CONNECTORS & FITTINGS

for Low Voltage Insulated Overhead Lines

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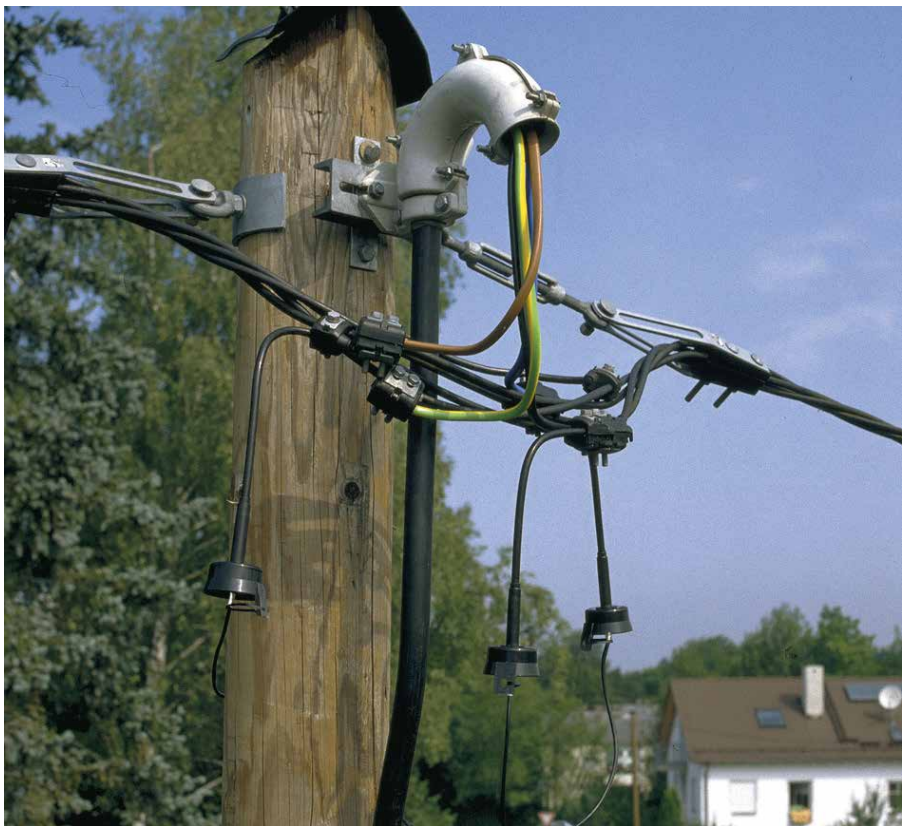
Introduction
Low Voltage Insulated Overhead Lines (LV-Aerial Bundled Conductor System)

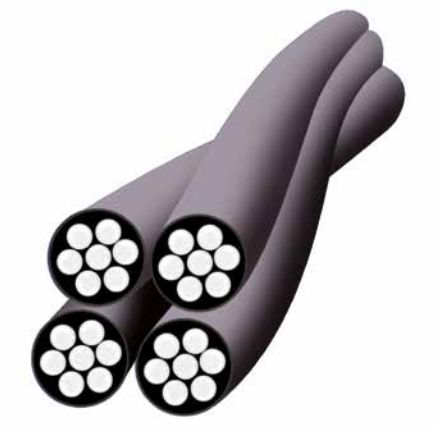
TE Connectivity was one of the first to pioneer the connection, anchoring and suspension of low-voltage insulated overhead systems since its first installations in the mid 1950's. Since then, our continuous efforts in research and development have led to state of the art our product lines, meeting the demands of modern network design, operation and maintenance. Our products are successfully employed by utilities around the world including artic, desert and tropical climatic extremes. With TE Connectivity piercing connectors service lines can be connected to live lines with maximum safety to linemen.



The 3 main types of LV-ABC according to European Standard HD 626

Our anchor and suspension clamps are designed and tested to fit to majority types of cables according to European Standard HD 626, regardless if cables are insulated with XLPE, PE or PVC. The products are tested according to national specifications such as NFC, VDE, BS, ESI and where possible in accordance to CENELEC EN 50483.

Self-supporting LV-ABC lines

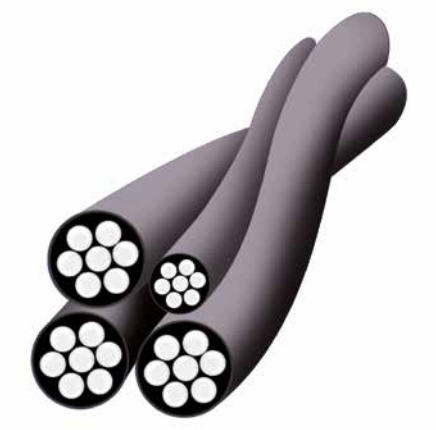


The self-supporting system is composed of 4 insulated aluminium conductors. Mechanical strength and nominal cross section of all 4 conductors are identical. The system can consist of additional 1 or 2 insulated aluminium conductors with cross sections of 16 mm^2 or 25 mm^2 as pilot wire or for street lighting.

When straining the line, all 4 conductors are equally loaded.

The service lines of all 3 LV-ABC systems are usually also of the self-supporting type, composed of 2 to 4 factory bundled insulated aluminium conductors with cross sections of 16 mm^2, 25 mm^2 or 35 mm^2.

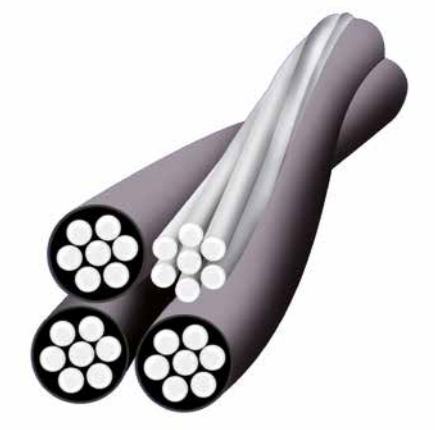
LV-ABC lines with insulated neutral messenger



LV-ABC line with insulated neutral messenger wire, also referred to as “French System”, is composed of 3 insulated aluminium phase conductors and 1 neutral messenger of aluminium alloy (mostly Aldrey) also with insulation. The system can consist of additional 1 or 2 insulated aluminium conductors with cross sections of 16 mm^2 or 25 mm^2 as pilot wire or for street lighting.

Mechanical strength and nominal cross section of the 3 phase conductors are identical. The neutral conductor is at the same time the suspension unit having a higher mechanical strength. When straining the line, only the neutral conductor, as suspension unit, is loaded.

LV-ABC lines with bare neutral messenger



LV-ABC line with bare neutral messenger wire, also referred to as “Finnish System”, is composed of 3 insulated aluminium phase conductors and 1 neutral messenger of aluminium alloy without insulation. The system can consist of additional 1 or 2 insulated aluminium conductors with cross sections of 16 mm^2 or 25 mm^2 as pilot wire or for street lighting.

Mechanical strength and nominal cross section of the 3 phase conductors are identical. The neutral conductor is at the same time the suspension unit having a higher mechanical strength. When straining the line, only the neutral conductor, as suspension unit, is loaded.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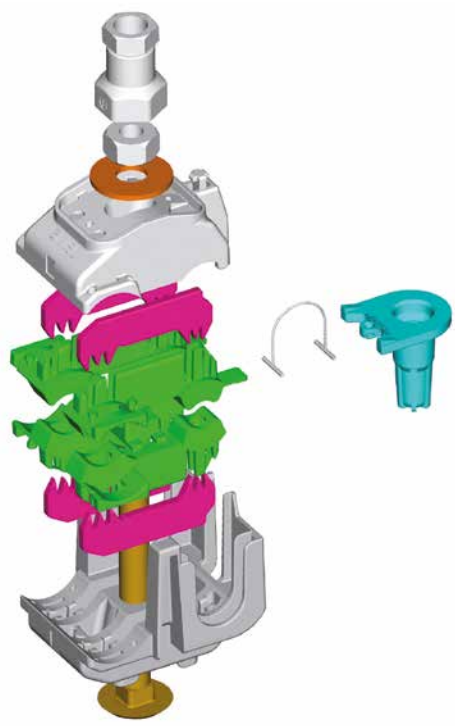
Chapter I
Tap-off connectors

Piercing Connector Systems



All our connectors are designed and tested to fit to majority types of cables made in accordance with the European Standard HD 626, regardless if cables are insulated with XLPE, PE or PVC. The products are tested according to national specifications such as NFC, VDE, BS, ESI and where possible in accordance to CENELEC EN 50483-4.

These standards include tests to verify reliable operation even in the harshest environments:

- designed for Installation from –20 °C up to +50 °C,
- operation experience with temperatures ranging from –60 °C up to +60 °C,
- no limitation of mechanical loads for main and branch conductors,
- shear head forces are adapted to the required contact forces for each application (main, service, lightning),
- voltage withstand to 6 kV in a 30 cm waterbath,
- no change in contact resistance and temperature after overloads and load cycling,
- voltage withstand to 6 kV after heavy weathering exposure (UV-light, humidity and temperature cycling),
- corrosion resistance of metal parts proven in salt fog chamber and wet SO_2 gas chamber.

Installation process engineered for long-term reliability

Before installation

Connector easily positioned over cables, no loose parts can fall to ground. The correct position of the branch conductor can be felt inside the end cap.

During installation

Contact blades pierce the insulation and reliably contact the conductors. The tightening screw is insulated from the contact blades thus providing maximum safety for the installer even during live line installations.

After shear head breaking

The shear head ensures that conductors are not damaged by too strong forces. The long neck prevents the head from hasty shearing off by naturally applied cantilever loads on the tightening tool. The seals firmly conform to the insulation to prevent any moisture ingress.

Waterproof insulation piercing connectors – test voltage 6 kV in water

Application

The waterproof insulation piercing connectors are suitable for majority types of LV ABC conductors as well as connections to service and lighting cable cores.
When tightening the bolts, the teeth of the contact plates penetrate the insulation and establish a perfect contact. The bolts are tightened until the heads shear off.
Stripping of insulation is avoided.

Features

- Tested for watertightness at a voltage of 6 kV for 30 min in a waterbath (NFC 33020, EN 50483-4 class 1)
- Potential free tightening bolts allow safe installations on life lines
- Suitable for aluminium and copper conductors
- Long neck 13 mm shear head nut ensuring reliable installations
- Exceeds requirements according to NFC 33020 and EN 50483-4
- Components not losable, end cap attached to body
- Insulation material made of weather and UV resistant glass fibre reinforced polymer
- Contact plates made of aluminium or copper, bolt made of steel with Geomet (Chromium free) protection
- Designed that conductor breaking loads exceed cable system requirements: 80 % for self-supporting system 90 % for insulated neutral conductor and 60 % for phase conductors for system with insulated neutral messenger

Type: EP, P2X, P3X, P4X

Type: KZ 2-150 2B

Type: P31F

Simultaneous piercing of main and branch conductor

Ordering description	Application range (mm²)		Bolt	Torque	Weight
	Main	Tap		(Nm)	(kg/100 pcs)
for main to service connection					
EP35-13	2.5 – 35	1.5 – 6	1 x M6	7	5.0
EP95-13	6 – 95	1.5 – 10	1 x M6	7	5.0
P2X 95 Mk2	16 – 95	4 – 35 (50*)	1 x M8	11	10.8
EP120-13	16 – 120	1.5 – 6	1 x M8	8	5.4
P2X 150	50 – 150	6 – 35 (50*)	1 x M8	11	12.0
for main to main connections					
P2X 95 Mk2	16 – 35	16 – 35	1 x M8	11	10.8
P3X 95	25 – 95	25 – 95	1 x M8	18	16.0
P4X 120D	25 – 120	25 – 120	2 x M8	18	34.0
P4X 150D	50 – 150	50 – 150	2 x M8	18	34.0

* Fits up to this conductor size, but current rating Imax of connector (138 A according to HD 626S1 part 6E) is lower than possible cable ratings.

Independent connection of main (piercing) and branch conductor (strippable)

Ordering description	Application range (mm²)		Bolt	Torque (Nm)	Weight
	Main	Tap		Main/Tap	(kg/100 pcs)
for main to 2 service connections (Bp-piercing tap side, B-strippable tap side)					
KZ 2-150 2B	25 – 150	2 x 6 – 35	1 x M8/2 x M8	11/8	23.0
KZ 2-150 2Bp	25 – 150	2 x 6 – 35	1 x M8/2 x M8	11/10	23.0
	for main to main connections (strippable tap side)				
P31F	35 – 150	35 – 70	1 x M8/1 x M10	18/10	21.6

* Fits up to this conductor size, but current rating Imax of connector (213 A according to HD 626S1 part 6E) is lower than possible cable ratings.

NOTE Possibility to disconnect and reconnect the tap line (only stripping version) without removal of the main side.

Insulation piercing connectors for connections to bare overhead

Application
The connectors allow the transition between bare lines (aluminium or copper) and insulated LV ABC lines.

The version with simultaneous connection of bare main and insulated tap conductor includes piercing and a waterproof seal of the tap conductor.

The second version with independent connection requires the tap conductor to be stripped. The bolts (13 mm) are tightened until the heads shear off.

Features
- Suitable for aluminium and copper conductors
- Groove in contact area for bare conductor fits also for small wires
- Potential free tightening bolts allow safe installations on life lines
- Exceeds requirements according to NFC 33020 and EN 50483-4
- Components not losable, end cap attached to body
- Insulation material made of weather and UV resistant glass fibre reinforced polymer
- Contact plates made of tinned copper, bolt made of steel with Geomet (Chromium free) protection

Type: P2X 95 Mk2, EP95-13

Type: P3B120, P2B100 U Mk 2

Type: KZ31-70 CNA

For bare main (Al/Cu) to insulated service connections

Ordering description	Application range (mm²)		Bolt	Torque	Weight
	Bare	Insulated		(Nm)	(kg/100 pcs)
For bare main (Al/Cu) to insulated service connections					
EP95 – 13	16 – 95	1.5 – 10	1 x M6	7	5.0
P2X 95 Mk2*	16 – 95	4 – 35	1 x M8	11	10.8
P2B100 U Mk2	7 – 100	4 – 35(50)	1 x M8	11	13.5
For bare main (Al/Cu) to insulated main connections					
P3B120	7 – 120 (150) mm²	25 – 95	1 x M8	18	17.0

* Connector of type P2X can only be used for connections between aluminium conductors.

NOTE Equivalent to a diameter range of 4.5 to 12 mm.

Independent connection of main (bare) and branch conductor (strippable)

Application range (mm²)		Ordering description	Bolt	Torque (Nm)	Weight
Bare	Insulated		Bare/Insulated	Bare/Insulated	(kg/100 pcs)
22 – 75 Al*	35 – 70	KZ31-70 CNA	1 x M8/1 x M10	11/10	24.0
7 – 48 Cu	35 – 70	KZ31-70 CNU	1 x M8/1 x M10	11/10	24.0

* Equivalent to a diameter range of 6 to 11 mm.

NOTE Possibility to disconnect and reconnect the tap line without removal of the main side.
CNA only for bare main aluminium conductors.
CNU only for bare main copper conductors.

Insulation piercing connectors for connections to cables

Application
All piercing connectors of EP and PX type (see page 9) can be used as a connection between LV-ABC and service or main cables.

The DZ6 connector is designed for connection of cables with large cross sections to insulated LV ABC lines. When tightening the bolts, the teeth of the contact plates penetrate the insulation and establish a perfect contact. The bolts (wrench size 17 mm) are tightened until the heads shear off. Stripping of insulation is avoided and the cable end is sealed with a cap.

Features
- Suitable for aluminium and copper conductors
- Potential free tightening bolts allow safe installations on life lines
- Connectors type DZ6 exceed requirements according to UL486 and EATS 43-14, including 4 kV voltage withstand test in air
- Connector teeth are factory greased and covered with a rubber seal to retard water entry and corrosion
- Components not losable, end cap attached to body
- Insulation material made of weather and UV resistant glass fibre reinforced polymer
- Contact plates made of tinned copper, bolt made of steel with Geomet (Chromium free) protection

For inline connections of LV-ABC to cables see section “Complete connection kits” on 35.
For cable terminations and core protection tubing see pages 25 and 26.

Type: DZ6 UL-F

Type: P3X 95

Type: P2X 95 Mk2, EP95-13

Simultaneous piercing of main (insulated LV-ABC) and branch (cable core) conductor

Ordering description	Application range (mm²)		Bolt	Torque	Weight
	LV-ABC	Cable conductor		(Nm)	(kg/100 pcs)
EP95-13	16 – 95	1.5 – 10	1 x M6	7	5.0
P2X 95 Mk2	16 – 95	4 – 35	1 x M8	11	10.8
P3X 95	25 – 95	25 – 95	1 x M8	18	16.0
DZ6 UL-F-CHINA-N	25 – 120 (150*)	120 – 240	1 x M10	40	30.0

* Fits up to this conductor size, but current rating Imax of connector (300 A according to HD 626S1 part 6E) is lower than possible cable rating.

Parallel groove clamps for bare neutral messenger and grounding

Application
Designed to connect two parallel bare conductors. Conductors can be aluminium alloy or aluminium steel reinforced.

Features
- Exceed requirements according to VDE 0210 and VDE 0212
- Pressure pad ensuring uniform pressure along the clamp
- Cross-grooved clamp channels of universal clamp type improve mechanical pullout strength and electrical contact
- Connector bodies made of corrosion resistant, high strength aluminium alloy AlMgSi1F32
- Bolts and nuts made of hot dip galvanized steel 8.8.

Type: Al – Al

Application
Designed to connect two parallel bare conductors. Conductors can be aluminium alloy or aluminium steel reinforced for main and copper for tap side.

Features
in addition to aluminium version:
- Hot compressed Cupal plate ensures good electrical contact and prevents corrosion
- Cross-grooved clamp channels improve mechanical pullout strength and electrical contact
- Spring washers maintain pressure even at dilatation caused by temperature changes

Type: Al – Cu

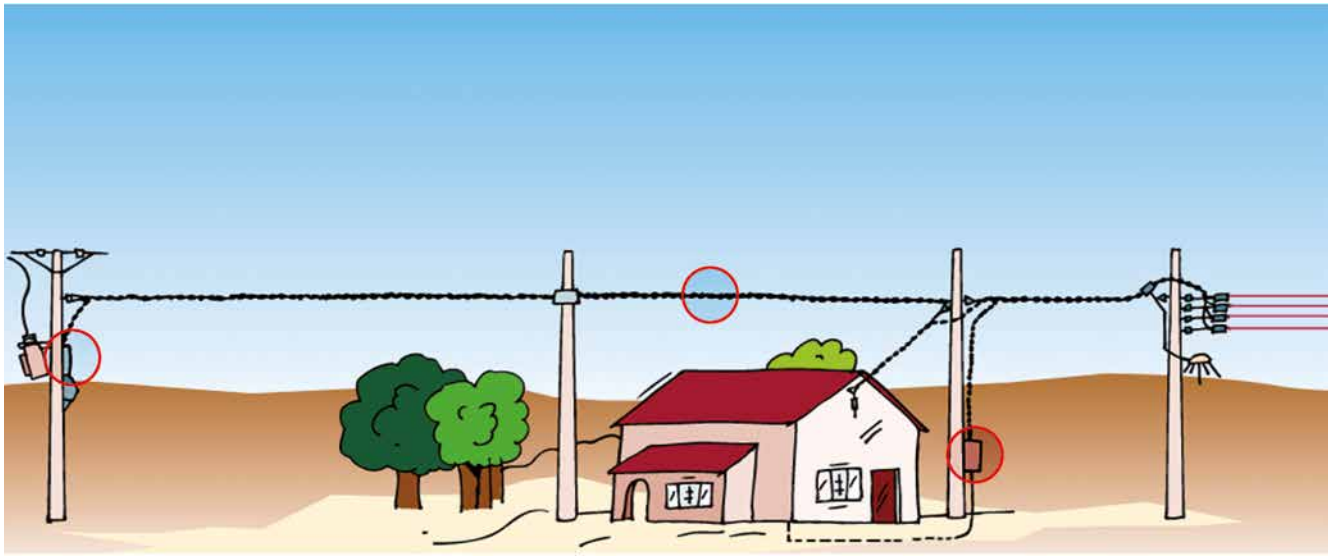
Application
Designed to connect two parallel bare conductors. Conductors can be copper stranded or solid.

Features
different from aluminium version:
- Connector bodies and bolts made of high strength electrolytic copper F60

Type: Cu – Cu

Ordering description	Conductor cross section (mm²)			Conductor diameter (mm)		Bolt	Torque	Weight
	Al	Al/St, ACSR	Cu	Al	Cu		(Nm)	(kg/100 pcs)
Aluminium – Aluminium								
HEL-3587	6 – 35	16/2.5 – 25/4	–	2.5 – 7.5	–	2 x M7	16	9.5
HEL-3590	10 – 95	16/2.5 – 70/12	–	4.1 – 12.5	–	2 x M8	22	14.3
HEL-3591	16 – 120	16/2.5 – 95/15	–	5.1 – 14.0	–	2 x M8	22	15.8
HEL-3592	25 – 150	25/4 – 120/20	–	6.3 – 15.7	–	2 x M10	44	24.0
HEL-3594	35 – 240	35/6 – 210/35	–	7.5 – 20.2	–	2 x M10	44	45.0
Universal type for fixing of dead – ends, tap conductors and auxiliary conductors								
HEL-3929	16 – 70	16/2.5 – 70/121)	–	5.1 – 10.5	–	2 x M8	22	10.0
HEL-3932	25 – 150	25/4 – 120/202)	–	6.3 – 15.7	–	2 x M10	44	20.4
Aluminium – Copper								
HEL-3920	16 – 95	16/2.5 – 50/8	1.5 – 10	5.1 – 11.7	1.5 – 5.1	1 x M8	22	6.0
HEL-3919	16 – 70	16/2.5 – 70/12	6 – 50	5.1 – 11.7	2.7 – 9.0	1 x M8	22	6.0
HEL-3909	16 – 95	16/2.5 – 70/12	6 – 50	5.1 – 12.5	2.7 – 9.0	2 x M8	22	11.5
HEL-3911	25 – 150	25/4 – 120/20	10 – 95	6.3 – 15.7	5.1 – 12.5	2 x M8	22	15.0
HEL-3915	35 – 300	35/6 – 265/35	35 – 240	7.5 – 22.5	7.5 – 20.2	3 x M10	44	68.0
Copper – Copper								
HEL-3005	–	–	2.5 – 16	–	1.8 – 5.1	1 x M5	6	2.8
HEL-3006 M6	–	–	4 – 25	–	2.3 – 6.3	1 x M6	8	4.6
HEL-3007	–	–	6 – 35	–	2.7 – 7.5	1 x M7	14	6.5
HEL-3009	–	–	6 – 70	–	2.7 – 10.5	1 x M8	20	11.7
HEL-3029	–	–	6 – 70	–	2.7 – 10.5	2 x M8	20	19.8
HEL-3030	–	–	16 – 95	–	5.1 – 12.5	2 x M8	20	26.5
	–	–	16 – 150	–	5.1 – 15.7	2 x M10	39	43.0

NOTE
1) Use 2 clamps for dead – ends and auxiliary conductors of 50/8 and 70/12.
2) Use 2 clamps for dead – ends for 70/12 and above and for auxiliary conductors with strain above 90 N/mm².



Chapter II
Inline connectors and lugs

Waterproof pre-insulated mechanical connectors for service cables

Application

These waterproof insulated mechanical connectors are suitable for all types of LV-ABC conductors as well as connections to service and lighting cable cores. They are used when a customer service line is changed or reconnect to a customer after payment. End cap is included to seal open sides. The bolts (13 mm) are being tightened until the heads shear off.
Available with a piercing contact and as second version which requires stripping of the insulation.

Features

- Suitable for aluminium and copper conductors, solid and stranded
- Stripping version can be installed and removed under load (max. 90 A)
- Polymeric tightening bolts allow safe installations on hot lines
- Tested for watertightness at a voltage of 6 kV for 30 min in a waterbath (NFC 33020, EN 50483-4 class 1)
- Exceeds requirements according to NFC 33020, NFC 33021 and NFC 20 540
- Components not losable, end cap attached to body
- Stripping version re-openable, piercing version not re-openable
- Insulation material made of weather and UV resistant glass fibre reinforced polymer

Type: piercing version

Type: stripping version

Ordering description	Cross section (mm²)		Type	$I_{max.}$*	Torque	Weight
	min.	max.		(A)	(Nm)	(kg/100 pcs)
BPC 35 - 35	4	35	stripping/stripping	90	10	8.5
BPC 35 - P35	4	35	stripping/piercing	90	10	8.5
BPC P35 - P35	4	35	piercing/piercing	–	10	8.5
BPC P50	4	50	piercing/piercing	–	10	8.5

* Max. current for connection under load.

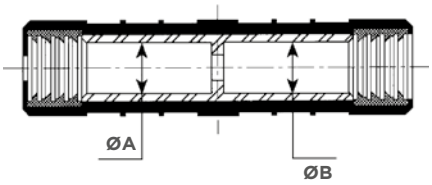
Waterproof pre-insulated hexagonal compression connectors for service cables

Application
These pre-insulated connectors are suitable for insulated stranded aluminium conductors. Stripped cables are inserted up to the block in the connector. Crimping according to the marks with crimping die size E140 over the insulation. The electrical contact and the sealing by the elastomeric ring are achieved during the crimp process. Uniform connector length of 70 mm.

Features
- MJPB suitable for stranded aluminium conductors up to 35 mm² and stranded copper conductors up to 16 mm²
- MJPBAS suitable for stranded aluminium conductors to solid aluminium conductors
- Mechanical strength of 50 % of cable breaking load
- Tested for water tightness at a voltage of 6 kV for 30 min in a water bath
- One die size E140 for all connector sizes (tools and dies see pages 51 and 53)
- Exceeds requirements according to NFC 33021 and EN 50483-4
- A colour code of elastomeric sealing ring allows an easy identification of the cross sections
- Inner aluminium sleeve filled with contact grease
- Insulation material made of weather and UV resistant polymer

Type: MJPB, MJPBAS

Type: MJPB 10-16 (sectional view)



MJPB for stranded conductors

Ordering description	Cross section (mm²)		Colour code A/B	Dimensions (mm)		Weight
	stranded A	stranded B		ØA	ØB	(kg/100 pcs)
MJPB 04-16	4	16	ivory/blue	2.7	5.3	2.5
MJPB 06	6	6	brown	3.3	3.3	2.5
MJPB 06-10	6	10	brown/green	3.3	4.3	2.5
MJPB 06-16	6	16	brown/blue	3.3	5.3	2.5
MJPB 06-25	6	25	brown/orange	3.3	6.5	2.5
MJPB 06-35	6	35	brown/red	3.3	8.0	2.5
MJPB 10	10	10	green	4.3	4.3	2.5
MJPB 10-16	**10**	**16**	**green/blue**	**4.3**	**5.3**	**2.5**
MJPB 10-25	10	25	green/orange	4.3	6.5	2.5
MJPB 10-35	10	35	green/red	4.3	8.0	2.5
MJPB 16	16	16	blue	5.3	5.3	2.5
MJPB 16-25	16	25	blue/orange	5.3	6.5	2.5
MJPB 16-35	16	35	blue/red	5.3	8.0	2.5
MJPB 25	25	25	orange	6.5	6.5	2.5
MJPB 25-35	25	35	orange/red	6.5	8.0	2.5
MJPB 35	35	35	red	8.0	8.0	2.5

MJPBAS for stranded to solid conductors

Ordering description	Cross section (mm²)		Colour code A/B	Dimensions (mm)		Weight
	stranded A	solid B		ØA	ØB	(kg/100 pcs)
MJPBAS 10-25M	10	25	green/orange	4.3	5.9	2.5
MJPBAS 10-35M	10	35	green/red	4.3	6.9	2.5
MJPBAS 16-16M	16	16	blue/blue	5.3	4.5	2.5
MJPBAS 16-25M	16	25	blue/orange	5.3	5.9	2.5
MJPBAS 16-35M	16	35	blue/red	5.3	6.9	2.5
MJPBAS 25-16M	25	16	orange/blue	6.5	4.8	2.5
MJPBAS 25-25M	25	25	orange/orange	6.5	5.9	2.5
MJPBAS 25-35M	**25**	**35**	**orange/red**	**6.5**	**6.9**	**2.5**
MJPBAS 35-35M	35	35	red/red	8.0	6.9	2.5

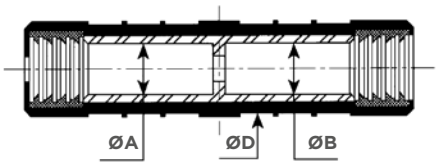
Waterproof pre-insulated hexagonal compression connectors

Application
These pre-insulated connectors are suitable for insulated stranded aluminium conductors. Three connector versions are available to meet the mechanical load requirements for self-supporting system and systems with a neutral messenger.
Stripped cables are inserted up to the block in the connector. Crimping according to the marks with appropriate crimping die over the insulation. The electrical contact and the sealing by the elastomeric ring are achieved during the crimp process. Uniform connector length of 100 mm, except for neutral messengers 170 mm.

Features
- Suitable for stranded aluminium conductors
- Tested for water tightness at a voltage of 6 kV for 30 min in a waterbath (NFC 33020, EN 50483-4 class 1)
- Only two crimping die sizes (E173, E215) cover complete connector range (tools and dies see pages 51 and 52)
- Exceeds requirements according to EN 50483-4 class 1 and NFC 33021
- A colour code of elastomeric sealing ring allows an easy identification of the cross sections
- Inner aluminium sleeve filled with contact grease
- Insulation material made of weather and UV resistant polymer

Mechanical load withstand of connectors:
- For conductors of self-supporting system: 85 % of conductor breaking load
- For systems with neutral messenger: 60 % of breaking load of phase conductor 95 % of breaking load of insulated neutral conductor

Type: MJPT



	Conductor cross section (mm^2)	Colour code A/B	Dimensions (mm)			Crimp die size	Weight
			ØA	ØB	ØD		(kg/100 pcs)
For self supporting LV-ABC systems							
MJPT 16	16	blue	5.5	5.5	20	E173	5.5
MJPT 25 Alus	25	orange	6.5	6.5	20	E173	5.5
MJPT 35 Alus	35	red	–	–	–	E173	5.5
MJPT 50 Alus	50	yellow	9.0	9.0	20	E173	5.0
MJPT 70 Alus	70	white	10.5	10.5	20	E173	4.5
MJPT 95 Alus	95	grey	12.2	12.2	25	E215	7.5
MJPT 120 Alus	120	pink	14.2	14.2	25	E215	7.5
For phase conductors of LV-ABC systems with neutral messenger							
MJPT 16	16	blue	5.5	5.5	20	E173	5.5
MJPT 25	25	orange	6.5	6.5	20	E173	5.0
MJPT 35	35	red	8.0	8.0	20	E173	5.0
MJPT 35-25	35 – 25	red/orange	8.0	6.5	20	E173	5.0
MJPT 50	50	yellow	9.0	9.0	20	E173	5.0
MJPT 50-25	50 – 25	yellow/orange	9.0	6.5	20	E173	5.0
MJPT 50-35	50 – 35	yellow/red	9.0	8.0	20	E173	5.0
MJPT 70	70	white	10.5	10.5	20	E173	4.5
MJPT 70-35	70 – 35	white/red	10.5	8.0	20	E173	4.5
MJPT 70-50	70 – 50	white/yellow	10.5	9.0	20	E173	4.5
MJPT 95	95	grey	12.2	12.2	20	E173	4.0
MJPT 95-35	95 – 35	grey/red	12.2	8.0	20	E173	4.5
MJPT 95-50	95 – 50	grey/yellow	12.2	9.0	20	E173	4.0
MJPT 95-70	95 – 70	grey/white	12.2	10.5	20	E173	4.0
MJPT 120 D25	120	pink	14.2	14.2	25	E215	8.5
MJPT 150	150	violet	15.5	15.5	25	E215	8.0
MJPT 150-70	150 – 70	violet/white	15.5	10.5	25	E215	9.0
MJPT 150-95	150 – 95	violet/grey	15.5	12.2	25	E215	9.0
For insulated neutral conductors of LV-ABC systems with neutral messenger							
MJPT 54	54.6	black	10.0	10.0	20	E173	8.0
MJPT 70N	70	white	10.5	10.5	20	E173	8.0
MJPT 70N-54	70 – 54.6	white/black	10.5	10.0	20	E173	8.0

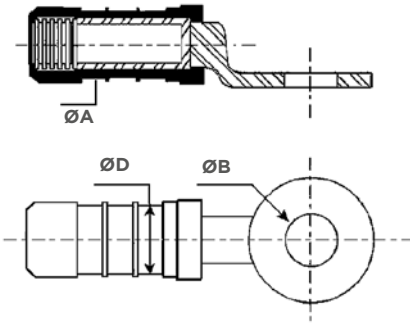
Waterproof pre-insulated hexagonal compression lugs

Application
These pre-insulated lugs are suitable for insulated stranded aluminium conductors. Stripped cables are inserted up to the end. Crimping according to the marks with appropriate crimping die size over the insulation. The electrical contact and the sealing by the elastomeric ring are achieved during the crimp process.
Available with aluminium palm (CPTA) and as bimetallic lug with a copper palm (CPTAU).

Features
- Suitable for stranded aluminium conductors
- Mechanical strength achieved is 50% of cable breaking load
- Tested for water tightness at a voltage of 6 kV for 30 min in a waterbath
- Three die sizes (E140, E173, E215) for all connector sizes (tools and dies see pages 51 and 52)
- Exceeds requirements according to EN 50483-4 class 1 and NFC 33021
- A colour code of elastomeric sealing ring allows an easy identification of the cross sections
- Inner aluminium sleeve filled with contact grease
- Insulation material made of weather and UV resistant polymer

Type: CPTA

Type: CPTAU



Waterproof compression lugs

Ordering description	Cross section (mm^2)	Colour code	Dimensions (mm)			Crimp die size	Weight
			ØA	ØB	ØD		(kg/100 pcs)
With aluminium palms							
CPTA 35	35	red	8.0	16.0	20	E173	7.0
CPTA 50	50	yellow	9.0	16.0	20	E173	7.0
CPTA 54	54	black	10.0	16.0	20	E173	7.0
CPTA 70	70	white	10.5	16.0	20	E173	7.0
CPTA 95 D20	95	grey	12.2	16.0	20	E173	6.5
CPTA 150-21 D20UK	150	violet	15.5	21.0	20	E173	7.0
With copper palms (bimetallic)							
CPTAU 16 D16	16	blue	5.5	10.5	16	E140	3.5
CPTAU 25 D16	25	orange	6.5	10.5	16	E140	3.0
CPTAU 35 (trousse)	35	red	8.0	12.8	20	E173	7.0
CPTAU 50	50	yellow	9.0	12.8	20	E173	7.0
CPTAU 54	54	black	10.0	12.8	20	E173	7.0
CPTAU 70	70	white	10.5	12.8	20	E173	7.0
CPTAU 95	95	grey	12.2	12.8	20	E173	6.5
CPTAU 120 D25	120	pink	14.2	12.8	25	E215	13.0
CPTAU 150 D25	150	violet	15.5	12.8	25	E215	12.5

Waterproof compression lugs

Ordering description	Dimensions (mm)
	ØB
RONDELLE 30X10,5X2 -AL/CU	10.5
RONDELLE 30X13X2 -AL/CU	12.8

Complete termination kits – bare mechanical lugs with sealing tubing

Application

These complete termination kits contain 4 pieces of mechanical lugs and 4 pieces of heat-shrinkable sealing tubing.
Included mechanical lugs are suitable for stranded or solid conductors made of either aluminium or copper. The cable insulation has to be stripped before the conductor is inserted into the lug.
During an installation the bolts are being tightened with a regular spanner until the heads sheared off.
The reliable sealing between the lug and the conductor's insulation is achieved by supplied heat-shrinkable tubing. The tubing is resistant to UV-light and weathering and coated with hot-melt adhesive, which seals to all common plastics and metals.

Features

- Suitable for stranded and solid, round or sector shaped conductors
- Wide application ranges
- Lug bodies made of a high-tensile, tin-plated aluminium alloy
- Grooved internal surface of the conductor hole
- Lubricated shear bolts with predetermined shear torque made of special aluminium
- Exceeds requirements according to IEC 61238-1 class A
- Heat-shrinkable tubing, supplied with kit, ensures perfect sealing and electrical insulation

Type: SMOE-xxxx

Type: BLMT

Ordering description	Cross section (mm^2)	Length of sealing tubing (mm)	Hexagon contact bolts	
			Quantity (pc)	Width across flats (mm)
SMOE-82286	25 – 95	100	1	13
SMOE-82287	35 – 150	150	1	17
SMOE-82288	95 – 240	150	2	19

NOTE Termination kits contain 4 lugs with 13 mm diameter hole in palm and 4 heat-shrinkable, sealing tubing.

Complete connection kits – bare non-tension mechanical connectors with sealing tubing

Application

These complete connection kits contain 4 pieces of mechanical connectors and 4 pieces of heat-shrinkable sealing tubing. Included non-tension mechanical connectors are designed to connect LV ABC conductors between each other and to underground cable conductors.
The cable insulation has to be stripped before the conductor is inserted into the connector. During an installation the bolts are being tightened until the heads sheared off. The reliable sealing between the connector and the conductor's insulation is achieved by supplied heat-shrinkable tubing. The tubing is resistant to UV-light and weathering and coated with hot-melt adhesive, which seals to all common plastics and metals.

Features

- Suitable for stranded and solid, round or sector shaped conductors
- Wide application ranges
- Connector bodies made of a high-tensile, tin-plated aluminium alloy
- Grooved internal surface of the conductor hole
- Lubricated shear bolts with predetermined shear torque made of special aluminium
- The BSM connectors included in connection kits (excluding SMOE-82283) exceed requirements according to IEC 61238-1 class A. The connector type BSLB (kit SMOE-82283) exceeds requirements according to DIN VDE 0220 Part1.
- Heat-shrinkable tubing, supplied with kit, ensures perfect sealing and electrical insulation

For cable terminations see Insulation Accessories at page 25 and 26, which include heat-shrinkable breakouts, sealing and protection tubing.

Type: SMOE-xxxx

Type: BSM

Type: BSLB

Connection kits with connectors type BSM

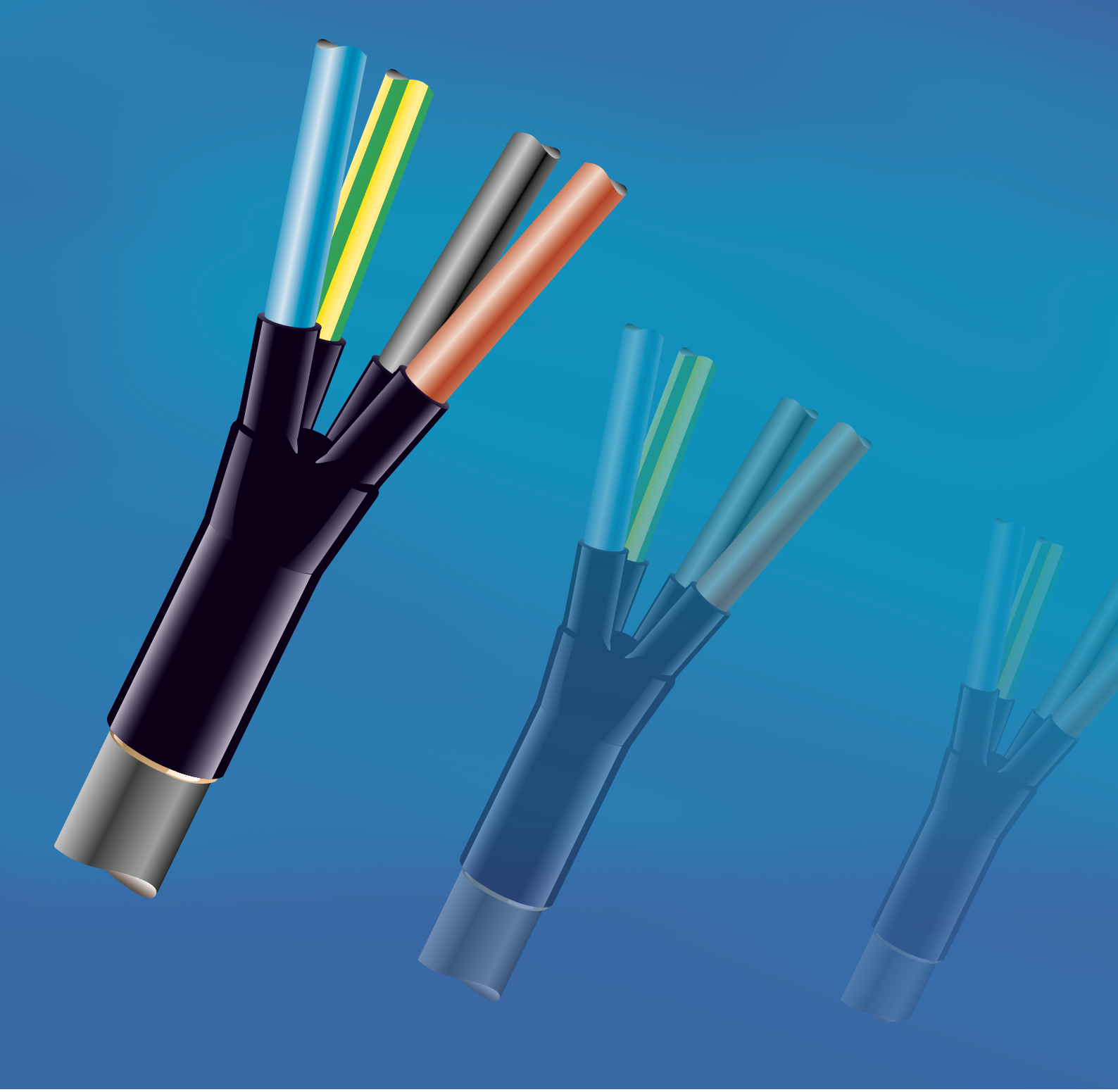
Ordering description	Cross section (mm²)	Length of sealing tubing (mm)	Hexagon contact bolts	
			Quantity (pc)	Width across flats (mm)
SMOE-82281	10 – 35	125	2	10
SMOE-82282	25 – 95	150	2	13
SMOE-82284	35 – 150	200	2	17
SMOE-82285	95 – 240	280	4	19

NOTE All connection kits contain 4 connectors and 4 heat-shrinkable, sealing tubing.

Connection kit with sector shaped conductor channel connector type BSLB

Ordering description	Cross section (mm²)	Length of sealing tubing (mm)	Allen contact bolts	
			Quantity (pc)	Width across flats (mm)
SMOE-82283	25 – 150	200	2	8

NOTE The connection kit contains 4 connectors and 4 heat-shrinkable, sealing tubing.



Chapter III
Connection and insulation accessories

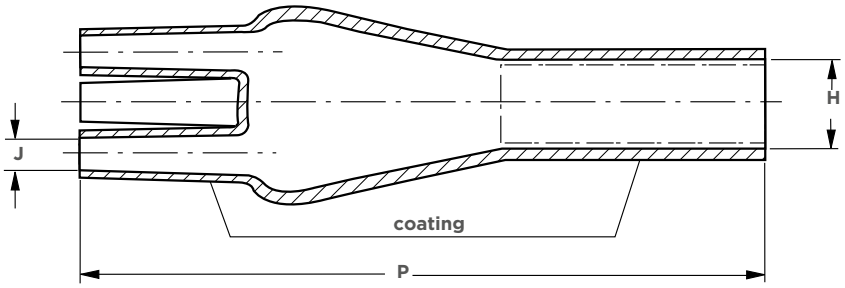
Heat-shrinkable sealing breakouts with 2 to 5 fingers

Application
For crutches' sealing of multi-core cables, LV-ABC cables and cable entries into ducts. To seal onto all common plastics and metals, all outlets are coated with hot-melt adhesive. The breakouts are resistant to UV-light and weathering.
Breakouts are available for 2, 3, 4 and 5 core cables, in a variety of sizes.
For dimensional details see table below.

Dimensions
H: Diameter of large outlet
J: Diameter of small outlets
P: Length of breakout

a: as delivered
b: after free recovery

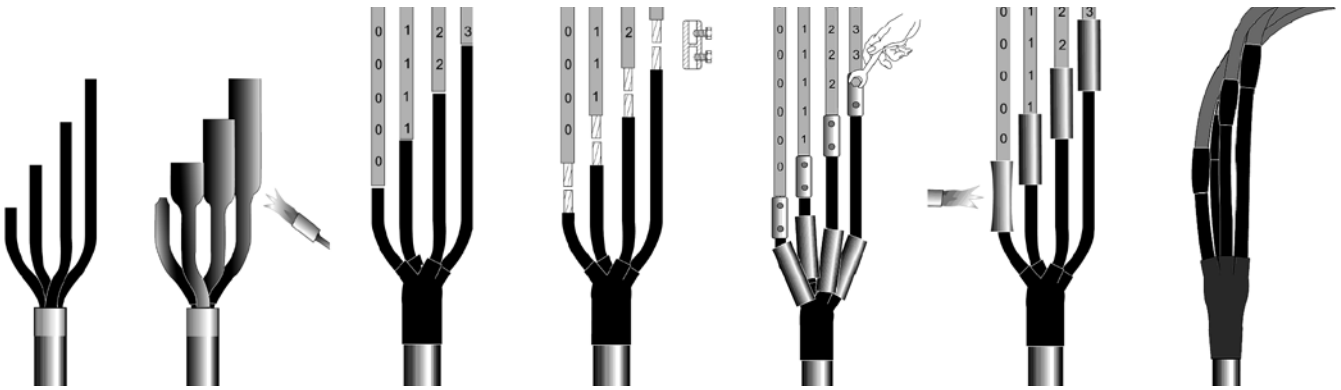
Type: 502Kxxx/S



Ordering description	Number of cable cores	Recommended cross section (mm²)	Dimensions (mm)				
			H		J		P
			a (min.)	b (max.)	a (min.)	b (max.)	b (±10%)
28	2	4 – 35	28	9.2	15	4.1	90
302K224/S		50 – 150	48	32	22	7	172
302K466/S		150 – 400	86	42	40	17	200
402W533/S	3	4 – 35	38	13	16	4.2	103
402W516/S		50 – 150	63	22	26	9	180
402W526/S		95 – 500	95	28	44	13	205
502S013/S	4	1.5 – 10	23	9.5	7	2	60
502K033/S		4 – 50	45	16.5	14	3.4	97
502K046/S		25 – 95	45	19	20	7	165
75		50 – 150	25	25	9	217	217
502K026/S		120 – 400	100	31	40	13.5	223
603W035/S	4 + 1*	25** – 120	68	26	30*	7*	182

* One of 5 outlets dim = 20/6 (mm).
** For smaller cross sections use 502K033/S with 2 cores inside an outlet.

Installation steps with typical components for transition terminations of cables to LV-ABC lines.

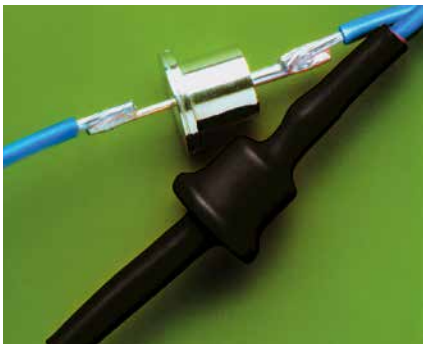


Heat-shrinkable sealing, marking and protection tubing

Application of EN-CGPT
Thin-wall, flexible heat-shrinkable EN-CGPT tubing is uncoated and resistant to UV light and weathering. It is recommended to install it over a core insulation of terminating cables in case that is not resistant to UV light.

Application of EN-DCPT
As marking and protection tubing for grounding wires, cables and busbars the dual colour (yellow/green) EN-DCPT, thin wall tubing is recommended. The tubing is weathering and UV resistant.

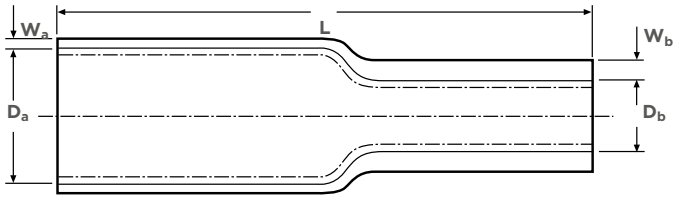
Application of MWTM
Medium-wall, heat shrinkable MWTM tubing is recommended for general electrical insulation and sealing over connectors and lugs and onto the cable insulation. The tubing is resistant to UV light and weathering and coated with hot melt adhesive, which seals to all common plastics and metals.



Type: EN-CGPT

Type: EN-DCPT

Type: MWTM



Dimensions
D: Diameter
W: Wall-thickness
L: Length
a: as delivered
b: after free recovery

Ordering description	Recommended cross section (mm²)		Application dimater (mm)		Dimensions (mm)				
	min.	max.	min.	max.	L	D		W	
					(nom.)	a (min.)	b (max.)	a (min.)	b (max.)
EN-CGPT – thin wall, black, insulation and protection tubing									
EN-CGPT-9/3-0-SP	1.5	10	3.3	8.0	on spool	9	9	–	0.75
EN-CGPT-12/4-0-SP	4	35	4.5	10.5	on spool	12	4	–	0.75
EN-CGPT-18/6-0-SP	16	95	7.0	16.0	on spool	18	6	–	0.85
EN-CGPT-24/8-0-SP	35	150	9.0	21.5	on spool	24	8	–	100
EN-CGPT-39/13-0-SP	120	400	14.5	35.0	on spool	39	13	–	1.15
EN-DCPT – thin wall. green/yellow. marking and protection tubing for grounding wires. cables and busbars									
EN-DCPT-6/3-45-SP	1.5	10	3.2	5.6	on spool	6	3	–	0.58
EN-DCPT-8/4-45-SP	4	16	4.5	7.6	on spool	8	4	–	0.64
EN-DCPT-10/5-45-SP	10	25	5.5	9.5	on spool	10	5	–	0.64
EN-DCPT-12/6-45-SP	16	35	6.5	11.5	on spool	12	6	–	0.64
EN-DCPT-19/9-45-SP	50	120	10.0	18.0	on spool	19	9	–	0.76
EN-DCPT-26/13-45-SP	120	185	14.0	25.0	on spool	26	13	–	0.89
EN-DCPT-38/19-45-SP	185	400	23.0	35.0	on spool	38	19	–	1.00
MWTM – medium wall. black. insulation and sealing tubing									
MWTM-10/3-1000/S	1.5	10	3.5	9.0	1000	10	3	0.3	1.0
MWTM-16/5-1000/S	4	35	5.5	14.5	1000	16	5	0.3	1.4
MWTM-25/8-1000/S	25	70	9.0	22.5	1000	25	8	0.4	2.0
MWTM-35/12-1000/S	70	150	13.0	31.5	1000	35	12	0.4	2.0
MWTM-50/16-1000/S	150	400	17.5	45.0	1000	50	16	0.5	2.0

NOTE EN-CGPT and EN-DCPT tubing are delivered on spools and can be cut to desire length at site. Other heat-shrinkable tubing, either with or without adhesive coating, is available on request.

Sealing end caps

Application
The elastomeric end caps are pre-moulded and simply pushed over the conductors. These end caps are made of thermoplastic, UV-resistant material and fulfil voltage tests of 6 kV under water according to NFC 33020 and EN 50483-4.

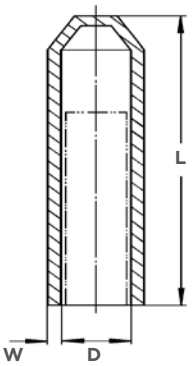
Application of 102L
On the inside coated with hot-melt adhesive, the heat-shrinkable end caps are used to seal and protect the ends of insulated LV-ABC and cable conductors. Larger sizes are available to seal plastic, paper and rubber insulated cables during storage, transport and cable laying. The end caps are resistant to UV-light and weathering.

Dimensions
D: Diameter
W: Wall-thickness
L: Length

a: as delivered
b: after free recovery

Type: CECT

Type: 102L



Elastomeric end caps - CECT

Recommended Cross section (mm^2)	Application diameter (mm)	Ordering description
6 – 35	4.5 – 11.5	CECT 6 – 35
16 – 150	6.5 – 19.0	CECT 16 – 150

Heat-shrinkable end caps – 102L

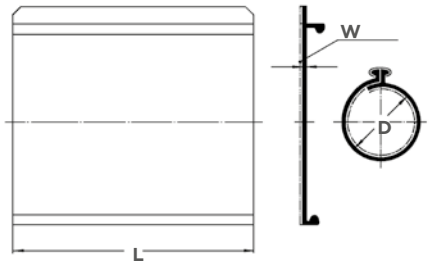
Ordering description	Recommended cross section (mm^2)	Application dimater (mm)		Dimensions (mm)			
				D		L	W
				a (min.)	b (max.)	b (±10 %)	b (±20 %)
10	4 – 25	4 – 8	102L011-R05/S	4	38	2.0	–
20	16 – 120	8 – 17	102L022-R05/S	7.5	55	2.8	–
35	120 – 300	17 – 30	102L033-R05/S	15	90	3.2	–
55	–	30 – 45	102L044-R05/S	25	143	3.9	–
75	–	45 – 65	102L048-R05/S	32	150	3.3	–
100	–	65 – 95	102L055-R05/S	45	162	3.8	–
120	–	95 – 115	102L066-R05/S	70	145	3.8	–
70	–	95 – 115	102L066-R05/S	70	145	3.8	–

Heat-shrinkable repair sleeve

Application
The general purpose of CRSM wraparound is to be used for a fast and reliable repair of polymeric insulated conductors and cable sheaths to re-established the electrical and mechanical integrity of the cable. The wraparound is supplied with an adhesive coating and is resistant to UV-light and weathering.

Dimensions
D: Diameter
W: Wall-thickness
L: Length

a: as delivered
b: after free recovery



Type: CRSM

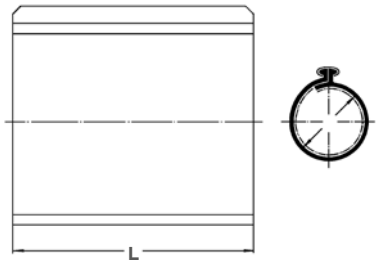
Ordering description	Recommended cross section (mm²)	Application diameter (mm)	Dimensions (mm)				
			D		W		L
			a (min.)	b (max.)	a (min.)	b (min.)	a (±15 mm)
CRSM 34/10- 250/239	35 – 150	11 – 21	35	9	0.3	2.4	250
CRSM 34/10- 500/239							500
CRSM 34/10-1000/239							1000
CRSM 34/10-1500/239							1500
CRSM 53/13- 250/239	70 – 400	17 – 32	54	15	0.3	2.0	250
CRSM 53/13- 500/239							500
CRSM 53/13- 750/239							750
CRSM 53/13-1000/239							1000
CRSM 53/13-1500/239							1500

GelWrap - Gel-filled Wrap-Around Splice Cover and Repair Sleeve

Application
The GelWrap sleeve quickly and conveniently insulates and seals the connection area or the area of oversheath repair. It is simple wraparound design with dependable gel sealing performance. The sleeve is wrapped and snapped

Features
- Fast and easy installation, even when wearing insulated gloves
- Silicone gel (PowerGel) is high dielectric strength insulation and excellent water sealant over wide operation temperature ranges (-40°C to 95°C)
- Elastomer cover material combines outstanding tear strength, abrasion and chemical resistant
- Innovative snap-lock design with excellent flexibility and range-taking
- Resistant to UV-light and weathering

Dimensions
D: Diameter
L: Length



Type: GelWrap

Ordering description	Diameter (mm)	Lenght
GelWrap-18/4-150	4-18	150
GelWrap-18/4-200	4-18	200
GelWrap-18/4-250	4-18	250
GelWrap-33/10-150	10-33	150
GelWrap-33/10-200	10-33	200
GelWrap-33/10-250	10-33	250
GelWrap-50/20-250	20-50	250
GelWrap-50/20-300	20-50	300

Center GelWrap sleeve over connector or area of oversheath repair.

Wrap sleeve around connector or repair area and shut snap locks over entire length of sleeve.

Install cable ties at outermost notches of snap lock.

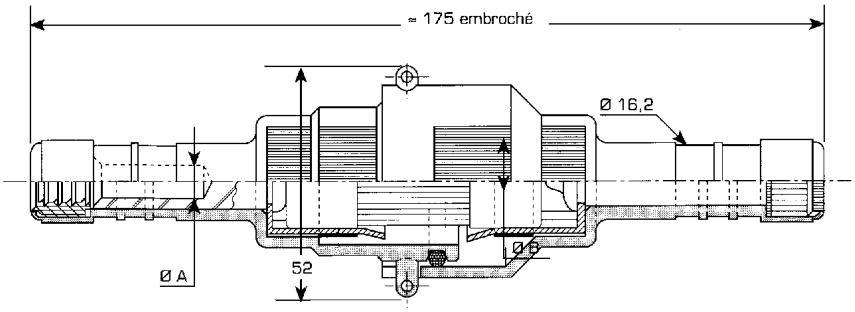
Fuse cutout for service lines

Application

These removable circuit breakers are installed on service lines as fuse with 4 to 125A and allow disconnection under load up to 60A. Attached sealing cap alloxs to temporary protect access to the network side.
The connection to the service line of 6, 10, 16, or 25mm
is performed bycrimping, see page 9 for crimping details.

Features

- Suitable for 22x58 AD fuse cartridges from 4 to 155A
- Allows connection and disconnection under load up to 60A
- PAsses 6 kV test under water (NFC 33020, EN 50483-4 class 1)
- Two part body with integrated seals easily interlock during closing
- Die size E140 for both sizes (tools and dies see page 37)
- Insulation material made of weather and UV resistant polymer



Fuse cutouts

Ordering Description	Cross Section (mm²)	Fuse Dimensions and Size		Weight (kg/100 pcs)
		(mm)	(A)	
CCFBD	6	6- 6	22 x 58	13.0
CCFBD	10	10-10	22 x 58	13.0
CCFBD	16	16-16	22 x 58	12.5
CCFBD	25	25-25	22 x 58	12.5

Fuse cutouts

Ordering Description	Size (mm x mm)	Rated in Current	Rated Voltage	Interrupting rating (A)	Weight (kg/100 pcs)
		(A)	(V)		
AD 16-22x58	22 x 58	16	500	80 000	12.5
AD 30-22x58	22 x 58	32	500	80 000	12.5
AD 60-22x58	22 x 58	63	500	80 000	12.5
CCFBD	25	25-25	22 x 58	22 x 58	12.5

NOTE Fuses according to IEC 269-2 and NFC 63 210, other sizes available on request

Insulated short-circuiting and earthing adapter for piercing connectors

Application

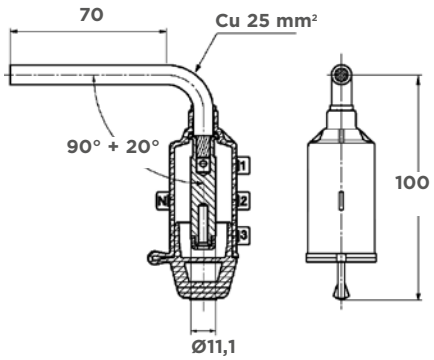
The PMCC adapter is installed on the tap-off side of an insulation piercing connector (type P2X, see page 9), usually close to the end of a line or at intersections. The insulating cover is removed for access to the inside brass stud fitted with a bayonet lock. A hole drilled into the stud provides a reliable point of contact for voltage testing.
The connection to earth is done by insulated earthing equipment.

Features

- Suitable for all piercing connectors designed for tap conductors of 25 mm² (insulated conductor diameter of 9 mm)
- Designed for short circuit currents up to 4 kA/1s, permanent currents up to 200 A
- Phases are easily identified by phase neutral indexes (breakable flags)
- Passes 6 kV test under water (NFC 33020, EN 50483-4 class 1)

Type: PMCC

Type: PMCC + P2X 95 Mk2



Ordering Description	Insulated conductor	Diameter	I_{max}	Stud dimension		Weight (kg/100 pcs)
	Cross section (mm²)	(mm)	(kA/1s)	Diameter (mm)	Lenght (mm)	
PMCC	25	9.0	4	11.1	35	8.4

Short-circuiting and earthing equipment

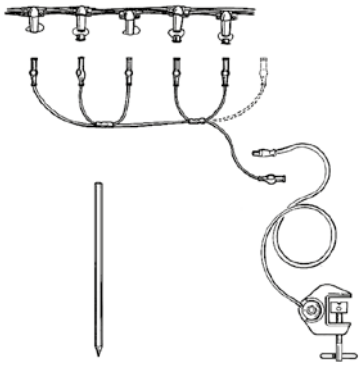
Application
After checking for absence of voltage, the earthing and short circuiting equipment is connected to ground and then the studs inserted in PMCC adapters, thus following the common safety rules.

Features
Short-circuiting equipment

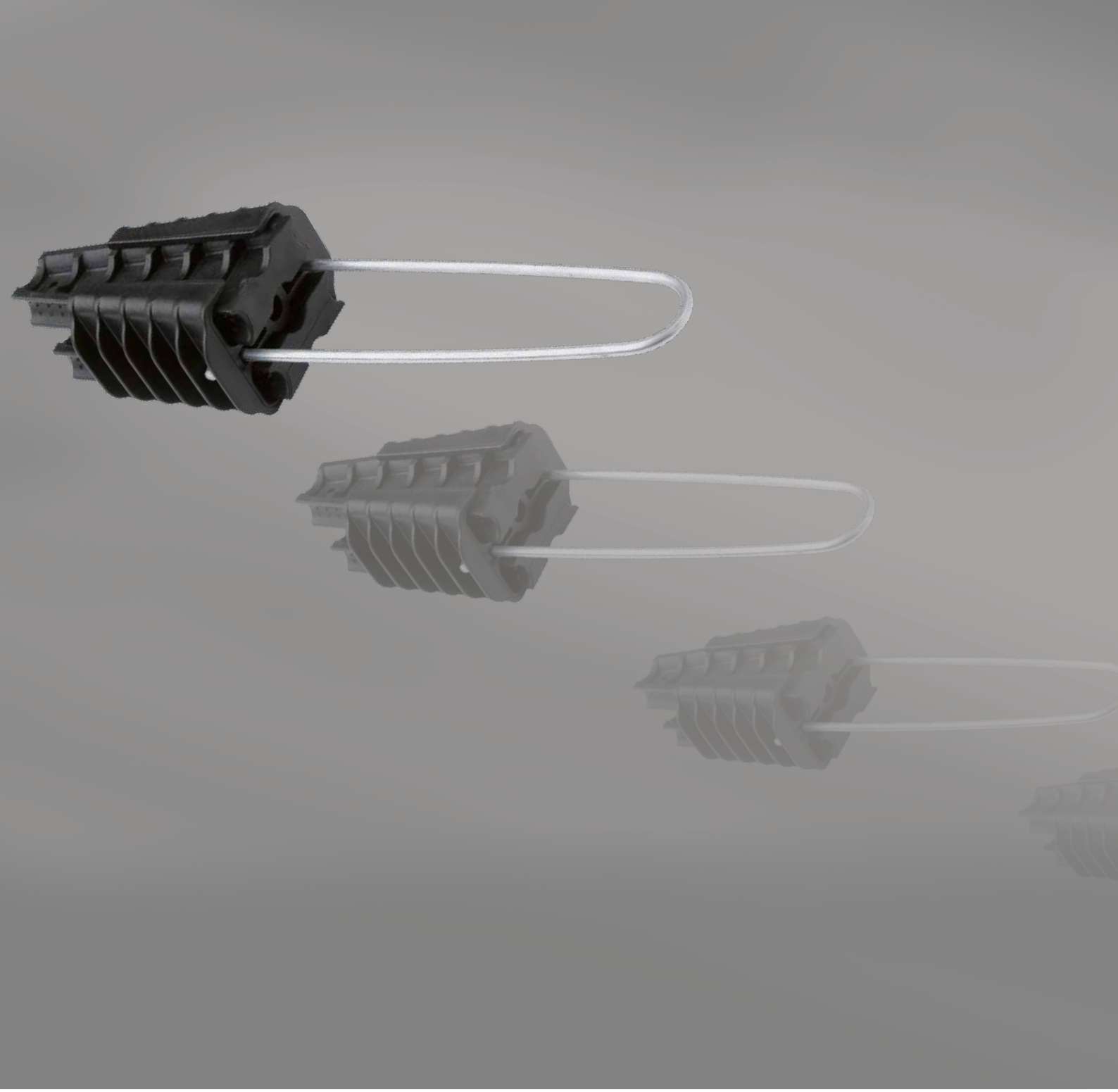
consisting of 6 or 7 stud pins with bayonet lock connected by highly flexible insulated copper cable, delivered in transport box. Conforms to EN 61230 and IEC 1230.
Designed for short circuit currents up to 4 kA/1s, permanent currents up to 200 A.
Contact stud dimensions Ø 11,1 mm, length 35 mm (according to NFC 33020-HT33 S69).

Earthing equipment consisting of an insulated splicing bayonet to connect on a stud pin, highly flexible insulated copper cable and an earth clamp for connection to an earth rod, delivered in a transport box. Designed for short circuit currents up to 4 kA/1s.

Earthing rods are made of stainless steel with diameter of 16 mm and length of 1 m.



Ordering Description	Type	Diameter (mm)	I_{max} (kA/1s)	Box Dimension (mm)	Weight (kg/100 pcs)
Short circuiting equipment					
MT-206	6 stud pins	16	4	234 x 215 x 75	1.6
MT-207	7 stud pins	16	4	234 x 215 x 75	1.9
Earthing equipment					
MT-245	10 m cable	16	4	310 x 280 x 105	3.2
PT-INOX-160/AA-1M	1 m earthing rod	(Dia. 16.0 mm)	–	–	1.5



Chapter IV
Anchoring and suspension

Anchor and suspension clamps for service cables

Application of PA 25x100
The clamp is designed to anchor insulated service lines with 2 or 4 conductors. The clamp is composed of a body, 2 wedges and removable and adjustable bail.

Features
- Tool free installation with wedges sliding inside the body
- Easy to open bail permits fixing to brackets and pigtails
- Adjustable length of bail in three steps, max. length of clamp 208 mm
- Exceeds requirements according to NF C 33 042
- Clamp made of weather and UV resistant polymer
- Adjustable link made of hot dip galvanized steel

Application of PA 9-17 and PAS
The clamps are equipped with an adapted wedge for anchoring of round insulated service lines with up to 4 conductors.

Features
different from clamp PA 25x100
- Adjustable length of bail in four steps, max. length of clamp 220 mm

Application of RA 25
The clamp is designed for suspension applications of insulated service lines with 2 or 4 conductors.

Features
- For angles of the line up to 90°
- Tool free installation with core separator
- Easy to open bail permits fixing to brackets and pigtails
- Exceeds requirements according to NF C 33 042
- Clamp is made of weather and UV resistant polymer

Type: PA 25x100

Type: PA 9-17

Type: RA 25

Anchor clamp for insulated overhead conductors (self-supporting)

Ordering description	Cross section (mm²)		Breaking load	Weight (kg/10 pcs)
	min.	max.	(kN)	
PA 25x100	2 x 16	4 x 25	2.0	1.0

Anchor clamps with rigid bail for round cables

Ordering description	Diameter (mm)		Breaking load	Weight (kg/10 pcs)
	min.	max.	(kN)	
PA 9-17/GALVA	9	17	2.0	1.4
PAS 35	18	25	2.0	1.3

Suspension clamp for insulated overhead conductors and cables

Ordering description	Cross section (mm²)		Breaking load	Weight (kg/10 pcs)
	min.	max.	(kN)	
RA 25	2 x 16	4 x 25	2.0	0.9

NOTE For brackets and hooks see pages 44 and 45.

Anchor and suspension clamps for service cables

Application
The clamps are designed to anchor or suspend insulated service lines with 2 or 4 conductors.

Features
- Clamp can be used as suspension clamp by simply rotating blocks
- Strap available either with closed eye (32.5 x 22.5 mm) or open eye (opening 18 mm)
- Simple single bolt installation with 17 mm spanner
- Clamp with short length of 165 mm
- Exceeds slipping requirements of 4 kN according to EATS 43-14
- Exceeds requirements according to VDE 0211
- Clamp made of weather and UV resistant glass fibre reinforced polymer and hot dip galvanized steel

Type: HEL-5505

Type: HEL-5505-B

Anchor and suspension clamps for insulated overhead conductors (self-supporting)

Ordering description	Cross section (mm²)		Support strap type		Breaking load	Weight (kg/10 pcs)
	min.	max.	closed eye	open eye	(kN)	
HEL-5505-2	2 x 16	2 x 35	X		12	4.3
HEL-5505-2B	2 x 16	2 x 35		X	5	4.3
HEL-5505	2 x 16	4 x 35	X		12	5.2
HEL-5505-B	2 x 16	4 x 35		X	5	5.2

NOTE For brackets and hooks see pages 44 and 45.

Anchor clamps for self supporting LV-ABC lines

Application of PA 25x100

The clamps are designed to anchor self supporting LV-ABC lines with 2 to 4 cores. The wedge type clamp is self-adjusting. Pilot wires or street lighting conductors are led alongside the clamp.

The insertion of conductors is facilitated by an integrated spring, which helps open the clamp. The version with movable arms in addition simplifies the installation.

Features

- Single M12 bolt and self-locking nut allow clamp to be fixed also to closed eye screws and brackets
- Short length of approx. 320 mm
- Exceeds requirements according to EATS 43-14 and VDE 0211 and EN 50483-2
- Clamp made of weather and UV-light resistant glass fibre reinforced polymer and hot dip galvanized steel

Type: HEL-55xx with fixed arm

Type: HEL-55xx with movable arm

Cross section (mm^2)	Ordering description	Breaking load (kN)	Weight (kg/10 pcs)
With fixed arm			
4 x 10 – 35	HEL-5505*	12.0	5.2
4 x 25 – 50	HEL-5506	28.0	10.0 - 12.0
4 x 70 – 95	HEL-5507	43.0	13.0
4 x 120	PA 4 120	60.0	20.0
With movable arm			
4 x 25 – 50	HEL-5503	28.0	10.0 - 13.0
4 x 70 – 95	HEL-5504	43.0	11.0 - 14.0

NOTE For detailed information about HEL-5505, please see page 37. For brackets and hooks see pages 44 and 45.

Suspension clamps for self supporting LV-ABC lines

Application
The clamps are designed to suspend self supporting LV-ABC lines. They can be also used for LV-ABC lines with bare and insulated neutral messenger.

Features

Suspension clamp PS
- Can be installed in straight direction and in line deviation angle up to 30°
- Tool free installation, equipped with wing nut
- Exceeds requirements according to ESI 43-14 and VDE 0211
- Made of weather and UV-light resistant elastomer and hot dip galvanized steel
- Fits to hooks and pigtails up to a diameter of 21 mm
- Operating load 2.5 kN

Universal suspension clamp USC
- Range taking: 4 x 25-120 mm²
- Can be installed in straight direction and in line deviation angle up to 40° for 4 x 25 – 50 mm² and up to 20° for 4 x 70 – 120 mm²
- Qualified according to EN 50483-2
- Reopen clamp allows easy positioning of the cables
- Fits to all common hooks and pigtails
- Not lose parts
- Made of weather and UV-light resistant thermoplastic and steel with Geomet (Chromium free) protection
- Versions with shear head and wing nuts are available on request

Rolling suspension clamp RSC
- Deviation angle up to 90°
- Assembly rolls can be used to run out a conductor during line mounting
- Not lose parts
- Made of weather and UV-light resistant elastomer and hot dip galvanized steel
- Equipped with a stainless steel reinforced ring in the hook attachment
- Easy to install with a spanner
- Fits to hooks and pigtails up to a diameter of 20 mm

Type: PS-xxx

Type: USC 25-120

Type: RSC 25-120

Cross section (mm²)	Bundle diameter (mm)	Ordering Description	Breaking load (kN)	Weight (kg/10 pcs)
Suspension clamps				
2 x 50 – 4 x 35	21 – 25	PS 250/435	7.5	4.1
2 x 95 – 4 x 50	26 – 30	PS 450	7.5	3.8
4 x 70	31 – 35	PS 470	7.5	3.6
4 x 95	36 – 40	PS 495	7.5	3.5
4 x 120	40 – 43	PS 4120	7.5	4.4
Universal suspension clamp				
4 x 25 – 120 + 2 x 25	up to 42	USC 25-120	18.0	5.0
Rolling suspension clamp				
4 x 25 – 120 + 2 x 25	22 – 42	RSC 25-120	2.4*	11.0

* Slippage load

NOTE For brackets and hooks see pages 44 and 45.

Anchor clamps for LV-ABC lines with insulated neutral messenger

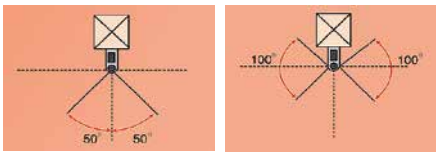
Application

The clamps are designed to anchor LV-ABC lines with insulated neutral messenger. The clamp consists of an aluminium alloy cast body and self-adjusting plastic wedges which clamp the neutral messenger without damaging its insulation.

The flexible stainless steel bail protected by plastic wear-resistant saddle allows installations of up to 3 clamps on a bracket. The clamp and the bracket are available either separately or together as assembly.

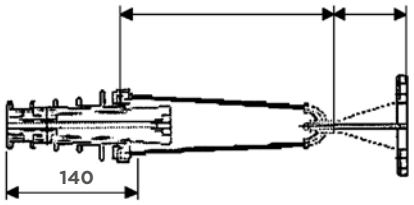
Features

- Tool free installation
- Not lose parts
- Exceeds requirements according to EN 50483-3 and NFC 33 041
- Clamp body made of corrosion resistant aluminium alloy, bail of stainless steel, wedges of weather and UV resistant polymer
- Universal fixing of bracket by 2 bolts M14 or stainless steel straps of 20 x 0.7 mm.
- Bracket made of corrosion resistant aluminium alloy
- Maximum line deviation angles of 50° for single and 100° for double anchoring:



Type: PA 1500x20

Type: EA xxxx



Dimensions: mm

Neutral messenger Cross section (mm²)	Diameter (mm)	Ordering Description	Breaking load (kN)	Weight (kg/10 pcs)
Anchor clamp without bracket				
25 – 35	8 – 11	PA 1000	10.0	3.2
50 – 70	12 – 14	PA 1500x20	15.0	3.4
50 – 70	12 – 14	PA 2000	20.0	4.1
95	14 – 16	PA 95-2000	20.0	4.1
Universal suspension clamp				
25 – 35	8 – 11	EA 1000	10.0	5.7
50 – 70	12 – 14	EA 1500	15.0	5.9
50 – 70	12 – 14	EA 2000	20.0	6.4
95	14 – 16	EA 95-2000	20.0	6.4
Rolling suspension clamp				
–	–	CA 1500-2	15.0	2.0
–	–	CA 1500/2000	20.0	2.3

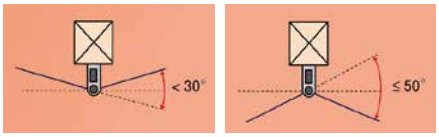
NOTE For brackets and hooks see pages 44 and 45.

Suspension clamps for LV-ABC lines with insulated neutral messenger

Application
The clamps are designed to suspend LV-ABC lines with insulated neutral messengers. The neutral messenger is fixed by an adjustable grip device.
A movable link allows longitudinal and transversal movement of the clamp body.

Standard clamp version ES is supplied with preinstalled bracket. The upper bulge of the bracket prevents the clamp from turning over the bracket.
The clamps are also available without bracket (version PS) and with a fuse link (ESF). PS clamps are fixed to a pole by a pig tail hook or bracket.

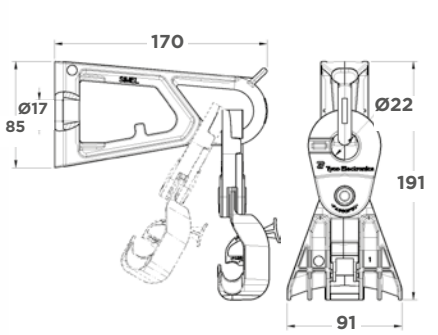
Features
- Tool free installation
- Not lose parts
- Clamp and link made of polymer giving an additional insulation between the cable and the pole.
- Exceeds requirements according to EN 50483-3 and NFC 33 040
- Clamp and movable link made of weather and UV-light resistant glass fiber reinforced polymer
- Universal fixing of bracket by 1 bolt M16 or 2 stainless steel straps of 20 x 0.7 mm
- Bracket made of corrosion resistant aluminium alloy
- Maximum line deviation angles of 30° towards the pole and up to 50° pulling away form the pole:



(For larger line deviation angles 2 anchor clamps shall be used)

Type: ES 1500 25-95

Type: PS 1500+LM25-95



Dimensions: mm

Cross section (mm²)	Bundle diameter (mm)	Ordering Description	Breaking load (kN)	Hole diameter max. (mm)	Weight (kg/10 pcs)
Clamp without bracket and mobile link					
16 – 35	8 – 11	PS 35	4.3	25.0	0.8
95 – 120	15 – 17.5	PS 120	30.0	25.0	2.5
Universal suspension clamp					
25 – 95	8.3 – 16.3	PS 1500+LMx25-95	12.0	22.0	1.6
Clamp with pre-installed bracket					
16 – 35	8 – 11	ES 35-1500	4.3	–	2.8
25 – 95	8.3 – 16.3	ES 1500 25-95	12.0	–	3.5
25 – 95	8.5 – 16.3	ES 95-2000	16.0	–	4.2
25 – 95	8.3 – 16.3	PS 1500+LMx25-95	12.0	22.0	1.6
Clamp with bracket and fuse link					
50 – 70	10 – 13.5	ESF 54/70	7.0	–	3.2

NOTE For other cable dimensions see also suspension clamps for self supporting LV-ABC lines at page 38. For brackets and hooks see pages 44 and 45.

Wall mounted saddles and cable ties for LV-ABC lines

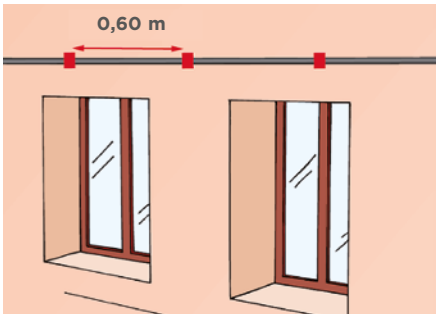
Application
The wall mounted saddles are designed To install LV-ABC lines (self-supporting or insulated neutral messenger type) alongside walls and poles.

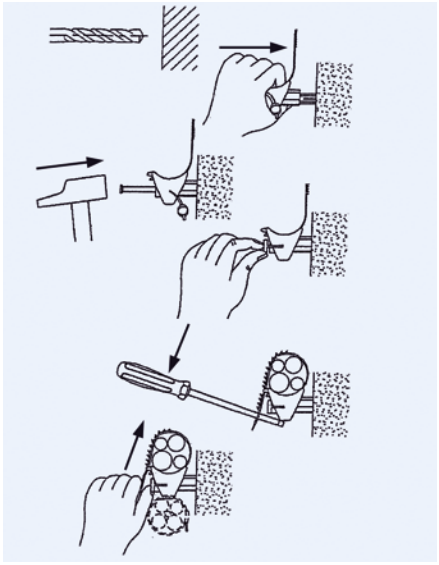
The LV-ABC cable is fixed to the saddle by a cable tie. A second cable can be installed on the same support by hanging it down from the bottom side with an additional cable tie (to be ordered separately).

Features
- The body of saddles and the cable ties are made of weather and UV-light resistant polymer material
- BRPF products withstand the tests described in the NFC 33 040
- Width of cable ties 9 mm
- Black colour
- Halogen free and flame retarded
- Temperature ranges:
  operating –50 °C to +80 °C
  installation –15 °C to +60 °C
  max. allowed peak 120 °C

Type: BRPF

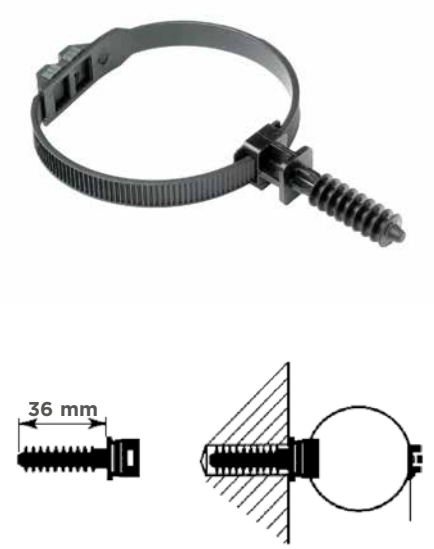
Installation
The expansion plastic pin is inserted in a drilled hole of Ø 12 mm and fixed to a wall by hammering a nail inside up to the contact with the pin. The plastic cap is placed over the nail's head for its protection. The cable tie fixes a variety of cables to the saddle. Usually, every 0.6 m a saddle is installed on a wall.
For applications on walls or poles with soft material like wood, the expansion plug is simply cut off and the nail directly hammered into the wood.





Type: BRPF

Application
The CSBF-C is holding assembly mainly used to clamp a cable to walls. It consists of a cable tie CSB and a hammer-in support for drilled holes in walls (Ø 8 mm).



Type: CSBF-C

Cable diameter (mm)	Ordering Description	Spacing to wall D (mm)	Lenght (mm)	Breaking load (kN)	Weight (kg/100 pcs)
Wall mounted saddles					
20 – 60	BRPF 1	10	–	2.0	4.8
20 – 60	BRPF 6	60	–	2.0	8.2
Holding assembly with cable tie					
0 – 40	CSBF-C	–	180	–	0.5
Cable ties					
8 – 27	CS 922	–	132	0.35	1.8
10 – 45	CSB	–	180	0.35	2.6
26 – 66	CSL 260	–	265	0.51	3.6
55 – 93	CSL 350	–	360	0.51	5.0

NOTE Tools for steel straps see page 49.

Steel straps and protection devices for LV-ABC lines

Application
Stainless steel straps are used to attach cable protection, anchoring and suspension assemblies and other devices mainly to poles.

The steel straps are cut from a roll to the required length. The strap is fixed with the appropriate buckle and a binding tool.

Features
- stainless steel grade 202
- min. breaking strength 0.6 kN/mm²
- width of 10 and 20 mm
- thickness of 0.4 and 0.7 mm
- rolls of 50 m in carrier case

Application
Extruded PVC profiles GPT and GPC are used to protect cables and conductors against damages alongside poles or walls.

Features
- type GPT 30 x 30 mm to be fixed by straps
- type GPC to be fixed either by screws Ø 6 mm (hole Ø 7 mm) or straps (slit approx. 3 x 30 mm)
- available in 3 colours

Type: RF 1007, A 100

Type: GPT

Type: GPC

Ordering Description	Application	Dimensions (mm)	Packaging unit	Weight (kg/unit)
Stainless steel straps				
RF 1004 50M		10 x 0.4	1 roll of 50 m	1.8
RF 1007 50M		10 x 0.7	1 roll of 50 m	3.0
RF 2004 50M		20 x 0.4	1 roll of 50 m	3.4
RF 2007 50M		20 x 0.7	1 roll of 50 m	5.7
Buckles for straps				
A 100	for RF 1000 series	11	1 bag of 100 buckles	0.5
A 200	for RF 2000 series	21	1 bag of 100 buckles	1.1
Extruded PVC cable protection*				
GPT 30x30 L2600	grounding conductors	30 x 30 x 2600		0.6
GPC 35x35 L2750	low voltage cables	35 x 35 x 2750		1.2
GPC 60x60 L2750	low voltage cables	60 x 60 x 2750		1.9
GPC 90x90 L2750	low/medium voltage cables	90 x 90 x 2750		2.6

* Standard colour is Gray. Colours of Ivory and Brown hue are available upon request.

NOTE Tools for steel straps see page 49.

Hooks, brackets and bolts for LV-ABC lines

Application

Anchor bracket CA xxxx:
made of aluminium alloy designed for main cables. To be mounted by 2 steel straps (20 mm) or up to 2 bolts (Ø 14 or 16 mm).

CA 1500, CA 2000

Ordering description	Breaking load (kN)	Operating load (kN)	Weigth (kg/10pcs)
CA 1500-2	15.0	5.0	2.0
CA 1500/2000	20.0	5.0	2.3

Application

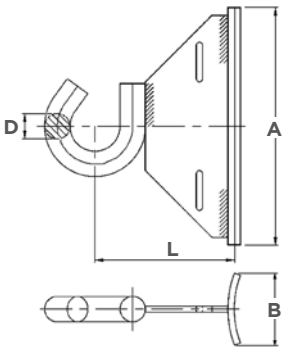
Anchor bracket CAB 25:
made of stainless steel designed for service cables. To be mounted by a steel strap (20 mm), a bolt (Ø 14 or 16 mm) or 4 screws (Ø 5 mm).

CAB 25

Ordering description	Breaking load (kN)	Operating load (kN)	Weigth (kg/10pcs)
CAB 25	2.0	0.8	0.2

Application

Hook plate HEL-5661:
made of galvanized steel designed for main cables. To be mounted to poles by 2 steel straps (20 mm). Breaking loads of min. 28 kN horizontal and 18 kN vertical.



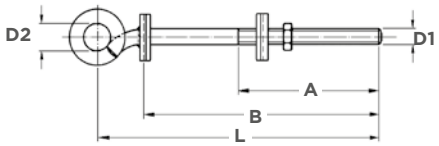
HEL-566

Ordering description	A (mm)	B (mm)	L (mm)	D (mm)	Weigth (kg/pc)
HEL-5661	150	45	82	16	0.8

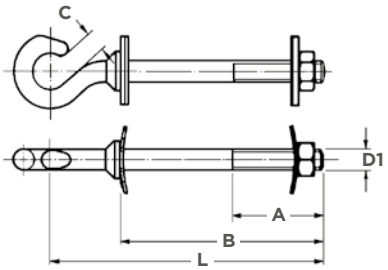
Hooks, brackets and bolts for LV-ABC lines

Application

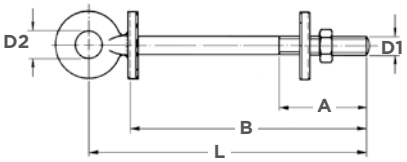
Spiral hooks, hook bolts, strain eye bolts HEL-55xx:
made of hot-dip galvanized steel designed for main and service clamps. Fixed length by welded, flat or bended washers. Max. loads of spiral and bolt hook versions for bolt size of M16 (M20) are 5.5 (13) kN horizontal and vertical. Max. loads for strain eye versions for bolt size of M16 (M20) are 40 (40) kN horizontal and 7 (15) kN vertical.



HEL-553x/4x



HEL-555x



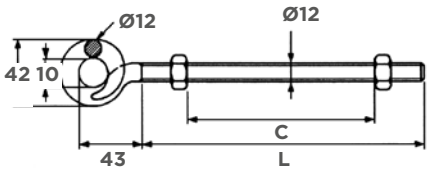
HEL-556x/7x

Ordering description	A (mm)	B (mm)	L (mm)	D (mm)	D2/C (mm)	Weigth (kg/pc)
Spiral hooks						
HEL-5531	80	240	295	M16	38	0.9
HEL-5532	130	180	320	M16	38	0.9
HEL-5533	80	300	355	M16	38	0.95
HEL-5541	100	240	295	M20	38	1.2
HEL-5542	100	240	340	M20	38	1.3
HEL-5543	100	300	355	M20	38	1.4
Hook bolts						
HEL-5551	80	240	300	M16	32/17	0.72
HEL-5552	80	300	380	M16	32/17	0.84
HEL-5556	100	240	300	M20	32/21	1.1
HEL-5557	100	380	420	M20	32/21	1.3
Strain eye bolts						
HEL-5561	80	240	290	M16	32	0.9
HEL-5562	80	240	340	M16	32	0.8
HEL-5563	80	300	350	M16	32	0.82
HEL-5571	100	240	290	M20	32	1.05
HEL-5573	100	300	360	M20	32	1.4

Hooks, brackets and bolts for LV-ABC lines

Application

Spiral hook BQC:
made of hot-dip galvanized steel designed for service clamps and max. operating loads of 2 kN horizontal and 0.4 kN vertical. Freely adjustable fixing length by 2 nuts.

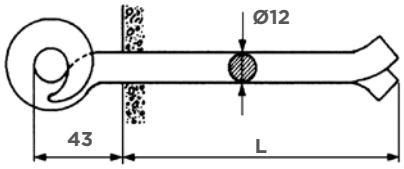


Type : BQC

Ordering description	L (mm)	C_{max} (mm)	Weigth (kg/10pcs)
BQC 12-55	55	45	1.8
BQC 12-250	250	220	3.2
BQC 12-300	300	270	3.6

Application

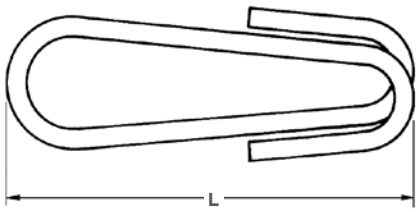
Spiral hook TQC 12-150:
made of hot-dip galvanized steel designed to anchor service dead end and suspension clamps to walls and max. operating loads of 2 kN horizontal and 0.4 kN vertical.
Weight of 0.25 kg/pc, length L = 150 mm.



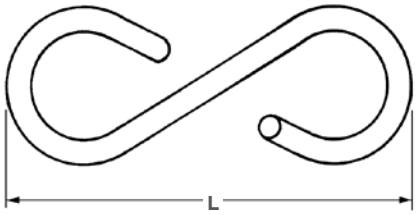
TQC 12-150

Application

Weak link hooks HEL-564x:
are used as hangers between the pole support fitting and the anchor or suspension clamp in areas where damage to the LV-ABC line could be expected from falling trees. Weak links withstand normal working loads but the controlled failure mechanism releases the cable in the event of overloads, enabling the cable to drop to the ground.



Type A

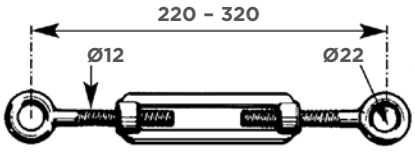


Type B

Ordering description	Breaking load (kN)	L (mm)	C_{max} (mm)	Weigth (kg/10pcs)
HEL - 5641	4.0 + 1.2 - 0.4	90	A	0.8
HEL - 5642	8.0 + 2.0 – 0.5	90	B	1.2

Application

Turnbuckle:
with closed eyes (22 mm) and an adjustable length of from 220 mm to 320 mm. Made of hot-dip galvanized steel with the eye thickness of 12 mm, breaking load of 8 kN and a weight of 0.6 kg/pc.



TC

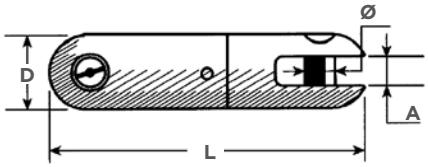

AUTOPRESS L62
18V 1.5Ah Li-ion
STANLEY

Chapter V
Installation tools and equipment

Tools and equipment for

Tools and equipment for setting up LV-ABC lines
Cable grip components and assemblies

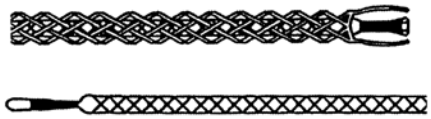
EMD 15



Swivel EMD 15:
Used with pulling socks to eliminate twist. Max. load 15 kN.

Dimensions (mm): D = 16, L = 122, Ø = 12, A = 16

TCSB, DUL-NLV



Pulling socks TCSB, DUL-NLV:

Ordering description	CossSection (mm²)	Diameter (mm)	Lenght (mm)	Max. loach (kN)
For neutral messenger and ropes, made of galv. steel, single eyed				
TCSB 15	54-70	10-15	500	5
TCSB 20	95-120	15-18	500	5
For protection of cables with neutral messenger, made of rilsan, single eyed				
TCSB 38	3x70+54	30-38	750	5
TCSB 50	3x150+70	40-50	900	5
For self supporting cables, made of nylon strands, double soft eyes with alloy ferrules				
DUL-NLV435	4x35	25±1	550	15
DUL-NLV470	4x70	32±1	600	15
DUL-NLV495	4x95	39±1	600	15
DUL-NLV4150	4x150	44±1	600	15

ETC

Complete cable grip assemblies ETC:
for cables with insulated neutral messenger.

Cross section (mm²)	Ordering description	Components
ETC 70	up to 3 x 70 + 54	2 x TCSB15 + TCSB 38 + EMD15
ETC 150	3 x 70 + 54 to 3 x 150 + 70	2 x TCSB15 + TCSB 50 + EMD15

Stringing blocks and accessories

EDD 1000

PO 1000

Stringing block PO 1000:
consisting of plastic coated pulley and suspension hook.

Max. acceptable cable diameter: 50 mm
Max. load: 8 kN
Weight: 2.5 kg

Suspension assembly PO 1000 + SPC12 (=EDD 1000): consisting of stringing block and 1.2 m long strap.

Max. load: 15 kN
Weight: 5.2 kg

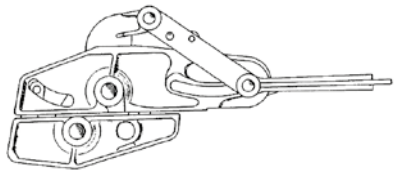
EDD 1700

Stringing block EDD 1700:
consisting of plastic coated pulley, suspension assembly and strap with clamping device.

Max. acceptable cable diameter: 50 mm
Max. load: 15 kN
Weight: 13.6 kg

Tools and equipment for setting up LV-ABC lines Pulling equipment

SCT



Pulling equipment SCT:
designed for LV-ABC lines with insulated neutral messenger. The lever automatically actuated converts the pulling force into a clamping force. The usage of the long aluminium jaws prevents damage to the aluminium or aluminium alloy cables.

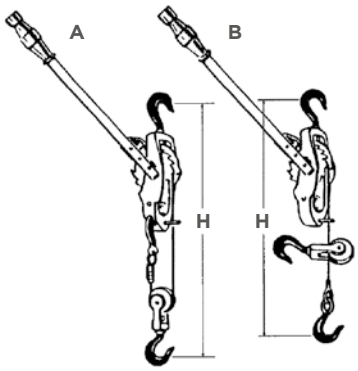
Ordering description	Coss Section (mm^2)	Diameter (mm)	Clamp Lenght (mm)	Load max. (kN)	Weight (kg/pc)
SCT 13	up to 54	6 – 13.5	160	8	1.6
SCT 20	70 – 120	10 – 20	175	17	4.1

EM

Pulling equipment EM:
designed for self-supporting LV-ABC lines.

Ordering description	Coss Section (mm^2)	Load max. (kN)	Weight (kg/pc)
EM35	2 x 25 – 35 + 4 x 16 -50	5.9	3.2
EM5095	4 x 50 – 95	7.8	5.8
EM95150	4 x 95 – 150	9.0	6.5

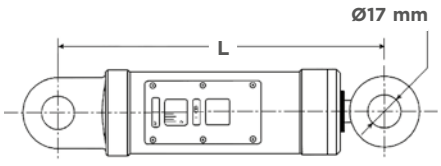
PTC



Lightweight cable hoist and pulling tool with hook pulley PTC:
for block or return, user-friendly handling by reversible lever with limited manual force (approx. 0.4 kN) and supporting reversible action.

Ordering description	Hook setup A			Hook setup B			Weight
				Length H (kg/pc)			
	Load max. (kN)	Length H min. (mm)	Load max. (mm)	max (kN)	min. (mm)	max. (mm)	
PTC 750	7.5	560	2860	3.8	430	5030	4.3
PTC 1000	10.0	550	2550	5.0	420	4420	4.2
PTC 1600	16.0	660	3960	8.0	470	7070	6.2

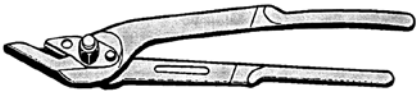
DY

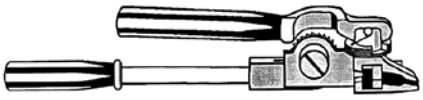


Dynamometer DY:
is lightweight and small with high accuracy (0.6 %) due to a spring washer system.
No torsion or bending stresses permitted, use of swivel recommended.

Ordering description	Load max. (kN)	Scale (kN)	(mm)	Travel max. (mm)	Length L (mm)	Weight (kg/pc)
DY 50	5	0.10	2.0	10	230	1.8
DY 100	10	0.20	2.0	9	230	1.8
DY 200	20	0.25	2.3	–	327	7.8

Tools for installation of stainless steel straps and cable ties





Ordering description	Application
OPC	Strap cutter
OPL	Ratchet type strap binding tool
OPV	Wheel type strap binding tool
Cable TY tool	Hand tool for bundling of heavy duty ties, user controlled tension and cut-off device, for cable ties of width from 6.0 to 9.0 mm.

Tools for connecting LV-ABC lines

Ordering description	Application
EXRM-0607	Cable knife EXRM-0607 with fixed blade, length: 175 mm.
DCS BT	Insulation stripping tool DCS BT designed for LV-ABC cables from 16 mm2 up to 150 mm2 according to HD 626.
T-wrench IT-1000-022 fully insulated hexagon head for allen screws.	**Width of allen screw across flats (mm)**
IT-1000-022-4	4
IT-1000-022-5	5
IT-1000-022-6	6
IT-1000-022-8	8
Ratchet wrench CLESIM 2:	fully insulated for sockets for allen screw and hexagon bolt.
	Ratchet wrench with socket for
CLESIM 2 + RT5	allen screw with 5 mm width across flats
CLESIM 2 + R10	hexagon bolt with 10 mm width across flats
CLESIM 2 + R13	hexagon bolt with 13 mm width across flats
SERSIM 2	Carrying case SERSIM 2:includes one CLESIM 2 ratchet wrench and sockets RT5, R10 and R13.
KR 240	Ratchet cable cutter KR 240 designed for both aluminium and copper conductors. For ordering description of fully insulated version use: KR 240 ISO.
Type of conductor	Application range of diameter (mm)
stranded	6 – 32
solid	6 – 26
FH-1630-S-TS1	Torch assembly FH-1630-S-TS1consists of a torch handle with holder and shut-off valve, a nozzle (38 mm) optimized for heat-shrink applications and a 5 m long pressure hose with DIN connection thread R 3/8” LH.

Compression tools for connecting LV-ABC lines

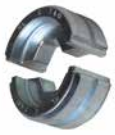
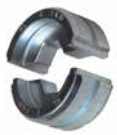
Ordering description	Features
SIMPI	Manual compression tool SIMPI equipped with die E140, for cross sections up to 35 mm2. HOLSTER SIMPI Holster for tool SIMPI, to be ordered separately.
SIMABLOC 55	Manual operated, hydraulic compression tool SIMABLOC 55: designed for removable dies (type 4E and 5E) for cross sections up to 95 mm2. Max. pressure force of 50 kN. SIMABLOC 55 + CR: Compression tool together with carrying case.
AUTOPRESS L55	Battery operated, hydraulic compression tool AUTOPRESS L55: designed for removable dies (type 4E and 5E) for cross sections up to 95 mm2. Max. pressure force of 50 kN. Supplied with carrying case, battery and 30' charger.
AUTOPRESS L62	Battery operated, hydraulic compression tool AUTOPRESS L62: designed for removable dies (type 6E) for cross sections up to 150 mm2. Max. pressure force of 62 kN. Supplied with carrying case, battery and 30' charger.
COFFRET SIMECA:	COFFRET SIMECA: Carrying case for tool SIMECA, to be ordered separately.

Compression tools for connecting LV-ABC lines

Ordering description	Features
SIMABLOC 62	SIMABLOC 62 designed for removable dies (type 4E and 5E) for cross sections up to 95 mm2. Max. pressure force of 50 kN. Supplied together with carrying case.
SIMABLOC 80	Manual operated, hydraulic compression tool SIMABLOC 80: designed for removable dies (type 7E) for cross sections up to 150 mm2. Max. pressure force of 80 kN. SIMABLOC 80 + CR: Compression tool together with carrying case.
SIMABLOC C120	Manual operated, hydraulic compression tool SIMABLOC C120: designed for removable dies (type 12SE) for cross sections up to 240 mm2. Max. pressure force of 120 kN. SIMABLOC C120 + CR: Compression tool together with carrying case.
SIMABLOC U120	Manual operated, hydraulic compression tool SIMABLOC U120: designed for removable dies (type 13UE) for cross sections up to 240 mm2. Max. pressure force of 120 kN. SIMABLOC U120 + CR: Compression tool together with carrying case.

Compression dies for connecting LV-ABC lines

Hexagonal compression dies according to NFC 33021 for aluminium and copper conductors

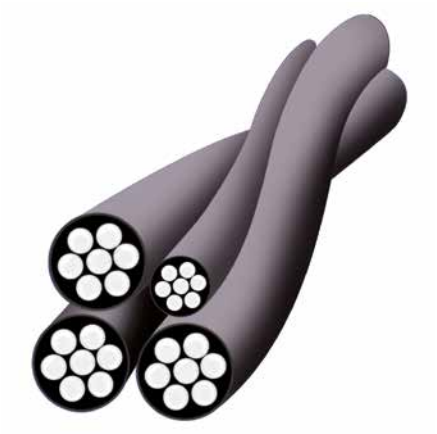
Die code	Diameter (mm)/ Cross sections (mm^2)	Type of compression tool					
	Load max. (kN)	SIMPI	SIMABLOC 55 AUTOPRESS L55	SIMABLOC 80 SIMECA	SIMABLOC C120	SIMABLOC U120	AUTOPRESS L62 SIMABLOC 62
							
E140*	16/ 4 – 35	Included	4E140-E83	7E173-E140	12SE140-9	13UE140-9	6E140-9
E173	20/ 16 – 95	-	4E173	7E173-E140	12SE173-9	13UE173-9	6E173-9
E215	25/ 120 – 150	-	5E215	7E215	12SE215-9	13UE215-9	6E215-9
E280**	32 / 240	-	-	-	12ASE280-18	13UE280-18	6E280-9

*	Die code E140 typically for application on connectors' type of MJPB.., E173 and E215 for MJPT.
**	Die code E280 typically for application on connectors' type of EJASE & XN8S.
NOTE	Hexagonal compression dies according to DIN 48083 are available on request.

Appendix

Dimensions of LV-ABC cables according to HD 626

Dimensions of LV-ABC lines with insulated neutral messenger according to HD 626



HD 626 S1: 1996
Part 6-Section E

Aluminium conductors with XLPE insulation, included in national products/standards: NF C 33029

Dimensions of phase conductors

Cross section	Conductor diameter		Nom. thickness of insulation	Core diameter		Current carrying capacity	Breaking load (kN)
(mm²)	(mm) min.	(mm) max.	(mm)	(mm) min.	(mm) max.	(A*)	
16	4.6	5.1	1.2	7.0	7.8	–	–
25	5.8	6.3	1.4	8.6	9.4	112	–
35	6.8	7.3	1.6	10.0	10.9	138	–
50	7.9	8.4	1.6	11.1	12.0	168	–
70	9.7	10.2	1.8	13.3	14.2	213	–
95	11.0	12.0	1.8	14.6	15.7	258	–
120	12.0	13.1	1.8	15.6	16.7	306	–
150	13.9	15.0	1.7	17.3	18.6	344	–

* Defined for ambient temperature of 30 °C and max. conductor temperature of 90 °C.

Dimensions of neutral messenger conductors

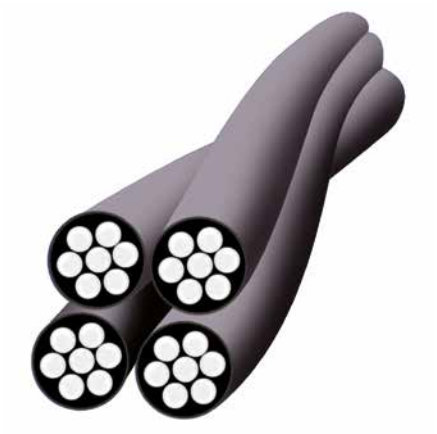
Cross section	Conductor diameter		Nom. thickness of insulation	Core diameter (mm)		Current carrying capacity	Breaking load (kN)
(mm²)	(mm) min.	(mm) max.	(mm)	min.	max.	(A*)	
54.6	9.2	9.6	1.6	12.3	13.0	–	16.6
70	10.0	10.2	1.5	12.9	13.6	–	20.5
95	12.2	12.9	1.6	15.3	16.3	–	27.5

Dimensions of cable bundle

Number of phase cores x cross section + public lighting conductors x cross section + neutral cross section (mm²)	Bundle diameter Approx. (mm)
3 x 25 + 54.6	30.0
3 x 35 + K x 16 + 54.6	33.0
3 x 50 + K x 16 + 54.6	36.0
3 x 70 + K x 16 + 54.6	37.5
3 x 70 + K x 25 + 54.6	40.0
3 x 70 + K x 16 + 70	41.0
3 x 95 + K x 16 + 70	44.0
3 x 120 + K x 16 + 70	46.0
3 x 120 + K x 16 + 95	47.0
3 x 150 + K x 16 + 70	48.0
3 x 150 + K x 16 + 95	49.0

NOTE K number of public lighting conductors (K can be equal to 0, 1, 2, or 3)

Dimensions of self-supporting LV-ABC lines according to HD 626



HD 626 S1: 1996
Part 4-Section F

Aluminium conductors with XLPE insulation, included in national products/standards: NFA2X (VDE 0276 - 626 4F-1), AsXS(n) (PL WT92/K396), 1-AES (CSN 34761-4F)

Dimensions of conductors

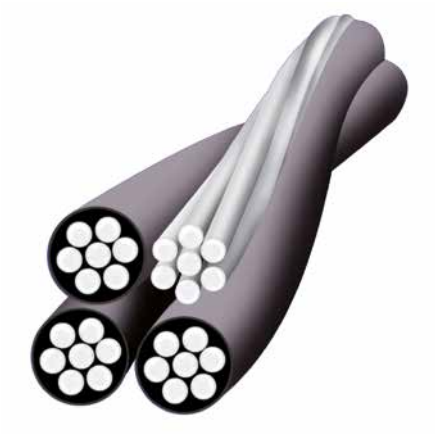
Cross section	Conductor diameter		Thickness of insulation		Max core diameter	Current carrying capacity	Breaking load (kN)
(mm²)	(mm) min.	(mm) max.	(mm) nom.	(mm) min.	(mm)	(A*)	
16	4.6	5.1	1.2	1.00	7.8	–	2.60
25	5.6	6.5	1.3	1.07	10.0	107	4.17
35	6.6	7.5	1.3	1.07	11.0	132	5.78
50	7.7	8.6	1.5	1.25	12.5	165	8.45
70	9.3	10.2	1.5	1.25	14.0	205	11.32
95	11.0	12.0	1.7	1.50	16.1	–	15.30
120	12.5	13.5	1.8	1.60	17.6	–	20.00
150	13.9	15.0	1.8	1.60	18.8	–	25.00

* Defined for ambient temperature of 35 °C and max. conductor temperature of 80 °C.

Dimensions of cable bundle

Number of cores x cross section + public lighting conductors x cross section (mm²)	Bundle diameter Approx. (mm)
2 x 16	15
2 x 25	18
2 x 35	20
4 x 16	18
4 x 25	22
4 x 35	25
4 x 50	28
4 x 70	32
4 x 70 + 1 x 35	36
4 x 70 + 2 x 35	40
4 x 95	37
4 x 120	40
4 x 120 + 2 x 35	43
4 x 150	44

Dimensions of LV-ABC lines with bare neutral messenger according to HD 626



HD 626 S1: 1996
Part 5-Section D

Phase conductors with XLPE insulation, included in national products/standards:
AMKA (SFS 2200)

Dimensions of phase conductors

Cross section	Conductor diameter	Nom. thickness of insulation	Core diameter		Current carrying capacity	Breaking load (kN)
(mm^2)	(mm)	(mm)	(mm) min.	(mm) max.	(A*)	
16	4.4 ± 0.05	1.4	7.1	7.3	70	–
25	5.9 ± 0.20	1.4	8.3	9.1	95	–
35	6.9 ± 0.20	1.6	9.7	10.5	115	–
50	8.1 ± 0.25	1.6	10.8	11.8	140	–
70	9.7 ± 0.25	1.8	12.8	13.8	180	–
120	12.8 ± 0.30	2.0	16.2	17.4	250	–

* Defined for ambient temperature of 25 °C and max. conductor temperature of 70 °C.

Dimensions of neutral messenger conductors

Cross section	Conductor diameter	Nom. thickness of insulation	Core diameter (mm)		Current carrying capacity	Breaking load (kN)
(mm^2)	(mm)	(mm)	min.	max.	(A*)	
25	5.9 ± 0.20	–	5.5	6.3	–	7.4
35	6.9 ± 0.20	–	6.5	7.3	–	10.3
50	8.1 ± 0.25	–	7.6	8.6	–	14.2
70	9.7 ± 0.25	–	9.2	10.2	–	20.6
95	11.4 ± 0.30	–	10.8	12.0	–	27.

Dimensions of Cable Bundle

Number of phase cores x cross section + neutral cross section (mm^2)	Bundle diameter Approx. (mm)
1 x 16 + 25	15
3 x 16 + 25	22
4 x 16 + 25	22
3 x 25 + 35	26
4 x 25 + 35	26
3 x 35 + 50	30
3 x 50 + 70	35
3 x 70 + 95	41
3 x 120 + 95	47

Reference Table

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102L011-R05/S(S100)	381987N001	27
102L022-R05/S(S100)	204645N001	27
102L033-R05/S(S100)	059453N001	27
102L044-R05/S(S50)	135907N001	27
102L048-R05/S(S25)	286711N001	27
102L055-R05/S(S10)	966649N001	27
102L066-R05/S(S10)	252509N001	27
12SE140-9	037702-000	52
12SE173-9	916764-000	52
12SE215-9	306480-000	52
13UE140-9	458492-000	52
13UE173-9	027630-000	52
13UE215-9	371078-000	52
302K224/S(S20)	D45696N001	25
302K333/S(S20)	D93040N001	25
302K466/S(S10)	127794N001	25
402W516/S(S5)	337914N001	25
402W526/S(S5)	000938N001	25
402W533/S(S10)	096434N001	25
4E140-E83	733664-000	52
4E173	174974-000	52
502K016/S(S5)	C52918N001	25
502K026/S(S5)	C22917N001	25
502K033/S(S15)	E00553N001	25
502K046/S(S5)	086694N001	25
502S013/S(S5)	CJ5843N001	25
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603W035/S(S5)	F40674N001	25
6E 140-9	1780012-1	52
6E 173-9	1727515-1	52
6E 215-9	1727516-1	52
6E 240-9	2107736-1	52
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7E215	013694-000	52
A 100 (box of 100)	661424-000	42
A 200 (box of 100)	490298-000	42
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AUTOPRESS L55	2107793-1	51
AUTOPRESS L62	2107725-1	51
BPC 35-35	577046-000	15
BPC 35-P35	645308-000	15
BPC P35-P35	006924-000	15
BPC P50	A26017-000	15
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CPTA 50	426682-000	19
CPTA 54	414030-000	19
CPTA 70	180178-000	19
CPTA 95 D20	906826-000	19
CPTA 150-21 D20UK	438928-000	19
CPTAU 16 D16	366520-000	19
CPTAU 25 D16	623808-000	19
CPTAU 35 (trousse)	381500-000	19
CPTAU 50	214368-000	19
CPTAU 54	107112-000	19
CPTAU 70	972344-000	19
CPTAU 95	068480-000	19
CPTAU 120 D25	797666-000	19
CPTAU 150 D25	976758-000	19
CRSM- 34/10- 250/239(B30)	168551-000	28
CRSM- 34/10- 500/239(B30)	552273-000	28
CRSM- 34/10-1000/239(S5)	406345-000	28
CRSM- 34/10-1500/239(B30)	647565-000	28
CRSM- 53/13- 250/239(B20)	747669-000	28
CRSM- 53/13- 500/239(B20)	390635-000	28
CRSM- 53/13- 750/239(B20)	319783-000	28
CRSM- 53/13-1000/239(S5)	279727-000	28
CRSM- 53/13-1500/239(B20)	737881-000	28
CS 922	A22641-000	41
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CSL 260	404082-000	41
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DCS BT	367680-000	50
DUL-NLV4150	999686-000	47
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DZ6 UL-F-CHINA-N	CP7938-000	11
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EA 95-2000	611094-000	39
EDD 1000	F44394-000	47
EDD 1700	064712-000	47
EM35	420132-000	48
EM5095	684460-000	48
EM95150	768128-000	48
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EN-CGPT- 9/ 3-0-SP	C99919-000	26
EN-CGPT-12/ 4-0-SP	F93007-000	26
EN-CGPT-18/ 6-0-SP	C47829-000	26
EN-CGPT-24/ 8-0-SP	F52163-000	26
EN-CGPT-39/13-0-SP	E21457-000	26
EN-DCPT- 6/ 3-45-SP	E44441-000	26

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EN-DCPT- 8/ 4-45-SP	A18953-000	26
EN-DCPT-10/ 5-45-SP	A05941-000	26
EN-DCPT-12/ 6-45-SP	A87683-000	26
EN-DCPT-19/ 9-45-SP	F74998-000	26
EN-DCPT-26/13-45-SP	E01829-000	26
EN-DCPT-38/19-45-SP	C62205-000	26
EP 35-13	E84478-000	9
EP 95-13	D12469-000	9, 10, 11
EP120-13	F45314-000	9
ES 35-1500	D65834-000	40
ES 95-2000	CM1094-000	40
ES 1500 25-95	CM1094-000	40
ESF 54/70	D57874-000	40
ETC 70	177438-000	47
ETC 150	395180-000	47
EXRM-0607	834686N001	50
FH-1630-S-TS1	398323-000	50
GelWrap-18/ 4-150(B6)	F90657-000	29
GelWrap-18/ 4-200(B6)	F60655-000	29
GelWrap-18/ 4-250(B6)	971920-000	29
GelWrap-33/10-150(B6)	E13495-000	29
GelWrap-33/10-200(B6)	E86269-000	29
GelWrap-33/10-250(B6)	A36570-000	29
GelWrap-50/20-250	D61559-000	29
GelWrap-50/20-300	128958-000	29
GPC 35x 35 L2750	926996-000	42
GPC 60x 60 L2750	529784-000	42
GPC 90x 90 L2750	495284-000	42
GPT 30x 30 L2600	967294-000	42
HEL-3005	277480-000	12
HEL-3006 M6	833594-000	12
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