

Cables & Accessories



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(A) Conductor 2 x 1.3mm²

(B) Semi-conductive material with self-limiting characteristics (the resistance increases with rising temperature)

(C) Insulation and outer sheath of fluoropolymer (PFA)

Range of application:

Switch heating at railways, subways, tramways.

Technical data:

Basic type..... Class II

Manufactured according to VDE, IEC800

Cable class..... double insulated*

Test voltage..... 1500 V DC

Supply voltage..... 110 /120V

Colour:..... Black outer sheath

Operating temperature..... max. +120°C / +150°C

Exposure temperature..... max. +160°C / +250°C

Installation temperature min – 20°C

Bending radius min 40 mm

Dimension 11.5 x 6.5 mm

Weight..... 0.15 kg/m

Part.no.: VX501

Denomination..... Velox Origo30-110/120

Customs/Tariff-code: 84195090

Approved by Network Rail – Certification no.

PA05100458

Velox ORIGO30-110/120 is manufactured with a sheath of PFA.

Table 1:

Part.no	Type of cable	Power (W/m)	Length max* (m)
VX501	VELOX ORIGO30-110/120	110/120	25

* at 10% power loss

* Double insulated cable with each insulation layer thickness according to IEC:1995. R.M.S. 450/750 V. Min. requirement 0.60mm.





(A) Conductor 2 x 1.3mm²

(B) Semi-conductive material with self-limiting characteristics (the resistance increases with rising temperature)

(C) Insulation and outer sheath of fluoropolymer (PFA)

Range of application:

Switch heating at railways, subways, tramways.

Technical data:

Basic type..... Class II
 Manufactured according to VDE, IEC800
 Cable class..... Double insulated*
 Colour:..... Red outer sheath
 Test voltage..... 1500 V DC
 Supply voltage..... 230/240 V
 Operating temperature..... max. +150°C
 Exposure temperature..... max. +250°C
 Installation temperature min – 20°C
 Output..... at 10°C ~ 100/130W
 Bending radius min 40 mm
 Dimension 11.5 x 6.5 mm
 Weight..... 0.15 kg/m
 Part.no..... VX500
 Denomination..... Velox ORIGO30-230/240
 Customs/Tariff-code 84195090

Velox ORIGO30-230/240 is manufactured with a sheath of PFA.

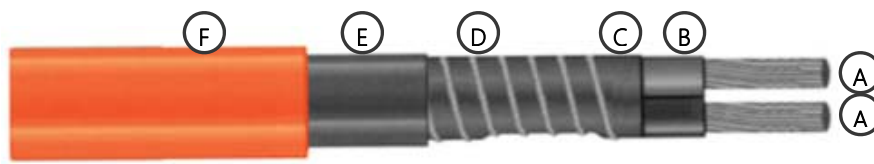
Table 1:

Part.no	Type of cable	Power (W/m)	Length max* (m)
VX500	VELOX OR-IGO30-230/240	100-110**	25

* at 10% power loss.

* Double insulated cable with each insulation layer thickness according to IEC:1995. R.M.S. 450/750 V. Min. requirement 0.60mm.

HEATING ELEMENT VELOX PH-70(100)140 VAC TYPE OF CABLE PARALLEL RESISTIVE, DOUBLE INSULATED



- (A) Conductor, tinned Cu, 1.5mm²
- (B) Conductor insulation, Silicone
- (C) Bed for heating conductor
- (D) Heating conductor NI-CR
- (E) Sheath 1, Silicone
- (F) Sheath 2, fluoroplastic

Range of application:

Switch heating at railways, subways, tramways.

PH-70 is a parallel resistive, teflon insulated heating cable which can be cut at contact points every half meter.

Outer sheath made out of corrosive toughened material (teflon)

PH-70 have double sheath and lacks earth screen.

Technical data:

Manufacturing std./Basic type. VDE 253 / EEC800

Approved, tested by..... CE

Colour: Orange outer sheath

Test voltage 3000 VDC

Supply voltage 220 / 240 VAC

Output 70W / 84W

Distance between contact points: 0.5 meter

Max Operating temperature 150°C

Max Exposure temperature 200°C

Installation temperature..... min -30°C

Bending radius min 50 mm

Diameter..... 7,8 x 5,6 mm

Weight 75 kg/1000m

Part.no. VX503 220-240V

Denomination: Velox PH-70 VAC

Customs/Tariff-code..... 84195090

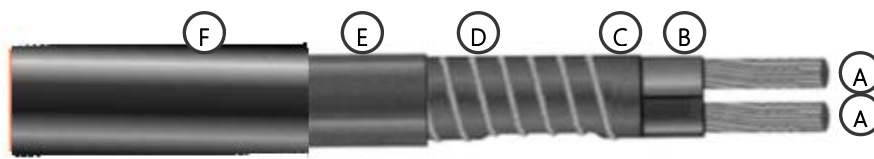
PH-70 is manufactured with a sheath of PFA.

Table 1:

Part.no	Type of cable	Power (W/m)	Length max* (m)
VX508	VELOX PH-70	70	52

* at 10% power loss.

HEATING ELEMENT VELOX PH-90 VAC TYPE OF CABLE PARALLEL RESISTIVE, DOUBLE INSULATED



- (A) Conductor, tinned Cu, 1.5mm²
- (B) Conductor insulation, Silicone
- (C) Bed for heating conductor
- (D) Heating conductor NI-CR
- (E) Sheath 1, Silicone
- (F) Sheath 2, fluoroplastic

Range of application:

Switch heating at railways, subways, tramways.

PH-90 is a parallel resistive, teflon insulated heating cable which can be cut at contact points every half meter.

Outer sheath made out of corrosive toughened material (teflon)

PH-90 have double sheath and lacks earth screen.

Technical data:

Manufacturing std./Basic type. VDE 253 / EEC800

Approved, tested by..... CE

Colour:Black outer sheath 110/120

Test voltage 3000 VDC

Supply voltage110 / 120 V

Output90W

Distance between contact points0.5 meter

Max Operating temperature150°C

Max Exposure temperature230°C

Installation temperature.....min -30°C

Bending radius min 50 mm

Diameter.....7,8 x 5,6 mm

Weight 75 kg/1000m

Part.no. VX50. 110-120V

Denomination:Velox PH-90 VAC

Customs/Tariff-code.....84195090

PH-90 is manufactured with a sheath of PFA.

Table 1:

Part.no	Type of cable	Power (W/m)	Length max* (m)
VX505	VELOX PH-90 110-120	90	52

* at 10% power loss.

VELOX SIP/PVC TYPE OF CABLE: SERIES RESISTIVE, DOUBLE INSULATED, CLASS II



- (A) Resistance wire
(B) High-temperature Silicone (PFA)
(C) FEP (Fluorinated ethylene propylene)

Range of application:

Switchpoint heating.

Velox SIP is a double insulated series resistive heating cable for connections up to 1000 VDC.

Technical data:

Manufacturing std./Basic type

Basic type, Manufactured acc. toVDE/IEC 800

Colour:White outer sheath

Test voltage 3000V

Supply voltage750v/max 1000V

OutputOhm's law

Max. ambient temperature 20°C

Max Exposure temperature130°C

Installation temperature..... -10

Bending radius 6 x Ø

Diameter..... 4.5 / 5.0 mm
depending on resistance

Weightapprox. 80-90 kg/1000m

Part.no. SIP.....(+ Ω-value)

Denomination:Velox SIP + resistance value

Customs/Tariff-code.....84195090

SIP is manufactured with a sheath of PVC/Polyurethane

Available resistance values

0.03 Ω
0.18 Ω
0.25 Ω
0.36 Ω
0.45 Ω
0.65 Ω
0.82 Ω
1.00 Ω

Table 1:

Part.no	Type of cable	Effekt (W/m)	Length max* (m)
	VELOX SIP/PVC	50	Ohm's Law

* at 10% power loss.

VELOX COMMUNICATION CABLE 2x1,0 + 0,75mm² FEP



2 x 1,00mm² (19x0,25mm) Multi wire conductor, multi core, screened fluoropolymer insulated cable
FLON® MICAB (FEP + FEP)
-90°C/+250°C

- 1. CONDUCTOR
2 x 1,00 (19x0,25mm) Tin-plated copper
- 2. CONDUCTOR INSULATION
FEP

COLOR CODE: Red Black

Bending structure

Two cores will be twisted together.

- 3. SEPARATOR TAPE
Polyester foil
- 4. EARTHING CONDUCTOR
0,75mm² (19x0,22mm) tin-plated copper
- 5. SCREEN
Single side aluminium bonded polyester foil.
(Aluminium inside)
- 8. OUTER SHEATH
FEP, sheath, color: Grey

Characteristics

Physical – Chemical
- Continuous working temperature
FEP: -90°C to 205°C

Packing



Drums

Electrical

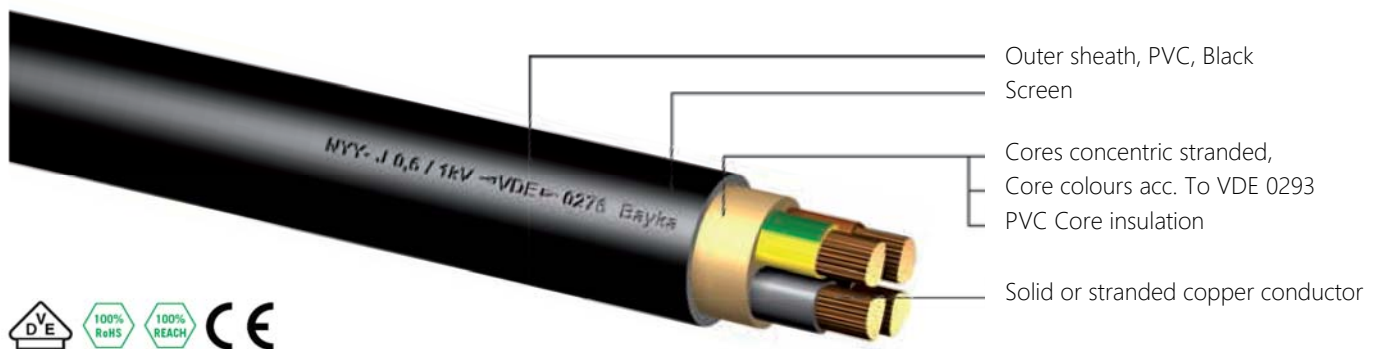
Operating voltage : 300/500V
Test voltage : 2,00 kV

Marking

Part.no: VX304-3
Article/Cable marking::
Velox 2 x 1,0 + 0,75mm² CE

Cross section mm ²	Construction (mm)	Insulation wall thickness (mm)	Approx. Insulation diameter (mm)	Nominal outer sheath thickness (mm)
2 x 1,00	19 x 0,25	0,25	1,75	0,35

VELOX SUPPLY CABLE 5X25MM² EARTH CABLE



Standards

DIN VDE 0276-603 part 3G / HD 603,1 and IEC 60.502-1.

The cables are in compliance with EU LVD (Low voltage Directive) 73/23 EEG, EU directive RoHS 2011/65 / EU - RoHS 2.0 and regulation no. 1907/2006 (REACH).

They are flame retardant and self-extinguishing according to DIN EN 50265-2-1 (IEC 60332-1-2) and free of silicone, cadmium and free from substances harmful to the wetting properties of lacquers.

Technical data

Rated voltage kV	U ₀ /U kV 0,6/1
Test voltage	kV 4
Installation temperature	
At installation (min)	-5
At installation (max)	+70
Short-circuit temperature °C	+160
Load (HD 603 S1:1994 3G in undisturbed operation	Table 14+15
In case of short-circuit	Table 17
Short-circuit duration	Max. 5sec

Marking

Part.no: VX314-25

Denomination/Marking: NYY-J 4x120 SM 0,6/1 kV

Application

For indoor and outdoor installation, in the ground, for power stations, industry and distribution boards or subscriber networks, where mechanical damage to the cable is not expected (see DIN VDE 0298-1).

The cables are insensitive to occasional impacts of oils and fuels.

Type Designation Codes

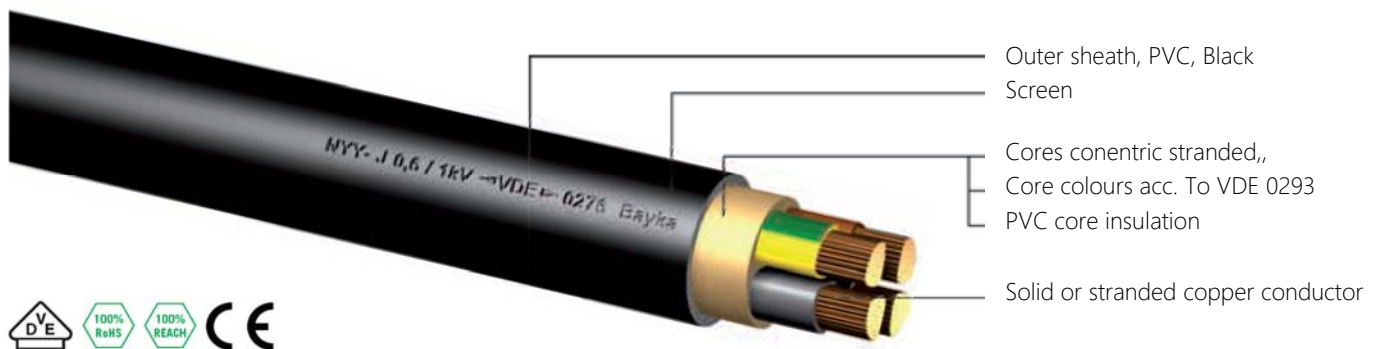
N	Cables acc. To standard
(N)	Cables based on standard
Y	Insulation made of polyvinyl chloride (PVC)
Y	Outer sheath made of polyvinyl chloride (PVC)
J-	Cable with green-yellow core
RE	Circular conductor, solid
RM	circular conductor, stranded
SM	sector-shaped conductor, stranded

Special designs

- Design according to national and international standards
- Design according to customer specifications
- Design with limited tolerance of outer diameter on request

Part.no	Product	Cu-tal	Outer dim. Ø	Net weight	Rated Current	Max. load	Bending radius	Bending radius mehm
		Kg/km	Ca. mm	Ca. kg/km	kA	daN	Min. mm	Min. mm
VX314-25	Supply cable 5X25mm ²	1200	30	1980	2.88	625	180	360

VELOX SUPPLY CABLE 5X16MM² EARTH CABLE



Standards

DIN VDE 0276-603 part 3G / HD 603,1 and IEC 60.502-1.

The cables are in compliance with EU LVD (Low voltage Directive) 73/23 EEG, EU directive RoHS 2011/65 / EU - RoHS 2.0 and regulation no. 1907/2006 (REACH).

They are flame retardant and self-extinguishing according to DIN EN 50265-2-1 (IEC 60332-1-2) and free of silicone, cadmium and free from substances harmful to the wetting properties of lacquers.

Technical data

Rated voltage	0,6/1
Test Voltage	kV 4
Installation Temperature	
At installation (min)	-5
At installation (max)	+70
Highest permitted operating temperature (conductor)	+70
Short-circuit temperature °C	+160
Load (HD 603 S1:1994 3G	
In undisturbed operation	Table 14+15
In case of short-circuit	Table 17
Short-circuit duration	Max. 5sek

Marking

Part.no: VX313-16

Denomination/Marking: NYY-J 5x16 SM 0,6/1 kV

Application

For indoor and outdoor installation, in the ground, for power stations, industry and distribution boards or subscriber networks, where mechanical damage to the cable is not expected (see DIN VDE 0298-1).

The cables are insensitive to occasional impacts of oils and fuels.

Type Designation Codes

N	Cables acc. To standard
(N)	Cables based on standard
Y	Insulation made of polyvinyl chloride (PVC)
Y	Outer sheath made of polyvinyl chloride (PVC)
J-	Cable with green-yellow core
RE	Circular conductor, solid
RM	circular conductor, stranded
SM	sector-shaped conductor, stranded

Special designs

- Design according to national and international standards
- Design according to customer specifications
- Optional designs with improved characteristics

Part.no	Product	Cu-tal	Outer size Ø	Net weight	Rated current	Max. load	Bending radius	Bending radius mehm
		Kg/km	Ca. mm	Ca. kg/km	kA	daN	Min. mm	Min. mm
VX313-16	Supply cable 5X16mm ²	768	24	1290	1.84	400	150	300

VELOX SWITCHROD HEATER

Range of applications:

The switch rod heater is mounted under the point rod. The rod must be kept free from snow and ice and heat is supplied to the critical points on the switch.

The switch rod heater is supplied in two complete halves, which are easily mounted under the switch rod.

Connection is made to a specially ordered PUR flexible lead.

Normally the switchpoint heaters gets its supply from the heating element on the stock-rail via a special connector or plug arrangement.

This panel is used when connecting in parallel at several point rods.

Connection can be made to a junction box or to a female connector fitted at the end of the Velox heating elements.

Technical data:

Type of element:..... Heating element ORIGO-30
..... alt. ORIGO-PH70

Connection cable:..... Velox 2 x 2.5 or 3x2.5
..... depending on application

Output:..... approx. 200-400W self-limiting.
..... approx. 350 W constant wattage.

Material: Aluminum

Diameter 1200 x 300 mm

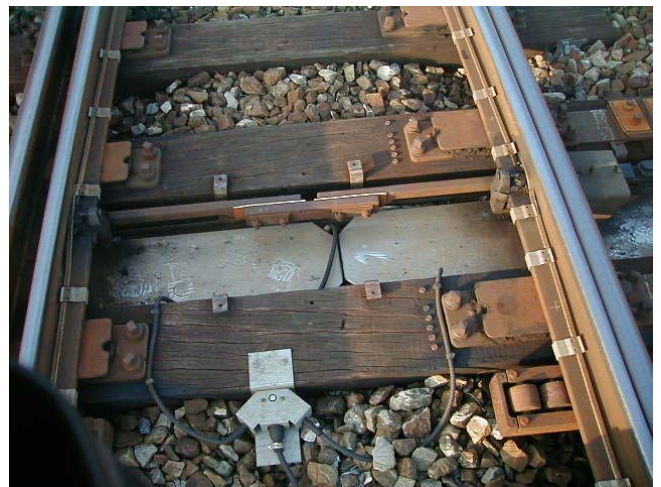
Weight 3,5 kg

Order information

Part.no.: VX700

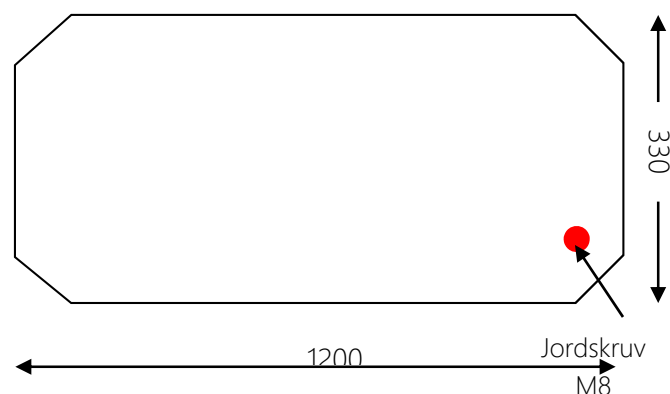
Denomination: Switchrod heater
..... (incl. Velox Connection cable).

Other sizes on request..



Dimension print

H 50mm x B 330mm x L 1200mm



Range of application:

The channel shall be placed above heating element as mechanical protection.

The poor heat transfer through the channel enlarges heat transfer to rail.

The channel is available in two shapes, one standard and the other one flexible, with "jagged edge" which makes it possible to turn the channel against the neck of the rail and also simplify forming over unevennesses.

Technical data:

Dimension: see dimensional print

Material: Stainless steel, acid proof 2348 or 302

Order information

Part.no.: 6-8-1 Standard 8mm
 6-12-1 Standard 12mm
 6-12-F Flexible 12mm
 6-16-1 Standard 16mm
 6-16-F Flexible 16mm
 6-18-9 ... channel of glass fibre
 Customs/Tariff-code 73269098

Construction



Example of flexible channel fitted over obstruction in rail section



Example of standard channel



Cable installed under protective channel in jaw block



Cable installed under switch rod



Cable installed under jaw blocks on stock rail



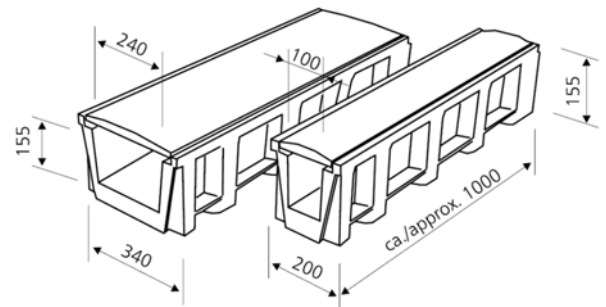
Cable installed where there is no place under switch rod



Cable installed where there is no place under switch rod

MPO plastic cable duct is ideal for laying in signal and communication lines underground on railway routes and in power plants and industrial installations. The fact that it can be laid so simply and quickly is particularly useful with short closing times or on difficult ground. Its structural design ensures that it is very stable in spite of its low weight and it provides cables and pipes with effective protection against external influences.

- Horizontal segments – increase weight substantially when installed
- Can be laid above ground if earth nails are used
- Cover can be installed over two troughs
- Cover can be firmly connected even when open
- Covers can be opened individually
- Cables and pipes that have been laid are easily accessible anywhere and at any time
- Cables and pipes effectively protected against external influences
- No earthing or insulation necessary
- Easy adjustments on-site – with the help of woodworking tools the duct can be angled off as required, junctions can be attached and height differences can be overcome
- Cable duct can be laid simply and quickly, cutting down closure times for assembly
- Light weight
- Stable design
- No jointing components
- Maintenance-free
- MPO plastic cable duct is reusable
- 100% recyclable
- Highly economical



Order information

Part.no: VX4090751	Ground channel composite L=1m / Y=200x230/l=100x h155mm
VX4090752	Ground channel composite L=1m / Y=340x230/l=240x155mm

Technical data

	Size 1 in.F	Size 2 in.F.
Length	Approx. 1000mm	Approx. 1000mm
Width (int./ext.)	100 mm/200 mm	240 mm/340 mm
Height (int./ext.)	155 mm/230 mm	155 mm/230 mm
Weight	Approx. 7 kg	Approx. 9 kg
Material	PP/PE reusable	
Fire behaviour	Fire protection class K1 in accordance with DIN 53438 Part 2	
Therm. Characteristics	Continuous thermally stability from -30°C to +85°C	
Electr. Characteristics	650 KV/cm in accordance with DIN VDE 0303-21	
Licens:	German Federal Railways office (Eisenbahnbundesamt 21AZ2/1005/1	

Range of application:

Clips are used to keep the heating element or the heating cables with protective channel on place on the rail foot.

The clips are available in several sizes and widths for special lead-ins.

Technical data:

Dimension: according to drawing

Material Stainless steel 304, EN10088,
..... alternatively CS70

Typical profile thicknesses

MOVING RAIL

Moving rail 11-13 mm

Moving rail 16-18 mm

Moving rail 18-22 mm

Moving rail 25 mm, cutout (C-Clip 25)

Moving rail Toe end clip 18-20mm

Moving rail Toe end clip 16-18mm

Moving rail Toe end clip 13mm

STOCK RAIL

Stock rail 13-mm

Bullhead clips

Toe end clips 13mm

DC-CLIPS

Stock rail 34 mm/DC (C-Clip 34)

Bullhead clip Foot

SPECIAL CLIPS

S-Clips 10mm

S-Clips 10-16mm

S-Clips 16 – 20mm

House clip SS

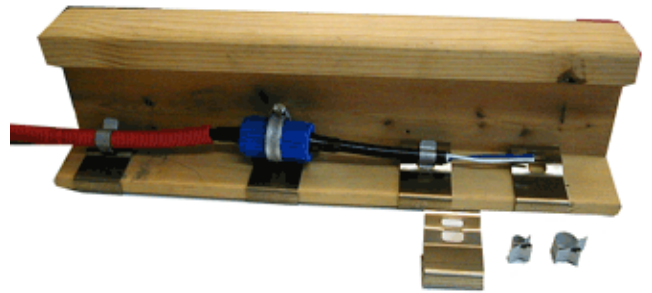
Extension plate

Straps

Note:

Do not put metal elements on channels where insulation part is fitted. Heating elements should be installed without channel at this point.

Construction



Cutout clips fitted ↑



3 different sizes of clips fitted due to different thickness on rail section ↑



Cable under slotted jaw bolts ↑

Range of application:

The 4-way block is a specially manufactured connecting block with a 8-core cable supplying 4 elements.

Connection to heating element is IP68-rated with safety locking. Cables are connected inside by insulated crimp joints.

The block is supplied with four leads with socket couplers 900mm/1200mm and with 80m 8-core connection cable.

Technical data:

The 4-way block and connection cable is injection moulded of polyurethane which are extremely resistant against oil, moisture and UV radiation and has more than IP67 protection class.

The 4-way block have a 2 x 1.2m long plug (female – see separate data on page 22) and 2 x 0.8m long plug (female).

The 8-core cable - 8m 8 x 2.5mm² polyurethane cable in accordance with CE and VDE 0282 Class 5.

Colour (outer sheath):Orange or black

Conductor, color,:	2 x yellow	No 1 Stock rail
Jacketed	2 x blue	No 2 Moving rail
	2 x brown	No 3 Moving rail
	2 x black	nr 4 Stock rail

Dimensions connection cable.....18 mm Ø

Min. temperature:.....-50°C

Max. temperature:.....+100°C

Insulation resistance.....>100 Mohm

The cable have TC copper as standard.

Conductor resistance.:.....TC 2.5mm² -
.....max. 8.21 Ω/km

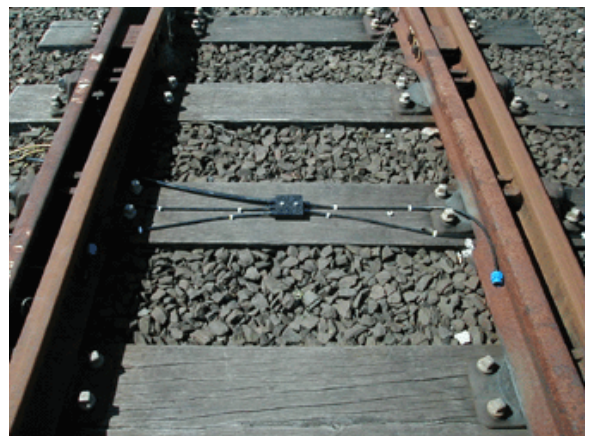
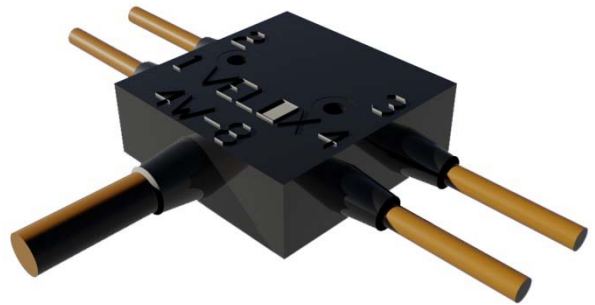
Order information

Part.no.....VX317

Denomination.....4-way block SC + TE 8m

..... (connection cable 8-core is available in other lengths on request)

Construction



The block has number 1-4. Seen from the front of switch you should have no 1-2 to the left and 3-4 to the right.

Test method

4 pcs of 2-core cables with female plug are jointed to 8-core cable with crimp connector. The core set is individually tested, 1500 VDC insulation test and continuity test, as well as visual and dimensional inspection to ensure void free moldings and a full bond onto the cable has been achieved.

After this, the core set are placed in a mould tool (4-way block) which is filled with Polyurethane/PUR, this is then cured in accordance with the manufacturers recommendations until full hardness is reached.

Final inspection is done and a final electrical test before it is packaged and dispatched.

Range of application:

This connection cable is injection moulded in one piece by polyurethane or rubber PUR.

Pins are fitted to socket by injection moulding and are not possible to rewire. The injection moulding process ensures the cables withstands more than 400N pull test.

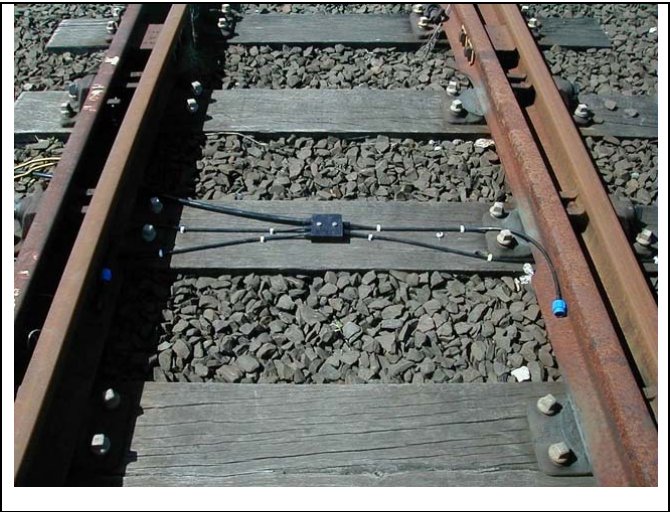
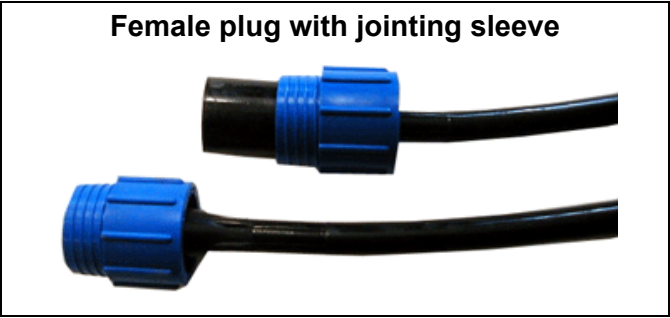
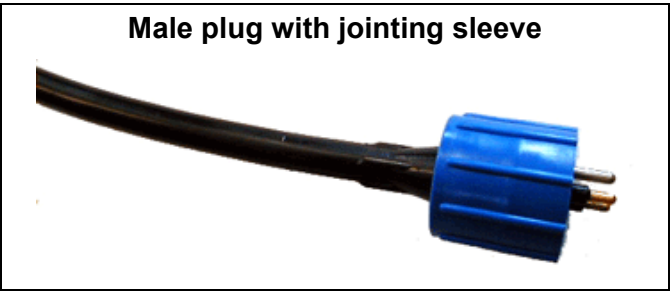
The plug is provided with a safety locking ring.

Technical data:

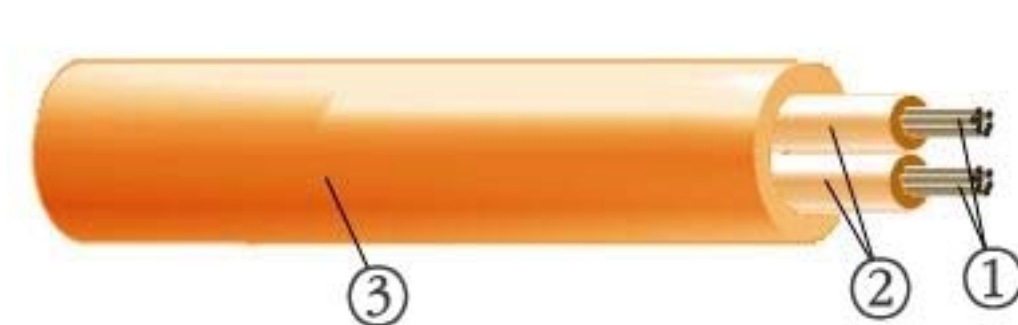
Cable..... PUR 2 x 2.5mm² (20 A)
.....PCP 2 x 1.5mm² (16 A)
Contact resistance <0.01 Ohm
Insulation resistance >500M Ohm
Operating voltage 600 VDC/440VAC
Operating temperature.....PUR -50 - +100°C
.....PCP -20 - +70°C
Contact material:... gold-plated copper-base alloy
.....(gold-plate acc. To MIL-G
..... 45204). Contact are solded to the wire.
Conductor resistances:TC 1.5mm² max 13.3ohm/m
.....TC 2.5 mm² max 8.21ohm/m
Material guide-pin..... 304 Stainless steel
Jacket..... PUR Polyurethane, double insulated
..PCP Polychloroprene, Double insulated Konti
Dimension cable: 10mm Ø
Order information

Part.no	Denomination
VX227	Connector female incl locking ring 2 x 2,5mm ²
VX223	Connector male incl. Locking ring 2 x 2.5 mm ²
VX231	Plug connection kit SL 4 pcs
VX232	Anslutningsdon VX- TE IP68 Hona

Construction



Test at SP in Borås showing excellent strength. All cables are tested under water with 240 supplied before leaving the factory.



- (1) Conductor tin-plated copper 2 x 2.5mm²
 (2) EPR insulated rubber
 (3) Sheath in Polyurethane (PUR)

Range of application

Supply cable from cubicle to connection block through a junction box or a cable joint (see data on page 53).

Technical data:

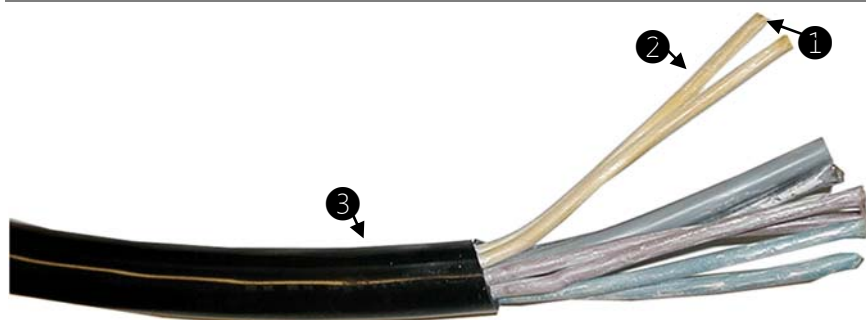
Cable.....Velox 2x2.5mm²
Velox 2x1.5mm²
 Colour:.....orange 2.5mm²/black1.5mm²
 Jacket:..... Outer sheath in polyurethane
 Test voltage:..... 3000V. Nominal 750 Volt.
 Area:.....2 x 2.5 mm²/2 x 1.5mm²
 Conductor (tinned copper):.....1.5mm² standard
 Insulation resistance:..... 100 Mohm
 Conductors:.....Black 1.5mm 1 x white
 " - 1 x blue
 Orange: 2.5mm 1 x blue
 " - 1 x black
 Manufacturing std.: VDE 0282 Class 5
 Jacket: Polyurethane, double insulated
 Class II VDE 0295 Klass 5
 Conductor resistance.: TC 1.5 mm² - max. 13.3
 Ω/m
 VDE 0295 TC 2.5mm² - max. 8.21Ω/m
 Customs/Tariff-code 85445980
 Dimension kabel 10 mm Ø

Order information:

Part.no	Denomination
VX224	Connection cable 2,5mm ² with screw sleeve 1,5m

Technical data, Polyurethane, PUR/TPU vs rubber PCP/CR

Abbreviation ⁽¹⁾	PUR/TPU	PCP/CR
CENELEC-type		
Thermal characteristics		
Thermal resistance		
20,000 h (°C)	90	60
24 h (°C)	140	120
Short-circuit (°C)	200	200
Resistance to cold, moved (°C)	-55	-25
Mechanical characteristics		
Tensile strength (N/mm ²)	≥25	≥10
Elongation at break (%)	≥300	≥300
Vibration resistance	Excellent	Good
Flexibility ⁽²⁾	Satisfactory	Excellent
Electrical characteristics		
Volume resistivity at 20°C(Ωcm)	10 e12	10 e10
Dielectric constant at 1 kHz	7	8
Fire characteristics		
Flame retardant	No	Yes
Free from halogen	Yes	No
Corrosive combustion gases	No	Yes
Smoke generation	Average	Strong
Resistance to		
Ionizing radiation (kGy)	5000	500
Solvents ⁽³⁾	Satisfactory	Satisfactory
Oils and fuels ⁽³⁾	Good	Good
Acids and alkaline solutions ⁽³⁾	Satisfactory	Excellent
Water/hydrolysis ⁽³⁾	Excellent	Good
Weather/UV-radiation	Good	Good



- (1) Tin-plated copper 2.5 mm²
- (2) EPDM Insulation
- (3) Sheath of polyurethane

Range of application:

Supply cable from cubicle to connection block through a junction box or a cable joint (see data on page 53).

Technical data:

Cable..... Velox 8 x 2.5 mm² *
 Velox 8 x 4.0 mm²
 Velox 8 x 6.0 mm²
 Colour.....orange or black
 Jacket..... Outer sheath in polyurethane
 Test voltage.....3000 V. Nominal 750 V
 Insulation resistance..... 100 Mohm
 Conductor*.....2 x yellow
 2 x blue
 2 x brown
 2 x black
 Conductor resistance.....TC 1.5 mm² -max 13.3 ohm/m
 VDE 0295.....TC 2.5mm² - max. 8.21 ohm/m
 Manufacturing standard..... VDE 0282 Class 5
 Dimension:18 mm Ø

Order information

Part.no	Denomination
VX303	8-core 8x2.5mm ² Polyurethane sheath

8x4mm², 8x6mm² available on request.

Technical data, Polyurethane, PUR/TPU vs rubber PCP/CR

Abbreviation ⁽¹⁾	PUR/TPU	PCP/CR
CENELEC-type		
Thermal characteristics		
Thermal resistance		
20,000 h (°C)	90	60
24 h (°C)	140	120
Short-circuit (°C)	200	200
Resistance to cold, moved (°C)	-55	-25
Mechanical characteristics		
Tensile strength (N/mm ²)	≥25	≥10
Elongation at break (%)	≥300	≥300
Vibration resistance	Excellent	Good
Flexibility ⁽²⁾	Satisfactory	Excellent
Electrical characteristics		
Volume resistivity at 20°C(Ωcm)	10 e12	10 e10
Dielectric constant at 1 kHz	7	8
Fire characteristics		
Flame retardant	No	Yes
Free from halogen	Yes	No
Corrosive combustion gases	No	Yes
Smoke generation	Average	Strong
Resistance to		
Ionizing radiation (kGy)	5000	500
Solvents ⁽³⁾	Satisfactory	Satisfactory
Oils and fuels ⁽³⁾	Good	Good
Acids and alkaline solutions ⁽³⁾	Satisfactory	Excellent
Water/hydrolysis ⁽³⁾	Excellent	Good
Weather/UV-radiation	Good	Good

Range of application:

To protect the 4-way block from mechanical damage for example when power brushing rail.

Technical data:

MaterialAluminium (min. ALmg3)

DimensionSee drawing

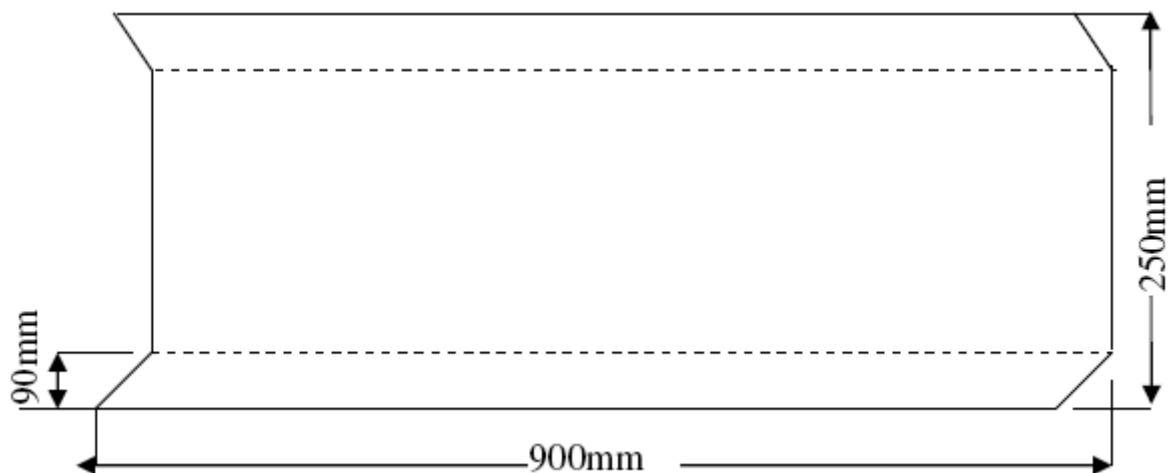
Order information

Part.no	Denominaton
VX307	Protective cover kit switchpoint heating with bolts

Cover is supplied with 2 bults with (sax spring).

Pre-punched holes

Dimensional print



Other sizes on request

Example



Range of application

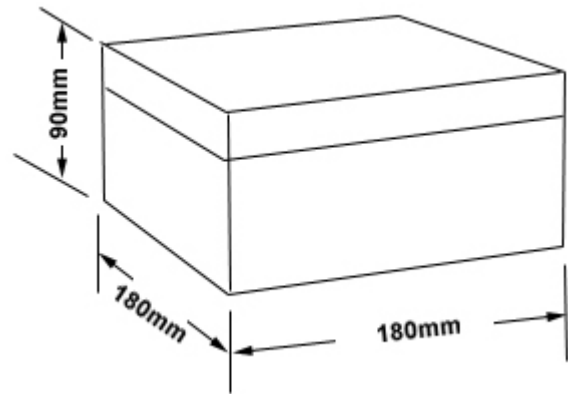
Water proof junction box.

Technical data:

Material	Polycarbonate
.....	Impact- and UV-resistant
.....	Flame protection
.....	Stainless steel locknuts in the cover
.....	..3pcs of QUIXX membrane cable insertsM32 included
Protective class	IP65
Cable entries	10 knockout cable entries
.....	from M20 up to M40
Cable test.....	750°C
Type	1610/tom
Colour.....	grå (RAL 7035)
External dimensions	180 x 180 x 91 mm

Order information

Part.no	VX1601 empty box
.....	VX1601A with integral
.....	VX1601B deck/glands
Packing unit.....	1



Construction



On request the box can be supplied with glands and integral deck (Siemens).



With gland



Technical data:

IP68 0.5 BAR 5 MT 1 ORA

PTI 175

Min/max Ø cable, double seal

Ø 5 ÷ 14 mm

Plastics

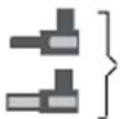
PA66 UL94 V2 GWT 850°C -20°C

- Black -20°C
- Grey RAL 7035 +125°C

Rubber: Silicone – SEBS – TPE V

Ring closure: Nickel plated brass

Insert



AG=

Nickel plated brass

Silver plated brass

Zinc plated steel


Pin-Crimp

IP68

> For universal cylindric pin Ø 2



Standards



EN 61984:2001

TEE Family

Construction



2-3-5-6-poles plug-socket connection. IP68 protection. Easy wiring. Pin crimp or bush connection, or hybrid pin crimp/brush. IP68 protection. Coupling with threaded metal ring.

Order information

Part.no	Denomination
VX225	Plug-socket male IP68
VX232	Plug-socket female IP68

Interchangeable connections

2-polie

Rated current25A

Impules withstand voltage.....6Kv

Temperature range:0-125°C

Cable max. 362,5°

Installation torque glands:Nm 2,5



THB.408.A2G

THB.408.A2G.AG

THB.408.A2H

THB.408.A2H.AG

Nero - Black

Grigio - Grey RAL 7035

THB.408.B2G

THB.408.B2G.AG

THB.408.B2H

THB.408.B2H.AG

Nero - Black

Grigio - Grey RAL 7035

Pin crimp

PLUG

THF.408.A2G

Nero - Black

THF.408.A2H

Grigio - Grey
RAL 7035

THF.408.B2G

Nero - Black









THF.408.B2H

Grigio - Grey
RAL 7035

Accessories

6DB000800	Double yellow seal	$\varnothing e$ 15,5 – $\varnothing i$ 8		\varnothing 5 ÷ 14 mm
604001800	Yellow seal	$\varnothing e$ 15,5 – $\varnothing i$ 12		\varnothing 9 ÷ 14 mm
600012500	Yellow seal	$\varnothing e$ 15,5	2 hole \varnothing 3.5	
600012600	Yellow seal	$\varnothing e$ 15,5	3 hole \varnothing 3.5	
600018200	Yellow seal	$\varnothing e$ 15,5	4 hole \varnothing 3.5	
600012700	Yellow seal	$\varnothing e$ 15,5	Slot \varnothing 11 x 5.5	
600013600	Yellow seal	$\varnothing e$ 15,5	1 hole \varnothing 3.5	
600013700	Yellow seal	$\varnothing e$ 15,5	Blinde hole	
604001100	Black seal	$\varnothing e$ 15,5 – $\varnothing i$ 8,5		\varnothing 5 ÷ 9 mm
6DB015700	Cable bracket			

Accessories

	600012200	Modules adapter for TH388-404-405 3 poles version	
	600009600	Modules adapter for TH388-404-405 5-poles version	
	6DB00750C	6 pole closure cap to hook modules in TH388-404-405	
	6DB00400C	6 pole closure cap with silicon belt to hook modules in TH388-404-405	
	6DB00900C	Closure cap with silicon belt for TH405-406-630	
	6000049CC 6000049CE	Black Grey 7035	} Closure cap for TH405-406-630
	6000087LF	Adapter for nut	
	6000156LF	Blind hole	

CH Ø

24mm

For small dimensions or soft (silicon-rubber) cables, the adapter applied on nut compress even more the seal on the cable.

Range of application:

Is used to connect two cables without use of shrinking tube or filling compound.

The cable joint is a dry joint and very easy to use.

The cable joint is provided with 2 glands PG29, IP65. max. cable diameter: depending on gland used.

This joint can be used for any cable up to a max. diameter of the size a 40mm gland can take. If required smaller glands can be supplied together with reducer from 40mm.

Technical data:

Material Reinforced composite material

Protective class IP65
.....(max cable diameter 29mm)

Dimension 300 x 42 mm

Weight..... 350gr with 2 PG 29 glands in plastic

Part.no PG29 blue VX (cable diam.)

..... PG 32

..... PG 40

..... depending on if glands is used

..... M40 black VX (cable diam.)

..... depending on if glands is used

Customs/Tariff-code 85389099

Package:..... 1 pc, supplied with 2

glands and 10 insu-

lated crimp connectors

2.5mm² (yellow), vul-

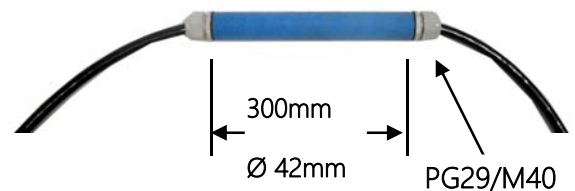
canising tape approx.

1m.

Construction



Dimensions

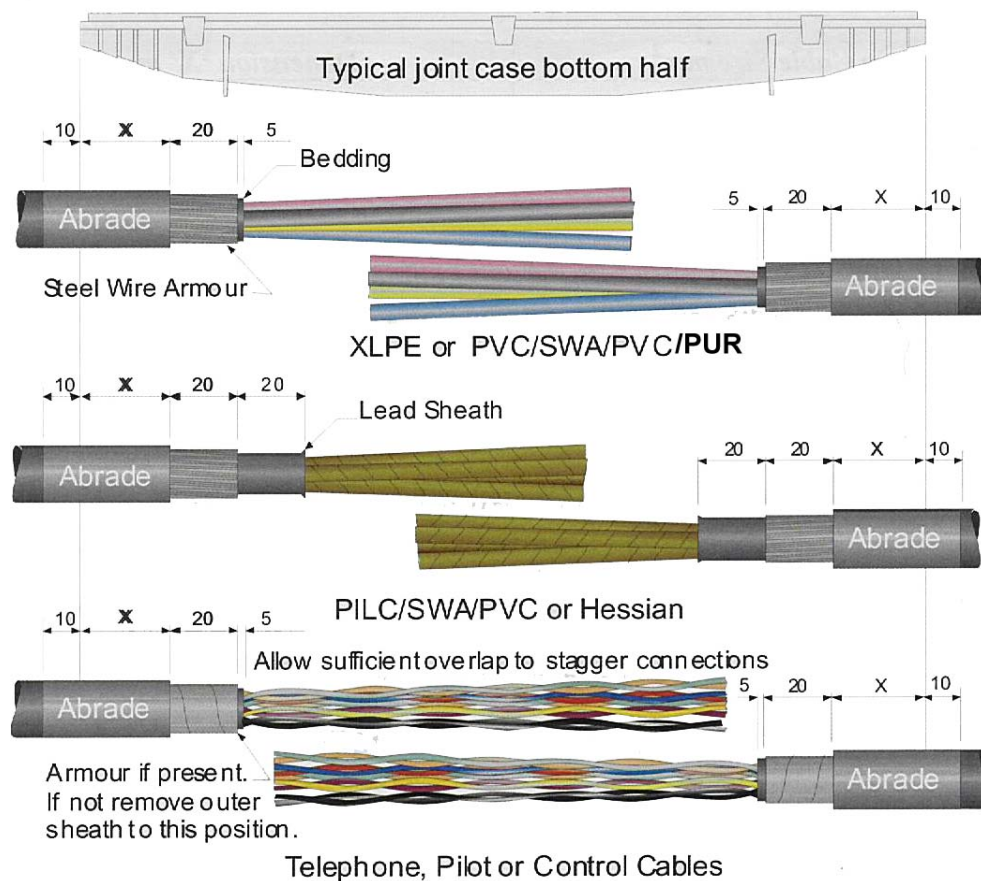


Important notes

- These instructions are relevant for a range of different Low Voltage straight and branch joints. They show typical arrangements but the procedures are the same for any variation of joint.
- Instructions assume that cables are de-energised.
- Instructions are for guidance only, and subject to standard jointing procedures which should always be followed.
- Dispose of all waste materials and packaging safely, clear accidental spillage immediately.
- Do not use in a confined, unventilated area, avoid breathing the resin curing vapours.
- Wear protective gloves provided at all times when handling cold pour resins.
- Avoid contact with skin and eyes. In case of accidental contact treat the area with copious quantities of water. Full health & safety information is available upon request.

1. Straight joints

Stripping Dimensions



Cable size mm ²	Dimension 'X' mm
1.5 - 25	25
35 - 120	35
150 - 400	40
Telephone/Pilot/Control	25

Jointing the cables

Clean and deicease the armours and lead sheath (if present) and abrade the outer sheath from the armours to a distance of 10mm outside the joint case. When jointing the cables use the connectors provided or other approved types. For power cables use phase separators (if supplied) in the vicinity of the connectors and in any event ensure at least 10mm separation between connectors. A typical connection for a branch joint is shown below using mechanical connectors.

Remove the insulation from each end of the earth strap as shown. Attach the braid to the main cable armours using constant force spring 1. When attaching the ends of the braid allow the braid to extend beyond the spring and after applying one full turn fold the braid back over the spring, 2, as shown. Cut off any excess. For straight joints simply use spring 1 on each side of the joint.

Applying the Earth Lead across the PILC/SWA Joints

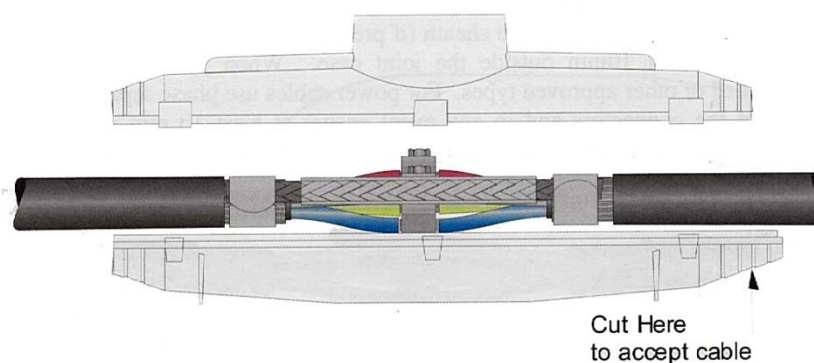


Apply the braid as shown using the smaller springs on the lead. Fold either end of the braid back on itself as shown in the drawing above and cut off any excess. If a branch cable is present connect the braid to this cable as described above.

Completing the joint

After making the earth braid connections place a half of the joint case around the joint positioning centrally. Cut the ends of the case to suit the cables using a hacksaw. Make sure that the connectors are at least 10 mm apart.

a) Straight Joint



Now place the two joint halves around the joint and snap together.

General instruction

Use PVC tape at the cable entry points to seal the joint case. Mix the resin as instructed on the resin pack and pour into the joint case until the case is completely full. Finally fit the lid to the filler hole.

Ensure cable joint is level and both cables and joint are supported independently.

For applications up to 1000 Volts, the joints may be filled under load conditions. The completed joint should be left uncovered before back-filling for two hours to allow the resin to fully cure. Ensure that there is no movement of the cable cores during curing of the resin.

NOTES



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Teknik

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