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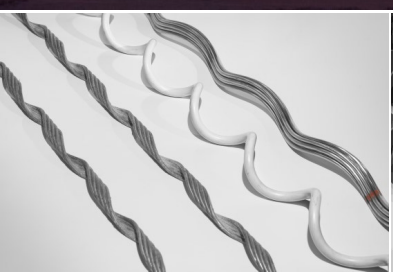
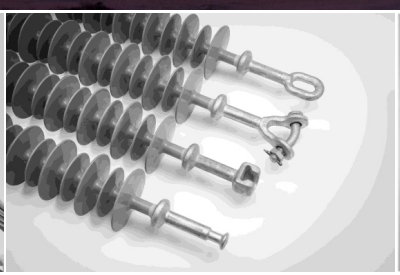
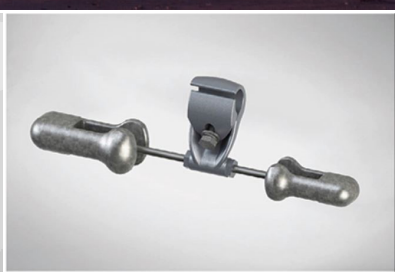






Powerful Solutions for
Distribution - Substation - Transmission
Proudly Distributed by TEN Group

Nov 2020

About MacLean Power Systems

MacLean POWER SYSTEMS are a manufacturer of quality Electricity Transmission and Distribution products. MacLean has manufacturing plants in USA, China and Thailand. MacLean power products are distributed in Australia and the Pacific Islands exclusively through The Energy Network (TEN). TEN has a national footprint with Head Office in Brisbane, and branches in Central Coast NSW, Melbourne and Perth.

The MPS range covers all common line material products for the Electricity Transmission and Distribution market. These products include Polymer, Glass and Porcelain Insulators, overhead line hardware and insulator fittings, helical fittings (armour rods, splices, deadends and ties), compression fittings (dead ends and splices), strain and suspension clamps, line spacers, Fabricated fittings, ABC fittings, automatic connectors, PG Clamps, Screw anchors and stay rods, and a market leading range of vibration dampers, both spiral and stockbridge types. In addition, there is a range of tooling products including scratch brushes, height meters and installation tools.

The MacLean Power range is well supported by TEN with a team of engineering, quality assurance and sales personnel with collective experience totaling more than 150 years in the line materials market. TEN's technical expertise is complemented by MacLean Power's own in house application engineers and product managers, many considered world leading subject matter experts in their fields.

For any line material inquiry for the Australian or Pacific Island markets, please contact TEN on +61 7 3212 8999, email us at sales@tengroup.com.au or find us on the web at www.tengroup.com.au

HELIXON® FITTINGS SECTION A

HELIXON® DEADENDS

For AAC and AAAC - Type DE-A

Material
"DE-A" type Deadends are manufactured using high strength, corrosion resistant aluminium alloy wire. Aluminium Deadends may be used in all environments. All aluminium Deadends are Cable Looped.

Rated Holding Strength
Aluminium Deadends are designed to hold the full rated strength of Aluminium (AAC) or Aluminium alloy (AAAC) conductors.

Tapping
Current taps should not be attached over a Deadend. Current taps should be made directly on the conductor on either side of the Deadend.

Catalogue Number	Conductors	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-A 05.25	7/1.75	5.25	50	Purple
DE-A 06.75	7/2.25	6.75	50	Brown
DE-A 07.50	7/2.50	7.50	50	Blue
DE-A 09.00	7/3.00	9.00	50	Red
DE-A 10.15	7/3.40 7/3.50	10.2 10.5	50	Purple
DE-A 11.25	7/3.75	11.25	25	Black
DE-A 13.50	7/4.50	13.50	20	Green
DE-A 14.30	7/4.75	14.30	20	Blue
DE-A 16.25	19/3.25	16.25	15	Orange
DE-A 17.50	19/3.50	17.50	10	Blue
DE-A 18.75	19/3.75	18.75	10	Black
DE-A 21.00	37/3.00	21.00	10	Red
DE-A 23.75	19/4.75	23.75	10	Blue
DE-A 26.25	37/3.75	26.25	5	Black
DE-A 29.30	61/3.25	29.30	5	Orange

HELIXON® DEADENDS

For SC/GZ - Type DE-S

Material
"DE-S" type Deadends are manufactured using high strength galvanized steel wire. Steel Deadends may be used in all environments for which SC/GZ conductors or guy wire may be used.

Rated Holding Strength
Steel Deadends are designed to hold the rated strength of SC/GZ galvanized steel conductors and guy wires.

Tapping
Current taps should not be attached over a deadend. Current taps should be made directly on the conductor on either side of the deadend.

Catalogue Number	Conductors SC/GZ	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-S 04.31	3/2.00	4.31	50	Yellow
DE-S 04.80	7/1.60	4.80	50	Black
DE-S 05.50	3/12 3/2.75	5.70 5.93	50	White
DE-S 06.00	7/2.00	6.00	50	Yellow
DE-S 08.25	7/2.75	8.25	20	White
DE-S 09.75	7/3.25 19/2.00	9.75 10.00	15	Orange Yellow
DE-S 11.25	7/3.75	11.25	20	Black
DE-S 12.00	7/4.00	12.00	15	Black
DE-S 13.75	19/2.75	13.75	10	White
DE-S 16.25	19/3.25	16.25	5	Orange

DE-S 0825, DE-S 0975 and DE-S 1375 are suitable for use with either a standard thimble, or with GY3 and GY4 insulators.

HELIXON® DEADENDS

For SC/AC - Type DE-AC

Material
"DE-AC" type Deadends are manufactured using high strength aluminium clad steel wire. Aluminium clad steel deadends may be used in all environments for which SC/AC conductor is used.

Rated Holding Strength
Aluminium clad steel Deadends are designed to hold the rated strength of SC/AC conductors.

Tapping
Current taps should not be attached over a deadend. Current taps should be made directly on the conductor on either side of the deadend.

Catalogue Number	Conductors SC/AC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-AC 05.93L	3/2.75	5.93	50	White
DE-AC 07.50L	7/2.50	7.50	50	Blue
DE-AC 08.25L	7/2.75	8.25	50	White
DE-AC 09.75L	7/3.25	9.75	50	Orange
DE-AC 11.30L	7/3.75	11.25	20	Black
DE-AC 12.75L	7/4.25	12.75	20	Brown
DE-AC 13.75L	19/2.75	13.75	10	White

Note:
L = Left Hand Lay

HELIXON® DEADENDS

For HDC - Type DE-CC

Material
"DE-CC" type Deadends are manufactured using high strength copper clad steel wire. Copper Deadends may be used in all environments for which HDC is used.

Rated Holding Strength
Copper clad steel Deadends are designed to hold the full strength of the HDC conductor.

Tapping
Current taps should not be attached over a Deadend. Current taps should be made directly on the conductor on either side of the Deadend.

Catalogue Number	Conductors HDC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-CC 03.75	7/1.25	3.75	50	Green
DE-CC 05.10	7/0.064" 7/1.70	4.88 5.10	50	Orange
DE-CC 05.25	7/1.75	5.25	50	Purple
DE-CC 06.00	7/2.00	6.00	50	Yellow
DE-CC 08.25	7/2.75	8.25	25	White
DE-CC 09.00	7/3.00	9.00	25	Red
DE-CC 10.00	19/2.00	10.00	25	Yellow
DE-CC 10.50	7/3.50	10.50	25	Green
DE-CC 12.75	19/2.50 19/2.57 37/1.83	12.50 12.85 12.81	15	Blue/ Purple
DE-CC 13.75	19/2.75	13.75	10	White
DE-CC 15.00	19/3.00	15.00	10	Red
DE-CC 17.50	37/2.50	17.50	5	Blue
DE-CC 18.30	37/2.62	18.30	5	Orange
DE-CC 19.25	37/2.75	19.25	5	White
DE-CC 21.00	37/3.00	21.00	5	Red
DE-CC 24.75	61/2.75	24.75	5	White

HELIXON® DEADENDS

For ACSR - Type DE-FT (Full Tension)

Material

"DE-FT" type Deadends are a multi-piece fitting manufactured using high strength galvanized steel wire for the "inner" fitting and high strength, corrosion resistant aluminium alloy wire for the "outer" fitting. The multi-piece Deadends may be used in all environments for which ACSR conductor is used.

Rated Holding Strength

"DE-FT" type Deadends are designed to hold the rated strength of ACSR conductors.

Tapping

Current taps should not be attached over a deadend. Current taps should be made directly on the con-

Catalogue Number	Conductors ACSR	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-FT 05.92	Goldeye	5.92	50	Yellow
DE-FT 06.70	Flounder	6.70	50	Black
DE-FT 07.47	Greyling	7.47	50	Brown
DE-FT 08.40	Pickerel	8.40	50	White
DE-FT 08.80	Lamprey	8.80	50	White
DE-FT 09.00	6/1/3.00	9.00	25	Red
DE-FT 11.25	6/1/3.75	11.25	25	Black
DE-FT 14.30	6/4.75+7/1.60 6/4.72+7/1.57 6/1/4.77	14.2-14.3	15	Blue
DE-FT 17.50	30/7/2.50	17.5	10	Blue
DE-FT 21.00	30/7/3.00	21.0	5	Red

HELIXON® DEADENDS

For ACSR - Type DE-SP (Single Piece)

Material
"DE-SP" type Deadends are a single-piece fitting manufactured using high strength aluminium clad steel wire. The single-piece Deadends may be used in all environments for which ACSR conductor is used.

Rated Holding Strength
Please consult Maclean Power for the holding strength

Tapping
Current taps should not be attached over a deadend. Current taps should be made directly on the conductor on either side of the deadend.

Catalogue Number	Conductors ACSR	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
DE-SP 05.30	3/4/1.75	5.30	50	Purple
DE-SP 06.30	6/1/2.11	6.30	50	Yellow
DE-SP 07.50	6/1/7.50 3/4/2.50	7.50	25	Brown
DE-SP 09.00	6/1/3.00 4/3/3.00	9.00	20	White
DE-SP 10.10	6/1/3.37 3/4/3.37	10.10	15	Yellow
DE-SP 11.25	6/1/3.75 3/4/3.75	11.25	15	Black
DE-SP 14.30	6/4.75+7/1.60 6/4.72+7/1.57 6/1/4.77	14.0-14.4	10	Blue

HELIXON® DEADENDS

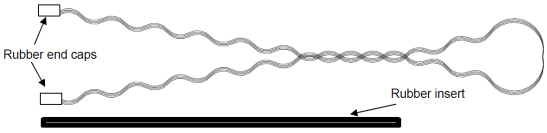
For Service Conductor - Type DE-DI

Material

"DE-DI" type Deadends are a double insulated fitting manufactured from neoprene dipped, high strength, galvanized steel wire supplied with a EPDM rubber sleeve. The double insulated Deadends may be used in all environments for which service conductor is used.

Rated Holding Strength

Please consult Maclean Power for the holding strength



Catalogue Number	Stranding & Type	Conductor Size (mm^2)	No. of Cores	Pack Size	AS1154 Colour Code
DE-DI14	7/1.04 T 7/1.35 T 7/1.70 T	6 10 16	2,3,4 2,3,4 2	25	Red
DE-DI16	7/1.70 NS 7/2.00 T 19/1.35 T	16 25 35	2 2 2	25	White
DE-DI19	7/1.04 NS 7/1.35 NS 7/1.70 NS 7/2.00 T	20 20 20 25	3, 4 3, 4 3, 4 3. 4	25	Blue

Note:
NS = Neutral Screened

For Covered Conductor - Type DE-CCT

Material

"DE-CCT" type Deadends are manufactured using high strength, corrosion resistant Aluminium alloy wire. Aluminium Deadends may be used in all environments. All CCT Deadends are Cable Looped.

Rated Holding Strength

Aluminium Deadends are designed to hold the rated strength of the Covered Conductors.

Catalogue Number	Covered Conductor	Conductor Diameter	Pack Size	AS1154 Colour Code
DE-CCT80-11	7/3.75 80mm^2 6.35/11kV	17.9-19.4	5	Red
DE-CCT120-11	7/4.75 120mm^2 6.35/11kV	20.9-22.4	5	Blue
DE-CCT180-11	19/3.50 180mm^2 6.35/11kV	24.1-25.7	5	Black

HELIXON® ARMOUR RODS

For AAC, AAAC & ACSR - Type AR-A

Material

"AR-A" type Armour Rods are manufactured using high strength corrosion resistant Aluminium alloy wire. Aluminium armour rods may be used in all environments.

Application

Armour rods are designed to help prevent damage to conductors caused by bending, high clamping stresses, abrasion at support points and damage caused by arcing. Armour rods are not vibration dampers but help to prevent vibration damage to conductors by increasing the stiffness of the conductor at the support point and by preventing abrasion to the strands of the conductor.
Armour rods can also be used to repair minor damage to the outer strands of the conductor. Please consult Maclean Power for specific information on damage repair.

Tapping

Taps may be applied over armour rods, but scratch brushing and greasing of the conductor is recommended if taps are to be applied.

Catalogue Number	Conductors		Conductor Diameter Range (mm)	Pack Size	AS1154 Colour Code
	AAC, AAAC	ACSR			
AR-A 05.25	7/1.75	3/4/1.75	5.25-5.60	50	Purple
AR-A 06.60	7/2.25	–	6.60-6.90	50	Brown
AR-A 07.50	7/2.50	6/1/2.50 3/4/2.50	7..30-7.70	50	Blue
AR-A 09.00	7/3.00	6/1/3.00 4/3/3.00	8.90-9.50	40	Red
AR-A 11.25	7/3.75	6/1/3.75 4/3/3.75	11.00-11.80	25	Black
AR-A 13.50	7/4.50	–	13.20-14.00	20	Green
AR-A 14.30	7/4.75	6/4.75+7/1.60	14.00-14.80	20	Blue
AR-A 16.25	19/3.25	–	16.00-16.80	15	Orange
AR-A 17.50	–	30/7/2.50	17.20-18.00	15	Blue
AR-A 18.75	19/3.75	–	18.50-19.30	10	Black
AR-A 21.00	37/3.00	30/7/3.00	20.70-22.00	5	Red
AR-A 23.75	19/4.75	–	23.40-24.30	5	Blue
AR-A 24.50	–	30/7/3.50	24.40-25.4	5	Purple
AR-A 26.25	37/3.75	–	26.30-27.00	3	Black
AR-A 27.00	–	54/7/3.00	27.00-27.90	3	Red
AR-A 29.30	61/3.25	54/7/3.25	29.30-30.70	3	Orange
AR-A 31.50	61/3.50	54/7/3.50	30.70-32.20	2	Purple
AR-A 33.75	61/3.75	54/3.75+19/2.25	33.80-35.30	2	Black

HELIXON® ARMOUR RODS

For SC/GZ - Type AR-S

Material

"AR-S" type Armour Rods are manufactured using high strength, galvanized steel wire. Steel Armour Rods may be used in all environments that galvanized steel conductors and guy wires are used..

Application

Armour Rods are designed to help prevent damage to conductors caused by bending, high clamping stresses, abrasion at support points and damage caused by arcing. Armour rods are not vibration dampers but help to prevent vibration damage to conductors by increasing the stiffness of the conductor at the support point and by preventing abrasion to the strands of the conductor.

Tapping

Taps may be applied over armour rods, but scratch brushing and greasing of the conductor is recommended if taps are to be applied.

Catalogue Number	Conductors SC/GZ	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
AR-S 04.31	3/2.00	4.31	100	Yellow
AR-S 04.80	7/1.60	4.80	100	Black
AR-S 06.00	3/2.75 7/2.00	5.93 6.00	50	White Yellow
AR-S 08.25	7/2.75	8.25	30	White
AR-S 09.75	7/3.25 19/2.00	9.75 10.00	25	Orange Yellow
AR-S 11.25	7/3.75	11.25	20	Black
AR-S 12.00	7/4.00	12.00	15	Black
AR-S 13.75	19/2.75	13.75	10	White
AR-S 16.25	19/3.25	16.25	5	Orange

HELIXON® ARMOUR RODS

For SC/AC - Type AR-AC

Material
"AR-AC" type Armour Rods are manufactured using high strength aluminium clad steel wire. Aluminium clad steel Armour Rods may be used in all environments for which SC/AC conductor is used.

Application
Armour Rods are designed to help prevent damage to conductors caused by bending, high clamping stresses, abrasion at support points and damage caused by arcing. Armour rods are not vibration dampers but help to prevent vibration damage to conductors by increasing the stiffness of the conductor at the support point and by preventing abrasion to the strands of the conductor.

Tapping
Taps may be applied over armour rods, but scratch brushing and greasing of the conductor is recommended if taps are to be applied.

Catalogue Number	Conductors SC/AC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
AR-AC 06.00L	3/2.75	5.93	50	White
AR-AC 07.50L	7/2.50	7.50	25	Blue
AR-AC 08.25L	7/2.75	8.25	25	White
AR-AC 09.75L	7/3.25	9.75	25	Orange
AR-AC 11.30L	7/3.75	11.25	20	Black
AR-AC 12.75L	7/4.25	12.75	10	Brown
AR-AC 13.75L	19/2.75	13.75	10	White

Note:
L = Left Hand Lay

HELIXON® ARMOUR RODS

For HDC - Type AR-CC

Material

"AR-CC" type Armour Rods are manufactured using copper clad steel wire. Copper Armour Rods may be used in all environments for which HDC is used.

Application

Armour Rods are designed to help prevent damage to conductors caused by bending, high clamping stresses, abrasion at support points and damage caused by arcing. Armour rods are not vibration dampers but help to prevent vibration damage to conductors by increasing the stiffness of the conductor at the support point and by preventing abrasion to the strands of the conductor.
Armour rods can also be used to repair minor damage to the outer strands of the conductor. Please consult Maclean Power for specific information on damage repair.

Tapping

Taps may be applied over armour rods, but scratch brushing and greasing of the conductor is recommended if taps are to be applied.

Catalogue Number	Conductors HDC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
AR-CC 03.75	7/1.25	3.75	50	Green
AR-CC 04.80	7/0.064" 7/1.70	4.88 5.10	50	Orange
AR-CC 05.25	7/1.75	5.25	50	Purple
AR-CC 06.00	7/2.00	6.00	50	Yellow
AR-CC 08.25	7/2.75	8.25	25	White
AR-CC 09.00	7/3.00	9.00	25	Red
AR-CC 10.00	19/2.00	10.00	20	Yellow
AR-CC 10.50	7/3.50	10.50	20	Green
AR-CC 12.75	19/2.50 19/2.57 37/1.83	12.50 12.85 12.81	15	Blue/ Purple
AR-CC 13.75	19/2.75	13.75	10	White
AR-CC 15.00	19/3.00	15.00	10	Red
AR-CC 17.50	37/2.50	17.50	5	Blue
AR-CC 18.30	37/2.62	18.30	5	Orange
AR-CC 19.25	37/2.75	19.25	5	White
AR-CC 21.00	37/3.00	21.00	5	Red
AR-CC 24.75	61/2.75	24.75	5	White

HELIXON® LINE GUARDS

For AAC, AAAC and ACSR - Type LG-A

Material
Aluminium Line Guards are manufactured using high strength corrosion resistant aluminium alloy wire. Aluminium Line Guards may be used in all environments.

Application
Line Guards are designed to help reduce damage to conductors caused, by abrasion at support points and damage caused by arcing. Armour rods should generally be used in areas where vibration is likely. Line Guards can also be used to repair minor damage to the outer strands of the conductor. Please consult Maclean Power for specific information on damage repair.

Tapping
Taps may be applied over Line Guards, but scratch brushing and greasing of the conductor is recommended if taps are to be applied.

Catalogue Number	Conductors		Conductor Diameter Range (mm)	Pack Size	AS1154 Colour Code
	AAC AAAC	ACSR			
LG-A 05.25	7/1.75	3/4/1.75	5.25-5.60	50	Purple
LG-A 06.60	7/2.25	–	6.60-6.90	50	Brown
LG-A 07.50	7/2.50	6/1/2.50 3/4/2.50	7..30-7.70	50	Blue
LG-A 09.00	7/3.00	6/1/3.00 4/3/3.00	8.90-9.50	50	Red
LG-A 11.25	7/3.75	6/1/3.75 4/3/3.75	11.00-11.80	40	Black
LG-A 13.50	7/4.50	–	13.20-14.00	25	Green
LG-A 14.30	7/4.75	6/4.75+7/1.60	14.00-14.80	25	Blue
LG-A 16.25	19/3.25	–	16.00-16.80	25	Orange
LG-A 17.50	–	30/7/2.50	17.20-18.00	25	Blue
LG-A 18.75	19/3.75	–	18.50-19.30	25	Black
LG-A 21.00	37/3.00	30/7/3.00	20.70-22.00	10	Red
LG-A 23.75	19/4.75	–	23.40-24.30	10	Blue
LG-A 24.50	–	30/7/3.50	24.40-25.4	10	Purple
LG-A 26.25	37/3.75	–	26.30-27.00	10	Black
LG-A 27.00	–	54/7/3.00	27.00-27.90	10	Red
LG-A 29.30	61/3.25	54/7/3.25	29.30-30.70	5	Orange
LG-A 31.50	61/3.50	54/7/3.50	30.70-32.20	5	Purple
LG-A 33.75	61/3.75	54/3.75+19/2.25	33.80-35.30	3	Black

HELIXON® SPLICES

For AAC and AAAC - Type LS-A

Material

Type “LS-A” Splices are manufactured using high strength corrosion resistant aluminium alloy wire. Aluminium Splices may be used in all environments.

Rated Holding Strength

Aluminium Splices are designed to hold the full rated strength of Aluminium (AAC) or aluminium alloy (AAAC) conductors. Aluminium Splices are designed to carry the full load current of AAC and AAAC conductors. Scratch brushing and greasing of the conductor is recommended prior to the installation of Aluminium Splices.

Catalogue Number	Conductors AAC AAAC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-A 05.25	7/1.75	5.25	50	Purple
LS-A 06.75	7/2.25	6.75	50	Brown
LS-A 07.50	7/2.50	7.50	50	Blue
LS-A 09.00	7/3.00	9.00	40	Red
LS-A 10.20	7/3.40 7/3.50	10.20 10.50	30	Purple
LS-A 11.25	7/3.75	11.25	20	Black
LS-A 13.50	7/4.50	13.50	10	Green
LS-A 14.30	7/4.75	14.30	10	Blue
LS-A 16.25	19/3.25	16.25	10	Orange
LS-A 17.50	19/3.50 37/2.50	17.50	5	Blue
LS-A 18.50	19/3.75	18.75	5	Black
LS-A 21.00	37/3.00	21.00	5	Red
LS-A 23.75	19/4.75	23.75	5	Blue
LS-A 26.25	37/3.75	26.25	5	Black

HELIXON® SPLICES

For SC/GZ - Type LS-S

Material

"LS-S" type Splices are manufactured using high strength galvanized steel wire. Steel Splices may be used in all environments for which galvanized steel conductor or guy wire may be used.

Rated Holding Strength

Steel Splices are designed to hold the full rated strength of galvanized steel conductors or guy wires. Steel Splices are designed to carry the full load current of galvanized steel conductors.

Catalogue Number	Conductors SC/GZ	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-S 04.31	3/2.00	4.31	50	Yellow
LS-S 04.80	7/1.60	4.80	50	Black
LS-S 05.93	3/2.75	5.93	50	White
LS-S 06.00	7/2.00	6.00	40	Yellow
LS-S 07.50	7/2.50	7.50	30	Blue
LS-S 08.25	7/2.75	8.25	25	White
LS-S 09.75	7/3.25 19/2.00	9.75 10.00	20	Orange
LS-S 11.25	7/3.75	11.25	20	Black
LS-S 12.00	7/4.00	12.00	15	Black
LS-S 13.75	19/2.75	13.75	5	White
LS-S 16.25	19/3.25	16.25	3	Orange

HELIXON® SPLICES

For SC/AC - Type LS-AC

Material

"LS-AC" type Splices are manufactured using high strength aluminium clad steel wire. Aluminium clad steel Splices may be used in all environments for which SC/AC conductor is used.

Rated Holding Strength

Aluminium clad steel Splices are designed to hold the full rated strength of galvanized steel conductors or guy wires. Aluminium clad steel Splices are designed to carry the full load current of Aluminium clad steel conductors.

Catalogue Number	Conductors SC/AC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-AC 05.93L	3/2.75	5.93	50	White
LS-AC 07.50L	7/2.50	7.50	50	Blue
LS-AC 08.25L	7/2.75	8.25	30	White
LS-AC 09.75L	7/3.25	9.75	20	Orange
LS-AC 11.30L	7/3.75	11.25	10	Black
LS-AC 12.75L	7/4.25	12.75	5	Brown
LS-AC 13.75L	19/2.75	13.75	5	White

Note:
L = Left Hand Lay

HELIXON® SPLICES

For HDC - Type LS-CC

Material

"LS-CC" type Splices are manufactured using high strength copper clad steel wire. Copper Splices may be used in all environments for which HDC is used.

Rated Holding Strength

Copper Splices are designed to hold the full rated strength of HDC conductors. Copper Splices are designed to carry the full load current of HDC conductors.

Catalogue Number	Conductors HDC	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-CC 05.10	7/0.064" 7/1.70	4.88 5.10	50	Orange
LS-CC 05.25	7/1.75	5.25	50	Purple
LS-CC 06.00	7/2.00	6.00	50	Yellow
LS-CC 08.25	7/2.75	8.25	25	White
LS-CC 09.00	7/3.00	9.00	25	Red
LS-CC 10.00	19/2.00	10.00	15	Yellow
LS-CC 10.50	7/3.50	10.50	15	Green
LS-CC 12.75	19/2.50 19/2.57 37/1.83	12.50 12.85 12.81	5	Blue/ Purple
LS-CC 13.75	19/2.75	13.75	5	White
LS-CC 15.00	19/3.00	15.00	3	Red
LS-CC 17.50	37/2.50	17.50	3	Blue
LS-CC 18.30	37/2.62	18.30	3	Orange
LS-CC 19.25	37/2.75	19.25	3	White
LS-CC 21.00	37/3.00	21.00	3	Red
LS-CC 24.75	61/2.75	24.75	3	White

HELIXON® SPLICES

For ACSR - Type LS-FT (Full-Tension)

Material

"LS-FT" Full Tension Splices are multi-piece fitting manufactured using high strength galvanized steel wire for the "inner" fitting and high strength, corrosion resistant aluminium alloy wire for the "outer" fitting. The multi-piece Splices may be used in all environments for which ACSR conductor is used.

Rated Holding Strength

"DS-FT" type Splices are designed to hold the rated strength of ACSR conductors.
The aluminium section of the splice is designed to carry the full load current of ACSR conductors.

Catalogue Number	Conductors ACSR	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-FT 05.92	Goldeye	5.92	50	Yellow
LS-FT 07.47	Greyling	7.47	50	Brown
LS-FT 07.50	6/1/2.50	7.50	50	Blue
LS-FT 08.40	Pickerel	8.40	50	White
LS-FT 08.80	Lamprey	8.80	50	White
LS-FT 09.00	6/1/3.00	9.00	25	Red
LS-FT 11.25	6/1/3.75	11.25	10	Black
LS-FT 14.30	6/4.75+7/1.60 6/4.72+7/1.57 6/1/4.77	14.30	5	Blue
LS-FT 17.50	30/7/2.50	17.50	5	Blue
LS-FT 21.00	30/7/3.00	21.00	5	Red

HELIXON® SPLICES

For ACSR - Type LS-SP (Single-Piece)

Material
"LS-SP" type Splices are a single-piece fitting manufactured using subsets of high strength aluminium alloy and galvanized steel. The single-piece Splices may be used in all environments for which ACSR conductor is used.

Rated Holding Strength
Please consult Maclean Power for the holding strength.
The aluminium section of the splice is designed to carry the full load current of ACSR conductors.

Catalogue Number	Conductors ACSR	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
LS-SP 05.30	3/4/1.75	5.30	50	Yellow
LS-SP 07.50	3/4/2.50	7.50	25	Blue
LS-SP 09.00	4/3/3.00 6/1/3.00	9.00	25	Red
LS-SP 10.10	4/3/3.37 6/1/3.37	10.11	25	Yellow
LS-SP 11.25	4/3/3.75 6/1/3.75	11.25	10	Black

HELIXON® DISTRIBUTION TOP TIES

For AAC, AAAC, ACSR, SC/GZ and SC/AC - Type DT-AC

Material

Type "DT-AC" Distribution Top Ties are manufactured used high strength aluminium clad steel wire.

Application

Top ties are used to securely attach Conductors to the top grooves of tie top insulators (pin or post type). Top ties are superior to hand ties in vibration prone areas and may be used over armour rods to avoid vibration damage, but dampers should be used in severe vibration areas.

Catalogue Number	Conductors			Overall Diameter (mm)	Over Rods	Pack Size	AS1154 Colour Code
	AAC AAAC	SC/GZ SC/AC	ACSR				
DT-AC 05.25	7/1.75		3/4/1.75	5.25	–	50	Purple
	–	3/2.75	–	5.93	–		
	–	7/2.00	–	6.00	–		
DT-AC 06.75	7/2.25	–	–	6.75	–	50	Brown
DT-AC 07.50	7/2.50	–	6/1/2.50 3/4/2.50	7.50	–	50	Blue
DT-AC 08.25	7/2.75	–	6/1/2.75	8.25		40	White/ Yellow
	–	3/2.00	–	8.37	AR-S 04.31		
DT-AC 09.00	7/3.00	7/3.00	6/1/3.00 4/3/3.00	9.00	–	40	Red
DT-AC 10.00	7/3.40	–	–	10.20	–	50	White/ Purple
	7/3.50	–	–	10.50	–		
	–	3/2.75	–	10.63	AR-S 06.00		
	7/3.66	–	6/1/3.66	10.98	–		
DT-AC 11.25	7/3.75	7/3.75	6/1/3.75 4/3/3.75	11.25	–	40	Black
	–	–	3/4/1.75	11.75	AR-A 05.25		
DT-AC 13.50	7/4.50	–	–	13.50	–	40	Green
	–	19/2.75	–	13.75	–		
DT-AC 14.25	7/4.75	–	6/4.75+7/1.60	14.30	–	40	Blue
	–	–	6/1/2.50 3/4/2.50	14.80	AR-A 07.50		
DT-AC 16.25	19/3.25	19/3.25	–	16.25	–	40	Orange
	–	–	26/2.57+7/2.00	16.28	–		
	7/3.00	–	6/1/3.00 4/3/3.00	16.30	AR-A 09.00		
DT-AC 17.50	19/3.50	–	30/7/2.50	17.50	–	40	Blue
DT-AC 18.75	19/3.75	–	–	18.75	–	50	Black
DT-AC 19.20	7/3.75	–	6/1/3.75 4/3/3.75	19.35	AR-A 11.25	40	Black
DT-AC 21.00	37/3.00	–	30/7/3.00	21.00	–	50	Red
DT-AC 23.75	7/4.50	–	–	22.44	AR-A 13.50	40	Green/ Blue
	7/4.75	–	6/4.75+7/1.60	23.19	AR-A 14.30		
	19/4.75	–	–	23.75	–		
DT-AC 24.50	–	–	30/7/3.50	24.50	–	50	Purple
DT-AC 29.00	19/3.75	–	–	29.20	AR-A 18.75	50	Black

When ordering Top Ties add suffix -76 for 76 mm neck diameter or 112 for 112 mm neck diameter eg DT-AC 1125-76

HELIXON® DISTRIBUTION SIDE TIES

For AAC, AAAC, ACSR, SC/GZ and SC/AC - Type ST-AC

Material

Type "ST-AC" Distribution Side Ties are manufactured used high strength aluminium clad steel wire.

Application

Side ties are used to securely attach Conductors to the side grooves of tie top insulators (pin or post type). Side ties are superior to hand ties in vibration prone areas and may be used over armour rods to avoid vibration damage, but dampers should be used in severe vibration areas.

Catalogue Number	Conductors			Overall Diameter (mm)	Over Rods	Pack Size	AS1154 Colour Code
	AAC AAAC	SC/GZ SC/AC	ACSR				
ST-AC 05.25	7/1.75		3/4/1.75	5.25	–	50	Purple
	–	3/2.75	–	5.93	–		
	–	7/2.00	–	6.00	–		
ST-AC 06.75	7/2.25	–	–	6.75	–	50	Brown
ST-AC 07.50	7/2.50	–	6/1/2.50 3/4/2.50	7.50	–	50	Blue
ST-AC 08.25	7/2.75	–	6/1/2.75	8.25		50	White/ Yellow
	–	3/2.00	–	8.37	AR-S 04.31		
ST-AC 09.00	7/3.00	7/3.00	6/1/3.00 4/3/3.00	9.00	–	50	Red
ST-AC 10.00	7/3.40	–	–	10.20	–	50	White/ Purple
	7/3.50	–	–	10.50	–		
	–	3/2.75	–	10.63	AR-S 06.00		
	7/3.66	–	6/1/3.66	10.98	–		
ST-AC 11.25	7/3.75	7/3.75	6/1/3.75 4/3/3.75	11.25	–	25	Black
	–	–	3/4/1.75	11.75	AR-A 05.25		
ST-AC 13.50	7/4.50	–	–	13.50	–	25	Green
	–	19/2.75	–	13.75	–		
ST-AC 14.25	7/4.75	–	6/4.75+7/1.60	14.30	–	25	Blue
	–	–	6/1/2.50 3/4/2.50	14.80	AR-A 07.50		
ST-AC 16.25	19/3.25	19/3.25	–	16.25	–	25	Orange
	–	–	26/2.57+7/2.00	16.28	–		
	7/3.00	–	6/1/3.00 4/3/3.00	16.30	AR-A 09.00		
ST-AC 17.50	19/3.50	–	30/7/2.50	17.50	–	25	Blue
ST-AC 18.75	19/3.75	–	–	18.75	–	25	Black
ST-AC 19.20	7/3.75	–	6/1/3.75 4/3/3.75	19.35	AR-A 11.25	25	Black
ST-AC 21.00	37/3.00	–	30/7/3.00	21.00	–	25	Red
ST-AC 23.75	7/4.50	–	–	22.44	AR-A 13.50	25	Green/ Blue
	7/4.75	–	6/4.75+7/1.60	23.19	AR-A 14.30		
	19/4.75	–	–	23.75	–		
ST-AC 24.50	–	–	30/7/3.50	24.50	–	25	Purple
ST-AC 29.00	19/3.75	–	–	29.20	AR-A 18.75	25	Black

When ordering Side ties add suffix -76 for 76 mm neck diameter or 112 for 112 mm neck diameter eg. ST-AC 0750-76

HELIXON® DISTRIBUTION TOP TIES

For Covered Conductor - Type DT-CCT

Material
Type “DT-CCT” Distribution Top Ties are manufactured used high impact strength, black, UV resistant PVC.

Application
Top ties are used to securely attach Covered Conductors to the top grooves of tie top insulators (pin or post type). Maclean’s plastic ties for CCT can be used for voltages up to 11kV.

Catalogue Number	Covered Conductor	Conductor Diameter	Pack Size	AS1154 Colour Code
DT-CCT40-76	7/2.75 40mm^2 6.35/11kV	14.9-16.4	20	White
DT-CCT80-76	7/3.75 80mm^2 6.35/11kV 7/4.75 120mm^2 6.35/11kV	18.0-23.0	20	Blue/Black
DT-CCT180-76	19/3.50 180mm^2 6.35/11kV	24.1-25.7	20	Purple

For Covered Conductor - Type ST-CCT

Material
Type “ST-CCT” Distribution Side Ties are manufactured used high impact strength, black, UV resistant PVC.

Application
Side ties are used to securely attach Covered Conductors to the side grooves of tie top insulators (pin or post type). Maclean’s plastic ties for CCT can be used for voltages up to 11kV.

Catalogue Number	Covered Conductor	Conductor Diameter	Pack Size	AS1154 Colour Code
ST-CCT40-76	7/2.75 40mm^2 6.35/11kV	14.9-16.4	20	White
ST-CCT80-76	7/3.75 80mm^2 6.35/11kV 7/4.75 120mm^2 6.35/11kV	18.0-23.0	20	Blue/Black
ST-CCT180-76	19/3.50 180mm^2 6.35/11kV	24.1-25.7	20	Purple

HELIXON® GUY LOCKS

For SC/GZ - Type GL-S

Material
Helixon® Guy Locks are manufactured using high strength Galvanized steel wire. Steel guy locks may be used in all environments for which galvanized steel conductor or guy wire may be used.

Rated Holding Strength
Steel guy locks are designed to hold the full rated strength of galvanized steel guy wires.

Catalogue Number	Conductors SC/GZ	Conductor Diameter (mm)	Pack Size	AS1154 Colour Code
GL-S 04.31	3/2.00	4.31	50	Yellow
GL-S 04.80	7/1.60	4.80	50	Black
GL-S 05.93	3/2.75	5.93	50	White
GL-S 06.00	7/2.00	6.00	40	Yellow
GL-S 08.25	7/2.75	8.25	40	White
GL-S 09.75	7/3.25 19/2.00	9.75 10.00	20	Orange/ Yellow
GL-S 11.25	7/3.75	11.25	20	Black
GL-S 12.00	7/4.00	12.00	15	Black
GL-S 13.75	19/2.75	13.75	10	White
GL-S 16.25	19/3.25	16.25	5	Orange

GUY GUARDS

Material
Maclean Power Guy Guards are manufactured from white, UV resistant PVC.

Application
The Maclean Power Guy Guard improves visibility of pole stays to help avoid accidental contact with the guy wire.

Catalogue Number	Internal Diameter (mm)	Standard Length (m)	Pack Size
GG-P 2520	22.0	2.0	10
GG-P 2520S	22.0	2.0	10
GG-P 3020	28.0	2.0	10
GG-P 3020S	28.0	2.0	10
GG-P 3025	28.0	2.5	10
GG-P 3524	35.0	2.4	10

Notes: Suffix S in Cat. No. indicates fitting is split

SPIRAL FENCE DROPPERS

Material
Maclean Power Spiral Fence Droppers are manufactured from high strength galvanized steel.

Application
The Maclean Power Spiral Fence Droppers are used as a spacer on steel tower barbed wire anti-climbing systems.

Catalogue Number	Standard Length (m)
SFD-08	0.80
SFD-10	1.0
SFD-13	1.3
SFD-15	1.5
SFD-18	1.8

HELIXON® VIBRATION DAMPERS

For all Bare Conductor - Type HVD

Application

Helixon Vibration Dampers are designed to control high frequency vibration on small diameter conductors. Helixon Vibration Dampers do not dissipate energy, but control vibration to disrupt vibration build up, by impacting on the conductor. They do not impose a concentrated mass or clamping stress on the conductor or cable at the point of attachment and are therefore ideally suited for use on OPGW, OPCON and ADSS applications.

Material

Helixon Vibration dampers are manufactured using a high impact strength, UV resistant plastic. They are suitable for use in all environments, and may be used for conductor temperatures up to 75C°.

Catalogue Number	Conductor Diameter Range (mm)	Pack Size	Colour Code
HVD-044	4.4 - 6.2	25	Red
HVD-063	6.3 - 8.2	25	Blue
HVD-083	8.3 - 11.7	25	Black
HVD-118	11.8 - 14.4	25	Yellow
HVD-145	14.5 - 19.5	10	Green
HVD-195	19.5 - 22.3	10	Red

General Installation Guide

Span Length (m)	No. of Dampers for Tension < 20% CBL
<244	2
245-487	4
488-732	6

BIRD FLIGHT DIVERTERS

Application

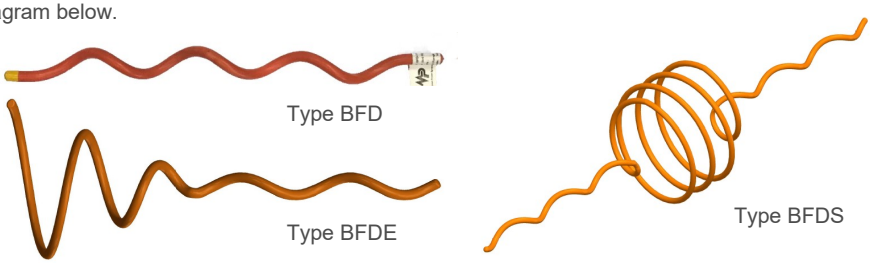
The bird diverters manufactured by Maclean Power are designed to make power lines more visible for birds and to reduce the number of injuries to birds caused by striking power lines.
Maclean Power bird diverters are orange, as this has been proven to be the most visible colour to the birds.

Materials

High impact strength UV resistant PVC rod.

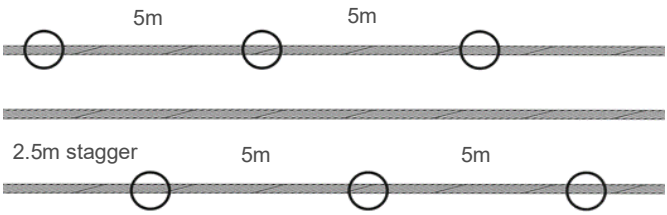
Installation

Maclean Power recommends that the bird diverters should be installed on the outer conductors as shown in the diagram below.



Catalogue Number			Diameter Range (mm)	Colour Code
Normal Type	Expanded Type	Swan Type		
BFD-044	BFDE-044	BFDS-044	4.4 - 6.3	Red
BFD-063	BFDE-063	BFDS-063	6.4 - 8.2	Blue
BFD-083	BFDE-083	BFDS-083	8.3 - 11.7	Black
BFD-118	BFDE-118	BFDS-118	11.8 - 14.4	Yellow
BFD-145	BFDE-145	BFDS-145	14.5 - 19.5	Green
BFD-195	BFDE-195	BFDS-195	19.5 - 22.5	Red
BFD-223	BFDE-223	BFDS-223	22.3 - 25.7	Brown
BFD-257	BFDE-257	BFDS-257	25.7 - 29.6	Red
BFD-296	BFDE-296	BFDS-296	29.6 - 34.0	Black
BFD-340	BFDE-340	BFDS-340	34.0 - 38.0	Blue
BFD-380	BFDE-380	BFDS-380	38.0 - 43.5	Purple

Typical Spacing Layout



PROTECTIVE FITTINGS SECTION B

VIBRATION CONTROL

CONDUCTOR SPACING

VIBRATION CONTROL

Stockbridge Vibration Dampers - 4D Series

The MacLean Power 4D range of Vibration Dampers have been designed to provide the best possible protection from Aeolian vibration for conductors and earth wires (ground or shield wires) used for electric power transmission and distribution.

The MacLean Power 4D dampers are designed to dissipate the maximum amount of vibration energy to prevent fatigue damage to the strands of the conductors.

The MacLean Power 4D damper has an asymmetric design that features 4 resonant frequencies, allowing the dampers to be effective across a much wider frequency range than standard Stockbridge dampers.

MacLean Power 4D dampers are suitable for use on all conductor and earth wire constructions including ACSR, AAC, AAAC , AAAC 1120 , HDC and Galvanized and Aluminium Clad Steel (SC/GZ and SC/AC) construction, and sizes are available to cover the range of sizes from 7.5mm to 45mm.

For installation on bare Copper conductor, MacLean Power 4D dampers are supplied with a Brass clamp.

Damper Type	Mass (kg)	Clamp Size (mm)	Conductor Range (mm)	Installation Torque (Nm)	Bolt Head A/F (mm)
4D20	1.4	7.5	6.0-7.5	28	Galvanized Steel - 16 Stainless Steel - 17
		9.5	7.5-9.5		
		11.5	9.5-11.5		
		14.0	11.5-14.0		
		16.0	14.0-16.0		
		18.0	16.0-18.0		
4D20 for OPGW	1.5	20.3	18.0-20.3	50	Galvanized Steel - 18 Stainless Steel - 19
		23.4	20.3-23.4		
		27.0	23.4-27.0		
		31.1	27.0-31.1		
4D30 for Conductor and OPGW	2.5	20.3	18.0-20.3		
		23.4	20.3-23.4		
		27.0	23.4-27.0		
		31.1	27.0-31.1		
4D40	4.5	27.6	25.6-27.6		
		30.5	27.6-30.5		
		34.0	30.5-34.0		
4D50	5.5	36.0	34.0-36.0	60	
		28.4	36.0-38.4		
		39.3	38.4-39.9		
		43.0	39.9-43.0		

Please consult MacLean Power for recommendations for the use of MacLean Power 4D dampers

VIBRATION CONTROL

Stockbridge Vibration Dampers - Installation Software

Maclean Power has developed special recommendation software for the type and installation of 4D series vibration dampers. The software is preloaded with over 400 hundred conductors with standard line tension calculated at 20% CBL. As manufacturers of the dampers we have collected information from a multitude of tests we have made on the dampers and from field tests we have made on lines where the dampers are installed. Vibration analysis has been performed in consequence of these tests and the effectiveness of damping has been determined. Wind power, damper power and self-damping of the conductor are all taken into account.

For Damper installation and placement recommendations please ask our sales staff for a Damping Proposal Form.

VIBRATION CONTROL

Spacer Dampers

The MacLean Power range of Spacer Dampers has been designed to provide the best possible control for both Aeolian Vibration and Sub-conductor Oscillation for bundled conductors used in High Voltage transmission lines. The MacLean Power Spacer Dampers have also been designed to meet the mechanical and electrical requirements for the high voltage lines, and the shape of the clamps have been designed to be corona free even at the highest voltages.

The MacLean Power Spacer Damper designs feature a high efficiency elastomeric hinge that has been designed to provide the maximum energy dissipation while still providing excellent resistance to fatigue.

MacLean Power spacer dampers can be provided with a variety of clamping options including a conventional bolted clamp, with galvanized steel, stainless steel or shear head bolts. We can also provide the spacer dampers with elastomer lined clamps, and quick action clamps for rapid installation.

MacLean Power Spacer Dampers are available for twin, triple, quad and 6 conductor bundle arrangements and are suitable for use on all conductor constructions including ACSR, AAC, AAAC, AAAC 1120 and high temperature versions of the MacLean Power spacer dampers are available for use on high temperature conductors.

As the placement of the spacer dampers along the span is important for the overall effectiveness of the control of motion of the conductors, MacLean Power will provide a location chart for each project.

VIBRATION CONTROL

Spacer Dampers - Double, Triple, Quad and 6 Bundle Conductors

Material

MacLean Power Spacer Dampers are made from high strength, corrosion resistant Aluminium Alloy with EPDM rubber bushings. They can be supplied with either galvanise, stainless steel or Aluminium shear-head bolts, or our “QUICKLOCK” clamps.

Installation

Contact MacLean Power for correct placement and installation instructions.

Catalogue Number System

2 SD - A S U - 400

Type of Spacer Damper	Clamp Range (mm)	Bolt/ Clamp Type	Clamp Lining	Conductor Spacing (mm)
2 - Twin Bundle 3 - Triple Bundle 4 - Quad Bundle 6 - Six Bundle	A - 18.0-19.2 B - 19.3-20.5 C - 20.6-21.8 D - 21.9-23.1 E - 23.2-25.2 F - 25.3-27.7 G - 27.8-30.3 H - 30.4-32.4 I - 32.5-34.4 J - 34.5-35.6 K - 35.7-37.7 L - 37.8-40.8	G - Galvanised Steel Bolts S - Stainless Steel Bolts SH - Aluminium Shear-head Bolts Q - “QUICKLOCK” system	U - Un-lined L - Lined (EPDM) HT - High Temperature Lining	400 450 457 460 500 762 (6 Bundle only)

Spacer Clamp Closing Tool

Material

The MacLean Power Spacer clamp closing tool is made from ductile cast iron with plastic lined handles.

Application

The quick and easy spacer closing tools are used with the “QUICKLOCK” arms on the spacer dampers. They can also be used to correctly align the bolted clamps for easier installation.

Catalogue Number	Approx. Weight (kg)
SD6TOOL	1.5

VIBRATION CONTROL

Twin Spacers

Material

MacLean Power Twin Spacers are made from high strength, corrosion resistant Aluminium Alloy with EPDM rubber bushings. They are fitted with our “QUICKLOCK” clamps.

Application

MacLean Power Twin Spacers are used to maintain conductor spacing and to restore conductor spacing after a short circuit occurs.

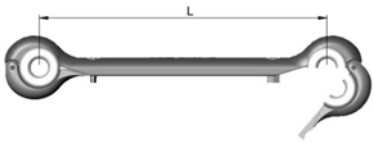
Installation

Contact MacLean Power for recommended placement and installation instructions.

Catalogue Number System

S2 - 300 - 16.0

Conductor Spacing (mm)	Clamp Size	
	Nominal Size	Conductor Range (mm)
200	16.0	14.0 - 16.0
380	18.0	16.0 - 18.0
400	23.4	20.3 - 23.4
460	27.0	23.4 - 27.0
520	31.1	27.0 - 31.1
	34.0	31.1 - 34.0
	36.0	34.0 - 36.0



VIBRATION CONTROL

Cast Bar Spacers

Material

MacLean Power Cast Bar Spacers are made from high strength, corrosion resistant Aluminium Alloy and are supplied with either galvanised or stainless steel bolts.

Application

MacLean Power Twin Spacers are used to maintain conductor spacing and to restore conductor spacing after a short circuit occurs. They are available in twin, triple and quad bundle arrangements.

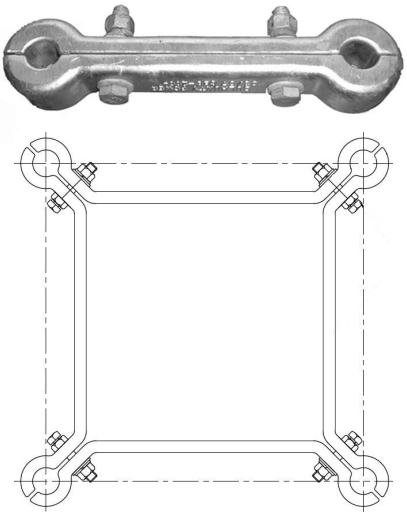
Installation

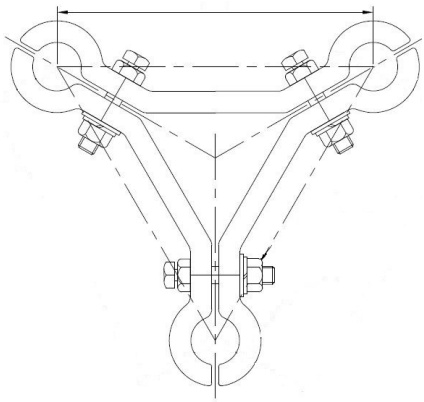
Contact MacLean Power for recommended placement and installation instructions.

Catalogue Number System

2 CBS - 200 - 16.0 (S)

Type of Cast Bar Spacer	Conductor Spacing (mm)	Clamp Size		Bolt Material
		Nominal Size	Conductor Range (mm)	
2 - Twin Bundle	200	16.0	14.0 - 16.0	S - Optional stainless steel bolts
3 - Triple Bundle	380	18.0	16.0 - 18.0	
4 - Quad Bundle	400	23.4	20.3 - 23.4	
	460	27.0	23.4 - 27.0	
	520	31.1	27.0 - 31.1	
		34.0	31.1 - 34.0	
		36.0	34.0 - 36.0	





SPREADER RODS

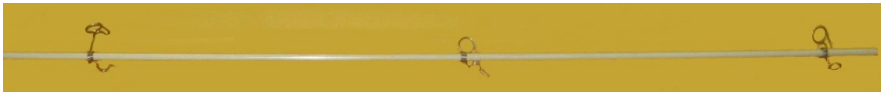
Application

Maclean Power Spreader Rods are designed to prevent low voltage conductors clashing during windy conditions, reducing the risk of accidental bush fires and conductor damage.

Maclean Power also supply a stainless steel clip for easy application to the conductor.

Materials

High strength, UV resistant fiberglass rod.



Catalogue Number	Length (mm)
SR-2100	2100
SR-2400	2400
SR-3000	3000
SR-CLIP	Stainless Steel Clip

LINE HARDWARE SECTION C

INSULATOR FITTINGS

CONDUCTOR FITTINGS

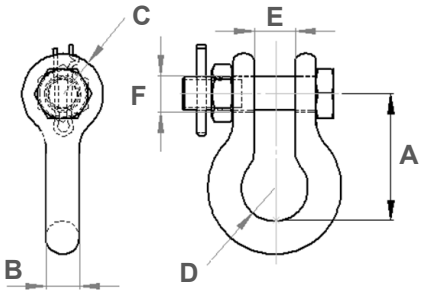
INSULATOR FITTINGS

ANCHOR SHACKLES

Catalogue Number	Minimum Failing load (kN)	Dimension, mm to AS1154.1 : 2004						Bolt Diameter (mm)	Approx. Weight Kg
		A	B	C	D	E	F Hole Ø		
AS-32-RX	32 (SWLL)	70	16	19	22	27	3/4"-10UNC	19 (screw pin)	0.7
AS-70	70	67	16	18	17	22.5	18	16	0.5
AS-120	120	67	16	18	17	22.5	18	16	0.5
AS-160	160	76	20	24	20	24.5	22	20	1.0

Note: Suffix "X" for Charpy Steel

Material:
Body - Galvanized forged steel
Hardware - Galvanized steel
Split pin - Stainless steel

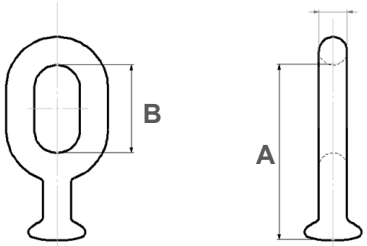


BALL EYE LINKS

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1 : 2009			Approx. Weight (Kg)
		A	B	C	
BEL-70	70	100	50	16	0.4
BEL-120	120	100	50	16	0.4
BEL-160	160	128	64	20	0.7

Note: Suffix "X" for Charpy Steel

Material:
Body - Galvanized forged steel



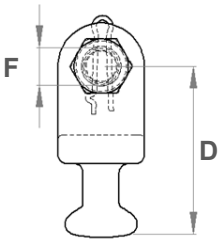
INSULATOR FITTINGS

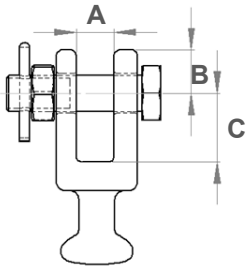
BALL CLEVIS

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1 : 2009						Approx. Weight (Kg)
		A	B	C	D	Ball	F Hole Ø	
BC-70	70	20	22	28	78	16	18	0.7
BC-120	120	20	22	28	78	16	18	0.7
BC-160	160	24	24	35	95	20	22	1.1

Note: Suffix “X” for Charpy Steel

Material:
Body - Galvanized forged steel
Bolt and Nut - Galvanized steel
Split pin - stainless steel



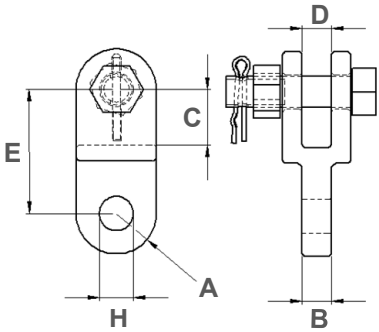


CLEVIS TONGUES

Catalogue Number	Minimum Failing load (kN)	Dimension (mm) to AS1154.1 : 2009						Approx. Weight (Kg)
		A	B	C	D	E	H Ø	
CT-70	70	22	16	28	20	72	18	0.7
CT-120	120	22	16	28	20	72	18	0.7
CT-160	160	24	20	35	24	86	22	1.1

Note: Suffix “X” for Charpy Steel

Material:
Body - Galvanized forged steel
Bolt and Nut - Galvanized steel
Split pin - stainless steel

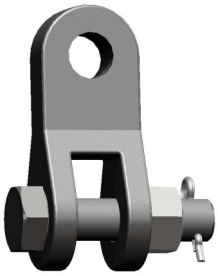


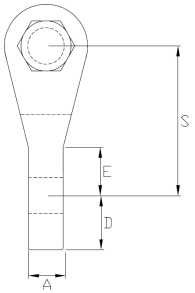
INSULATOR FITTINGS

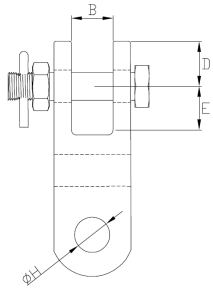
TWISTED CLEVIS TONGUES

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009						Approx. Weight (Kg)
		A	B	D	E	S	H Ø	
TCT-70	70	16	20	22	28	76	18	0.7
TCT-120	120	16	20	22	28	76	18	0.7
TCT-160	160	20	24	24	35	76	22	1.1

Material:
Body - Galvanized forged steel
Bolt and Nut - Galvanized steel
Split pin - Stainless steel





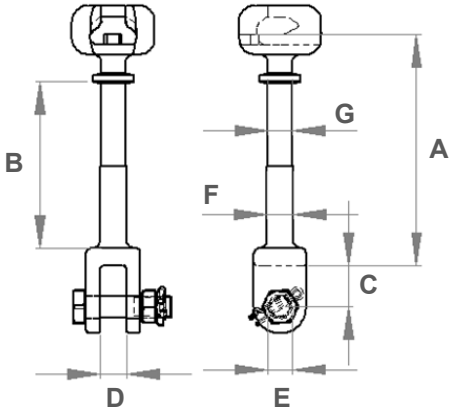


SOCKET CLEVIS EXTENSIONS LINKS

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009							Sock-et (mm)	Approx. Weight (kg)
		A	B	C	D	E	F	G Max		
SCEL-160	160	215	155	35	24	22	24	23	20	2.0

Material:
Body - Galvanized Forged Steel
Bolt and nut - Galvanized Steel
Split pin - Stainless Steel

The SCEL can be supplied with either “W” or “R” type clips.

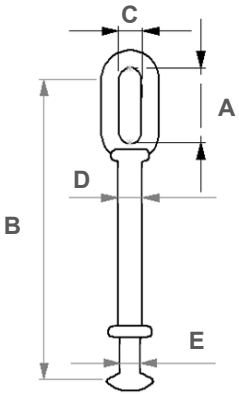


INSULATOR FITTINGS

BALL EYE EXTENSION LINKS

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009						Approx. Weight (kg)
		Ball Size	A	B	C	D Ø	E Ø	
BEEL-160-250	160	20	64	250	32	24	20	1.3
BEEL-160-500	160	20	64	500	32	24	20	2.3
BEEL-160-800	160	20	64	800	32	24	20	3.4

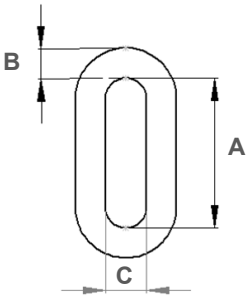
Material:
Body—Galvanized Forged Steel

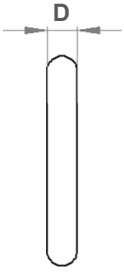


CHAIN LINKS

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm)				Approx. Weight (kg)
		A	B	C	D	
CL-70	70	50	16	26	16	0.4
CL-120	120	50	16	26	16	0.4
CL-160	160	64	20	32	20	0.8

Material:
Body—Galvanized forged steel





INSULATOR FITTINGS

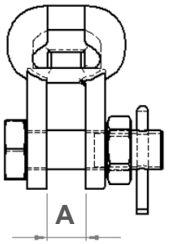
SOCKET CLEVIS

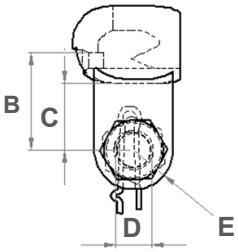
Catalogue Number	Minimum Failing load kN	Dimension, mm to AS1154.1:2009					Socket mm	Approx. Weight kg
		A	B	C	D	E		
SC-70	70	20	59	28	18	22	16	1.4
SC-120	120	20	59	28	18	22	16	1.4
SC-160	160	24	62	35	22	24	20	2.6

Note: Suffix “X” for Charpy Steel

Material:
Body—Galvanized Forged Steel
Bolt and Nut—Galvanized Steel
Split Pin—Stainless Steel

The Socket Clevis can be supplied with either “W” or “R” type clips.





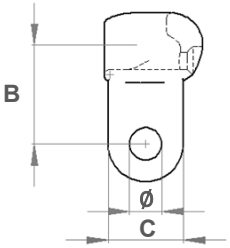
SOCKET (TWISTED) TONGUE

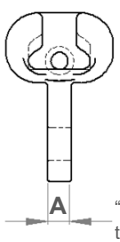
Catalogue Number	Minimum Failing load kN	Dimensions (mm) to AS1154.1:2009				Socket (mm)	Approx. Weight kg
		A	B	C	Hole Ø		
ST-70	70	16	57	44	18	16	0.8
ST-120	120	16	57	44	18	16	0.8
ST-160	160	20	57	48	22	20	1.3
STT-70	70	16	57	44	18	16	0.8
STT-120	120	16	57	44	18	16	0.8
STT-160	160	20	57	48	22	20	1.3

Note: Suffix “X” for Charpy Steel

Material:
Body—Galvanized Forged Steel

The Socket Tongue can be supplied with either “W” or “R” type clips.





“STT” denotes twisted tongue

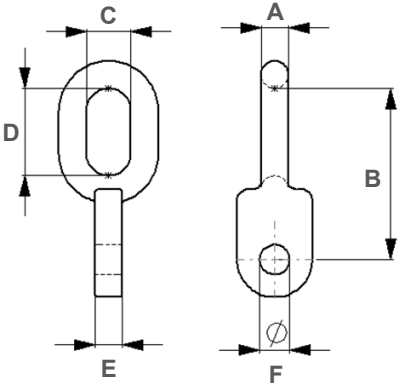
INSULATOR FITTINGS

TWISTED EYE TONGUES

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm)						Approx. Weight (kg)
		A	B	C	D	E	F Ø	
TET-70	70	16	100	26	51	16	18	0.6
TET-120	120	16	100	26	51	16	18	0.6
TET-160	160	20	112	32	64	20	22	1.0

Note: Suffix "X" for Charpy Steel

Material:
Body—Galvanized Forged Steel

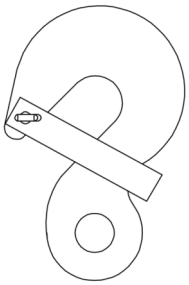


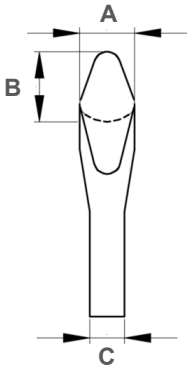
TONGUE HOOKS

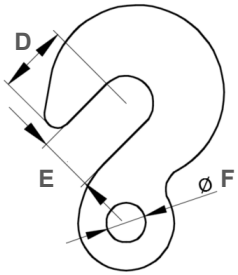
Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009						Approx. Weight (kg)
		A	B	C	D	E	F Ø	
TH-70	70	25	32	16	32	25	18	0.7
THL-70	70	25	32	16	32	25	18	0.8

Note: Suffix "X" for Charpy Steel

Material:
Body—Galvanized Forged Steel







"THL" - Optional latched hook

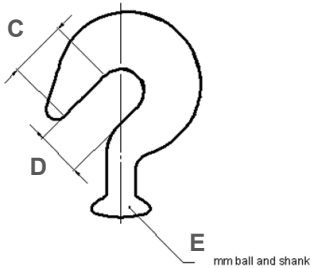
INSULATOR FITTINGS

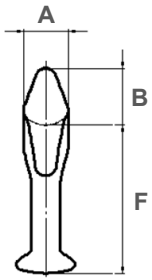
BALL HOOK - LONG SHANK

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009						Approx. Weight (kg)
		A	B	C	D	E (ball)	F	
BH-70-LS	70	25	32	32	25	16	82	0.6
BH-120-LS	120	25	32	32	25	16	82	0.6
BH-160-LS	160	25	34	60	25	20	102	0.9

Note: Suffix "X" for Charpy Steel

Material:
Body—Galvanized Forged Steel



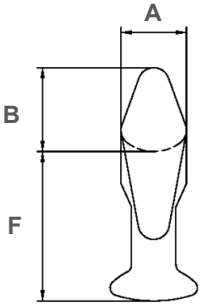


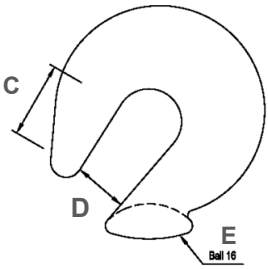
BALL HOOK - SHORT SHANK

Catalogue Number	Minimum Failing load (kN)	Dimensions (mm) to AS1154.1:2009						Approx. Weight (kg)
		A	B	C	D	E (ball)	F	
BH-70-SS	70	25	32	29	21	16	57	0.5
BH-120-SS	120	25	32	29	21	16	57	0.5

Note: Suffix "X" for Charpy Steel

Material:
Body—Galvanized Forged

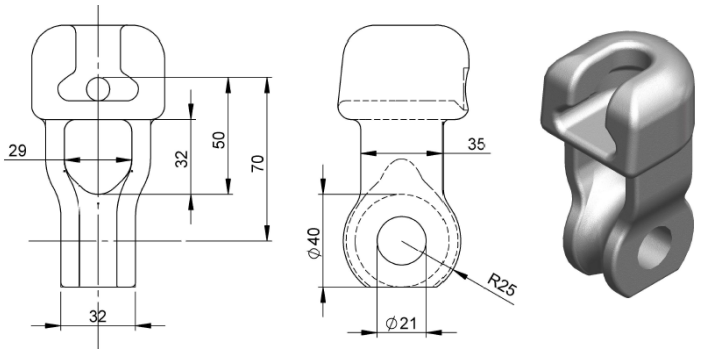




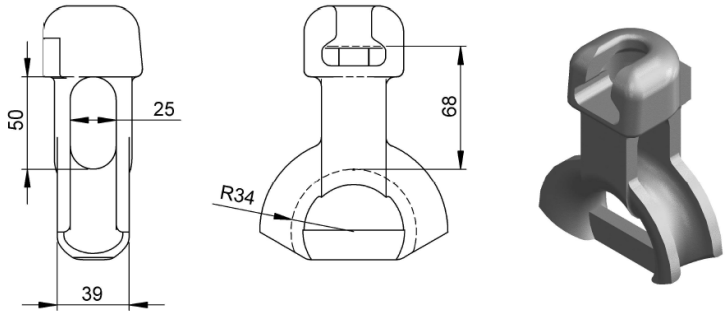
INSULATOR FITTINGS

SOCKET THIMBLES

Catalogue Number	Minimum Failing load kN	Dimension, mm Socket	Approx. Weight kg
SOCT-70	70	16	0.9
SOCTL-70	70	16	1.1



SOCT-70



SOCTL-70

Material:
Body—Galvanized ductile iron “W” or “R” clip

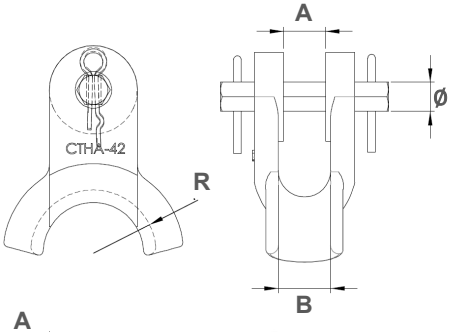
INSULATOR FITTINGS

CLEVIS THIMBLES - ALUMINIUM

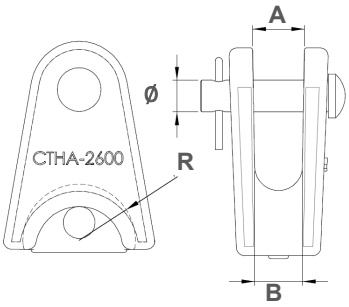
Catalogue Number	Minimum Failing load kN	Dimension, mm				Approx. Weight kg
		A	B	R	Ø	
CTHA-42	42	20	24	30	16	0.4
CTHA-2600	70	26	24	28	16	0.5
CTHA-70-H	70	16	22	30	16	0.7
CTHAL-70	70	18.5	38	30	16	0.5
CTHAL-70-H	70	18.5	38	30	16	0.5

Material:
Body—Cast Aluminium

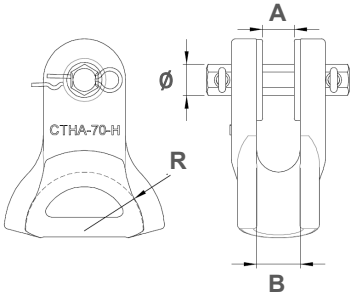
Pin— Galvanised steel with stainless steel split pin

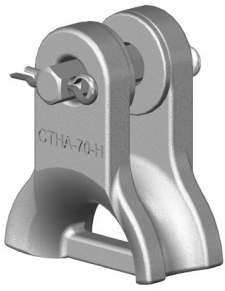


CTHA-42



CTHA-2600





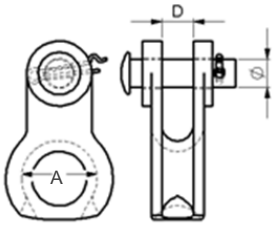
CTHA-70-H

INSULATOR FITTINGS

CLEVIS THIMBLES - DUCTILE IRON

Catalogue Number	Minimum Failing load kN	Dimension, mm			Approx. Weight kg
		D	Ø	A	
CTHI-70-H	70	18.5	16	38	0.5
CTHI-1850	70	18.5	16	38	0.5
CTHIL-70	70	21	16	72	1.0
CTHIL-125	125	21	16	72	1.0
CTHIL-125R	125	21	16	72	1.0

CTHI-1850



CONDUCTOR FITTINGS

PARALLEL GROOVE CLAMPS - ALUMINIUM

Catalogue Number	Conductor Range (mm)		Number of bolts	Length mm	Approx. Weight kg
	Main	Tap			
PGA-0670/2	3.0-12.0	3.0-12.0	2	64	0.3
PGA-06185/2*	10.0-18.0	3.0-10.0	2	95	0.3
PGA-0890-1880*	8.9-18.8	8.9-18.8	2	95	0.4
PGA-1670/1	5.25	11.0	1	25	0.1
PGA-1670/2	5.25	11.0	2	49	0.1
PGA-16120/2*	5.25-13.5	5.25-13.5	2	45	0.2
PGA-35185/2	7.5-17.5	7.5-17.5	2	64	0.4
PGA-35185/3	7.5-17.5	7.5-17.5	3	90	0.5
PGA-35300/3	7.5-22.0	7.5-22.0	3	105	0.7
PGA-185630/3	16.5-33.0	16.5-33.0	3	189	1.8

Note:
* Available with tin plating

Material:
Body - Aluminium
Fasteners - Available in both galvanized and stainless steel

PGA- 0890-1880

PGA-185630/3

CONDUCTOR FITTINGS

PARALLEL GROOVE CLAMPS - BIMETAL (Aluminium to Copper)

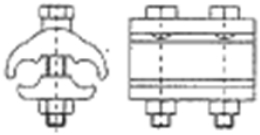
Catalogue Number	Conductor Range (mm)		Number of bolts	Length mm	Approx. Weight kg
	Aluminium	Copper			
PGB-1670/2	5.0 - 10.5	3.0 - 9.0	2	40	0.1
PGB-25150/2	6.5 - 16.0	4.0 - 12.5	2	50	0.2
PGB-25185/2	7.5 - 17.5	6.5 - 17.5	2	63	0.3
PGB-35185/3	7.5 - 17.5	7.5 - 17.5	3	90	0.6
PGB-35200/2	7.5 - 18.0	5.0 - 17.0	2	63	0.3
PGB-35300/3	7.5 - 22.5	7.5 - 20.0	3	105	0.6

Material:
Body - Aluminum with a bimetallic sheet - hot forged
Bolts - Available in both galvanized and stainless steel

PARALLEL GROOVE CLAMPS - COPPER

Catalogue Number	Conductor Range (mm)	Number of bolts	Length mm	Approx. Weight kg
PGC-670/1	3.1 - 10.5	1	25	0.1
PGC-1095/2	4.1 - 12.5	2	42	0.3
PGC-16120/2	5.0 - 14.0	2	45	0.4
PGC-16150/2	5.0 - 16.0	2	50	0.5
PGC-50240/2	8.9 - 20.0	2	45	0.5

Material:
Body - Copper, Hot Forged
Bolts - Copper Alloy

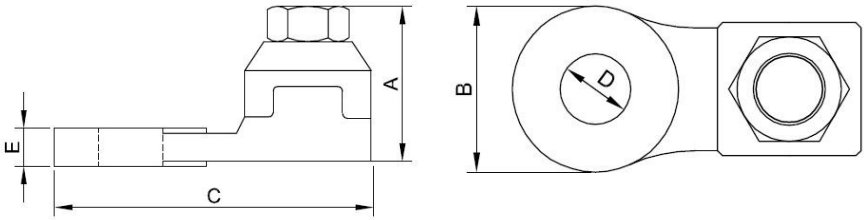


CONDUCTOR FITTINGS

BOLTED LUGS - COPPER (KU-LUGS)

Catalogue Number	Conductor Range (mm)	Area sqmm	A	B	C	To suit D	E
KU-2	4.05 - 5.10	10 -16	24	19	44	M8	6
KU-3	6.75 - 7.65	25 - 35	29	25	53	M10	6
KU-4	8.90 - 10.70	50 - 70	34	32	60	M12	7
KU-5	10.70 - 12.60	70 - 95	42	32	65	M12	8
KU-6	15.75 - 17.64	150 - 185	48	38	76	M16	10
KU-7	17.64 - 20.25	185 - 240	53	39	86	M20	10
KU-8	22.68 - 25.65	300 - 400	63	51	98	M20	13

Material:
Body - High copper content alloy



CONDUCTOR FITTINGS

BIMETAL SERVICE CLAMPS

Catalogue Number	Overall Diameter mm	Number of bolts	Approx. Weight kg
ASC1-	7 - 18.8	1	0.2
ASC2-	7 - 18.8	2	0.2

Material:
Body - Aluminium
Split Bolt - Tinned Brass

Suffix Bolts:
A– Aluminium
S– Stainless Steel

ASC1-S

ASC2-S

Catalogue Number	Conductor Range (mm)	Diameter of Stirrup (mm)	Number of bolts	Approx. Weight kg
ASC4-	7 - 18.8	8.0 (7/2.67)	1	0.2
ASC5-	7 - 18.8	8.0 (7/2.67)	2	0.3

Material:
Body - Aluminium
Stirrup - Stranded Tinned Copper

Suffix Bolts:
A– Aluminium
S– Stainless Steel
G– Galvanised Steel

ASC5-A

ASC4-A

CONDUCTOR FITTINGS

BIMETAL SERVICE CLAMPS

Catalogue Number	Conductor Overall Diameter mm	Length mm	Approx. Weight kg
AST9-500-	7 - 18.8	500	0.5

Material:
Body - Aluminium
Stirrup - Tinned Copper

Suffix Bolts:
A - Aluminium
S - Stainless Steel
G - Galvanised Steel

AST9-500-S

Catalogue Number	Conductor Range (mm)	Bail	Approx. Weight (kg)
DTA-1-	7-18.8	Solid Tinned Bronze to suit M16 hole	0.6
ASC5-8.25T	7 - 18.8	8.25mm Solid Tinned Copper	0.3

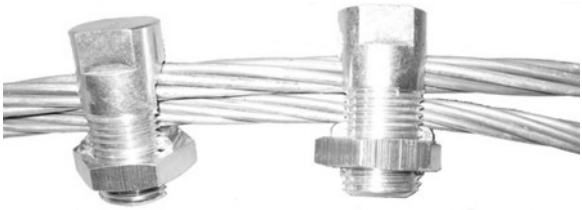
ASC5—8.25T

DTA-1-S

CONDUCTOR FITTINGS

SPLIT BOLTS

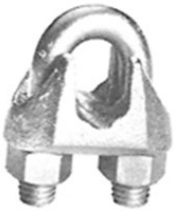
Catalogue Number Natural Brass	Catalogue Number Electro Tinned	Slot Width (mm)	Max Conductor (mm²)	ESAA Cross Reference
SB-22	SBT-22	5.3	16	Type A
SB-24	SBT-24	8.3	35	Type B
SB-25	SBT-25	10.9	70	Type C
SB-26	SBT-26	12.9	95	Type D
SB-28	SBT-28	18.5	185	Type E

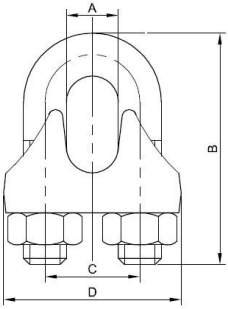


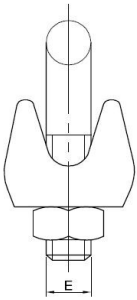
Material:
Body - Tinned or Natural Brass

WIRE ROPE GRIPS

Catalogue Number	A (mm)	B (mm)	C (mm)	D (mm)	E Nominal wire (dia.. mm)	F (mm)	G (mm)
WRG-08	8	41	17	22	8	36	8
WRG-10	10	49	20	27	10	44	10
WRG-12	12	59	24	32	11	51	12
WRG-16	14	77	31	41	16	63	14





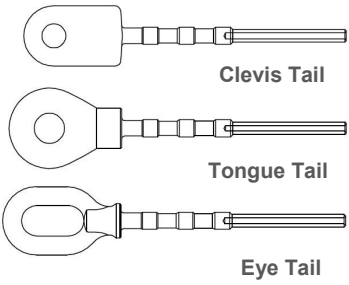


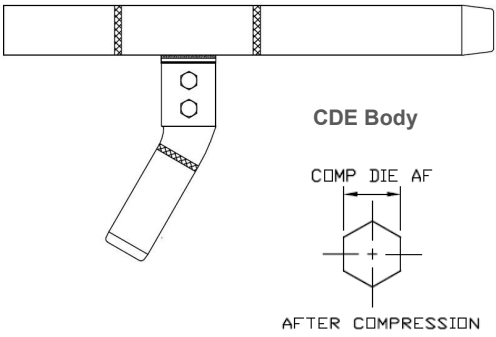
CONDUCTOR FITTINGS

COMPRESSION DEADENDS - ACSR

Catalogue Number	ACSR Stranding	Installation Die Size A/F	
		Aluminium (mm)	Steel (mm)
CDE-ALMOND	6/1/2.50	14.0	6.8
CDE-APPLE	6/1/3.00	14.0	6.8
CDE-BANANA	6/1/3.75	18.0	9.5
CDE-CHERRY	6/4.75+7/1.60	22.0	9.5
CDE-GRAPE	30/7/2.50	28.5	16.0
CDE-LEMON	30/7/3.00	34.5	17.0
CDE-LIME	30/7/3.50	40.0	19.0
CDE-MANGO	54/7/3.00	40.0	17.0
CDE-ORANGE	54/7/3.25	44.5	19.0
CDE-OLIVE	54/7/3.50	47.5	19.0
CDE-PAWPAW	54/3.75+19/2.25	47.5	20.0

Note:
Standard product comes with eye tail and 30° compression jumper.





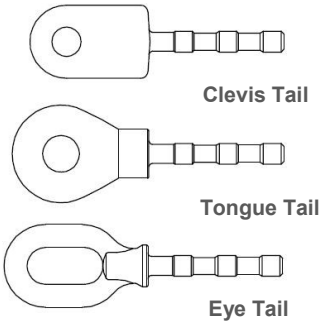
Please contact MacLean for further information regarding jumper and tail configurations.

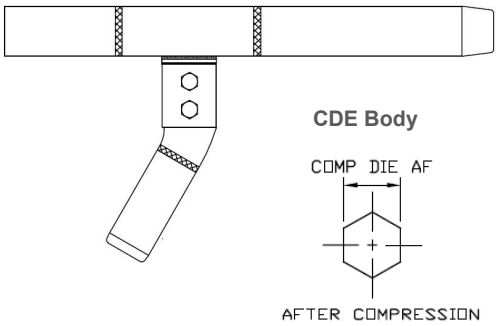
CONDUCTOR FITTINGS

COMPRESSION DEADENDS - AAC & AAAC

Catalogue Number		Conductor Stranding	Installation Die Size A/F (mm)
AAC	AAAC		
CDE-LEO	CDE-CHLORINE	7/2.50	14.0
CDE-LIBRA	CDE-FLUORINE	7/3.00	
CDE-MARS	CDE-HELIUM	7/3.75	18.0
CDE-MERCURY	CDE-HYDROGEN	7/4.50	22.0
CDE-MOON	CDE-IODINE	7/4.75	
CDE-NEPTUNE	CDE-KRYPTON	19/3.25	28.5
CDE-PLUTO	CDE-NEON	19/3.75	
CDE-SATURN	CDE-NITROGEN	37/3.00	34.5
CDE-TAURUS	CDE-OXYGEN	19/4.75	40.0
CDE-TRITON	CDE-PHOSPHORUS	37/3.75	
CDE-URANUS	CDE-SELENIUM	61/3.25	44.5
CDE-URSULA	CDE-SILICON	61/3.50	47.5
CDE-VENUS	CDE-SULPHUR	61/3.75	47.5

Note:
Standard product comes with eye tail and 30° compression jumper.



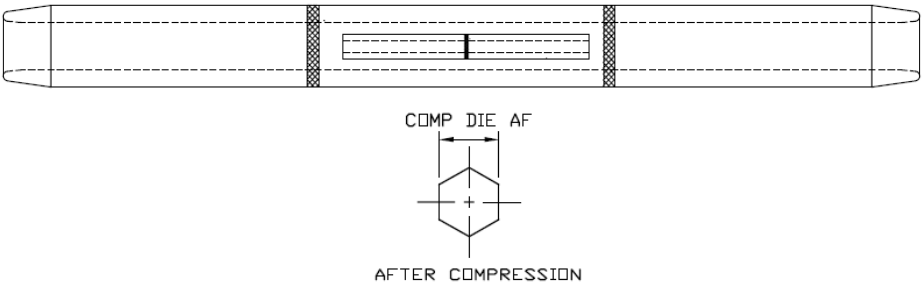


Please contact MacLean for further information regarding jumper and tail configurations.

CONDUCTOR FITTINGS

COMPRESSION MIDSPAN JOINT - ACSR

Catalogue Number	ACSR Stranding	Installation Die Size A/F	
		Aluminium (mm)	Steel (mm)
CMJ-ALMOND	6/1/2.50	14.0	6.8
CMJ-APPLE	6/1/3.00	14.0	6.8
CMJ-BANANA	6/1/3.75	18.0	9.5
CMJ-CHERRY	6/4.75+7/1.60	22.0	9.5
CMJ-GRAPE	30/7/2.50	28.5	16.0
CMJ-LEMON	30/7/3.00	34.5	17.0
CMJ-LIME	30/7/3.50	40.0	19.0
CMJ-MANGO	54/7/3.00	40.0	17.0
CMJ-ORANGE	54/7/3.25	44.5	19.0
CMJ-OLIVE	54/7/3.50	47.5	19.0
CMJ-PAWPAW	54/3.75+19/2.25	47.5	20.0

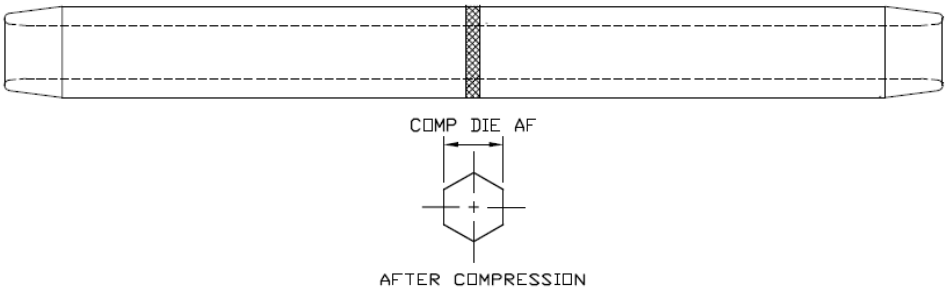


Please refer to our nearest sales office for further information

CONDUCTOR FITTINGS

COMPRESSION MIDSPAN JOINT - AAC and AAAC

Catalogue Number		Conductor Stranding	Installation Die Size A/F (mm)
AAC	AAAC		
CMJ-LEO	CMJ-CHLORINE	7/2.50	14.0
CMJ-LIBRA	CMJ-FLUORINE	7/3.00	
CMJ-MARS	CMJ-HELIUM	7/3.75	18.0
CMJ-MERCURY	CMJ-HYDROGEN	7/4.50	22.0
CMJ-MOON	CMJ-IODINE	7/4.75	
CMJ-NEPTUNE	CMJ-KRYPTON	19/3.25	28.5
CMJ-PLUTO	CMJ-NEON	19/3.75	
CMJ-SATURN	CMJ-NITROGEN	37/3.00	34.5
CMJ-TAURUS	CMJ-OXYGEN	19/4.75	40.0
CMJ-TRITON	CMJ-PHOSPHORUS	37/3.75	
CMJ-URANUS	CMJ-SELENIUM	61/3.25	44.5
CMJ-URSULA	CMJ SILICON	61/3.50	47.5
CMJ-VENUS	CMJ-SULPHUR	61/3.75	47.5

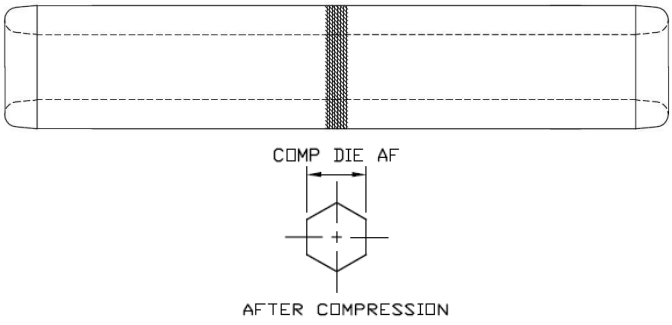


Please refer to our nearest sales office for further information

CONDUCTOR FITTINGS

COMPRESSION NON-TENSION JOINT - AAC, AAAC and ACSR

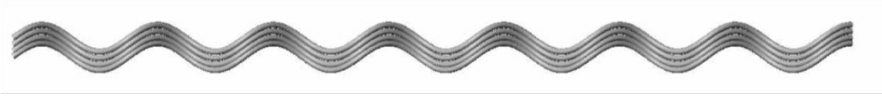
Catalogue Number	Nominal Conductor OD (mm)	Conductor Stranding	Installation Die Size A/F (mm)
CNJ 0825	7.5 - 8.3	7/2.50 7/2.75	14.0
CNJ 0900	9.0	7/3.00	
CNJ 1125	11.3	7/3.75	18.0
CNJ 1425	13.5 - 14.3	7/4.50 7/4.75	22.0
CNJ 1625	16.3	19/3.25	28.5
CNJ 1750	17.5	19/3.50 30/7/2.50	
CNJ 1875	18.8	19/3.75	
CNJ 2100	21.0	37/3.00	34.5
CNJ 2275	22.8	37/3.25	
CNJ 2450	23.8-24.5	19/4.75 30/7/3.50	40.0
CNJ 2700	26.3-27.0	37/3.75 54/7/3.00	
CNJ 2930	29.3	61/3.25	44.5
CNJ 3150	31.5	61/3.50	47.5
CNJ 3375	33.8	61/3.75	



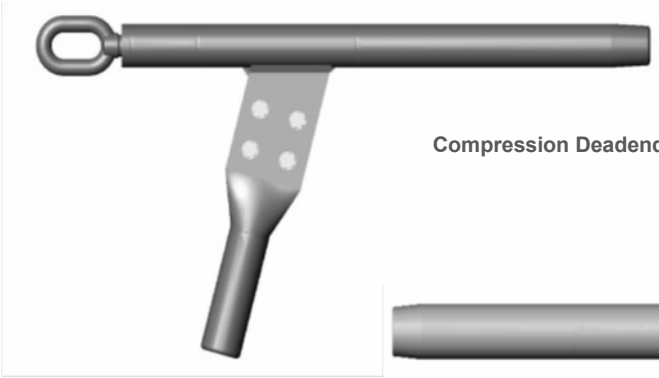
Please refer to our nearest sales office for further information

CONDUCTOR FITTINGS

HIGH TEMPERATURE



Armour Rods



Compression Deadend

Compression Midspan

MacLean Power has developed a large range of products suitable for use with high temperature conductors, including Conductor Joints and Terminations, Armour rods and Suspension Assemblies, Vibration control products (Dampers, Spacers and Spacer dampers)

These products have been developed for a wide range of High Temperature conductor constructions including TACSR, ZTACSR ACSS, Gap type.

MacLean Power high temperature conductor products may be used for conductor temperatures from 150C to 250C.

MacLean Power products for high temperature applications are always designed to match the specific conductor type, maximum temperature and other project requirements.

Please consult MacLean Power for products for your requirement.

CONDUCTOR FITTINGS

HIGH TEMPERATURE

Armour rods are designed to protect the outer strands of the high temperature conductors at support points or under damper and spacer damper clamps.

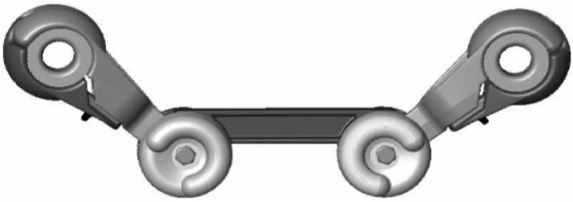
Joints and termination products are specifically designed to match the characteristics and current carrying capacity of the high temperature conductor

Helical suspension clamps or conventional suspension clamps can be supplied for high temperature conductor applications.

MacLean Power recommends the use of Helical suspensions clamps for applications that may be prone to vibration.

Vibration control products may be installed directly onto the high temperature conductors or installed over armour rods.

Spacer dampers may be provided with rubber faced clamps for application directly onto the high temperature conductors or with conventional bolted clamps for installation over armour rods.



Spacer Damper

Suspension Clamp

STRAIN AND SUSPENSION CLAMPS SECTION D

SUSPENSION CLAMPS

STRAIN CLAMPS

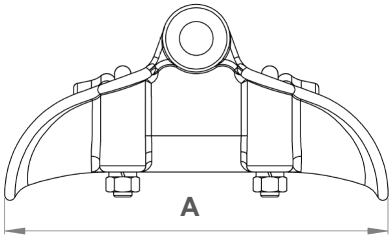
SUSPENSION CLAMPS

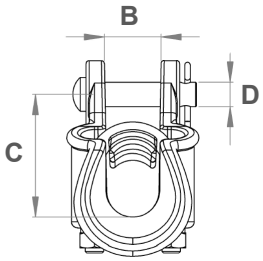
ALUMINIUM SUSPENSION CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm				Approx. Weight kg
			A	B	C	D Ø	
ASC-07210	7.0 - 21.0	44	200	24	70	16	1.4
ASC-120280	12.0 - 28.0	44	226	30	74	16	1.5
ASC-200340	20.0 - 34.0	70	250	36	80	16	3.1
ASC-280412	28.0 - 41.2	80	320	48	82	18	4.5
ASC-356518	35.6 - 51.8	70	300	54	95	16	4.8
ASC-445572	44.5 - 57.2	70	280	58.7	95	16	5.1

Maclean Power Aluminum Suspension Clamps are designed for use with AAC, AAAC and ACSR in suspension applications for deviation angles of up to 20 deg.
Available with either bolt and nut assembly or rivet pin.

Material:
Body and Keeper - Aluminum alloy
Hardware -Galvanized steel
Split Pin - Stainless steel





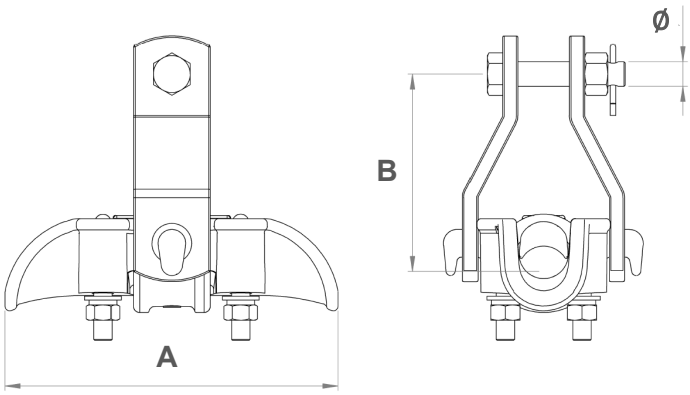
SUSPENSION CLAMPS

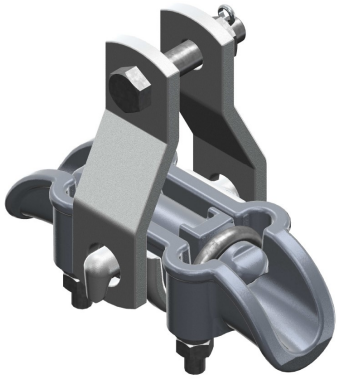
ALUMINIUM PIVOT SUSPENSION CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm			Approx. Weight kg
			A	B	Ø	
PSC-9-19	9.5 - 19	80	180	90	16	2.5
PSC-18-30	18.0 - 30.0	80	217	116	16	3.0
PSC-3045	30.0 - 45.0	100	267	120	16	4.0
PSC-4853	48.0 - 53.0	100	418	220	20	8.2

Maclean Power Aluminum Pivot Suspension Clamps are designed for use with AAC,AAAC and ACSR in Suspension applications for Deviation angles of up to 20 deg.

Material:
Body and Keeper - Aluminum alloy
Hardware -Galvanized steel
Split Pin - Stainless steel





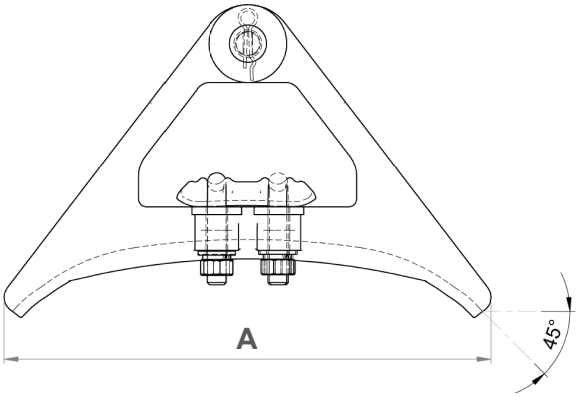
SUSPENSION CLAMPS

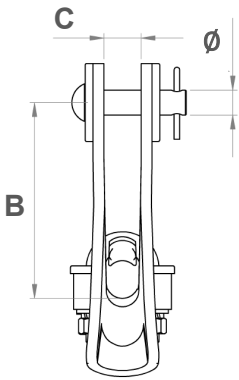
ALUMINIUM ANGLED SUSPENSION CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm				Approx. Weight kg
			A	B	C	Ø	
AASC-060160	6.0 - 16.0	32	293	109	20	16	1.4
AASC-100250	10.0 - 25.0	32	340	132	28	16	1.8

Maclean Power Aluminum Angled Suspension Clamps are designed for use with AAC, AAAC and ACSR in Suspension applications for Deviation angles of up to 45 deg.

Material:
Body and Keeper - Aluminum alloy
Hardware -Galvanized steel
Split Pin - Stainless steel





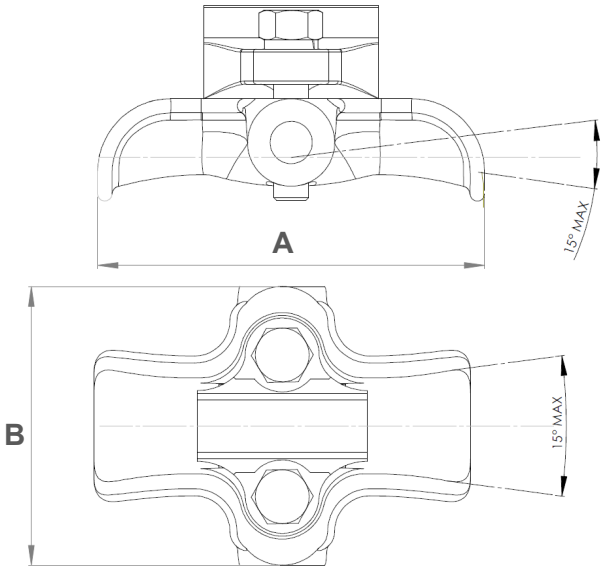
SUSPENSION CLAMPS

ALUMINIUM PIVOT SUPPORT CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm			Approx. Weight kg
			A	B	Bolt size	
TSC-0614	6.0 - 14.0	12	133	99	M12	0.5
TSC-0921	9.0- 21.0	12	133	99	M12	0.5
TSC-1327	13.0 - 27.0	12	133	99	M12	0.6
TSC-2538	25.0 - 38.0	12	133	99	M12	0.6
TSC-3851	38.0 - 51.0	12	165	99	M12	0.8

Maclean Power Pivot Support Clamps are designed for use with AAC, AAAC and ACSR conductors supported on horizontal or vertical line post insulators. Reversible keeper allows a large conductor range for each clamp size.

Material:
Body and Keeper - Aluminum alloy
Bolt and Washer - Galvanized Steel

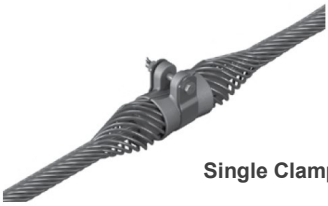


SUSPENSION CLAMPS

HELIXON SUSPENSION CLAMPS

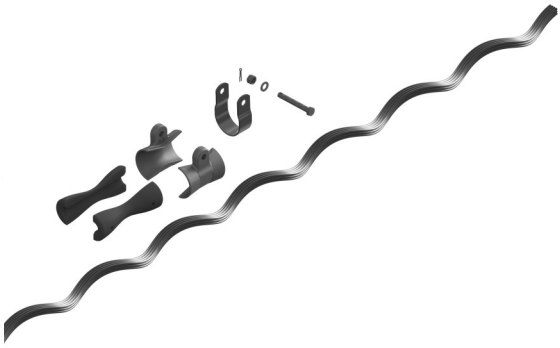
Catalogue Number		Conductors		O.D.	Colour Code
Single Clamp	Double Clamp	AAC/AAAC	ACSR		
HSC-09.00	DHSC-09.00	7/3.00	6/1/3.00 4/3/3.00	9.00	Red
HSC-11.25	DHSC-11.25	7/3.75	6/1/3.75 4/3/3.75	11.25	Black
HSC-13.50	DHSC-13.50	7/4.50	–	13.50	Green
HSC-14.30	DHSC-14.30	7/4.75	6/1/4.75	14.30	Blue
HSC-16.25	DHSC-16.25	19/3.25	–	16.25	Orange
HSC-17.50	DHSC-17.50	19/3.50	30/7/2.50	17.50	Blue
HSC-18.75	DHSC-18.75	19/3.75	–	18.75	Black
HSC-21.00	DHSC-21.00	37/3.00	30/7/3.00	21.00	Red
HSC-23.75	DHSC-23.75	19/4.75	–	23.75	Blue
HSC-24.50	DHSC-24.50	–	30/7/3.50	24.50	Purple
HSC-26.25	DHSC-26.25	37/3.75	–	26.25	Orange
HSC-27.00	DHSC-27.00	–	54/7/3.00	27.00	Red
HSC-29.25	DHSC-29.25	61/3.25	54/7/3.25	29.25	Orange
HSC-31.50	DHSC-31.50	61/3.50	54/7/3.50	31.50	Purple
HSC-33.75	DHSC-33.75	61/3.75	54/3.75+19/2.25	33.75	Black

Maclean Power Helixon Suspension Clamps are designed for use with AAC, AAAC and ACSR conductors and offer superior vibration protection in severe vibration conditions.



Single Clamp

Double Clamp



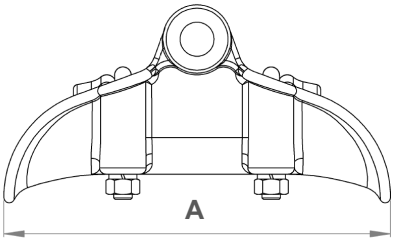
SUSPENSION CLAMPS

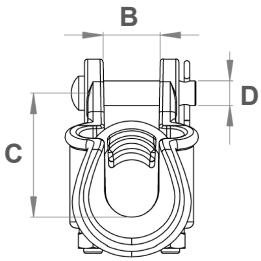
CAST IRON SUSPENSION CLAMPS

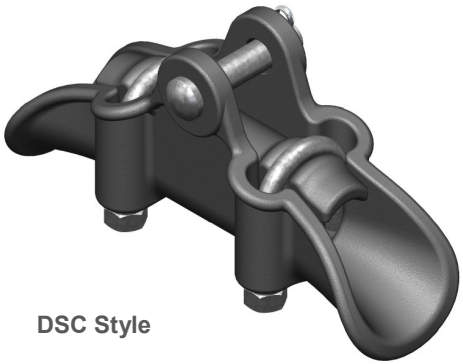
Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm		Approx. Weight kg
			L	H	
DSC-0616	6.0 - 16.0	70	168	58	2.4
DSC-110185	11.0 - 18.5	50	180	53	3.1
DSC-178235	17.8 - 23.5	50	230	74	3.8
DSCO-0616	6.0 - 16.0	24	152	79	1.3
DSCO-1727	17.0 - 27.0	44	195	100	1.4

Maclean Power Aluminum Suspension Clamps are designed for use with SC/GZ, SC/AC and HDC in suspension applications for deviation angles of up to 20 deg.
Available with either bolt and nut assembly or rivet pin.

Material:
Body and Keeper - galvanized cast iron
Hardware - galvanized steel
Split Pin - stainless steel







DSC Style

DSCO Style

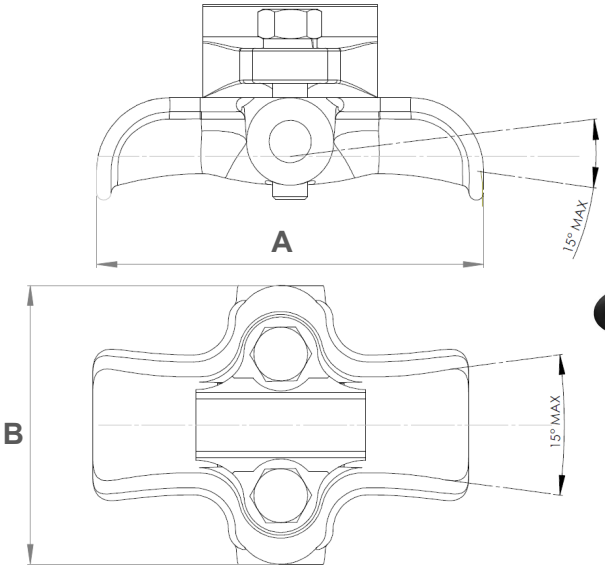
SUSPENSION CLAMPS

CAST IRON PIVOT SUPPORT CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm			Approx. Weight kg
			L	W	Bolt size	
DTSC-0614	6 -14	12	133	99	12	1.1
DTSC-1327	13 - 27	12	133	99	12	1.2
DTSC-2538	25 - 38	12	133	99	12	1.3

Maclean Power Pivot Support Clamps are designed for use with SC/GZ, SC/AC and HDC conductors in suspension. Reversible keeper allows a large conductor range for each clamp size.

Material:
Body and Keeper - Galvanized cast iron
Bolt and Washer - Galvanized Steel



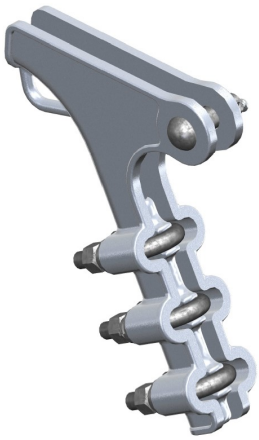
STRAIN CLAMPS

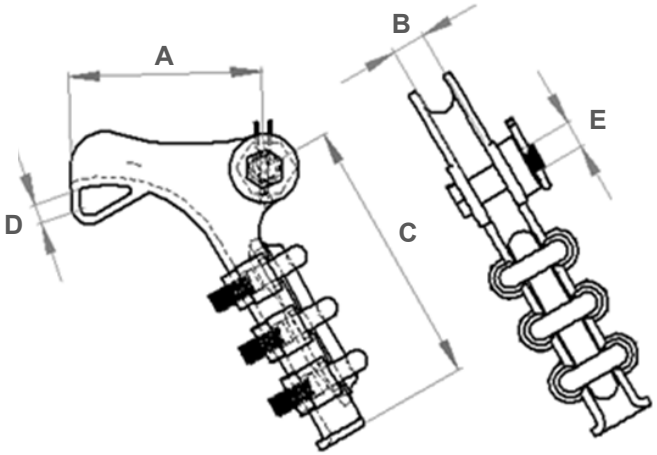
ALUMINIUM STRAIN CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm					U-Bolts		Approx. Weight, kg
			A	B	C	D	E	NO.	Size, mm	
ATC-51114	5.1 - 11.4	40	108	19	126	20	16	2	12	0.5
ATC-89185	8.9 - 18.5	50	153	20	178	32	16	2	12	1.8
ATC-50150	5.0 - 15.0	70	170	28	190	20	16	3	12	1.9
ATC-121218	12.1 - 21.8	70	284	30	298	32	16	4	12	4.1
ATC-180300	18.0 - 30.0	70	342	36	446	38	20	5	12	7.0

Maclean Power Strain Clamps are designed for use with AAC, AAAC or ACSR conductor in tension applications.

Material:
Body and Keeper - Aluminum alloy
Hardware - Galvanized steel
Split pin - Stainless steel





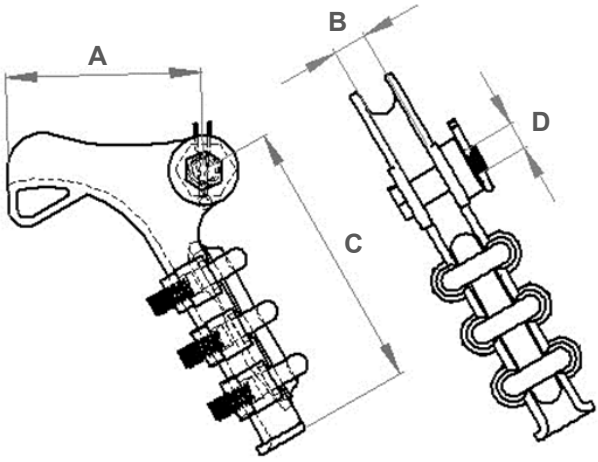
STRAIN CLAMPS

CAST IRON STRAIN CLAMPS

Catalogue Number	Clamp Range mm	Rated Strength kN	Dimensions, mm				U-Bolts		Approx. Weight, kg
			A	B	C	D	NO.	Size, mm	
DTC-0510	5.0 - 10.0	20	120	18	150	16	2	12	1.3
DTC-1014	10.1 - 14.0	40	130	18	205	16	3	12	2.1
DTC-1418	14.1 - 18.0	70	160	22	310	18	4	16	4.6
DTC-1823	18.1 - 23.0	90	220	25	410	18	4	16	7.1

Maclean Power Strain Clamps are designed for use with SC/GZ, SC/AC and HDC conductors in tension applications.

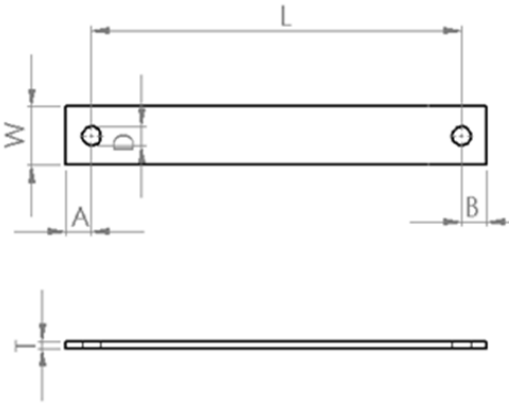
Material:
Body and Keeper - Galvanized cast iron
Hardware - Galvanized steel
Split pin - Stainless steel



FABRICATED FITTINGS SECTION E

SHACKLE STRAPS

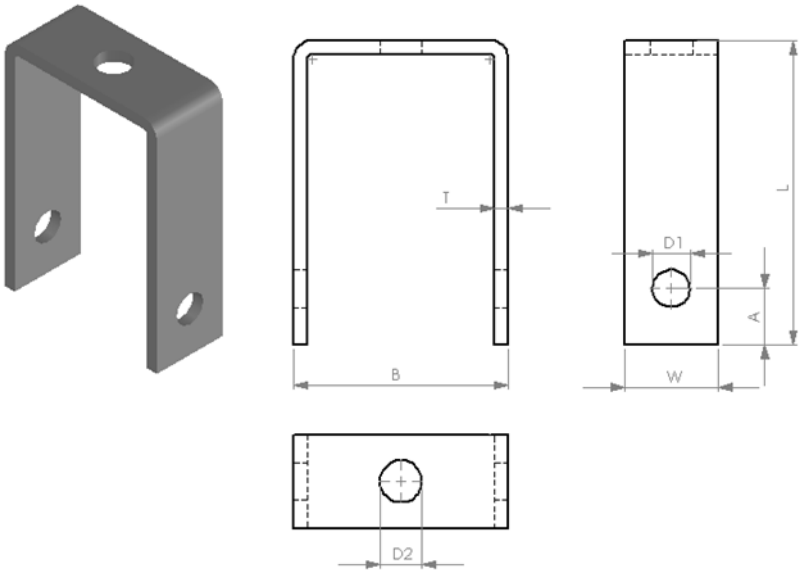
Catalogue Number	Dimension, mm						Approx. Weight kg
	A	B	D Ø	W	T	L	
S-STRAP-1	17	17	14	32	5	216	0.6
S-STRAP-3	22	22	16	50	6	316	0.8
S-STRAP-4	25	25	18	32	5	250	0.6
S-STRAP-5	25	25	16	32	5	250	0.6
S-STRAP-8	25	25	18	40	6	255	0.7



Material:
Galvanized Steel

"U"SHACKLE STRAPS

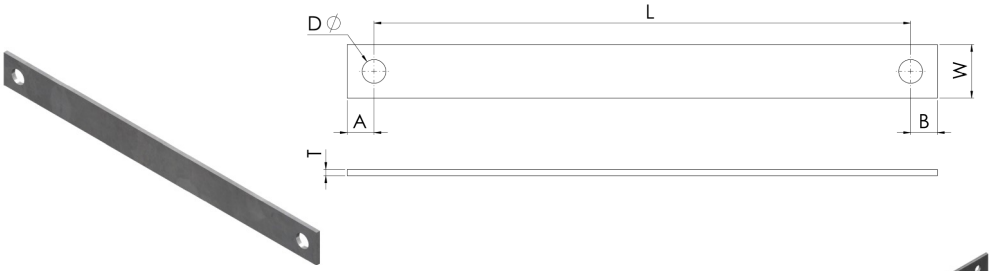
Catalogue Number	Dimension, mm							Approx. Weight kg
	A	B	D1 Ø	D2 Ø	W	T	L	
S-STRAP-2	22	92	16	18	40	6	130	0.6
S-STRAP-7	22	117	16	18	40	6	111	0.6
S-STRAP-9	22	105	16	18	40	6	130	0.7

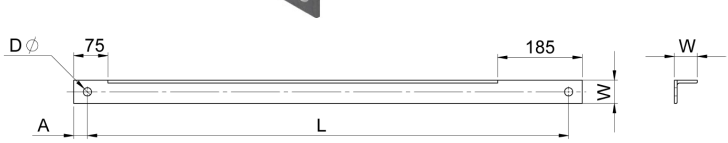


Material:
Galvanized Steel

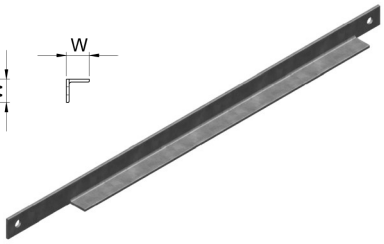
CROSS ARM BRACES

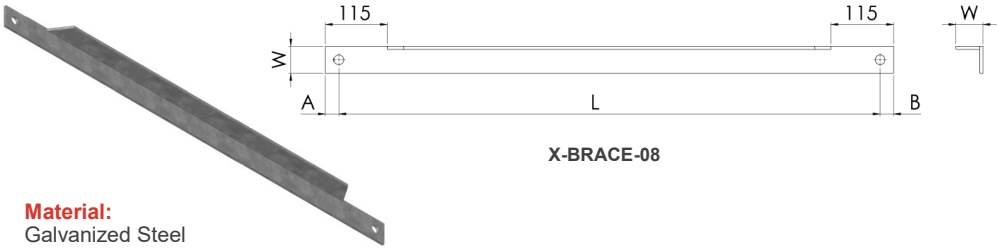
Catalogue Number	Dimension, mm						Approx. Weight kg
	A	B	D Ø	W	T	L	
X-BRACE-01	25	25	18	40	6	863	1.9
X-BRACE-02	25	25	18	50	6	863	2.1
X-BRACE-03	25	25	18	50	6	800	2.0
X-BRACE-04	25	25	18	50	6	500	1.3
X-BRACE-05	25	25	18	50	6	850	2.2
X-BRACE-06	25	25	18	50	6	1050	2.7
X-BRACE-07	30	30	18	50x50	6	1050	4.3
X-BRACE-08	25	25	18	50x50	6	1000	4.1
X-BRACE-09	25	25	18	50	6	1000	2.5
X-BRACE-10	25	25	18	75	12	460	3.6





X-BRACE-07



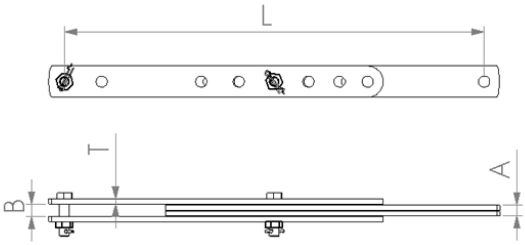


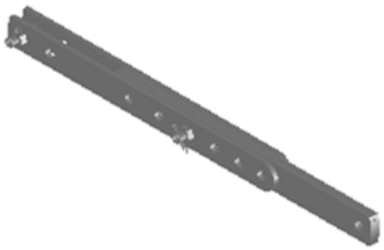
X-BRACE-08

Material:
Galvanized Steel

SAGLINKS

Catalogue Number	Minimum Failing Load kN	Dimension, mm				Approx. Weight kg
		A MAX	B	T	L MIN - MAX	
SL-70-230	70	18	20	8	230 - 350	2.6
SL-70-485	70	18	20	8	485 - 745	5.3
SL-120-230	120	18	20	8	230-360	2.6
SL-120-485	120	18	20	8	485-745	5.3
SL-120-566	120	18	20	8	566 - 974	5.5
SL-160-350	160	22	24	10	350-530	4.7
SL-160-566	160	22	24	10	566 - 974	8.5
SL-160-702	160	22	24	10	702-1075	9.5





Material:
Galvanized Steel

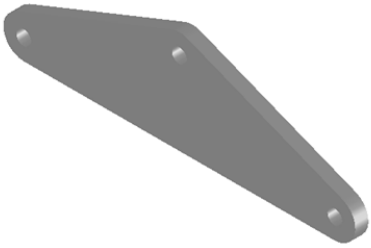
Maclean Power can provide sag link designs to suit any stringing arrangement.

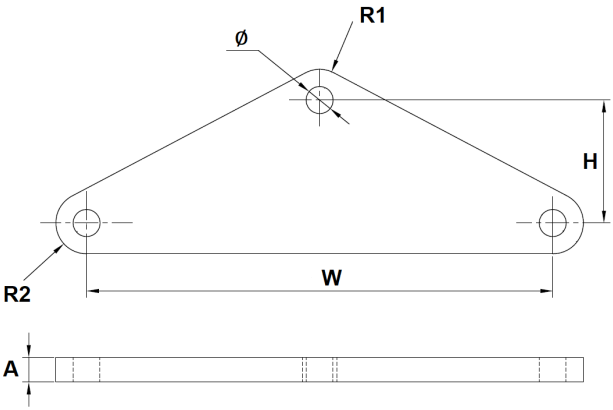
Please call our Sydney office for further information.

YOKE PLATES

Catalogue Number	Minimum Failing Load kN	Dimension, mm					
		A	H	Ø	W	R1	R2
YPT-70-100	70	16	87	18	100	22	22
YPT-70-180	70	16	60	18	180	22	22
YPT-70-380	70	16	100	18	457	22	22
YPT-70-457	70	16	100	18	457	22	22
YPT-70-560	70	16	100	18	560	22	22
YPT-70-457	70	16	100	18	457	22	22
YPT-160-180	160	20	60	22	180	28	28
YPT-160-380	160	20	100	22	380	28	28
YPT-160-457	160	20	120	22	457	26	26
YPT-160-520	160	20	120	22	520	25	25
YPT-160-560	160	20	185	22	560	24	24
YPT-160-660	160	20	240	22	660	28	28

Material:
Galvanized Steel

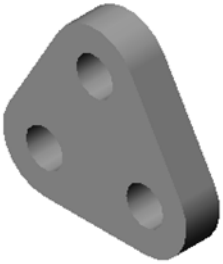


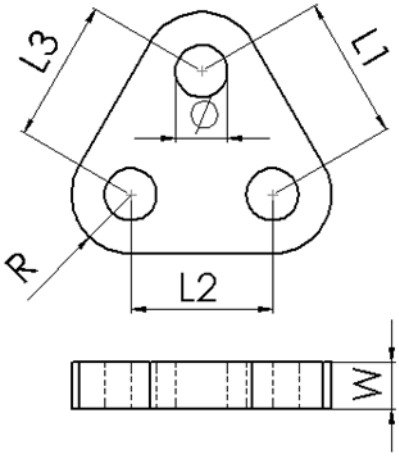


Maclean Power can provide yoke plate designs to suit any stringing arrangement.
Please call our Sydney office for further information.

MAINTENANCE TENSION LINKS

Catalogue Number	Minimum Failing Load kN	Dimension, mm						Approx. Weight kg
		L1	L2	L3	W	R	Ø	
MTL-70	70	60	60	60	16	22	18	0.7
MTL-160	160	60	60	60	20	25	22	0.9





Material:
Galvanized Steel

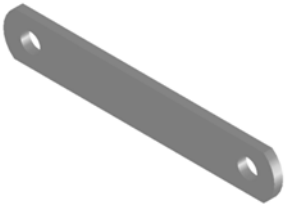
Maclean Power can provide maintenance links to suit any stringing arrangement.

Please call our Sydney office for further information.

DOUBLE AND SINGLE LINK PLATES

Catalogue Number Double Plate Links	Catalogue Number Single Plate Links	Hole Center Distance mm	Bolt Size
DLP-70-100	LP-70-100	100	M16
DLP-70-150	LP-70-150	150	M16
DLP-70-200	LP-70-200	200	M16
DLP-70-250	LP-70-250	250	M16
DLP-70-300	LP-70-300	300	M16
DLP-70-350	LP-70-350	350	M16
DLP-70-400	LP-70-400	400	M16

Single Link Plate

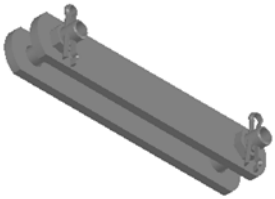


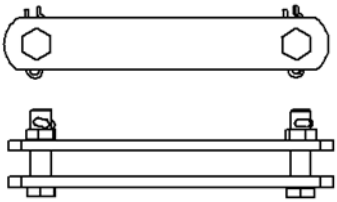
Link plates are available in 70/120/160 kN. For part numbers, replace 70 with 120 or 160. 160kN fittings will be supplied with a M20 bolt.

Maclean Power can provide single and double link plate assembly designs to suit any stringing arrangement.

Please call our Sydney office for further information

Double Link Plate Assembly





Material:
Body - Galvanized steel
Hardware - Galvanized steel
Split pin - Stainless steel

DOUBLE ARMING BOLTS

Catalogue Number M16 Bolt	Catalogue Number M20 Bolt	Dimension, mm	
		Overall Length	Thread length
DAB16-250	DAB20-250	250	100
DAB16-300	DAB20-300	300	
DAB16-350	DAB20-350	350	150
DAB16-400	DAB20-400	400	
DAB16-450	DAB20-450	450	200
DAB16-500	DAB20-500	500	
DAB16-550	DAB20-550	550	250
DAB16-600	DAB20-600	600	
DAB16-650	DAB20-650	650	
DAB16-700	DAB20-700	700	

Material:
Galvanized Steel

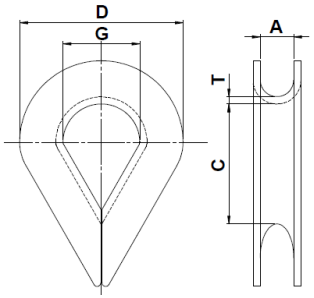
Maclean Power can double arming bolts to suit customer requirements.

Please call our Sydney office for further information.

GUY THIMBLES

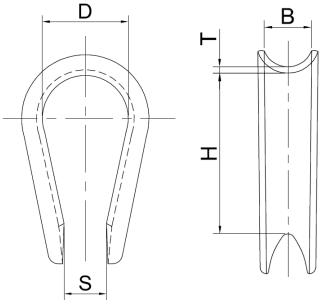
CLOSED

Catalogue Number	Dimension, mm					Approx. Weight Per 100 (kg)
	C	D	G	A	T	
GT-10	41	37	24	10.5	2	2.6
GT-12	48	45	29	13.5	2.5	5.2
GT-16	57	60	35	17	3	10.5
GT-20	63.5	68	41.5	20	3	21.0
GT-22	89	81	48	24	3.2	35.7



OPEN

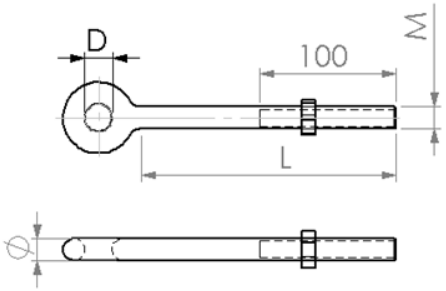
Catalogue Number	Dimension, mm					Approx. Weight Per 100 (kg)
	S Nom.	D	H	B	T	
OGT-10	12	28	43	11	1.75	1.7
OGT-12	14	30	50	13	2	3.2
OGT-16	18	36	59	18	3	6.4
OGT-20	22	47	70	21	2.5	13.0
OGT-25	25	65	92	23	8	13.0



Material:
Galvanized Steel

EYE BOLTS

Catalogue Number	Dimension, mm				Minimum Failing Load (kN)
	L	M	D	Ø	
EB16-150	150	16	40	16	70
EB16-200	200				
EB16-250	250				
EB16-300	300				
EB16-350	350				
EB16-400	400				
EB16-450	450				
EB16-500	500				
EB16-550	550				
EB16-600	600				
EB20-150	150	20	40	20	120
EB20-200	200				
EB20-250	250				
EB20-300	300				
EB20-350	350				
EB20-400	400				
EB20-450	450				
EB20-500	500				
EB20-600	600				

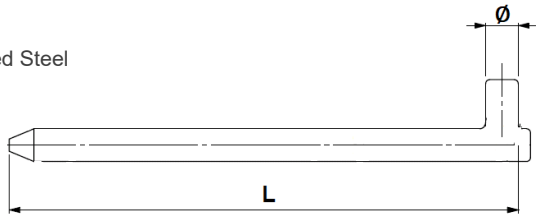


Material:
Galvanized Steel

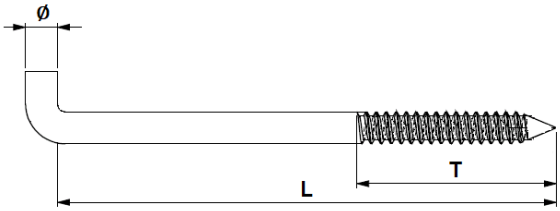
POLE STEPS

Catalogue Number	Step Type	Dimension, mm		
		ø	L	T
PS16-250	Knock in	16	250	-
PS16-250-H	Screw in			90
PS16-250-S				100
PS16-180-C	Bolt		180	40
PS-20255		20	255	105

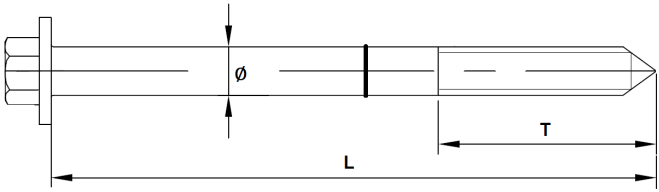
Material:
Galvanized Steel



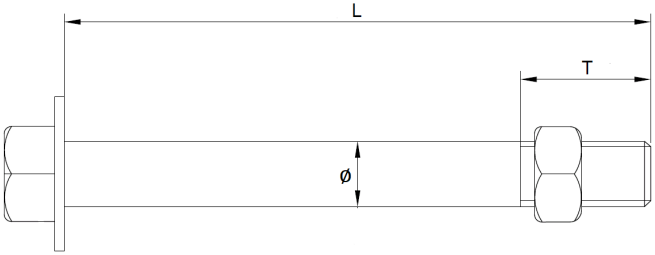
PS16-250



PS16-250-S



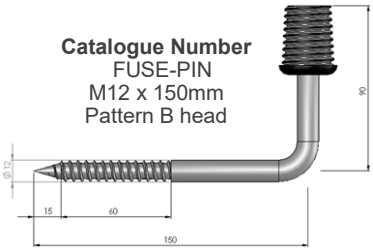
PS16-250-H



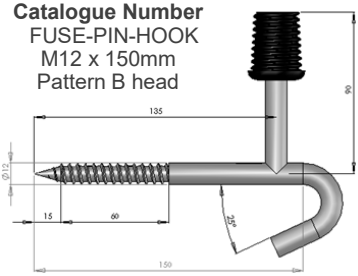
PS16-250-C

LINE PINS AND HOOKS

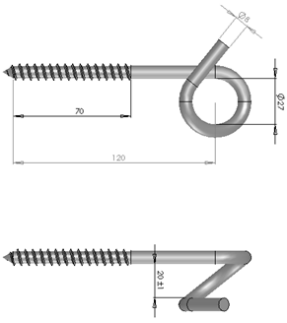
Catalogue Number
FUSE-PIN
M12 x 150mm
Pattern B head



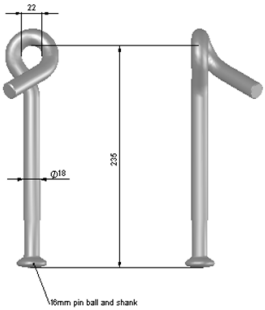
Catalogue Number
FUSE-PIN-HOOK
M12 x 150mm
Pattern B head



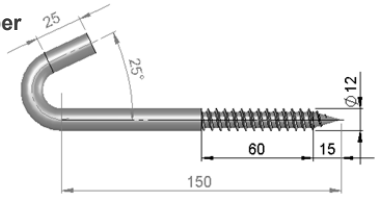
Catalogue number
PIG-TAIL
M8 x 145mm



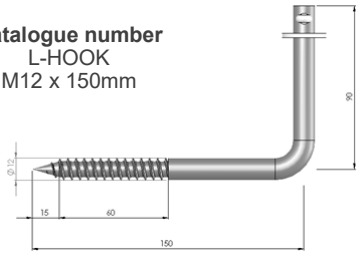
Catalogue number
PIG-HOOK
16mm Ball



Catalogue number
J-HOOK
M12 x 150mm



Catalogue number
L-HOOK
M12 x 150mm



Material:
Galvanized Steel

INSULATED SYSTEMS SECTION F

LVABC BOLTED CLAMPS

LVABC HARDWARE

LVABC INSTALLATION TOOLS

HVABC SYSTEMS

LVABC BOLTED CLAMPS

Tension Clamps

Catalogue Number	Cable Size (mm^2)	Fastener and Pin Material
ABCTC-2550	4x25 - 4x50	Galvanised Steel
ABCTC-2595	2x50 - 2x95	Galvanised Steel
ABCTC-5095	4x50 - 4x95	Galvanised Steel
ABCTC-5095L	4x50 - 4x95	Stainless Steel
ABCTC-95150	4x95 - 4x150	Galvanised Steel
ABCTC-95150L	4x95 - 4x150	Stainless Steel

Note:
Larger “R” Clip supplied with suffix “L” part numbers

Materials:
Wedges: Glass filled nylon
Straps: Aluminium Alloy
Split Pin/ “R” Clip: Stainless Steel

ABCTC-5095

ABCTC-5095L

ABCTC-95150L

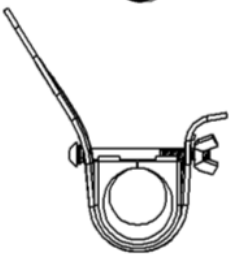
ABCTC-95150

LVABC BOLTED CLAMPS

Suspension Clamps

The Suspension Clamp is suitable for up to 30° line deviation. The Clamp bush incorporates a split design for ease of application.

Catalogue Number		Cable Size (mm^2)		
Galvanised Body	Stainless Body	2 Core	3 Core	4 Core
ASCSC-435	ABCSC-435S	50	50	35
ABCSC-450	ABCSC-450S	-	-	50
ABCSC-470	ABCSC-470S	95	-	70
ABCSC-495	ABCSC-495S	-	-	95
ABCSC-4150	ABCSC-4150S	-	-	150



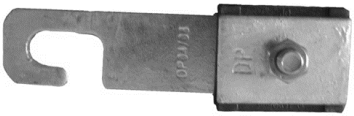
Material:
Hardware: Galvanized Steel
Bush: EPDM Rubber

Service Clamps

These clamps are designed to facilitate service wire installation.

Catalogue Number	Type	Cable Size (mm^2)
ABCTCS-235	Strain	2x6 - 2x35
ABCTCS-435	Strain	2x6 - 2x35 4x6-4x35
ABCTC-21035	Strain/Suspension	2x10 - 2x35
ABCTC-41035	Strain/Suspension	4x10 - 4x35
RC3	Roller	2x4 - 2x10
RC4	Roller	4x16

Materials:
Glass filled nylon
Straps: Stainless steel



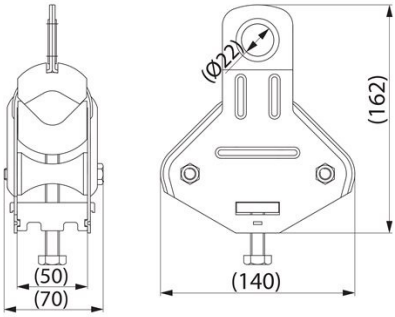
LVABC BOLTED CLAMPS

Suspension Clamp and Extension Rollers

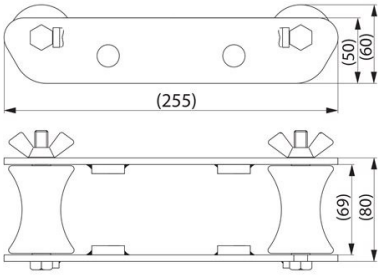
Used for the Installation and suspension of the 4 core ABC cables from poles in straight lines and at angles of up to 90 degrees with 4 x 25mm^2 and 4 x 50mm^2 cables or up to 60 degrees with 4 x 95mm^2 cables.

ST 26.99 extension rollers are used during the installations when angles exceed 30 Degrees.

Catalogue Number	Conductor Size (mm^2)	Minimum Vertical Failing Load (kN)	Weight (g)	Pack Size
SO 99	4 x 25 - 4 x 95	18	950	10
ST 26.99	Extension rollers for SO 99	18	2300	10



SO 99



ST 26.99

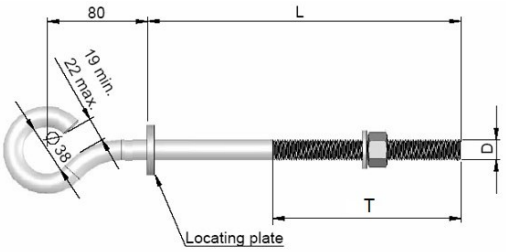
LVABC HARDWARE

Hook Bolts

Suitable for low voltage aerial bundled cables.

Catalogue Number		Length L (mm)	Thread Length T (mm)
Diameter D 16mm	Diameter D 20mm		
ABCHB16-150	ABCHB20-150	150	100
ABCHB16-250	ABCHB20-250	250	150
ABCHB16-350	ABCHB20-350	350	150
ABCHB16-450	ABCHB20-450	450	150

Material:
Galvanized Steel

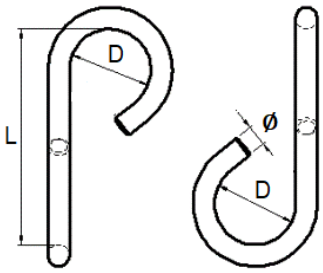


Weak Links

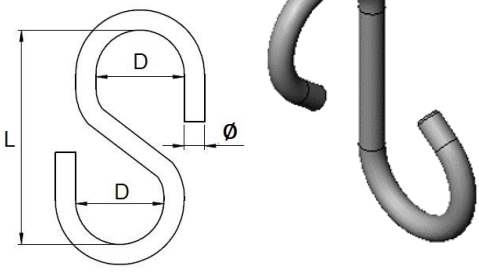
Suitable for low voltage aerial bundled cables.

Catalogue Number	Loop Diameter D (mm)	Overall Length L (mm)	Rod Diameter Ø (mm)
ABCWL-1.5	26	63	6
ABCWL-4	38	100	10
ABCWL-8	38	114	12

Material:
Carbon Grade Galvanized Steel



ABCWL-4 & ABCWL-8



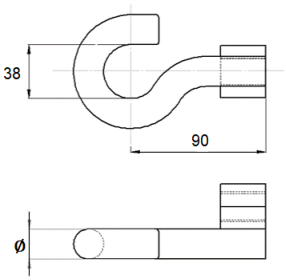
ABCWL-1.5

LVABC HARDWARE

Hook Nuts

Catalogue Number	Rod Diameter ø (mm)	Thread Size (mm)	Minimum Failing Load (kN)
ABCHN-12	16	M16	12kN
ABCHN-24	20	M20	24kN

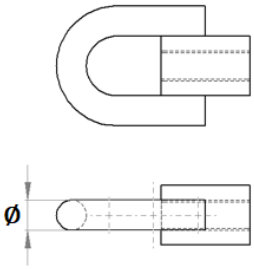
Material:
Galvanized Steel



Eye Nuts

Catalogue Number	Eye Diameter ø (mm)	Thread Size (mm)	Thread Length (mm)	Minimum Failing Load (kN)
ABCEN-16	12	16	30	44
ABCEN-20	16	20	40	70
ABCEN-2020	20	20	40	120
ABCEN-24	20	24	45	120

Material:
Galvanized Steel



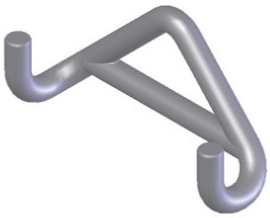
LVABC HARDWARE

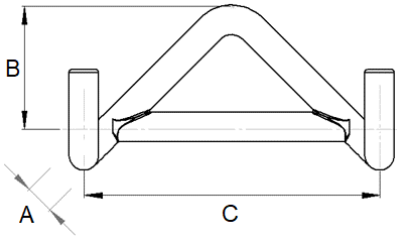
Yoke Bars

The yoke bar is suitable for use with two of the ABCSC style clamps on angle poles, where the line angle deviates by more than 30°

Catalogue Number	Dimension, mm			Min. Failing Load kN AS3766
	A	B	C	
ABCYB-12	16	105	175	12
ABCYB-12A		130	300	12

Materials:
Galvanized Steel



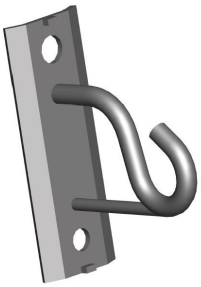


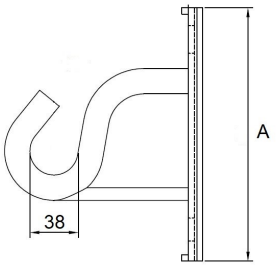
Hook Brackets

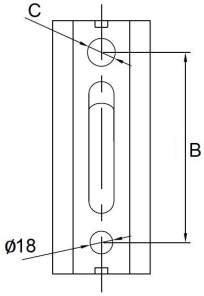
The hook bracket can be fixed to concrete or steel poles with stainless steel strapping and fixed to wooden poles with bolts or coach screws.

Catalogue Number	Dimension (mm)			Min. Failing Load kN AS3766
	A	B	C	
ABCHBR-12	200	150	18	12
ABCHBR-12L	250	200		
ABCHBR-12EA	200	150	22	
ABCHBR-24			18	24

Materials:
Galvanized Steel







LVABC INSTALLATION TOOLS

Wedges

During the installation of connectors the phase conductors of an insulated overhead cable can be separate by using wedges. The wedge can also be used when installing suspension clamps. The wedges can be left on the cable even after the installation.

Catalogue Number	Description	Weight (g)	Pack Size
ST 31	Two Plastic Wedges	100	10
ST 192	One Plastic Wedge	140	10
PMR 87	Single Wedge for 4 x 95mm^2	20	50
PMR 154	Single Wedge for 4 x 50mm^2	20	50

Materials:
Plastic

ST 31

ST 192

PMR 87 and PMR 154

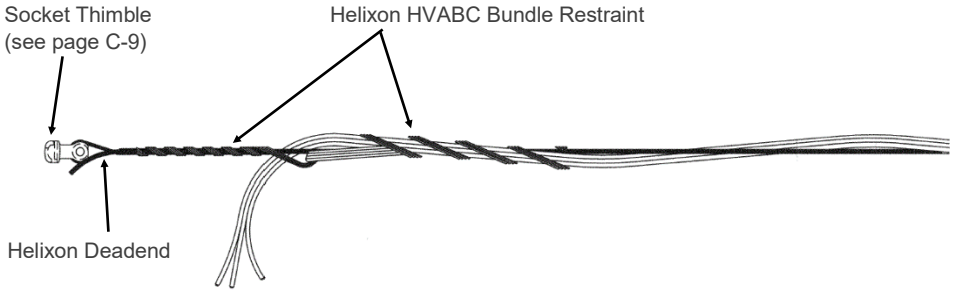
HVABC SYSTEMS

HVABC Bundle Restraints

The Helixon Bundle Restraint is a preventative restraint designed to minimise bird caging. Bird caging is caused by either gravity forces pulling on the conductor or as a result of a fault current.

Designs for Helixon restraints for metallic screened cables are available on request.

Catalogue Number	11kV Non Metallic Screened mm^2	22kV Non Metallic Screened mm^2
HR35-50	35 & 50	-
HR70	70	35
HR95	95	50
HR70-95	-	70 & 95
HR120-150	120 & 150	-
HR185	185	-
HR120-150L	-	120 & 150
HR185L	-	185



Helixon Deadend to suit catenary wire:

Metallic screened 7/2.00 SC/GZ	DE-S 06.00 (See page A-4)
Metallic screened 19/2.00 SC/GZ	DE-S 09.75 (See page A-4)
Non metallic screened 7/4.75 AAAC	DE-A 14.30 (See page A-3)
Non metallic screened 19/3.65 AAAC	DE-A 17.50 (See page A-3)

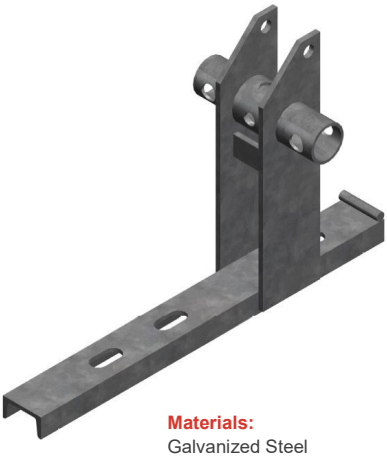
HVABC SYSTEMS

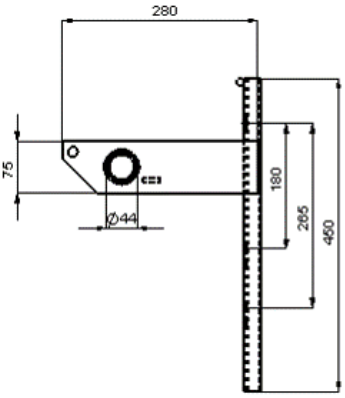
HVABC Suspension Assembly

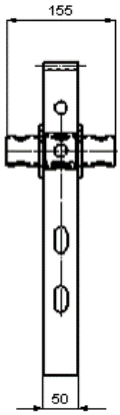
HVABC SYSTEMS

HVABC Suspension Bracket and Hook Bolt

Part Number: SB10312

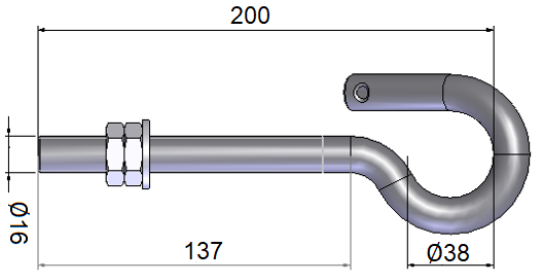


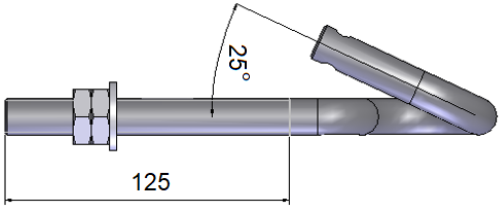




Materials:
Galvanized Steel

Part Number: SHB16200





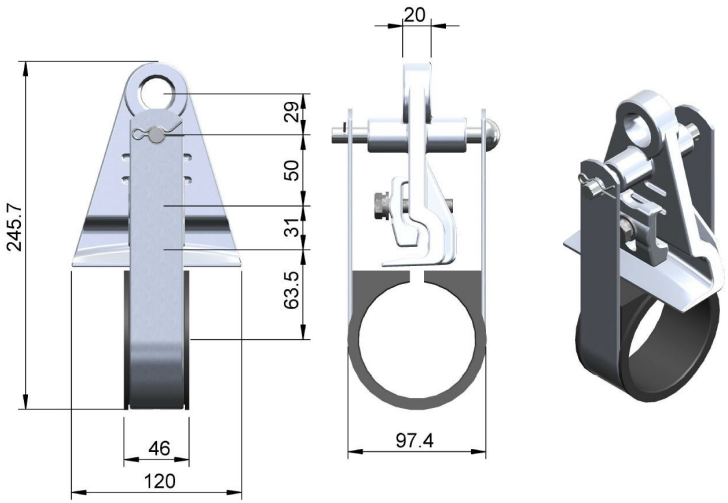
Materials:
Galvanized Steel

HVABC SYSTEMS

HVABC Suspension Clamp

Maclean Power HVABC suspensions clamp are suitable for use on Metallic and Non-Metallic screened High Voltage ABC cables. The suspension clamp can be used for line deviations up to 45 degrees.

Catalogue Number	HVABC Type (mm^2)			
	11kV Metallic Screened	22kV Metallic Screened	11kV Non Metallic Screened	22kV Non Metallic Screened
ABCHVMSC-35	35	-	-	-
ABCHVMSC-50	50	-	-	-
ABCHVMSC-70	70	35	-	-
ABCHVMSC-95	95 & 120	50	-	-
ABCHVMSC-150	150	70 & 95	-	-
ABCHVMSC-185	185	120	-	-
ABCHVMSC-150L	-	150	-	-
ABCHVMSC-185L	-	185	-	-
ABCHVNMSC-35	-	-	35 & 50	-
ABCHVNMSC-70	-	-	70	-
ABCHVNMSC-95	-	-	95 & 120	35 & 50
ABCHVNMSC-150	-	-	150	70
ABCHVNMSC-185	-	-	185	95 & 120
ABCHVNMSC-150L	-	-	-	150
ABCHVNMSC-185L	-	-	-	185

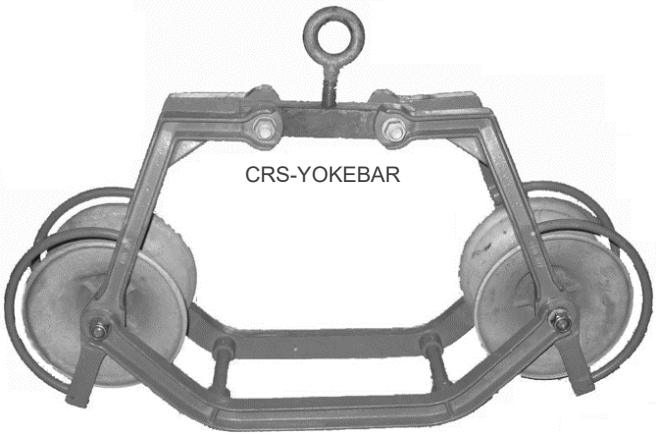


HVABC SYSTEMS

HVABC Roller and Strap

The Maclean Power HVABC roller makes stringing HVABC easy. With its unique design and ease of handling, adjusting the sag and hanging the suspension clamps becomes simple. With the additional yoke bar, most of the stringing angles can be accomplished.

Catalogue Number	Approx. Weight (kg)
CSR-HVABC	10.5
CSR-YOKEBAR	3.5



CRS-HVABC

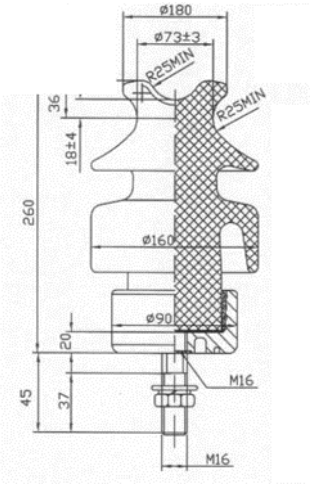
Catalogue Number	Approx. weight (kg)
RATCHETSTRAP	1.3

RATCHETSTRAP

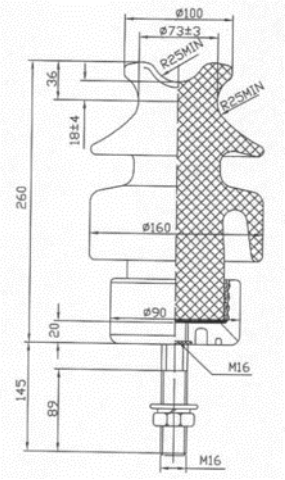
HVABC SYSTEMS

Line Post and Strain Insulators

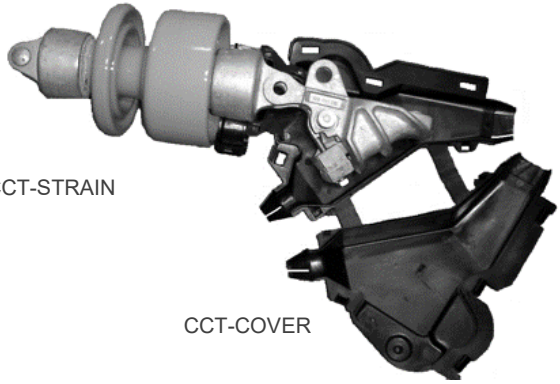
Catalogue Number		Voltage Rating (kV)	Cantilever/Tensile Failing Load (kN)	Pin Length (mm)	Pin Size (mm)
Line Post	CCT-45	11	7	45	M16
	CCT-145	11	7	145	M16
	CCT-165	22	12.5	165	M16
Strain	CCT-STRAIN	11	45	-	16
	CCT-STRAIN-400-70	22	70	-	16
	CCT-COVER	-	-	-	-



CCT-45



CCT-145



CCT-STRAIN

CCT-COVER

ANCHORING SYSTEMS SECTION G

ANCHOR RODS

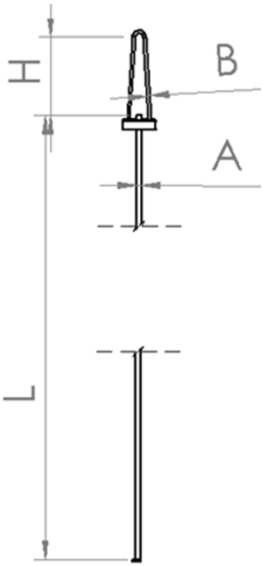
ANCHORS

INSTALLATION TOOLS

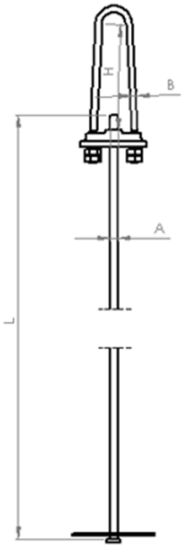
ANCHOR RODS

STAY RODS AND BOWS

Catalogue Number	Dimension, mm				Approx. Weight kg
	A	B	H	L	
STA-PNG-1	20	16	355	2745	10.5
STA-PNG-2	24	20	355	3200	13.5
STAY- 1	20	16	355	2500	11.5
STAY- 2	16	16	355	2000	10.0
STAY -3	24	20	550	4500	20.0
STAY- 4	24	24	355	2400	10.5



STA-PNG-1
STA-PNG-2
STAY-2
STAY-4



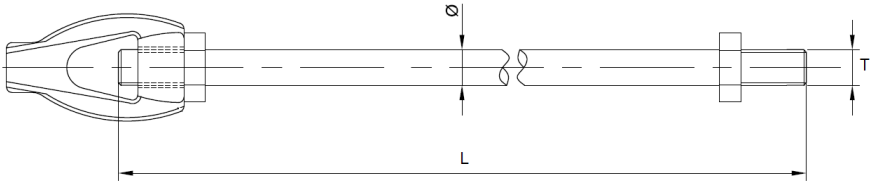
STAY-1
STAY-3

Material:
Galvanized Steel

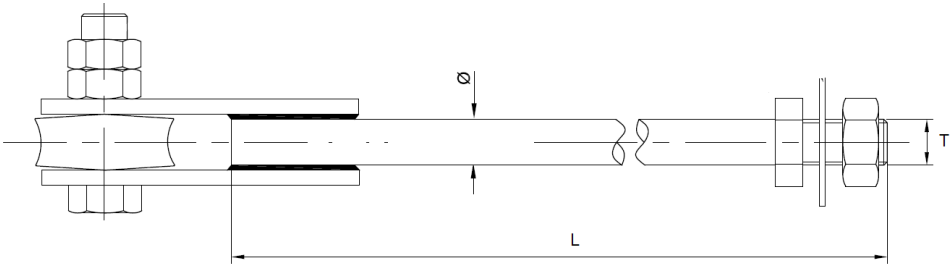
ANCHOR RODS

Catalogue Number	Minimum Failing Load kN	Dimension, mm		
		L	Ø	T
AR-203000-GS-C	70	3000	20	M20
AR-242133-SS	141	2133	23	M24
AR-242140-GS	141	2140	23	M24
AR-243000-GS-C	100	3000	23	M24
AR-244500-GS-C	100	4500	23	M24
AR-364000-GS	327	4000	36	M36
AR-364500-GS-C	200	4500	36	M36
AR-365800-GS-C	200	5800	36	M36

Note:
SS = Stainless Steel
GS = Galvanised Steel



M20 & M24 Rods



M36 Rods

Material:
Galvanized Steel
Stainless Steel

ANCHOR RODS

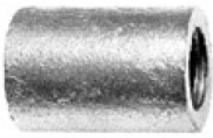
ANCHOR ROD ACCESSORIES

Eye Nut Thimble

Catalogue Number	Minimum Failing Load (kN)	Tapped Thread	Approx. Weight (kg)
Single Guy Eye			
ENT-16	70	M16	0.45
ENT-20	141	M20	0.86
ENT-24	141	M24	0.86
Double Guy Eye			
ENT2-16	70	M16	0.82
ENT2-20	160	M20	0.82
ENT2-24	160	M24	0.82
Triple Guy Eye			
ENT3-16	70	M16	1.0
ENT3-20	160	M20	1.0
ENT3-24	160	M24	1.0

Anchor Rod Couplings

Catalogue Number	Tapped Thread	Approx. Weight kg
D352	16	0.22
D354-M20	20	
D354-M24	24	



Material:
Galvanized Steel

ANCHORS

POWER HUB

Features:

- Used for normal soil conditions.
- Compatible with all M20 and M24 Anchor Rods
- Solid hub design
- Installed using the 5 1/4" anchor installing tool (see page).
- For installation guides please contact our Sydney sales office.

1 3/8" Solid Square Hub

Catalogue Number	Helix Size (mm)	Helix Thickness (mm)	Thread Size	Approx. Weight kg
Single Helix 4,000 Ft/lb Ultimate Installing Torque				
D-84	203	9.5	M20 or M24	4.5
D-104	254	9.5	M20 or M24	5.9
D-114	305	9.5	M20 or M24	7.3
D-134	356	9.5	M20 or M24	9.5
Twin Helix 4,000 Ft/lb Ultimate Installing Torque				
D-84-2	203	9.5	M20 or M24	10.9
D-104-2	254	9.5	M20 or M24	13.6
Single Helix 6,000 Ft/lb Ultimate Installing Torque				
D-84-6	203	9.5	M20 or M24	4.5
D-104-6	254	9.5	M20 or M24	5.9
D-114-6	305	9.5	M20 or M24	7.3
D-134-6	356	9.5	M20 or M24	9.5
Twin Helix 6,000 Ft/lb Ultimate Installing Torque				
D-84-2-6	203	9.5	M20 or M24	13.2
D-104-2-6	254	9.5	M20 or M24	15.9
D-114-2-6	305	9.5	M20 or M24	16.8
D-134-2-6	356	9.5	M20 or M24	20.3

ANCHORS

POWER HUB Cont.

1 1/2" Solid Square Hub

Catalogue Number	Helix Size (mm)	Helix Thickness (mm)	Thread Size	Approx. Weight (kg)
Single Helix 5,500 Ft/lb Ultimate Installing Torque				
D-184	203	9.5	M20 or M24	5.0
D-1104	254	9.5	M20 or M24	6.4
D-1114	305	9.5	M20 or M24	7.7
D-1134	356	9.5	M20 or M24	10.0
Twin Helix 5,500 Ft/lb Ultimate Installing Torque				
D-284	203	9.5	M20 or M24	14.5
D-2104	254	9.5	M20 or M24	17.2
Single Helix 7,000 Ft/lb Ultimate Installing Torque				
D-184-7	203	9.5	M20 or M24	5.0
D-1104-7	254	9.5	M20 or M24	6.8
D-1114-7	305	9.5	M20 or M24	8.2
Twin Helix 7,000 Ft/lb Ultimate Installing Torque				
D-244-7	102	9.5	M20 or M24	3.6
D-284-7	203	9.5	M20 or M24	12.2
D-2104-7	254	9.5	M20 or M24	14.5

Single Helix

Twin Helix

ANCHORS

SOCKET DRIVE TURBO DRIVE®

Features:

- Suitable for tough soils where the solid hub anchors cannot be installed.
- Compatible with all M20 and M24 Anchor Rods
- One piece cast steel hub for increased torque capacity and bending strength.
- Four flute hub to break up tough soils.
- For 2 1/4" sized socket use 5 1/4" bolt circle anchor installing tool (see page).
- For 2 1/2" sized socket use 7 5/8" bolt circle anchor installing tool (see page).
- For installation guides please contact our Sydney sales office.

2 1/4" Socket Drive Anchor

Catalogue Number	Helix Size (mm)	Helix Thickness (mm)	Thread Size	Approx. Weight kg
Standard 13,558 Nm Ultimate Torque Capacity				
TD225-64	152	9.5	M20 or M24	3.7
TD225-84	203	9.5	M20 or M24	5.1
TD225-104	254	9.5	M20 or M24	6.4
TD225-114	305	9.5	M20 or M24	8.1
TD225-134	356	9.5	M20 or M24	10.2
Heavy Duty 13,558 Nm Ultimate Torque Capacity				
TDH225-84	203	12.7	M20 or M24	5.8
TDH225-104	254	12.7	M20 or M24	7.6
TDH225-114	305	12.7	M20 or M24	9.8
TDH225-134	356	12.7	M20 or M24	12.2

ANCHORS

SOCKET DRIVE TURBO DRIVE® Cont.

2 1/2" Socket Drive Anchor

Catalogue Number	Helix Size (mm)	Helix Thickness (mm)	Thread Size	Approx. Weight kg
Standard 20,337 Nm Ultimate Torque Capacity				
TD250-84	203	9.5	M20 or M24	6.0
TD250-104	254	9.5	M20 or M24	7.3
TD250-114	305	9.5	M20 or M24	9.0
TD250-134	356	9.5	M20 or M24	11.0
Heavy Duty 20,337 Nm Ultimate Torque Capacity				
TDH250-84	203	12.7	M20 or M24	6.6
TDH250-104	254	12.7	M20 or M24	8.3
TDH250-114	305	12.7	M20 or M24	10.7
TDH250-134	256	12.7	M20 or M24	13.2

ANCHORS

POWER SHAFT - ROUND

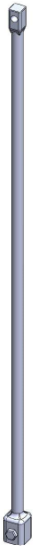
Features:

- Used in soft soil conditions with moderate strength requirements
- Ultimate torsion capacity of the shaft is 3118 Nm
- Shaft extensions available from 1m to 3m
- For use with 1 1/2" guy attachments

1 1/4" Round Shaft Anchors

Catalogue Number	Helix Size (mm)	Approx. Weight kg
2.1 m Length 3,118 Nm Ultimate Torque Capacity		
D-6708	203	18.1
D-6710	254	19.1
D-6711	305	19.2
D-6713	356	25.0
D-6720	203 & 254	21.8
D-6730	203, 254 & 305	25.9

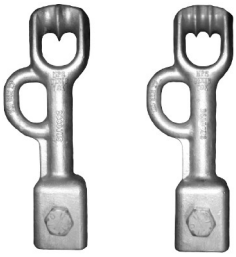
1 1/4" Round Shaft Extensions



Catalogue Number	Shaft Length (m)	Approx. Weight kg
3,118 Nm Ultimate Torque Capacity		
D-6733	1	8.2
D-6735	1.5	11.2
D-6737	2.1	15.1
D-6740	3	21.1

1 1/2" Guy Attachments

Catalogue Number	No. of Guys	Approx. Weight kg
D-6602US	1	4.2
D-6604US	2	
D-6606US	3	



ANCHORS

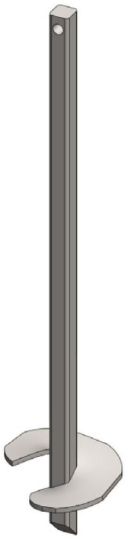
POWER SHAFT - SQUARE

Features:

- Used in areas where additional helices must be installed and greater torque capacity is required
- Available in 3 sizes - 1 1/2" (7,457 or 9,490 Nm), 1 3/4" (13,558 Nm) and 2" (20,337 Nm)
- Shaft extensions available from 1m to 3m

1 1/2" Square Shaft Anchors (Lead Section)

Catalogue Number	Helix Size (mm)	Length (m)	Approx. Weight kg
7,457 Nm Ultimate Torque Capacity			
D-6632	203 & 254	0.9	15.4
D-6634	254 & 305	1.0	21.8
D-6635	203, 254, 305 & 356	3.2	57.2
D-6636	203, 254 & 305	1.7	29.5
D-6637	254, 305 & 356	2.1	41.3
D-6638	254, 305, 356 & 356	3.2	62.1
9,490 Nm Ultimate Torque Capacity			
D-6632-7	203 & 254	0.9	15.4
D-6634-7	254 & 305	1.0	21.8
D-6636-7	203, 254 & 305	1.7	29.5
D-6637-7	254, 305 & 356	2.1	41.3



1 1/2" Square Shaft Extensions with Helix

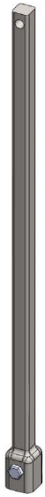
Catalogue Number	Helix Size (mm)	Shaft Length (m)	Approx. Weight kg
7,457 Nm Ultimate Torque Capacity			
D-6670UC	305	1.5	23.8
D-6620UD	356		25.6
9,490 Nm Ultimate Torque Capacity			
D-6616UC7	305	1.0	18.4
D-6616UD7	356		22.2

ANCHORS

POWER SHAFT - SQUARE Cont.

1 1/2” Square Shaft Extensions

Catalogue Number	Length (m)	Approx. Weight kg
7,457 Nm Ultimate Torque Capacity		
D-6616U	1.0	12.8
D-6620U	1.5	18.1
D-6625U	2.1	25.8
D-6630U	3.0	36.7
9,490 Nm Ultimate Torque Capacity		
D-6616U7	1.0	12.8
D-6620U7	1.5	18.5
D-6625U7	2.1	25.8
D-6630U7	3.0	36.7



1 1/2” Guy Attachments

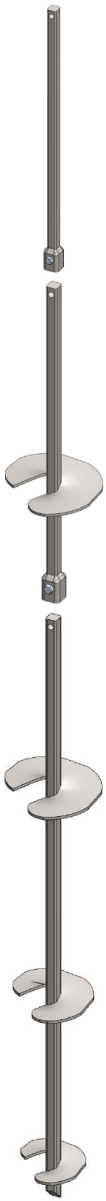
Catalogue Number	No. of Guys	Approx. Weight kg
D-6602US	1	4.2
D-6604US	2	
D-6606US	3	

ANCHORS

POWER SHAFT - SQUARE Cont.

1 3/4" Square Shaft Anchors (Lead Section)

Catalogue Number	Helix Size (mm)	Length (m)	Approx. Weight kg
13,558 Nm Ultimate Torque Capacity			
D-6632	203 & 254	1.5	30.0
D-6634	254 & 305		33.1
D-6635	203, 254 & 305	1.7	37.1
D-6636	254, 305 & 356	2.1	49.9
D-6637	254, 305, 356 & 356	3.0	72.1



1 3/4" Square Shaft Extensions with Helix

Catalogue Number	Helix Size (mm)	Shaft Length (m)	Approx. Weight kg
13,558 Nm Ultimate Torque Capacity			
D-2801-0011	356	1.2	30.6

1 3/4" Square Shaft Extensions

Catalogue Number	Length (m)	Approx. Weight kg
13,558 Nm Ultimate Torque Capacity		
D-17516	1.0	17.2
D-17520	1.5	24.5
D-17525	2.1	35.0
D-17530	3.0	48.9

1 3/4" Guy Attachments

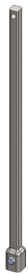
Catalogue Number	No. of Guys	Approx. Weight kg
D-2801-0002	3	11.6

ANCHORS

POWER SHAFT - SQUARE Cont.

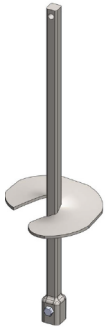
2” Square Shaft Anchors (Lead Section)

Catalogue Number	Helix Size (mm)	Length (m)	Approx. Weight kg
20,337 Nm Ultimate Torque Capacity			
D-1560T810	203 & 254	1.8	39.4
D-1560T1012	254 & 305		43.5



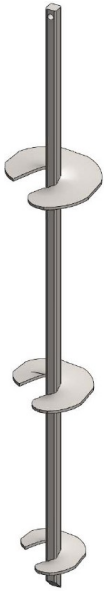
2” Square Shaft Extensions with Helix

Catalogue Number	Helix Size (mm)	Shaft Length (m)	Approx. Weight kg
20,337 Nm Ultimate Torque Capacity			
D-15E42T14	356	1.0	32.2
D-15E60T12	305	1.5	44.9
D-15E60T14	356		47.4
D-15E84T14		2.1	53.8



2” Square Shaft Extensions

Catalogue Number	Length (m)	Approx. Weight kg
20,337 Nm Ultimate Torque Capacity		
D-15E42	1.0	28.7
D-15E60	1.5	38.1
D-15E84	2.1	44.0
D-15E120	3.0	61.2



ANCHORS

EXPANDING, CROSS PLATE AND POLE KEY ANCHORS

Expanding Anchors

Maclean Power Expanding Anchors are made for installation in holes augered by power drillers. They are a one piece formed anchor with wings and a base. A retainer at the bottom holds the nut from the forged eye rod.

Catalogue Number	Drilled Hole Size (mm)	Area (m^2)	Rod Size	Approx. Weight (kg)
J0870	152	0.045	5/8	2.3
J8115	203	0.074	5/8 or 3/4	4.1
J8135		0.087		
J8135-1			1	
J8200-1	254	0.129		8.2
J8200-3/4			5/8 or 3/4	
J0283	305	0.194	1 1/4	13.2
J0283-1			1	

Cross Plate Anchors

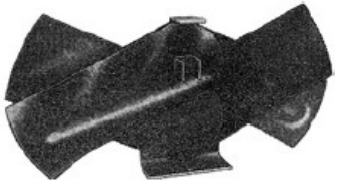
Maclean Power Cross Plate Anchors are made from installation in holes augered by power drillers. They are a one piece plate anchor formed of two structural members that are ribbed for reinforcement. A retainer at the bottom holds the nut from the forged eye rod.

Catalogue Number	Drilled Hole Size (mm)	Area (m^2)	Rod Size	Approx. Weight (kg)
J3516	406	0.097	5/8 or 3/4	4.5
J3520	508	0.161		7.3
J3520-1			1	
J3524-3/4	610	0.258	5/8 or 3/4	15.0
J3524			1	
J3524-1			1 1/4	

ANCHORS

EXPANDING, CROSS PLATE AND POLE KEY ANCHORS Cont.

Pole Key Anchors



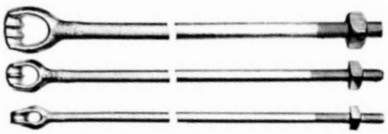
Maclean Power Pole Key Anchors are for use at the butt of poles to reinforce them against unbalanced loads. Pole Key Anchors are used in applications where guying isn't allowable or additional reinforcement is required.

Catalogue Number	Width Expanded (mm)	Blade Width (mm)	Area Expanded (m^2)	Approx. Weight (kg)
J0870	692	178	0.178	11.3

Galvanised Forged Eye Rods

Maclean Power Galvanised Forged Eye Rods feature an integral forged eye available for one, two or three guys and in various lengths. For use with expanding and cross plate anchors. The forged eye rods have a 90mm thread length and are assembly with a heavy square nut.

Catalogue Number			Failing Load (kN)	Rod Diameter (In)	Length (m)	Approx. Weight (kg)
Single	Double	Triple				
J7415	-	-	71	5/8	1.5	2.4
J7416	J7516	-			1.8	2.9
J7417	J7517	-			2.1	3.6
J7418	J7518	-			2.4	3.8
J7427	J7527	J7327	102	3/4	2.1	5.1
J7428	J7528	J7328			2.4	5.7
J7429	J7529	J7329			2.7	6.5
J7430	J7530	-			3.0	7.1
-	J7538	J7338	160	1	2.4	10.0
-	J7540	J7340			3.0	12.2
-	-	J7350	258	1 1/4		20.0



ANCHORS

ROCK ANCHORS AND NO WRENCH ANCHORS

Rock Anchors

Maclean Power Rock Anchors are made for installation into core drilled holes in rock. During installed the wedge action expands to develop the full strength of the anchor. The Maclean Power Rock Anchor comes with a forged triple guy eye and is available in 3/4" and 1" rod sizes of various length.

Catalogue Number	Rod Length (mm)	Anchor Size Closed (mm)	Anchor Size Open (mm)	Hole Size (mm)	Approx. Weight (kg)
3/4" Diameter - 102 kN Ultimate Strength Rating					
J3436	381	45	60	48	2.3
J3437	762				3.2
J3438	1346				4.5
JR360	1524				5.0
JR372	1829				5.4
JR384	2134				5.9
JR396	2438				6.8
1" Diameter - 160 kN Ultimate Strength Rating					
JR130L	762	57	79	60	6.4
JR153L	1346				8.2
JR172L	1829				10.9
JR196L	2438				13.2

ANCHORS

ROCK ANCHORS AND NO WRENCH ANCHORS Cont.

No Wrench Anchors

Maclean Power No Wrench Anchors can be installed either manually or by machine The No Wrench Anchor consists of a integral forged triple guy eye rod with a helix welded to the shaft. Available in 3/4", 1" and 1 1/4 inch rod diameters in various lengths.

Catalogue Number	Helix Size (mm)	Rod Diameter (In)	Rod Length (mm)	Approx. Weight (kg)
J6524WCA	102	3/4	1372	3.7
J6526WCA	152		1676	4.9
J6528WCA	203	1		8.7
J6530WCA	254	1 1/4		13.7
J6550WCA			2438	18.6
J6584WCA	356			21.3
J6585WCA	381			23.6

No Wrench Anchor Extension

Catalogue Number	Rod Diameter (In)	Rod Length (mm)	Approx. Weight (kg)
J6524WCA	1 1/4	1829	13.2

INSTALLATION TOOLS

ANCHOR INSTALLATION TOOLS

Kelly Bar Adaptors

Catalogue Number	Bolt Circle	For Drive Head Shaft Size Hex	Torque Rating (Nm)
KB200-525	5 1/4	2”	13558
KB250-525		2 1/2”	
KB263-525		2 5/8”	
KB200-7625	7 5/8	2”	27116
KB250-7625		2 1/2”	
KB263-7625		2 5/8”	
KB300-7625		3”	

Drive Tools

Catalogue Number	Description	Bolt Circle	Torque Rating (Nm)
D4806-0007	For 1 1/2” RCS	5 1/4	13558
IT28-7625	For 1 1/2” RCS	7 5/8	27116
IT35-7625	For 1 3/4” RCS		
IT45-7625	For 2” RCS		

Locking Dog Assemblies

Catalogue Number	Description	Bolt Circle	For Drive Head Shaft Size	Torque Rating (Nm)
D4806-0053	For 5 1/4” bolt circle	5 1/4	-	13558
D4806-0024	For 7 5/8” bolt circle	7 5/8		20337
D4806-0010	Combo tool - Locking dog assembly with 2 1/2” hex kelly bar adaptor	-	2 1/2”	
D4806-0005	Combo tool - Locking dog assembly with 2 5/8” hex kelly bar adaptor	-	2 5/8”	

INSTALLATION TOOLS

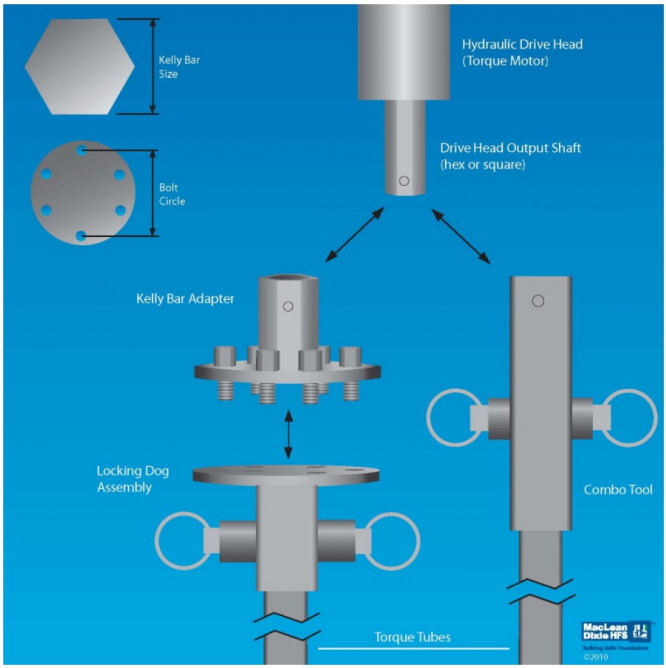
ANCHOR INSTALLATION TOOLS Cont.

Torque Tubes

Catalogue Number	Description	Torque Rating (Nm)
D9101-0003	2.1m tube for 1 3/8" solid hub and 2 1/4" socket drive	13558
D30187	2.1m tube for 1 1/2" solid hub and 2 1/4" docket drive	
D9101-0004	1m torque tube for 1 3/8" solid hub and 2 1/4" socket drive	
D30187-1	3m tube for 1 1/2" RCS	

No Wrench Drive Tool

Catalogue Number	Description	Bolt Circle	Torque Rating (Nm)
D4806-0052	For 3/4", 1" and 1 1/4"diameter triple eye shafts	5 1/4	3389



AUTOMATIC CONNECTORS SECTION H

AUTOMATIC DEADENDS

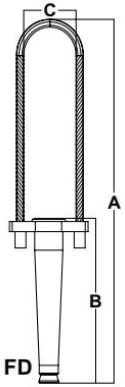
AUTOMATIC SPLICES

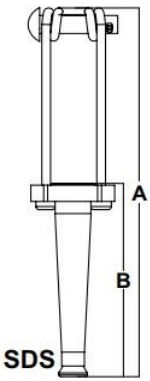
AUTOMATIC DEADENDS

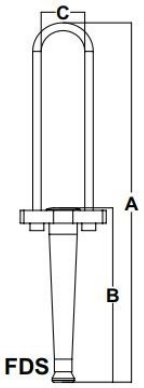
ConductRvise™ - For AAC, AAAC and ACSR

Maclean Power ConductRvise™ automatic Deadends are for use on AAC, AAAC and ACSR conductors. The ANSI C119.4 full tension class A connectors are rated for 95% of the conductor CBL.

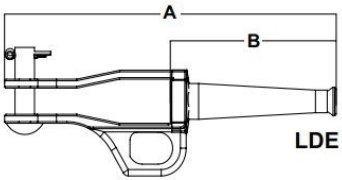
Catalogue Number	Conductor Stranding (AAC/AAAC/ACSR)	Dimension (mm)		Standard Pack Size
		A	B	
Diameter Range 5.82 - 8.64				
R7652AP SDS	6/1/2.50 7/2.50	306	168	50
R7652AP LD		296		25
R7652AP LDE		309		25
R7652AP FD		359		50
R7652AP FDS		328		50
Diameter Range 9.27 - 12.07				
R7654AP SDS	6/1/3.75 7/3.75	339	198	25
R7654AP LD		362		10
R7654AP FD		372		25
Diameter Range 12.75 - 14.90				
R7656AP SDS	7/4.50 7/4.75 6/4.75 +7/1.60	495	229	25
R7656AP FD		422		20
R7656AP FDS		446		25
Diameter Range 14.73 - 18.39				
R7658AP SDS	19/3.25 19/3.50 30/7/2.50	554	281	10
Diameter Range 18.80 - 21.74				
R7659AP	19/4.75 30/7/3.00 37/3.00	573	300	10

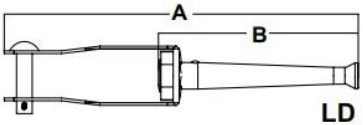






Note: A minimum tension of 15% CBL is recommended to assure a permanent low resistance electrical connection.



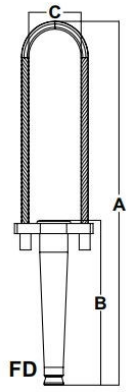


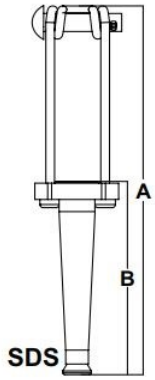
AUTOMATIC DEADENDS

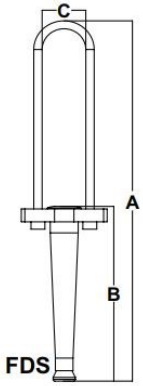
Copper Automatic Deadends - For HDC

Maclean Power Copper automatic Deadends are for use on solid or stranded HDC conductors.

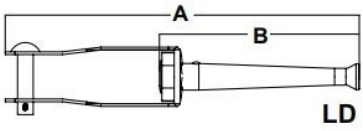
Catalogue Number	Conductor Stranding	Dimension (mm)			Standard Pack Size
		A	B	C	
Diameter Range 3.05 - 3.43					
R81 LD	-	175	60	-	50
R81 FD		235		51	
Diameter Range 3.71 - 4.27					
R61 SDS	7/1.25 7/.048	178	60	-	50
R61 LD		175		-	
R61 FD		235		51	
R61 FDS		235		51	
Diameter Range 4.67 - 5.33					
R41 SDS	7/1.75 7/.064	189	61	-	50
R41 LD		170		-	
R41 FD		235		51	
R41 FDS		184		51	
Diameter Range 5.72 - 6.22					
R47 SDS	7/2.00 7/.080 19/.044	189	70	-	50
R47 LD		170		-	
R47 FD		235		51	
R47 FDS		184		51	
R27 SDS	7/.093	211	70	-	25
R27 LD		210		-	
R27 FD		251		51	
R27 FDS		191		51	







Note: A minimum tension of 15% CBL is recommended to assure a permanent low resistance electrical connection.

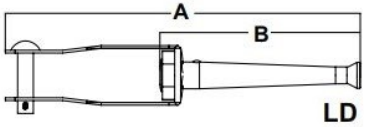


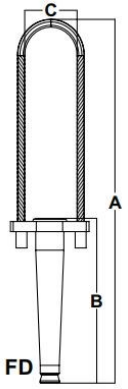
AUTOMATIC DEADENDS

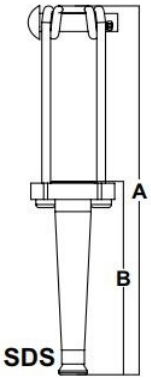
Copper Automatic Deadends - For HDC Cont.

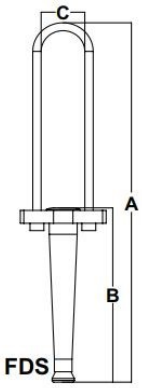
Catalogue Number	Conductor Stranding	Dimension (mm)			Standard Pack Size
		A	B	C	
Diameter Range 7.75 - 8.64					
R101 SDS	7/.104 7/2.75 19/.064	211	70	-	25
R101 LD		210		-	
R101 FD		251		51	
Diameter Range 8.64 - 9.78					
R107 SDS	7/3.00 7/.118 19/.072 19/1.75	213	86	-	25
R107 LD		227		-	
R107 FD		318		51	
R107 FDS		263		59	
Diameter Range 10.00 - 10.67					
R207 SDS	7/3.50 19/2.00 19/.083	213	3.40	-	25
R207 LD		227		-	
R207 FD		318		51	
Diameter Range 11.10 - 12.07					
R307 SDS	7/3.75 37/.064	305	122		10
R307 LD		283			
R307 FDS		295		59	
Diameter Range 12.32 - 13.75					
R407 SDS	19/.101 19/.104 19/2.75	305	122	-	10
R407 LD		283		-	
R407 FD		316		51	

Note: A minimum tension of 15% CBL is recommended to assure a permanent low resistance electrical connection.







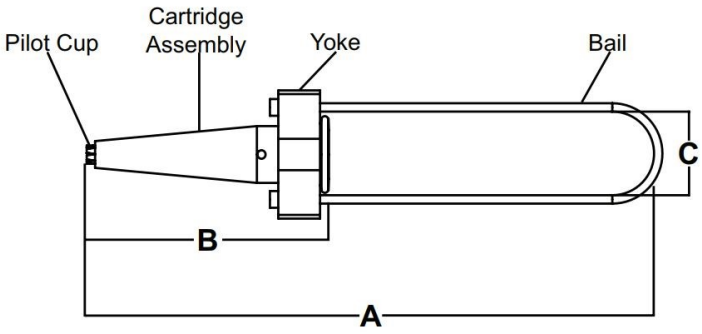


AUTOMATIC DEADENDS

Strandvise® for SC/GZ and SC/AC

Maclean Power Strandvise® Deadends are for use with galvanised steel and Al-Clad steel stranded conductor, and guy wire. They are rated to hold a minimum of 90% CBL of the conductor used

Catalogue Number	Conductor Stranding	Dimensions (mm)			Bail Type	Standard Pack Size
		A	B	C		
Diameter Range (mm): 3.68 - 5.46						
R5199	3/2.00	257	118	41	A	50
R5255	7/1.60	324		70	E	25
R5261		567				
Diameter Range (mm): 5.46 - 6.86						
R5200	3/12	264	124	41	A	50
R5250	3/2.75	352		57	B	
R5200L	7/2.00	352		41	C	
R5262	3/3.00	574		70	E	25
R5268		727				
Diameter Range (mm): 6.86 - 8.00						
R5201	3/3.25 7/12	271	137	41	A	50
R5251		356		57	B	
R5201L		400		41	C	
R5257		357		70	E	20
R5263		595				25
R5268		754				20



AUTOMATIC DEADENDS

Strandvise® for SC/GZ and SC/AC Cont.

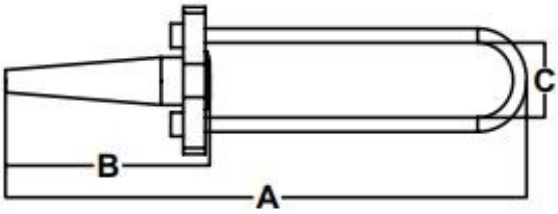
Catalogue Number	Conductor Stranding	Dimensions (mm)			Bail Type	Standard Pack Size
		A	B	C		
Diameter Range (mm): 8.25 - 9.96						
R5202	7/2.75 7/3.00 7/3.25	327	164	41	A	25
R5252		384		57	B	
R5252-6		381		70	D	
R5202L		457		51	C	
R5264		635		70	E	20
R5270		787				
Diameter Range (mm): 9.96 - 11.56						
R5203	19/2.00 7/3.75	375	171	52	A	25
R5253-6		438		70	D	
R5203L		533		51	C	
Diameter Range (mm): 11.56 - 13.21						
R5204	7/4.00 7/4.75	414	181	52	A	20
R5254		445		51	B	
R5254-6		441		70	D	
R5204L		521		51	C	

AUTOMATIC DEADENDS

Wirevise® for Single Wire

Maclean Power Wirevise® Deadends are for use with single wire galvanised steel. The minimum holding strength is 90% RBS of wire specified.

Catalogue Number	Dimensions (mm)			Wire Range (mm)
	A	B	C	
R5056	140	39	40	1.40- 2.60
R5058	140	37	40	2.30 - 2.90
R5062	196	62	38	3.10 - 3.50
R5199	259	118	40	3.70 - 5.50



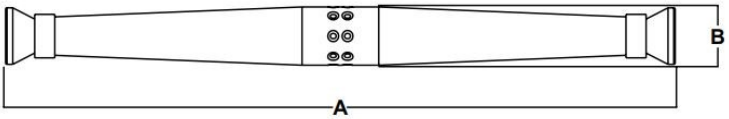
AUTOMATIC SPLICES

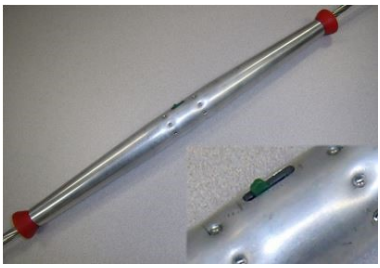
ConductRlink™ - For AAC, AAAC and ACSR

Maclean Power ConductRlink™ automatic splices are for use on AAC, AAAC and ACSR conductors. The ANSI C119.4 full tension class A connectors are rated for 95% of the conductor CBL. Available in standard, Visual Indicator Protection (VIP) and Corrosion Resistance (CRS) configurations. The VIP and CRS includes pop up tabs for both ends which create a visual guide for proper insertion.

Catalogue Number	Conductor Stranding (AAC/AAAC/ACSR)	Diameter Range (mm)	Dimension (mm)		Standard Pack Size
			A	B	
R7652AP	6/1/2.50 7/2.50	5.82 - 8.64	296	26	100
R7652AP-VIP			318		
R7652AP-CRS					
R7654AP	6/1/3.75 7/3.75	9.27 - 12.07	381	32	25
R7654AP-VIP			406		
R7654AP-CRS					
R7656AP	7/4.50 7/4.75 6/4.75 +7/1.60	12.75 - 14.90	406	40	25
R7656AP-VIP			438		
R7656AP-CRS					
R7658AP	19/3.25 19/3.50 30/7/2.50	14.73 - 18.39	508	47	10
R7658AP-VIP			546		
R7658AP-CRS					
R7659	19/4.75 30/7/3.00 37/3.00	18.80 - 21.74	553	52	10
R7659-VIP			597		
R7659-CRS					

Note: A minimum tension of 15% CBL is recommended to assure a permanent low resistance electrical connection.





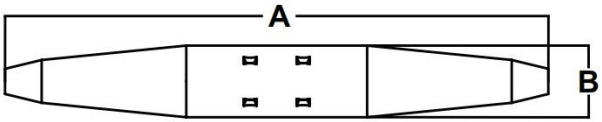
AUTOMATIC SPLICES

Copper Automatic Splices - For HDC

Maclean Power Copper automatic splices are for use on solid or stranded HDC conductors.

Catalogue Number	Conductor Stranding (HDC)	Diameter Range (mm)	Dimension (mm)		Standard Pack Size
			A	B	
R81	-	3.05 - 3.43	98	14	100
R61	7/1.25 7/.048	3.71—4.27	98	14	400
R41	7/1.75 7/.064	4.67—5.33	91	13	200
R47	7/2.00 7/.080 19/.044	5.72—6.73	93	13	200
R27	7/.093	6.86—7.75	136	14	50
R101	7/.104 7/2.75 19/.064	7.75—8.64	136	14	50
R107	7/3.00 7/.118 19/.072 19/1.75	8.64—9.78	147	19	50
R207	7/3.50 19/2.00 19/.083	10.00—10.67	147	19	50
R307	7/3.75 37/.064	11.10 - 12.07	173	32	25
R407	19/.101 19/.104 19/2.75	12.32—13.72	173	32	25

Note: A minimum tension of 15% CBL is recommended to assure a permanent low resistance electrical connection.

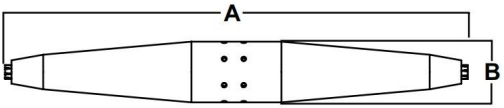


AUTOMATIC SPLICES

Strandlink® - For SC/GZ and SC/AC

Maclean Power Strandlink® aplices are for use with galvanised steel and Al-Clad steel stranded conductor, and guy wire. They are rated to hold a minimum of 90% CBL of the conductor used

Catalogue Number	Conductor Stranding (SC/GZ & SC/AC)	Diameter Range (mm)	Dimension (mm)		Standard Pack Size
			A	B	
R5039	3/2.00 7/1.60	3.68	191	26	50
R5040	3/12 3/2.75 7/2.00 3/3.00	5.46 - 6.86	194	29	50
R5041	3/3.25 7/12	6.86 - 8.00	236	32	50
R5042	7/2.75 7/3.00 7/3.25	8.25- 9.96	270	37	25
R5043	19/2.00 7/3.75	9.96-11.56	270	40	25
R5044	7/4.00 7/4.75	11.56 - 13.21	273	43	25



Wirelink® for Single Wire

Maclean Power Wirelink® splices are for use with single wire galvanised steel. The minimum holding strength is 90% RBS of wire specified.

Catalogue Number	Dimensions (mm)		Wire Range (mm)	Standard Pack Size
	A	B		
R5057	75	10	1.40- 2.60	400
R5059	75	11	2.30 - 2.90	400
R5063	103	14	3.10 - 3.50	400
R5039	190	26	3.70 - 5.50	50

INSULATORS SECTION I

PORCELAIN INSULATORS:

GLASS INSULATORS:

INSULATORS SECTION I

PORCELAIN INSULATORS

Disc Insulators - Ball & Socket Standard Profile

Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min kV	Power Frequency Withstand Voltage (kV)		Approx. Weight kg
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UP70BLZ	255	146	292	16	70	110	40	110	4.6
UP80BL	255	146	292	16	80	110	40	110	4.6
UP120BS	255	146	292	16	120	110	40	110	6.0
UP160BL	280	146	305	20	160	110	45	115	7.5

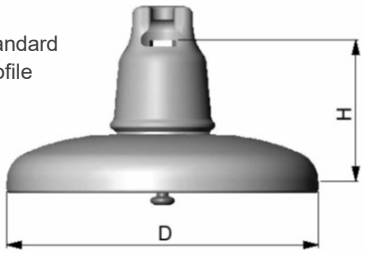
Disc Insulators - Ball & Socket Fog Profile

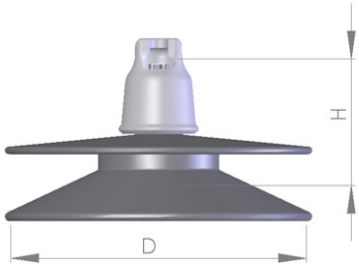
Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min kV	Power Frequency Withstand Voltage (kV)		Approx. Weight kg
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UP70BLP	255	146	432	16	70	120	42	120	7.0
UP80BLP	255	146	432	16	80	120	42	120	7.0
UP120BLP	255	146	432	16	120	120	42	120	8.0
UP160BSP	300	160	450	20	160	135	42	120	10.2

Disc Insulators - Ball & Socket Desert Profile

Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min kV	Power Frequency Withstand Voltage (kV)		Approx. Weight kg
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
XWP-70	254	146	400	16B	70		40	120	5.5
XWP-100	254	146	400	16B	100		40	120	6.5
XWP-160	300	155	450	20	160		45	120	7.5

Standard Profile



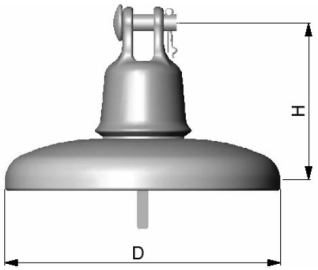


Desert Fog Profile

PORCELAIN INSULATORS

Disc Insulators - Tongue and Clevis Standard

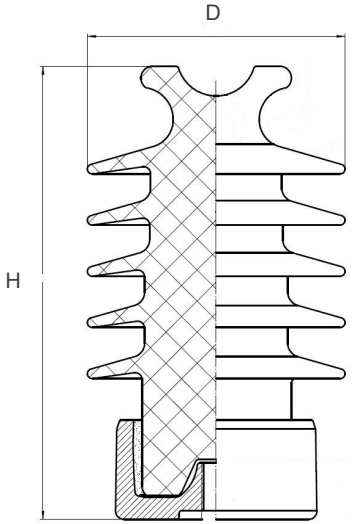
Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min kV	Power Frequency Withstand Voltage (kV)		Approx. Weight kg
	D	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UP70TC	255	146	292	16	70	110	40	110	4.6
UP70CP-HEX	255	146	360	16 HEX	70	110	40	110	6



PORCELAIN INSULATORS

Line Post Insulators - Tie Top

Catalogue Number	Dimensions (mm)				Cantilever Load Min (kN)	Impulse Withstand Voltage Min kV	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight kg
	ØD	H	Stud	Creepage Min				
R11ET150N-285	160	285	M24	480	11	145	50	7.5
R11ET150N-305	160	305	M24	610	11	145	50	8.0
R11ET200N	150	487	M24	710	11	200	70	13.5
R11ET325N-536	200	805	M24	1250	11	325	140	24.8
R11ET325L-790	192	790	M24	1800	11	325	140	25
R12.5ET200L-386	185	386	M24	920	12.5	200	70	12.5
R12.5ET325L-820	190	820	M24	1800	12.5	325	140	32.5
R18ET150-285	166	285	M20	450	18	150	50	11

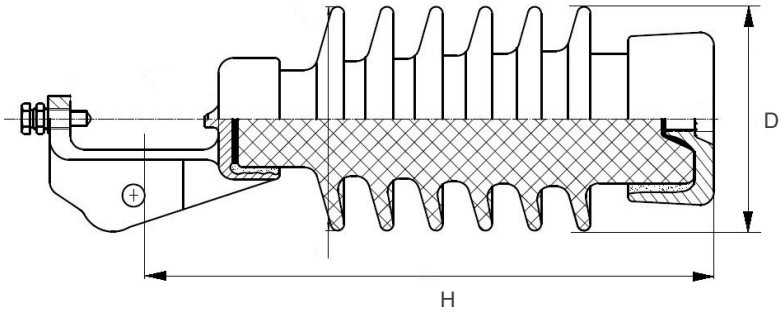


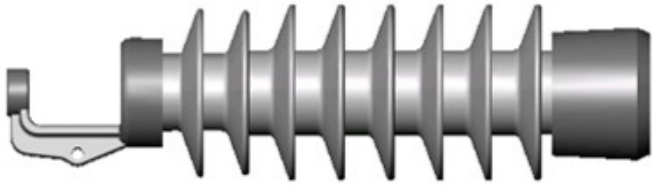
PORCELAIN INSULATORS

Line Post Insulators - Horizontal Clamp Top

Catalogue Number	Dimensions (mm)				Cantilever Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Stud/ Bolt	Creepage Min				
R11EH150N-380	170	380	M24	600	11	150	50	14.5
R11EH350L-760*	210	760	M24	1812	11	350	140	44
R11EH650L-1395*	222	1395	M24/M20	3625	11	650	275	100
R12.5EH145N-325	170	325	M20	450	12.5	145	50	13
R12.5EH200N-560	145	560	M20	620	12.5	200	70	17.5
R12.5EH350N-825	190	825	M20	1510	12.5	350	140	47.0
R12.5EH350L-825	220	825	M20	1920	12.5	350	140	48.5

Note: * Insulator includes gain base and 5° upsweep.

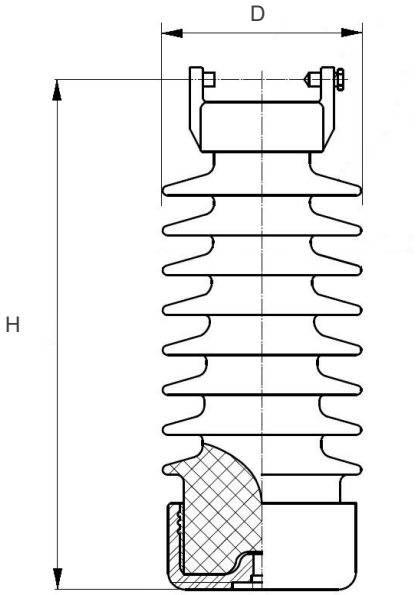




PORCELAIN INSULATORS

Line Post Insulators - Vertical Clamp Top

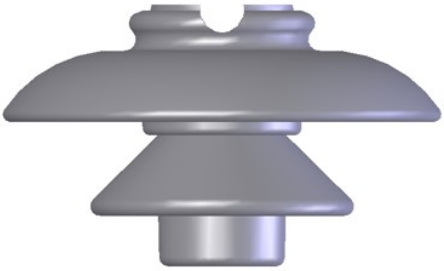
Catalogue Number	Dimensions (mm)				Cantilever Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Stud	Creepage Min				
R11EC150N-350	170	350	M24	610	11	150	50	14.5
R11EC200N-530	180	560	M24	825	11	200	95	19
R12.5EC350L-800	215	800	M24	1800	12.5	350	140	39

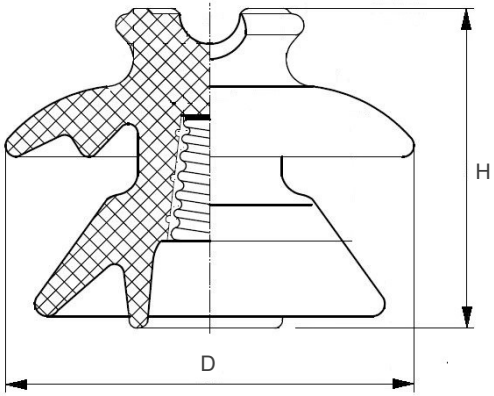


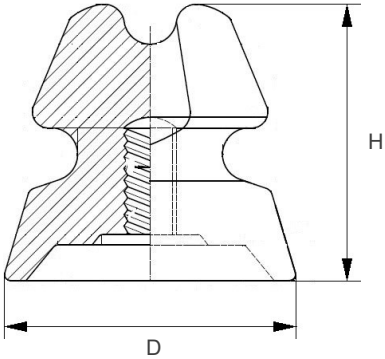
PORCELAIN INSULATORS

Pin Type Insulators - Standard Profile and LV

Catalogue Number	Dimensions (mm)			Pin Pattern	Cantilever Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Creepage Min					
SLP/11/180	150	110	180	A	7	95	30	1.8
SLP/22/420*	229	168	420	C	11	150	50	5.3
SLP/33/534*	300	198	534	C	11	200	65	6.3
LPLV	91	82	-	B	7	-	-	0.8



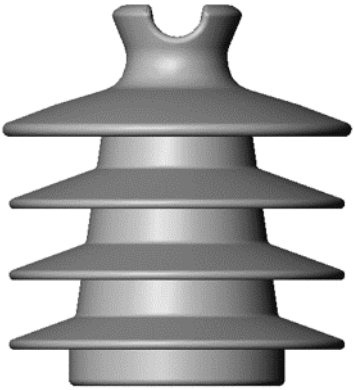


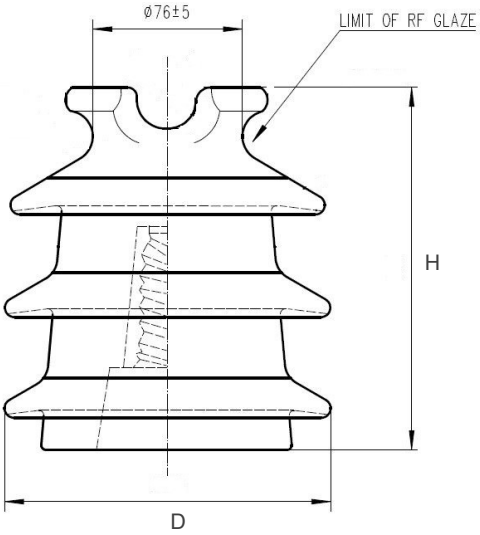


PORCELAIN INSULATORS

Pin Type Insulators - Aerodynamic Profile

Catalogue Number	Dimensions (mm)			Pin Pattern	Cantilever Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Creepage Min					
ALP/11/275	150	160	275	C	7	95	30	1.8
ALP/22/450	160	200	450	C	11	150	50	3.5
ALP/22/490	165	250	490	C	11	160	50	4.2
ALP/33/720	220	265	720	C	11	200	70	8
ALP/33/920	240	320	920	C	7	200	70	14.3

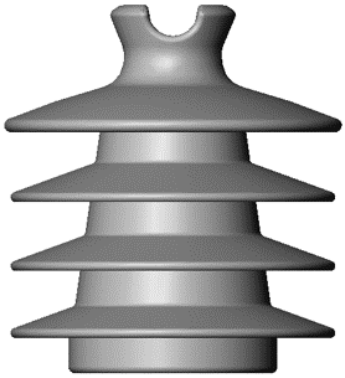


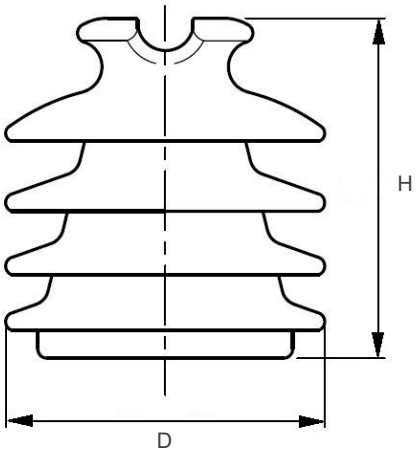


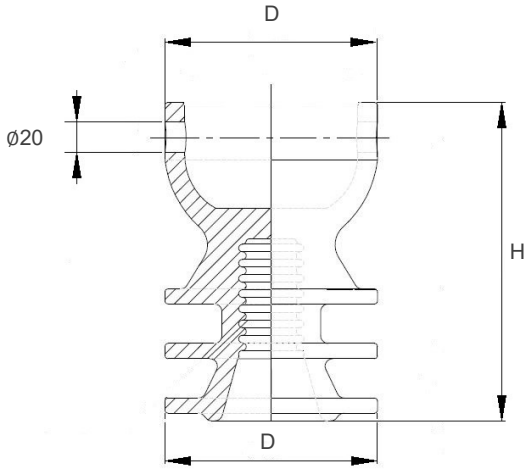
PORCELAIN INSULATORS

Pin Type Insulators - Fog Profile

Catalogue Number	Dimensions (mm)			Pin Pattern	Cantilever Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Creepage Min					
FLP/11/360	152	165	360	A	7	95	30	2
FLP/22/480	250	200	480	C	11	145	50	6.7
11-22 Bridge	140	210	355	C	5	125	50	



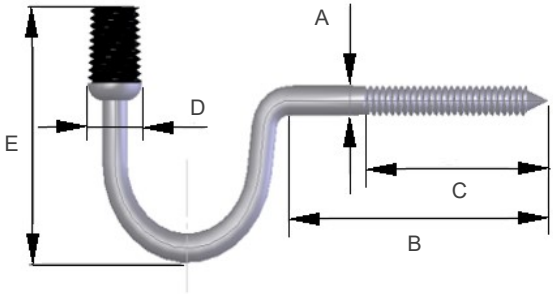


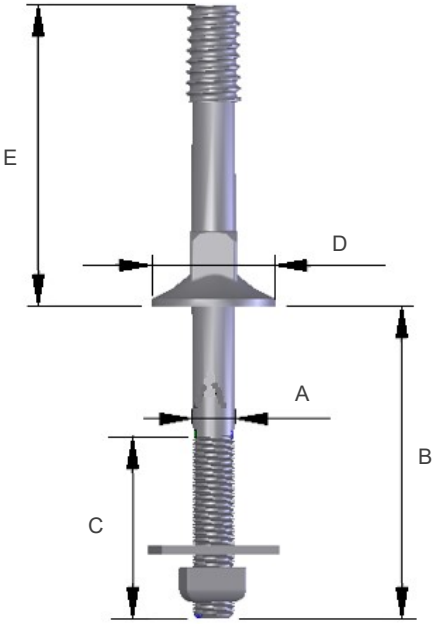


PORCELAIN INSULATORS

Pin Type Insulators - Pins

Catalogue Number	Cantilever Minimum failing load kN	Dimensions (mm)					Head Pattern
		A	B	C	D	E	
B/100/3.5	3.5	16	140	50	40	100	B
A/130/7	7	20	165	80	50	130	A
C/150/7	7	20	165	80	60	150	C
C/150/11	11	24	165	80	60	150	C
C/200/11	11	24	165	80	65	200	C
C/300/7	7	24	165	80	75	300	C
SWANECK	3.5	12	125	75	35	100	B

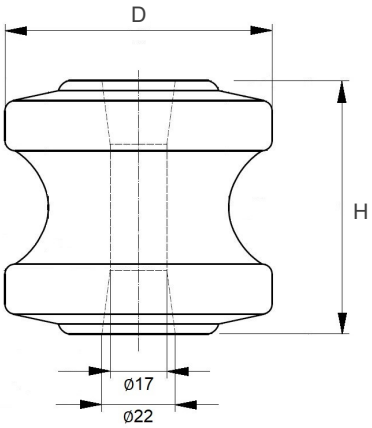


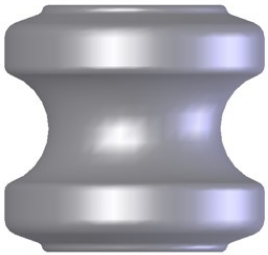


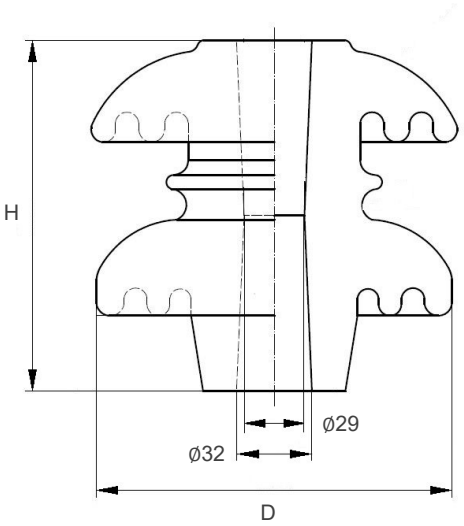
PORCELAIN INSULATORS

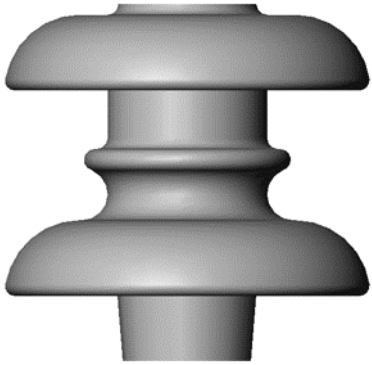
Spool and Shackle Type Insulators

Catalogue Number	Dimensions (mm)			Transverse Load Min (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	ØD	H	Creepage Min				
SHLV1	57	54	-	9	-	-	0.2
SHLV2	80	76	-	20	-	-	0.6
SH11	170	163	180	22	95	30	







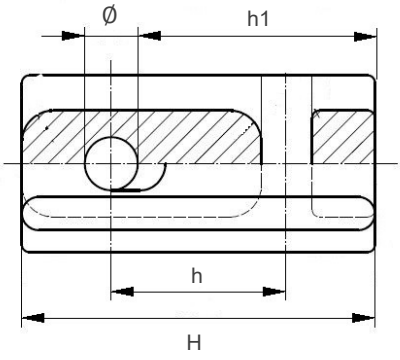


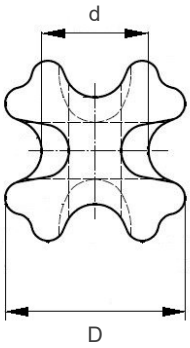
PORCELAIN INSULATORS

Strain Type Insulators

Catalogue Number	Dimensions (mm)						Transverse Load kN)	Power Frequency Withstand Voltage Wet (kV)	Approx. Weight (kg)
	Ø	H	h	h1	D	d			
GY2	22	146	73	99	73	44	71	15	1.1
GY3	38	216	89	133	115	67	222	20	4.3
GY4	38	280	89	165	115	67	222	30	5.7

Note: GY insulators available in sky blue and grey colour.





GLASS INSULATORS

Disc Insulators - Ball & Socket Standard Profile

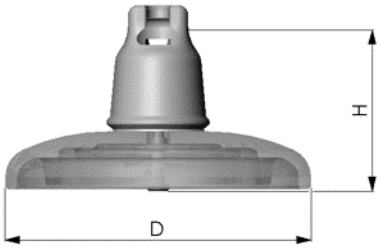
Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV)		Approx. Weight (kg)
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UG45BL	175	110	190	11	45	75	33	110	1.8
UG70BLZ	255	146	320	16	70	100	40	110	3.8
UG80BLZ	255	146	320	16	80	100	40	110	3.9
UG125BLZ	255	146	320	20	125	95	40	120	5.0
UG160BS	280	146	380	20	160	105	42	110	6.1

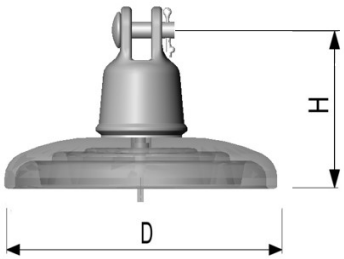
Disc Insulators - Ball & Socket Fog Profile

Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV)		Approx. Weight (kg)
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UG70BLPZ	255	146	400	16	70	120	45	120	4.5
UG120BLPZ	280	146	450	16	120	120	45	120	5.5
UG160BLPZ	280	170	450	20	160	130	50	120	7.0
UG210BLPZ	320	170	540	20	210	130	50	120	9.2

Disc Insulators - Tongue and Socket Standard Profile

Catalogue Number	Dimensions (mm)				MFL (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV)		Approx. Weight (kg)
	ØD	H	Creepage Min	Coupling Size			Min. Wet	Min. Puncture	
UG70TC	255	146	320	16C	70	100	40	110	4.0



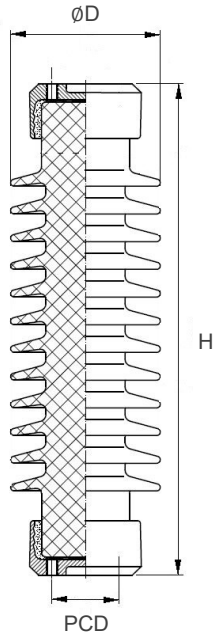


POST INSULATORS

Station Post Insulators

Catalogue Number	Dimensions (mm)				Cantilever Strength (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV) Min. Wet	Approx. Weight (kg)
	ØD	H	Creepage Min	PCD				
C6-150-II-355	168	355	660	76	6	150	50	13
C6-150-IV-457	160	457	744	76	6	150	50	14.5
C6-200-II-380	210	381	760	76	6	200	70	14
C6-200-IV-559	170	559	1116	76	6	200	70	20
C6-325-II-770	180	770	1600	127	6	325	140	
C6-650-II-1500	235	1500	3625	127	6	650	275	
C8-95-II-254	168	254	360	76	8	95	38	10
C10-325-IV-762	235	762	2248	127	10	325	140	46
C10-650-IV-1372	255	1372	4495	127	10	650	275	90
C10-650-IV-1473	255	1473	4495	127	10	650	275	100
C10-950-IV-2100*	290	2100	7595	254	10	950	395	190
C10-1175-IV-3450**	310	3450	11222	300	10	1175	-	365
C16-650-IV-1473	270	1473	4495	127	16	650	275	140

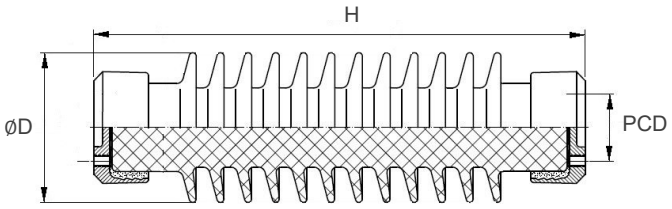
Note: * 2 piece station post insulator
** 3 piece station post insulator



RAIL INSULATORS

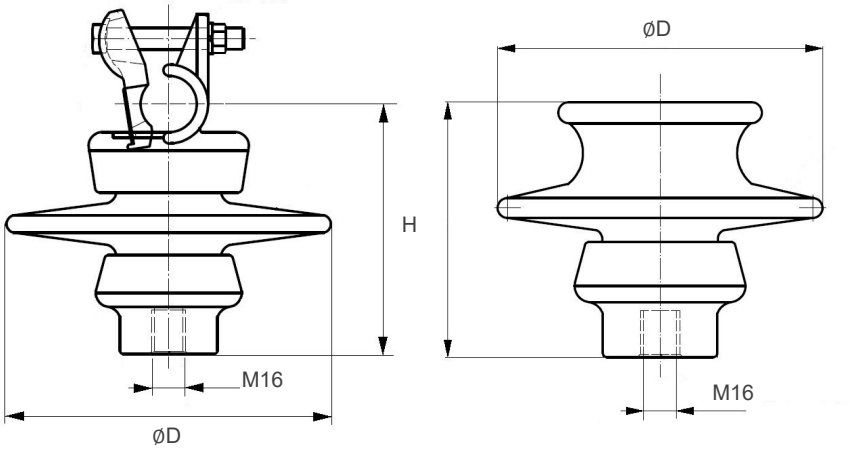
Double Capped Feeder Insulators

Catalogue Number	Dimensions (mm)				Cantilever Strength (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV) Min. Wet
	ØD	H	Creepage Min	PCD			
121/031	178	305	560	76	7	145	50
121/038	200	400	1116	76	9	200	70
121/030	194	458	1000	76	10	200	70



Return Conductor Insulators

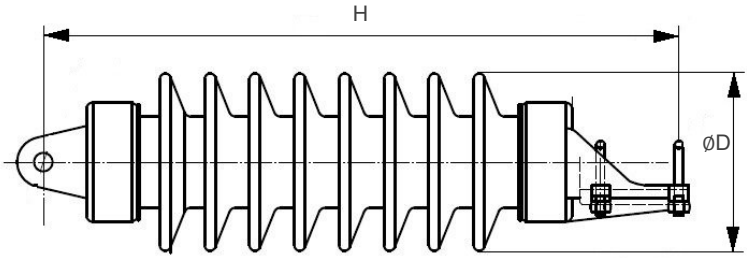
Catalogue Number	Dimensions (mm)			Cantilever Strength (kN)	Nominal Voltage (kV)
	ØD	H	Thread		
121/142	180	140	M16	11	5
FIT-1570-001	178	137	M16	11	5

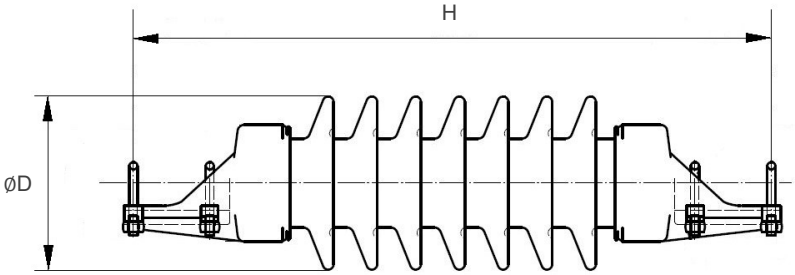


RAIL INSULATORS

Cantilever Insulators

Catalogue Number	Dimensions (mm)			Cantilever Strength (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage (kV) Min. Wet
	ØD	H	Creepage Min			
121/033/01	160	597	810	5.3	200	70
121/033/02	185	597	1070	5.3	200	70
121/033/04	166	672	813	3.8	200	100
121/034/01	166	608	810	5.3	200	70
121/034/02	191	608	1070	5.3	200	70

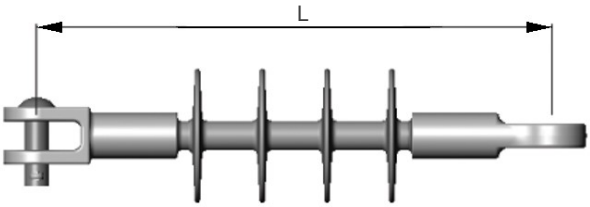




POLYMER INSULATORS

Distribution DS-M Series

Catalogue Number	Dimensions (mm)			Nominal Voltage (kV)	Tensile Load (kN)	Impulse Withstand Voltage Min (kV)	Power Frequency Withstand Voltage Wet 60 Hz (kV)	Approx. Weight (kg)
	L	Dry Arc	Creepage Min					
DS-15M	330	192	401	15	70	140	65	1.18
DS-28M	432	295	625	28	70	190	100	1.32
DS-35M	559	426	954	35	70	280	155	1.4
DS-46M	680	510	1170	46	70	357	184	3.0



L

POLYMER INSULATORS

Line Post Insulators - Apex

MacLean Power can supply silicone line post insulators using one of two efficient manufacturing processes to satisfy your needs. Process #1 is an injection moulded process that produces moulded line products, while process #2 uses the extruded assembly process that's produces modular line posts. The extruded process allows the Creepage to be changed by customizing the number, shape and spacing of the sheds. Both processes use the same MPS Silicone Formulation, E-Glass core, ends fittings and PST sealing system.

APEX LINE POST SMART CATALOGUE NUMBER							
H2	90	10	045	V	X	SS	022
SML	Tower EF	Line EF	Rubber Length	Leakage	Corona Ring	Shed Pattern	Shed Count

SML
- H = Horiz.
- V= Vert.
- 0 = 1.5"
- 1 = 2.0"
- 2 = 2.5"
- 3 = 3.0"
- 4 = 3.5"
- 7 = 1.75"

Tower EF
- 1_= Flat Base
- 3_= 3" Bolt Circle
- 4_= Stud Base
- 5_= 5" Bolt Circle
- 6_= Swivel Base
- 7_= 7" Bolt circle
- 8_= Anchor
- 9_= Gain Base
- X0= No EF

Line EF
- 1_= Drop Tongue
- 2_= Trunnion
- 3_= 3" Bolt Circle
- 5_= 5" Bolt Circle
- 6_= Vert. Trunnion
- 7_= F-Neck
- C_= Ext. Drop Tongue
- D_= Double Trunnion
- E_= High Str. Bracket
- F_= Vert. RAM Bracket
- H_= Horiz. RAM Bracket
- X0 = No EF

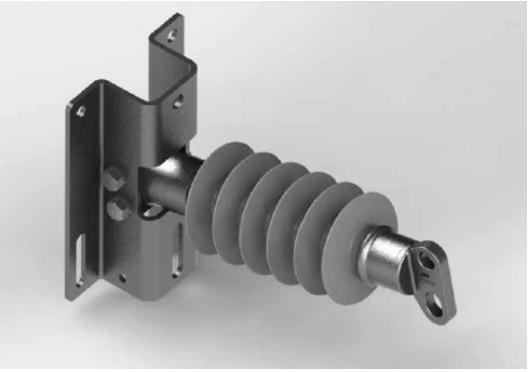
Rubber Length
- Linear Distance EF to EF (Inch)

Leakage
- V = Variable
- M = Moulded

Corona Ring
- Tower/Line
- X = None/None
- A = None/6"
- B = None/12"
- C = None/17"
- E = 12"/12"

Shed Pattern
- SS = Standard
- AL = Standard Alt.
- XG = Shed Profile
- XH = Shed Profile
- XV = Shed Profile

- V = Variable Creepage Modular/ Extruded MFG
- M = Moulded Creepage Injection Moulded MFG



POLYMER INSULATORS

Line Post Insulators - Apex Cont.

Bases

Fixed Gain - H2 9C

Bendable Gain - H2 90

5” Bolt Circle - H2 50

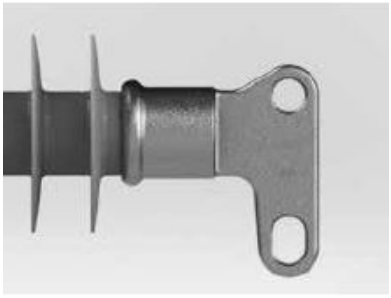
Bendable Flat Gain - H2 10

POLYMER INSULATORS

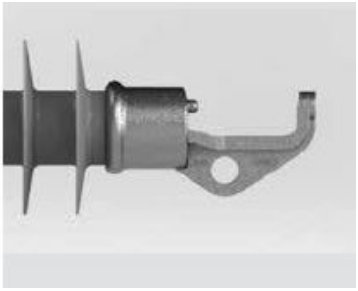
Line Post Insulators - Apex Cont.

End Fittings

Drop Tongue - H2 XX 10



Extended Drop Tongue - H2 XX C0



Horizontal Trunnion H2 XX 20

Vertical Trunnion V2 XX 60

Corona Rings

High Voltages can result in unwanted noise (RIV) and corona. To minimize the effects of corona, corona rings are applied to one or both ends of the insulator (attached onto the end fittings). Typically, for system voltages 230kV and above, a corona ring or combination of rings is necessary. However some systems may require corona protection at lower system voltages. Below is a table for recommend corona ring application

Class	End Fitting	132kV	220kV	330kV	500kV
H1 - 2.0”	Line End	None	6”	12”	12”
H2 - 2.5”	Tower End	None	None	None	17”
H3 - 3.0”	Line End	None	None	12”	12”
H4 - 3.5”	Tower End	None	None	None	12”

POLYMER INSULATORS

Suspension Insulators

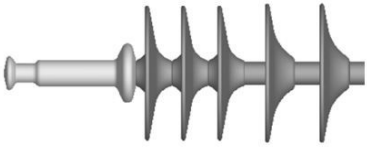
MacLean Power uses a Silicone formulation that has been unchanged since the early 80's. The Si-O molecular bonds (inorganic backbone of Silicone) are very stable and have bond strengths higher than sunlight, making the silicone resistant to UV degradation. In addition to providing protection against the effects of ultraviolet radiation, electrical aging, and corona effect, silicone exhibits hydrophobic properties; which provide excellent recovery characteristics to control leakage currents in highly polluted or coastal environments. MacLean Power offers suspension insulators made using two unique manufacturing processes, Moulded and Modular, to meet the various needs of the transmission market. Both designs use the same features and materials; MPS Silicone, PST Seal, CR E-Glass, Stacked Sheds, & Smart Fit Corona Rings. The MacLean Power Stacked Shed configuration offers inherent protection against material aging in critical areas of the sheath and resists the resultant material erosion when installed in highly contaminated environments (resistance to Water Droplet Corona). In addition, stacked shed profiles enhance the ability of the insulator to resist mechanical damage in these most critical areas during transportation and installation.

APEX LINE POST SMART CATALOGUE NUMBER							
S1	40	80	045	V	X	SS	022
SML	Tower EF	Line EF	Rubber Length	Leakage	Corona Ring	Shed Pattern	Shed Count

S1 = 111kN
S5 = 133kN
S6 = 160kN
S2 = 210kN
S4 = 356kN

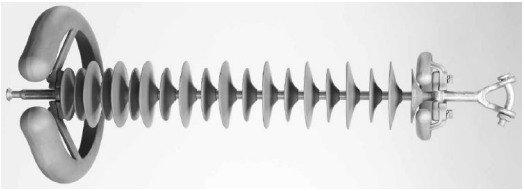
4_ = Y-Clevis
5_ = Tongue
6_ = Clevis
7_ = Socket

Linear Distance EF to EF (Inch)



Stacked Shed

V = Variable Creepage Modular/ Extruded MFG
M = Moulded Creepage Injection Moulded MFG



Tower/Line
X = None/None
A = None/8"
B = None/12"
C = None/17"
E = 12"/12"
F = 17"/17"
G = 8"/12"
H = 12"/17"
V = 8"/17"

SS = Standard
6S = Standard EHV1
9S = Standard EHV2
5S = Standard UHV
AL = Standard Alt.
6L = Std. Alt. EHV1
9L = Std. Alt. EHV2
5L = Std. Alt. UHV
AM = Maximum Alt.
A6 = Max. Alt. EHV1
A9 = Mac. Alt. EHV2
A5 = Max. Alt. UHV
TS = Triple Alt.
T6 = Triple Alt. EHV1
T9 = Triple Alt. EHV2
T5 = Triple Alt. UHV

POLYMER INSULATORS

Suspension Insulators

Standard End Fittings

S_40 90		
S1 =	Y-Clevis	IEC-16 Ball
S5 =	Y-Clevis	IEC-16 Ball
S6 =	Y-Clevis	IEC-20 Ball
S2 =	Y-Clevis	IEC-20 Ball

S_90 80		
S1 =	Oval Eye	IEC-16 Ball
S5 =	Oval Eye	IEC-16 Ball
S6 =	Oval Eye	IEC-20 Ball
S2 =	Oval Eye	IEC-20 Ball

S_70 80		
S1 =	IEC-16 Socket	IEC-16 Ball
S5 =	IEC-16 Socket	IEC-16 Ball
S6 =	IEC-20 Socket	IEC-20 Ball
S2 =	IEC-20 Socket	IEC-20 Ball

S_90 90		
S1 =	Oval Eye	Oval Eye
S5 =	Oval Eye	Oval Eye
S6 =	Oval Eye	Oval Eye
S2 =	Oval Eye	Oval Eye

S_40 90		
S1 =	Y-Clevis	Oval Eye
S5 =	Y-Clevis	Oval Eye
S6 =	Y-Clevis	Oval Eye
S2 =	Y-Clevis	Oval Eye

S_40 40		
S1 =	Y-Clevis	Y-Clevis
S5 =	Y-Clevis	Y-Clevis
S6 =	Y-Clevis	Y-Clevis
S2 =	Y-Clevis	Y-Clevis

S_90 91		
S1 =	Oval Eye	Oval Eye
S5 =	Oval Eye	Oval Eye
S6 =	Oval Eye	Oval Eye
S2 =	Oval Eye	Oval Eye

S_40 91		
S1 =	Y-Clevis	Oval Eye
S5 =	Y-Clevis	Oval Eye
S6 =	Y-Clevis	Oval Eye
S2 =	Y-Clevis	Oval Eye

S_40 41		
S1 =	Y-Clevis	Y-Clevis
S5 =	Y-Clevis	Y-Clevis
S6 =	Y-Clevis	Y-Clevis
S2 =	Y-Clevis	Y-Clevis

POLYMER INSULATORS

Suspension Insulators

Corona Rings

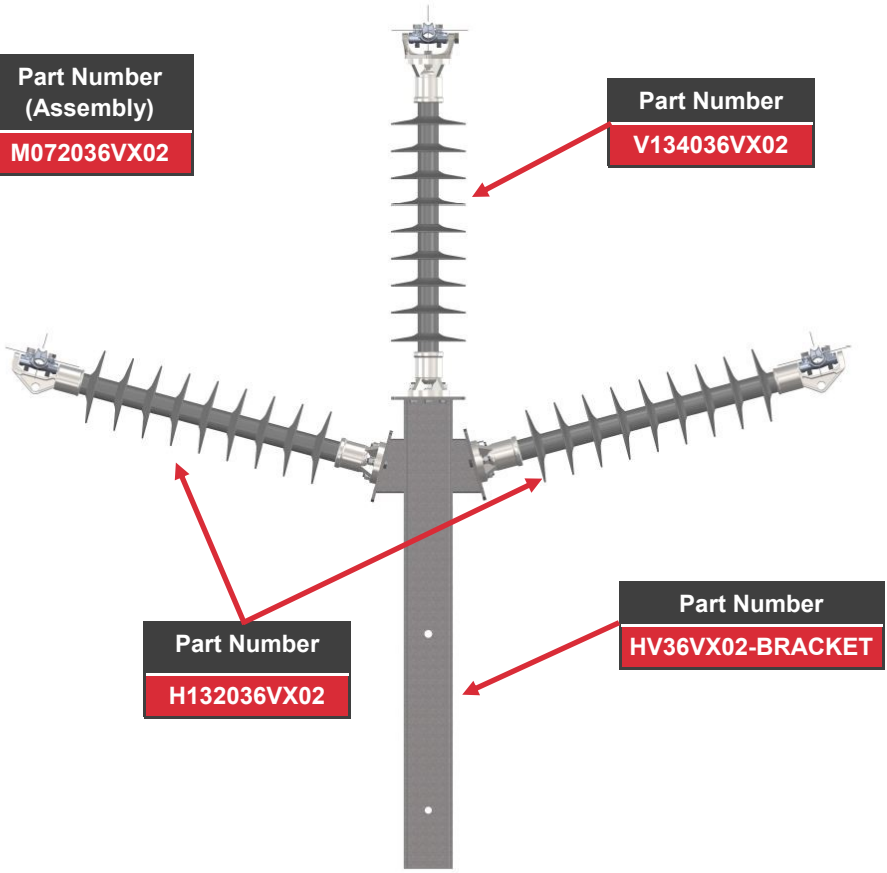
High voltages can result in unwanted noise (RIV) and corona. To minimize the effects of corona, corona rings are applied to one or both ends of the insulator (attached onto the end fittings). Typically, for system voltages 230kV and above a corona ring or combination of rings is necessary. However, some applications may require rings at lower system voltages when additional corona protection is required; high contamination, high altitude, or applications with tight phase to phase or phase to ground spacing.

MacLean corona rings are designed around the needs of the end user. They are easy to install, unidirectional (not able to install in the wrong direction), and can be installed or removed with hot stick tools. The corona ring attaches to the corona ball feature of the end fitting via a keeper clamping mechanism. The geometry of the keeper and corona ball fit together such that the ring can only be installed in one direction, which eliminates the problem of misapplied rings, and locates the ring at he critical interface of the end fitting and housing

Recommended Corona Ring Application						
End Fitting	**132kV**	**220kV**	**330kV**		**500kV**	**765kV**
Catalogue Ref.	**X**	**A**	**B**	**G**	**V**	**H**
Line End	None	6”	12”	12”	17”	17”
Tower End	None	None	None	8”	8”	12”
Stacked Shed	SS	SS	SS/EHV		EHV	UHV

POLYMER INSULATORS

66 kV Trident Assembly



OTHER PRODUCTS SECTION J

LINESMEN EQUIPMENT

EARTHING EQUIPMENT

WARNING MARKERS

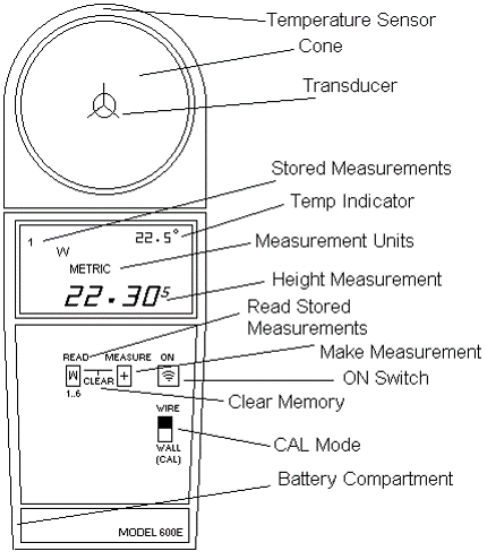
POLYMER INSULATOR PROTECTION

HEAT SHRINK PRODUCTS

LINESMEN EQUIPMENT

Suparule - Cable Height Meters

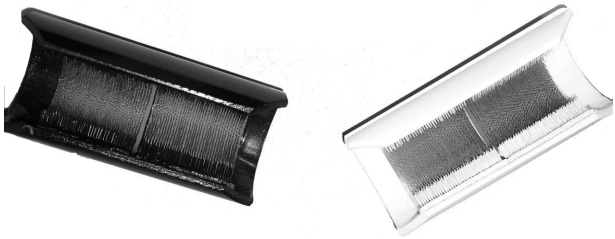
Catalogue Number	Range (m)				No. of Wires Measured
	2.5mm Cable	5.5mm Cable	12mm Cable	25mm Cable	
S190	3-10	3-12	3-15	3-15	1
S300	3-10	3-12	3-15	3-15	3
S300E	3-10	3-12	3-15	3-23	3
S600	3-10	3-12	3-15	3-15	6
S600E	3-10	3-12	3-15	3-23	6



LINESMEN EQUIPMENT

Tools

Scratch Brush	
Part Number	**Conductor**
SB-3	Aluminium
SB-4	Copper



Ratchet Spanner	
Part Number	**AF Size (mm)**
ABC13-17	13-17

Cable Stripper	
Part Number	**Cable Size (mm^2)**
HES50.240	50-240

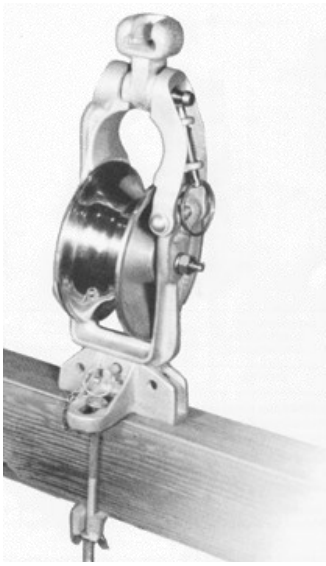
LINESMEN EQUIPMENT

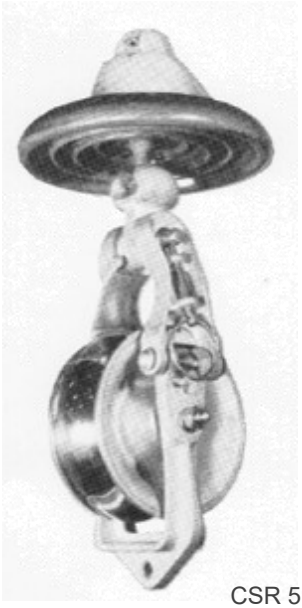
Cable Stringing Rollers - Lindsey Roller

Part Number		Max Conductor/ Splice OD (mm)	Safe Working Load	Weight Roller	Combined Weight
Roller	Cross Arm Adaptor				
CSR 5900	CSR 5930	50 mm	11kN	3.8 kg	5.2 kg

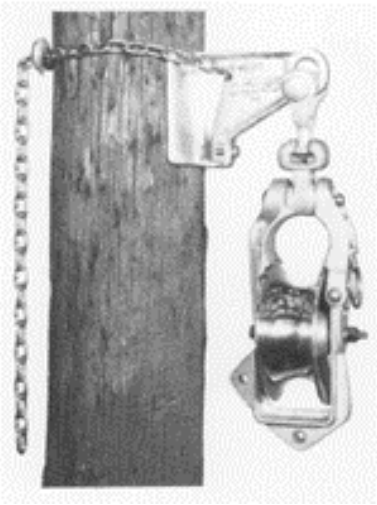
Adjustable to 22.5, 45, 67.5 and 90 degree stringing angles.

CSR 5900





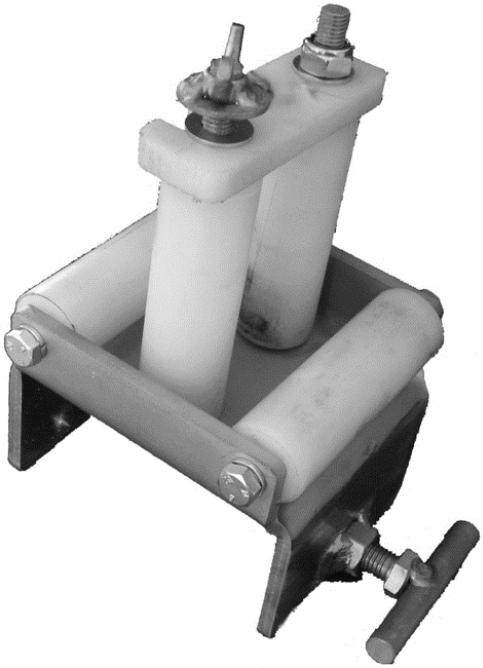
CSR 5930



LINESMEN EQUIPMENT

Cable Stringing Rollers - Nylon Roller

Catalogue Number	Suitable Crossarm Size mm	Rollers	Approx. Weight kg
CSR-4	100	Nylon	2.3
CSR-5	150	Nylon	2.7



EARTHING EQUIPMENT

Earth Rods

Catalogue Number	Rod Diameter (mm)	Length (mm)	Material
CER1314	12.7	1400	Copper Bonded Steel
CER1318	13	1800	Copper Bonded Steel
CER1918	17.2	1829	Copper Bonded Steel
CER1924	17.2	2438	Copper Bonded Steel

Earth Clamps

Catalogue Number	Rod Diameter (mm)	Cable Diameter (mm^2)	No. of Cables Accepted
ECP01	26	16-35	1
ECP1	34	16-35	2
ECB1	13-19	16-35	1
ECB2	13-19	50-120	2
EC-210	13-15	16-120	1
ECT10	43	50-120	2

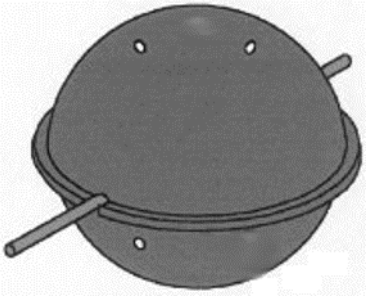
Ground Enhancing Compound

Catalogue Number	Bag Size (kg)	Material
GEM25A	11.3	Low resistance, non-corrosive, carbon-based compound

WARNING MARKERS

Aircraft Warning Markers

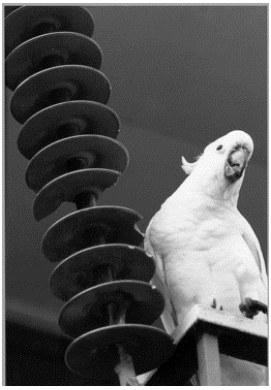
Catalogue Number	Diameter (mm)	Colour
AWM-600-0	600	Orange
AWM-600-R	600	Red
AWM-600-Y	600	Yellow
AWM-600-W	600	White
AWM-300-O	300	Orange
AWM-300-R	300	Red
AWM-300-Y	300	Yellow
AWM-300-W	300	White
AWM-200-OW	200	Orange/ White



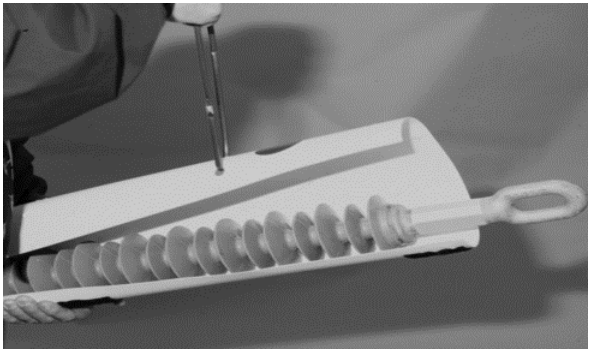
POLYMER INSULATOR PROTECTION

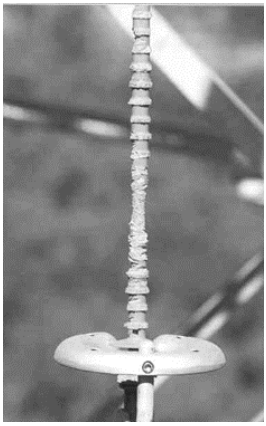
POLLY-MAR Shrouds

Catalogue Number	Shed Diameter (mm)	Length (mm)	Colour Code
POLLY-MAR7	93	2850	Red
POLLY-MAR9	114	2650	Black
POLLY-MAR3	114	1370	Black
POLLY-MAR12	122	2700	Green
POLLY-MAR8	149	2730	Yellow
POLLY-MAR2	171	1300	Purple
POLLY-MAR10	178	2750	Blue



Damage caused by birds



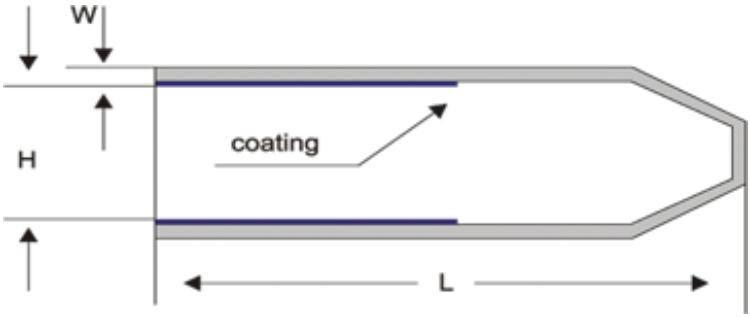


Removal by helicopter, of the shroud from composite insulators prior to energising

HEAT SHRINK PRODUCTS

LV End Caps

Catalogue Number	H EXP MIN	H REC MIN	L EXP MIN	W REC NOM
EC-001	14	4.5	50	1.2
EC-101	25	8	65	3.0
EC-201	35	15	90	3.0
EC-301	55	25	110	4.0
EC-401	75	35	120	4.2
EC-501	100	50	130	4.2
EC-601	120	60	140	4.2
EC-701	145	71	155	4.6
EC-701U	145	71	155	4.6



CONDUCTOR INFORMATION SECTION K

AUSTRALIAN STANDARD CONDUCTORS:

BRITISH STANDARD CONDUCTORS:

AUSTRALIAN STANDARD CONDUCTORS

Cross Sectional Area Reference

Nominal. Cross Sectional Area mm2	Conductor O.D.		Nominal. Cross Sectional Area mm2	Conductor O.D.	
	mm	Inch		mm	Inch
0.5	.80	.031	95	12.46	.490
1.0	1.13	.044	120	14.21	.559
1.5	1.38 1.50	.054 .059	150	15.75	.620
2.5	2.01	.079	185	17.64	.694
4	2.55	.100	240	20.25	.797
6	3.12	.122	300	22.68	.892
10	4.05	.159	400	25.65	1.009
16	5.10	.200	500	28.80	1.133
25	6.42 6.75	.252 .265	630	32.76	1.289
35	7.65	.301	800	37.05	1.458
50	8.90	.350	1000	41.60	1.637
70	10.70	.421			

AUSTRALIAN STANDARD CONDUCTORS

Aluminium Conductor (Galvanized) Steel Reinforced ACSR/GZ/1350
Aust. Standard—AS 3607

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Almond	6/1/2.50	7.50	10.5	119
Apple	6/1/3.00	9.00	14.9	171
Banana	6/1/3.75	11.25	22.7	268
Cherry	6/4.75+7/1.60	14.30	33.4	402
Grape	30/7/2.50	17.50	63.5	677
Lemon	30/7/3.00	21.00	90.4	973
Lime	30/7/3.50	24.50	122	1320
Mango	54/7/3.00	27.00	119	1440
Orange	54/7/3.25	29.25	137	1690
Olive	54/7/3.50	31.50	159	1960
Pawpaw	54/3.75+19/2.25	33.75	178	2240
Peach	54/4.75+19/2.85	42.75	284	3600

Aluminium Conductor (Galvanized) Steel Reinforced ACSR/GZ
Aust. Standard—AS 3607 Extra High Strength

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Quince	3/4/1.75	5.25	12.7	95.9
Raisin	3/4/2.50	7.50	24.4	193
Sultana	4/3/3.00	9.00	28.3	242
Walnut	4/3/3.75	11.25	43.9	379

AUSTRALIAN STANDARD CONDUCTORS

Aluminium Conductor (Aluminised) Steel Reinforced
ACSR/AZ/1350 Aust. Standard—AS 3607

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Barley	6/1/2.50	7.50	10.2	118
Bean	6/1/3.00	9.00	14.5	170
Cabbage	6/1/3.75	11.25	21.4	265
Carrot	6/4.75+7/1.60	14.30	32.0	399
Corn	30/7/2.50	17.50	61.6	675
Garlic	30/7/3.00	21.00	87.2	973
Millet	30/7/3.50	24.50	116	1320
Oats	54/7/3.00	27.00	115	1440
Onion	54/7/3.25	29.25	132	1690
Parsnip	54/7/3.50	31.50	153	1960
Potato	54/3.75+19/2.25	33.75	177	2250
Rice	54/4.75+19/2.85	42.80	277	3600

AUSTRALIAN STANDARD CONDUCTORS

Aluminium Conductor (Aluminium Clad) Steel Reinforced
ACSR/AC/1350 Aust. Standard—AS 3607

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Angling	6/1/2.50	7.50	10.6	113
Archery	6/1/3.00	9.00	15.1	163
Baseball	6/1/3.75	11.25	22.3	254
Bowls	6/4.75+7/1.60	14.30	32.7	385
Cricket	30/7/2.50	17.50	64.4	636
Darts	30/7/3.00	21.00	91.6	913
Diving	30/7/3.50	24.50	122	1240
Golf	54/7/3.00	27.00	120	1380
Gymnastics	54/7/3.25	29.25	139	1620
Hurdles	54/7/3.50	31.50	159	1880
Lacrosse	54/3.75+19/2.25	33.75	180	2150
Rugby	54/4.75+19/2.85	42.80	287	3450

AUSTRALIAN STANDARD CONDUCTORS

All Aluminium Conductor AAC/1350 Aust. Standard—AS 1531

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Leo	7/2.50	7.50	5.7	94.3
Libra	7/3.00	9.00	7.9	135
Mars	7/3.75	11.25	11.8	211
Mercury	7/4.50	13.50	16.9	304
Moon	7/4.75	14.25	18.9	339
Neptune	19/3.25	16.25	24.7	433
Pluto	19/3.75	18.75	31.9	576
Saturn	37/3.00	21.00	42.2	721
Taurus	19/4.75	23.75	51.3	924
Triton	37/3.75	26.25	62.2	1120
Uranus	61/3.25	29.25	75.2	1400
Venus	61/3.75	33.75	97.2	1860
Virgo	91/4.50	49.50	207	4010

AUSTRALIAN STANDARD CONDUCTORS

All Aluminium Alloy Conductor AAAC 1120 Aust. Standard—AS 1531

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Chlorine	7/2.50	7.50	8.1	94.3
Chromium	7/7.25	8.25	9.9	113
Fluorine	7/3.00	9.00	11.8	135
Helium	7/3.75	11.25	17.6	211
Hydrogen	7/4.50	13.50	24.3	304
Iodine	7/4.75	14.25	27.1	339
Krypton	19/3.25	16.25	37.4	433
Lutetium	19/3.50	17.50	41.7	503
Neon	19/3.75	18.75	47.8	576
Nitrogen	37/3.00	21.00	62.2	721
Nobelium	37/3.25	22.75	72.8	845
Oxygen	19/4.75	23.75	73.6	924
Phosphorus	37/3.75	26.25	93.1	1120
Selenium	61/3.25	29.25	114	1400
Silicon	61/3.50	31.50	127	1620
Sulpher	61/3.75	33.75	145	1860

AUSTRALIAN STANDARD CONDUCTORS

All Aluminium Alloy Conductor AAAC 6201 Aust. Standard—AS 1531

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Diamond	7/2.50	7.50	9.6	94.3
Dolomite	7/7.25	8.25	11.6	113
Emerald	7/3.00	9.00	13.9	135
Garnet	7/3.75	11.25	21.7	211
Jade	7/4.50	13.50	31.2	304
Jasper	7/4.75	14.25	34.8	339
Opal	19/3.25	16.25	44.2	433
Patronite	19/3.50	17.50	51.3	503
Pearl	19/3.75	18.75	58.8	576
Ruby	37/3.00	21.00	73.5	721
Ruthenium	37/3.25	22.75	86.1	845
Rutile	19/4.75	23.75	94.4	924
Sapphire	37/3.75	26.25	115	1120
Spinel	61/3.25	29.25	135	1400
Tantalum	61/3.50	31.50	156	1620
Topaz	61/3.75	33.75	179	1860
Zircon	91/4.50	49.50	384	4000

AUSTRALIAN STANDARD CONDUCTORS

Steel Conductor / Galvanized SC/GZ Aust. Standard—AS 1222.1

Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
3/2.00	4.31	11.70	74
3/2.75	5.93	22.20	140
7/2.00	6.00	26.00	173
7/2.75	8.25	49.00	328
7/3.25	9.75	68.70	458
19/2.00	10.00	70.50	473
7/3.75	11.25	91.30	609
19/2.75	13.75	133.00	894
19/3.25	16.25	186.00	1250

Steel Conductor / Aluminium Clad SC/AC Aust. Standard—AS 1222.2

Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
3/2.75	5.93	22.7	118
3/3.00	6.50	27.0	141
7/2.75	8.25	50.1	277
7/3.25	9.75	69.9	387
7/3.75	11.25	86.9	515
7/4.25	12.75	105	662
19/2.75	13.75	136	755

AUSTRALIAN STANDARD CONDUCTORS

Hard Drawn Copper Conductor HDC Aust. Standard—AS 1746

Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
7/1.00	3.00	2.3	49.3
7/1.25	3.75	3.5	76.9
7/1.75	5.25	6.8	151
7/2.00	6.00	8.8	197
7/2.75	8.25	16.20	375
7/3.50	10.50	25.40	607
19/2.00	10.00	23.60	538
19/2.75	13.75	43.10	1020
19/3.00	15.00	50.80	1210
37/1.75	12.25	35.60	806
37/2.50	17.50	70.30	1640
37/2.75	19.25	83.90	1990
37/3.00	21.00	98.90	2370
61/2.75	24.75	138.00	3290

BRITISH STANDARD CONDUCTORS

All Aluminium Conductor ASC to BS 125

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Midge	7/2.06	6.18	3.9	64
Gnat	7/2.21	6.63	4.8	73
Aphis	3/3.35	7.20	4.3	73
Mosquito	7/2.59	7.77	6.3	101
Weevil	3/3.66	7.88	5.1	86
Ladybird	7/2.79	8.38	7.2	117
Ant	7/3.10	9.30	8.2	145
Fly	7/3.40	10.20	9.9	174
Bluebottle	7/3.66	10.98	11.7	202
Earwig	7/3.78	11.34	12.5	215
Grasshopper	7/3.91	11.73	13.3	230
Clegg	7/4.17	12.51	14.9	262
Wasp	7/4.39	13.17	16.3	290
Beetle	19/2.67	13.35	17.7	293
Bee	7/4.90	14.70	20.2	361
Cricket	7/5.36	16.08	24.0	432
Hornet	19/3.25	16.25	25.2	434
Caterpillar	19/3.53	17.65	29.3	512
Chafer	19/3.78	18.90	32.4	587
Spider	19/3.99	19.95	36.6	652
Cockroach	19/4.22	21.10	40.4	731
Butterfly	19/4.65	23.25	48.7	868
Moth	19/5.00	25.00	55.9	1027
Drone	37/3.58	25.06	56.2	1029
Centipede	37/3.78	26.46	62.0	1145
Locust	19/5.36	26.80	63.9	1179
Maybug	37/4.09	28.63	71.5	1342
Scorpion	37/4.27	29.89	77.2	1460
Cicada	37/4.65	32.55	90.4	1733
Tarantula	37/5.23	36.61	122	2191

BRITISH STANDARD CONDUCTORS

Aluminium Conductor (Galvanised) Steel Reinforced ACSR to BS 125

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Mole	6/1/1.50	4.50	4.1	43
Squirrel	6/1/2.11	6.33	7.5	85
Gopher	6/1/2.36	7.08	9.6	106
Weasel	6/1/2.59	7.77	11.4	128
Fox	6/1/2.79	8.37	13.1	148
Ferret	6/1/3.00	9.00	15.2	172
Rabbit	6/1/3.35	10.05	18.3	214
Mink	6/1/3.66	10.98	21.8	255
Beaver	6/1/3.99	11.97	25.7	303
Racoon	6/1/4.09	12.27	27.0	319
Otter	6/1/4.22	12.66	28.8	339
Skunk	12/7/2.59	12.95	52.9	464
Car	6/1/4.50	13.50	32.6	386
Horse	12/7/2.79	13.95	25.7	538
Hare	6/1/4.72	14.16	35.9	425
Dog	6/4.72 + 7/1.57	14.17	32.7	394
Hyena	7/4.39 + 7/1.93	14.57	41.7	451
Cougar	18/1/3.05	15.25	30.4	419
Leopard	6/5.28 + 7/1.75	15.81	40.7	492
Coyote	26/2.54 + 7/1.91	15.88	46.3	521
Tiger	30/7/2.36	16.52	58	602
Dingo	18/1/3.35	16.75	35.7	506
Caracal	18/1/3.61	18.05	41.8	587
Wolf	30/7/2.59	18.13	69.2	726
Jaguar	18/1/3.86	19.30	46.5	671
Lynx	30/7/2.79	19.53	79.8	842
Panther	30/7/3.00	21.00	92.2	974

BRITISH STANDARD CONDUCTORS

Aluminium Conductor (Galvanised) Steel Reinforced ACSR to BS 125 Cont.

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Lion	30/7/3.18	22.26	100	1094
Bear	30/7/3.35	23.45	111	1214
Batang	18/4.78 + 7/1.68	24.16	69.6	1015
Goat	30/7/0.146”	25.96	135	1489
Antelope	54/7/2.97	26.73	118	1415
Bison	54/7/3.00	27.00	120	1443
Sheep	30/7/3.99	27.93	156	1722
Zebra	54/7/3.18	28.62	131	1621
Deer	30/7/4.27	29.89	178	1973
Camel	54/7/3.35	30.15	145	1799
Elk	30/7/4.50	31.50	198	2190
Moose	54/7/3.53	31.77	161	1998
Moa	76/3.72 + 7/2.89	38.40	180	2641

NEW ZEALAND CONDUCTORS

All Aluminium Conductor AAC

Code Name	Strands/Wire Diameter mm	Overall Diameter (approx) mm	Nominated Minimum Breaking Load kN	Nominated Mass kg per km
Namu	7/2.11	6.33	4.1	70
Gnat	7/2.21	6.63	4.8	73
Poko	7/2.36	7.08	5.1	80
Ladybird	7/2.79	8.40	6.9	117
Kutu	7/3.00	9.00	7.9	140
Fly	7/3.40	10.20	9.9	174
Rango	7/3.66	10.98	11.7	200
Grasshopper	7/3.91	11.73	13.3	230
Moka	7/4.09	12.27	-	-
Wasp	7/4.40	13.20	16.0	290
Beetle	19/2.66	13.30	17.8	293
Weke	7/4.72	14.16	18.5	340
Bee	7/4.90	14.70	20.2	361
Cricket	7/5.30	15.90	24.1	432
Hornet	19/3.25	16.25	25.0	434
Weta	19/3.35	16.75	26.2	460
Huhu	37/2.52	17.64	30.1	-
Caterpillar	19/3.50	17.50	29.3	512
Chafer	19/3.78	18.90	32.4	587
Mata	19/3.86	19.30	33.8	610
Spider	19/3.99	19.95	36.6	652
Cockroach	19/4.21	21.05	40.4	731
Butterfly	19/4.64	23.20	48.8	868
Centipede	37/3.78	26.46	62.1	1145
Cicada	37/4.65	32.55	90.5	1733

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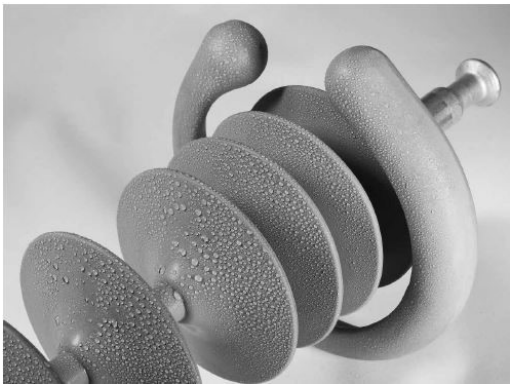
MacLean POWER SYSTEMS



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