	Rating (kN)
VS-01	M12	105	69	70

# HARDWARE

## D-SHACKLE



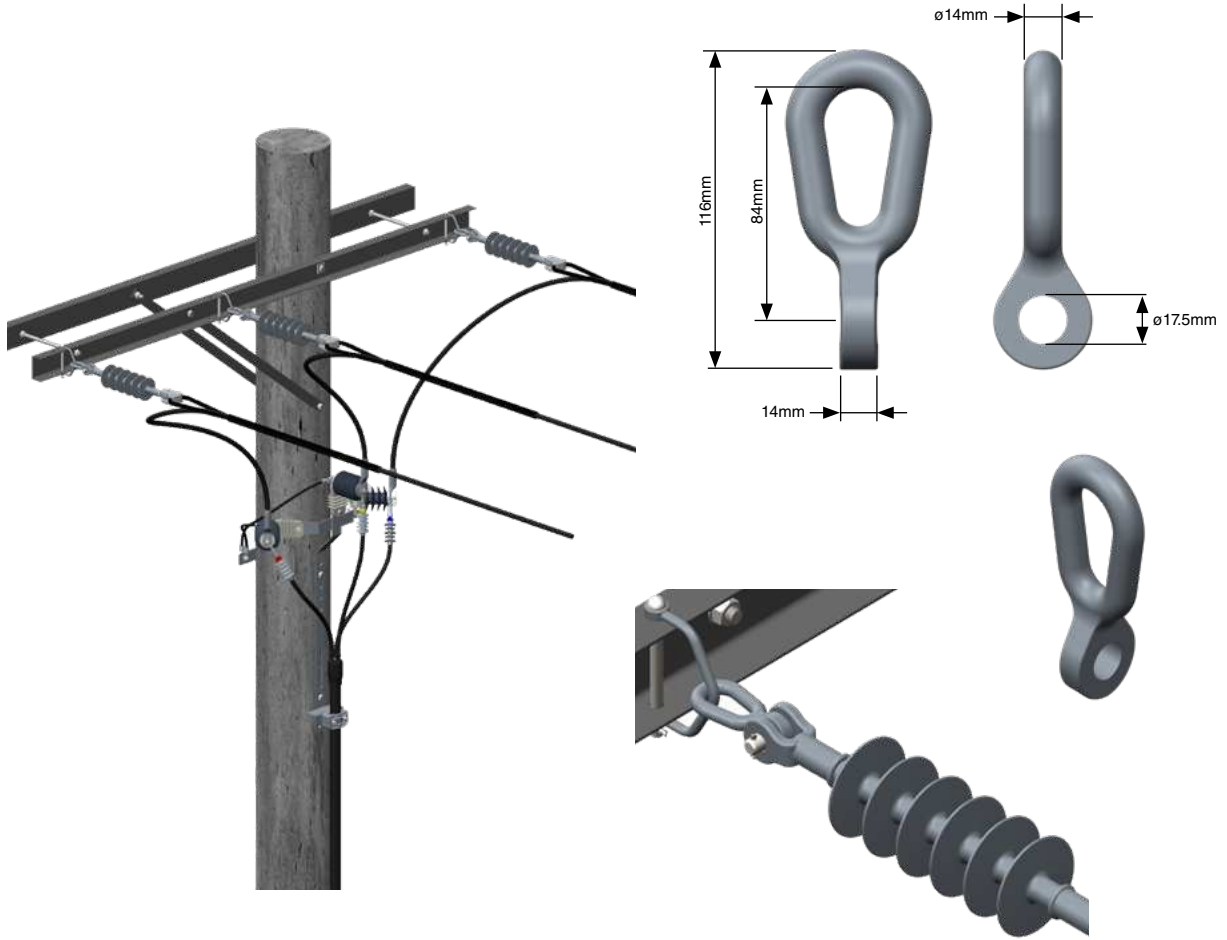
PLP's Forged D-Shackles are rated either 70kN or 120kN and are supplied galvanised. Stainless steel split pins come as standard.

PLP Catalogue Number	Size	Opening (mm)	Rating (kN)
923024-000	M16	21	70
175764-000			120



# HARDWARE

## TWISTED EYE TONGUE



The Twisted Eye Tongue is designed to be used between a Vee Shackle and a Polymeric Longrod Insulator within a medium voltage deadend string.

Rated 70kN, the Twisted Eye Tongue is forged and then galvanised as standard.

PLP Catalogue Number	Size	Thickness (mm)	Rating (kN)
TET70NS	M16	14	70



# SECTION 11 - SUSPENSION AND SUPPORT

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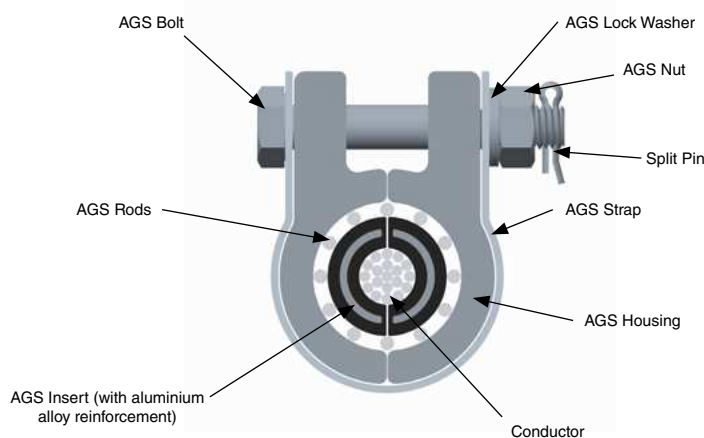
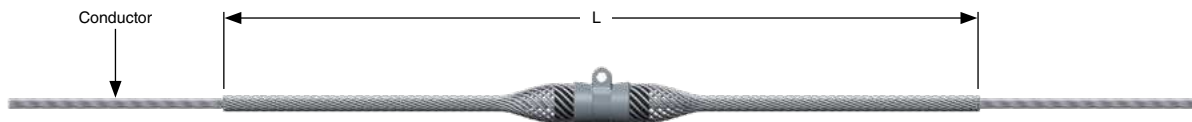


### **PREFORMED** LINE PRODUCTS

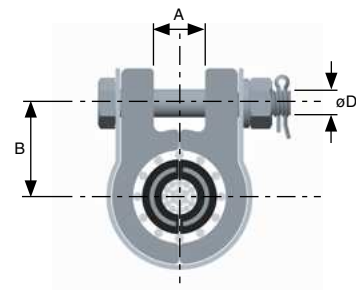
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# SUSPENSION AND SUPPORT

## ARMOR-GRIP® SUSPENSION (AGS)



Cross Section



PLP's ARMOR-GRIP® Suspension (AGS) is suitable for all types of bare overhead conductor.

ARMOR-GRIP® Suspension is superior to traditional bolted suspension clamps and armor rods because it reduces stress on the conductor at the tower or pole attachment point. The material used to manufacture the insert is an elastomer specifically formulated for resistance to ozone attack, weathering, extreme high and low temperature variations, and compression set. In addition, an aluminium alloy reinforcing stiffener is moulded into the elastomer.

The AGS unit is designed to reduce the static and dynamic stresses at the support point so that the conductor is protected against the effects of conductor motion. It also protects the conductor in the support area against impulse and power flash-over arcing. The maximum recommended line angle for a single support ARMOR-GRIP® Suspension is 30°.

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

# SUSPENSION AND SUPPORT

## ARMOR-GRIP® SUSPENSION (AGS)

### Low Voltage

PLP Catalogue Number	Description	Outer Diameter Range (mm)		UTS (KN)	Rod Diameter (mm)	Rods Per Set	Dimensions (mm)			
		Min.	Max.				A	B	D	L
A4DD18254T	PLP-AGS-60202-1380-BE	13.79	14.10	45	4.6	10	23	46	16	1117
	PLP-AGS-60202-1410-BE	14.12	14.55		4.6	11				1117
	PLP-AGS-60202-1460-BE	14.58	15.09		4.6	11				1143
	PLP-AGS-60202-1510-BE	15.11	15.39		4.6	11				1168
	PLP-AGS-60202-1540-BE	15.42	15.72		4.6	11				1168
	PLP-AGS-60202-1575-BE	15.75	16.38		4.6	12				1270
A4DD18255T	PLP-AGS-60203-1640-BE	16.41	17.09	69	5.2	11	24	49	16	1371
	PLP-AGS-60203-1710-BE	17.12	17.53		5.2	11				1371
	PLP-AGS-60203-1755-BE	17.55	18.03		5.2	12				1371
	PLP-AGS-60203-1805-BE	18.06	18.57		5.2	12				1397
	PLP-AGS-60203-1860-BE	18.59	19.05		5.2	12				1422
A4DD18256T	PLP-AGS-60235-1910-BE	19.08	19.51	89	6.4	10	26	52	16	1524
	PLP-AGS-60235-1955-BE	19.53	20.19		6.4	11				1524
	PLP-AGS-60235-2020-BE	20.22	20.93		6.4	11				1549
	PLP-AGS-60235-2095-BE	20.96	21.46		6.4	11				1625
	PLP-AGS-60235-2150-BE	21.49	22.10		6.4	11				1625
	PLP-AGS-60235-2210-BE	22.12	22.68		6.4	12				1651
	PLP-AGS-60235-2270-BE	22.71	23.04		6.4	12				1651
	PLP-AGS-60235-2305-BE	23.06	23.37		6.4	12				1676
	PLP-AGS-60235-2340-BE	23.39	23.80		6.4	12				1676
	PLP-AGS-60235-2385-BE	23.83	24.43		6.4	12				1702
A4DD18257T	PLP-AGS-60206-2555-BE	25.55	25.96	111	7.9	11	30	59	16	2032
	PLP-AGS-60206-2600-BE	25.98	26.42		7.9	11				2082
	PLP-AGS-60206-2645-BE	26.44	27.28		7.9	11				2082
	PLP-AGS-60206-2730-BE	27.31	27.69		7.9	12				2082
	PLP-AGS-60206-2770-BE	27.71	28.40		7.9	12				2082
	PLP-AGS-60206-2840-BE	28.42	28.85		7.9	12				2082
	PLP-AGS-60206-2890-BE	28.88	29.26		7.9	12				2082
	PLP-AGS-60206-2930-BE	29.29	29.85		7.9	12				2082
	PLP-AGS-60206-2985-BE	29.87	30.68		7.9	12				2082
A4DD18258T	PLP-AGS-60207-3070-BE	30.71	31.14	111	9.3	11	38	72	19	2235
	PLP-AGS-60207-3115-BE	31.17	31.98		9.3	11				2235
	PLP-AGS-60207-3200-BE	32.00	32.66		9.3	12				2235
	PLP-AGS-60207-3270-BE	32.69	33.38		9.3	12				2235
	PLP-AGS-60207-3340-BE	33.40	34.42		9.3	12				2235

# SUSPENSION AND SUPPORT

## ARMOR-GRIP® SUSPENSION (AGS)

### Low Voltage Continued

PLP Catalogue Number	Description	Outer Diameter Range (mm)		UTS (kN)	Rod Diameter (mm)	Rods Per Set	Dimensions (mm)			
		Min.	Max.				A	B	D	L
A4DD18259T	PLP-AGS-60208-3445-BE	34.44	35.41	111	9.3	12	41	71	19	2235
	PLP-AGS-60208-3545-BE	35.43	35.97		9.3	13				2235
	PLP-AGS-60208-3600-BE	35.99	36.63		9.3	13				2235
	PLP-AGS-60208-3665-BE	36.65	37.52		9.3	13				2235
	PLP-AGS-60208-3755-BE	37.54	38.51		9.3	13				2235
	PLP-AGS-60208-3855-BE	38.53	39.55		9.3	13				2235
A4DD18260T	PLP-AGS-60209-3960-BE	39.57	40.11	111	9.3	14	64	76	19	2540
	PLP-AGS-60209-4015-BE	40.13	40.94		9.3	14				2540
	PLP-AGS-60209-4100-BE	40.97	41.91		9.3	14				2540
	PLP-AGS-60209-4195-BE	41.94	42.88		9.3	15				2540
	PLP-AGS-60209-4290-BE	42.90	43.46		9.3	15				2540
	PLP-AGS-60209-4350-BE	43.48	44.50		9.3	15				2540
	PLP-AGS-60209-4455-BE	44.53	45.47		9.3	15				2540
	PLP-AGS-60209-4550-BE	45.49	46.43		9.3	15				2540
	PLP-AGS-60209-4645-BE	46.46	47.80		9.3	16				2540
A4DD18261T	PLP-AGS-60210-5570-BE	55.70	56.72	155	9.3	18	66	82	19	2540

### High Voltage

PLP Catalogue Number	Description	Outer Diameter Range (mm)		UTS (kN)	Rod Diameter (mm)	Rods Per Set	Dimensions (mm)			
		Min.	Max.				A	B	D	L
A4DD18206T	PLP-AGS-60202-1380-PB	13.79	14.10	45	4.6	10	23	46	16	1117
	PLP-AGS-60202-1410-PB	14.12	14.55		4.6	11				1117
	PLP-AGS-60202-1460-PB	14.58	15.09		4.6	11				1143
	PLP-AGS-60202-1510-PB	15.11	15.39		4.6	11				1168
	PLP-AGS-60202-1540-PB	15.42	15.72		4.6	11				1168
	PLP-AGS-60202-1575-PB	15.75	16.38		4.6	12				1270
A4DD18207T	PLP-AGS-60203-1640-PB	16.41	17.09	69	5.2	11	24	49	16	1371
	PLP-AGS-60203-1710-PB	17.12	17.53		5.2	11				1371
	PLP-AGS-60203-1755-PB	17.55	18.03		5.2	12				1371
	PLP-AGS-60203-1805-PB	18.06	18.57		5.2	12				1397
	PLP-AGS-60203-1860-PB	18.59	19.05		5.2	12				1422
A4DD18208T	PLP-AGS-60235-1910-PB	19.08	19.51	89	6.4	10	26	52	16	1524
	PLP-AGS-60235-1955-PB	19.53	20.19		6.4	11				1524
	PLP-AGS-60235-2020-PB	20.22	20.93		6.4	11				1549
	PLP-AGS-60235-2095-PB	20.96	21.46		6.4	11				1625
	PLP-AGS-60235-2150-PB	21.49	22.10		6.4	11				1625

# SUSPENSION AND SUPPORT

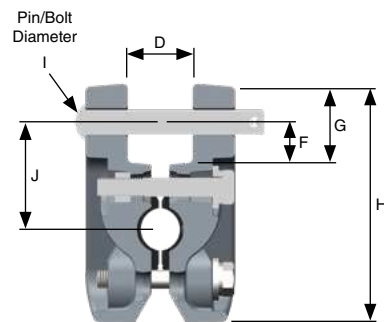
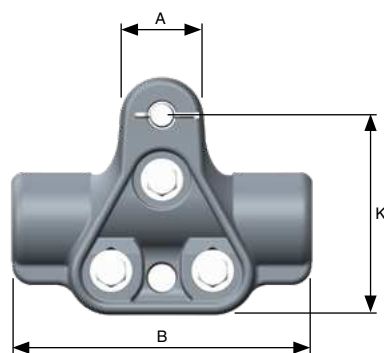
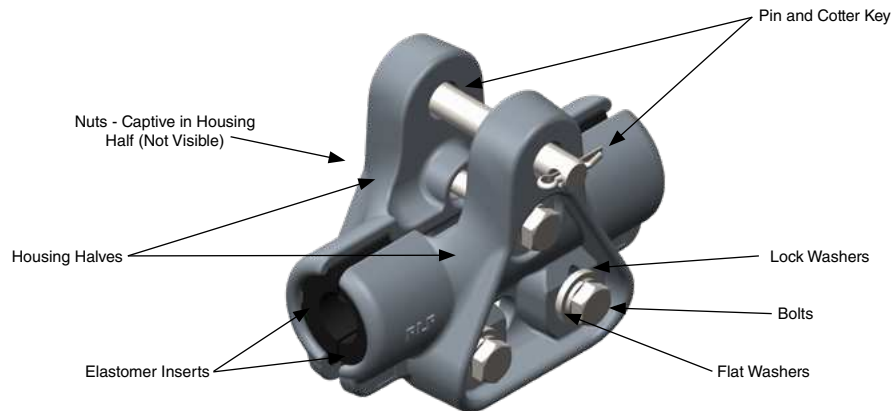
## ARMOR-GRIP® SUSPENSION (AGS)

### High Voltage Continued

PLP Catalogue Number	Description	Outer Diameter Range (mm)		UTS (kN)	Rod Diameter (mm)	Rods Per Set	Dimensions (mm)			
		Min.	Max.				A	B	D	L
A4DD18208T	PLP-AGS-60235-2210-PB	22.12	22.68	89	6.4	12	26	52	16	1651
	PLP-AGS-60235-2270-PB	22.71	23.04		6.4	12				1651
	PLP-AGS-60235-2305-PB	23.06	23.37		6.4	12				1676
	PLP-AGS-60235-2340-PB	23.39	23.80		6.4	12				1676
	PLP-AGS-60235-2385-PB	23.83	24.43		6.4	12				1702
A4DD18209T	PLP-AGS-60206-2555-PB	25.55	25.96	111	7.9	11	30	59	16	2032
	PLP-AGS-60206-2600-PB	25.98	26.42		7.9	11				2082
	PLP-AGS-60206-2645-PB	26.44	27.28		7.9	11				2082
	PLP-AGS-60206-2730-PB	27.31	27.69		7.9	12				2082
	PLP-AGS-60206-2770-PB	27.71	28.40		7.9	12				2082
	PLP-AGS-60206-2840-PB	28.42	28.85		7.9	12				2082
	PLP-AGS-60206-2890-PB	28.88	29.26		7.9	12				2082
	PLP-AGS-60206-2930-PB	29.29	29.85		7.9	12				2082
PLP-AGS-60206-2985-PB	29.87	30.68	7.9	12	2082					
A4DD18210T	PLP-AGS-60207-3070-PB	30.71	31.14	111	9.3	11	38	72	19	2235
	PLP-AGS-60207-3115-PB	31.17	31.98		9.3	11				2235
	PLP-AGS-60207-3200-PB	32.00	32.66		9.3	12				2235
	PLP-AGS-60207-3270-PB	32.69	33.38		9.3	12				2235
	PLP-AGS-60207-3340-PB	33.40	34.42		9.3	12				2235
A4DD18211T	PLP-AGS-60208-3445-PB	34.44	35.41	111	9.3	12	41	71	19	2235
	PLP-AGS-60208-3545-PB	35.43	35.97		9.3	13				2235
	PLP-AGS-60208-3600-PB	35.99	36.63		9.3	13				2235
	PLP-AGS-60208-3665-PB	36.65	37.52		9.3	13				2235
	PLP-AGS-60208-3755-PB	37.54	38.51		9.3	13				2235
	PLP-AGS-60208-3855-PB	38.53	39.55		9.3	13				2235
A4DD18212T	PLP-AGS-60209-3960-PB	39.57	40.11	111	9.3	14	64	76	19	2540
	PLP-AGS-60209-4015-PB	40.13	40.94		9.3	14				2540
	PLP-AGS-60209-4100-PB	40.97	41.91		9.3	14				2540
	PLP-AGS-60209-4195-PB	41.94	42.88		9.3	15				2540
	PLP-AGS-60209-4290-PB	42.90	43.46		9.3	15				2540
	PLP-AGS-60209-4350-PB	43.48	44.50		9.3	15				2540
	PLP-AGS-60209-4455-PB	44.53	45.47		9.3	15				2540
	PLP-AGS-60209-4550-PB	45.49	46.43		9.3	15				2540
	PLP-AGS-60209-4645-PB	46.46	47.80		9.3	16				2540
A4DD18213T	PLP-AGS-60210-5570-PB	55.70	56.72	155	9.3	18	66	82	19	2540

# SUSPENSION AND SUPPORT

## CUSHION-GRIP® SUSPENSION (CGS)



CUSHION-GRIP® Suspensions are intended for use on all aluminium based conductors, and are designed to reduce the static and dynamic stresses at the support point so that the conductor is protected against the effects of oscillations. 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® Suspension is comparable to a bolted clamp over armor rods. This equates to a reduction in bending strain as high as 50% as compared to bare conductors in a bolted clamp. This reduction in bending strain can be directly related to an increase in overall conductor life. The standard CUSHION-GRIP® Suspension is designed for up to 125°C continuous conductor operation (150°C two hour emergency) and the CGS-HT version can be used for applications with continuous conductor operating temperatures up to 200°C (225°C two hour emergency).

The CUSHION-GRIP® Suspension is shipped assembled with no loose parts. All fasteners are factory installed to eliminate lost hardware in the field. The CUSHION-GRIP® Suspension can be supplied with a bolt/nut/cotter in place of the suspension pin and cotter. Lower captive fasteners act as a hinge to facilitate hot stick application.

The maximum recommended line angle for a CUSHION-GRIP® Suspension is 30° as a single suspension and 60° in a double configuration utilising a yoke plate. When initially installed, the CGS Clamp has a slip load that ranges between 10% to 15% of the conductor's rated breaking strength (RBS).



# SUSPENSION AND SUPPORT

## CUSHION-GRIP® SUSPENSION (CGS)

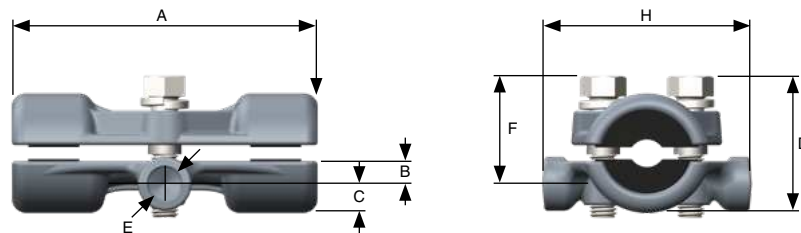
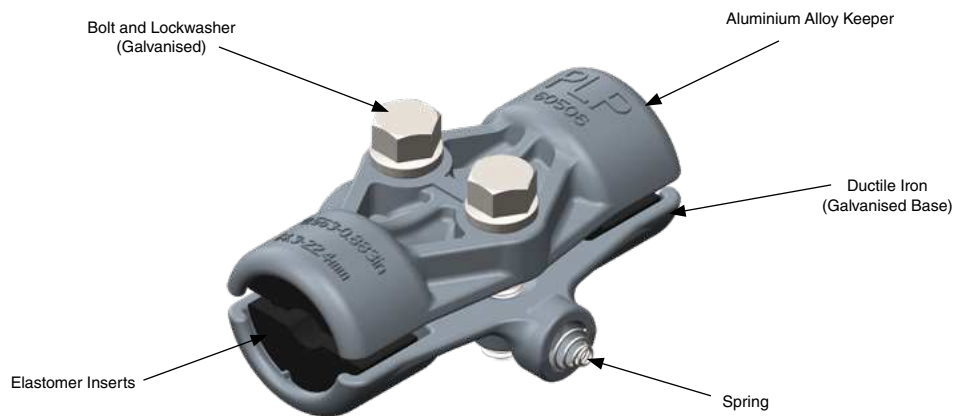
PLP Catalogue Number	Conductor Range (mm)		Nominal Conductor Size	Height (mm)	Width (mm)		Length (mm)
	Minimum	Maximum			Minimum	Maximum	
CGS-1095	7.9	15.4	#2- 4/0	123	20	30	165
CGS-1096	15.5	22.4	266.8 - 477	135	84	98	174
CGS-1097	22.5	30.4	556.5 - 954	152	84	98	192
CGS-1098	30.4	39.2	1033.5 - 1590	159	84	98	218
CGS-1120	39.3	39.9	-	193	99	112	234
CGS-1121	39.9	41.6	1780; 84/19				
CGS-1122	41.7	43.4	-				
CGS-1123	43.4	45.0	2156; 84/19 & 72/7				
CGS-1124	45.0	46.6	2312; 76/19				
CGS-1125	46.6	48.1	-				
CGS-1126	48.1	49.5	-				
CGS-1127	49.5	50.8	-				

PLP Catalogue Number	Weight (kg)	Standard Carton Quantity	Vertical Ultimate Load (kN)
CGS-1095	1.1	10	67
CGS-1096	1.8	3	111
CGS-1097	2.5	3	
CGS-1098	3.0	3	
CGS-1120	4.3	3	136
CGS-1121			
CGS-1122			
CGS-1123			
CGS-1124			
CGS-1125			
CGS-1126			
CGS-1127			

Conductor Range (mm)		Dimensions (mm)									
Min.	Max.	A	B	D (Min.)	D (Max.)	F	G	H	I	J	K
7.9	15.4	51	165	20	30	25	51	123	16	61	98
15.5	22.4	57	174	29	43	25	51	135	16	66	109
22.5	30.4	57	192	29	43	25	51	152	16	69	126
29.9	39.2	57	218	29	43	25	51	159	16	74	132
39.3	50.8	64	234	32	46	32	64	193	16	89	161

# SUSPENSION AND SUPPORT

## CUSHION-GRIP® SUPPORT



The CUSHION-GRIP® Support is intended for use on all aluminium based conductors, and is designed to reduce the static and dynamic stresses at the support point, so that the conductor is protected against the effects of oscillations. 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® Support is comparable to a bolted clamp over armor rods. This equates to a reduction in bending strain as high as 50% as compared to bare conductor in a bolted clamp. This reduction in bending strain can be directly related to an increase in overall conductor life. The CUSHION-GRIP® Support is designed for up to 125°C continuous conductor operation (150°C two hour emergency), and the HT version can be used for applications with continuous conduction operating temperatures up to 200°C (225°C two hour emergency).

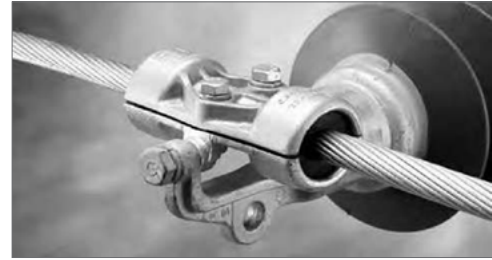
The CUSHION-GRIP® Support is shipped assembled. All fasteners are captivated in the keeper.

The CUSHION-GRIP® Support will withstand a pull-off load from the trunnion pins of the insulator cap of 2,250kg, applied in any direction. This includes the vertical up direction (uplift).

The maximum recommended line angle for a CUSHION-GRIP® Support is 30°. When initially installed, the CGS has a slip load that ranges between 10% to 15% of the conductors rated breaking strength (RBS).

# SUSPENSION AND SUPPORT

## CUSHION-GRIP® SUPPORT



PLP Catalogue Number	Conductor Range (mm)		Nominal Conductor Sizes	Weight (kg)	Standard Pack Quantity
	Minimum	Maximum			
CGS-2100	8.3	14.3	#2 to 4/0	0.7	3
CGS-2101	14.3	22.4	226 Kcmil to 477 Kcmil	1.1	3
CGS-2102	22.5	30.4	556 Kcmil to 954 Kcmil	1.6	3
CGS-2103	30.4	38.2	954 Kcmil to 1590 Kcmil	2.3	3

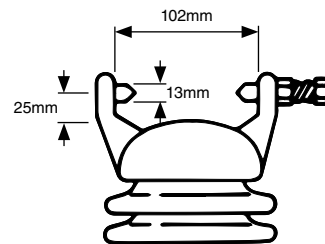
**Note:** For high temperature (HT) version add "HT" to the catalogue number (for example, CGS-2102HT)

### Dimensional Information

PLP Catalogue Number	Dimensions (mm)						
	A	B	C	D	E	F	H
CGS-2100	127	9	13	47	15	38	98
CGS-2101	145	11	14	61	15	51	98
CGS-2102	163	19	14	76	15	51	98
CGS-2103	165	19	22	86	15	61	98

### Clamp Top Trunnion

To ensure proper fit and service life, it is recommended that only line post insulators with clamp top trunnion caps that conform to ANSI standards be used. See the illustration on the right for nominal cap dimensions that illustrate ANSI standards that have been established, outlining the permissible dimensions and tolerances for trunnion caps. Consult the insulator manufacturer when in doubt about insulator standards.



The above dimensions are approximates for design information. Consult ANSI specifications C29.7-1977 for exact dimensions.

# SUSPENSION AND SUPPORT

## SUSPENSION CLAMPS

### Clevis Suspension Clamp

**Material:** Cast Aluminium Alloy

Designed specifically for distribution phase conductors, each size of this model of aluminium alloy suspension clamp has a wide conductor acceptance range. For all installations, PLP recommends the use of armor rods with suspension clamps.



PLP Catalogue Number	Outer Diameter Range (mm)		Minimum Breaking Strength (kN)
	Minimum	Maximum	
P03405-000	9.0	18.0	50
P03406-000	18.0	30.0	80
P03407-000	30.0	42.5	80

### Offset Suspension Clamp

**Material:** Ductile Iron Hot Dip Galvanised

Normally used for the suspension of copper phase conductors and SC/GZ messenger wires or earthwires, PLP's offset suspension clamp is supplied as standard with a tongue or a socket clevis. PLP recommends the use of armor rods with suspension clamps.

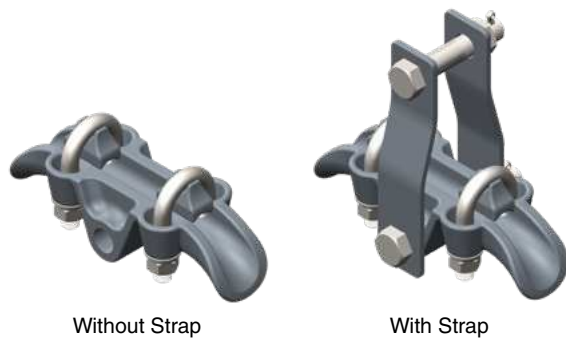


PLP Catalogue Number		Outer Diameter Range (mm)	
Without Socket Clevis	With Socket Clevis	Minimum	Maximum
SCIO-0517	SCIO-0517-A	5.0	17.0
SCIO-1727	SCIO-1727-A	17.0	27.0

### Suspension Trunnion Clamp

**Material:** Cast Aluminium Alloy

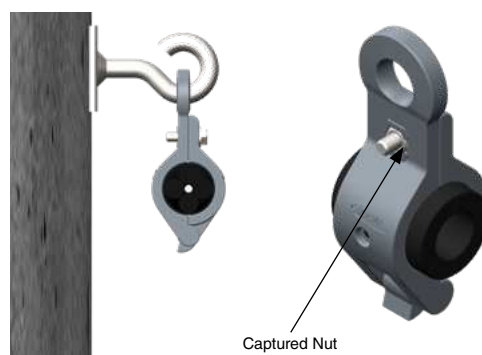
Trunnion suspension clamps can be used as a pivoting conductor support within a line post insulator assembly or can be used for conductor suspension if supplied with galvanised steel straps and hardware. PLP recommends the use of armor rods with suspension clamps.



PLP Catalogue Number		Outer Diameter Range (mm)	
Without Strap	With Strap	Minimum	Maximum
SCAT-1221	-	12.0	21.0
SCAT-L011421	-	13.0	35.0
SCAT-1520	-	15.0	20.0
SCAT-1628	SCAT-1628-A	16.0	28.0
SCAT-2838	SCAT-2838-A	28.0	38.0
SCAT-4652	SCAT-4652-A	46.0	52.0

# SUSPENSION AND SUPPORT

## ABC SUSPENSION CLAMP AS SERIES



The AS series of LV ABC Suspension Clamps are intended for use on straight runs and for line deviation angles up to 25°.

AS series Suspension Clamps are suitable for coastal environments and are manufactured from high strength corrosion-resistant aluminium alloy, incorporating neoprene bushes and stainless steel hardware. An optional feature of the AS series Suspension Clamps is a weak link which ensures the suspension clamp will fail before the cable breaks.

AS series Suspension Clamps are designed as a one-piece format to eliminate the dropping of components whilst installing the clamp. In addition, the cable is supported even when the clamp is in the open position, speeding and easing installation.

Tested to Australian Standard 3766.

PLP Catalogue Number	Conductor Construction (mm <sup>2</sup> )	Standard Pack Quantity
BCSC-2050-2S	2 x 50	63
BCSC-2050-2SWL	2 x 50	63
BCSC-2050-2SHD	2 x 50	64
BCSC-2095-2S	2 x 95	63
BCSC-2095-2SWL	2 x 95	63
BCSC-2095-2SHD	2 x 95	64
BCSC-4050-2S	4 x 50	64
BCSC-4050-2SWL	4 x 50	64
BCSC-4050-2SHD	4 x 50	64
BCSC-4095-2S	4 x 95	64
BCSC-4095-2SWL	4 x 95	64
BCSC-4095-2SHD	4 x 95	64

**Note:** WL = Weak Link (5kN)  
HD = Heavy Duty (Stainless wear ring)

# SUSPENSION AND SUPPORT

## ABC SUSPENSION CLAMP ASV SERIES



The ASV series of LV ABC Suspension Clamps have been developed to protect the integrity of the cable insulation by controlling the cable slip during impact loads. The built-in failure link allows the undamaged cable to drop to the ground, thus providing a co-ordinated failure mechanism. The clamps are intended for use on straight runs and line deviation angles up to 25°.

The installation features of the clamps have been designed following extensive field trials carried out in conjunction with the major electricity distribution authorities.

The ASV series Suspension Clamps are suited to coastal environments and are manufactured from high strength corrosion-resistant aluminium alloy and incorporate neoprene bushes and stainless steel hardware. A failure link is built into the clamp.

The clamps are designed as a one-piece format, eliminating the common problem of dropping components whilst installing the clamp. The ASV series Suspension Clamp greatly assists linesmen by supporting the cable in the open position and allowing fast installation by simply closing the clamp and tightening the fastener.

The PLPAS series Suspension Clamp complies with Australian Standard 3766.

PLP Catalogue Number	Conductor Construction (mm <sup>2</sup> )	Standard Pack Quantity	Weak Link Failing Load (kN)
BCSC-4095-3S	4 x 95	64	6
BCSC-4095-3SHD	4 x 95	30	N/A
BCSC-4150-3S	4 x 150	30	8
BCSC-4150-3SHD	4 x 150	30	N/A

**Note:** HD = Heavy Duty (Stainless wear ring)

# PROTECTION

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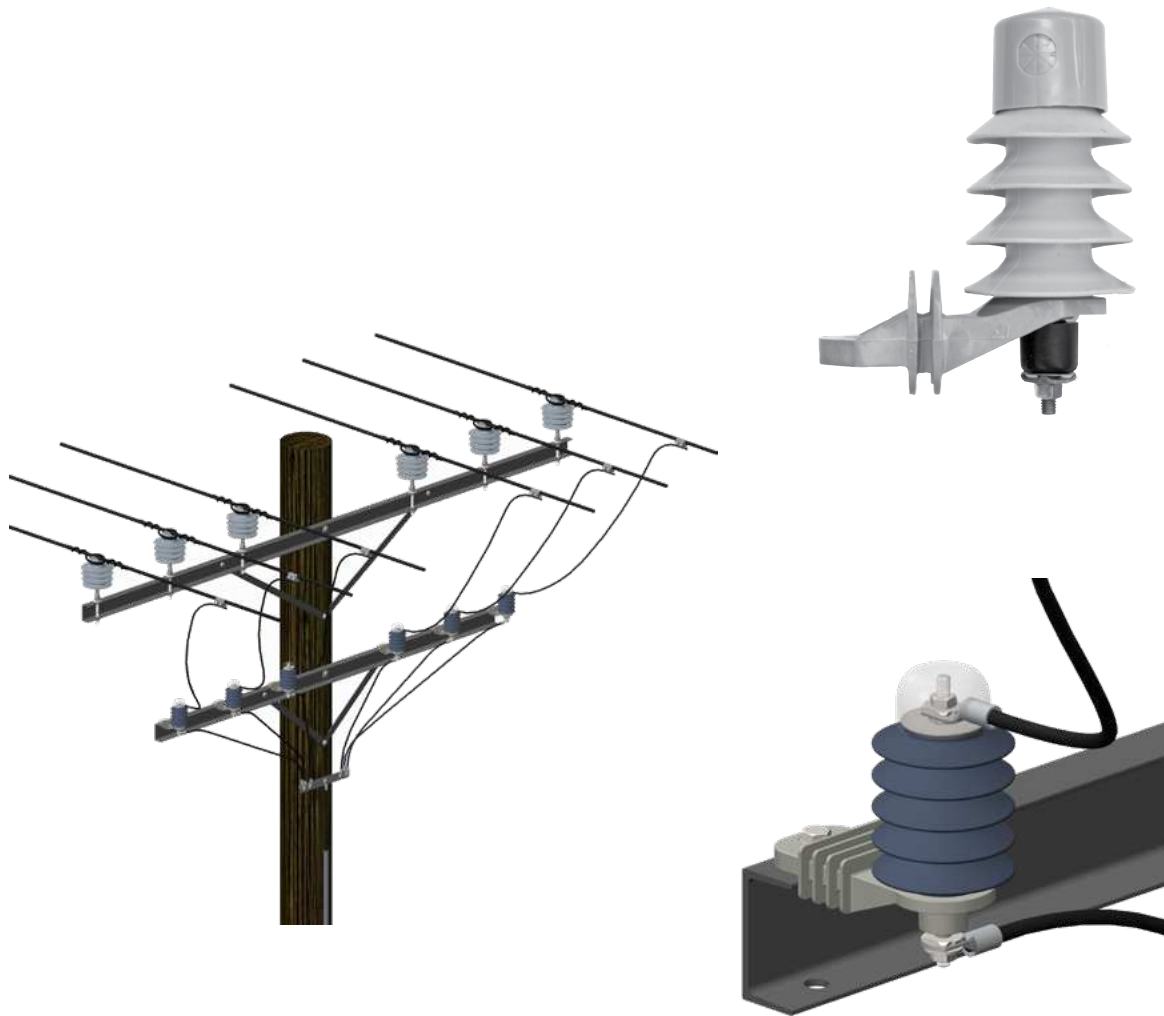


### **PREFORMED** LINE PRODUCTS

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# SURGE AND LIGHTNING PROTECTION

## SURGE ARRESTOR - NORMAL DUTY 5kA/HEAVY DUTY 10kA



PLP supplied surge arrestors for protecting overhead distribution equipment are a gapless metal oxide type. When installed and under normal operating conditions, the nominal phase to earth voltage is applied continuously across the surge arrestor terminals. When a surge occurs, the surge arrestor immediately limits the overvoltage by conducting the surge current to earth where it is safely discharged without damage to adjacent equipment.

The rating of PLP's surge arrestors is derived from the maximum power frequency phase to earth voltage at which the arrestor is designed to pass an operating duty cycle test. The primary objective in arrestor application is to select the lowest rated device that will provide adequate system protection. For a solidly earthed distribution system, generally a surge arrestor with a maximum continuous operating voltage (MCOV) greater than or equal to the maximum phase to earth voltage is recommended. MCOV is defined as the recommended limit to the magnitude of voltage that may be applied continuously to the surge arrestor.

Temporary Over Voltages (TOV) can be caused by electrical distribution system events like switching surges and phase to earth faults. The primary effect of a TOV on metal oxide surge arrestors is increased current and power dissipation and increased temperature. These conditions affect the protection and survivability characteristics of the arrestor.

The major differences between PLP's normal duty (5kA) and heavy duty (10kA) surge arrestor designs are the protective characteristics and high current short duration strength of the designs. A heavy duty distribution class arrestor has a higher current discharge capability than the normal duty arrestor.

PLP Surge arrestors can be supplied with or without an insulated mounting bracket and with or without an earth lead disconnect which indicates when the arrestor has been discharged and needs replacement. For specific surge arrestor application recommendations for medium voltage overhead covered conductor systems, contact PLP.



## SURGE AND LIGHTNING PROTECTION

### SURGE ARRESTOR - NORMAL DUTY 5kA/HEAVY DUTY 10kA

#### Normal Duty (5kA) Polymer Surge Arrestors

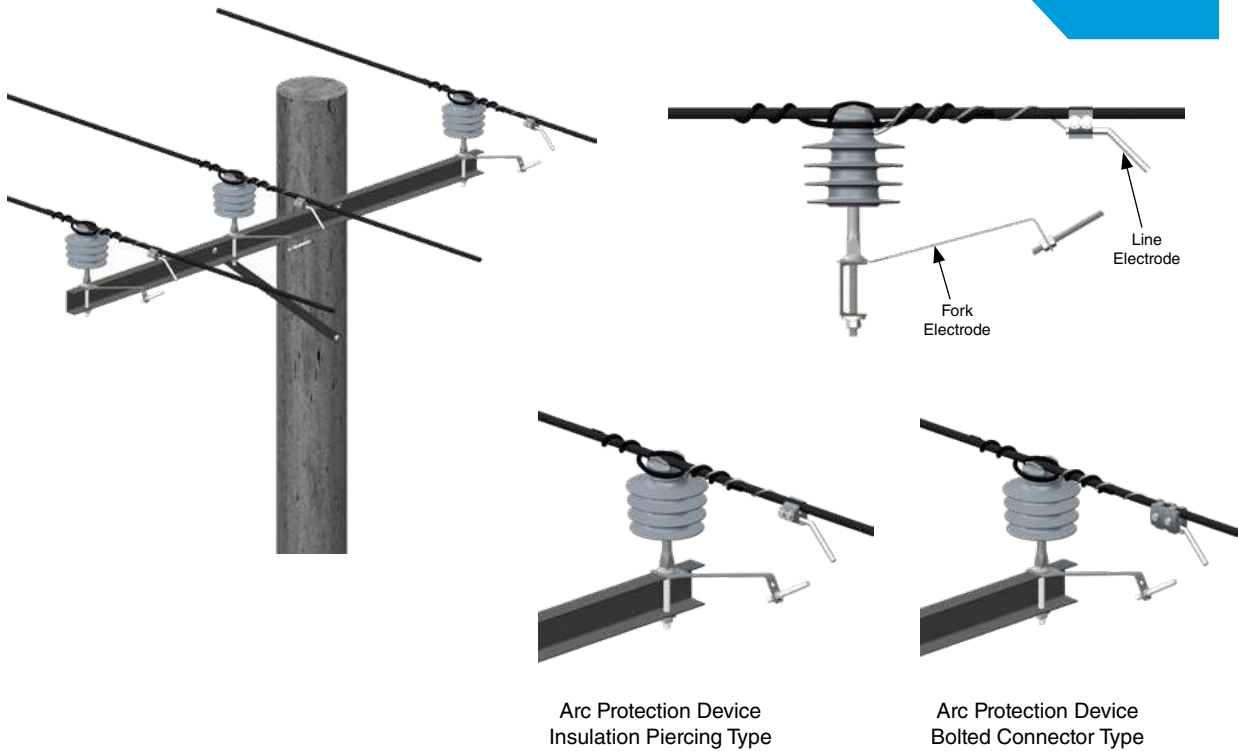
PLP Catalogue Number	Rated Voltage (kV)	MCOV (kVrms)	Range of Critical Operating Voltage V1mA (DC)		TOV		Creepage (mm)	Insulation of Arrestor Housing	
			Minimum	Maximum	1sec	10sec		Dry Power Frequency Withstand (kV)	Wet Power Frequency Withstand (kV)
SA03/05	3	2.55	4.8	5.4	3.2	3.0	323	11	9
SA06/05	6	5.10	9.6	10.8	6.5	6.1	323	20	18
SA09/05	9	7.65	14.4	16.2	9.7	9.1	442	30	28
SA10/05	10	8.50	16.0	18.5	10.8	10.1	443	34	30
SA12/05	12	10.20	19.2	21.6	13.0	12.1	442	39	35
SA15/05	15	12.75	24.0	27.0	16.2	15.2	680	49	43
SA18/05	18	15.30	28.8	32.4	19.4	18.2	680	58	52
SA21/05	21	17.85	33.6	37.8	22.7	21.2	884	68	60
SA24/05	24	20.40	38.4	43.2	25.9	24.2	884	77	69
SA27/05	27	22.95	43.2	48.6	29.2	27.3	1,122	87	77
SA30/05	30	25.50	48.0	54.0	32.4	30.3	1,122	96	85
SA33/05	33	28.05	52.8	59.4	35.6	33.3	1,360	106	94
SA36/05	36	30.60	57.6	64.8	38.9	36.4	1,360	115	102

#### Heavy Duty (10kA) Polymer Surge Arrestors

PLP Catalogue Number	Rated Voltage (kV)	MCOV (kVrms)	Range of Critical Operating Voltage V1mA (DC)		TOV		Creepage (mm)	Insulation of Arrestor Housing	
			Minimum	Maximum	1sec	10sec		Dry Power Frequency Withstand (kV)	Wet Power Frequency Withstand (kV)
SA03/10	3	2.55	4.8	5.4	3.4	3.2	323	10	9
SA06/10	6	5.10	9.6	10.8	6.8	6.4	323	20	17
SA09/10	9	7.65	14.4	16.2	10.2	9.5	442	29	26
SA10/10	10	8.50	16.0	18.5	11.3	10.6	442	34	30
SA12/10	12	10.20	19.2	21.6	13.6	12.7	442	39	35
SA15/10	15	12.75	24.0	27.0	17.0	15.9	680	49	43
SA18/10	18	15.30	28.8	32.4	20.3	19.1	680	59	52
SA21/10	21	17.85	33.6	37.8	23.7	22.3	884	68	61
SA24/10	24	20.40	38.4	43.2	27.1	25.4	884	78	70
SA27/10	27	22.95	43.2	48.6	30.5	28.6	1,122	88	78
SA30/10	30	25.50	48.0	54.0	33.9	31.8	1,122	98	87
SA33/10	33	28.05	52.8	59.4	37.3	35.0	1,360	108	96
SA36/10	36	30.60	57.6	64.8	40.7	38.2	1,360	117	104

# SURGE AND LIGHTNING PROTECTION

## ARC PROTECTION DEVICE - BOLTED CONNECTOR/INSULATION PIERCING



PLP's Arc Protection Devices (APDs) consist of a fork electrode for the earth end connection and a Parallel Groove Connector or insulation piercing connector attached electrode for the line end connection.

- For the bolted type APD, the line electrode consisting of a 12.0mm OD galvanised steel rod is attached to the conductor via a PLP Parallel Groove Clamp with the rod inserted in place of the tap conductor.
- Tested in accordance with EN50397-2 (2009), the insulation piercing type APD consists of a line electrode of 12.0mm OD galvanised steel rod that is attached to the conductor via a PLP insulation piercing Parallel Groove Clamp. The key benefit of this design is that the cable insulation does not have to be stripped.

The same fork end electrode is used for the bolted and insulation piercing APD solutions. The fork end electrode features the same 12.0mm galvanised steel rod, but the rod is threaded so that the arc gap between the line and earth electrode is adjustable. The fork electrode is captured under the insulator pin base. The "sandwich type" metal to metal connection between the insulator pin, the fork electrode and the crossarm allows the arc generated surge current to be discharged to the individual power pole earth bank when an arc occurs.

Aside from the fact that they are lower cost, the advantage of an APD over a surge arrester is that, unlike a distribution class surge arrester, the APD will operate hundreds or even thousands of times. Most distribution class surge arresters are single use devices and, if the surge arrester is not fitted with an earth lead disconnect, it is difficult to determine whether the arrester is discharged without subjecting it to an insulation resistance test.

The extent to which arc protection devices are used by power utilities is a function of the local keraunic level in the area the covered conductor system is installed. The keraunic level is a system that describes lightning activity in an area based upon the audible detection of thunder. It is defined as the average number of days per year when thunder can be heard in a given area, and the likelihood thereby of a thunderstorm.

Generally, PLP recommends that to best protect a covered conductor system in a moderate keraunic level environment, APDs are installed on all phases every 300m or on staggered phases every 100m. For site specific recommendations, contact PLP.

# SURGE AND LIGHTNING PROTECTION

## ARC PROTECTION DEVICE - BOLTED CONNECTOR/INSULATION PIERCING

### Arc Protection Device Excluding Aluminium Grading Coil

Conductor Size (mm <sup>2</sup> )	PLP Catalogue Number	
	Bolted Connector APD	Insulation Piercing Connector APD
35	BCAPD-35	-
40	BCAPD-40	-
50	BCAPD-50	IPAPD-50
70	BCAPD-70	IPAPD-70
80	BCAPD-80	IPAPD-80
95	BCAPD-95	IPAPD-95
100	BCAPD-100	IPAPD-100
120	BCAPD-120	IPAPD-120
150	BCAPD-150	IPAPD-150
180	BCAPD-180	-
185	BCAPD-185	-
240	BCAPD-240	-

### Arc Protection Device Including Aluminium Grading Coil

Deploying APDs successfully may also require the use of an insulator grading coil. Manufactured from fully annealed aluminium wire, the grading coil is looped around the neck of the insulator (as illustrated) and connected to the APD to grade the voltage stress at the insulator in the event of an arc.

Use of a grading coil ensures the flashover will occur at the APD rather than the insulator, avoiding damage to the insulator and covered conductor cable attached to it.

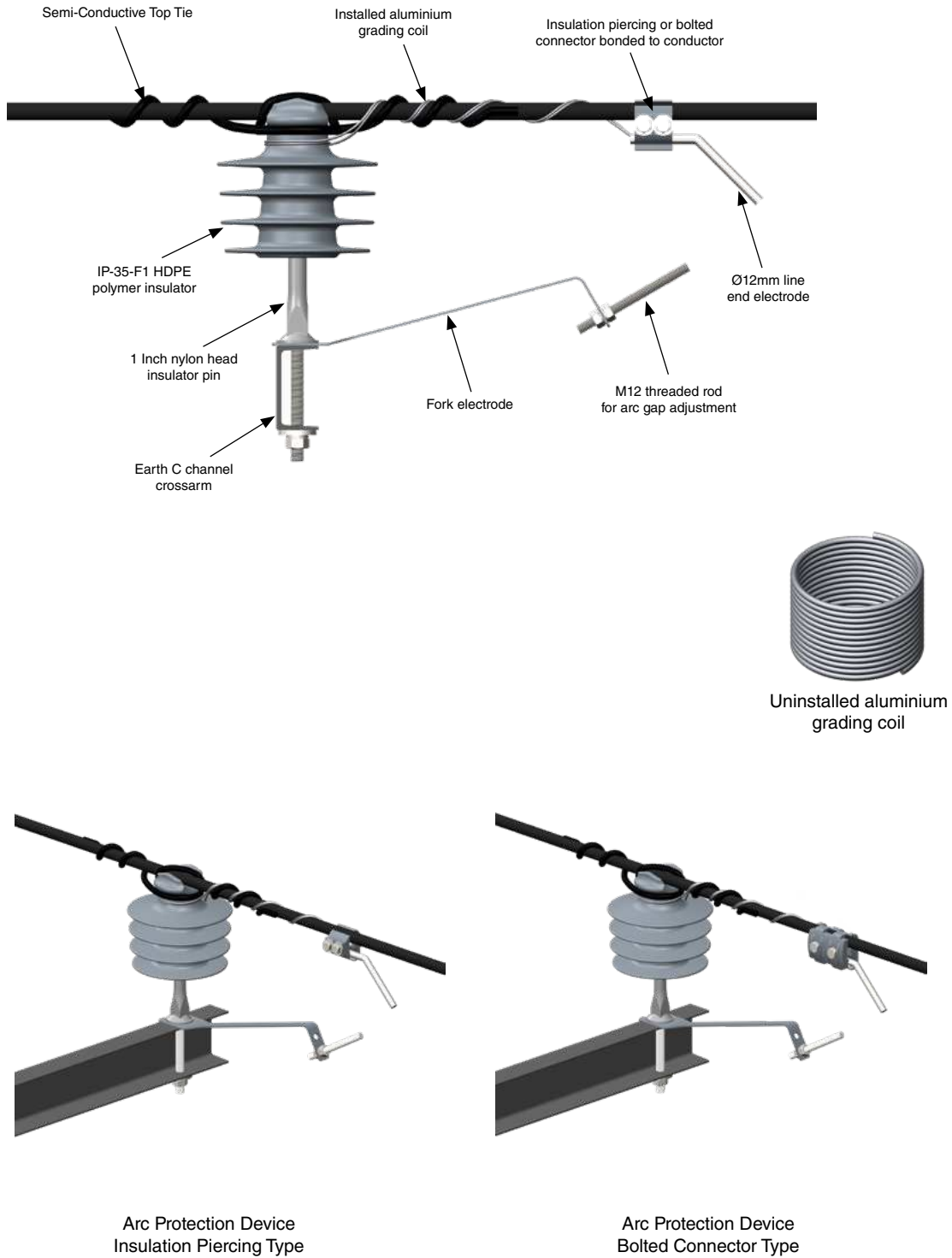


Conductor Size (mm <sup>2</sup> )	PLP Catalogue Number	
	Bolted Connector APD	Insulation Piercing Connector APD
35	BCAPDG-35	-
40	BCAPDG-40	-
50	BCAPDG-50	IPAPDG-50
70	BCAPDG-70	IPAPDG-70
80	BCAPDG-80	IPAPDG-80
95	BCAPDG-95	IPAPDG-95
100	BCAPDG-100	IPAPDG-100
120	BCAPDG-120	IPAPDG-120
150	BCAPDG-150	IPAPDG-150
180	BCAPDG-180	-
185	BCAPDG-185	-
240	BCAPDG-240	-

# SURGE AND LIGHTNING PROTECTION

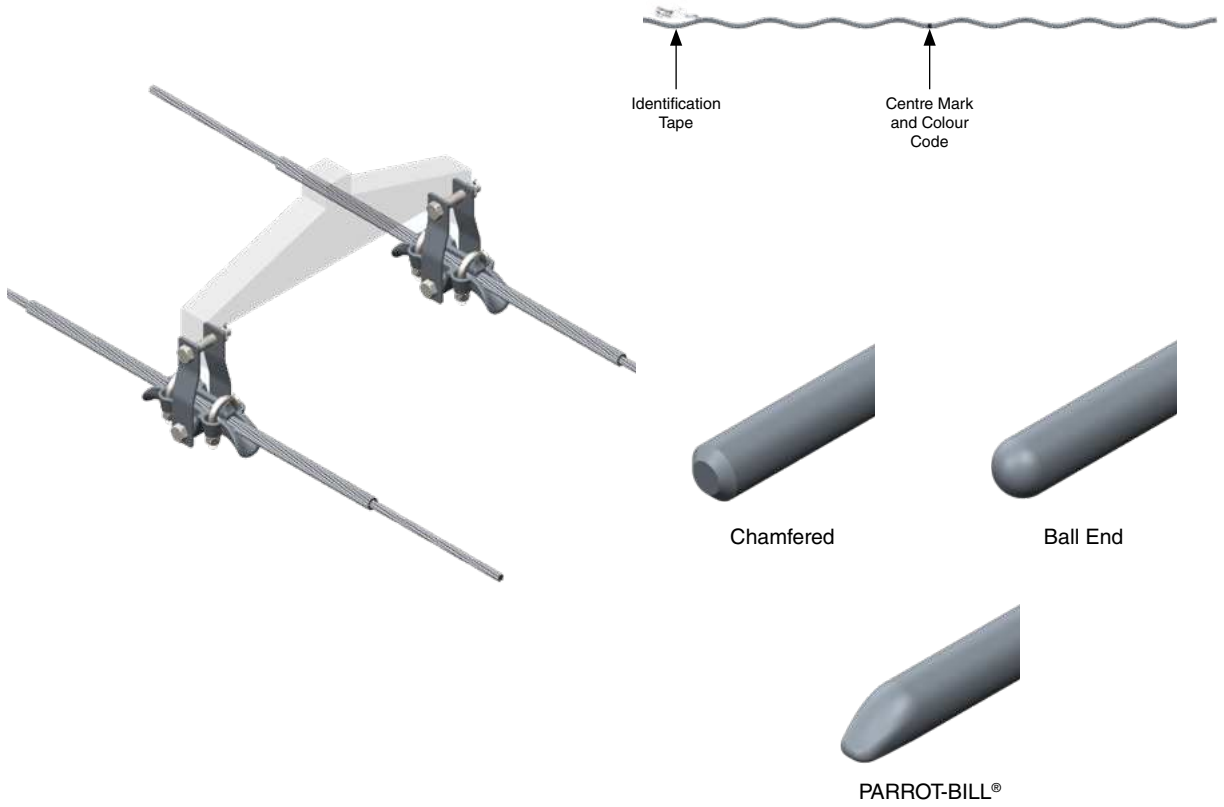
## ARC PROTECTION DEVICE - BOLTED CONNECTOR/INSULATION PIERCING

### Typical Arc Protection Device Installation on Covered Conductor



# LINE PROTECTION

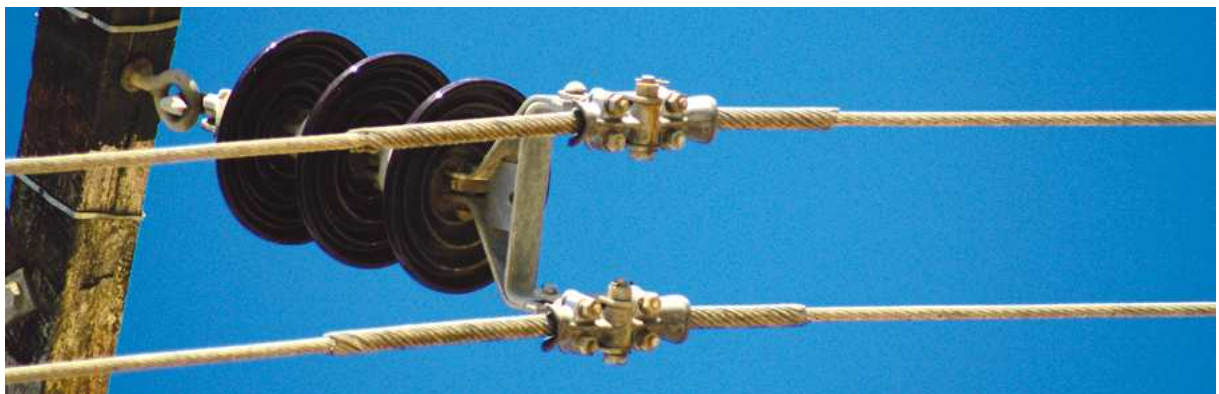
## PREFORMED™ ARMOR RODS



PLP's Armor Rods for bare conductors are intended to protect against bending, compression, abrasion and 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 and 19 strand conductors or 25% damage for 37 and 61 strand conductors.

Armor Rods are extremely effective in relieving or suppressing conductor strains and, therefore, extending conductor service life.

Armor Rods are chamfered and, above a certain size, are ball-ended to create a smooth uniformed finish to minimise corona.



# LINE PROTECTION

## PREFORMED™ ARMOR RODS

For AAC, AAAC and ACSR Conductors

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
AAR0495	4.93	5.26	1,015	100	Blue
AAR0530	5.28	5.56	1,015	100	Black
AAR0560	5.59	5.79	1,015	100	White
AAR0580	5.82	6.17	1,015	100	Brown
AAR0620	6.20	6.58	1,015	50	Orange
AAR0660	6.60	6.93	1,065	50	Green
AAR0695	6.96	7.34	1,065	50	Yellow
AAR0735	7.37	7.82	1,065	50	Purple
AAR0785	7.85	8.28	1,120	50	Red
AAR0830	8.31	8.79	1,170	50	Blue
AAR0880	8.81	9.30	1,220	50	Green
AAR0930	9.32	9.88	1,270	50	Black
AAR0990	9.91	10.49	1,320	50	Yellow
AAR1050	10.52	11.07	1,320	50	Brown
AAR1110	11.10	11.76	1,370	50	Blue
AAR1180	11.79	12.45	1,370	50	Green
AAR1245	12.47	13.23	1,420	25	Orange
AAR1325	13.26	14.00	1,475	25	Black
AAR1400	14.02	14.86	1,525	25	Red
AAR1490	14.88	15.39	1,575	25	Black
AAR1540	15.42	16.00	1,625	25	Purple
AAR1605	16.03	16.64	1,625	25	Yellow
AAR1665	16.66	17.25	1,675	18	Brown
AAR1725	17.27	17.86	1,725	18	Blue
AAR1790	17.88	18.80	1,830	18	Green
AAR1880	18.82	19.86	1,830	18	Orange

# LINE PROTECTION

## PREFORMED™ ARMOR RODS

For AAC, AAAC and ACSR Conductors

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
AAR1990	19.89	20.68	1,930	15	Purple
AAR2070	20.70	21.46	1,930	15	Red
AAR2150	21.49	23.04	1,980	15	Blue
AAR2305	23.06	23.60	2,030	12	Green
AAR2360	23.62	24.79	2,235	12	White
AAR2480	24.82	25.81	2,335	6	Yellow
AAR2585	25.83	26.29	2,390	6	Brown
AAR2630	26.31	27.03	2,440	6	Blue
AAR2705	27.05	27.89	2,440	6	Green
AAR2790	27.90	28.94	2,540	6	Orange
AAR2895	28.96	29.49	2,540	6	Purple
AAR2950	29.51	30.68	2,540	6	Red
AAR3070	30.71	32.23	2,540	6	Black
AAR3225	32.26	33.71	2,540	6	White
AAR3375	33.73	35.31	2,540	3	Yellow
AAR3535	35.33	36.58	2,540	3	Brown
AAR3660	36.60	38.30	2,540	3	Blue
AAR3835	38.33	40.08	2,540	3	Green
AAR4010	40.11	41.94	2,540	3	Orange
AAR4195	41.96	43.89	2,540	3	Purple
AAR4390	43.92	45.95	2,540	3	Red
AAR4595	45.97	48.21	2,540	3	Black
AAR4825	48.23	50.57	2,540	3	White
AAR5060	50.60	53.09	2,540	3	Yellow
AAR5310	53.11	55.70	2,540	3	Brown

# LINE PROTECTION

## PREFORMED™ ARMOR RODS

### For Galvanised Steel Conductors SC/GZ

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
SAR0580	5.82	6.17	40	50	Black
SAR0620	6.20	6.58	40	50	Yellow
SAR0785	7.85	8.28	45	50	Black
SAR0880	8.81	9.47	50	50	Orange
SAR1050	10.52	11.07	50	20	Green
SAR1245	12.47	13.23	55	20	Blue

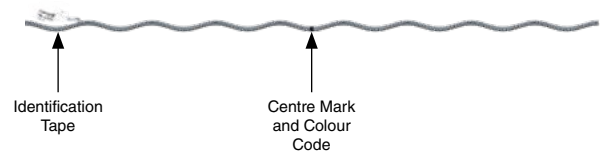
### For Aluminium Clad Steel Conductors SC/AC

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
AWAR0430	4.29	4.52	1,015	50	Orange
AWAR0500	4.98	5.26	1,015	50	Black
AWAR0555	5.54	5.72	1,015	50	Green
AWAR0600	6.02	6.32	1,015	50	Yellow
AWAR0670	6.71	7.04	1,065	25	Blue
AWAR0750	7.52	7.98	1,170	25	Black
AWAR0850	8.48	8.94	1,270	25	Yellow
AWAR0950	9.47	9.96	1,270	25	Orange
AWAR1040	10.39	10.80	1,370	25	Black
AWAR1080	10.82	11.43	1,420	25	Green
AWAR1210	12.12	12.80	1,420	20	Blue
AWAR1360	13.59	14.35	1,525	10	Yellow
AWAR1505	15.06	15.88	1,525	10	Black



## LINE PROTECTION

### PREFORMED™ LINE GUARD



PLP's Line Guards are commonly used in distribution networks as the most basic conductor protection at the point of conductor attachment to pin or post insulators.

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

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



# LINE PROTECTION

## PREFORMED™ LINE GUARD

For AAC, AAAC and ACSR Conductors

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
ALG0460	4.62	4.90	430	100	Purple
ALG0495	4.93	5.26	430	100	Blue
ALG0560	5.59	5.79	430	100	White
ALG0580	5.82	6.17	485	100	Brown
ALG0620	6.20	6.58	485	100	Orange
ALG0660	6.60	6.93	485	100	Green
ALG0695	6.96	7.34	535	100	Yellow
ALG0735	7.37	7.82	535	100	Purple
ALG0785	7.85	8.28	535	100	Red
ALG0830	8.31	8.79	535	100	Blue
ALG0880	8.81	9.30	585	100	Green
ALG0930	9.32	9.88	585	100	Black
ALG0990	9.91	10.49	635	100	Yellow
ALG1050	10.52	11.07	635	50	Brown
ALG1110	11.10	11.76	685	50	Blue
ALG1180	11.79-	12.45	685	50	Green
ALG1245	12.47	13.23	735	50	Orange
ALG1325	13.26	14.00	735	50	Black
ALG1400	14.02	14.86	785	50	Red
ALG1490	14.88	15.39	785	50	Black
ALG1540	15.42	16.00	840	50	Purple
ALG1605	16.03	16.64	840	50	Yellow

# LINE PROTECTION

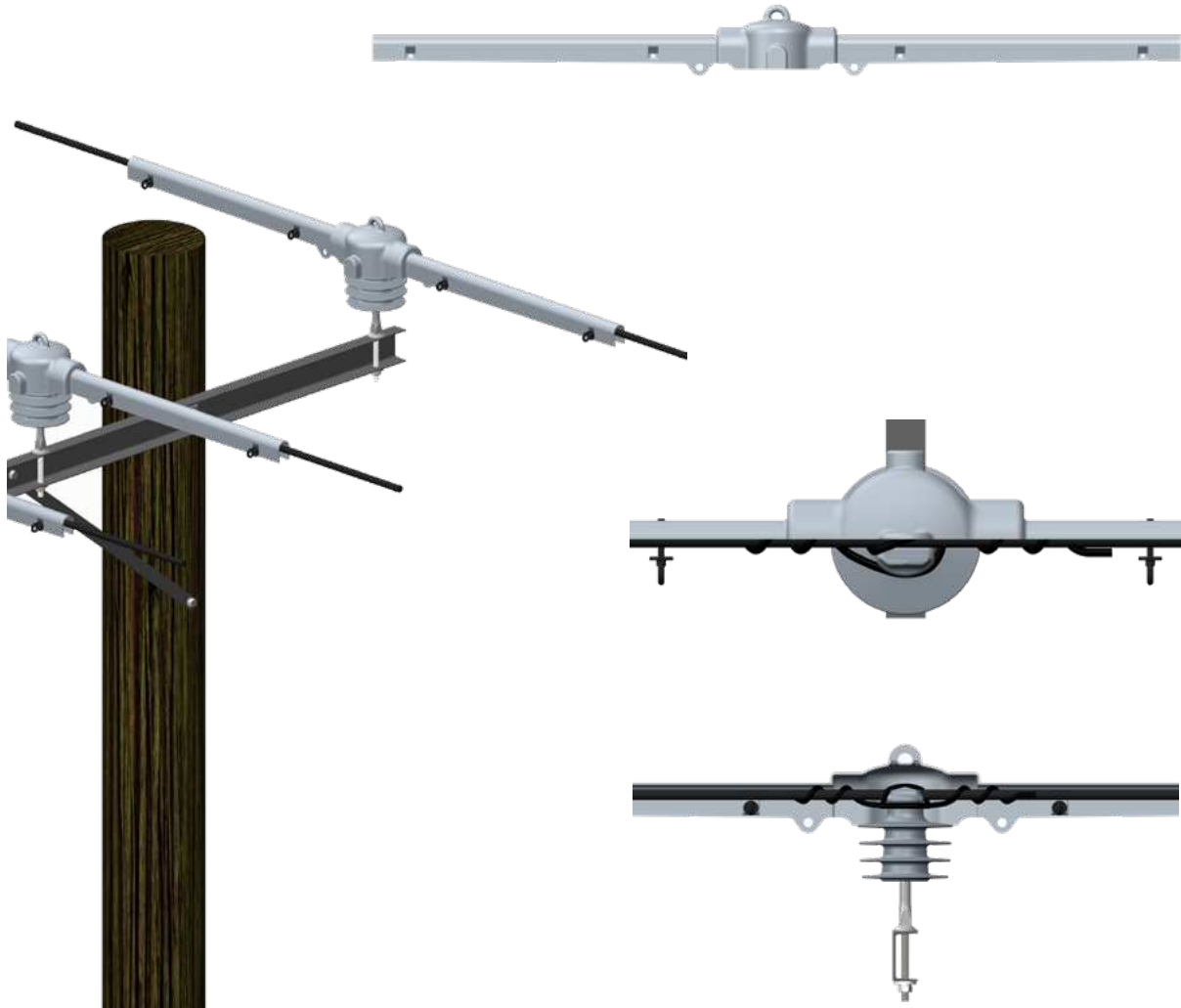
## PREFORMED™ LINE GUARD

For AAC, AAAC and ACSR Conductors

PLP Catalogue Number	Conductor Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
ALG1665	16.66	17.25	890	50	Brown
ALG1725	17.27	17.86	890	50	Blue
ALG1790	17.88	18.80	940	25	Green
ALG1880	18.82	19.86	990	25	Orange
ALG2015	20.14	21.34	990	25	Purple
ALG2135	21.36	22.81	1,040	25	Blue
ALG2285	22.83	24.23	1,090	25	Green
ALG2425	24.26	25.04	1,145	25	White
ALG2505	25.07	25.81	1,145	25	Yellow
ALG2585	25.83	27.03	1,195	25	Brown
ALG2705	27.05	27.89	1,245	15	Green
ALG2790	27.91	29.29	1,245	15	Orange
ALG2930	29.31	30.68	1,295	15	Purple
ALG3070	30.71	32.21	1,295	15	Black
ALG3225	32.23	33.71	1,295	10	White
ALG3375	33.73	35.31	1,395	10	Yellow
ALG3535	35.33	36.58	1,450	5	Brown
ALG3660	36.60	38.30	1,500	5	Blue
ALG3835	38.33	40.08	1,550	5	Green
ALG4010	40.11	41.94	1,600	5	Orange
ALG4195	41.96	43.89	1,650	5	Purple
ALG4390	43.92	48.01	1,700	3	Red

# LINE PROTECTION

## INSULATOR COVER - SINGLE PIN OR POST INSULATOR



PLP's insulator covers are rated 42kV for di-electric strength and are designed to provide additional insulation for medium voltage covered conductor distribution lines.

For overhead covered conductor systems, PLP's insulator covers are ideal for restoring electrical insulation to an area where a covered conductor has been attached to an insulator. At this location, PLP insulator covers may be required because the cable insulation has been removed to attach it to an insulator with aluminium or steel tie wire.

PLP's insulator covers are also ideal for covering an area of damaged or repaired covered conductor insulation. If the insulation has been damaged by a flashover at the insulator, the repair will generally consist of an insulation tape system to repair the damaged area of conductor, then re-attaching it to the insulator with a Semi-Conductive Plastic Line Tie/Top Tie. Application of the insulator cover over the insulation tape and line tie provides added security that the fault will not re-occur and that water will not be able to penetrate the cable.

Manufactured from linear low density polyethylene (LLDPE) and supplied with four (4) round eye lock pins, PLP insulator covers are a one piece design, lightweight and easily installed by hand or by hotstick. Suitable for installation over standard ANSI F, J and K neck pin and post insulators with line angles of up to 10°, PLP insulator covers are a high quality and cost-effective solution. PLP insulator covers have excellent environmental stress crack resistance and are fully UV stabilised.

Contact PLP for detailed installation instructions.

# LINE PROTECTION

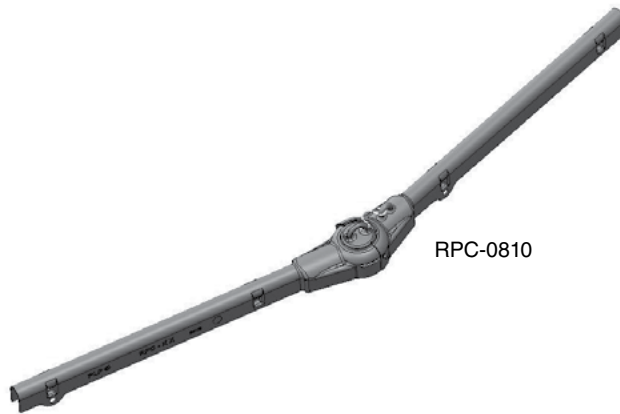
## INSULATOR COVER - SINGLE PIN OR POST INSULATOR

PLP Catalogue Number	Description	Approximate Overall Length (mm)	Maximum Line Angle	Colour
RPC-0800*	Insulator Cover - Tangent	2,030	10°	Black
RPC-0801*	Insulator Cover - Tangent	2,030	10°	Grey
RPC-0810*	Insulator Cover – Heavy Angle	2,030	30°	Black
RPC-0811*	Insulator Cover – Heavy Angle	2,030	30°	Grey
RPP-0840	Round Eye Lock Pin	N/A	N/A	Black

**Note:** \* 4 round eye lock pins included with each insulator cover



RPC-0801



RPC-0810

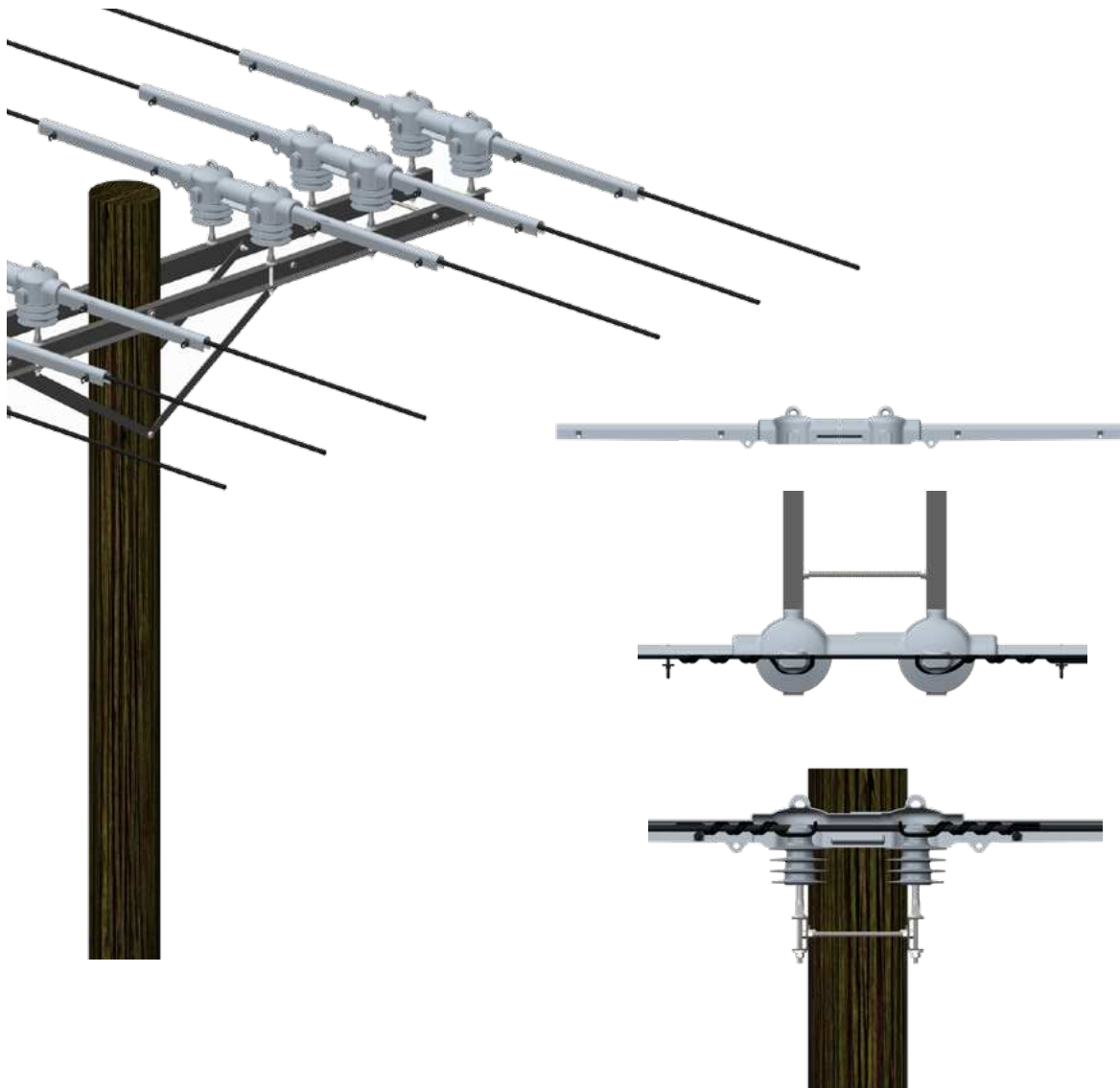


Cross-section of PLP RPC-0801 insulator cover applied over repaired covered conductor, Semi-Conductive Line Tie/Top Tie and IP-35-F1 Polymeric Insulator



# LINE PROTECTION

## INSULATOR COVER - DOUBLE PIN OR POST INSULATOR



PLP's insulator covers are rated 42kV for their di-electric strength and are designed to provide additional insulation for medium voltage covered conductor distribution lines.

At double insulator and crossarm construction (as illustrated) PLP insulator covers can accommodate insulator distances of 150mm to 545mm. PLP has cleverly designed the insulator covers so that at double crossarm structures, two single insulator covers can simply be joined together. No special components are required.

For overhead covered conductor systems, PLP's insulator covers are ideal for restoring electrical insulation to an area where a covered conductor has been attached to an insulator. At this location, PLP insulator covers may be required because the cable insulation has been removed to attach it to an insulator with aluminium or steel tie wire.

PLP's insulator covers are also ideal for covering an area of damaged or repaired covered conductor insulation. If the insulation has been damaged by a flashover at the insulator, the repair will generally consist of an insulation tape system to repair the damaged area of conductor, then re-attaching it to the insulator with a Semi-Conductive Plastic Line Tie/Top Tie. Application of the insulator cover over the insulation tape and line tie provides added security that the fault will not re-occur and that water will not be able to penetrate the cable.

Manufactured from linear low density polyethylene (LLDPE) and supplied with four (4) round eye lock pins, PLP insulator covers are a one piece design, lightweight and easily installed by hand or by hotstick. Suitable for installation over standard ANSI F, J and K neck pin and post insulators with line angles of up to 10°, PLP insulator covers are a high quality and cost-effective solution. PLP insulator covers have excellent environmental stress crack resistance and are fully UV stabilised.

Contact PLP for detailed installation instructions.

## LINE PROTECTION

### INSULATOR COVER - DOUBLE PIN OR POST INSULATOR

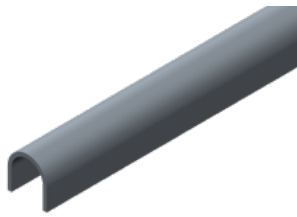
PLP Catalogue Number	Description	Approximate Overall Length (mm)	Maximum Line Angle	Colour
RPC-0800*	Insulator Cover - Tangent	2,030	10°	Black
RPC-0801*	Insulator Cover - Tangent	2,030	10°	Grey
RPC-0810*	Insulator Cover – Heavy Angle	2,030	30°	Black
RPC-0811*	Insulator Cover – Heavy Angle	2,030	30°	Grey
RPP-0840	Round Eye Lock Pin	N/A	N/A	Black

**Note:** \* 4 round eye lock pins included with each insulator cover



# LINE PROTECTION

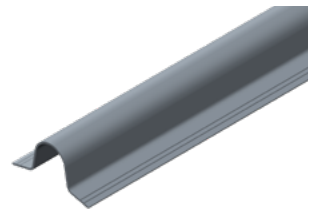
## PREFORMED™ KOVER GUARD



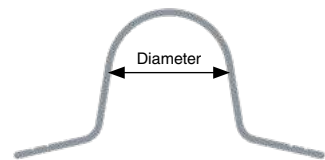
U Shaped



Circular Fully Enclosed



Flared



PREFORMED™ Kover Guards are available for all types of cable including earthwire and fibre optic cable, and offer protection from both impact and accidental damage. Kover Guards have been designed as a better alternative to the steel or wooden earthwire cover strips, having the advantages of high strength, light weight and long term durability.

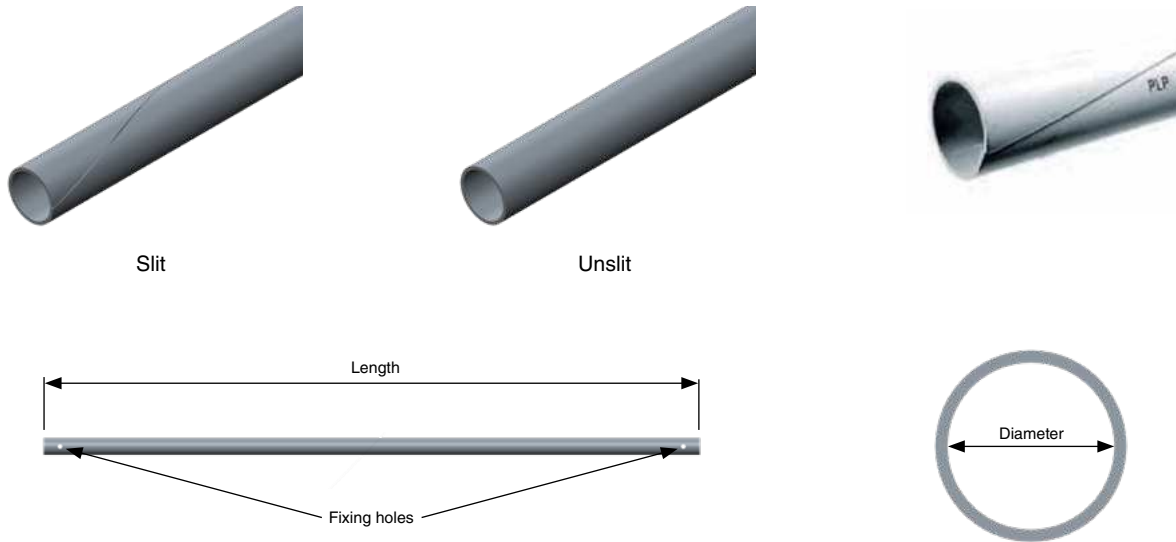
Kover Guards are manufactured from UV stabilised and impact resistant material that is corrosion, rot and termite proof. A fire-retardant option is available (PKGFR Type). Three profile designs are available: U Shaped, Circular Fully Enclosed or Flared.

PLP Catalogue Number	Internal Diameter (mm)	Length (m)	Material Colour	Standard Pack Quantity
PKG-019-1.2-G	19	1.2	Grey	20
PKG-019-2.8-G	19	2.8	Grey	20
PKGFR-020-2.7	20	2.7	Black	20
PKGFR-025-2.7	25	2.7	Black	20
PKGFL-020-2.0-B	20	2.0	Black	20
PKGFL-020-2.0-G	20	2.0	Grey	20
PKGFL-020-3.0-G	20	3.0	Grey	20
PKGFL-050-2.0-G	50	2.0	Grey	20
PKGFL-050-3.0-G	50	3.0	Grey	20
PKGFL-075-3.0-G	75	3.0	Grey	20



# LINE PROTECTION

## PREFORMED™ GUY/STAY GUARD



PLP's Stay Guards are designed to identify and protect guy wires and stay wires. Stay Guards clearly identify stays in residential, industrial and rural situations, safeguarding against accidental collision.

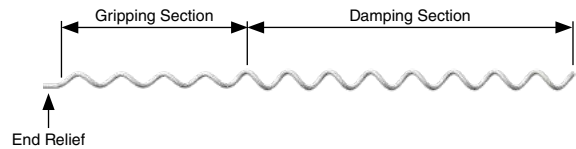
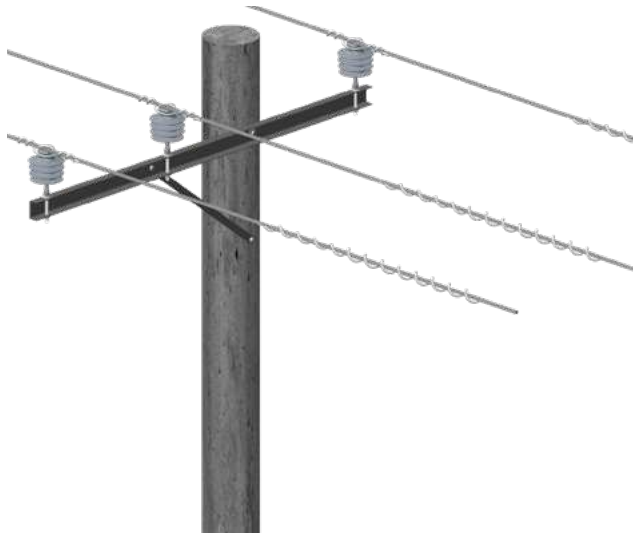
The specially formulated material used to manufacture the Stay Guards makes them resilient, able to withstand blows without shattering or cracking, even in sub-zero temperatures, lightweight, compact, corrosion-resistant and self-extinguishing.

PLP Catalogue Number	Internal Diameter (mm)	Length (m)	Standard Pack Quantity
PSG-025-2U	22	2.0	50
PSG-025-2U-FH	22	2.0	50
PSG-025-2S-FH	22	2.0	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	2.0	32
PSG-030-2U-FH	28	2.0	32
PSG-030-2S-FH	28	2.0	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	2.0	25
PSG-036-2U-FH	32	2.0	25
PSG-036-2S-FH	32	2.0	25

**Note:** FH = Fixing Holes  
S = Slit  
U = Unslit

# LINE PROTECTION

## SPIRAL VIBRATION DAMPER



PLP's Spiral Vibration Dampers are designed to reduce AAC, AAAC, ACSR, copper, SC/AC and SC/GZ conductor vibration at support and deadend positions.

The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension and exposure to the wind flow.

Made from high impact and UV resistant polyvinyl chloride (PVC), Spiral Vibration Dampers are non-corrosive and do not abrade the conductor or require engineering calculations for positioning.

PLP Catalogue Number	Outer Diameter Range (mm)		Standard Pack Quantity	Colour Code
	Minimum	Maximum		
SVD0441	4.4	6.3	25	Red
SVD0635	6.4	8.3	25	Blue
SVD0830 (PLP 0104)	8.3	11.7	25	Black
SVD1173 (PLP 0105)	11.7	14.3	25	Yellow
SVD1432	14.3	19.3	8	Green

### Spiral Vibration Damper Replacement Guide

SVDs may be subsetted together in sets of up to three pieces. Do not place more than three SVDs 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. SVDs are designed to be placed directly onto the conductor or shield wire and not onto rods or attachment hardware. As a general recommendation, place SVDs on the bare conductor or shield wire approximately one hand's width away from suspension rods, deadend rods, ties, etc.

Please consult PLP for recommendations when you have:

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

Span Length (m)	Standard SVD Quantities
0 - 244	2
245 - 489	4
490 - 729	6
730 - 974	8
975 - 1,220	10

# LINE PROTECTION

## BIRD-FLIGHT™ DIVERTERS

BIRD-FLIGHT™ Diverters are designed to make overhead lines visible to birds and provide an economic means of reducing bird flight hazards. The fitting is lightweight, 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™ Diverters remain 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.

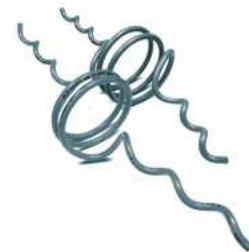


### BIRD-FLIGHT™ Diverters

For all AAC, AAAC, ACSR, Copper, SC/AC and SC/GZ Conductors

PLP Catalogue Number	Conductor Diameter Range (mm)		Standard Pack Quantity	Colour Code
	Minimum	Maximum		
BD0441-#	4.4	6.3	50	Red
BD0635-#	6.4	8.3	50	Blue
BD0830-#	8.3	11.7	50	Black
BD1173-#	11.7	14.3	50	Yellow
BD1432-#	14.3	19.3	50	Green

**Note:** # = W for White or G for Grey



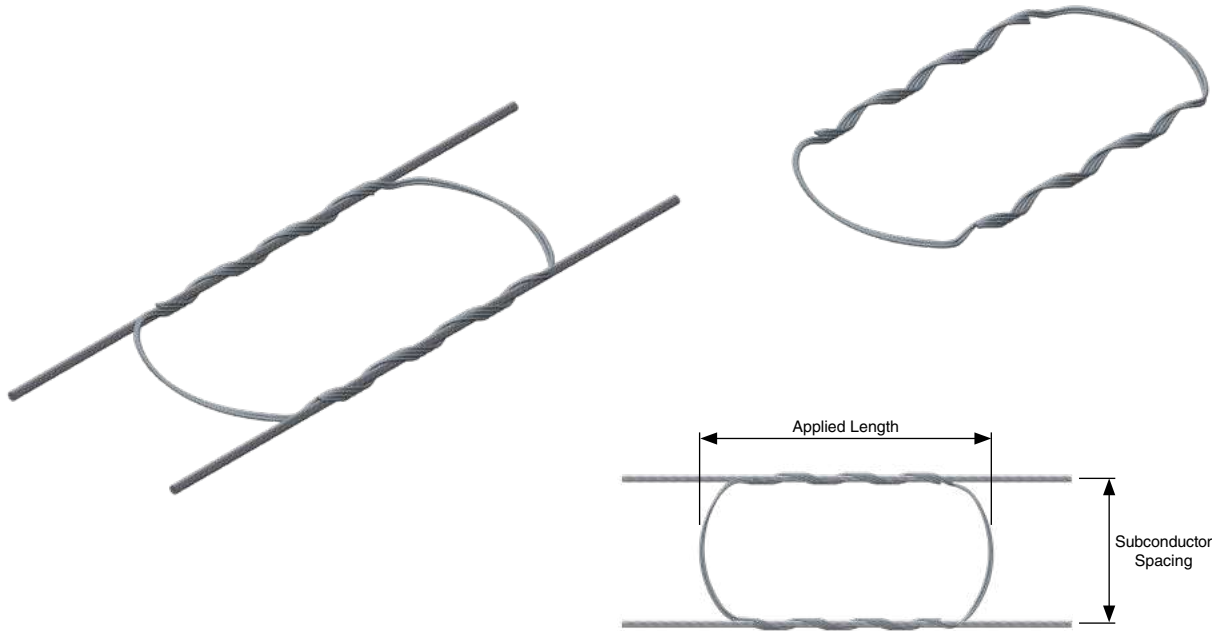
### Spiral BIRD-FLIGHT™ Diverters

PLP Catalogue Number	Conductor Diameter Range (mm)		Overall Length (mm)
	Minimum	Maximum	
SBFDS118143-#	11.8	14.3	725

**Note:** # = W for White or G for Grey

# LINE PROTECTION

## PREFORMED ROD SPACER



PLP's Preformed Rod Spacers are intended for use on horizontal, twin conductor bundles to provide uniform subconductor spacing. This ensures consistent electrical characteristics and minimises wind induced motions such as subconductor oscillation and aeolian vibration so that no conductor damage results.

The standard Preformed Rod Spacer for aluminium based conductors is constructed entirely of high strength aluminium alloy wire formed into Preformed rods. There are no loose parts or troublesome articulated joints to create radio noise through looseness. To avoid galvanic corrosion, spacer rod material is always designed to be compatible with the conductor. Materials other than aluminium are available for special application to copper based conductor and galvanised steel wire.

The spacer is applied easily and uniformly without tools and can be installed with hot line tools. It is a simple matter to inspect for proper application from the ground since there are no bolts that need special torquing during installation.

The normal distance between Preformed Rod Spacers should not exceed 75m. However, in some geographical areas exposed to constant high winds and heavy ice accumulation, experience suggests that the spacing should be shortened in order to stabilise the conductor bundle. Results of laboratory and field experiments indicate that one of the most effective methods to reduce subconductor oscillation and increase bundle stability is by reducing subspan lengths and placing spacers in a non-symmetrical pattern. Asymmetric spacing detunes the entire spacer-conductor system and thereby reduces the incidence of sympathetic vibration between subspans.

The Preformed Rod Spacer is designed to meet fault current requirements developed in most EHV line design. For special situations, the fault current capacity of the standard 4-rod Preformed spacer can be increased by adding additional rods and/or increasing rod diameter. Complete fault current testing and analysis has been completed for the Preformed Rod Spacer and is published in AIEE paper DP 58-779, and IEEE paper 63-88.

## LINE PROTECTION

### PREFORMED ROD SPACER

PLP Catalogue Number	Outer Diameter Range (mm)		Approximate Applied Length (mm)	Rods per Set	Approximate Weight (kg)	Colour Code
	Minimum	Maximum				
HPS xxx 2032	20.32	21.21	890	4	0.9	Purple
HPS xxx 2123	21.23	22.05	890	4	0.9	Blue
HPS xxx 2207	22.07	23.11	890	4	0.9	Yellow
HPS xxx 2314	23.14	24.13	1,120	4	0.9	White
HPS xxx 2416	24.16	25.25	1,120	4	0.9	Orange
HPS xxx 2527	25.27	26.37	1,145	4	0.9	Red
HPS xxx 2639	26.39	27.64	1,145	4	0.9	Green
HPS xxx 2766	27.66	28.96	1,145	4	1.6	Orange
HPS xxx 2898	28.98	30.38	1,170	4	1.6	Red
HPS xxx 3040	30.40	31.75	1,170	4	1.6	Black
HPS xxx 3178	31.78	33.15	1,170	4	1.6	White
HPS xxx 3317	33.17	34.67	1,220	4	1.8	Yellow
HPS xxx 3470	34.70	36.20	1,220	4	1.8	Brown
HPS xxx 3622	36.22	37.90	1,245	4	1.8	Blue
HPS xxx 3792	37.92	39.67	1,245	4	1.8	Green
HPS xxx 3970	39.70	41.12	1,270	4	2.0	Orange
HPS xxx 4115	41.15	42.62	1,270	4	2.0	Brown
HPS xxx 4265	42.65	43.97	1,270	4	2.0	Purple
HPS xxx 4399	43.99	45.59	1,270	4	2.0	Red
HPS xxx 4562	45.62	47.12	1,270	4	2.0	Brown
HPS xxx 4714	47.14	48.84	1,270	4	2.0	Blue
<b>Preformed Rod Spacer for PEA and MEA</b>						
PS2555*	25.39	25.91	1,143	4	1.2	Green

**Note:** xxx = conductor spacing (mm)

\* For 200mm conductor spacing



# REPAIR PRODUCTS

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# REPAIR PRODUCTS

## REPAIR RODS

PREFORMED™ Aluminium Repair Rods are designed to repair mid-span damage to aluminium based conductors in a quick and efficient manner. They are ideal for emergency and breakdown situations, as well as for repair of mid-span damage in some instances where the outer stranding of the conductor does not exceed 50% damage for 7 and 19 strand conductors or 25% damage for 37 and 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.



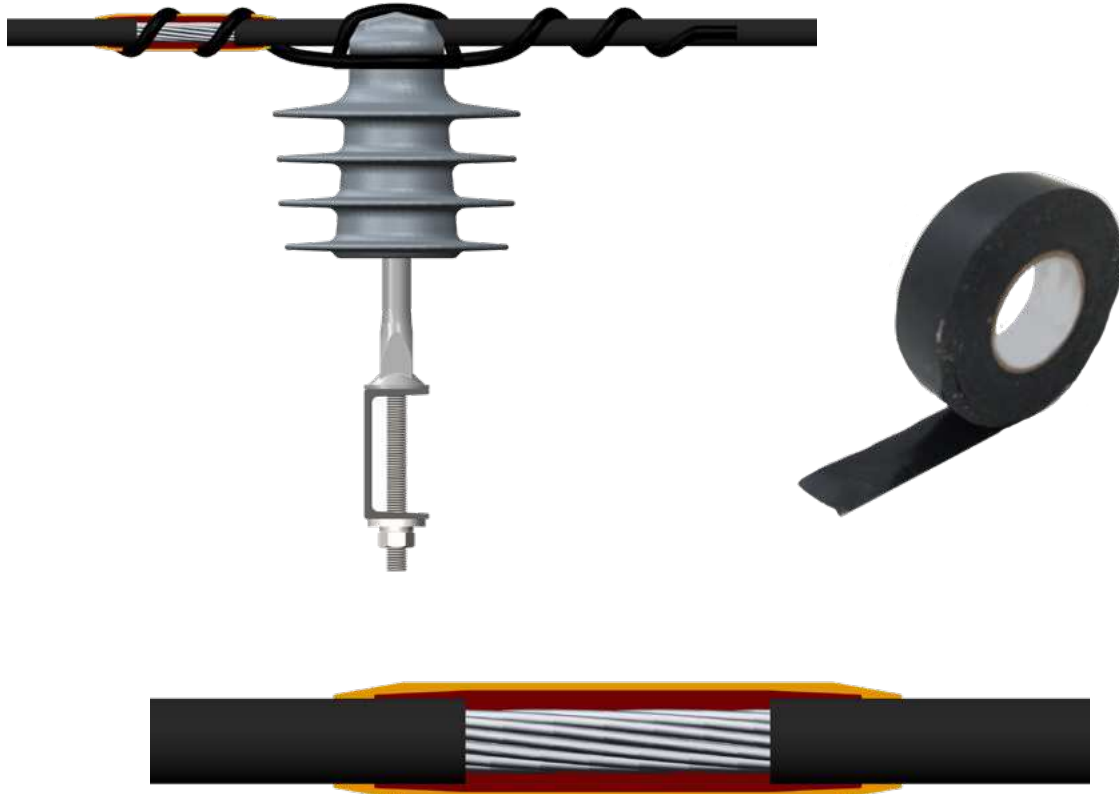
### For AAC, AAAC and ACSR Conductors

PLP Catalogue Number	Conductor Diameter Range (mm)		Approximate Applied Length (mm)	Standard Pack Quantity	Colour Code
	Minimum	Maximum			
ARR1350	13.05	13.79	1,040	25	Green
ARR1430	14.10	14.55	1,120	25	Blue
ARR1625	15.66	16.88	1,370	20	White
ARR1750	17.10	17.54	1,370	20	Blue
ARR1880	18.82	19.86	1,370	20	Blue
ARR2100	20.95	21.49	1,625	10	Red
ARR2450	24.45	25.04	1,725	10	Purple
ARR2625	26.00	26.44	2,080	5	Black
ARR2700	26.45	27.28	2,080	5	Red
ARR2790	27.91	28.93	2,080	5	Orange
ARR2930	29.30	29.89	2,080	5	Orange
ARR3150	31.15	31.99	2,235	4	Purple
ARR3375	33.40	34.44	2,235	3	Black



## REPAIR PRODUCTS

### INSULATION TAPE SYSTEM FOR COVERED CONDUCTORS



Compressed, bolted or insulation piercing connectors are installed to splice together or tap off mainline covered conductors. After installation, the connectors must be electrically insulated to maintain the insulation integrity of the covered conductor system. Maintaining the integrity insulation will maintain the reliability of the systems and prevent water from entering the covered conductor. If water is allowed to penetrate the covered conductor, the conductor will likely fail prematurely from either tracking or corrosion damage under the jacket.

Insulation systems may also be required to repair the sheath of covered conductors that are damaged as a result of arcing. Damage to covered conductors can occur if they are directly attached to porcelain insulators with bare or covered steel or aluminium tie wire. Typical damage to covered conductors is illustrated in the photos below.

PLP provides insulation tape systems to insulate and/or repair overhead covered conductor cables. If a repair is made to a covered conductor located close to an insulator, the system supplied by PLP will rebuild the cable jacket to insulate it and prevent water ingress. A Semi-Conductive Top Tie or Angle Side Tie can be installed over the top of the repair so that the problem does not re-occur.

The diagrams below generally illustrate the manner in which PLP's insulation tape systems should be applied. Insulation tape systems can consist two (2) layers or three (3) layers with or without a semi-conductive layer depending on the design of the covered conductor cable. Consult PLP for detailed installation instructions.

# REPAIR PRODUCTS

## INSULATION TAPE SYSTEM FOR COVERED CONDUCTORS

PLP Catalogue Number	Description	Application
FTP-TAPE*	Filler Tape/Electrical Insulation Putty (Colour - Black)	Applied directly over the aluminium conductor and connector as well as between the cable jacket and connector. Putty like electrical grade compound.
SCT-TAPE*	Semi-Conductive Tape (Colour - Black)	Soft, black rubber semi-conducting highly conformable high voltage splicing tape. Low resistivity retaining conductivity with stretch. Resistant to UV and moisture, and applicable over a wide temperature range.
SPT-TAPE*	Splicing Tape (Colour - Black)	Self-fusing EPR high voltage splicing tape. Non vulcanising with excellent electrical properties compatible with all solid dielectric cable insulation.
PVC-TAPE*	PVC Tape (Colour - Black)	Heavy duty vinyl insulating tape with excellent resistance to abrasion, moisture, corrosion and varying weather conditions. Provides moisture tight electrical and mechanical protection with minimum bulk.

**Note:** \* Specify tape width in millimeters (mm) as a suffix to the catalogue number (eg. SCT-TAPE-19mm)



COVEREDLIGN™ type overhead cable with damaged insulation owing to tracking between conductor and tie wire

# REPAIR PRODUCTS

## INSULATION TAPE SYSTEM FOR COVERED CONDUCTORS

### Two Layer Insulation Tape System



- Layer 1 - Filler Tape/Electrical Insulation Putty
- Layer 2 - Heavy Duty PVC Insulating Tape

### Three Layer Insulation Tape System



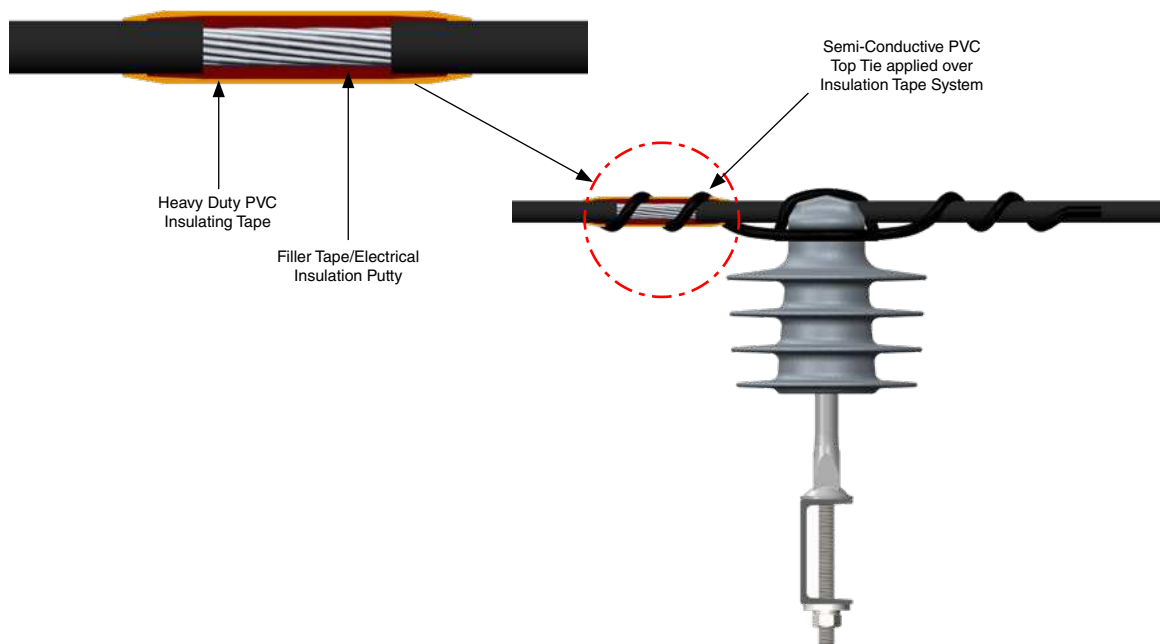
- Layer 1 - Filler Tape/Electrical Insulation Putty
- Layer 2 - Splicing Tape
- Layer 3 - Heavy Duty PVC Insulating Tape

### Four Layer Insulation Tape System



- Layer 1 - Filler Tape/Electrical Insulation Putty
- Layer 2 - Semi-Conductive Tape
- Layer 3 - Splicing Tape
- Layer 4 - Heavy Duty PVC Insulating Tape

### Repair of Cable with Damaged Insulation Owing to Tracking Between Conductor and Tie Wire



## REPAIR PRODUCTS

### CABLE STRIPPING TOOL FOR COVERED CONDUCTORS



PLP's IBST cable stripping tool is designed to remove insulation from overhead covered conductors.

Used by linesmen with the line de-energised or when working with live lines and gloved hands, the IBST cable stripping tool will easily and quickly remove cable insulation from the end of a cable or in the middle of an overhead or underground cable.

Featuring a long life blade, the IBST cable stripper is a high quality linesman's tool. In the event of damage to the tool, replacement blades are readily available from PLP.

PLP Catalogue Number	IBST
Cable Outer Diameter Range Application	12-32mm
Maximum Insulation Thickness For Stripping	5.5mm

## SECTION 14 - EARTHING/GROUNDING



### **PREFORMED** LINE PRODUCTS

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# EARTHING/GROUNDING

## EARTH RODS

### Earth Rod (Tapered)

Copper Clad (Sheathed)

PLP's Tapered Earth Rods feature tapers at both ends and are joined by a one piece tapered coupling which locks upon driving. These rods can be driven by hand or machine.



PLP Catalogue Number	Outer Diameter (mm)	Length (mm)
ER13-1200	13	1,200
ER13-1440	13	1,440
ER13-1800	13	1,800
ER15-1200	15	1,200
ER15-1440	15	1,440
ER15-1800	15	1,800

### Earth Rod (Flushed Coupled)

Copper Clad (Sheathed)

Flush Coupled Earth Rods are deep driving with identical swaged ends to take driving points and coupling pins. These rods can be driven by hand or machine.



PLP Catalogue Number	Outer Diameter (mm)	Length (mm)
ER13D-1200	13	1,200
ER13D-1440	13	1,440
ER13D-1800	13	1,800
ER15D-1200	15	1,200
ER15D-1440	15	1,440
ER15D-1800	15	1,800
ER15D-2500	15	2,500

### Earth Rod (Domestic)

Copper Clad (Sheathed)

Domestic Earth Rods are non-extendable. Each rod incorporates an integral driving point which is machined to preserve the strength and rigidity of cold drawn steel.



PLP Catalogue Number	Outer Diameter (mm)	Length (mm)
ER13D-1200	13	1,200
ER13D-1440	13	1,440
ER13D-1800	13	1,800
ER15D-1200	15	1,200
ER15D-1440	15	1,440
ER15D-1800	15	1,800
ER15D-2500	15	2,500

# EARTHING/GROUNDING

## EARTH ROD ACCESSORIES

### Earth Rod (Tapered Accessories)

PLP Catalogue Number	Description
ER13-C	13mm tapered coupler
ER15-C	15mm tapered coupler
ER13-D	13mm driving head
ER15-D	15mm driving head
ER13-P	13mm driving point
ER15-P	15mm driving point
ER13-PH	13mm driving point hard
ER15-PH	15mm driving point hard
ER13-PWC	13mm push on wire clip
ER15-PWC	15mm push on wire clip
ER13-BWC	13mm bolted wire clamp
ER15-BWC	15mm bolted wire clamp



### Earth Rod (Flushed Coupled Accessories)

PLP Catalogue Number	Description
ER13F-C	13mm flush coupler
ER15F-C	15mm flush coupler
ER13F-D	13mm driving head
ER15F-D	15mm driving head
ER13F-P	13mm driving point
ER15F-P	15mm driving point
ER13F-P	Driving pin for 13mm and 15mm rod
ER13-BWC	13mm bolted wire clamp
ER15-BWC	15mm bolted wire clamp



### Earth Rod (Domestic Accessories)

PLP Catalogue Number	Description
ER13D-C	13mm domestic coupler
ER15D-C	15mm domestic coupler
ER13-D	13mm driving head
ER15-D	15mm driving head
ER13-P	13mm driving point
ER15-P	15mm driving point
ER13-PH	13mm driving point hard
ER15-PH	15mm driving point hard
ER13-BWC	13mm bolted wire clamp
ER15-BWC	15mm bolted wire clamp









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**PREFORMED** LINE PRODUCTS

The connection you can count on.