

The logo consists of the letters 'OHUG' in a bold, black, sans-serif font. The letters are positioned on a bright yellow rectangular background. This yellow background is partially obscured by a white, torn-paper-like border that runs vertically down the left side of the image.

The power behind electricity

OHUG Product Catalogue

Edition 01

We dig deeper to provide the right electrical solutions

OHUG Power Equipment Ltd (OHUG) was established in 2007 to provide the Australasian electrical industry with a supplier of high quality, overhead and underground electrical products.

OHUG is headquartered in Pukekohe, South Auckland, where its key distribution warehouse facility is conveniently located in premises that can accommodate the Company's planned growth. OHUG also has a warehouse in Christchurch.

The business began with a strategic session where the Key Governing Principles of OHUG

were outlined. These are: We will act with honesty and integrity in all we do, telling the truth, taking the moral high ground and behaving above reproach in all our actions.

We will not compromise our brand, our ideals, or our reputation. We will always act in a way that we may stand proud of our accomplishments individually and as OHUG.

The Company accesses the world's leading heat shrink and low and medium voltage jointing and termination products, including all molded parts and cold apply termination and joint brands. In addition, OHUG offers overhead switchgear and a comprehensive electrical products range for overhead distribution networks. New agencies include Ellis Patents; a world leader in cable clamps.

Working with the right partner makes life so much easier

Call us:

0800 GET OHUG

Email us:

info@ohug.com







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Electrical Tapes

Section 01.

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Section 01

Electrical Industrial & Special Use Tapes

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Sealing & Insulating Tapes – Rubber Mastic, Mastic, Putty, Vinyl Mastic, Cable Repair	20
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OTAPE General Purpose Vinyl Electrical Tape

Resistant to abrasion, corrosion, chemicals & UV. Rated for 600V & suitable for NZ conditions 0-80°C.
Flame Retardant & Lead Free. For jacketing and insulation.

Agency Approvals:  

Applications



- > Phase identification and marking
- > Harnessing
- > Insulating splices up to 600 V



Product	Order Code	Pack Size	Colour	Width	Length	Thickness	Dielectric Strength	Tensile Strength	Operating Temperature	Test Method
OTAPE	OHT008	10	Green/Yellow	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT009	10	Black	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT010	10	Blue	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT011	10	Green	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT012	10	Red	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT013	10	White	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT014	10	Yellow	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT139	10	Orange	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000
OTAPE	OHT141	10	Grey	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000

OTAPE Rainbow Pack

Resistant to abrasion, corrosion, chemicals & UV.
Rated for 600V & suitable for NZ conditions 0-80°C.
Flame Retardant & Lead Free. For jacketing and insulation.

Agency Approvals:  

Applications

- > Phase identification and marking
- > Harnessing
- > Insulating splices up to 600 V



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Tensile Strength	Operating Temperature	Test Method
OTAPE	OHT028	Rainbow	18 mm	20 m	0.18 mm	50.49 kV/mm	50.2 N/19mm	0 to 80°C	ASTM D 1000



DENSO Tape

Part No.	Nominal Lift mm	Pack	Qty
Denso50	Tape Denso 50mm 10mtr roll	Each	1
Denso100	Tape Denso 100mm 10mtr roll	Each	1



Scotch® Super 33+™

Scotch® Super 33+™ Vinyl Electrical Tape is a premium grade, 0.18 mm thick, flame retardant, all weather vinyl insulating tape. It is designed to perform continuously between a temperature range of -18 to 105°C. It has excellent resistance to abrasion, moisture, alkalis, acids, corrosion and varying weather conditions (including ultraviolet exposure). The combination of elastic backing and aggressive adhesive provides moisture tight electrical and mechanical protection with minimum bulk. Scotch® Super 33+™ Vinyl Electrical Tape is an Underwriters' Laboratories Listed and Canadian Standards Association Certified "Insulating Tape." Available in custom sizes in addition to standard sizes below.

Agency Approvals:  

Applications



- > Primary insulation for splices up to 600 V and 105°C
- > Protective jacketing in indoor and outdoor environments



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
Super 33+ / 19 mm x 20 m	3M006	Black	19 mm	20 m	0.18 mm	45 kV/mm	2.6 kN/m	-18 to 105°C
Super 33+ / 19 mm x 33 m	3M001	Black	19 mm	33 m	0.18 mm	45 kV/mm	2.6 kN/m	-18 to 105°C
Super 33+ / 25 mm x 33 m	3M007	Black	25 mm	33 m	0.18 mm	45 kV/mm	2.6 kN/m	-18 to 105°C

Scotch® Vinyl Electrical Tape Super 88

Scotch® Vinyl Electrical Tape Super 88 is a premium grade vinyl insulating tape that provides great mechanical and abrasion resistance. The combination of elastic backing and aggressive adhesive provides moisture-tight electrical and mechanical protection with minimum bulk in extreme temperatures. It offers excellent resistance to abrasion, moisture, copper corrosion, alkalis and acids. Offers excellent all-weather performance in cold to -18°C or hot to 105°C. It is excellent in cold weather performance especially because it is resistant to abrasion, moisture, alkalis, acids, corrosion and varying weather conditions. Super 88 is compatible with solid dielectric cable insulations and rubber and synthetic splicing compounds. As well as inhibits corrosion of electrical conductors, flame retardant, and is professional grade.

Agency Approvals:  

Applications



- > Primary electrical insulation for all wire and cable splices rated up to 600 volts and 105°C (220°F)
- > Protective jacketing for high voltage cable splices and repairs
- > Harnessing of wires and cables



Product	Order Code	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
Super 88	3M140	19 mm	20 m	0.22 mm	45 kV/mm	3.5 kN/m	-18 to 105°C
Super 88	POA	19 mm	33 m	0.22 mm	45 kV/mm	3.5 kN/m	-18 to 105°C
Super 88	POA	25 mm	33 m	0.22 mm	45 kV/mm	3.5 kN/m	-18 to 105°C

Scotch® Vinyl Colour Coding Electrical Tape 35

Scotch® Vinyl Electrical Tape 35 is a 0.18 mm thick PVC colour-coding, flame retardant tape. Outstanding electrical and mechanical properties make this tape excellent for use in phase identification, colour coding of motor leads and piping systems, and for marking safety areas. Scotch® Tape 35 operates over a wide range of temperatures between 0 to 105°C. This tape is available in a range of fade-resistant colours.

Agency Approvals:  

Applications



- > Phase identification and marking
- > Harnessing
- > Insulating splices up to 600 V



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
35 Blue	3M089	Blue	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Green	3M121	Green	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Red	3M088	Red	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 White	3M055	White	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Yellow	3M120	Yellow	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Orange	3M139	Orange	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Brown	POA	Brown	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Violet	POA	Violet	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Grey	3M141	Grey	19 mm	20 m	0.18 mm	49 kV/mm	3 kN/m	0 to 105°C
35 Pink	POA	Pink	19 mm	20 m	0.18 mm	49 kV/mm	3.0 kN/m	0 to 105°C

Scotch® Heavy Duty Vinyl Electrical Tape 22

Scotch® Heavy Duty Vinyl Electrical Tape 22 is one of 3M's thickest (0.25 mm) premium vinyl electrical tapes. It is designed for insulation applications that require greater mechanical strength and abrasion resistance. Scotch® Tape 22 provides moisture resistant electrical and mechanical protection with fewer wraps than thinner tapes.

Agency Approvals:  

Applications



- > Bus bar insulation
- > Cable jacket repair



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
Tape 22	3M029	Black	19 mm	33 m	0.25 mm	47.2 kV/mm	3.5 kN/m	-10 to 80°C
Tape 22	3M030	Black	25 mm	33 m	0.25 mm	47.2 kV/mm	3.5 kN/m	-10 to 80°C
Tape 22	3M093	Black	38 mm	33 m	0.25 mm	47.2 kV/mm	3.5 kN/m	-10 to 80°C
Tape 22	POA	Black	50 mm	33 m	0.25 mm	47.2 kV/mm	3.5 kN/m	-10 to 80°C

3M™ PVC Electrical Tape 1710N

3M PVC Electrical Tape 1710N is a good quality general purpose PVC insulating tape. It has very good resistance to abrasion, moisture, alkalis, acids, copper corrosion and varying weather conditions. It is flame retardant, has a high wet dielectric strength, is conformable, and provides excellent mechanical protection with minimum bulk. This tape is an Underwriters' Laboratories Listed and Canadian Standards Association Certified "Insulating Tape."

Agency Approvals:  

Applications

- > Low voltage electrical insulating up to 600 V
- > Moisture sealing



Product	Order Code	Pack Size	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
1710N Black	3M009	10	Black	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Blue	3M010	10	Blue	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Green	3M011	10	Green	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Red	3M012	10	Red	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N White	3M013	10	White	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Yellow	3M014	10	Yellow	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Yellow/Green	3M008	10	Yellow/ Green Stripe	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C
1710N Rainbow	3M028	1	Rainbow	18 mm	20 m	0.18 mm	39.4 kV/mm	2.6 kN/m	0 to 80°C

3M™ Temflex™ Cotton Friction Tape 1755

3M Temflex Cotton Friction Tape 1755 is a high-grade, black friction tape designed to provide mechanical protection against abrasion and cut through for cable, wire splices and connections insulated with rubber electrical tape. The 0.33 mm thick tape is composed of a high quality cotton fabric, coated on both sides with an electrical grade, solvent free, rubber adhesive. Temflex Tape 1755 has high breaking strength and low stretch, making it ideal as a heavy duty binding and harnessing tape.

Applications

- > Abrasion protection for splices and connections



Product	Order Code	Colour	Width	Length	Thickness	Breaking Strength	Operating Temperature
Tape 1755	3M025	Black	19 mm	18.3 m	0.33 mm	8.4 kN/m	Up to 80°C

Scotch® Rubber Splicing Tape 23

Scotch® Rubber Splicing Tape 23 is a premium, highly conformable, self-fusing Ethylene Propylene Rubber (EPR), high voltage insulating tape. Scotch® Tape 23 has a “snakeskin” liner that is easily removed as the tape is applied. This product can be used for low and high voltage (up to 69 kV) applications.

Applications

- > Primary electrical insulation for splicing all solid dielectric cables up to 69 kV
- > Moisture sealing electrical connections
- > Jacketing on high voltage splices and terminations



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature	Emergency Operating Temperature
Tape 23	3M002	Black	19 mm	9.15 m	0.76 mm	31.5 kV/mm	1000%	1.4 kN/m	Up to 90°C	130°C
Tape 23	POA	Black	19 mm	9.15 m	0.76 mm	31.5 kV/mm	1000%	1.4 kN/m	Up to 90°C	130°C
Tape 23	3M017	Black	25 mm	9.15 m	0.76 mm	31.5 kV/mm	1000%	1.4 kN/m	Up to 90°C	130°C
Tape 23	3M063	Black	38 mm	9.15 m	0.76 mm	31.5 kV/mm	1000%	1.4 kN/m	Up to 90°C	130°C
Tape 23	POA	Black	50 mm	9.15 m	0.76 mm	31.5 kV/mm	1000%	1.4 kN/m	Up to 90°C	130°C

*Bulk pack is 90 rolls per carton, each roll shrink wrapped

Scotch® Linerless Rubber Splicing Tape 130C

Scotch® Linerless Rubber Splicing Tape 130C is a premium, highly conformable, linerless Ethylene Propylene Rubber (EPR), high voltage insulating tape that provides excellent thermal dissipation of splice heat. Scotch® Splicing Tape 130C meets industry specifications and has excellent physical and electrical properties, which helps provide immediate moisture seal and void free buildups. Scotch® Splicing Tape 130C is rated up to 90°C continuous operating temperatures and short term 130°C overload service. This product can be used for low and high voltage (up to 69 kV) applications. This tape should be applied like any rubber tape – that is, the outside of the tape should be facing down as applied (tacky side up). This will help prevent the roll from getting progressively further away from the work area.



Applications

- > Primary electrical insulation for splicing all solid dielectric cables up to 69 kV
- > Moisture sealing electrical connections
- > Jacket repairs

Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature	Emergency Operating Temperature
Tape 130C	3M123	Black	19 mm	9.15 m	0.76 mm	29.5 kV/mm	850%	1.3 kN/m	Up to 90°C	130°C
Tape 130C	3M021	Black	25 mm	9.15 m	0.76 mm	29.5 kV/mm	850%	1.3 kN/m	Up to 90°C	130°C
Tape 130C	3M022	Black	38 mm	9.15 m	0.76 mm	29.5 kV/mm	850%	1.3 kN/m	Up to 90°C	130°C

3M™ Temflex™ Rubber Splicing Tape 2155

3M™ Temflex™ Rubber Splicing Tape 2155 is a conformable self-fusing rubber electrical insulating tape. Temflex Tape 2155 is compatible with solid dielectric cable insulations. Flexible over a wide temperature range, it is Underwriters Laboratories (UL) Listed for use up to 600 volts.

Applications

- > Low voltage electrical insulating up to 600 V
- > Moisture sealing

Agency Approvals: 



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature
Tape 2155	POA	Black	19 mm	6.7 m	0.76 mm	23.6 kV/mm	700%	1.57 kN/m	Up to 80°C

Scotch® Electrical Semi-Conducting Tape 13

Scotch® Electrical Semi-Conducting Tape 13 is a highly conformable, lined, semi-conducting Ethylene Propylene Rubber (EPR) based, high voltage splicing tape. Scotch® Tape 13 elongates easily to conform to irregular shapes and retains its conductivity when stretched.

Applications

- > Provides cable shield continuation



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength
Tape 13	3M040	Black	19 mm	4.5 m	0.76 mm	23.6 kV/mm	800%	1.0 kN/m

Scotch® Self-Fusing Silicone Rubber Electrical Tape 70

Scotch® Self-Fusing Silicone Rubber Electrical Tape 70 is a high temperature, arc and track resistant tape composed of self-fusing, inorganic silicone rubber with an easy-tear and easy-strip liner. It has excellent UV and ozone resistance and is workable at extremely low temperatures. Scotch Tape 70 can be used as base tape layer to enable clean re-entry of connections. Meets the requirements of Mil A-A-59163 Class I, Type I.

Applications

- > Protects and overlaps high voltage cable terminations and serves as base layer to provide clean re-entry into connections
- > Protective overwrap for terminating high voltage cables



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature
Tape 70	3M020	Grey	25 mm	9.15 m	0.3 mm	34 kV/mm	450%	2.1 kN/m	Up to 180°C

Scotch® Fire-Retardant and Electric Arc Proofing Tape 77

Scotch® Fire-Retardant Electric Arc Proofing Tape 77 is a premium non-adhesive tape designed to protect most types of electrical cables when exposed to failures in an adjacent cable. Its specially formulated material expands in fire to form a thick char buildup between the flame and the cable. The resulting firewall acts as a heat shield and flame barrier, thus protecting the wrapped cables and accessories.

Applications

- > Protects cable until limiting devices can interrupt faulted current
- > Use on high-energy cables that are within 500 mm of other high energy cables



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength
Tape 77	3M155	Black	38 mm	6 m	0.76 mm	19.7 kV/mm	6.3 kN/m
Tape 77	POA	White	38 mm	6 m	0.76 mm	19.7 kV/mm	6.3 kN/m

Scotch® Varnished Cambric Tape 2510

Scotch® Varnished Cambric Tape 2510 is made from straight-cut woven cotton cambric fabric. The fabric is oil primed and coated with a high grade yellow electrical insulating varnish. Varnished cambric tapes are flexible, electrically insulating and moisture resistant with a smooth finish. Scotch Tape 2510 is yellow, non-adhesive coated and 0.18 mm thick, providing an excellent dielectric strength with high puncture and cut-through resistance. Its electrical properties are stable up to 105°C.

Applications

- > Insulation of bus bars, motor leads (for re-entry), service drop connectors



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
Tape 2510	POA	Yellow	25 mm	33 m	0.18 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C
Tape 2510	POA	Yellow	50 mm	33 m	018 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C

Scotch® Varnished Cambric Tape 2520

Scotch® Varnished Cambric Tapes are made from straight-cut woven cotton cambric fabric. The fabric is oil primed and coated with a high-grade yellow electrical insulating varnish. Varnished cambric tapes are flexible, electrically insulating and moisture resistant with a smooth finish. They are designed to perform continuously in temperatures up to 105°C (220°F) with excellent resistance to abrasion, puncture and cut-through.



Applications

- > Insulating joints requiring rapid and clean re-entry
- > Use in areas where mechanical protection and puncture resistance is critical

Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Breaking Strength	Operating Temperature
Tape 19	POA	Yellow	19 mm	18 m	0.20 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C
Tape 19	POA	Yellow	19 mm	33 m	0.20 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C
Tape 25	POA	Yellow	25 mm	33 m	0.20 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C
Tape 38	POA	Yellow	38 mm	33 m	0.20 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C
Tape 51	POA	Yellow	51 mm	33 m	0.20 mm	31.4 kV/mm	8.8 kN/m	Up to 105°C

Scotch® Electrical Shielding Tape 24

Scotch® Electrical Shielding Tape 24 is an all-metal, flat, tinned copper open-weave shielding mesh that is compatible with power cable insulations and all high voltage splicing and terminating materials. Scotch® Electrical Shielding Tape 24 elongates easily to conform and is temperature stable.



Note: Scotch® Electrical Shielding Tape 24 should not be used as a ground strap or jumper wire. Its ampacity is not great enough to carry large fault currents. For ground strap applications please refer to Scotch® Electrical Grounding Braid 25.

Applications

- > Continuous electrostatic shielding across splices

Product	Order Code	Width	Length	Thickness	Breaking Strength
Tape 24	3M018	25 mm	4.5 m	0.4 mm	3.8 kN/m

Scotch® Electrical Grounding Braid 25

Scotch® Electrical Grounding Braid 25 is a flat, all-metal woven electrical grounding braid that is compatible with power cable insulations and high voltage splicing and terminating materials. The Scotch® Electrical Grounding Braid 25 is conformable and temperature stable, and has a current carrying capacity approximately that of 12 mm² wire.





Applications

- > Conformable ground braid for splices and terminations

Product	Order Code	Width	Length	Thickness
Tape 25	POA	12.7 mm	4.5 m	2.38 mm

Scotch® Glass Cloth Electrical Tape 27

Scotch® Glass Cloth Electrical Tape 27 is a 0.18 mm thick woven insulating glass cloth tape with pressure sensitive rubber thermosetting adhesive. This tape is designed to operate in 600 volt dry applications requiring high mechanical strength and resistance to high temperatures. The glass cloth is specially treated and prepared to provide corrosion protection.

Agency Approvals:  

Applications

- > Heat stable insulation for furnace and oven controls, motor leads and switches
- > Provides corrosion free protection



Product	Order Code	Colour	Width	Length	Thickness	Breaking Strength	Operating Temperature
Tape 27	3M059	White	12.7 mm	20 m	0.18 mm	25.2 kN/m	Up to 150°C
Tape 27	3M019	White	19 mm	20 m	0.18 mm	25.2 kN/m	Up to 150°C
Tape 27	POA	White	25 mm	55 m	0.18 mm	25.2 kN/m	Up to 150°C

Scotch® Glass Cloth Electrical Tape 69

Scotch® Glass Cloth Electrical Tape 69 is a white glass cloth tape with a high temperature thermosetting silicone adhesive. The thermosetting adhesive provides an increased bond once applied in areas of high ambient temperatures. Scotch® Tape 69 is UL recognised for continuous use up to 200°C. It conforms to Military Specification No. MIL-I-19166C.

Applications

- > Heat stable insulation for furnace and oven controls, motor leads and switches
- > Replaces Scotch® Glass Cloth Electrical Tape 27 in locations where a higher temperature tape is needed



Product	Order Code	Colour	Width	Length	Thickness	Breaking Strength	Operating Temperature
Tape 69	POA	White	12.7 mm	33m	0.18 mm	31.4 kN/m	Up to 200°C
Tape 69	3M138	White	19 mm	33 m	0.18 mm	31.4 kN/m	Up to 200°C
Tape 69	POA	White	25 mm	33 m	0.18 mm	31.4 kN/m	Up to 200°C

Scotch® Rubber Mastic Tape 2228

Scotch® Rubber Mastic Tape 2228 is a conformable self-fusing rubber electrical insulating and sealing tape. Scotch Rubber Mastic 2228 consists of ethylene propylene rubber (EPR) backing coated with a strong, temperature-stable mastic adhesive. The tape is 1.65 mm thick for quick application build-up. It is designed for electrical insulating and moisture sealing applications.

Applications

- > Primary electrical insulation for joints up to 1000 V
- > Insulate, pad and seal bus bar connections rated up to 35 kV
- > Environmental and moisture seal



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Max Operating Temperature
Tape 2228	3M023	Black	25 mm	3 m	1.65 mm	19.7 kV/mm	1000%	1.7 kN/m	90°C
Tape 2228	3M004	Black	50 mm	3 m	1.65 mm	19.7 kV/mm	1000%	1.7 kN/m	90°C

3M™ Scotch-Seal™ Mastic Tape Compound 2229

Scotch-Seal Mastic Tape Compound 2229 is designed for quick and easy insulating, padding, shaping and sealing of electrical connections. It is a conformable, durable, tacky mastic with an easy release liner for easy application over irregular surfaces and provides excellent moisture resistance. It features excellent self-healing characteristics after being punctured or cut.

Applications

- > Sealing high voltage cables and accessories
- > Environmental and moisture seal



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Max Operating Temperature
Tape 2229	3M003	Black	25 mm	3 m	3.2 mm	14.9 kV/mm	90°C
Tape 2229	3M037	Black	95 mm	3 m	3.2 mm	14.9 kV/mm	90°C

3M™ Scotchfil™ Electrical Insulation Putty

Use as a build-up compound on highly irregular surfaces such as fittings and valves, providing a smooth, waterproof taping surface. Scotchfil Electrical Insulation Putty is soft and pliable – simply press putty into place on irregular surfaces, mould with finger pressure and overtape using standard methods.

Applications

- > Insulation of connections up to 600 V
- > Smoothing of bus bar irregularities
- > Shaping and padding for split bolt connections



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Dielectric Strength	Max Operating Temperature
Scotchfil Putty	3M005	Black	38 mm	1.5 m	3.2 mm	1000%	22.6 kV/mm	0 to 80°C

Scotch® Vinyl Mastic Tape VM

Two tapes in one - vinyl and mastic, designed to provide low voltage insulation, seal out moisture and protect against corrosion. Scotch® Vinyl Mastic (VM) Tape seals out moisture and protects against corrosion in one step, without the need for heating tools or using other tapes.

Applications

- > Cable sheath repair
- > Drop wire insulating
- > Splice case and load case protection
- > Auxiliary sleeve and cable reel end sealing
- > Conduit repair and protection of CATV components



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Operating Temperature
VM	POA	Black	38 mm	6 m	0.6 mm	11.8 kN/m	-40 to 80°C
VM	3M024	Black	102 mm	3 m	1.1 mm	11.8 kN/m	-40 to 80°C
VM	POA	Black	152 mm	3 m	1.1 mm	11.8 kN/m	-40 to 80°C

Scotch® Heavy Duty Mining Tape 31

Scotch® Heavy Duty Mining Tape 31 has a tough, abrasion resistant backing for jacket repair on mining cables. Mining cables are exposed to extremely abrasive environments which often results in the damage of their original jackets. MSHA-approved Scotch Tape 31 offers an innovative solution for cable repair. With its abrasion-resistant properties and flame retardant mastic, Scotch Tape 31 applies easily and remains flexible while maintaining a strong moisture seal. The tape is printed with the MSHA logo/approval number.

Applications

- > Jacket repair of mining cables
- > Splicing of mine conduit



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature
Tape 31	3M135	Black	50 mm	2.6 m	1.5 mm	15.7 kV/mm	500%	27.3 kN/m	-30 to 105°C

Scotch® Cable Jacket Repair Tape 2234

Scotch® Cable Jacket Repair Tape 2234 has a tough abrasion-resistant backing for jacket repair on industrial cables, such as flexible portable power cables, draglines, diesel locomotive cable, welding and shipboard cables. Due to abrasive dragging and reeling of these flexible cables, the original jacketing gets damaged often and needs to be repaired. Scotch Tape 2234 is flexible and the self-healing property of the mastic helps keep out moisture.

Applications

- > Jacket repair on electrical cables in extremely harsh environments

Agency Approvals: 



Product	Order Code	Colour	Width	Length	Thickness	Dielectric Strength	Elongation	Breaking Strength	Operating Temperature
Tape 2234	3M036	Black	50 mm	1.8 m	1.5 mm	15.7 kV/mm	500%	27.3 kN/m	-30 to 105°C

3M™ Performance Plus Duct Tape 8979

3M Performance Plus Duct Tape 8979 has a unique tape construction that allows for both permanent and temporary applications whether indoors or outdoors. It is removable with little or no adhesive residue from most opaque surfaces up to six months after application. The tape is conformable, abrasion resistant, and water resistant. The polyethylene film and cloth scrim with rubber adhesive construction provides straight, easy tear with high tensile strength for some of the most demanding applications.

Agency Approvals: 

Applications


- > Cap pipe ends and conduit stored outside
- > Hanging, sealing poly drapes



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Breaking Strength	Operating Temperature	Adhesion to Steel
Tape 8979	3M097	Slate Blue	48 mm	23 m	0.31 mm	19%	6.3 kN/m	Up to 93°C	53 N/100
Tape 8979	3M098	Slate Blue	48 mm	55 m	0.31 mm	19%	6.3 kN/m	Up to 93°C	53 N/100
Tape 8979	POA	Olive	48 mm	55 m	0.31 mm	19%	6.3 kN/m	Up to 93°C	53 N/100
Tape 8979	POA	Black	48 mm	55 m	0.31 mm	19%	6.3 kN/m	Up to 93°C	53 N/100
Tape 8979	POA	Black	72 mm	55 m	0.31 mm	19%	6.3 kN/m	Up to 93°C	53 N/100

3M™ Heavy Duty Duct Tape 3939

3M Duct Tape 3939 is composed of waterproof polyethylene film over cloth scrim backing with a rubber adhesive used for demanding duct tape applications. Meets UL 723.

Agency Approvals: 

Applications

- > Sealing heating ventilation and air conditioning ducts



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Breaking Strength	Operating Temperature	Adhesion to Steel
Tape 3939	3M035	Sliver	48 mm	55 m	0.22 mm	17%	4.72 kN/m	Up to 93°C	63 N/100

Scotch® Polyethylene Coated Cloth Tape 389

Polyethylene cloth tape that has excellent holding power and conformability. Moisture resistant, versatile and adheres to most surfaces.

Temperature Resistance: up to 70°C

Applications

- > Bundling, moisture proofing, sealing, splicing, and reinforcing.



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Operating Temperature
Tape 389	3M128	Sliver	36 mm	30 m	0.22 mm	6%	Up to 93°C
Tape 389	3M058	Sliver	48 mm	30 m	0.22 mm	6%	Up to 93°C

Scotch® 1352B & Tartan™ 2352 Duct Tapes

Scotch® 1352B and Tartan™ 2352 Tapes are stabilised and plasticised PVC film coated tapes suitable for most light industrial sealing and joining applications.

Applications

- > Joining polythene sheeting
- > Sealing air ducts
- > Temporary holding



Product	Order Code	Colour	Width	Length	Thickness
Tape 1352B	3M026	Black	50 mm	30 m	0.15 mm
Tape 2352	3M137	Silver	50 mm	30 m	0.15 mm

3M™ Tartan Utility Duct Tape

Waterproof, polyethylene coated cloth backing with rubber resin for sealing. Available in black or silver.

Applications

- > Packaging
- > Sealing
- > Bundling and temporary repairs



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature	Adhesion to Steel
955K Tartan	3M182	Black	48 mm	50 m	0.15 mm	Up to 50°C	76.6 N/100 mm
955K Tartan	3M184	Silver	48 mm	50 m	0.15 mm	Up to 50°C	76.6 N/100 mm

3M™ Scotch Duct Tape

A general purpose duct tape for everyday use.

Applications

- > Bundling, patching and temporary repairs.



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature	Adhesion to Steel
944B Scotch	3M181	Black	48 mm	9.14 m	0.15 mm	Up to 50°C	76.6 N/100 mm
944S Scotch	3M183	Silver	48 mm	9.14 m	0.15 mm	Up to 50°C	76.6 N/100 mm

3M™ Extreme Sealing Tape 4412N - 25.4mm x 16.6m

3M™ Extreme Sealing Tape is a family of single coated, pressure sensitive adhesive tapes designed for difficult sealing applications. The backing on this tape is an ionomer film that is very tough yet flexible and abrasion resistant. The very soft and thick acrylic adhesive has excellent sealing properties and good outdoor durability. This single coated tape is designed to seal over an existing joint, seam, or penetration. The adhesive is designed to adhere well to the ionomer film so that overlapping tape joints can be made while maintaining a strong seal.

Applications

- > Truck and trailer roof sealing
- > Window and door sealing
- > Joints and seams
- > Gutters



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Breaking Strength	Operating Temperature	Adhesion to Steel
Tape 4412N	3M156	Clear	25.4 mm	16.6 m	2 mm	19%	6.3 kN/m	Up to 93°C	32 N/CM

3M™ Extreme Sealing Tape 4411N - 38mm x 5m

3M™ Extreme Sealing Tape is a family of single coated, pressure sensitive adhesive tapes designed for difficult sealing applications. The backing on this tape is an ionomer film that is very tough yet flexible and abrasion resistant. The very soft and thick acrylic adhesive has excellent sealing properties and good outdoor durability. This single coated tape is designed to seal over an existing joint, seam, or penetration. The adhesive is designed to adhere well to the ionomer film so that overlapping tape joints can be made while maintaining a strong seal.

Applications

- > Truck and trailer roof sealing
- > Window and door sealing
- > Joints and seams
- > Gutters



Product	Order Code	Colour	Width	Length	Thickness	Elongation	Breaking Strength	Operating Temperature	Adhesion to Steel
Tape 4411N	3M092	Clear	38 mm	5 m	1 mm	19%	6.3 kN/m	Up to 93°C	26 N/CM

Scotch® Performance Masking Tape 233+

Our Scotch® Performance Green Masking Tape 233+ delivers consistently superior performance on mouldings, plastic, glass, metal, rubber and paint. Balanced four-part construction includes flexible backing that applies easily around vehicle curves and contours and our patented adhesive that sticks at a touch, stays put and removes without transfer for consistently outstanding paint lines. Sticks easily/allows fast application.

- > Premium paper backing resists breaking, lifting, and edge curl for ease of use and less material waste
- > Developed to provide high conformability with clean removal and sharp paint lines
- > Superior resistance to UV, moisture, and solvents compared to other paper tapes



Product	Order Code	Colour	Width	Length	Thickness	Elongation at break	Operating Temperature
Tape 233+	3M043	Green	24 mm	50 m	0.17 mm	10%	Up to 121°C

3M™ Value Masking Tape 101+

3M™ Value Masking Tape 101+ is a cost-effective crepe paper tape that holds, bundles, seals, and performs other non-critical taping jobs where a pressure sensitive tape is needed. This tape offers controlled unwind to prevent shredding or splintering and tears easily from the roll by hand.

- > Cost effective solution for indoor light-duty applications
- > Crepe paper backing provides easy tearing
- > Provides conformability on irregular surfaces and around corners
- > Hand tearable and sliver resistance with one piece removal for easy use
- > Ideal for marking, temporary holding, wrapping, and sealing
- > Low conformability



Product	Order Code	Colour	Width	Length	Thickness	Elongation at break	Operating Temperature
Tape 101+	3M099	White	24 mm	55 m	5.1 mm	9%	Up to 65°C

3M™ Dual Lock™ Reclosable Fastener MP3551/52

3M™ Dual Lock™ Reclosable Fastener MP3551/MP3552 is the convenient alternative to traditional fastening methods, such as screws, nuts or bolts. It is designed to deliver a durable, reclosable fastening solution (which can be opened and closed multiple times) that bonds to a variety of substrates including metals and plastics such as acrylics, polycarbonate and ABS.

Applications

- > Access panels
- > Graphic attachment
- > Specialty vehicles (interior attachments)
- > General industrial attachment
- > Small components



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
MP3551/52	3M124	Black	25 mm	4.5 m	5.7 mm	Up to 93°C

3M™ Double Sided Foam Tape 4466W

3M™ Double Sided Foam Tape 4466W is a polyethylene, conformable, double coated, closed-cell foam tape. It provides "quick stick" and conformability for a wide range of surfaces.

Applications

- > Bonding, attaching and mounting. Indoor use only

Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
Tape 4466W	3M157	White	12 mm	10 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.
Tape 4466W	3M158	White	18 mm	10 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.
Tape 4466W	3M159	White	24 mm	10 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.



3M™ Double Coated Urethane Foam Tape 4026

- > Thick, double-coated, open-cell urethane foam tape with a paper liner.
- > Bonds surfaces and provides handling convenience and cushioning.
- > Operating Temperature: Up to 105°C

Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
Tape 4026	3M125	White	12 mm	33 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.
Tape 4026	3M038	White	19 mm	33 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.
Tape 4026	3M126	White	25 mm	33 m	0.16 mm	Up to 49°C long term. Up to 70°C short term.



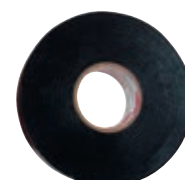
3M™ Scotchrap™ Corrosion Protection Tape 50

3M Scotchrap Corrosion Protection Tape 50 is a tough PVC tape with high tack adhesive that resists corrosion of metal piping systems above and below ground. It applies over a wide temperature range and is resistant to impact, abrasion and punctures. Coat the pipe or other metal surfaces with 3M Scotchrap Pipe Primer before wrapping with Scotchrap Tape 50.

Applications

- > Protects pipe, conduits and fittings from corrosion

Product	Order Code	Colour	Width	Length	Thickness	Breaking Strength	Installation Temperature	Service temperature Range
Tape 50	POA	Black	25 mm	30 m	0.25 mm	3.5 kN/m	-12 to 65°C	-48 to 80°C
Tape 50	3M016	Black	50 mm	30 m	0.25 mm	3.5 kN/m	-12 to 65°C	-48 to 80°C
Tape 50	POA	Black	100 mm	30 m	0.25 mm	3.5 kN/m	-12 to 65°C	-48 to 80°C
Tape 50	POA	Black	150 mm	30 m	0.25 mm	3.5 kN/m	-12 to 65°C	-48 to 80°C



3M™ Scotchrap™ Pipe Primer

A quick-drying, non-sag rubber based primer that fills metal surface pits and irregularities, preparing the surface for tape application. Compatible with the special adhesive on 3M Scotchrap Tapes, it enhances adhesion. To be used with 3M Scotchrap Corrosion Protection Tape 50.

Applications

- > Used with Scotchrap Corrosion Protection Tape 50 to resist corrosion of above and below ground metal piping systems

Product	Order Code	Size
Pipe Primer	POA	3.8 L



3M™ Antistatic Utility Tape 40PR

General use utility tape, clear polyester film backing, anti-static conductive polymer adhesive. With preprinted static symbol. Helps prevent electrostatic discharge (ESD) damage to sensitive electronic components in manufacturing environments.

Applications

- > For use in static sensitive areas
- > Closing static shielding bags



Product	Order Code	Colour	Width	Length	Thickness	Breaking Strength	Adhesion to Steel	Static Charge Generation at 50% RH	
								Remove from Roll	Remove from Stainless Sheet
Tape 40PR	POA	Clear with printing	6.4 mm	66 m	0.056 mm	17 kN/m	17 N/100	5 V	5 V
Tape 40PR	POA	Clear with printing	19 mm	66 m	0.056 mm	17 kN/m	17 N/100	5 V	5 V

*Also available from 3M converters in other standard and custom sizes.

Scotch® Pipe Thread Sealant Tape 48

A high temperature-stable (PTFE) thread sealant that provides a leak-proof seal.



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
Tape 48	POA	White	12.7 mm	33 m	0.076 mm	-268 to 260°C

Aarmorcast Structural Material

Aarmorcast Structural Material (roll format) is packed dry in a sealed foil envelope and is a flexible fiberglass knit fabric strip that has been saturated with a curable black urethane resin syrup that starts to cure when water is added. Once wet, the fiber strip becomes tacky and sticks to itself, so it wraps easily around almost any shape or size. Aarmorcast Structural Material is resistant to moisture, fungus, acid, alkali, ozone, sunlight, gasoline and high temperatures. It combines long life and very little maintenance.

Applications

- > Creates maintenance free mechanical protection for power cable splices
- > For strengthening old cable, splices and auxiliary seals



Product	Order Code	Width	Length
Tape 4560	OCAST 1	100 mm	3 m
Tape 4560	OCAST 2	100 mm	3 m

Aarmorcast Kits

Product	Order Code
Aarmorcast x 3m / Nitrile Gloves	OCAST1
Aarmorcast x 3m / Nitrile Gloves / Jacket Repair Tape 2234	OCAST2



3M™ VHB Tape RP45

3M VHB Tape RP45 is a conformable, double-sided, pressure sensitive, closed-cell acrylic foam tape with a paper liner. Excellent permanent bonding to most surfaces used in a wide range of general industrial bonding applications. This permanent assembly tape bonds high and medium surface energy substrates. Provides handling convenience, cushioning, damping and impact resistance. UV and weather resistance for exterior and interior applications.

Applications

- > Bonding a lens to a metal sign frame, washing machine touch panel bonding, commercial vehicle roof vent attachment, commercial vehicle trim attachment, interior rail car construction



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
RP45	3M177	Grey	12.7 mm	5 m	1.1 mm	Up to 93°C long term. Up to 121°C short term.
RP45	3M178	Grey	19 mm	5 m	1.1 mm	Up to 93°C long term. Up to 121°C short term.

3M™ Automotive Acrylic Plus Attachment Tape

3M™ Automotive Acrylic Plus Attachment Tape 06384 features two adhesives, one on each side of a 1.12 mm closed-cell acrylic foam core. Our liner-side adhesive is formulated for bonding to automotive paint systems, and the non-liner-side bonds to metals and plastics used in automotive components. Both adhesives deliver excellent initial tack and adhesive build for a permanent bond.

Applications

- > Body side moldings
- > Bumper trim
- > Claddings
- > Wheel flares
- > Badges, nameplates and emblems



Product	Order Code	Colour	Width	Length	Thickness	Operating Temperature
Automotive Acrylic Tape	3M052	Black	12 mm	18 m	1.2 mm Acrylic Form Core	N/A

3M™ VHB™ Tape 5952

The 3M™ VHB™ Tape 5952 uses a black modified acrylic adhesive providing a strong doubled sided foam tape. This extraordinary tape adheres to broad ranges of surfaces, including metals, plastics and wood. This 3M quality tape provides shear strength, conformability, surface adhesion and temperature resistance. Once bonded it creates a permanent seal against water, moisture, dust through its great gap filling capabilities. The VHB™ Tape 5952 can provide high strength and long-term durability through the modified acrylic adhesive.

Applications

- > Tapes are commonly used in applications such as transportation, appliances, electronics,
- > Construction, signs and displays.
- > It can replace rivets, welds and screws, with a viscoelasticity and powerful ability to bond to a variety of surfaces.



Product	Order Code	Colour	Width	Length	Thickness	Adhesion Strength	Operating Temperature
5952	3M145	Black	12.7 mm	33 m	1.1 mm	38.5 N/CM	Up to 120°C
5952 (Clamshell)	3M144	Black	19 mm	13.7 m	1.1 mm	38.5 N/CM	Up to 120°C

3M™ VHB™ Tape 5925

The 3M™ VHB™ Tape 5925 can provide high strength and long-term durability through the modified acrylic adhesive. It offers flexibility to a design as it can replace rivets, welds and screws, with a viscoelasticity and powerful ability to bond to a variety of surfaces. The 5925 tape is commonly used in applications such as transportation, appliances, electronics, construction, signs and displays.

Applications

- > Transportation, appliances, electronics, construction, signs and displays.
- > Can replace mechanical fasteners (rivets, welding, screws) or liquid adhesives: Eliminate drilling, grinding, refinishing, screwing, welding and clean-up
- > Fast and easy-to-use permanent bonding method provides high strength and long-term durability
- > Pressure sensitive adhesive bonds on contact to provide immediate handling strength
- > Virtually invisible fastening keeps surfaces smooth
- > High dynamic stress absorption reduces vibration and impact stress

Product	Order Code	Colour	Width	Length	Thickness	Dielectric Breakdown	Adhesion to Steel	Breaking Strength	Operating Temperature
5925	3M045	Black	25.4 mm	66 m	0.25 mm	3500 V	44 N/100 mm	48.1 kN/m	Up to 105°C



3M™ Paper Backed Electrical Filament Tape 1076

3M™ Paper Backed Electrical Filament Tape 1076 is made of an electrical-grade paper backing reinforced with scrim glass filaments and an oil-compatible acrylic pressure-sensitive adhesive. Unlike conventional film backed tapes, this products' paper backing construction allows for complete impregnation and saturation of the tape in adjacent layers of insulation. The unique coating on the back side of 3M™ Tape 1076 promotes exceptional bonding of the diamond paper insulation epoxy during the transformer baking process.

Applications


- > Oil filled transformer applications
- > Has a saturable backing for air entrapment resistance
- > Stiffness of the tape promotes superior handling, which enhances operator efficiency

Product	Order Code	Colour	Width	Length	Thickness	Dielectric Breakdown	Adhesion to Steel	Breaking Strength	Operating Temperature
1076	3M154	Cream	9.5 mm	55 m	0.25 mm	3500 V	44 N/100 mm	48.1 kN/m	Up to 105°C
1076	POA	Cream	19 mm	55 m	0.25 mm	3500 V	44 N/100 mm	48.1 kN/m	Up to 105°C



3M™ Copper Foil Tape 1181

3M™ Copper Foil Shielding Tape 1181 consists of a 1-ounce rolled copper foil backing and an electrical conductive, pressure-sensitive acrylic adhesive. This tape is supplied on a removable liner for easy handling and die-cutting. It has excellent solder ability.

Agency Approvals: 

Applications

Typically used as an EMI/RFE shielding tape for applications in the electronics industry such as static charge draining, seaming shielded rooms, cable wrapping and surface contact to non-solderable materials.

Product	Order Code	Colour	Width	Length	Thickness	UL Flame Retardant	Breaking Strength	Operating Temperature
1181	3M957	Copper	24 mm	16.5 m	0.66 mm	Yes	4.4 kN/m	Up to 130°C
1181	3M956	Copper	50 mm	16.5 m	0.66 mm	Yes	4.4 kN/m	Up to 130°C



3M™ 425 Aluminium Foil Tape

3M™ aluminium Foil Tape 425, dead-soft aluminium foil backing, excellent heat and light reflection to protect against high temperatures and U.V. degradation. The foil also serves as an excellent barrier against moisture, dust, flame, and certain chemicals as used in aircraft paint stripping masking. Acrylic adhesive supplies superior temperature, U.V. and solvent resistance. It provides excellent age life and is ideal for harsh, long-term outdoor environments.

- > High performance aluminium foil tape, 71-micron thick foil backing
- > Premium aluminium foil for aerospace, appliance, automotive
- > Resists flame, resists moisture, resists weather, resists UV degradation, chemical resistant tape, thermally conductive tape for heating and cooling efficiency, heat reflective tape, light reflective tape, conformable tape



Product	Order Code	Colour	Width	Length	Thickness	UL Flame Retardant	Elongation at Break	Operating Temperature
425	3M094	Silver	25 mm	55 m	0.07 mm	Yes	6%	Up to 149°C
425	3M053	Silver	50 mm	55 m	0.07 mm	Yes	6%	Up to 149°C
425	3M095	Silver	75 mm	55 m	0.07 mm	Yes	6%	Up to 149°C

Scotch® Aluminum Foil Tape 3311

Scotch® Foil Tape 3311 is an aluminium alloy foil with a pressure-sensitive adhesive and paper liner. The aggressive rubber adhesive sticks well to most surfaces and the paper liner makes for convenient and reliable use.

Applications

- > Suited for difficult to adhere to surfaces such as low energy substrates
- > Can be used under all weather conditions.
- > Matches aluminium foil-faced duct systems and insulation
- > Designed for maximum adhesion over clean, dry surfaces.
- > Resists water vapor, odour and smoke transmission
- > Can be used over a wide temperature range
- > Acts as a vapor barrier to ensure the integrity of the insulation system.



Product	Order Code	Colour	Width	Length	Thickness	UL Flame Retardant	Elongation at Break	Operating Temperature
3311	3M054	Silver	50.8 mm	9.14 m	0.09 mm	Yes	3%	Up to 82.2°C
3311	3M096	Silver	50.8 mm	45 m	0.09 mm	Yes	3%	Up to 82.2°C

Scotch™ Magnetic Tape

Great for mounting papers, cards, recipes and more! Turn any wall into a magnetic surface. Repositionable and does not curl after mounting. Permanent adhesive that cuts easily with scissors.

Applications

- > Apply magnetic tape to walls or cabinets for hanging lightweight metal object
- > Easy-to-apply design with no mess or tools
- > Liner removes easily to expose permanent adhesive



Product	Order Code	Colour	Width	Length
Magnetic Tape	3M143	Black	12.7 mm	1.22 m





Slip Resistant Tapes

3M offers a full range of safety tapes suitable for a wide range of applications, including hazard and lane marking, increasing visibility and protection against slips, trips and falls.

3M™ Safety-Walk™ Slip Resistant Tapes

- > Mineral-coated, high friction slip-resistant surface.
- > Highly durable to withstand the rigors of equipment traffic.
- > Low-profile design helps reduce trip hazard.
- > High performance pressure-sensitive adhesive for easy application.







Product Code	Description	Sizing	Application
 3M162	Safety-Walk Slip Resistant Tape General Purpose Black	50mm x 18.2m	Ideal for flat surfaces, steps, stairways, entrances, ramps, ladders, lawn equipment, snowmobiles, scooters, construction etc.
 3M163	Safety-Walk Slip Resistant Tape General Purpose Yellow		
 3M164	Safety-Walk Slip Resistant Tape General Purpose Black/Yellow		
 3M176	Safety-Walk Slip Resistant Tape General Purpose Black 50mm x 3m	Abrasion and puncture resistant per EN388 level 4122	

3M™ Diamond Grade™ Reflective tape

- > Outstanding reflectivity at every viewing angle and at every viewing distance.
- > Innovative full cube corner technology gives outstanding reflectivity performance.






Product Code	Description	Sizing	Application
 3M165	3M™ Diamond Grade™ Reflective Tape, White	50mm x 3m	Ideal for trucks, trailers, workplace machinery, bins, obstacles, entrance ways and any other hazard.
 3M166	3M™ Diamond Grade™ Reflective Tape, Yellow		
 3M167	3M™ Diamond Grade™ Reflective Tape, Red		
 3M168	3M™ Diamond Grade™ Reflective Tape, Fluro Green/Yellow		

3M™ Reflective Tape, Hazard Stripe

- > Made from high quality, durable material with Advanced Engineer Grade Prismatic reflective technology.
- > 24 hour visibility. Reflectivity at night and hazard stripe pattern during the day.





Product Code	Description	Sizing	Application
 3M147	3M™ Reflective Tape, Red/White Hazard stripe	50mm x 3m	Ideal for hazardous areas, obstacles, barriers and posts, gates, ledges, low hanging objects.
 3M169	3M™ Reflective Tape, Yellow/Black Hazard Stripe		
 3M170	3M™ Reflective Tape, Yellow/Red Hazard Stripe		

3M™ Hazard Marking Tape

- > Top side printed vinyl backing for conformability to many surfaces.
- > Rubber adhesive for good instant adhesion.






Product Code	Description	Sizing	Application
 3M171	Hazard Stripe Tape 766 Yellow & Black	50mm x 33m	Ideal for aisle/lane marking, hazard warning, colour coding, paint masking, identification, surface protection, splicing, sealing, decoration, reinforcing.
 3M172	Hazard Stripe Tape 767 Red & White		

3M™ Vinyl Tape 471

- > Pigmented backings maintain their vivid colours even when exposed to heavy abrasion.
- > Rubber adhesive provides good adhesion to many surfaces for easier application and excellent holding strength, with great clean removal when required.
- > Sharp colours for colour coding or marking systems, draw attention and help site safety.



Product Code	Description	Sizing	Application
 3M174	Vinyl Tape 471 Red	50mm x 33m	Ideal for aisle/lane marking, hazard warning, colour coding, paint masking, identification, surface protection, splicing, sealing, decoration, reinforcing.
 3M069	Vinyl Tape 471 White		
 3M173	Vinyl Tape 471 Yellow		



3M™ Insulating and Conductive Tapes

3M Insulating and Conductive Tapes are made from a broad range of backings and adhesives to meet the uniquely demanding requirements of different applications and environments. Extensive quality control and testing, combined with accurate process controls, are just part of the reason that 3M consistently provides high quality products.

These tapes are available in standard and custom sizes. Contact OHUG for more details.



Product	Product Description	Features	Total Thickness	Operating Temperature	UL Flame Retardant	Dielectric Breakdown	Insulation Resistance	Breaking Strength	Adhesion to Steel	Agency Approvals	
 											
Glass Fibre Reinforced Polyester Film Electrical Tape											
1039	3M™ Glass Fibre Reinforced Polyester Film Electrical Tape 1039	Solvent-resistant filament tape with pressure sensitive acrylic adhesive	0.177 mm	130°C		5500 V	1 x 10 ⁶ MΩ	48.1 kN/m	38 N/100 mm	✓	
Acetate Cloth Electrical Tape											
28	3M™ Acetate Cloth Electrical Tape 28	Thermosetting Rubber adhesive. Printable. White	0.203 mm	105°C		2500 V	2 x 10 ⁴ MΩ	6.2 kN/m	44 N/100 mm		
11	3M™ Acetate Cloth Electrical Tape 11	Thermosetting Rubber adhesive. Printable. Black	0.203 mm	105°C		2000 V	2 x 10 ⁴ MΩ	6.2 kN/m	44 N/100 mm		
Crepe Paper Electrical Tape											
16	3M™ Crepe Paper Electrical Tape 16	Paper tape with aggressive rubber resin adhesive. Coil cover on bobbin-wound coils	0.228 mm	105°C		2500 V	>1 x 10 ⁶ MΩ	4.4 kN/m	55 N/100 mm		
Epoxy Film Electrical Tape											
Super 20	3M™ Epoxy Film Electrical Tape Super 20	Thick double sided epoxy for higher temperature and dielectric. Acrylic adhesive. UL510 flame retardant.	0.127 mm	155°C	Yes	8000 V	>1 x 10 ⁶ MΩ	7.9 kN/m	33 N/100 mm	✓	✓
Super 10	3M™ Epoxy Film Electrical Tape Super 10	Thicker, double-sided epoxy for higher temperature and dielectric. Rubber adhesive. UL510 flame retardant.	0.127 mm	155°C	Yes	8000 V	>1 x 10 ⁶ MΩ	7.9 kN/m	49 N/100 mm	✓	✓
Polyester Film Electrical Tape											
5	3M™ Polyester Film Electrical Tape 5	General purpose polyester tape with acrylic adhesive. 0.025 mm film. Clear	0.063 mm	130°C		5500 V	>1 x 10 ⁶ MΩ	4.4 kN/m	38 N/100 mm	✓	✓
1318-1	3M™ Polyester Film Electrical Tape 1318-1	Acrylic adhesive. 0.025 mm film. Printable. Black or White	0.063 mm	130°C		5500 V	>1 x 10 ⁶ MΩ	4.4 kN/m	33 N/100 mm	✓	
1350F-1	3M™ Polyester Film Electrical Tape 1350F-1	Acrylic adhesive. 0.025 mm film. UL510 flame retardant. Yellow	0.063 mm	130°C	Yes	5500 V	>1 x 10 ⁶ MΩ	4.4 kN/m	33 N/100 mm	✓	✓
56	3M™ Polyester Film Electrical Tape 56	General purpose polyester tape with thermosetting rubber adhesive. 0.025 mm film. Yellow	0.058 mm	130°C		5000	>1 x 10 ⁶ MΩ	4.4 kN/m	55 N/100 mm	✓	✓
58	3M™ Polyester Film Electrical Tape 58	Thicker, higher dielectric. Thermosetting rubber adhesive. 0.05 mm film. Clear	0.083 mm	130°C		7000 V	>1 x 10 ⁶ MΩ	8.8 kN/m	65 N/100 mm	✓	

Product	Product Description	Features	Total Thickness	Operating Temperature	UL Flame Retardant	Dielectric Breakdown	Insulation Resistance	Breaking Strength	Adhesion to Steel	Agency Approvals	
 											
Composite Film Tape											
44	3M™ Polyester Film Electrical Tape 44	Low-Halogen, general purpose composite film tape. puncture-resistant with excellent electrical properties. For general purpose insulation, anchoring, and banding in motors and transformers	0.139 mm	130°C		5500 V	>1 x 10 ⁹ MΩ	7 kN/m	71 N/100 mm	✓	
44D-A	3M™ Reinforced Polyester Film Electrical Tape 44D-A	A version of 44 Tape with twice the backing thickness for greater dielectric strength	0.304 mm	130°C		6000 V	>1 x 10 ⁹ MΩ	7 kN/m	71 N/100 mm	✓	
Polyimide Film Electrical Tape											
92	3M™ Polyimide Film Electrical Tape 92	Silicone adhesive and 0.025 mm film. High temperature, puncture resistant, printable, flame retardant. Stable in coils, harnesses and capacitors that are subjected to high temperatures	0.076 mm	180°C	Yes	7500 V	>1 x 10 ⁹ MΩ	5.3 kN/m	28 N/100 mm	✓	
PTFE Film Electrical Tape											
60	3M™ PTFE Film Electrical Tape 60	Translucent, 0.05 mm PTFE film tape with silicone adhesive. For use on high temperature coils, capacitors and wire harnesses. UL510 flame retardant	0.102 mm	180°C	Yes	9500 V	>1 x 10 ⁹ MΩ	3.5 kN/m	32 N/100 mm	✓	
61	3M™ PTFE Film Electrical Tape 61	Translucent, thicker (0.127 mm) PTFE film tape with silicone adhesive. For use on high temperature coils, capacitors and wire harnesses where high dielectric and breaking strength are required. UL510 flame retardant	0.178 mm	180°C	Yes	15000 V	>1 x 10 ⁹ MΩ	7.9 kN/m	38 N/100 mm	✓	
63	3M™ PTFE Film Electrical Tape 63	Translucent, 0.05 mm PTFE film tape with solvent resistant acrylic adhesive. For use on coils, capacitors and wire harnesses. For use where chemical properties are more important than temperature resistance	0.088 mm	155°C		9500 V	>1 x 10 ⁹ MΩ	3.5 kN/m	38 N/100 mm	✓	

Product	Product Description	Features	Total Thickness	Operating Temperature	UL Flame Retardant	Dielectric Breakdown	Insulation Resistance	Breaking Strength	Electrical Resistance	Adhesion to Steel	Agency Approvals
EMI Shielding Tapes											
1170	3M™ Aluminum Foil Tape with Conductive Adhesive 1170	Conductive acrylic adhesive, 0.05 mm aluminum foil	0.081 mm	40°C to 130°C	Yes	-	>85 dB, 1MHz to 2 GHz	3.5 kN/m	0.01 Ω	38 N/100 mm	✓
1181 (24x16.5) (50x16.5)	3M™ Copper Foil Tape with Conductive Adhesive 1181	Conductive acrylic adhesive, 0.04 mm copper foil	0.07 mm	130°C	Yes	-	>85 dB, 1MHz to 2 GHz	4.4 kN/m	0.005 Ω	38 N/100 mm	✓
1182	3M™ Copper Foil Tape with Conductive Adhesive on both sides 1182	Conductive acrylic adhesive on both sides, 0.04 mm copper foil	0.088 mm	130°C	Yes	-	70 - 85 dB	4.4 kN/m	0.01 Ω	38 N/100 mm	✓
1245	3M™ Embossed Copper Foil Tape 1245	Conductive acrylic adhesive, embossed 0.04 mm copper foil	0.101 mm	130°C	Yes	-	75 - 85 dB (30 MHz to 1 GHz)	4.4 kN/m	0.001 Ω	38 N/100 mm	✓
CN-3190	3M™ Shielding Non-woven Fabric Tape CN-3190	Anti-corrosion metallized polyester rip-stop fabric, acrylic adhesive.	0.11 mm		N/A	-	65 - 70 dB	7 kN/m	0.005	33 N/100 mm	
CN-3490	3M™ Shielding Non-woven Fabric Tape CN-3490	Anti-corrosion, metallized nonwoven fabric, acrylic adhesive.	0.066 mm		N/A	-	65 dB, 1 GHz	6.1 kN/m	0.005	33 N/100 mm	
CN-4190	3M™ Shielding Fabric Tape CN-4190	Anti-corrosion, metallized polyester rip-stop fabric, acrylic adhesive both sides.	0.11 mm		N/A	-	65 - 70 dB	6.4 kN/m	0.05	40 N/100 mm	
X-7001	3M™ Copper-Coated Polyester Cloth Tape X-7001	Anti-corrosion, metallized polyester fabric, acrylic adhesive both sides.	0.13 mm		N/A	-		6.4 kN/m	0.015	66 N/100 mm	

Section 02

Insulating Gels, Rubbers & Resins

Pre-filled Gel Boxes	38
Pre-filled Gel Joints	54
Cable Joint Kits - Gel,Rubber & Resin	72
Encapsulating and Jointing Gels, Rubbers & Resins	84
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Happy

The revolutionary mini accessories with 3 entrances, prefilled with gel and suitable for submersible installations (IPX8).

Designed in 3 dimensions to rapidly insulate and seal the most commonly used connectors. The 3 entrances not only guarantee the extreme flexibility in the range of these products by making possible triple configurations but also by the housing accepting a wide variety of connectors.

- > Extremely versatile - Ready to use - Re-enterable
- > For rigid or flexible insulated wires up to 4 mm²
- > Unlimited shelf life
- > Small compact and robust
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Temp: 90°C

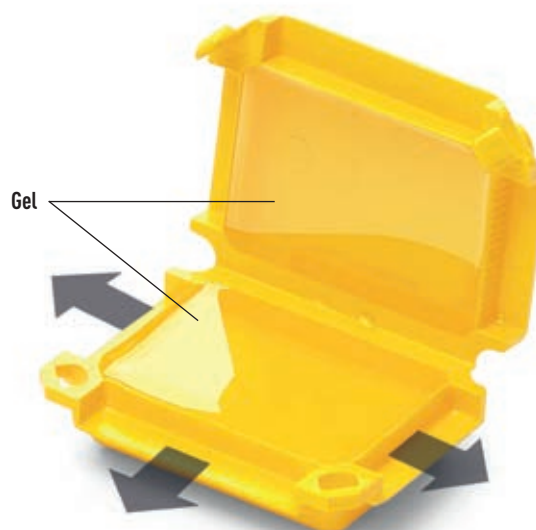
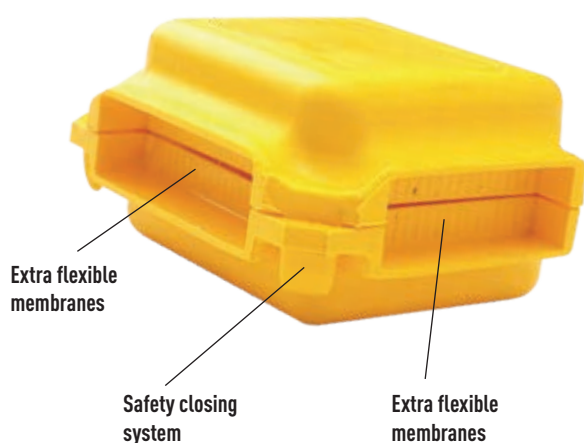
Installation temperature: -40°C / +50°C

Fully submersible

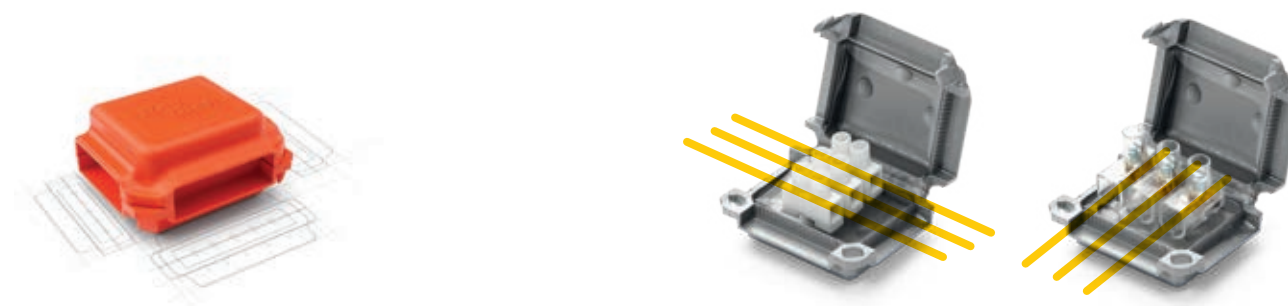
Can be used underground

IPX8
OFFICIALLY
TESTED


IMQ



Configuration examples




Happy 0

Product	Pieces	Colour	Description	A x B x C (mm)	
Happy 0	x 4	●	Blister	41 x 28 x 19	
Happy 0 Box12	x 12	○	Box	41 x 28 x 19	

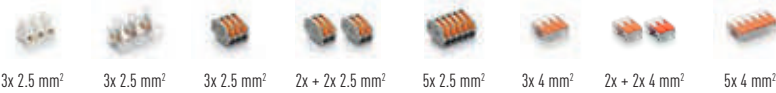
Ideal for (or similar)




Happy 1

Product	Pieces	Colour	Description	A x B x C (mm)	
Happy 1	x 2	●	Blister	45 x 37 x 24	
Happy 1 Box10	x 10	○	Box	45 x 37 x 24	

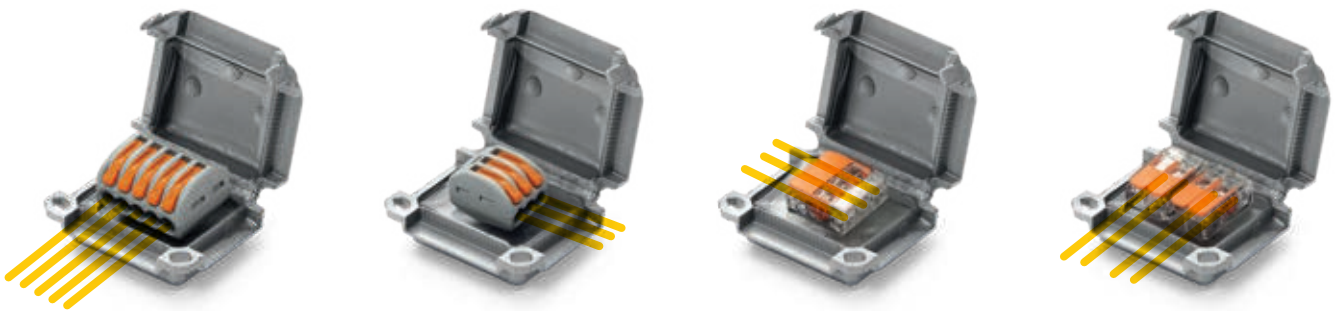
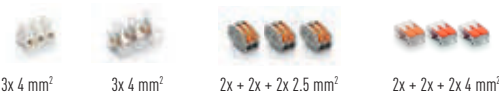
Ideal for (or similar)



Happy 2

Product	Pieces	Colour	Description	A x B x C (mm)	
Happy 2	x 1	●	Blister	53 x 39 x 24	
Happy 2 Box7	x 7	○	Box	53 x 39 x 24	

Ideal for (or similar)



Happy Joints

The revolutionary mini accessories with 3 entrances, pre-filled with gel and suitable for submersible installations (IPX8) complete with connectors.

- > Extremely versatile - ready to use - re-enterable
- > Small, compact and robust
- > No need for tools
- > Unlimited shelf life
- > Can energise immediately
- > For straight and branch connections
- > For rigid or flexible insulated wires up to 4 mm²
- > Up to 5 conductors on one phase or up to two conductors on two or three phases
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Temp: 90°C

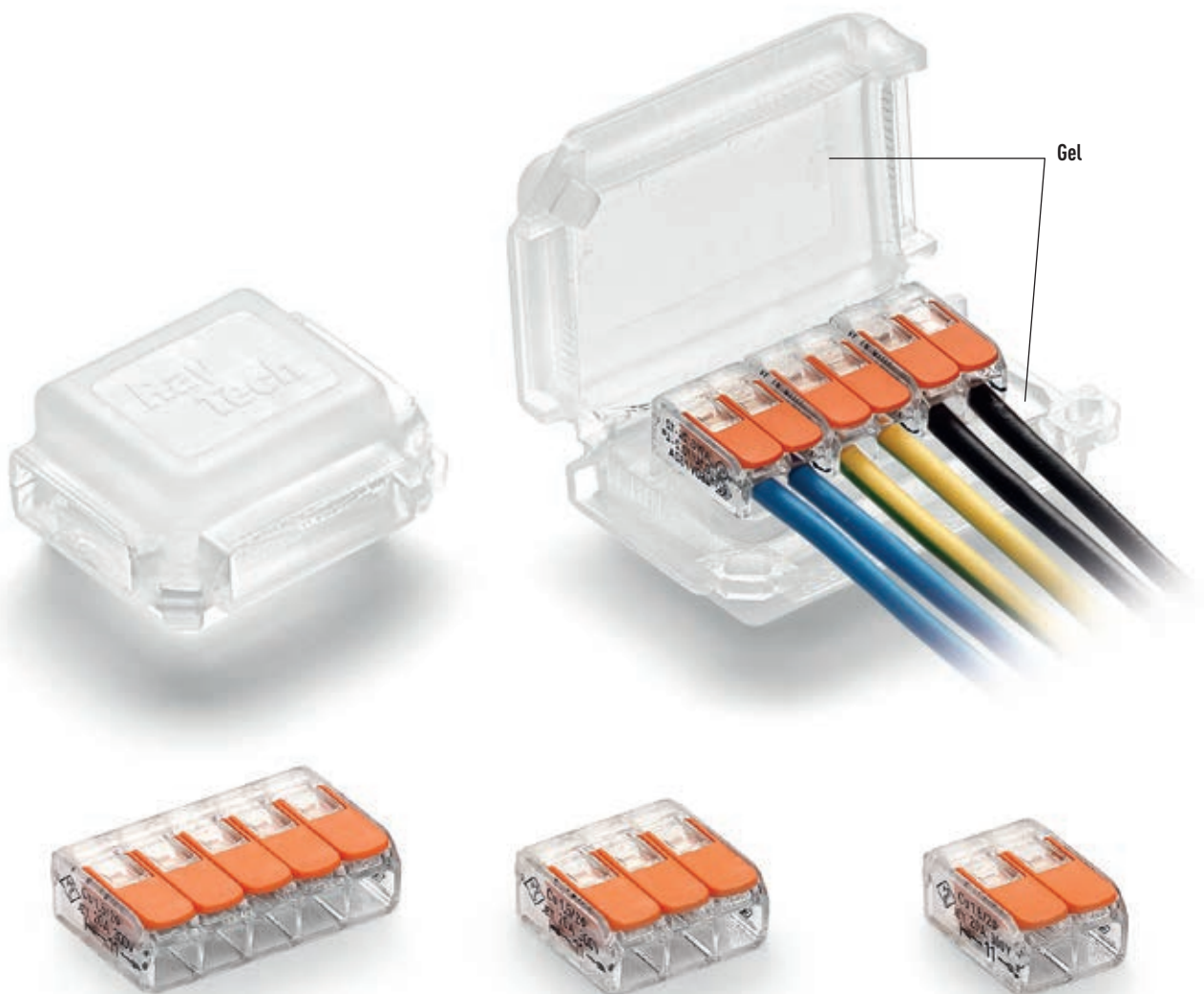
Installation temperature: -40°C / +50°C

Fully submersible


Can be used underground

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Happy Joint 3

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
HappyJoint 3	3 x 1 - 4	2 through /1 branch	4 pcs/Blister	41 x 28 x 19	



With one connector included for each Happy

Happy Joint 4

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
HappyJoint 4	4 x 1 - 4	2 through /in/out	2 pcs/Blister	45 x 37 x 24	



With two connectors included for each Happy

Happy Joint 5

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
HappyJoint 5	5 x 1 - 4	2 through /3 branch	2 pcs/Blister	45 x 37 x 24	



With one connector included for each Happy

Happy Joint 6

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
HappyJoint 6	6 x 1 - 4	3 through in/out	1 pcs/Blister	53 x 39 x 24	



With three connectors included for each Happy

Gel Box Line

Pre-filled gel accessories for sealing, protecting and making safe electrical connections. A simple way to bring indoor connectors outdoors

- > Suitable for domestic applications
- > For civil and industrial connections
- > Also for submersible use
- > Non-toxic with unlimited shelf life
- > Versatile and ready to use
- > Designed with dimensions suitable for the most commonly used connectors
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Temp: 90°C

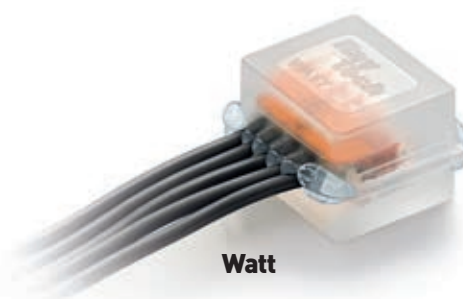
Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground


IPX8
OFFICIALLY
TESTED

IMQ






Isaac

Product	Pieces	Package	A x B x C (mm)	
Isaac 4	x 4 pcs	Blister	30 x 27 x 23	
Isaac 4 P30	x 30 pcs	Box	30 x 27 x 23	
Isaac 4 MP	x 50 pcs	Multipack	30 x 27 x 23	

Ideal for (or similar)



Pascal


Product	Pieces	Package	A x B x C (mm)	
Pascal 6	x 2 pcs	Blister	36 x 37 x 26	
Pascal 6 P15	x 15 pcs	Box	36 x 37 x 26	
Pascal 6 MP	x 25 pcs	Multipack	36 x 37 x 26	

Ideal for (or similar)



Pre-filled Gel Boxes

Watt

Product	Pieces	Package	A x B x C (mm)	
Watt	x 2 pcs	Blister	30 x 42 x 26	
Watt P15	x 15 pcs	Box	30 x 42 x 26	
Watt MP	x 25 pcs	Multipack	30 x 42 x 26	

Ideal for (or similar)



3x 2.5 mm²



2x + 2x 2.5 mm²



5x 2.5 mm²



2x + 2x 4 mm²



5x 4 mm²

Joule

Product	Pieces	Package	A x B x C (mm)	
Joule	x 1 pcs	Blister	33 x 52 x 26	
Joule MP	x 20 pcs	Multipack	33 x 52 x 26	

Ideal for (or similar)




2x + 2x + 2x 2.5 mm²



2x + 2x + 2x 4 mm²

Kelvin

Product	Pieces	Package	A x B x C (mm)	
Kelvin	x 1 pcs	Blister	52 x 53 x 29	
Kelvin P9	x 9 pcs	Box	52 x 53 x 29	
Kelvin MP	x 20 pcs	Multipack	52 x 53 x 29	

Ideal for (or similar)



3x 6 mm²



3x 6 mm²



Gel Cover Line

Pre-filled gel accessories for straight connections. For the protection, safety and covering of electrical connections using strip connectors or alternatives.

- > For 3 x 1 to 6 mm² cables or 3 insulated wires
- > For civil and industrial connections
- > Suitable for domestic applications
- > Non-toxic with unlimited shelf life
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

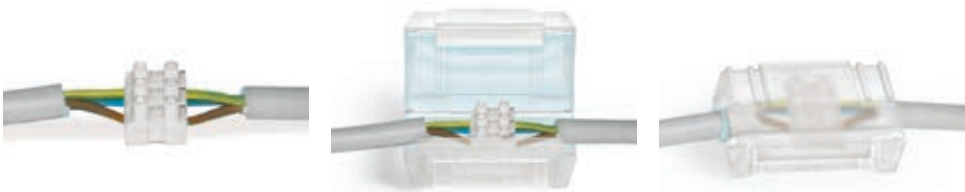
Gel: UL 94-HB

Operating Temp: 90°C


Installation temperature: -40°C / +50°C

IPX8
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OHM & BAR

Product	Housed connectors type	Pieces/ Pack	Package type	Dimensions A x B x C (mm)	
OHM	2 from 4 mm ²	1	Blister	61 x 35 x 28	
OHMp11	2 from 4 mm ²	11	Box	61 x 35 x 28	
BAR	3 from 4 mm ² /6 mm ²	1	Blister	63 x 41 x 28	
BARp9	3 from 4 mm ² /6 mm ²	9	Box	63 x 41 x 28	



Mammut Gel Cover

Product	Housed connectors type	Pieces/ Pack	Package type	Dimensions A x B x C (mm)	
Gel Cover 4	2 from 4 mm ²	1	Blister	61 x 35 x 28	
Mammut Gel Cover	2 from 4 mm ²	8	Box	61 x 35 x 28	
Gel Cover 6	3 from 4 mm ² /6 mm ²	1	Blister	63 x 41 x 28	
Mammut Gel Cover 6	3 from 4 mm ² /6 mm ²	6	Box	63 x 41 x 28	



Nano Joint

Pre-filled gel accessories to seal, protect and make safe electrical connections. Includes connectors.

- > Ready to use, quick, re-enterable
- > No tools required
- > Can energise immediately
- > For straight & branch connections
- > For rigid or flexible insulated wires from 1 - 4 mm²
- > For 1, 2 and 3 core connections
- > Up to 5 conductors on one phase or up to 2 conductors on two or three phase
- > Unlimited shelf life
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Temp: 90 °C

Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground

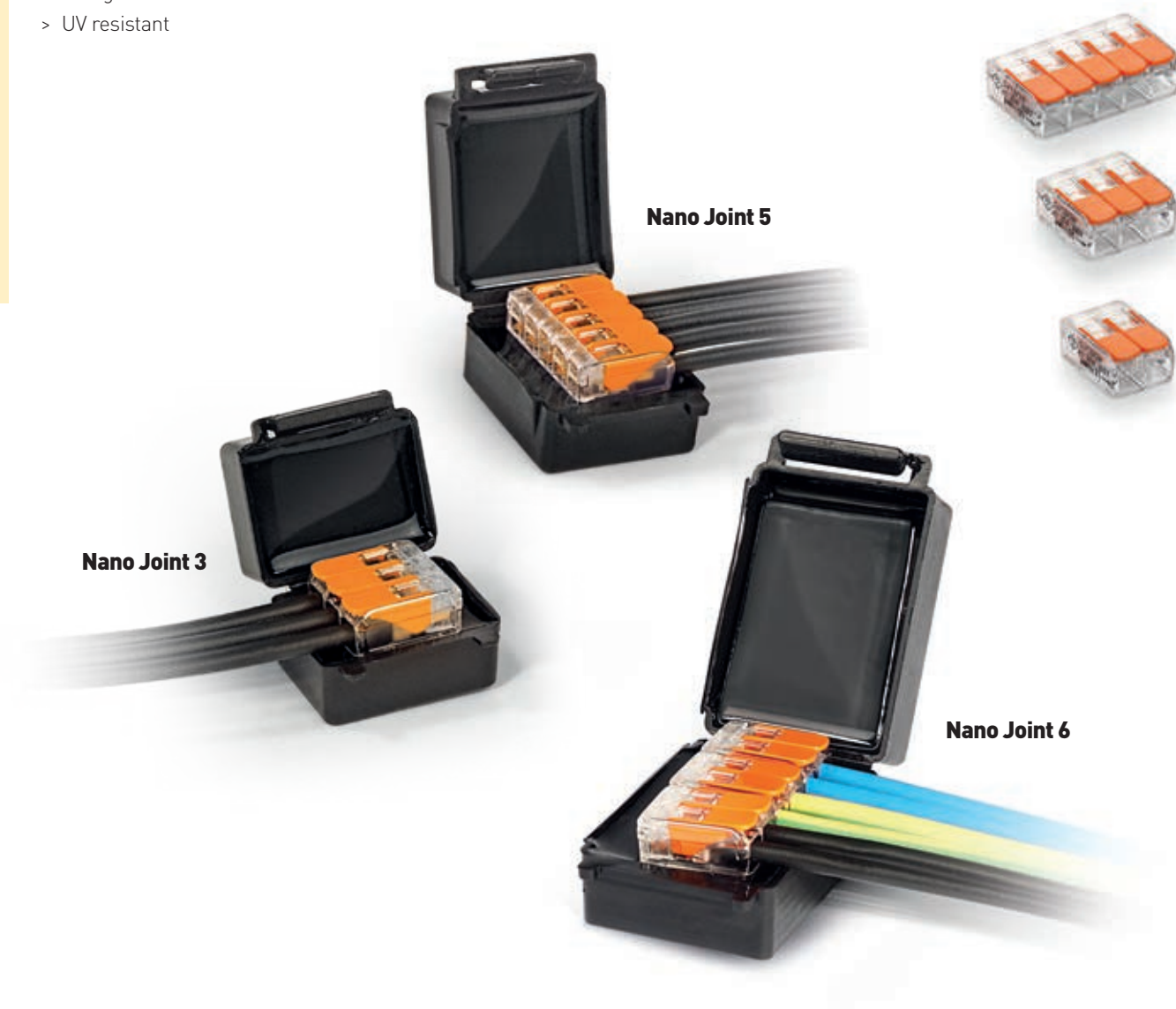
IPX8
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Nano Joint 3

Nano Joint 5

Nano Joint 6



Nano 3

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano 3	3 x 1 - 4	2 through /1 branch	4 pcs/Blister	30 x 27 x 23	



With one connector included for each Nano Joint


Nano 5

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano 5	5 x 1 - 4	2 through /3 branch	2 pcs/Blister	30 x 42 x 26	



With one connector included for each Nano Joint

Nano 6

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano 6	6 x 1 - 4	3 through /3in/out	1 pcs/Blister	33 x 52 x 26	



With three connectors included for each Nano Joint



Nano Mam - For

Pre-filled gel accessories to seal, protect and make safe electrical connections. Inclusive of connectors.

- > Ready to use, quick, re-enterable
- > Ideal for outdoor & underground installations, fully submersible
- > Immediately energizable
- > For rigid or flexible insulated wires from 1 - 4 mm²
- > For 1, 2 or 3 core connections
- > Unlimited shelf life
- > Halogen free
- > UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground

IPX8
OFFICIALLY
TESTED

IMQ

Nano for 4

Nano Mam 4


Kit with end
connectors/
terminal blocks

Nano for 2,5

Nano Mam 2,5

Kit with
terminal blocks

Nano Mam 2,5

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano Mam 2,5	3 x 1 - 2,5	3 through	2 pcs/Blister	36 x 27 x 26	



With one connector included for each Nano Mam

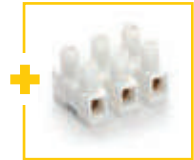


Nano Mam 4

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano Mam 4	3 x 1,5 - 4	3 through	1 pcs/Blister	52 x 53 x 29	



With one connector included for each Nano Mam



Nano For 2,5

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano For 2,5	3 x 1 - 2,5	3 connectors/In/Out	1 pcs/Blister	33 x 52 x 26	



With one connector included for each Nano 4



Nano For 4



















Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	(Max N° x mm2)	Combination			
Nano For 4	3 x 1 - 4	3 connectors/In/Out	1 pcs/Blister	52 x 53 x 29	






































With one connector included for each Nano 4



Selection Chart

Gel Connection				
		Terminal blocks (chocolate block type)		End connectors/ terminal blocks
		2x	3x	3x
Revolution	 HAPPY 0 41 x 28 x 19 mm	 2,5 mm ²		
	 HAPPY 1 45 x 37 x 24 mm	 2,5 mm ²	 2,5 mm ²	 2,5 mm ²
	 HAPPY 2 53 x 39 x 24 mm		 4 mm ²	 4 mm ²
Classic Gel Box Line	 ISAAC 30 x 27 x 23 mm	 2,5 mm ²		
	 PASCAL 36 x 37 x 26 mm	 4 mm ²	 4 mm ²	 1,5 mm ²
	 WATT 30 x 42 x 26 mm			 2,5 mm ²
	 JOULE 33 x 52 x 26 mm			 4 mm ²
	 KELVIN 52 x 53 x 29 mm		 4 mm ²  6 mm ²	 4 mm ²  6 mm ²

					
First generation of lever connectors (e.g. WAGO 222 or similar)			Flat lever connectors (e.g. WAGO 221 type or similar)		
2x	3x	5x	2x	3x	5x
			 4-6 mm ²	 4-6 mm ²	
			 4-6 mm ²	 4-6 mm ²	 4 mm ²
			 4-6 mm ²	 4-6 mm ²	 6 mm ²
			 4 mm ²	 4 mm ²	
					
			 4 mm ²		 4 mm ²
			 4 mm ²		 4 mm ²

Bravo

The first Gel Box with integrated connectors.

- > Ready to use, quick, re-enterable
- > For rigid or flexible insulated wires from 1 - 6 mm²
- > Immediately energizable
- > For straight & branch connections
- > For 1 or 3 core connections
- > Small, compact and transparent
- > Unlimited shelf life
- > Halogen free and UV resistant

Electrical performance:

CEI EN 50393 as applicable (testing under water head of the accessory installed in a box)

Gel: UL 94-HB

Operating Voltage: 0,6 / 1kV

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground

IPX8
OFFICIALLY
TESTED

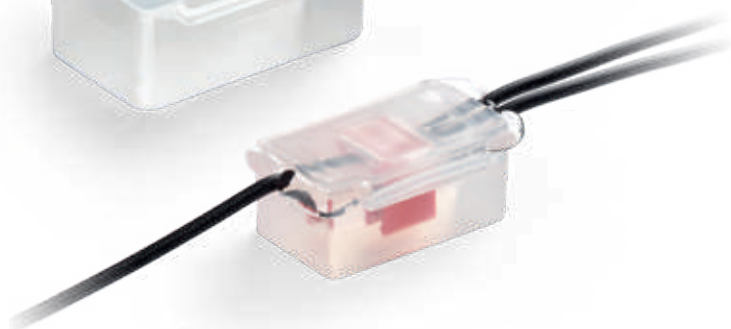
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Bravo 3-6



Bravo 1-6



Mini Bravo



Mini Bravo 1

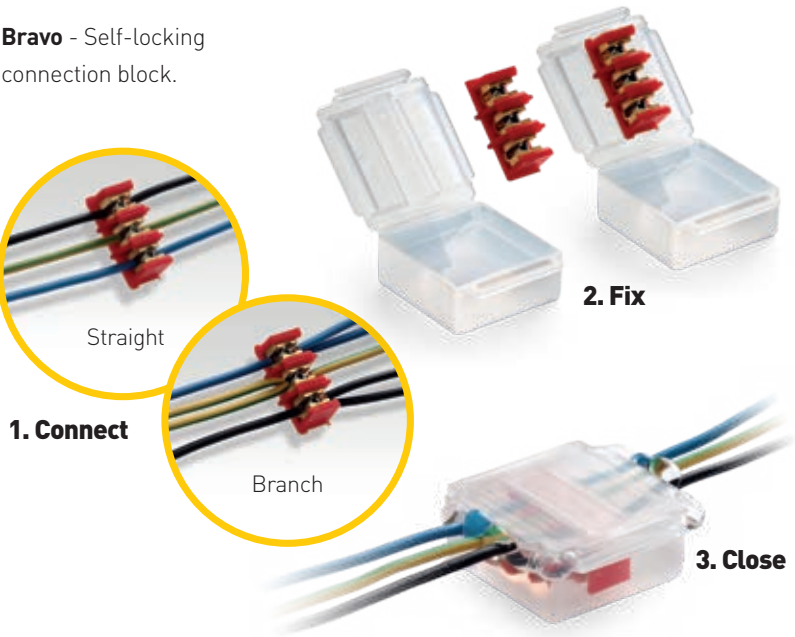


Mini Bravo 2




Mini Bravo 3

Bravo - Self-locking connection block.




Bravo

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	Straight or through (N° x mm ²)	Branch (N° x mm ²)			
Bravo 1-6	1 x 1 - 6	1 x 1 - 6	1 pcs/Blister	50 x 29 x 22	
Bravo 3-6	2 x 1 - 6 3 x 1 - 6	2 x 1 - 6 3 x 1 - 6	1 pcs/Blister	53 x 49 x 22	



Mini Bravo

Product	Formation and wires cross section		Pieces/ Pack	A x B x C (mm)	
	Straight or through (N° x mm ²)	Branch (N° x mm ²)			
Mini Bravo 1	1 x 1 - 4	1 x 1 - 4	3 pcs/Blister	41 x 28 x 19	
Mini Bravo 2	2 x 1 - 4	2 x 1 - 4	1 pcs/Blister	45 x 37 x 24	
Mini Bravo 3	3 x 1 - 4	3 x 1 - 4	1 pcs/Blister	53 x 39 x 24	



Little Joint L

IP68 and IP69K, gel pre-filled micro joint, space-saver complete with connectors and with minimal aesthetic impact.

- > Equipped with cable glands
- > Complete with screw connectors
- > Pre-filled with non-toxic, non-classified gel
- > Very compact and ready to use
- > Re-enterable
- > Halogen free & UV resistant

Electrical performance:
CEI EN 50393 as applicable

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

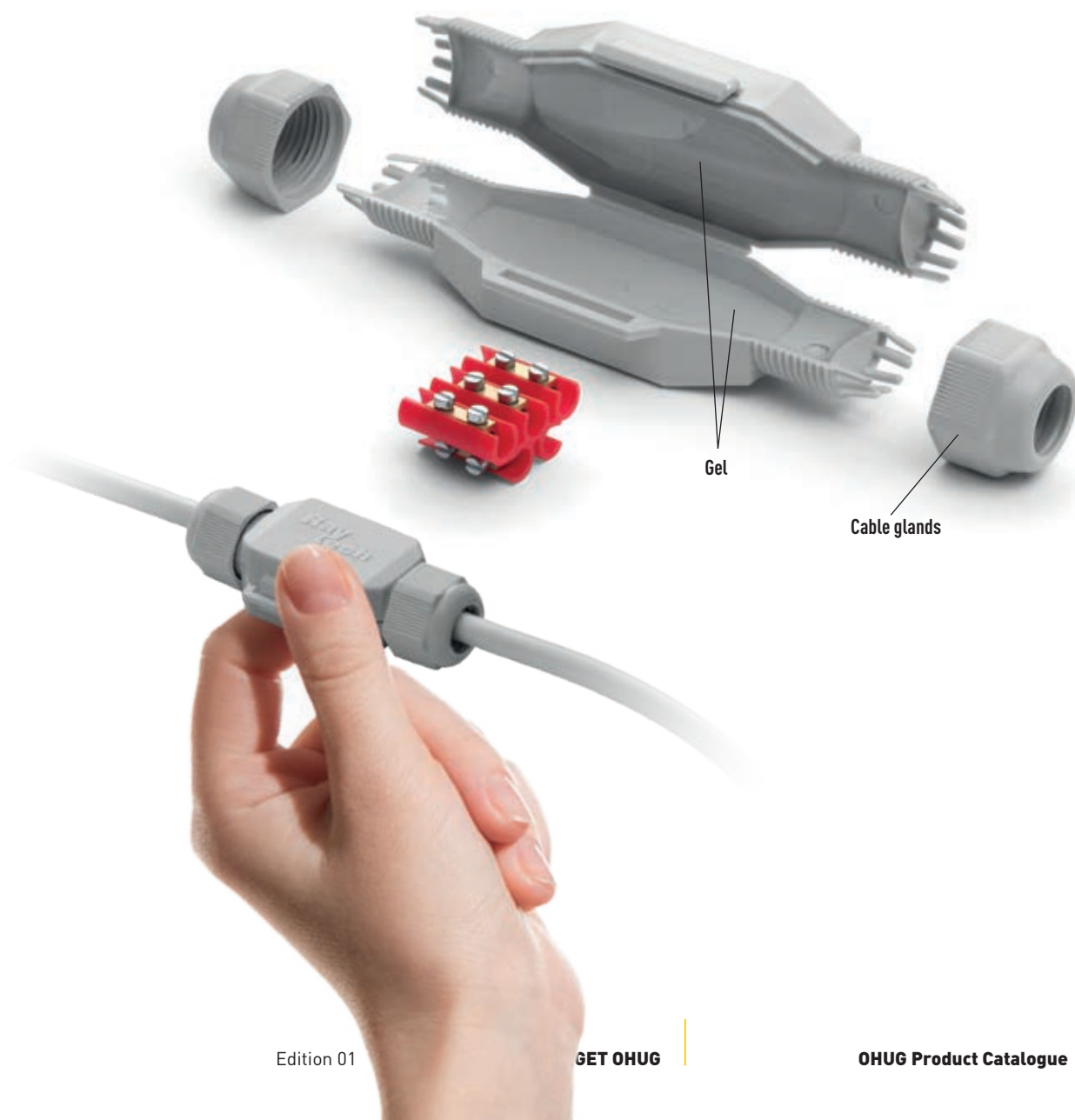
Fully submersible

Can be used underground

IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED













For use in traps, in lampholders for LED spotlights, especially in the presence of water and moisture, thanks to its very small size.



LittleJoint L

Product	Colour	Connector	Cable formation max (N° x mm2)	Ø cables min - max (mm)	Pieces/ Pack	A x B x C (mm) 
Barney	●		2 x 2,5	6 - 10	1/Blister	75 x 28 x 19
Barney - N	●				1/Blister	
Barney MP	●				10/Multipack	
Fred	●		3 x 2,5	8 - 13	1/Blister	80 x 36 x 23
Fred - N	●				1/Blister	
Fred MP	●				10/Multipack	
Fred/4	●		3 x 4	8 - 13	1/Blister	80 x 36 x 23
Fred/4 - N	●				1/Blister	
Dino	●		4 x 4	10 - 16	1/Blister	125 x 43 x 35
Dino - N	●				1/Blister	
Betty/4	●		5 x 4	10 - 16	1/Blister	145 x 46 x 35
Betty/4 - N	●				1/Blister	
Betty/6	●		5 x 6	14 - 19	1/Blister	145 x 46 x 35
Betty/6 - N	●				1/Blister	
Tom	●		5 x 16	19 - 23	1/Blister	180 x 53 x 42
Tom - N	●				1/Blister	



Little Joint Y

Barney Y and Fred Y micro joints for branch connections complete with terminal block.

Extremely compact and space-saving, pre-filled with soft, highly conformable gel. Equipped with integrated cable glands for IP68 and IP69K degree of ingress protection and cable retention.

- > Equipped with 3 cable glands
- > Complete with terminal boards with screw connectors
- > Pre-filled with classified non-toxic gel
- > Extremely compact and ready to install
- > Re-enterable
- > Halogen Free & UV resistant
- > Ideal for branch connections in lighting systems for gardens, steps and stairways, pedestrian crossings, etc.

Electrical performance:
CEI EN 50393 as applicable

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

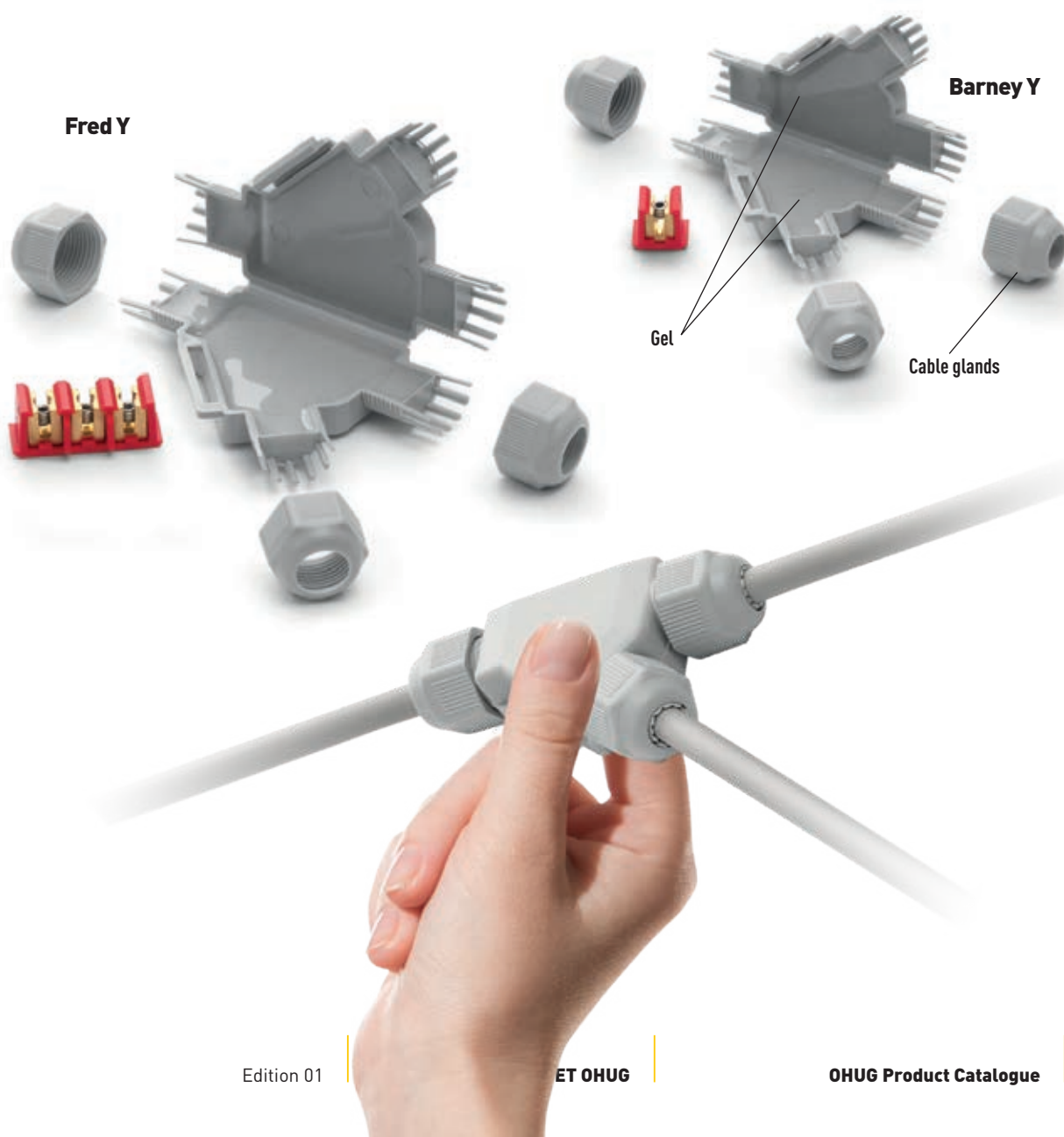
Fully submersible

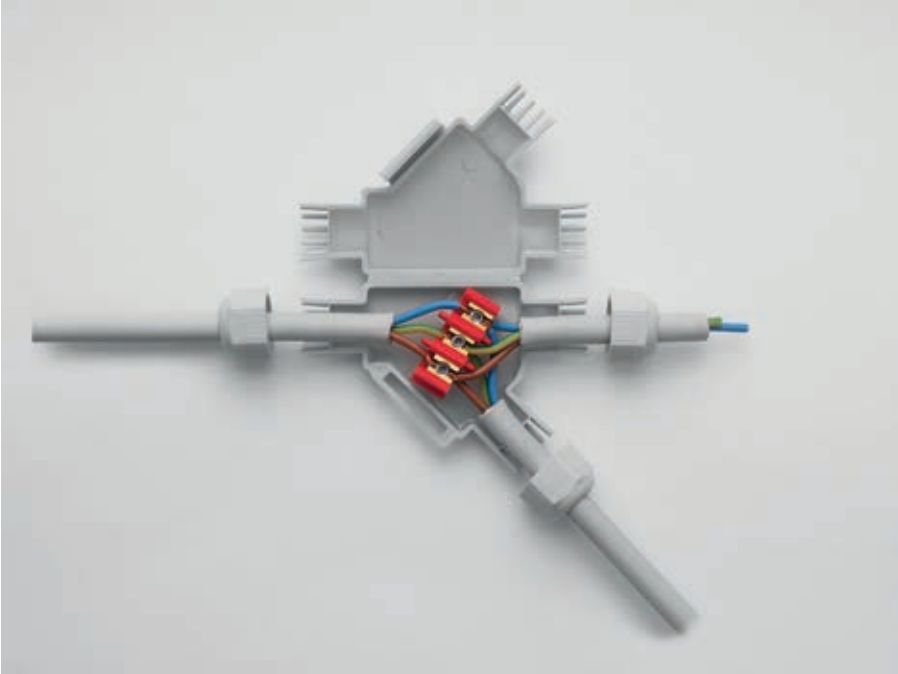
Can be used underground

IP68
OFFICIALLY
TESTED

IMQ




IP69K
OFFICIALLY
TESTED





The ideal accessory for branch connections from a through cable to light fittings and spotlights. Suitable in applications where there is presence of water and moisture.

LittleJoint Y

Product	Colour	Connector	Cable formation max (N° x mm2)		Ø cables min - max (mm)	Pieces/ Pack	 A x B x C (mm)
			Through	Branch			
Barney Y	●		1 x 4	1 x 1,5	6 - 10	1/Blister	85 x 55 x 22
Barney Y - N	●		1 x 2,5	1 x 2,5		1/Blister	
Fred Y	●		3 x 4	3 x 1,5	8 - 13	1/Blister	110 x 72 x 25
Fred Y - N	●		3 x 2,5	3 x 2,5		1/Blister	



Little Joint X

This 4 entrance micro joint for multiple branches is both IP68 and IP69K rated. The Little Joint X is pre-filled with conformable gel and its compact size makes it ideal for many applications.

- > Equipped with cable glands
- > Complete with 3-screw connector system
- > Pre-filled with non-toxic gel
- > Re-enterable
- > Provided with holes for wall installation
- > Halogen free & UV resistant
- > Lets you create multiple connection options

Electrical performance:
CEI EN 50393 as applicable

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

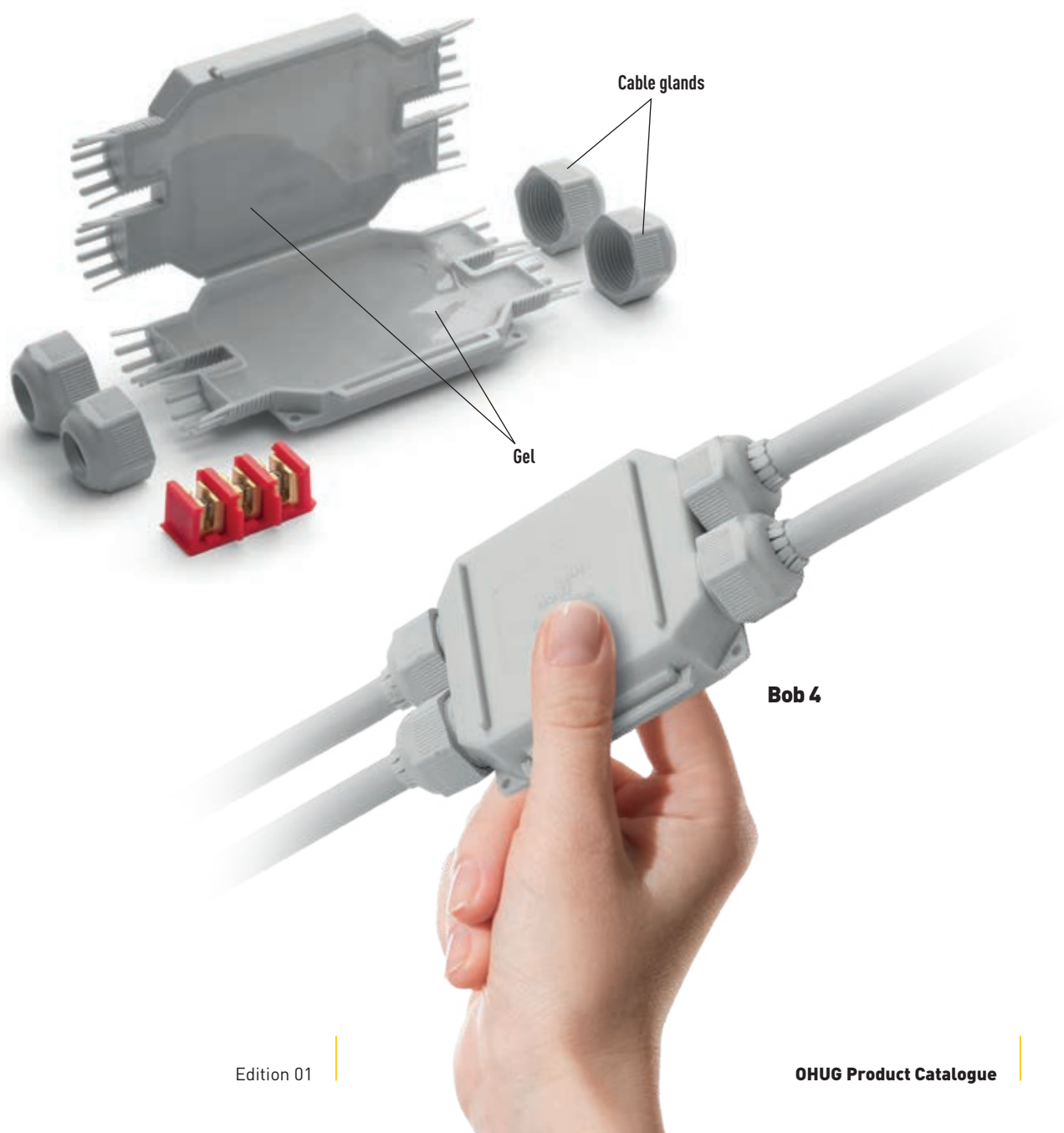
Fully submersible

Can be used underground

IP68
OFFICIALLY
TESTED

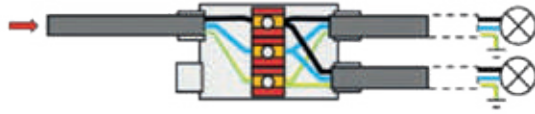
IMQ

IP69K
OFFICIALLY
TESTED

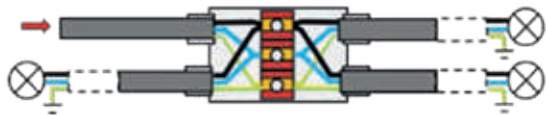


Some installation possibilities for Bob 4

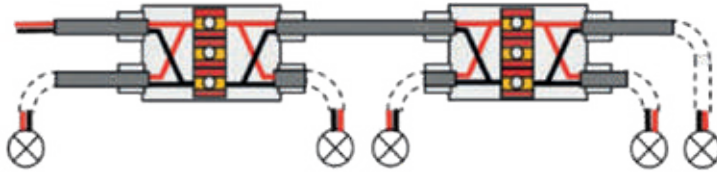
Parallel branch system with 3 three-core cables up to 3 x 4 mm²



Parallel branch system with 4 three-core cables up to 3 x 4 mm²

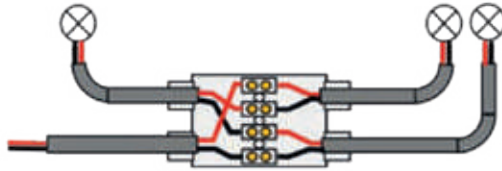


Parallel 5-lamp connection system

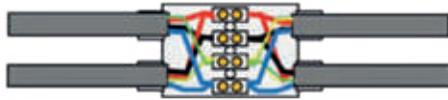


Can be installed with Mammut type connector (not included)




3-LED spotlight in-series system

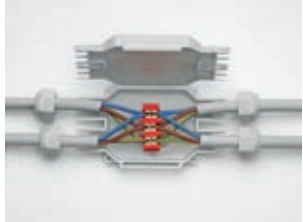


3-LED RGB spotlight parallel system with four-core cables



LittleJoint X

Product	Colour	Connector	Cable formation max (N° x mm ²)		Ø cables min - max (mm)	Pieces/ Pack	 A x B x C (mm)
			Through	Branch			
Bob 3	●		1 cable 3 x 4	2 cables 3 x 4	8 - 13	1/Blister	105 x 80 x 25
Bob 3 - N	●		3 x 2,5	2 cables 3 x 2,5		1/Blister	
Bob 4	●		1 cable 3 x 4	2 cables 3 x 4	8 - 13	1/Blister	105 x 65 x 25
Bob 4 - N	●		3 x 2,5	3 cables 3 x 2,5		1/Blister	



Ready Box IP68

The Rapid Joint IP68 has been tested to rigorous International Standards, validating its outstanding performance characteristics. It has unlimited shelf life and is chemically inert, it is completely safe to use. Re-enterable and flame retardant for cables at 90°C, this is a robust jointing solution.

- > They can be installed in all environmental conditions
- > Suitable for wet or flooded environments
- > Re-enterable
- > Pre-filled with gel. Non-toxic and non-classified as hazardous under CLP
- > Pre-threaded entries for cable gland mounting
- > Snap shut closure, no screws require
- > Wall or external ceiling fixing system
- > Halogen free & UV resistant
- > Unlimited shelf life

Electrical performance:
CEI EN 50393 as applicable

Gel: UL 94-HB

Halogen free: according to CEI EN 50267 2-2

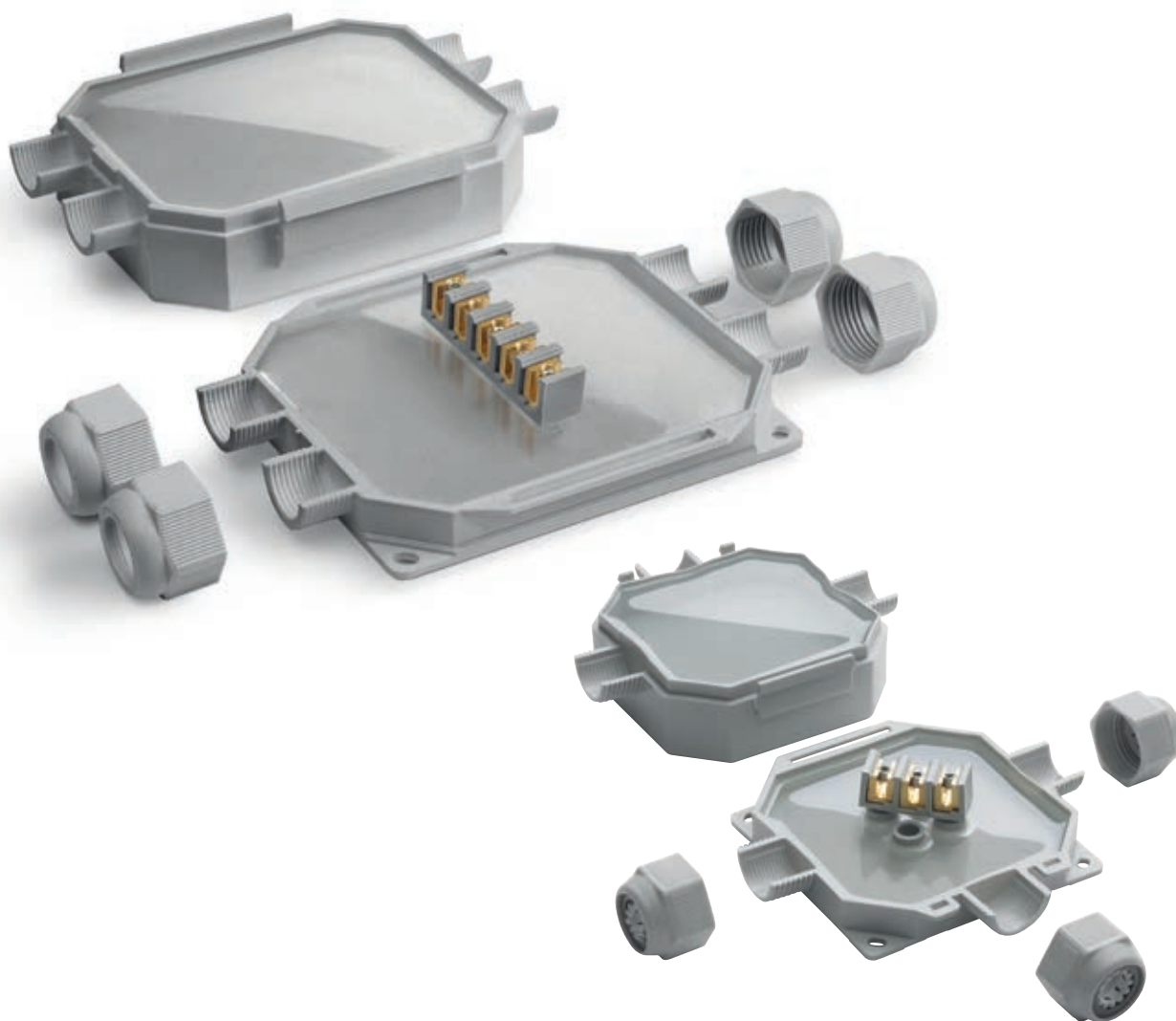
Self-extinguishing and resistant to abnormal
heat and fire: Glow wire test at +960°C according
to EN 60695-2-11

Operating Temp: 90°C

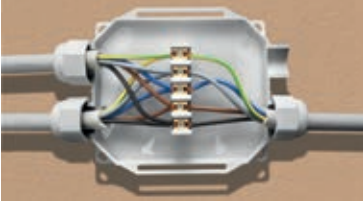
Installation temperature: -60°C / +200°C

IP68
OFFICIALLY
TESTED | **IMQ**

IP69K
OFFICIALLY
TESTED



Ready Box IP68 - 120



Ready Box IP68 - 90



Thanks to its innovative design, unlike a standard box, there is no need to break through the walls of the box to insert the cable.

Also suitable for extra-flat lever connectors.

Also suitable for screw terminals.

Installation with external cables

No additional accessories are required as it is equipped with connection block and glands M25 x 1,5

Screwless closure

Gel



Pre-threaded entries

Cable glands M25 x 1,5

Hole for wall mounting

Ready Box 120

Ready Box 90

Product	Colour	 Connector	Ø entrances with cable glands		Ø tubes (mm)	 A x B x C (mm)
			min (mm)	max (mm)	(mm)	
Ready Box IP68 90	●	3	6	18	16 / 20 / 32	90 x 90 x 45
Ready Box IP68 90/N	●					
Ready Box IP68 120	●	4	6	18	16 / 20 / 32	120 x 100 x 45
Ready Box IP68 120/N	●					



Rapid Joint IP68

Radial closing pre-filled gel joint for extruded insulation cables up to 1 kV.

Primary insulation, consisting of a cross-linked polymer gel, and the exceptionally robust insulating plastic casing render Class 2 joints in accordance with the definitions contained in standard CEI 64-8. The joint has been tested in accordance with the main international specifications, with repeated flexing and torsion tests and immersion in water, and has been declared as conforming to the mechanical, electrical and sealing specifications required for plastic cable accessories. The joint and its components have an unlimited shelf life, are chemically inert and therefore completely safe. Conductor connections are re-enterable even after long periods of operation. Packaged with self-extinguishing material, flame retardant, for cables at 90°C working temperature. The radial closing system facilitates joint application, making them re-enterable only by means of a tool.

- > For in line connections
- > For multi core cables of up to 5 cores
- > With suitable spacers
- > For all types of application, including submersible
- > Wide range of cable formations
- > Re-enterable only by means of a tool
- > Suitable for 3 core crossing
- > Non-toxic, with no expiry date

Electrical performance:

CEI EN 50393 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

No flame propagation:

CEI 20-35 • IEC 60332-1 • HD405-1 (as applicable)
Low smoke and toxic and corrosive gas emissions

Gel: UL 94-HB

Casing mix: UL 94-V2

Degree of protection: IP68

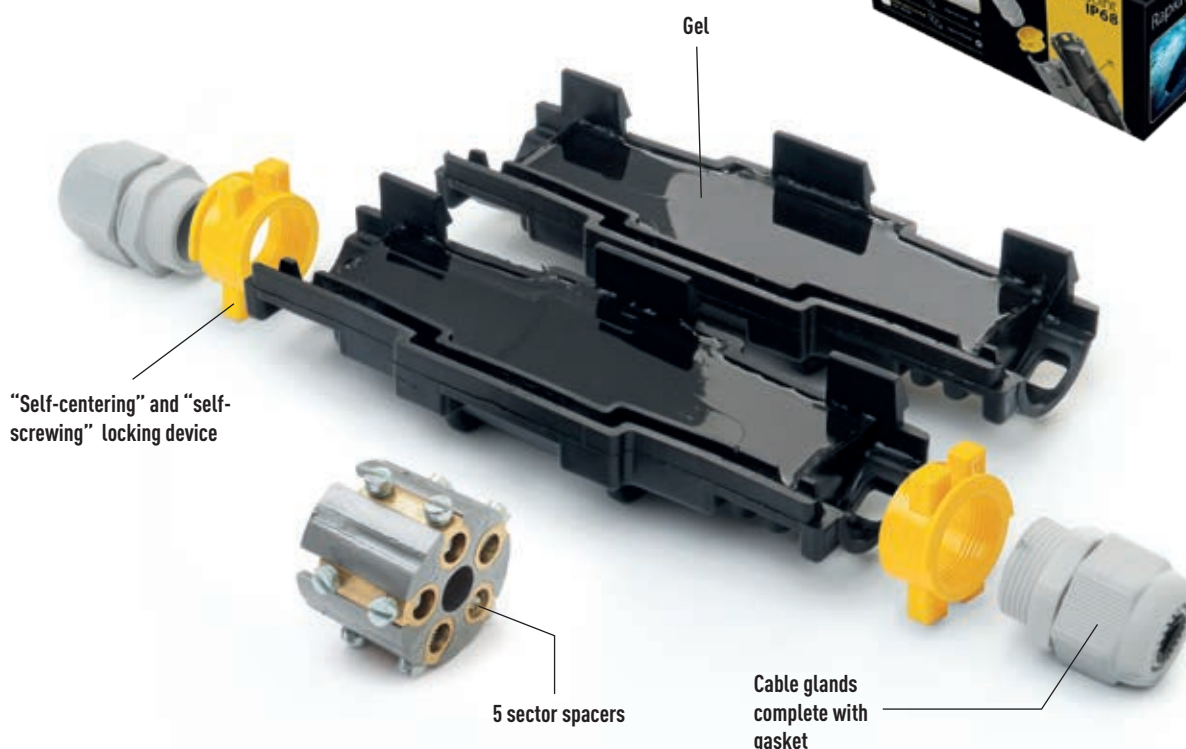
Operating Temp: 90 °C



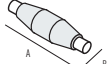


Installation temperature: -40°C / +50°C

IP68
OFFICIALLY
TESTED

IMQ

IP69K
OFFICIALLY
TESTED



		Configuration IP68			Configuration IPX8		
							
Product Code	Formation n°	Section (mm²)	Ø cable (mm)	A x B (mm)	Section (mm²)	Ø cable (mm)	A x B (mm)
Rapid Joint RJL1.5-IP68	•	4 - 25	8 - 13	155 x 55	1,5 - 50	20,5	105 x 55
	••	1,5 - 4			1,5 - 6		
	•••	1,5 - 2,5			1,5 - 6		
	••••	1,5			1,5 - 6		
	•••••	1,5			1,5 - 6		
Rapid Joint RJL6-IP68	•	25 - 70	12 - 18	245 x 60	25 - 150	24	180 x 60
	••	2,5 - 6			2,5 - 10		
	•••	2,5 - 6			2,5 - 10		
	••••	2,5 - 6			2,5 - 10		
	•••••	2,5 - 6			2,5 - 10		
Rapid Joint RJL10-IP68	•	70 - 95	16 - 20	275 x 65	120 - 240	31	210 x 65
	••	10			10 - 25		
	•••	10			10 - 25		
	••••	10			10 - 25		
	•••••	10			10 - 25		
Rapid Joint RJL25-IP68	•	210 - 240	21 - 28	410 x 100	120 - 240	42	320 x 100
	••	25			10 - 50		
	•••	16 - 25			10 - 50		
	••••	16 - 25			10 - 50		
	•••••	16 - 25			10 - 50		



For single core cable: do not install the separator with screw connectors and connect with crimp connector.

IPX8

- Protected from permanent immersion in water.

IP68

- Totally protected against dust and solid objects over 1 mm (tools, wires, and small wires).
- Protected from permanent immersion in water.

IP69K

- Totally protected against dust and solid objects over 1 mm (tools, wires, and small wires).
- Protected against close-range high pressure, high temperature spray downs.

Mini Rapid Joint IP68

IP68 and IP69K joints for straight and branch connections, extremely compact and pre-filled with gel.

Due to its compact size, this joint is ideal for lighting systems in gardens, steps and pedestrian crossings, just to name a few. It is perfect for use in confined spaces thanks to its small size.

- > Provided with 2 (straight joints) or 3 (branch joints) cable glands
- > Complete with screw connectors
- > Pre-filled with non-toxic gel
- > Extremely compact and ready to install
- > Re-enterable
- > Halogen Free & UV resistant

Electrical performance:
CEI EN 50393 as applicable

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -40°C / +50°C

Fully submersible

Can be used underground

IP68
OFFICIALLY
TESTED








IP69K
OFFICIALLY
TESTED

IMQ






Rapidino L4

Rapidino Y3

Mini Rapid Joint IP68 L

Product	Formation	Connector	Cable formation max (N° x mm²)	Ø cable min - max (mm)	Pieces / Pack	 A x B x C (mm)
Rapidino IP68 L2			2 x 2,5	6 - 10	3 pcs/box	75 x 28 x 19
Rapidino IP68 L3			3 x 2,5	8 - 13	3 pcs/box	80 x 36 x 23
Rapidino IP68 L4			4 x 4	10 - 16	1 pcs/box	125 x 43 x 35

Mini Rapid Joint IP68 Y

Product	Formation	Connector	Cable formation max (N° x mm²) Through	Cable formation max (N° x mm²) Branch	Ø cable min - max (mm)	Pieces / Pack	 A x B x C (mm)
Rapidino IP68 Y1			1 x 4 1 x 2,5	1 x 1,5 1 x 2,5	6 - 10	2 pcs/box	85 x 55 x 22
Rapidino IP68 Y3			3 x 4 3 x 2,5	3 x 1,5 3 x 2,5	8 - 13	1 pcs/box	110 x 72 x 25



King Joint

Range of fast gel pre-filled straight or branch type joints for 0.6/1 kV multi core cables of up to 5 conductors.

The King Joint range has been rigorously tested to International Standards, giving you confidence in their overall performance. It has unlimited shelf life and is chemically inert, it is completely safe to use. Re-enterable and flame retardant at 90°C, this is a versatile joint suitable to many applications.

- > For multicore cables of up to 5 cores
- > 5 sector spacers for proper centering of five-core connection
- > Complete with screw connectors
- > For straight and branch connections, including armoured cable
- > For all types of application, including submersible
- > Re-enterable and with unlimited shelf life
- > Flame retardant
- > Non toxic and safe

Electrical performance:

CEI EN 50393 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

No flame propagation:

CEI 20-35 • IEC 60332-1 HD405-1
(as applicable) Low smoke and toxic and corrosive gas emissions

Gel: UL 94-HB

Casing mix: UL 94-V2

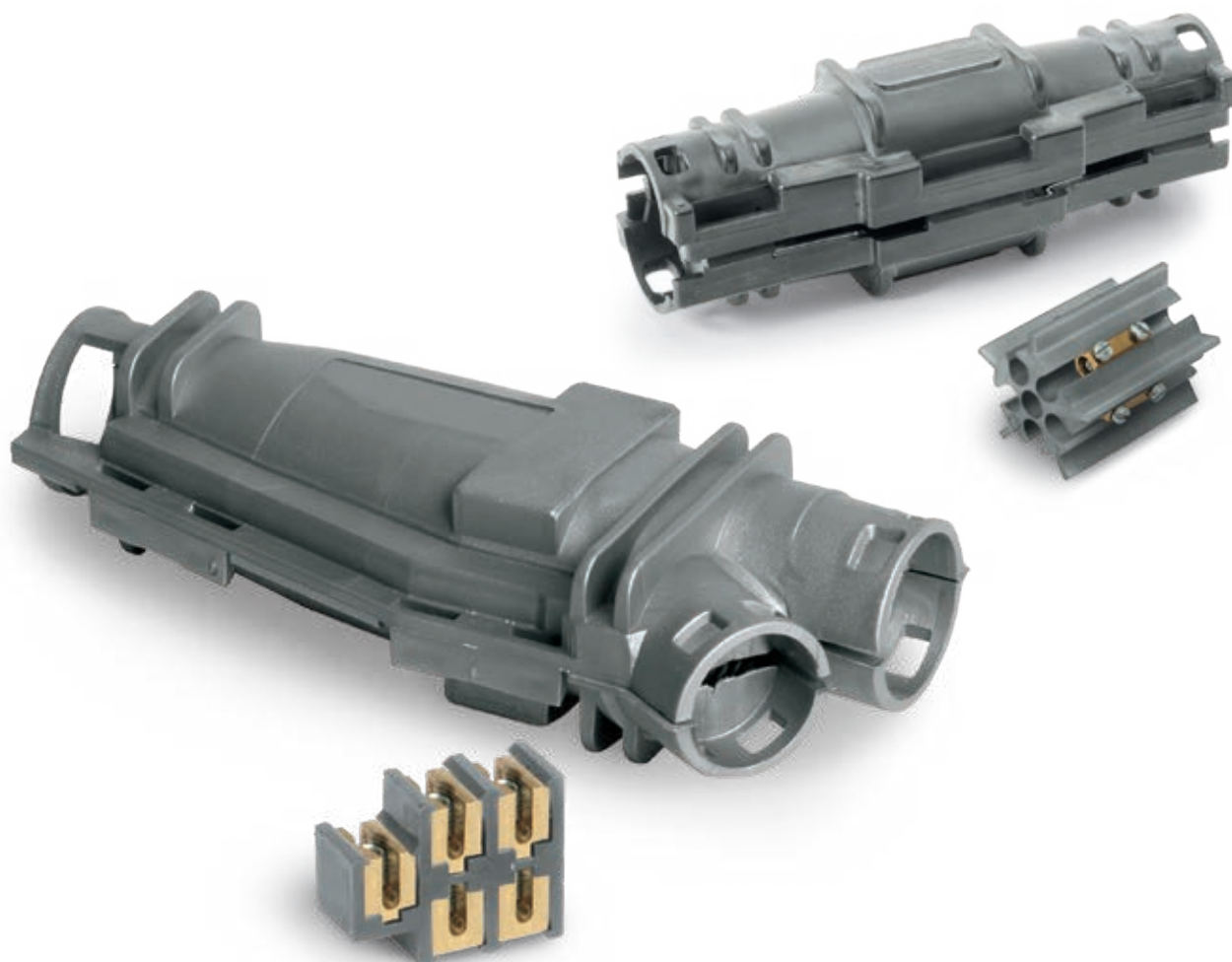
Degree of protection: IPX8

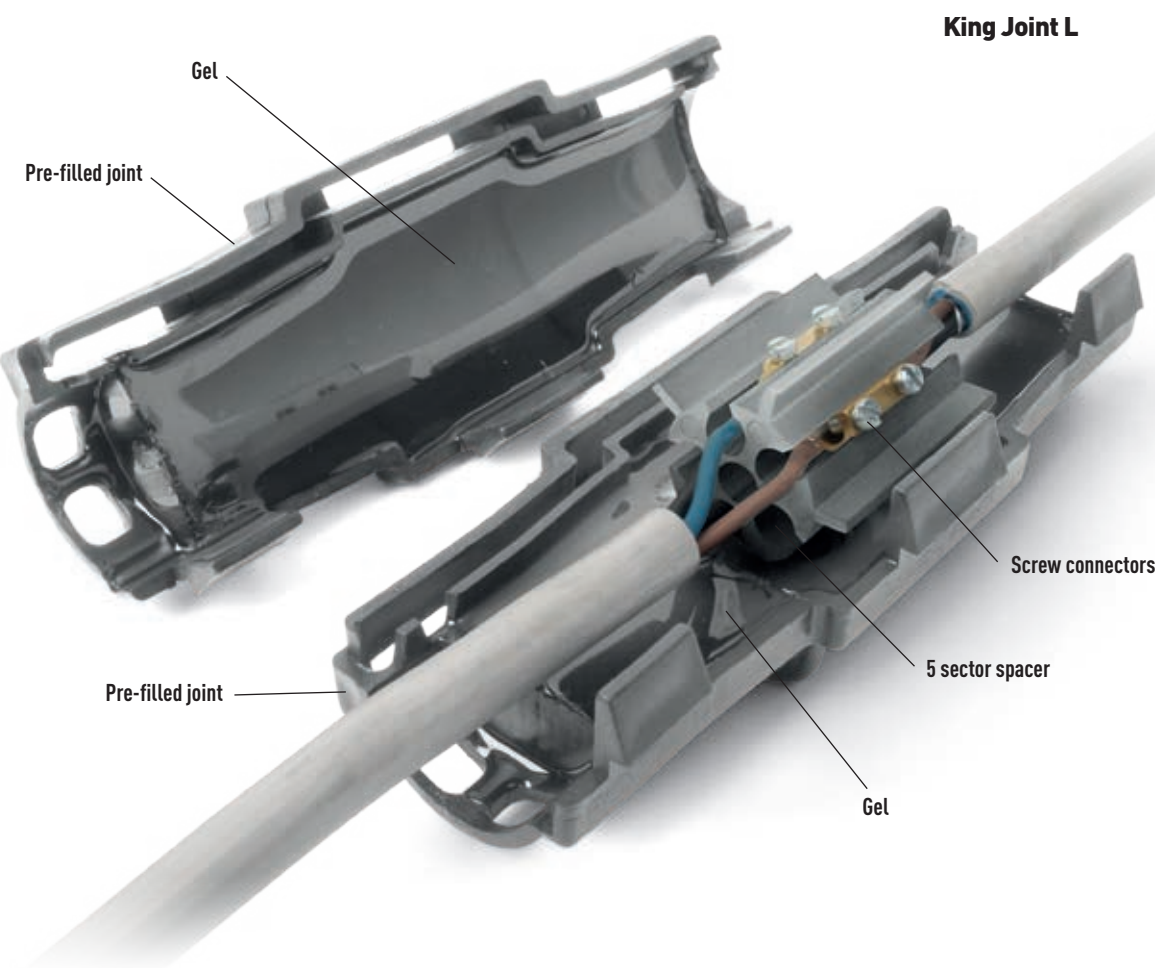
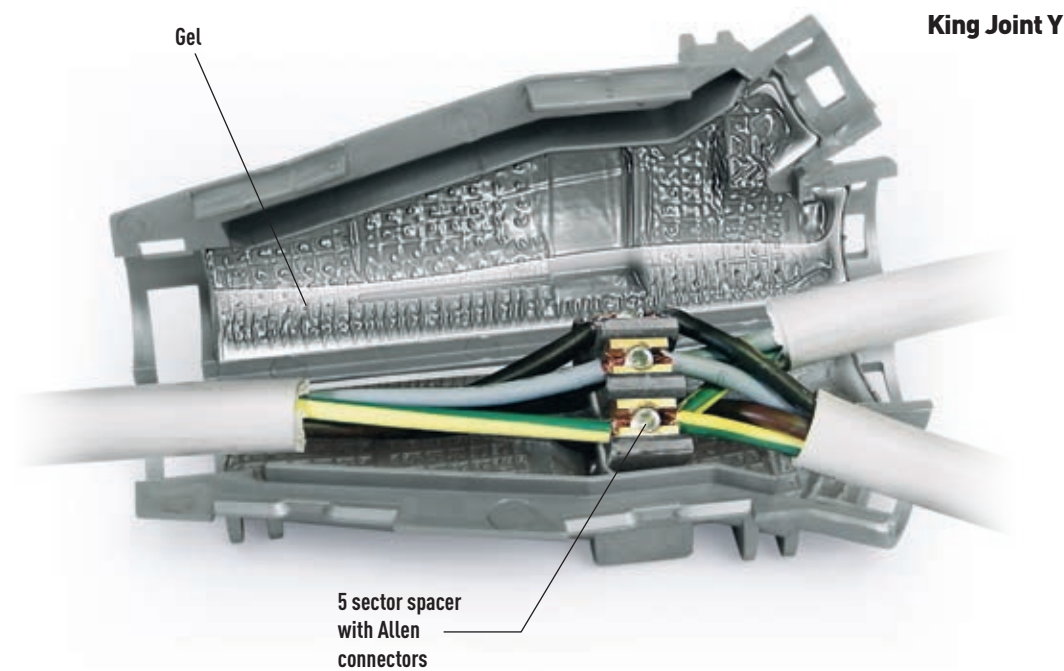
Operating Temp: 90°C

Installation temperature: -40°C / +50°C

IPX8
OFFICIALLY
TESTED

IMQ







Pre-filled Gel Joints

King Joint L

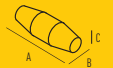
Straight joints, including armoured cable.

Product	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	Ø max cables (mm)	 Dimensions A x B x C (mm)
King Joint 0 Blister	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	20,5	105 x 55 x 55
King Joint 0 Box	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	20,5	105 x 55 x 55



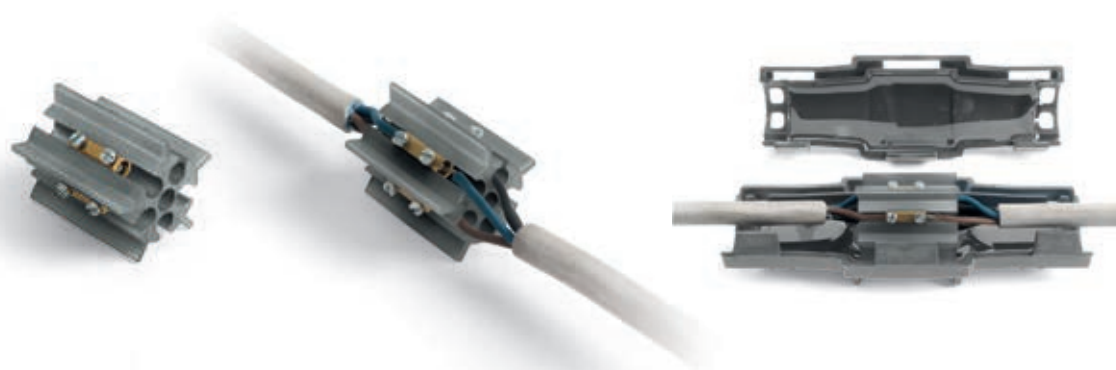
Product	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	Ø max cables (mm)	 Dimensions A x B x C (mm)
King Joint L10 King Joint L10 - ARM	2 x 2,5 - 10 3 x 2,5 - 10 4 x 2,5 - 10 5 x 2,5 - 10	24	180 x 60 x 60



Product	LINE CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)	Ø max cables (mm)	 Dimensions A x B x C (mm)
King Joint L25 King Joint L25 - ARM	2 x 10 - 25 3 x 10 - 25 4 x 10 - 25 5 x 10 - 25	31	210 x 65 x 65




ARM type joints complete with continuity device suitable for connection to armoured wire or steel tape cables.




King Joint Y

Branch joints, including armoured cable.


Product	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)		Ø max cables (mm)		 Dimensions A x B x C (mm)
	T	B	T	B	
King Joint Y6 King Joint Y6 - ARM	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6 5 x 1,5 - 6	2 x 1,5 - 4 3 x 1,5 - 4 4 x 1,5 - 4 5 x 1,5 - 4	22,5	18,5	138 x 60 x 37

T: Through cable - B: Branch cable

Product	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)		Ø max cables (mm)		 Dimensions A x B x C (mm)
	T	B	T	B	
King Joint Y16 King Joint Y16 - ARM	2 x 4 - 16 3 x 4 - 16 4 x 4 - 16* 5 x 4 - 16*	2 x 1,5 - 4 3 x 1,5 - 4 4 x 1,5 - 4 5 x 1,5 - 4	26	18,5	194 x 74 x 43

T: Through cable - B: Branch cable

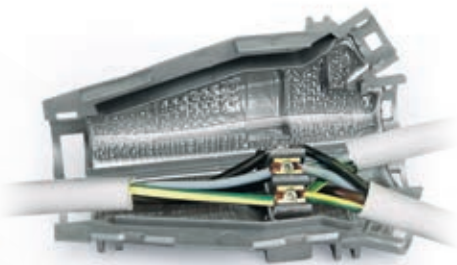
* For armoured cables max conductor cross section 10 mm².

Product	BRANCH CONNECTIONS Cable formation and conductor cross sections (n° x mm ²)		Ø max cables (mm)		 Dimensions A x B x C (mm)
	T	B	T	B	
King Joint Y35 King Joint Y35 - ARM	2 x 10 - 35 3 x 10 - 35 4 x 10 - 35	2 x 1,5 - 6 3 x 1,5 - 6 4 x 1,5 - 6	36	26	290 x 105 x 51

T: Through cable - B: Branch cable


* For armoured cables max conductor cross section 10 mm².

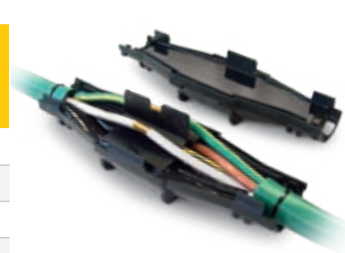
ARM type joints complete with continuity device suitable for connection to armoured wire or steel tape cables.



Rapid Joint

IPX8 straight joints for 0,6/1 kV extruded cable.

For COPPER cables		Cable formation and conductor cross sections (n° x mm²)				With optical fibre separator	 Dimensions A x B (mm)
Product	Code	1x	2x	3x	4x	4x	
Rapid Joint L6	RJL6	1,5 - 50	1,5 - 10	1,5 - 10	1,5 - 6	-	105 x 55
Rapid Joint L10	RJL10	2,5 - 150	2,5 - 25	2,5 - 16	2,5 - 16	-	180 x 60
Rapid Joint L25	RJL25	120 - 240	6 - 50	6 - 35	4 - 35	-	210 x 65
Rapid Joint L95	RJL95	185 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100
For ALUMINIUM cables		1x	2x	3x	4x	4x	(mm)
Rapid Joint L 25	RJL25	120 - 240	16 - 35	10 - 25	10 - 25	-	210 x 65
Rapid Joint L 95	RJL95	185 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100




Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

Rapid Joint S/ARM

For screened or tape or wire armoured cables


For COPPER wire SCREENED cables		Cable formation and conductor cross sections (n° x mm²)				With optical fibre separator	 Dimensions A x B (mm)
Product		1x	2x	3x	4x	4x	
Rapid Joint L10-S		2,5 - 150	2,5 - 25	2,5 - 10	2,5 - 10	-	180 x 60
Rapid Joint L25-S		120 - 185	16 - 25	10 - 25	10 - 25	-	210 x 65
Rapid Joint L95-S		240 - 400	35 - 95	25 - 70	25 - 70	16 - 50	320 x 100
For copper tape ARMoured cables		2x	3x	4x	4x	4x	(mm)
Rapid Joint L 10-ARM		2,5 - 10	2,5 - 10	2,5 - 10	-	-	180 - 60
Rapid Joint L 25-ARM		16 - 25	10 - 25	10 - 25	-	-	210 x 65
Rapid Joint L 95-ARM		35 - 95	25 - 70	25 - 70	16 - 50	-	320 x 100



Joint supplied with armour continuity device.

Rapid Joint LS


For signalling and control cables

Product	Conductor sections cross (mm²)	Cable formation (n° conductors)										 Dimensions A x B (mm)
		5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	
Rapid Joint LS1	1,5	•	•	•	•	•	•					180 x 60
	2,5	•	•	•	•							
Rapid Joint LS2	1,5					•	•	•	•			210 x 65
	2,5			•	•	•	•	•				
Rapid Joint LS3	1,5						•	•	•	•	•	320 x 100
	2,5						•	•	•	•	•	



Rapid Joint T

Straight joints for telephone cables

UNscreened	SCREENED	N° pairs for conductor cross sections (n° x mm²)	 Dimensions A x B (mm)
Product	Product		
Rapid Joint T26	Rapid Joint TS26	(1 - 26) x (0,5 - 0,6)	180 x 60
Rapid Joint T61	Rapid Joint TS61	(30 + 1 - 64 + 1) x (0,5 - 0,6)	210 x 65
Rapid Joint T101	Rapid Joint TS101	(60 + 1 - 100 + 1) x (0,5 - 0,6)	320 x 100




Clik Fire

Straight or branch joint pre-filled with gel, for multi core cables up to 4 cores.



Straight or branch multi core joints for 0.6/1 kV extruded cables.

		Cable formation and conductor cross sections (n° x mm²)		Ø max cables (mm)		 Dimensions A x B x C (mm)
Product	Code	Through or straight	1 or 2 branch cables	Through or straight	1 or 2 branch cables	
CLIK 0 Fire	CLOF	1 x 2,5 - 50	1 x 1,5 - 10	16	10	95 x 43 x 28
		2 x 2,5 - 6	2 x 1,5			
CLIK 1 Fire	CL1F	1 x 6 - 95	1 x 1,5 - 35	20,5	15	150 x 56 x 30
		2 x 1,5 - 1 6	2 x 1,5 - 6			
		3 x 1,5 - 10	3 x 1,5 - 6			
		4 x 1,5 - 10	4 x 1,5 - 4			
CLIK 2 Fire	CL2F	1 x 50 - 185	1 x 16 - 185	30	29	220 x 85 x 46
		2 x 10 - 35	2 x 1,5 - 35			
		3 x 6 - 35	3 x 1,5 - 35			
		4 x 6 - 35	4 x 1,5 - 16			

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores)
Class 2 in accordance with CEI 64-8.

No flame propagation:

CEI 20-35 • IEC 60332-1 • HD405-1 (as applicable)

Gel: UL 94-HB

Casing mix: UL 94-V2


Degree of protection: IPX8

Operating Temp: 90°C

Installation temperature:
-40°C / +50°C



Branch joints with 30° output for 0.6/1 kV extruded cables.

Product	Code	Through	Branch	Through	Branch	 Dimensions A x B x C (mm)
CLIK 2000 Fire	CL2000F	1 x 2,5 - 25	1 x 1,5 - 16	14	12,5	75 x 40 x 21
CLIK 2001 Fire	CL2001F	1 x 6 - 95	1 x 1,5 - 70	22,5	18,5	138 x 60 x 37
		2 x 1,5 - 1 6	2 x 1,5 - 10			
		3 x 2,5 - 16	3 x 1,5 - 10			
		4 x 2,5 - 10	4 x 1,5 - 6			
CLIK 2002 Fire	CL2002F	1 x 50 - 150	1 x 1,5 - 70	26	18,5	194 x 74 x 43
		2 x 1,5 - 25	2 x 1,5 - 10			
		3 x 4 - 25	3 x 1,5 - 10			
		4 x 4 - 16	4 x 1,5 - 6			
CLIK 2003 Fire	CL2003F	1 x 150 - 240	1 x 50 - 120	36	26	290 x 105 x 51
		2 x 16 - 50	2 x 10 - 25			
		3 x 16 - 50	3 x 10 - 25			
		4 x 16 - 50	4 x 6 - 16			



Magic Joint

Straight or branch joint with Magic Gel filling for extruded insulation cables up to 1 kV.

Magic Joints are an easily installed, non-toxic solution for jointing requirements up to 1kV. It is ideal for installing directly underground, or even under water. These joints are re-enterable, and safe to use, making them a very versatile jointing solution.

- > Quick cross linking gel, (only 10 minutes at 23°C)
- > Extremely adherent and tight sealing
- > Non-toxic and safe
- > Unlimited shelf life

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

Gel: UL 94-HB

Operating Temp: 90°C

Installation temperature: -15°C / +45°C

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Prepare the joint.



Slip off the separator.



Mix for a minute.



Pour within a minute.




After 10 minutes, Magic joint is ready.



Magic Joint


Straight joint for 0.6/1 kV extruded cables.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				Dimensions A x B (mm)	
Product / Code	1x	2x	3x	4x		
MJ4	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	160 x 45	
MJ10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	180 x 50	
MJ25	16 - 150	4 - 25	4 - 25	4 - 25	215 x 55	
MJ35	16 - 185	16 - 35	16 - 35	16 - 35	232 x 70	
MJ50	50 - 300	16 - 50	16 - 50	16 - 50	266 x 72	
MJ95	120 - 400	25 - 95	25 - 95	25 - 95	330 x 75	
MJ120	120 - 240	70 - 120	70 - 120	50 - 120	365 x 95	
MJ240	400 - 1000	120 - 300	120 - 300	120 - 300	510 x 120	
MJ300	630 - 2000	240 - 400	240 - 400	240 - 400	760 x 180	
For ALUMINIUM cables	1x	2x	3x	4x	(mm)	
MJ50	16 - 150	16 - 25	16 - 25	16 - 25	266 x 72	
MJ120	185 - 400	25 - 95	25 - 95	25 - 95	365 x 95	
MJ240	400 - 630	95 - 185	95 - 185	95 - 185	510 x 120	
MJ300	630 - 2000	185 - 300	185 - 300	185 - 300	760 x 180	

* Magic Joint 10 suggested for cable diameters smaller than 16 mm.

**Magic Joint Y**

Branch joint for 0.6/1 kV extruded cables.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)									
Product/Code	1x		2x		3x		4x			Dimensions A x B (mm)
	T	B	T	B	T	B	T	B		
MJY6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90	
MJY25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	220 x 105	
MJY95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	315 x 115	
MJY240*	240 - 630	240 - 630	95 - 240	50 - 240	95 - 240	50 - 240	95 - 240	50 - 240	600 x 285	

T: Through - B: Branch * also for aluminium cables.



Magic Joint Fire

Straight or branch joint with quick cross linking bi-component cast gel for 0.6/1 kV flame retardant cables.

Magic Joint Fire is the flame retardant version of the Magic Joint. In addition to all the features of a standard Magic Joint, this flame retardant option makes it ideal for installation where there is a high fire risk. Available as straight or branch joints, they have the electrical and sealing properties of traditional Magic Gel with the addition of flame retardance. They comply with International legislation regarding low smoke and gas emissions and are also halogen free.

- > Flame retardant
- > Quick cross linking gel
- > Extremely adherent and tight sealing
- > For 0.6/1 kV extruded cables
- > Non-toxic and safe
- > Unlimited shelf life

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

No flame propagation: CEI 20-35 • IEC 60332-1 HD405-1 (as applicable) Low smoke and toxic and corrosive gas emissions

Gel: UL 94-HB

Casing mix: UL 94-V2

Operating Temp: 90°C

Installation temperature: -10°C / +45°C


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Magic Joint Fire


Straight joint for 0.6/1 kV extruded cables.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				Dimensions A x B (mm)	
Product	1x	2x	3x	4x		
Magic Joint 4-Fire	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	160 x 45	
Magic Joint 10-Fire	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	180 x 50	
Magic Joint 25-Fire	16 - 150	4 - 25	4 - 25	2,5 - 25	215 x 55	
Magic Joint 35-Fire	16 - 185	16 - 35	16 - 35	16 - 35	232 x 70	
Magic Joint 50-Fire	50 - 300	16 - 50	16 - 50	16 - 50	266 x 72	
Magic Joint 95-Fire	120 - 400	25 - 95	25 - 95	25 - 95	330 x 75	
Magic Joint 120-Fire	240 - 500	70 - 120	70 - 120	50 - 120	365 x 95	
Magic Joint 240-Fire	400 - 1000	120 - 300	120 - 240	120 - 240	510 x 120	
Magic Joint 300-Fire	630 - 2000	240 - 400	240 - 300	240 - 300	760 x 180	
For ALUMINIUM cables	1x	2x	3x	4x	(mm)	
Magic Joint 50-Fire	16 - 150	16 - 25	16 - 25	16 - 25	266 x 72	
Magic Joint 120-Fire	185 - 400	25 - 95	25 - 95	25 - 95	365 x 95	
Magic Joint 240-Fire	400 - 630	95 - 185	95 - 185	95 - 185	510 x 120	
Magic Joint 300-Fire	630 - 2000	185 - 300	185 - 300	185 - 300	760 x 180	



Magic Joint Y Fire

Branch joint for 0.6/1 kV extruded cables.

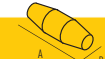
For COPPER cables	Cable formation and conductor cross sections (n° x mm²)									
Product	1x		2x		3x		4x			Dimensions A x B (mm)
	T	B	T	B	T	B	T	B		
Magic Joint Y 6-Fire	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90	
Magic Joint Y 25-Fire	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	220 x 105	
Magic Joint Y 95-Fire	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	315 x 115	

T: Through - B: Branch



Magic Joint S Fire


Straight joint for signalling and control.

	Conductor sections cross (mm²)	Cable formation (n° conductors)												
Product		5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x	500x	Dimensions A x B (mm)
Magic Joint S11 Fire	1,5	•	•	•	•	•								180 x 50
	2,5	•	•	•										
Magic Joint S12 Fire	1,5			•	•	•	•	•						215 x 55
	2,5			•	•	•	•							
Magic Joint S13 Fire	1,5					•	•	•	•					266 x 72
	2,5					•	•	•						
Magic Joint S14 Fire	1,5							•	•	•				330 x 75
	2,5							•	•					
Magic Joint S15 Fire	1,5								•	•	•			365 x 95
	2,5								•	•				
Magic Joint S16 Fire	1,5								•	•	•	•		510 x 120
	2,5								•	•	•	•		
Magic Joint S17 Fire	1,5										•	•	•	760 x 100
	2,5										•	•	•	



Magic Joint SY Fire


Branch joint for signalling and control.

	Conductor sections cross (mm²)	Cable formation (n° conductors)									
Product		5x	7x	10x	12x	16x	19x	24x	40x	75x	Dimensions A x B (mm)
Magic Joint SY1 Fire	1,5	•	•	•	•	•	•				180 x 90
	2,5	•	•	•	•						
Magic Joint SY2 Fire	1,5					•	•	•			220 x 105
	2,5			•	•	•	•	•			
Magic Joint SY3 Fire	1,5						•	•	•	•	315 x 115
	2,5						•	•	•	•	



Magic Joint T Fire

Straight joint for telephone cables.

UNScreened	SCREENED	N° pairs for conductor cross sections (n° x mm²)	 Dimensions A x B (mm)
Product	Product		
Magic Joint T16-Fire	Magic Joint TS16-Fire	1 - 16 x 0,5 - 0,6	180 x 50
Magic Joint T25-Fire	Magic Joint TS25-Fire	16 - 25 x 0,5 - 0,6	215 x 55
Magic Joint T35-Fire	Magic Joint TS35-Fire	25 - 35 x 0,5 - 0,6	266 x 72
Magic Joint T40-Fire	Magic Joint TS40-Fire	35 - 40 x 0,5 - 0,6	330 x 75
Magic Joint T64-Fire	Magic Joint TS64-Fire	40 - 64 x 0,5 - 0,6	365 x 95
Magic Joint T500-Fire	Magic Joint TS500-Fire	60 - 500 x 0,5 - 0,6	510 x 120
Magic Joint T1000-Fire	Magic Joint TS1000-Fire	450 - 1000 x 0,5 - 0,6	760 x 180



Rubber Joint

Straight or branch joint with bicomponent cast quick cross linking rubber insulation for 0.6/1 kW cables.

Rubber Joints have extremely robust mechanical characteristics, as well as dielectric and thermal properties. This makes them ideal for areas of potential heavy abrasion or mechanical stress. Combine all this with an unlimited shelf life, low toxic fume emissions and being re-enterable, and you have a joint suited for some of your harshest conditions.

- > Quick cross linking rubber (only 15 minutes)
- > Very high mechanical and elastic characteristics
- > For 0.6/1 kV extruded cables
- > Unlimited shelf life

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.

Operating Temp: 90°C

Installation temperature: -15°C / +45°C


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Rubber Joint


Straight joint for 0.6/1 kV extruded cables.

For COPPER cables		Cable formation and conductor cross sections (n° x mm²)				Dimensions A x B (mm)	
Product	Code	1x	2x	3x	4x		
Rubber Joint 4	RJ4	1,5 - 25	1,5 - 4	1,5 - 4	1,5 - 4	160 x 45	
Rubber Joint 10	RJ10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	180 x 50	
Rubber Joint 25	RJ25	16 - 150	4 - 25	4 - 25	4 - 25	215 x 55	
Rubber Joint 35	RJ35	16 - 185	16 - 35	16 - 35	16 - 35	232 x 70	
Rubber Joint 50	RJ50	50 - 300	16 - 50	16 - 50	16 - 50	266 x 72	
Rubber Joint 95	RJ95	120 - 400	25 - 95	25 - 95	25 - 95	330 x 75	
Rubber Joint 120	RJ120	240 - 500	70 - 120	70 - 120	50 - 120	365 x 95	
Rubber Joint 240	RJ240	400 - 1000	120 - 300	120 - 240	120 - 240	510 x 120	
Rubber Joint 300	RJ300	630 - 2000	240 - 400	240 - 300	240 - 300	760 x 180	



Rubber Joint Y

Branch joint for 0.6/1 kV extruded cables.

For COPPER cables		Cable formation and conductor cross sections (n° x mm²)									
Product	Code	1x		2x		3x		4x			Dimensions A x B (mm)
		T	B	T	B	T	B	T	B		
Rubber Joint Y6	RJY6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90	
Rubber Joint Y25	RJY25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	220 x 105	
Rubber Joint Y95	RJY95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	315 x 115	
Rubber Joint Y240*	RJY240	240 - 630	240 - 630	95 - 240	95 - 240	95 - 240	95 - 240	95 - 240	50 - 240	600 x 285	



T: Through - B : Branch * also for aluminium cables.



Raycast

Straight or branch joint with bicomponent epoxy resin insulation for 0.6/1 kV cables.

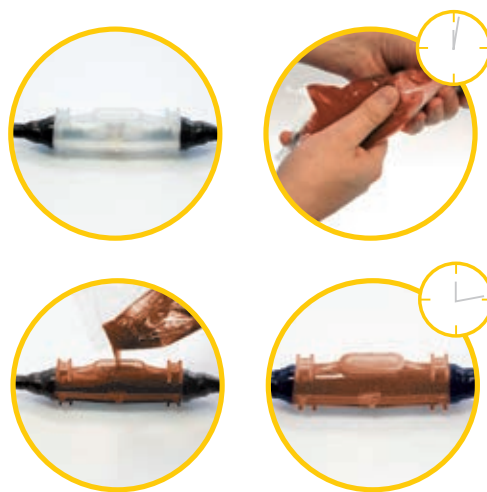
Straight or branch joints for 0.6/1 kV extruded cables: easily installed, composed of two anti-fracture plastic shells, to be filled with bicomponent epoxy resin such as Rayresin. For installation in channels or directly underground.

Electrical performance:

CEI EN 50393 with connectors complying with EN 61238-1 (with testing under water head and water between the cable cores) Class 2 in accordance with CEI 64-8.


Operating Temp: 90 °C

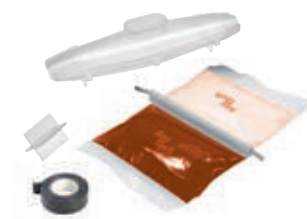
Installation temperature: 0°C / +45°C



Raycast L

Straight joint for 0.6/1 kV extruded cables.


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				Dimensions A x B (mm)	
Product	1x	2x	3x	4x		
Raycast L10*	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10 *	180 x 50	
Raycast L16/25	16 - 150	4 - 25	4 - 25	2,5 - 25	215 x 55	
Raycast L35	16 - 185	16 - 35	16 - 35	16 - 35	232 x 70	
Raycast L50	50 - 300	16 - 50	16 - 50	16 - 50	266 x 72	
Raycast L95	120 - 400	25 - 95	25 - 95	25 - 95	330 x 75	
Raycast L120	240 - 500	70 - 120	70 - 120	50 - 120	365 x 95	
Raycast L240	400 - 1000	120 - 300	120 - 240	120 - 240	510 x 120	
For ALUMINIUM cables	1x	2x	3x	4x	(mm)	
Raycast L50	16 - 150	16 - 25	16 - 25	16 - 25	266 x 72	
Raycast L120	185 - 400	25 - 95	25 - 95	25 - 95	365 x 95	
Raycast L240	400 - 630	95 - 185	95 - 185	95 - 185	510 x 120	



* Raycast L10 is suggested for cable diameters smaller than 16 mm.

Raycast D


Branch joint for 0.6/1 kV extruded cable with 30° output.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								<div> Dimensions A x B (mm)</div>
Product	1x		2x		3x		4x		
	T	B	T	B	T	B	T	B	
Raycast D6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90
Raycast D16/D25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	220 x 105
Raycast D95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	315 x 115

T: Through - B: Branch


Raycast L-S

Straight joint for 0.6/1 kV screened extruded cables.

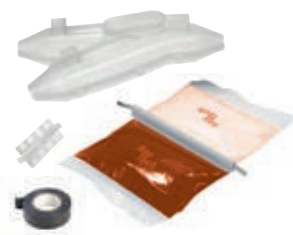
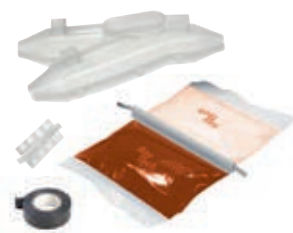
For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				 Dimensions A x B (mm)
Product	1x	2x	3x	4x	
Raycast L10-S	2,5 - 50	1,5 - 10	1,5 - 6	1,5 - 6	180 x 50
Raycast L25-S	16 - 120	4 - 25	4 - 16	2,5 - 16	215 x 55
Raycast L35-S	16 - 185	16 - 35	16 - 25	16 - 25	232 x 70
Raycast L50-S	50 - 240	16 - 50	16 - 50	16 - 50	266 x 72
Raycast L120-S	240 - 500	70 - 120	70 - 120	50 - 95	365 x 95
Raycast L240-S	400 - 1000	120 - 300	120 - 185	120 - 185	510 x 120
For ALUMINIUM cables	1x	2x	3x	4x	(mm)
Raycast L50-S	16 - 150	16 - 25	16 - 25	16 - 25	266 x 72
Raycast L120-S	185 - 400	25 - 95	25 - 95	25 - 95	365 x 95
Raycast L240-S	400 - 630	95 - 185	95 - 185	95 - 185	510 x 120

Raycast D-S

Branch joint for 0.6/1 kV screened extruded cables.


For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								<div>Dimensions A x B (mm)</div> 
Product	1x		2x		3x		4x		
	T	B	T	B	T	B	T	B	
Raycast D6-S	4 - 35	4 - 35	4 - 10	4 - 10	2,5 - 6	1,5 - 6	2,5 - 6	2,5 - 6	180 x 90
Raycast D25-S	35 - 120	35 - 120	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	220 x 105
Raycast D95-S	95 - 300	70 - 150	25 - 95	16 - 50	16 - 70	16 - 35	16 - 50	10 - 35	315 x 115

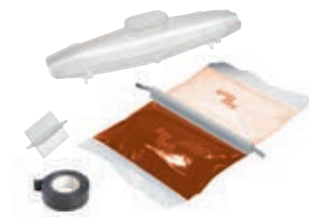
T: Through - B: Branch



Raycast L-ARM


Straight joint for tape, wire or plate armoured cables

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)			Dimensions A x B (mm)	
Product	2x	3x	4x		
Raycast L10-ARM	1,5 - 10	1,5 - 6	1,5 - 6	180 x 50	
Raycast L25-ARM	4 - 25	4 - 16	2,5 - 16	215 x 55	
Raycast L35-ARM	16 - 35	16 - 25	16 - 25	232 x 70	
Raycast L50-ARM	16 - 50	16 - 50	16 - 50	266 x 72	
Raycast L120-ARM	70 - 120	70 - 120	50 - 95	365 x 95	
Raycast L240-ARM	120 - 300	120 - 185	120 - 185	510 x 120	
For ALUMINIUM cables	2x	3x	4x	(mm)	
Raycast L50-ARM	16 - 25	16 - 25	16 - 25	266 x 72	
Raycast L120-ARM	25 - 95	25 - 95	25 - 95	365 x 95	
Raycast L240-ARM	95 - 185	95 - 185	95 - 185	510 x 120	



Raycast D-ARM

Branch joint for tape, wire or plate armoured cable.


For WIRE armoured COPPER cables	Cable formation and conductor cross sections (n° x mm²)							
Product	2x		3x		4x			Dimensions A x B (mm)
	T	B	T	B	T	B		
Raycast D6-ARM-F	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90	
Raycast D16-ARM-F	10 - 25	10 - 25	6 - 16	6 - 16	6 - 16	6 - 10	220 x 105	
Raycast D95-ARM-F	25 - 70	16 - 50	16 - 70	16 - 35	25 - 50	10 - 35	315 x 115	
For TAPE OR PLATE armoured COPPER cables	2x		3x		4x		Dimensions A x B (mm)	
	T	B	T	B	T	B		
Raycast D6-ARM	4 - 10	4 - 10	2,5 - 6	1,5 - 6	2,5 - 6	2,5 - 6	180 x 90	
Raycast D16-ARM	10 - 25	10 - 25	6 - 25	6 - 16	6 - 16	6 - 10	220 x 105	
Raycast D95-ARM	25 - 70	16 - 50	25 - 70	16 - 35	25 - 50	10 - 35	315 x 115	

T: Through - B: Branch



Raycast LPS


Straight joint for very deep submersible pumps.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)				Dimensions A x B (mm)	
Product	1x	2x	3x	4x		
Raycast LPS10	2,5 - 50	1,5 - 10	1,5 - 10	1,5 - 10	180 x 50	
Raycast LPS25	16 - 150	4 - 25	4 - 25	2,5 - 25	215 x 55	
Raycast LPS95	120 - 400	25 - 95	25 - 95	25 - 95	330 x 75	
Raycast LPS240	400 - 1000	120 - 300	120 - 240	120 - 240	510 x 120	



Raycast DPS


Branch joint for very deep submersible pumps.

For COPPER cables	Cable formation and conductor cross sections (n° x mm²)								
Product	1x		2x		3x		4x		
	T	B	T	B	T	B	T	B	
Raycast DPS6	4 - 50	4 - 50	4 - 10	4 - 10	2,5 - 6	2,5 - 6	2,5 - 6	2,5 - 6	180 x 90
Raycast DPS25	50 - 150	50 - 150	10 - 25	10 - 25	6 - 25	6 - 16	6 - 25	6 - 10	220 x 105
Raycast DPS95	120 - 400	95 - 240	25 - 95	16 - 50	25 - 95	16 - 50	25 - 95	10 - 50	315 x 115



Raycast SL


Straight joint for signalling and control.

Product	Conductor sections cross (mm²)	Cable formation (n° conductors)											Dimensions A x B (mm)	
		5x	7x	10x	12x	16x	19x	24x	40x	75x	100x	250x		
Raycast SL11	1,5	•	•	•	•	•							180 x 50	
	2,5	•	•	•										
Raycast SL12	1,5			•	•	•	•	•					215 x 55	
	2,5			•	•	•	•							
Raycast SL13	1,5					•	•	•	•				266 x 72	
	2,5					•	•	•						
Raycast SL14	1,5							•	•	•			330 x 75	
	2,5							•	•					
Raycast SL15	1,5								•	•	•		365 x 95	
	2,5								•	•				
Raycast SL16	1,5									•	•	•	510 x 120	
	2,5									•	•	•		



Raycast SD


Branch joint for signalling and control.

Product	Conductor sections cross (mm²)	Cable formation (n° conductors)									Dimensions A x B (mm)	
		5x	7x	10x	12x	16x	19x	24x	40x	75x		
Raycast SD1	1,5	•	•	•	•	•	•				180 x 90	
	2,5	•	•	•	•							
Raycast SD2	1,5					•	•	•			220 x 105	
	2,5			•	•	•	•	•				
Raycast SD3	1,5						•	•	•	•	315 x 115	
	2,5						•	•	•	•		



Raycast TL & TSL

Straight joint for telephone cable.

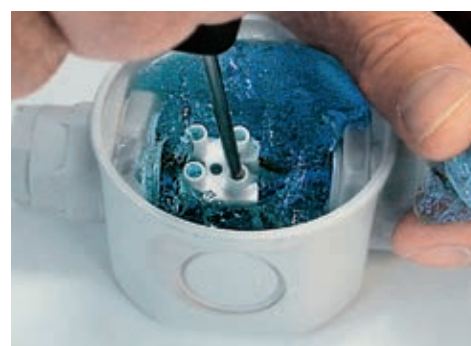
UNScreened	SCREENED	N° pairs for conductor cross sections (n° x mm²)	Dimensions A x B (mm)	
Product	Product			
Raycast TL16	Raycast TSL16	1 - 16 x 0,5 - 0,6	180 x 60	
Raycast TL25	Raycast TSL25	16 - 25 x 0,5 - 0,6	215 x 55	
Raycast TL35	Raycast TSL35	25 - 35 x 0,5 - 0,6	266 x 72	
Raycast TL40	Raycast TSL40	35 - 40 x 0,5 - 0,6	330 x 75	
Raycast TL64	Raycast TSL64	40 - 64 x 0,5 - 0,6	365 x 95	
Raycast TL500	Raycast TSL500	60 - 500 x 0,5 - 0,6	510 x 120	



Magic Power Gel

The unique bi-component gel in a single bottle, with superior dielectric, sealing and thermal characteristics, re-enterable and re-usable.

- > Very sticky
- > Strong self amalgamating characteristics
- > Single compact bottle; convenient twin compartment
- > Re-usable as well as re-enterable, even after long working periods
- > Non toxic and safe





Gel: UL 94-HB
Degree of protection: IP68 (in proper casings)
Operating Temp: -60°C / +200°C
Overload temperature for short periods: up to 250°C
Stabilised for: mould - UV
Volume resistivity: >2 . 1015 Ω cm
Cross linking time: fast (about 15 min. at 25°C)
Dielectric strength: >23 kV/mm

IP68
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Stickiness

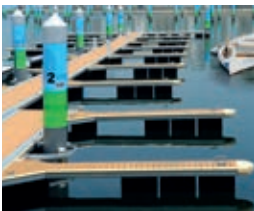
- > Exceptional sealing properties in any condition
- > Better resistance to pressure
- > Effective even in vertical or ceiling applications

Zero waste

- > Due to the nature of the product waste is eliminated; even residual product can be saved and used for the next application

Magic Power Gel

Product	Code	Package type	Quantity
Magic Power Gel	Magicpower Gel	1 single, bi-component bottle 1 small basin - 1 mixing spoon	1000 ml
Magic Power Gel 500	POA	1 single, bi-component bottle 1 small basin - 1 mixing spoon	500 ml
Magic Power Gel 250	POA	1 single, bi-component bottle	250 ml



For all types of connections, even in the toughest conditions, for power, telecom and signalling

Magic Gel & Magic Fluid

Bicomponent gel with very high dielectric and thermal characteristics, ideal for connection systems (joint shells or enclosures) for power cables.

Magic Gel and Magic fluid ensure an IP68 level of protection when installed in suitable casings, and is able to replace all types of resins. This is a self polymer insulation in two practical bottles or a single use bag, with cross linking occurring in less than 10 minutes. Completely non-toxic, and an unlimited shelf life, combined with no thermal stress while cross linking makes this an ideal alternative to traditional resins.

- > For high temperature applications
- > Quick cross linking (only 10 minutes)
- > Re-enterable also after long working periods
- > Non-toxic and safe with unlimited shelf life
- > Low viscosity

Gel: UL 94-HB

Dielectric strength: 23 kV/mm

Cross linking time: fast (about 10 min. at 23°C)

Volume resistivity: $>2 \cdot 10^{15} \Omega \text{ cm}$

Working temperature: -60°C / +200°C

Overload temperature for short periods: up to 250°C

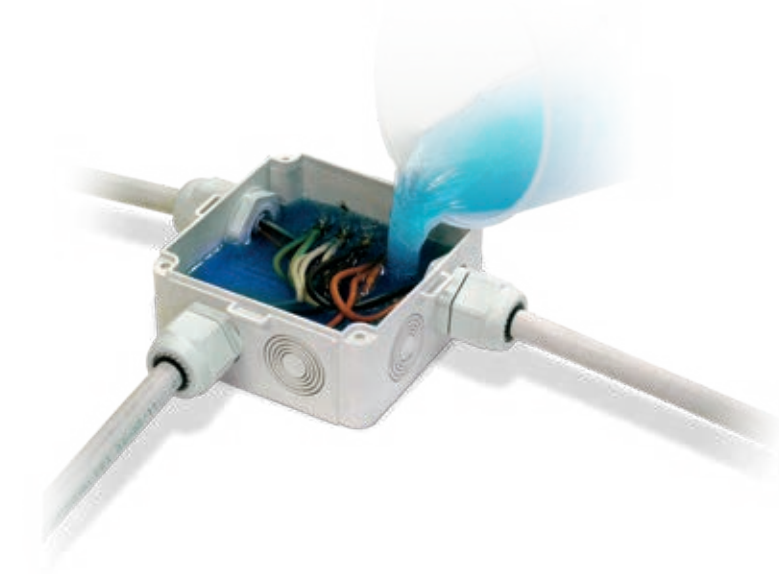
Stabilised for: mould - UV

Degree of protection: IP68 (in proper casings)

IP68
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- ✓ **INSULATION:** Elevated voltages (1 kV operating, 4 kV testing)
- ✓ **THERMAL PERFORMANCE:** Operating temperature 90°C, overload temperature 130°C, short circuit temperature 250°C
- ✓ **SEALING:** Installations also possible in humid environments, flooded wells
- ✓ **CERTIFIED SYSTEMS:** The combination of insulation gel + casing must comply with current standards CEI 20-33 and EN 50393

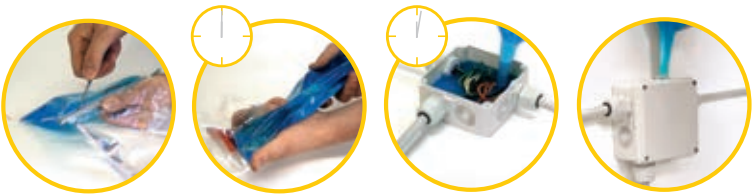
Magic Gel

Product	Code	Package type	Quantity
Magic Gel 300	MG300	2 bottles	300 ml
Magic Gel 1000	MG1000	2 bottles - 1 small basin - 1 mixing spoon	1000 ml
Magic Gel 2000	MG2000	2 bottles - 1 small basin - 1 mixing spoon	2000 ml
Magic Gel 10000	MG10000	2 tanks - 1 small basin - 1 mixing spoon	10 lt



Magic Fluid

Product	Code	Package type	Quantity
Magic Fluid 90	POA	Bicomponent single dose bags	90 gr
Magic Fluid 110	POA	Bicomponent single dose bags	110 gr
Magic Fluid 170	MF170	Bicomponent single dose bags	170 gr
Magic Fluid 210	MF210	Bicomponent single dose bags	210 gr
Magic Fluid 420	MF420	Bicomponent single dose bags	420 gr
Magic Fluid 550	POA	Bicomponent single dose bags	550 gr



WonderGel

Single component insulating gels in cartridge to instantly protect new installations and oversee maintenance of all types of electrical connections.

An installers best friend. Electrical connections in empty enclosures are exposed to many risks including short circuiting, oxidation, and corrosion. Wonder Gel and Wonder Gel Invisible are easily installed, giving you protection and safety in a fast, easy to use application system.

- > Ready to use. No mixing required. Already cross-linked. No need to wait.
- > Resolve issues connected to incorrect insulation or sealing
- > Protect your systems from the penetration of insects
- > Protect your electrical connections from oxidation and corrosion





WonderGel

WonderGel INVISIBLE

Characteristics:

- > Single component gel which comes already cross-linked in a cartridge
- > No mixing, no waiting time
- > Visco-elastic gel which is extremely fluid
- > Self-levelling and self-vulcanizing
- > Easy to measure
- > Does not expire and does not harden
- > Easy to apply even to inaccessible areas
- > Characteristics do not deteriorate with the passing of time
- > Re-enterable
- > Non-toxic and safe
- > Can be applied in all weather conditions, even when raining or in the heat of the summer sun
- > Can be applied to powered appliances
- > Dielectric strength > 23 kV/mm
- > Volume resistivity > $2 \cdot 10^{15} \Omega \text{ cm}$
- > Operating temperature from $-60 / +200^\circ\text{C}$
- > Overload temperature for brief periods: 250°C
- > Gel UL 94-HV

* Protection degree IP68 in proper casings



WonderGel

Product	Code	Package type	Quantity
Wonder Gel	WG280	Cartridge with measuring nozzle	280 ml
Wonder Gel Invisible	WGI280	Cartridge with measuring nozzle	280 ml



Gel technology comparison

PRODUCT	 <p>MAGIC GEL Bi-component gel in 2 bottles</p>			 <p>MAGIC POWER GEL Bi-component gel in single, 2 compartment bottle</p>		 <p>WONDERGEL Ready-to-use single component gel in a cartridge</p>
METHOD OF APPLICATION	 <p>MIX AND POUR</p>			 <p>1- MIX AND POUR</p>	 <p>2- MIX, WAIT & STICK</p>	 <p>INJECT</p>
INSTALLATION TEMPERATURE (°C)	-5 * -10 **/+45 -15 ***			-5 * -10 **/+55 -15 ***		-40 / +110
OPERATING TEMPERATURE (°C)	-60 / +200			-60 / +200 Ready to use in 15 min		-60 / +200 Ready to use
CROSSLINKING TIME (minutes at 25°C) 130-C2	< 10 min.			ca. 15 min.		-
PRINCIPAL CHARACTERISTICS	RE-ENTERABLE			RE-ENTERABLE REUSABLE		INJECTABLE RE-ENTERABLE

* Poured at -5°C from bottles stored at >10°C.

** Poured at -10°C from bottles stored at >20°C.

*** Poured at -15°C from bottles stored at -15°C (cross linking within 48 hours).

Techno Gel Gum

Single bottle two-component insulation with very high dielectric, thermal and sealing characteristics. Waterproof and re-enterable.

TechnoGelGum is a strong hold flexible elastomer optimal for protecting power cables, telecommunication cables, and electronic circuits. TechnoGelGum combines the best of Gel and Rubber, making it elastic and flexible like Gel, but also tough and dry like rubber.

- > For installations up to 1 kV
- > Suitable for high temperatures
- > Even suitable for high depths under water
- > Waterproof > 1 MPa
- > UV resistant
- > Removable
- > Vibration resistant - can act as a damper
- > Suitable for installation in salt water (sea) and in chlorinated water (pools)
- > Non toxic and safe

Dielectric strength: > 21 kV/mm

Cross linking time: fast (about 10 min. at 25°C)

Volume resistivity: > 2 . 10¹⁵ Ω cm

Operating temperature: -60°C / +200°C

Overload temperature for short periods: up to 250°C

Stabilised for: mould - UV

Degree of protection: IP68 (in proper casings)

IP68
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Not quite a GEL and not quite RUBBER, BUT HAS THE BEST FEATURES OF BOTH!



Safe



Waterproof



Re-Enterable



Techno Gel Gum

Product	Code	Colour	Package type	Quantity
Techno Gel Gum	Tegelgum	•	1 single, bi-component bottle 1 small basin - 1 mixing spoon	1 kg
Techno Gel Gum 500		•	1 single, bi-component bottle 1 small basin - 1 mixing spoon	500 gr

Installation steps



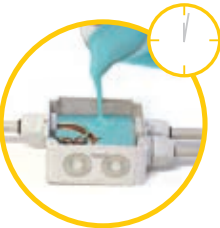
Shake before using.



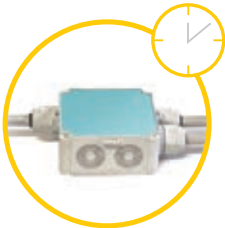
Pour TechnoGelGum into the provided beaker in a 1:1 ratio.



Mix for 1 min. max.



Pour within 1 min. max.



In just 10 minutes the curing is completed.



Sky Plast

Bicomponent rubber in insulating, mouldable, self-extinguishing paste with high dielectric characteristics.

Sky Plast is a technical innovation for covering, protecting, insulating, finishing and fireproofing any electrical or non-electrical components. Once the two components have been blended in a 1:1 ratio until uniform (max 2 minutes), it cross links at room temperature in less than 5 minutes. Sky Plast quickly transforms into a layer of rubber with high dielectric and self-extinguishing properties.

- > Mouldable, non-toxic and safe paste
- > Low smoke and toxic and corrosive gases emission
- > Able to replace taping, heat-shrinking, resin finishes
- > Flexible and elastic
- > Quickly ready for use

Dielectric strength: > 23 kV/mm

Degree of protection: IP68 (in proper casings)

IP68
OFFICIALLY
TESTED | **IMQ**



Sky Plast

Product	Code	Package type	Quantity
Sky Plast	SKYPL	2 bicomponent cans	500 gr
Sky Plast 250	SKYPL250	2 bicomponent cans	250 gr

Installation examples



Cable gland sealing



Creation of LV terminals



Insulation of multiple connections



Conduit protection



Drop line, bar, transformer through insulation



On-site preparation of braces and supports



Preparation of deflectors, nozzles, flow deviators



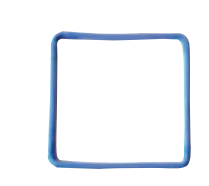
Preparation on-site of expanders for inserts



Preparation on-site of small moulds for reliefs

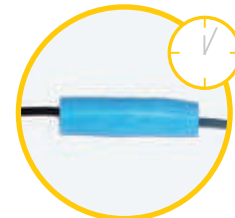
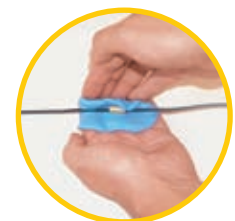


Preparation of bars, washers, round wire insulators



Preparation on-site of seals

Installation steps



Magic Rubber

Fast cross linking bicomponent rubber.

Bicomponent insulating liquid rubber, extremely conformable and fluid, flexible, elastic and re-entenable. In just a few minutes it transforms into a rubber with very high dielectric, thermal, mechanical and elastic characteristics.

- > For installation up to 1kV
- > Low smoke, toxic and corrosive gas emissions
- > Ideal for casts and moulds
- > Unlimited shelf life

Cross linking time:
15 minutes at 23°C

Volume resistivity: $>2 \cdot 10^{15} \Omega \text{ cm}$

Dielectric strength: $> 23 \text{ kV/mm}$

Specific weight: 1,22 approx

Degree of protection:
IP68 (in proper casings)

Magic Rubber & Rubber Fluid

Product / Code	Colour	Package type	Quantity
Magic Rubber-500	•	2 bicomponent bottles 1 measuring cup - 1 mixing palette	500 gr
Magic Rubber-10	•	2 bicomponent bottles 1 measuring cup - 1 mixing palette	10 kg
Rubber Fluid-200	•	Bicomponent single dose bags	200 gr
Rubber Fluid-350	•	Bicomponent single dose bags	350 gr



Installation steps



Mix the 2 components in a ratio of 1:1.



Mix for max 30 seconds.



Pour the product into the casing to be filled.



In just a few minutes, the product transforms into rubber.

Rayresin

Bicomponent epoxy resin for installations up to 1 kV.

Resin for electrical insulation and for the protection of thermosetting LV and MV accessories. The two components, the base resin and hardener, are mixed in close contact to trigger the cross linking reaction. Excellent bonding to metal, plastic and rubber components.

Cross linking time:
20 minutes at 20°C

Hardness: 70 Shore D

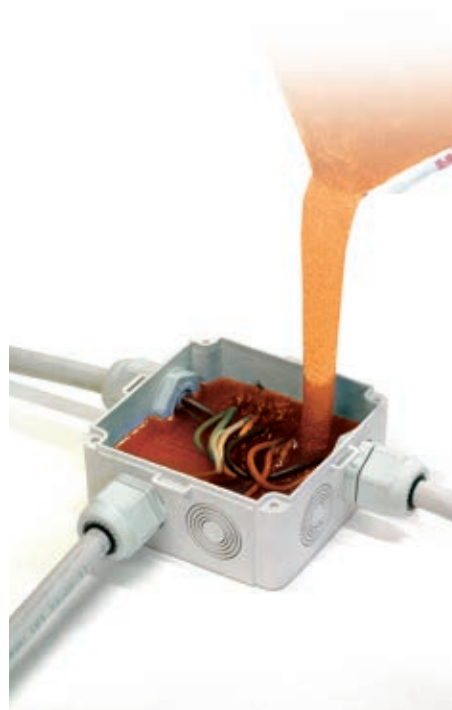
Dielectric strength: 21 kV/mm

Specific weight: 1,07 kg/dm³ 1,7
kg/dm³ for Rayresin Tan 3,8

Water absorption: 0,8% max

Rayresin

Product	Colour	Package type	Quantity
Rayresin 170	•	Bicomponent single dose bags	170 gr
Rayresin 210	•	Bicomponent single dose bags	210 kg
Rayresin 420	•	Bicomponent single dose bags	420 gr
Rayresin Tan 3,8	•	Tin with mineral charge	3.8 kg



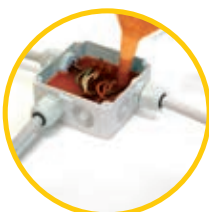
Installation steps



Remove the separator from the Rayresin bag.



Mix the 2 components (30 seconds max).



Pour Rayresin in the tray (1 minute max).



Installation completed

Galactic Protection

Bicomponent rubber for printed circuit protection including against animal intrusion.

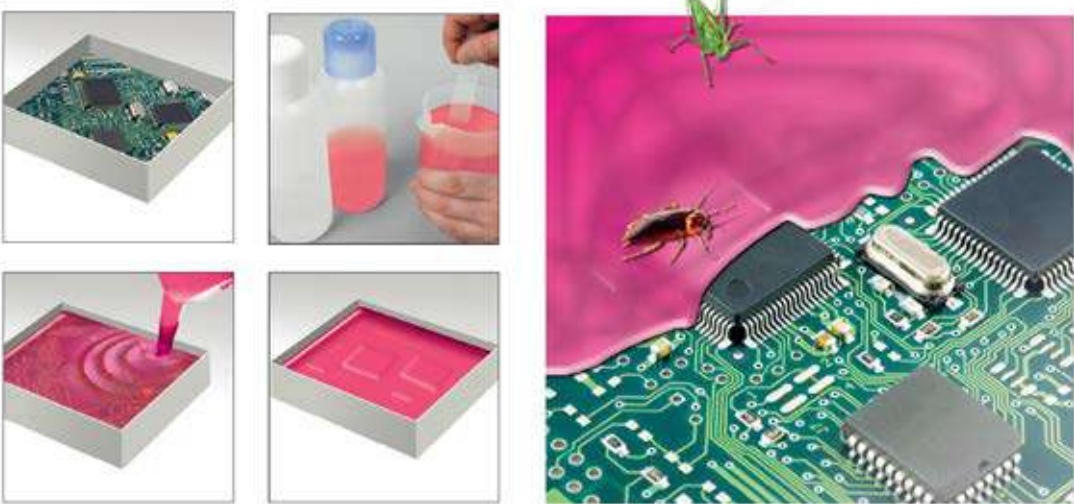
Protection for PCB's which are exposed to dust or animal intrusion (insects, snails, etc e.g. in automatic gate trays). It can be removed without damaging the PCB, and new Galactic Protection can be applied. Composed of two part rubber with unlimited shelf life and UV resistance, Galactic Protection is a game changer.

Kit composition:
2 vials bicomponent product



Galactic Protection

Product	Code	Description	Quantity
Galactic Protection	GalacticProt	bicomponent rubber	300 ml



Magic Box

IP68 Connection kit complete with Magic Fluid insulating gel.

Universal IP68 kits with unlimited shelf life, the Magic Box is mechanically robust, non-toxic, and suitable for installation in even the most extreme conditions. Re-enterable and compliant with International Standards, the Magic Box protects from water, moisture, dust and ingress from small animals.

- > Re-enterable even after long periods of operation
- > Able to absorb external shock without fracturing
- > For installations even at high depths
- > Also suitable for vertical filling
- > Unlimited shelf life
- > Non toxic and safe

Electrical Performance: CEI EN 60529

Degree of protection: IP68 Class 2 in accordance with CEI 64-8.

Gel: UL 94-HB

Operating temperature: 90°C

Gel operating temperature: -60°C / +200°C

Halogen Free: in accordance with CEI EN 50267 2-2

IP68
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Magic Box is suitable for any kind of installation, even underground or directly submerged!



Magic Box is always re-enterable, even after long working periods

Magic Box

Product/Code	Max external Ø housed in input cables (mm)	N° and type of cable glands	Internal kit dimensions (mm)	Composition Kit
Magic Box 65	22	3 x PG16	Ø 65 x h 35	Kit complete with cover. 3 cable glands. Series of closing plugs. Insulating gel for complete filling.
Magic Box 80	22	3 x PG16	Ø 80 x h 40	
Magic Box 100	20	3 x M25 x 1.5	100 x 100 x h 50	
Magic Box 120	20	3 x M25 x 1.5	120 x 80 x h 50	
Magic Box 150	26	3 x M25 x 1.5	150 x 110 x h 70	
Magic Box 190	26	3 x M25 x 1.5	190 x 140 x h 70	
Magic Box 240	26	3 x M25 x 1.5	240 x 190 x h 90	

Kit box installation steps



Fix the box and cover the screws with the caps.



Knock out the pre prepared holes.



Install the cable glands.



Insert the cables and connect the wires.

Horizontal installation steps



Vertical installation steps



Examples of application



PUBLIC LIGHTING



NAVAL SECTOR



OUTDOOR - GARDENS



ELECTRIC GATES

J-Box

Snap shut enclosures with perforated knockouts.

Enclosure with snap shut cover and perforated knockouts for faster mounting of cable glands. Very high mechanical and flame retardant properties. Non-toxic, re-enterable only by means of a tool. The screwless design prevents screws rusting over time due to moisture and allows for easy re-entry. Screw caps are also supplied for the wall mounting screws along with 3 cable glands and a stopping plug for vertical filling.

- > Can be insulated with Magic Power Gel, Magic Gel, Wonder Gel (IP68)
- > Re-enterable only with the use of a tool
- > Also suitable for vertical filling
- > Excellent shock-resistance
- > Self-extinguishing
- > Halogen Free

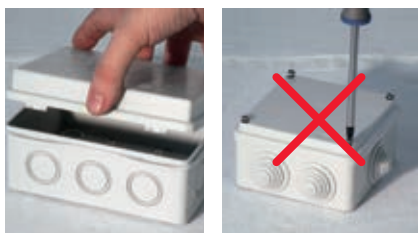
Electrical Performance: CEI 23-48, IEC 60670

Degree of protection:
empty IP55 filled with Gel Raytech IP68

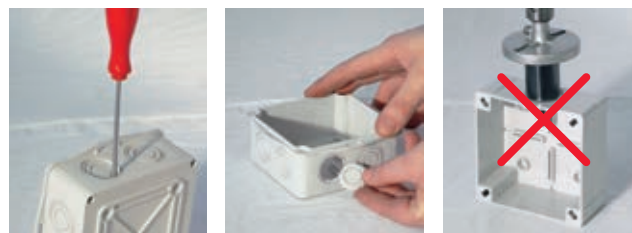
Halogen free: according to CEI EN 50267 2-2

Self-extinguishing and resistant to abnormal heat and fire: Glow wire test at +960°C according to EN 60695-2-11

Snap-shut (without screws)



Pre-drilled walls



J-Box. Enclosures with perforated knockouts.

Product	Max external Ø housed in input cables (mm)	Max external Ø housed in input cables (mm)	Max external Ø housed in input cables (mm)	Max dimension housed		Dimensions (mm)
				PG	METRIC	
J-BOX 65	4	23	23	16	20	Ø 65 x h 35
J-BOX 80	4	22	22	16	20	Ø 80 x h 40
J-BOX 100	8	20	20	21	25	100 x 100 x h 50
J-BOX 120	6	20	20	21	25	120 x 80 x h 50
J-BOX 150	10	26	26	29	32	150 x 110 x h 70
J-BOX 190*	10	26	26	29	32	190 x 140 x h 70
J-BOX 240*	12	26	26	29	32	240 x 190 x h 90

* Supplied with extractable hinge for opening book type. Note: All boxes include 3 cable glands Ray Pass 16.

**Accessories****Ray-PRESS. Cable glands.**

METRIC Product	METRIC	Assembly hole Ø (mm)	Cable range Ø		Item packaging
			min (mm)	max (mm)	
Ray PRESS-16	M16 x 1.5	16	6	10	50
Ray PRESS-20	M20 x 1.5	20	8	13	50
Ray PRESS-25	M25 x 1.5	25	12	18	20
Ray PRESS-32	M32 x 1.5	32	16	20	20
PG Product	METRIC	Assembly hole Ø (mm)	Cable range Ø		Item packaging
			min (mm)	max (mm)	
Ray PRESS-PG11	11	19	6	9	50
Ray PRESS-PG13.5	13.5	20	9	12	50
Ray PRESS-PG16	16	23	11	14	50
Ray PRESS-PG21	21	29	14	18	20

**Ray-PASS. Rubber flexible grommets.**

Product	For pipe maximum external Ø (mm)	Assembly hole Ø (mm)	Item packaging
Ray PASS 16	20	23	50
Ray PASS 21	23.5	29	50
Ray PASS 29	32	38	50



Section 03

Scotchlok™ Wire Connectors

Spring Connectors	104
Scotchlok IDC Connectors for Electrical Applications	105
Scotchlok IDC Connectors for Communication Applications	108
Scotchlok™ Crimping Tools	109

Connectors & Scotchlok™ Wire Connectors & Tools



Connectors and Scotchlok™ Connectors offer the quick installation and reliability that contractors demand. They come in a variety of shapes and sizes with different properties to fit a wide range of applications and cable sizes.






Electrical Wire Connectors

Spring Connectors – 3M™ Performance Plus Wire Connectors



Because of their increased wire range, just three 3M™ Performance Plus Wire Connectors do the work of eight standard connectors and are suitable for commercial, residential, industrial and maintenance applications. The rounded wings make 3M wire connectors exceptionally easy to handle. The flexible skirt covers over-strips yet conforms to whatever space is available in a box. Inside, the unique spring grips quickly and bites into conductors for solid, secure connections.

Agency Approvals:  

Product	B/G+BOX	O/B+BOX	R/Y+BOX
			
Order Code	POA	3M087	3M793
Colour	Blue/Grey	Orange/Blue	Red/Yellow
Conductor Size Combinations*	3 x 2.5 mm ² to 2 x 10 mm ² Solid/Stranded	2 x 0.5 mm ² Solid/Stranded to 3 x 2.5 mm ² Solid	2 x 1.0 mm ² to 2 x 6 mm ² Solid/Stranded
Connector Style	Twist On	Twist On	Twist On
Flame Retardant	Yes	Yes	Yes
Maximum Voltage Rating	600 V (1000 V in signs, lighting fixtures and luminaries)	600 V (1000 V in signs, lighting fixtures and luminaries)	600 V (1000 V in signs, lighting fixtures and luminaries)
Maximum Operating Temperature	105°C	105°C	105°C

Insulation Displacement Connectors and Tools for Electrical Applications



3M™ Scotchlok™ IDC Electrical Double Run or Tap Connectors 560, 560B and 564

Agency Approvals:  

Product	560	560B	564
			
Order Code	POA	3M074	POA
Colour	Light Blue	Blue	White
Conductor Size	0.75 - 1.0 mm ² Solid/Stranded 1.5 mm ² Stranded	0.75 - 1.0 mm ² Solid/Stranded 1.5 mm ² Stranded	0.75 - 1.5 mm ² Solid/Stranded
Connector Style	Insulation Displacement (IDC)	Insulation Displacement (IDC)	Insulation Displacement (IDC)
Maximum Insulation Diameter	3.7 mm	3.7 mm	3.7 mm
Flame Retardant	Yes	Yes	No
Maximum Voltage Rating	600 V (1000 V in signs, lighting fixtures and luminaries)	600 V (1000 V in signs, lighting fixtures and luminaries)	32 V
Maximum Operating Temperature	105°C	90°C	90°C
Recommended Installation Tools	3M™ Crimping Tool E-9BM Linesman Pliers	3M™ Crimping Tool E-9BM Linesman Pliers	3M™ Crimping Tool E-9BM Linesman Pliers Multigrip (Slip Joint) Pliers

3M™ Scotchlok™ IDC Run and Tap Connectors 558 and 567

Electrically connects a (tap) wire end to a through (run) wire and insulates the connection. Designed for control circuit wiring, fixture wiring, appliance wiring, signal and PA systems, and automotive, boat or recreational vehicle wiring. Flame retardant.

Agency Approvals:  

Product	558	567
		
Order Code	POA	POA
Colour	Red	Brown
Conductor Size	0.5 - 1.5 mm ² Solid/Stranded	Tap: 0.75 - 1.5 mm ² Run: 3.5 - 4.0 mm ² Solid/Stranded
Connector Style	Insulation Displacement (IDC)	Insulation Displacement (IDC)
Maximum Insulation Diameter	3.0 mm	Tap: 3.7 mm Run: 4.8 mm
Flame Retardant	Yes	Yes
Maximum Voltage Rating	105°C	
Maximum Operating Temperature	600 V (1000 V in signs, lighting fixtures and luminaries)	600 V (1000 V in signs, lighting fixtures and luminaries)
Recommended Installation Tools	3M™ Crimping Tool E-9BM Linesman Pliers	3M™ Crimping Tool E-9BM Linesman Pliers

3M™ Scotchlok™ Fuse Holder 972-A

The 3M Scotchlok™ Fuse Holder 972-A is used to install a blade-type automotive fuse between power source and device.

Product	972-A
	
Order Code	POA
Colour	Blue
Conductor Size	0.75 - 1.5 mm² Solid/Stranded
Connector Style	Insulation Displacement (IDC)
Maximum Insulation Diameter	3.8 mm
Flame Retardant	No
Operating Temperature	105°C

3M™ Scotchlok™ Moisture Guard Connector (MGC)

The 3M™ Scotchlok™ Moisture Guard Connector MGC provides a convenient way to connect wires for landscape irrigation and lighting applications. Just press the MGC cap and a metal element inside pushes through the wire insulation to make a secure, reliable connection. The grease in the MGC protects against moisture while the MGC housing is UV resistant for above-ground applications.



Recommended installation tool:

- > Multigrip (Slip Joint) Pliers

Applications

- > Residential and commercial landscape lighting, irrigation applications

Product	Order Code	Connector Style	Outside Port		Inside Port		Flame Retardant	Max Voltage Rating	Max Operating Temp
			Wire Range	Insulation Diameter	Wire Range	Insulation Diameter			
MGC (25/Bag)	3M073	Insulation Displacement (IDC)	1.0 mm² - 2.5 mm² Solid/Stranded	5.3 mm	0.5 mm² Stranded, 0.75 mm² Solid/Stranded	3.8 mm	Yes	600 V (1000 V in signs, lighting fixtures and luminaries)	105°C
MGC (100/Jar)	POA	Insulation Displacement (IDC)	1.0 mm² - 2.5 mm² Solid/Stranded	5.3 mm	0.5 mm² Stranded, 0.75 mm² Solid/Stranded	3.8 mm	Yes	600 V (1000 V in signs, lighting fixtures and luminaries)	105°C

3M™ Direct Bury Splice Kits DBO/B-6 and DBR/Y-6

The 3M™ Direct Bury Splice Kits DBO/B-6 and DBR/Y-6 are used to electrically connect two or more pre-stripped copper wires and moisture seal the connection for direct burial. The DBO/B-6 kit includes a 3M™ Performance Plus Wire Connector O/B+ and a high impact, UV-resistant polypropylene tube prefilled with moisture-resistant grease and is flame retardant. The DBR/Y-6 kit includes a 3M™ Performance Plus Wire Connector R/Y+ and a high impact, UV-resistant polypropylene tube prefilled with moisture-resistant grease.



Applications

- > Wiring up to 600 V in water-intensive applications such as golf courses, irrigation controls and outdoor lighting.

Product	Order Code	Conductor Size	Connector Style	Common Wire Combinations (Copper only)*	Flame Retardant	Maximum Voltage Rating	Maximum Operating Temperature
DBO/B-6 BULK	3M079	0.75 mm ² - 2.5 mm ²	Direct Bury	2 x 1.0 mm ² to 3 x 2.5 mm ²	Yes	600 V	105°C
DBR/Y-6 BULK	3M078	1.0 mm ² - 6.0 mm ²	Direct Bury	2 x 1.0 mm ² to 3 x 4.0 mm ²	Yes	600 V	105°C

3M™ Scotchlok™ Moisture Resistant Connectors 314 and 316IR

3M™ Scotchlok™ Connectors 314 and 316IR are used to electrically connect two or three wire ends, insulate the connection, and provide a moisture resistant seal. 316-IR is recommended for use with low energy underground circuit wires, sprinkler systems, landscape lighting or other moisture-resistant applications less than 600 volts.



Recommended installation tool:

3M™ Scotchlok™ Crimp Tool E-9BM or Multigrip (Slip Joint) Pliers

Product	Order Code	Colour	Connector Size	Maximum Insulation Diameter	Flame Retardant	Maximum Voltage Rating	Maximum Operating Temperature
314 (50 bag)	3M072	Blue Cap, White Body	0.5 - 1.5 mm ² Solid/Stranded	3.8 mm	Yes	600 V	105°C
316IR	POA	Black Cap, White Body	0.5 - 1.5 mm ² Solid/Stranded	3.9 mm	Yes	600 V	105°C

3M™ Scotchlok™ Butt Connector UAL

The UAL connector is a sealed, moisture resistant two or three wire insulation displacement connector. Outside ports accept solid copper, aluminium or a combination of both.



Recommended installation tool:

3M™ Scotchlok™ Crimp Tool E-9BM or Multigrip (Slip Joint) Pliers

Product	3M Order Code	Colour	Conductor Size	Maximum Insulation Diameter	Flame Retardant	Maximum Operating Temperature
UAL	POA	Clear	0.5 - 1.2 mm	Outside port: 2.1 mm Centre port: 1.9 mm	No	140°C

Communication Connectors

Scotchlok™ IDC Butt Connectors UR2 and UY2

Scotchlok IDC Butt Connectors employ a specially designed, wire insulation displacement contact to make a reliable electrical connection to each wire. A “live-spring” joint is made by driving the wire down into the “U” contact connector. This simple process displaces the insulation and grasps all conductors with a firm, resilient pressure, all in one motion. No stripping of wire insulation is required. Scotchlok™ butt connectors include a factory-installed sealant to protect against corrosion and seals out moisture.

Scotchlok™ IDC Butt Connector UR2

The UR2 connector accepts two or three solid copper conductors for butt splicing. The connector is filled with a sealant to provide moisture resistance.

Recommended installation tool: 3M™ Crimping Tools E-9BM, E-9J or E-9Y

Agency Approvals: 



Product	Order Code	Connector Type	Colour	Conductor Diameter	Maximum Insulation Diameter
UR2 100/box NZ	3M070	Butt, 2 or 3 Conductor, IDC	Red (top)	0.4 - 0.9 mm	2.1 mm

Scotchlok™ Butt Connector UY2

The small size of the UY2 connector reduces the splicing bundle size to a minimum. The connector's two ports accept two solid copper conductors. The connector is filled with a sealant to provide moisture resistance.

Recommended installation tool: 3M™ Crimping Tools E-9BM

Agency Approvals: 



Product	Order Code	Connector Type	Colour	Conductor Diameter	Maximum Insulation Diameter
UY2 100/box NZ	3M071	Butt, 2 Conductor, IDC	Yellow (top)	0.4 - 0.9 mm	2.1 mm
UY2 500/jar	3M130	Butt, 2 Conductor, IDC	Yellow (top)	0.4 - 0.9 mm	2.1 mm

Scotchlok™ Self Stripping Drop Wire Connector 557-TG2

Use the 557-TG2 aerial dropwire connector to electrically connect two solid copper conductors, insulate the connection and provide moisture protection.

Recommended installation tool: 3M™ Crimping Tools E-9BM or E-9J



Product	557-TG2 100/Jar	557-TG2 500/Box	Conductor Size	Maximum Insulation Diameter
557-TG2	POA	POA	0.6 - 1.3 mm	3.0 mm

Scotchlok™ Inline Connectors U1R and U1B

The U1R and U1B connectors are sealed moisture-resistant four-wire (1 full pair) inline connectors for larger gauge solid copper conductors.

Recommended installation tool: 3M™ Crimping Tools E-9BM



Product	Order Code	Colour	Wire Range	Maximum Insulation Diameter
U1R	3M786	Red (top)	0.5 - 0.9 mm	3.2 mm
U1B	3M075	Blue (top)	0.9 - 1.3 mm	3.2 mm

Scotchlok™ Tap Connector UB2A

By positioning the 3M Scotchlok™ IDC Tap Connector UB2A on the conductor and pre-crimping, the conductor is prevented from slipping out of the connector before the crimp is completed. The UB2A permits tapping directly onto an existing conductor without interrupting service. In ready access closures, the UB2A eliminates cutting cable pairs, opening pairs, and piecing out wires. The conductors joined can be different sizes.

Recommended installation tool: 3M™ Crimping Tools E-9BM, E-9J or E-9Y



Agency Approvals: 



Product	Order Code	Conductor Size	Maximum Insulation Diameter
UB2A	3M785	0.4 - 0.9 mm	2.1 mm

3M™ Scotchlok™ Crimping Tools

3M™ recommends the use of 3M™ Scotchlok™ Crimping Tools when installing 3M™ Scotchlok™ IDC Connectors. These tools ensure repeated fast, reliable connections. In projects where large numbers of connectors are being used, the high mechanical advantage designed into the tool will ensure minimal operator fatigue.

Product	E-9BM	R/YE-9JBOX
		
Order Code	POA	3M131
Product Name	3M™ Scotchlok™ Hand Crimping Tool E-9BM	3M™ Scotchlok™ Hand Crimping Tool E-9J
Description	This heavy duty tool is capable of crimping all Scotchlok™ connectors. Its closing action and adjustable jaws provide a 10 to 1 mechanical advantage, allowing it to handle all wire gauges.	The E-9J tool is a lightweight, handheld tool featuring a single stroke, with a work-saving 10 to 1 mechanical advantage over applied hand force. For use with Scotchlok™ butt and tap connectors.

Section 04

Resin Cable Joint Kits & Resins

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3M™ Scotchcast™ Resin Cable Joint Kits

The 3M Scotchcast Resin Cable Joint range is designed to make the installation process faster, safer and more reliable than ever before. The range includes hydrocarbon resistant products specially developed for the oil and gas industries, as well as dedicated products to suit armoured cable types commonly found in mining and industrial environments. The range caters to a broad range of cable sizes and configurations, including inline and branch jointing applications.

Features available in new Scotchcast Resin Cable Joint Kit range include:

- > Express one-part mould body with innovative sealing system requiring no cutting to size or taping, allowing unmatched speed of installation (excludes LVI-3 series, which uses a hydrocarbon resistant two-part mould body, and the 82-AN series.)
- > Closed Mix-Pour with integrated resin delivery system. Designed to eliminate almost any chance of skin contact, user safety is increased and wastage from spills is minimized (excludes LVI-3 series and 82-AN series).
- > High quality 3M resin compounds which offer confidence through renowned reliability, and provide durability to avoid costly re-work and system down time



The 3M Scotchcast Closed Mix-Pour resin system allows mixing and pouring of the two-part resin without exposure to the user. No tools or mixing containers are required.



Sealed, two part resin bag



Integrated delivery system.
Included nozzle accessory
used for LVI-3 series



Internal mixing is safe and
clean



Resin is released and safety
poured in one easy step

3M™ Scotchcast™ Resin Cable Joint Range

Cable Type	Non-Armoured		Armoured
Joint Configuration	Inline	Branch	Inline
Scotchcast™ Joint Kit Hazardous Area Range		92-NBB-U Series	LVI-3 Series
Scotchcast™ Joint Kit Premium Range	92-NBA Series	92-NBB-Series (Y-branch) 92-NBC-Series (T-branch)	LVI-2 Series

3M™ Scotchcast™ Premium Resin Cable Joint Range

3M Scotchcast Premium Resin Cable Joints feature 3M™ Scotchcast™ Electrical Insulating Resin 40, which is a high quality two part polyurethane compound designed for electrical insulation and mechanical protection. Scotchcast Premium Resin Cable Joints are available in a range of sizes and configurations to suit inline, Y-branch, T-branch applications, and joints requiring cable armouring components. All products in this range utilise the “express” one-part mould body, providing time and cost savings through extra fast set up.

Applications

> Indoor, outdoor, underground and submerged applications

The 3M™ Scotchcast™ “Express” one-part mould body is available in inline, T-branch and Y-branch (pictured) configurations.



Prepare and connect cables



Install mould



Mix and pour resin



Joint complete when resin has completely filled the mould

Product	Order Code	Cable Type	Cable Diameter		Joint Configuration	Mould Body
			Main	Branch		
92 - NBA0	3M750	Non-armoured	4-16 mm		Inline	Express one-part
92 - NBA1	3M751	Non-armoured	10-22 mm		Inline	Express one-part
92 - NBA2	3M752	Non-armoured	12-25 mm		Inline	Express one-part
92 - NBA3	3M753	Non-armoured	13-32 mm		Inline	Express one-part
92 - NBA4	3M754	Non-armoured	18-36 mm		Inline	Express one-part
92 - NBA5	3M755	Non-armoured	19-45 mm		Inline	Express one-part
92 - NBA6	3M756	Non-armoured	27-54 mm		Inline	Express one-part
92 - NBA7	3M757	Non-armoured	29-64 mm		Inline	Express one-part
92 - NBB0	3M758	Non-armoured	9-18 mm	9-18 mm	Branch (Y Config)	Express one-part
92 - NBB1	3M759	Non-armoured	11-23 mm	11-23 mm	Branch (Y Config)	Express one-part
92 - NBB2	3M760	Non-armoured	16-33 mm	16-33 mm	Branch (Y Config)	Express one-part
LVI-2/2-C*	POA	Non-armoured	12-25 mm			Express one-part
LVI-2/4	3M770	Armoured	18-36 mm			Express one-part
LVI-2/5	3M771	Armoured	19-45 mm			Express one-part
LVI-2/7	POA	Armoured	29-64 mm			Express one-part

* Connectors (crimp) included.

Selection Table

Inline joint kits for non-armoured cable

Cable Cross Section (mm²)	1 Core	2 Cores	3 Cores	4 Cores
1.5	92-NBA0	92-NBA0	92-NBA0	92-NBA0
2.5	92-NBA0	92-NBA0	92-NBA0	92-NBA0
4	92-NBA0	92-NBA0	92-NBA0	92-NBA0
6	92-NBA0	92-NBA0	92-NBA0	92-NBA1
10	92-NBA0	92-NBA1	92-NBA1	92-NBA1
16	92-NBA0	92-NBA1	92-NBA1	92-NBA3
25	92-NBA0	92-NBA3	92-NBA3	92-NBA3
35	92-NBA0	92-NBA3	92-NBA3	92-NBA3
50	92-NBA0	N/A	92-NBA3	92-NBA4
70	92-NBA1	N/A	92-NBA4	92-NBA5
95	92-NBA1	N/A	92-NBA5	92-NBA5
120	92-NBA1	N/A	92-NBA5	92-NBA6
150	92-NBA3	N/A	92-NBA6	92-NBA6
185	92-NBA3	N/A	92-NBA7	92-NBA7

Inline joint kits for armoured cable

Cable Cross Section (mm²)	1 Core	2 Cores	3 Cores	4 Cores
1.5	N/A	LVI-2/2-C*	LVI-2/2-C*	LVI-2/2-C*
2.5	N/A	LVI-2/2-C*	LVI-2/2-C*	LVI-2/2-C*
4	N/A	LVI-2/2-C*	LVI-2/2-C*	LVI-2/2-C*
6	N/A	LVI-2/2-C*	LVI-2/2-C*	LVI-2/2-C*
10	N/A	LVI-2/3-C*	LVI-2/3-C*	LVI-2/3-C*
16	N/A	LVI-2/3-C*	LVI-2/4	LVI-2/4
25	N/A	LVI-2/3-C*	LVI-2/4	LVI-2/4
35	N/A	LVI-2/4	LVI-2/5	LVI-2/5
50	LVI-2/3-C*	LVI-2/5	LVI-2/5	LVI-2/5
70	LVI-2/3-C*	LVI-2/5	LVI-2/6	LVI-2/6
95	LVI-2/4	LVI-2/6	LVI-2/6	LVI-2/7
120	LVI-2/4	LVI-2/6	LVI-2/7	LVI-2/7
150	LVI-2/4	LVI-2/6	LVI-2/7	LVI-2/7
185	LVI-2/5	LVI-2/7	LVI-2/7	
240	LVI-2/5	LVI-2/7		
300	LVI-2/6			
400	LVI-2/6			-
500	LVI-2/6	-	-	-
630	LVI-2/6	-	-	-
800	LVI-2/7	-	-	-
1000	LVI-2/7	-	-	-

* Connectors (crimp) included.

3M™ Scotchcast™ Resin T-Branch Kit LVBT-2/1

3M™ Scotchcast™ Resin T-Branch Kit LVBT-2/1 is designed to be used for single and multicore un-armoured, polymeric, low voltage energy cables up to 600 V. Suitable for indoor, outdoor and buried applications with high humidity or weather exposure. The kit contains resin 40 in a transparent two chamber bag with an integrated closed mixing system, two part mould shelves with a snap fit closing system, transparent mould body, pouring funnel and a closure plug.

Kit Mo.	Order Code	Main Cable OD Accommodation	Branch Cable OD Accommodation	Min cable/Joint Diameter	Cable Configuration
LVBT-2/1	POA	12.7 – 20.5 mm	Up to 9.5 mm	30	Single and multicore un-armoured, polymeric, low voltage energy cables up to 600 V.

3M™ Scotchcast™ Hazardous Area Resin Cable Joint Range

Scotchcast Hazardous Area Resin Cable Joints feature 3M™ Scotchcast™ Insulating Resin 1402FR. Scotchcast 1402FR resin is flame retardant, halogen free, and remains virtually unaffected by immersion in hydrocarbons and chemical solvents. When exposed to petrol, diesel and aggressive solvents, rapid deterioration can be experienced by standard encapsulating resins – especially those commonly found in conventional, low cost resin jointing kits. 1402FR is an ultra-high quality, highly modified resin that demonstrates superior performance compared to other encapsulating resin types. 3M Scotchcast Hazardous Area resin joint kits are recommended for industrial or specialist applications where hydrocarbons are present.



Applications

- > Indoor, outdoor, underground and submerged applications
For use within Zone 1 and 2 areas.

Product	Order Code	Cable Type	Cable Diameter		Joint Configuration	Mould Body
			Main	Branch		
LVI-3/2-C*	3M780	Armoured	14-30 mm		Inline	Flame retardant two-part
LVI-3/3-C*	3M781	Armoured	23-35 mm		Inline	Flame retardant two-part
LVI-3/4	3M782	Armoured	28-47 mm		Inline	Flame retardant two-part
LVI-3/5	3M775	Armoured	35-60 mm		Inline	Flame retardant two-part
LVI-3/6	3M776	Armoured	45-70 mm		Inline	Flame retardant two-part
LVI-3/7	3M796	Armoured	45-90 mm		Inline	Flame retardant two-part
LVI-3/8	POA	Armoured	45-100 mm		Inline	Flame retardant two-part
LVI-3/2-IC	POA	Instrumentation/Control, Armoured	14-30 mm		Inline	Flame retardant two-part
LVI-3/4-IC	POA	Instrumentation/Control, Armoured	28-47 mm		Inline	Flame retardant two-part
LVI-3/5-IC	POA	Instrumentation/Control, Armoured	35-60 mm		Inline	Flame retardant two-part
LVI-3/2-C-TM*	POA	Termite/Control, Armoured	14-30 mm		Inline	Flame retardant two-part
LVI-3/3-C-TM*	POA	Termite/Control, Armoured	23-35 mm		Inline	Flame retardant two-part
92-NBB1-U	POA	Non-armoured	11-23 mm	11-23 mm	Branch (Y Config)	Express two-part
92-NBB2-U	POA	Non-armoured	16-33 mm	16-33 mm	Branch (Y Config)	Express two-part

* Connectors (crimp) included.

Selection Table

Inline joint kits for armoured cable in hazardous areas

Cable Cross Section (mm²)	1 Core (1 kV)	2 Cores (1 kV)	3 Cores (1 kV)	4 Cores (1 kV)	3 Cores (3.3 kV)	4 Cores (3.3 kV)
1.5	N/A	LVI-3/2-C*	LVI-3/2-C*	LVI-3/2-C*	-	
2.5	N/A	LVI-3/2-C*	LVI-3/2-C*	LVI-3/2-C*	-	
4	N/A	LVI-3/2-C*	LVI-3/2-C*	LVI-3/2-C*	-	
6	N/A	LVI-3/2-C*	LVI-3/2-C*	LVI-3/2-C*	-	
10	N/A	LVI-3/3-C*	LVI-3/3-C*	LVI-3/3-C*	-	
16	N/A	LVI-3/3-C*	LVI-3/3-C*	LVI-3/3-C*	-	LVI-3/4
25	N/A	LVI-3/3-C*	LVI-3/4	LVI-3/4	-	LVI-3/4
35	N/A	LVI-3/4	LVI-3/4	LVI-3/4	-	LVI-3/4
50	LVI-3/2-C*	LVI-3/4	LVI-3/4	LVI-3/5	LVI-3/3-C*	LVI-3/5
70	LVI-3/3-C*	LVI-3/4	LVI-3/5	LVI-3/5	LVI-3/3-C*	LVI-3/5
95	LVI-3/3-C*	LVI-3/5	LVI-3/5	LVI-3/6	LVI-3/3-C*	LVI-3/6
120	LVI-3/4	LVI-3/5	LVI-3/6	LVI-3/6	LVI-3/4	LVI-3/6
150	LVI-3/4	LVI-3/6	LVI-3/7	LVI-3/7	LVI-3/4	LVI-3/6
185	LVI-3/4	LVI-3/6	LVI-3/7	LVI-3/7	LVI-3/4	LVI-3/7
240	LVI-3/5	LVI-3/7	LVI-3/7	LVI-3/8	LVI-3/5	LVI-3/7
300	LVI-3/5	LVI-3/7	LVI-3/7	LVI-3/8	LVI-3/5	LVI-3/8
400	LVI-3/5	LVI-3/7	LVI-3/8	LVI-3/8	LVI-3/5	LVI-3/8
500	LVI-3/5	-			LVI-3/5	
630	LVI-3/6	-			LVI-3/6	
800	LVI-3/6	-			LVI-3/6	
1000	LVI-3/7	-			LVI-3/7	

* Connectors included.



3M™ Scotchcast™ Inline Resin Power Cable Splice Kits 82-AN Series

3M™ 82-AN Series Inline Resin Power Cable Splice Kit is designed to insulate and seal 5kV-rated unshielded, single conductor cables and 1 kV-rated multiple conductor cables. It is suitable for use in weather-exposed or direct-burial locations. Kit includes a mould body, pouring spouts, 23 electrical tape and No. 4N resin.

3M™ Scotchcast™ Electrical Resin 4N is a 2-part, insulating and encapsulating, epoxy-based, liquid resin that generates its own heat to cure. Compatible with solid/synthetic cable insulations and jackets, this resin makes an excellent insulator and sealer for cable splicing.

Agency Approvals: 

Applications

> Indoor, outdoor, underground and submerged.

Important:

> Use cable or connector diameter for final ordering criteria



Product	Order Code	Cable Size	Connector Diameter (maximum)	Connector Diameter (maximum)	Joint Configuration	Mould Body
82-A1N	3M772	Up to 30 mm ²	10 mm	16 mm	Inline	Standard two-part
82-A2N	3M773	35 - 80 mm ²	16 mm	25 mm	Inline	Standard two-part
82-A3N	3M774	95 - 200 mm ²	25 mm	40 mm	Inline	Standard two-part

3M™ Scotchcast™ Flexible Power Cable Kits 82-F Series

3M™ Scotchcast™ Flexible Power Cable Splicing Kits 82-F Series are flexible inline splices for use on non-shielded portable power cables and cords. These splices are designed to be used on single or multiple conductor cables, depending on the voltage rating.

Applications

> For use in weather-exposed, direct burial or submerged location



Product	Order Code	Cable O.D. Range (mm)	Number of Conductors	Connection Max O.D. (mm)	Voltage Rating (Max. Volts)	Conductor Size Range (mm ²)
82-F1	3M791	6.4 - 20.3	1	15.7 (Connector)	5000	16 - 50 mm ²
			Multi	22.8 (Connector Bundle O.D.)	1000 (600/2000)*	**
82-F2	POA	20.4 - 30.4	1	20.8 (Connector)	5000	70 - 120 mm ²
			Multi	33 (Connector Bundle O.D.)	1000 (600/2000)*	**

*Mine Portable Cable Rating of 600/2000 Volts. **Base multi-conductor selection on cable O.D. range.

3M™ Scotchcast™ Flexible Cable Jointing and Repair Systems

3M™ Scotchcast™ Flexible Cable Jointing and Repair Systems are flexible cold pour resin systems for the permanent jointing and repair of single and multi-core flexible power cables. The flexible Scotchcast resin bonds securely to the cable sheath, providing a permanent joint or repair with water tight seal. 3M™ Scotchcast™ Flame-Retardant Electrical Insulating Resin 2131 is suitable for use with these Kits.

Applications

> Can be used to joint or repair frequently coiled power cables



Product	Order Code	Min Cable Size (Dia) (mm)	Max Cable Size (Dia) (mm)	Max Length of Joint/Repair (mm)	Mould Length (mm)	Quantity of Resin needed for Joint - supplied separately
M20	POA	41	63	330-381	508	1200g (2 x Size C packs)
M30	POA	47	102	508	737	2220g (3 x Size C and 2 x Size B Packs)
M40	POA	47	152	813	1118	3600g (6 x Size C Packs)

3M™ Scotchcast™ Electrical Insulating Resin 1402FR

3M Scotchcast™ Hazardous Area Electrical Insulating Resin 1402FR is a halogen free, flame retardant, two component polyurethane resin. The resin is designed with flame retardant and chemical resistant properties for electrical insulation and mechanical protection of electrical cable joints.



Applications

- > Electrical insulation and mechanical protection of low and medium voltage electrical joints installed for indoor and outdoor, underground and submerged applications in conditions where flame retardancy and/or resistance to chemicals such as hydrocarbons is required.

Product	Order Code	Size	Viscosity at 23°C (mixed)	Cured Properties			Dielectric Strength
				Hardness Shore D	Tensile Strength	Elongation at Break	
1402FR	POA	C 370mL	2500 mPas	75	25 MPa	2%	>20 kV/mm

3M™ Scotchcast™ Encapsulating and Blocking Compound 4407

3M Scotchcast Encapsulating and Blocking Compound 4407 is a hard encapsulant designed specifically for permanent splice protection and cable blocking applications using telecommunications cables.



Applications

- > Telecommunication applications requiring a hard, non-re-enterable compound with good handling and performance characteristics.

Product	Order Code	Size	Viscosity at 23°C (mixed)	Cured Properties		
				Hardness Shore A	Tensile Strength	Elongation at Break
4407 Size A	3M783	89 mL	1200 mPas	70	3.45 MPa	150%
4407 Size B	3M784	197 mL	1200 mPas	70	3.45 MPa	150%
4407 Size C	POA	396 mL	1200 mPas	70	3.45 MPa	150%
4407 Size E	POA	637 mL	1200 mPas	70	3.45 MPa	150%

3M™ Scotchcast™ Electrical Insulating Resin 40

3M Scotchcast Premium Electrical Insulating Resin 40 is a high quality two part polyurethane room temperature curing (low exotherm) resin designed for electrical insulation and mechanical protection. Once hardening is complete, the resin provides impact resistance and durability against moisture and atmospheric corrosion. It features a Closed Mix and Pour (CMP) Delivery System designed to improve user safety and minimize wastage from spills (note - 40 size C without nozzle does not use a Closed Mix and Pour system). Pot life at 23°C is 20 minutes.



Applications

- > Mechanical protection and electrical insulation of low voltage electrical joints installed for indoor and outdoor, underground and submerged applications.

Product	Order Code	Size	Viscosity at 23°C (mixed)	Cured Properties			
				Hardness Shore D	Tensile Strength	Elongation at Break	Dielectric Strength
40 Size A	3M777	A 90 mL (104 g)	900 mPas	56	17 MPa	87%	36 kV/mm
40 Size B	3M778	B 200 mL (230 g)	900 mPas	56	17 MPa	87%	36 kV/mm
40 Size C	3M779	C 370 mL (426 g)	900 mPas	56	17 MPa	87%	36 kV/mm
40 Size C no nozzle*	POA	C 370 mL (426 g)	900 mPas	56	17 MPa	87%	36 kV/mm

*No nozzle format is recommended for resin pressure method (RPM) applications.

3M™ Scotchcast™ Easy Dispenser 250

3M™ Scotchcast™ Easy Dispenser 250 is an easy to use dispenser of electrical re-enterable resin for electrical installers. The 3M™ Scotchcast™ Easy Dispenser 250 contains 3M™ Scotchcast™ 8882 resin. This is a soft, two-part polybutadiene electrical resin encapsulant, designed for re-enterable splice protection. 3M™ Scotchcast™ 8882 resin is formulated for virtually every electrical application requiring a reliable, soft, re-enterable resin with good handling and performance characteristics. Scotchcast™ 8882 has excellent wetting properties and low viscosity. The resin flows well at low temperatures, filling the closure and minimizing air voids.

Applications

- > Electrical insulation and moisture sealing of multicore low voltage cables up to 0.6/1 (1.2)kV in junction boxes where a re-enterable system is required.



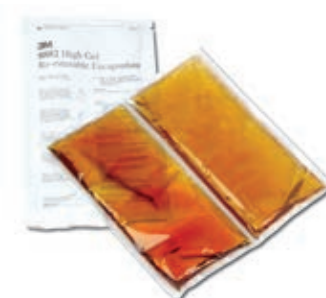
Product	Order Code	Size	Operating Temperature	Emergency Operating Temperature	Dielectric Strength
Easy 250	3M795	250 ml	90°C continuous	Up to 130°C	22 kV/mm

3M™ High Gel Re-enterable Encapsulant 8882

3M High Gel Re-enterable Encapsulant 8882 is a two-part non-urethane encapsulating compound. The encapsulant aggressively adheres to filled cable and is compatible with common plastics used in telephone splice connectors. The encapsulant permits easy cable splice re-entry for future changes and maintenance.

Applications

- > Encapsulating, sealing, potting and shock damping



Product	Order Code	Size	Operating Temperature	Emergency Operating Temperature	Dielectric Strength
8882-Size A	POA	90 ml	90°C continuous	Up to 130°C	Meets IP68, and IEC60529 requirements
8882-Size E	POA	292 ml	90°C continuous	Up to 130°C	Meets IP68, and IEC60529 requirements
8882-Size C	3M787	385 ml	90°C continuous	Up to 130°C	Meets IP68, and IEC60529 requirements
8882-Size D	POA	659 ml	90°C continuous	Up to 130°C	Meets IP68, and IEC60529 requirements

3M™ Scotchcast™ Re-enterable Resin 48FR

3M Scotchcast Re-enterable Polyurethane Resin 48FR can be used on either temporary or permanent cable joints. It is designed for easy removal, enabling further work or the recovery of parts, and can be removed with a simple plastic knife - no other tools, heat or solvents are required. It was developed to satisfy the requirements of the coal mining industry, where re-entry into joints and couplers is necessary. Flame retardant and semi-flexible. Gel time 15 minutes.

Applications

- > To provide secondary insulation and moisture sealing in joints and couplers where re-entry into that joint or coupler may be necessary.

Product	Order Code	Size	Viscosity at 23°C (mixed)	Cured Properties			
				Hardness Shore A	Tensile Strength	Elongation	Dielectric Strength
48FR	POA	4 L	1500 mPas	12	0.24 MPa	120%	>5 kV/mm
48FR	POA	2 L	1500 mPas	12	0.24 MPa	120%	>5 kV/mm

3M™ Scotchcast™ Flame-Retardant Electrical Resin 2131

3M™ Scotchcast™ Flame-Retardant Electrical Insulating resin 2131 is a two-part polyurethane resin designed to replace the cable jacket when splicing or repairing mine and portable cables. It can withstand the rugged conditions under which mine and portable cables operate.

Applications

- > Replace or repair the jacket on both single and multi-core power cables
- > Insulate between conductors of splices operating at up to 1000 volts
- > Potting cable or wire encasements, splices, printed circuit boards and junction boxes



Product	Order Code	Pack Description	Weight	Volume (cm ³)	Flame Retardant	Voltage	Maximum Operating Temperature
2131B	POA	2-part pouch	213 g	175	Yes	Up to 1000 v	90°C continuous. 130°C emergency.
2131C	3M792	2-part pouch	612 g	502	Yes	Up to 1000 v	90°C continuous. 130°C emergency.



Heat Shrink

Section 05.

0800 GET OHUG

Section 05

Heat Shrink

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2:1



MIL

GSHS-1635F

Flexible Polyolefin Tubing

Special Features

- > It has excellent flame retardance, flexibility, and insulation.

Application

- > Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- > Light-duty harnessing, jacketing, bundling, and color coding of electric wires.

Key Specifications

- > Operating temperature range : -55°C ~ 135°C
- > Flammability : UL VW-1, -F- mark (except clear products)
- > Minimum shrink temperature : 90°C
- > Shrink ratio : 50% or more in radial direction

Standards:

UL 224 (File No. E84393 : VW-1, 600V, 125°C, except clear products)

AMS-DTL/5 : 600V, 135°C, Class 1 or Class 3, Class 2 (clear products only)



Properties		Values		Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/mm ²	ASTM D 638 MIL 23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/mm ²	ASTM D 638 MIL 23053 175°C/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250°Cx4hrs	MIL 23053
	Low temperature flexibility		No crack @ -55°Cx4hrs	MIL 23053
Electrical	Secant modulus		Max. 173MPa	ASTM D 882
	Dielectric strength		Min. 19.7kV/mm	ASTM D 2671
	Volume resistivity		Min. 1x10 ¹⁴ Ω - cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/mm ²	MIL 23053 124°C/24hrs
		Dielectric strength	Min. 15.8kV/mm	
	Copper corrosion		No corrosion	MIL 23053 175°C/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colours



Black



White



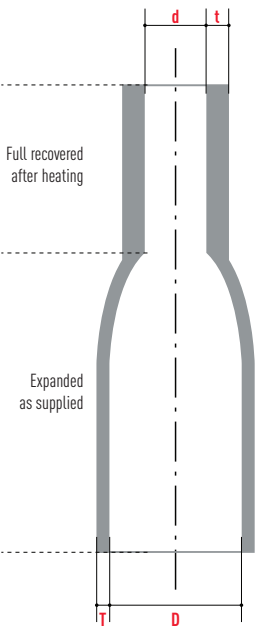
Red



Blue



Clear



Dimension

> Size range: 1 ~ 60 mm.

Product Code	Inside Diameter (mm)		Wall Thickness (mm)		Standard Length (m)
	as supplied D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
GSHS-1635F 1.2	1.2	0.58	0.20	0.33	1.2
GSHS-1635F 1.6	1.6	0.79	0.20	0.36	1.2
GSHS-1635F 2.4	2.4	1.17	0.25	0.43	1.2
GSHS-1635F 3.2	3.2	1.57	0.25	0.43	1.2
GSHS-1635F 4.8	4.8	2.36	0.25	0.43	1.2
GSHS-1635F 6.4	6.4	3.18	0.30	0.56	1.2
GSHS-1635F 9.6	9.6	4.75	0.30	0.56	1.2
GSHS-1635F 12.7	12.7	6.35	0.30	0.56	1.2
GSHS-1635F 19.1	19.1	9.53	0.35	0.69	1.2
GSHS-1635F 25	25.4	12.70	0.40	0.76	1.2
GSHS-1635F 38	38.1	19.00	0.43	0.86	1.2
GSHS-1635F 50	50.8	25.40	0.50	0.97	1.2
GSHS-1635F 76.2	76.2	38.10	0.60	1.17	1.2
GSHS-1635F 101.6	101.6	50.80	0.70	1.17	1.2
GSHS-1635F 127	127	63.50	0.70	1.17	1.2

Rolls available on request.

2:1



MIL

GSHS-1635F Green/Yellow

Flexible Polyolefin Tubing

Special Features

- > It is specially color-coded: yellow with green stripes.
- > It has excellent flame retardance, flexibility, and insulation.

Application

- > Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- > Light-duty harnessing, jacketing, bundling, and color coding of electric wires especially where the international electrical ground designation is intended.

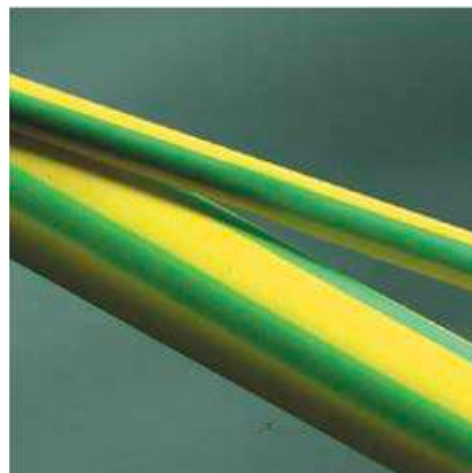
Key Specifications

- > Operating temperature range : -55°C ~ 135°C
- > Flammability : UL VW-1, -F- mark (except clear products)
- > Minimum shrink temperature : 90°C
- > Shrink ratio : 50% or more in radial direction

Standards:

UL 224 (File No. E84393 : VW-1, 600V, 125°C)

UL Approved product name : GSHS- 1635F AMS-DTL/5 : 600V, 135°C, Class 1 or Class 3

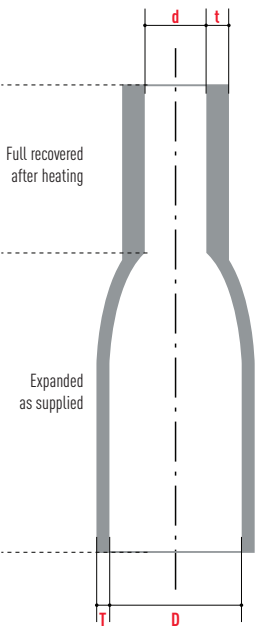


Properties		Values		Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/mm ²	ASTM D 638 MIL 23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/mm ²	ASTM D 638 MIL 23053 175°C/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250°Cx4hrs	MIL 23053
	Low temperature flexibility		No crack @ -55°Cx4hrs	MIL 23053
Electrical	Secant modulus		Max. 173MPa	ASTM D 882
	Dielectric strength		Min. 19.7kV/mm	ASTM D 2671
	Volume resistivity		Min. 1x10 ¹⁴ Ω - cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/mm ²	MIL 23053 24°C/24hrs
		Dielectric strength	Min. 15.8kV/mm	
	Copper corrosion		No corrosion	MIL 23053 75°C/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	UL 224
	Fungus resistance		Pass	ASTM G 21

Available Colour



Green/Yellow



Dimension

> Size range: 1 ~ 60 mm.

Product Code	Inside Diameter (mm)		Wall Thickness (mm)		Standard Length (m)
	as supplied D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
GSHS-1635F 1.2	1.2	0.58	0.20	0.33	1.2
GSHS-1635F 1.6	1.6	0.79	0.20	0.36	1.2
GSHS-1635F 2.4	2.4	1.17	0.25	0.43	1.2
GSHS-1635F 3.2	3.2	1.57	0.25	0.43	1.2
GSHS-1635F 4.8	4.8	2.36	0.25	0.43	1.2
GSHS-1635F 6.4	6.4	3.18	0.30	0.56	1.2
GSHS-1635F 9.6	9.6	4.75	0.30	0.56	1.2
GSHS-1635F 12.7	12.7	6.35	0.30	0.56	1.2
GSHS-1635F 19.1	19.1	9.53	0.35	0.69	1.2
GSHS-1635F 25	25.4	12.70	0.40	0.76	1.2
GSHS-1635F 38	38.1	19.00	0.43	0.86	1.2
GSHS-1635F 50	50.8	25.40	0.50	0.97	1.2
GSHS-1635F 76.2	76.2	38.10	0.60	1.17	1.2
GSHS-1635F 101.6	101.6	50.80	0.70	1.17	1.2

Rolls available on request.

3:1



MIL

GSHS-3635W

Flexible Dual-wall Polyolefin Tubing

Special Features

- > Narrow size range that covers a wide range of diameters, allowing reduced inventory.
- > It can accommodate irregular or jagged shapes.
- > It has excellent flame retardance, flexibility, and insulation.

Application

- > Suitable for various electric insulation, strain relief, and bonding of cables and connectors and widely applied for interconnection or termination.
- > Light-duty harnessing, jacketing, bundling, and color coding of electric wires.
- > Upon application of heat over 110oC, Adhesive line meltable.

Key Specifications

- > Operating temperature range : -55°C ~ 135°C (Crosslinked outer wall)
- > Flammability : UL VW-1, CSA OFT (Outside layer only, except clear products)
- > Minimum shrink temperature : 120°C
- > Shrink ratio : 67% or more in radial direction

Standards:

UL 224 (File No. E153276 : 600V, 125oC, except clear products) AMS-DTL/4 Class 3



Properties		Values		Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/mm ²	ASTM D 638 MIL 23053
		Elongation	Min. 200%	
	Aged	Tensile strength	Min. 0.8kgf/mm ²	ASTM D 638 UL224 158°C/168hrs
		Elongation	Min. 100%	
	Heat shock		Pass @250°Cx4hrs	MIL 23053
	Low temperature flexibility		No crack @ -55°Cx4hrs	MIL 23053
Electrical	Secant modulus		Max. 173MPa	ASTM D 882
	Dielectric strength		Min. 19.7kV/mm	ASTM D 2671
	Volume resistivity		Min. 1x10 ¹⁴ Ω-cm	ASTM D 876
Chemical	Fluid resistance	Tensile strength	Min. 0.7kgf/mm ²	MIL 23053 24°C/24hrs
		Dielectric strength	Min. 15.8kV/mm	
	Copper corrosion		No corrosion	MIL 23053 175°C/16hrs
	Copper mirror corrosion		No corrosion	
	Flammability		Pass	ASTM D 2671 Procedure B
	Fungus resistance		Pass	ASTM G 21

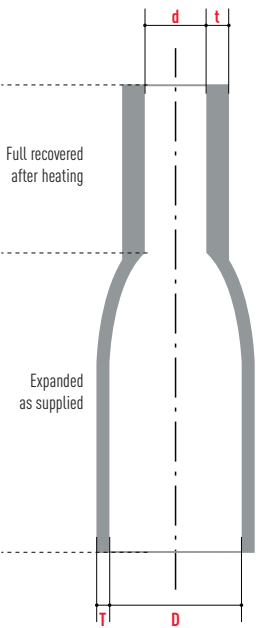
Available Colours



Black



Red (POA)



Dimension

> Size range : 3 ~ 38 mm (1/8 ~ 1.5 inch).

Product Code	Inside Diameter (mm)		Wall Thickness (mm)			Standard Length (m)
	as supplied D	after recovery Max. d	as supplied Nom. T	After Recovery		
				Total Min. t1	Total Min. t2	
GSHS-3635W 3.2	3.2	1.0	0.53	1.00	0.40	1.2
GSHS-3635W 4.8	4.8	1.6	0.48	1.00	0.50	1.2
GSHS-3635W 6.4	6.4	2.1	0.45	1.00	0.59	1.2
GSHS-3635W 9.6	9.6	3.2	0.50	1.20	0.65	1.2
GSHS-3635W 12.7	12.7	4.2	0.50	1.35	0.79	1.2
GSHS-3635W 19.1	19.1	6.4	0.77	2.00	1.09	1.2
GSHS-3635W 25	25.4	8.4	0.70	2.00	0.93	1.2
GSHS-3635W 38	38.1	12.7	0.76	2.00	1.20	1.2

LS-CATV

Adhesive-lined, Flexible, Heavy-wall Polyolefin Tubing

Special Features

- > Its fast and simple installation allows a clean and easy re-entry of the connector.
- > Its high-performance adhesive provides an absolute waterproof encapsulation.
- > It has excellent flexibility and insulation.

Application

- > Excellent cable protection, which fits cable TV network industry.

Key Specifications

- > Operating temperature range : -55°C ~ 135°C
- > Minimum shrink temperature : 120°C
- > Shrink ratio : 67% or more in radial direction

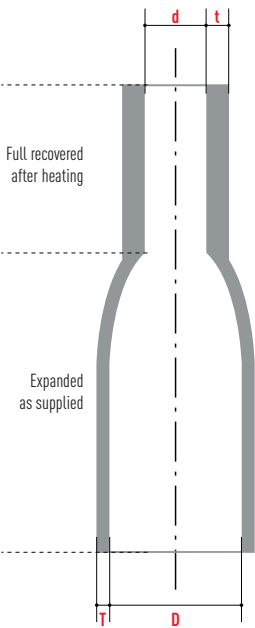


Properties		Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/mm ²
		Elongation	Min. 300%
	Aged	Tensile strength	Min. 0.8kgf/mm ²
		Elongation	Min. 200%
	Heat shock	No crack @225°Cx4hrs	ASTM D 2671
	Adhesive peel strength to	Polyethylene	110N/25mm
		Aluminum	80N/25mm
	Low temperature flexibility	No crack @ -55°Cx4hrs	ASTM D 2671
	Dielectric strength	Min. 13.8kV/mm	ASTM D 149
	Volume resistivity	Min. 1x10 ¹⁴ Ω - cm	ASTM D 257
Chemical	Water absorption	Max. 0.1%	ASTM D 570 23°C/24hrs
	Water penetration	No penetration	50°Cx14days

Available Colour



Black



Dimension

> Size range : 10 ~ 70 mm.

Product Code	Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
	as supplied D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
CATV 10/3	10.0	3.0	0.70	1.50	1.2
POA	19.0	6.0	0.60	1.50	1.2
POA	27.0	9.0	1.10	2.70	1.2
CATV 33/9	33.0	9.0	1.00	2.70	1.2
POA	38.0	13.0	1.20	3.00	1.2
POA	43.0	13.0	1.10	3.00	1.2
POA	51.0	18.0	1.20	3.00	1.2
POA	70.0	25.0	1.60	3.90	1.2

3:1



MIL

LS-PHWT-FR

Flame-retardant Adhesive-lined Heavy-wall Polyolefin Tubing

Special Features

- > Its high performance adhesive provides an absolute waterproof encapsulation.
- > It provides excellent mechanical protection and insulation.

Application

- > Designed for the insulation and encapsulation of wire splicing, electrical connections, jacket repair, and terminations.
- > Suitable for submergible or direct buried installation.

Key Specifications

- > Operating temperature range : -55°C ~ 135°C
- > Flammability : VTFT (IEEE 383)
- > Minimum shrink temperature : 120°C
- > Shrink ratio : 67% or more in radial direction

Standards:

AMS-DTL/15 (up to size 51)

ABS Certificate No. 06-BK 155018

UL 224 (File No. : E84393 600V, 125°C, except clear products)

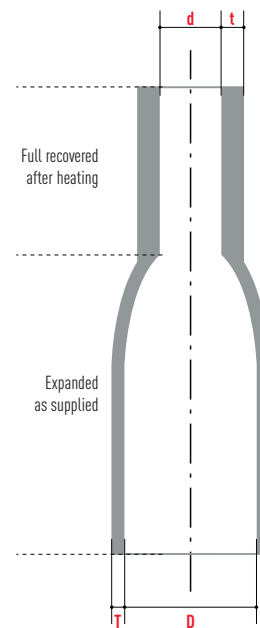


Properties		Values		Test Methods
Physical	Unaged	Tensile strength	Min. 1.06kgf/mm ²	ASTM D 412
		Elongation	Min. 350%	ASTM D 2671
	Aged	Tensile strength	Min. 1.2kgf/mm ²	ASTM D 412
		Elongation	Min. 300%	ASTM D 2671
	Heat shock	No crack @225°Cx4hrs		150°C/168hrs
	Thermal endurance	TI/120mm		ASTM D 2671
Electrical	Low temperature flexibility	No crack @ -55°Cx4hrs		IEC 60216
	Dielectric strength	Min. 14kV/mm		ASTM D 149
	Volume resistivity	Min. 1x10 ¹⁴ Ω - cm		IEC 60093
Chemical	Flammability	Pass		IEEE 383
	Water absorption	Max. 0.1% @23°Cx14days		ASTM D 570
	Fungus resistance	Pass		ASTM G 21
	Retention of tensile strength	24hrs in ASTM No. 2 oil		UL 224
		Min, 75%		ASTM D 412
	Fluid resistance	24hrs in ASTM No. 2 oil		UL 224
		Retention of elongation		ASTM D 412

Available Colour



Black



Dimension

> Size range : 9 ~ 130 mm.

Product Code	Standard Size	Expanded (mm)	Recovered (mm)			Standard Length (m)
		ID after recovery Max. D	ID Nom. d	WT Nom.. T1 Nom. T2		
PHWT-FR9/3	9	9.0	2.2	2.20	1.80	1.2
PHWT-FR13/4	13	13.0	2.4	3.20	2.40	1.2
PHWT-FR20/6	20	20.0	3.8	3.50	2.40	1.2
PHWT-FR33/8	33	33.0	5.6	4.60	3.40	1.2
PHWT-FR43/12	43	43.0	10.0	4.90	3.70	1.2
PHWT-FR51/16	51	51.0	13.2	5.50	4.10	1.2
PHWT-FR70/21	70	70.0	18.2	5.50	4.10	1.2
PHWT-FR90/30	90	90.0	27.2	5.50	4.10	1.2
PHWT-FR105/30	105	100.0	27.2	6.00	4.60	1.2
PHWT-FR130/36	130	130.0	31.7	5.80	4.40	1.2
OHHW 160/50	160	160	50	5.0	4.3	1.2
MPS 20 185/50	185	185	50	5.0	4.4	1.5

3:1



MIL

LS-PMWT-FR

Flame-retardant Adhesive-lined Medium-wall Polyolefin Tubing

Special Features

- > Its high performance adhesive provides an absolute waterproof encapsulation.
- > It provides excellent mechanical protection and insulation.

Application

- > Designed for the insulation and encapsulation of wire splicing, electrical connections, jacket repair, and terminations.
- > Suitable for submergible or direct buried installation.

Key Specifications

- > Operating temperature range : -55°C ~ 135°C
- > Flammability : VTFT (IEEE 383)
- > Minimum shrink temperature : 120°C
- > Shrink ratio : 67% or more in radial direction

Standards:

ABS Certificate NO. 06-BK 155018

AS23053/15 (up to size 51)

UL 224(File No. : E84393 600V, 125°C, except clear products)

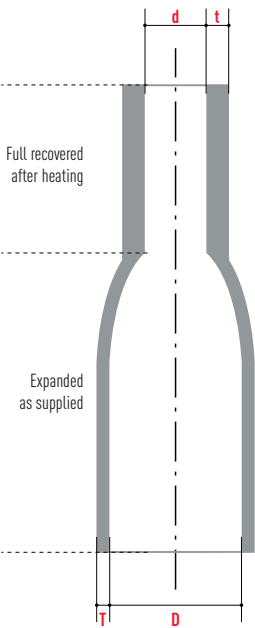


Properties		Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.1kgf/mm ²
		Elongation	Min. 350%
	Aged	Tensile strength	Min. 1.2kgf/mm ²
		Elongation	Min. 300%
	Heat shock	No crack @225°Cx4hrs	ASTM D 2671
	Thermal endurance	TI/120mm	IEC 60216
Electrical	Dielectric strength	Min. 14kV/mm	ASTM D 149
	Volume resistivity	Min. 1x10 ¹³ Ω - cm	IEC 60093
	Flammability	Pass	IEEE 383
Chemical	Water absorption	Max. 0.1% @23°Cx14days	ASTM D 570
	Fungus resistance	Pass	ASTM G 21
	Fluid resistance	Retention of tensile strength	24hrs in ASTM No. 2 oil
		Retention of elongation	24hrs in ASTM No. 2 oil

Available Colour



Black



Dimension

> Size range : 10 ~ 160 mm.

Product Code	Standard Size	Expanded (mm)	Recovered (mm)			Standard Length (m)
		ID after recovery Max. D	ID Nom. d	WT Nom. T1 Nom. T2		
POA	7	7.0	1.5	1.50	1.00	1.2
POA	10	10.0	2.0	1.50	1.00	1.2
POA	16	16.0	3.0	2.80	1.80	1.2
POA	18	18.0	3.3	2.80	1.80	1.2
POA	25	25.0	5.6	3.50	2.30	1.2
POA	27	27.0	5.6	3.50	2.30	1.2
POA	30	30.0	7.6	3.50	2.30	1.2
POA	35	35.0	9.6	3.50	2.30	1.2
POA	40	40.0	10.8	3.50	2.40	1.2
POA	45	45.0	9.6	4.90	3.70	1.2
POA	50	50.0	13.2	4.00	2.60	1.2
POA	63	63.0	18.2	4.70	3.30	1.2
POA	70	70.0	18.2	4.70	3.30	1.2
POA	75	75.0	21.7	4.70	3.30	1.2
POA	85	85.0	21.7	4.70	3.30	1.2
POA	90	90.0	22.0	4.80	3.30	1.2
POA	95	95.0	28.0	4.80	3.30	1.2
POA	100	100.0	30.0	4.80	3.30	1.2
PMWT-FR 115/34	115	115.0	33.0	4.80	3.30	1.2
POA	140	140.0	36.1	4.95	3.65	1.2
POA	160	160.0	45.8	4.60	3.50	1.2

Heatshrink

Wrap Around Zip Sleeves 1500mm Long

Order Code	Description	Pack	Qty
OHWS 55/8	1500mm Wrap Around Zip / Repair Sleeve 55mm	Each	1
OHWS 76/18	1500mm Wrap Around Zip / Repair Sleeve 76mm	Each	1
OHWS 105/28	1500mm Wrap Around Zip / Repair Sleeve 105mm	Each	1
OHWS 140/35	1500mm Wrap Around Zip / Repair Sleeve 140mm	Each	1
OHWS 190/46	1500mm Wrap Around Zip / Repair Sleeve 190mm	Each	1
OHWS 240/50	1500mm Wrap Around Zip / Repair Sleeve 240mm	Each	1



Wrap Around Zip Sleeves 300mm Long

Order Code	Description	Pack	Qty
OHWS3 55/8	300mm Wrap Around Zip / Repair Sleeve 55mm	Each	1
OHWS3 76/18	300mm Wrap Around Zip / Repair Sleeve 76mm	Each	1
OHWS3 105/28	300mm Wrap Around Zip / Repair Sleeve 105mm	Each	1
OHWS3 140/35	300mm Wrap Around Zip / Repair Sleeve 140mm	Each	1
OHWS3 190/46	300mm Wrap Around Zip / Repair Sleeve 190mm	Each	1
OHWS3 240/50	300mm Wrap Around Zip / Repair Sleeve 240mm	Each	1

OHUG Thin Wall Kits

Order Code	Description	Pack	Qty
THIN WALL KIT 1	Kit of GSHS-1635F Thin Wall Heatshrink in 3.2mm, 4.8mm, & 6.4mm (150mm lengths), includes 2 lengths of each colour & size (Red, White, Blue, Black, Green/Yellow)	Each	1
THIN WALL KIT 2	Kit of GSHS-1635F Thin Wall Heatshrink in 9.6mm, 12.7mm, & 19.1mm (150mm lengths), includes 2 lengths of each colour & size (Red, White, Blue, Black, Green/Yellow)	Each	1



Low Voltage 1C Straight Joint

Order Code	Description	Pack	Qty
OHLV500SB	LV Single core 500mm to 500mm straight joint OD cable 36mm incl. shearbolt barrier link	Each	1
OHLVJ-1	1kV Inline Joint 1 Core XLPE Double Insulated PVC Sheathed Cable 10-50mm2 c/w shearbolts	Each	1
OHLVJ-2	1kV Inline Joint 1 Core XLPE Double Insulated PVC Sheathed Cable 35-95mm2 c/w shearbolts	Each	1

Low Voltage 3C Screened Straight Joints

Order Code	Description	Pack	Qty
OHLV3C120	LV 3 Core 120mm screened straight joint	Each	1
OHLV3C185	LV3 Core 240mm screened straight joint	Each	1
OHLV3C300	LV3 Core 300mm screened straight joint	Each	1

Low Voltage 4C Straight Joints

Order Code	Description	Pack	Qty
OHLV4C10-70	10-70mm 4 Core Heatshrink Straight Joint 1kV	Each	1
OHLV4C16-35	16-35mm 4 Core Heatshrink Straight Joint 1kV	Each	1
OHLV4C50-150	50-150mm 4 Core Heatshrink Straight Joint 1kV	Each	1
OHLV4C95-185	95-185mm 4 Core Heatshrink Straight Joint 1kV	Each	1
OHLV4C120-300	120-300mm 4 Core Heatshrink Straight Joint 1kV	Each	1

Low Voltage Armoured Joints

Order Code	Description	Pack	Qty
OHLVJA-3	2.5-16mm Inline heat shrink joint kit for 4-10 core PVC armoured cable	Each	1
OHLVJA-1	16-35mm inline heatshrink joint kit for 2, 3 & 4 Core PVC armoured cable 1kV	Each	1
OHLVJA-2	50-95mm inline heatshrink joint kit for 2, 3 & 4 Core PVC armoured cable 1kV	Each	1
OHLVJA-4	120-150mm Inline heatshrink Joint for 2, 3, 4 Core PVC Armoured Cables	Each	1
OHLVJINS-3	1kV Inline Joint 1 Core N/Screen XLPE Double Insulated PVC Sheathed Cable 10-50mm ² (includes shearbolts)	Each	1
OHLV4CA50-150	50-150mm 4 Core Heat Shrink Straight Joint 1kV Armoured (Steel Wire Armour)	Each	1
OHLVSWA4C70	LV 4 core inline joint XLPE SWA 70mm	Each	1

Copper Tape Kit

Order Code	Description	Pack	Qty
CUTAPE KIT 1	Copper tape kit for 25-95 11kV XLPE	Each	1
CUTAPE KIT 2	Copper tape kit for 95-185 11kV XLPE	Each	1

Heatshrink Bushing Boot Kits (11kV)

Order Code	Description	Pack	Qty
HSSB-2	11kV Inline Bushing Boots (Set of 3) 95-300mm	Each	1
HSAB-1	11kV Right Angle Bushing Boots (Set of 3) 16-35mm	Each	1
HSAB-1A	11kV Right Angle Bushing Boots (Set of 3) 35-70mm	Each	1
HSAB-2	11kV Right Angle Bushing Boots (Set of 3) 95-300mm	Each	1
HSAB-3	11kV Right Angle Bushing Boots (Set of 3) 300-500mm	Each	1

OHBOOT

Order Code	Description	Pack	Qty
OHBOOT	Medium Voltage Cold Applied Silicone Rubber Straight / Right Angled Bushing Boot 17.5kV 30-70mm bushing diameter 35-400mm (set of 3)	Each	1

Coldshrink 3M Inline Barrier Boots (11kV)

Order Code	Description	Pack	Qty
3M962	MB63 11kV Inline Barrier Boot (up to 630mm ²)	Each	1
3M964	MB65 11kV Inline Barrier Boot (up to 1000mm ²)	Each	1



2.5:1



LG-BBHV

High Voltage Bus Bar Insulation Tubing

Special Features

- > Non-halogenated Ethylene propylene rubber.
- > Fast and easy installation/removal.
- > It provides protection against flashover and accidentally induced discharge.
- > It has excellent resistance to corona attack and surface tracking.

Application

- > Tubing for both copper and aluminum bus bars with rectangular/circular cross section.

Standards:

Qualification report for BBHV



Properties		Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.02kgf/mm ²
		Elongation	Min. 300%
	Aged	Tensile strength	Min. 1.02kgf/mm ²
		Elongation	Min. 200%
	Heat shock	No crack @225°Cx4hrs	ASTM D 2671
	Thermal endurance	TI/105°C	IEC 60216
Electrical	Low temperature flexibility	No crack @ -40°Cx4hrs	ASTM D 2671
	Dielectric strength	Min. 18kV/mm	IEC 60243
	Volume resistivity	Min. 1x10 ¹⁴ Ω - cm	IEC 60093
	Tracking resistance	Class 1A2.5	IEC 60587
Chemical	Smoke Index	Min. 77	NES 711
	Toxicity Index(HCl)	Max. 2.95	NES 713
	Flammability	Pass	ANSI/IEEE C37.20

Available Colour



Brown



Dimension

> Size range : 15/06 ~ 150/60 mm.

Product Code	Application Range (Busbar,mm) Z(L+t)	D(mm) Inside Diameter		W(mm) Wall Thickness		Standard Spool Length (m)
		as supplied Min.	after recovery Max.	as supplied Nom.	after recovery Nom.	
POA	24~34	15	6	1.1	2.0	25
POA	34~44	25	10	0.9	1.9	25
POA	44~60	30	12	1.1	2.3	30
POA	60~80	40	16	1.1	2.5	30
POA	80~105	50	20	1.1	2.5	30
POA	90~120	60	25	1.1	2.5	30
POA	105~140	75	30	1.1	2.5	30
POA	140~180	100	40	1.1	2.5	30
POA	180~220	120	50	1.3	2.8	30
POA	220~270	150	60	1.1	2.8	30

2.5:1

LG-BBLV

Low Voltage Bus Bar Insulation Tubing

Special Features

- > Medium-wall tubing for the insulation up to 1kV.
- > It provides protection against flashover by an accidental bus bar bridging.
- > It has excellent heat emission.
- > It has excellent UV and weather resistance.
- > It has excellent flame retardance and insulation.
- > It has an outstanding shelf life at 50°C without any deterioration in performance.

Application

- > Suitable for both exposed and enclosed bus bars.
- > Suitable for connection among switchgears, motor control centers and other electrical equipment.
- > Suitable for outdoor use.

Standards:

Qualification report for BBLV

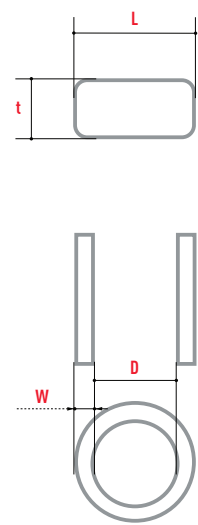


Properties		Values	Test Methods
Physical	Unaged	Tensile strength	Min. 1.2kgf/mm ²
		Elongation	Min. 350%
	Aged	Tensile strength	Min. 1.1kgf/mm ²
		Elongation	Min. 200%
	Heat shock	No crack @225°Cx4hrs	ASTM D 2671
	Thermal endurance	TI/105°C	IEC 60216
	Low temperature flexibility	No crack @ -40°Cx4hrs	ASTM D 2671
Electrical	Impact brittleness	Pass @ -40°C	ASTM D 746
	Dielectric strength	Min. 13kV/mm	IEC 60243
	Volume resistivity	Min. 1x10 ¹³ Ω - cm	IEC 60093
	Tracking resistance	No track	ASTM D 2671
Chemical	Water absorption	Max. 0.5%	ASTM D 570
	Copper corrosion	No corrosion	ASTM D 2671
	Toxicity Index(HCl)	Max. 10	NES 713
	Flammability	Pass	IEEE 27

Available Colour



Black



Dimension

> Size range : 15/06 ~ 175/70 mm.

Product Code	Application Range (Busbar,mm) 2(L+t)	D(mm) Inside Diameter		W(mm) Wall Thickness		Standard Spool Length (m)
		as supplied Min.	after recovery Max.	as supplied Nom.	after recovery Nom.	
POA	24~36	15	6	0.5	1.5	30
BBLV 30	42~76	30	12	0.5	1.5	30
BBLV 50	68~120	50	20	0.5	1.5	30
POA	100~172	75	30	0.5	1.5	30
POA	132~220	100	40	0.5	1.5	30
POA	164~244	120	50	0.5	1.5	30
POA	172~314	150	50	0.5	1.5	30

2:1



MIL

DRET Diesel-resistant, Flexible, Elastomeric Polyolefin Tubing

Special Features

- > It has excellent retardance to fluid and solvent: lubricating oil, ground vehicle fuel, or hydraulic fluid.
- > It has excellent flame retardance and insulation.

Application

- > Suitable for various insulation and strain relief.
- > Abrasion protection for cable harnessing and wire bundling for military industries.

Key Specifications

- > Operating temperature range : -75°C ~ 120°C
- > Flammability : ASTM D 2671 Procedure A, C
- > Minimum Shrink temperature : 135°C
- > Shrink ratio : 50% or more in radial direction

Standards:

AMS-DTL-23053/16

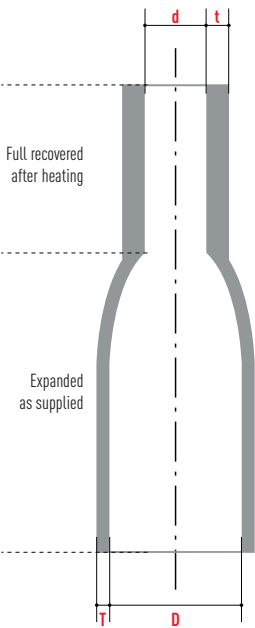


Properties		Values		Test Methods
Physical	Unaged	Tensile strength	Min. 1.20kgf/mm ²	ASTM D 412
		Elongation	Min. 250%	
	Aged	Tensile strength	Max. 1.06kgf/mm ²	ASTM D 412 150°C/168hrs
		Elongation	Max. 200%	
	Heat shock		Pass @200°Cx4hrs	MIL -I-23053
	Low temperature flexibility		No crack @ -65°Cx4hrs	MIL -I-23053
Electrical	Dielectric strength		Min. 11.9kV/mm	ASTM D 2671
	Volume resistivity		Min. 1x10 ¹⁰ Ω - cm	MIL -I-23053
	Restricted shrinkage		No crack @ 2000Vx1min.	AS23053
Chemical	Copper corrosion		No corrosion	121°C/16hrs
	Copper mirror corrosion		No corrosion	135°C/16hrs
	Fluid resistance	Tensile strength	Min. 1.06kgf/mm ²	50°Cx14days
		Elongation	Min. 200%	MIL -I-23053 23°C/24hrs
		Dielectric strength	Min. 7.9kV/mm	MIL -I-23053 23°C/24hrs
	Flammability (Procedure A)		Pass	ASTM D 2671
	Water absorption		Max. 2%	ASTM D 570
	Fungus resistance		Pass	ASTM G 21

Available Colour



Black



Dimension

> Size range : 3/32 ~ 2 inch.

Product Code	Inside Diameter (mm)		Wall Thickness (mm)		Standard Spool Length (m)
	as supplied D	after recovery Max. d	as supplied Nom. T	after recovery Min. t	
POA	2.4	1.20	0.45	0.70	200
POA	3.2	1.57	0.45	0.70	200
POA	4.8	2.36	0.45	0.75	100
POA	6.4	3.60	0.45	0.89	100
POA	9.6	5.40	0.50	1.01	31
POA	12.7	7.30	0.60	1.21	31
POA	15.9	9.10	0.65	1.32	31
POA	19.1	10.90	0.70	1.44	31
POA	25.4	14.50	0.85	1.77	25
POA	31.8	18.10	1.00	2.20	20
POA	38.1	21.80	1.10	2.41	20
POA	50.8	29.00	1.30	2.79	20

Cable End Cap

Application

Protecting the unused cable end from the environmental effects. Insulation on the unused end of electrical cable connected to supply. The caps are suitable for a full range of electrical cable PVC, XLPE, and rubber jackets. Heat shrinkable end caps whose dimension will shrink to a predetermined size upon the application of heat above 125°C.

Typical feature

- > Color : black
- > Coating type : Spiral form.

End Caps

Order Code	Description	Pack	Qty
LS CEC 1501 / IXL 100	Cable End Cap 4.5-15mm	Each	1
LS CEC 2509 / IXL 110	Cable End Cap 8.5-25mm	Each	1
LS CEC 4015 / IXL 120	Cable End Cap 14.5-40mm	Each	1
LS CEC 6324 / IXL 130	Cable End Cap 24-63mm	Each	1
LS CEC 7838 / IXL 140	Cable End Cap 38-78mm	Each	1
LS CEC 10057 / IXL 150	Cable End Cap 57-100mm	Each	1
LS CEC 12057 / IXL 160	Cable End Cap 57-120mm	Each	1
LS CEC 14557 / IXL 170	Cable End Cap 57-145mm	Each	1

End Caps - Extra Long

Order Code	Description	Pack	Qty
CEC 63/25	Cable End Cap (Extra Long) 25-63mm / 170mm	Each	1
CEC 75/35	Cable End Cap (Extra Long) 35-75mm / 180mm	Each	1
CEC 158/60	Cable End Cap (Extra Long) 60-158mm / 165mm	Each	1

End Caps - With Valves

Order Code	Description	Pack	Qty
IXL 121	Cable End Cap - With Valve 14.5-40mm	Each	1
IXL 131	Cable End Cap - With Valve 24-63mm	Each	1
IXL 141	Cable End Cap - With Valve 38-78mm	Each	1
IXL 145V	Cable End Cap - With Valve 45-106mm	Each	1



PVC End Caps

Order Code	Description	Pack	Qty
OHPVC10	PVC Cable End Cap 10mm	Each	1
OHPVC15	PVC Cable End Cap 15mm	Each	1
OHPVC20	PVC Cable End Cap 20mm	Each	1
OHPVC30	PVC Cable End Cap 30mm	Each	1
OHPVC40	PVC Cable End Cap 40mm	Each	1



Cable Breakout

Application

Insulation and sealing over the crutch of multi-core cables. The hot melt adhesive provides a water tight environmental seal to the cable. The LV breakouts are used as an integral part of cable terminations up to 1kV. Heat shrinkable low voltage breakouts whose dimension will shrink to a pre-determined size upon the application of heat above 125°C.

Typical feature

- > Color : black
- > Finger No. : 2~4.
- > Hot melt : poly-amide based hot melt adhesive.

2 CORE Breakout Boots

Order Code	Description	Pack	Qty
LS CB 23310 / IXL 250	2-Core Low Voltage (LV) Breakout Boot 4-35mm	Each	1
LS CB 26022 / IXL 260	2-Core Low Voltage (LV) Breakout Boot 35-150mm	Each	1



3 CORE Breakout Boots

Order Code	Description	Pack	Qty
LS CB 32808 / IXL300	3-Core Low Voltage (LV) Breakout Boot 1-10mm	Each	1
LS CB 33814 / IXL 350	3-Core Low Voltage (LV) Breakout Boot 4-35mm	Each	1
LS CB 36022 / IXL 360	3-Core Low Voltage (LV) Breakout Boot 50-150mm	Each	1
LS CB 38033 / IXL 370	3-Core Low Voltage (LV) Breakout Boot 185-300mm	Each	1
LS CB 311047 / IXL 380	3-Core Low Voltage (LV) Breakout Boot 300-400mm	Each	1
LS CB 312547 / IXL 390	3-Core Low Voltage (LV) Breakout Boot 400-630mm	Each	1



4 CORE Breakout Boots

Order Code	Description	Pack	Qty
LS CB 42808 / IXL400	4-Core Low Voltage (LV) Breakout Boot 1-10mm	Each	1
LS CB 43814 / IXL 415	4-Core Low Voltage (LV) Breakout Boot 4-35mm	Each	1
LS CB 46525 / IXL 420	4-Core Low Voltage (LV) Breakout Boot 35-70mm	Each	1
LS CB 47222 / IXL 430	4-Core Low Voltage (LV) Breakout Boot 70-150mm	Each	1
LS CB 410033 / IXL 440	4-Core Low Voltage (LV) Breakout Boot 185-300mm	Each	1
LS CB 412547 / IXL 450	4-Core Low Voltage (LV) Breakout Boot 300-500mm	Each	1



5 CORE Breakout Boots

Order Code	Description	Pack	Qty
LS CB IXL527	5-Core Low Voltage (LV) Breakout Boot 2.5-95mm	Each	1
LS CB IXL545	5-Core Low Voltage (LV) Breakout Boot 95-300mm	Each	1



Conductive Cable Breakout

Application

The conductive cable breakout used as an integral part of 3-core terminations up to 36kV and also 3-core cable joints up to 36kV

Typical feature

- > Color : black
- > Finger No. : 3.
- > Sealant : butyl rubber based mastic which is electrical insulating and water-proof.



Order Code	Description	Pack	Qty
IXL 310 CON	3-Core High Voltage (MV) CONDUCTIVE Breakout Boot 50/20	Each	1
IXL 320 CON	3-Core High Voltage (MV) CONDUCTIVE Breakout Boot 75/33	Each	1
IXL 330 CON	3-Core High Voltage (MV) CONDUCTIVE Breakout Boot 110/50	Each	1
IXL 340 CON	3-Core High Voltage (MV) CONDUCTIVE Breakout Boot 135/55	Each	1

Cable Breakout for Medium Voltage

Application

Heat shrink non-tracking medium voltage breakouts used for insulation and sealing over the crutch of multi-core cable up to 36kV

Typical feature

- > Color : brown
- > Finger No. : 3.
- > Sealant : butyl rubber based mastic which is electrical insulating and water-proof and anti-tracking



Order Code	Description	Pack	Qty
IXL 310	3-Core High Voltage (MV) Breakout Boot - Sealant In Turrets 50/20	Each	1
IXL 320	3-Core High Voltage (MV) Breakout Boot - Sealant In Turrets 75/33	Each	1
IXL 330	3-Core High Voltage (MV) Breakout Boot - Sealant In Turrets 110/50	Each	1
IXL 340	3-Core High Voltage (MV) Breakout Boot - Sealant In Turrets 135/55	Each	1

Section 06

Cold Shrink

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3M™ Cold Shrink Low Voltage Insulators & Kits

3M Cold Shrink Insulators offer a safe, easy to install method of insulating, sealing and protecting connectors, cable, hoses, fittings and conduit. They are well suited for in-field applications because they require no special tools or heat to install. The unique 3M cold shrink delivery system ensures consistent installation and long term reliability. With 3M cold shrink insulators and accessories you get a water resistant seal without heat, torches or adhesive; simply unwind the core to install. It's that simple.

Why move to 3M Cold Shrink Technology?

- > No flame required
- > Less chance of damaging cable material
- > No cooling time needed before energising
- > Constant radial pressure for optimised environmental performance
- > Easier to use in enclosed areas
- > No special site permits needed
- > Fast, straightforward installation



3M™ Cold Shrink Wireless Weatherproofing Kit CXS Series

3M™ Cold Shrink Sealing Kits CXS Series use a cold shrink EPDM rubber tube, in conjunction with a closed cell foam strip, to seal connections and terminations on coaxial cables with Type N or 7/16 DIN connectors. 3M Cold Shrink tubes form a reliable water-resistant seal as well as providing excellent protection in tough environments, including resistance to UV, acids, alkalis, fungus, ozone, abrasion and vibration. Due to no adhesive needed to create the seal, the cold shrink tubes can be easily removed as required for system maintenance, inspection and repair.



Kit Number	Order Number	Sealing Application Sizes for DIN or Type N Coax Cable Connectors
CXS-1	3M872	6.4 mm (1/4") – 22 mm (7/8") Cable to 6.4 mm (1/4") – 22 mm (7/8") Cable
CXS-2	3M871	6.4 mm (1/4") - 41 mm (1 5/8") Cable to 32 mm (1 1/4") – 41 mm (1 5/8") Cable 32 mm (1 1/4") – 41 mm (1 5/8") Cable to Antenna or Surge Arrestor
CXS-3	3M873	6.4 mm (1/4") – 57 mm (2 1/4") Cable to 32 mm (1 1/4") – 57 mm (2 1/4") Cable 32 mm (1 1/4") – 57 mm (2 1/4") Cable to Antenna or Surge Arrestor
CXS-4	3M874	6.4 mm (1/4") – 22 mm (7/8") Cable to Antenna or Surge Arrestor

3M™ Cold Shrink Connector Insulators 8420 and 8430 Series

3M Cold Shrink Connector Insulators 8420 and 8430 Series are designed using 3M's unique cold shrink delivery system. Products are supplied prestretched on a removable core for efficiency and ease of installation. Removal of the core (unwinding) after positioning the splice allows the product to shrink into position forming a moisture-tight seal. The live memory action of the specially formulated EPDM material promotes a permanent, durable environmental seal and insulation, with a typical operating temperature range from -40 to 90°C.



Applications

- > Primary electrical insulation for all solid dielectric (rubber and plastic) insulated wire and cable splicing rated to 1000 V. Good for repairs and environmental sealing for communication and other non-electrical applications

Important

- > Use cable insulation/jacket diameters and connector outer diameter for final sizing confirmation

Product Code	Order Code	Typical Cable Size	Minimum Cable Diameter for Seal	Maximum Diameter (Cable or Connector)	Maximum Connector Length	Relaxed Tube Length
8423-6	3M858	14 - 20 mm ²	7.80 mm	14.3 mm	51 mm	152 mm
8424-8**	3M850	6 - 50 mm ²	2.54 mm	20.9 mm	76 mm	203 mm
8425-8	3M851	35 - 50 mm ²	10.1 mm	20.9 mm	76 mm	203 mm
8426-9	3M856	70 - 120 mm ²	13.9 mm	30.1 mm	127 mm	229 mm
8426-11	3M852	70 - 120 mm ²	13.9 mm	30.1 mm	178 mm	279 mm
8427-6*	3M859	-	16.8 mm	35.1 mm	51 mm	152 mm
8427-12	3M861	150 - 200 mm ²	16.8 mm	35.1 mm	203 mm	305 mm
8427-16	3M853	150 - 200 mm ²	16.8 mm	35.1 mm	305 mm	406 mm
8428-6*	3M862	-	24.0 mm	49.3 mm	51 mm	152 mm
8428-8	3M863	240 - 400 mm ²	24.0 mm	49.3 mm	76 mm	203 mm
8428-12	3M864	240 - 400 mm ²	24.0 mm	49.3 mm	203 mm	305 mm
8428-18	3M854	240 - 400 mm ²	24.0 mm	49.3 mm	356 mm	457 mm
8429-6*	3M865	-	32.2 mm	67.8 mm	51 mm	152 mm
8429-9*	3M866	500 mm ²	32.2 mm	67.8 mm	127 mm	229 mm
8429-12	3M857	500 mm ²	32.2 mm	67.8 mm	203 mm	305 mm
8429-15	3M867	500 mm ²	32.2 mm	67.8 mm	280 mm	381 mm
8429-18	3M855	500 mm ²	32.2 mm	67.8 mm	356 mm	457 mm
8430-9*	3M868	630 - 1000 mm ²	42.6 mm	93.7 mm	127 mm	229 mm
8430-18	3M869	630 - 1000 mm ²	42.6 mm	93.7 mm	356 mm	457 mm

*These sizes are not designed to be used as primary insulation. These shorter length tubes are for conduit sealing and breakouts. **8424-8 contains range-extending adapters (without adapters, 8424-8 and 8425-8 products are identical). Note: Insulation, connector and/or jacket can be overwrapped with Scotch® Rubber Mastic Tape 2228 to build up diameter if required.

For 8420 and 8430 Series Cold Shrink Tubes continuously exposed to high levels of UV radiation, 3M recommends overwrapping with Scotch® Super 33+ Vinyl Electrical Tape or Scotch® Self Fusing Silicone Rubber Tape 70. Other sizes of cold shrink tubes are available on request.

3M™ Low Voltage Inline Joint Kits 5732-5735 Series

These kits are suitable for indoor and outdoor installations, including direct burial, aerial and submersible applications. For use with three core armoured cable up to 1000 V. Connectors are not included, pre-insulated crimp connectors preferred.



Product	Order Code	Cable Size	Cable Diameter
5732	POA	35 - 50 mm ²	24.1 – 61.0 mm
5733	POA	70 - 120 mm ²	29.2 – 83.8 mm
5734	POA	120 - 240 mm ²	39.4 – 101.6 mm
5735	POA	240 - 400 mm ²	39.4 – 101.6 mm

Note: If increased structural integrity is required, the joint can be overwrapped with two-half lapped layers of 3M™ Armorcast Structural Material (purchased separately). For 3 metre long rolls use the following number of rolls per kit: 5732 (2 rolls), 5733 & 5734 (3 rolls) and 5735 (5 rolls).

3M™ Cold Shrink Cable Abandonment Kits CSCAK

3M Cold Shrink Cable Abandonment Kits are a complete solution to abandon low voltage polymeric cables either temporarily or permanently. Environmental sealing and mechanical protection is provided using 3M Cold Shrink technology, eliminating the need for heat and special tools, making a quick, simple and reliable installation.

Kit Contents:

- > Cold shrink end cap
- > Armour/earth connection components
- > Cold shrink tube
- > Full installation Instructions
- > Self amalgamating insulating tape

Applications

- > Single and multi core low voltage polymeric power cables up to and including 1.9/3.3 kV (with or without lead sheath and/or armour)



Product	Order Code	Cable Diameter
CSCAK/1	3M504	12 - 18 mm
CSCAK/2	3M505	18 - 25 mm
CSCAK/3	3M506	25 - 42 mm
CSCAK/4	3M507	42 - 55 mm
CSCAK/5	3M508	56 - 81 mm

3M™ Bore Pump Cable Jointing Kits

When a submersible pump is assembled , it is critical to remember the amount of time it will spend in and around water. 3M™ Bore Pump Cable Jointing Kits provide you with reliable, time efficient and flame free solutions for water cable splices, allowing you to successfully waterproof your electrical connections.

Applications

- > Submersible cable splices



Kit No.	Order Code	Cross Section (mm²)	Min Cable Diameter for Seal	Min Cable/Joint Diameter	Cable Configuration
91-CS-BPK-01-AU	POA	1.5 – 2.5	14	30	2 to 4 Core Flat or Round Cables
91-CS-BPK-02-AU	POA	4-6	17	35	2 to 4 Core Flat or Round Cables
91-CS-BPK-03-AU	POA	10-16	24	49	2 to 4 Core Flat or Round Cables

3M™ Cold Shrink End Caps EC-Series

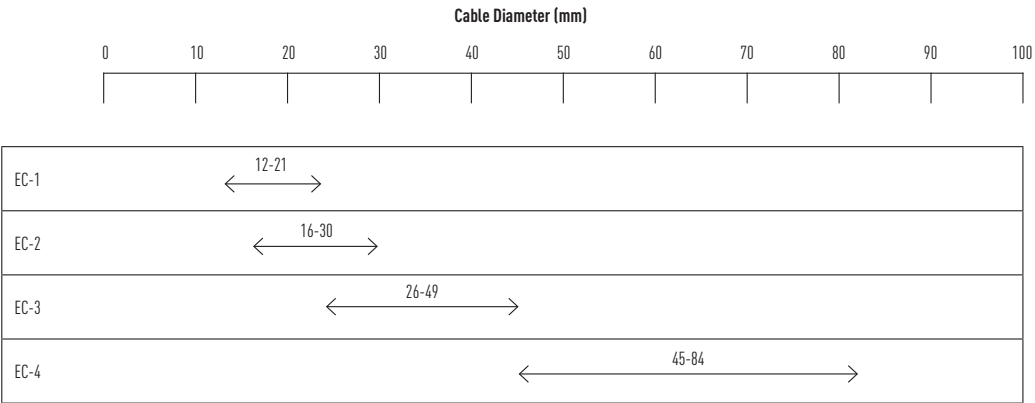
3M Cold Shrink End Caps EC-Series are close-ended, tubular rubber sleeves that are factory expanded and loaded onto a removable core. When positioned over the end of a cable or other cylindrical object, the core is removed to provide a reliable environmental seal. Four different end caps are available to accommodate a wide range of sizes. They are easily installed and can be removed cleanly.



Applications

- > Environmentally seal and mechanically protect exposed cable ends using no tools, mastics or tapes
- > Protect cables and pipes from exposure to moisture, contamination, corrosion, ozone, ultra-violet radiation and other environmental hazards

Product	Order Code	Colour	Cable Diameter
EC-1	3M500	Black	11.6 – 20.9 mm
EC-2	3M501	Black	15.9 – 30.1 mm
EC-3	3M502	Black	26.0 – 49.2 mm
EC-4	3M503	Black	45.5 – 84.3 mm





3M Indoor Terminations

Single Core Terminations - 95 Basic Insulation Level

Product	Order Code	Rating	Description
7621-T-95-NZ-1	3MT100	11kV	11kV Indoor Termination 1C XLPE 25-50mm Mech - 95 BIL
7621-T-95-NZ-1	3MT100CTS	11kV	11kV Indoor Termination 1C XLPE 25-50mm Mech - 95 BIL - Copper Tape Screen

Single Core Terminations - 110 Basic Insulation Level

Product	Order Code	Rating	Description
7642-T-110-NZ-1	3MT101	11kV	11kV Indoor Termination 1C XLPE 70-95mm Mech - 110 BIL
7644-T-110-NZ-2	3MT102	11kV	11kV Indoor Termination 1C XLPE 120-150mm Mech - 110 BIL
7644-T-110-NZ-3	3MT103	11kV	11kV Indoor Termination 1C XLPE 185-240mm Mech - 110 BIL
7645-T-110-NZ-4	3MT104	11kV	11kV Indoor Termination 1C XLPE 300mm Mech - 110 BIL
7645-T-110-NZ-5	3MT105	11kV	11kV Indoor Termination 1C XLPE 400mm Mech - 110 BIL
7645-T-110-NZ-6	3MT106	11kV	11kV Indoor Termination 1C XLPE 500mm Mech - 110 BIL
7646-T-110-NZ-6	3MT107	11kV	11kV Indoor Termination 1C XLPE 630mm Mech - 110 BIL

Single Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7653-T-150-NZ-1	3MT115	22kV	22kV Indoor Termination 1C XLPE 35-95mm Mech - 150 BIL
7653-T-150-NZ-2	3MT116	22kV	22kV Indoor Termination 1C XLPE 120-150mm Mech - 150 BIL
7655-T-150-NZ-3	3MT117	22kV	22kV Indoor Termination 1C XLPE 185-240mm Mech - 150 BIL
7655-T-150-NZ-4	3MT118	22kV	22kV Indoor Termination 1C XLPE 300mm Mech - 150 BIL
7655-T-150-NZ-5	3MT119	22kV	22kV Indoor Termination 1C XLPE 400mm Mech - 150 BIL
7656-T-150-NZ-6	3MT120	22kV	22kV Indoor Termination 1C XLPE 500-630mm Mech - 150 BIL
7695-T-150(S)-NZ-7	3MT180	22kV	22kV Indoor Termination 1C XLPE 800mm Mech - 150 BIL
7696-T-150S-NZ-7	3MT185	22kV	22kV Indoor Termination 1C XLPE 800-1000mm Mech - 150 BIL

Three Core Terminations - 95 Basic Insulation Level

Product	Order Code	Rating	Description
7621-T-95-3W-NZ-1	3MT124	11kV	11kV Indoor Termination 3C XLPE 25-50mm Mech - 95 BIL
7621-T-95-3W-NZ-1	3MT124CTS	11kV	11kV Indoor Termination 3C XLPE 25-50mm Mech - 95 BIL - Copper Tape Screen

Three Core Terminations - 110 Basic Insulation Level

Product	Order Code	Rating	Description
7642-T-110-3W-NZ-1	3MT125	11kV	11kV Indoor Termination 3C XLPE 70-95mm Mech - 110 BIL
7642-T-110-3W-NZ-1	3MT125CTS	11kV	11kV Indoor Termination 3C XLPE 70-95mm Mech - 110 BIL - Copper Tape Screen
7643-T110-3W-NZ-2	3MT126	11kV	11kV Indoor Termination 3C XLPE 120-150mm Mech - 110 BIL
7644-T-110-3WS-NZ-3	3MT127	11kV	11kV Indoor Termination 3C XLPE 185mm Mech - 110 BIL
7644-T-110-3W-NZ-3	3MT128	11kV	11kV Indoor Termination 3C XLPE 185-240mm Mech - 110 BIL
7645-T-110-3W-NZ-4	3MT129	11kV	11kV Indoor Termination 3C XLPE 300mm Mech - 110 BIL
7645-T-110-3W-NZ-5	3MT130	11kV	11kV Indoor Termination 3C XLPE 400mm Mech - 110 BIL

Three Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7653-T-150-3W-NZ-1	3MT136	22kV	22kV Indoor Termination 3C XLPE 35-70mm Mech - 150 BIL
7654-T-150-3WS-NZ-1	3MT137	22kV	22kV Indoor Termination 3C XLPE 95mm Mech - 150 BIL
7654-T-150-3W-NZ-2	3MT138	22kV	22kV Indoor Termination 3C XLPE 120-150mm Mech - 150 BIL
7654-T-150-3W-NZ-3	3MT139	22kV	22kV Indoor Termination 3C XLPE 185mm Mech - 150 BIL
7655-T-150-3W-NZ-5	3MT140	22kV	22kV Indoor Termination 3C XLPE 200-400mm Mech - 150 BIL

3M Outdoor Terminations

Single Core Terminations - 95 Basic Insulation Level

Product	Order Code	Rating	Description
7621-S-2-NZ-1	3MT141	11kV	11kV Outdoor Termination 1C XLPE 25-50mm Mech - 95 BIL
7621-S-2-NZ-1	3MT141CTS	11kV	11kV Outdoor Termination 1C XLPE 25-50mm Mech - 95 BIL - Copper Tape Screen

Single Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7642-T-110-NZ-1	3MT142	11kV	11kV Outdoor Termination 1C XLPE 70-95mm Mech - 150 BIL
7644-T-110-NZ-2	3MT143	11kV	11kV Outdoor Termination 1C XLPE 120-150mm Mech - 150 BIL
7644-T-110-NZ-3	3MT144	11kV	11kV Outdoor Termination 1C XLPE 185-240mm Mech - 150 BIL
7645-T-110-NZ-4	3MT145	11kV	11kV Outdoor Termination 1C XLPE 300mm Mech - 150 BIL
7645-T-110-NZ-5	3MT146	11kV	11kV Outdoor Termination 1C XLPE 400mm Mech - 150 BIL
7645-T-110-NZ-6	3MT147	11kV	11kV Outdoor Termination 1C XLPE 500mm Mech - 150 BIL
7646-T-110-NZ-6	3MT148	11kV	11kV Outdoor Termination 1C XLPE 630mm Mech - 150 BIL

Single Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7653-S-4-NZ-1	3MT150	22kV	22kV Outdoor Termination 1C XLPE 35-95mm Mech - 150 BIL
7653-S-4-NZ-2	3MT151	22kV	22kV Outdoor Termination 1C XLPE 120-150mm Mech - 150 BIL
7655-S-4-NZ-3	3MT152	22kV	22kV Outdoor Termination 1C XLPE 185-240mm Mech - 150 BIL
7655-S-4-NZ-4	3MT153	22kV	22kV Outdoor Termination 1C XLPE 300mm Mech - 150 BIL
7655-S-4-NZ-5	3MT154	22kV	22kV Outdoor Termination 1C XLPE 400mm Mech - 150 BIL
7656-S-4-NZ-6	3MT155	22kV	22kV Outdoor Termination 1C XLPE 500-630mm Mech - 150 BIL

Single Core Terminations - 200 Basic Insulation Level

Product	Order Code	Rating	Description
7664-S-8-NZ-1	3MT156	22kV	22kV Outdoor Termination 1C XLPE 70-95mm Mech - 200 BIL
7665-S-8-NZ-3	3MT157	22kV	22kV Outdoor Termination 1C XLPE 185-240mm Mech - 200 BIL
7666-S-8-NZ-6	3MT158	22kV	22kV Outdoor Termination 1C XLPE 500-630mm Mech - 200 BIL
7695-S-4S-NZ-7	3MT181	22kV	22kV Outdoor Termination 1C XLPE 800mm Mech - 200 BIL
7696-S-4(S)-NZ-7	3MT183	22kV	22kV Outdoor Termination 1C XLPE 800-1000mm Mech - 200 BIL

Single Core Terminations - 200 Basic Insulation Level

Product	Order Code	Rating	Description
7664-S-8-NZ-1	3MT159	33kV	33kV Outdoor/Indoor Termination 1C XLPE 50-95mm Mech - 200 BIL
7665-S-8-NZ-3	3MT174	33kV	33kV Outdoor/Indoor Termination 1C XLPE 95-300mm Mech - 200 BIL
7666-S-8-NZ-6	3MT175	33kV	33kV Outdoor/Indoor Termination 1C XLPE 300-630mm Mech - 200 BIL
7695-S-4S-NZ-7	3MT182	33kV	33kV Outdoor/Indoor Termination 1C XLPE 800mm Mech - 200 BIL
7696-S-4(S)-NZ-7	3MT184	33kV	33kV Outdoor/Indoor Termination 1C XLPE 800-1000mm Mech - 200 BIL

Three Core Terminations - 95 Basic Insulation Level

Product	Order Code	Rating	Description
7621-S-2-3W-NZ-1	3MT162	11kV	11kV Outdoor Termination 3C XLPE 25-50mm Mech - 95 BIL

Three Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7653-S-4-3W-NZ-1	3MT163	11kV	11kV Outdoor Termination 3C XLPE 70-95mm Mech - 150 BIL
7653-S-4-3W-NZ-2	3MT164	11kV	11kV Outdoor Termination 3C XLPE 120-150mm Mech - 150 BIL
7654-S-4-3WS-NZ-3	3MT165	11kV	11kV Outdoor Termination 3C XLPE 185mm Mech - 150 BIL
7654-S-4-3W-NZ-3	3MT166	11kV	11kV Outdoor Termination 3C XLPE 185-240mm Mech - 150 BIL
7655-S-4-3W-NZ-4	3MT167	11kV	11kV Outdoor Termination 3C XLPE 300mm Mech - 150 BIL
7655-S-4-3W-NZ-5	3MT168	11kV	11kV Outdoor Termination 3C XLPE 400mm Mech - 150 BIL

Three Core Terminations - 150 Basic Insulation Level

Product	Order Code	Rating	Description
7653-S-4-3W-NZ-1	3MT169	22kV	22kV Outdoor Termination 3C XLPE 35-70mm Mech - 150 BIL
7654-S-4-3WS-NZ-1	3MT170	22kV	22kV Outdoor Termination 3C XLPE 95mm Mech - 150 BIL
7654-S-4-3W-NZ-2	3MT171	22kV	22kV Outdoor Termination 3C XLPE 120-150mm Mech - 150 BIL
7654-S-4-3W-NZ-3	3MT172	22kV	22kV Outdoor Termination 3C XLPE 185mm Mech - 150 BIL
7655-S-4-3W-NZ-5	3MT173	22kV	22kV Outdoor Termination 3C XLPE 240-400mm Mech - 150 BIL

Three Core Terminations - 200 Basic Insulation Level

Product	Order Code	Rating	Description
7684-S-8-3W-NZ-2	3MT176	33kV	33kV Indoor/Outdoor Termination 3C XLPE 50-120mm Mech 200 BIL
7685-S-8-3W-NZ-4	3MT177	33kV	33kV Indoor/Outdoor Termination 3C XLPE 150-300mm Mech 200 BIL

Please contact OHUG Power Equipment head office for copper tape screen, armoured and SWA kits

3M Joints

Single Core Straight Joints

Product	Order Code	Rating	Description
92-AS 610-1-NZ-1	3M1J210	11kV	11kV Single Core Straight Joint (includes Adaptor Kit for 25mm cable) 25mm - 95mm
92-AS 610-1-NZ-2	3M1J211	11kV	11kV Single Core Straight Joint 50mm - 120mm
92-AS 620-1-NZ-4	3M1J212	11kV	11kV Single Core Straight Joint 95mm - 300mm
92-AS 630-1-NZ-6	3M1J213	11kV	11kV Single Core Straight Joint 500mm - 630mm
Product	Order Code	Rating	Description
93-AS 620-1-NZ-1	3M1J215	22kV	22kV Single Core Straight Joint 35mm - 95mm
93-AS 620-1-NZ-2	3M1J216	22kV	22kV Single Core Straight Joint 50mm - 150mm
93-AS 620-1-NZ-4	3M1J217	22kV	22kV Single Core Straight Joint 120mm - 300mm
93-AS 630-1-NZ-6	3M1J218	22kV	22kV Single Core Straight Joint 400mm - 630mm
Product	Order Code	Rating	Description
94-AS 620-1-NZ-2	3M1J220	33kV	33kV Single Core Straight Joint 50mm - 150mm
94-AS 620-1-NZ-4	3M1J221	33kV	33kV Single Core Straight Joint 120mm - 240mm
94-AS 630-1-NZ-6	3M1J222	33kV	33kV Single Core Straight Joint 300mm - 630mm

Three Core Straight Joints

Product	Order Code	Rating	Description
92-AS 610-3-NZ-1	3M3J201	11kV	11kV Three Core Straight Joint (includes Adaptor Kit for 25mm cable) 25mm - 95mm
92-AS 610-3-NZ-1 CTS	3M3J201CTS	11kV	11kV Three Core Straight Joint - Copper Tape / Copper Wire Screen 25mm - 95mm
92-AS 620-3-NZ-4	3M3J203	11kV	11kV Three Core Straight Joint 95mm - 300mm
92-AS 620-3-NZ-4 CTS	3M3J203CTS	11kV	11kV Three Core Straight Joint - Copper Tape / Copper Wire Screen 95mm - 300mm
Product	Order Code	Rating	Description
93-AS 620-3-NZ-1	3M3J205	22kV	22kV Three Core Straight Joint 35mm - 95mm
93-AS 620-3-NZ-2	3M3J206	22kV	22kV Three Core Straight Joint 50mm - 150mm
93-AS 620-3-NZ-4	3M3J207	22kV	22kV Three Core Straight Joint 120mm - 240mm

Transition Joints - Paper Insulated / Polymeric

Product	Order Code	Rating	Description
92-FS 213-3-3-NZ-1	3MJTRJ250	11kV	16-95mm for Paper Insulated 25-95mm for Polymeric - QS2000E 11kV Three Core Transition Joint Three Core Armoured/Non Armoured PILC to Three Core XLPE Cables (incl. Adaptor Kit)
92-FS 233-3-3-NZ-4	3MJTRJ251	11kV	95-300mm for Paper Insulated 95-300mm for Polymeric - QS2000E 11kV Three Core Transition Joint Three Core Armoured/Non Armoured PILC to Three Core XLPE Cables (incl. Adaptor Kit)
92-FS213-3-1-NZ-1	3MJTRJ252	11kV	16-95mm for Paper Insulated 25-95mm for Polymeric - QS2000E 11kV Three Core Transition Joint Three Core Armoured/Non Armoured PILC to Three Single Core XLPE Cables (incl. Adaptor Kit)
92-FS233-3-1-NZ-4	3MJTRJ253	11kV	95-300mm for Paper Insulated 185-300mm for Polymeric - QS2000E 11kV Three Core Transition Joint Three Core Armoured/Non Armoured PILC to Three Single Core XLPE Cables
92-FS 233-3-1S-NZ	3MJTRJ254	11kV	95-300mm for Paper Insulated 95mm for Polymeric - QS2000E 11kV Three Core Transition Joint Three Core Armoured/Non Armoured PILC to Three Single Core XLPE Cables



Accessories

Cold & Heat Shrink

Heatshrink Bushing Boot Kits (11kV)

Order Code	Description	Pack	Qty
HSSB-2	11kV Inline Bushing Boots (Set of 3) 95-300mm	Each	1
HSAB-1	11kV Right Angle Bushing Boots (Set of 3) 16-35mm	Each	1
HSAB-1A	11kV Right Angle Bushing Boots (Set of 3) 35-70mm	Each	1
HSAB-2	11kV Right Angle Bushing Boots (Set of 3) 95-300mm	Each	1
HSAB-3	11kV Right Angle Bushing Boots (Set of 3) 300-500mm	Each	1



OHBOOT

Order Code	Description	Pack	Qty
OHBOOT	Medium Voltage Cold Applied Silicone Rubber Straight / Right Angled Bushing Boot 17.5kV 30-70mm bushing diameter 35-400mm (set of 3)	Each	1



Coldshrink 3M Inline Barrier Boots (11kV)

Order Code	Description	Pack	Qty
3M962	MB63 11kV Inline Barrier Boot (up to 630mm ²)	Each	1
3M964	MB65 11kV Inline Barrier Boot (up to 1000mm ²)	Each	1

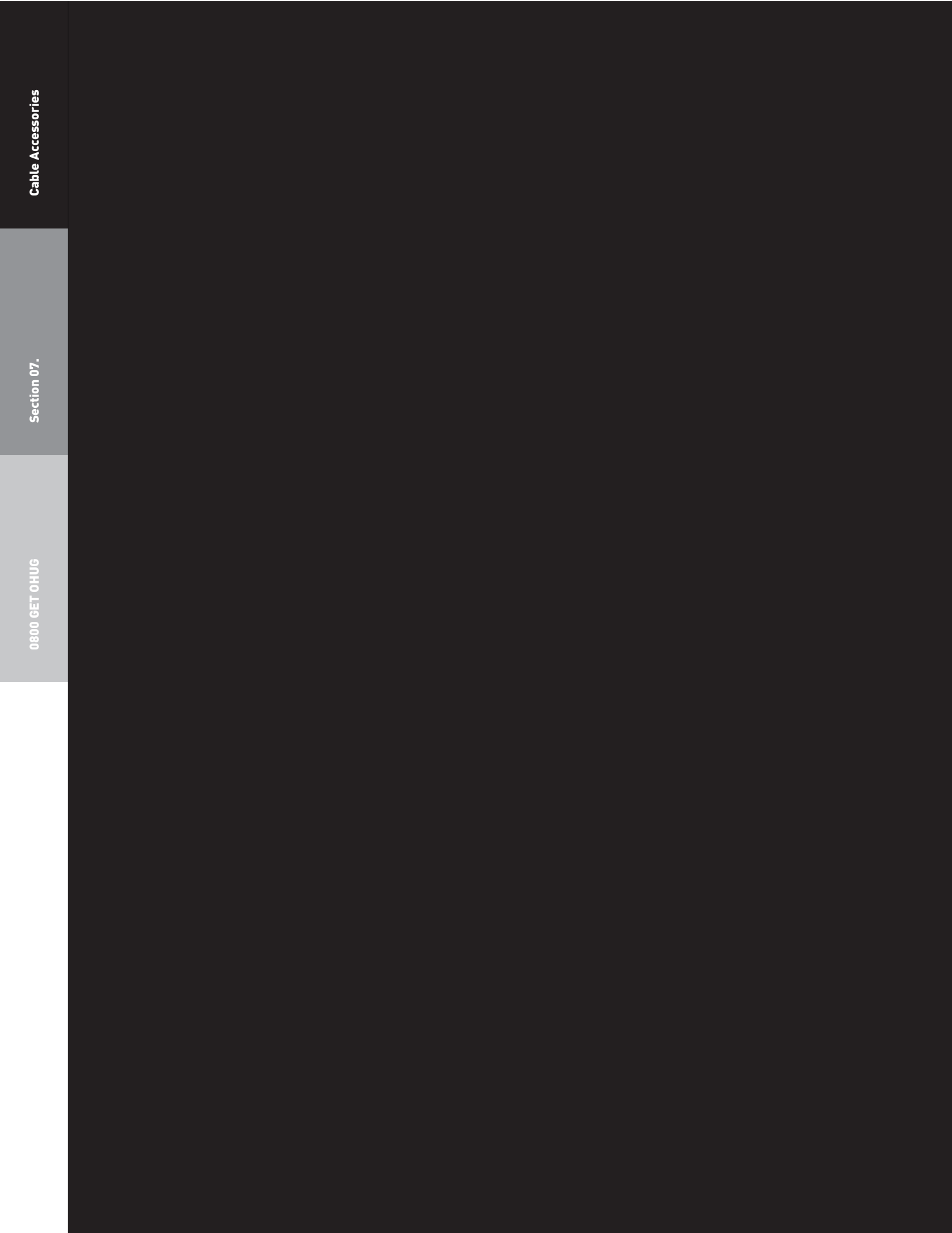


Copper Tape Kit

Order Code	Description	Pack	Qty
CUTAPE KIT 1	Copper tape kit for 25-95 11kV XLPE	Each	1
CUTAPE KIT 2	Copper tape kit for 95-185 11kV XLPE	Each	1

Trifurcation Kits (11kV)

Order Code	Description	Pack	Qty
OHTRI-1	OHUG Trifurcation Kit 25-95mm, 1.5m Tails	Each	1
OHTRI-2	OHUG Trifurcation Kit 25-95mm, 2m Tails	Each	1
OHTRI-3	OHUG Trifurcation Kit 25-95mm, 3m Tails	Each	1
OHTRI-4	OHUG Trifurcation Kit 25-95mm, 4m Tails	Each	1
OHTRI-5	OHUG Trifurcation Kit 95-300mm, 1.5m Tails	Each	1
OHTRI-6	OHUG Trifurcation Kit 95-300mm, 2m Tails	Each	1
OHTRI-7	OHUG Trifurcation Kit 95-300mm, 3m Tails	Each	1
OHTRI-8	OHUG Trifurcation Kit 95-300mm, 4m Tails	Each	1



Section 07

Cable Accessories

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Cleaning Products, Lubricants and Coatings	165
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3M™ Cable Accessories

If reliability and efficient performance is what matters, then put your trust in 3M™ Cable Accessories to meet your day to day electrical requirements. Our Cable Accessories range include the must-have essentials that every electrician needs within their toolkit.



3M™ Constant Force Springs

3M Constant Force Springs are a range of solderless connections for earthing or grounding use on:

- > Lead and aluminium cable sheaths
- > Cable screening tapes or wires
- > Steel or aluminium armour wires

The spring is easily applied by rolling onto the cable core or outside diameter, whereupon it continues to exert a constant radial pressure.



Applications

- > For power, control or telecom cables
- > For use on lead or aluminium sheaths and copper screened cables

Product	Order Code	Application Range
P59	POA	4 - 10 mm
P60	3M101	9 - 15 mm
P61	3M102	14 - 22 mm
P62	3M103	18.5 - 29 mm
P63	3M104	23.5 - 37 mm
P64	3M105	31 - 50 mm
P65	3M106	44 - 70 mm
P66	3M107	58 - 94 mm

Tinned Copper Braid Flat

Order Code	Description
MP5385	10mm tinned Cu braid per metre
MP5386	16mm tinned Cu braid per metre
MP5388	25mm tinned Cu braid per metre
MP5389	35mm tinned Cu braid per metre



3M™ Cable Cleaning System CC Series

3M Cable Cleaning System CC Series cleans cable insulation, metal, electrical and mechanical parts. CC series solvent is suitable for use on transformers, generators, motors and metal parts of all sorts. It can be used for PCB cleanup and in parts cleaners for degreasing. It removes surface oils, tars and heavy greases. Use of solvent on carbon-containing semi conductive surfaces such as cable insulation shields is not recommended. 3M Cable Cleaning System CC Series solvent can effectively replace 1,1,1- trichloroethane and other hazardous solvents.



Product	Order Code	Description	Kit Contents
CC-2	3M950	Cable Cleaning Preparation Kit	3 x solvent saturated cable cleaning pads 1 x Non-conductive grit abrasive cloth
CC-3	POA	Cable Cleaning Pad Kit	3 x solvent saturated pads
CC-4	POA	Cable Cleaning Solvent	940 mL

3M™ Cable Cleaning/Degreasing Wipes

3M Cable Cleaning/Degreasing Wipes are designed specifically to remove contaminants such as grease, oil, sealants and cable gel from switchgear and cables. The product will even remove heavy or old deposits without hazard to the substrate or insulation materials.

Applications

- > Cable cleaning prior to jointing
- > Removal of protective greases and gel from switchgear



Product	Order Code	Description	Kit Contents
Cleaning Wipes 1 L	3M700	1 L pail	75 wipes
Cleaning Wipes 3 L	3M701	3 L pail	250 wipes

3M™ Wire Pulling Lubricant Gel WL

3M Wire Pulling Lubricant is a clear, colourless, slow-drying, easy-to-apply gel which is an excellent lubricant for everyday pulling of both electrical and communication cable. The clear formula makes this an ideal choice where cleanliness is a concern. 3M Wire Pulling Lubricant has a low residue (less than 5% solids).

Agency Approvals:  

Applications

- > For pulling a wide variety of cable types, such as power, control, instrumentation and communication cables, including coaxial and fibre optic cables



Product	Order Code	Size	Colour	Temperature Use Range
WL-QT	3M713	950 mL	Clear	-6 to 43°C

3M™ Scotchkote™ Electrical Coating FD

3M Scotchkote™ Electrical Coating FD is designed as a fast-drying sealant and bonding agent intended for use on joints wrapped with vinyl electrical tape. For direct burial, direct water immersion or above-ground applications. A brush-on, fast drying sealant with self contained applicator for quick and easy application.

Applications

- > Provides vinyl tapes with an extra oil, moisture and corrosion-resistant layer of flexible coating for problem areas



Product	Order Code	Size
Scotchkote™	3M703	440 mL

3M™ Scotchcode™ Wire Marker Tape Dispensers STD

The 3M™ Scotchcode™ Tape Dispenser STD is a compact, carry-along dispenser with 10 refillable compartments that holds 2 metre rolls of non-smear polyester tape. Used for marking binder groups, wire or cable, the tapes' high-tack acrylic adhesive resists solvents, oil and water, and adheres firmly to insulation surfaces. An end-loop hooks the dispenser easily to a tool pouch or belt. Dispensers can be ordered empty or filled with 10 rolls of pre-printed numbers 0–9.



Product	Order Code	Description
STD-X	POA	Compact, carry-along dispenser with 10 refillable compartments that hold 20 cm rolls of non-smear polyester tape.
STD-0-9X	3MSC036	Dispenser filled with 10 rolls of numbered tape (one each of 0-9)
STD-CX	POA	Dispenser filled with 10 rolls of coloured tape (one each of black, blue, brown, green, grey, orange, red, violet, white and yellow)

3M™ Scotchcode™ Write-On Dispenser and Pen

This self-laminating, write-on marker dispenser is handy for identifying wire and cable as well as household, automotive, plumbing and sporting equipment. It is easy to use, refillable and comes with a SMP permanent marking pen. The dispenser's design provides convenience and protects the die-cut adhesive markers. The pen performs well on nonporous surfaces, has an extra fine point with permanent, quick drying black ink. It has excellent UV and water resistance.



Applications

- > Marking communications, security and sound system components
- > Marking pipes, hoses, tubes, parts, vents

Product	Order Code	Description	Labels per roll	Write-on area	Marker Size	Recommended Wire Diameter
SLW	3M129	Larger sized dispenser with tape and SMP marking pen	70	25 x 19 mm	25 x 127 mm	5.8 to 33.5 mm
SLW-REFILL	3M057	Write-on	-	25 x 19 mm		

3M™ Scotchcode™ Tape Refill Rolls

This aggressive adhesive system, combined with the flexible polyester film backing, provides a thin, conformable tape that is durable, and will hold up in most industrial electrical applications.



Product	Order Code	Printed Text Type	Printed Text	Write-on area
SDR-0-9	3MSC036	Numeric	"0" through "9"	-
SDR-0	3MSC010	Numeric	"0"	-
SDR-1	3MSC001	Numeric	"1"	-
SDR-2	3MSC002	Numeric	"2"	-
SDR-3	3MSC003	Numeric	"3"	-
SDR-4	3MSC004	Numeric	"4"	-
SDR-5	3MSC005	Numeric	"5"	-
SDR-6	3MSC006	Numeric	"6"	-
SDR-7	3MSC007	Numeric	"7"	-
SDR-8	3MSC008	Numeric	"8"	-
SDR-9	3MSC009	Numeric	"9"	-
SDR-B	3MSC012	Letters	"B"	-

Section 08

Cable Connectors

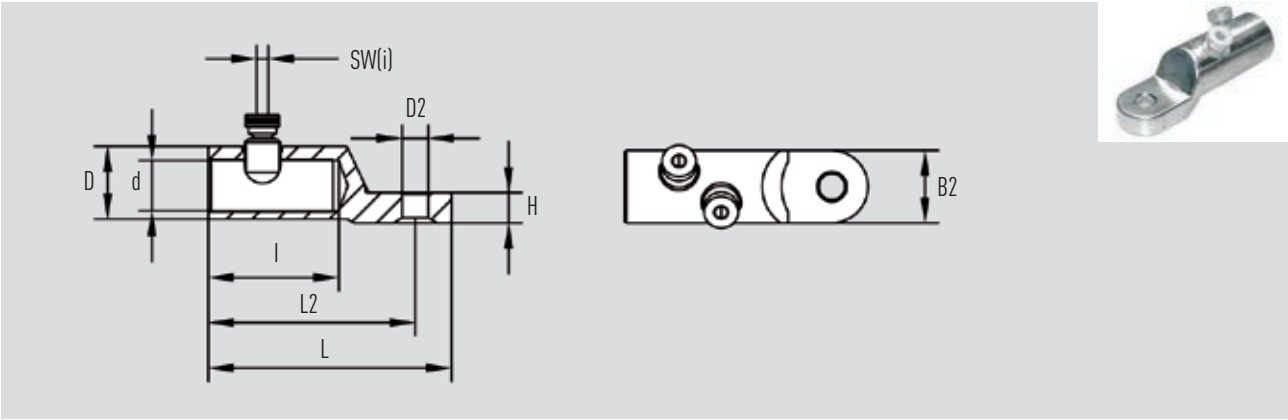
Mechanical Connectors (shear bolts) Bi-Metal

LV Lugs	170
LV Links	171
LV Links Insulated Barrel	174
LV Links/Tap Off	175
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Compression

Copper Crimp Lugs	184
Copper Bell Mouth Crimp Lugs	186
Bi – Metal Lug	187
Tinned Copper Crimp Links	188
Aluminium Crimp Links	188
Copper Full Tension Sleeves	189
Line Taps	189

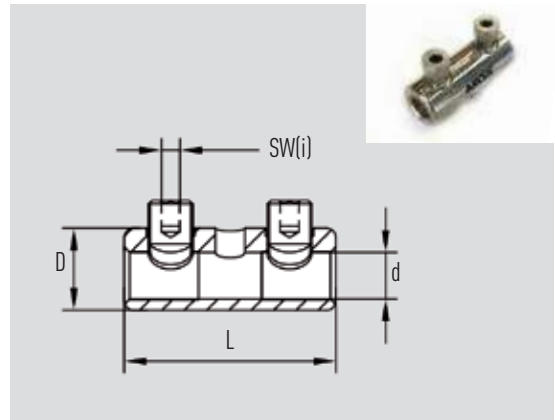
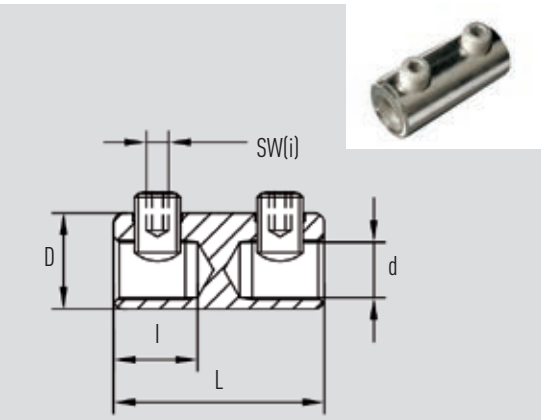
Aluminium Screw Cable Lugs LV



Cross Section (mm²)	Connector Barrel														Type Number
	tin-plated	Dimensions (mm)								shear-head screw removable	shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)	
		W2	D	D2 ¹⁾	d	H	L	L2	l						
16-95 RE 16-95 RM 50-70 SE / 95 SE 25-70 SM 95 SM(r)	•	23	23	13	14	8	78	66	45	•	2	5	4	20	298 139
35-150 RE 35-150 RM 50-120 SE 35-120 SM(r)	•	28	28	11	17.5	10	92	78	50		•	2	6	25	208 034
	•	28	28	13	17.5	10	92	78	50	•		2	6	25	298 140
	•	28	28	13	17.5	10	92	78	50		•	2	6	25	208 033
120-150 RE 120-240 RM 120-240 RM 120-185 SM / 240 SM (90°)		36	36	13	25	15	121	103	65		•	2	6	25	208 032

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (90°)=4-core cable
Explanation of key sizes of contact screws: SW(i)=inner hexagon
1) Also available with other palm hole size, if required

Aluminium Screw Connector LV

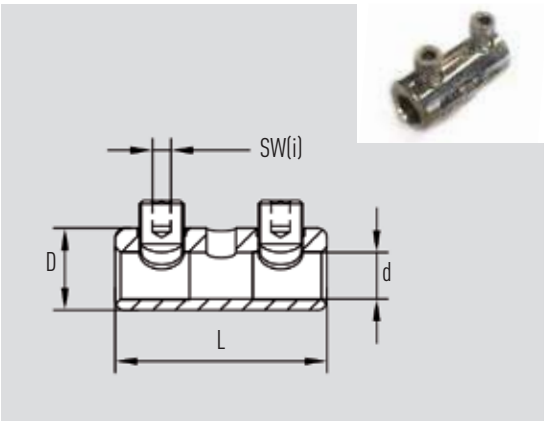
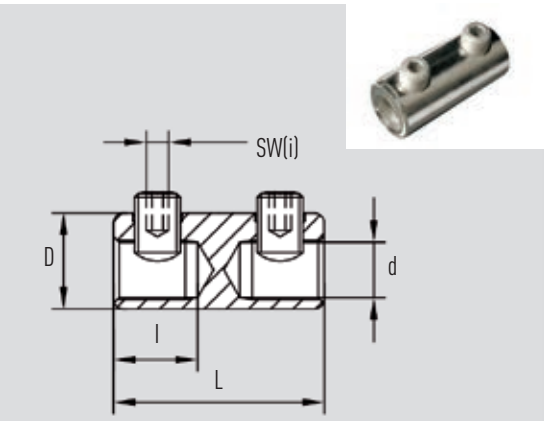


Cross Section (mm²)	Connector Barrel							Contact Screw						Type Number		
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)		
					D	d	L	l								
6-35 RE 6-25 RM	•		•		14	7.2	40		•			2	4	8	209 013	
	•		•	•	14	7.2	40			•		2	4	8	209 091	
	•			•	14	7.2	40		•			2	4	8	298 100	
	•			•	14	7.2	40			•		2	4	8	209 092	
		•			14	7.2	40	17.5			•		2	4	8	298 246
Cu 2.5-35 SM / 50 RM (v) Al 6-35 SM / 50 RM(v)	•		•		16	9	40			•		2	4	9	209 098	
	•		•		16	9	40		•			2	4	9	209 058	
	•			•	16	9	40			•		2	4	9	209 099	
	•			•	16	9	40		•			2	4	9	298 152	
		•	•		16	9.4	40	17.5			•		2	4	9	298 117
		•	•		16	9.4	40	17.5	•				2	4	9	298 218
		•		•	16	9.4	40	17.5			•		2	4	9	298 219
6 RE-50	•		•		18	10.5	40		•			2	5	10	209 130	
	•		•		18	10.5	40			•		2	5	10	209 134	
	•			•	18	10.5	40		•			2	5	10	209 131	
	•			•	18	10.5	40			•		2	5	10	209 135	
		•	•		18	10.5	40	17.6	•			2	5	10	209 132	
		•	•		18	10.5	40	17.6			•		2	5	10	209 136
		•		•	18	10.5	40	17.6	•			2	5	10	209 133	
		•		•	18	10.5	40	17.6			•		2	5	10	209 137
10-70 RE 10-70 RM 50-70 SE 35-70 SM	•		•		22	12.5	57		•			2	5	15	298 258	
	•		•		22	12.5	57			•		2	5	15	298 158	
	•			•	22	12.5	57		•			2	5	15	298 129	
	•			•	22	12.5	57			•		2	5	15	298 322	
		•	•		22	12.5	57	24	•			2	5	15	298 254	
		•	•		22	12.5	57	24			•		2	5	15	298 323
		•		•	22	12.5	57	24	•			2	5	15	298 304	
		•		•	22	12.5	57	24			•		2	5	15	298 185

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (v)=Compacted

Explanation of key sizes of contact screws: SW(i)=inner hexagon

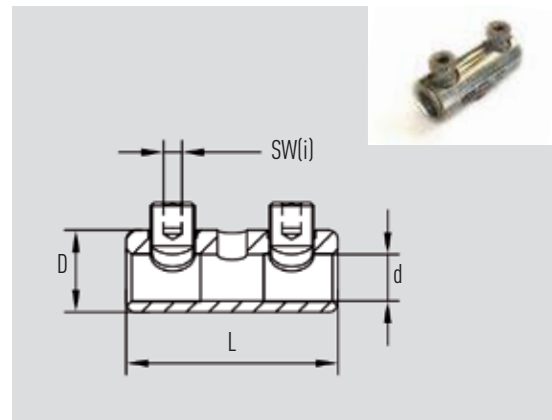
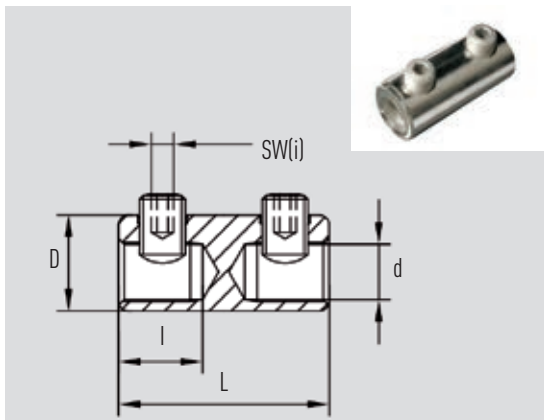
Aluminium Screw Connector LV CONTINUED



Cross Section (mm²)	Connector Barrel							Contact Screw						Type Number	
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) [DIN 475]	torque (Nm)	
					D	d	L	l							
16-95 RE 16-95 RM 50-95 SE 35-70 SM / 95 SM(r)	•				25	14.4	55		•			2	5	20	209 019
	•				25	14.4	55			•		2	5	20	209 081
	•				25	14.4	55		•		•	2	5	20	298 188
	•			•	25	14.4	55			•		2	5	20	298 061
		•	•	•	25	14.4	55	22	•			2	5	20	209 087
		•	•		25	14.4	55	22		•		2	5	20	209 011
		•			25	14.4	55	22				2	5	20	209 080
		•		•	25	14.4	55	22				2	5	20	298 047
		•		•	25	14.4	55	22				2	5	20	209 089
				•	25	14.4	55				•	2	5	20	208 200
	•		•		25	14.4	92		•			4	5	20	209 052
	•			•	25	14.4	92		•			4	5	20	298 223
	•		•		25	14.4	92			•		4	5	20	209 075
	•			•	25	14.4	92			•		4	5	20	298 224
25-150 RE 25-150 RM 50-120 SE / 150 (90°)	•		•		28	16.9	70		•			2	6	25	209 116
	•		•		28	16.9	70				•	2	6	25	209 126
	•			•	28	16.9	70		•			2	6	25	298 324
	•			•	28	16.9	70				•	2	6	25	298 325
		•	•		28	16.9	70	31	•			2	6	25	298 213
		•	•		28	16.9	70	31			•	2	6	25	298 269
		•		•	28	16.9	70	31	•			2	6	25	298 245
		•		•	28	16.9	70	31			•	2	6	25	298 262
35-120 / 150 SE (90°)		•		•	28	16.9	70	31			•	2	6	25	298 364

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (90°)=4-core cable
Explanation of key sizes of contact screws: SW(i)=inner hexagon

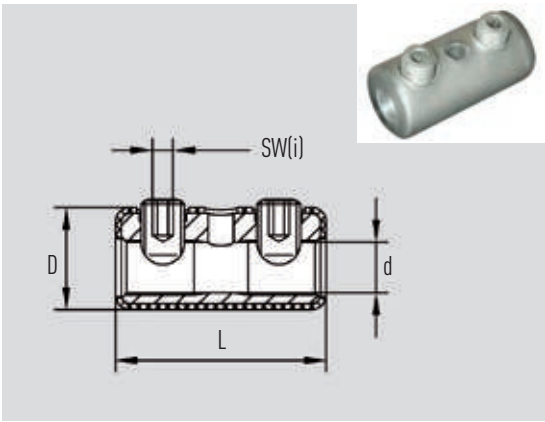
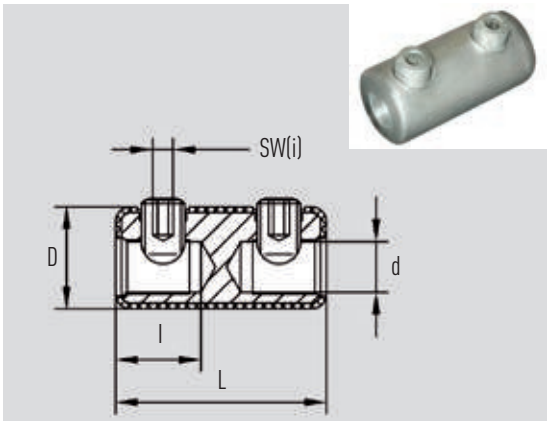
Aluminium Screw Connector LV CONTINUED



Cross Section (mm²)	Connector Barrel							Contact Screw						Type Number	
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SWT(i) (DIN 475)	torque (Nm)	
					D	d	L	l							
35-50 RE 35-185 RM 5-150 SE / 185 SE (90°) 35-150 EM / 195 SM(r)	•		•		32	19.6	80		•			2	6	25	209 020
	•		•		32	19.6	80			•		2	6	25	209 082
	•		•		32	19.6	80				•	2	6	25	298 189
	•			•	32	19.6	80		•			2	6	25	298 062
	•			•	32	19.6	80			•		2	6	25	209 088
		•		•	32	19.6	80				•	2	6	25	298 255
		•	•		32	19.6	80	32.5	•			2	6	25	209 012
		•	•		32	19.6	80	32.5		•		2	6	25	209 072
		•		•	32	19.6	80	32.5	•			2	6	25	298 088
		•		•	32	19.6	80	32.5		•		2	6	25	209 090
		•		•	32	19.6	80	32.5			•	2	6	25	298 172
	•		•		32	19.6	108		•			4	6	25	209 050
	•		•		32	19.6	108			•		4	6	25	209 065
	•			•	32	19.6	108		•			4	6	25	298 225
	•			•	32	19.6	108			•		4	6	25	298 226
70-150 RM 70-150 SM		•	•		32	19.6	80	32.5			•	2	6	25	298 141
120-150 RE 120-240 RM 120-240 SE 120-240 SM	•		•		38	25	128			•		4	6	25	298 174
	•			•	38	25	128			•		4	6	25	298 244
		•		•	38	25	128	58.5		•		4	6	25	298 256
150-240 M		•		•	28	16.9	128		•			4	6	25	298 257

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (90°)=4-core cable
 Explanation of key sizes of contact screws: SW(i)=inner hexagon

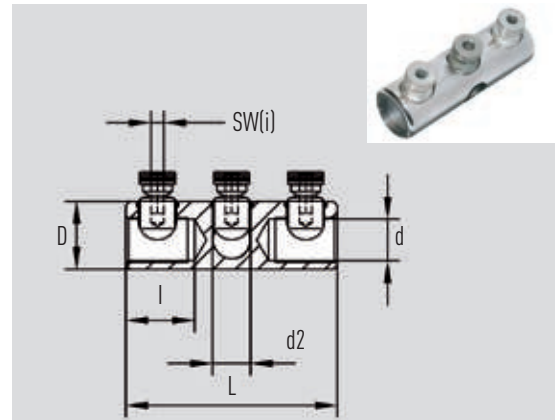
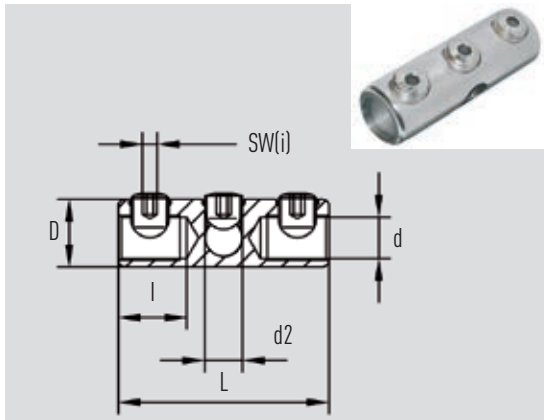
Aluminium Screw Connector LV WITH INSULATED BARREL



Cross Section (mm²)	Connector Barrel								Contact Screw						Type Number
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) [DIN 475]	torque (Nm)	
					D	d	L	l							
6-35 RE 6-25 RM	•		•		14	7.2	60		•			2	4	8	298 097
10-70 RE 10-70 RM 50-70 Se 35-70 SM	•			•	25	12.5	87		•			2	5	15	298 095
16-50 RE 16-95 RM 50-70 SE / 95 SE (90°) 35-70 SM / 95 SM(r)	•		•		28.2	14.4	58.2		•			2	5	25	209 027
	•		•		28.2	14.4	58.2			•		2	5	25	209 085
	•			•	28.2	14.4	58.2		•			2	5	25	298 063
		•	•		28.2	14.4	58.2	23.6	•			2	5	25	209 025
		•	•		28.2	14.4	58.2	23.6		•		2	5	25	209 083
		•	•		36	19.6	84	34.5			•	2	6	25	298 142
25-150 SE / 185 SE (90°) / 150 SM		•	•		36	19.6	84	34.5			•	2	6	25	298 142
35-50 RE 35-185 RM 50-150 SE / 185 SE (90°) 35-150 SM / 185 SM(r)	•		•		36	19.6	84		•			2	6	25	209 028
	•		•		36	19.6	84			•		2	6	25	209 086
	•			•	36	19.6	84		•			2	6	25	298 064
		•	•		36	19.6	84	34.5	•			2	6	25	209 026
		•	•		36	19.6	84	34.5		•		2	6	25	209 084

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (90°)=4-core cable
 Explanation of key sizes of contact screws: SW(i)=inner hexagon

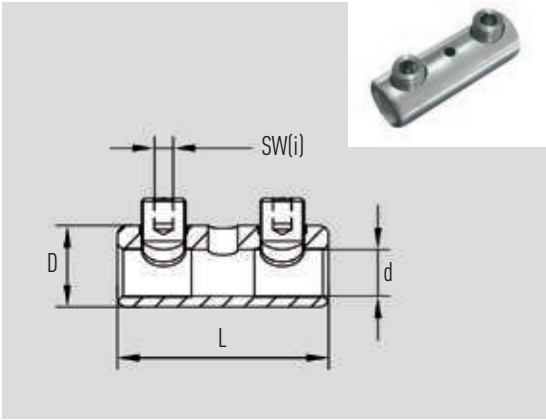
Aluminium Screw Connector LV WITH TAP-OFF



Cross Section (mm²)		Connector Barrel							Contact Screw						Type Number	
Mains	Branch	with oil-stop	uncoated	tin-plated	Dimensions (mm)					socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)	
					D	d	d2	L	l							
Al 35 RE Cu 35 RM	Cu 10 RE	•		•	20	9.4	9.4	55	18	•		2	1	4	15	298 260
35-50 RE 35-185 RM 50-150 SE 185 SE (90°) 35-150 SM 185 SM(r)	6-50 SE	•	•		32	19.6	10	80	29.5	•		2	1	(1)	(1)	298 040
35-50 RE 35-185 RM 50-150 SE 185 SE (90°) 35-150 SM 185 SM(r)	35-50 RE 35-185 RM 50-150 SE 185 SE (90°) 35-150 SM	•	•		32	19.6	17.5	100	32.5	•		2	1	6	25	298 119
		•	•		32	19.6	17.5	100	32.5		•	2	1	6	25	298 128
		•		•	32	19.6	17.5	100	32.5		•	2	1	6	25	298 181
		•	•		32	19.6	17.5	140	32.5	•		2	1	6	25	298 162
		•	•		32	19.6	17.5	140	32.5		•	2	1	6	25	298 155
120-240 M	6-95 RM 2x 25 RM 150 SE	•	•		38	25	17.5	150	56		•	4	1	6	25	298 161
150-240 M	2x 25 RM 150 SE	•	•		38	23	17.5	150	56	•		4	1	6	25	298 157

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (90°)=4-core cable.
Explanation of key sizes of contact screws: SW(i)=inner hexagon

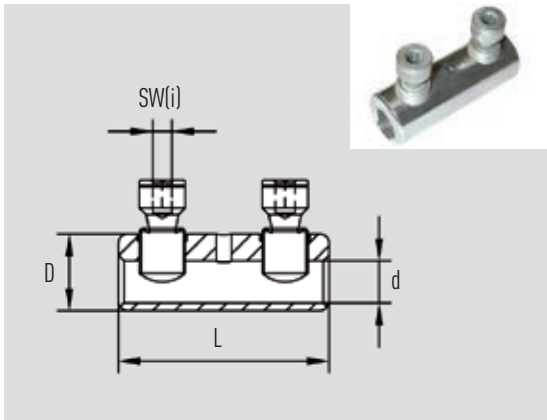
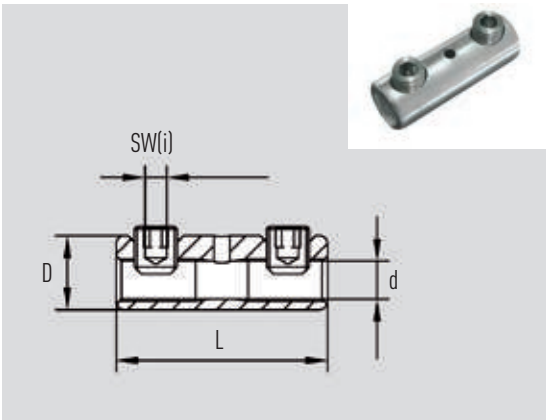
Copper Screw Connector LV



Cross Section (mm²)	Connector Barrel							Contact Screw					Type Number		
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)	
					D	d	L	l							
1.5-6 RE	•			•	7	3.5	25		•			2	2	4	188 413
1.5-16 RE / 16 RM	•		•		10	5.5	30		•			2	2.5	4	198 394
	•			•	10	5.5	30		•			2	2.5	4	198 392
6-25 RM / 35 RE	•			•	14	7.2	40		•			2	4	10	198 381

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded
Explanation of key sizes of contact screws: SW(i)=inner hexagon

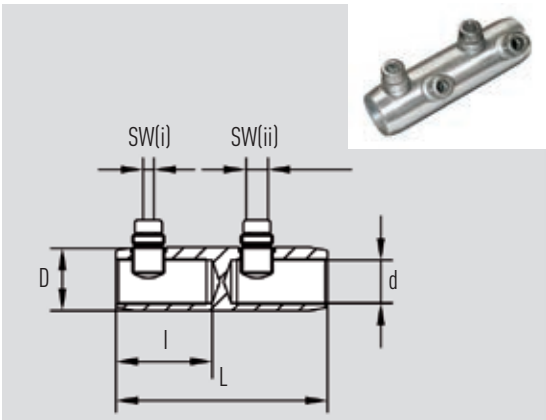
Copper Screw Connector LV FOR SCREEN WIRES



Cross Section (mm²)	Connector Barrel								Contact Screw						Type Number
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)	
					D	d	L	l							
6-35 RE / 25 RM	•			•	14	7.2	40		•			2	4	10	198 381
Ø11	•			•	20	11	55			•		2	5	15	198 385

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded
Explanation of key sizes of contact screws: SW(i)=inner hexagon

Aluminium Screw Connector LV + MV EXCENTRIC DESIGN



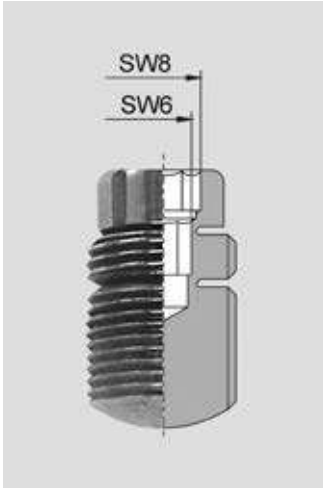
Cross Section (mm²)	Connector Barrel							Contact Screw						Type Number	
	straight-through	with oil-stop	uncoated	tin-plated	Dimensions (mm)				socket screw	shear-head screw removable	shear-head screw unremovable	number	SWD (iii) (DIN 475)	torque (Nm)	
					D	d	L	l							
35-120 RM 35-120 RM 50-120 SE 35-120 SM		•	•		35	23	117	53		• ⁽¹⁾		4	8	20	209 100
150 RE 150-240 RM 150-185 SE / 240 SE (90°) 150 SM / 185 SM (90°)													6	25	
35-120 RM 35-120 RM 50-120 SE 35-120 SM		•		•	35	23	117	53		• ⁽¹⁾		4	8	20	298 321
150 RE 150-240 RM 150-185 SE / 240 SE (90°) 150 SM / 185 SM (90°)													6	25	

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (90°)=4-core cable

Explanation of key sizes of contact screws: SW(i)=inner hexagon

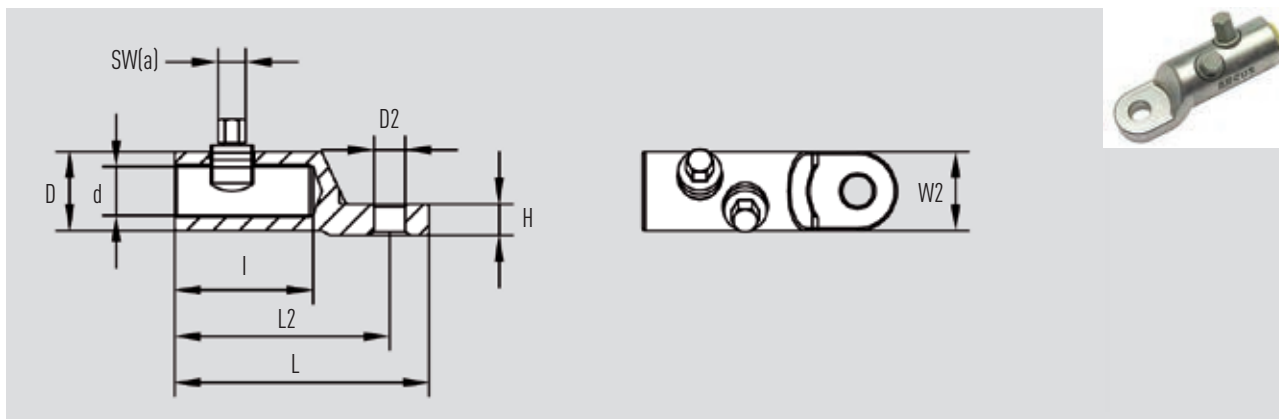
(1) Removable shear-head bolt only for cross sections 35-120 mm²

This screw connector was designed to cover large cross Sectorial range. Shear heads are provided with two different key sizes SW 6 and SW 8. For cross sections 35-100 mm² key size SW 8 is active with a torque of 20 Nm and for cross sections 150-240 mm² key size SW 6 with a torque of 25 Nm.



Aluminium Screw Cable Lugs MV

INTELLIGENT CONTACT SCREW
WITH CONCENTRIC DESIGN



Size	Cross Section (mm²)	Dimensions (mm)										Contact Screw				Type Number
		filled with grease	tin-plated	W2	D	D2 ⁽¹⁾	d	H	L	L2	l	shear-head screw unremovable	number	SW(a) (DIN 475)	torque (Nm)	
1	25-95 RE 25-70 RM / 95 RM(v) 50-70 SE / 95 SE(r) 35-50 SM / 70 SM(*)	•	•	23	23	12	12.4	8	77.5	66	44	•	2	8	16 ⁽²⁾ -19	298 307
2	50-150 RE 50-120 RM / 150 RM(v) 50-120 SE / 150 SE(r) 50-95 SM / 120 SM(r)	•	•	28	28	13	15.4	10	92	78	51	•	2	8	19 ⁽²⁾ -22	298 341
3	70-240 RE 70-185 RM / 240 RM(v) 70-150 SE / 185(*) 70-150 SM / 185 SM(r)	•	•	33	33	13	20.4	13	106.5	90	58	•	2	10	27 ⁽²⁾ -31	208 039
4	120-300 RE 120-300 RM / 300 RM(v) 120-240 SE 120-185 SM / 240 SM(r)	•	•	36	36	13	24.4	15	121	103	64.5	•	3	13	28 ⁽²⁾ -32	208 041
5	95-400 RE 195-400 RM / 400 RM(v) 95-240 SE 95-240 SM / 300 SM(r)	•	•	42	42	17	27.4	16	136	115	79	•	2	10	27 ⁽²⁾ -31	208 042
6	300-630 RE 300-630 RM 300-630 RM(v) 300-400 SM (*)	•	•	52	52	17	33.4	18	164	138	93	•	3	13	28 ⁽²⁾ -32	208 043
7	800-1000 RE 800-1000 RM(v)	•	•	60	60	21	40.4	20	190	160	104	•	4	13	98 ⁽²⁾ -32	208 044

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (v)=Compacted

(*)=conductor slightly rounded, for instance with flat-nosed pliers

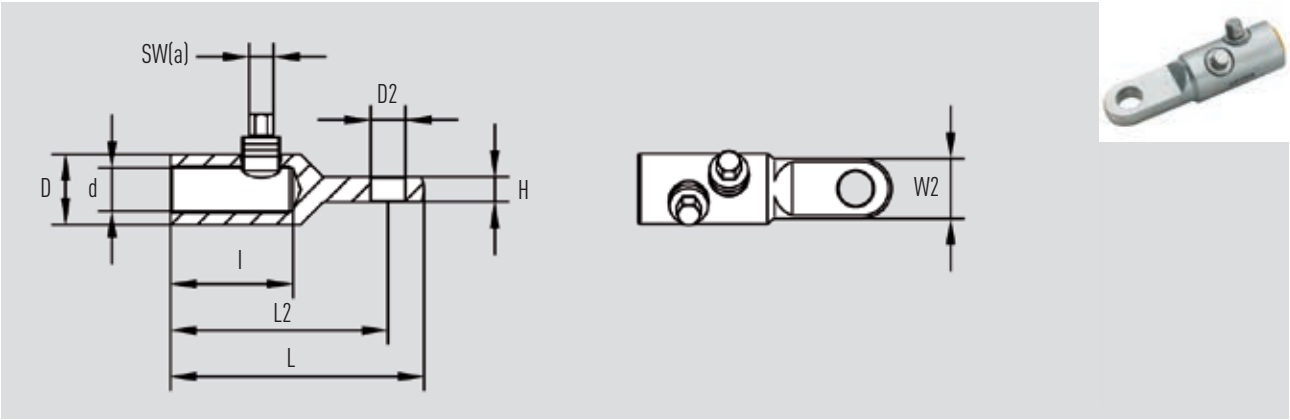
Explanation of key sizes of contact screws: SW(a)=outer hexagon

(1) Also available with other palm hole size, if required

(2) Depending on size of cross section

Aluminium Screw Cable Lugs MV

INTELLIGENT CONTACT SCREW
WITH CONCENTRIC DESIGN

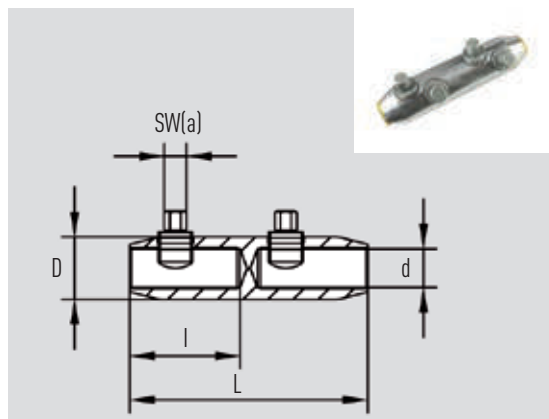


Size		Cross Section (mm²)		Connector Barrel										Contact Screw				Type Number
				filled with grease	tin-plated	Dimensions (mm)								shear-head screw unremovable	number	SW(a) (DIN 475)	torque (Nm)	
						W2	D	D2 ⁽¹⁾	d	H	L	L2	l					
1		25-95 RM(v)		•	•	35	23	17.5	12.4	13	109.5	92	44	•	2	8	16 ⁽¹⁾ -19	298 373
3		70-240 RE 70-185 RM / 240 RM(v) 70-150 SE / 185 SE(*) 70-150 SM / 185 SM(r)		•	•	28	33	16.5	20.4	12	120	103	58	•	2	10	27 ⁽¹⁾ -31	298 238
3		70-240 RM(v)		•	•	35	33	17.5	20.4	13	123.5	106	58	•	2	10	27 ⁽¹⁾ -31	298 374
5		95-400 RM(v)		•	•	35	38	17.5	25.4	13	145.5	128	80	•	3	10	27 ⁽¹⁾ -31	298 375

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (v)=Compacted
(*)=conductor slightly rounded, for instance with flat-nosed pliers
Explanation of key sizes of contact screws: SW(a)=outer hexagon
(1) Also available with other palm hole size, if required
(2) Depending on size of cross section

Aluminium Screw Connector MV

INTELLIGENT CONTACT SCREW
WITH CONCENTRIC DESIGN



Size	Cross Section (mm²)	Connector Barrel				Contact Screw				Type Number			
		with oil-stop	filled with grease	tin-plated	Dimensions				shear-head screw unremovable	number	SW(l) (DIN 475)	torque (Nm)	
					D	d	L	l					
1	25-95 RE 25-70 RM / 95 RM(v) 50-70 SE / 95 SE(r) 35-50 SM / 70 SM(*)	•	•	•	23	12.4	95	44	•	2	8	16 ⁽¹⁾ -19	209 109
2	50-150 RE 50-120 RM / 150 RM(v) 50-120 SE / 150 SE(r) 50-95 SM / 120 SM(r)	•	•	•	28	15.4	110	51	•	4	8	19 ⁽¹⁾ -22	209 112
3	70-240 RE 70-185 RM / 240 RM(v) 70-150 SE / 185(*) 70-150 SM / 185 SM(r)	•	•	•	33	20.4	125	58	•	4	10	27 ⁽¹⁾ -31	209 110
4	120-300 RE 120-300 RM / 300 RM(v) 120-240 SE 120-185 SM / 240 SM(r)	•	•	•	36	24.4	140	64.5	•	4	13	28 ⁽¹⁾ -32	209 111
5	95-400 RE 195-400 RM / 400 RM(v) 95-240 SE 95-240 SM / 300 SM(r)	•	•	•	42	27.4	170	79	•	6	10	27 ⁽¹⁾ -31	209 113
6	300-630 RE 300-630 RM 300-630 RM(v) 300-400 SM (*)	•	•	•	52	33.4	200	93	•	6	13	28 ⁽¹⁾ -32	209 114
7	800-1000 RE 800-1000 RM(v)	•	•	•	65	41.4	214	102	•	8	13	95 ⁽¹⁾ -110	298 013

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded, (v)=Compacted

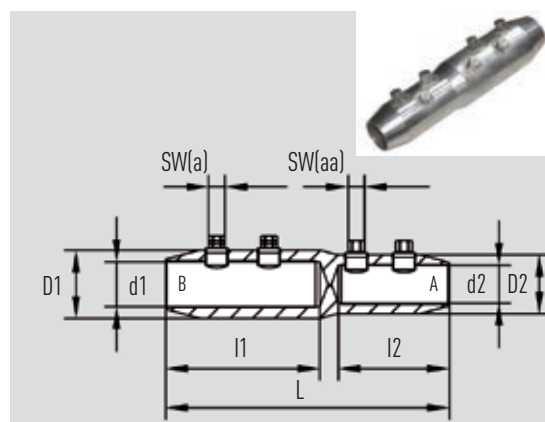
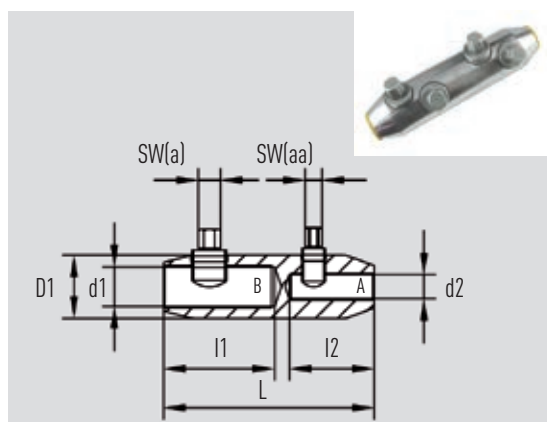
(*)=conductor slightly rounded, for instance with flat-nosed pliers

Explanation of key sizes of contact screws: SW(a)=outer hexagon

(1) Depending on size of cross section

Aluminium Screw Connector MV

**CONCENTRIC DESIGN
REDUCTION CONNECTOR**



Cross Section (mm²)		Connector Barrel										Contact Screw				Type Number
A	B	filled with grease	with oil-stop	uncoated	Dimensions (mm)							shear-head screw unremovable	number	SW(i) (DIN 475)	torque (Nm)	
					D1	D2	d1	d2	L	l1	l2					
25-95 RE 25-70 RM / 95 RM(v) 50-70 SE / 95 SE(r) 35-50 SM / 70 SM(*)	70-240 RE 70-185 RM / 240 RM(v) 70-185 SE(*) 70-150 SM / 185 SM(r)	•	•	•	33		20.4	12.4	110	58	44	•	2	8	16 ⁽¹⁾ -19	298 301
													2	10	27 ⁽¹⁾ -31	
95-400 RE 95-400 RM / 400 RM(v) 95-240 SE 95-300 SM(r)	300-630 RM 300-630 RM(v) 300-400 SM(*)	•	•	•	52		33.4	27.4	185	93	79	•	3	10	27 ⁽¹⁾ -31	298 368
													3	13	28 ⁽¹⁾ -32	
630 RM(v)	800 / 1000 AI RM(v)	•	•	•	60	52	39.4	33.4	250	135	98	•	3	13	28 ⁽¹⁾ -29.5	298 347
													4	13	100	

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded, (r)=Rounded

(*)=conductor slightly rounded, for instance with flat-nosed pliers

Explanation of key sizes of contact screws: SW(a)=outer hexagon, SW(i)=inner hexagon

(1) Depending on size of cross section

OHMESH LV + MV

Part No.	Nominal Lift mm	Pack	Qty
OHMESH	Tinned copper mesh 60mm 3m pack	Each	1



Parallel insulation-piercing tap-off clamps LV INSULATED



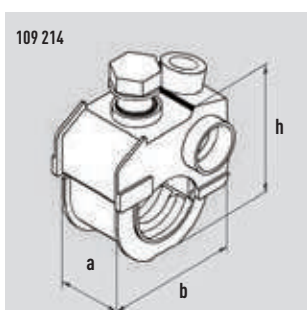
109 214



198 388



198 414



109 214

Material

Contact screw (mains)	Electrolytic copper, tin plated
Contact screw (branch)	Galvanised steel
Screw head (109 214, 198 408, 198 414)	Plastic glassfibre-reinforced
Insulated housing	Plastic glassfibre-reinforced
Connector	Copper alloy, tin plated



Suitable for live installation without stripping of mains conductor.



Separate installation of branch conductor from mains conductor to prevent shifting of live mains conductor during installation.



No evasion of mains conductor as connection channel is closed with a slide.



Reliable contact by piercing of main conductor insulation with insulation-piercing screws and cross cuttings.



Strengthening of material and increased stability of up to 50% in contact area.



Advantageous storage due to universal usage with large cross-sectional ranges.



Simple installation with fully-insulated T-box wrench.

Cross Section (mm²)		Connector									Packing Unit	Type Unit
		Dimensions (mm)			Connector Screw							
		a	b	h	outer hexagon	inner hexagon	KS DIN 475	Thred DIN 13	Number	torque (Nm)		
Mains	Branch	a	b	h	outer hexagon	inner hexagon	KS DIN 475	Thred DIN 13	Number	torque (Nm)	Pieces	Ohug Code
16 RE-150 SE	2.5-50 RM	25	45	45	•		13	M 10 x 1	1	14	10	109 214
						•	5	M 10	1 ⁽¹⁾	---		
16 RE-150 SE	2.5-70 RM	25	45	45		•	5	M 10 x 1	1	15-20	10	198 388
						•	5	M 10	1 ⁽¹⁾	---		
16 RE-150 RM	SM 2.5-50 RM	25	45	50	•		13	M 10 x 1	1	14	10	198 408
						•	5	M 10	1 ⁽¹⁾	---		
16 RE-150 RM	SE 35RE-95 RM	25	45	50	•		13	M 10 x 1	1	14	10	198 414 ⁽²⁾
						•	5	M 10	1 ⁽¹⁾	---		

Explanation of cross sections: R=Round, S=Sectorial, E=Solid, M=Stranded

(1) Contact screw (branch)

(2) This single connector is to be used only on neutral conductors or ground conductors

Copper Crimp Lug

Order Code	Description	Pack	Qty
HT 1.5-4	Tinned Cu Lugs HD Long Barrel 1.5-4	Pack	20
HT 1.5-5	Tinned Cu Lugs HD Long Barrel 1.5-5	Pack	20
HT 1.5-6	Tinned Cu Lugs HD Long Barrel 1.5-6	Pack	20
HT 1.5-8	Tinned Cu Lugs HD Long Barrel 1.5-8	Pack	20
HT 2.5-4	Tinned Cu Lugs HD Long Barrel 2.5-4	Pack	20
HT 2.5-5	Tinned Cu Lugs HD Long Barrel 2.5-5	Pack	20
HT 2.5-6	Tinned Cu Lugs HD Long Barrel 2.5-6	Pack	20
HT 2.5-8	Tinned Cu Lugs HD Long Barrel 2.5-8	Pack	20
HT 4-4	Tinned Cu Lugs HD Long Barrel 4-4	Pack	20
HT 4-5	Tinned Cu Lugs HD Long Barrel 4-5	Pack	20
HT 4-6	Tinned Cu Lugs HD Long Barrel 4-6	Pack	20
HT 4-8	Tinned Cu Lugs HD Long Barrel 4-8	Pack	20
HT 4-10	Tinned Cu Lugs HD Long Barrel 4-10	Pack	20
HT6-5	Tinned Cu Lugs HD Long Barrel 6-5	Pack	20
HT6-6	Tinned Cu Lugs HD Long Barrel 6-6	Pack	20
HT6-8	Tinned Cu Lugs HD Long Barrel 6-8	Pack	20
HT6-10	Tinned Cu Lugs HD Long Barrel 6-10	Pack	20
HT10-6	Tinned Cu Lugs HD Long Barrel 10-6	Pack	20
HT10-8	Tinned Cu Lugs HD Long Barrel 10-8	Pack	20
HT10-10	Tinned Cu Lugs HD Long Barrel 10-10	Pack	20
HT10-12	Tinned Cu Lugs HD Long Barrel 10-12	Pack	20
ATH16-6	Tinned Cu Lugs HD Long Barrel 16-6	Pack	10
ATH16-8	Tinned Cu Lugs HD Long Barrel 16-8	Pack	10
ATH16-10	Tinned Cu Lugs HD Long Barrel 16-10	Pack	10
ATH16-12	Tinned Cu Lugs HD Long Barrel 16-12	Pack	10
ATH20-6	Tinned Cu Lugs HD Long Barrel 20-6	Pack	10
ATH20-8	Tinned Cu Lugs HD Long Barrel 20-8	Pack	10
ATH20-10	Tinned Cu Lugs HD Long Barrel 20-10	Pack	10
ATH25-6	Tinned Cu Lugs HD Long Barrel 25-6	Pack	10
ATH25-8	Tinned Cu Lugs HD Long Barrel 25-8	Pack	10
ATH25-10	Tinned Cu Lugs HD Long Barrel 25-10	Pack	10
ATH25-12	Tinned Cu Lugs HD Long Barrel 25-12	Pack	10
ATH35-6	Tinned Cu Lugs HD Long Barrel 35-6	Pack	10
ATH35-8	Tinned Cu Lugs HD Long Barrel 35-8	Pack	10
ATH35-10	Tinned Cu Lugs HD Long Barrel 35-10	Pack	10
ATH35-12	Tinned Cu Lugs HD Long Barrel 35-12	Pack	10



Order Code	Description	Pack	Qty
ATH50-6	Tinned Cu Lugs HD Long Barrel 50-6	Pack	5
ATH50-8	Tinned Cu Lugs HD Long Barrel 50-8	Pack	5
ATH50-10	Tinned Cu Lugs HD Long Barrel 50-10	Pack	5
ATH50-12	Tinned Cu Lugs HD Long Barrel 50-12	Pack	5
ATH70-6	Tinned Cu Lugs HD Long Barrel 70-6	Pack	5
ATH70-8	Tinned Cu Lugs HD Long Barrel 70-8	Pack	5
ATH70-10	Tinned Cu Lugs HD Long Barrel 70-10	Pack	5
ATH70-12	Tinned Cu Lugs HD Long Barrel 70-12	Pack	5
ATH70-16	Tinned Cu Lugs HD Long Barrel 70-16	Pack	5
ATH95-8	Tinned Cu Lugs HD Long Barrel 95-8	Pack	5
ATH95-10	Tinned Cu Lugs HD Long Barrel 95-10	Pack	5
ATH95-12	Tinned Cu Lugs HD Long Barrel 95-12	Pack	5
ATH95-16	Tinned Cu Lugs HD Long Barrel 95-16	Pack	5
ATH120-8	Tinned Cu Lugs HD Long Barrel 120-8	Pack	1
ATH120-10	Tinned Cu Lugs HD Long Barrel 120-10	Pack	1
ATH120-12	Tinned Cu Lugs HD Long Barrel 120-12	Pack	1
ATH120-16	Tinned Cu Lugs HD Long Barrel 120-16	Pack	1
HT150-8	Tinned Cu Lugs HD Long Barrel 150-8	Pack	1
HT150-10	Tinned Cu Lugs HD Long Barrel 150-10	Pack	1
HT150-12	Tinned Cu Lugs HD Long Barrel 150-12	Pack	1
HT150-16	Tinned Cu Lugs HD Long Barrel 150-16	Pack	1
HT150-20	Tinned Cu Lugs HD Long Barrel 150-20	Pack	1
HT185-10	Tinned Cu Lugs HD Long Barrel 185-10	Pack	1
HT185-12	Tinned Cu Lugs HD Long Barrel 185-12	Pack	1
HT185-16	Tinned Cu Lugs HD Long Barrel 185-16	Pack	1
HT240-10	Tinned Cu Lugs HD Long Barrel 240-10	Pack	1
HT240-12	Tinned Cu Lugs HD Long Barrel 240-12	Pack	1
HT240-16	Tinned Cu Lugs HD Long Barrel 240-16	Pack	1
HT300-10	Tinned Cu Lugs HD Long Barrel 300-10	Pack	1
HT300-12	Tinned Cu Lugs HD Long Barrel 300-12	Pack	1
HT300-16	Tinned Cu Lugs HD Long Barrel 300-16	Pack	1
HT400-BL	Tinned Cu Lugs HD Long Barrel 400 Blank	Pack	1
ATH500-MBL	Tinned Cu Lugs HD Long Barrel 500 Blank	Pack	1
ATH630-MBL	Tinned Cu Lugs HD Long Barrel 630 Blank	Pack	1



Bell Mouth Lugs

Order Code	Description	Pack	Qty
OHBM16-6	Tinned Cu Lug HD Long Barrel Bell Mouth 16-6	Pack	10
OHBM16-8	Tinned Cu Lug HD Long Barrel Bell Mouth 16-8	Pack	10
OHBM16-10	Tinned Cu Lug HD Long Barrel Bell Mouth 16-10	Pack	10
OHBM16-12	Tinned Cu Lug HD Long Barrel Bell Mouth 16-12	Pack	10
OHBM25-6	Tinned Cu Lug HD Long Barrel Bell Mouth 25-6	Pack	10
OHBM25-8	Tinned Cu Lug HD Long Barrel Bell Mouth 25-8	Pack	10
OHBM25-10	Tinned Cu Lug HD Long Barrel Bell Mouth 25-10	Pack	10
OHBM25-12	Tinned Cu Lug HD Long Barrel Bell Mouth 25-12	Pack	10
OHBM35-6	Tinned Cu Lug HD Long Barrel Bell Mouth 35-6	Pack	10
OHBM35-8	Tinned Cu Lug HD Long Barrel Bell Mouth 35-8	Pack	10
OHBM35-10	Tinned Cu Lug HD Long Barrel Bell Mouth 35-10	Pack	10
OHBM35-12	Tinned Cu Lug HD Long Barrel Bell Mouth 35-12	Pack	10
OHBM50-8	Tinned Cu Lug HD Long Barrel Bell Mouth 50-8	Pack	5
OHBM50-10	Tinned Cu Lug HD Long Barrel Bell Mouth 50-10	Pack	5
OHBM50-12	Tinned Cu Lug HD Long Barrel Bell Mouth 50-12	Pack	5
OHBM70-8	Tinned Cu Lug HD Long Barrel Bell Mouth 70-8	Pack	5
OHBM70-10	Tinned Cu Lug HD Long Barrel Bell Mouth 70-10	Pack	5
OHBM70-12	Tinned Cu Lug HD Long Barrel Bell Mouth 70-12	Pack	5
OHBM95-8	Tinned Cu Lug HD Long Barrel Bell Mouth 95-8	Pack	5
OHBM95-10	Tinned Cu Lug HD Long Barrel Bell Mouth 95-10	Pack	5
OHBM95-12	Tinned Cu Lug HD Long Barrel Bell Mouth 95-12	Pack	5
OHBM120-10	Tinned Cu Lug HD Long Barrel Bell Mouth 120-10	Pack	1
OHBM120-12	Tinned Cu Lug HD Long Barrel Bell Mouth 120-12	Each	1
OHBM150-10	Tinned Cu Lug HD Long Barrel Bell Mouth 150-10	Pack	1
OHBM150-12	Tinned Cu Lug HD Long Barrel Bell Mouth 150-12	Each	1
OHBM185-10	Tinned Cu Lug HD Long Barrel Bell Mouth 185-10	Each	1
OHBM185-12	Tinned Cu Lug HD Long Barrel Bell Mouth 185-12	Each	1
OHBM240-12	Tinned Cu Lug HD Long Barrel Bell Mouth 240-12	Each	1
OHBM240-16	Tinned Cu Lug HD Long Barrel Bell Mouth 240-16	Each	1
OHBM240-BL	Tinned Cu Lug HD Long Barrel Bell Mouth 240-BLANK	Each	1
OHBM300-12	Tinned Cu Lug HD Long Barrel Bell Mouth 300-12	Each	1
OHBM300-16	Tinned Cu Lug HD Long Barrel Bell Mouth 300-16	Each	1
OHBM300-BL	Tinned Cu Lug HD Long Barrel Bell Mouth 300-BLANK	Each	1
OHBM400-BL	Tinned Cu Lug HD Long Barrel Bell Mouth 400-BLANK	Each	1



Bi-Metal Lug for LV & MV (up to 30kV)

Order Code	Description	Pack	Qty
HBT16-12	Aluminium-Copper Bi metal Lug (with copper palms) 16mm-12mm	Each	1
HBT25-12	Aluminium-Copper Bi metal Lug (with copper palms) 25mm-12mm	Each	1
HBT35-12	Aluminium-Copper Bi metal Lug (with copper palms) 35mm-12mm	Each	1
HBT50-12	Aluminium-Copper Bi metal Lug (with copper palms) 50mm-12mm	Each	1
HBT70-12	Aluminium-Copper Bi metal Lug (with copper palms) 70mm-12mm	Each	1
HBT95-12	Aluminium-Copper Bi metal Lug (with copper palms) 95mm-12mm	Each	1
HBT120-12	Aluminium-Copper Bi metal Lug (with copper palms) 120mm-12mm	Each	1
HBT150-12	Aluminium-Copper Bi metal Lug (with copper palms) 150mm-12mm	Each	1
HBT185-12	Aluminium-Copper Bi metal Lug (with copper palms) 185mm-12mm	Each	1
HBT240-12	Aluminium-Copper Bi metal Lug (with copper palms) 240mm-12mm	Each	1
HBT300-12	Aluminium-Copper Bi metal Lug (with copper palms) 300mm-12mm	Each	1
HBT400-BL	Aluminium-Copper Bi metal Lug (with copper palms) 400mm-Blank	Each	1
HBT500-BL	Aluminium-Copper Bi metal Lug (with copper palms) 500mm-Blank	Each	1
HBT630-BL	Aluminium-Copper Bi metal Lug (with copper palms) 630mm-Blank	Each	1



Tinned Copper Crimp Links

Order Code	Description	Pack	Qty
HC1.5	1.5mm Tinned Copper Crimp Link	Pack	20
HC2.5	2.5mm Tinned Copper Crimp Link	Pack	20
HC4	4mm Tinned Copper Crimp Link	Pack	20
HC6	6mm Tinned Copper Crimp Link	Pack	20
HC10	10mm Tinned Copper Crimp Link	Pack	20
HC16	16mm Tinned Copper Crimp Link	Pack	10
HC20	20mm Tinned Copper Crimp Link	Pack	10
HC25	25mm Tinned Copper Crimp Link	Pack	10
HC35	35mm Tinned Copper Crimp Link	Pack	10
HC50	50mm Tinned Copper Crimp Link	Pack	5
HC70	70mm Tinned Copper Crimp Link	Pack	5
HC95	95mm Tinned Copper Crimp Link	Pack	5
HC120	120mm Tinned Copper Crimp Link	Each	1
HC150	150mm Tinned Copper Crimp Link	Each	1
HC185	185mm Tinned Copper Crimp Link	Each	1
HC240	240mm Tinned Copper Crimp Link	Each	1
HC300	300mm Tinned Copper Crimp Link	Each	1
HC400	400mm Tinned Copper Crimp Link	Each	1
HC500	500mm Tinned Copper Crimp Link	Each	1
HC600	600mm Tinned Copper Crimp Link	Each	1



Aluminium Link for LV & MV (up to 30kV)

Order Code	Description	Pack	Qty
HASC 16	16mm Aluminium Link	Each	1
HASC 25	25mm Aluminium Link	Each	1
HASC 35	35mm Aluminium Link	Each	1
HASC 50	50mm Aluminium Link	Each	1
HASC 70	70mm Aluminium Link	Each	1
HASC 95	95mm Aluminium Link	Each	1
HASC 120	120mm Aluminium Link	Each	1
HASC 150	150mm Aluminium Link	Each	1
HASC 185	185mm Aluminium Link	Each	1
HASC 240	240mm Aluminium Link	Each	1
HASC 300	300mm Aluminium Link	Each	1



Full Tension Sleeves Copper

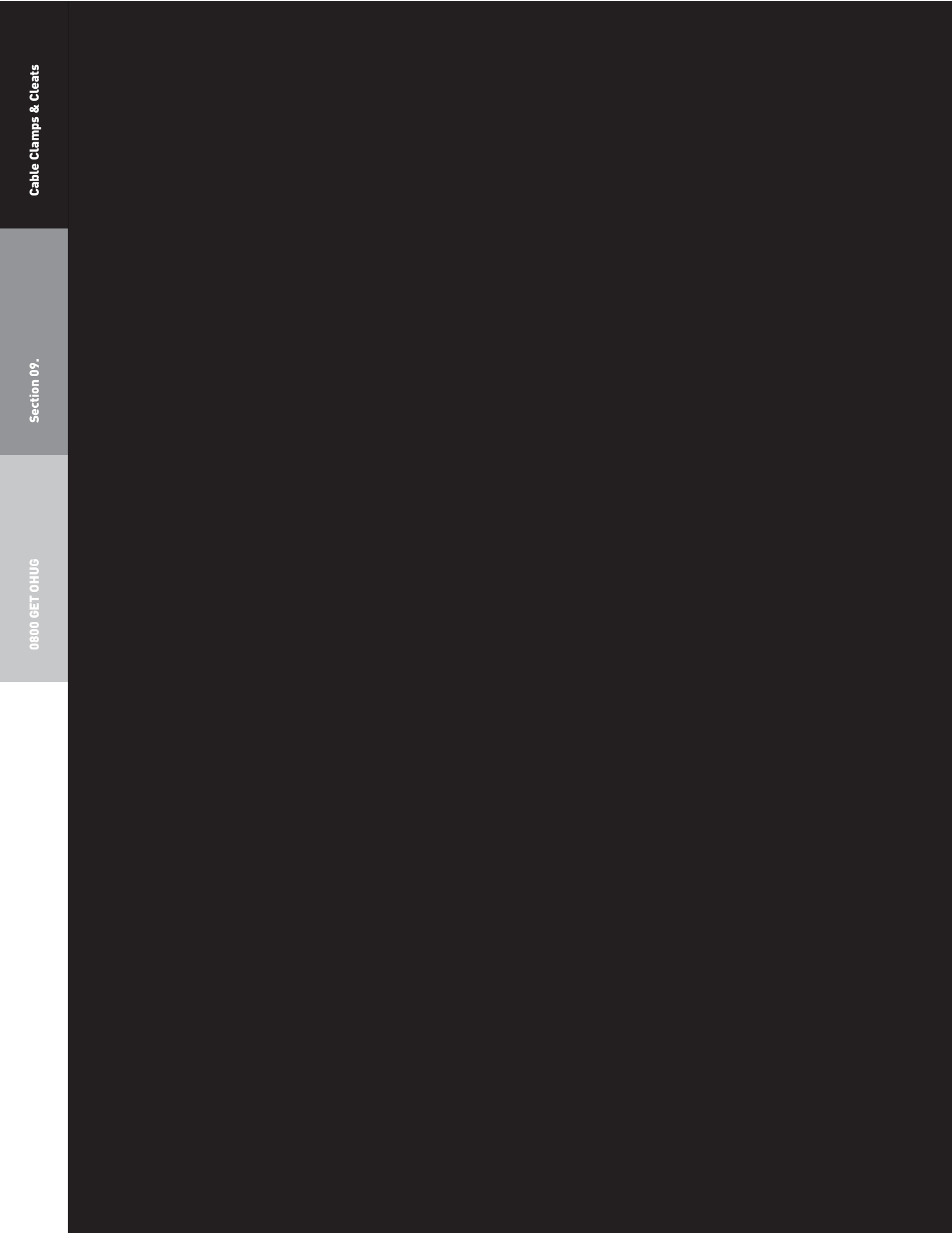
Order Code	Description	Pack	Qty
19/.083	Full tension sleeves copper 19/.083	Pack	1
19/.064	Full tension sleeves copper 19/.064	Pack	1
7/2.14	Full tension sleeves copper 7/2.14	Pack	1
7/1.7	Full tension sleeves copper 7/1.7	Pack	1
8	Full tension sleeves copper 8	Pack	1
7/.044	Full tension sleeves copper 7/.044	Pack	1



Line Taps/Split Bolts Tinned

Order Code	Description	Pack	Qty
HSBC-6	6mm tinned line tap	Each	1
HSBC-10	10mm tinned line tap	Each	1
HSBC-16	16mm tinned line tap	Each	1
HSBC-25	25mm tinned line tap	Each	1
HSBC-35	35mm tinned line tap	Each	1
HSBC-50	50mm tinned line tap	Each	1
HSBC-70	70mm tinned line tap	Each	1
HSBC-95	95mm tinned line tap	Each	1
HSBC-120	120mm tinned line tap	Each	1
HSBC-185	185mm tinned line tap	Each	1





Section 09

Cable Clamps and Cleats

Cable Clamps and Cleats

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Quick selection guide



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Vulcan+™ page 196



Vulcan+™ Quad page 198



Vulcan+™ Twist Foot page 200



Emperor™ Trefoil page 202



Emperor™ Single page 204



Flexi-strap™ page 206



Protect™ page 208



Trident™ page 210



Colossus™ page 212



Centaur® page 214



Centaur® Strap page 216



Cable Guide Clamp™ page 218



Atlas™ page 220



Vari-cleat™ page 222



No Bolts Cleat™ page 224



One & Two Hole Cableclamps - Aluminium page 226-229



One & Two Hole Cableclamps - Non Metallic page 230-233



Phoenix® page 234



Matrix™ page 236



Mk2 Hanger page 238



Convex Hanger page 239



Pegasus Hanger page 240



Triplex Cable Surround page 242



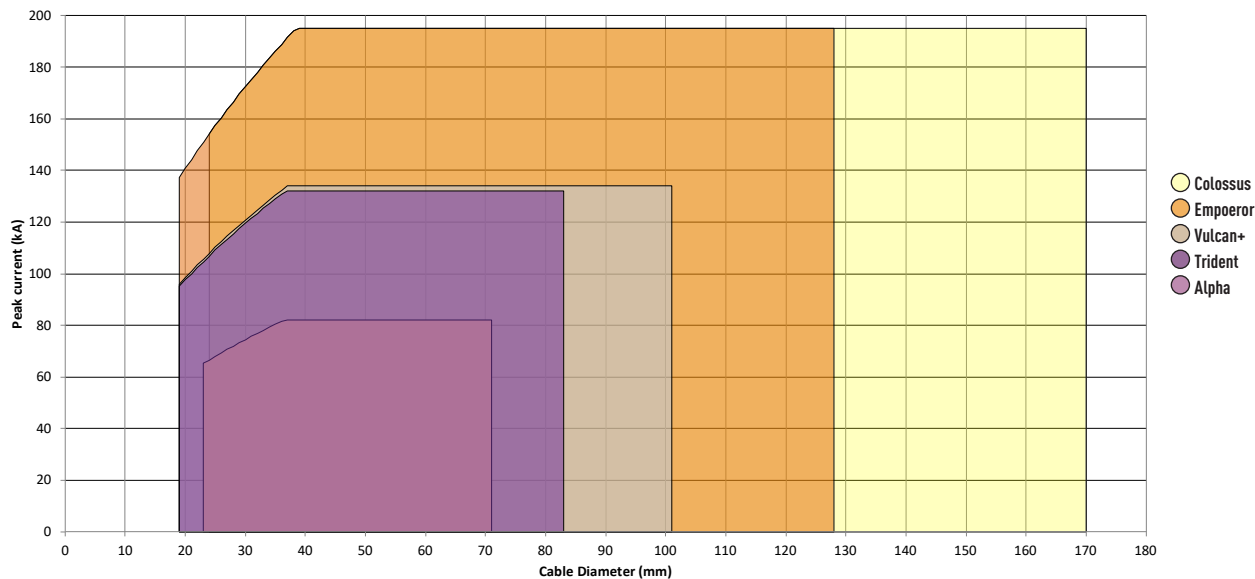
Single Bolt Fixing Clamp page 244

For trefoil only

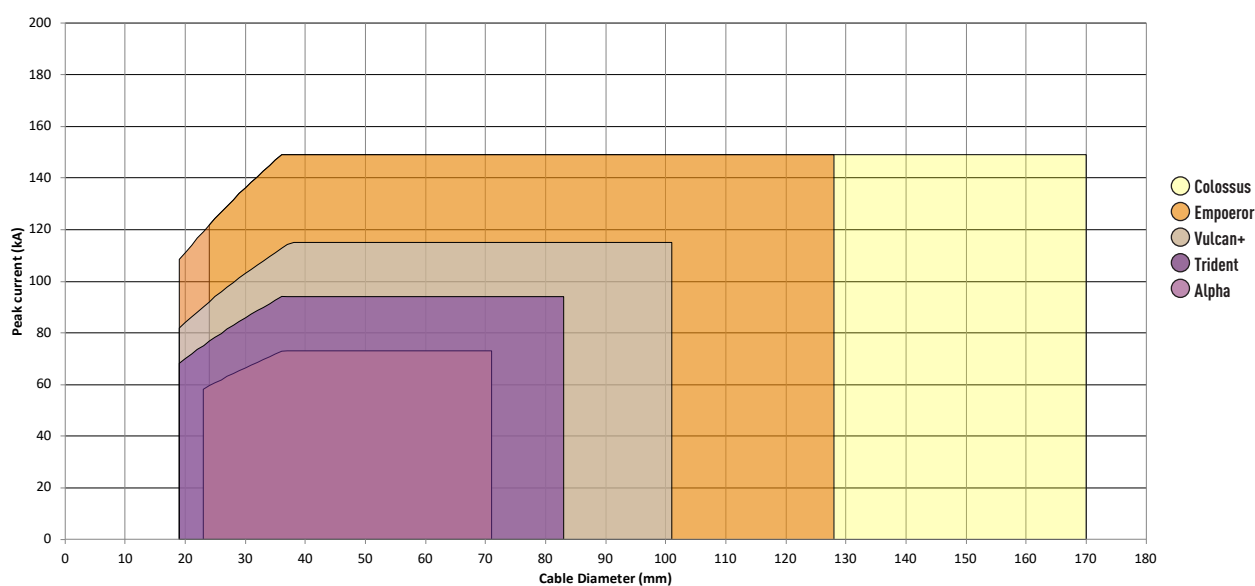


Trident™ Light duty Polymeric cleat	Alpha™ Light duty Compact Aluminium	Vulcan+™ Standard duty Compact Stainless steel	Emperor™ Heavy duty Compact Stainless steel	ColoSsus™ Heavy duty Compact Polymeric and Stainless steel
-----------------------------------------------	-----------------------------------------------	----------------------------------------------------------	-------------------------------------------------------	----------------------------------------------------------------------

Ellis Cleat Range. Cleats Spaced at 300mm



Ellis Cleat Range. Cleats Spaced at 600mm



The above graphs can be used to provide a general indication of relative cleat strengths.

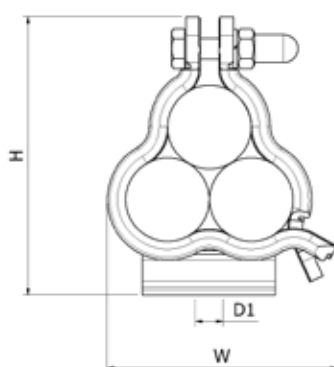
Alpha™

- > 6000 SERIES ALUMINIUM FRAME
- > ZINC PLATED STEEL M8 CLOSURE FIXINGS
- > POLYESTER COATED FRAMES ARE AVAILABLE ON REQUEST
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > ABS APPROVED AND UL LISTED

Aluminium Trefoil Cleats
Patent No. UK Patent GB 240 5900



PART NO. ALUMINIUM BASE	PART NO. POLYMER BASE	CABLE RANGE TREFOIL		DIMENSIONS (MM)				WEIGHT (g)
		MIN Ø (mm)	MAX Ø (mm)	W	H	D	FIXING HOLES (D1)	
ALP01-ANO	ALP01-AN1	23.2	25.1	76	93	48.5	1 x M10	168
ALP02-ANO	ALP02-AN1	25.1	27.1	79	96	48.5	1 x M10	178
ALP03-ANO	ALP03-AN1	27.1	29.3	82	101	48.5	1 x M10	185
ALP04-ANO	ALP04-AN1	29.3	31.7	86	105	48.5	1 x M10	195
ALP05-ANO	ALP05-AN1	31.7	34.2	91	110	48.5	1 x M10	205
ALP06-ANO	ALP06-AN1	34.2	37.0	96	116	48.5	1 x M10	217
ALP07-ANO	ALP07-AN1	37.0	40.0	101	121	48.5	1 x M10	229
ALP08-ANO	ALP08-AN1	40.0	43.2	106	127	48.5	1 x M10	241
ALP09-ANO	ALP09-AN1	43.2	46.7	113	134	48.5	1 x M10	255
ALP10-ANO	ALP10-AN1	46.7	50.5	119	141	48.5	1 x M10	272
ALP11-ANO	ALP11-AN1	50.5	54.6	127	148	48.5	1 x M10	288
ALP12-ANO	ALP12-AN1	54.6	59.0	135	156	48.5	1 x M10	307
ALP13-ANO	ALP13-AN1	59.0	63.8	144	165	48.5	1 x M10	327
ALP14-ANO	ALP14-AN1	63.8	69.0	153	175	48.5	1 x M10	348
ALP15-ANO	ALP15-AN1	69.0	74.6	163	186	48.5	1 x M10	372



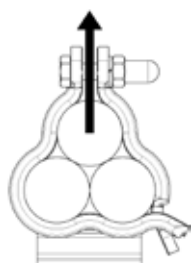
ALUMINIUM BASE

POLYMER BASE
(WITH POLYESTER COATED FRAME)

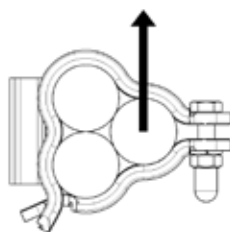
Testing Summary

Alpha Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.1, 6.1.3	METALLIC / COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1	XENON ARC METHOD A	PASS APPLICABLE TO POWDER COATED AND POLYMER BASE OPTIONS
CORROSION RESISTANCE	6.5.2	REFER TO OHUG	REFER TO OHUG
IMPACT RATING	6.3.5,	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 500N VERTICAL - 500N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	82kA (REPORT No. PDL-18.184) CABLE OD = Ø35mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	73.4kA (REPORT No. PDL-18.122.2) CABLE OD = Ø36mm



LATERAL LOAD
VERTICAL DIRECTION



LATERAL LOAD
HORIZONTAL DIRECTION



CONDUIT & CABLE HARDWARE 4CG8 WITH AH-2 & WET LOCATIONS. LISTED SIZES: ALP01-AN0 TO ALP15-AN0.



LONDON UNDERGROUND
ALPHA CABLE CLEATS ARE COMPLIANT WITH THE REQUIREMENTS OF LUL-1085. PRODUCT REGISTER NUMBER 360.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

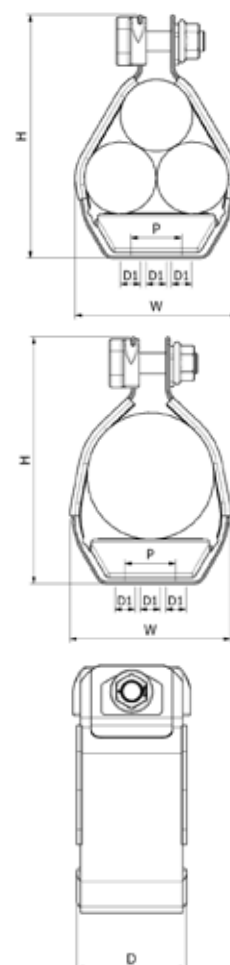
Vulcan™

- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH
- > CAPTIVE CLOSURE FIXINGS FOR FAST INSTALL
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > ABS AND DNV TYPE APPROVED AND ALSO UL LISTED

Stainless Steel Cable Cleats
Patent No. UK Patent GB 236 1029



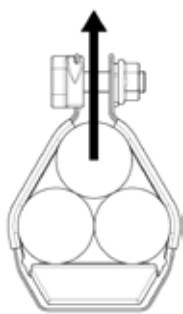
PART NO.	CABLE RANGE TREFOIL		CABLE RANGE SINGLE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	FIXING HOLES (D1)	
VRT+00	19	24	30	42	60	93	54	N/A	1 x M10	251
VRT+01	23	28	38	50	63	98	54	N/A	1 x M10	258
VRT+02	27	32	43	58	72	106	54	N/A	1 x M10	269
VRT+03	30	35	49	64	79	112	54	N/A	1 x M10	279
VRT+04	33	38	55	70	85	118	54	N/A	1 x M10	284
VRT+05	36	42	58	75	96	125	54	N/A	1 x M10	319
VRT+06	40	46	63	84	105	133	54	N/A	1 x M10	331
VRT+07	44	50	73	90	112	140	54	N/A	1 x M10	391
VRT+08	48	55	83	100	121	149	54	N/A	1 x M10	405
VRT+09	51	58	86	104	126	154	54	N/A	1 x M10	411
VRT+10	55	62	88	110	134	162	54	50	3 x M10	442
VRT+11	59	66	90	115	143	170	54	50	3 x M10	453
VRT+12	63	70	100	125	152	177	54	50	3 x M10	460
VRT+13	67	74	107	132	161	185	54	75	3 x M10	524
VRT+14	71	78	120	145	169	192	54	75	3 x M10	536
VRT+15	74	82	125	150	176	199	54	75	3 x M10	542
VRT+16	77	85	132	153	183	205	54	75	3 x M10	544
VRT+17	81	89	136	156	190	216	54	75	3 x M10	618
VRT+18	85	93	139	159	200	225	54	75	3 x M10	628
VRT+19	89	97	142	162	200	235	54	75	3 x M10	637
VRT+20	93	101	160	170	215	240	54	75	3 x M10	646



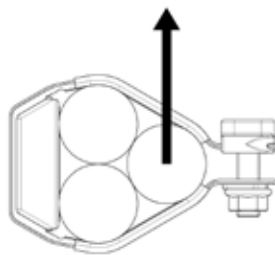
Testing Summary

Vulcan+ Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS ≥16% CHROMIUM
IMPACT RATING	6.3.4	HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	150N - TREFOIL 45N - SINGLE
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 200N VERTICAL - 650N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	134kA (REPORT No. PDL-18.122.1) CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	115kA (REPORT No. PDL-16.164.3) CABLE OD= Ø36mm



LATERAL LOAD
VERTICAL DIRECTION



LATERAL LOAD
HORIZONTAL DIRECTION



CONDUIT & CABLE HARDWARE 4CG8 WITH AH-2 & WET LOCATIONS. LISTED SIZES: ALP01-AN0 TO ALP15-AN0.



LONDON UNDERGROUND
ALPHA CABLE CLEATS ARE COMPLIANT WITH THE REQUIREMENTS OF LUL-1085. PRODUCT REGISTER NUMBER 360.

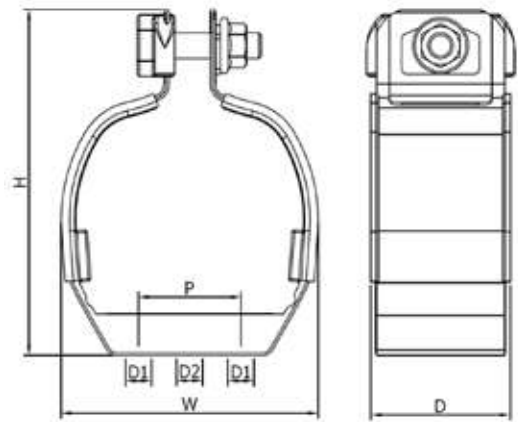
Vulcan+™ Quad

- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH
- > CAPTIVE CLOSURE FIXINGS FOR FAST INSTALL
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > ABS AND DNV TYPE APPROVED AND ALSO UL LISTED

Patent No. UK Patent GB 236 1029



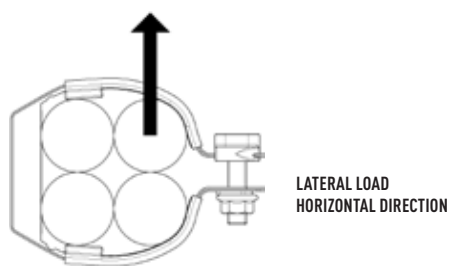
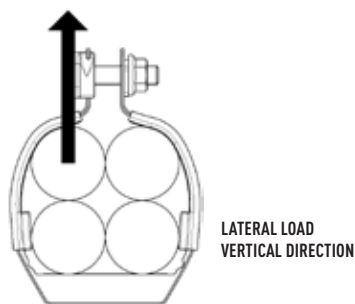
PART NO.	CABLE RANGE SINGLE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	FIXING HOLES (D1)	
VRQ+01	23	25	68	110	54	N/A	1 x M10	284
VRQ+02	26	27	70	113	54	N/A	1 x M10	286
VRQ+03	28	31	78	128	54	N/A	1 x M10	318
VRQ+03A	31	35	90	138	54	N/A	1 x M10	350
VRQ+04	35	42	103	148	54	N/A	1 x M10	378
VRQ+05	43	47	120	165	54	N/A	1 x M10	452
VRQ+06	48	50	121	170	54	N/A	1 x M10	467
VRQ+07	51	57	140	190	54	50	3 x M10	486
VRQ+08	58	63	150	200	54	50	3 x M10	499
VRQ+09	64	70	170	218	54M10	75	3 x M10	581



Testing Summary

Vulcan+ Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS ≥16% CHROMIUM
IMPACT RATING	6.3.4	HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	150N - TREFOIL 45N - SINGLE
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 200N VERTICAL - 650N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	134kA (REPORT No. PDL-18.122.1) CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	115kA (REPORT No. PDL-16.164.3) CABLE OD= Ø36mm



CONDUIT & CABLE HARDWARE 4CG8 WITH AH-2 & WET LOCATIONS. LISTED SIZES: ALP01-AN0 TO ALP15-AN0.



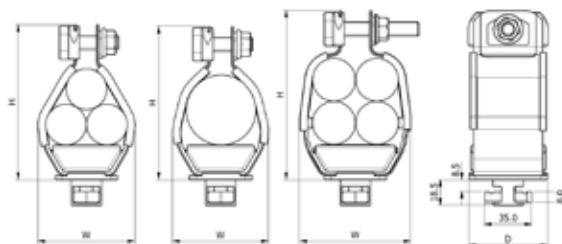
LONDON UNDERGROUND
ALPHA CABLE CLEATS ARE COMPLIANT WITH THE REQUIREMENTS
OF LUL-1085. PRODUCT REGISTER NUMBER 360.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Vulcan+™ Twist Foot

- > **BASE FIXING KIT DESIGNED FOR FAST INSTALL ON 41x41 AND 41x21 UNISTRUT CHANNEL/LADDER**
- > **CLEAT COMES WITH ALL FIXINGS IN PLACE READY FOR INSTALL, NO EXTRA FIXINGS ARE REQUIRED ON SITE**
- > **FIXING KIT CAN BE SUPPLIED IN A4 STAINLESS STEEL, GALVANISED STEEL OR ZINC PLATED STEEL**
- > **SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914 - REFER TO VRT+ and VRQ+ DATA SHEETS**

Patent No. UK Patent GB 236 1029



VRT+ Twist Foot Options

PART NO.	CABLE RANGE TREFOIL		CABLE RANGE SINGLE		DIMENSIONS (mm)			WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	MIN Ø (mm)	MAX Ø (mm)	W	H	D	
VRT+00TFM10-X	19	24	30	42	60	96	54	301
VRT+01TFM10-X	23	28	38	50	63	102	54	308
VRT+02TFM10-X	27	32	43	58	72	109	54	319
VRT+03TFM10-X	30	35	49	64	79	115	54	329
VRT+04TFM10-X	33	38	55	70	85	121	54	334
VRT+05TFM10-X	36	42	58	75	96	128	54	369
VRT+06TFM10-X	40	46	63	84	105	137	54	381
VRT+07TFM10-X	44	50	73	90	112	143	54	441
VRT+08TFM10-X	48	55	83	100	121	152	54	455
VRT+09TFM10-X	51	58	86	104	126	158	54	461
VRT+10TFM10-X	55	62	88	110	134	166	54	492
VRT+11TFM10-X	59	66	90	115	143	174	54	503
VRT+12TFM10-X	63	70	100	125	152	181	54	510

VRQ+ Twist Foot Options

PART NO.	CABLE RANGE TREFOIL		DIMENSIONS (mm)			WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	
VRQ+01TFM10-X	23	25	68	110	54	334
VRQ+02TFM10-X	26	27	70	113	54	336
VRQ+03TFM10-X	28	31	78	128	54	368
VRQ+03ATFM10-X	31	35	90	138	54	400
VRQ+04TFM10-X	35	42	103	148	54	428
VRQ+05TFM10-X	43	47	120	165	54	502
VRQ+06TFM10-X	48	50	121	170	54	517

'X' DENOTES FIXING MATERIAL, OPTIONS ARE AS FOLLOWS:

4 = A4 STAINLESS STEEL
G = GALVANISED STEEL
Z = ZINC PLATED STEEL

E.G A VRT+04 WITH STAINLESS STEEL TWIST FOOT FIXINGS BECOMES: VRT+04TFM10-4

Installation Overview



1) LOWER THE CLEAT THROUGH THE GAP IN THE CHANNEL.



2) ONCE LOWERED TWIST THE CLEAT 90°.



3) TIGHTEN THE M10 BOLT IN THE BASE OF THE CLEAT.



4) AS THE BOLT IS TIGHTENED THE CHANNEL NUT WILL MOVE UP THE TWIST FOOT BASE AND GRIP ONTO THE CHANNEL.



5) THE CLEAT IS NOW SECURELY FASTENED TO THE STRUCTURE AND IS READY TO ACCEPT THE CABLES.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Emperor™

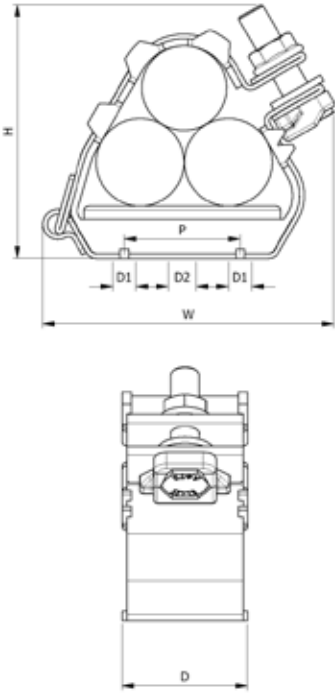
TREFOIL

- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH
- > CAPTIVE CLOSURE FIXINGS FOR FAST INSTALL
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > ABS AND DNV TYPE APPROVED AND ALSO UL LISTED

Stainless Steel Cable Cleats
Patent No. UK Patent GB 233 9237



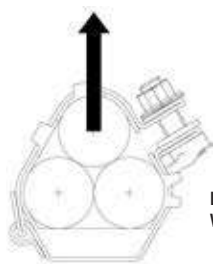
PART NO.	CABLE RANGE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	FIXING HOLES (D1 & D2)	
ER19-23	19	23	96	83	54	25	2 x M10 + 1 x M12	425
ER23-28	23	28	96	83	54	25	2 x M10 + 1 x M12	425
ER27-32	27	32	97	88	54	25	2 x M10 + 1 x M12	440
ER30-35	30	35	99	91	54	25	2 x M10 + 1 x M12	445
ER33-38	33	38	103	95	54	25	2 x M10 + 1 x M12	460
ER36-42	36	42	124	100	54	50	2 x M10 + 1 x M12	600
ER40-46	40	46	125	106	54	50	2 x M10 + 1 x M12	605
ER44-50	44	50	130	117	54	50	2 x M10 + 1 x M12	630
ER48-55	48	55	132	121	54	50	2 x M10 + 1 x M12	640
ER51-58	51	58	136	128	54	50	2 x M10 + 1 x M12	650
ER55-62	55	62	160	135	54	75	2 x M10 + 1 x M12	810
ER59-66	59	66	163	143	54	75	2 x M10 + 1 x M12	825
ER63-70	63	70	166	151	54	75	2 x M10 + 1 x M12	850
ER67-74	67	74	169	158	54	75	2 x M10 + 1 x M12	850
ER71-78	71	78	172	165	54	75	2 x M10 + 1 x M12	890
ER74-82	74	82	177	171	54	75	2 x M10 + 1 x M12	890
ER77-85	77	85	183	177	54	75	2 x M10 + 1 x M12	905
ER82-88	82	88	191	187	54	75	2 x M10 + 1 x M12	820
ER88-96	88	96	207	203	54	75	2 x M10 + 1 x M12	890
ER96-103	96	103	221	218	54	75	2 x M10 + 1 x M12	940
ER103-111	103	111	237	235	54	75	2 x M10 + 1 x M12	950
ER111-119	111	119	253	250	54	75	2 x M10 + 1 x M12	1010
ER119-128	119	128	265	275	54	75	2 x M10 + 1 x M12	1220



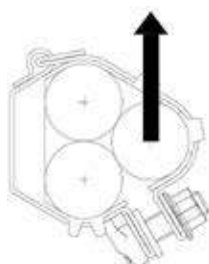
Testing Summary

Emperor Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS≥16% CHROMIUM
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	400
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 650N VERTICAL -1000N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	195kA (REPORT No. PDL-09.098.2) CABLE OD= Ø38mm (IEC 61914:2009)
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	149kA (REPORT No. PDL-17.137.4) CABLE OD= Ø36mm



LATERAL LOAD
VERTICAL DIRECTION



LATERAL LOAD
HORIZONTAL DIRECTION



CONDUIT & CABLE HARDWARE 4CG8 WITH AH-2 & WET LOCATIONS. LISTED SIZES: ALP01-AN0 TO ALP15-AN0.



LONDON UNDERGROUND
ALPHA CABLE CLEATS ARE COMPLIANT WITH THE REQUIREMENTS OF LUL-1085. PRODUCT REGISTER NUMBER 360.

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Emperor™

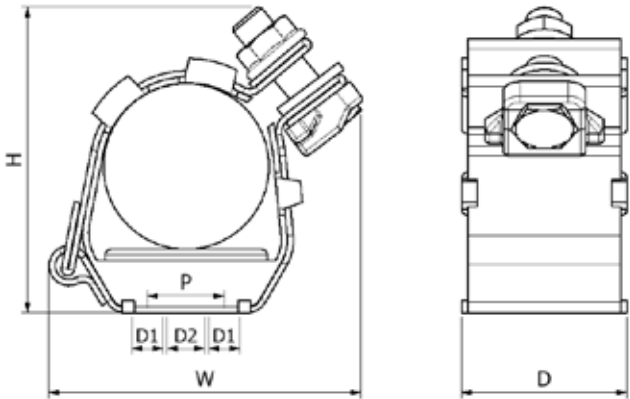
SINGLE

- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH
- > CAPTIVE CLOSURE FIXINGS FOR FAST INSTALL
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > ABS AND DNV TYPE APPROVED AND ALSO UL LISTED

Stainless Steel Cable Cleats
Patent No. UK Patent GB 233 9237



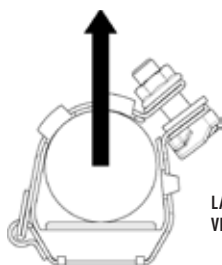
PART NO.	CABLE RANGE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	FIXING HOLES (D1 & D2)	
ES32-39	32	39	91	89	54	25	2 x M10 + 1 x M12	450
ES37-45	37	45	96	93	54	25	2 x M10 + 1 x M12	470
ES44-52	44	52	99	98	54	25	2 x M10 + 1 x M12	480
ES51-59	51	59	103	102	54	25	2 x M10 + 1 x M12	490
ES58-66	58	66	109	101	54	25	2 x M10 + 1 x M12	500
ES65-73	65	73	111	103	54	25	2 x M10 + 1 x M12	510
ES73-85	73	85	135	112	54	50	2 x M10 + 1 x M12	640
ES84-94	84	94	135	135	54	50	2 x M10 + 1 x M12	660
ES94-118	94	118	160	150	54	50	2 x M10 + 1 x M12	710
ES118-130	118	130	175	160	54	75	2 x M10 + 1 x M12	900
ES127-150	127	150	180	180	54	75	2 x M10 + 1 x M12	940



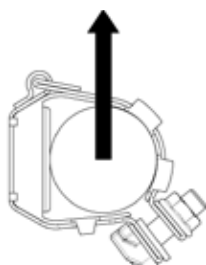
Testing Summary

Emperor Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS ≥16% CHROMIUM
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	125
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 650N VERTICAL - 1000N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING) (EMPEROR TREFOIL)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	195kA (REPORT No. PDL-09.098.2) CABLE OD= Ø38mm (IEC 61914:2009)
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING) (EMPEROR TREFOIL)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	149kA (REPORT No. PDL-17.137.4) CABLE OD= Ø36mm



LATERAL LOAD
VERTICAL DIRECTION



LATERAL LOAD
HORIZONTAL DIRECTION



CONDUIT & CABLE HARDWARE 4CG8 WITH AH-2 & WET LOCATIONS. LISTED SIZES: ALP01-AN0 TO ALP15-AN0.



LONDON UNDERGROUND
ALPHA CABLE CLEATS ARE COMPLIANT WITH THE REQUIREMENTS OF LUL-1085. PRODUCT REGISTER NUMBER 360.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

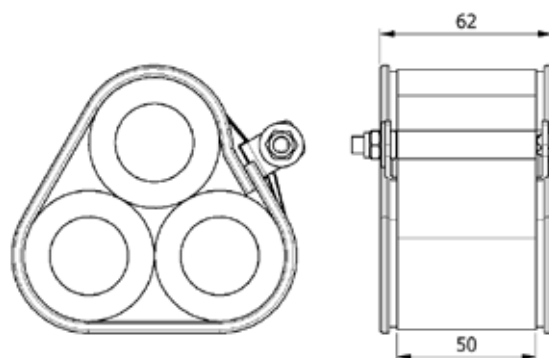
Flexi-Strap™



Intermediate Short-circuit Strap
Patent No. UK Patent GB 252 6331

Flexi-Strap is available with or without a polymeric liner. If a liner is not required remove 'L' from the part number (e.g. FS30-41SD).

- > **316L STAINLESS STEEL FRAME AND FIXINGS**
- > **OPTIONAL SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH**
- > **HEAVY DUTY AND STANDARD DUTY OPTIONS AVAILABLE TO SUIT DIFFERENT SHORT CIRCUIT CONDITIONS**
- > **SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914**
- > **STRAPS CAN BE USED BETWEEN CLEATS TO REDUCE THE TOTAL AMOUNT OF FIXED CLEATS WHILST ENSURING ADEQUATE SHORT CIRCUIT PROTECTION**



Standard Duty Suitable for use with Vulcan+ cleats

PART NO.	CABLE RANGE		WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	
FS24-34SDL	24	34	131
FS30-41SDL	30	41	144
FS37-47SDL	37	47	155
FS43-54SDL	43	54	168
FS50-60SDL	50	60	180
FS56-67SDL	56	67	193
FS63-73SDL	63	73	204
FS69-80SDL	69	80	217
FS72-85SDL	72	85	226
FS82-95SDL	82	95	245
FS92-105SDL	92	105	264
FS102-115SDL	102	115	282
FS112-125SDL	112	125	301
FS122-135SDL	122	135	319
FS132-145SDL	132	145	338

Heavy Duty Suitable for use with Emperor cleats

PART NO.	CABLE RANGE		WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	
FS24-34HDL	24	34	165
FS30-41HDL	30	41	185
FS37-47HDL	37	47	202
FS43-54HDL	43	54	221
FS50-60HDL	50	60	238
FS56-67HDL	56	67	258
FS63-73HDL	63	73	275
FS69-80HDL	69	80	294
FS72-85HDL	72	85	308
FS82-95HDL	82	95	336
FS92-105HDL	92	105	364
FS102-115HDL	102	115	392
FS112-125HDL	112	125	420
FS122-135HDL	122	135	448
FS132-145HDL	132	145	476

Testing Summary

Flexi-Straps have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA (STANDARD DUTY)	TEST DATA (HEAVY DUTY)
CLEAT TYPE	6.1.3	COMPOSITE	N/A	N/A
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60	-40 - 60
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS≥16% CHROMIUM	316L STAINLESS STEEL HAS≥16% CHROMIUM
IMPACT RATING	6.3.5	VERY HEAVY	PASS	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS	PASS
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	134kA (REPORT No. PDL-18.122.3) CABLE OD= Ø36mm	-
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	114kA (REPORT No. PDL-18.122.4) CABLE OD= Ø36mm	156kA (REPORT No. ZKU-15-204) CABLE OD= Ø38mm (IEC 61914:2009)
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 2250N VERTICAL - 2250N	
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	134kA (REPORT No. PDL-18.071.6) CABLE OD= Ø36mm	
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	94kA (REPORT No. PDL-18.071.5) CABLE OD= Ø36mm	

Installation Information:

Flexi-Strap is installed by wrapping multiple layers of stainless steel strip around the cable. It is tightened and locked in place using a patented buckle and spindle design. Standard duty straps are wrapped twice around the cables and heavy duty straps are wrapped three times.

A special drive socket to turn the spindle is supplied with every 50 straps ordered, the socket can attach to a standard 1/4" or 6mm ratchet handle. Drive sockets can be ordered separately using the part number FS-T001-4. Although the FS-T001-4 can speed up installation, standard tools also can be used.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Protect™

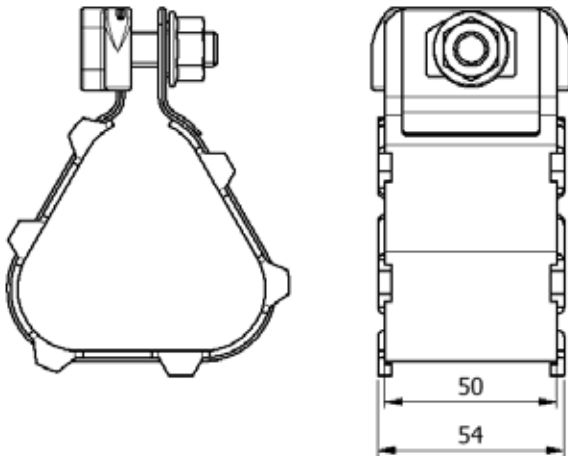
- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC LINER PROTECTS CABLE SHEATH
- > SUITABLE FOR USE IN BETWEEN VULCAN+ CLEATS, REDUCING THE AMOUNT OF FIXED CLEATS WHILST ENSURING SHORT CIRCUIT PROTECTION
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > FOR STRAP SIZE DETAILS CONTACT OHUG



Retention Strap
UK Design Reg No. 355854

Testing Summary

Protect has been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:



PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	N/A
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS>16% CHROMIUM
IMPACT RATING	6.3.5	-	REFER TO OHUG
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	133kA (REPORT No. PDL-18.071) CABLE OD= Ø36mm



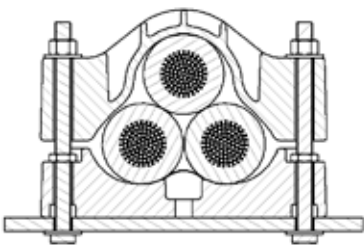
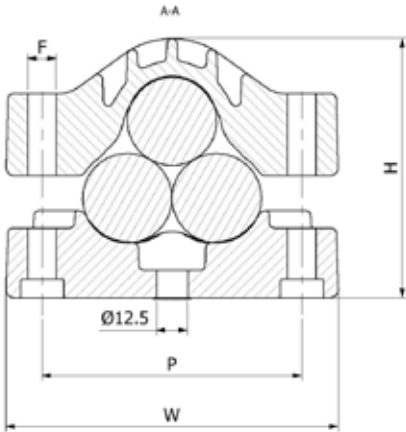
Trident™

- > **MANUFACTURED AS STANDARD IN A HIGH STRENGTH LSF GLASS FILLED NYLON**
- > **SINGLE OR TWO BOLT CLEAT FIXING OPTIONS**
- > **SHAPING OF THE CLEAT ENSURES CABLES ARE HELD IN A TREFOIL FORMATION ACROSS THE RANGE**
- > **SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914**
- > **FIXINGS ARE NOT SUPPLIED AS STANDARD BUT CAN BE PROVIDED ON REQUEST**

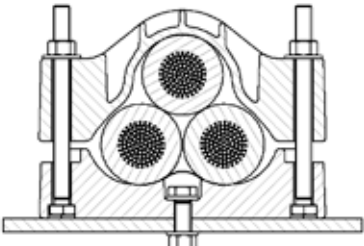


Polymeric Trefoil Cleat

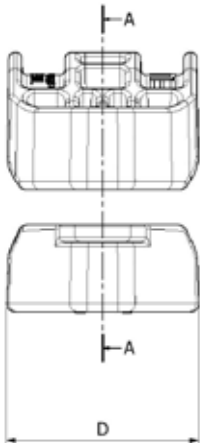
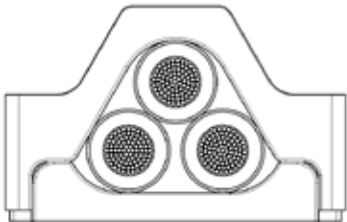
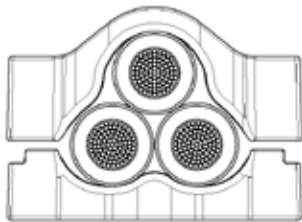
PART NO.	CABLE RANGE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	F	
TR24-29	24	29	122	91	77	92.5	M10	360
TR27-32	27	32	126	95	77	98.5	M10	370
TR30-36	30	36	134	104	77	104.5	M10	383
TR34-41	34	41	144	112	77	114.5	M10	485
TR39-47	39	47	156	124	77	126.5	M10	568
TR45-54	45	54	172	138	77	142.5	M10	666
TR52-62	52	62	190	153	77	160.5	M10	793
TR60-72	60	72	215	177	98	182	M12	1100
TR69-83	69	83	238	198	98	205	M12	1300



FIXING OPTION 1: 2 X M10/M12 FIXINGS



FIXING OPTION 2: 1 X M12 FIXING

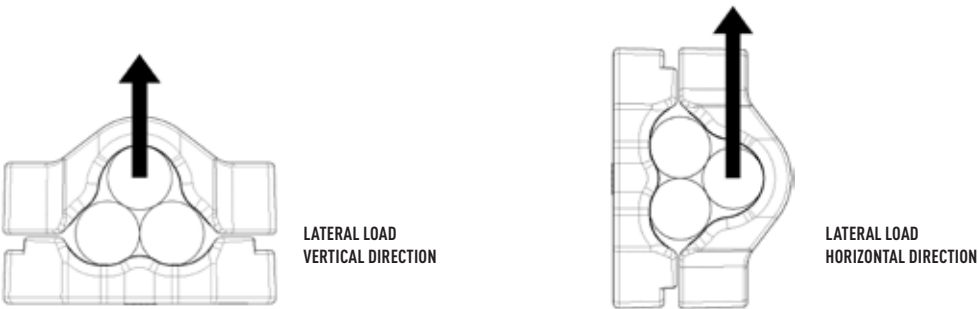


SHAPING OF THE TRIDENT CLAMPS ENSURES CABLES ARE MAINTAINED IN A TRUE TREFOIL FORMATION ACROSS ITS RANGE TAKE, UNLIKE SIMILAR POLYMERIC CLAMPS ON THE MARKET.

Testing Summary

Trident Cleats have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.2	NON-METALLIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
CORROSION RESISTANCE	6.5.2	N/A	N/A
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME >30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	1500
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 2250N VERTICAL - 2250N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	134kA (REPORT No. PDL-18.071.6) CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	94kA (REPORT No. PDL-18.071.5) CABLE OD= Ø36mm



This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Colossus™

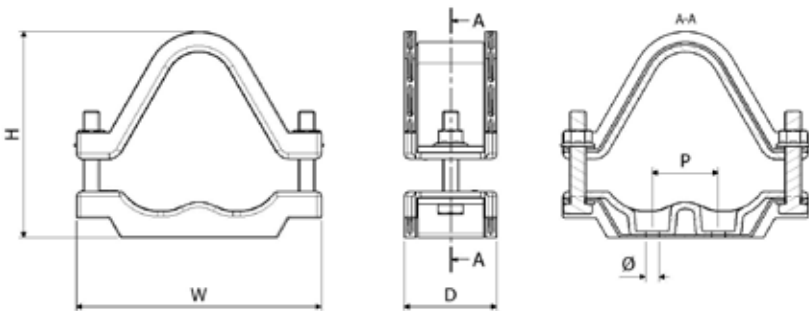
- > 316L STAINLESS STEEL FRAME AND FIXINGS
- > LSF POLYMERIC BASE AND TOP MOULDING PROTECTS THE CABLE SHEATH
- > OPTIONAL SADDLED BASE AVAILABLE FOR LARGE CLEAT SPACING APPLICATIONS
- > COLOSSUS RANGE CAN ACCOMMODATE TREFOIL CABLES FROM Ø24mm TO Ø170mm ACROSS 14 SIZES
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914



Community Design
Reg. No. 001927583

PART NO.	CABLE RANGE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	FIXING HOLES (D1 & D2)	
COL24-29	24	29	128	87	60	25	2 x M10 + M12	604
COL27-32	27	32	133	92	60	25	2 x M10 + M12	623
COL30-36	30	36	137	101	60	25	2 x M10 + M12	639
COL34-41	34	41	146	110	60	25	2 x M10 + M12	690
COL39-47	39	47	157	122	60	25	2 x M10 + M12	734
COL45-54	45	54	171	141	70	50	2 x M10	913
COL52-62	52	62	185	156	70	50	2 x M10	974
COL60-72	60	72	204	176	70	50	2 x M10	1063
COL69-83	69	83	225	202	100	75	2 x M12	1590
COL79-95	79	95	247	225	100	75	2 x M12	1700
COL91-109	91	109	273	253	100	120	2 x M12	1900
COL105-126	105	126	306	286	150	120	2 x M12	3030
COL122-146	122	146	345	324	150	150	2 x M12	3270
COL142-170	142	170	390	371	150	150	2 x M12	3680

A COLOSSUS WITH A SADDLED BASE IS AVAILABLE ON REQUEST FOR COL69-83-COL142-170.
TO ORDER A SADDLED BASE ADD 'SC' TO THE END OF THE PART NUMBER. E.G. COL79-96SC



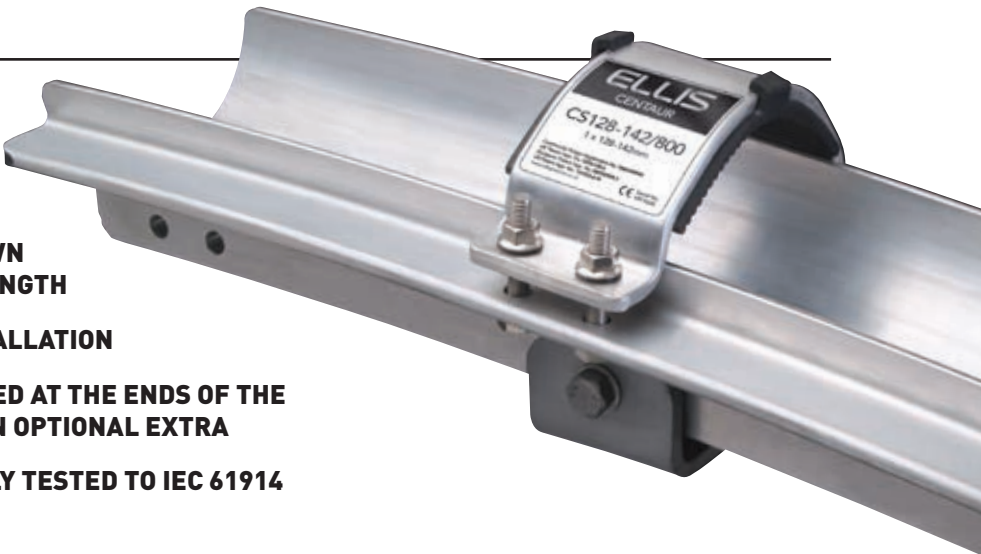
Testing Summary

Colossus Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS ≥16% CHROMIUM
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	170kA (REPORT No. PDL-18.122) CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	150kA (REPORT No. PDL-16.164.2) CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 7.8M INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	104kA (REPORT No. ZKU-12-179) CABLE OD= Ø70mm (WITH PROTECT STRAPS EVERY 1.3m - BASED ON IEC61914:2009)

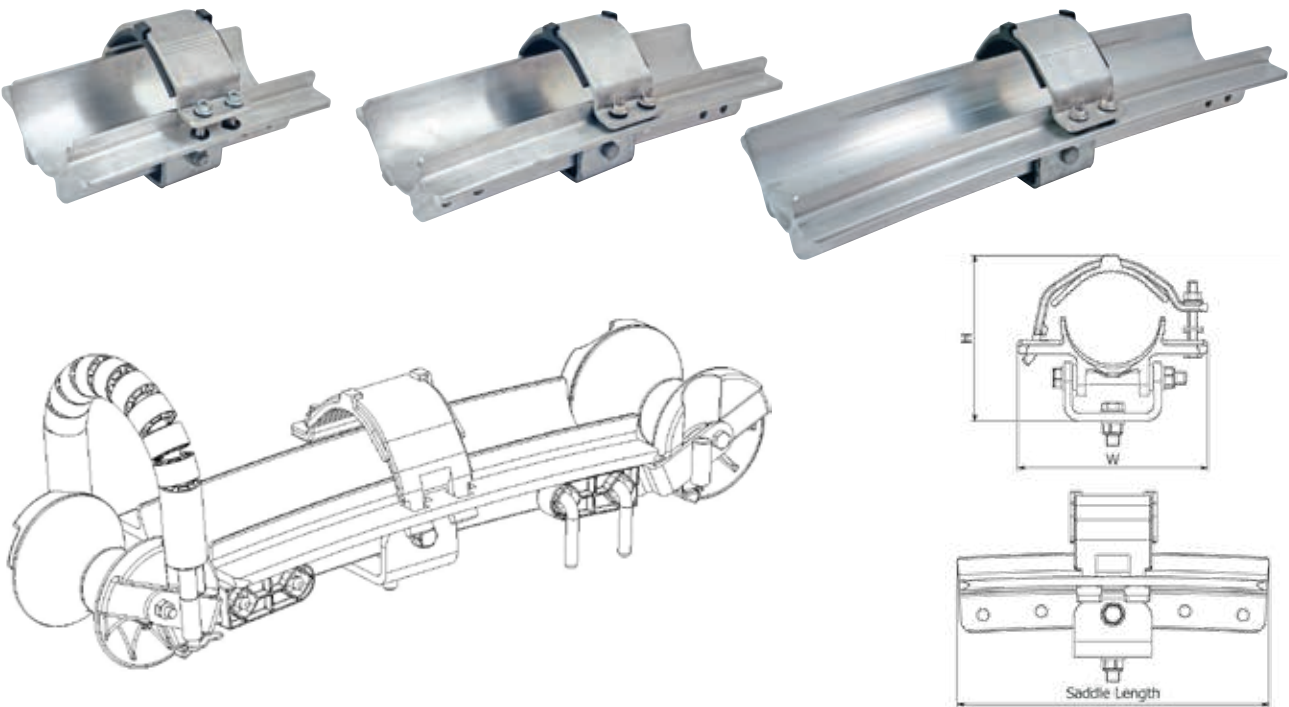
Centaur®

- > CURVED SADDLE CLEAT TO SUIT SAGGED CABLE INSTALLATIONS
- > PIVOT POINTS ALLOW THE SADDLE TO PARTIALLY ROTATE UP AND DOWN AND LEFT TO RIGHT ACROSS ITS LENGTH
- > HINGED CABLE STRAP EASES INSTALLATION
- > CABLE ROLLERS CAN BE POSITIONED AT THE ENDS OF THE SADDLE FOR CABLE PULLING AS AN OPTIONAL EXTRA
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914



Cable Saddle, UK Patent App. No. 0805128.6
European Patent No. 1973211, US Patent No. 8398033
Community Design Registration No. 000749999

PART NO..	CABLE RANGE		DIMENSIONS (mm)			
	MIN Ø (mm)	MAX Ø (mm)	W	H	SADDLE LENGTH	BASE FIXING TYPE
CS100-112	100	112	244	205	400, 600 or 800	1 x M16
CS108-122	108	122	244	212	400, 600 or 800	1 x M16
CS120-132	120	132	244	221	400, 600 or 800	1 x M16
CS128-142	128	142	244	233	400, 600 or 800	1 x M16
CS140-152	140	152	272	240	400, 600 or 800	1 x M16
CS150-162	150	162	272	253	400, 600 or 800	1 x M16



Testing Summary

Centaur Cable Saddles have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ As IEC 61914 is part of the low voltage directive it is not possible to follow the standard exactly and thus deviations have been made in areas. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION	CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3		COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2		°C	-40 - 60
UV RESISTANCE	6.5.1.2		UV RESISTANT	METALLIC FRAME SHIELDS ALL POLYMER COMPONENTS.
CORROSION RESISTANCE	6.5.2.2		REFER TO ELLIS	-
IMPACT RATING	6.3.5		VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1		APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4		NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3		NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CENTAUR CLEATS AT 8.4M WITH STRAPS AT MIDPOINTS		163kA (REPORT No. KEMA-313-08) PHASE SPACING = 800mm

Project Specific Designs:

Centaur can be adapted to suit specific project requirements, as such Ellis can alter the design to suit certain load or functionality requirements. Please contact OHUG for further details.



This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Centaur[®] Intermediate Strap

- > **DESIGNED TO RESTRAIN CABLES DURING A SHORT CIRCUIT FAULT AND MAINTAIN PHASE SPACING UNDER NORMAL OPERATING CONDITIONS**
- > **MANUFACTURED IN 6000 SERIES ALUMINIUM**
- > **TYPICAL SIZES RANGE FROM Ø100 - Ø162mm HOWEVER SPECIALS CAN BE PROVIDED ON REQUEST**
- > **EACH CLAMP CAN PIVOT ABOUT THE JOINING BAR TO ACCOMMODATE FOR DIFFERENTIAL CABLE MOVEMENT. FIXED VERSIONS CAN BE SUPPLIED ON REQUEST.**
- > **SHORT CIRCUIT TESTED BASED ON IEC 61914**

Aluminium cable spacer



Typical Installation, photo taken at a short circuit testing event at Kema Lab, Arnhem NL.



Balfour Beatty - Power Transmission and Distribution on the London Power Tunnels



SPECIAL VERSIONS CAN BE SUPPLIED ON REQUEST



Short Circuit Testing

Centaur Intermediate Strap has been short circuit tested to the following parameters, consult test report number kema 313-08 for more detail:

- > Cable = Ø140mm
- > Centaur Saddles every 8.4m with Intermediate Straps at midpoints
- > Peak current = 163kA

Testing Summary

Centaur Intermediate Strap have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ As IEC 61914 is part of the low voltage directive it is not possible to follow the standard exactly and thus deviations have been made in areas. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	UV RESISTANT	METALLIC FRAME SHIELDS ALL POLYMER COMPONENTS.
CORROSION RESISTANCE	6.5.2.2	REFER TO ELLIS	-
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CENTAUR CLEATS AT 8.4M WITH STRAPS AT MIDPOINTS	117kA (REPORT No. KEMA-313-08) CABLE = Ø103mm

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in

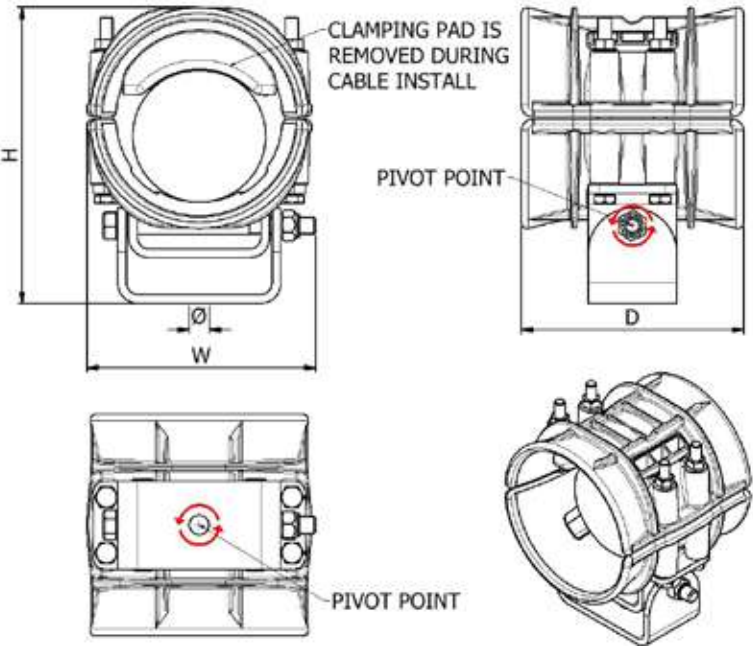
Cable Guide Clamp™

- > FULLY GIMBALLED CLAMP IS DESIGNED TO ROTATE UNDER CABLE PULLING FORCES
- > CLAMPING PAD IS REMOVED FOR CABLE PULLING AND RE-INSTALLED TO CLAMP THE CABLE ONCE IT IS IN POSITION
- > CONSTRUCTED FROM HIGH STRENGTH V0 GLASS FILLED NYLON AND GALVANISED STEEL COMPONENTS
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914



UK (2514384), EUROPEAN (2806198)
and US (9,404,605) Patent

PART NO.	CABLE RANGE		DIMENSIONS (mm)				Ø FIXING HOLES	WEIGHT (kg)
	MIN Ø	MAX Ø	W	H	D			
CGC100-112-G	100	112	185	260	200		1 x M16	5.2
CGC110-122-G	110	122	185	255	200		1 x M16	5.2
CGC120-135-G	120	135	203	281	200		1 x M16	5.5
CGC130-145-G	130	145	203	283	200		1 x M16	5.5
CGC140-160-G	140	160	262	324	250		1 x M16	6.25
CGC150-170-G	150	170	262	324	250		1 x M16	6.25



Testing Summary

Cable Guide Clamp has been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. As IEC 61914 is part of the low voltage directive it is not possible to follow the standard exactly and thus deviations have been made in areas. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
CORROSION RESISTANCE	6.5.2.2	HIGH	192H SALT SPRAY TEST - ISO 9227
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 1M INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	114kA (REPORT No. PDL-15.025.1) CABLE OD= Ø117mm PHASE SPACING = 200mm BASED ON IEC61914:2009)



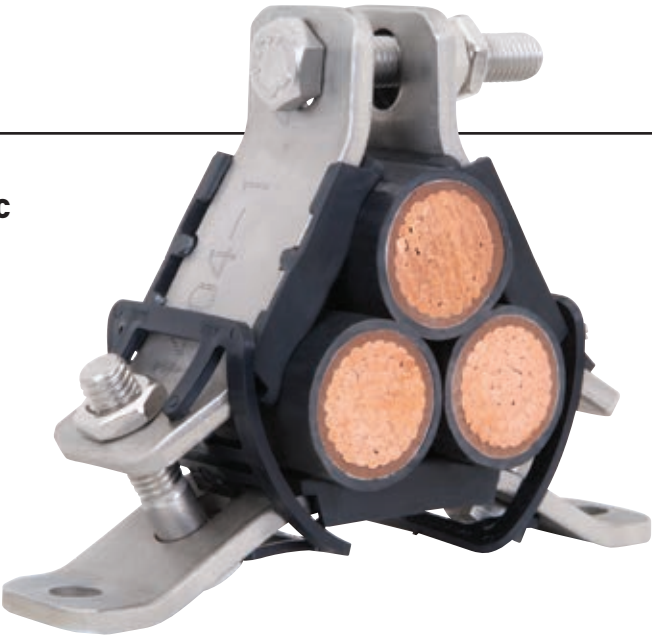
A computer simulation of the Cable Guide Clamp installed on a wind farm substation in the North Sea. Actual image unavailable due to reasons of confidentiality.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Atlas™

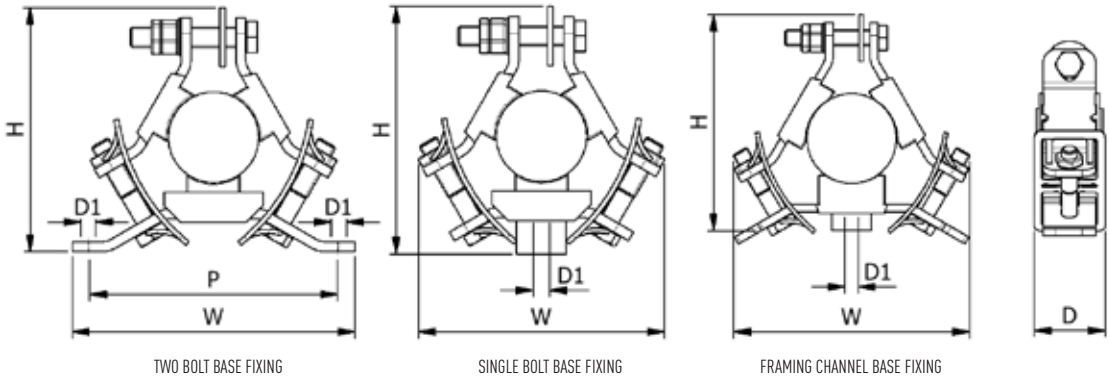
- > GALVANISED STEEL FRAME WITH LSF POLYMERIC PADS TO PROTECT THE CABLE SHEATH
- > CAN BE FIXED USING ONE BOLT, TWO BOLTS OR A FRAMING CHANNEL FIXING
- > AVAILABLE FOR TREFOIL OR SINGLE CABLE APPLICATIONS
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914

Galvanized Steel Cable Cleats
Patent No. UK Patent GB 228 4444



SELECTION TABLE FOR TREFOIL FORMATIONS

PART NO.	CABLE RANGE	DIMENSIONS (mm)													WEIGHT (g)
		TWO BOLT BASE FIXING					SINGLE BOLT BASE FIXING				FRAMING CHANNEL BASE FIXING				
		W	H	D	P	FIXING HOLES (D1)	W	H	D	FIXING HOLES (D1)	W	H	D	FIXING HOLES (D1)	
AR2-A31-XX	24-26	170	121	54	150	2 x M10	144	130	54	1 x M10	144	125	54	1 x M10	930
AR2-A32-XX	26-30	170	122	54	150	2 x M10	144	130	54	1 x M10	144	125	54	1 x M10	930
AR2-A33-XX	30-35	170	133	54	150	2 x M10	157	141	54	1 x M10	157	136	54	1 x M10	970
AR2-A34-XX	35-40	170	134	54	150	2 x M10	158	142	54	1 x M10	158	137	54	1 x M10	930
AR3-A35-XX	40-45	198	158	54	175	2 x M10	185	165	54	1 x M10	185	160	54	1 x M10	1200
AR3-A36-XX	45-50	198	160	54	175	2 x M10	187	167	54	1 x M10	187	162	54	1 x M10	1200
AR4-A37-XX	50-55	214	174	54	200	2 x M10	204	182	54	1 x M12	204	177	54	1 x M12	1300
AR4-A38-XX	55-60	214	179	54	200	2 x M10	210	187	54	1 x M12	210	182	54	1 x M12	1300
AR4-A39-XX	60-66	214	185	54	200	2 x M10	217	193	54	1 x M12	217	188	54	1 x M12	1300
AR5-A61-XX	66-71	250	225	54	225	2 x M10	254	225	54	1 x M12	254	220	54	1 x M12	1800
AR5-A62-XX	71-76	250	226	54	225	2 x M10	255	226	54	1 x M12	255	221	54	1 x M12	1800
AR5-A63-XX	76-82	250	230	54	225	2 x M10	260	230	54	1 x M12	260	225	54	1 x M12	1800
AR8-A64-XX	82-92	285	250	54	225	2 x M10				N/A				N/A	2100
AR8-A65-XX	92-102	285	250	54	225	2 x M10				N/A				N/A	1900



SELECTION TABLE FOR SINGLE FORMATIONS

PART NO.	CABLE RANGE	DIMENSIONS (mm)													WEIGHT (g)
		TWO BOLT BASE FIXING					SINGLE BOLT BASE FIXING				FRAMING CHANNEL BASE FIXING				
		W	H	D	P	FIXING HOLES (D1)	W	H	D	FIXING HOLES (D1)	W	H	D	FIXING HOLES (D1)	
AR2-A11-XX	38-41	170	128	54	150	2 x M10	144	136	54	1 x M10	144	131	54	1 x M10	950
AR2-A12-XX	41-74	170	129	54	150	2 x M10	144	136	54	1 x M10	144	131	54	1 x M10	930
AR2-A13-XX	47-55	170	140	54	150	2 x M10	157	147	54	1 x M10	157	142	54	1 x M10	940
AR2-A14-XX	55-63	170	141	54	150	2 x M10	158	148	54	1 x M10	158	143	54	1 x M10	930
AR3-A15-XX	63-70	198	164	54	175	2 x M10	185	172	54	1 x M10	185	167	54	1 x M10	1200
AR3-A16-XX	70-79	198	166	54	175	2 x M10	187	173	54	1 x M10	187	168	54	1 x M10	1200
AR4-A17-XX	79-87	214	180	54	200	2 x M10	204	188	54	1 x M12	204	183	54	1 x M12	1300
AR4-A18-XX	87-95	214	186	54	200	2 x M10	210	193	54	1 x M12	210	188	54	1 x M12	1300
AR4-A19-XX	95-104	214	192	54	200	2 x M10	217	199	54	1 x M12	217	197	54	1 x M12	1300
AR5-A51-XX	104-112	250	231	54	225	2 x M10	254	231	54	1 x M12	254	226	54	1 x M12	1700
AR5-A52-XX	112-120	250	232	54	225	2 x M10	255	232	54	1 x M12	255	227	54	1 x M12	1700
AR5-A53-XX	120-130	250	237	54	225	2 x M10	260	237	54	1 x M12	260	232	54	1 x M12	1700

For full part number please replace 'XX' with the following.:
TB = TWO BOLT BASE FIXING
SB = SINGLE BOLT BASE FIXING
FC = FRAMING CHANNEL BASE FIXING

Testing Summary

Atlas Cleats have been tested in line with the International Standard 'Cable Cleats for Electrical Installations' IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

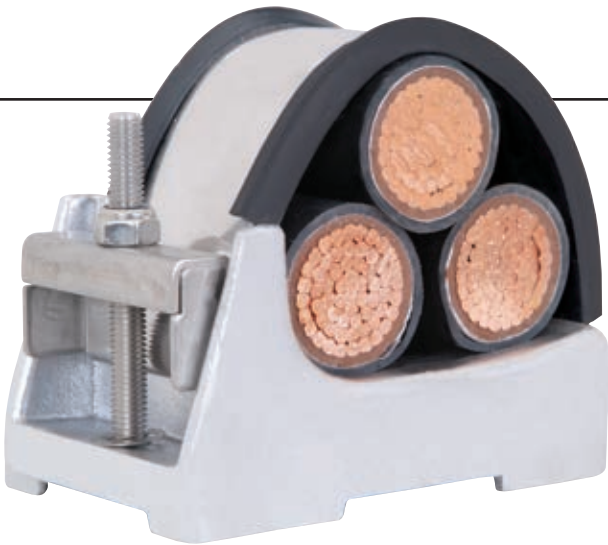
PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	120kA (REPORT No. PDL-18.122.7) CABLE OD= Ø36mm

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Vari-Cleat™

- > 316L STAINLESS STEEL STRAP AND FIXINGS WITH A CAST ALUMINIUM BASE
- > CAPTIVE CLOSURE FIXINGS FOR FAST INSTALL
- > MULTI-CABLE BUNDLE OPTIONS AVAILABLE ON REQUEST
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914

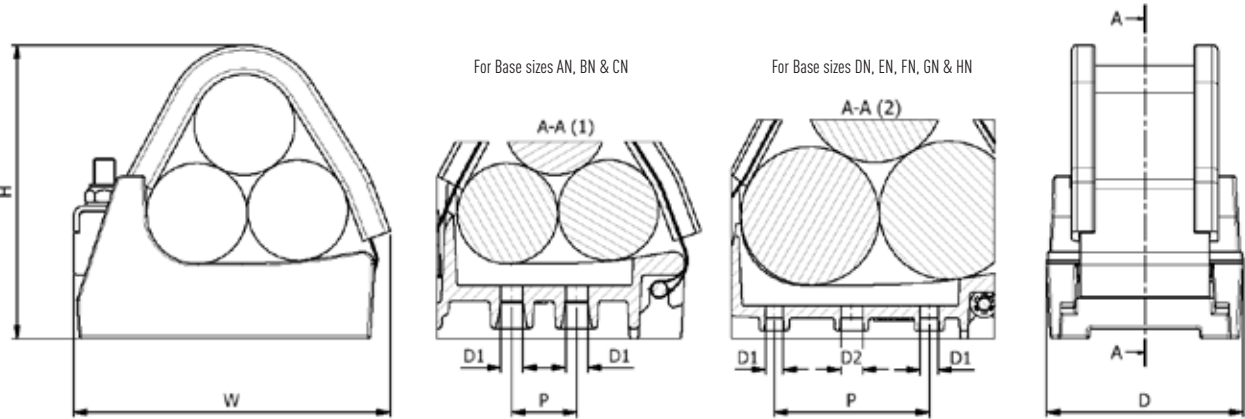
Stainless Steel and Aluminium Cable Cleats
Patent No. UK Patent GB 226 1014



Testing Summary

Vari-Cleat has been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA LINERED	TEST DATA NO LINER
CLEAT TYPE	6.1.3	COMPOSITE	-	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60	-40 - 90
IMPACT RATING	6.3.4	VERY HEAVY	PASS	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS	N/A
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG	
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG	
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	110kA (REPORT No. PDL-18.071.3) (PART NO. - VC-BN4-BN0) CABLE OD= Ø36mm	



PART NO.	CABLE RANGE WITHOUT LINER		CABLE RANGE SINGLE WITH LINER		DIMENSIONS (mm)				FIXING HOLES (D1 & D2)	WEIGHT (g)
	TREFOIL	SINGLE	TREFOIL	SINGLE	W	H	D	P		
VC-AN1-XXX	21-24	36-43	19-22	31-38	82	80	74	25	2 x M8	373
VC-AN2-XXX	22-26	41-48	21-24	36-43	82	84	74	25	2 x M8	373
VC-AN3-XXX	24-28	44-51	23-26	39-46	83	88	74	25	2 x M8	373
VC-AN4-XXX	26-30	49-54	25-29	44-51	86	92	74	25	2 x M8	373
VC-BN1-XXX	29-33	51-59	27-31	46-54	97	94	74	25	2 x M8	430
VC-BN2-XXX	30-35	55-63	29-33	50-58	97	97	74	25	2 x M8	430
VC-BN3-XXX	32-37	60-68	30-36	55-63	100	101	74	25	2 x M8	430
VC-BN4-XXX	34-38	64-70	33-38	59-68	104	105	74	25	2 x M8	430
VC-CN1-XXX	37-42	68-76	35-40	63-71	117	105	76	25	2 x M8	490
VC-CN2-XXX	39-44	72-81	37-42	67-76	117	109	76	25	2 x M8	490
VC-CN3-XXX	42-47	76-85	39-45	71-80	118	115	76	25	2 x M8	490
VC-CN4-XXX	44-48	81-87	42-47	76-86	124	121	76	50	2 x M8	490
VC-DN1-XXX	47-53	86-96	47-51	81-91	138	126	78	50	2 x M8 + 1 x M10	610
VC-DN2-XXX	50-56	91-100	49-54	86-95	141	132	78	50	2 x M8 + 1 x M10	610
VC-DN3-XXX	54-59	96-105	52-57	91-100	147	138	78	50	2 x M8 + 1 x M10	610
VC-DN4-XXX	56-60	101-106	55-60	96-106	153	144	78	75	2 x M8 + 1 x M10	610
VC-EN1-XXX	59-63.5	105-112	58-62	100-107	163	147	80	75	2 x M8 + 1 x M10	730
VC-EN2-XXX	62-67	111-118	61-66	106-113	167	154	80	75	2 x M8 + 1 x M10	730
VC-EN3-XXX	65-70	118-125	64-69	113-120	174	160	80	75	2 x M8 + 1 x M10	730
VC-EN4-XXX	68-74	125-132	67-73	120-127	181	167	80	75	2 x M8 + 1 x M10	730
VC-FN1-XXX	71-76	125-140	69-74	120-135	187	170	82	90	3 x M12	880
VC-FN2-XXX	74-80	132-145	72-78	128-140	194	177	82	90	3 x M12	880
VC-FN3-XXX	78-84	139-152	76-82	134-147	201	185	82	90	3 x M12	880
VC-FN4-XXX	82-88	148-160	80-86	143-155	210	193	82	90	3 x M12	880
VC-GN1-XXX	84-91	145-160	82-89	140-155	217	197	82	114	3 x M12	970
VC-GN2-XXX	88-95	155-170	86-93	150-165	225	205	82	114	3 x M12	970
VC-GN3-XXX	92-99	165-180	90-97	160-175	233	213	82	114	3 x M12	970
VC-GN4-XXX	96-103	175-190	94-101	170-185	240	221	82	114	3 x M12	970
VC-HN1-XXX	98-106	170-190	96-104	165-185	247	229	84	136	3 x M12	1170
VC-HN2-XXX	102-110	180-200	100-108	175-195	255	237	84	136	3 x M12	1170
VC-HN3-XXX	106-114	190-205	104-112	185-200	263	245	84	136	3 x M12	1170
VC-HN4-XXX	110-118	200-215	108-116	195-210	271	252	84	136	3 x M12	1170

SUFFIX 1

A - No Liner
B - Lined

SUFFIX 2

(CAST BASE FINISH)

N - Natural
P - Polyester Black
K - Kevlar

SUFFIX 3

O - Standard Holes

PART NO. EXAMPLE:

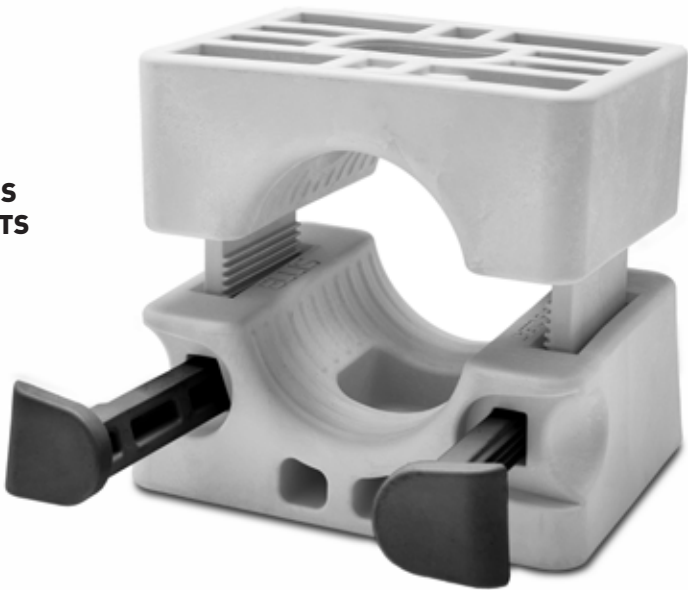
VC-CN2 with a liner and natural base finish
= VC-CN2-BNO



No Bolts Cleat™

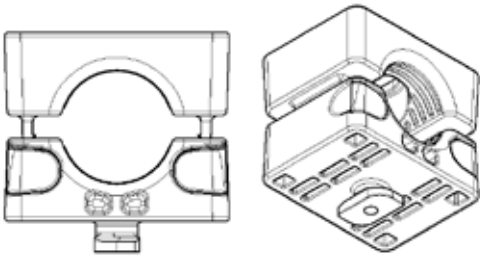
- > FULLY POLYMERIC CONSTRUCTION ELIMINATES THE RISK OF SNAGGING CABLE ON FIXING BOLTS
- > TOOLLESS DESIGN ALLOWS FOR FAST INSTALLATION
- > PRODUCT CAN BE STACKED THREE CLAMPS HIGH USING TWIST FOOT FEATURE
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914

Patent Pending
(Application Number 1804174.9)



PART NO.	CABLE RANGE	DIMENSIONS (mm)			FIXING HOLES	WEIGHT (g)
		W	H	D		
NBC18-22	18 - 22	109	91	90	1 x M8	830
NBC20-26	20 - 26	109	91	90	1 x M8	815
NBC24-30	24 - 30	109	91	90	1 x M8	808
NBC28-34	28 - 34	109	91	90	1 x M8	801
NBC32-39	32 - 39	109	91	90	1 x M8	792
NBC37-47	37 - 47	109	91	90	1 x M8	758
NBC45-55*	45 - 55	109	91	85	1 x M8	675

NOTE: THE CLEAT RANGE IS COVERED BY A SET OF INSERTS THAT SIT INSIDE THE MAIN BODY, THEREFORE ALL OUTSIDE DIMENSIONS ARE THE SAME. *NBC45-55 DOES NOT USE INSERTS.



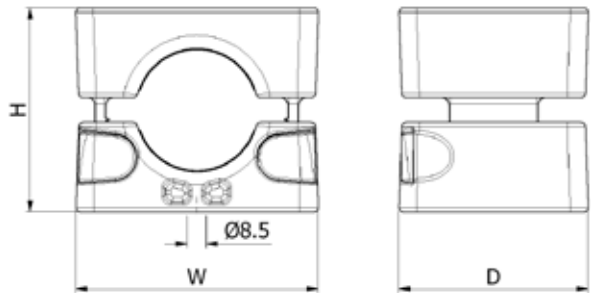
FOR THE TWIST FOOT VERSION ADD A 'TF' SUFFIX E.G. NBC18-22TF

PADS NO.	ELLIS PART NO.
0111/120321	NBC18-22TF (for 18-22mm cables)
0111/120322	NBC20-26TF (for 20-26mm cables)
0111/120323	NBC24-30TF (for 24-30mm cables)
0111/120324	NBC28-34TF (for 28-34mm cables)
0111/120325	NBC32-39TF (for 32-39mm cables)
0111/120133	NBC37-47TF (for 37-47mm cables)
0111/120134	NBC45-55TF (for 45-55mm cables)



PRODUCT CAN BE STACKED A MAXIMUM OF THREE HIGH BY USING THE TWIST FOOT VARIANT. THIS VERSION LOCKS INTO THE RECESS PROVIDED IN THE TOP OF THE CLAMPS.

DUE TO TOLERANCES OF STANDARD UNISTRUT STYLE PROFILE, ELLIS RECOMMEND USING FIXINGS TO FASTEN THE CLAMP TO THE CHANNEL.

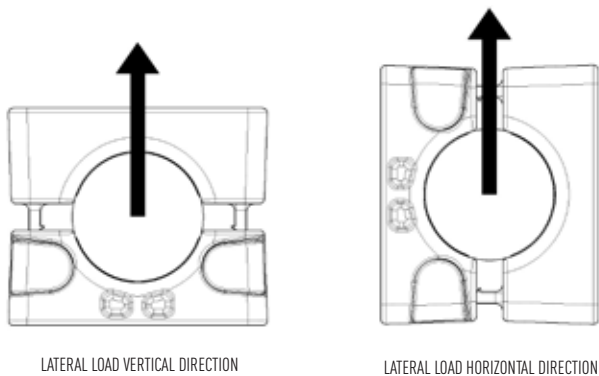


Testing Summary

No Bolts Cleat has been tested in line with the International Standard of ‘Cable Cleats for Electrical Installations’ IEC 61914: 2015. Typical results below:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.2	POLYMERIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	101kA (REPORT No. PDL-16.106) PHASE SPACING = 110mm CABLE OD= Ø36mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	71kA (REPORT No. PDL-16.106) TESTED IN STACKED FORMATION PHASE SPACING = 75mm CABLE OD= Ø36mm

*TESTING CARRIED OUT ON NBC45-55 ONLY



NO BOLTS CLEAT IS A NETWORK RAIL APPROVED PRODUCT. EXAMPLE PADS NUMBER (NBC45-55): 011/120134

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

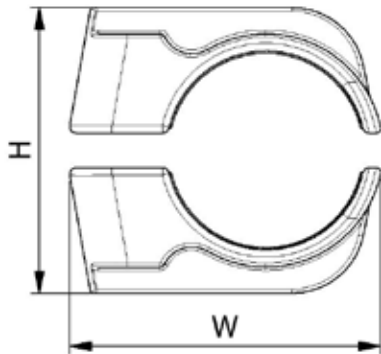
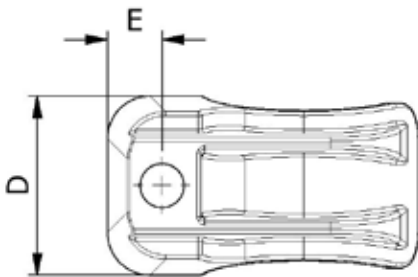
1A Cable Clamps

- > 1 HOLE CLAMP CAST IN LM6 ALUMINIUM
- > ACCOMODATEs Ø10mm - Ø57mm CABLES ACROSS 10 SIZES
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > FIXINGS ARE NOT SUPPLIED AS STANDARD BUT CAN BE MADE AVAILABLE ON REQUEST



Cast aluminium clamp

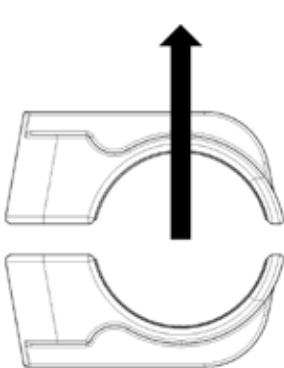
PART NO.	CABLE RANGE (mm)		DIMENSIONS (mm)				FIXING HOLES	WEIGHT (g)
	MIN	MAX	W	H	D	E		
1A-10N	10	13	37.8	30.0	41.4	10.2	1 x M10	43
1A-11N	13	16	41.2	33.0	41.4	10.4	1 x M10	52
1A-12N	16	19	44.3	36.0	41.4	10.7	1 x M10	61
1A-13N	19	23	48.2	40.0	41.4	10.9	1 x M10	68
1A-14N	23	27	52.2	44.0	41.4	11.3	1 x M10	78
1A-15N	27	32	57.1	49.0	41.4	11.6	1 x M10	85
1A-16N	32	38	63.1	55.0	41.4	12.1	1 x M10	97
1A-17N	38	46	71.3	66.0	41.4	12.9	1 x M10	121
1A-18N	46	51	77.3	73.0	41.4	13.5	1 x M10	155
1A-19N	51	57	83.2	78.0	41.4	13.9	1 x M10	171



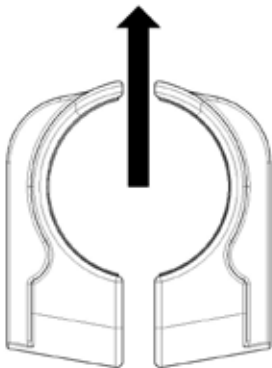
Testing Summary

1A Clamps have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.2	METALLIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 90
CORROSION RESISTANCE	6.5.2	HIGH	ALUMINIUM IS NON-FERROUS
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	N/A
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 600MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	70.8kA (REPORT No. PDL-15.025.2) (IEC 61914:2009) PHASE SPACING = 100mm CABLE OD= Ø39mm



LATERAL LOAD VERTICAL DIRECTION



LATERAL LOAD HORIZONTAL DIRECTION

2A Cable Clamps

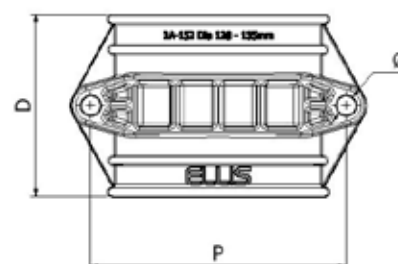
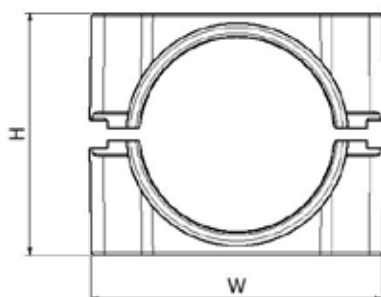
- > 2 HOLE CLAMPS CAST IN LM6 ALUMINIUM
- > ROBUST DESIGN OFFERS GOOD RESISTANCE TO CABLE FORCES
- > CLAMPING RANGE OF Ø32 - Ø168mm ACHIEVED ACROSS 18 SIZES
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > FIXINGS ARE NOT SUPPLIED AS STANDARD BUT CAN BE SUPPLIED ON REQUEST



Cast aluminium clamp

PART NO.	CABLE RANGE		LINER THICKNESS (mm)	CABLE RANGE WITH LINER		DIMENSIONS (mm)					WEIGHT (g)	AXIAL LOAD	LATERAL LOAD - HORIZONTAL	LATERAL LOAD - VERTICAL
	MIN Ø (mm)	MAX Ø (mm)		MIN Ø (mm)	MIN Ø (mm)	W	H	D	P	Ø				
2A-07N	38	46	3	32	40	94	48	49	68	2 x M10	174	800N	12.5kN	25kN
2A-08N	46	51	3	40	45	104	54	49	79	2 x M10	214	800N	12.5kN	25kN
2A-09N	51	57	3	45	51	105	61	49	79	2 x M10	224	800N	12.5kN	25kN
2A-10N	57	64	3	51	58	105	68	49	79	2 x M10	234	800N	12.5kN	25kN
2A-11N	64	70	3	58	64	133	74	64	106	2 x M10	360	800N	12.5kN	25kN
2A-1200N	70	76	3	64	70	133	80	64	106	2 x M10	376	800N	12.5kN	25kN
2A-1201N	76	83	3	70	77	133	87	64	106	2 x M10	388	800N	12.5kN	25kN
2A-1202N	83	90	3	77	84	133	94	64	106	2 x M10	392	800N	12.5kN	25kN
2A-131N	90	97	4	82	89	154	101	76	126	2 x M10	520	800N	12.5kN	25kN
2A-132N	97	105	4	89	97	154	109	76	126	2 x M10	524	800N	12.5kN	25kN
2A-141N	105	112	4	97	104	165	118	76	135	2 x M10	590	800N	12.5kN	25kN
2A-142N	112	120	4	104	112	173	124	76	143	2 x M10	642	800N	12.5kN	25kN
2A-151N	120	128	5	110	118	196	148	125	168	2 x M12	1700	5.5kN	20kN	50kN
2A-152N	128	135	5	118	125	203	158	125	176	2 x M12	1840	5.5kN	20kN	50kN
2A-161N	135	144	5	125	134	222	168	150	190	2 x M16	2633	6kN	35kN	60kN
2A-162N	144	152	5	134	142	232	179	150	200	2 x M16	2856	6kN	35kN	60kN
2A-171N	152	160	5	142	150	242	190	150	210	2 x M16	3089	6kN	35kN	60kN
2A-172N	160	168	5	150	158	252	201	150	220	2 x M16	3332	6kN	35kN	60kN

FOR THE LINERED VERSION ADD 'L' AS A SUFFIX TO THE PART NO. E.G. '2A-07NL'.

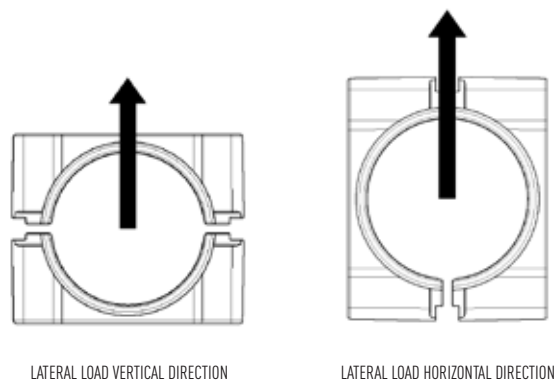


Testing Summary

2A Clamps have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1, 6.1.3	METALLIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 90
UV RESISTANCE	6.5.1.2	N/A	-
CORROSION RESISTANCE	6.5.2.2	HIGH	ALUMINIUM IS NON-FERROUS
IMPACT RATING	6.35	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME >30s	N/A
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	183kA (REPORT No. PDL-18.071.1) CABLE OD= Ø36mm PHASE SPACING = 100MM
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 1M INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	113kA (REPORT No. PDL-15.025.1) CABLE OD= Ø117mm PHASE SPACING = 200MM

The test data provided above is for the standard version only, for test data with the liner option please contact OHUG.



This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

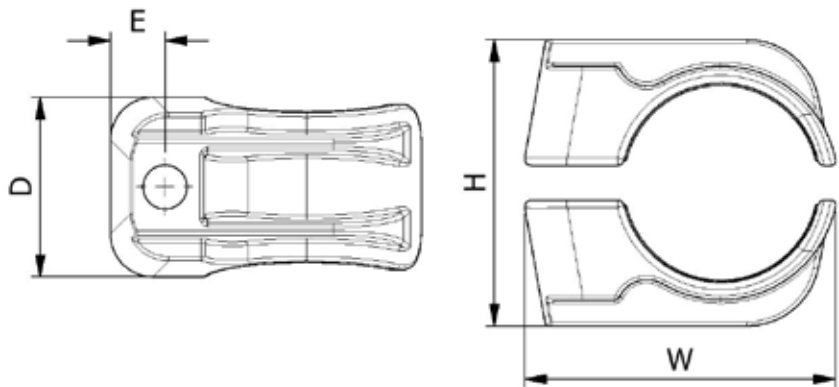
1F Cable Clamps

- > 1 HOLE CLAMPS MANUFACTURED IN LSF NYLON OR STANDARD POLYPROPYLENE
- > ACCOMODATES Ø10mm - Ø57mm CABLES ACROSS 10 SIZES
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > FIXINGS ARE NOT SUPPLIED AS STANDARD BUT CAN BE MADE AVAILABLE ON REQUEST



UK Design Reg. No: 355854

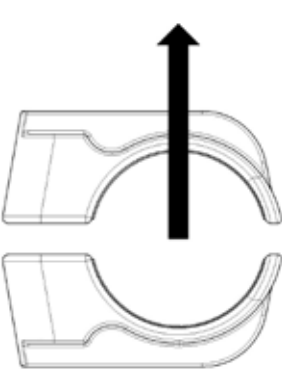
PART NO.	MATERIAL SUFFIX	CABLE RANGE (mm)		DIMENSIONS (mm)				FIXING HOLES	WEIGHT (g)		
		MIN	MAX	W	H	D	E		B	LSF	LUL
1F-10	B/LSF/LUL	10	13	37.8	30.0	41.4	10.2	1 x M10	14.6	19.6	23.8
1F-11	B/LSF/LUL	13	16	41.2	33.0	41.4	10.4	1 x M10	17.0	23.0	27.7
1F-12	B/LSF/LUL	16	19	44.3	36.0	41.4	10.7	1 x M10	19.6	26.4	32.0
1F-13	B/LSF/LUL	19	23	48.2	40.0	41.4	10.9	1 x M10	22.4	30.2	36.5
1F-14	B/LSF/LUL	23	27	52.2	44.0	41.4	11.3	1 x M10	25.8	34.6	42.0
1F-15	B/LSF/LUL	27	32	57.1	49.0	41.4	11.6	1 x M10	29.2	39.0	47.6
1F-16	B/LSF/LUL	32	38	63.1	55.0	41.4	12.1	1 x M10	34.2	46.2	55.7
1F-17	B/LSF/LUL	38	46	71.3	66.0	41.4	12.9	1 x M10	47.8	64.0	77.9
1F-18	B/LSF/LUL	46	51	77.3	73.0	41.4	13.5	1 x M10	54.0	73.2	88.0
1F-19	B/LSF/LUL	51	57	83.2	78.0	41.4	13.9	1 x M10	59.0	80.4	96.2



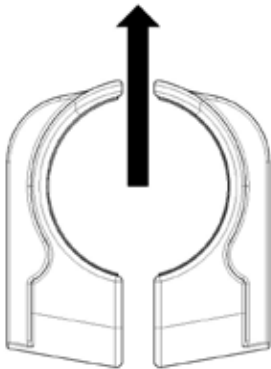
Testing Summary

1F Clamps have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA	
			LSF	B
CLEAT TYPE	6.1.2	POLYMERIC	-	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60	-40 - 40
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS	PASS
IMPACT RATING	6.3.5	VERY HEAVY	REFER TO OHUG	REFER TO OHUG
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME >30s	PASS	NOT COMPLIANT
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	10.4kA (REPORT No. PDL-17.137.2) (IEC 61914:2015) PHASE SPACING = 100mm CABLE OD= Ø36mm	NOT SHORT CIRCUIT TESTED



LATERAL LOAD VERTICAL DIRECTION



LATERAL LOAD HORIZONTAL DIRECTION

APPROVALS:
THE LUL VERSION OF THE 1F ONE HOLE CABLE CLAMPS ARE COMPLIANT WITH THE REQUIREMENT OF LONDON UNDERGROUND STANDARD 1-085. PRODUCT REGISTER NO. 363.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

2F+ Cable Clamps

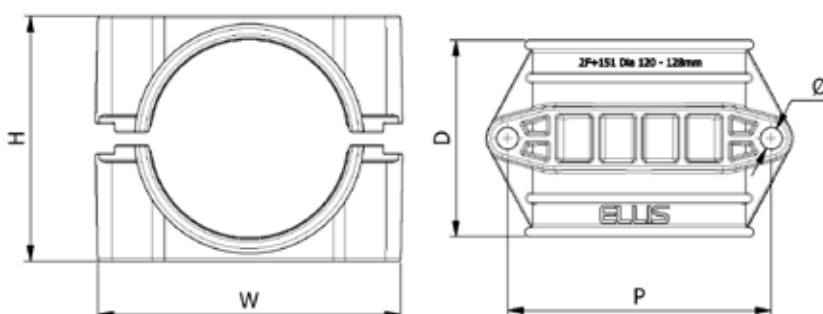
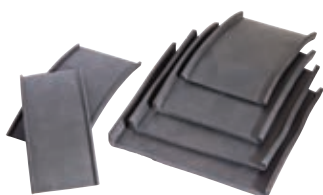
- > **2 HOLE CLAMPS MANUFACTURED IN LSF NYLON OR STANDARD POLYPROPYLENE**
- > **ROBUST DESIGN OFFERS GOOD RESISTANCE TO CABLE FORCES**
- > **CLAMPING RANGE OF Ø32 - Ø168mm ACHIEVED ACROSS 18 SIZES**
- > **SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914**
- > **FIXINGS ARE NOT SUPPLIED AS STANDARD BUT CAN BE SUPPLIED ON REQUEST**



UK Design Reg. No: 355854

PART NO.	CABLE RANGE		LINER THICKNESS (mm)	CABLE RANGE WITH LINER		DIMENSIONS (mm)					WEIGHT (g)		AXIAL LOAD		LATERAL LOAD - HORIZONTAL		LATERAL LOAD - VERTICAL	
	MIN Ø (mm)	MAX Ø (mm)		MIN Ø (mm)	MIN Ø (mm)	W	H	D	P	Ø	LSF	B	LSF	B	LSF	B	LSF	B
2F+07	38	46	3	32	40	92	68	54	68	2 x M10	91	73	200N	150N	1.75kN	1.5kN	15kN	4kN
2F+08	46	51	3	40	45	103	76	54	79	2 x M10	110	81	200N	150N	1.75kN	1.5kN	15kN	4kN
2F+09	51	57	3	45	51	103	82	54	79	2 x M10	119	95	200N	150N	1.75kN	1.5kN	15kN	4kN
2F+10	57	64	3	51	58	103	89	54	79	2 x M10	123	89	200N	150N	1.75kN	1.5kN	15kN	4kN
2F+11	64	70	3	58	64	130	95	54	106	2 x M10	157	116	200N	150N	1.75kN	1.5kN	15kN	4kN
2F+1200	70	76	4	62	68	128	101	75	104	2 x M10	190	160	500N	500N	11kN	1.5kN	15kN	6kN
2F+1201	76	83	4	68	75	135	107	75	111	2 x M10	207	174	500N	500N	11kN	1.5kN	15kN	6kN
2F+1202	83	90	4	75	82	143	115	75	119	2 x M10	229	188	500N	500N	11kN	1.5kN	15kN	6kN
2F+131	90	97	5	80	87	165	122	100	138	2 x M12	423	336	2kN	700N	6kN	3kN	20kN	10kN
2F+132	97	105	5	87	95	171	130	100	144	2 x M12	441	355	2kN	700N	6kN	3kN	20kN	10kN
2F+141	105	112	5	95	102	178	137	100	151	2 x M12	510	382	2kN	700N	6kN	3kN	20kN	10kN
2F+142	112	120	5	102	110	187	146	125	160	2 x M12	622	496	2kN	1.3kN	5kN	4.5kN	18.5kN	8kN
2F+151	120	128	5	110	118	196	156	125	168	2 x M12	716	537	2kN	1.3kN	5kN	4.5kN	18.5kN	8kN
2F+152	128	135	5	118	125	203	165	125	176	2 x M12	772	579	2kN	1.3kN	5kN	4.5kN	18.5kN	8kN
2F+161	135	144	5	125	134	222	177	150	190	2 x M16	1109	831	2.5kN	2kN	30kN	8kN	40kN	15kN
2F+162	144	152	5	134	142	232	187	150	200	2 x M16	1203	902	2.5kN	2kN	30kN	8kN	40kN	15kN
2F+171	152	160	5	142	150	242	198	150	210	2 x M16	1302	976	2.5kN	2kN	30kN	8kN	40kN	15kN
2F+172	160	168	5	150	158	252	209	150	220	2 x M16	1403	1052	2.5kN	2kN	30kN	8kN	40kN	15kN

FOR THE LINERED VERSION ADD 'L' AS A SUFFIX TO THE PART NO.
E.G. '2F-07NL'.

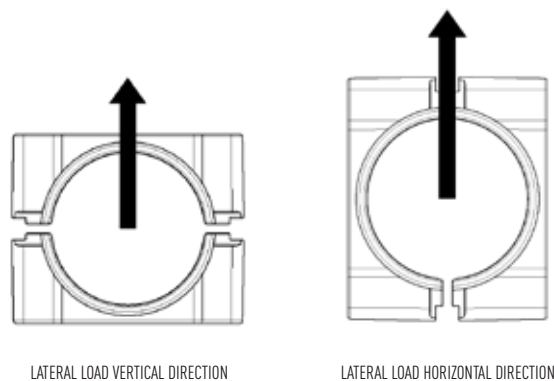


Testing Summary

2F+ Clamps have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1, 6.1.3	POLYMERIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	LSF: -40 - 60 B:-40 - 40
UV RESISTANCE	6.5.1.2	XENON ARC METHOD A	PASS
IMPACT RATING	6.35	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	LSF: PASS B: NOT COMPLIANT
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO THE DATA TABLE OPPOSITE
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO THE DATA TABLE OPPOSITE
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	2F+07LSF CLEATS AT 600MM INTERVALS (WITHSTANDING ONE SHORT CIRCUIT)	80.2kA (REPORT No. PDL-18.071.1) CABLE OD= Ø36mm PHASE SPACING = 100mm
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	2F+142LSF CLEATS AT 1M INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	113kA (REPORT No. PDL-15.025.1) (BASED ON IEC 61914: 2009) CABLE OD= Ø117mm PHASE SPACING = 200mm

The test data provided above is for the standard version only, for test data with the liner option please contact OHUG.

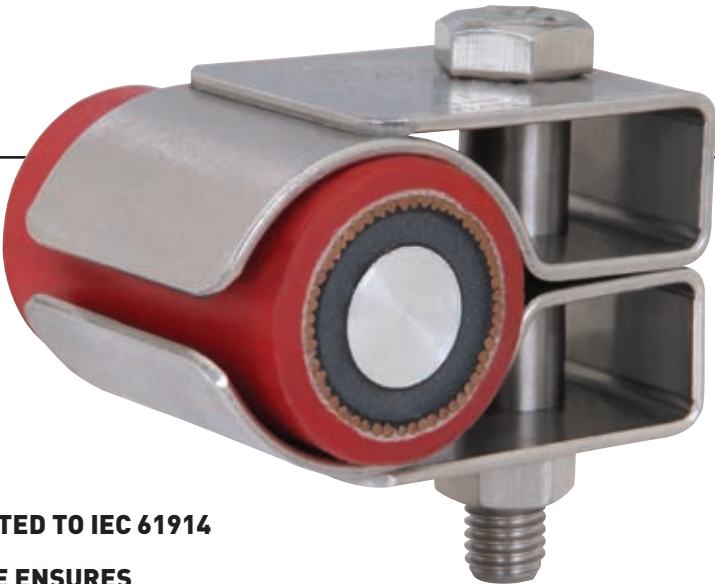


LONDON UNDERGROUND
THE LUL VERSION OF 2F+ CLAMPS ARE COMPLIANT WITH THE REQUIREMNTS OF LUL-1085. PRODUCT REGISTER NUMBER 364.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

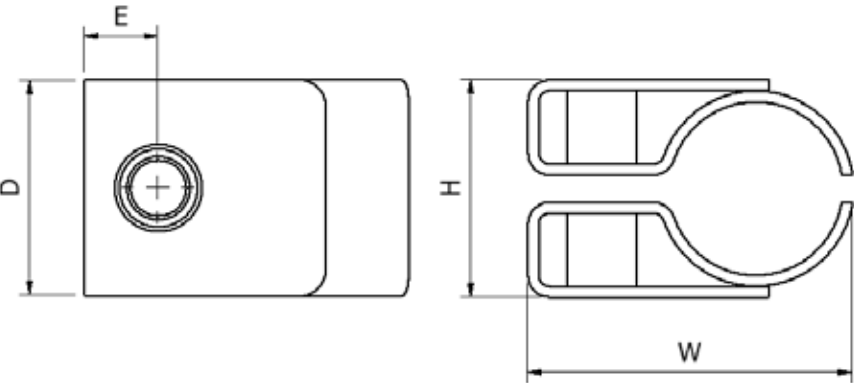
Phoenix®

- > METALLIC FRAME IS DESIGNED FOR THE INSTALLATION OF FIRE PROTECTION RATED CABLES.
- > TESTED FOR FIRE RESISTANCE IN ACCORDANCE WITH BS 5839-1.
- > AVAILABLE IN 12 SIZES TO SUIT Ø10mm TO Ø74mm CABLE
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > MARINE GRADE STAINLESS STEEL FRAME ENSURES PERFORMANCE IN THE HARSHTEST OF ENVIRONMENTS
- > FIXINGS NOT SUPPLIED AS STANDARD BUT ARE AVAILABLE ON REQUEST



Fire Rated Cable Clamps
Community Design Reg No. 000355854-0002

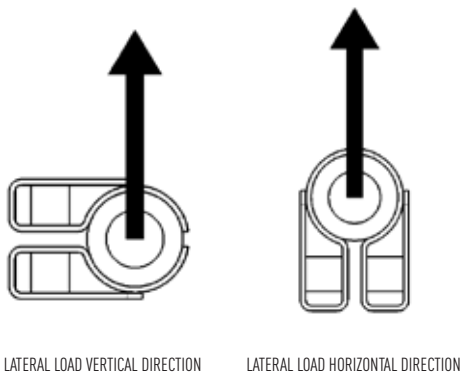
PART NO.	CABLE RANGE		DIMENSIONS (mm)					WEIGHT (g)
	MIN Ø (mm)	MAX Ø (mm)	W	H	D	P	F	
1FP-10SS	10	13	40	21	40	13.7	1 x M10	91
1FP-11SS	13	16	44	24	40	13.7	1 x M10	106
1FP-12SS	16	19	47	27	40	13.7	1 x M10	113
1FP-13SS	19	23	51	31	40	13.7	1 x M10	125
1FP-14SS	23	27	55	35	40	13.7	1 x M10	139
1FP-15SS	27	32	60	40	40	13.7	1 x M10	153
1FP-16SS	32	38	66	46	40	13.7	1 x M10	174
1FP-17SS	38	46	74	54	40	13.7	1 x M10	201
1FP-18SS	46	51	80	59	40	13.7	1 x M10	225
1FP-19SS	51	57	85	64	40	13.7	1 x M10	242
1FP-20SS	57	65	93	73	40	13.7	1 x M10	265
1FP-21SS	65	74	98	82	40	13.7	1 x M10	293



Testing Summary

Phoenix Cleats have been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:

PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.1	METALLIC	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1	N/A	-
CORROSION RESISTANCE	6.5.2.2	HIGH	316L STAINLESS STEEL HAS 16% CHROMIUM
IMPACT RATING	6.3.4	HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	NO CONTRIBUTION TO FIRE	METALLIC
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	45
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	HORIZONTAL - 350N VERTICAL -350N
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.5, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	31kA (REPORT No. PDL-17.137.1) CABLE OD= Ø36mm Phase Spacing = 100mm



PHOENIX CLIPS HAVE BEEN FIRE TESTED IN ACCORDANCE WITH BS 5839-1: 2017.

LONDON UNDERGROUND
PHOENIX CABLE CLAMPS ARE COMPLIANT WITH THE REQUIREMNTS OF LUL-1085. PRODUCT REGISTER
NUMBER 1661.

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

Matrix™

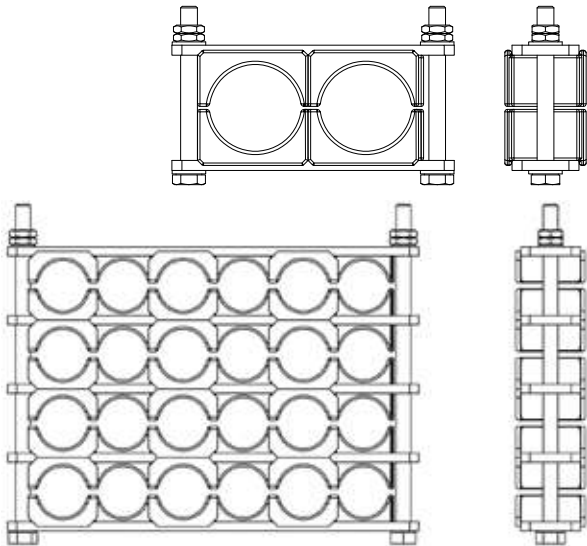
- > CLEAT DESIGN ALLOWS FOR MULTIPLE CABLES TO BE ASSEMBLED IN A MATRIX STYLE WITHIN ONE CLEAT
- > GALVANISED STEEL FRAME AND FIXINGS
- > SOFT LSF POLYMERIC PADS PROTECT CABLE SHEATH
- > SHORT CIRCUIT AND MECHANICALLY TESTED TO IEC 61914
- > FOR FRAME CONFIGURATION DETAILS CONTACT OHUG

A Flexible Solution for Multiple Cables



Testing Summary

Matrix has been tested in line with the International Standard ‘Cable Cleats for Electrical Installations’ IEC 61914:2015. Typical results are detailed below, please note that these testing values are maximums and safety factors appropriate to your application should be used:



PROPERTY	CLASSIFICATION CLAUSE IEC 61914	UNITS / CLASSIFICATION	TEST DATA
CLEAT TYPE	6.1.3	COMPOSITE	-
TEMP. FOR PERMANENT APPLICATION	6.2	°C	-40 - 60
UV RESISTANCE	6.5.1.2	REFER TO ELLIS	-
IMPACT RATING	6.3.5	VERY HEAVY	PASS
FLAME PROPAGATION TEST	10.0, 10.1	APPLICATION TIME ≥30s	PASS
AXIAL LOAD RATING	6.4.3, 9.4	NEWTONS (N)	REFER TO OHUG
LATERAL LOAD RATING	6.4.2, 9.3	NEWTONS (N)	REFER TO OHUG
RESISTANCE TO ELECTROMECHANICAL FORCE (SHORT CIRCUIT TESTING)	6.4, 6.4.4, 9.5	CLEATS AT 300MM INTERVALS (WITHSTANDING MORE THAN ONE SHORT CIRCUIT)	91.3kA (REPORT No. PDL-18.071.2) PHASE SPACING = Ø45mm (MC-4x1-037-G)

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.



Bespoke solutions and products

We understand that different markets and varying situations demand different solutions. And as problem solvers, we thrive on new challenges. So when our standard product range isn't quite what you need, we can still help. Contact OHUG.



Standard Emperor products modified to suit 2, 4 and 6 cable applications.



Standard Emperor product fitted with a universal base clamp designed to retrofit to three different undrilled ladder rung designs.



Side Fix Vulcan is available as a special, with a side fixing for use when height is a limiting factor.

Most requested

Our customers often require help with the following:

- > Mounting products onto a non-standard structure.
- > Manufacturing products in a non-standard format or size.
- > Specialist surface treatments, such as painting, plating, or galvanizing.
- > Developing a completely bespoke product.

We are well placed to meet these, and many other, requirements.

Specialist applications

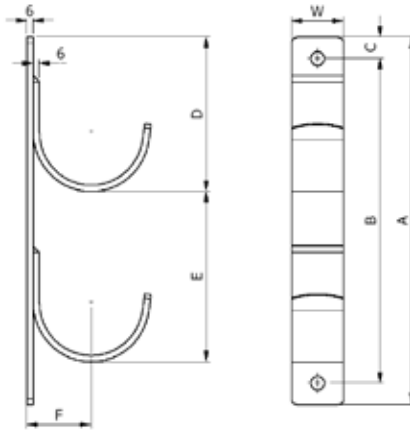
Just like our standard products, our bespoke solutions are designed to withstand the toughest conditions, and can be made for specialist environments such as:

- > High shock load
- > High or low temperature
- > A large temperature range
- > Tunnel (including railway)
- > Unusual or aggressive corrosion
- > Fire

MK2 Cable Hanger

- > **ROUNDED CORNERS REDUCE SNAGGING POINTS**
- > **SPIN GALVANISED (55MICRON OR 150MICRON THICKNESS) TO BS EN ISO 1461**
- > **6mm THICK HANGER AND BACK PLATE**
- > **WIDE RANGE OF SIZES AVAILABLE**
- > **CUSTOM DESIGNS AVAILABLE**
- > **CURVED BACK PLATE TO SUIT TUNNEL WALLS AVAILABLE**
- > **FOR SINGLE HOOKS REFER TO OHUG**

Mild steel cable hanger

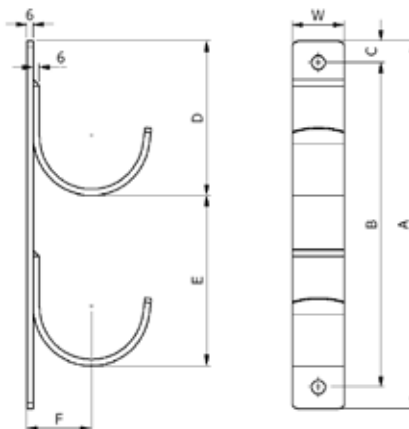


PART NO.	CABLE Ø (mm)	NO. OF HOOKS	DIMENSIONS (mm)							FIXING HOLES Ø (mm)	WEIGHT (g)	SWL* (kg)
			A	B	C	D	E	F	W			
CH1W1	Up to 50	1	145	105	20	105	n/a	37	40	11	500	200
CH2W1	Up to 50	2	235	195	20	105	90	37	40	11	900	200
CH3W1	Up to 50	3	325	285	20	105	90	37	40	11	1300	200
CH4W1	Up to 50	4	415	375	20	105	90	37	40	11	1700	200
CH5W1	Up to 50	5	505	465	20	105	90	37	40	11	2100	200
CH6W1	Up to 50	6	595	555	20	105	90	37	40	11	2500	200
CH1W2	51-75	1	170	130	20	130	n/a	50	50	13	820	250
CH2W2	51-75	2	295	255	20	130	125	50	50	13	1480	250
CH3W2	51-75	3	420	380	20	130	125	50	50	13	2240	250
CH4W2	51-75	4	545	505	20	130	125	50	50	13	2980	250
CH5W2	51-75	5	670	630	20	130	125	50	50	13	3710	250
CH6W2	51-75	6	795	755	20	130	125	50	50	13	4440	250
CH1W3	76-100	1	185	145	20	145	n/a	62	50	13	980	250
CH2W3	76-100	2	345	305	20	145	160	62	50	13	1900	250
CH3W3	76-100	3	505	465	20	145	160	62	50	13	2820	250
CH4W3	76-100	4	665	625	20	145	160	62	50	13	3600	250
CH5W3	76-100	5	825	785	20	145	160	62	50	13	4660	250
CH6W3	76-100	6	985	945	20	145	160	62	50	13	5600	250

* Load Capacity: Brackets with multiple hook configurations are designed to operate with all hooks carrying their maximum load.
 As standard, parts are spin galvanised to BS EN 1461 (55µm), thicker galvanising options are available on request.
 Dimensions are provided with a tolerance, refer to detailed drawings for details.

Convex Cable Hanger

- > **ROUNDED CORNERS REDUCE SNAGGING POINTS**
- > **CONVEX CABLE HANGER PROFILE REDUCES THE RISK OF CABLE DAMAGE AND FACILITATES CABLE SAG**
- > **SPIN GALVANISED (55MICRON OR 150MICRON THICKNESS) TO BS EN ISO 1461**
- > **WIDE RANGE OF SIZES AVAILABLE**
- > **CUSTOM DESIGNS AVAILABLE**
- > **CURVED BACK PLATE TO SUIT TUNNEL WALLS AVAILABLE**
- > **SAME STRENGTH AS MK2 HANGER BUT REDUCED 5mm THICK HANGER (BACKPLATE 6mm)**
- > **BESPOKE DESIGNS AND CONFIGURATIONS CAN BE OFFERED**



Registered design 6254645

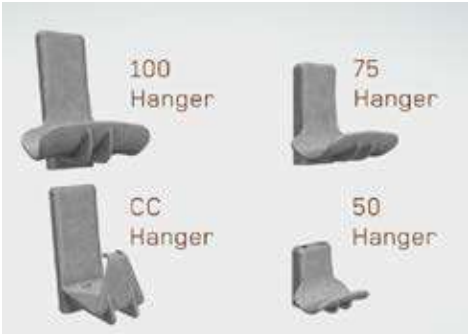
PART NO.	CABLE Ø (mm)	NO. OF HOOKS	DIMENSIONS (mm)							FIXING HOLES Ø (mm)	WEIGHT (g)	SWL* (kg)
			A	B	C	D	E	F	W			
CH1W1-C	Up to 50	1	145	105	20	105	n/a	37	40	11	490	200
CH2W1-C	Up to 50	2	235	195	20	105	90	37	40	11	890	200
CH3W1-C	Up to 50	3	325	285	20	105	90	37	40	11	1270	200
CH4W1-C	Up to 50	4	415	375	20	105	90	37	40	11	1670	200
CH5W1-C	Up to 50	5	505	465	20	105	90	37	40	11	2070	200
CH6W1-C	Up to 50	6	595	555	20	105	90	37	40	11	2460	200
CH1W2-C	51-75	1	170	130	20	130	n/a	50	50	13	750	250
CH2W2-C	51-75	2	295	255	20	130	125	50	50	13	1390	250
CH3W2-C	51-75	3	420	380	20	130	125	50	50	13	2050	250
CH4W2-C	51-75	4	545	505	20	130	125	50	50	13	2690	250
CH5W2-C	51-75	5	670	630	20	130	125	50	50	13	3340	250
CH6W2-C	51-75	6	795	755	20	130	125	50	50	13	3990	250
CH1W3-C	76-100	1	185	145	20	145	n/a	62	50	13	870	250
CH2W3-C	76-100	2	345	305	20	145	160	62	50	13	1670	250
CH3W3-C	76-100	3	505	465	20	145	160	62	50	13	2490	250
CH4W3-C	76-100	4	665	625	20	145	160	62	50	13	3290	250
CH5W3-C	76-100	5	825	785	20	145	160	62	50	13	4100	250
CH6W3-C	76-100	6	985	945	20	145	160	62	50	13	4900	250

* Load Capacity: Brackets with multiple hook configurations are designed to operate with all hooks carrying their maximum load.
As standard, parts are spin galvanised to BS EN 1461 (55µm), thicker galvanising options are available on request.
Dimensions are provided with a tolerance, refer to detailed drawings for details.

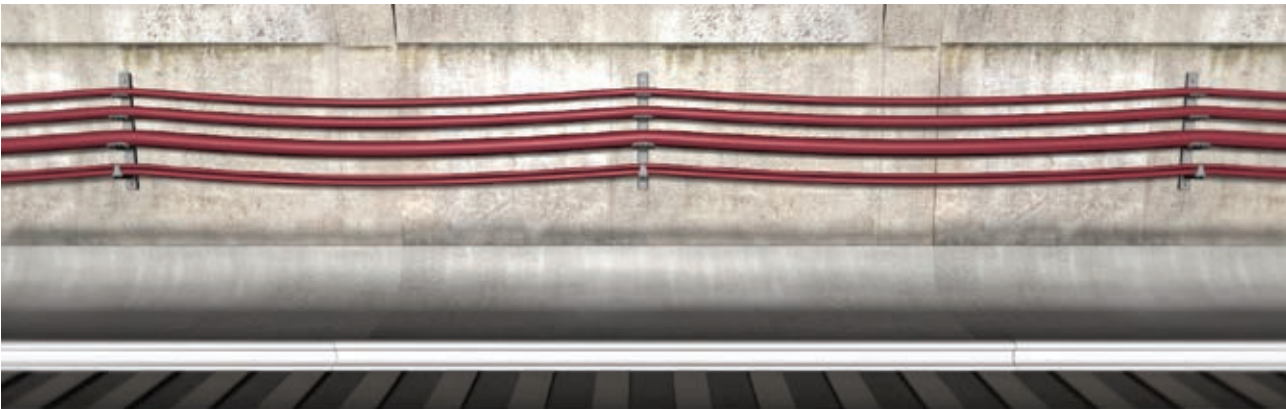
Pegasus® Hanger

- > **COMPOSITE CABLE HANGER SYSTEM: POLYMER HANGER AND ENCLOSED CORROSION RESISTANT ALUMINIUM SPINE**
- > **UPTO 50% LIGHTER THAN CONVENTIONAL STEEL SYSTEM, IMPROVES INSTALLATION TIME BY REDUCING INSTALLER FATIGUE**
- > **WILL NOT RUST OR CORRODE**
- > **INSULATING HANGER WITH EXCELLENT DIELECTRIC PROPERTIES, NO EARTH BONDING OR GROUNDING REQUIRED**
- > **CURVED PROFILE HANGER DESIGN ALLOWS NATURAL SAG**
- > **MULTIPLE COMBINATIONS OF HANGERS AVAILABLE, CURVED CONFIGURATION TO SUIT TUNNEL WALLS ALSO AVAILABLE**
- > **AVAILABLE IN LUL 1-085 LSF MATERIAL FOR INDOOR APPLICATIONS OR UV STABILISED MATERIAL FOR EXTERNAL APPLICATIONS**
- > **CURVED BACK PLATE TO SUIT TUNNEL WALLS AVAILABLE**

Modular Cable Hanger System
Patent No. 1507738.1



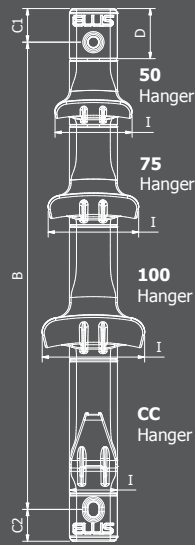
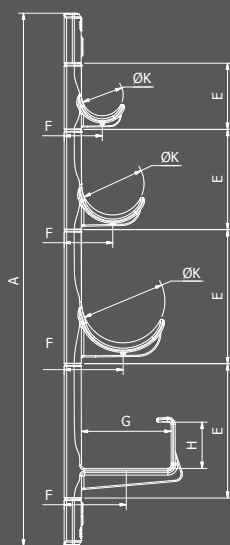
HANGER	SWL KG
100	60
75	45
50	45
CC	25



* Load Capacity: Brackets with multiple hook configurations are designed to operate with all hooks carrying their maximum load. Dimensions are provided with a tolerance, refer to detailed drawings for details.



Part No.	Ways	Dimensions (mm)											Fixing Holes Diameter	Pack Qty.	Modular Weight L	Weight kg	SWL kg
		A	B	C1	C2	D	E	F	G	H	I	K					
PG050-1	1	197	121	40	38	60	-	46	-	-	92	Ø50	M12	1	0.16	0.3	45
PG050-2	2	276	200	40	38	60	79	46	-	-	92	Ø50	M12	1	0.16	0.46	90
PG050-3	3	355	279	40	38	60	79	46	-	-	92	Ø50	M12	1	0.16	0.62	135
PG050-4	4	434	358	40	38	60	79	46	-	-	92	Ø50	M12	1	0.16	0.78	180
PG050-5	5	513	437	40	38	60	79	46	-	-	92	Ø50	M12	1	0.16	0.94	225
PG050-6	6	592	516	40	38	60	79	46	-	-	92	Ø50	M12	1	0.16	1.1	270
PG075-1	1	237	161	40	38	60	-	58	-	-	108	Ø75	M12	1	0.25	0.39	45
PG075-2	2	357	281	40	38	60	120	58	-	-	108	Ø75	M12	1	0.25	0.64	90
PG075-3	3	476	400	40	38	60	120	58	-	-	108	Ø75	M12	1	0.25	0.89	135
PG075-4	4	595	519	40	38	60	120	58	-	-	108	Ø75	M12	1	0.25	1.14	180
PG075-5	5	714	638	40	38	60	120	58	-	-	108	Ø75	M12	1	0.25	1.39	225
PG075-6	6	834	758	40	38	60	120	58	-	-	108	Ø75	M12	1	0.25	1.64	270
PG100-1	1	279	203	40	38	60	-	71	-	-	122	Ø100	M12	1	0.41	0.55	60
PG100-2	2	440	364	40	38	60	161	71	-	-	122	Ø100	M12	1	0.41	0.96	120
PG100-3	3	600	524	40	38	60	161	71	-	-	122	Ø100	M12	1	0.41	1.37	180
PG100-4	4	760	684	40	38	60	161	71	-	-	122	Ø100	M12	1	0.41	1.78	240
PG100-5	5	921	845	40	38	60	161	71	-	-	122	Ø100	M12	1	0.41	2.19	300
PG100-6	6	1085	1009	40	38	60	161	71	-	-	122	Ø100	M12	1	0.41	2.6	360
PGCC-1	1	279	203	40	38	60	-	74	107	55	57	-	M12	1	0.31	0.45	25
PGCC-2	2	440	364	40	38	60	161	74	107	55	57	-	M12	1	0.31	0.76	50
PGCC-3	3	600	524	40	38	60	161	74	107	55	57	-	M12	1	0.31	1.07	75
PGCC-4	4	760	684	40	38	60	161	74	107	55	57	-	M12	1	0.31	1.38	100
PGCC-5	5	921	845	40	38	60	161	74	107	55	57	-	M12	1	0.31	1.69	125
PGCC-6	6	1085	1009	40	38	60	161	74	107	55	57	-	M12	1	0.31	2	150



Pegasus is a modular system and can be supplied in any configuration

Part Numbers for special configurations can be worked out as follows:

Example: Part Number for product shown would be:

PG 50-1/75-1/100-1/CC-1

PG defines the product as Pegasus

The size and number of hangers is then listed as shown, starting from the top

Any number of hangers can be specified in any order

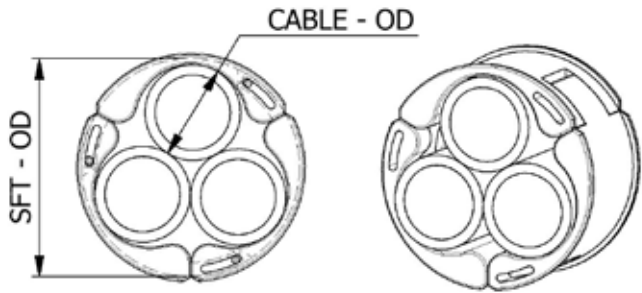
Standard material is suitable for tunnel applications, for UV stabilised material add -UV to part#

Standard product is straight but can be supplied curved, for curved option add -C to end of part

Triplex Cable Surround

- > **TRIPLEX CABLE SURROUND OVERCOMES THE TWIST IN TRIPLEX CABLE TO ALLOW THE CABLE TO BE CLEATED AT ANY POINT ALONG ITS LENGTH**
- > **ADAPTOR MANUFACTURED IN A LSF V0 POLYMER**
- > **CAN BE USED WITH EMPEROR SINGLE, VULCAN+, 2F+ and 2A CLEATS**
- > **REFER TO INDIVIDUAL PRODUCT DATA SHEETS FOR PERFORMANCE TO IEC 61914**
- > **SOLD SEPERATLEY TO THE CLEATS AS STANDARD BUT CAN BE PROVIDED ASSEMBLED INSIDE THE CLEAT ON REQUEST**

UK (2514384), EUROPEAN (2806198)
and US (9,404,605) Patent



PART NO.	CABLE RANGE		DEPTH (mm)	WEIGHT (g)
	MIN	MAX		
SFT26	24	28	62	67.3
SFT31 / SFT2F+31	28	34	62 / 84	87 / 125
SFT36 / SFT2F+36	33	39	62 / 84	113 / 160
SFT43 / SFT2F+43	39	47	62 / 109	140 / 272
SFT51 / SFT2F+51	47	55	62 / 134	212 / 447

NOTE:
SFT2F+XX part numbers refer to a deeper SFT+ moulding to be used with 2F+ and 2A clamps, see page 232 & 228 for more detail.

NOTE: 'CABLE RANGE' REFERS TO THE OUTSIDE DIAMETER THE INDIVIDUAL CABLES INSIDE THE TRIPLEX BRAID

This product has been **SHORT CIRCUIT** tested in line with EN 50368:
CONFIGURATION: 2F+LSF CLEAT WITH SFT
PEAK CURRENT: 76kA
CLEAT SPACING: 600mm

Cable Cleat Selection Detail for Cleats to be used with the Triplex Cable Surround

CABLE OD (mm)	SFT OD (mm)	ADAPTOR TYPE	VULCAN+	EMPEROR	2F + CLAMP	2A CLAMP
24	56	SFT26	VRT+03	ES51-59	2F+09	2A-09
25	58	SFT26	VRT+03	ES51-59	2F+10	2A-10
26	59	SFT26	VRT+03	ES51-59	2F+10	2A-10
27	61	SFT26	VRT+04	ES58-66	2F+10	2A-10
28	63	SFT26	VRT+04	ES58-66	2F+10	2A-10
28	64	SFT31	VRT+05	ES58-66	2F+11	2A-11
29	66	SFT31	VRT+05	ES65-73	2F+11	2A-11
30	68	SFT31	VRT+05	ES65-73	2F+11	2A-11
31	70	SFT31	VRT+06	ES65-73	2F+1200	2A-1200
32	71	SFT31	VRT+06	ES65-73	2F+1200	2A-1200
33	73	SFT31	VRT+06	ES65-73	2F+1200	2A-1200
34	75	SFT31	VRT+06	ES73-85	2F+1200	2A-1200
33	76	SFT36	VRT+06	ES73-85	2F+1201	2A-1201
34	78	SFT36	VRT+06	ES73-85	2F+1201	2A-1201
35	80	SFT36	VRT+07	ES73-85	2F+1201	2A-1201
36	82	SFT36	VRT+07	ES73-85	2F+1201	2A-1201
37	83	SFT36	VRT+07	ES73-85	2F+1202	2A-1202
38	84	SFT36	VRT+07	ES73-85	2F+1202	2A-1202
39	86	SFT36	VRT+08	ES84-94	2F+1202	2A-1202
39	88	SFT43	VRT+08	ES84-94	2F+1202	2A-1202
40	89.5	SFT43	VRT+08	ES84-94	2F+1202	2A-1202
41	93	SFT43	VRT+08	ES84-94	2F+131	2A-131
42	94	SFT43	VRT+09	ES84-94	2F+131	2A-131
43	95	SFT43	VRT+09	ES94-118	2F+131	2A-131
44	97	SFT43	VRT+09	ES94-118	2F+131	2A-131
45	99	SFT43	VRT+10	ES94-118	2F+132	2A-132
46	102	SFT43	VRT+10	ES94-118	2F+132	2A-132
47	104.5	SFT43	VRT+11	ES94-118	2F+132	2A-132
47	105	SFT51	VRT+11	ES94-118	2F+132	2A-132
48	107	SFT51	VRT+11	ES94-118	2F+141	2A-141
49	110	SFT51	VRT+12	ES94-118	2F+141	2A-141
50	112	SFT51	VRT+12	ES94-118	2F+141	2A-141
51	114	SFT51	VRT+12	ES94-118	2F+142	2A-142
52	117	SFT51	VRT+12	ES94-118	2F+142	2A-142
53	119.5	SFT51	VRT+13	ES118-130	2F+142	2A-142
54	121	SFT51	VRT+13	ES118-130	2F+151	2A-151
55	123.5	SFT51	VRT+13	ES118-130	2F+151	2A-151

For part numbers in red the wider SFT2F+ needs to be used to suit the increased depths of the clamps

This information is subject to change without notice. The information provided has been generated in laboratory conditions, as such results in use may vary.

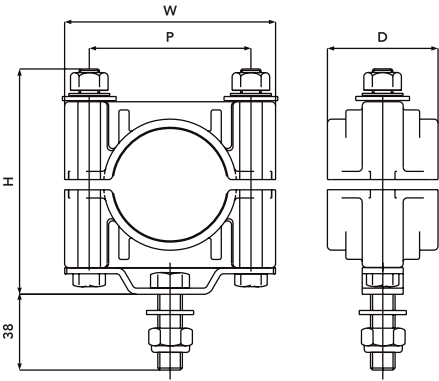
Single Bolt Fixing Clamp

- > HEAVY DUTY FIXING BRACKET ALLOWS POLYMERIC 2 HOLE CLAMPS TO BE FIXED ON A SINGLE BOLT
- > CLAMP CAN BE SUPPLIED IN LSF NYLON OR STANDARD POLYPROPYLENE
- > ADAPTOR BRACKET IS MANUFACTURED IN ZINC PLATED MILD STEEL
- > HEADS OF FIXING BOLTS ARE WELDED CAPTIVE TO EASE INSTALL
- > FOR CLAMP PERFORMANCE TO IEC 61914 REFER TO 2 HOLE CLAMP DATA SHEET



Polymer clamp on steel bracket

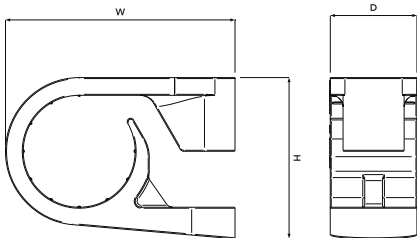
PART NO.	CLAMP MATERIAL SUFFIX	CABLE RANGE (mm)	DIMENSIONS (mm)			WEIGHT (g)	
			W	H	D	B	LSF
2F+AS-08	B or LSF	46-51	103	110	54	353.9	382.9
2F+AS-09	B or LSF	51-57	103	110	54	368	392
2F+AS-10	B or LSF	57-64	103	110	54	362.1	395.5
2F+AS-11	B or LSF	64-70	130	143	54	433	474.3
2F+AS-1200	B or LSF	70-76	128	143	75	477.1	507
2F+AS-1201	B or LSF	76-83	135	148	75	491	523.5
2F+AS-1202	B or LSF	83-90	143	156	75	505.3	545.6



PART NO. EXAMPLE:
For a single bolt fixing 2F+11 clamp in LSF nylon use the part number:2F+AS-11-LSF.

Industrial Cable Clamp

Manufactured as standard in Black LLDPE (B) or in a London Underground Approved Material (LUL).
Used to fix power cables in indoor and outdoor applications.

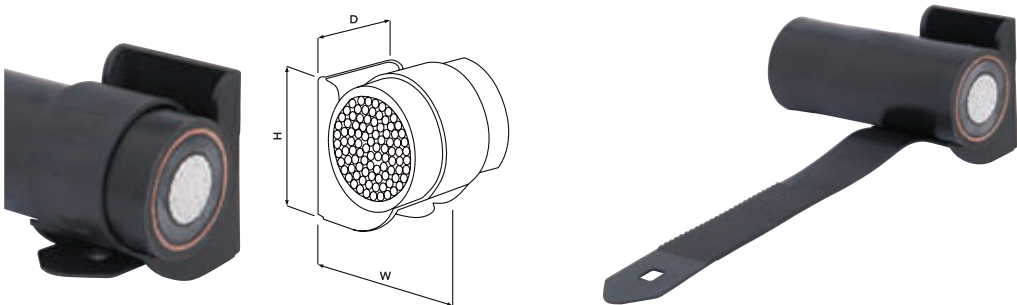


Part No.		Cable Range		Dimensions mm			Fixing Holes	Pack Qty	SWL kgf	Weight g	
LLDPE	LUL	Min Dia. mm	Max Dia. mm	W	H	D				LLDPE	LUL
17-01B	17-01LUL	10	15	27.8	17.6	12	1 x M4	100	18	2.0	3.5
17-02B	17-02LUL	12	17	32.0	20.8	14	1 x M4	100	24	3.3	5.4
17-03B	17-03LUL	15	20	37.1	25.3	16	1 x M4	100	32	5.2	8.6
17-04B	17-04LUL	18	24	41.0	29.6	18	1 x M4	100	39	7.3	12.2
17-05B	17-05LUL	22	29	52.1	35.4	20	1 x M6	50	52	11.2	18.6
17-06B	17-06LUL	26	34	58.2	40.9	22	1 x M6	50	66	16.5	27.9
17-07B	17-07LUL	32	42	69.3	49.2	25	1 x M6	25	79	25.6	42.9
17-08B	17-08LUL	39	51	81.7	58.5	26	1 x M6	25	93	36.2	60.1

The LUL version of this clamp is compliant with the requirement of London Underground Standard 1-085. Product Register No. 365.

Elite Range-Taker Cable Clamp

Manufactured as standard in Black Polypropylene (B), White Polypropylene (W) or Black Flame Retardant V0 Zero Halogen Phosphorus-Free Nylon (LSF). The clamp incorporates a fully releasable strap allowing ease of re-installation. Used to fix power cables in indoor and outdoor applications.



Part No.	Material Suffix	Cable Range		Dimensions mm			Fixing Holes	Pack Qty	Weight g	
		Min Dia. mm	Max Dia. mm	W	H	D			B/W	LSF
15-1	B,W or LSF	9.5	16.0	27.0	37.0	25.0	1 x M6	100	6.0	8.0
15-2	B,W or LSF	15.0	25.0	36.0	37.0	32.0	1 x M6	50	8.0	10.9
15-3	B,W or LSF	23.0	37.0	48.0	48.0	36.0	1 x M6	50	15.0	18.1
15-4	B,W or LSF	34.0	52.0	63.0	65.0	40.0	1 x M6	25	20.0	25.5

Tested in line with EN 50368:2003

Earthing Strip Clip

Manufactured as standard in Black Polypropylene (B) or Grey Flame Retardant Polypropylene (FR)



Imperial Sizes

Part No.	Material Suffix	Strip Size inches	Hold Off inches	Length inches	Fixing Holes (slotted) inches	Pack Qty	Weight g
60-04	B or FR	1 x 1/8	3/16	2	7/16 x 5/16	100	12
60-05	B or FR	1 1/4 x 1/8	3/8	2 3/8	7/16 x 5/16	100	21
60-06	B or FR	1 1/4 x 3/16	5/16	2 3/8	7/16 x 5/16	100	20
60-08	B or FR	1 1/2 x 3/16	5/16	2 3/8	7/16 x 5/16	100	20
60-10	B or FR	1 1/2 x 1/8	3/8	2 3/8	7/16 x 5/16	100	20
60-15	B or FR	2 x 1/8	1/4	3 1/8	7/16 x 5/16	100	24
60-26	B or FR	1 x 1/8	3/4	2 1/8	7/16 x 5/16	100	16
60-27	B or FR	1 x 3/16	5/8	2 1/8	7/16 x 5/16	100	16
60-28	B or FR	1 1/2 x 3/16	5/8	2 1/8	7/16 x 5/16	100	25
60-32	B or FR	1 1/4 x 1/4	5/8	3	7/16 x 5/16	100	25
60-34	B or FR	1 1/2 x 1/8	3/4	3	7/16 x 5/16	100	25
60-36	B or FR	1 1/2 x 1/4	5/8	3	7/16 x 5/16	100	24
60-37	B or FR	1 1/2 x 3/8	3/8	2 1/8	7/16 x 5/16	100	23
60-38	B or FR	1 3/4 x 1/8	3/4	3 3/8	7/16 x 5/16	100	27
60-39	B or FR	1 3/4 x 1/4	5/8	3 3/8	7/16 x 5/16	100	27
60-40	B or FR	2 x 1/8	3/4	3 3/8	7/16 x 5/16	100	30
60-42	B or FR	2 x 1/4	5/8	3 3/8	7/16 x 5/16	100	25
60-44	B or FR	2 x 3/8	3/8	3 3/8	7/16 x 5/16	100	24

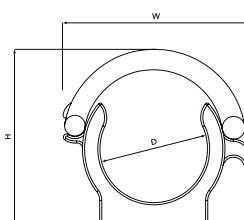
Metric Sizes

Part No.	Material Suffix	Strip Size mm	Hold Off mm	Length mm	Fixing Holes (slotted) mm	Pack Qty	Weight g
70-04	B or FR	20 x 4	17	55	11 x 8	100	15
70-06	B or FR	20 x 6	16	55	11 x 8	100	16
70-07	B or FR	25 x 6	16	55	11 x 8	100	14
70-08	B or FR	50 x 4	18	87	11 x 8	100	28
70-09	B or FR	40 x 6	16	87	11 x 8	100	28
70-10	B or FR	50 x 6	15	87	11 x 8	100	26
70-11	B or FR	40 x 4	18	87	11 x 8	100	28
70-12	B or FR	50 x 10	11	87	11 x 8	100	24
70-14	B or FR	60 x 6	18	97	11 x 8	100	31
70-16	B or FR	80 x 6	19	118	11 x 8	50	41

Cable Conduit Clip

Manufactured as standard in Black Nylon, this surface mounted Conduit Clip comes complete with a captive hinged over-strap. Used to fix conduit in indoor and outdoor applications.

Part No.	Material Suffix	D mm	H mm	W mm	Fixing Holes mm	Stand off	Pack Qty	Weight g
CC20B	B or W	20	35	35	4	5	100	8.8
CC25B	B or W	25	40	40	4	5	100	10.6



Framing Channel Accessories

Framing Channel End Caps

Manufactured as standard in Black or White Polypropylene (PP), Black or White LDPE (PE) or Nylon (LSF). The EC version is a spring fit whilst the 'Gripper' version has fins which bend and deform into the channel. There is provision to incorporate the customers logo. Also available to order in other colours.

Part No.	Description	Size mm	Material Suffix	Colour	Pack Qty	Weight g
91-ECLB	'EC' type channel end cap	41 x 41	PP	Black	100	7.3
91-ECLW	'EC' type channel end cap	41 x 41	PP	White	100	7.3
91-ECSB	'EC' type channel end cap	41 x 21	PP	Black	100	3.2
91-ECSW	'EC' type channel end cap	41 x 21	PP	White	100	3.2
91-JGLB	'Gripper' type channel end cap	41 x 41	PE	Black	100	9.4
91-JGLW	'Gripper' type channel end cap	41 x 41	PE	White	100	9.4
91-JGSB	'Gripper' type channel end cap	41 x 21	PE	Black	100	4.4
91-JGSW	'Gripper' type channel end cap	41 x 21	PE	White	100	4.4
91-JGLLSF	'Gripper' type channel end cap	41 x 41	LSF	Black	100	9.4
91-JGSLSF	'Gripper' type channel end cap	41 x 21	LSF	Black	100	4.4

Butterfly Clip

Manufactured as standard in Black Nylon, the butterfly clip snaps into 41mm wide framing channel. It will accommodate a cable tie of up to 100mm in width (not included). Used to allow cables to be strapped at right angles to the channel.

Part No.	Material Suffix	Pack Qty	Weight g
91-BC	NY	100	3.8

Thermal Spacer

Manufactured as standard in Black Polypropylene. A slotted hole is also provided for running heat detection cable. Used to ensure separation of the cable on cable ladder, framing channel and ladder rungs with reduced return flanges.

Part No.	Height Above Ladder Rung	Material Suffix	Pack Qty	Weight g
91-TSL1	75mm	PP	100	19.5
91-TS7.5	50mm	PP	100	14.7

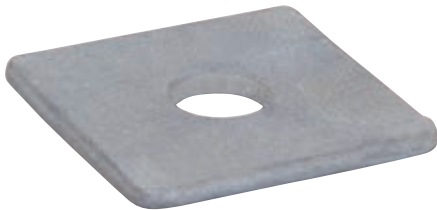


Framing Channel Accessories

Framing Channel Washer

Manufactured as standard in the materials shown this washer is recommended for use when our range of 2F+ clamps are fitted to framing channel.

Part No.	Size	Material Suffix	Hole Size mm	Pack Qty	Weight g
91-WZ	40 x 40	Mild Steel Zinc Plated	10	100	33
91-WZ-X	40 x 40	Mild Steel Zinc Plated	12	100	33
91-W-2	40 x 40	A2 Stainless Steel	10	100	34
91-W-4	40 x 40	A4 Stainless Steel	12	100	34
91-WG	40 x 40	Mild Steel Galvanised	10	100	37



Channel Nuts

Manufactured as standard in Bright Zinc Plated Mild Steel.

Part No.	Material Suffix	Pack Qty	Weight g
0F-M10-CN00-Z	M10 Channel Nut (long spring)	100	38
0F-M10-CN01-Z	M10 Channel Nut (short spring)	100	37
0F-M10-CN02-Z	M10 Channel Nut (no spring)	100	36



Insulation Plate

Manufactured as standard in Black Polypropylene or Black Flame Retardant V0 Zero Halogen Phosphorus-Free UV Stabilised Nylon (LSF), this insulation plate can be used to provide a barrier where galvanic reaction may occur between dissimilar metals, e.g. when installing stainless steel cleats onto galvanised steel channel.

Part No.	Material Suffix	Pack Qty	Weight g
91-IP	B	100	5
91-IP 12	B/LSF	100	5
91-IP-1	B/LSF	100	5
91-IP-2	B/LSF	100	5
91-IP-3	B/LSF	100	5



Trunking Adapter

Manufactured as standard in Black Polypropylene (B) or Nylon (LSF), this adapter can be used to fit one hole and two hole cable clamps when cables are being installed parallel to the trunking.

Part No.	Material Suffix	Pack Qty	Weight g
91-TA	B	100	5.3
91-TA	LSF	100	7.1



Specialist Cable Fixings for Utilities



Single Way Fixing Cable Cleat

Manufactured as standard in Black Polypropylene (B) and Grey Flame Retardant Polypropylene (FR) or Black Acetal (A).

A robust cleat used for securing armoured power cables.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
10-034	B or FR	9.0	3	200	0.8
10-042	B or FR	10.6	4	200	1.9
10-046	B or FR	11.7	4	200	2.8
10-053	B or FR	13.5	4	200	2.8
10-056	B or FR	14.2	4	200	3.1
10-061	B or FR	15.5	4	200	3.1
10-065	B or FR	16.5	4	200	4.8
10-072	B or FR	18.2	4	200	4.2
10-083	B or FR	21.1	6	100	7.7
10-098	B or FR	24.8	6	100	6.4
10-106	B or FR	27.0	6	100	7.5
10-120	A	31.0	6	50	15.8
10-138	A	35.0	6	50	23.0



Two Way Single Fixing Cable Cleat

Manufactured as standard in Black Polypropylene (B) and Grey Flame Retardant Polypropylene (FR).

A robust cleat used for securing two armoured power cables on flat surfaces.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
2W37	B	9.4	4	100	2.2
2W42	B or FR	10.6	4	100	3.3
2W46	B or FR	11.7	4	100	3.6
2W53	B or FR	13.5	4	100	4.0
2W56	B or FR	14.2	4	100	5.0



Three & Four Way Double Fixing Cable Cleat

Manufactured as standard in Black Polypropylene (B) and Grey Flame Retardant Polypropylene (FR).

A robust cleat used for securing three or four armoured power cables on flat surfaces.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
3W46	B or FR	11.7	4	200	8.7
3W56	B or FR	14.2	4	200	9.3
4W10	B	4 x 15	4	100	9.5



Single Way Heavy Duty Radiused Pole Cleat

Manufactured as standard in Black Polypropylene (B) or Black Flame Retardant VO Zero Halogen Phosphorus-Free UV Stabilised Nylon (LSF). A curved robust cleat used for securing power cables on 200mm diameter wooden electricity supply poles.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
35-04	B	27.6	8	100	13.0
35-06	B	31.2	8	100	12.0
35-065	B	33.5	8	100	18.5
35-07	B	36.0	8	100	14.0
35-08	B	37.8	8	100	16.0
35-10	B	41.5	8	100	26.0
35-12	B	44.6	8	100	25.0
35-22	B	49.2	8	100	23.0
35-26	B	53.5	8	50	25.0
35-30	B	56.6	8	50	27.0
35-34	B	61.6	11	50	53.0
35-42	B	72.5	11	25	84.0



Two Way Heavy Duty Radiused Pole Cleat

Manufactured as standard in Black Polypropylene (B) or Black Flame Retardant VO Zero Halogen Phosphorus-Free UV Stabilised Nylon (LSF). A curved robust cleat used for securing two power cables on 200mm diameter wooden electricity poles.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
2WP04	B	11.7	4	100	6.1
2WP06	B	13.2	4	100	5.4
2WP10	B	16.5	4	100	6.5
2WP15	B	19.1	8	100	7.3

Specialist Cable Fixings for Utilities



Three Way Heavy Duty Radiused Pole Cleat

Manufactured as standard in Black Polypropylene (B) or Black Flame Retardant VO Zero Halogen Phosphorus-Free UV Stabilised Nylon (LSF). A curved robust cleat used for securing three power cables on 200mm diameter wooden electricity supply poles.



Single Way Snap on Saddle Clip

Manufactured as standard in Black Polypropylene (B) and Grey Flame Retardant Polypropylene (FR). Used for mounting cables and pipes on flat surfaces also providing clearance between the cable or pipe and the mounting surface.

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
3WP04	B	11.7	6.35	200	8.0
3WP06	B	13.2	6.35	200	8.2
3WP10	B	16.5	6.35	200	9.8
3WP15	B	19.2	6.35	200	12.5
3WP20	B	21.7	6.35	200	13.7
3WP2	B	15.0	6.35	200	10.7
3WN05	B	24.0	6.35	200	11.9

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
90-M095	B or FR	9.5	3.75	500	1.8
90-M120	B or FR	12.0	3.75	500	2.4
90-01	B or FR	12.7	3.75	500	2.2
90-02	B or FR	15.0	3.75	500	2.4
90-03	B or FR	17.5	4.0	500	3.3
90-075	B or FR	19.0	4.0	500	3.6
90-04	B or FR	23.0	4.0	500	3.2
90-04.1	B or FR	24.2	4.0	500	3.1
90-05	B or FR	25.4	4.0	500	4.3
90-06	B or FR	27.5	5.0	500	5.3
90-07	B or FR	31.7	5.0	200	6.8
90-08	B or FR	34.0	5.0	200	6.7
90-09	B or FR	38.1	5.0	100	6.8
90-10	B or FR	42.0	5.0	200	8.7
90-11	B or FR	42.6	5.0	200	9.5
90-12	B or FR	44.4	5.0	100	7.4
90-13	B or FR	48.7	5.0	200	10.4
90-14	B or FR	53.9	5.0	100	14.4
90-143	B or FR	55.0	6.0	100	26.3
90-15	B or FR	60.5	6.0	100	25.8
90-19	B or FR	75.0	7.5	50	40.8
90-24++	B	88.9	10.0	25	70.7
90-S	B	Saddle Clip Spacer*			1.2



Two Way Cleat and Spacer

Manufactured as standard in Black Polypropylene (B) and Grey Flame Retardant Polypropylene (FR). Used for mounting power cables to poles and flat surfaces. A spacer is available to facilitate the stacking of the cleat

Part No.	Material Suffix	Cable Dia. mm	Fixing Holes mm	Pack Qty	Weight g
E272	B or FR	11.1-19.1	10.0	50 pairs	22.7
E272S	B or FR	11.1-19.1	10.0	50	15.1
E273	B or FR	6.35-12.0	6.63	50 pairs	11.4
E273S	B or FR	6.35-12.0	6.63	50	7.2

S = Spacer

++ This item is supplied with a base plate.

* Spacer suitable for use with all saddle clips (except part no 90-24).

Provides additional separation of the cable or pipe from the mounting surface of approximately 12.5mm.



Cable Tie Base

Manufactured in Nylon (NY). Used to accommodate a cable tie of up to 10mm in width (not included)

Part No.	Material Suffix	Fixing Holes mm	Pack Qty	Weight g
115-001	NY	6	100	2.5



Universal Cleat

Manufactured as standard in Black Polypropylene (B). Used for stacking cables vertically or horizontally using a framework system. More detail can be supplied on request

Part No.	Material Suffix	Cable Dia. mm	Pack Qty	Weight g
30U-1	B	23.8-38.1	50 pairs	89



ABC Wall Cleat

Manufactured as standard in Black Polypropylene (B). Used as a simple solution to the fixing of vertical and horizontal serial bundled cable to walls and other surfaces. (Tested to ESI Standards 43-14.)

Part No.	Material Suffix	A mm	H mm	D mm	Fixing Holes mm	Pack Qty	Weight g
115-010	B	10	47	31	6	100	12
115-050	B	50	59	37	6	100	27
115-100	B	100	72	43	6	25	54
115-125	B	125	80	48	6	25	74

Please note: These clamps are available in 4 stand off variants denoted by 'A'.

Jointers' Tools

Cable Core Twisters

Manufactured in Acetal (International Orange). Used to manipulate bare or insulated cable cores and to align the cores prior to jointing.

Complies with the Dielectric testing of IEC 60900-1



3 Core

Part No.	Cores	Core Range Size mm²	Pack Qty	Weight g
110-95C	3	70 Bare x 95 Bare	10	54
110-X01C	3	95 Bare x 95 Ins	10	51
110-120C	3	70 Bare x 120 Bare	10	51
110-120IC	3	70 Ins x 120 Ins	10	49
110-X06C	3	120 Bare x 120 Ins	10	48
110-X07C	3	185 Bare x 185 Ins	10	148
110-240C	3	185 Bare x 240 Bare	10	146
110-300C	3	185 Bare x 300 Bare	10	147
110-300IC	3	185 Ins x 300 Ins	10	139
110-X08C	3	300 Bare x 300 Ins	10	138
110-X09C	3	70 Bare x 70 Ins	10	53
110-X10C	3	95 Bare x 185 Bare	10	154
110-X11C	3	95 Ins x 185 Ins	10	149

3 & 4 Core

Part No.	Cores	Core Range Size mm²	Pack Qty	Weight g
110-X03C	3 & 4	3C 95 Ins x 4C 95 Ins	10	50
110-X04C	3 & 4	3C 185 Ins x 4C 185 Ins	10	145
110-X05C	3 & 4	3C 300 Ins x 4C 240 Ins	10	135
110-X12C	3 & 4	3C 300 Bare x 4C 300 Bare	10	141
110-X13C	3 & 4	3C 300 Ins x 4C 300 Ins	10	134

4 Core

Part No.	Cores	Core Range Size mm²	Pack Qty	Weight g
110-41C	4	95 Bare x 95 Ins	10	51
110-42C	4	185 Ins x 240 Ins	10	142
110-43C	4	185 Bare x 240 Bare	10	150
110-44C	4	185 Ins x 300 Ins	10	141
110-48C	4	120 Ins x 185 Ins	10	150
110-X02C	4	185 Bare x 300 Bare	10	146
110-X14C	4	95 Bare x 185 Bare	10	155
110-X15C	4	95 Ins x 185 Ins	10	149
110-X16C	4	95 Ins stranded x 95 Ins solid	10	51
110-X17C	4	300 Ins stranded x 300 Ins solid	10	140

Cable Core Former

Manufactured in Nylon. Used to hold the cores of a three core cable apart whilst a joint is being made. The central hole provides a facility for positioning a mastic bung.

Part No.	Core Separation Distance mm	Pack Qty	Weight g
120-F	32 - 58	10	44.1



Jointers' Tools

Cable Core Guard

Manufactured in Nylon (International Orange). Used to provide separation between a cable core which is being cut and neighbouring cores.

Part No.	Nominal Lift mm	Pack Qty	Weight g
120-CG1C	23	10	57



Cable Core Stripper

Manufactured in a Polymeric material. Used to remove insulation and sheathing from live armoured power cables. The tool has an exceptionally strong, tough blade and a unique handle moulded in a softer plastic which provides a cushion effect when a hammer is used to initiate a cut in the cable sheath.

Part No.	Nominal Lift mm	Pack Qty	Weight g
120-CS	90	10	183



Complies with the Dielectric testing of IEC 60900-1

Cable Core Wedge

Manufactured in Nylon (International Orange). Used to prise apart and to separate the cores of cables.

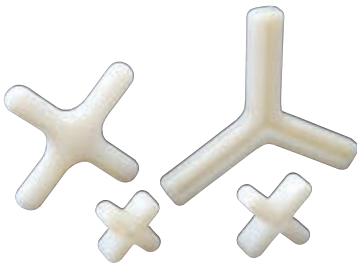
Part No.	Length mm	Width mm	Nominal Lift mm	Pack Qty	Weight g
110-1NYC	150	25	15	10	41
110-2NYC	225	25	25	10	65
110-3NYC	225	25	38	10	89
110-4NYC	150	13	25	10	32



Cable Core Spreader

Manufactured in Nylon. Used to hold apart the cores of a cable when jointing cables.

Part No.	Core	Core Range Size mm²	Pack Qty	Weight g
120-VNY	3	240 - 300	100	45
120-WNY	3	185	100	38
120-YNY	3	95 - 150	100	30
120-ZNY	3	95	100	24
120-UNY	4	Universal	100	37
120-15	4	Universal	100	10
120-20	4	Universal	100	12



Ladder Adaptors

- > ADAPTORS TO FIT ELLIS CLEATS TO A WIDE RANGE OF LADDERS
- > STAINLESS STEEL CONSTRUCTION
- > SUPPLIED WITH FIXINGS
- > AVAILABLE WITH M10 OR M12 FIXINGS

PART NO.	TO SUIT LADDER
KIT0008-M12	1" SQUARE, M10 FIXING
KIT0012	23-27MM ROUND, M10 FIXING
KIT0020	21 X 17MM OVAL, M10 FIXING
KIT0039	1.5" X 0.375" RECTANGULAR, M10 FIXING
KIT0041-M10	1.125" X 0.75" RECTANGULAR, M10 FIXING
KIT0041-M12	1.125" X 0.75" RECTANGULAR, M12 FIXING
KIT0042-M10	1.5" X 0.5" RECTANGULAR, M10 FIXING
KIT0042-M12	1.5" X 0.5" RECTANGULAR, M12 FIXING
KIT0043-M10	41 X 21MM RECTANGULAR, M10 FIXING
KIT0045	1.0" ROUND, M10 FIXING
KIT0046-M10	1.5"X1.0" RECTANGULAR, M10 FIXING
KIT0046-M12	1.5"X1.0" RECTANGULAR, M12 FIXING
KIT0047-M10	27MM ROUND X 23MM FLAT D RUNG, M10 FIXING
KIT0047-M12	27MM ROUND X 23MM FLAT D RUNG, M12 FIXING

Section 10

Fire Protection Products

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Sealants

3M offer a wide range of sealing solutions from high performance fire barrier sealants to simple fire block foam sprays and lightweight packing material. They help prevent the spread of fire, smoke and toxic gases through penetrations.

3M™ FIP 1-Step Firestop Foam

Smoke, sound and firestopping foam for wall and floor penetrations.

- > Easy to use and install
- > Intumescent. Expands In Fire
- > Expands 5 Times Upon Delivery
- > Meets ASTM E-814, UL 1479
- > Bonds to most construction substrates including, but not limited to, concrete, metal, wood, plastic and cable jacketing.
- > Dries to a flexible solid.



Product Code	Order Code
312-12245	POA

3M™ Fire Block Foam FB-Foam

Ready-to-use foam fireblock designed to help prevent the spread of flames and smoke.

- > Heat-resistant up to 115° C
- > Tested to ASTM E 84 Class 1 (modified)
- > Draftstop – helps reduce air infiltration
- > Thermal insulator
- > Ready-to-use (no mixing required)
- > Tack-free in approximately 5 minutes
- > Expands to quickly and effectively seal openings
- > Sag-resistant formulation
- > Excellent adhesion—bonds to concrete, brick, metals, wood, plastic and cable jacketing
- > Minimal shrinkage



Size	Order Code
330ml Can	3MFR15

3M™ Fire Barrier CP 25WB+ Sealant

Our most popular firestop sealant approved up to 4-hours fire protection when used with most plastic and metal pipes.

- > Australian standard testing in accordance with AS1530.4
- > International testing in accordance with EN1366
- > Provides up to 4-hours fire protection
- > Superior adhesion – bonds to concrete, metals, wood, plastic and cable jacketing
- > Intumescent – expands when heated to seal around items consumed by fire

* Not approved for use with CPVC pipes

Size	Order Code
300ml cartridge	3MFR18



3M™ Fire Barrier IC 15WB+ Sealant

Affordable UL, general-purpose sealant approved up to 3-hours fire protection when used with plastic and metal pipes.

- > Australian standard testing in accordance with AS1530.4
- > Meets International testing in accordance with EN 1366
- > ASTM E814 (UL Listed)
- > Provides up to 3-hours fire protection
- > CPVC compatible
- > Superior adhesion – bonds to concrete, metals, wood, plastic and cable jacketing
- > Intumescent – expands when heated to seal around items consumed by fire

Size	Order Code
300ml cartridge	3MFR03



3M™ Fire Barrier Packing Material PM4

Lightweight packing material to be used with through-penetration firestops.

- > Tested in accordance with ASTM E814 (UL Listed)
- > Convenient, hand-tear dispensing
- > For almost any through-penetrating firestop project
- > Easy to use and less irritating to skin
- > Available in 101.6mm x 6.25m rolls

Product Code	Order Code
312-12245	3MFR21



Water Tight Sealants

Achieve the benefits of firestopping and a watertight seal in one application.

- Provides excellent adhesion on most construction surfaces, including: concrete, gypsum, metal, plastic, wood and insulation
- Ideal for the following interior construction voids: blank openings, metallic pipes, non-metallic pipes, cables, cable trays, insulated pipes, busways, combos

3M™ Fire Barrier Water Tight Silicone 3000 WT Sealant

High-performance intumescent silicone achieves the benefits of a firestop and water tight seal.

- > Provides up to 4-hours fire protection
- > Excellent weatherability – ideal for fast-track construction
- > Cures upon exposure to atmospheric humidity
- > Re-enterable and repairable



Product Code	Order Code
312-12245	3MFR04

3M™ Fire Barrier Water Tight Sealant 1003 SL

Self-leveling silicone firestop for floor applications.

- > Up to 3-hour fire ratings for joint systems per ASTM E 1966 (UL 2079)
- > Up to 3-hour fire ratings for through penetrations per ASTM E 814 (UL 1479)
- > Compression/extension recovery of ±31% of original joint width



Product Code	Order Code
312-12245	POA

Sprays and Sealants

3M Fire Protection Systems developed fire barrier sealants and sprays that meet the movement needs of head of wall, wall to wall, bottom of wall and perimeter joints. These products undergo stringent building movement testing prior to firestop testing and are designed to meet the challenges of firestopping construction joints for many years.

3M Construction Joint Firestopping Solutions

Whether you are a drywaller, carpenter, caulker, waterproofer, glazer or masonry contractor, one thing you know is construction joints move. When construction joints require firestopping, you need a tested product that can meet the demands of expanding and contracting joints day in and day out.

3M™ FireDam™ Spray 200

This sprayable coating is a quick and easy method for firestopping fire rated construction joints, including: head-of-wall, wall-to-wall, floor-to-floor and perimeter joints.

- > Tested in accordance with ASTM E814 (UL Listed)
- > High coverage rate reduces installation time
- > Fast-dry, low-sag formula
- > Grey colour blends well with both concrete and gypsum
- > Dries quickly to dark grey or red
- > Applies with conventional airless spray equipment
- > Paintable when cured
- > Elastomeric – forms a flexible seal with compression/extension of up to ± 25% of nominal joint width
- > Easy clean-up with water
- > Available in 20 Litre pails



Product Code	Order Code	Red	Grey
312-12245	POA		

3M™ Fire Barrier Silicone Sealant 2000+

Bonds to most common construction materials to form a flexible seal.

- > Tested in accordance with ASTM E 814 (UL Listed)
- > Superior adhesion
- > Remains elastomeric and is weather resistant.
- > Up to 4-hour fire ratings for joint systems per ASTM E 1966 (UL 2079)
- > Up to 3-hour fire ratings for through penetrations per ASTM E 814 (UL 1479)
- > Compression/extension recovery of ±13% of original joint width
- > Superior adhesion
- > Weather-resistant
- > Sound damping



Product Code	Order Code
312-12245	POA

Speciality Products

3M Fire Barrier Speciality Products. From wrap strips and restricting collars to 3M™ Fire Barrier Mortar, these code approved products help round out 3M's comprehensive offering of service penetration firestops.

3M™ Fire Barrier Plastic Pipe Device

Use for firestopping penetrating items such as plastic pipe and cables in new and retrofit installations.

- > Australian standard testing in accordance with AS1530.4 in firestop systems up to 4 hours fire protection
- > Ultra-fast anchoring system secures the device to most substrates without power tools
- > One-piece construction makes installation easy
- > Proven technology – intumescent action quickly seals off the penetrating item in a fire
- > Can be used to seal the following plastic pipes: ccPVC, PVC, CPVC, FRPP, PVDF, ccABS and ABS
- > Available in 38, 50, 76, 102 and 150 mm sizes
- > All sizes with the exception of the 152 mm device utilize Ultra GS intumescent material. 152 mm device used FS-195+ strip



Size	Order Code
38mm	3MFR08
50mm	3MFR09
76mm	3MFR10
102mm	3MFR11
150mm	3MFR12

3M™ Fire Barrier Wrap Ultra GS

Flexible, intumescent wrap strip expands when exposed to high temperatures.

- > Up to 3-hour fire ratings per ASTM E 814 (UL 1479)
- > Excellent weatherability
- > For use in drain, waste, vent or closed pipe systems
- > Easily cut and shaped with common tools
- > Used to firestop the following plastic pipes: ccPVC, PVC, FRPP, PVDF, ccABS and ABS
- > Provides a smoke seal when used in conjunction with 3M™ Fire Barrier Sealant (CP 25WB+, IC 15WB+, 3000 WT) or 3M™ Fire Barrier Mouldable Putty MP+
- > Available in 50.8 mm x 12 m roll



Product Code	Order Code
312-12245	POA

3M™ Fire Barrier FS-195 + Wrap/Strips

A one-part, intumescent and elastomeric strip with foil on one side.

- > Australian standard testing in accordance with AS1530.4 in firestop systems
- > International testing in accordance with EN1366 and
- > ASTM E 814 (UL Listed)
- > Can be cut to fit irregular shapes
- > Available in 6.35 mm x 50.8 mm x 609.6 mm strips



Size	Order Code
6.35mm x 50.8mm x 609.6mm	3MFR22

3M™ Fire Barrier RC-1 Restricting Collar

Works in conjunction with Wrap/Strip to firestop plastic pipes up to 254 mm in diameter.

- > 28-gauge steel
- > Convenient 7.62 m roll – cut only what you need



Product Code	Order Code
312-12245	POA

3M™ Fire Barrier Tuck-In Wrap Strips

3M™ Fire Barrier Tuck-In Wrap Strips are designed for use with PVC, PVCc, PE and PP plastic pipes penetrating through concrete floors, block and concrete walls, and gypsum stud walls. Wrap Strip easily slides into annular space and is topped with 3M™ Fire Barrier IC 15 WB+ and 3M™ Fire Barrier Watertight Silicone 3000 WT Sealant.

- > Three sizes available (200 mm, 300 mm & 400 mm)
- > Available in roll of 2.4 mm
- > Engineered for top-side firestop through penetration installations on concrete floors
- > Tested to EN1366 for plastic pipe penetrations
- > Labour savings – helps eliminate the need for retaining collar, concrete screws, ladder, etc.
- > Flexible foam strip wraps around pipe to fill tough areas and gaps
- > Adhesive closure tab for easy installation
- > Expands 100x in volume
- > Wrap Strip pre-cut to nominal pipe size



Product Code	Order Code
312-12245	POA

3M™ Fire Barrier Mortar

Unlike common mortar, which shrinks when exposed to fire, 3M Fire Barrier Mortar slightly expands (intumesces) to help protect against the spread of fire, smoke and toxic gases.

- > Australian standard testing in accordance with AS1530.4 International testing in accordance with EN1366 and ASTM 814 (UL Listed)
- > Provides up to a 3-hour Integrity rating
- > Variable mix ratio permits self-leveling and no-sag application consistencies
- > Pumpability allows for faster installation
- > Asbestos free, non-shrinking, non-load bearing formula
- > 20 kg bag yields a minimum 0.25 m² of opening area at 75 mm depth



Weight	Order Code
19.6kg	3MFR19

3M™ Fire Barrier Expantrol Flexible Intumescent Strip (E-FIS)

Designed to seal the air space between doors and frames and for glazing fire resistant glass to help prevent the passage of smoke and flames in the event of a fire.

- > Expands when heated to seal around objects consumed by fire
- > Retards spread of toxic by-products of combustion
- > Excellent flexibility, easy, cost-effective installation
- > Low flame spread and smoke development
- > Can be cut to fit irregular shapes
- > No special tools required
- > Non-flame supporting
- > Low odour



Product Code	Order Code
312-12245	POA

3M™ Fire Barrier Pillows

Stackable and conformable firestop pillows for new and retrofit projects.

- > Australian standard testing in accordance with AS1530.4
- > International testing in accordance with EN1366 and ASTM E814 (UL Listed)
- > Provides up to a 3-hour integrity rating
- > No wire mesh reduces safety issues
- > Easy to install, easy to remove and reuse
- > No cutting and no mess – just lock pillows together, compress and place (use 3M™ Fire Barrier Mouldable Putty+ around edges to ensure proper seal)
- > No graphite
- > Excellent aging properties
- > Available in 51 x 102 x 229 mm (small), 51 x 152 x 229 mm (medium) and 76 x 152 x 229 mm (large) pillow sizes



Size	Order Code
Small 50.8mm x 101.6mm x 228.6mm	3MFR05
Medium 50.8mm x 152.4mm x 228.6mm	3MFR06
Large 76.2mm x 152.4mm x 228.6mm	3MFR07

3M™ Fire Barrier CS-195+ Composite Sheet

Ideal for fire-stopping blank openings and through-penetrations of multiple cables, pipe ducts and cable trays.

- > Australian standard testing in accordance with AS1530.4
- > International testing in accordance with EN1366 and ASTM E 814 (UL Listed)
- > Provides up to a 4-hour Integrity rating
- > Great substitute to firestop mortar in the wall
- > No mixing or damming required
- > Easy to install using common trade tools
- > Easy to fasten, bolt punch or drill through and use self-tapping screws or anchor bolts
- > Re-enterable



Size	Order Code
40.64 x 71.12 cm	POA
91.44 x 60.96 cm	POA
91.44 x 91.44 cm	POA
91.44 x 104.14 cm	POA
71.12 x 132.08 cm	POA

3M™ Fire Barrier Mouldable Putty Stix MP+

Designed to firestop a wide variety of through penetrations, including: cable, conduit, insulated pipe and metal pipe.

- > Australian standard testing in accordance with AS1530.4 in firestop systems
- > International testing in accordance with EN1366 and ASTM E 814 (UL Listed)
- > Pliable – can form into almost any desired shape
- > Will not dry out or crumble
- > Can be sealed for reuse
- > Available in 36 x 279 mm stick size



Size	Order Code
40mm x 280mm	3MFR02

3M™ Fire Barrier Mouldable Putty Pads MPP+

Designed to firestop a wide variety of through penetrations, including: cable, conduit, insulated pipe and metal pipe.

- > Australian standard testing in accordance with AS1530.4 in firestop systems
- > International testing in accordance with EN1366 and ASTM E 814 (UL Listed)
- > Pliable – can form into almost any desired shape
- > Will not dry out or crumble
- > Can be sealed for reuse
- > Available in 3 mm thick pads: 102 x 203 mm, 178 x 178 mm and 241 x 241 mm sizes



Size	Order Code
178mm x 178mm	3MFR01

3M Flexible Wrap Fire Protection Systems

3M Flexible Wrap Systems address a variety of application needs including air ducts, grease ducts, chemical exhaust ducts and plenum. They are also excellent for oil and gas refineries and other industrial applications. The insulative properties help keep heat, fire and smoke contained.

3M™ Fire Barrier Duct Wrap 615+

Manufactured with a man-made vitreous spun fibre, a calcium-magnesium silicate (CMS) wool technology which is bio-soluble, allowing for low thermal transfer properties in a lightweight, low profile, easy to apply product.

Features

- > Lightweight 96kg/m³ and thin 38mm for easier application
- > Broadsheet and most economical tested duct hanging support system in the industry
- > Up to 2 hour fire protection tested to AS1530.4 for external and internal fire
- > Single and double layer systems available



Product	Description
3MFR16	Small Roll (38 mm x 609mm x 7.62m roll)
3MFR17	Collar (38 mm x 610mm x 7.62m roll)

3M™ Interam™ E-5A-4 Mat

Resists heat and fire to protect structural steel and provide electrical circuit protection around cables, cable trays and conduits.

- > Tested in accordance with ASTM E 814 (UL Listed)
- > AS1530.4 for insulation of metal pipes
- > Hydrocarbons pool fire approved systems
- > Endothermic – releases chemically bound water to cool the outer surface when exposed to high temperatures
- > Made of a combination of ceramic fibres and inorganic endothermic material
- > Easily cuts to size and flexible
- > 10 mm thick x 62.23 cm width x 6.1 m length roll size



Order Code

POA

3M™ 425 Aluminium Foil Tape

Aluminium foil tape is a 5 mil nominal dead soft aluminium foil backing combined with a transparent acrylic adhesive designed to seal the cut edges of 3M Duct Wrap and Interam mats to complete the total encapsulation.

- > 0.127mm aluminium foil
- > Acrylic adhesive
- > Tensile strength: 30 lbs./in. width (525N/100 mm)



Size	Order Code
25mm x 55mm	3M094
50mm x 55mm	3M053
75mm x 55mm	3M095



Section 11

Insulated Tools

Insulated Hand tools	268
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Insulated Pliers

Engineers Pliers 2K

- > For cutting soft and medium hard wires
- > High resistant gripping surface

Description	Order No.	Length	Weight
Engineers Pliers 2K	1101 160	160 mm	218 g
Engineers Pliers 2K	1101 180	180 mm	250 g
Engineers Pliers 2K	1101 200	200 mm	282 g

Engineers Pliers ISOplus

- > Extra long blades
- > For copper and aluminium cables with maximum 16 mm²
- > Gripping surface with 3 indentations for various cable diameters

Description	Order No.	Length	Weight
Engineers Pliers ISOplus	1109 2	190 mm	142 g

Insulating Gripping Pliers ISOplus

- > Gripping surface with 8 indentations for various cable diameters
- > Without blades
- > No exposed metal parts

Description	Order No.	Length	Weight
Engineers Pliers ISOplus	1109 1	180 mm	134 g

Telephone Pliers with Straight Jaws 2K

- > For cutting soft and medium hard wires
- > Toothed gripping surface

Description	Order No.	Length	Weight
Telephone Pliers 2K	1103 160	160 mm	170 g
Telephone Pliers 2K	1103 200	200 mm	208 g

Insulating Telephone Pliers ISOplus

- > Gripping surface toothed
- > Thin head for operation in restricted places
- > No exposed metal parts

Description	Order No.	Length	Weight
Telephone Pliers ISOplus	1109 5	200 mm	100 g



Insulated Pliers

Telephone Pliers with Bent Jaws 2K

- > For cutting soft and medium hard wires
- > Toothed gripping surface

Description	Order No.	Length	Weight
Telephone Pliers 2K	1104 160	160 mm	164 g
Telephone Pliers 2K	1104 200	200 mm	206 g



Flat Nose Pliers 2K

- > Toothed gripping surface

Description	Order No.	Length	Weight
Flat nose Pliers 2K	1106 160	160 mm	170 g



Round Nose Pliers 2K

- > Toothed gripping surface

Description	Order No.	Length	Weight
Round nose Pliers 2K	1107 160	160 mm	170 g



Pipe Wrench 2K

- > Adjustable (6 different positions)
- > Tempered steel / shock-proof soft insulation

Description	Order No.	Length	Weight
Pipe Wrench 2K	1110 250	240 mm	398 g



Insulated Pliers

Wire Stripper

- > With locking screw and opening spring
- > For cables from 0.75 to 6mm²

Description	Order No.	Length	Weight
Wire Stripper	1105 160	180 mm	190 g



Insulated Pincers

- > Hardened, gripping surface toothed
- > Dip insulation
- > Professional multi-coated

Description	Order No.	Length	Weight
Straight Insulated Pincers	1118 46	145 mm	50 g
Straight Insulated Pincers	1118 01	210 mm	83 g
Straight Insulated Pincers	1118 45	145 mm	50 g
Straight Insulated Pincers	1118 00	210 mm	79 g



Insulated Cutting Pliers

Side Cutter 2K

- > Very slim design with dropped forged head
- > For cutting hard and soft wire
- > Blades induction hardened
- > High cutting performance
- > Handles of impact resistant plastic in 2-component-design

Description	Order No.	Length	Weight
Diagonal Cutting Pliers 2K	1102 160	160 mm	208 g



Cable Cutter D17

- > High cutting capacity for the smallest dimension
- > With adjustable screw joint
- > Special tool steel with chrome finish
- > Handles of impact resistant plastic in 2-component-design
- > Jaw opening: 17 mm

APPLICATION RANGE	max. 50 mm²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable Cutter D17	1602 160	160 mm	218 g



Cable Cutter D15 ISOplus

- > High cutting capacity for the smallest dimensions

APPLICATION RANGE		max. 50 mm²	
SUGGESTED APPLICATION		Copper and Aluminium	
Description	Order No.	Length	Weight
Cable Cutter D15 ISOplus	1109 4	160 mm	218 g



Cable Cutter D22

- > Two - stage cutting for up to 25 mm diameter conductors
- > High cutting capacity on second stage
- > Easy and clean cut with single hand use
- > With adjustable screwing joint
- > Special steel with chrome finish
- > Handles of shock-proof plastic in 2-component-design

APPLICATION RANGE	ø 25 mm / 80 mm²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable Cutter D22	1602 200	200 mm	345 g



Scissors

Insulated Electricians Shears

- > Adjustable screwjoint
- > High cutting performance
- > Surface treatment: burnished and polished
- > 2 component handles

Description	Order No.	Length	Weight
Insulated Electrician Shears	1603 1	180 mm	100 g



Cable Cutter and Crimper Electricians Scissors 2K

- > To cut Cu/Al cables up to 50 mm²
- > With slot to crimp insulated or not insulated end sleeves from 0,5 to 4 mm²
- > Ergonomical and extremely robust
- > Loose-free screw/pin hinge
- > 2 component handles
- > With special Safetybox

Description	Order No.	Blade	Length
Scissors with Safetybox	16020-F1	straight	160 mm



Special Electricians Scissors 2K

- > Ergonomical and extremely robust
- > High cutting performance, optimized tooththing
- > Loose-free screw/pin hinge
- > 2 component handles

Description	Order No.	Blade	Length
Scissors with Safetybox	1601 4	straight	140 mm



Safetybox for INTERCABLE Electricians Scissors

- > Suitable for all intercable scissors
- > With belt safety clip

Description	Order No.	Blade	Length
Safetybox	1602 9	-	120 mm



Insulated Knives

Universal Knife with Clappable Blade Protection

- > 1000V insulated tool
- > With replaceable standard blade (thickness 0,65mm)
- > Made of shock-proof material
- > Universal cutting blade

Description	Order No.	Length	Weight
Cable Knife	AV3910	interch. 50 mm	185 mm
Spare Blade	AV3911	-	50 mm



Cable Stripping Knife with Clappable Blade Protection

- > 1000V insulated tool
- > With replaceable solid blade and insulated blade-back
- > Made of shock-proof material
- > Special stripping blade shape
- > No cutting of conductor wires

Description	Order No.	Length	Weight
Cable Knife	AV3920	interch. 50 mm	185 mm
Spare Blade	AV3921	-	50 mm



Special Cable Stripping Knife with Ceramic Blade

- > 1000V insulated tool
- > With clappable blade protection
- > High cutting capacity
- > No exposed metal parts

Description	Order No.	Length	Weight
Cable Knife	AV3930	fixed 46 mm	185 mm



Cable Stripping Knife with Safety Cap

- > Special blade with guide blade prevents damage of conductor strands
- > For removal of insulation and sheath
- > Blade and back sharpened
- > Blade of tempered stainless steel
- > Insulation of tough non-brittle plastic

Description	Order No.	Length	Weight
Cable Knife	2887 00	fixed 47 mm	175 mm



Insulated Saws

Insulated Hole Cutter

- > Insulation is pierced at a 4 mm diameter and removed
- > Gives a safe measuring point
- > Lowers risk regarding misreadings and damage to testing device

Description	Order No.	Length	Weight
Insulated Hole Cutter	2843 00	200 mm	90 g



Insulated Cable Sheath Saw

- > For SWA cable
- > Adjustable stopper
- > Replaceable saw-blade
- > Coarse toothed saw-blade for soft materials
- > Fine toothed saw-blade for sheet metal cutting, saw-blade no. 430805 - 24 teeth fine
- > 14 teeth blade is available

Description	Order No.	Blade	Length
Cable Sheat Saw (24 teeth, fine)	4303 02	250 mm	140 g
> Saw-Blade (14 teeth, coarse)	4308 01	120 mm	6 g
> Saw-Blade (24 teeth, fine)	4308 05	120 mm	6 g



Hacksaw

- > Made of flat steel 10 x 5 mm, galvanized
- > For 148 mm saw-blades
- > With insulated rotary handle for blade tension
- > Insulation of soft, non-brittle plastic

WIDTH OF BLADE	5 mm		
THICKNESS OF BLADE	0,80 mm		
Description	Order No.	Length	Weight
Hacksaw	4242 00	280 mm	230 g
> Spare Saw-Blade	4330 10	150 mm	3 g



Hacksaw

- > With insulated wing bolt for blade tension
- > Insulation of soft, non-brittle plastic

Description	Order No.	Length	Weight
Hacksaw / Saw-Blade 4210 00	4243 00	470 mm	660 g
> Blade 22/32 teeth width 13mm, thickn. 0,63 mm	4210 00	300 mm	17 g
> Blade 18 teeth width 13mm, thickn. 0,63 mm	4210 16	300 mm	17 g
> Blade 22/32 teeth width 25mm, thickn. 0,8 mm	4219 20	300 mm	40 g

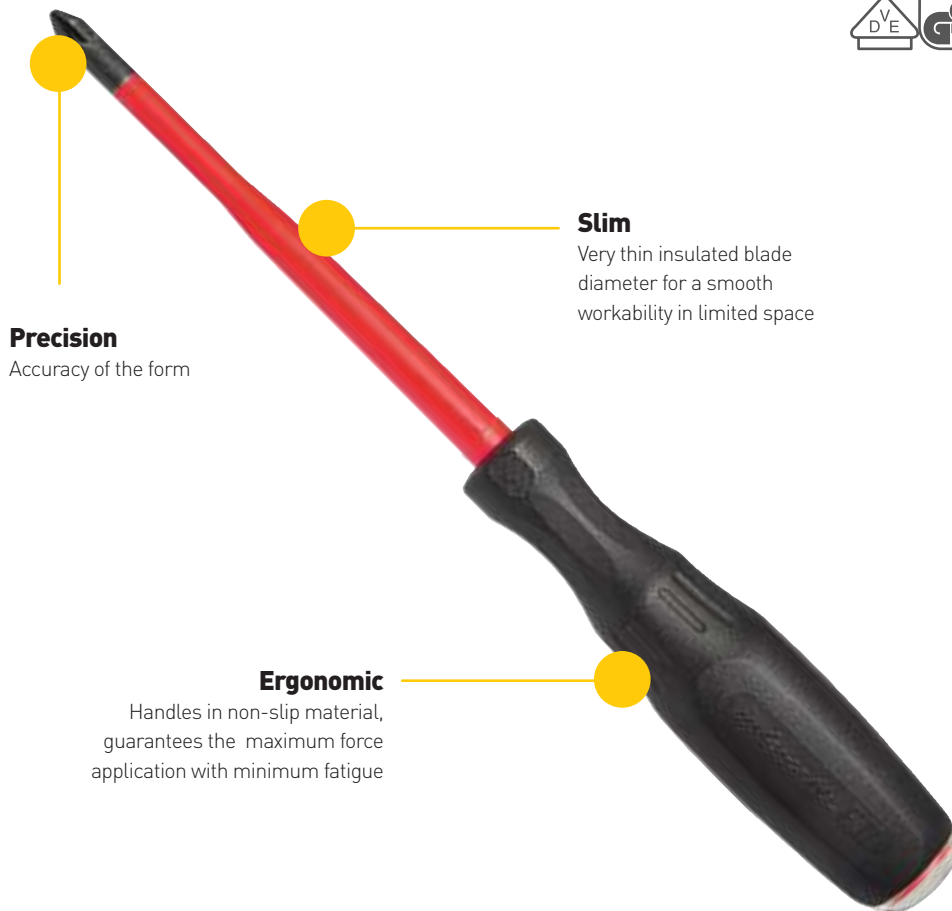


WIDTH OF BLADE	13 mm
THICKNESS OF BLADE	0,63 mm

Insulated Screwdrivers

THE QUALITY AND THE UNIQUE INTERCABLE DESIGN

- > This new series of SLIM Screwdrivers is the result of extensive studies performed in cooperation with numerous electrical installers



Precision
Accuracy of the form

Slim
Very thin insulated blade
diameter for a smooth
workability in limited space

Ergonomic
Handles in non-slip material,
guarantees the maximum force
application with minimum fatigue

Identification label for an easy choice of the proper screwdriver

Color codification:



For slotted head screws **yellow**



For "Phillips"-head screws **red**



For "Pozidriv"-head screws **green**



For hex socket-head screws **white**



For hex-head screws **violet**



For spherical hex socket-head screws **grey**



For **TORX**® head screws **grey**



For combination "Phillips"-head screws **red / yellow**







For combined "Pozidriv"-head screws **green / yellow**

Insulated Screwdrivers

Screwdriver for Slotted Head Screws – FUTUR II



- > Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

					
Description	Order No.	mm	mm	mm	mm
Screwdriver for Slotted Head Screws	1301 025	2,5	75	0,4	175
	1301 030	3,0	100	0,5	200
	1301 035	3,5	100	0,6	200
	1301 040	3,0	100	0,8	200
	1301 040	3,5	125	1,0	230
	1301 055	3,0	125	1,0	230
	1301 065	3,5	150	1,2	255
	1301 080	3,0	170	1,2	290
	1301 100	3,5	200	1,6	320



Screwdriver for “Phillips” Screws – FUTUR II




- > Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
Screwdriver for “Phillips” Screws	1302 0	0	60	160
	1302 1	1	75	175
	1302 2	2	100	205
	1302 3	3	150	265
	1302 4	4	200	320



Screwdriver for “Pozidriv” Screws – FUTUR II




- > Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
Screwdriver for “Pozidriv” Screws	1302 0	0	60	160
	1302 1	1	75	175
	1302 2	2	100	205
	1302 3	3	150	265



Combination Screwdriver for “Phillips” Screws – FUTUR II



- > For combined Slotted-/Intersecting slot Screws in electrical systems
- > Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection

				
Description	Order No.	mm	mm	mm
Comb. Screwdriver	1313 1	1	80	180
	1313 2	2	100	205



Combination Screwdriver “Pozidriv” – FUTUR II

- > For combined Slotted-/Intersecting slot Screws in electrical systems
- > Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection

				
Description	Order No.	mm	mm	mm
Comb. Screwdriver	1314 1	1	80	175
	1314 2	2	105	205



Insulated screwdrivers

Screwdriver for Hexagon Socket Screws – FUTUR II

- Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
Screwdriver for Hexagon Socket Screws	1304 020	2	60	160
	1304 025	2,5	75	175
	1304 030	3	75	180
	1304 040	4	75	180
	1304 050	5	75	190
	1304 060	6	100	215
	1304 080	8	100	220



Ball-Point Screwdriver for Hexagon Socket Screws



- Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
Ball-Point Screwdriver for Hexagon Socket Screws	1304 020	2	100	200
	1304 025	2,5	100	200
	1304 030	3	100	205
	1304 040	4	100	205
	1304 050	5	100	215
	1304 080	8	150	270



Screwdriver for Hexagon Screws – FUTUR II



- Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
Screwdriver for Hexagon Screws	1306 040	4	125	225
	1306 050	5	125	225
	1306 055	5,5	125	225
	1306 060	6	125	230
	1306 070	7	125	230
	1306 080	8	125	230
	1306 090	9	125	230
	1306 100	10	125	240
	1306 110	11	125	240
	1306 120	12	125	240
	1306 130	13	125	240



TORX® Screwdriver – FUTUR II

- Blade in high resistance chromium-vanadium-molybden-steel, hardened, with surface burnish protection.

				
Description	Order No.	mm	mm	mm
TORX® Screwdriver	1307 010	10	60	160
	1307 015	15	75	175
	1307 020	20	75	180
	1307 025	25	75	180
	1307 030	30	100	215



Insulated Screwdriver Sets

Screwdriver Set for Hexagon Screws

Description	Order No.	Dimensions
Screwdriver Set	1399 010	270 x 195 x 35mm
Equipment:		
Size 4	1306 040	
Size 5	1306 050	
Size 5,5	1306 055	
Size 6	1306 060	
Size 7	1306 070	
Size 8	1306 080	
Size 9	1306 090	
Size 10	1306 100	
Size 11	1306 110	
Size 12	1306 120	
Size 13	1306 130	



Screwdriver Set for Hexagon Socket Screws

Description	Order No.	Dimensions
Screwdriver Set	1399 011	290 x 165 x 35mm
Equipment:		
Size 2	1304 020	
Size 2,5	1304 025	
Size 3	1304 030	
Size 4	1304 040	
Size 5	1304 050	
Size 6	1304 060	
Size 8	1304 080	



Ball-Point Screwdriver Set for Hexagon Socket Screws

Description	Order No.	Dimensions
Screwdriver Set	1399 012	290 x 165 x 35mm
Equipment:		
Size 2	1305 020	
Size 2,5	1305 025	
Size 3	1305 030	
Size 4	1305 040	
Size 5	1305 050	
Size 6	1305 060	
Size 8	1305 080	



TORX® Screwdriver Set

Description	Order No.	Dimensions
Screwdriver Set	1399 013	290 x 165 x 35mm
Equipment:		
Size 10	1307 010	
Size 15	1307 015	
Size 20	1307 020	
Size 25	1307 025	
Size 30	1307 030	



Insulated Screwdriver Sets

Torque Screwdriver Set

- > Designed for accurate tightening of bolt connections with preset torque (slotted drive, Phillips and Pozidriv).

Technical Characteristics:

- > Torque continually variable from 1 Nm to 5.0 with attached T-Handle
- > View window with Torque-scale
- > Handle diameter adjusted to the particular torque range
- > Colour-coded exchangeable blades
- > Insulation according EN/IEC60900
- > Fix adjustable torque on request
- > Range of application to -40°C

Description	Order No.	Dimensions
Torque Screwdriver Set	1308 804	-
Equipment:		
Torque handle 1,0 - 5,0Nm	13082	
Torque adjusting tool	13089	
Blade slott. screw 0,8x4,0 mm	1311040	
Blade slott. screws 1,0x5,5 mm	1311055	
Blade for screwdriver PH size 1	13091	
Blade for screwdriver PH size 2	13092	
Blade for screwdriver PZ size 1	13101	
Blade for screwdriver PZ size 2	13102	
Blade for screwdriver SW3,0	13203	
Blade for screwdriver SW4,0	13204	



Insulated Bits

- > For combination Slotted-/Intersecting slot Screws in electrical systems

Description	Order No.	Dimensions
Insulated Bits	1399 014	-
Equipment:		
Combined Slotted-/Intersected Insulated Bit + - PH1	1332 1	
Combined Slotted-/Intersected Insulated Bit + - PH1	1332 2	
Combined Slotted-/Intersected Insulated Bit + - PH1	1333 1	
Combined Slotted-/Intersected Insulated Bit + - PH1	1333 2	



Insulated Wrenches

Insulated Adjustable Wrench

- > Read off scale for jaw opening
- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation
- > Not recommended for working on live parts

Description	Order No.	Opening	Length	Weight
Adjustable wrench	1519 04	0 – 13 mm	110 mm	140 g
	1519 06	0 – 20 mm	130 mm	190 g
	1519 08	0 – 27 mm	210 mm	260 g
	1519 10	0 – 30 mm	260 mm	400 g
	1519 12	0 – 34 mm	310 mm	870 g
	1519 15	0 – 44 mm	360 mm	1230 g
	1519 18	0 – 53 mm	450 mm	1900 g



1000V
IEC 60900

Insulated Open-End Wrench

- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation

Description	Order No.	Size	Length	Weight
Open-End Wrench	1513 06	6	76 mm	20 g
	1513 07	7	82 mm	20 g
	1513 08	8	96 mm	20 g
	1513 09	9	105 mm	24 g
	1513 10	10	110 mm	29 g
	1513 11	11	115 mm	33 g
	1513 12	12	130 mm	44 g
	1513 13	13	137 mm	48 g
	1513 14	14	140 mm	54 g
	1513 15	15	150 mm	58 g
	1513 16	16	160 mm	70 g
	1513 17	17	161 mm	84 g
	1513 18	18	163 mm	100 g
	1513 19	19	175 mm	105 g
	1513 20	20	172 mm	149 g
	1513 21	21	200 mm	159 g
	1513 22	22	200 mm	192 g
	1513 24	24	220 mm	242 g
	1513 27	27	242 mm	322 g
	1513 30	30	285 mm	343 g
	1513 32	32	280 mm	500 g
	1513 34	34	280 mm	500 g
	1513 36	36	310 mm	575 g



1000V
IEC 60900

Insulated Wrenches

Insulated 12-Point Wrench

- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation

		12		
Description	Order No.	Size	Length	Weight
12-point wrench	1613 06	6	146 mm	41 g
	1613 07	7	151 mm	50 g
	1613 08	8	159 mm	62 g
	1613 09	9	157 mm	68 g
	1613 10	10	179 mm	84 g
	1613 11	11	183 mm	90 g
	1613 12	12	195 mm	106 g
	1613 13	13	188 mm	113 g
	1613 14	14	197 mm	135 g
	1613 15	15	191 mm	160 g
	1613 16	16	218 mm	175 g
	1613 17	17	204 mm	205 g
	1613 18	18	236 mm	227 g
	1613 19	19	240 mm	296 g
	1613 20	20	250 mm	300 g
	1613 21	21	264 mm	305 g
	1613 22	22	255 mm	308 g
	1613 24	24	268 mm	422 g
	1613 27	27	290 mm	455 g
	1613 30	30	272 mm	561 g
	1613 32	32	317 mm	646 g
	1613 34	34	322 mm	1060 g
	1613 36	36	306 mm	1060 g



Insulated 90° Bent 12-Point Wrench

- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation
- > For nuts placed in hard-to-get-at positions

		12		
Description	Order No.	Size	Dimensions	Weight
90° bent 12-point wrench	1614 10	10	70 x 190 mm	100 g
	1614 12	12	70 x 190 mm	100 g
	1614 13	13	70 x 190 mm	180 g
	1614 14	14	80 x 245 mm	220 g
	1614 17	17	90 x 245 mm	240 g
	1614 18	18	90 x 245 mm	240 g
	1614 19	19	90 x 245 mm	240 g
	1614 20	20	100 x 250 mm	280 g
	1614 22	22	100 x 250 mm	280 g
	1614 24	24	100 x 250 mm	280 g
	1614 30	30	100 x 260 mm	470 g



Insulated Wrenches

Insulated Hex Socket T Wrench

- > 200 mm Shank length
- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation

6				
Description	Order No.	Size	Dimensions	Weight
Hex socket T wrench 200 mm Shank length	1374 10	10	160 x 200 mm	310 g
	1374 11	11	160 x 200 mm	350 g
	1374 12	12	160 x 200 mm	350 g
	1374 13	13	160 x 200 mm	360 g
	1374 14	14	160 x 200 mm	440 g
	1374 16	16	160 x 200 mm	450 g
	1374 18	18	160 x 200 mm	470 g
	1374 19	19	160 x 200 mm	510 g
	1374 20	20	160 x 200 mm	510 g
	1374 22	22	160 x 200 mm	520 g
	1374 24	24	160 x 200 mm	540 g



Insulated Hex Socket T Wrench Long

- > 300 mm Shank length
- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation

6				
Description	Order No.	Size	Dimensions	Weight
Hex socket T wrench 300 mm Shank length	1384 10	10	160 x 300 mm	370 g
	1384 11	11	160 x 300 mm	380 g
	1384 12	12	160 x 300 mm	400 g
	1384 13	13	160 x 300 mm	420 g
	1384 14	14	160 x 300 mm	470 g
	1384 16	16	160 x 300 mm	520 g
	1384 18	18	160 x 300 mm	520 g
	1384 19	19	160 x 300 mm	560 g
	1384 20	20	160 x 300 mm	600 g
	1384 22	22	160 x 300 mm	600 g
	1384 24	24	160 x 300 mm	660 g



Insulated Cross Wrench

- > Hardened and tempered alloy steel
- > Dip insulation
- > Shockproof resin insulation

6				
Description	Order No.	Size	Dimensions	Weight
Cross wrench	1214 01	10 11 14 17	140 x 140 mm	220 g
	1214 02	10 12 14 17	140 x 140 mm	220 g
	1214 03	11 12 13 17	140 x 140 mm	220 g
	1214 04	10 13 14 17	140 x 140 mm	230 g
	1214 05	11 13 14 17	140 x 140 mm	230 g
	1214 06	13 17 19 22	140 x 140 mm	340 g
	1214 07	14 17 19 22	140 x 140 mm	360 g
	1214 08	10 11 12 13	140 x 140 mm	200 g
	1214 09	10 11 13 17	140 x 140 mm	220 g



Insulated Wrenches

Insulated 90° Hex Wrench

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
90° hex wrench	1163 25	2,5	35 x 104 mm	30 g
	1163 03	3	35 x 104 mm	31 g
	1163 04	4	35 x 104 mm	34 g
	1163 05	5	35 x 106 mm	36 g
	1163 06	6	40 x 110 mm	46 g
	1163 08	8	45 x 120 mm	80 g
	1163 10	10	50 x 120 mm	125 g



Insulated 90° Hex Wrench Heavy Duty

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
90° hex wrench heavy duty	1165 05	5	35 x 150 mm	75 g
	1165 06	6	40 x 150 mm	88 g



Insulated Hex T Wrench Light-Weight

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
Hex T wrench Light-weight	1173 25	2,5	95 x 115 mm	80 g
	1173 03	3	95 x 115 mm	80 g
	1173 04	4	95 x 115 mm	80 g
	1173 05	5	95 x 115 mm	80 g
	1173 06	6	95 x 115 mm	90 g



Insulated Hex T Wrench Heavy Duty

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
Hex T wrench Heavy duty	1175 04	4	95 x 160 mm	105 g
	1175 05	5	95 x 160 mm	105 g
	1175 06	6	95 x 160 mm	110 g
	1175 08	8	95 x 160 mm	115 g
	1175 10	10	95 x 160 mm	120 g
	1175 13	13	95 x 160 mm	145 g



Insulated Wrenches

Insulated Hex T Wrench Small

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
Hex T wrench Small	1179 73	5	70 x 120 mm	80 g



Insulated Hex T Wrench Long

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
Hex T wrench Long	1179 72	5	90 x 200 mm	105 g
	1179 70	6	90 x 200 mm	105 g



Insulated Hex T Wrench Extra Long

- > Hardened and tempered alloy steel
- > Shockproof resin insulation

		6		
Description	Order No.	Size	Dimensions	Weight
Hex T wrench Extra long	1173 35	5	90 x 240 mm	100 g
	1173 36	6	90 x 240 mm	115 g
	1173 38	8	90 x 240 mm	130 g
	1173 31	10	90 x 240 mm	115 g



Insulated Handles

Series 3/8" & 1/2"

Insulated T Wrench

- > Lock device - single handed operation
- > Two-component insulation with excellent grip handle
- > Square connection in compliance with ISO1174 DIN 3120 Standards

Description	Order No.	Dimensions	Weight
T Wrench Size 3/8"	1501 2	210 x 160 mm	240 g
T Wrench Size 1/2"	1501 1	195 x 160 mm	340 g



Insulated Reversible Ratchet Wrench

- > Lock device - single handed operation
- > Two-component insulation with excellent grip handle
- > Reverse commutator
- > Square connection in compliance with ISO1174 DIN 3120 Standards

Description	Order No.	Dimensions	Weight
T Wrench Size 3/8"	1502 2	200 x 65 mm	250 g
T Wrench Size 1/2"	1502 1	260 x 75 mm	525 g



Insulated Cross Socket Tool for 4 Inserts

- > Square ends made of alloyed and hardened steel, galvanically separated
- > Insulation of non-brittle plastic
- > For 8 - 22 mm SW standard socket pieces
- > Inserts can be locked in place
- > Expanding ball interlock system for inserts

Description	Order No.	Dimensions	Weight
T Wrench Size 3/8"	1214 00	150 x 150 mm	180 g
T Wrench Size 1/2"	1213 99	150 x 150 mm	340 g



Insulated Handles

Series 3/8" & 1/2"

Insulated Torque Wrench

- > Fixed adjusted torque in compliance with EN26789 ($\pm 6\%$ tolerance from rated value)
- > Lock device - single handed operation
- > Square connection in compliance with ISO1174 DIN3120 in sizes 3/8" and 1/2"

Description	Order No.	Torque	Dimensions	Weight
Torque Wrench Size 3/8"	1508 008	8 Nm	110 x 160 mm	400 g
	1508 010	10 Nm	140 x 160 mm	400 g
	1508 012	12 Nm	140 x 160 mm	400 g
	1508 015	15 Nm	140 x 160 mm	400 g
	1508 020	20 Nm	140 x 160 mm	400 g
	1508 025	25 Nm	140 x 160 mm	400 g
Torque Wrench Size 1/2"	AC3708	8 Nm	110 x 160 mm	560 g
	AC3710	10 Nm	140 x 160 mm	560 g
	AC3712	12 Nm	140 x 160 mm	560 g
	AC3715	15 Nm	140 x 160 mm	560 g
	AC3720	20 Nm	140 x 160 mm	560 g
	AC3725	25 Nm	140 x 160 mm	560 g



Insulated Torque Limiter (with Galvanic Separation)

- > Torque limitation switch in compliance with EN 6789
- > Lock device - single handed operation
- > Square connection in compliance with ISO1174 DIN3120 in sizes 3/8" and 1/2"
- > Insulation according to EN 60900
- > Galvanic isolation

Description	Order No.	Torque	Dimensions	Weight
Torque Wrench Size 3/8"	1509 007	7 Nm	37 x 152 mm	430 g
	1509 008	8 Nm	37 x 152 mm	430 g
	1509 010	10 Nm	37 x 152 mm	430 g
	1509 012	12 Nm	37 x 152 mm	430 g
	1509 015	15 Nm	37 x 152 mm	430 g
	1509 020	20 Nm	37 x 152 mm	430 g
	1509 025	25 Nm	37 x 152 mm	430 g
Torque Wrench Size 1/2"	AC3807	7 Nm	37 x 154 mm	460 g
	AC3808	8 Nm	37 x 154 mm	460 g
	AC3810	10 Nm	37 x 154 mm	460 g
	AC3812	12 Nm	37 x 154 mm	460 g
	AC3815	15 Nm	37 x 154 mm	460 g
	AC3820	20 Nm	37 x 154 mm	460 g
	AC3825	25 Nm	37 x 154 mm	460 g



Insulated Adjustable Torque Ratchet

- > Made of alloyed and hardened steel
- > Anticlockwise rotation without limitation
- > Adjustable torque
- > Professional multi-coated insulation
- > When adjusted setting is achieved, the ratchet head drops sideways, which can be felt and heard
- > Please observe operating instructions
- > Suitable for all types of screwdriver heads
- > Adjustment tolerance can be $\pm 10\%$ of the nominal value

Description	Order No.	Torque	Dimensions	Weight
Torque Wrench Size 3/8"	1319 37	10-50 Nm	75 x 280 mm	700 g
	1319 38	10-50 Nm	75 x 350 mm	900 g
Torque Wrench Size 1/2"	1319 11	10-50 Nm	75 x 280 mm	700 g
	1319 12	10-50 Nm	75 x 350 mm	1000 g
	1319 31	30-130 Nm	75 x 465 mm	1300 g

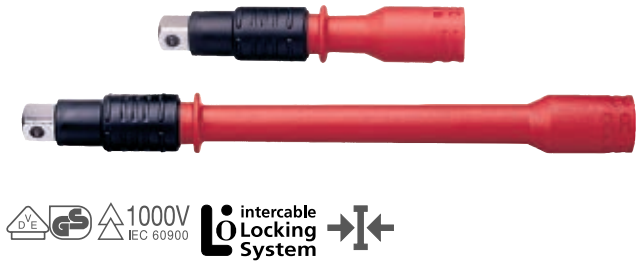


Insulated Extensions & Adapters

Series 3/8" & 1/2"

Insulated Extension Bar

- > Made of alloyed steel
- > Fixing of inserts by expanding ball
- > Expanding ball bearings by means of threaded pin
- > Insulation of shock proof plastic
- > Suitable for all types of screwdriver heads
- > Patented lock device that guarantees a coupling in compliance with DIN IEC 60900, Standards for any brush carrying a square fitting according to ISO-DIS 1174-1/DIN 3120 Standard.



Description	Order No.	Length	Weight
Extension Bar Size 3/8"	1503 2125	125 mm	140 g
	1503 2250	250 mm	300 g
Extension Bar Size 1/2"	1503 1125	125 mm	200 g
	1503 1250	250 mm	400 g

Insulated Special Reducer 1/2" to 3/8"

- > Reducer from 1/2" to 3/8"
- > Lock device - single handed operation
- > Square connection in compliance with ISO1174 DIN 3120 Standards



Description	Order No.	Length	Weight
Special Reducer	1503 1238	125 mm	145 g

Insulated Special Enlarger 3/8" to 1/2"

- > Enlarger from 3/8" to 1/2"
- > Dip Insulation



Description	Order No.	Length	Weight
Special Enlarger	1322 38	125 mm	100 g

Insulated Sockets

Series 3/8"

Insulated 12-Point Female Socket 3/8"

- > Greatly reduced outside diameter for use on screws in hard-to-get-at positions
- > Square connection to ISO1174 DIN3120 Standards

12				
Description	Order No.	Size	Length	Weight
12-Point Female Socket Size 3/8"	1352 06*	6	45 mm	22 g
	1352 07*	7	45 mm	23 g
	1504 208	8	45 mm	30 g
	1352 09*	9	45 mm	28 g
	1504 210	10	45 mm	31 g
	1504 211	11	45 mm	31 g
	1504 212	12	45 mm	32 g
	1504 213	13	45 mm	32 g
	1504 214	14	45 mm	35 g
	1352 15*	15	45 mm	38 g
	1504 216	16	45 mm	37 g
	1504 217	17	45 mm	40 g
	1504 218	18	45 mm	42 g
	1504 219	19	45 mm	45 g
	1352 20*	20	45 mm	70 g
	1352 21*	21	45 mm	83 g
	1504 222	22	45 mm	47 g
	1352 24*	24	45 mm	112 g



Extra Deep Insulated 12-Point Female Socket 3/8"

- > Extra deep version - min. 70 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

12				
Description	Order No.	Size	Length	Weight
Extra Deep 12-Point Female Socket Size 3/8"	1353 08	8	75 mm	50 g
	1353 09	9	75 mm	55 g
	1353 10	10	75 mm	63 g
	1353 11	11	75 mm	67 g
	1353 12	12	75 mm	70 g
	1353 13	13	75 mm	77 g
	1353 14	14	75 mm	85 g
	1353 15	15	75 mm	100 g
	1353 16	16	75 mm	113 g
	1353 17	17	75 mm	122 g
	1353 18	18	75 mm	130 g
	1353 19	19	75 mm	144 g
	1353 20	20	75 mm	150 g
	1353 21	21	75 mm	160 g
	1353 22	22	75 mm	185 g
	1353 23	23	75 mm	210 g
	1353 24	24	75 mm	250 g
	1353 27	27	75 mm	315 g



Insulated Sockets

Series 3/8"

Long Insulated 12-Point Female Socket 3/8"

- > Long version - 140 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

12				
Description	Order No.	Size	Length	Weight
Long 12-Point Female Socket Size 3/8"	1351 10	10	140 mm	140g
	1351 11	11	140 mm	148 g
	1351 12	12	140 mm	152 g
	1351 13	13	140 mm	161 g
	1351 14	14	140 mm	173 g
	1351 15	15	140 mm	180 g
	1351 16	16	140 mm	195 g
	1351 17	17	140 mm	205 g
	1351 18	18	140 mm	213 g
	1351 19	19	140 mm	223 g
	1351 20	20	140 mm	230 g
	1351 21	21	140 mm	238 g
	1351 22	22	140 mm	250 g



Extra Long Insulated 12-Point Female Socket 3/8"

- > Extra Long version - 270 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

12				
Description	Order No.	Size	Length	Weight
Extra Long 12-Point Female Socket Size 3/8"	1357 12	12	270 mm	287 g
	1357 13	13	270 mm	295 g
	1357 14	14	270 mm	300 g
	1357 17	17	270 mm	351 g
	1357 18	18	270 mm	370 g
	1357 19	19	270 mm	385 g
	1357 21	21	270 mm	420 g
	1357 22	22	270 mm	445 g
	1357 24	24	270 mm	480 g
	1357 27	27	270 mm	520 g



Insulated Sockets

Series 3/8"

Short Insulated Male Hex Socket 3/8"

- > Short version - 50 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Short Male Hex Socket Size 3/8"	1505 204	4	50 mm	28 g
	1505 205	5	50 mm	29 g
	1505 206	6	50 mm	30 g
	1505 208	8	50 mm	33 g



Insulated Male Hex Socket 3/8"

- > Normal version - 80 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

6				
Description	Order No.	Size	Length	Weight
Male Hex Socket Size 3/8"	1403 02	2	90 mm	27 g
	1403 25	2,5	90 mm	52 g
	1403 03	3	90 mm	49 g
	1403 04	4	90 mm	50 g
	1403 05	5	90 mm	56 g
	1403 06	6	90 mm	60 g
	1403 07	7	90 mm	66 g
	1403 08	8	90 mm	78 g
	1403 09	9	90 mm	75 g
	1403 10	10	90 mm	103 g
	1403 11	11	90 mm	114 g
	1403 12	12	90 mm	124 g
	1403 13	13	90 mm	135 g
	1403 14	14	90 mm	118 g



Medium Long Insulated Male Hex Socket 3/8"

- > Medium long version - 120 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Medium Long Male Hex Socket Size 3/8"	1506 204	4	120 mm	49 g
	1506 205	5	120 mm	54 g
	1506 206	6	120 mm	69 g
	1506 208	8	120 mm	70 g



Long Insulated Male Hex Socket 3/8"

- > Long version - 140 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Long Male Hex Socket Size 3/8"	1401 05	5	140 mm	63 g
	1401 06	6	140 mm	73 g
	1401 08	8	140 mm	90 g
	1401 10	10	140 mm	151 g



Extra Long Insulated Male Hex Socket 3/8"

- > Extra long version - 265 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Extra Long Male Hex Socket Size 3/8"	1407 05	5	265 mm	89 g
	1407 06	6	265 mm	109 g
	1407 08	8	265 mm	156 g
	1407 10	10	265 mm	219 g



Insulated Socket Drive Sets

Series 3/8"

Combi Set Series 3/8"

- > Insulated T Wrench: 1501 2
- > Insulated Reversible Ratchet Wrench: 1502 2
- > Insulated Extension Bar 125 mm: 1503 2125
- > Insulated Extension Bar 250 mm: 1503 2250
- > Insulated 12-Point Female Sockets 8–10–13–14–17–19–22: 1504 2...
- > Short Insulated Male Hex Sockets 4–5–6–8: 1505 2...
- > Resin case: 1588 001

Description	Order No.	Dimensions	Weight
Combi Set	1598 001	275 x 65 x 210 mm	1,5 kg



Ratchet Set Series 3/8"

- > Insulated Reversible Ratchet Wrench: 1502 2
- > Insulated 12-Point Female Sockets 8–10–13–14–17–19–22: 1504 2...
- > Medium Long Insulated Male Hex Sockets 4–5–6: 1506 2...
- > Resin case: 1588 002

Description	Order No.	Dimensions	Weight
Basis Ratchet Set	1598 002	225 x 50 x 180 mm	1,0 kg



T Wrench Set Series 3/8"

- > Insulated T Wrench: 1501 2
- > Insulated 12-Point Female Sockets 10–13–14–17–19–22: 1504 2...
- > Short Insulated Male Hex Sockets 5–6–8: 1505 2...
- > Medium Long Insulated Male Hex Sockets 5–6 : 1506 2
- > Resin case: 1588 002

Description	Order No.	Dimensions	Weight
Basis T Wrench Set	1598 004	275 x 65 x 210 mm	1,0 kg



Torque Wrench Set Series 3/8"

- > Insulated Torque Wrench T 8–10–15Nm: 1508 0...
- > Medium Long Insulated Male Hex Sockets 4–5–6: 1506 2...
- > Resin case: 1588 009

Description	Order No.	Dimensions	Weight
Torque Wrench Set	1598 009	275 x 65 x 210 mm	2,0 kg



Torque Wrench Set Series 3/8" Reduced

- > Insulated Torque Wrench T 20N: 1508 020
- > Short Insulated Male Hex Socket 8: 1505 208
- > Insulated 12-Point Female Socket 13: 1504 213
- > Resin case: 588 010

Description	Order No.	Dimensions	Weight
Torque Wrench Set red.	1598 010	192 x 40 x 140 mm	0,6 kg



Insulated Sockets

Series 1/2"

Insulated 12-Point Female Socket 1/2"

- > Greatly reduced outside diameter for use on screws in hard-to-get-at positions
- > Square connection to ISO1174 DIN3120 Standards

		12		
Description	Order No.	Size	Length	Weight
12-Point Female Socket Size 1/2"	1354 08*	8	55 mm	53 g
	1354 09*	9	55 mm	53 g
	1504 110	10	55 mm	55 g
	1504 111	11	55 mm	56 g
	1504 112	12	55 mm	57 g
	1504 113	13	55 mm	58 g
	1504 114	14	55 mm	59 g
	1354 15*	15	55 mm	70 g
	1354 16*	16	55 mm	74 g
	1504 117	17	55 mm	63 g
	1354 18*	18	55 mm	82 g
	1504 119	19	55 mm	71 g
	1354 20*	20	55 mm	116 g
	1354 21*	21	55 mm	127 g
	1504 122	22	55 mm	87 g
	1354 23*	23	55 mm	140 g
	1504 124	24	55 mm	98 g
	1354 25*	25	55 mm	180 g
	1354 26*	26	55 mm	180 g
	1504 127	27	55 mm	121 g
	1354 30*	30	55 mm	252 g
	1504 132	32	55 mm	162 g
	1304 34*	34	55 mm	300 g



Extra Deep Insulated 12-Point Female Socket 1/2"

- > Extra deep version - 95 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

		12		
Description	Order No.	Size	Length	Weight
Extra Deep 12-Point Female Socket Size 1/2"	1355 08	8	95 mm	102 g
	1355 09	9	95 mm	105 g
	1355 10	10	95 mm	118 g
	1355 11	11	95 mm	120 g
	1355 12	12	95 mm	123 g
	1355 13	13	95 mm	127 g
	1355 14	14	95 mm	134 g
	1355 15	15	95 mm	140 g
	1355 17	17	95 mm	170 g
	1355 18	18	95 mm	188 g
	1355 19	19	95 mm	204 g
	1355 20	20	95 mm	210 g
	1355 22	22	95 mm	226 g
	1355 23	23	95 mm	241 g
	1355 24	24	95 mm	270 g
	1355 26	26	95 mm	300 g
	1355 27	27	95 mm	337 g
	1355 30	30	95 mm	390 g
	1355 32	32	95 mm	423 g



Insulated Sockets

Series 1/2"

Long Insulated 12-Point Female Socket 1/2"

- > Long version - 140 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

12				
Description	Order No.	Size	Length	Weight
Long 12-Point Female Socket Size 1/2"	1356 10	10	140 mm	230
	1356 14	14	140 mm	253 g
	1356 17	17	140 mm	303 g
	1356 19	19	140 mm	312 g
	1356 22	22	140 mm	360 g
	1356 24	24	140 mm	403 g
	1356 27	27	140 mm	484 g
	1356 30	30	140 mm	510 g
	1356 32	32	140 mm	560 g



Extra Long Insulated 12-Point Female Socket 1/2"

- > Extra Long version - 270 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

12				
Description	Order No.	Size	Length	Weight
Extra Long 12-Point Female Socket Size 1/2"	1358 13	13	270 mm	457 g
	1358 14	14	270 mm	480 g
	1358 17	17	270 mm	530 g
	1358 19	19	270 mm	550 g
	1358 24	24	270 mm	680 g
	1358 30	30	270 mm	800 g
	1358 32	32	270 mm	840 g



Insulated Sockets

Series 1/2"

Insulated Male Hex Socket 1/2"

- > Normal version - min. 85 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Male Hex Socket Size 1/2"	1505 104	4	85 mm	78 g
	1505 105	5	85 mm	78 g
	1505 106	6	85 mm	81 g
	1405 07*	7	90 mm	79 g
	1505 108	8	85 mm	84 g
	1505 110	10	85 mm	90 g
	1405 12*	12	90 mm	126 g
	1405 14*	14	90 mm	158 g



Long Insulated Male Hex Socket 1/2"

- > Long version - 135 mm
- > Square connection to ISO1174 DIN3120 Standards

6				
Description	Order No.	Size	Length	Weight
Long Male Hex Socket Size 1/2"	1506 104	4	135 mm	83 g
	1506 105	5	135 mm	88 g
	1506 106	6	135 mm	95 g
	1506 108	8	135 mm	100 g
	1505 110	10	135 mm	107 g



Extra Long Insulated Male Hex Socket 1/2"

- > Extra Long version - 265 mm
- > Square connection to ISO1174 DIN3120 Standards
- > Dip Insulation

6				
Description	Order No.	Size	Length	Weight
Extra Long Male Hex Socket Size 1/2"	1408 05	5	265 mm	122 g
	1408 06	6	265 mm	143 g
	1408 08	8	265 mm	143 g
	1408 10	10	265 mm	185 g



Insulated Socket Drive Sets

Series 1/2"

Combi Set Series 1/2"

- > Insulated T Wrench: 1501 1
- > Insulated Reversible Ratchet Wrench: 1502 1
- > Insulated Extension Bar 125 mm: 1503 1125
- > Insulated Extension Bar 250 mm: 1503 1250
- > Insulated 12-Point Female Sockets 10–13–14–17–19–22–24–27 : 1504 1...
- > Short Insulated Male Hex Sockets 4–5–6–8–10: 1505 1...
- > Resin case: 1588 002



Description	Order No.	Dimensions	Weight
Combi Set	1599 002	330 x 75 x 270 mm	3,1 kg

Ratchet Set Series 1/2"

- > Insulated Reversible Ratchet Wrench: 1502 1
- > Insulated 12-Point Female Sockets 10–13–17–19–22–24: 1504 1...
- > Insulated Male Hex Sockets 4–5–6: 1505 1...
- > Resin case: 1589 005



Description	Order No.	Dimensions	Weight
Basis Ratchet Set	1599 005	275 x 65 x 210 mm	1,6 kg

T Wrench Set Series 1/2"

- > Insulated T Wrench: 1501 1
- > Insulated 12-Point Female Sockets 10–13–14–17–19–22: 1504 1...
- > Insulated Male Hex Sockets 5–6–8: 1505 1...
- > Long Insulated Male Hex Sockets 5–6 : 1506 1
- > Resin case: 1588 001



Description	Order No.	Dimensions	Weight
Basis T Wrench Set	1599 001	275 x 65 x 210 mm	1,5 kg

Torque Wrench Set Series 1/2"

- > Insulated Torque Wrench T 8–10–15Nm: AC37...
- > Long Insulated Male Hex Sockets 4–5–6: 1506 1...
- > Resin case: 1589 001



Description	Order No.	Dimensions	Weight
Torque Wrench Set	AV3755	275x 65 x 210 mm	2,0 kg

Torque Wrench Set Series 1/2" Reduced

- > Insulated Torque Wrench T 20N: AC3720
- > Insulated Male Hex Socket 8: 1505 108
- > Insulated 12-Point Female Socket 13: 1504 113
- > Resin case: 1588 010



Description	Order No.	Dimensions	Weight
Torque Wrench Set red.	AV3760	192 x 40 x 140 mm	0,7 kg

Workplace Insulation

Rubber Cover Material

- > Tested and produced according to VDE 0680 part 1
- > For temporary protection of live uninsulated components of LV systems
- > Resistant to oils and acids
- > Self-extinguishing
- > Thickness: 1.6mm - 1.21g/cm² (44 Shore)
- > Material: high quality neoprene
- > Colour: orange

Description	Order No.	Dimensions	Weight
Rubber Cover Material	AV4102	0.60 x 0.60m	0,7 kg
Rubber Cover Material	AV4104	1 x 1m	2,1 kg
Rubber Cover Material	AV4110	10 x 1m	20,6 kg
Rubber Cover Material	AV4111	1 x 1.20m	2,3 kg
Rubber Cover Material	AV4120	10 x 1.20m	25,1 kg



Transparent Cover Material

- > Tested and produced according to EN 1112 class 0
- > Voltage test: 5 kV.
- > Withstand test voltage 10 kV.
- > Maximum absorbed current at the voltage test: 0,4 mA.
- > Tensile test: 19,1 MPa.
- > Resistant to oils and acids
- > Self-extinguishing
- > Thickness: 0,5 mm
- > Material: high flexible Polymer
- > Colour: transparent

Description	Order No.	Dimensions	Weight
Transparent Cover Material	AV4102E	560 x 560 mm	0,3 kg
	AV4104E	910 x 910 mm	0,6 kg



Rubber Insulating Matting

- > Tested and produced according to VDE 0680 part 1
- > To insulate high-risk zones when making joints on LV-MV cables in trenches
- > Non-slip surface
- > Thickness: 4mm - 1.20g/cm² (53 Shore)
- > Material: natural rubber or vulcanized synthetic rubber
- > Colour: gray

Description	Order No.	Dimensions	Weight
Insulating Matting	AV4301	1 x 1m	4,6 kg
Insulating Matting	AV4303	3 x 1m	12 kg
Insulating Matting	AV4310	10 x 1m	44 kg
Insulating Matting	AV4311	1 x 1.20m	5,3 kg
Insulating Matting	AV4320	10 x 1.20m	54 kg



Workplace Insulation

Safety Rubber Carpet 50.000V

- > Tested and produced according to VDE 0303
- > For permanent insulation in cabins or rooms that require a high degree of Insulation
- > Non-slip pavement side / ribbed non-slip support side (top)
- > Thickness: 4,5mm – 1.65g/cm² (77 Shore)
- > Material: natural rubber or vulcanized synthetic rubber
- > Colour: grey

Description	Order No.	Dimensions	Weight
Safety Carpet	AV4341	1 x 1m	5,6 kg
Safety Carpet	AV4350	10 x 1m	57 kg
Safety Carpet	AV4351	1 x 1.20m	6,8 kg
Safety Carpet	AV4360	10 x 1.20m	69 kg



30kV/45kV Insulating Platform

- > To insulate workers from the pavement when working
- > Material: glass-fiber reinforced plastic resin
- > Non-slip surface
- > 30.000V/45.000V operating insulating level

Description	Order No.	Dimensions	Weight
Platform 30.000V	AV5000	500 x 500 x 260 mm	3,2 kg
Platform 45.000V	AV5001	500 x 500 x 310 mm	4,2 kg



Thermal Blanket

- > Free of asbestos
- > Composed 98% of silicon oxide (amorphous SiO₂)
- > Usable for temperatures up to 1260°C
- > Melting temperature above 1600°C
- > Non-toxic

Description	Order No.	Dimensions	Weight
Thermal Blanket	HSD1	1800 x 1800 mm	3,8 kg
Thermal Blanket	HSD2	1200 x 900 mm	1,3 kg
Thermal Blanket	HSD3	450 x 600 mm	0,3 kg



Workplace Insulation

Insulating Safety Clamp Short

- > Tested and produced according to VDE 0680
- > For fastening insulating sheets in cramped quarters
- > Rubber inserts inside the jaws
- > Material: shockproof thermoplastic resin
- > Opening: 45 mm

Description	Order No.	Dimensions	Weight
Insulating Clamp	6514 09	140 x 85 mm	52 g



Insulating Safety Clamp Small

- > Tested and produced according to VDE 0680
- > For fastening insulating sheets in cramped quarters
- > Rubber inserts inside the jaws
- > Material: shockproof thermoplastic resin
- > Opening: 25 mm

Description	Order No.	Dimensions	Weight
Insulating Clamp	6514 06	80 x 40 mm	40 g



Insulating Safety Clamp with Hook

- > Tested and produced according to VDE 0680
- > For fastening insulating sheets in cramped quarters
- > Rubber inserts inside the jaws
- > Material: shockproof thermoplastic resin
- > Opening: 45 mm

Description	Order No.	Dimensions	Weight
Insulating Clamp	6514 02	165 x 130 mm	60- g



Insulating Safety Clamp without Hook

- > Tested and produced according to VDE 0680
- > For fastening insulating sheets in cramped quarters
- > Rubber inserts inside the jaws
- > Material: shockproof thermoplastic resin
- > Opening: 40 mm

Description	Order No.	Dimensions	Weight
Insulating Clamp	6514 07	175 x 110 mm	76 g



Insulating Safety Clamp Large Opening

- > Tested and produced according to VDE 0680
- > For fastening insulating sheets in cramped quarters
- > Rubber inserts inside the jaws
- > Material: shockproof thermoplastic resin
- > Opening: 65 mm

Description	Order No.	Dimensions	Weight
Insulating Clamp	6514 12	160 x 115 mm	70 g



Cable Insulation

Insulating Tube

- > Tested and produced according to EN 60529
- > For temporary insulation of bare aerial LV lines carrying up to 1000V of live voltage
- > Material: natural rubber or synthetic vulcanized elastomer
- > Weight per meter: approx. 350g
- > Colour: red
- > Other lengths on request

Description	Order No.	Length	φ Conductor
Protective Shaped Profiles up to 10mm	AV4410	1m	up to 10mm
	AV4413	3m	up to 10mm
	AV4418	18m roll	up to 10mm
Protective Shaped Profiles up to 14mm	AV4510	1m	up to 14mm
	AV4513	3m	up to 14mm
	AV4518	18m roll	up to 14mm



Insulator Cap with Single Outlet

- > Suitable for long-term operations
- > Simple and robust design to slide over
- > Material: flexible plastic resin
- > Colour: red

Description	Order No.	Version	Weight
Insulator Cap	AV4401	1 Outlet	350g



Insulator Cap with Double Outlet

- > Suitable for long-term operations
- > Simple and robust design to slide over
- > Material: flexible plastic resin
- > Colour: red

Description	Order No.	Version	Weight
Insulator Cap	AV4402	2 Outlets	450g



Insulating Safety Caps

- > Tested and produced according to VDE 0680
- > To protect rigid cables
- > Material: rigid thermoplastic resin
- > Colour: red

Description	Order No.	Version	Weight
Insulator Cap	AV4094	8 - 13 mm	60mm
	AV4095	13 - 20 mm	80mm



Cable Insulation

Push on Cover with Grip

- > Tested and produced according to VDE 0680
- > For temporary insulation of the ends of live LV single-core cables
- > Also suitable for protecting cables with cable terminals
- > Material: flexible thermoplastic resin
- > Colour: red

Description	Order No.	Length	Opening	Suitable for	Weight
Push on Cover with Grip	6460 04	40 mm	10 mm	1 - 25 mm ²	4 g
	6460 06	60 mm	10 mm	6 - 35 mm ²	14 g
	6460 10	100 mm	10 mm	6 - 35 mm ²	21 g
	6460 15	100 mm	15 mm	10 - 50 mm ²	31 g
	6460 20	110 mm	20 mm	35 - 95 mm ²	40 g
	6460 30	130 mm	30 mm	95 - 185 mm ²	70 g
	6460 40	150 mm	40 mm	185 - 240 mm ²	135 g
	6460 50	185 mm	50 mm	240 - 400 mm ²	140 g
	6460 60	185 mm	60 mm	240 - 500 mm ²	220 g
	6460 70	210 mm	70 mm	300 - 500 mm ²	300 g
	6460 90	255 mm	90 mm	- 630 mm ²	550 g
	6461 20	240 mm	120 mm	- 800 mm ²	700 g



Push on Cover Conical

- > Tested and produced according to VDE 0680
- > For temporary insulation of the ends of live LV single-core cables
- > Also suitable for protecting cables with cable terminals
- > Material: flexible thermoplastic resin
- > Colour: red

Description	Order No.	Length	Opening	Suitable for	Weight
Push on Cover Conical	6470 30	30 mm	10 mm	10 - 25 mm ²	10 g
	6470 06	50 mm	10 mm	10 - 25 mm ²	10 g
	6470 10	60 mm	10 mm	6 - 25 mm ²	15 g
	6450 00	100 mm	10 mm	10 - 35 mm ²	7 g
	6450 01	100 mm	20 mm	120 - 150 mm ²	19 g



Insulating Safety Sleeve

- > Tested and produced according to EN 57680, VDE 0680
- > To protect ends of electric conductors
- > Optimized holding force with the screw joint
- > Material: Safety sleeve made out of flexible shock-resistant plastics
- > Screw joint made out of a red transparent prim plastics
- > Colour: red

Description	Order No.	Dimensions	Weight
Insulating Sleeve	AV4082	5 - 12 mm	117 mm
Insulating Sleeve	AV4083	12 - 21 mm	159 mm
Insulating Sleeve	AV4084	21 - 30 mm	190 mm



Accessories

Clamp Device for Screw Connectors

Gives excellent clamping when screwing on screw connectors with diameters from 14 to 40mm.

Technical Characteristics:

- > Can work on live parts with voltages up to 1000V AC and 1500V DC
- > Vice clamp system
- > For use with insulated and non-insulated connectors
- > Insulated in compliance with IEC 60900/IEC900 Standards
- > Tool designed for very low temperature work, down to -40°C

Standards:

- > IEC 60900
- > IEC 900
- > EN10020



Description	Order No.	Dimensions	Weight
Clamp Device	2201 3	192 x 65 x 64 mm	350 g

Set Clamp Device for Screw Connectors

Set Equipment:

- > Clamp Device: 2201 3
- > Insulated Reversible Ratchet Wrench ½": 1502 1
- > Insulated 12-Point Female Socket 13: 1504 113
- > Insulated 12-Point Female Socket 17: 1504 117
- > Insulated 12-Point Female Socket 19: 1504 119
- > Insulated Male Hex Socket 5: 1505 105
- > Insulated Male Hex Socket 6: 1505 106
- > Insulated Male Hex Socket 8: 1505 108

Description	Order No.	Dimensions	Weight
Set Clamp Device	2201 0	192 x 140 x 40 mm	1,8 kg



Set EnerGrip

- > Cable puller for cables Ø 3 - 12

Description	Order No.	Dimensions	Weight
Set EnerGrip (4 pcs.)	AS8902	280 x 95 mm	230 g



Section 12

Cable Stripping Tools

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Knives

Universal Knife with Clappable Blade Protection

- > 1000V insulated tool
- > With replaceable standard blade (thickness 0,65 mm)
- > Made of shock-proof material
- > Universal cutting blade

Description	Order No.	Blade	Length
Cable knife	AV3910	interch. 50 mm	185 mm
Spare blade	AV3911	-	50 mm



Cable Stripping Knife with Clappable Blade Protection

- > 1000V insulated tool
- > With replaceable solid blade and insulated blade-back
- > Made of shock-proof material
- > Special stripping blade shape
- > No cutting of conductor wires

Description	Order No.	Blade	Length
Cable knife	AV3920	interch. 50 mm	185 mm
Spare blade	AV3921	-	50 mm



Special Cable Stripping Knife with Ceramic Blade

- > 1000V insulated tool
- > With clappable blade protection
- > High cutting capacity
- > No cutting of conductor wires
- > No short circuits
- > No wear of blade sharpening

Description	Order No.	Blade	Length
Cable knife	AV3930	fixed 46 mm	185 mm



Cable Stripping Knife with Safety Cap

- > Special blade with guide blade prevents damage of conductor strands
- > For removal of insulation and sheath
- > Blade and back sharpened
- > Blade of tempered stainless steel
- > Insulation of tough non-brittle plastic

Description	Order No.	Blade	Length
Cable knife	2887 00	fixed 47 mm	175 mm



Scissors

Cable Cutter and Crimper Electricians Scissors 2K

- > To cut Cu/Al cables up to 50 mm²
- > With slot to crimp insulated or not insulated end sleeves from 0,5 to 4 mm²
- > Ergonomical and extremely robust
- > Loose-free screw/pin hinge
- > 2-component-handles
- > With special safetybox
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

Description	Order No.	Blade	Length
Scissors with safetybox	16020-F1	straight	160 mm



Special Electricians Scissors 2K

- > Ergonomical and extremely robust
- > High cutting performance, optimized toothing
- > Loose-free screw/pin hinge
- > 2-component-handles
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

Description	Order No.	Blade	Length
Scissors with safetybox	1601 4	straight	140 mm



Special Electricians Scissors

- > Ergonomical and extremely robust
- > High cutting performance, optimized toothing
- > Loose-free screw/pin hinge
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

Description	Order No.	Blade	Length
Scissors with safetybox	1601 3	straight	140 mm



Safetybox for INTERCABLE Electricians Scissors

- > Suitable for all intercable scissors
- > With belt safety clip

Description	Order No.	Blade	Length
Safetybox	1602 9	-	120 mm



Mechanical Cable Strippers

Universal Cable Stripper

- > To strip off and cut flexible cables 0,03 - 16 mm²
- > Integrated blade with safety lock
- > Adjustable length
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 0,03 - 16 mm ²	
INSULATION THICKNESS	ANY	
SUGGESTED APPLICATION	PVC	
Description	Order No.	Length
Universal cable stripper	AB16	210 mm



Universal Cable Stripper

- > Specially qualified for armoured cables
- > Self-adjusting
- > Shock-proof plastic
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	1,5 - 35 mm²		
INSULATION THICKNESS	ANY		
SUGGESTED APPLICATION	PVC		
Description	Order No.	Blade	Length
Universal cable stripper	AV8203	1,5 - 35 mm²	205 mm



Self Adjustable Cable Stripper

- > For every kind of insulation
- > Round-, longitudinal- and spiral-cut possible
- > Easy to change blade
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 4,5 - 29 mm		
INSULATION THICKNESS	ANY		
SUGGESTED APPLICATION	PVC		
Description	Order No.	Blade	Length
Universal cable stripper	AV3810	4,5 - 29 mm	138 mm
Replacement blade	AV3819	-	-



Stripping Tools For External Insulation

AMS / AMS 1000V - Universal Cable Stripper for External Insulation

Technical Characteristics:

- > Designed to strip the outer sheath from MV and LV cables
- > Longitudinal and circular cuts
- > Designed to strip both ends and midspan
- > Stripping without cutting what is below
- > Interchangeable two-sided blade
- > Snap closure mechanism (AMS only)

Additional features model AMS 1000V - 17130:

- > Suitable for work on live cable up to 1000V AC and 1500V DC (model AMS 1000V - 1713 0 only)
- > Model AMS 1000V is also designed for very low temperature uses, down to -40°C

APPLICATION RANGE	Φ > 25 mm
INSULATION THICKNESS	0 - 5 mm
SUGGESTED APPLICATION	PVC / Rubber



Universal cable stripper
AMS - AV6221



Universal cable stripper
AMS 1000V - 1713 1



Description	Order No.	Dimensions (LxWxH)	Weight
Set: AMS	AV6220	160 x 65 x 35 mm	200 g
Set: AMS 1000V	1713 0	170 x 75 x 50 mm	200 g
Spare blade	AV6299	-	-

SET Equipment:

- > Plastic case to contain the tool and its instructions for use (AMS)
- > Soft nylon case to contain the tool and its instructions for use (AMS 1000V)



AMS-Set - AV6220



AMS 1000V-Set - 1713 0



- > No damaging of below surface
- > Suitable for work on live cable (only model 17130)
- > Long lasting precise interchangeable two sided blade

Stripping Tools For External Insulation

AMS MAXI - Universal Cable Stripper for Large Cable Insulation

Technical Characteristics:

- > Designed to strip the outer sheath from MV and LV cables
- > Longitudinal and circular cuts
- > Designed to strip both ends and midspan
- > Stripping without cutting what is below
- > Interchangeable two-sided blade
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Φ > 45 mm
INSULATION THICKNESS	0 - 5 mm
SUGGESTED APPLICATION	PVC / Rubber / Polyethylene



Universal cable stripper AMS MAXI - AV6240

Description	Order No.	Dimensions (LxWxH)	Weight
Set: AMS MAXI	AV6240	250 x 110 x 60 mm	800 g
Spare blade	AV6299	-	-

SET Equipment:

- > Soft nylon case to contain the tool and its instructions for use



AMS MAXI-Set - AV6240



- > No damaging of below surface
- > Long lasting precise interchangeable two sided blade
- > Suitable for work on large cable insulations

Stripping Tools For External Insulation

MSU - Special Cable Stripper for External Insulation

Technical Characteristics:

- > Designed to strip the outer sheath from MV and LV cables
- > Circular and helical cuts
- > Operates by simply rotating it around the cable axis
- > Designed to strip both ends
- > Interchangeable blade
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Φ 24 - 60 mm
INSULATION THICKNESS	0 - 5 mm
SUGGESTED APPLICATION	Polyethylene / lead cables



MSU - AE6210

Description	Order No.	Dimensions (LxWxH)	Weight
Set: MSU	AE6210	290 x 110 x 90 mm	900 g
Spare blade	AE6219	-	-

SET Equipment:

- > Special MSU cable stripper: AE6211
- > Cable knife : AV3920
- > Soft case: AB6210



Soft case - AB6210



Cable knife - AV3920



- > No damaging of below surface
- > Positioning by vice system
- > Easy handling

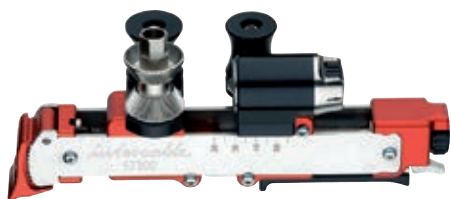
Stripping Tools For External Insulation

AMX - Universal Cable Stripper with Heavy Duty Outer Sheaths

Technical Characteristics:

- > Designed to strip aluminium armed outer sheaths of LV/MV
- > Suitable for longitudinal and circular cutting
- > Additional claw to break hard insulation
- > The initial setting on correct cable diameter is done by adjusting the handle
- > The fixation of the device on the cable is performed by a quick-release system with toggle lever grip
- > The cutting depth is adjustable in steps of 0,1 mm
- > Switchable between longitudinal and circular cutting
- > Max. rotation diameter of the tool: 300 mm
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 16 - 54 mm
INSULATION THICKNESS	0 - 5 mm
SUGGESTED APPLICATION	Polyethylene / fully bonded Aluminium outer insulation



Cable stripper AMX - 1730 0

Description	Order No.	Dimensions (LxWxH)	Weight
Set: AMX	1730 0	260 x 140 x 65 mm	1,3 kg
Spare blade	1730 1	-	-

SET Equipment:

- > AMX - cable stripper: 1730 0
- > Feed lever: 1719 4
- > 2,5 mm allen wrench: 1710 1
- > Soft nylon case: AB6230



Soft nylon case - AB6230



Feed lever - 1719 4



- > Small profile for working in confined spaces
- > Easy and precise working through fast locking system
- > Step by step depth adjustment allows for maximum operator safety

Stripping Tools For External Insulation

AIS - Cable Stripper for External Insulation

Technical Characteristics:

- > Longitudinal and circular cuts suitable for MV cables
- > Designed to work on live cable up to 1000V AC and 1500V DC
- > Designed to strip both ends and midspan
- > Hooked blade for removing the sheath that has been cut
- > 100° tool rotation makes a complete 360° circumference cut
- > Longitudinal feed in both directions using the ratchet lever
- > Electrically insulated interchangeable blades
- > Two-component handles in compliance with CEI/EN60900 Standards
- > The tool head (except for the blades) is totally protected by insulation against accidental contacts
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 16 - 54 mm
INSULATION THICKNESS	0,5 - 5 mm
SUGGESTED APPLICATION	High density polyethylene



Cable stripper AIS - 1719 6

Description	Order No.	Dimensions (LxWxH)	Weight
Set: AIS	1719 0	390 x 340 x 90 mm	2,0 kg
Spare blade	1719 5	-	-

SET Equipment:

- > AIS - cable stripper: 1719 6
- > Feed lever: 1719 4
- > 10 x 14 Colored identification washers: -
- > 2 Spare screws to fasten the blade: 1719 7
- > 2,5 mm allen wrench: 1710 1
- > Rigid plastic case: AB17190



AIS-Set - 1719 0



Feed lever - 1719 4



- > Adjustable cutting depth limitation
- > Suitable to work on live cable
- > Feedlever for precise working and maximum operator safety

Insulated Overhead Line

FSI 150 - Insulated Wire Stripper for ABC Cables

Technical Characteristics:

- > Designed to work on live parts up to 1000V AC and 1500V DC
- > Stripping depth adjustment built inside the handle
- > Insulated handle with bayonet connection
- > Stripping length adjustable from 20 to 80 mm
- > Scale marked on the built-in device to display the preset length
- > Interchangeable blade

Inserts available:

- > Stripping insert 6 mm²: 1717 006
- > Stripping insert 10 mm²: 1717 010
- > Stripping insert 16 mm²: 1717 016
- > Stripping insert 25 mm²: 1717 025
- > Stripping insert 35 mm²: 1717 035
- > Stripping insert 50 mm²: 1717 050
- > Stripping insert 54,6 mm²: 1717 054
- > Stripping insert 70 mm²: 1717 070
- > Stripping insert 95 mm²: 1717 095
- > Stripping insert 150 mm²: 1717 150
- > Other inserts on request

APPLICATION RANGE	6 - 150 mm
INSULATION THICKNESS	Preadjusted stripping inserts
SUGGESTED APPLICATION	ABC cables (overhead, twisted, insulated)



Insulated handle - 1717 1

Description	Order No.	Dimensions (LxWxH)	Weight
Set: FSI 150	1717 0	235 x 210 x 55 mm	950 g
Spare blade	1717 9	-	-

SET Equipment:

- > Insulated handle: 1717 1
- > Stripping inserts: 16, 25, 35, 50, 54,6 , 70 mm²
- > 3 Spare blades: 1717 9
- > Allen wrench 2,5 mm: 1710 0
- > Rigid plastic case: AB17170



- > Easy handling through preadjusted inserts
- > Suitable to work on live parts 1000 v
- > Designed to work in limited space



FSI 150 - Set - 1717 0



Stripping insert - 1717...

Stripping Tools For External Insulation

FSI - Insulated Wire Stripper for Cables from 2.5 to 10 mm²

Technical Characteristics:

- > 20 mm Stripping depth
- > Blade built into the tool
- > The tool can be used with one hand only and allows easy stripping of cable's up to 20 mm in length
- > The tool is provided with two hand - guards. Central handling permits all stripping operations
- > Blades are located in such a position to prevent accidental contact with worker's hands during the stripping operations
- > Blades are housed into the tool in such a way to assure the clean stripping of the insulation

RIGID SINGLE POLE	10 mm²
FLEXIBLE SINGLE POLE	2,5 - 4 - 6 mm²



Wire stripper AE6200

Description	Order No.	Dimensions (LxWxH)	Weight
Set: FSI	AE6200 0	175 x 65 x 50 mm	150 g

SET Equipment:

- > Insulated stripping tool: AE6200
- > Soft nylon case: AB6200



Soft nylon case - AB6200



- > Easy handling through preadjusted stripping
- > Suitable to work on live parts 1000 v
- > Designed to work in limited space

Stripping Tools For Semiconductor

FBS - Cable Stripper for Vulcanized Semiconductive Layer

Technical Characteristics:

- > Axial feed activation/deactivation device / both directions:
The stripping operation can be done by starting from outside of the cable (as shown on pictures: 25 mm of semicon layer will not be stripped) or from inside to outside (about 6 mm of semicon layer will be left over)
- > Stripping can be done starting from any position on the cable
- > Max. rotating diameter 200 mm
- > Interchangeable blade
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Φ 10 - 52 mm
INSULATION THICKNESS	0 - 1,5 mm
SUGGESTED APPLICATION	Vulcanized, extruded, bonded semiconductive layer



Cable stripper FBS - 1722 1

Description	Order No.	Dimensions (LxWxH)	Weight
Set: FBS	1722 0	235 x 200 x 55 mm	800 g
Spare blade 17"	1714 2	-	-
Spare parts kit (2x plates, 1x roll, suitable screws)	1714 5	-	-

SET Equipment:

- > FBS - cable stripper: 1722 1
- > 2,5 mm Allen wrench: 1710 0
- > Tube of silicone grease: AG1013
- > Rigid plastic case: AB17220



- > Reduced rotation enables to work on limited space
- > Perfect circular cut
- > Step by step depth adjustment (with locking capability)



FBS-Set - 1722 0

Stripping Tools For Semiconductor

HLS - Cable Stripper for Non-Vulcanized Semiconductive Layer

Technical Characteristics:

- > Longitudinal, helical and circular cuts
- > Positioned on the cable like a vice system
- > Stop clamp to set the stripping length
- > Step-by-step depth adjustment
- > Max. rotating diameter 130 mm
- > The incision depth can be adjusted from 0 to 0,9 mm with 0,1 mm increments each by turning the corresponding knob
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Φ 16 - 41 mm
INSULATION THICKNESS	0 - 2 mm
SUGGESTED APPLICATION	Non vulcanized, peelable semiconductive layer



Stop clamp - AV6411



Cable stripper - AV6410

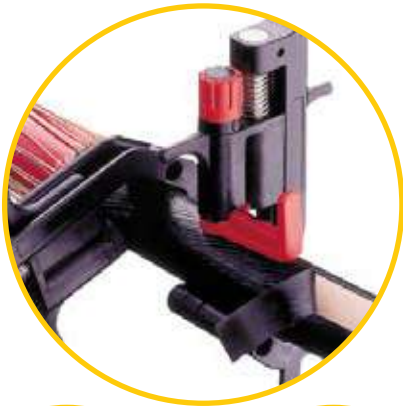
Description	Order No.	Dimensions (LxWxH)	Weight
Set: HLS	AV6400	175 x 65 x 50 mm	600 g
Spare blade	AV6499	-	-

SET Equipment:

- > HLS - cable stripper: AV6410
- > Stop clamp: AV6411
- > Tube of silicone grease: AG1013
- > Rigid plastic case: AB6400



HLS-Set - AV6400



- > Reduced rotation enables to work on limited space
- > Perfect precise circular cut
- > No incisions on surface below

Stripping Tools For Primary Insulation

IMS - Cable Stripper for Primary Insulation

Technical Characteristics:

- > Suitable for MV cables 10/11kV or 20/22kV
- > Stripping length adjustable from 20 to 100 mm using the device built into the handle
- > Scale marked on the handle to display the preset stripping length
- > Handle with bayonet connection
- > Interchangeable blade
- > NOT SUITABLE FOR WORK UNDER VOLTAGE!

Inserts available:

10 - 11kV

- > Insert for 35 mm²: 1716021
- > Insert for 50 mm²: 1716024
- > Insert for 120 mm²: 1716013
- > Insert for 150 mm²: 1716027
- > Insert for 185 mm²: 1716020
- > Insert for 240 mm²: 1716006

Other inserts available on request (10kV, 30kV, customized sizes), by sending PE-Coating Ø and Conductor Ø in mm

20 - 22kV

- > Insert for 25 mm²: AV63025
- > Insert for 35 mm²: AV63035
- > Insert for 50 mm²: AV63050
- > Insert for 70 mm²: AV63070
- > Insert for 95 mm²: AV63095
- > Insert for 120 mm²: AV63120
- > Insert for 150 mm²: AV63150
- > Insert for 185 mm²: AV63185
- > Insert for 240 mm²: AV63240

APPLICATION RANGE	25 - 240 mm ²
INSULATION THICKNESS	Preadjusted stripping inserts
SUGGESTED APPLICATION	Any type of primary insulation

Description	Order No.	Dimensions (LxWxH)	Weight
Set: IMS 20kV	AV6310	330 x 290 x 75 mm	600 g
Set: IMS 20kV + AMS	AV6320	330 x 290 x 75 mm	1,70 kg
Spare blade	AV6399	-	-

SET Equipment - AV6310:

- > Handle: AV6300
- > Stripping inserts: 25, 35, 50, 70, 95, 120, 150, 185, 240 mm²
- > Rigid plastic case: AB6300

SET Equipment - AV6320 like model AV6310 including:

- > AMS - cable stripper: AV6221



Handle - AV6300



- > Easy handling through preadjusted inserts
- > Adjustable stripping length
- > Designed to work in limited space



IMS 20kV-Set - AV6310



Stripping insert - AV63...

Stripping Tools For Primary Insulation

IMS II - Universal Cable Stripper for Primary Insulation

Technical Characteristics:

- > Designed to remove the primary insulation of 6 to 45kV cables
- > Helical and circular cuts
- > Max. rotating diameter 220 mm
- > Snap knob to activate/deactivate axial feed
- > Designed to strip both ends
- > Unlimited stripping length
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 15 - 52 mm
INSULATION THICKNESS	0 - 15 mm
SUGGESTED APPLICATION	Any type of primary insulation



Stripping Tool IMS II - 1723 1

Description	Order No.	Dimensions (LxWxH)	Weight
Set: IMS II	1723 0	280 x 210 x 65 mm	1,0 kg
Spare blade	1723 2	-	-
Spare parts kit (2x plates, 1x roll, suitable screws)	1723 5	-	-

SET Equipment:

- > IMS II - cable stripper: 1723 1
- > 2,5 mm Allen wrench: 1710 0
- > Tube of silicone grease: AG1013
- > Rigid plastic case: AB17230



IMS II-Set - 1723 0



- > Reduced rotation enables to work on limited space
- > Perfect circular cut
- > No incisions on surface below

Chamfering Tool

UFS - Tool for Chamfering Primary Insulation

Technical Characteristics:

- > Designed for chamfered cuts of primary insulation of MV cables (2 x 45°)
- > Tool fitted with PTFE plates ensuring optimal sliding on the cable without the use of silicone paste
- > Replaceable blade
- > Rotation diameter max. 130 mm
- > This tool is not suitable for pencilling
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Ø 15 - 60 mm
SUGGESTED APPLICATION	Any type of primary insulation



UFS - 1724 1

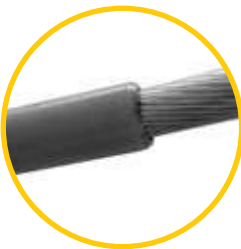
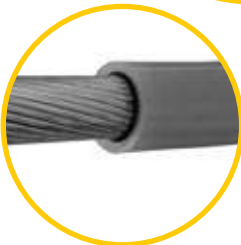
Description	Order No.	Dimensions (LxWxH)	Weight
Set: UFS	1724 0	170 x 100 x 50 mm	390 g
Spare blade	1724 2	-	-

SET Equipment:

- > UFS - tool for chamfered cuts of primary insulation: 1724 1
- > 2,5 mm Allen wrench: 1710 0
- > Soft nylon case: AB17130



UFS-Set - 1724 0



- > Small and self rotating to work in limited space
- > Easy handling through 1 adjusting knob
- > Suitable for use up to 45 kV

Cutting Tool For Armoured Cable

Roller chains cutter

Technical Characteristics:

- > Designed for effortless and fast cutting of SWA
- > Practical tool, works in hard-to-reach areas small space for turning
- > NOT SUITABLE FOR WORK UNDER VOLTAGE

APPLICATION RANGE	Φ 20 - 76 mm cable up to 150 mm²
SUGGESTED APPLICATION	Armoured cables



Roller chains cutter - 1609076

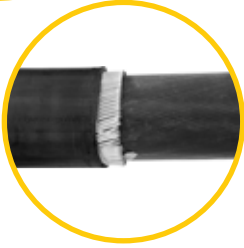


Pressure spring RF5 - 126299
Available in different sizes
(cable Ø 6-92 mm) on request

Description	Order No.	Dimensions (LxWxH)	Weight
Set Roller chains cutter	1609076	260 x 140 x 65 mm	0,8 kg

SET Equipment:

- > Roller chains cutter: 1609076
- > Pressure spring: RF5 126299
- > Soft nylon case: AB6230



- > Perfect straight clean cutting
- > Quick settling around the cable
- > Easy handling



Soft nylon case - AB6230

Sets of Stripping Tools - Specialist Solutions

Set - Stripping Tools - 1799 001

Suitable to strip the outer sheaths, semiconductive layer and to remove the primary insulation. Ideal for all cable stripping requirements on most cable types.

Set Equipment:

- > AIS - cable stripper: 1719 6
- > Feed lever: 1719 4
- > 14 pieces of 10 colored indication washers: -
- > 2 spare screws to fasten the blade: 1719 7
- > FBS - cable stripper: 1722 1
- > IMS II - cable stripper: 1723 1
- > Tube of silicone grease: AG1013
- > 2,5 mm Allen wrench: 1710 0
- > Rigid plastic case: 1799 000

Description	Order No.	Dimensions (LxWxH)	Weight
Set: Stripping tools	1799 001	390 x 340 x 100 mm	4,0 kg



Essential Kit Components

1719 6	1719 4	1723 1	1722 1	-	1719 7	Full details
						Please see above Set Equipment:

Sets of Stripping Tools - Specialist Solutions

Set - Stripping Tools - 1799 002

Suitable to strip the outer sheaths, semiconductive layer and to remove the primary insulation. Ideal for all cable stripping requirements on most cable types.

Set Equipment:

- > Universal cable stripper - AMS: AV6221
- > IMS II - cable stripper: 1723 1
- > FBS - cable stripper: 1722 1
- > Cable knife: AV3920
- > Special electricians scissors: 1601 0
- > Tube of silicone grease: AG1013
- > 2,5 mm Allen wrench: 1710 0
- > Rigid plastic case: AG3000

Description	Order No.	Dimensions (LxWxH)	Weight
Set: Stripping tools	1799 002	390 x 340 x 100 mm	3,0 kg

Optional (to be ordered separately):

- > Handle IMS 20kV: AV6300
- > 4 Stripping inserts of your choice: AV63



Essential Kit Components

AV6221	1723 1	1722 1	AV3920	1601 0	Full details
					Please see above Set Equipment:

Sets Of Stripping Tools - Specialist Solutions

Set - Stripping Tools for MV Cable

Suitable to strip the outer sheaths, semiconductive layer and to remove the primary insulation on 10 / 20 / 30 kV cables

Set Equipment:

- > AMX - cable stripper: 1730 0
- > Feed lever: 1719 4
- > AMS cable stripper without case: AV6221
- > FBS wire stripper: 1722 1
- > Cable stripper IMS II: 1723 1
- > UFS - tool for chamfered cuts of primary insulation: 1724 1
- > Tube of silicone grease: AG1013
- > 2,5 mm Allen wrench: 1710 0
- > Rigid plastic case: AB17250

Description	Order No.	Dimensions (LxWxH)	Weight
Set: Stripping MV Cable	1799 004	390 x 340 x 100 mm	3,4 kg



Essential Kit Components

1730 0	1719 4	AV6221	1723 1	1722 1	1724 1	Full details
						Please see above Set Equipment:

Sets Of Stripping Tools - Specialist Solutions


Set 1 - Stripping Tools for Armoured Cables

- Set Equipment:**
- > AMS cable stripper without case: AV6221
 - > FBS wire stripper : 1722 1
 - > Cable stripper IMS II: 1723 1
 - > UFS - tool for chamfered cuts of primary insulation: 1724 1
 - > Tube of silicone grease: AG1013
 - > Roller chains cutter: 1609076
 - > 2x Pressure spring RF5: 126299
 - > 2,5 mm Allen wrench: 1710 0
 - > Rigid plastic case: AB17260

Description	Order No.	Dimensions (LxWxH)	Weight
Set 1	1799005	390 x 340 x 100 mm	3,2 kg



Essential Kit Components

AV6221	1723 1	1722 1	1724 1	1609076	126299	Full details
						Please see above Set Equipment:

Sets of Stripping Tools - Specialist Solutions

Set 2 - Stripping Tools for Armoured Cables

- Set Equipment:
- > Cable stripper AMS-MAXI without case: AV6240
 - > Cable stripper IMS II : 1723 1
 - > FBS wire stripper: 1722 1
 - > UFS - tool for chamfered cuts of primary insulation: 1724 1
 - > Roller chains cutter: 1609076
 - > 2x Pressure spring RF5: 126299
 - > Tube of silicone grease: AG1013
 - > 2,5 mm Allen wrench: 1710 0
 - > Rigid plastic case: AB17260

Description	Order No.	Dimensions (LxWxH)	Weight
Set 2	1799006	390 x 340 x 100 mm	3,9 kg



Essential Kit Components

AV6240	1723 1	1722 1	1724 1	1609076	126299	Full details
						Please see above Set Equipment:

Sets of Stripping Tools - Specialist Solutions

Set 3 - Stripping Tools for Armoured Cables

Set Equipment:
Cable stripper AMS-MAXI without case: AV6240
Cable stripper IMS II: 1723 1
UFS - tool for chamfered cuts of primary insulation: 1724 1
HLS - cable stripper: AV6410
Stop clamp: AV6411
Roller chains cutter: 1609076
2x Pressure spring RF5: 126299
Tube of silicone grease: AG1013
2,5 mm Allen wrench: 1710 0
Rigid plastic case: AB17260

Description	Order No.	Dimensions (LxWxH)	Weight
Set 3	1799007	390 x 340 x 100 mm	3,7 kg



Essential Kit Components

AV6240	1723 1	17241	AV6410/AV6411	1609076	126299	Full details
						Please see above Set Equipment:

Sets Of Stripping Tools - Specialist Solutions

Set 4 - Stripping Tools for Armoured Cables

- Set Equipment:
- > AMS cable stripper without case: AV6221
 - > Cable stripper IMS II: 1723 1
 - > UFS - tool for chamfered cuts of primary insulation : 1724 1
 - > HLS - cable stripper: AV6410
 - > Stop clamp: AV6411
 - > Roller chains cutter: 1609076
 - > 2x Pressure spring RF5: 126299
 - > Tube of silicone grease: AG1013
 - > 2,5 mm Allen wrench: 1710 0
 - > Rigid plastic case: AB17260

Description	Order No.	Dimensions (LxWxH)	Weight
Set 4	1799008	390 x 340 x 100 mm	3,0 kg



Essential Kit Components

AV6221	1723 1	1724 1	AV6410/AV6411	1609076	126299	Full details
						Please see above Set Equipment:

Cable Jointers Case

Tool Kit for Cable Jointers

- Basic Equipment (AG2020):**
- > Case: AG2000
 - > 1/20 sliding caliper 150 mm : AG1001
 - > Measuring rod 3 m: 7406 030
 - > Steel brush for files: AG1014
 - > Rasp without handle: AG1005
 - > Half round file with handle: AG1004
 - > Screwdriver slott.screws 3x100 mm FII: 1301 030
 - > Screwdriver slott.screws 4x100 mm FII: 301 040
 - > Screwdriver slott.screws 5x125 mm FII: 1301 055
 - > Ball-point screwdr.hex socket 6 mm FII : 1305 060
 - > Mallet 300 g: 7130 582
 - > Mallet Ø 35 mm: AG1010
 - > Sheath spreader: AG1011
 - > Special electricians scissors: 1601 1
 - > Cable knife with interch. blade: AV3920
 - > Spare blade for AV3920: AV3921
 - > Knife with trapezoidal blade: AV3910
 - > 3 Spare blades for AV3910: AV3911
 - > High precision lens with light: AG1012
 - > Universal pliers 180 mm: AP0119 N
 - > Cable cutter 160 mm: AP1017
 - > Tube of silicone grease: AG1013
 - > 2,5 mm Allen wrench: 1710 0

Description	Order No.	Dimensions (LxWxH)	Weight
Basic tool kit	AG2020	450 x 380 x 200 mm	6,3 kg
Empty case	AG2000	450 x 380 x 200 mm	3,7 kg



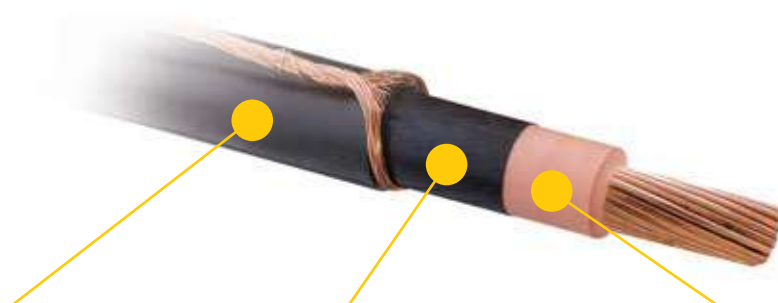
Additional Tools:

AG2020+...	A	B	C	D	E	F
	Ratchet cable cutter Ø 54 mm	Cable stripper AMS (without case)	Stripper MV cables IMS20kV (without case)	Stripper non-vulc. semicon. - HLS (without case)	Stripper vulc. semicon. - FBS (without case)	Tool for chamfering prim. insulation - UFS (without case)

Product Overview

Insulation	Type	Order No.	Application Range	Insulation thickness	Suggested application	1000V certified
STRIPPING TOOLS FOR EXTERNAL INSULATION	AMS	AV6220	ø > 25 mm	0 - 5 mm	PVC / Rubber	
	AMS 1000V	17130	ø > 25 mm	0 - 5 mm	PVC / Rubber	•
	AMS MAXI	AV6240	ø > 45 mm	0 - 5 mm	PVC / Rubber / Polyethylene	
	MSU	AE6210	ø 24 - 60 mm	0 - 5 mm	Polyethylene / lead cables	
	AMX	17300	ø 16 - 54 mm	0 - 5 mm	Polyethylene / fully bonded Aluminium outer insulation	
	AIS	17190	ø 16 - 54 mm	0 - 5 mm	High density polyethylene	•
	FSI 150	17170	6 - 150 mm ²	Preadjusted stripping inserts	ABC cables (overhead, twisted, insulated)	•
	FSI	AE6200	2.5, 4, 6 and 10 mm ²		Rigid and flexible single pole	•
STRIPPING TOOLS FOR SEMICONDUCTOR	FBS	17220	ø 10 - 52 mm	0 - 1,5 mm	Vulcanized, extruded, bonded semiconductive layer	
	HLS	AV6400	ø 16 - 41 mm	0 - 2 mm	Non vulcanized, peelable semiconductive layer	
STRIPPING TOOL FOR PRIMARY INSULATION	IMS 20 - 22kV	AV6310 + inserts	25 - 240 mm ²	Preadjusted stripping inserts	Any type of primary insulation	
	IMS 10 - 11kV	AV6310 + inserts	25 - 240 mm ²	Preadjusted stripping inserts	Any type of primary insulation	
	IMS II	17230	ø 15 - 52 mm	0 - 15 mm	Any type of primary insulation	
STRIPPING TOOL FOR ARMoured CABLE	Roller chains cutter	1609076	ø 20 - 76 mm cable up to 150 mm ²		Armoured cable	

Application Example



Stripping tools for external insulation

- > AMS
- > AMS 1000V
- > AMS MAXI
- > MSU
- > AMX
- > AIS
- > FSI 150
- > FSI

Stripping tools for semiconductor

- > FBS (vulcanized / bonded / semiconductor)
- > HLS (not vulcanized / semiconductor / peelable)

Stripping tool for primary insulation

- > IMS 20kV
- > IMS 10kV
- > IMS II

NZ Jointers Tool Kits

Order Code	Description	Pack	Qty
NPJT1	Jointers Tool Kit 1	Kit	1
NPJT2	Jointers Tool Kit 2	Kit	1
NPJT3	Jointers Tool Kit 3	Kit	1

Please contact OHUG for further details on these Kits



Section 13

Cutting & Crimping Tools

Mechanical Cutting Tools	332
Hydraulic Cutting Tools	339
Mechanical Crimp Tools	359
Hydraulic Crimp Tools	368
Crimping Dies	390

Mechanical Cutting Tools

Special Electricians Scissors

- > Ergonomical and extremely robust
- > High cutting performance
- > Loose-free screw/pin hinge

Description	Order No.	Blade	Length
Scissors with safetybox	1601 3	straight	140 mm

Attention: not suitable for work under voltage



Cable Cutter and Crimper Electricians Scissors 2K

- > To cut Cu/Al cables up to 50 mm²
- > With slot to crimp insulated or not insulated end sleeves from 0,5 to 4 mm²
- > Ergonomical and extremely robust
- > Loose-free screw/pin hinge
- > 2-component-handles

Description	Order No.	Blade	Length
Scissors with safetybox	16020-F1	straight	160 mm

Attention: not suitable for work under voltage



Universal Knife with Clappable Blade Protection

- > 1000V insulated tool
- > With replaceable standard blade (thickness 0,65mm)
- > Made of shock-proof material

Description	Order No.	Blade	Length
Cable knife	AV3910	interch. 50 mm	185 mm
Spare blade	AV3911	-	50 mm



SUITABLE TO WORK UNDER VOLTAGE



Insulated Electricians Shears

- > Adjustable screwjoint
- > High cutting performance
- > Surface treatment: burnished and polished
- > 2-component-handles

Description	Order No.	Length	Weight
Insulated electrician shears	1603 1	180 mm	100 g



SUITABLE TO WORK UNDER VOLTAGE



Side Cutter 2K

- > Very slim design with dropped forged head
- > For cutting hard and soft wire
- > Blades induction hardened
- > High cutting performance
- > Two component impact resistant insulated handles

Description	Order No.	Length	Weight
Diagonal cutting pliers 2K	1102 160	160 mm	208 g



SUITABLE TO WORK UNDER VOLTAGE



Cable Cutter D17

- > High cutting capacity for the smallest dimension
- > With adjustable screw joint
- > Special tool steel with chrome finish
- > Handles of impact resistant plastic in 2-component-design
- > Jaw opening: 17 mm

APPLICATION RANGE	max. 50 mm²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable Cutter D17	1602160	160 mm	218 g



SUITABLE TO WORK UNDER VOLTAGE



Cable Cutter D22

- > Two - stage cutting for up to 25 mm diameter conductors
- > High cutting capacity on second stage
- > Easy and clean cut with single hand use
- > With adjustable screwing joint
- > Special steel with chrome finish
- > Handles of shock-proof plastic in 2-component-design

APPLICATION RANGE	ø 25 mm / 80 mm ²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable cutter D22	1602 200	200 mm	345 g

Insulated Ratchet Cable Cutter D32/D54

- > High leverage ratchet mechanism for single handed cutting of Copper and Aluminium cables leaving no burrs or sharp edges
- > Patented Two-step ratchet mechanism requires fewer strokes per cut
- > Quick release opens blades easily in every cutting position (allows removal of the cable even before complete cut, if necessary)
- > Hardened steel cutting blades for lasting strength and sharpness
- > 1000 V Plastic covered handles with hand guards for comfort and firm grip
- > Locking lever keeps handles closed for easy transport fits in a tool box or bag

Order No.	1605032	1605054	
APPLICATION RANGE	ø 32 mm/260 mm²	ø 54 mm/480 mm²	
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Ratchet cutter D32	1605 032	265 mm	650 g
Ratchet cutter 054 short	1607 054	285 mm	800 g
Ratchet cutter D54 long	1605 054	320 mm	900 g
Ratchet cutter D54 long (non ins.)	1606 054	320 mm	900 g

Ratchet Cable Cutter D54 (heavy duty version)

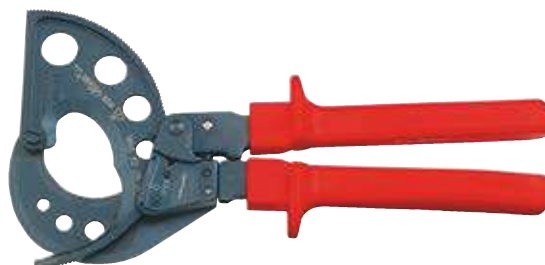
- > Same characteristics as 1605 054 above except 1000 V insulation
- > With support brackets for optimal power transmission

APPLICATION RANGE	ø 54 mm / 480 mm ²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Ratchet cutter D54 long	MSR54	310 mm	900 g

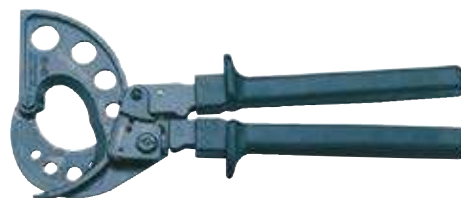
Attention: not suitable for work under voltage



SUITABLE TO WORK UNDER VOLTAGE



SUITABLE TO WORK UNDER VOLTAGE



NOT SUITABLE FOR WORK UNDER VOLTAGE



Insulated Ratchet Cable Cutter

- > Powerful two hand operation cutter
- > Double ratchet with powerful cam gearing
- > For cutting multi-stranded and fine wire cables of copper / aluminium
- > Can also cut thin steel strip cable armouring, or thin Steel Wire Armour on the outside of the cable (not suitable for hardened steel wire armoured cable)
- > Handle with multi - coat dipped insulation

Order No.	251522	251525	
APPLICATION RANGE	ø 62 mm/840 mm²	ø 80 mm/1000 mm²	
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Ratchet Cutter ø 62 mm	2515 22	420 mm	2200 g
Ratchet Cutter ø 80 mm	2515 25	550 mm	3150 g



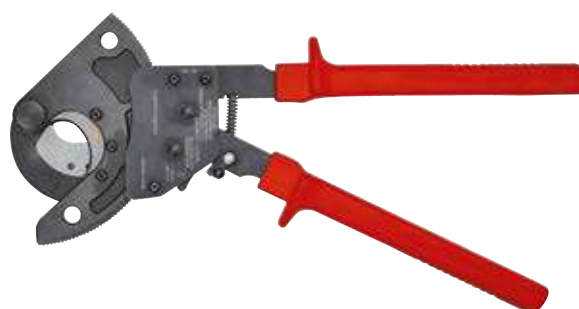
SUITABLE TO WORK UNDER VOLTAGE



Ratchet Cutter ACSR (Al/Steel) D32

- > Replaceable cutting inserts
- > High cutting capacity
- > Low effort and small handle opening enable one-hand operation
- > Progressive feed mechanism for cutting

APPLICATION RANGE	ø 32 mm / 240 mm²		
SUGGESTED APPLICATION	ACSR (Al/Steel)		
Description	Order No.	Length	Weight
Ratchet Cutter ACSR 32	1608 032	346 mm	1400 g



SUITABLE TO WORK UNDER VOLTAGE



Ratchet Cutter D32

- > Comfortable one hand tool
- > No jamming of the blade
- > Cutting can be interrupted at any point in the cut
- > Professional multi-layer dipped insulation
- > Blades can be opened by acting on spring loaded lever

APPLICATION RANGE	ø 32 mm / 240 mm ²		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Ratchet Cutter	1621 032	315 mm	1200 g
Ratchet Cutter isol.	1623 032	315 mm	1300 g



SUITABLE TO WORK UNDER VOLTAGE



Cable Cutter with Telescopic Handles

- > For smooth cutting of copper and aluminium conductors
- > Replaceable cutting head
- > The razor- sharp cutters guarantee a smooth and effortless cut
- > For copper and aluminium cables only
- > Handle with multi-coated insulation

APPLICATION RANGE	185 mm ²		
JAW OPENING	28 mm		
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable Cutter	2532 60	350 - 500 mm	2000 g
> Spare Blades	2537 60	-	300 g

Attention: not suitable for work under voltage

Cable Cutter

- > Cutting head made of oil-hardened steel
- > The razor-sharp blades guarantee a smooth and effortless cut
- > Light metal handles
- > Professional multi-coated insulation

Order No.	277346	277361	277380
JAW OPENING	30 mm	35 mm	60 mm
APPLICATION RANGE	120 mm ²	180 mm ²	500 mm ²
SUGGESTED APPLICATION	Copper and Aluminium		
Description	Order No.	Length	Weight
Cable Cutter	2773 46	460 mm	1430 g
> Spare Blades	2779 46		640 g
Cable Cutter	2773 61	600 mm	2070 g
> Spare Blades	2779 61		660 g
Cable Cutter	2773 80	800 mm	3800 g
> Spare Blades	2779 80		1140 g



SUITABLE TO WORK UNDER VOLTAGE



Wire Rope Cutter

- > Replaceable cutting head
- > Cutting head made of special alloyed steel
- > Square cut blades for the hardest steel wires
- > Handles made of light metal
- > Professional multi-coated insulation

Order No.	277446	277360	
JAW OPENING	10 mm	20 mm	
APPLICATION RANGE - Steel (rope)	95 mm²	150 mm²	
APPLICATION RANGE - Steel (rope)	ø 10 mm	ø 12 mm	
APPLICATION RANGE - Steel (round)	ø 7 mm	ø 9 mm	
SUGGESTED APPLICATION	Copper, Aluminium and Steel		
Description	Order No.	Length	Weight
Wire Rope Cutter	2774 46	460 mm	1340 g
> Spare Blades	2778 46		475 g
Wire Rope Cutter	2773 60	600 mm	2710 g
> Spare Blades	2778 60		910 g

Insulated Bolt Cutter

- > Chrome vanadium blade
- > Tempered steel
- > Eccentric adjustment
- > Professional multi-coated insulation

Order No.	275246	275261	275276	275291	275295
APPLICATION RANGE	ø 7 mm	ø 9 mm	ø 11 mm	ø 13 mm	ø 15 mm
SUGGESTED APPLICATION	High tensile steel ropes / bolts				
Description	Order No.	Length	Weight		
Bolt Cutter insulated	2752 46	460 mm	1400 g		
> Spare Blades	2750 47		1400 g		
Bolt Cutter insulated	2752 61	610 mm	2500 g		
> Spare Blades	2750 62		1600 g		
Bolt Cutter insulated	2752 76	760 mm	4500 g		
> Spare Blades	2750 77		1800 g		
Bolt Cutter insulated	2752 91	600 mm	6300 g		
> Spare Blades	2750 92		1800 g		
Bolt Cutter insulated	2752 95	600 mm	8000 g		
> Spare Blades	2751 07		2000 g		



SUITABLE TO WORK UNDER VOLTAGE



SUITABLE TO WORK UNDER VOLTAGE



Mechanical Cutting Tools

Hacksaw

- > Made of flat steel 10 x 5 mm, galvanized
- > For 148 mm saw-blades
- > With insulated rotary handle for blade tension
- > Insulation of soft, non-brittle plastic

WIDTH OF BLADE	5 mm		
THICKNESS OF BLADE	0,80 mm		
Description	Order No.	Length	Weight
Hacksaw	4242 00	280 mm	230 g
> Spare Saw-Blade	4330 10	150 mm	3 g

Attention: not suitable for work under voltage

Hacksaw

- > Insulation of soft, non-brittle plastic
- > With insulated wing-bolt for blade tension.

WIDTH OF BLADE	13 mm		
THICKNESS OF BLADE	0,63 mm		
Description	Order No.	Length	Weight
Hacksaw / Saw-blade 4210 00	4243 00	470 mm	660 g
> Blade 22/32 teeth width 13mm, thickn. 0,63 mm	4330 10	300 mm	17 g
> Blade 18 teeth width 13mm, thickn. 0,63 mm	4210 16	300 mm	17 g
> Blade double-sided 22/32 teeth width 25mm, thickn. 0,8 mm	4219 20	300 mm	40 g

Attention: not suitable for work under voltage

Cable Sheath Saw

- > For steel strip armoured cable
- > Adjustable stopper
- > Replaceable saw-blade
- > Coarse toothed saw-blade for soft materials
- > Fine toothed saw-blade for sheet metal cutting, saw-blade no. 430805 - 24 teeth fine
- > Insulation of tough non-brittle plastic
- > On demand alternatively saw-blade 14 teeth can be supplied

Description	Order No.	Length	Weight
Cable sheat saw (24 teeth, fine)	4303 02	250 mm	140 g
> Saw-blade (14 teeth, coarse)	4308 01	120 mm	6 g
> Saw-blade (24 teeth, fine)	4308 05	120 mm	6 g

Attention: not suitable for work under voltage















Hydraulic Cutting Tools

New battery powered cutting tools

The new battery operated hydraulic cutting tools are now more ergonomic, faster and more reliable than ever



	Heads	Hand Operated	Battery Operated	Cutting max.	Application	
SERIES 25	 PS25	 HS25	 AS25	Ø 25 mm	<ul style="list-style-type: none"> • Steel • ACSR • Aluminium • Copper 	PAGE 341-342
SERIES 40			 STILO-S	Ø 40 mm	<ul style="list-style-type: none"> • Aluminium • Copper 	PAGE 343-344
SERIES 45	 PS45	 HS145	 AS45	Ø 45 mm	<ul style="list-style-type: none"> • Steel • ACSR • Aluminium • Copper 	PAGE 345-346
SERIES 50	 PS50	 HS150	 AS50	Ø 50 mm	<ul style="list-style-type: none"> • Light armoured cables • Aluminium • Copper 	PAGE 347-348
SERIES 65	 PS65		 AS65	Ø 65 mm	<ul style="list-style-type: none"> • Light armoured cables • Aluminium • Copper 	PAGE 349-350
SERIES 85	 PS85	 HS185	 AS85	Ø 85 mm	<ul style="list-style-type: none"> • Light armoured cables • Aluminium • Copper 	PAGE 351-352
SERIES 95	 PS95		 AS95	Ø 95 mm	<ul style="list-style-type: none"> • Light armoured cables • Aluminium • Copper 	PAGE 353-354
SERIES 120-2	 PS120-2		 AS120	Ø 120 mm	<ul style="list-style-type: none"> • Light armoured cables • Aluminium • Copper 	PAGE 355-356
SERIES 120	 PS120 (SK160)			Ø 120 mm	<ul style="list-style-type: none"> • Heavy armoured cables • Aluminium • Copper 	PAGE 357

Series 25 - Max. 25 mm cutting diameter

CUTTING DIAMETER	max. Ø 25 mm
SUGGESTED APPLICATION	Steel, ACSR, Copper and Aluminium

CUTTING FORCE	60 kN
OPERATING PRESSURE	700 bar (70 MPa)

SUITABLE TO CUT HEAVY DUTY WIRE ARMoured CABLES

PS25 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump (Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 81 x 206 x 54 mm
- > Tool weight: 1,9 kg

Set Equipment:

- > Hydraulic cutting head
- > Soft case for cutting head

Description	Order No.	Length	Weight
Set cutting tool PS25	PS25	140 x 230 x 60 mm	ca. 2,2 kg
Fixed cutting blade	GMPS25	-	ca. 200 g
Moveable cutting blade	SMPS25	-	ca. 40 g



Soft nylon case for PS25 – ST01



GMPS25



SMPS25

Spare blades

HS25 – Hand Operated Hydraulic Cutting Tool

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide; rotates 360°
- > Quick feed with double hydraulic cylinder
- > Automatic pressure safety valve
- > Manual return in any position
- > Tool dimensions: 165 x 393 x 54 mm
- > Tool weight: 2,9 kg

Set Equipment:

- > Test report
- > Manual hydraulic cutting tool
- > Plastic case

Description	Order No.	Length	Weight
Set cutting tool HS25	HS25	440 x 190 x 80 mm	4,0 kg
Fixed cutting blade	GMPS25	-	200 g
Moveable cutting blade	SMPS25	-	40 g



Set HS25



GMPS25



SMPS25

Spare blades

AS25 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 359 x 75 mm
- > Tool weight: 4,2 kg (with battery)

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Description	Order No.	Length	Weight
Set cutting tool AS25	AS25	550 x 470 x 115 mm	7,6 kg
Fixed cutting blade	GMPS25	-	200 g
Moveable cutting blade	SMPS25	-	40 g



Set AS25



GMPS25

SMPS25

Spare blades

CUTTING RANGE TABLE PS25 - HS25 - AS25

Sector of use:		Tensile strength N/mm ²	<ø 9 mm	<ø 10 mm	<ø 11 mm	<ø 12 mm	<ø 13 mm	<ø 14 mm	<ø 15 mm	<ø 16 mm	<ø 17 mm	<ø 18 mm	<ø 19 mm	<ø 20 mm	<ø 21 mm	<ø 22 mm	<ø 23 mm	<ø 24 mm	<ø 25 mm	<ø 26 mm
Copper	Rope and cable	<410	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Bar	<250	•	•	•	•	•	•	•	•	•	•	•	•	•					
	Bar	<300	•	•	•	•	•	•	•	•	•	•	•	•						
Aluminium	Rope and cable	<200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Bar	<160	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
	Bar	<340	•	•	•	•	•	•	•											
Aldrey	Cable	<340	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Alu/Steel	Rope	<1800	•	•	•	•	•	•	•	•	•	•	•	•	•	•				
Steel	Rope (>200 wires)	<180	•	•	•	•	•	•	•	•	•									
	Bar	<420	•	•	•	•	•	•	•											
	Tondo pieno	<600	•	•	•	•	•													
	Rope	<2200	•	•	•															

Battery operated Hydraulic Cable Cutter



Series 40 - Max. 40 mm cutting diameter

CUTTING DIAMETER	max. \varnothing 40 mm	CUTTING FORCE	30 kN
SUGGESTED APPLICATION	Copper and Aluminium	OPERATING PRESSURE	550 bar (55 MPa)

STILO-S – Battery Operated Hydraulic Cutting Tool DN 40 mm

The Stilo S battery powered hydraulic cable cutter is suitable for cutting thin and multi-core aluminium and copper cables up to 40 mm in diameter.

Technical Characteristics:

- > Light and compact structure
- > Cutting head with 360° endless rotation allows easy operation even in confined spaces
- > Ergonomic 2-Component handle for fatigue-proof one handed working
- > Extreme fast working through a 3 x axial piston pump
- > Automatic return at the end of the cutting cycle
- > Emergency manual return
- > Ergonomic design provides easy operation for both left- and right-handed users
- > Mini USB-port: - Output of Cutting curves and fault messages
- > Tool dimensions: 440 x 124 x 81 mm
- > Tool weight (with battery): 2,8 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/1,5 Ah Li-Ion (RA12)
- > Battery charger (LG8)
- > USB-cable
- > Software (CD)
- > Rigid plastic case

Description	Order No.	Length	Weight
Set cutting tool STILO-S	STILO-S	450 x 500 x 140 mm	5,1 kg
Spare blades (2x blade + acc.)	SET-SMI-S	-	500 g



Set STILO-S

CUTTING RANGE TABLE STILO-S

Sector of use:		Tensile strength N/mm ²	\varnothing 30 mm	\varnothing 35 mm	\varnothing 40 mm	\varnothing 45 mm	\varnothing 50 mm	\varnothing 55 mm	\varnothing 60 mm	\varnothing 65 mm	\varnothing 70 mm	\varnothing 75 mm	\varnothing 80 mm	\varnothing 85 mm	\varnothing 90 mm	\varnothing 95 mm	\varnothing 100 mm	\varnothing 105 mm	\varnothing 110 mm	\varnothing 115 mm
Copper	Cable	<410	•	•	•															
Aluminium	Cable	<210	•	•	•															

Series 45 - Max. 45 mm cutting diameter

CUTTING DIAMETER	max. \varnothing 45 mm
SUGGESTED APPLICATION	Steel, ACSR, Copper and Aluminium

CUTTING FORCE	60 kN
OPERATING PRESSURE	700 bar (70 MPa)

SUITABLE TO CUT HEAVY DUTY WIRE ARMoured CABLES

PS45 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump [Suggested operating pressure 700 bar/70 MPa].

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 98 x 305 x 69 mm
- > Tool weight: 3,7 kg

Set Equipment:

- > Hydraulic cutting head
- > Soft case for cutting head

Description	Order No.	Length	Weight
Cutting head with case	PS45	380 x 145 x 70 mm	3,0 kg
Fixed cutting blade	GMPS45	-	120 g
Moveable cutting blade	SMPS45	-	100 g



Soft nylon case for PS45 - ST02



GMPS45

SMPS45

Spare blades

HSI45 – Hand Operated Hydraulic Cutting Tool

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return in any position
- > Tool dimensions: 184 x 601 x 69 mm
- > Tool weight: 5,7 kg

Set Equipment:

- > Test report
- > Manual hydraulic cutting tool
- > Plastic case

Description	Order No.	Length	Weight
Set Cutting Tool	HSI45	700 x 260 x 105 mm	7,4 kg
Fixed cutting blade	GMPS45	-	120 g
Moveable cutting blade	SMPS45	-	100 g



Soft nylon case for PS45 - ST02



Spare blades

AS45 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 434 x 75 mm
- > Tool weight (with battery): 5,4 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Set AS45

Spare blades

Description	Order No.	Length	Weight
Set Cutting tool AS45	AS45	580 x 470 x 115 mm	8,8 kg
Fixed cutting blade	GMPS45	-	120 g
Moveable cutting blade	SMPS45	-	100 g

CUTTING RANGE TABLE PS45 - HSI45 - AS45

Sector of use:		Tensile strength N/mm ²	<ø 28 mm	<ø 29 mm	<ø 30 mm	<ø 31 mm	<ø 32 mm	<ø 33 mm	<ø 34 mm	<ø 35 mm	<ø 36 mm	<ø 37 mm	<ø 38 mm	<ø 39 mm	<ø 40 mm	<ø 41 mm	<ø 42 mm	<ø 43 mm	<ø 44 mm	<ø 45 mm
Copper	Rope and cable	<410	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Alluminium	Rope and cable	<200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
	Bar	<340	•	•	•	•	•	•	•	•	•	•	•	•	•					
Alu/Steel	Rope	<1800	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

Sector of use:		Tensile strength N/mm ²	<ø 9 mm	<ø 11 mm	<ø 13 mm	<ø 14 mm	<ø 15 mm	<ø 16 mm	<ø 17 mm	<ø 18 mm	<ø 19 mm	<ø 20 mm	<ø 21 mm	<ø 22 mm	<ø 23 mm	<ø 24 mm	<ø 25 mm	<ø 26 mm	<ø 27 mm	<ø 28 mm
Copper	Bar	<250	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
Alluminium	Bar	<300	•	•	•	•	•	•	•	•	•									
	Bar	<160	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Alu/Steel	Cable	<340	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•			
Steel	Rope (>200 wires)	<180	•	•	•	•	•	•	•											
	Bar	<420	•	•	•	•	•													
	Bar	<600	•	•	•															
	Rope	<2200	•	•																

Series 50 - Max. 50 mm cutting diameter

CUTTING DIAMETER	max. Ø 50 mm
SUGGESTED APPLICATION	Copper and Aluminium

CUTTING FORCE	60 kN
OPERATING PRESSURE	700 bar (70 MPa)

PS50 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump (Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 110 x 317 x 55 mm
- > Tool weight: 2,9 kg

Set Equipment:

- > Hydraulic cutting head
- > Soft case for cutting head

Description	Order No.	Length	Weight
Cutting head with case	PS50	380 x 145 x 70 mm	3,0 kg
Fixed cutting blade	GMPS50	-	320 g
Moveable cutting blade	SMPS50	-	150 g



Soft nylon case for PS45 - ST02



GMPS45

SMPS45

Spare blades

HSI50 – Hand Operated Hydraulic Cutting Tool

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return in any position
- > Tool dimensions: 195 x 612 x 58 mm
- > Tool weight: 5,1 kg

Set Equipment:

- > Test report
- > Manual hydraulic cutting tool
- > Plastic case

Description	Order No.	Length	Weight
Set Cutting Tool	HSI50	700 x 260 x 105 mm	6,8 kg
Fixed cutting blade	GMPS50	-	320 g
Moveable cutting blade	SMPS50	-	150 g



Set HSI50



GMPS50

SMPS50

Spare blades

AS50 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 445 x 75 mm
- > Tool weight (with battery): 5,4 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Set AS50

Spare blades

Description	Order No.	Length	Weight
Set Cutting tool AS50	AS50	580 x 470 x 115 mm	8,8 kg
Fixed cutting blade	GMPS50	-	320 g
Moveable cutting blade	SMPS50	-	150 g

CUTTING RANGE TABLE PS50 - HSI50 - AS50

Sector of use:		Tensile strength N/mm ²	<ø 30 mm	<ø 35 mm	<ø 40 mm	<ø 45 mm	<ø 50 mm	<ø 55 mm	<ø 60 mm	<ø 65 mm	<ø 70 mm	<ø 75 mm	<ø 80 mm	<ø 85 mm	<ø 90 mm	<ø 95 mm	<ø 100 mm	<ø 105 mm	<ø 110 mm	<ø 115 mm
Copper	Cable	<410	•	•	•	•	•													
Aluminium	Cable	<210	•	•	•	•	•													

Series 65 - Max. 65 mm cutting diameter

CUTTING DIAMETER	max. Ø 65 mm	CUTTING FORCE	44 kN
SUGGESTED APPLICATION	Copper and Aluminium	OPERATING PRESSURE	700 bar (70 MPa)

PS65 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump
(Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Open cutting head with guide blade
- > Easy handling through open cutting head
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 146 x 372 x 88 mm
- > Tool weight: 4,7kg

Set Equipment:

- > Hydraulic cutting head
- > Plastic case

Description	Order No.	Length	Weight
Cutting head with case	PS65	400 x 330 x 140 mm	6,3 kg
Moveable cutting blade	SMI65	-	450 g
Knife guiding plate	MF165	-	70 g



Set PS65



Spare blade blade guide and and blades

AS65 – Battery Operated Hydraulic Cutting Tool

- Technical Characteristics:
- > 3 year warranty or 20.000 cycles
 - > Light and compact structure
 - > Cutting head with snap closure; rotates 360°
 - > High speed feed with double hydraulic cylinder
 - > Pressure release button with single handed operation (on both sides, for left and right handed operators)
 - > Fastening ring for shoulder strap
 - > Ergonomic grip for weight balance and easy and safe operation
 - > Plastic housing, grip and pressure release button, insulating and shock resistant
 - > Powerful LED for working space illumination
 - > Tool dimensions: 331 x 502 x 88 mm
 - > Tool weight (with battery): 7,6 kg

- Set Equipment:
- > Test report
 - > Battery-operated hydraulic cutting tool
 - > Battery 18 V/3,0 Ah Li-Ion (RA11)
 - > Battery charger (LG8)
 - > Rigid plastic case
 - > Shoulder strap (TG2)

Description	Order No.	Length	Weight
Set Cutting tool AS65	AS65	580 x 470 x 115 mm	11 kg
Fixed cutting blade	SMI65	-	450 g
Moveable cutting blade	MFI65	-	70 g



CUTTING RANGE TABLE PS65 - AS65

Sector of use:		Tensile strength N/mm²																
			<ø 30 mm	<ø 35 mm	<ø 40 mm	<ø 45 mm	<ø 50 mm	<ø 55 mm	<ø 60 mm	<ø 65 mm	<ø 70 mm	<ø 75 mm	<ø 80 mm	<ø 85 mm	<ø 90 mm	<ø 95 mm	<ø 100 mm	<ø 105 mm
Copper	Cable	<410	•	•	•	•	•	•	•	•								
Aluminium	Cable	<210	•	•	•	•	•	•	•	•								

Series 85 - Max. 85 mm cutting diameter

CUTTING DIAMETER	max. Ø 85 mm
SUGGESTED APPLICATION	Copper and Aluminium

CUTTING FORCE	70 kN
OPERATING PRESSURE	700 bar (70 MPa)

PS85 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump (Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 135 x 391 x 70 mm
- > Tool weight: 4,5 kg

Set Equipment:

- > Hydraulic cutting head
- > Plastic case

Description	Order No.	Length	Weight
Cutting head with case	PS85	465 x 370 x 110 mm	5,8 kg
Fixed cutting blade	GM85	-	150 g
Moveable cutting blade	SM85	-	250 g



Set PS85



GM85
SM85

Spare blades

HSI85 – Hand Operated Hydraulic Cutting Tool

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return in any position
- > Tool dimensions: 203 x 697 x 64 mm
- > Tool weight: 7,3 kg

Set Equipment:

- > Test report
- > Manual hydraulic cutting tool
- > Steel case

Description	Order No.	Length	Weight
Set cutting tool	HSI85	700 x 230 x 75mm	13,1 kg
Fixed cutting blade	GMPS85	-	600 g
Moveable cutting blade	SMPS85	-	400 g



Set HSI85



GMPS85
SMPS85

Spare blades

AS85 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 522 x 75 mm
- > Tool weight (with battery): 7,2 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Description	Order No.	Length	Weight
Set Cutting tool AS85	AS85	580 x 470 x 115 mm	10,7 kg
Fixed cutting blade	GM85	-	150 g
Moveable cutting blade	SM85	-	250 g

CUTTING RANGE TABLE PS85 - HSI85 - AS85

Sector of use:		Tensile strength N/mm ²	<ø 30 mm	<ø 35 mm	<ø 40 mm	<ø 45 mm	<ø 50 mm	<ø 55 mm	<ø 60 mm	<ø 65 mm	<ø 70 mm	<ø 75 mm	<ø 80 mm	<ø 85 mm	<ø 90 mm	<ø 95 mm	<ø 100 mm	<ø 105 mm	<ø 110 mm	<ø 115 mm
Copper	Cable	<410	•	•	•	•	•	•	•	•	•	•	•	•						
Aluminium	Cable	<210	•	•	•	•	•	•	•	•	•	•	•	•						

Series 95 - Max. 95 mm cutting diameter

CUTTING DIAMETER	max. Ø 95 mm	CUTTING FORCE	65 kN
SUGGESTED APPLICATION	Copper and Aluminium	OPERATING PRESSURE	700 bar (70 MPa)

PS95 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump (Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Cutting head with snap closure and blade guide
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 200 x 472 x 88 mm
- > Tool weight: 7,5 kg

Set Equipment:

- > Hydraulic cutting head
- > Plastic case

Description	Order No.	Length	Weight
Cutting head with case	PS985	610 x 400 x 140 mm	10,1 kg
Moveable cutting blade	SMI95	-	900 g
Knife guiding plate	MF195	-	80 g



AS95 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 344 x 603 x 91 mm
- > Tool weight (with battery): 9,8 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Set AS95



SMI95

MFI95

Spare blades

Description	Order No.	Length	Weight
Set Cutting tool AS50	AS95	725 x 480 x 170 mm	13,9 kg
Fixed cutting blade	SIM95	-	900 g
Moveable cutting blade	MFI95	-	80 g

CUTTING RANGE TABLE PS95 - AS95

Sector of use:		Tensile strength N/mm ²	<ø 30 mm	<ø 35 mm	<ø 40 mm	<ø 45 mm	<ø 50 mm	<ø 55 mm	<ø 60 mm	<ø 65 mm	<ø 70 mm	<ø 75 mm	<ø 80 mm	<ø 85 mm	<ø 90 mm	<ø 95 mm	<ø 100 mm	<ø 105 mm	<ø 110 mm	<ø 115 mm
Copper	Cable	<410	•	•	•	•	•	•	•	•	•	•	•	•	•	•				
Aluminium	Cable	<210	•	•	•	•	•	•	•	•	•	•	•	•	•	•				

Series 120-2 - Max. 120 mm cutting diameter

CUTTING DIAMETER	max. Ø 120 mm	CUTTING FORCE	60 kN
SUGGESTED APPLICATION	Copper and Aluminium	OPERATING PRESSURE	700 bar (70 MPa)

PS120-2 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump
(Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Open cutting head with guide blade
- > Easy handling by open cutting head
- > Quick male connection with automatic lock system and dust cap
- > Tool dimensions: 239 x 508 x 88 mm
- > Tool weight: 8,2 kg

Set Equipment:

- > Hydraulic cutting head
- > Plastic case

Description	Order No.	Length	Weight
Cutting head with case	PS120-2	610 x 400 x 140 mm	10,7 kg
Moveable cutting blade	SMI120-2	-	1300 g
Knife guiding plate	MFI120-2	-	140 g



AS120-2 – Battery Operated Hydraulic Cutting Tool

Technical Characteristics:

- > 3 year of warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 359 x 639 x 91 mm
- > Tool weight (with battery): 10,5 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic cutting tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case
- > Shoulder strap (TG2)



Set AS120-2



SMI120-2

Set AS120-2

Spare blades

Description	Order No.	Length	Weight
Set cutting tool AS120-2	AS120-2	725 x 480 x 170mm	14,6 kg
Moveable cutting blade	SMI120-2	-	1300 g
Knife guiding plate	MF1120-2	-	140 g

CUTTING RANGE TABLE PS120-2 - AS120-2

Sector of use:		Tensile strength N/mm ²	<ø 30 mm	<ø 35 mm	<ø 40 mm	<ø 45 mm	<ø 50 mm	<ø 55 mm	<ø 60 mm	<ø 65 mm	<ø 70 mm	<ø 75 mm	<ø 80 mm	<ø 85 mm	<ø 90 mm	<ø 95 mm	<ø 100 mm	<ø 105 mm	<ø 110 mm	<ø 115 mm	<ø 120 mm	<ø 125 mm
Copper	Cable	<410	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Aluminium	Cable	<210	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

Series 120 - Max. 120 mm cutting diameter

CUTTING DIAMETER	max. Ø 120 mm
SUGGESTED APPLICATION	Copper, Aluminium, Armoured Cables

CUTTING FORCE	100 kN (PS120) / 137 kN (PS120-SK160)
OPERATING PRESSURE	700 bar (70 MPa)

SUITABLE TO CUT HEAVY DUTY STEEL WIRE ARMoured CABLES

PS120 – Hydraulic Cutting Head

The unit must be operated through max. 700 bar hydraulic pump (Suggested operating pressure 700 bar/70 MPa).

Technical Characteristics:

- > Light and compact structure
- > Blades made of high strength treated steel
- > Quick male connection with automatic lock system and non detachable dust cap
- > Head can be opened for easy cable insertion
- > Tool dimensions: 174 x 491 x 89 mm
- > Tool weight: 9,6 kg

Set Equipment:

- > Hydraulic cutting head
- > Metal case

Description	Order No.	Length	Weight
Cutting head with case	PS120	610 x 400 x 140 mm	14,8 kg
Fixed cutting blade	GMPS120		1240 g
Moveable cutting blade	SMPS120	-	940 g



Set PS120



GMPS120

SMPS120

Spare blades

PS120-SK160 – Hydraulic Cutting Head (for wire armoured aluminium and copper cables)

The unit must be operated through max. 700 bar hydraulic pump. (max operating pressure 850 bar/85 MPa)

Technical Characteristics:

- > Light and compact structure
- > The blades are made of high strength treated tool steel
- > Head can be opened for easy cutting.
- > Cutting force 135 kN (700 bar) resp. 160 kN (850 bar)
- > Tool dimensions: 174 x 491 x 89 mm
- > Tool weight: 11 kg

Set Equipment:

- > Hydraulic cutting head
- > Metal case

Description	Order No.	Length	Weight
Cutting head with case	PS120-SK160	600 x 220 x 90 mm	16 kg
Fixed cutting blade	GMPS120-S		2,55 kg
Moveable cutting blade	SMPS120	-	940 g



Set PS120-SK160



GMPS120-S

SMPS120

Spare blades

CUTTING RANGE TABLE PS120 - SK160

Sector of use:		Tensile strength N/mm²	<Ø 30 mm	<Ø 35 mm	<Ø 40 mm	<Ø 45 mm	<Ø 50 mm	<Ø 55 mm	<Ø 60 mm	<Ø 65 mm	<Ø 70 mm	<Ø 75 mm	<Ø 80 mm	<Ø 85 mm	<Ø 90 mm	<Ø 95 mm	<Ø 100 mm	<Ø 105 mm	<Ø 110 mm	<Ø 115 mm	<Ø 120 mm	<Ø 125 mm
Copper	Cable	<410	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Aluminium	Cable	<210	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Armoured	Cable	<200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	

Accessories

Strap

Description	Order No.	Weight
Shoulder-Strap (for hydraulic battery operated tools)	TG2	90 g



Adapter

Description	Order No.	Weight
Adapter 14,4V for mains operation 230V AC/ 115V A	NG2	800 g
Adapter 18V for mains operation 230V AC/ 115V A	NG3	800 g



NG2

NG3

Storage Batteries

Description	Order No.	Weight
Storage Battery 12 V / 2.6 Ah Ni-MH	RA4	700 g
Storage Battery 12 V / 3.0 Ah Ni-MH	RA5	700 g
Storage Battery 14,4 V / 2.6 Ah Ni-MH	RA6	850 g
Storage Battery 14,4 V / 3.0 Ah Ni-MH	RA7	850 g
Storage Battery 14,4 V / 2.6 Ah Li-Ion	RA9	560 g
Storage Battery 14,4 V / 3.0 Ah Li-Ion	RA10	560 g
Storage Battery 18 V / 3.0 Ah Li-Ion	RA11	680 g
Storage Battery 18 V / 1.5 Ah Li-Ion	RA12	680 g



RA6

RA7

RA9

RA10

RA11

RA12

Battery Charger

Description	Order No.	Weight
Fast Battery Charger	LG7	540 g
Battery Charger	LG8	700 g
Vehicle battery charger (12 V source) - up to 14,4V	LGZ2	580 g
Vehicle battery charger (12 V source) - 18V	LGZ3	500 g



LG7

LG7Z

LG8

CUTTING RANGE TABLE PS120 - SK160

Battery charger	Tension						Battery							
	4,8 V	7,2 V	9,6 V	12 V	14,4 V	18 V	RA 4	RA 6	RA 7	RA 8	RA 9	RA 10	RA 11	RA 12
LG7		•	•	•	•		•	•	•	•	•	•		
LG8						•							•	•
LGZ2		•	•	•	•		•	•	•	•	•	•		
LGZ3						•							•	•

Mechanical Crimping Tools

MPUSET

Set Equipment:

- > Mechanic Crimping tool
- > Crimping dies: UEIQ6, UEQ10 and UEAE10T

	UEIQ6	UEQ10	UEAE10T
CRIMPING TYPE	Oval	Indent	Trapezoid
APPLICATION RANGE	0,5-6 mm²	0,5-10 mm²	0,14-10 mm²
SUGGESTED APPLICATION	insulated terminals	terminals & pin terminals	wire end sleeves
Description	Order No.	Length	Weight
Set Crimping Tool	MPUSET	220 mm	900 g
Die for insulated terminals	UEIQ6		
Die for terminals and pin terminals	UEQ10		
Die for wire end sleeves	UEAE10T		



MPAE2T – Mechanic Crimping Tool for Wire End Sleeves

CRIMPING TYPE	Trapezoid		
APPLICATION RANGE	0,25 - 2,5 mm ²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE2T	160 mm	170 g

**MPAE16K – Mechanic Crimping Tool for Wire End Sleeves**

CRIMPING TYPE	Indent		
APPLICATION RANGE	0,5 - 16 mm ²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE16K	190 mm	250 g

**MPAE2R – Mechanic Crimping Tool for Wire End Sleeves**

CRIMPING TYPE	Round		
APPLICATION RANGE	0,14 - 2,5 mm ²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE2R	190 mm	300 g

**MPAE6R – Mechanic Crimping Tool for Wire End Sleeves**

CRIMPING TYPE	Round		
APPLICATION RANGE	1,5 - 6 mm ²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE6R	190 mm	300 g



MPAE16R – Mechanic Crimping Tool for Wire End Sleeves

CRIMPING TYPE	Round		
APPLICATION RANGE	10 – 16 mm²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE16R	190 mm	300 g



MPAE16T – Mechanic Crimping Tool for Wire End Sleeves

CRIMPING TYPE	Trapezoid		
APPLICATION RANGE	0,14 – 16 mm²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE16T	230 mm	180 g



MPAE50R – Mechanic Crimping Tool for Wire End Sleeves

CRIMPING TYPE	Round		
APPLICATION RANGE	10 – 50 mm² 2x4 – 2x16 mm²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE50R	300 mm	700 g



MPAE95R – Mechanic Crimping Tool for Wire End Sleeves

CRIMPING TYPE	Round		
APPLICATION RANGE	50 – 95 mm²		
SUGGESTED APPLICATION	wire end sleeves		
Description	Order No.	Length	Weight
Crimping Tool	MPAE95R	300 mm	700 g



MPIQ – Mechanic Crimping Tool for Insulated Terminals

CRIMPING TYPE	Oval		
APPLICATION RANGE	0,5 – 6 mm ²		
SUGGESTED APPLICATION	insulated terminals		
Description	Order No.	Length	Weight
Crimping Tool	MPIQ	210 mm	190 g

**MPIQ6 – Mechanic Crimping Tool for Insulated Terminals**

CRIMPING TYPE	Oval		
APPLICATION RANGE	0,5 – 6 mm ²		
SUGGESTED APPLICATION	insulated terminals		
Description	Order No.	Length	Weight
Crimping Tool	MPIQ6	220 mm	510 g

**MPIQ16 – Mechanic Crimping Tool for Insulated Terminals**

CRIMPING TYPE	Oval		
APPLICATION RANGE	6 – 16 mm ²		
SUGGESTED APPLICATION	insulated terminals		
Description	Order No.	Length	Weight
Crimping Tool	MPIQ16	290 mm	600 g

**MPR16K – Mechanic Crimping Tool for Terminals and Pin Terminals Standard Type**

CRIMPING TYPE	Notch		
APPLICATION RANGE	0,75 – 16 mm ²		
SUGGESTED APPLICATION	terminals and pin terminals standard type		
Description	Order No.	Length	Weight
Crimping Tool	MPR16K	285 mm	600 g



Crimping Pliers insulated EN60900

Technical Characteristics:

- > Handles and head of the crimper are totally protected by insulated material.
- > Minimum strength required to operate
- > One-hand operation
- > With incorporated (openable) automatic lock to guarantee completion of the compression operation.
- > Automatic opening on completion of compression.
- > Suitable for low temperature use: -40°C

CRIMPING TYPE	Spherical, Oval
APPLICATION RANGE	0,5 - 16 mm ²
SUGGESTED APPLICATION	Insulated cable terminals and pre-insulated connectors



Description	Order No.	Insert cross section (mm²)			Length	Weight
Insulated Crimper	2503 101	1	2	3	280 mm	680 g
		4-6	10	1,5-2,5		
		AWG				
		12-10	8	16-14		

Insulated Crimper	2503 103	1	2	3	280 mm	680 g
		10	16	4-6		
		AWG				
		8	5	12-10		

Insulated Crimper	2503 102	1	2	-	280 mm	680 g
		10	16	-		
		AWG				
		8	5	-		

Insulated Crimper	2503 201	1	2	3	250 mm	620 g
		0,5-1	1,5-2,5	4-6		
		AWG				
		20-18	16-14	12-10		

Model 2503 101

- > Cross sections ranging: 1,5-2,5 / 4-6 / 10 mm²
- > Type of compression: spherical

Model 2503 103

- > Cross sections ranging: 4-6 / 10 / 16 mm²
- > Type of compression: spherical

Model 2503 102

- > Cross sections ranging: 10/16 mm²
- > Type of compression: spherical

Model 2503 101

- > Cross sections ranging: 0,5-1 / 1,5-2,5 / 4-6 mm²
- > Type of compression: oval



MPRQ95 – Mechanic Crimping Tool for Terminals DIN 46234 and Pin Terminals DIN 46230 and Standard Type

CRIMPING TYPE	Indent		
APPLICATION RANGE	6 – 95 mm²		
SUGGESTED APPLICATION	Low voltage tube terminals		
Description	Order No.	Length	Weight
Crimping Tool	MPRQ95	535 mm	3,5 kg



MPR50i / MPR120i – Mechanic Crimping Tool for Terminals and Pin Terminals Standard Type

Oder No.	MPR50i	MPR120i	
CRIMPING TYPE	i-Crimp		
APPLICATION RANGE	6 – 50 mm²	10 – 120 mm²	
SUGGESTED APPLICATION	Terminals and Pin Terminals standard type		
Description	Order No.	Length	Weight
Crimping Tool	MPR50i	380 mm	1,5 kg
Crimping Tool	MPR120i	535 mm	3,5 kg



MPR120i



MPR50i

MPD50S / MPD120S – Mechanic Crimping Tool for Cable Lugs DIN 46235 and Connectors DIN 46267

Order No.	MPD50S	MPD120S	
CRIMPING TYPE	Hexagonal		
APPLICATION RANGE	6 – 50 mm²	10 – 120 mm²	
SUGGESTED APPLICATION	Cable lugs DIN 46235 and Connectors DIN 46267		
Description	Order No.	Length	Weight
Crimping Tool	MPD50S	380 mm	1,5 kg
Crimping Tool	MPD120S	535 mm	3,5 kg



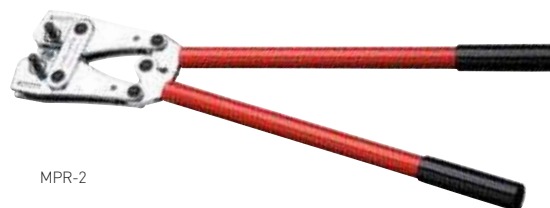
MPD120S



MPD50S

MPR-1 / MPR-2 – Mechanic Crimping Tools for Copper LV Connectors

Oder No.	MPR-1	MPR-2	
CRIMPING TYPE	Hexagonal		
APPLICATION RANGE	6 – 50 mm²	25 – 150 mm²	
Description	Order No.	Length	Weight
Crimping Tool	MPR-1	380 mm	1,5 kg
Crimping Tool	MPR-2	535 mm	3,5 kg



MPR-2



MPR-1

MP60-1 – Mechanic Crimping Tool 60 kN

Same characteristics as MP60-3 below

- > Tool dimensions: 160 x 560 x 50 mm
- > Tool weight: 2,9 kg

Set Equipment:

- > Mechanic Compression Tool
- > Plastic case
- > For the compression dies of tool MP60-1 Opening spring (Order ref. OEF1) is also required.

COMPRESSION SECTION	max 240 mm²		
MAXIMUM STROKE	20 mm		
COMPRESSION FORCE	60 kN		
Description	Order No.	Dimensions	Weight
Set compression tool	MP60-1	700 x 260 x 105 mm	4,6 kg



MP60-3 – Mechanic Crimping Tool 60 kN

Technical Characteristics:

- > Light and compact structure
- > Telescopic handles adjustable from 560 to 860 mm
- > Snap closure compression head, rotates 360°
- > Tool dimensions: 154 x 550 x 44 mm
- > Tool weight: 3,6 kg

Set Equipment:

- > Mechanic Compression Tool
- > Plastic case

Description	Order No.	Dimensions	Weight
Set compression tool	MP60-3	700 x 260 x 105 mm	5,3 kg



CRIMPING RANGE TABLE MP60-3 - MP60-1

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Notch	Round	Strip off insert
Crimping Die							
Crimping Shape							
Max. Cross section	240 mm²	95 mm²	95 mm²	120 mm²	120 mm²	300 mm²	120/20 mm²

Selection of Crimping dies	Page 391-393
Plastic case for Dies	Page 393
Adapter for crimping dies	Page 393

MP60-2 – Mechanic Crimping Tool - 60 kN**Technical Characteristics:**

- > Light and compact structure
- > Telescopic handles adjustable from 560 to 860 mm
- > Snap closure compression head, rotates 360°
- > Tool dimensions: 154 x 552 x 44 mm
- > Tool weight: 3,6 kg

Set Equipment:











- > Mechanic Compression Tool
- > Plastic case

COMPRESSION SECTION	max 300 mm²		
MAXIMUM STROKE	19 mm		
COMPRESSION FORCE	60 kN		
Description	Order No.	Dimensions	Weight
Set compression tool	MP60-2	700 x 260 x 105 mm	5,3 kg



Set MP60-2

**CRIMPING RANGE TABLE MP60-3 - MP60-1**

Crimping Type	Hexagonal	Indent	Trapezoid	Notch	Round
Crimping Die					
Crimping Shape					
Max. Cross section	300 mm ²	70 mm ²	150 mm ²	70 mm ²	300 mm ²

Selection of Crimping dies	Page 394-395
Plastic case for Dies	Page 395

MPSF6 – Manual Mechanic Tool for SF6-insulated MT-Switchboard Terminals

Designed for assembly and disassembly of the connector for external cone terminals of MT cables operating at voltages from 12 to 36 kV.

Technical Characteristics:

- > Mechanic tool with symmetrical operation
- > Removable compression head
- > Telescopic handles 350 – 560 mm
- > Maximum stroke: 10 mm
- > Maximum threaded terminal travel: 30 mm
- > Compression force: 60 kN
- > Handgrip opening angle: 120°
- > Tool dimensions: 160 x 507 x 85 mm
- > Tool weight: 3,1 kg

Set Equipment MPSF6-X:

- > Mechanic Compression Tool
- > Terminal dies
- > Metallic case (BKMPSF6)

Head size	Voltage Range	Amperage	Cross section
1	12 kV, 24 kV, 36 kV	630 A	25 mm² - 240 mm²
2	12 kV, 24 kV, 36 kV	800 A	50 mm² - 300 mm²
3	12 kV, 24 kV, 36 kV, 52 kV	1,250 A	150 mm² - 630 mm²

Description	Order No.	Dimensions	Weight
Set: Mechanic tool for SF6 System size 1	MPSF6-1	570 x 155 x 75 mm	5,5 kg
Set: Mechanic tool for SF6 System size 2	MPSF6-2	570 x 155 x 75 mm	5,1 kg
Set: Mechanic tool for SF6 System size 3	MPSF6-3	630 x 155 x 95 mm	7,4 kg

Description	Order No.	Dimensions	Weight
Mechanic tool for SF6 System without terminals and case	MPSF6-loose	515 x 155 x 73 mm	3,1 kg
Terminal dies size 1 SF6 System	MKGR1	125 x 65 x 65 mm	1,9 kg
Terminal dies size 2 SF6 System	MKGR2	125 x 65 x 65 mm	1,7 kg
Terminal dies size 3 SF6 System	MKGR3	185 x 95 x 95 mm	4,0 kg



MPSF6-1



Set MPSF6-1



MPSF6-6 loose






















MKGR1

Hydraulic Crimping Tools

STILO60

The STILO product family continues to grow.



	Heads	Hand Operated	Battery Operated	Max. Compr. Section	Compression Force	
SERIES 45		 HP45	 STILO45	150 mm ²	45 kN	PAGE 370-371
SERIES 50		 HP50	 STILO50	240 mm ²	50 kN	PAGE 372-373
SERIES 60-1/3	 PP60-1	 HP60-3		240 mm ²	60 kN	PAGE 374-375
SERIES 60-2/4	 PP60-2	 HP60-4	 STILO60	300 mm ²	60 kN	PAGE 376-377
SERIES 130-C	 PP130-C	 HP1130-C		400 mm ²	130 kN	PAGE 378-379
SERIES 130-C2	 PP130-C2	 HP1130-C2		400 mm ²	130 kN	PAGE 380-381
SERIES 130-H	 PP130-H	 HP1130-H		400 mm ²	130 kN	PAGE 382-383
SERIES 230	 PP230			630 mm ²	230 kN	PAGE 384-385
	 PP230-630					
SERIES 520	 PP520			1.000 mm ²	520 kN	PAGE 386
SERIES 600	 PP600			1.600 mm ²	600 kN	PAGE 387

SERIES 45 - 45 KN

COMPRESSION SECTION	max. 150 mm ²
MAXIMUM STROKE	16 mm

COMPRESSION FORCE	60 kN
OPERATING PRESSURE	470 bar (47 MPa)

HP45 – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Light and compact structure
- > Pump body in light alloy
- > Snap closure crimping head, rotates 180°
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 157 x 375 x 54 mm
- > Tool weight: 2,5 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for manual hydraulic tool and maximum 15 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HP45	440 x 190 x 80 mm	3,5 kg



Set HP45

STILO45 – Battery Operated Hydraulic Crimping Tool

- Technical Characteristics:
- > Tool dimensions:124 x 369 x 81 mm
 - > Tool weight: 2,3 kg (including battery)

- Set Equipment:
- > Test report
 - > Battery-operated hydraulic crimping tool
 - > Battery 18 V/1,5 Ah Li-Ion (RA12)
 - > Battery charger (LG8)
 - > USB-cable
 - > Software (CD)
 - > Rigid plastic case







Description	Order No.	Dimensions	Weight
Set crimping tool	STILO45	560 x 375 x 118 mm	5,1 kg



Set STILO45



CRIMPING RANGE TABLE HP45 - STILO45

Crimping Type	Hexagonal	Indent	Trapezoid
Crimping Die			
Crimping Shape			
Max. Cross section	150 mm²	95 mm²	150 mm²

Selection of Crimping dies	Page 390
Plastic case for Dies	Page 390

SERIES 50 - 50 KN

COMPRESSION SECTION	max. 240 mm ²
MAXIMUM STROKE	16 mm

COMPRESSION FORCE	50 kN
OPERATING PRESSURE	520 bar (52 MPa)

HP50 – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Light and compact structure
- > Pump body in light alloy
- > Snap closure crimping head, rotates 180°
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 157 x 398 x 54 mm
- > Tool weight: 2,7 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for manual hydraulic tool and maximum 15 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HP50	440 x 190 x 80 mm	3,7 kg



Set HP50

STILO50 – Battery Operated Hydraulic Crimping Tool

- Technical Characteristics:
- > Tool dimensions: 120 x 403 x 75 mm
 - > Tool weight: 2,3 kg (including battery)

- Set Equipment:
- > Test report
 - > Battery-operated hydraulic crimping tool
 - > Battery 18 V/1,5 Ah Li-Ion (RA12)
 - > Battery charger (LG8)
 - > USB-cable
 - > Software (CD)
 - > Rigid plastic case

Description	Order No.	Dimensions	Weight
Set crimping tool	STILO50	560 x 375 x 118 mm	5,3 kg



Set STILO50



CRIMPING RANGE TABLE HP50 - STILO50

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Notch	Round	Strip off insert	Adapter AD50-45
Crimping Die								
Crimping Shape								Allows use of 45 series dies, on 50, 60-1, 60-3 series
Max. Cross section	240 mm²	95 mm²	95 mm²	120 mm²	120 mm²	300 mm²	120/20 mm²	

Selection of Crimping dies	Page 391-393
Plastic case for Dies	Page 393
Adapter for crimping dies	Page 393

SERIES 60-1/3 - 60 kN

COMPRESSION SECTION	max. 240 mm ²
MAXIMUM STROKE	17 mm

COMPRESSION FORCE	60 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP60-1 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 60 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Openable head to make it easy to position and insert the crimping dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 74 x 198 x 54 mm
- > Tool weight: 1,6 kg

Set Equipment:

- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 18 crimping dies



Set PP60-1

Description	Order No.	Dimensions	Weight
Set crimping tool	PP60-1	320 x 260 x 75 mm	2,1 kg

HP60-3 – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Sturdy and compact structure
- > Snap closure crimping head, rotates 180°
- > Quick feed with double hydraulic cylinder
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 168 x 392 x 54 mm
- > Tool weight: 2,5 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for manual hydraulic tool and maximum 15 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HP60-3	440 x 190 x 80 mm	3,7 kg



Set HP60-3

AP60-1 – Battery Operated Hydraulic Crimping Tool

Technical Characteristics:

- > 3 year of warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left- and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 329 x 331 x 75 mm
- > Tool weight: 4,3 kg

Set Equipment:
















- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case for crimping tool and maximum 18 crimping dies
- > Shoulder strap (TG2)

Description	Order No.	Dimensions	Weight
Set crimping tool	AP60-1	580 x 470 x 115 mm	7,7 kg



Set AP60-1

CRIMPING RANGE TABLE PP60-1 - HP60-3 - AP60-1

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Notch	Round	Strip off insert	Adapter AD50-45
Crimping Die								
Crimping Shape								Allows use of 45 series dies, on 50, 60-1, 60-3 series
Max. Cross section	240 mm²	95 mm²	95 mm²	120 mm²	120 mm²	300 mm²	120/20 mm²	

Selection of Crimping dies	Page 391-393
Plastic case for Dies	Page 393
Adapter for crimping dies	Page 393

SERIES 60-2/4 - 60 kN

COMPRESSION SECTION	max. 300 mm ²
MAXIMUM STROKE	17 mm

COMPRESSION FORCE	60 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP60-2 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 60 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Openable head to make it easy to position and insert the crimping dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 93 x 198 x 93 mm
- > Tool weight: 1,7 kg

Set Equipment:

- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 18 crimping dies



Set PP60-2

Description	Order No.	Dimensions	Weight
Set crimping tool	PP60-2	320 x 260 x 75 mm	2,3 kg

HP60-4 – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Sturdy and compact structure
- > Snap closure crimping head, rotates 180°
- > Quick feed with double hydraulic cylinder
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 176 x 396 x 54 mm
- > Tool weight: 2,8 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for crimping tool and 21 crimping dies



Set HP60-4

Description	Order No.	Dimensions	Weight
Set crimping tool	HP60-4	700 x 260 x 105 mm	4,6 kg

STILO60 – Battery Operated Hydraulic Crimping Tool

- > Tool dimensions: 124 x 383 x 81 mm
- > Tool weight (including battery): 3,3 kg

Set Equipment:

- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/1,5 Ah Li-Ion (RA12)
- > Battery charger (LG8)
- > USB-cable
- > Software (CD)
- > Rigid plastic case



Set STILO60

Description	Order No.	Dimensions	Weight
Set crimping tool	STILO60	560 x 357 x 118 mm	6,3 kg

AP60-2 – Battery Operated Hydraulic Crimping Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Crimping head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left- and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 334 x 75 mm
- > Tool weight: 4,4 kg

Set Equipment:











- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case for crimping tool and maximum 18 crimping dies
- > Shoulder strap (TG2)

Description	Order No.	Dimensions	Weight
Set crimping tool	AP60-2	580 x 470 x 115 mm	7,8 kg



Set AP60-2

CRIMPING RANGE TABLE PP60-2 - HP60-4 - AP60-2

Crimping Type	Hexagonal	Indent	Trapezoid	Notch	Round
Crimping Die					
Crimping Shape					
Max. Cross section	300 mm²	70 mm²	150 mm²	70 mm²	300 mm²

Selection of Crimping dies	Page 394-395
Plastic case for Dies	Page 395

SERIES 130-C - 130 KN

COMPRESSION SECTION	max. 400 mm ²
MAXIMUM STROKE	30 mm

COMPRESSION FORCE	130 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP130-C – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 130 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > C head for easy positioning of dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 128 x 254 x 78 mm
- > Tool weight: 4,1 kg

Set Equipment:

- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 14 crimping dies



Set PP130-C

Description	Order No.	Dimensions	Weight
Set crimping tool	PP130-C	400 x 350 x 130 mm	5,6 kg

HPI130-C – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Sturdy and compact structure
- > Snap closure crimping head, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 222 x 561 x 78 mm
- > Tool weight: 6,6 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for crimping tool and 9 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HPI130-C-C	700 x 260 x 105 mm	8,2 kg



Set HPI130-C

AP130-C – Battery Operated Hydraulic Crimping Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left- and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 401 x 79 mm
- > Tool weight: 6,7 kg

Set Equipment:













- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case for crimping tool and maximum 18 crimping dies
- > Shoulder strap (TG2)

Description	Order No.	Dimensions	Weight
Set crimping tool	AP130-C	580 x 470 x 115 mm	10,1 kg



Set AP130-C

CRIMPING RANGE TABLE PP130-C - HPI130-C - AP130-C

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Round	Strip off insert
Crimping Die						
Crimping Shape						
Max. Cross section	400 mm²	150 mm²	185 mm²	2 x 120 mm²	300 mm²	265/35 mm²

Selection of Crimping dies	Page 396-398
Plastic case for Dies	Page 398

SERIES 130-C2 - 130 kN

COMPRESSION SECTION	max. 400 mm ²
MAXIMUM STROKE	42 mm

COMPRESSION FORCE	130 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP130-C2 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 130 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > C head for easy positioning of dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 129 x 271 x 78 mm
- > Tool weight: 4,4 kg

Set Equipment:

- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 14 crimping dies



Set PP130-C2

Description	Order No.	Dimensions	Weight
Set crimping tool	PP130-C2	400 x 350 x 130 mm	5,9 kg

HPI130-C2 – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Sturdy and compact structure
- > Snap closure crimping head, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 225 x 577 x 78 mm
- > Tool weight: 6,5 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for crimping tool and 9 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HPI130-C2	700 x 260 x 105 mm	8,2 kg



Set HPI130-C2

AP130-C2 – Battery Operated Hydraulic Crimping Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left- and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 417 x 79 mm
- > Tool weight: 6,8 kg

Set Equipment:













- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case for crimping tool and maximum 18 crimping dies
- > Shoulder strap (TG2)

Description	Order No.	Dimensions	Weight
Set crimping tool	AP130-C2	580 x 470 x 115 mm	10,6 kg



Set AP130-C2

CRIMPING RANGE TABLE PP130-C2 - HPI130-C2 - AP130-C2

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Round	Strip off insert
Crimping Die						
Crimping Shape						
Max. Cross section	400 mm²	150 mm²	185 mm²	2 x 120 mm²	300 mm²	265/35 mm²

Selection of Crimping dies	Page 396-398
Plastic case for Dies	Page 398

SERIES 130-H - 130 kN

COMPRESSION SECTION	max. 400 mm ²
MAXIMUM STROKE	30 mm

COMPRESSION FORCE	130 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP130-H – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 130 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Open head for easy positioning of dies
- > Quick make snap lock connection and non detachable dust cap
- > Adapters and punch for deep indent compression
- > Head opening: 35 mm
- > Tool dimensions: 78 x 263 x 70 mm
- > Tool weight: 3,4 kg

Set Equipment:

- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 14 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	PP130-H	410 x 360 x 135 mm	5,1 kg



Set PP130-H

HPI130-H – Hand Operated Hydraulic Crimping Tool

Technical Characteristics:

- > Sturdy and compact structure
- > Crimping head, rotates 270°
- > Quick feed with double hydraulic cylinder
- > Single hand use by innerside handle
- > Automatic pressure safety valve
- > Manual return at any position by turning the main handle
- > Tool dimensions: 174 x 569 x 78 mm
- > Tool weight: 5,8 kg

Set Equipment:

- > Test report
- > Manual crimping tool
- > Plastic case for crimping tool and 11 crimping dies

Description	Order No.	Dimensions	Weight
Set crimping tool	HPI130-H	700 x 260 x 105 mm	7,6 kg



Set HPI130-H

AP130-H – Battery Operated Hydraulic Crimping Tool

Technical Characteristics:

- > 3 year warranty or 20.000 cycles
- > Light and compact structure
- > Cutting head with snap closure; rotates 360°
- > High speed feed with double hydraulic cylinder
- > Pressure release button with single handed operation (on both sides, for left- and right handed operators)
- > Fastening ring for shoulder strap
- > Ergonomic grip for weight balance and easy and safe operation
- > Plastic housing, grip and pressure release button, insulating and shock resistant
- > Powerful LED for working space illumination
- > Tool dimensions: 331 x 409 x 75 mm
- > Tool weight: 6,2 kg

Set Equipment:














- > Test report
- > Battery-operated hydraulic crimping tool
- > Battery 18 V/3,0 Ah Li-Ion (RA11)
- > Battery charger (LG8)
- > Rigid plastic case for crimping tool and maximum 18 crimping dies
- > Shoulder strap (TG2)

Description	Order No.	Dimensions	Weight
Set crimping tool	AP130-H	580 x 470 x 115 mm	10 kg



Set AP130-C2

CRIMPING RANGE TABLE PP130-H - HPI130-H - AP130-H

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Round	Strip off insert	Deep Indent
Crimping Die							
Crimping Shape							
Max. Cross section	400 mm²	150 mm²	185 mm²	2 x 120 mm²	300 mm²	265/35 mm²	300 mm²

Selection of Crimping dies	Page 396-398
Plastic case for Dies	Page 398

SERIES 230 - 230 kN

COMPRESSION SECTION	max. 630 mm ²
MAXIMUM STROKE	28 mm

COMPRESSION FORCE	230 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP230 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 230 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Openable head to make it easy to position and insert the crimping dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 121 x 286 x 88 mm
- > Tool weight: 5,5 kg

Set Equipment:










- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 14 crimping dies



Set PP230

Description	Order No.	Dimensions	Weight
Set crimping head	PP230	410 x 360 x 135 mm	7,2 kg

CRIMPING RANGE TABLE PP230

Crimping Type	Hexagonal	Indent	Trapezoid	Oval	Adapter AD230-130
Crimping Die					
Crimping Shape					Allows use of 130 series dies, on 230 Series
Max. Cross section	640 mm ²	300 mm ²	2 x 150 mm ²	240 mm ²	

Selection of Crimping dies	Page 399-400
Adapter for crimping dies	Page 400

PP230-630

COMPRESSION SECTION	max. 630 mm²	COMPRESSION FORCE	230 kN
MAXIMUM STROKE	60 mm	OPERATING PRESSURE	700 bar (70 MPa)

PP230-630 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 230 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > The H - Bale allows simple inlaying from the cables
- > This pressing tool can be used to crimp aluminium and bimetallic connectors by deep-step indent system
- > Tool dimensions:105 x 365 x 50 mm
- > Tool weight: 8,5 kg

Set Equipment:

- > Hydraulic crimping head
- > Metal case

Description	Order No.	Dimensions	Weight
Set crimping tool	PP230-630	440 x 270 x 150 mm	15 kg



Set PP230-630

SERIES 520 - 520 kN

COMPRESSION SECTION	max. 1.000 mm ²
MAXIMUM STROKE	25 mm

COMPRESSION FORCE	520 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP520 – Hydraulic Crimping Head

The unit must be operated through 700 bar hydraulic pump to reach compression force of 520 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Openable head to make it easy to position and insert the crimping dies
- > Quick make snap lock connection and non detachable dust cap
- > Tilting system for coupler
- > Tool dimensions: 218 x 261 x 124 mm
- > Tool weight: 13,2 kg

Set Equipment:




- > Hydraulic crimping head
- > Plastic case for crimping head and maximum 14 crimping dies



Set PP520

Description	Order No.	Dimensions	Weight
Set crimping tool	PP520	410 x 360 x 135 mm	15,4 kg

CRIMPING RANGE TABLE PP520

Crimping Type	Hexagonal	Adapter AD520-130
Crimping Die		
Crimping Shape		Allows use of 130 series dies, on 520 series
Max. Cross section	1000 mm ²	

Selection of Crimping dies	Page 401
Adapter for crimping dies	Page 401

SERIES 600 - 600 kN

COMPRESSION SECTION	max. 1.600 mm ²
MAXIMUM STROKE	30 mm

COMPRESSION FORCE	600 kN
OPERATING PRESSURE	700 bar (70 MPa)

PP600 – Hydraulic Crimping Head – 600 kN

The unit must be operated through 700 bar hydraulic pump to reach compression force of 600 kN.

Technical Characteristics:

- > Sturdy and compact structure
- > Openable head to make it easy to position and insert the crimping dies
- > Quick make snap lock connection and non detachable dust cap
- > Tool dimensions: 200 x 335 x 130 mm
- > Tool weight: 17 kg



Set Equipment:

- > Hydraulic crimping head
- > Metal case



Description	Order No.	Dimensions	Weight
Set crimping tool	PP600	400 x 260 x 360 mm	26 kg

CRIMPING RANGE TABLE PP520

Crimping Type	Hexagonal
Crimping Die	
Crimping Shape	
Max. Cross section	1600 mm ²

Selection of Crimping dies	Page 402
Metal case for Dies	Page 402

Accessories

Cases

Description	Model	Dimensions	Weight
Case for dies 45kN-60kN	KKPE-45-50	250 x 170 x 50 mm	200 g
Case for deep indent dies	KKPE-TN	410 x 360 x 110 mm	1,4 g
Case for 24 crimping dies for 60kN	KKPE-C-CK	410 x 360 x 110 mm	1,4 g
Case for deep indent dies, PP130-H	KKPP130-TN	600 x 390 x 150 mm	2,4 g



Plastic Case
– KKPE-C-CK



Plastic Case
– KKPE-45-50



Plastic Case
– KKPE-TN

Strap

Description	Model	Weight
Shoulder strap for battery operated tools	TG2	90 g



Adapter

Description	Model	Weight
Adapter for mains operation 230V AC/115V A	NG2	800 g
Adapter for mains operation 230 V - 18 V (STILO 45)	NG3	800 g



NG2



NG3

Storage Battery

Description	Model	Weight
Storage Battery 12 V / 2.6 Ah Ni-MH	RA4	700 g
Storage Battery 12 V / 3.0 Ah Ni-MH	RA5	700 g
Storage Battery 14,4 V / 2.6 Ah Ni-MH	RA6	850 g
Storage Battery 14,4 V / 3.0 Ah Ni-MH	RA7	850 g
Storage Battery 14,4 V / 2.6 Ah Li-Ion	RA9	560 g
Storage Battery 14,4 V / 3.0 Ah Li-Ion	RA10	560 g
Storage Battery 18 V / 3.0 Ah Li-Ion	RA11	700 g
Storage Battery 18 V / 1.5 Ah Li-Ion	RA12	420 g
Storage Battery 18 V / 2.0 Ah Li-Ion	RA13	600 g



RA6



RA7



RA9



RA10



RA11



RA12

Battery Charger

Description	Model	Weight
Fast Battery Charger	LG7	540 g
Battery Charger	LG8	700 g
Vehicle battery charger (12 V source) - up to 14,4V	LGZ2	580 g
Vehicle battery charger (12 V source) - 18V	LGZ3	580 g



LG8



LGZ2



LG7

CUTTING RANGE TABLE PS120 - SK160

Battery charger	Tension						Battery							
	4,8 V	7,2 V	9,6 V	12 V	14,4 V	18 V	RA 4	RA 6	RA 7	RA 8	RA 9	RA 10	RA 11	RA 12
LG7		•	•	•	•		•	•	•	•	•	•		
LG8						•							•	•
LGZ2	•	•	•	•	•		•	•	•	•	•	•		
LGZ3						•								

CRIMPING DIES - SERIES 45


SERIES 45




HP45



STILO45

	DIN STANDARD Hexagon crimping dies according to DIN 48083						STANDARD TYPE Hexagon crimping dies for standard type cable shoes and connectors	
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239 - connectors (DIN 46267, part 2)			Copper	
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
6	5	5	MK5-45				5	MH6-45
10	6	5	MK6-45	10	7	MK10B-45	5	MH10-45
16	8	5	MK8-45	12	7	MK12B	5	MH16-45
25	10	5	MK10-45				5	MH25-45
35	12	5	MK12-45	14	7	MK14B-45	5	MH35-45
50	14	5	MK14-45	16	7	MK16B-45	5	MH50-45
70	16	5	MK16-45	18	7	MK18B-45	5	MH70-45
95	18	5	MK18-45	22	7	MK22B-45	5	MH95-45
120	20	5	MK20-45				5	MH120-45
150	22	5	MK22-45				5	MH150-45

Dies for full tension and Aluminium-Steel, ACSR available on request


		Round dies to round off copper and aluminium sector shaped conductor	
		Type SE*	Type SM*
Cross section (mm²)	Compr. width (mm)	Order No.	Order No.
10	20		MR4,1-45
16	20		MR5,1-45
25	20	MR5,1-45	MR6,3-45
35	20	MR6,3-45	MR7,5-45
50	20	MR7,5-45	MR9,0-45
70	20	MR9,0-45	MR10,5-45
95	20	MR10,5-45	MR12,5-45
120	20	MR12,5-45	MR14,0-45
150	20	MR14,0-45	

* SE sector solid

** SM sector multi-stranded

Plastic Case for Crimping Dies

Description	Order No.	Dimensions	Weight
Case for dies 45kN-60kN	KKPE-45-50	250 x 170 x 50 mm	200 g


		WIRE END SLEEVES Trapezoid crimping dies for wire end sleeve	
Cross section (mm²)	Compr. width (mm)	Order No.	
10	20	MTT10-45	
16	20	MTT16-45	
25	20	MTT25-45	
35	20	MTT35-45	
50	20	MTT50-45	
70	20	MTT70-45	
95	20	MTT95-45	




Plastic case – KKPE-45-50


CRIMPING DIES - SERIES 50 / 60-1/3




	DIN STANDARD Hexagon crimping dies according to DIN 48083						STANDARD TYPE Hexagon crimping dies for standard type cable shoes and connectors	
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239) - connectors (DIN 46267, part 2)			Copper	
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
6	5	5	MK5-50				5	MH6-50
10	6	5	MK6-50	10	7	MK10B-50	7	MH10-50
16	8	5	MK8-50	12	7	MK12B-50	7	MH16-50
25	10	5	MK10-50				7	MH25-50
35	12	5	MK12-50	14	7	MK14B-50	7	MH35-50
50	14	5	MK14-50	16	7	MK16B-50	7	MH50-50
70	16	5	MK16-50	18	7	MK18B-50	7	MH70-50
95	18	5	MK18-50	22	7	MK22B-50	7	MH95-50
120	20	5	MK20-50				7	MH120-50
150	22	5	MK22-50	25	7	MK25B-50	7	MH150-50
185	25	5	MK25-50	28	7	MK28B-50	7	MH185-50
240	28	5	MK28-50	34	5	MK32-50	5	MH240-50


Dies for full tension and Aluminium-Steel, ACSR available on request

	TERMINALS Indent crimping dies for - terminals DIN 46234 - pin terminals DIN 46230 - solderless conn. DIN 46341	FINE WIRE Indent crimping dies for fine wire conductors
	Order No.	Order No.
10	MD10-50	MDF10-50
16	MD16-50	MDF16-50
25	MD25-50	MDF25-50
35	MD35-50	MDF35-50
50	MD50-50	MDF50-50
70	MD70-50	
95	MD95-50	

	WIRE END SLEEVES Trapezoid crimping dies for wire end sleeve	
	Compr. width (mm)	Order No.
10	20	MTT10-50
16	20	MTT16-50
25	20	MTT25-50
35	20	MTT35-50
50	20	MTT50-50
70	20	MTT70-50
95	20	MTT95-50

CRIMPING DIES - SERIES 50 / 60-1/3


		Oval crimping dies for the compression of compression dead-ends and oval connectors according to DIN 48217 and H branch terminals			
		Dead end clamps and oval connectors			H-Clamp Copper
		Copper	Aluminium	Steel	
Cross section (mm²)	Compr. width (mm)	Order No.	Order No.	Order No.	Order No.
6RE*	5	M07-50			
6	5				M010-50
10	5				
10RE*	5				
10RM**	5	M010-50			
16RE*	5				
16	5	M012-50	M012-50		M016-50
25	5	M016-50	M016-50		M018-50
35	5	M018-50	M018-50	M018-50	M021-50
50	5	M020-50	M020-50	M020-50	
70	5	M022-50	M022-50	M022-50	
95	5	M024-50	M024-50		
120	5		M026-50		


	NOTCH CONNECTOR Oval crimping dies for notch connector		
	Cu-Conductor	Al-Conductor	Al-Steel-rope
Cross section (mm²)	Cop Order No.	Order No.	Order No.
10	MK010-50CU		
16	MK016-50CU		
25	MK025-50CU	MK025-50AL	
35/6			MK035/6-50
35	MK035-50CU	MK035-50AL	
50	MK050-50CU	MK050-50AL	
50/8			MK050/8-50
50/30			MK050/30-50
70	MK070-50CU	MK070-50AL	
70/12			MK070/12-50
95	MK095-50CU	MK095-50AL	
120	MK0120-50CU	MK0120-50AL	

* RE round solid

** RM round multi-stranded

CRIMPING DIES - SERIES 50 /60-1/3

		Round dies to round off copper and aluminium sector shaped conductor	
		Type SE*	Type SE*
Cross section (mm ²)	Compr. width (mm)	Order No.	Order No.
10	20		MR4,1-50
16	20		MR5,1-50
25	20		MR6,3-50
35	20	MR6,3-50	MR7,5-50
50	20	MR7,5-50	MR9,0-50
70	20	MR9,0-50	MR10,5-50
95	20	MR10,5-50	MR12,5-50
120	20	MR12,5-50	MR14,0-50
150	20	MR14,0-50	MR15,7-50
185	22	MR15,7-50	MR17,5-50
240	20	MR17,5-50	MR20,2-50
300*	20	MR20,2-50°	

		STRIP OFF ACSR Strip off Aluminium part of ACSR cables***
Cross section (mm ²)	Order No.	
25/4	AL-ST25/4-50	
35/6	AL-ST35/6-50	
50/8	AL-ST50/8-50	
70/12	AL-ST70/12-50	
95/15	AL-ST95/15-50	
120/20	AL-ST120/20-50	

Adapter for Crimping Dies 45 kN

Allows use of all dies for the tool 45kN on models HP50, HP60-3, PP60-1 and AP60-1

Description	Order No.	For Dies	Weight
Adapter	AD50-45	45 kN	50 g



Description	Order No.	Dimensions	Weight
Case for dies 45kN-60kN	KKPE-45-50	250 x 170 x 50 mm	200 g



Plastic case – KKPE-45-50

CRIMPING DIES - SERIES 60-2/4

SERIES 60-2/4



MP60-2



PP60-2



HP60-4



STILO60




AP60-2


	DIN STANDARD Hexagon crimping dies according to DIN 48083						STANDARD TYPE Hexagon crimping dies for standard type cable shoes and connectors	
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239) - connectors (DIN 46267, part 2)			Copper	
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
6	5	5	MK5-CK				5	MH6-CK
10	6	5	MK6-CK	10	7	MK10B-CK	5	MH10-CK
16	8	5	MK8-CK	12	7	MK12B-CK	5	MH16-CK
25	10	5	MK10-CK				5	MH25-CK
35	12	5	MK12-CK	14	7	MK14B-CK	5	MH35-CK
50	14	5	MK14-CK	16	7	MK16B-CK	5	MH50-CK
70	16	5	MK16-CK	18	7	MK18B-CK	5	MH70-CK
95	18	5	MK18-CK	22	7	MK22B-CK	5	MH95-CK
120	20	5	MK20-CK				5	MH120-CK
150	22	5	MK22-CK	25	7	MK25B-CK	5	MH150-CK
185	25	5	MK25-CK	28	7	MK28B-CK	5	MH185-CK
240	28	5	MK28-CK	32	7	MK32B-CK	5	MH240-CK
300	32	5	MK32-CK	34	5	MK34B-CK	5	MH300-CK

Dies for full tension and Aluminium-Steel, ACSR available on request

	TERMINALS Indent crimping dies for - terminals DIN 46234 - pin terminals DIN 46230 - solderless conn. DIN 46341	FINE WIRE Indent crimping dies for fine wire conductors
Cross section (mm²)	Order No.	Order No.
10	MD10-CK	MDF10-CK
16	MD16-CK	MDF16-CK
25	MD25-CK	MDF25-CK
35	MD35-CK	MDF35-CK
50	MD50-CK	MDF50-CK
70	MD70-CK	MDF70-CK

	WIRE END SLEEVES Trapezoid crimping dies for wire end sleeve	
Cross section (mm²)	Compr. width (mm)	Order No.
10	20	MTT10-CK
16	20	MTT16-CK
25	20	MTT25-CK
35	20	MTT35-CK
50	20	MTT50-CK
70	20	MTT70-CK
95	20	MTT95-CK
120	20	MTT120-CK
150	20	MTT150-CK
185	20	MTT185-CK
240	20	MTT240-CK

	NOTCH CONNECTOR Oval crimping dies for notch connector		
	Cu-Conductor	Al-Conductor	Al-Steel-rope
Cross section (mm²)	Cop Order No.	Order No.	Order No.
10	MK010-CK-CU		
16	MK016-CK-CU		
25	MK025-CK-CU	MK025-CK-AL	
35	MK035-CK-CU	MK035-CK-AL	
50	MK050-CK-CU	MK050-CK-AL	
50/8			MK050/8-CK
50/30			MK050/30-CK
70	MK070-CK-CU	MK070-CK-AL	
70/12			MK070/12-CK
95/15			MK095/15-CK

		Round dies to round off copper and aluminium sector shaped conductor	
		Type SE*	Type SE*
Cross section (mm²)	Compr. width (mm)	Order No.	Order No.
10	20		MR4,1-CK
16	20		MR5,1-CK
25	20		MR6,3-CK
35	20	MR6,3-CK	MR7,5-CK
50	20	MR7,5-CK	MR9,0-CK
70	20	MR9,0-CK	MR10,5-CK
95	20	MR10,5-CK	MR12,5-CK
120	20	MR12,5-CK	MR14,0-CK
150	20	MR14,0-CK	MR15,7-CK
185	22	MR15,7-CK	MR17,5-CK
240	20	MR17,5-CK	MR20,2-CK
300*	20	MR20,2-CK	

Plastic Case for Crimping Dies


Description	Order No.	Dimensions	Weight
Case for 24 crimping dies for 60kN	KKPE-C-CK	410 x 360 x 110 mm	1,4 kg




plastic case – KKPE-C-CK


CRIMPING DIES - SERIES 130





	DIN STANDARD Hexagon crimping dies according to DIN 48083						STANDARD TYPE Hexagon crimping dies for standard type cable shoes and connectors	
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239 - connectors (DIN 46267, part 2)			Copper	
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
10	6	5	MK6-C				8	MH10-C
16	8	14	MK8-C	12	14	MK12-C	8	MH16-C
25	10	14	MK10-C				10	MH25-C
35	12	14	MK12-C	14	14	MK14-C	14	MH35-C
50	14	14	MK14-C	16	14	MK16-C	14	MH50-C
70	16	14	MK16-C	18	14	MK18-C	14	MH70-C
95	18	14	MK18-C	22	14	MK22-C	14	MH95-C
120	20	14	MK20-C				14	MH120-C
150	22	14	MK22-C	25	14	MK25-C	14	MH150-C
185	25	14	MK25-C	28	14	MK28L-C	14	MH185-C
240	28	7	MK28-C	32	17	MK32L-C	14	MH240-C
300	32	7	MK32-C	34	17	MK34L-C	7	MH300-C
400							7	MH400-C


Dies for full tension and Aluminium-Steel, ACSR available on request

	BRITISH STANDARD Hexagon crimping dies according to DIN 48083		ITALIAN STANDARD Hexagon crimping dies according to DIN 48083	
	Copper		Copper	
Cross section (mm²)	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
10	10	BS10-C	7	U13-K07M
16	10	BS16-C	7	U13-K08M
25	10	BS25-C	12	U13-K10M
35	14	BS35-C	12	U13-K11M
50	14	BS50-C	12	U13-K13M
70	16	BS70-C	12	U13-K14
95	16	BS95-C	12	U13-K17M
120	16	BS120-C	12	U13-K18
150	16	BS150-C	12	U13-K20D
185	16	BS185-C	14	U13-K22D
240	14	BS240-C	14	U13-K25M
300	7	BS300-C	7	U13-K28D
400	7	BS400-C	7	U13-K34D


	TERMINALS Indent crimping dies for - terminals DIN 46234 - pin terminals DIN 46230 - solderless conn. DIN 46341	FINE WIRE Indent crimping dies for fine wire conductors
	Cross section (mm²)	Order No.
16	MD16-C	MDF16-C
25	MD25-C	MDF25-C
35	MD35-C	MDF35-C
50	MD50-C	MDF50-C
70	MD70-C	MDF70-C
95	MD95-C	MDF95-C
120	MD120-C	MDF120-C
150	MD150-C	MDF150-C

	WIRE END SLEEVES Trapezoid crimping dies for wire end sleeve	
	Cross section (mm²)	Compr. width (mm)
16	20	MTT16-C
25	20	MTT25-C
35	20	MTT35-C
50	26	MTT50-C
70	26	MTT70-C
95	26	MTT95-C
120	26	MTT120-C
150	26	MTT150-C
185	26	MTT185-C
240	26	MTT240-C

		Oval crimping dies for the compression of compression dead-ends and oval connectors according to DIN 48217 and H branch terminals			
		Dead end clamps and oval connectors			H-Clamp Copper
		Copper	Aluminium	Steel	
Cross section (mm²)	Compr. width (mm)	Order No.	Order No.	Order No.	Order No.
10	5	M010-C	M010-C		
16	5	M012-C	M012-C		M016-C
25	5	M016-C	M016-C		M018-C
35	5	M018-C	M018-C	M018-C	M021-C
50	5	M020-C	M020-C	M020-C	
70	5	M022-C	M022-C	M022-C	
95	5	M024-C	M024-C	M025-C	
120	5	M026-C	M026-C		

	H BRANCH TERMINALS Oval crimping dies for H branch terminals		TWIN CABLE LUGS Oval crimping dies for twin cable lugs	
	Cross section (mm²)	Compr. width (mm)	Order No.	Order No.
2 x 50	30	MRH22-C	12	MRD22-C
2 x 70	30	MRH26-C	12	MRD24-C
2 x 95	30	MRH30-C	12	MRD29-C
2 x 120	30	MRH32-C	12	MRD32-C


CRIMPING DIES - SERIES 130


		C CONNECTORS Oval crimping dies for copper C connectors for Italian type or equivalent
Cross section (mm ²)		Order No.
Run	Tap	
10	10 ÷ 1,5	U13-DC10
16	16 ÷ 1,5	U13-DC25
25 ÷ 16	10 ÷ 1,5	
25	25 ÷ 16	
40 ÷ 35	16 ÷ 1,5	U13-DC35
40 ÷ 35	40 ÷ 25	
50	25 ÷ 10	
70 ÷ 63	25 ÷ 1,5	
50	25 ÷ 4	U13-DC70
50	50 ÷ 35	
70 ÷ 50	40 ÷ 4	
70 ÷ 50	70 ÷ 35	
100 ÷ 95	40 ÷ 4	U13-DC95
100 ÷ 95	70 ÷ 40	
100 ÷ 95	100 ÷ 63	
125 ÷ 110	125 ÷ 25	U13-DC185
160 ÷ 150	125 ÷ 25	
150	150 ÷ 63	
180	100 ÷ 16	

* SE sector solid

** SM sector multi-stranded

*** depending on type and size of joining accessories

		Round dies to round off copper and aluminium sector shaped conductor	
		Type SE*	Type SM*
Cross section (mm ²)	Compr. width (mm)	Order No.	Order No.
10	35		MR4,1-C
16	35		MR5,1-C
25	35	MR5,1-C	MR6,3-C
35	35	MR6,3-C	MR7,5-C
50	35	MR7,5-C	MR9,0-C
70	35	MR9,0-C	MR10,5-C
95	35	MR10,5-C	MR12,5-C
120	35	MR12,5-C	MR14,0-C
150	35	MR14,0-C	MR15,7-C
185	35	MR15,7-C	MR17,5-C
240	35	MR17,5-C	MR20,2-C
300	35	MR20,2-C	MR22,5-C

		STRIP OFF ACSR Strip off Aluminium part of ACSR cables***
Cross section (mm ²)	Order No.	
50/8	AL-ST 50/8-C	
50/30	AL-ST 50/30-C	
70/12	AL-ST 70/12-C	
95/15	AL-ST 95/15-C	
95/55	AL-ST 95/55-C	
120/20	AL-ST 120/20-C	
150/25	AL-ST 150/25-C	
170/40	AL-ST 170/40-C	
185/30	AL-ST 185/30-C	
210/35	AL-ST 210/35-C	
240/40	AL-ST 240/40-C	
265/35	AL-ST 265/35-C	



plastic case – KKPE-C-CK




plastic case – KKPE-TN

Plastic Case for Crimping Dies

Description	Order No.	Dimensions	Weight
Case for 24 crimping dies for 130kN	KKPE-C-CK	410 x 360 x 110 mm	1,4 kg
Case for deep indent dies	KKPE-TN	410 x 360 x 110 mm	1,4 kg

CRIMPING DIES - SERIES 230




	DIN STANDARD Hexagon crimping dies according to DIN 48083						STANDARD TYPE Hexagon crimping dies for standard type cable shoes and connectors	
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239 - connectors (DIN 46267, part 2)			Copper	
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
16				12	14	MK12-230		
25	10	14	MK10-230					
35	12	14	MK12-230					
50	14	14	MK14-230	16	14	MK16-230		
70	16	14	MK16-230	18	12	MK18-230		
95	18	14	MK18-230	22	40	MK22B-230		
120	20	14	MK20-230				14	MH120-230
150	22	14	MK22-230				14	MH150-230
185	25	14	MK25-230	28	40	MK28B-230	17	MH185-230
240	28	14	MK28-230	32	25	MK32B-230	17	MH240-230
300	32	17	MK32-230	34	25	MK34B-230	17	MH300-230
400	38	17	MK38-230	38	25	MK38B-230	17	MH400-230
500	42	17	MK42-230	44	17	MK44B-230	17	MH500-230
630	44	17	MK44-230	46	25	MK24B-230	17	MH625-230

	FINE WIRE Indent crimping dies for fine wire conductors
Cross section (mm²)	Order No.
120	MDF120-230
150	MDF150-230
185	MDF185-230
240	MDF240-230
300	MDF300-230

CRIMPING DIES - SERIES 230

	H BRANCH TERMINALS Oval crimping dies for H branch terminals		TWIN CABLE LUGS Oval crimping dies for twin cable lugs		
	Cross section (mm²)	Compr. width (mm)	Order No.	Compr. width (mm)	Order No.
	2 x 50	40	MRH22-230	40	MRD22-230
	2 x 70	40	MRH26-230	40	MRD24-230
	2 x 95	40	MRH30-230	40	MRD29-230
	2 x 120	40	MRH32-230	40	MRD32-230
2 x 150	40	MRH34-230			

	NOTCH CONNECTOR Oval crimping dies for notch connector		
	Cu-Conductor	Al-Conductor	Al-Steel-rope
Cross section (mm²)	Cop Order No.	Order No.	Order No.
10	MK010-230-CU		
16	MK016-230-CU		
25	MK025-230-CU	MK025-230-AL	
35	MK035-230-CU	MK035-230-AL	
50	MK050-230-CU	MK050-230-AL	
50/8			MK050/8-230
50/30			MK050/30-230
70	MK070-230-CU	MK070-230-AL	
70/12			MK070/12-230
95	MK095-230-CU	MK095-230-AL	
95/15			MK095/15-230
120	MK0120-230-CU	MK0120-230-AL	
120/21			MK0120/21-230
125/30			MK0125/30-230
150	MK0150-230-CU	MK0150-230-AL	
150/25			MK0150/25-230
185		MK0185-230-AL	
185/32			MK185/8-230
240		MK0240-230-AL	
210/36			MK0210/36-230
210/50			MK0210/50-230
210/40			MK0240/40-230




Adapter for Crimping Dies 130 kN

Allows use of all dies (C-form) for the tool 130kN on model PP230

Description	Order No.	For Dies	Weight
Adapter	AD230-130	130 kN	0,82 kg

CRIMPING DIES - SERIES 520



	DIN STANDARD					
	Hexagon crimping dies according to DIN 48083					
	Copper cable lugs (DIN 46235) - connectors (DIN 46267, part 1)			Aluminium cable lugs (DIN 46239 - connectors (DIN 46267, part 2)		
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.
16				12	14	MK12-520
25						
35	12	14	MK12-520			
50	14	14	MK14-520	16	14	MK16-520
70	16	14	MK16-520	18	14	MK18-520
95	18	14	MK18-520	22	40	MK22B-520
120	20	14	MK20-520			
150	22	14	MK22-520			
185	25	14	MK25-520	28	40	MK28B-520
240	28	14	MK28-520	32	40	MK32B-520
300	32	17	MK32-520	34	40	MK34B-520
400	38	17	MK38-520	38	40	MK38B-520
4500	42	17	MK42-520	44	40	MK44B-520
630	44	17	MK44-520	52	40	MK52B-520
800	52	25	MK52-520	58	25	MK58B-520
1000	58	25	MK58-520	60	25	MK60B-520

Dies for full tension and Aluminium-Steel, ACSR available on request




Adapter for Crimping Dies 130 kN

Allows use of all dies (C-form) for the tool 130kN on model PP520

Description	Order No.	For Dies	Weight
Adapter	AD520-130	130 kN	0,82 kg

CRIMPING DIES - SERIES 600



	DIN STANDARD					
	Copper			Aluminium		
Cross section (mm²)	Code No.	Compr. width (mm)	Order No.	Code No.	Compr. width (mm)	Order No.
16				12	14	MK12-600
25	10	14	MK10-600			
35	12	14	MK12-600			
50	14	14	MK14-600			
70	16	14	MK16-600	16	14	MK16-600
95	18	14	MK18-600	18	14	MK18-600
120	20	14	MK20-600	22	40	MK22B-600
150	22	14	MK22-600			
185	25	14	MK25-600	25	40	MK25B-600
240	28	14	MK28-600	28	40	MK28B-600
300	32	17	MK32-600	32	40	MK32B-600
400	38	17	MK38-600	34	40	MK34B-600
500	42	17	MK42-600	38	40	MK38B-600
630	44	17	MK44-600	44	40	MK44B-600
800	52	25	MK52-600	52	40	MK52B-600
1000	58	25	MK58-600	58	25	MK58B-600
1200	60	25	MK60-600	60	25	MK60B-600
1600	70	25	MK70-600			

Dies for full tension and Aluminium-Steel, ACSR available on request

Section 14

Personal Safety Products

Hearing Protection	407
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- > Respiratory Protection
- > Hearing Protection
- > Communications
- > Head, Eye and Face Protection
- > Spill Management
- > Worker Visibility
- > Detection and Monitoring
- > Body Protection



Hearing Protection

The 3M™, E-A-R™ and Peltor™ brands offer hearing protection solutions for noisy environments. The range of 3M and E-A-R earplugs includes disposable, reusable, no-roll down and banded models, available in multiple shapes and sizes to comfortably accommodate different needs. Many 3M and Peltor earmuffs are available in head-band, neckband, helmet attachable and folded models to meet virtually every need and preference.

Hearing protector attenuation:

How much do I need?

The real world concerns of hearing protection

Variable noise levels: every environment is different, and workers can face a wide range of sound levels throughout the day and in different areas at the same facility. The human factor: each person is physically unique, so there is no one-size-fits-all hearing protection solution. The key to optimal protection for the individual is having a comfortable product with appropriate attenuation for their noise environment.

By aligning the relevant Class with the noise levels encountered,

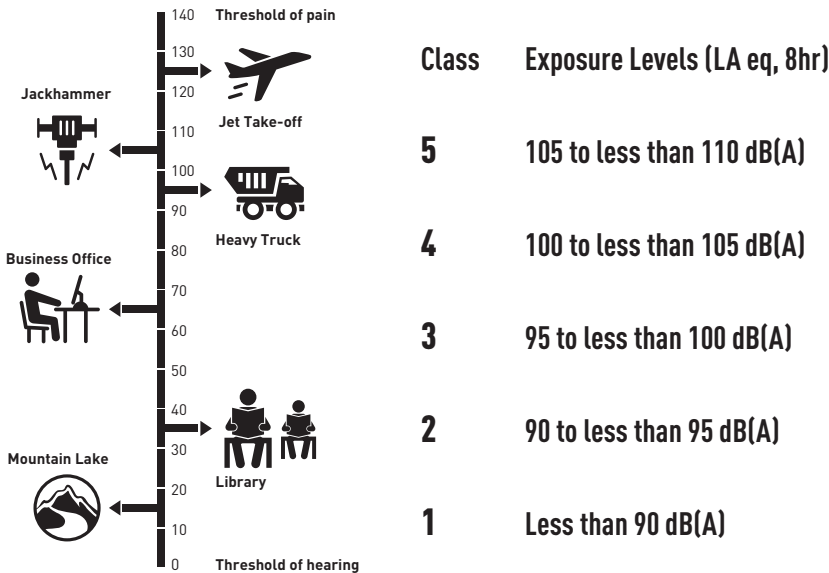
a suitable hearing protection device can be identified which will provide suitable protection without being too heavy and potentially overprotecting the wearer and cutting them off from relevant communication and alarms etc.

All 3M Hearing protection devices meet the performance requirements of Australian/New Zealand Standard AS/NZS 1270:2002.

What types of sounds require hearing protection?

It's important to understand which sounds may cause hearing loss and require hearing protection.

Decibel levels of common sound








Hearing Protection

3M™ Peltor™ Deluxe Earmuffs H7 Series

- > Foam filled cushions provide a quality noise seal with low pressure for all day wearer comfort.
- > Sprung headband wires with four point suspension helps distribute cushion pressure evenly and ear cups pivot for consistent fit.






Product	Code	Description	Product Rating	Application
	3MSF10	Headband green earmuff H7A 290	SLC80 30 dB Class 5	A suitable choice for environments with substantial industrial noise or construction machinery, airports and agricultural work.
	3MSF67	Neckband green earmuff H7B 290	SLC80 28 dB Class 5	
	3MSF55	Folding green earmuff H7F HV290	SLC80 31 dB Class 5	
	3MSF11	Hard hat attached green earmuff H7P3E 290	SLC80 30 dB Class 5	
	3MSF56	Hygiene kit for H7 hearing protectors HY52		Replacement cushions to extend the life of your earmuffs.

3M™ Peltor™ Premium Earmuff X4 Series

- > Low profile design, thin and lightweight.
- > Over-the-head earmuff only: electrically-insulated (dielectric) wire headband.
- > Twin headband design reduces heat build-up and offers outstanding balance and comfort for prolonged use.



Product	Code	Description	Product Rating	Application
	3MSF31	Over-the-head premium earmuff X4A	SLC80 30 dB Class 5	A suitable choice for environments with substantial industrial noise or construction machinery, airports and agricultural work.
	3MSF32	Hard hat attached premium earmuff X4P3E	SLC80 28 dB Class 5	
	POA	X4A Hygiene kit HYX4	SLC80 31 dB Class 5	Replacement cushions to extend the life of your earmuffs.

3M™ Peltor™ Protac™ III Headset

- > Built-in level-dependent function allows the wearer to hear ambient sounds, such as conversations, machine sounds and warning signals
- > 3.5 mm listen-only stereo input (limited to 82 dB) for connection to external devices (e.g. mobile phone, radio, two-way radio and iPod)
- > Voice-guided menu system avoids the need to remove the headset for setting changes
- > Auto power off turns headset off after 4 hours of non-use, to save energy and a low-battery warning informs you when to change batteries (AA Batteries)



Product Code	Order Code	Type	Cup Style	Colour	Pack	Battery Life
MT13H221A	PQA	Headband/Headset	Standard	Black	Box	100 hours
MT13H220A	3MSF117	Headband/Headset	Slim	Black	Box	100 hours

3M™ Peltor™ Kids Earmuffs

The 3M PELTOR™ Kid range Passive Ear Muffs are attractive vibrant colour hearing protectors available in headband version only. These products are specially designed for younger wearers, including children, to protect against moderate levels of noise in everyday situations such as social and leisure activities.

- > Modern, stylish slim line cup design
- > High visibility colours for attracting attention thus increasing safety
- > Liquid sealing rings for improved comfort
- > Unique low-profile headband design helps maintain constant pressure thus providing confidence in protection
- > Large space inside cup helps reduce moisture and heat build-up



Product Code	Order Code	Type	Cup Style	Colour	Pack
H510AK-442-GB	3MSF53	Kids Eatmuff	Standard	Neon Green	Box
H510AK-442-RE	3MSF54	Kids Eatmuff	Standard	Neon Pink	Box

3M™ 1426 Economy Earmuff Class 5

These 3M™ 1426 Economy Earmuffs are designed to provide basic protection when price is the overriding factor. It features wide soft cushions to provide extreme comfort and is ergonomic. The adjustable headband is designed to fit a variety of head sizes with a close and comfortable fit.

- > Features wide soft cushions for comfort
- > Class 5 Economy Earmuffs provide basic protection
- > Ergonomic headphones have an adjustable headband






Product Code	Order Code	Type	Cup Style	Colour	Pack
1426	3MSF46	Headband/Headset	Standard	Red	Box

Hearing Protection

3M™ Peltor™ Extreme Performance Earmuffs H10 series

- > High performance hearing protectors developed for use in extremely noisy environments, i.e. average levels 105-110 dB(A).
- > The double casing minimises resonance in the casing, giving optimum low-frequency attenuation.
- > Acoustic connection between the inner and outer casings provide maximum low-frequency attenuation.






Product	Code	Description	Product Rating	Application
	3MSF09	Over-the-head premium earmuff H10-A HV 290	SLC80 33 dB Class 5	High noise levels across both high and low frequencies.
	3MSF08	Hard hat attached premium earmuff H10P3E 290	SLC80 33 dB Class 5	
	3MSF78	Hygiene kit for H10 hearing HY54	SLC80 33 dB Class 5	Replacement cushions to extend the life of your earmuffs.

3M™ Peltor™ WorkTunes™ Pro AM/FM Radio Headset

- > Dual shell designed to protect the electronic circuitry inside the cup.
- > Large user-friendly push buttons.
- > 3.5 mm jack: a listen-only stereo input to connect to a cell-phone, two-way radio or other external devices (limited to 82 dB).
- > Voice guided menu system.



Product	Code	Description	Product Rating	Application
	3MSF70	3M™ PELTOR™ WorkTunes™ Pro AM/FM Radio Headset, Black	SLC80 32 dB	High noise levels across both high and low frequencies.
	3MSF79	3M™ PELTOR™ WorkTunes™ Pro AM/FM Radio Headset, Black, Helmet attached	SLC80 30 dB	
	3MSF80	Hygiene kit for WorkTunes Pro	SLC80 33 dB Class 5	Replacement cushions to extend the life of your earmuffs.

3M™ Hearing Protection

The 3M™, E-A-R™ and Peltor™ brands offer a hearing protection solution for anyone who spends time in noisy environments. The comprehensive range of 3M and E-A-R earplugs includes disposable, reusable, no-roll down and banded models. They are available in multiple shapes and sizes to comfortably accommodate different wearer and workplace needs. Many 3M and Peltor earmuffs are available in headband, neckband, helmet attachable and folded models to meet virtually every application need and wearer preference.

3M™ E-A-R™ Classic™ Disposable Earplugs

- > PVC foam provides a comfortable seal with high protection levels
- > Superior in-ear comfort, hydrophobic and flame retardant
- > SLC80: 21 dB (Class 3 Corded)
- > SLC80 23 dB (Class 4)



Product Code	Order Code	Type	Colour	Pack	Protection Rating
312-1201	POA	Uncorded	Yellow	Poly Bag	Class 4
311-1101	POA	Corded	Yellow	Poly Bag	Class 4

3M™ E-A-R soft™ Superfit™ Disposable Earplugs

- > Soft foam and red indicator line delivers protection and comfort
- > Large size option for larger ear canals
- > The bullet design of the earplug provides high protection levels
- > Available in corded and uncorded formats



Product Code	Order Code	Type	Colour	Pack	Protection Rating
311-1254	POA	Corded	Yellow	Poly Bag	Class 4
312-1256	POA	Uncorded	Yellow	Poly Bag	Class 4

3M™ E-A-R™ Taperfit II™ Disposable Earplugs

- > Tapered shape provides high attenuation and all day comfort
- > Plus size option for larger ear canals
- > May be worn with Ear Muffs for added protection
- > Available in corded and uncorded formats



Product Code	Order Code	Type	Colour	Pack	Protection Rating
312-1219	POA	Uncorded	Yellow	Poly Bag	Class 5
312-1223	POA	Corded	Yellow	Poly Bag	Class 5

Hearing Protection

3M™ E-A-R™ Push Ins™ No Roll Down Earplugs

- > Patented foam softens with usage to improve seal and comfort
- > The stem and plug are made of two materials to ensure great fit with a rigid stem and comfort with a soft foam
- > No roll down provides a quick and easy way to use earplugs
- > The convenient stem provides a quick and hygienic insertion method



Product Code	Order Code	Type	Colour	Pack	Protection Rating
318-1002	POA	Uncorded	Yellow	Poly Bag	Class 4
318-1003	POA	Corded	Yellow	Poly Bag	Class 4

3M™ E-A-R™ Ultrafit™ Reusable Earplugs

- > Reusable triple flange design ensures high protection levels
- > Product available in either polybags or cases for safe storage
- > Premoulding delivers performance in a variety of work environments
- > Available in corded and uncorded formats





Product Code	Order Code	Type	Colour	Pack	Protection Rating
340-4004	POA	Corded	Yellow	Poly Bag	Class 3

3M™ E-A-R™ Swerve™ Banded Earplugs

- > Adjustable ergonomic design. Soft-recovery foam.
- > Quick to put on and take off—ideal for intermittent use.



	Product Code	Packaging	Description	Product Rating	Application
	3MSF12	1 band per bag	Swerve banded hearing protector	SLC80 20 dB Class 3	Moderate noise protection across all industries and applications including grinding, sanding and drilling etc.
	3MSF51	50 pairs per bag	E-A-Rflex 28 Replacement Tips	SLC80 20 dB Class 3	

3M™ 1100 Foam Earplugs

- > Made from soft hypoallergenic slow-recovery foam.
- > Once in the ear, foam earplugs expand to conform to the unique shape of each ear.
- > Comfortable, custom fit. Easy to roll down.





	Product Code	Packaging	Description	Product Rating	Application
	3MSF06	200 pairs	Foam earplug uncoiled	SLC80 21 dB Class 3	Mid to high noise protection across all industries and applications including grinding, sawing, drilling and riveting etc.
	3MSF07	100 pairs	Foam earplug coiled	SLC80 21 dB Class 3	

3M™ Skull Screws™ Earplugs

- > No roll-down required, for a clean and comfortable fit.
- > Soft foam tip quickly adjusts to the shape of the ear canal to help create a noise reducing seal.
- > Quick and easy to fit and keep clean.




	Product Code	Packaging	Description	Product Rating	Application
	3MSF81	200 pairs per box	Skull Screws uncoiled	SLC80 26 dB Class 5	Mid to high noise protection across all industries and applications including grinding, sawing, drilling and riveting etc.
	3MSF82	100 pairs per box	Skull Screws coiled	SLC80 26 dB Class 5	

3M™ Disposable Earplugs

- > Self-adjusting foam provides low pressure with excellent attenuation.
- > Dermatologically safe foam is non-irritating to the skin.
- > Smooth and soft foam formulation, expands slowly to fit most ear canals comfortably.



	Product Code	Packaging	Description	Product Rating	Application
	3MSF05	4 pairs per pack	Disposable Earplugs	SLC80 26 dB Class 5	Moderate noise protection across all industries and applications.

Respiratory Protection

Electrical work may involve cutting and drilling various materials. These tasks create airborne particles which may be harmful if inhaled. 3M Respirators can provide respiratory protection for particles generated by these tasks. 3M provides half face respirators and full face respirators for when a higher level of protection is required.

Filter Rating Key:

- P1** - for use with mechanically generated particles, eg grinding, sanding, cutting, drilling.
- P2** - for mechanically & thermally generated particles and certain biological hazards, eg soldering, welding, pest droppings.
- P3** - for certain highly irritating or toxic particles, eg certain asbestos tasks and beryllium.
- GP2 or GP3** - for certain mechanically & thermally generated particles, ozone and nuisance level acid gas and organic vapours with low vapour pressure.

Potential Airborne Hazards For Electrical Workers

General dust/soil	Asbestos	Concrete dust (silica)	Fibreglass (fibres)	Wood/plaster dust	Mould	Pest droppings
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Note: always be aware of those working around you and what airborne hazards they may be creating.

Use Limitations: these respirators do not supply oxygen. Do not use when contaminant concentrations are: immediately dangerous to life and health (IDLH); unknown; above the maximum use limitations for each respirator type. Do not use in atmospheres containing less than 19.5% oxygen. Do not abuse, modify or misuse any respirator. Do not use close fitting respirators (half face piece or full face piece) with beards or other facial hair that prevent direct contact between the face and the respirator sealing surface. Note: because air contaminant types and concentrations vary from site to site this Selection Guide is a guide only. Selection of the most appropriate respirator should be made by a person familiar with the benefits and limitations of respirators.

WARNING: These respirators help protect against certain dusts, fumes, mists, gases and vapours but do not eliminate exposure to or the risk of contracting disease or infection. Respirators should not be used for protection at airborne concentrations of contaminants above the relevant IDLH levels.


3M™ Disposable Respirators

- > Meet the performance requirements AS/NZS 1716:2012 standards.
- > Latex free.
- > Valved and unvalved options. Valved respirators help reduce heat build up.

3M™ Aura™ Particulate Respirator

- > Filter technology enables high filtering performance with low breathing resistance.
- > Embossed top panel helps reduce the fogging of eyewear.
- > The chin tab and 3-panel design provides a comfortable fit and a good face seal for many different face shapes.
- > Flat-folded: easy to store when not in use. Hygienic individual packaging.






Product	Code	Packaging	Description	Filter Rating	Application
	3MSF50	10 individually wrapped/box	Aura Particulate Respirator, P2 valved	P2	Protects against certain dusts, mists, smoke and metals.

3M™ Cupped Particulate Respirators 8000 Series

- > Light-weight for added comfort.




Product	Code	Packaging	Description	Filter Rating	Application
	3MSF44	20 per box	Cupped Particulate Respirator P1, unvalved 8710	P1	Protects against certain mechanically generated particles, eg dusts and mists. No staples - making it suitable for certain food manufacturing plants.
	3MSF116	20 per box	Economy Particulate Respirator P2 8210	P2	Protects against certain mechanically and thermally generated particulates, eg dusts, mists, metal fume.
	3MSF52	10 per box	Cupped Particulate Respirator P2, valved 8822	P2	Protects against certain mechanically and thermally generated particulates, eg dusts, mists, metal fume.

3M™ Home Dust Mask

- > For relief from non harmful house dust
- > Conture fit
- > Soft metal nosepiece adjusts closeley over the bridge of the nose



Product	Code	Packaging	Description	Filter Rating	Application
	3MSF45	5 pack	8661PC1-A Home Dust Mask	P1	Protects against certain mechanically generated particles, eg dusts and mists. No staples - making it suitable for certain food manufacturing plants.


3M™ Reusable Respirators

3M's range of reusable half and full face respirators provides protection for a wide variety of environments and airborne hazards. 3M cartridges and particulate filters are lightweight, well balanced and provide excellent field of vision. Meets performance requirements of AS/NZS 1716:2012.

3M™ Half Face Respirator 6000 Series

- > Economical, low maintenance, light-weight and easy to adjust.
- > Twin filter design is well balanced and provides excellent field of vision.




Product	Code	Description	Application
	3MSF84 - small 3MSF85 - medium 3MSF61 - large	Half Face Respirator 6000 Series	Tasks where certain gas/vapours and or particles are generated.

3M™ Half Face Respirator 7500 Series

- > Soft silicone for premium comfort and durability.
- > Twin filter design is well balanced and provides excellent field of vision.
- > 3M Cool Flow™ Valve.




Product	Code	Description	Application
	3MSF86 - small 3MSF87 - medium 3MSF88 - large	Half Face Respirator 7500 Series	Tasks where certain gas/vapours and or particles are generated.

3M™ Full Face Respirator 6000 series

- > Soft, non-allergenic silicone face seal for greater comfort and durability.
- > Wide field of vision. Polycarbonate visor has molten metal and high impact resistance to AS/NZS 1337.
- > Twin filter design is well balanced and provides excellent field of vision.
- > Four strap head suspension - easy to put on and take off.









Product	Code	Description	Application
	3MSF89 - small 3MSF90 - medium 3MSF91 - large	Full Face Respirator 6000 series	Tasks where certain gas/vapour particles are generated.
	3MSF69	Face Shield Cover 6885 (25 per pack)	Use with 3M 6000 Series Full Face Respirators to help protect the lens from scratches, chips and dust.

3M™ Filters and Cartridges

3M gas and vapour cartridges and particulate filters are lightweight, well balanced and provide excellent field of vision when fitted to a 3M Reusable Respirator. Can be used on the 6000 and 7500 series half face respirators and 6000 series full face respirators sold in New Zealand.

3M™ Particulate Filters

- > These filters are light-weight and provide low breathing resistance.
- > Made from 3M high performance filter media for effective filtration efficiency.
- > P2 or P3 particle filters available. Higher P3 protection factors only achieved with a 3M Full Face Respirator, otherwise P2 protection level when worn on a 3M Half Face Respirator.


Product	Code	Description	Filter Rating	Application
	3MSF62	Particulate filter 2125	P2	Sanding, grinding, drilling, cutting, handling powders.
	3MSF92	Particulate filter 2128	GP2	Protects against certain mechanically and thermally generated particles, ozone and nuisance level** acid gas and organic vapours with low vapour pressure.
	3MSF93	Particulate filter 2138	GP2/GP3*	Provides protection against: particulates, ozone and nuisance level** acid gas and organic vapours with low vapour pressure.
	3MSF41	Particulate filter 6035	P2/P3*	Carrying out lead or mould remediation. Also for certain asbestos tasks. Ideal if requiring a protective casing to deflect sparks and splashes.
	3MSF60	Particulate filter 5925	P2	Protects against dusts and mists. Is used in conjunction with the 6000 series cartridges and held in place with 501 retainer.
	3MSF39	Filter retainer 501	N/A	Holds particulate filters 5925 or 5935 in place on top of 3M 6000 series cartridges.

*Higher P3 protection only achieved when worn with a 3M Full Face Respirator. P2 protection level when worn on a 3M Half Face Respirator. **Nuisance Levels are those levels below the Workplace Exposure Standard (WES).

3M™ Gas & Vapour Cartridges


- > These filters are light-weight and well-balanced when fitted to the respirator.



Product	Code	Packaging	Description	Filter Rating	Application
	3MSF58	Pair	Organic Vapour Cartridge Filter 6051	Class A1	Protects against organic vapours (boiling points greater than 65°C). Can be used when working with organic solvents eg toluene, xylene and MEK. Also degreasing, gluing, painting and pesticide spraying.

3M™ Reusable Respirator Accessories









Product	Code	Packaging	Description	Application
	3MSF42	100 individually packaged wipes per box	Respirator Cleaning Wipes 504	Alcohol free, pre-moistened towelettes for hygienically cleaning reusable respirators.

3M™ Reusable Respirator Kits

- > An ideal solution to get you started.
- > Each kit contains 1 x medium respirator, 1 x pair of 3M filters/cartridges, 3M™ Respirator Cleaning Wipes 504, 1 x pair 3M earplugs, 1 x 3M™ Respiratory Protection Guide, 1 x handy storage container.
- > To avoid moisture and contaminant exposure, store the respirator in the handy, sealable storage container.



Product	Code	Description	Filter Rating	Application
	3MSF76	Dust/Particle Respirator Starter Kit 6225	P2	Ideal for insulation installation, masonry and food manufacturing. Typical tasks include grinding, drilling/cutting, sanding/sawing, powder coating, lead paint removal.
	3MSF74	Spraying Respirator Kit 6251	A1P2	Ideal for organic vapours with boiling points greater than 65°C. Typical tasks include paint spraying*, pesticide spraying, chemical handling, fibre glassing, printing and degreasing. *Not to be used when spraying isocyanate based paints (two pot paint).
	3MSF73	Spraying Respirator Kit 7551	A1P2	For premium comfort (due to soft silicone). Ideal for organic vapours with boiling points greater than 65°C. Typical tasks include paint spraying*, pesticide spraying, chemical handling, fibre glassing, printing and degreasing. *Not to be used when spraying isocyanate based paints (two pot paint).
	3MSF94	Welding Respirator Kit 7528	GP2	Welding, soldering/brazing, grinding/polishing, drilling, metal pouring, machining
	3MSF21 (S) 3MSF22 (M) 3MSF23 (L)	Asbestos/Silica/Dust Half Face Respirator Kit 7535	P2/P3*	Certain asbestos tasks & environments containing dust. Refer to www.business.govt.nz/worksafe .
	3MSF24 (S) 3MSF25 (M) 3MSF26 (L)	Asbestos/Silica/Dust Full Face Respirator Kit 6835	P3	Certain asbestos tasks & environments containing dust. Refer to www.business.govt.nz/worksafe

*Higher P3 protection only achieved when worn with a 3M Full Face Respirator. P2 protection level when worn on a 3M Half Face Respirator.

Eye and Head Protection

3M Safety Eyewear combines technology and design to provide a range of solutions for most work situations and activities. 3M safety glasses and goggles provide high quality optics and reliable UV protection.





Eye injuries can occur during many work tasks, e.g. handling substances, operating machinery/tools, welding, being struck by moving or stationary objects. Many eye injuries can be avoided by wearing the correct safety eyewear, which fits correctly providing a close seal around the eyes.

3M Head Protection offers safety helmets designed with outstanding quality and comfort in mind.

3M™ SecureFit™ Protective Eyewear

- > Provides a secure, snug fit without compromising comfort.
- > Patented 3M™ Pressure Diffusion Temple Technology allows the temples to naturally adjust to individual head sizes.
- > Polycarbonate lens absorbs 99.9% UVA & UVB.




Product	Code	Packaging	Description	Impact Rating	Application
	3MSF16	Pair	Securefit 200 Series, Anti-fog, Clear	AS/NZS 1337.1 Medium Impact	Light sanding, drilling, hammering, handling wire, manual sawing and chipping.
	3MSF17	Pair	Securefit 200 Series, Anti-fog, Grey		Light sanding, drilling, hammering, handling wire, manual sawing and chipping. Protects against sunlight while working outdoors.
	3MSF18	Pair	Securefit 400 Series, Indoor/Outdoor		Light sanding, drilling, hammering, handling wire, manual sawing and chipping. For workers moving between outdoor and indoor environments.
	3MSF112	Pair	Securefit 400 Series, Anti-fog, Grey		Light sanding, drilling, hammering, handling wire, manual sawing and chipping.

3M™ Photochromic™ Lenses

- > Lenses automatically change from dark to clear in 35 seconds and clear to dark in 8 seconds.
- > Tough polycarbonate lens absorbs more than 99% UV. Durable frame with nylon brow and magnesium alloy temples.



Product	Code	Packaging	Description	Application
	3MSF14	Pair	Photochromic Black Frame/UV Reactive Hard Coat Lens 10423	Light sanding, drilling, hammering, handling wire, manual sawing and chipping. For workers moving between outdoor and indoor environments.

3M™ Light Vision II™ Series

- > Provides workers with hands-free direct lighting.
- > Dual LED lights are adjustable so light is directed where needed.
- > LED lights have a long battery life of up to 50 hours.
- > Wrap around design.



Product	Code	Description	Impact Rating	Application
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3MSF15

Light Vision II Series

AS/NZS 1337.1
Medium Impact

Ideal for intricate work and inspection tasks where extra lighting is required.

3M™ Fahrenheit™ Goggle Series

- > Slim, lightweight design that provides excellent field of vision.
- > Built-in channel designed to fit prescription frames.
- > DX anti-fog/anti-scratch coating.



Product	Code	Description	Impact Rating	Application
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3MSF13

Fahrenheit Goggle

AS/NZS 1337.1
Medium Impact

Fine and large particles generated by tasks during construction, engineering, general assembly, maintenance and repair.

Protective Apparel




3M's comprehensive range of disposable coveralls provide protection for a variety of applications. Harmful dust, light liquid splashes, and biological contaminants are just some of the hazards in today's workplace. The 3M range of quality disposable coveralls help protect at-risk workers and offers quality and reliability, helping workers to manoeuvre freely and operate efficiently.

For hand protection the 3M™ Comfort Grip Gloves offer a comfortable alternative to the traditional cotton and leather work glove. 3M Comfort Grip Gloves are constructed from nylon knit material which offers a comfortable, breathable fit and are perfectly suited for applications where hand flexibility and dexterity are need.

3M™ Comfort Grip Gloves General Use

- > Lightweight, breathable.
- > Foam nitrile palm provides excellent grip.
- > Long lasting and washable. Elastic cuffs.






	Product Code	Description	Protection Rating	Application
	3MSF35	Comfort Grip Gloves Medium	Abrasion and puncture resistant per EN388 level 4122	For general material handling, handling small parts, electrical component assembly. Carpentry, plumbing, roofing.
	3MSF36	Comfort Grip Gloves Large		
	3MSF37	Comfort Grip Gloves X-Large		

3M™ Comfort Grip Gloves Cut Resistance

- > Same features and comfort as the General Use Gloves with even greater cut, puncture and tear resistance.
- > Foam nitrile palm provides excellent grip.
- > Long lasting and washable. Elastic cuffs.



	Product Code	Description	Protection Rating	Application
	3MSF38	Comfort Grip Cut Resistant Gloves Medium	Cut, abrasion and puncture resistant EN388 level 4544, ANSI Level 3	For handling abrasive or sharp materials, forming bending or machining sharp parts, cable pulling and wire handling, cable preparation.
	3MSF39	Comfort Grip Cut Resistant Gloves Large		
	3MSF40	Comfort Grip Cut Resistant Gloves X-Large		

Black Nitrile Disposable Gloves

Black Nitrile Disposable Gloves are made from 100% Nitrile. Nitrile is a synthetic material that resists chemicals like petrol, oils, grease, diesel, hydraulic fluids, solvents, paint thinners, acids, disinfectants and most alkalis. They have 3 times the puncture protection of latex and are often used by people with an allergy or intolerance to latex.

- > Certified by NZ Food Safety Authority and MAF
- > Supplied in boxes of 100
- > Textured fingertips provide precise handling

Order Code	Size	Box Quantity
AR016	M	100
AR015	L	100
AR014	XL	100
AR017	2XL	90



Cotton Gloves


Order Code	Size	Pack Quantity
AR019	One Size	12 (pairs)



3M™ Protective Coverall 4520

- > Knit cuffs for increased comfort. Made with a breathable material to reduce heat build-up.
- > Two-way zipper with sealable tab on storm flap.
- > Three panel hood design for a more comfortable fit and a sleek, low-profile style.
- > Does not contain components made from natural rubber latex to help prevent reactions from users with latex sensitivities or restrictions.



	Product Code	Description	Sizing	Protection Rating	Application
	PQA PQA 3MSF28 3MSF29 PQA	Protective Coverall 4520	Medium Large XL XXL 3XL	CE Type 5 & 6. Provides a basic barrier protection against light liquid splashes and hazardous dusts. Anti-static coating protection EN1149-5.	Woodworking, general powder handling, light-duty building cleaning, insulation laying, and metal polishing.

3M™ Protective Coverall 4510

- > Two-way zipper with storm flap.
- > Anti-static coating on both sides.
- > Does not contain components made from silicone to help prevent reactions from users with silicone sensitivities or restrictions.




	Product Code	Description	Sizing	Protection Rating	Application
	3MSF102 3MSF33 3MSF34 PQA PQA	Protective Coverall 4510	Medium L XL XXL 3XL	CE Type 5 & 6. Provides a basic barrier protection against light liquid splashes and hazardous dusts.	Paint spraying, metal polishing, machine or vehicle maintenance (oils and greases), and general industrial clean-up and protection.

3M™ Protective Coverall 4515

- > Made with a breathable material to reduce heat build-up and promote comfortable wear.
- > Two-way zipper with storm flap.
- > Does not contain components made from natural rubber latex.



	Product Code	Description	Sizing	Protection Rating	Application
	PQA PQA PQA PQA PQA	Protective Coverall 4515	Medium Large XL XXL 3XL	CE Type 5 & 6. Provides a basic barrier protection against light liquid splashes and hazardous dusts.	Paint spraying, metal polishing, machine or vehicle maintenance (oils and greases), and general industrial clean-up and protection.

3M™ Protective Overshoes 442

- > Elasticated ankle for protection against contaminants.
- > Enhanced fit.
- > Anti static.



	Product Code	Description	Sizing	Protection Rating	Application
	3MSF43	Disposable protective overshoe cover 442	One size	Basic barrier protection to help protect footwear against light liquid splashes and hazardous dusts.	General maintenance, electronics, manufacturing, catering, clean rooms, beauty industries, hygiene, laboratories.

Hi Vis Vests

These are the best of this type of vest you can buy. Made of lightweight polyester that is strong and easily washable. Zip front, long tail and genuine 3M reflective tape. Mobile phone pocket, pen pocket and large internal pocket. This vest does comply with safety standards AS/NZS 4602.1:2011 for garment design and AS/NZS 1906.4:2010 for fabric and reflective tape retro-reflectivity.

Features and Benefits

- > Quality Day/Night Fluorescent Yellow/Orange vests
- > Made of lightweight polyester that is strong and washable.
- > Zip front, long tail and genuine 3M reflective tape, mobile phone pocket, pen pocket and large internal pocket.
- > Coating Layers – UV Treatment








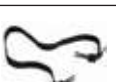


Order Code	Size	Colour	Quantity
AR018	M	Orange	Each
AR002	L	Orange	Each
AR001	XL	Orange	Each
AR007	2XL	Orange	Each
Order Code	Size	Colour	Quantity
AR004	L	Yellow	Each
AR003	XL	Yellow	Each
AR008	2XL	Yellow	Each

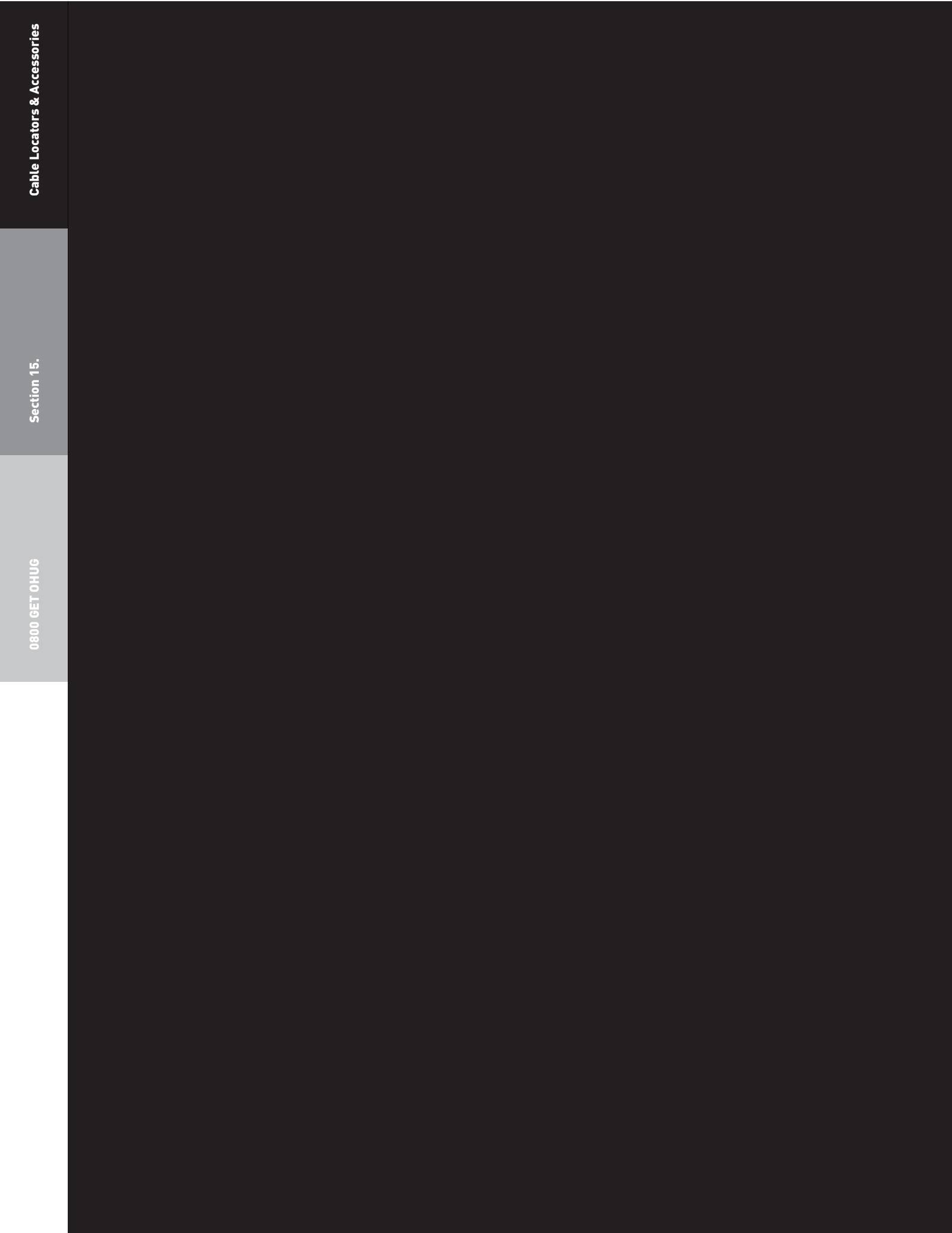
3M™ G2000 Safety Helmet with Uvicator

- > The 3M™ Uvicator™ Sensor will indicate when it's time to replace the hard hat due to extended UV exposure.
- > Ratchet headband provides easier and quicker adjustment.
- > Comfortable with a low back and relatively low profile.
- > Designed to accommodate additional accessories, visor and hearing protection.
- > Fully compliant with AS/NZS 1801.



Product	Code	Description	Impact Rating	Application
	3MSF63	G2000 Safety Helmet with Uvicator, Yellow	AS/NZS 1337.1 Medium Impact	Construction, factory work and quarrying.
	3MSF64	G2000 Safety Helmet with Uvicator, White		
	3MSF96	G2000 Safety Helmet with Uvicator, Red		
	3MSF95	G2000 Safety Helmet with Uvicator, Orange		
	3MSF97	G2000 Safety Helmet with Uvicator, Blue		
	3MSF98	G2000 Safety Helmet with Uvicator, Green		
	3MSF65	G2000 Safety Helmet with Uvicator, High Vis		
	3MSF71	Chin Strap for G2000 Helmet		

Please note: 3M™ G2000 Safety Helmet with Uvicator is compatible with 3M hard hat attached earmuffs with K-blade attachments.



Section 15

Cable Locators & Accessories

Cable Locators & Accessories

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3M™ Dynatel Locating & Marking Systems

3M™ Dynatel Locating and Marking Systems, comprising 3M™ Dynatel™ Locators, 3M Electronic Marking System and 3M EMS Cautions Tape, provide accurate marking and locating of critical underground assets. Sophisticated systems allow programming of identifying features into intelligent markers using RFID technology and interfaces with GPS/GIS systems for accurate mapping.



3M™ Dynatel™ Locators

3M Dynatel™ utility locators combine simple interfaces and high-resolution graphics with precision locating to help you quickly and accurately identify underground assets. Easy to use units available in a range of configurations up to fully featured pipe, cable and electronic marker and tape locators.



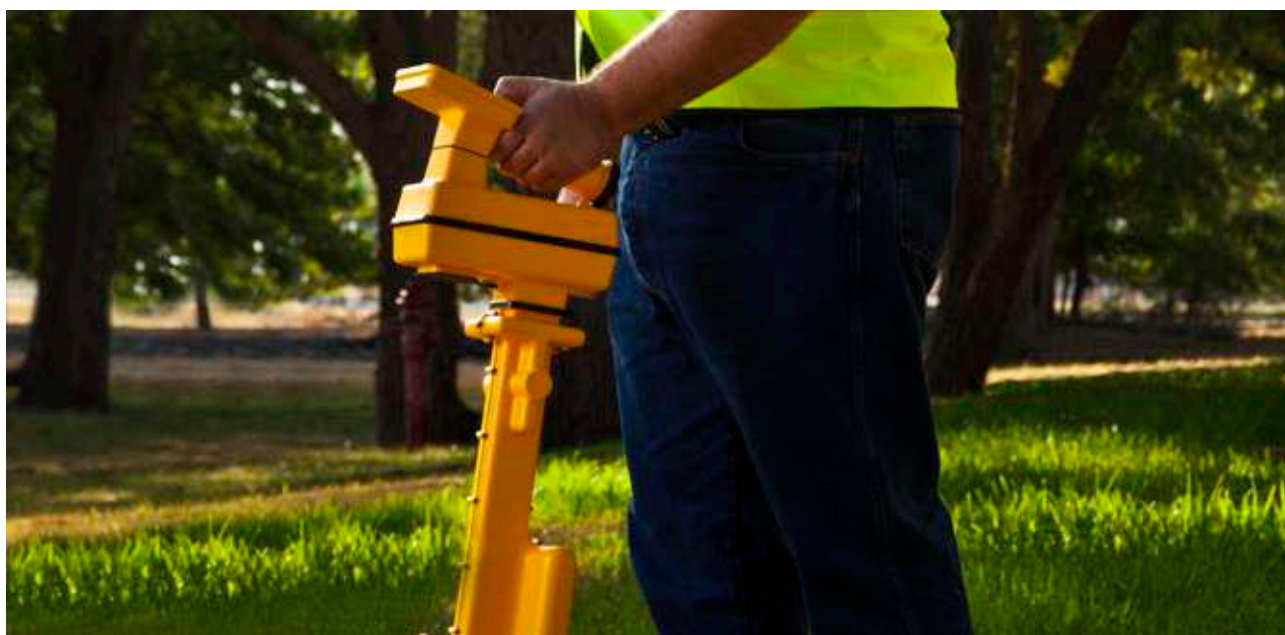
3M™ Electronic Marker System

Colour coded by industry and available in programmable iD versions to capture customer specific information. 3M utility markers help accelerate location and identification and avoid costly mistakes.



3M™ EMS Cautions Tape

3M's next generation of underground infrastructure asset management - a revolutionary approach to locating plastic pipes and conduits that eliminates the need, problems and costs associated with tracer wire and associated surface test points.



3M™ Dynatel™ Locators

3M™ Dynatel™ Locator Features by Model

Model	7420	7550	7573
Order Code	3M829	3M828	3M825
Purpose	Marker/Tape/Rope	Marker/Tape/Rope	Pipe/Cable/Marker/Tape/Fault /Rope
Country	AU & NZ	AU & NZ*	AU & NZ*



Pipe and cable locate		✓	✓
Electronic marker locate/read/write	✓	✓	✓
EMS Caution Tape locate	✓	✓	✓
GPS compatible	✓	✓	✓
Active frequencies		6	6
Passive power		✓	✓
Passive LF		✓	✓
Sonde locating		✓	✓
Fault locate (A-frame)			✓
Transmitter output		12W	12W
Dyna-coupler size		114 mm	114 mm
Direct connect cable (S/L Clips)		Large	Large
Ground rod and pouch		✓	✓
USB to Serial Adaptor Cable	✓	✓	✓
7000RB rechargeable battery			
(locator)	✓	✓	✓
2200RB rechargeable battery			
(transmitter)		✓	✓
Cigarette lighter adapter cable		✓	✓
Carry bag	✓	✓	✓
Replaces earlier models	1420	2250, 2250M	2273, 2573

*Different models in each country. Australian models are not permitted to be sold in New Zealand.

3M™ Dynatel™ Marker/Tape/Rope Locator 7420

3M™ Dynatel™ Marker/Tape/Rope Locator 7420 is a performance locator that quickly and efficiently locates all frequencies of 3M EMS Caution Tape/Rope and Electronic Markers. It has the capability to read/write to 3M™ Dynatel™ iD Enabled Markers and can locate most other conventional electronic markers.

Designed to be accurate, fast and integrated, the 7420 EMS Marker/Tape/Rope Locator with iD Read/Write allows you to accurately and easily:

- > Locate and follow the path of EMS Caution Tape/Rope
- > Locate and read 3M iD Markers
- > Write to 3M iD Markers
- > Pinpoint the depth and location of all existing models of properly installed underground passive EMS Markers
- > Identifies depth and direction of EMS Caution Tape and Rope

Cable/Pipe Locate	No
Ball and Marker Locate	Yes
3M EMS Caution Tape and Rope Locate Trace	Yes
Earth Return Fault Locate	No
GPS Adaptable	Yes

Product	Order Code	7000RB Rechargeable Battery	Carrying Bag Included
7420	3M829	Yes	Yes



3M™ Dynatel™ Pipe/Cable/EMS Locator 7550-iD

The 3M™ Dynatel™ 7550-iD locator represents an advancement in locating technology for the field professional. The 7550-iD locator allows users to locate the new 3M EMS Caution Tape and Rope, along with cables, pipes and the ability to read/write to 3M iD markers.

Features Include:

- > Locate and follow the path of 3M EMS Caution Tape and Rope
- > Six active frequencies (577 Hz, 1 kHz, 8 kHz, 33 kHz, 82 kHz, 133 kHz (NZ only), 200 kHz (AU only))
- > Maximum transmitter output of 12 watts
- > Trace view mapping interface that provides intuitive mapping display
- > Five modes of operation
- > Locate, write and read information into the 3M™ iD Electronic Marker System
- > Compatible with GPS
- > Lightweight, compact and well balanced
- > Rugged and durable

Cable/Pipe Locate	Yes
Ball and Marker Locate	Yes
3M EMS Caution Tape and Rope Locate Trace	Yes
Earth Return Fault Locate	No
GPS Adaptable	Yes

Product	Country	Order Code	Transmitter	Direct Connect Cable	Coupler Size	7000RB Rechargeable Battery (Locator)	2200RB Rechargeable Battery (Transmitter)	Carrying Bag Included
7550-ID/E12 - NZ	NZ	3M828	12 watt	Large clips	114 mm	Yes	Yes	Yes



3M™ Dynatel™ Pipe/Cable/EMS/Fault/Locator 7573-iD

The 3M™ Dynatel™ 7573-iD locator represents an advancement in locating technology for the field professional. The 7573-iD locator allows users to locate the new 3M EMS Caution Tape and Rope, along with cables, pipes and the ability to read/write to 3M iD markers. It can also be used for locating earth return faults.

Features Include:

- > Locate and follow the path of 3M EMS Caution Tape and Rope
- > Six active frequencies (577 Hz, 1 kHz, 8 kHz, 33kHz, 82 kHz, 133 kHz (NZ only), 200 kHz (AU only)
- > Maximum transmitter output of 12 watts
- > Trace view mapping interface that provides intuitive mapping display
- > Five modes of operation
- > Locate, write and read information into the 3M™ iD Electronic Marker System
- > Compatible with GPS
- > Lightweight, compact and well balanced
- > Rugged and durable
- > Precisely locates sheath or ground faults on both short and long cable sections

Cable/Pipe Locate	Yes
Ball and Marker Locate	Yes
3M EMS Caution Tape and Rope Locate Trace	Yes
Earth Return Fault Locate	Yes
GPS Adaptable	Yes



Product	Country	Order Code	Transmitter	Direct Connect Cable	Coupler Size	7000RB Rechargeable Battery (Locator)	2200RB Rechargeable Battery (Transmitter)	Carrying Bag Included
7573-iDE/E12 - NZ	NZ	3M825	12 watt	Large clips	114 mm	Yes	Yes	Yes

3M™ Electronic Marker System

3M Electronic Markers provide accurate identification of underground assets, helping to reduce the risk of accidentally excavating other buried facilities. All markers function without the need for an external power source. Their water resistant polyethylene shells are impervious to minerals, chemicals and the temperature extremes normally found underground.

iD Markers can be programed to include customer-specific information about the asset, such as the facility owner, conduit size, placement date, and other important details. This information can be accessed using 3M locators with the iD function.



The 3M™ Electronic Marker System (EMS) helps save utility companies time and money by enabling field crews to quickly pinpoint the location of buried facilities including cable runs, splices and joints, valves, bends, road crossings, service drops and manholes. Using EMS Markers during construction, installation and maintenance virtually eliminates the time consuming search for hard-to-locate facilities.

3M™ Electronic Marker System Overview

		Telephone	Power	CATV	General	Water	Wastewater	Gas	3M iD and EMS Markers Read Range	
		Orange	Red	Black Orange	Purple	Blue	Green	Yellow	Using 7420-ANZ or 7550 or 7573 AU models	Using 7550 or 7573 NZ models
iD (Programmable)	1421-XR/iD	1421-XR/iD	1422-XR/iD	1427-XR/iD	1428-XR/iD	1423-XR/iD	1424-XR/iD	1425-XR/iD	1.5 m	1.2 m (Tel, Gas, WW, CATV) 1.0 m (Power, water)
	1432-XR/iD	1432-XR/iD	1433-XR/iD		1438-XR/iD	1434-XR/iD	1435-XR/iD	1436-XR/iD	0.9 m	0.6 m
	1250-XR/iD	1250-XR/iD	1251-XR/iD		1248-XR/iD	1252-XR/iD	1253-XR/iD	1254-XR/iD	2.4 m	2.0 m
Passive	1401-XR	1401-XR	1402-XR	1407-XR	1408-XR	1403-XR	1404-XR	1405-XR	1.5 m	1.5 m
	1432	1432	1433			1434	1435	1436	0.6 m	0.6 m
	1250	1250	1251			1252	1253	1254	2.4 m	2.4 m

*0.9 m for passive near-surface markers, 0.6 m for iD (programmable) near surface markers

3M™ EMS Near Surface Markers

3M EMS Near-Surface Markers provide an accurate, long lasting method of marking underground facilities. The markers have a range of up to 1 metre from marker to locator and can be programmed to include customer specific information (iD version).



Product	Order Code	Programmable/Passive	Application	Colour	Depth	Height x Diameter
1432	POA	Passive	Telephone	Orange	0.9 m	76 mm x 20 mm
1433	POA	Passive	Power	Red	0.9 m	76 mm x 20 mm
1434	POA	Passive	Water	Blue	0.9 m	76 mm x 20 mm
1435	POA	Passive	Wastewater	Green	0.9 m	76 mm x 20 mm
1436	POA	Passive	Gas	Yellow	0.9 m	76 mm x 20 mm
1432-XR/iD	POA	Programmable	Telephone	Orange	0.6 m	76 mm x 20 mm
1433-XR/iD	POA	Programmable	Power	Red	0.6 m	76 mm x 20 mm
1434-XR/iD	POA	Programmable	Water	Blue	0.6 m	76 mm x 20 mm
1435-XR/iD	POA	Programmable	Wastewater	Green	0.6 m	76 mm x 20 mm
1436-XR/iD	POA	Programmable	Gas	Yellow	0.6 m	76 mm x 20 mm
1438-XR/iD	POA	Programmable	General Purpose/ Recyclable Water	Purple	0.6 m	76 mm x 20 mm

3M™ EMS Ball Markers

The 3M EMS Ball Markers have a self-leveling design providing accurate, horizontal position regardless of how the ball is placed in the ground, making the job of precisely locating underground facilities easier.



Product	Order Code	Programmable	Application	Colour	Depth	Diameter
1401-XR	3M833	Passive	Telephone	Orange	1.5 m	102 mm
1402-XR	3M824	Passive	Power	Red	1.5 m	102 mm
1403-XR	POA	Passive	Water	Blue	1.5 m	102 mm
1404-XR	POA	Passive	Wastewater	Green	1.5 m	102 mm
1405-XR	3M835	Passive	Gas	Yellow	1.5 m	102 mm
1407-XR	POA	Passive	CATV	Orange/Black	1.5 m	102 mm
1408-XR	3M830	Passive	General Purpose/Recycled Water	Purple	1.5 m	102 mm
1421-XR/ID	POA	Programmable	Telephone	Orange	1.5 m	102 mm
1422-XR/ID	POA	Programmable	Power	Red	1.5 m	102 mm
1423-XR/ID	POA	Programmable	Water	Blue	1.5 m	102 mm
1424-XR/ID	POA	Programmable	Wastewater	Green	1.5 m	102 mm
1425-XR/ID	3M802	Programmable	Gas	Yellow	1.5 m	102 mm
1427-XR/ID	POA	Programmable	CATV	Orange/Black	1.5 m	102 mm
1428-XR/ID	3M832	Programmable	General Purpose/Recycled Water	Purple	1.5 m	102 mm

3M™ EMS Full-Range Markers

3M EMS Full-Range Markers provide an accurate, convenient, long lasting method of marking underground facilities. The marker has a range of up to 2.4 metres from marker to locator.



Product	Order Code	Programmable/Passive	Application	Colour	Depth	Diameter x Thickness
1250	POA	Passive	Telephone	Orange	2.7 m	381 mm x 17 mm
1251	POA	Passive	Power	Red	2.7 m	381 mm x 17 mm
1252	POA	Passive	Water	Blue	2.7 m	381 mm x 17 mm
1253	POA	Passive	Wastewater	Green	2.7 m	381 mm x 17 mm
1254	POA	Passive	Gas	Yellow	2.7 m	381 mm x 17 mm
1248-XR/ID	POA	Programmable	General Purpose/ Recyclable Water	Purple	2.4 m	381 mm x 17 mm
1250-XR/ID	POA	Programmable	Telephone	Orange	2.4 m	381 mm x 17 mm
1251-XR/ID	POA	Programmable	Power	Red	2.4 m	381 mm x 17 mm
1252-XR/ID	POA	Programmable	Water	Blue	2.4 m	381 mm x 17 mm
1253-XR/ID	POA	Programmable	Wastewater	Green	2.4 m	381 mm x 17 mm
1254-XR/ID	POA	Programmable	Gas	Yellow	2.4 m	381 mm x 17 mm

3M™ EMS Path Marking Tape and Rope

A new approach to path marking

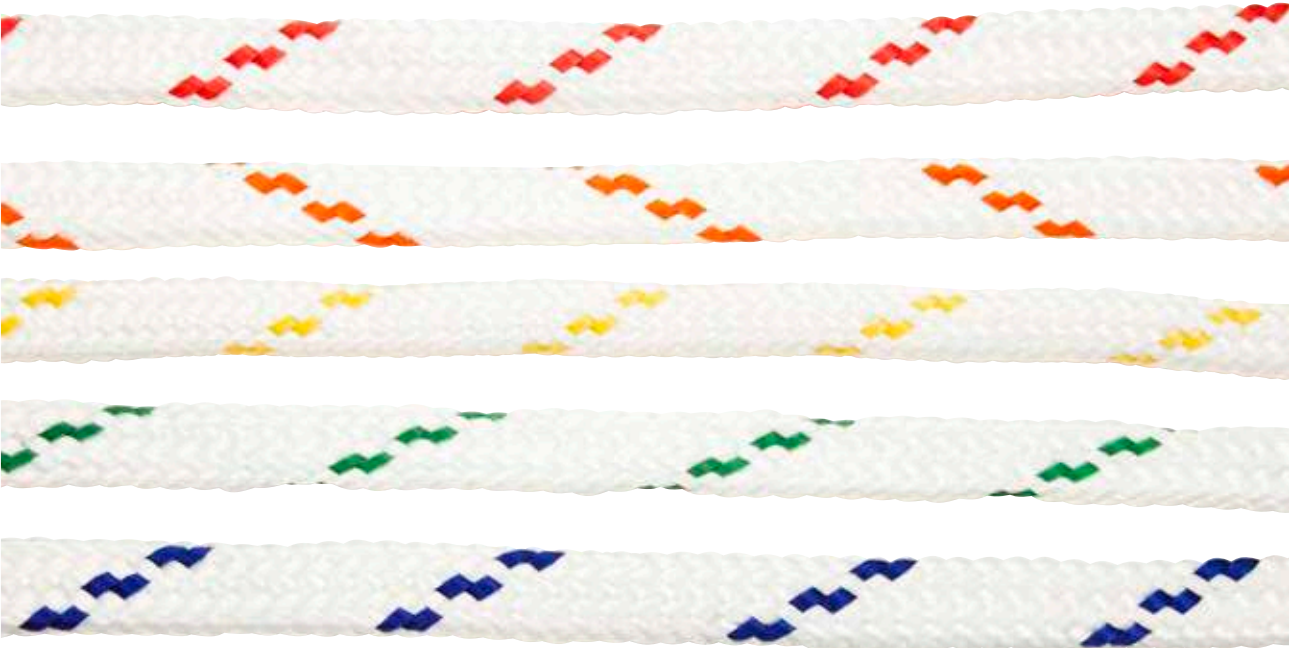
Our latest innovation, 3M™ EMS Path Marking Tape and Rope, is virtually a maintenance-free solution for marking and locating the path of underground plastic pipes and conduits that helps eliminate the problems and costs associated with tracer wire and test stations.

3M EMS marking tapes and ropes are embedded with markers that are activated using a 3M™ Dynatel™ Locators 7000 Series. Their intrinsic benefits save time and money.


- > They can be installed near or above buried assets
- > They are easy to follow, creating a detectable path above ground
For use in open trench and HDD (Horizontal Directional Drilling) applications
- > They do not require batteries and there is no need to hook up an external transmitter or spend time searching for access points
- > The markers work independently, so even if a section of path marking tape/ rope is cut or removed, the other markers on the tape/rope will continue to provide an accurate location
- > They come in 5 frequencies, creating a unique identification for each utility type




	Depth	Roll Length	Marker Spacing	Telephone	Power	Water	Wastewater	Gas
Tape	Up to 1.2 m	400 m	2.5 m	7611XR	7612XR	7613XR	7614XR	7615XR
	Up to 0.9 m	400 m	3.6 m	7611	7612	7613	7614	7615
Rope	Up to 1.2 m	300 m	2.5 m	7701-HTS	7702-HTS	7703-HTS	7704-HTS	7705-HTS
	Up to 1.2 m	300 m	2.5 m	7701-R	-	-	-	-
HTS = High Tensile Strength				XR = Extended Range			R = In-Conduit	



3M™ Direct Connect Accessories

Product & Country	2876 AU & NZ	8006 AU & NZ	9043 AU & NZ
			
Order Code	POA	POA	POA
Product Name	3M™ Large Clip Direct-Connect Transmitter Cable for Most Cable/Fault Locators 2876	3M™ Ground Rod 8006	3M™ Ground Extension Cable 9043
Description	Two lead, 3 m cables used for direct connection to cable and ground	For applying ground capability. Stainless steel	Extends ground capability to 3.6 m
Compatible with	2250/2273, 2220M, 2250M/2273M, 2550/2573, 7550, 7573	2250/2273, 2220M, 2250M/2273M, 2550/2573, 7550, 7573	2250/2273, 2220M, 2250M/2273M, 2550/2573, 7550, 7573

3M™ Couplers

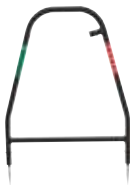

Product & Country	1196/C NZ	
		
Order Code	3M805 (Kit)	
Product Name	3M™ 152 mm Dyna-Coupler 1196/C	3M™ Ground Extension Cable 9043
Description	Permits coupling of RF trace tone to large diameter cables, bundle cables, and cables enclosed in accessible non-metallic ducts. For use on cables and conduits with a maximum diameter of 175 mm.	For use with any Dynatel Transmitter, Receiver, or Coupler; length of 3.6 m
Compatible with	2250/2273, 2220M, 2250M/2273M, 2550/2573, 7550, 7573	

3M™ Sondes

Product	3229
Order Code	POA
Product Name	3M™ ADP 33KHZ Sonde 3229 for use with Dynatel Series Locators
Dimension	150 mm length x 42 mm width
Weight	260 grams (with battery) and 215 grams (without battery)
Description	The 3200 Series Active Duct Probe is an active mini-transmitter (sonde) which allows the user to trace the path of conduit. The ADP can help the user pinpoint key points, such as J-boxes, handholes and stubs
Compatible with	2250/2273, 2220M, 2250M/2273M, 2550/2573, 7550, 7573



3M™ Fault Finding Accessories

Product	3014	9026
		
Order Code	POA	POA
Product Name	3M™ Earth Contact Frame 3014	3M™ Earth Contact Frame Cable 9026
Description	Used only when locating sheath (earth return) faults. It indicates direction to the fault and is colour coded to correspond with the receivers indicator	For use with the 3014 Earth Contact Frame for sheath (earth return) fault location; length of 1.2 m
Compatible with	2273, 2273M, 2573, 7573	2273, 2273M, 2573, 7573

3M™ Locator Carry Bags, Batteries and Chargers

Product & Country	2200M	2200RB	2200RB Adaptor	7000RB	7000RB Adaptor
					
Order Code	POA	POA	POA	POA	POA
Product Name	3M™ Soft Carrying Bag	3M™ Dynatel™ ANZ Transmitter Battery 2200RB	3M™ Dynatel™ ANZ Power Adaptor for 2200RB Transmitter Battery	3M™ Rechargeable Battery 7000RB	3M™ Dynatel ANZ Power Adaptor for 7000RB battery
Description	Soft carrying bag for the 1420, 2200M, 2500M, 2273M and 7000 series locators	Rechargeable lead acid battery for 5 watt and 12 watt transmitter units	Power adaptor for 2200RB battery	Rechargeable battery for 7000 series locators (receivers)	Power adaptor for 7000RB battery
Compatible with	1420, 2200M, 2250M/2273M, 7420, 7550, 7573	2273, 2250, 7550, 7573	2273, 2250, 7550, 7573	7420, 7550, 7573	7420, 7550, 7573

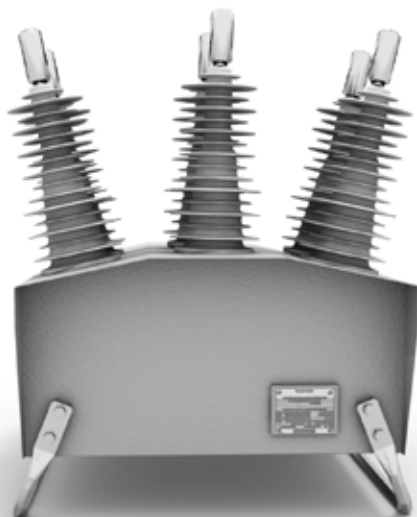


Section 16

Overhead Switchgear, Line Hardware & Insulators

Reclosers/Switches	440
Preformed Wire Products	466
Insulator Pins & Clevis Thimbles	470
Insulators	471
MV Surge Arresters	471
Silicone Insulators	472

OSM Recloser - Key Features

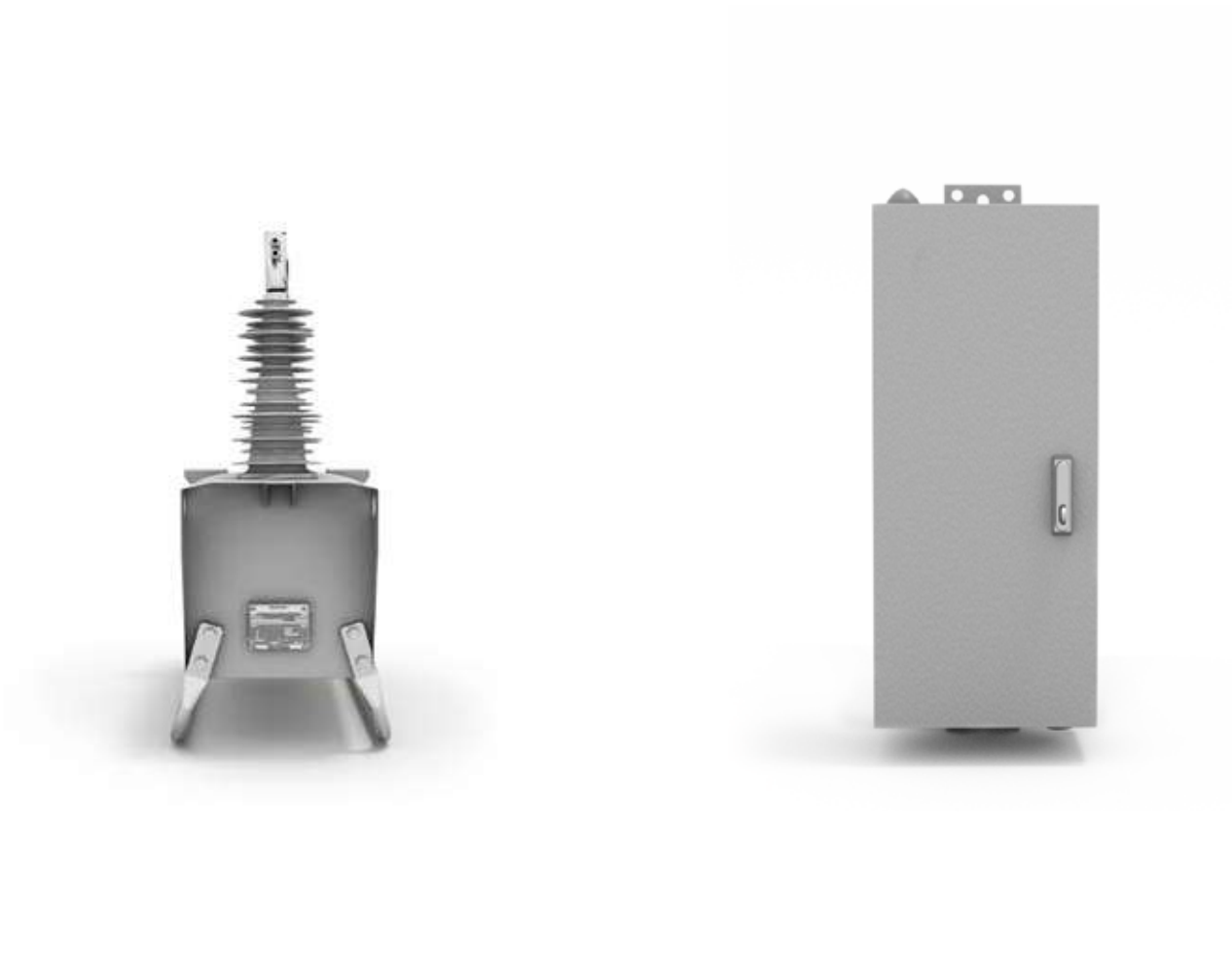


Ultimate Safety and Service

- > The World's Only Arc Fault Vented Solid Dielectric Recloser
- > Designed for a maintenance free life
- > Supported by an international network of Technical Staff
- > Ganged ultra-fast magnetic actuators to provide additional operator safety
- > Hot Line Tag functionality and Mechanical trip interlock directly connected to the OSM tank's operating mechanism
- > Unique and seamless NOJA Power Android and iOS App enhances linesmen comfort and safety
- > Internal double pole position indicator micro switches for added reliability
- > Triple shielded, water blocked and metal conduit protected control cable with military grade IP65 rated connectors
- > Grey powder coated tank to prevent drivers from being blinded by the sunlight reflecting on the tank
- > Only 3 electronic modules in total that can be replaced within 5 minutes with a simple screwdriver
- > Remote and quick firmware upgrades to keep up with the industry changes over time

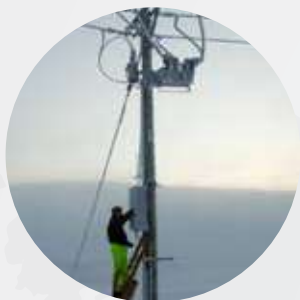
Ultimate Innovation

- > Class Defining Current and Voltage Sensors, included on both load and source side of the device as standard.
- > Full Automation, Logic and Synchronising Feeder Capability as standard
- > Over 100 different protection features, from the simplest Overcurrent and Earth Fault Protection through to Admittance, Fault Locator and Harmonic Protection
- > No Active Electronics in the Recloser Tank – Providing exceptional surge immunity and reliability



Unmatched Reliability

- > Total Stainless Steel External Construction
- > Full Industrial Temperature Range -40°C to +55°C
- > Proven Performance through decades in service
- > 55,000 Reclosers in Service Worldwide and Counting
- > Featuring the most reliable vacuum interrupter (VI) technology in the world today with radial magnetic field contacts to quickly diffuse the arc and maximise the life of the VI
- > Medium Time Between Failures (MTBF) of 850 years for a complete unit
- > Proprietary OSM tank design to eliminate partial discharges and minimise electrical stress
- > Aromatic epoxy poles encapsulated within a stainless steel tank so not exposed to UV radiation
- > Rating of 30,000 operations at full load, 3 times the industry's standard of 10,000 operations
- > Seamless Smart-Grid Interoperability with embedded third party type tested and expert level communication protocol implementations
- > Unique ceramic shielded temperature controlling RC control design
- > On board powerful processor and FPGE running diagnostics 24/7
- > RC control fitted with the industry's most powerful sealed, spill-proof and MAT lead acid 12Vdc and 26Ah battery
- > The RC controller's IP66 rating completely eliminates the need for heaters in cold climates or ventilation in tropical applications
- > EMC shielded Human Machine Interface (HMI) available in several languages and fitted inside an IP66 moisture and dust free RC Controller



Voltage Range, 6kV to 38kV



Sectionaliser



**Underground To
Overhead Connection**



**Mobile Fault
Firing Test Equipment**



Smart Grid Schemes



Auto-changeover Schemes



Mobile Switchgear



Alarm Switch



Remote Switch



Generator Connection

OSM Recloser

One Product - Many Applications

Solving Energy Challenges
all over the Distribution Network



Mine Equipment Protection

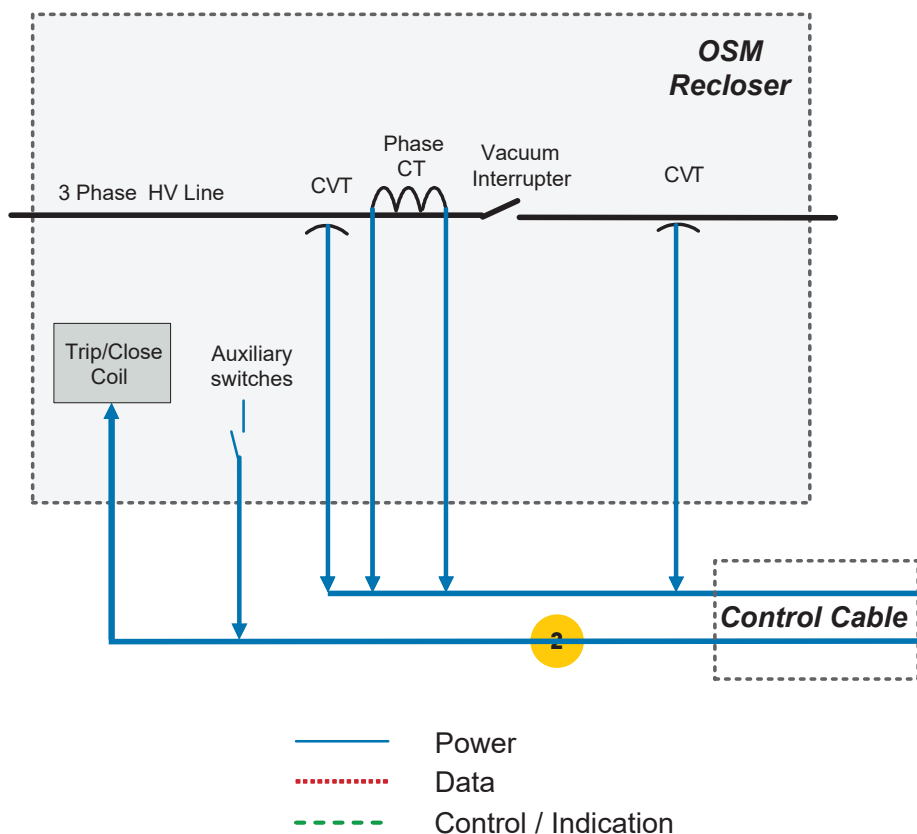


**Renewable and Distributed
Generation Connection**



Substation Circuit Breaker

The standard scope of supply



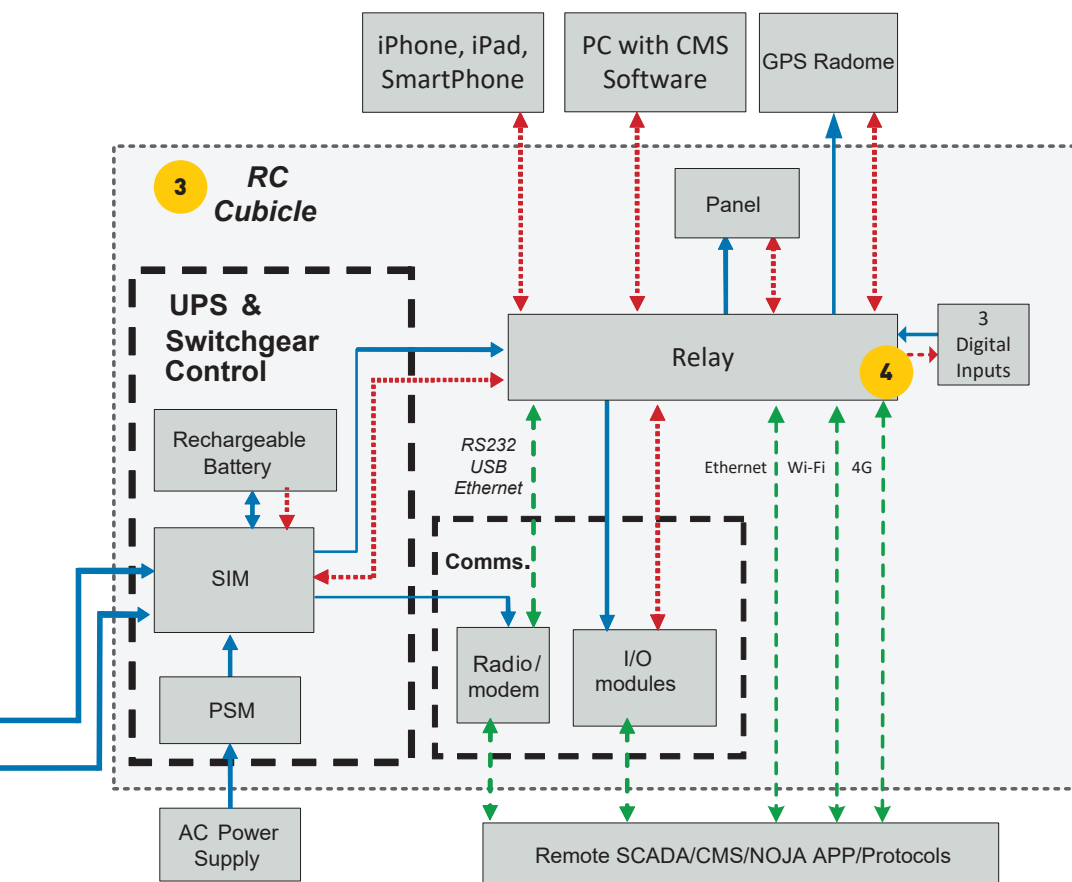
The OSM Recloser

- > Solid Dielectric
- > Vacuum Interruption
- > Oil and SF6 Free
- > Arc Fault Venting
- > 3 Integrated Current Transformers
- > 6 Integrated Voltage Sensors
- > Fully Bidirectional Operation
- > No Active Electronics
- > Hermetically Sealed
- > Stainless Steel Construction
- > Complete with Steel Mounting Bracket



The NOJA Power Control Cable

- > The Connection between Switchgear and Controller
- > Fully Armoured Cable
- > Ruggedized Stainless Steel Switchgear Connection
- > Military Specification Controller Connection
- > Vandal Proof, Sealed Control Cubicle Entry
- > Hand Crafted and Tested in Brisbane Australia
- > Length Options from 4m to 20m



THE RC10 OR RC15 CONTROLLER

Powered by the NOJA Power Relay 10 or Relay 15

- > Class Leading Comprehensive Protection, Communications, Power Quality Monitoring and Automation
- > Integrated GPS for microsecond accurate event timestamping, no communications necessary (RC15 only)
- > DNP3, IEC 61850, IEC 60870-5-101/104 all standard
- > Integrated 4G/3G/2G and WiFi (RC15 only)
- > IP66 Stainless Steel Enclosure
- > -40 C to +55 C



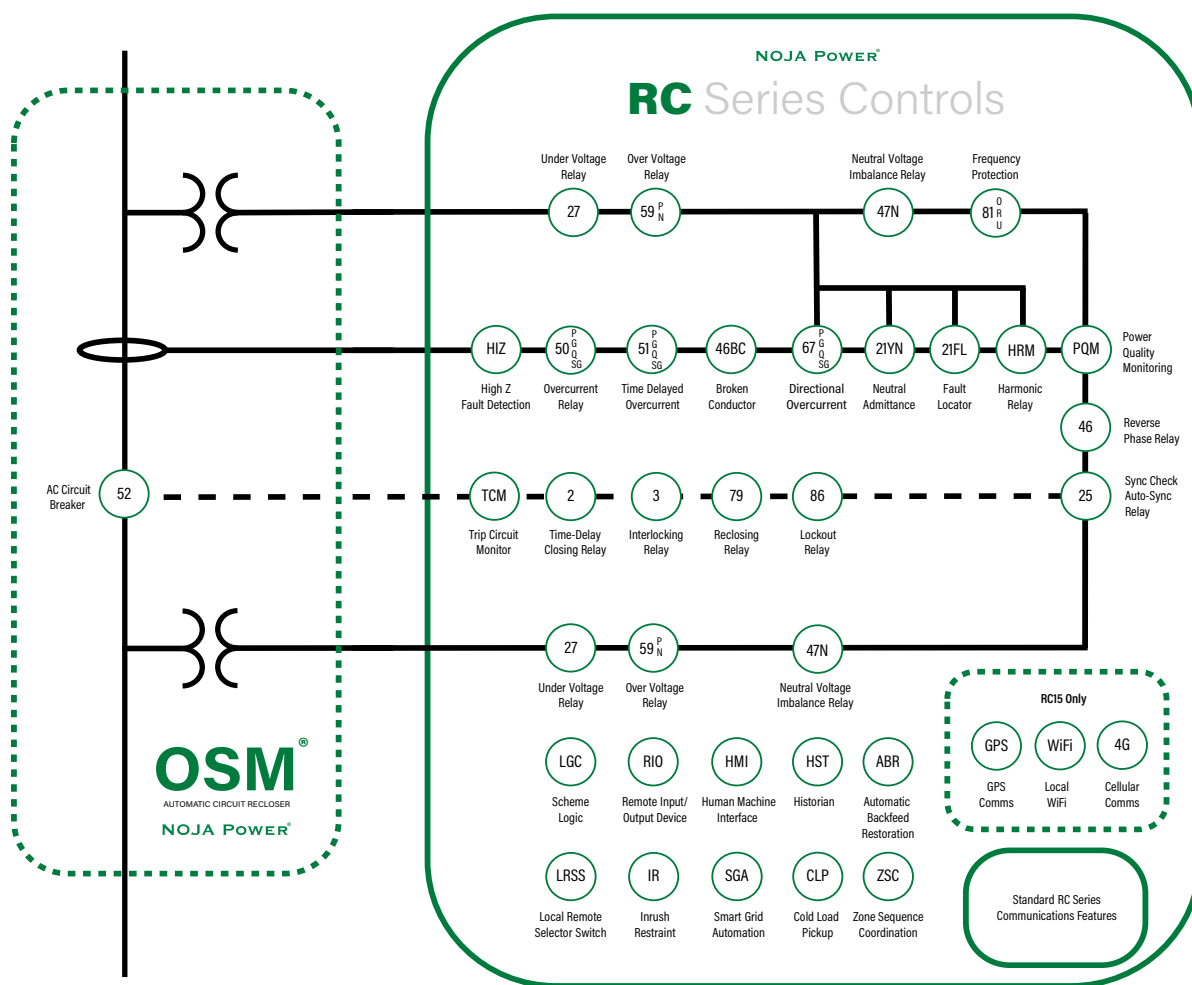
THE NOJA POWER RELAY 15

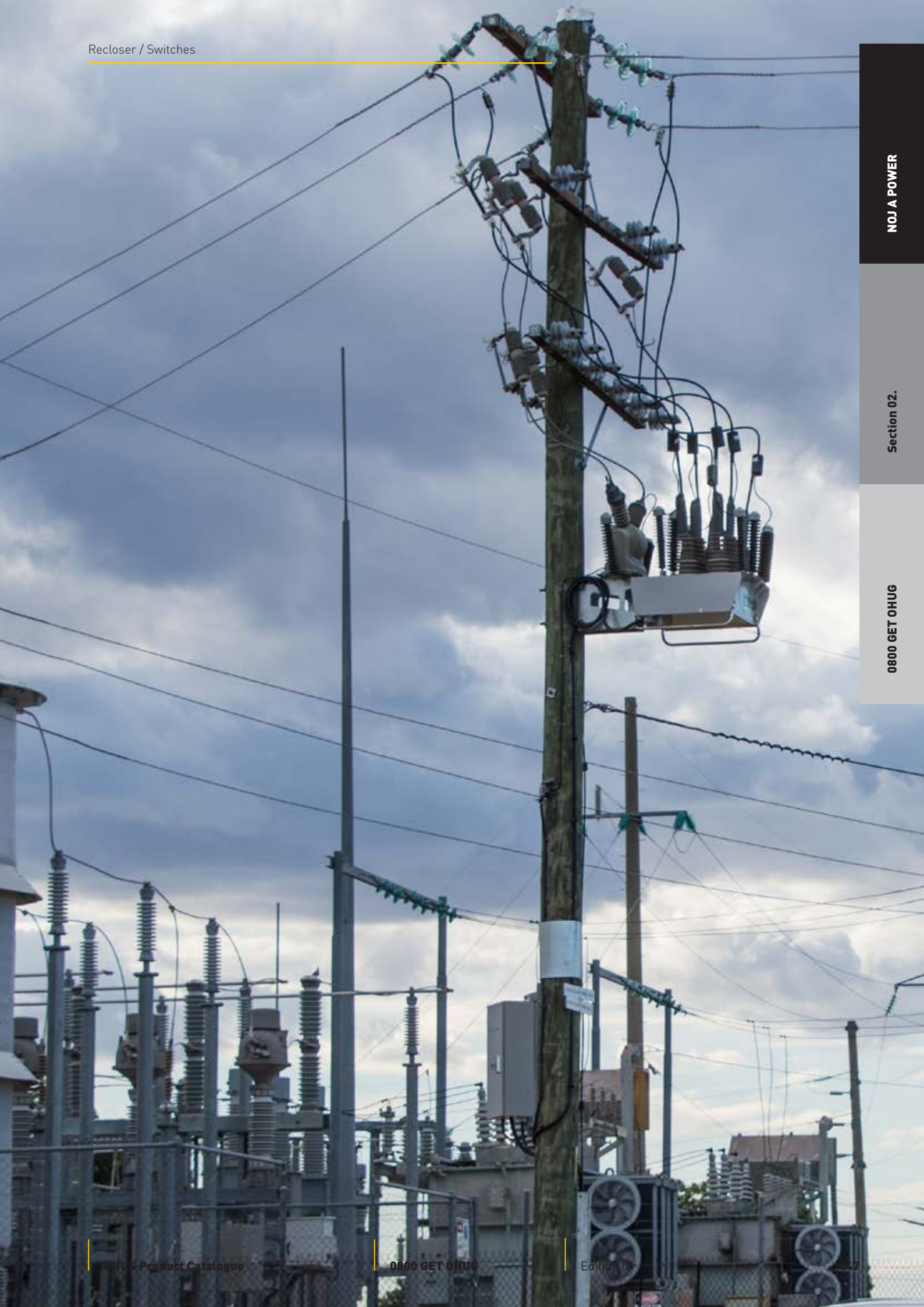
At the core of the RC15 Controller

- > Advanced Industrial Computer with Multiple Processors
- > Separate FPGA Signal Processing and Protection CPU
- > Native Ethernet, USB, GPS, WiFi, RS232, 4G/3G/2G and Automotive tier MOLEX Connections
- > Class Leading Protection, Automation and Communications Protocol Functionality
- > Comprehensive Power Quality Monitoring
- > Unrivalled Custom Logic Programming

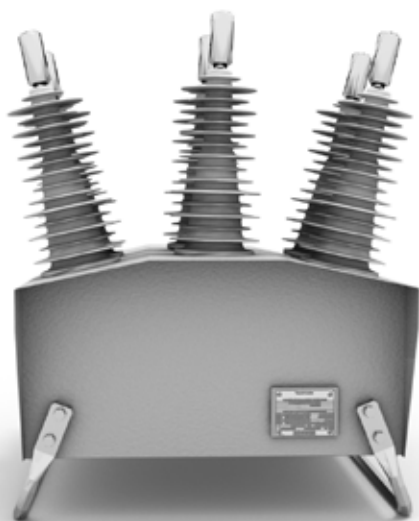
OSM Recloser System

ANSI Standard Protection Diagram





OSM Recloser - Switchgear Phase Variants



OSM Three Phase

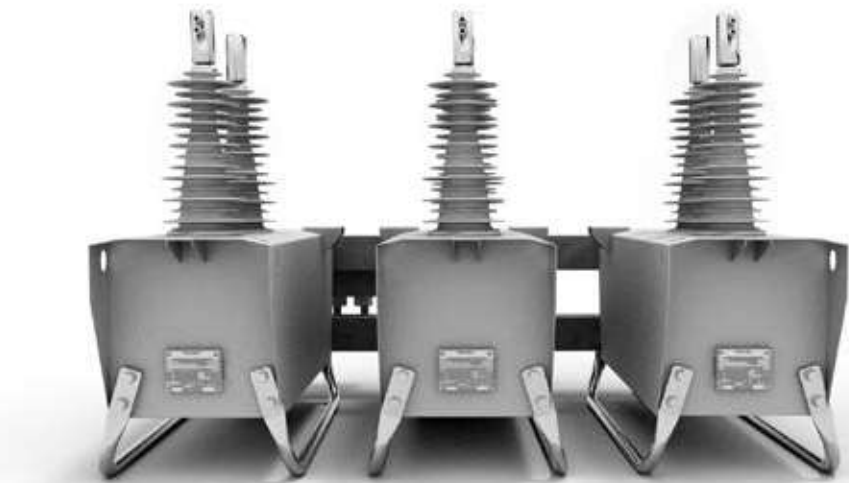


OSM Two Phase

The key interrupter architecture of the OSM Recloser can be deployed in four different variants. Ganged three-phase for 3-wire distribution systems, Two phase for 2 Wire Single Phase applications, Single Phase for Single Wire Earth Return (SWER) Applications, and un-ganged Three phase (Single Triple) for 4-wire overhead distribution systems.



OSM Single Phase



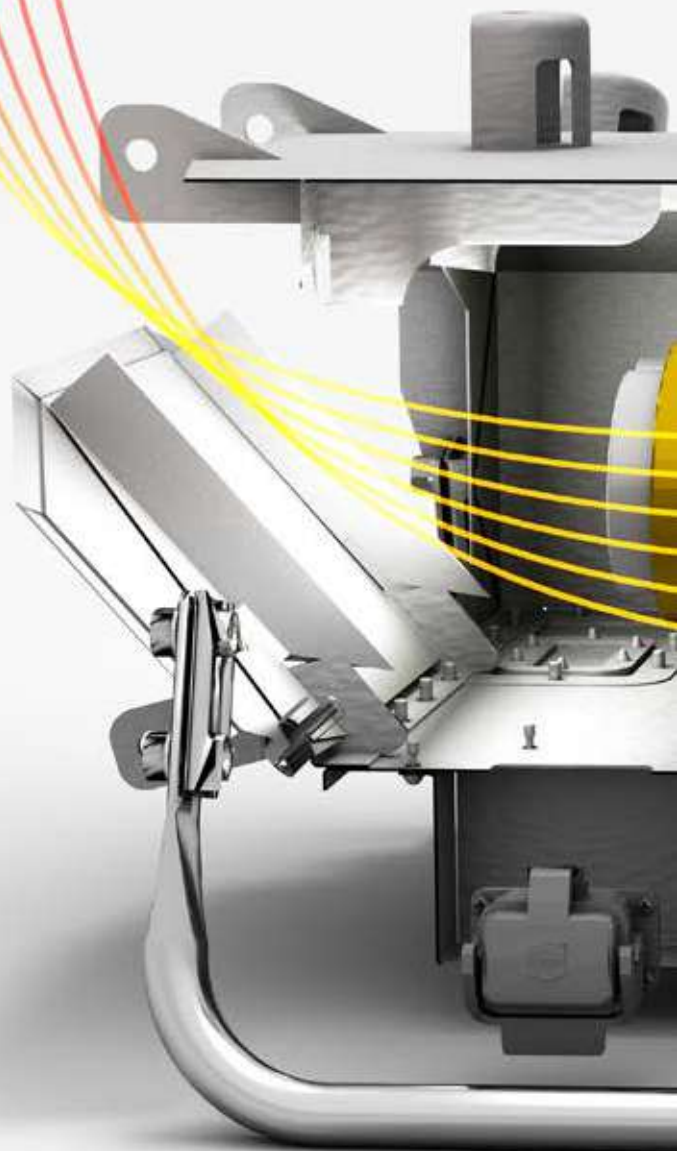
OSM Single Triple

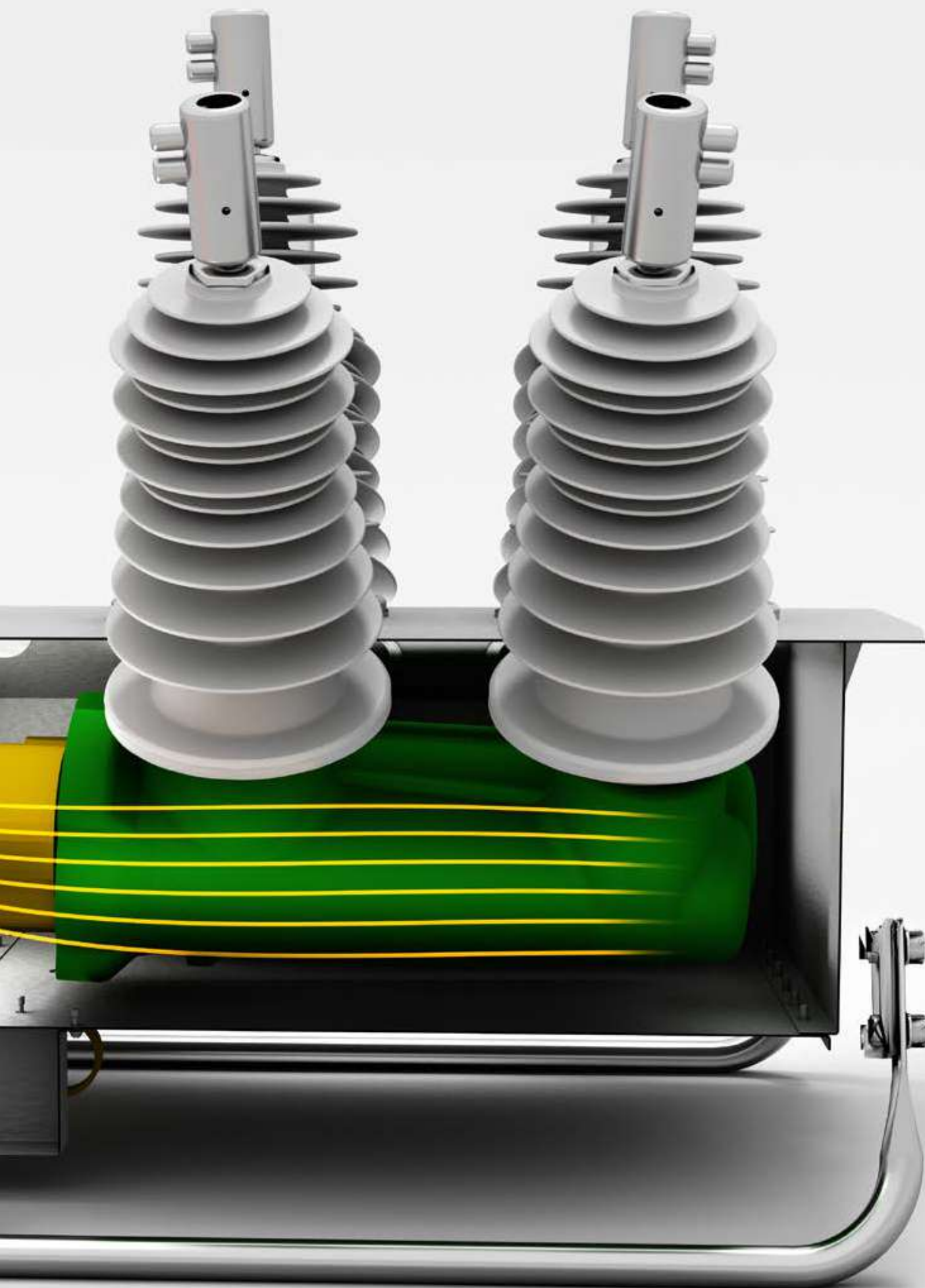
Class	Voltage Range	Rated Continuous Current	Fault Make Capacity RMS	Impulse Across Interrupter
OSM38-16	38kV	630A/800A	16kA	200kV
OSM15	15kV	630A/800A	16kA	110kV
OSM27	27kV	630A/800A	12.5kA	150kV
OSM38	38kV	630A/800A	12.5kA	170kV

OSM Recloser - Ultimate Safety

The World's Only Arc Fault Vented Solid Dielectric Recloser

NOJA power is committed to improving safety for operators in the field. The NOJA Power OSM Recloser has a patented arc fault venting design, which allows for containment of internal arc faults and safe venting up and away from operators. Type tested and verified, arc fault venting in the OSM Recloser provides operators and the general public with greatly improved safety.





NOJA POWER®

Empower the world.

**Driven by the most advanced controller
available today**

RC Series Controls

Simplicity for operators but power for protection engineers, the integrated nature of the OSM Recloser system provides unparalleled control and automation for engineers yet a device which works immediately, straight out of the box.

NOJA Power's OSM Recloser System is controlled by the world's most advanced Autorecloser Control, the NOJA Power RC. Offered in two variants, the RC10 and RC15 differ only on extended communications capability, with the latter including integrated GPS, Secure WiFi and 4G Modem.

Designed in collaboration with some of the most forward-thinking utilities on earth, NOJA Power's RC10 and RC15 controllers provide the intelligence and precision relied upon by thousands of utility engineers.

When Distribution Networks evolve, the only asset with all the answers is the NOJA Power RC Controller.



RC Controller - Key Features



RC15 Relay Module

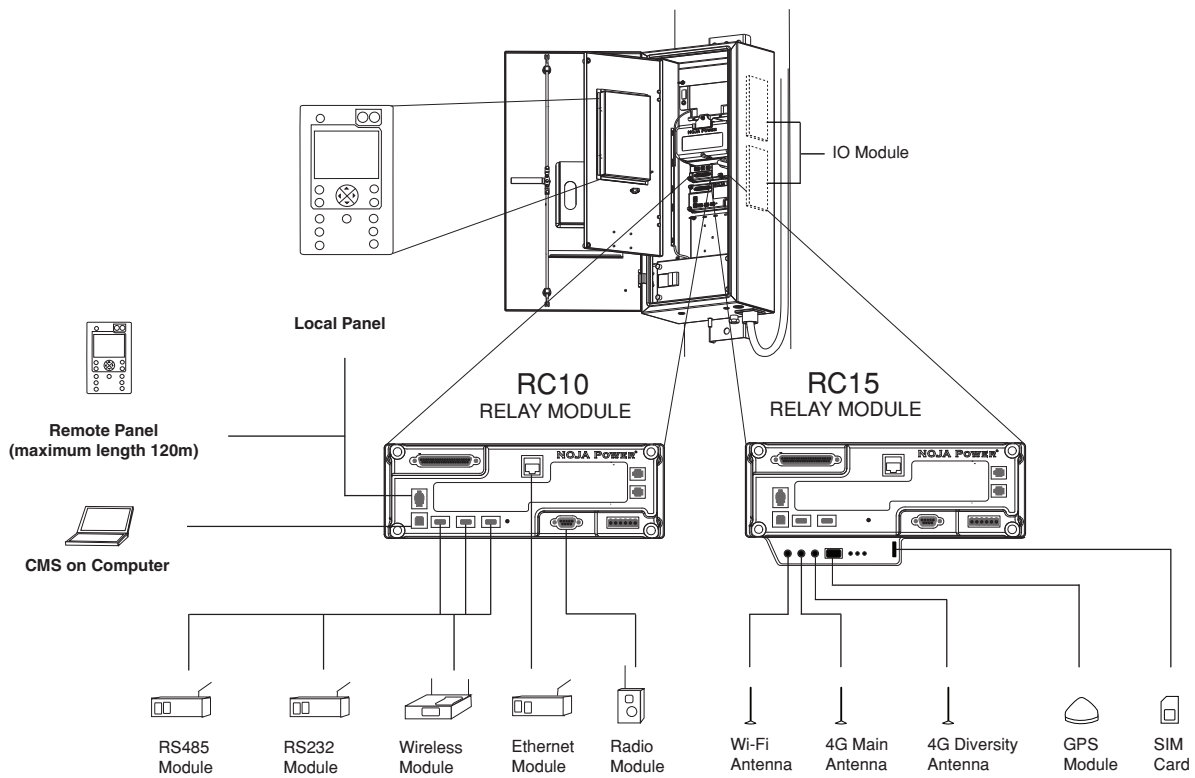
Class Leading Protection

- > Full Directional Protection for Overcurrent, Earth Fault, Negative Phase Sequence and Sensitive Earth Faults, with advanced gate technology for responding to low fault currents
- > ANSI, IEC255 and User Defined Protection curve for ultimate flexibility
- > Instantaneous high set elements and definite time protection
- > The worlds' highest resolution SEF feature at 200mA minimum pickup*
- > Advanced Voltage, Current and Composite Protection such as Broken Conductor, Admittance and Harmonic Protection
- > Complete suite of Power Quality Monitoring and logging tools included as Standard.

Unrivalled Automation

- > Co-Generation functions standard, including ANSI25 Synchrocheck and Auto-Synchroniser
- > Over and Under Voltage Protection providing 3 Phase Load Shedding, Neutral Displacement, Loss of Phase and Loss of Supply Operation for advanced Automation schemes
- > Over and Under Frequency Protection with user programmable pickup range and operating time
- > Fully configurable Logic and Smart Grid Automation based on IEC61499 open source logic design

* A Switchgear model with matched CTs to provide 0.2A SEF sensitivity, is available for all 3 phase and 2 phase tanks.



Peerless Logging, Communications and Data availability

- > An event log for close open and fault protection operations, viewable on the massive 40x17 backlit LCD display. This provides operators with clear and concise field reports on recloser operation, including fault type, fault current and even distance to fault.
- > A detailed event log for all operating history and settings changes viewable through both the local panel or the supplied software
- > Easy loading and retrieval of protection settings using the CMS Software Package
- > Instantaneous Voltage, Current and Power metering viewable on the panel
- > Load profile data logger, logging comprehensive system parameters on a user configurable period
- > Integrated RTU offering DNP3, DNP3-SA, DNP3 over IP, IEC 61850 MMS and GOOSE, IEC 60870-5-101/104 and NOJA Power Proprietary Protocols
- > Best in Class Remote Control and SCADA
- > Innovative Secure Wireless Remote Control

RC15 Only

- > All of the above, plus:
- > Integrated Secure WiFi
- > Integrated GPS for precise timestamping
- > Integrated 4G fallback 3G modem

OSM Recloser - Technical Specification

PART NUMBER	OSM15-16-800	OSM27-12-800	OSM38-12-800	OSM38-16-800 ⁴
Manufacturing Model	311/312/310 ^{1,2}	311/312/310 ^{1,2}	311/302/300 ^{1,2}	301/302/300 ^{1,2}
Current Sensing	3 x Current Transformers ³	3 x Current Transformers ¹	3 x Current Transformers ³	3 x Current Transformers ³
Voltage Sensing	6 x Voltage Screens ³	6 x Voltage Screens ³	6 x Voltage Screens ³	6 x Voltage Screens ³
Rated Maximum Voltage	15.5kV	27kV	38kV	38kV
Rated Continuous Current	800A	800A	800A	800A
Fault Make Capacity RMS	16kA	12.5kA	12.5kA	16kA
Fault Make Capacity Peak	40kA	31.5kA	31.5kA	40kA
Fault Break Capacity	16kA	12.5kA	12.5kA	16kA
Mechanical / Full Load Operations	30,000	30,000	30,000	30,000
Fault Break Capacity Operations	70	140	100	140
Short Time Current Withstand	16kA/3 secs	16kA/3 secs	12.5kA/3 secs	16kA/3 secs

PART NUMBER	OSM15-16-800	OSM27-12-800	OSM38-12-800	OSM38-16-800 ⁴
Mainly Active Breaking Capacity	800A	800A	800A	800A
Cable Charging Current	25A	25A	40A	40A
Line Charging Current	5A	5A	5A	5A
Impulse Withstand Phase to Earth & Phase to Phase	110kV	150kV	195kV	200kV
Impulse Across the Interrupter	110kV	150kV	170kV	170kV
Power Frequency Withstand Phase to Earth (Dry)	50kV	60kV	70kV	70kV
Power Frequency Across the Interrupter	50kV	60kV	70kV	70kV
Ambient Temperature	-40°C to +55°C	-40°C to +55°C	-40°C to +55°C	-40°C to +55°C
Humidity	0-100%	0-100%	0-100%	0-100%
Altitude ⁴	3000m	3000m	3000m	3000m
Weight of the Tank (Three Phase)	100kg	109kg	150kg	150kg

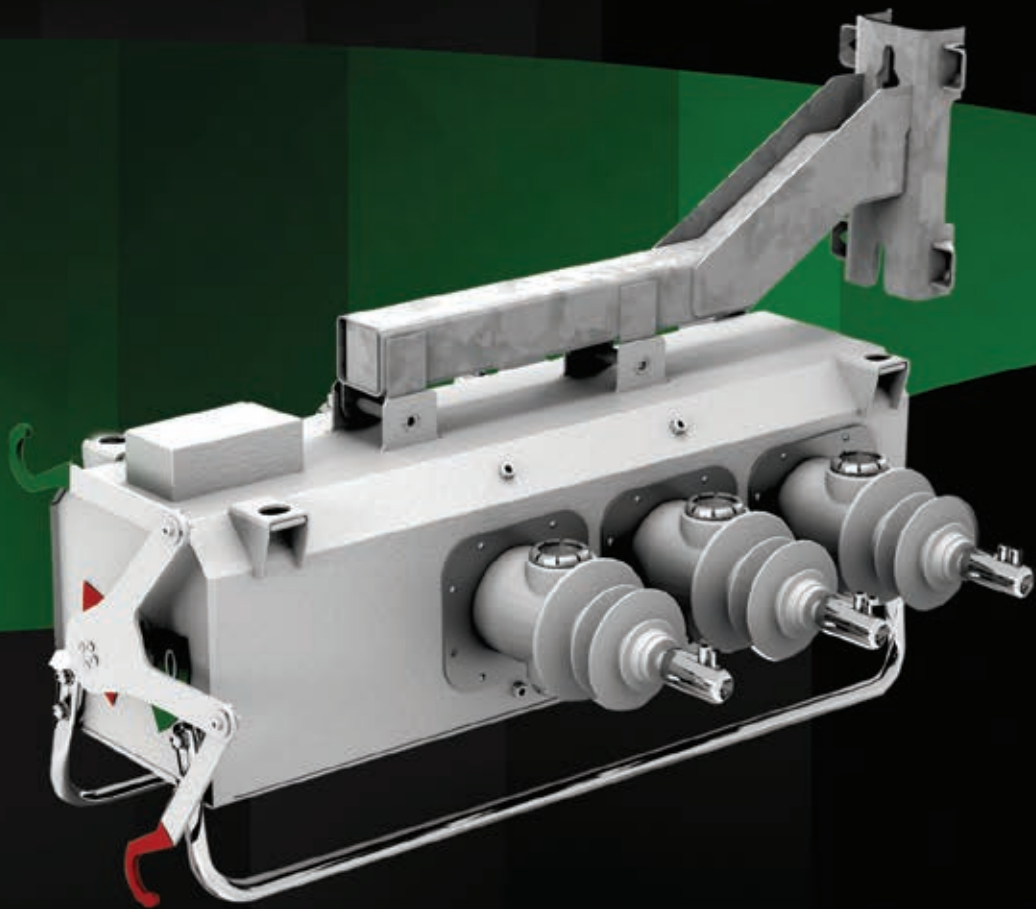
- OSM15-16-800-311, OSM27-12-800-311, OSM38-12-800-301, OSM38-16-800-301 (Single Phase Autorecloser) 1 x Current Transformers, 2x Voltage Screens, OSM15-16-800-312, OSM27-12-800-312, OSM38-12-800-302, OSM38-16-800-302 (Two Phase Autorecloser) 2 x Current Transformers, 4 x Voltage Screens
- OSM38-16-800 tested at 40.5kV for interruption
- Altitudes above 1000m should be corrected in accordance with ANSI C37.60-2012

NOJA POWER®

Empower the world.

VISI-SWITCH® OLB15-16-800 15KV MODEL

VISI-SWITCH



Introduction

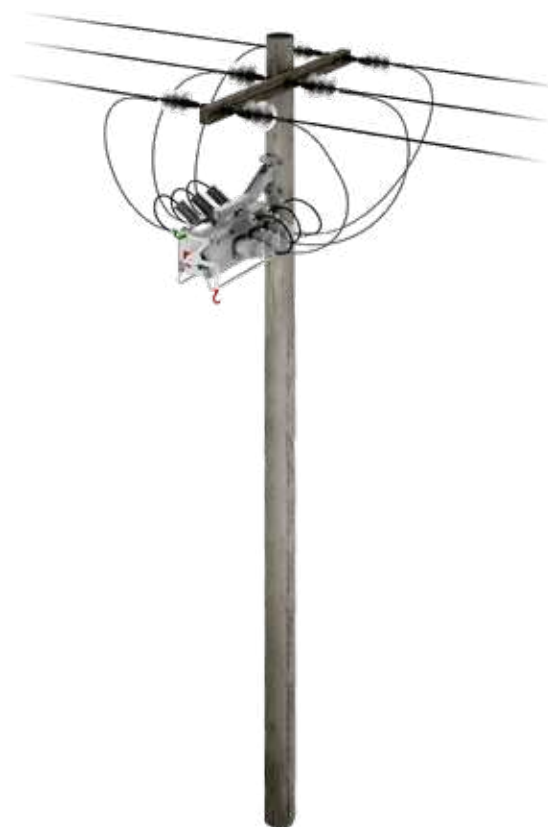
NOJA Power's VISI-SWITCH® is a solid dielectric load break switch designed for manual isolation in a three-phase electricity distribution grid feeder. Unique to this switch, is the viewing window embedded in the bushings, allowing an operator to see the actual point of isolation. Through the viewing window, an operator can see the isolator electrical contacts when the switch is closed and visible isolation when the switch is open, guaranteeing that the circuit is isolated.

It also features vacuum interrupters with solid dielectric insulation and a unique and patent-pending drive mechanism ensuring safe operational sequence.

NOJA Power's VISI-SWITCH® OLB15-16-800 has a rated maximum voltage of 15.5 kV, a rated continuous current of 800 A and a short time current withstand of 16 kA (for 3 seconds).

Each phase is comprised of a vacuum interrupter with solid dielectric insulation and a built-in isolator to provide physical isolation in accordance with the requirements of insulation coordination standards IEC 60071-1 Insulation co-ordination – Part 1: Definition, Principles and Rules and IEC 60071-2 Insulation co-ordination – Part 2: Application Guide.

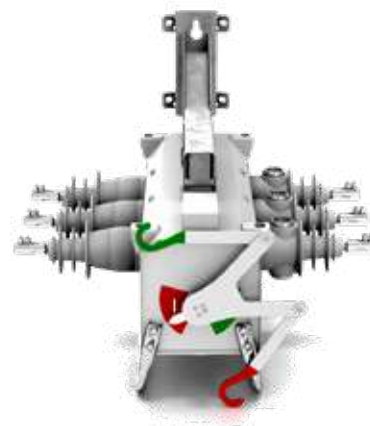
The VISI-SWITCH® features a unique and patent-pending drive mechanism which connects the vacuum interrupters to the isolators and guarantees both parts of the switch will open once operation is initiated. The sequencing of the complete switching operation is



VISI-SWITCH® WITH SURGE
ARRESTORS



VISI-SWITCH® SIDE VIEW



VISI-SWITCH® FRONT VIEW

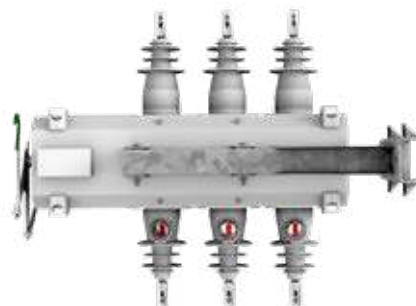
dictated by the drive mechanism which rapidly opens the vacuum interrupters to break the current and then, after a short delay, opens the isolators. The viewing window embedded in the isolator bushings can be seen from the ground allowing maintenance staff to confirm that the switch has been isolated prior to commencing work.

The product has been extensively type tested by independent laboratories to ensure long life and reliability under the harshest environmental conditions. The VISI-SWITCH® can operate in extreme temperatures, over a -40 to 55°C temperature range, 0 to 100 percent humidity, and meets specified ratings up to a height of 1000 m (functional up to 3000 m with derating). The unit is designed to cope with exposure to salt spray, dust, smoke and corrosive gases, vapours and liquids. The viewing window is scratch resistant and can withstand impact such as hail according to IK08.

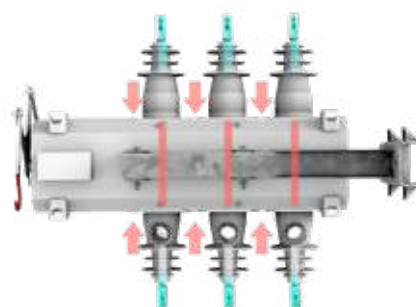
Utilities employ three-phase load break switches to isolate sections of feeders for maintenance work. In recent years, older air break switches, which could not be operated while the feeder was under load have been replaced by gas switches. While enclosed gas switches address the reliability deficiencies of air break switches, it comes at a cost of compromised safety because maintenance staff can no longer visually check that all three phases are isolated before starting work on the feeder. SF₆ has also been identified as the most potent greenhouse gas and utilities will most likely incur the cost of disposing of the SF₆ gas at the end of life of the switch.

NOJA Power's engineers have designed the VISI-SWITCH® to overcome the drawbacks of gas load break switches providing the linesmen with visible break confirmation that the switchgear has isolated the line before commencing work. Furthermore, the units are far more environmentally friendly than existing solutions because the solid dielectric eliminates the use of a potent greenhouse gas. Like all other switchgear products designed and manufactured by NOJA Power it also features controlled arc fault venting.

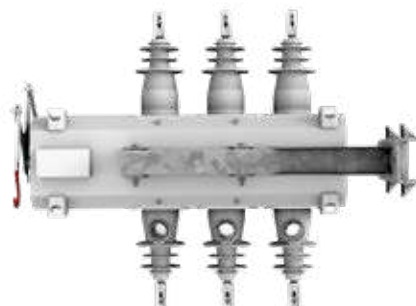
The VISI-SWITCH® demonstrates NOJA Power's ongoing commitment to the environment, quality and safety making the VISI-SWITCH® OLB15-16-800 the ideal choice for today's smart grids.



VISIBLE ISOLATOR CLOSED POSITION



VISIBLE ISOLATOR PULLS BACK INTO OPEN POSITION



VISIBLE ISOLATOR OPEN POSITION

Overview

NOJA Power's VISI-SWITCH® is an enclosed three phase load break switch with visible isolation. It is used to isolate sections of feeders for maintenance work so that work can be carried out in a safe manner.

The VISI-SWITCH® includes an isolator and vacuum interrupter for each phase that are serially interconnected for load break application. A mechanical driving mechanism is provided for driving open and closed each pair of electrical contacts and is configured to control the sequence of the opening and closing of the contacts. The vacuum interrupter is opened first to break current flow and then after a short delay the isolators are opened to disconnect the electrical circuit. When closing, the isolator closes first and then the vacuum interrupter, making the current.

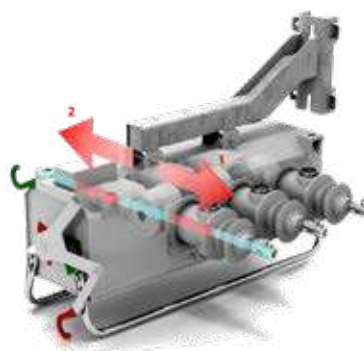
The operator can manually open and close the contacts of both the isolator and interrupter from the ground with a single motion using either an extended hook stick which reaches directly to the switch or a shorter hook stick which connects to an insulated down rod extending from the switch.

The advantage of the switch is that the operator can view the isolator contacts through the viewing window, thereby readily determining the state of the switch from the ground. In particular, the operator can confirm that there is a visible break i.e. the contacts are open and that the associated circuit is safely isolated.

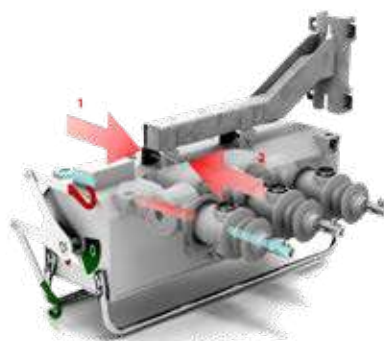
The switch includes isolator bushings in which the electrical isolator contacts are located, a metal tank in which the driving mechanism is located, and interrupter bushings in which the interrupter contacts are located. The bushings and the tank are sealed together and impede the ingress of moisture thereby suiting the assembly to outdoor use. The tank is manufactured from powder coated stainless steel and is arc-fault vented. It has a 30 year operating life and the entire device is rated to IP65.



VISI-SWITCH® FRONT VIEW



VISI-SWITCH® VISIBLE ISOLATOR
CLOSED STATE



VISI-SWITCH® VISIBLE ISOLATOR
OPEN STATE

Visible Break Window

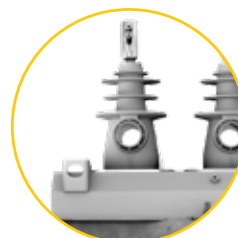
The viewing window allows a clear view of the state of the switch from an operator standing on the ground. The isolator contact is coated with an iridescent/reflective paint in the colour red and can be easily seen through the window even at night with the use of a torch.

The window is designed to remain transparent during the entire life of the switch, without any discolouration. It is scratch resistant and can withstand extreme temperatures and weather conditions such as hailstorms and sandstorms. IK08 impact ratings are met on all parts of the switch including the viewing window.

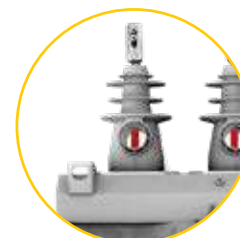
Insulation System

The insulation system consists of the conductor system embedded in solid dielectric. External insulation is provided by silicone bushings outside of the powder coated stainless steel tank. Silicone Rubber Boots fitted over the bushings provide the necessary clearances and creepages required for the various ratings.

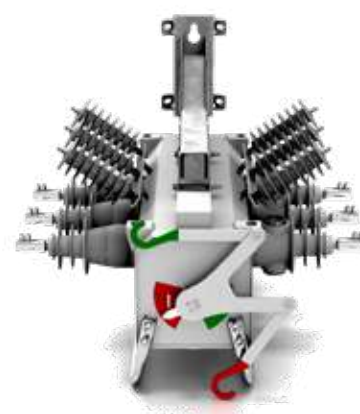
Surge Arrestors can be mounted on all six (6) bushings and earthed through the tank. Explosive tail surge arrestors may be used and there are mounting options for the surge arrestors both at the top and bottom of the switch.



VISI-SWITCH® WITH
VISIBLE ISOLATOR IN
OPEN POSITION



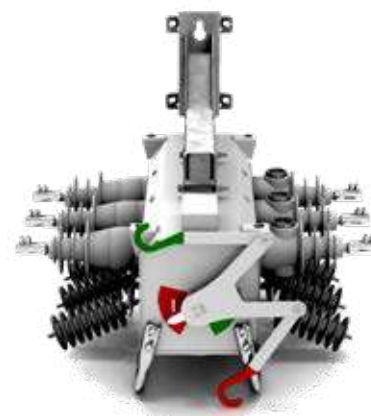
VISI-SWITCH® WITH
VISIBLE ISOLATOR IN
CLOSED POSITION



VISI-SWITCH® WITH TOP SURGE
ARRESTORS ARRANGEMENT



VISI-SWITCH® WITH TOP SURGE
ARRESTORS ARRANGEMENT



VISI-SWITCH® WITH BOTTOM SURGE
ARRESTORS ARRANGEMENT

Installation

The switch can be mounted on timber poles with a keyhole arrangement or concrete poles using banded straps. The following types of installations are supported:

- Mounted to the pole above the powerline
- Mounted to the pole below the powerline

Prior to mounting on the pole, the switch must be fitted to the mounting bracket and all surge arrestors and cable tails fitted.

The hanging bracket can be mounted above or below the cross arm depending on the customer's preferred installation location.

The switch is completely symmetrical so it can be mounted with the hook stick operator facing toward the pole or away from the pole.

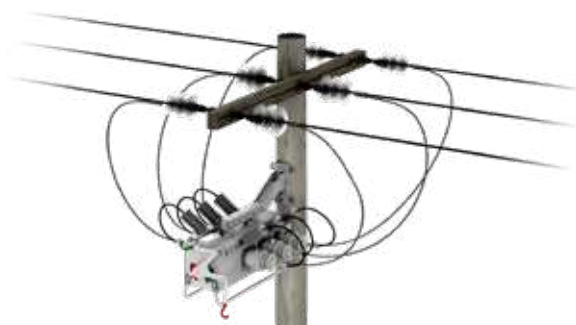
The switch assembly can be fixed to the pole via a crane, pole mounted hoist or EPV. Lifting points are provided to allow for lifting of the assembled switch.

The switch is to remain within 15 degrees of horizontal whilst lifting. An M12 stud on the switch is provided for an earth connection. A minimum thickness of 35mm² copper conductor must be used.

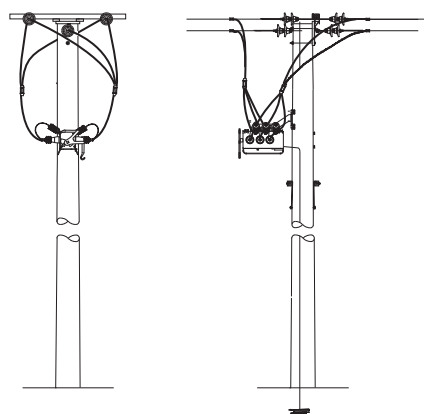
Standard hand tools will be all that is required to complete the installation, namely ring, adjustable spanners or allen key. All fasteners must be capable of withstanding the maximum load applied by a man with a standard spanner.



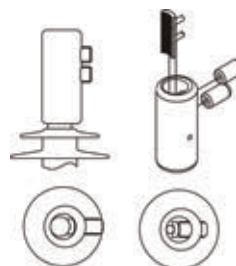
VISI-SWITCH® POLE MOUNTING ARRANGEMENT
(ABOVE THE POWER LINE WITH FEET)



VISI-SWITCH® POLE MOUNTING ARRANGEMENT
(BELOW THE POWER LINE)



VISI-SWITCH® POLE MOUNTING ARRANGEMENT



TUNNEL
CONNECTOR

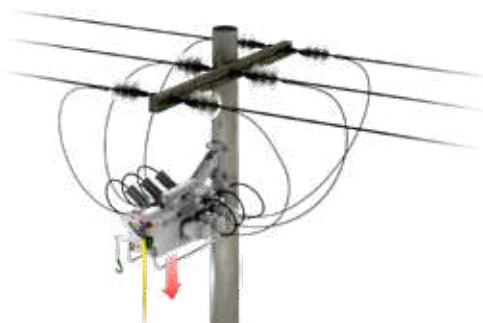


TWO HOLE NEMA
PAD OPTION

Operation

The VISI-SWITCH® can be manually operated from the ground in one single motion using an extended hook stick which reaches directly to the switch.

An insulated down rod, extending from the switch, can be used to move the operating mechanism further down the pole to allow a shorter hook stick to be used.

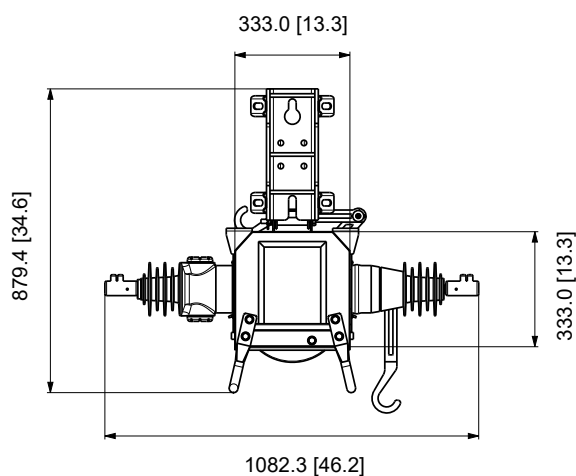


VISI-SWITCH® OPEN STATE

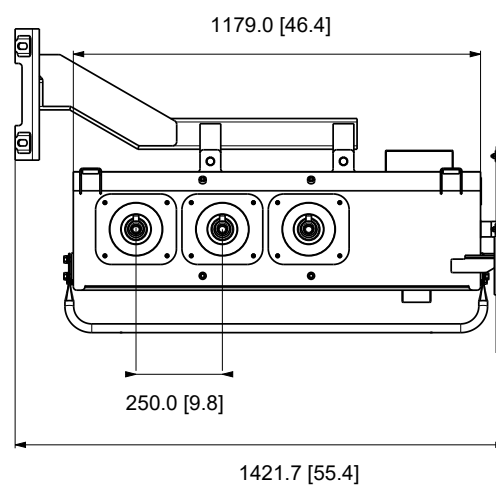


VISI-SWITCH® OPEN STATE

Dimensions



VISI-SWITCH® FRONT VIEW
(DIMENSIONS IN INCHES SHOWN IN BRACKETS)



VISI-SWITCH® SIDE VIEW
(DIMENSIONS IN INCHES SHOWN IN BRACKETS)

Line hardware and Insulators

Preformed Wire Products

Helixon Aluminium Deadends

Order Code	Description	Pack	Qty
8DE-A 0625C	Aluminium Deadend (Squirrel, Namu) 6.3-6.5mm	Each	10
8DE-A 0675C	Aluminium Deadend (Poko) 6.6-6.9mm	Each	10
8DE-A 0750C	Aluminium Deadend (Chlorine) 7.4-7.6mm	Each	10
8DE-A 0900C	Aluminium Deadend (Ferret, Kutu) 8.9-9.3mm	Each	10
8DE-A 1015C	Aluminium Deadend (Fly) 10.1-10.5mm	Each	10
8DE-A 1125C	Aluminium Deadend (Rango) 11-11.5mm	Each	10
8DE-A 1150C	Aluminium Deadend (Grasshopper, Phlox) 11.5-12.3mm	Each	10
8DE-A 1225C	Aluminium Deadend (Racoon) 12.25-12.80mm	Each	10
8DE-A 1280C	Aluminium Deadend (Wasp, Beetle) 12.8-13.5mm	Each	10
8DE-A 1430C	Aluminium Deadend (Iodine, Weke) 14-14.6mm	Each	10
8DE-A 1625C	Aluminium Deadend (Cricket) 15.9-16.5mm	Each	10
8DE-A 1875C	Aluminium Deadend (Neon, Mata) 18.5-19.3mm	Each	10
8DE-A 2100C	Aluminium Deadend (Cockroach) 20.5-21.5mm	Each	10
8DE-A 2275C	Aluminium Deadend (Panther, Lion) 22.3-23.3mm	Each	10
8DE-A 2375C	Aluminium Deadend (Butterfly) 23-24mm	Each	10



Helixon Neoprene Deadends

Order Code	Description	Pack	Qty
8DE-LTN 0585	PVC Deadend (10mm, 16mm2 PVC) 5.9-7.4mm	Each	10
8DE-LTN 0735	PVC Deadend (Namu, Poko) 6.8mm - 8mm 7/2.5	Each	10
8DE-LTN 1035	PVC Deadend (Ladybird, Kutu) 10.4-13.7mm	Each	10
8DE-LTN 1370	PVC Deadend (Rango) 13.7-15.5mm	Each	10
8DE-LTN 1555	PVC Deadend (Weke, Beetle) 15.5-19.5mm	Each	10
8DE-LTN 1950	PVC Deadend (Weta) 19.5-23.9mm	Each	10
8DE-LTN 2215	PVC Deadend (N/Screen single core 50mm) 22-25mm	Each	10
8DE-LTN 2390	PVC Deadend (N/screen single core 70mm2) 23.9-25.5mm	Each	10



Minimum order quantities and box quantities apply.

Helixon Galvanised Steel Guy Grip Deadends

Order Code	Description	Pack	Qty
8DE-S 0480	Guy Grip for 7/1.71 (4.6-5.1mm)	Each	10
8DE-S 0600	Guy Grip 7/14 7/2.00	Each	10
8DE-S 0750	Guy Grip for 7/2.50 (7.5-8mm)	Each	10
8DE-S 0950	Guy Grip for 7/3.15 (9.3-9.7mm)	Each	10
8DE-S 09750	Guy Grip for 7/10 (9.7-10.31mm)	Each	10
8DE-S 1200	Guy Grip for 7/4.0 7/8 (11.8-12.2mm)	Each	10
8DE-S 1255	Guy Grip (12.6-13.0mm)	Each	10



Helixon Galvanised Guy Locks

Order Code	Description	Pack	Qty
8GLS 0600	Steel Guy Lock (6.00mm-6.20mm)	Each	10
8GLS 0765	Steel Guy Lock 7/12 7.65mm (7.65-7.99mm)	Each	10
8GLS 0975	Steel Guy Lock 7/10 9.75mm (9.5-10mm)	Each	10



Aluminium Clad Steel Deadends

Order Code	Description	Pack	Qty
8DE-AC 0480	Aluminium Clad Steel Deadend (Mullet) 4.3-5.1mm	Each	10
8DE-FT 0670AC	Deadend Flounder 2 piece (Special Ali clad inner) 6.7-6.8mm	Each	10



Copper Clad Deadends

Order Code	Description	Pack	Qty
8DE-CC 0400	Copper Clad deadends (10mm2)	Each	10
8DE-CC 0525	Copper Clad deadends (16mm2)	Each	10
8DE-CC 0600	Copper Clad deadends (25mm2)	Each	10
8DE-CC 0825	Copper Clad deadends (35mm2)	Each	10
8DE-CC 1000	Copper Clad deadends (70mm2)	Each	10



Minimum order quantities and box quantities apply.

Helixon Aluminium Line Guards

Order Code	Description	Pack	Qty
8LG-A 0480	Line Guard (Mullet)	Each	10
8LG-A 0620	Line Guard (Namu, Squirrel) 6.2-6.6mm	Each	10
8LG-A 0675	Line Guard (Gopher, Flounder) 6.6-6.95mm	Each	10
8LG-A 0695	Line Guard (Gopher, Poko) 6.95-7.35mm	Each	10
8LG-A 0750	Line Guard (Chlorine) 7.3-7.8mm	Each	10
8LG-A 0830	Line Guard (Ladybird) 8.3-8.8mm	Each	10
8LG-A 0900	Line Guard (Ferret, Kutu) 8.8-9.3mm	Each	10
8LG-A 1050	Line Guard (Rango, Mink) 10.5-11.1mm	Each	10
8LG-A 1125	Line Guard (Rango, Grasshopper) 11.1-11.8mm	Each	10
8LG-A 1430	Line Guard (Dog Iodine, Weke) 14-14.9mm	Each	10
8LG-A 1625	Line Guard (Dingo) 16.1-16.6mm	Each	10
8LG-A 1875	Line Guard (Jaguar) 17.9-18.8mm	Each	10
8LG-A 2100	Line Guard (Cockroach) 20.2-21.4mm	Each	10



Helixon Aluminium Armour Rods

Order Code	Description	Pack	Qty
8ARA-0530	Armour Rod (Gemini, Mullet) 5.3-5.6mm	Each	10
8ARA-0620	Armour Rod (Squirrel, Namu) 6.2-6.6mm	Each	10
8ARA-0620XL	Armour Rod (Squirrel, Namu) 6.2-6.6mm Extra Length	Each	10
8ARA-0660	Armour Rod (Flounder) 6.6-6.9mm	Each	10
8ARA-0660XL	Armour Rod (Flounder) 6.6-6.9mm Extra Length	Each	10
8ARA-0690	Armour Rod (Gopher, Poko)	Each	10
8ARA-0750	Armour Rod (Chlorine) 7.3-7.7mm	Each	10
8ARA-0900	Armour Rod (Ferret, Kutu) 8.9-9.5mm	Each	10
8ARA-1050	Armour Rod (Rango, Mink) 10.5-11mm	Each	10
8ARA-1050XL	Armour Rod (Mink)10.5-11mm Extra Length	Each	10
8ARA-1125	Armour Rod (Rango, Grasshopper) 11.0-11.5mm	Each	10
8ARA-1200	Armour Rod (Raccoon, Beaver)11.8-12.4mm	Each	10
8ARA-1280	Armour Rod (Wasp) 12.5-13.3mm	Each	10
8ARA-1350	Armour Rod (Mercury, Hydrogen)	Each	10
8ARA-1430	Armour Rod (Dog, Iodine, Weke)14-14.8mm	Each	10
8ARA-1430XL	Armour Rods (Dog, Iodine, Weke) 14-14.8mm Extra Length	Each	10
8ARA-1625	Armour Rod (Dingo, Cricket) 16-16.8mm	Each	10
8ARA-1750	Armour Rod (Orion, Lutetium, Wolf) 17.2-18mm	Each	10
8ARA-1875	Armour Rod (Jaguar) 18 - 18.5mm	Each	10
8ARA-2100	Armour Rod (Cockroach) 20.7-22mm	Each	10
8ARA-2375	Armour Rod (Butterfly) 23.4-24.3mm	Each	10
8ARA-2625	Armour Rod Centipede	Each	10



Minimum order quantities and box quantities apply.

Helixon Galvanised Conductor Splices

Order Code	Description	Pack	Qty
8LS-S 0480	Steel Line splice 7/1.71 4.8mm (4.5-4.9mm)	Each	10
8LS-S 0735	Steel Line splice 7/12 7.35mm	Each	10
8LS-S 0600	Steel Splice 7/2.00	Each	10
8LS-S 0750	Steel Splice 7/2.45	Each	10

Helixon Aluminium Conductor Splices

Order Code	Description	Pack	Qty
8LS-A 0625	Aluminium Line splice (Squirrel, Namu) 6.25-6.55mm	Each	10
8LS-A 0690	Aluminium Line splice (Gopher, Poko) 6.9-7.15mm	Each	10
8LS-A 0735	Aluminium Line splice (Chlorine)	Each	10
8LS-A 0900	Aluminium Line splice (Ferret, Kutu) 9-9.4mm	Each	10
8LS-A 1125	Aluminium Line splice (Mink, Rango) 11-11.5mm	Each	10
8LS-A 1430	Aluminium Line splice (Dog, Weke) 13.9-14.5mm	Each	10
8LS-A 1625	Aluminium Line splice (Dingo) 15.7-16.4mm	Each	10

Helixon Full Tension Line Splices

Order Code	Description	Pack	Qty
8LS-FT 0490	Aluminium Line Splice Full Tension (Mullet)	Each	10

Helixon Vibration Dampers

Order Code	Description	Pack	Qty
9HVD-063	Vibration Damper (Pig Tail) Gopher, Squirrel, Namu. 6.4 - 8.2mm	Each	10
9HVD-083	Vibration Damper (Pig Tail) Ferret, Kutu, Fly, Ladybird, Mink 8.3 - 11.7mm	Each	10
9HVD-117	Vibration Damper (Pig Tail) Dog, Iodine, Weke, Raccoon 11.8-14.4mm	Each	10
9HVD-145	Vibration Damper (Pig Tail) Cricket, Dingo, Wolf, Jaguar 14.5 - 19.5mm	Each	10

Minimum order quantities and box quantities apply.



Insulated Pin and Clevis Thimbles

Pins & Clevis

Order Code	Description	Pack	Qty
21130WPIN	Lead Head Pin 1130W	Each	1
3C/200/11-20	Insulator Pin 20mm	Each	1
31540WPIN	Insulator Pin 1540W	Each	1
OH510PIN	510 Insulator Pin	Each	1
AL750	Aluminium Clevis Thimble 70kN	Each	1
3CTHAL-70	Clevis Thimble 70kN	Each	1
3CTHIL-125	Clevis Thimble 125kN	Each	1
DS70KN	Galvanised Ductile Iron Clevis Thimble 70kN (CAC438Q)	Each	1
3TYC-70	Twisted Clevis Thimble 70kN	Each	1
3TYC-120	Twisted Y Clevis Tongue 120kN	Each	1
3TYC-160	Twisted Y Clevis Tongue 160kN	Each	1
3DSC 0616	Iron suspension Clamp 6mm-16mm	Each	1
OH100	Aluminium Gain Block 100mm	Each	1
OH125	Aluminium Gain Block 125mm	Each	1
3J211CZS	Jostlyn Nylon Head Pin MacLean	Each	1
BC - 70	Ball Clevis	Each	1
M24-25	M20 x 200mm Pin with 180mm thread to suit the R12.5EC200N insulator	Each	1
CT-70H	Clevis Tongue 70kN Cast Iron c/w Hex Pin	Each	1
AS-70	Anchor Shackles	Each	1
AS-120	Anchor Shackles	Each	1
AA23001	Insulator Shackle U 210 HDG	Each	1
AA23002	Insulator Shackle U 205	Each	1

Thimbles

Order Code	Description	Pack	Qty
3SOCT-70	Socket Thimble 70kN	Each	1
3SOCT-160	Socket Thimble 160kN	Each	1
3SOCT-70R	Socket Thimble 70kN (R pin)	Each	1
3SOCT-70W	Socket Thimble 70kN (W pin)	Each	1
3OGT-10	10mm Thimbles Open Neck Galvanised	Each	1
3OGT-20	Thimbles Open Neck Wire (THWO-19)	Each	1

Minimum order quantities and box quantities apply.



OH510 PIN



AL750



OH100



DS70 KN

Porcelain & Glass Insulators

Order Code	Description	Pack	Qty
2205	Insulator 205 LV Bobbin	Box	50
2210	Insulator 210 LV Bobbin	Box	100
2220	Insulator 220 LV Bobbin	Box	100
24490	Insulator 4490 33Kv Pin type B/S	Box	1
24494	Insulator 4494 33kV Post Insulator	Each	1
2510	Insulator 510 LV	Box	30
2511	Insulator 511 LV	Box	30
21540W	Insulator 1540W	Each	1
011KVP	11kV Line Post Insulator with M20 stud ext. 190mm	Each	4
033KVP	33kV Line Post Insulator with M20 stud ext. 190mm	Each	2
211KVP	11kV Post Insulator	Box	4
222KVP	22kV Post Insulator	Each	1
233KVP	33kV Post Insulator	Box	2
2ALP/22/450	22KV ALP 22/450	Box	6
2GY2	Porcelain Guy Strain Insulator GY2 11kV	Box	25
2GY3	Porcelain Guy Strain Insulator GY3 33kV	Box	4
2UG70TC-HEX	Glass Disc Insulators	Each	1
C4-170-11-445	Solid-Core Station Post Insulator	Each	1
R11ET200L-487	Tie-Top Type Line Post Insulator	Each	1
R11EH200L-560	Clamp-Top Type Line Post Insulator	Each	1
R12.5EC200N	Clamp-Top Type Line Post Insulator	Each	1
R11EC200N-530	33kV Clamp Top Line Post Insulator with pin and top clamp TSC2538	Each	1



Cable Crucifix Kits

Order Code	Description	Pack	Qty
PT11 KIT	11kV Pole Top Kit	Each	1
AA18201 Type1	Cable Crucifix 11/33 kV	Each	1

Surge Arresters

SIEMENS Surge Arresters

Order Code	Description	Pack	Qty
3EK7-120-4CD4	Surge Arrester Class 1 11kV	Each	1
3EK7-120-5CD4	Surge Arrester Class 2 11kV	Each	1
3EK7-150-5CD4	Surge Arrester Class 2 11kV	Each	1
3EK7-300-5CH4	Surge Arrester Class 2 22kV	Each	1
3EK7 360-5CJ4	Surge Arrester Class 2 33kV	Each	1
3EK7-120-4CD4D	Disconnect Surge Arrester X Arm Mount Class 1 11kV	Each	1
3EK7-120-4CD4T	Disconnect Surge Arrester Tank Mount Class 1 11kV	Each	1

Minimum order quantities and box quantities apply.



Silicone Insulators

Clamp Top Line Post Insulator

Order Code	Description	Pack	Qty
ARP-LPSC-15SK	15 kV Clamp Top Line Post Insulator	Each	1
ARP-LPSC-25KV	25 kV Clamp Top Line Post Insulator	Each	1
ARP-LPSC-35KV	35 kV Clamp Top Line Post Insulator	Each	1
ARP-LPSC-46KV	46 kV Clamp Top Line Post Insulator	Each	1
ARP-LPSC-69KV	69 kV Clamp Top Line Post Insulator	Each	1



Clamp Top Line Posts

Order Code	Description	Pack	Qty
ARP-LPH-35SK-GB-1	35kV Horizontal Line Post c/w gain base and AL wire clamp 6-38mm	Box	1
ARP-LPB-35SK-GB-1	35kV Vertical Line Post c/w gain base and AL wire clamp 6-38mm	Box	1
ARP-LPH-69SK-GB-1	69kV Horizontal Line Post c/w gain base and AL wire clamp 6-38mm	Box	1
ARP-LPV-69SK-GB-1	69kV Vertical Line Post c/w gain base and AL wire clamp 6-38mm	Box	1
ARP-LPV-15SK-1	15kV Vertical Line Post w/ Aluminum Wire Clamp	Each	1
ARP-LPV-15SK-1 KIT	15kV Vertical Line Post w/ Aluminum Wire Clamp c/w LPP-7-34	Box	1
ARP-LPV-35SK-1	35kV Vertical Line Post and AL wire clamp 6-38m	Box	1
ARP-LPV-69SK-GB-HP-1-2330	69Kv Vertical Line Post c/w gain base and trunnion cable clamp	Each	1
ARP-LPH-69SK-GB-HP-1-2180	69Kv Horizontal Line Post c/w gain base and trunnion cable clamp	Each	1



Line Post Insulators

Order Code	Description	Pack	Qty
ARP-LPCN-15SK	15KV Line Post Insulator w/ C-Neck	Box	1
ARP-LPCN-15SK KIT	15KV Line Post Insulator w/ C-Neck c/w LPP-7-34	Each	1
ARP-LPFN-35SK	35kV Line Post Insulator w/F-Neck	Each	1



Station Post

Order Code	Description	Pack	Qty
ARP-TR205SK	15kV Station Post Insulator (TR205)	Each	1

Minimum order quantities and box quantities apply.



Strain Deadends

Order Code	Description	Pack	Qty
ARP-15SKCE-S	15kV Silicon Strain Dead End Clevis & Eye	Box	1
ARP-15SKCE-S KIT	15kV Silicon Strain Dead End Clevis & Eye c/w AL750	Each	1
ARP-25SKCE-S	25kV Silicon Strain Dead End Clevis & Eye	Each	1
ARP-35SKCE-S	35kV Silicon Strain Dead End Clevis & Eye	Each	1



Cutout

Order Code	Description	Pack	Qty
CS27-AP1-100C	27kV Cutout Switch 100 Amp w/Arc Shortening Rod, Parallel Grove Clamp, Nema A Bracket Type C (interrupting capacity)	Each	1



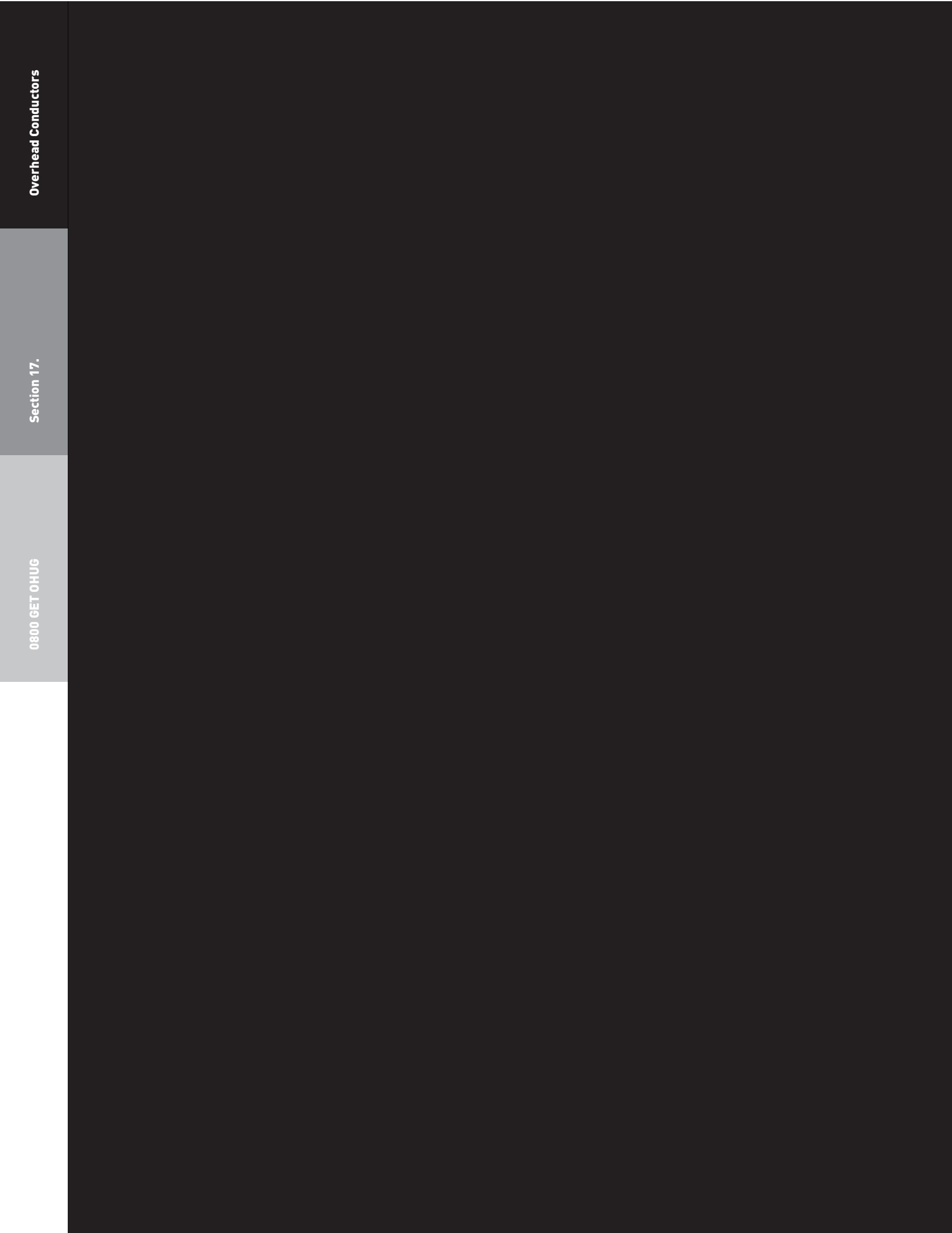
Accessories

Order Code	Description	Pack	Qty
ARP-LPP-7-34	7" Line post pin shaft 3/4" (20mm) - for 11/22 Kv Insulators	Each	1
ARP-ATC-150	Cast Aluminium Wire Clamp (.25 to 1.5" dia wire)	Each	1
ARP-LPP-10-34	10" Long line post pin shaft 3/4" (20mm) - for 35 Kv Insulators	Each	1

Other

Order Code	Description	Pack	Qty
ARP SBHL021-A3400	69kV Silicone Transmission Insulator Clevis & Tongue 25,000lb Sml	Each	1
ARP-LPE-69SK-SP-GB	69kV Silicone Line Post w/ 2 hole blade & gain base	Each	1
ARP-LPV-69SK-SP	69kV Silicone Vertical Line Post	Each	1
ARP-69SKYC-S	69kV Suspension Insulator c/w Y Clevis and Tongue	Each	1
ARP SBHL030-A3400	115kV Silicone Transmission Insulator Clevis & Y-Clevis & Oval Eye 25,000Lb	Each	1
ARP-LPE-115SK-SP-GB	115kV Silicone Line Post w/ 2 Hole Blade & Gain Base	Each	1
ARP-LPV-115SK-SP	115kV Silicone Vertical Line Post	Each	1

Minimum order quantities and box quantities apply.



Section 17

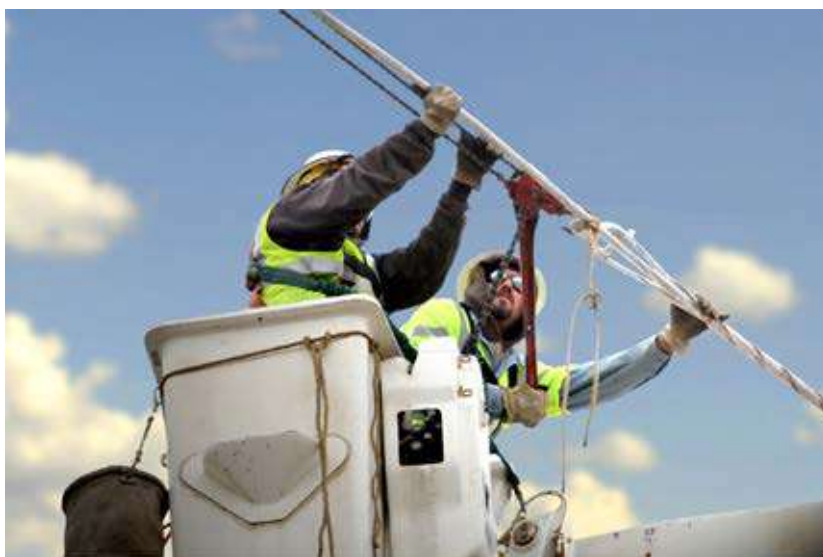
Overhead Conductors

Overhead Conductors

476

3M™ Aluminium Conductor Composite Reinforced (ACCR)

In today's complex world, protecting grid integrity is a growing challenge. Aging infrastructure is burdened with changing power flows as renewable generation is integrated and traditional sources are retired. All of this is happening amid growing environmental and regulatory concerns. 3M offers a fast and potentially cost-saving way to increase capacity, achieve greater clearances and meet today's strict reliability standards – helping you keep the lights on for years to come.



Advanced technology to protect your grid

To help solve today's toughest transmission challenges, 3M developed an advanced, high-capacity overhead transmission conductor: 3M™ ACCR (Aluminium Conductor Composite Reinforced). It is engineered to maximize the capacity of existing lines, helping you provide a more robust and flexible grid. Reconductoring with 3M™ ACCR can help you alleviate the scheduling, budgetary and regulatory risks of upgrading lines in areas with dense populations, strict permitting requirements or limited land availability.

3M ACCR is designed to replace ACSR or ACSS on existing structures at the same tensions and clearances, giving you up to twice the ampacity without the risks of a major construction project. Your line can be back in service fast, within budget, and with minimal community and environmental impacts. And 3M ACCR has proven its reliability in installations around the world – so you can be confident in the integrity of your transmission lines, even in challenging environments.

Maximize the value of your grid

Running more amps on existing structures can reduce ratepayer impacts from major upgrade projects while delivering more value to shareholders from existing assets. Upgrading with 3M ACCR can also help relieve transmission constraints, simplify compliance with regulatory standards, enhance reliability and provide a robust system to support your advanced grid investments.

Most importantly, 3M ACCR's dependable operation helps protect the integrity of your grid – for long-term value you can count on.

The Power



What is 3M ACCR?

This high-capacity transmission conductor has a high-strength, lightweight aluminium matrix core. The outer, current-carrying strands are composed of a hardened aluminium-zirconium alloy. 3M ACCR's core and outer wires are both helically stranded for greater strength and conductivity.

3M ACCR is similar in construction and dimensions to ACSR. 3M ACCR, however, has a higher strength-to-weight ratio and lower thermal expansion than comparably sized steel core conductors – so it is lighter and sags less, even at higher operating temperatures. This in turn allows higher ampacities at equivalent tensions and clearances. 3M ACCR retains its performance over decades of high temperature use and is stable in a wide range of environmental conditions.

Maximize the value of your grid

Running more amps on existing structures can reduce ratepayer impacts from major upgrade projects while delivering more value to shareholders from existing assets. Upgrading with 3M ACCR can also help relieve transmission constraints, simplify compliance with regulatory standards, enhance reliability and provide a robust system to support your advanced grid investments.

Most importantly, 3M ACCR's dependable operation helps protect the integrity of your grid - for long-term value you can count on.

Inside the technology
3M™ Aluminium Matrix Core



More Amps More Confidence

Maximum ampacity with less sag

Compared to the same diameter steel core conductor, 3M™ ACCR can offer:

- > Up to 2 times the ampacity or more
- > Less thermal expansion, for less sag at high energy levels
- > Higher strength-to-weight ratio
- > Operating temperatures up to 210°C continuous and 240°C emergency

Maximum ampacity with less sag

With 3M ACCR, you make no compromises on your tension and clearance standards. Its reliability has been demonstrated around the world, with:

- > Large capacity increases at the same clearances, tensions and mechanical loads
- > Corrosion resistance without coatings or barriers around the core
- > Durability similar to ACSR, even when operated at high temperatures over long periods in extreme environments
- > Over a decade of successful, reliable operations

Fast and easy to use

3M ACCR was designed as a replacement for ACSR and ACSS to quickly and dramatically increase capacity on existing structures – while minimizing lengthy construction and permitting processes. Core stranding, hardware and construction procedures are similar to those for ACSR and are familiar to installers. And with shorter installation times, ACCR can help you get back to service more quickly.



Lower total project cost

By eliminating the need for expensive new towers, land acquisitions and other factors, upgrading with 3M ACCR can offer substantial savings over ACSR and ACSS – even at a higher conductor cost-per-kilo meter. For many thermal upgrades, ACCR can give you the high-performance, cost-effective solution you've been looking for.

Commitment to quality

3M ACCR and its accessories have been rigorously tested and verified to ASTM, IEEE and ANSI specifications, both in the laboratory and in the field. Test conditions included extreme temperatures, heavy icing, heavy loading and corrosive atmospheres. In all cases, 3M ACCR performed up to specifications and showed that the design coefficients accurately predict performance in the field.

Tackle the toughest jobs with confidence using 3M™ ACCR!



Changing clearance requirements

NERC reliability standards and clearance requirements over highways, railroads or other shipping lanes may require upgrades. 3M ACCR can provide more capacity with no change in wire diameter or tower load, and often with reduced tension. Because 3M ACCR sags less, line clearances can be significantly improved while delivering the same or greater power, even at high temperatures.

Densely populated or underbuilt areas

In areas that are densely populated, upgrading with 3M™ ACCR can increase capacity by reusing existing structures with less disruption to the community, and without needing to site new structures. Transmission lines can also be upgraded without having to impact distribution lines underbuilt on the same structures, which means less expense and system disruption.

Environmentally sensitive areas

Transmission lines through environmentally sensitive areas require extensive and lengthy reviews and debate before approval. Upgrading with 3M ACCR allows existing structures to be used, avoiding or simplifying those reviews. The appearance of the line does not change.

Short timelines

3M ACCR can help you avoid construction projects, with their long lead times and permitting delays. Your project could be done faster, relieving constraints and getting the power flowing in record time.



Transmission Challenges



Long spans/river crossings

Rivers and gorges are among the most difficult challenges, because it may not be possible to put a tower in the middle of the water or to change out existing towers for taller ones. The low sag, high strength and low weight of 3M ACCR can allow longer spans while giving you the capacity increase you need and maintaining or improving clearance and mechanical loads on the existing structures.

Heavy ice or wind loads

A high strength-to-weight ratio and modulus make 3M ACCR ideal for areas that experience high mechanical loads such as icing. In some cases, a smaller conductor can be used, reducing the conductor profile and mechanical loads during major wind and ice events. 3M ACCR can increase reliability during demanding loading conditions.

Corrosive environments

Because both the wire and the core are made from aluminium, 3M ACCR is resistant to corrosive environments such as high-pollution areas or the damp, salty air near seashores. Unlike steel- or carbon-polymer-core conductors, no special coating is required to avoid chemical interaction between the core and the conductor.



Section 18

Heating Cables

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Heating cables

Heating cables are used for frost protection of pipes, tanks, ramps and walkways, gutters, etc., or for maintaining process temperatures, especially in industrial environments.

There are 2 types:

- > **CONSTANT POWER CABLES**, in which the heating element is the conductor through which the current passes, and serves as filament.
- > **SELF-REGULATING CABLES**, whose heating element is the conductive core, powered by 2 conductors.

CONSTANT POWER CABLES

Raytech cables are composed of 2 conductors that are shielded and in the case of Stop Ice are supplied with a suitable thermostat for anti-freeze maintenance.

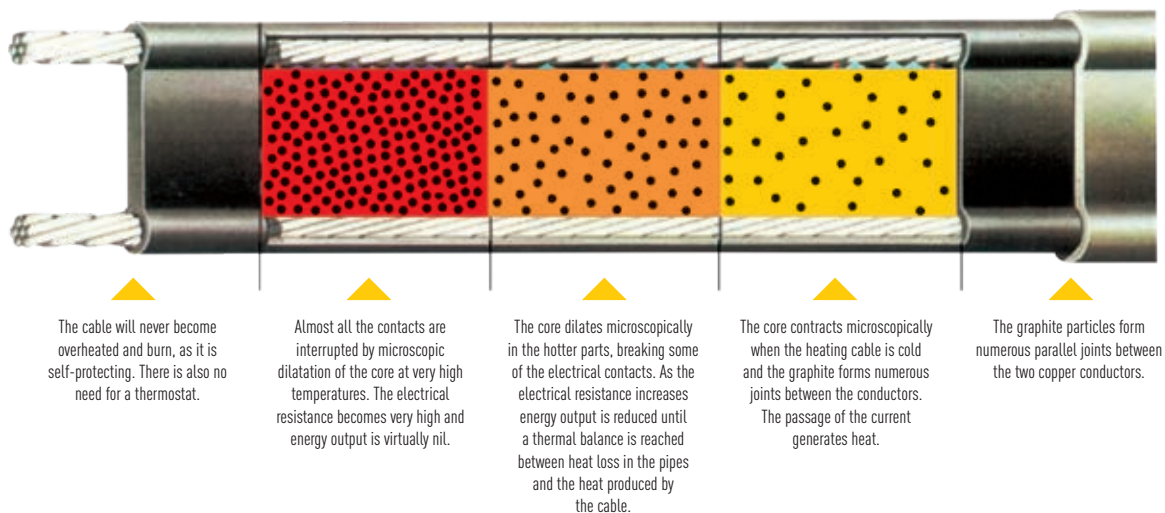
ADVANTAGES

CONSTANT POWER CABLE

- Ready for use, without requiring the installation of accessories.
- Already equipped with a thermostat, in the case of Stop Ice.
- Completely reliable.



SELF-REGULATING HEATING CABLES



The self-regulation technology and the parallel circuit present the following advantages:

- > The heating cables can be cut at the right length, jointed and terminated on site.
- > They can be supplied at 230 V without transformers.
- > They can be overlapped without over heating risks.
- > They reduce automatically their power output as the required temperature is reached.
- > They are easy designed and can be easily handled on site.

ADVANTAGES

SELF-REGULATING HEATING CABLES

- A reduction in overall installation costs
- Reduction in operating cost
- Very easy to install
- Simple design
- Uniform temperature
- Complete reliability

Domestic Use

Anti-freeze for Piping

CONSTANT POWER



Stop Ice

Constant power anti-freeze kit complete with thermostat and plug



Linus

Self-adhesive thermal insulating tape



Stop Ice Plus

Constant power anti-freeze kit complete with thermostat, connection plug and insulation tape

Anti-freeze for Ramps

CONSTANT POWER



Easy Cable

Constant power heating cable for access ramps to boxes, walkways, etc.



Easy Ramp

Heating mat

SELF-REGULATING



MCA Ramp

Self-regulating heating cable for tracing ramps and stairways

**MCA**

Self-regulating cable for anti-freeze use or for maintaining temperatures for general use

**MCA Compact**

Compact size self-regulating cables for use as anti-freeze or to maintain temperature

**Ice Killer**

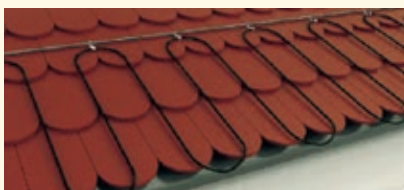
Cut and install self-regulating cable kit, complete with connection side and termination kit

Anti-freeze for Gutters

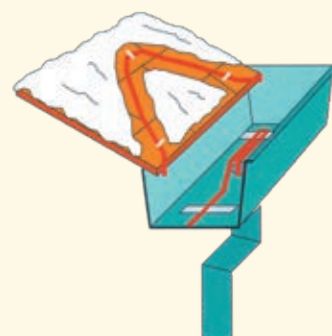
CONSTANT POWER

**Easy Frost**

Constant power heating cable for roofs, gutters and downpipes



SELF-REGULATING

**MCA 8**

Self-regulating cable for tracking roofs, gutters and/or downpipes

Anti-Freeze for piping

To keep pipes, tanks, basins, valves and taps, meters, etc. from freezing. Available both in the constant power and in the self-regulating versions.

Stop Ice

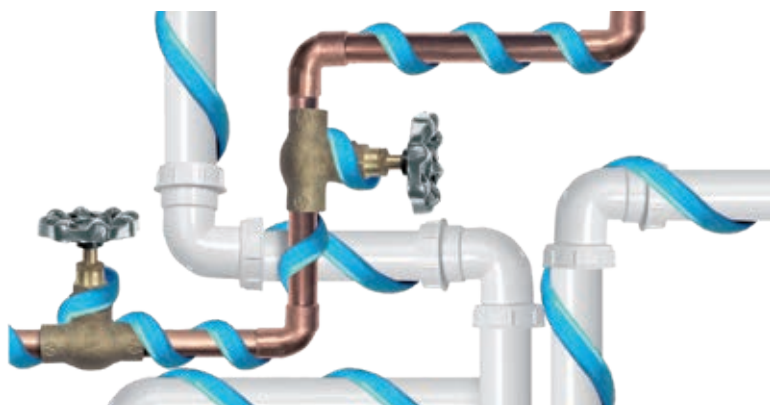
Constant power anti-freeze kit complete with thermostat and plug.

Raytech Stop Ice is an innovative pre-assembled kit consisting of a constant wattage heating cable of 12 W/m, complete with contact thermostat (installed on the end of the heating cable) and power cable with plug. Stop-Ice is particularly suitable for frost protection, and prevention of possible damages caused by low temperatures on pipes, valves, faucets, water meters, troughs, bowls and small tanks.

- > Easy and quick to install
- > No need for any external temperature control system, thanks to its built-in thermostat
- > Low energy consumption

Stop Ice

Product	Power (W/kit)	Specific power (W/m)	Length (m)
Stop Ice 2/12	24	12	2
Stop Ice 5/12	60	12	5
Stop Ice 10/12	120	12	10
Stop Ice 18/12	216	12	18



Power: 12 W/m

Power supply: 230 V – 50 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +70°C

Heating cable type: 2 conductors, screened cable

Insulation: XLPE

External sheath: PVC

Min. bending radius: 3,5 D

Protection degree: IP X7

Marking: CE



Integrated Bimetal Thermostat
(ON + 3°C - OFF +10°C)



Complete Connections and power cord (1,5 m - 3 x 0,75 mm²)

Linus

Self-adhesive thermal insulating tape.

To offer a complete solution in the field of electrical tracking, Raytech has developed a new product, LINUS, an insulation tape to maintain temperature. The product is a closed-cell expanded synthetic rubber, low thermal conductivity and extremely flexible tape. The rubber tape is coupled with an aluminium sheet to protect against tearing, for greater resistance to perforation and higher tensile resistance. It also protects very well against UV radiation. The tape is self-adhesive for easy application on tracked pipes. The closed cells and the special material type give the tape very high insulating properties and optimal behaviour in the presence of condensation.

Linus

Product	Width (mm)	Thickness (mm)	Length (m)
LINUS	50	3	10

LENGHT OF PIPE	Pipe Ø ¾" (DN 20)	Pipe Ø 1" (DN 25)	Pipe Ø 1 ¼" (DN 32)
I can insulate with 1 LINUS tape 50% overlapped	2,2 m	1,9 m	1,6 m

Stop Ice Plus

Constant power anti-freeze kit complete with thermostat, connection plug and insulation tape.

Stop Ice Plus is an innovative kit which combines the flexibility and reliability of the constant power Stop Ice heating cable with the practicality of the LINUS insulation tape. The installer can find everything necessary for tracking inside this kit:

- Stop Ice 12 W/m constant power cable, complete with connection plug and thermostat
- 3 mm LINUS insulation tape, for application on already tracked piping with a cable with 50% overlap

> As an example, with a 10 m long LINUS tape, about 2.2 m of ¾", traced with the Stop Ice cable, can be insulated.

Stop Ice Plus

Product	Power (W/kit)	Cable Length (m)
Stop Ice Plus 2	24	2
Stop Ice Plus 5	60	5

Heating Cable
Built-in Thermostat
Built-in Plug



Tape Insulation
to maintain
temperature



Density: 0,7

Temperature range: -50°C -105°C

Coefficient of thermal conductivity (λ): 0,039 W/mK a 50°C

Flame resistance: Bs3-d0 (DIN EN 13501-1)



CABLE

Specific power: 12 W/m

Power supply: 230 V- 50Hz

Cold cable: 3 x 0,75 mm² - L = 1,5 m

Temperature control: integrated bimetallic thermostat

ON / OFF: +3°C / +10°C

INSULATION TAPE

Temperature range: -50 / +105°C

Coefficient of thermal conductivity (λ): 0,039 W/mK at 50°C

Dimensions:

MCA

Self-regulating cable for anti-freeze use or for maintaining temperatures for general use.

For anti-freeze use on pipes or tanks or for maintaining process temperatures under 65°C, even in hazardous areas. Maintenance-free, reliable, easy to install. Suitable even in the presence of mild inorganic solutions.

How to Choose MCA Cable for Antifreeze Protection

The table gives the cable quantity for tube length unit (1st number) and the MCA cable code number (2nd number) versus tube diameter, thermal insulation thickness (for rockwool) and min outer temperature.

Product	Power voltage (V)	Min installation temp (°C)	Power at 10°C (W/m)	TEMPERATURE MAX	
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)
MCA3	220-240	-30	10	65	85
MCA5	220-240	-30	15	65	85
MCA8	220-240	-30	25	65	85
MCA5-SMALL	220-240	-30	15	65	85

Thermal insulation thickness											
Pipe Ø		10	20	30	40	50					
		Outer temperature (°C)									
inch	mm	-10	-20	-10	-20	-10	-20	-10	-20	-10	-20
1/2"	15	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
3/4"	20	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1"	25	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1¼"	32	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
1½"	40	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3	1-3	1-3
2"	50	1-8	1-8	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3
2½"	65	1-8	1-8	1-3	1-8	1-3	1-3	1-3	1-3	1-3	1-3
3"	80	1-8	2-8	1-3	1-8	1-3	1-5	1-3	1-3	1-3	1-3
4"	100	1-8	2-8	1-5	1-8	1-3	1-5	1-3	1-5	1-3	1-3
6"	150	2-8	2-8	1-8	2-8	1-8	1-8	1-3	1-8	1-3	1-8
8"	200	2-8	-	1-8	2-8	1-8	1-8	1-8	1-8	1-3	1-8
10"	250	2-8	-	2-8	-	1-8	2-8	1-8	1-8	1-8	1-8

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)					
		MCA3			MCA5		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-10°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	-	-	-	103	71	62
	16 A	177	144	125	160	114	99
	20 A	-	149	139	-	133	124
	25 A	-	-	-	-	-	-
		MCA8			MCA5-SMALL		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	64	47	37	104	69	59
	16 A	103	75	60	139	89	78
	20 A	126	94	75	-	-	-
	25 A	-	107	94	-	-	-

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.



MCA Compact

Compact size self-regulating cables for use as anti-freeze or to maintain temperature.

Product	Power voltage (V)	Min installation temp (°C)	Power at 10°C (W/m)	TEMPERATURE MAX		L cable (mm)	S cable (mm)
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA2-Compact	230	-30	10	65	65	7,7	5,3
MCA6-Compact	230	-30	18	65	65	7,7	5,3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)					
		MCA2-COMPACT			MCA6-COMPACT		
Starting temperature		+10°C	0°C	-20°C	+10°C	0°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection	10 A	100	95	77	60	58	41

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.



MCA and MCA2-COMPACT connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y
Thermal insulation pass-through kit	Cable gland	Warning label	
MCA-AL	MCA-PRESS	MCA-EA	
Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm	
MCA-FV	MCA-ALL25	MCA-ALL75	



Ice Killer

Cut and install self-regulating cable kit, complete with connection side and termination kit.

The Ice Killer kit is composed of a 30 m self-regulating cable coil, complete with connection side and termination accessories. The cable can be cut to the desired length, installed on the pipe or tank, connected to the mains and terminated at the opposite end.

The economic and compact Ice Killer kit is sold in an attractive, easy to carry, easy to handle on-site package, is small in size, very flexible and can be easily adapted to bends in piping.

The Ice Killer cable is laid linearly or wound in piping, depending on the specific necessary power. It is then fastened to the same by means of inextensible tape (Raytech MCA-FV or MCA-ALL75 type tapes), terminated with accessories contained in the kit and then clad with the insulation. Operating temperature is reached very quickly and is maintained almost constant even with room temperature variations.

Supply voltage: 230 V

Min installation temperature:
-30°C

Cable dimensions: 7,7 x 5,3 mm

Max temperature with powered
cable: 65°C

Max exposure temperature with
non-powered cable: 65°C



Product	Specific power at 10°C (W/m)	Kit composition
Ice Killer 2	10	30 m cable Connection accessory Termination accessory
Ice Killer 6	18	30 m cable Connection accessory Termination accessory

ELECTRICAL SIZING	Maximum circuit length (m)			
	Ice Killer 2		Ice Killer 6	
Starting temperature	0°C	-20°C	0°C	-20°C
10 A electrical protection, characteristic C switch with differential 30 mA protection	95	77	58	41



Tracking Systems

Anti-freeze for gutters and piping.

Easy Cable

Constant, versatile power heating cable complete with termination accessory and power cable.

Especially suitable for solving anti-freeze problems: snow or ice accumulation on access ramps, walkways and stairs, or for frost protection of pipes or tanks, under adequate insulation. 3 standard lengths are available, with a specific power of 25 W/m, covering all possible tracking types. Complete with termination accessory and power cable, Easy cable is a shielded heating cable under a protective sheath with two conductors, with extremely simple and quick installation and connection. Please note that the cable should never be cut, spliced or overlapped.

Power supply: 230 V, 50/60 Hz

Cable dimensions: ~ 5x7 mm

Min. installation temperature: +5°C

Max. working temperature: +80°C

Heating cable type: 2 conductors, screened cable

Specific power: 25 W/m

Insulation: XLPE

External sheath: PVC

Marking: CE

FOR RAMPS - installation depth about 50 mm with respect to the surface.

Product	Specific Power (W/n)	Length (m)	Rated Power (W/m)	Maximum length for each individual wheel passage	
				40 cm (A) 4 passages	50 cm (B) 5 passages
Easy Cable 26/25	25	26,5	655	6 m	5 m
Easy Cable 44/25	25	44	1120	10,5 m	8,5 m
Easy Cable 92/25	25	92	2270	22,5 m	18 m

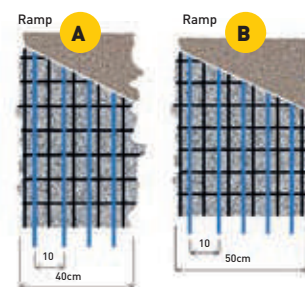
FOR PIPES - anti-freeze tracking for piping, longitudinal linear installation 1 m cable/m pipe.

Product	Specific Power (W/n)	Total rated power (W)	Anti-freeze for pipes up to 2 1/2" (Dn 65 mm), for minimum temperatures up to -15°C, with rock wool thickness	Anti-freeze for pipes from 3" (Dn 80 mm) up to 6" (Dn 200 mm), for minimum temperatures up to -15°C, with rock wool thickness
Easy Cable 26/25	25	655	10 m	20 m
Easy Cable 44/25	25	1120	10 m	20 m
Easy Cable 92/25	25	2270	10 m	20 m

Control unit for Easy Cable for ramps.

The C 2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.

Control unit	Temperature, snow and humidity sensor
C2000	C2000-SR



Pipe with longitudinal passage to the pipe

Tracking Systems

Anti-freeze for Ramps, Steps and Walkways.

To keep garage access ramps, parking areas, outdoor stands and walkways free of snow and ice.

Available in both the constant power and in the self-regulating versions.

Easy Ramp

Constant wattage heating mat.

Raytech Easy Ramp consists of a constant wattage heating cable assembled with tape to form a heating mat, which is easily and quickly spread on the surfaces to be protected. Easy Ramp is ideal for solving the problems caused by ice formation and the accumulation of snow on the access ramps to garages, pathways, outdoor parking areas, footpaths, etc. It can be installed in concrete, asphalt, and interlocking bricks or under porphyry paving or other paving materials blocked with cement and sand. The standard width of Easy Ramp pads is 60 cm; a sufficient width to free the track of vehicle wheels from ice and snow or to create an extremely safe pedestrian pathway.

The power density developed by Easy Ramp is 300 W/m². The mat is available in various lengths which are easily adaptable to the size of the area to track and where the size of the mat is larger than that of the ramp, the excess part of mat can be easily folded 90 degrees. The mat is supplied completely finished and ready for installation, complete with 4 meters of cold cable (3x1.5 mm² or 3x2.5 mm²) for connection to the power supply. The constant wattage heating cable, which constitutes the mat, is a 2 conductor heating cable, which is shielded; this allows one end only to be powered, making installation even faster and easier.

Mat specific power: 300 W/m²

Power supply: 230 V ~ 50/60 Hz

Mat thickness: 7,5 mm

Min. installation temperature:
+ 5°C

Max. working temperature:
+ 80°C

Cold cable (supply): length 4 meters - 3 x 1,5 mm² or 3x2,5 mm²

Heating cable type: 2 conductors, screened cable

Heating cable dimensions:
~ 5 x 7 mm

Heating cable power: 25 W/m

Insulation: XLPE

External sheath: PVC

Marking: CE

Product	Power (W)	Specific power (W/m ²)	Width (m)	Length (m)
Easy Ramp 4/300	670	300	0,6	4
Easy Ramp 7/300	1140	300	0,6	7
Easy Ramp 13/300	2560	300	0,6	13
Easy Ramp 21/300	3730	300	0,6	21



MCA Ramp

Self-regulating heating cable.

The cable is used, buried in concrete, to prevent the accumulation of ice and its formation on access ramps, stairs, sidewalks, parking lots, walkways, etc. Suitable for ramps covered in concrete, interlocking brick or asphalt, both for light and heavy traffic. The cable can be installed on ramps under construction, securing the electrowelded mesh prior to pouring of the concrete, or else on already completed ramps by cutting the concrete surfaces to then fill with plastic cement after installation of the cable, or simply by laying the cable on the surface of the ramp and throwing another layer of cement.



Cable roofing cement or interlocking, asphalt, gneiss, and any other material

Product	Power at 0°C in concrete (W/m)	Max working temperature (°C)	Cable length	
			Switchgear*	Max length (m)
MCA 20-I-GF	90	120	40 A	64
MCA 10**	50	65	40 A	90

* Differential protection 30 mA

**For ramps, stairs etc. with ambient temperature not lower than -15°C; for lower temperatures use only MCA 20-I-GF cable. For draining trenches tracing MCA8 cable shall be used.

Note: to trace drain outlets, use the MCA8 cable installed on the bottom of the outlets under the grate.

MCA Ramp connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Cable gland
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-PRESS

Control unit for Easy Ramp and MCA Ramp

The C 2000 control unit, to be completed with the C2000-SR temperature, snow and humidity sensor (sensor to be placed flush with the ramp and to be ordered separately from the control unit), activating the power contactor, gives consent to start the system only when low temperature and snow or ice are present simultaneously, optimising energy consumption.



Control unit	Temperature, snow and humidity sensor
C2000	C2000-SR



Tracking Systems

Anti-freeze for gutters. Contact and self-regulating power cables to prevent the formation of ice and snow accumulation in gutters, downspouts and roof pitches.

Easy Frost

Constant power heating cable for roofs, gutters and downpipes.

Raytech Easy Frost is a 20 W/m constant power cable especially designed for roofs, gutters and downpipe protection from damage due to snow accumulation and ice formation. Easy Frost is supplied terminated and ready for installation, with 4 metres of cold cable (3 x 1,0 mm² or 3 x 1,5 mm²) for supply connection.

Power: 20 W/m

Power supply: 230 V ~ 50/60 Hz

Heating cable dimensions:

~ 5 x 7 mm

Min. installation temperature:

+ 5°C

Max. working temperature: +

80°C

Cold cable (power supply): length

4 meters - 3 x 1,0 mm² or 3 x 1,5 mm²

Heating cable type: 2 conductors, screened cable

Insulation: XLPE

External sheath: PVC

Min. bending radius: 3,5 D

Marking: CE

Product	Power (W)	Specific power (W/m ²)	Resistance Ω	Length (m)
Easy Frost 50/20	1000	20	52,9	50
Easy Frost 102/20	2040	20	29,9	102



Control unit for MCA 8 and Easy Frost

ON/OFF type control unit C 2000 to activate the power switch, to be completed with C 2000-STG temperature detection sensor and C 2000-SUG wet surfaces sensor: activates the system only when low temperature and water, ice or snow is present. (C 2000-STG and C 2000-SUG sensors are to be ordered and purchased separately from the control unit).

Control unit	Temperature sensor	Ice and snow sensor
C2000	C2000-STG	C2000-SUG



MCA 8

Self-regulating cable for tracing roofs, gutters and/or downpipes.

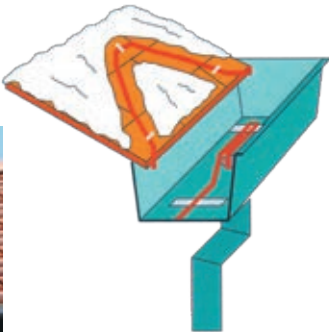
Prevents the formation of ice inside gutters and downspouts, snow accumulation and ice on roofs, the development of infiltrations along façades, the development of ice sticks along gutters and roof ends.

Avoiding gutter breaking under the weight of snow, bursting and fracturing of drainpipes due to water freezing, damaged caused by a lack of draining caused by drain clogging, damage to persons or property caused by falling ice sticks, damage to persons or property caused by possible snow slides off rooves from roof edges.

Product	In air 0°C Power (W/n)	In chilly water Power (W/n)	Maximum cable lenght with starting temperature of -10°C through a switchgear (*) of		
			16 A	20 A	30 A
MCA8	24	40	40 m	50 m	90 m

*Switchgear with "C" characteristic, having a differential protection of 30 mA

Note: the gutter cable is suspended along the down side of the drain pipes with accessory MCA-SUP. The cable is self-supporting up to 25 m vertical sections; in addition, an extra MCA-SUP accessory is provided for every 25 m, to which the cable is secured.



The image shows gutter installation, the input of cable in a downpipe and tracing of a roof pitch.

Power supply: 230 V, 50/60 Hz
Cable dimensions: ~ 5x7 mm
Min. installation temperature: +5°C
Max. working temperature: +80°C
Heating cable type: 2 conductors, screened cable
Specific power: 25 W/m
Insulation: XLPE
External sheath: PVC
Marking: CE

MCA 8 connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68

Branch Kit	Support device
MCA Universal	MCA-SUP





Industrial Use

Anti-freeze maintenance and heating
up to 65°C continuous 85°C intermittent

ATEX

MCA3
MCA5
MCA7-I-PF
MCA8
MCA10
MCA13-I

Anti-freeze maintenance and heating
up to 120°C continuous 120°C intermittent


MCA3-I-GF
MCA5-I-GF
MCA8-I-GF
MCA10-I-GF
MCA20-I-GF

Anti-freeze maintenance and heating
and washing **up to 120°C continuous 190°C intermittent**

ATEX

MCA3-I-FF
MCA5-I-FF
MCA7-I-FF
MCA8-I-FF
MCA10-I-FF
MCA15-I-FF
MCA20-I-FF

MCA

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to mild inorganic solutions.

Suitable for anti-freeze and process temperature maintenance use up to 65°C on piping and tanks. Cannot be used when washing with steam or continuous exposure to strong corrosive and organic acids.

Cables certified for classified zones

Ex II 2G Ex e IIC Gb
Ex II 2D Ex tb IIIC Db

In accordance:

EN 60079-0 :2009

EN 60079-31 :2009

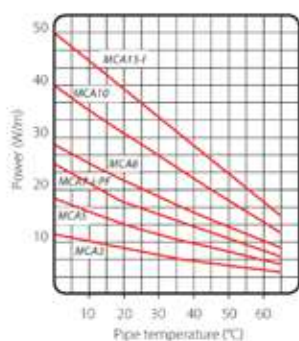
EN 60079-30-1 :2007

Type of surface to be tracked:

Steel - Painted - Stainless Steel
- Plastic.

Chemical resistance:

Suitable for exposure to mild inorganic solutions.



Constitution of the cable

Copper conductors

Self regulating conductive core

Modified polyolefine insulation

Copper screen

Modified polyolefine or fluoropolymer
(1-PF) outer sheath

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3*	230	10	-45	65	80	25	T6
MCA5*	230	15	-45	65	80	25	T6
MCA7-I-PF	230	20	-45	65	80	25	T6
MCA8*	230	25	-45	65	80	25	T6
MCA10*	230	30	-45	65	80	25	T6
MCA13-I	230	40	-45	65	80	25	T6

Add the abbreviation I-PF for external fluoropolymer sheaths

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)																	
		MCA3			MCA5			MCA7-I-PF			MCA8			MCA10			MCA13-I		
Starting temperature		+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C	+10°C	-10°C	-20°C
Switchgear protection (A), with C curve and 30mA* differential protection*	10 A	-	-	-	103	71	62	-	-	-	64	47	37	49	38	33	-	-	-
	16 A	177	144	125	160	114	99	109	79	70	103	75	60	78	61	53	57	44	40
	20 A	-	149	139	-	133	124	129	99	87	126	94	75	97	76	66	71	55	50
	25 A	-	-	-	-	-	-	-	111	104	-	107	94	112	95	83	89	69	62

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

MCA 8 connection accessories

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75

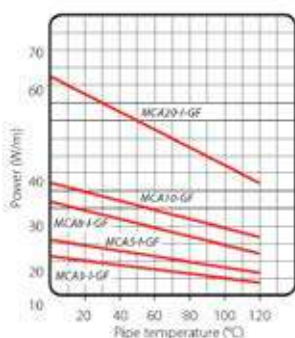
MCA-I-GF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to corrosives and acids.

Suitable for maintaining process temperatures up to 120°C on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use where acids and corrosives are present, in safe areas. Not suitable for use in the presence of steam washing.

Type of surface to be tracked:
Steel - Painted - Stainless Steel.

Chemical resistance:
Suitable for exposure to corrosive and organic acids.



Constitution of the cable

- Copper conductors
- Self regulating conductive core
- Fluoropolymer insulation
- Copper screen
- Modified polyolefine outer sheath

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3-I-GF	230	10	-30	120	120	25	T3
MCA5-I-GF	230	15	-30	120	120	25	T3
MCA8-I-GF	230	25	-30	120	120	25	T3
MCA10-I-GF	230	30	-30	120	120	25	T3
MCA20-I-GF	230	60	-30	120	120	25	T3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)														
		MCA3-I-GF			MCA5-I-GF			MCA8-I-GF			MCA10-I-GF			MCA20-I-GF		
Starting temperature		+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential protection	16 A	200	180	175	165	130	117	120	97	88	85	73	69	50	41	38
	20 A	235	235	235	189	162	152	140	125	120	114	98	92	64	55	52
	30 A	-	-	-	-	-	189	-	-	140	-	-	114	-	-	64

*Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

Connection accessories for MCA-I-GF

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75

MCA-I-FF

Self-regulating heating cables for anti-freeze or temperature maintenance use with exposure to corrosives and acids and high temperatures.

Suitable for maintaining process temperatures up to 120°C on piping and tanks, even in the presence of acids and corrosives, or for anti-freeze use even in the presence of acids and corrosives and where high temperature thermal treatment is foreseen, like steam washing, up to 190°C.

Cables certified for classified zones

Ex II 2G Ex e IIC Gb

Ex II 2D Ex tb IIIC Db

In accordance:

IEC 60079-0 :2009

EN 60079-31 :2009

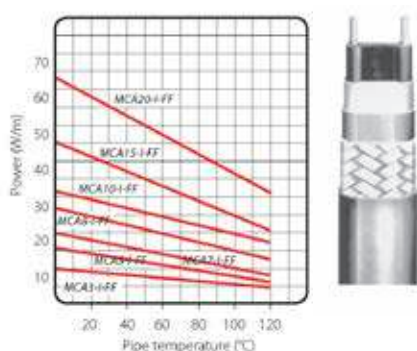
EN 60079-30-1 :2007

Type of surface to be tracked:

Steel - Painted - Stainless Steel
- Plastic.

Chemical resistance:

Suitable for exposure to corrosive and organic acids.



Constitution of the cable

Copper conductors

Self regulating conductive core

Fluoropolymer insulation

Copper screen

Fluoropolymer outer sheath

Product	Power voltage (V)	Power at 10°C (W/m)	Min installation temp (°C)	TEMPERATURE MAX		Bending radius min. (mm)	Temperature classification EN50014
				Continuous cable powered (°C)	Intermittent cable not powered <1000 h cum. (°C)		
MCA3-I-FF	230	10	-30	120	190	25	T3
MCA5-I-FF	230	15	-30	120	190	25	T3
MCA7-I-FF	230	20	-30	120	190	25	T3
MCA8-I-FF	230	25	-30	120	190	25	T3
MCA10-I-FF	230	30	-30	120	190	25	T3
MCA15-I-FF	230	45	-30	120	190	25	T3
MCA20-I-FF	230	60	-30	120	210	25	T3

ELECTRICAL SIZING		Maximum length of the circuits in the heating cable (m)																				
		MCA3-I-FF			MCA5-I-FF			MCA7-I-FF			MCA8-I-FF			MCA10-I-FF			MCA15-I-FF			MCA20-I-FF		
Starting temperature		+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C	+10°C	-15°C	-25°C
Switchgear protection (A), with C curve and 30mA* differential	16 A	200	180	175	165	130	117	122	107	102	120	97	88	85	73	69	55	48	36	50	41	38
	20 A	235	235	235	189	162	152	136	127	124	140	125	120	114	98	92	68	60	57	64	55	52
	30 A	-	-	-	-	-	189	-	-	-	-	-	140	-	-	114	91	83	82	-	-	64

* Suggested where protection of people is requested; installations with no personnel admittance can be performed with 100 to 300 mA.

Connection accessories for MCA-I-FF

Connection kit integrated with the terminal box	Termination Kit	Joint Kit	Branch Kit	Thermal insulation pass-through kit
MCA Universal IP68	MCA Universal IP68	MCA Universal IP68	MCA-Y	MCA-AL
Cable gland	Warning label	Fixing tape glass	Fixing tape Aluminum 25mm	Fixing tape Aluminum 75mm
MCA-PRESS	MCA-EA	MCA-FV	MCA-ALL25	MCA-ALL75



Accessories



Electrical: EN 50393 and CEI 20-33 (Note: with testing under water head and water between the cable cores), in Class 2

Flame non propagation: IEC 60332-1 and HD 405-1 (as applicable)

MCA Universal IP68 and MCA-Y

Universal accessory for heating cable.

A revolutionary accessory is now available that is suitable for any type of self regulating heating cable either with or without screening. Its versatility provides a reliable unique solution unavailable elsewhere in the market. It has no shelf life and no tools are required during installation (including blow torches).

- > Versatile and ready to use

> No need for tools

> Without heating

> Installable at any temperature

> Can be used directly underground

> Very compact

> Re-enterable
- > Non toxic and flame retarded

> The connections are automatically blocked when the joint is closed

> Screw connectors available with the kit

> Also for underwater use

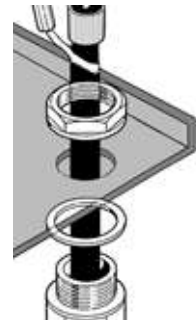
> Without shelf life

Control unit	Kit Composition	Dimension A x B x C (mm)
MCA Universal IP68	3 screw connectors to connect to the power cable or another heating cable	260 x 60 x 60
MCA-Y	3 screw connectors for branch connections between heating cables	150 x 30 x 56

MCA-PC, MCA-PC-Compact

Connection kit.

Supply side termination allowing connections to a terminal box. Made of cold-shrink components and also a dedicated cable gland. One for each cable.



MCA-PM, MCA-PM-Compact

Termination kit.

For insulating and matching the cable ends. Made from cold-shrink components. One kit for each termination.



MCA-AL

Thermal insulation pass-through.

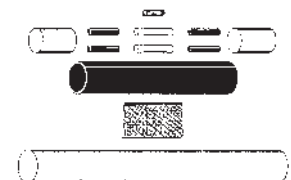
It allows the cable to pass through the metallic covering of the thermal insulation, avoiding abrasions and the moisture or water entry under the covering. It contains cable gland and fixing plate. One kit for each cable.



MCA-GL

Joint kit.

To joint cable ends or to repair damaged cables. It contains all the components required, including connectors. One kit for each cable.



MCA-PRESS

Cable gland.

To allow the cable to enter in boxes, to pass through walls etc. One kit per cable.



MCA-SUP

Support device for gutters and down pipes.

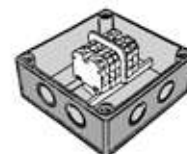
It supports and fixes the cable in gutters and downpipes. In large gutters, requiring 2 cables laid longitudinally, it maintains the cable at the right distance.



MCA-SG

Box.

Box with IP55 degree of protection, complete of terminals. It allows the entry of 1 or more heating cables, or to branch a cable from a main tracing, or to joint cable lengths. Cables inside the box shall be MCA-PC terminated.



MCA-FV

Glass fiber tape.

To fix the cable to the pipe, 3 turns every 0,3 m of pipe. Self adhesive, in 50 m rolls.



MCA-ALL75

Aluminium self adhesive tape 75 mm width.

For cable fixing, in 50 m rolls.



GUAT 26

Connection kit for classified area.



MCA-EA

Warning label.

To be applied for warning over traced items.

WARNING
ELECTRICAL TRANCING

Control Unit C2000

C 2000 Control unit for temperature and humidity.

The C2000 control unit and relative sensors are suitable for the tracing with both self-regulating cables and constant power cables. The unit allows you to power the system only when low temperatures and humid surfaces (snow - ice, etc.) are present simultaneously.



Segnalling lamps

ON (green) voltage

RELAY (red) cable on power

MOIST (red) humidity presence

TEMP (red) the temperature is lower than the fixed

Voltage: 230V c.a. +/- 10% 50/60Hz

Output: N° 1 relays

Switching capacity: 16A (3600 W)

Differential ON/OFF: 0,4°C

Temperature Range: 0-10°C

After run time: 1-6 hours

Protection degree: IP20

Dimensions: 85 x 42 x 48,8 mm

Weight: 252 gr

Room temperature: 0/50°C

C2000 - SR

Humidity and temperature sensor for ramps and stairs.

Dimensions: h 32 mm - Ø 60 mm

Protection degree: IP68

Ambient temperature: -20°C / +70°C

Connecting cable: 6x1,5 mm², length. 10 m
(possible increase up to 200 m)



C2000 - SUG

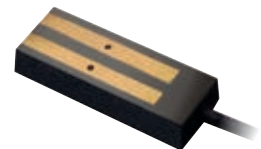
Ice and snow sensor for gutters.

Dimensions: 105 x 30 x 10mm

Protection degree: IP68

Ambient temperature: -20°C / +70°C

Connecting cable: 4x1,5 mm², length. 10 m
(possible increase up to 200 m)



C2000 - STG

Temperature sensor for gutters.

Dimensions: 86 x 45 x 35 mm

Protection degree: IP55

Ambient temperature: -20°C / 70°C

Connecting cable: not included





Comfort House

Flooring

Primary, secondary or flooring comfort heating systems.



Easy Floor

For the intelligent tracing of tile, marble, etc. floors



Easy WOOD

For the intelligent tracing of wood or laminate flooring

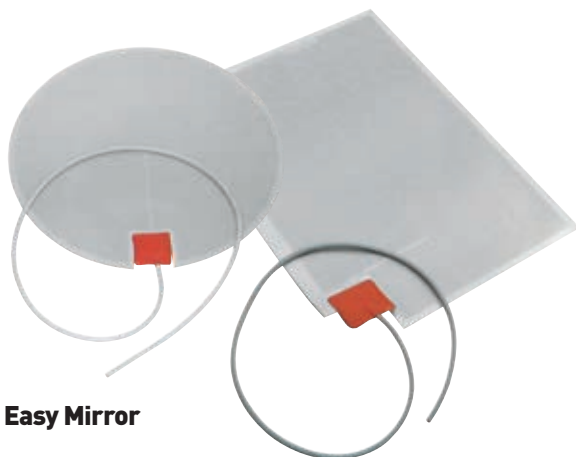


Raytech Intelligent Display

Intelligent room timed thermostat

Mirror

Self-adhesive heating sheet



Easy Mirror

Ceiling

Ceiling heating panels page



Warm Up

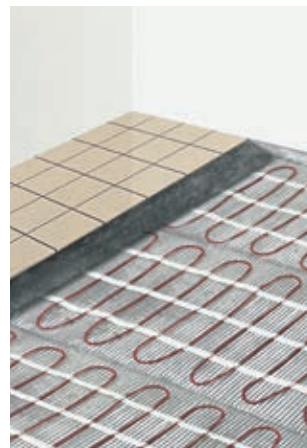
Comfort House

Primary, secondary or flooring comfort heating systems.

Heating mats and intelligent timed thermostat: Raytech intelligent systems for primary, secondary and flooring heating comfort for homes, offices, kindergartens, schools and hospitals.

Constant power heating mats for flooring

Combining the total reliability of the Raytech mat system with the RID microprocessor intelligent thermostat, it is possible to autonomously control all space heating parameters, as a primary means in less cold months and as a secondary means together with a more traditional system, and for comfort heating in bathrooms, kitchens, living rooms and children's bedrooms. After the first programming of the RID timed thermostat, you are free to forget about the system, which will run itself, ensuring optimal conditions.



Easy Floor

Heating mat for the intelligent tracing of tile, marble, floors, etc.

The Easy Floor mat is laid directly on a layer of thermal insulation that coats the floor finished with concrete, and then buried in self-levelling concrete and covered with tiles. The flooring tracing mats are supplied in standard widths of 50 cm, power 150 W/m².

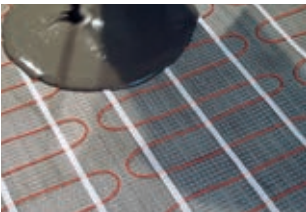
Product	Width (m)	Length (m)	Power (W)
Easy Floor 2	0,5	2	150
Easy Floor 3	0,5	3	225
Easy Floor 4	0,5	4	300
Easy Floor 2-ST	0,5	2	150
Easy Floor 3-ST	0,5	3	225
Easy Floor 4-ST	0,5	4	300



The kit is composed of:

- > Heating mat complete with cold tail
- > RID microprocessor intelligent room timed thermostat complete with sensor
- > Corrugated pipe for positioning

Note: -ST type kits are supplied without a RID room timed thermostat



Easy Wood

Heating mat for the intelligent tracing of wood or laminate floors.

Easy Wood is a very thin film (only 0.3 mm) controlled by a digital intelligent timed thermostat with RID microprocessor supplied with the kit. It is advisable not to exceed a temperature of 28°C. Suitable for secondary or comfort heating.



The kit is composed of:

- > Heating mat complete with connection wires and connectors, tapes and grippers for connection.
- > RID microprocessor intelligent room timed thermostat complete with sensor.
- > Corrugated pipe for sensor positioning

Note: provide for thermal insulation of at least 6 mm in thickness (e.g. sheet of polystyrene) under the heating sheet and a barrier against humidity (polythene sheet at least 0.1 mm) above.



Raytech Intelligent Display

Intelligent room timed thermostat.

The RID (Raytech Intelligent Display) microprocessor room timed thermostat is simple to use, thanks to its step-by-step programming guide. The easy to read display supplies a complete explanation of set parameters after 10 seconds.

It includes a wood floor function, which limits the temperature to 28°C for wood flooring.

The RID autonomously controls all room functions, with no need for extra operations. Weekly programming makes it possible to take into account the set temperature to be maintained, the type and thickness of the flooring, temperature limits not to be exceeded, modes for increasing temperature, etc.

This device is equipped with an anti-freeze function when the house is not inhabited, a block for untimely interventions (for example children) and communicates any operating failures to the appropriate alarms.



Sensor: Included with kit

Temperature range: +5 / +50 °C

Temperature limit: +5 / +55 °C

Startup programme: Automatic self learning

Manual: 0,1-10 °C

Room Temp: 0 / +40 °C

Differential On/Off:
Standard 0,4 °C
Adjustable 0,1-1 °C

Power Supply: 230 V / 50-60 Hz

Self-consumption: 5W

Max output current:
16 A (3400 W/220 V)

Product	Dimensions (mm)
RID room thermostat	85 x 85 x 45



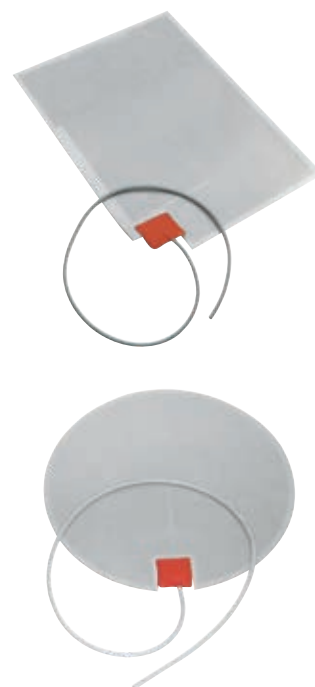
Easy Mirror

Self-adhesive heating sheet.

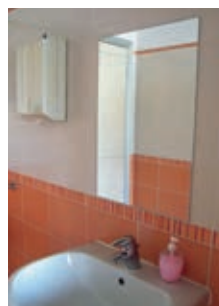
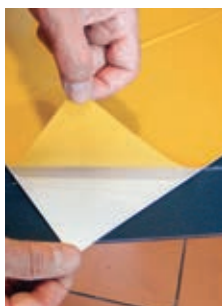
No more fogged mirrors after a shower or bath! Easy Mirror, the self-adhering heating sheet to be applied on the back of the mirror and connected to the mains, eliminates this problem! Powered 230V, double insulated in accordance with safety regulations. Brings the surface of the mirror to 30°C in about 3-5 minutes, removing the film of moisture. Easy Mirror sheets are packaged with a sheet of laminated aluminium on polyester, with double insulation made with 4 more sheets of vulcanised polyester, completely sealed against water.

Ideal for bathrooms, saunas, kitchens, private homes, Hotels, gyms and sports facilities

Product	Sheet Dimention (cm)	Power (W)
Easy Mirror 35	Ø 35	50
Easy Mirror 36/50	36 x 50	50



Installation steps



Warm-Up

Heat where you want it, when you want it.



The ideal solution for all low thermal comfort environments



Warm-Up

Ceiling heating panels.

WARM-UP ceiling heating panels by Raytech can be installed invisibly and built into the ceiling of any home, office, showroom, workshop, greenhouse, camper vans etc., maximising space and freeing up wall space. Their positioning does not require any invasive procedures on the walls of the room, and their electrical connection is extremely simple. They can be installed, possibly placing them at the points where maximum thermal efficiency is required, with any mounting system: hung with chains, flush mounted, or recessed in false ceilings, always easily and quickly. The type of heating, based on infrared radiation, which makes it similar to solar radiation, is safe and unharmed, quick, efficient and extremely comfortable.



Why choose the Warm-Up System?

- > It is installed without requiring any invasive procedures to be carried out on the structures of the house.
- > It is easily uninstalled for re-use in another context.
- > Its radiated heat is safe, with no air movement, and does not dirty the walls and room.
- > It is used for primary heating and for secondary heating as an integrative system, and optimises and reduces heating costs thanks to the RID-WL thermostat.

An ideally integrated invisible system that can also be decorative!



Verandas



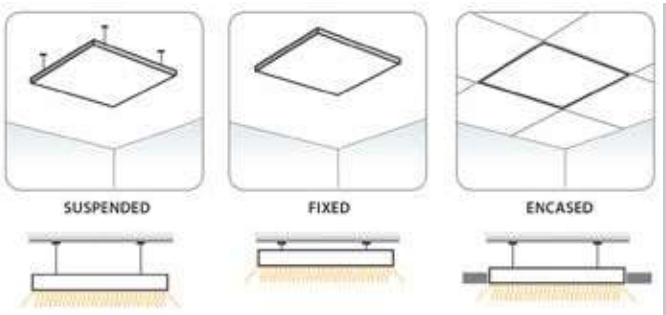
Prefabricated buildings



Exhibition spaces



Gazebos



What Are the Benefits to the System compared to others?

- > Heating is immediate, in just a few minutes.
- > It leaves room walls free because it is installed on the ceiling, flush mounted or recessed in false ceilings.
- > It does not pollute, as it does not use gas or hydrocarbons.
- > It optimises heating and reduces costs.
- > Unlike other types of heating systems, it does not require maintenance!
- > It uses the energy produced by photovoltaic systems, reducing heating costs.
- > It can be coloured, and is therefore easily camouflaged or used as a decorative element.

Product	Colour	Power	Dimensions (mm)
Warm Up 1	White, Paintable	300 W	590 x 590 x 40
Warm Up 2		600 W	1190 x 590 x 40



Controlled by a timed thermostat or a power regulator, they reduce consumption to a minimum

Class 2 degree of protection IP44

Power required for comfort heating: about 60W/m² (one Warm Up 1 panel every 5m²)

For primary heating with well-insulated walls: about 120W/m²



Stores



Offices



Warehouse - Garages



Homes

Warm Up Accessories

RID-WL

Digital wireless timed thermostat.

Raytech has established the innovative WIRELESS RID-WL TIMED ROOM THERMOSTAT for maximum efficiency and speed and ease of installation. This system combines well-known reliability and control of environmental parameters of the system RID with a wireless connection.

The RID-WL, which operates in radio frequency, allows non-invasive installation in any environment, both for new installations and those related to renovations, or to reinforce an existing primary system.

The RID-WL is coupled with its own receiver, tuned to the frequency of its own thermostat (exclusive signal), which is able to control an ampacity of 8 A.

RID-WL, since it is not wired, it can be moved within the range of use and positioned where controlling the parameters is important.

It is equipped with an easy to read backlit LCD screen and is programmable and provided with a built-in internal sensor, but can be connected to a separate sensor, for example on the floor.



Temperature accuracy: 0,1°C
Field of operation: from 0°C to +40°C
Field of temperature: from 5°C to +35°C
Power supply: 2 AAA 1.5 V batteries
Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance: 100 m outdoors, 30 m indoors.

- > Programmable in 30 minute blocks
- > 9 pre-installed programmes and 4 user-set programmes
- > "Self-learning" temperature control
- > Child lock
- > Low battery alarm
- > Unlimited programme memory in the case of discharged batteries

Additional relay device

Additional relay device, with a maximum of 6 devices which can be controlled by the same RID-WL timed thermostat



Degree of protection: IP30
Frequency: 868 MHz
Powered receiver: 230 V, 50 Hz
Relay range: 8 A
Range in distance: 100 m outdoors, 30 m indoors

Product	Description
RID-WL	Timed thermostat including receiver

Product	Description
RID-WL-R	Additional receiver for loads greater than 8 A

0800 GET OHUG

The image features a large, bold, yellow 'OHUG' logo on a black background, which is torn along its edges to reveal a yellow background. The background also features a faint, yellow-tinted image of high-voltage power lines and pylons. The logo is positioned vertically on the left side of the page.

OHUG

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