

# PHOTOVOLTAIC CABLES

Energy and Fiber Optical Cables for Solar Energy Systems.



As the worldwide leader in the cable industry, Prysmian Group believes in the effective, efficient and sustainable supply of energy and information as a primary driver in the development of communities.

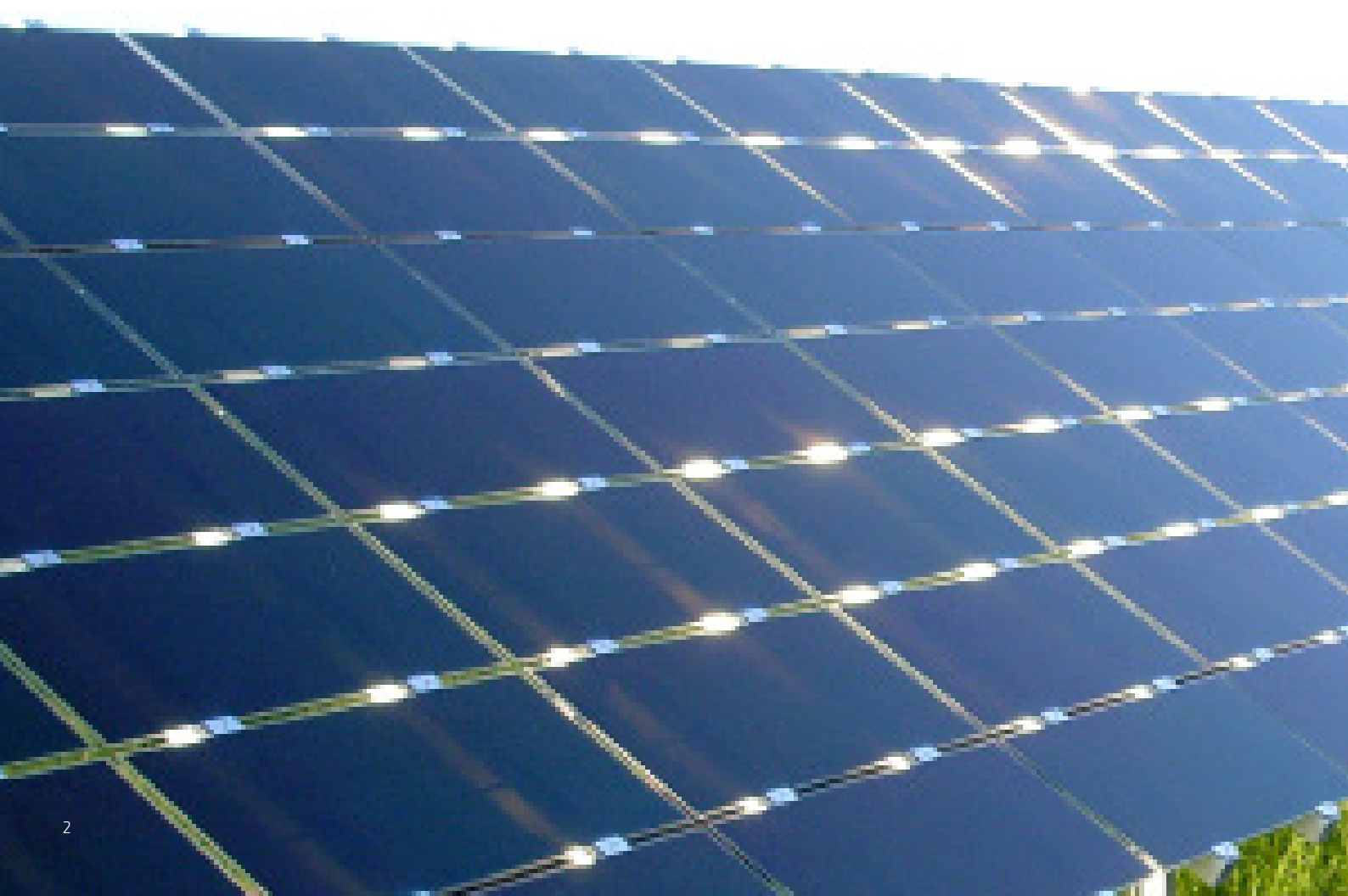
With this in mind, we offer major global organisations across industries with best-in-class cable solutions, based on state-of-the-art technology.

Through our two renowned commercial brands - Prysmian and Draka, represented in almost 50 countries, we're constantly close to our customers. Our product enable them to develop the world's energy and telecoms infrastructures, and achieve sustainable and profitable growth.

In our energy business, we design, produce, distribute and install cables and systems for the transmission and distribution of power at low, medium, high and extra-high voltage.

In telecoms, the Group is a leading manufacturer of all types of copper and fibre cables, systems and accessories - covering voice, video and data transmission.

Drawing on over 130 years' experience and continuously investing in R&D, we apply excellence, understanding and integrity to every thing we do. Our goal is to meet and exceed the precise needs of our customers across all continents, and at the same time shape the evolution of our industry.



*„We link sustainable ideas  
to real-world results“*

### **We enable production and supply of renewable energy**

To meet an ever-growing need for power, the world is increasingly turning to renewable and sustainably sourced solar energy. In response to this demand, Prysmian cables are helping businesses in the renewable industry globally to convert these new opportunities into reality.

Our technologies, which include cables used in photovoltaic plants, are used across the renewables sector, supporting the operations of contractors and developers, grid operators, system integrators and panel makers.

Always aware of our responsibility to the environment, we're constantly driving innovation in our industry, aiming to help the renewable industry deliver projects, that benefits the future of our planet and their businesses.









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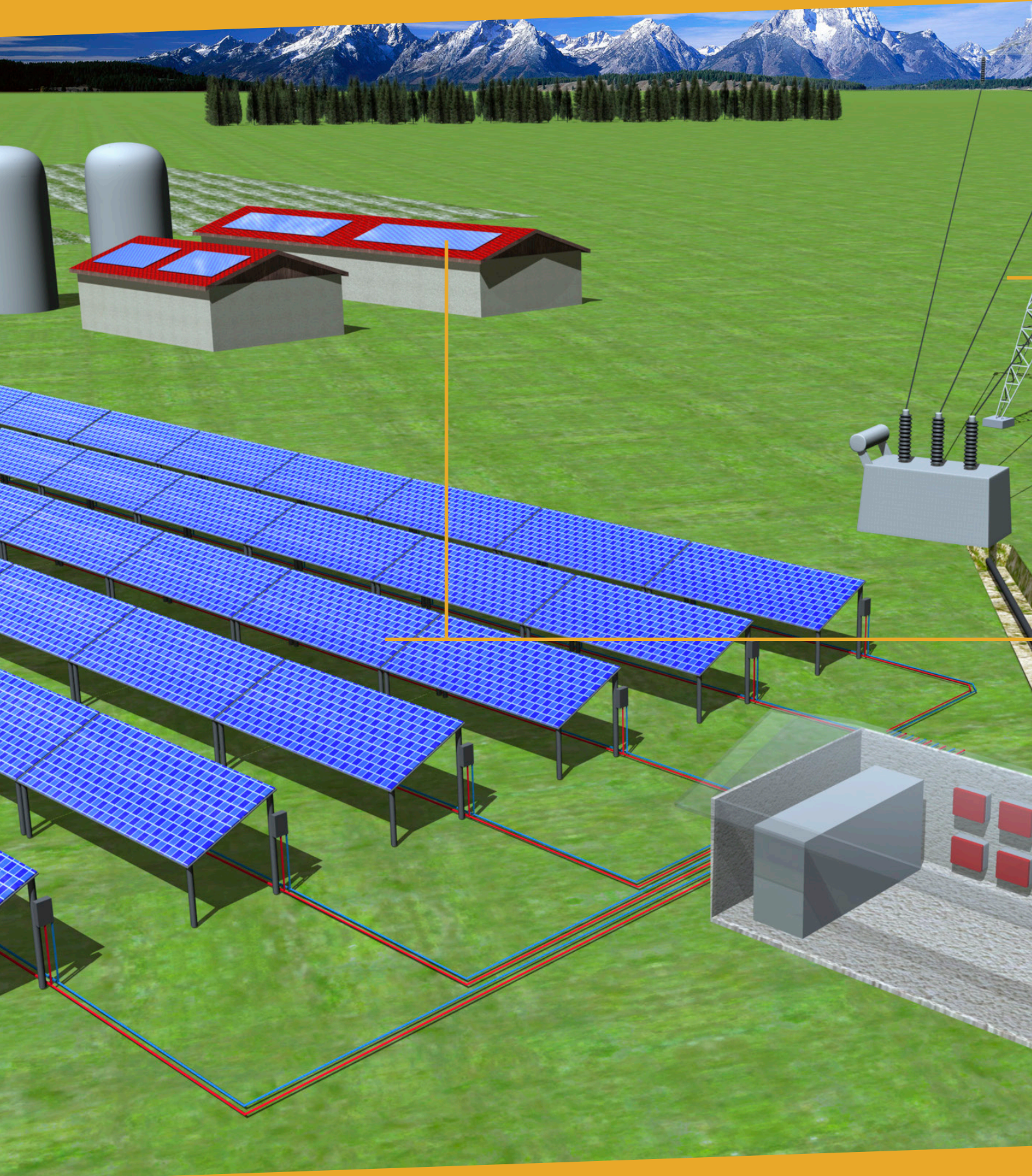
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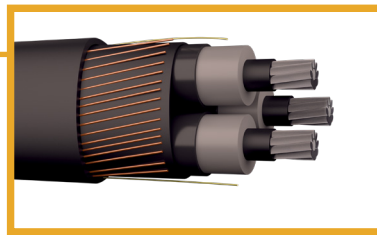


# Photovoltaic system





*„Our strategy is to have a full cable portfolio  
and deliver all the cable types demanded  
for photovoltaic installation“*



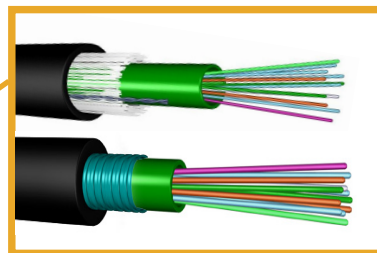
### Energy cables

LV cables  
MV cables  
HV cables



### Solar cables

TECSUN (PV) H1Z2Z2-K  
TECSUN (PV) S3Z2Z2-K

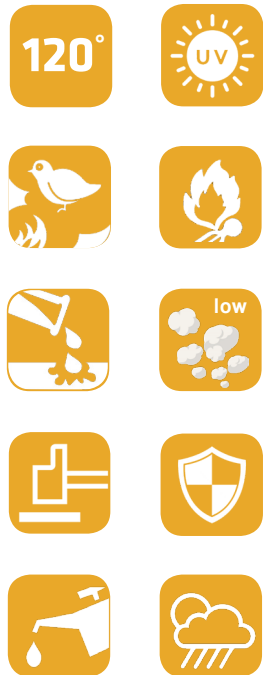
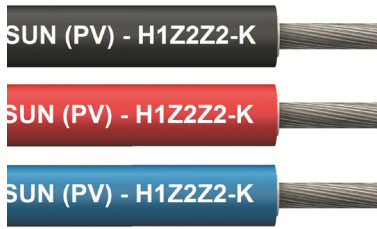


### Special cables

Fibre optic cables  
Data cables  
Control cables

## FIXED & FLEXIBLE INSTALLATION

### INSTALLATION CABLE HALOGEN-FREE TECSUN (PV) H1Z2Z2-K



#### Application

PRYSMIAN Solar cables TECSUN (PV) – H1Z2Z2-K is intended for use in photovoltaic power supply systems indoors and outdoors, in industrial and agriculture fields. Suitable for application in equipment with protective insulation (Class II), in explosion hazard areas and may be installed as fixed or freely suspended or free movable.

Applicable for installation in cable trays, conduits, on and in walls as well as for direct burial. The cable is designed to operate at a normal maximum conductor temperature of 90°C, but for a maximum of 20 000 hours a max. conductor temperature of 120 °C at a max. ambient temperature of 90°C, is permitted.

The version TECSUN (PV)(C) H1Z2Z2-K has an additional metallic screen braid, made of tinned copper wires, as a protective element against rodents or impact.

#### Installation note

TECSUN(PV) cables are suitable for direct burial in ground. Installation conditions per VDE 0800 Section 174 § 5.4.2 and VDE 0891 Section 6 § 4.2 should be taken in consideration.

#### Technical data

- > Rated voltage: 1,5 kV DC and 1,0 kV AC
- > Max. voltage: 1,8 kV DC and 1,2 kV AC
- > Test voltage: 15 kV DC and 6,5 kV AC
- > Current carrying cap: EN 50618, A-3
- > Electrical tests: EN 50618, Table 2:

#### Temperature range

- > Conductor temperature: +90°C
- > Max. conductor temperature: +120°C for max. 20,000 hours
- > Short circuit temperature: +250°C 5 sec.
- > Installation temperature: -25°C to +60°C
- > Operating temperature: -40°C to +90°C
- > Resistance to cold: EN 50618, table 2

#### Standard & Directive & Approval

- > Standard: DIN EN 50618
- > Directive: CE, RoHS, REACH
- > Approval: <VDE>, TÜV-certificate no. 60103637

#### Construction

##### Conductor:

- > Electrolytic tinned copper
- > Finely stranded
- > Class 5 acc. to IEC 60228

##### Insulation:

- > Halogen-free
- > Cross-linked HEPR 120°C, white

##### Outer sheath:

- > Halogen-free cross-linked
- > EVA rubber 120°C
- > Insulation and sheath solidly bound
- > Colour: Black, blue or red
- > UV-resistant EN 50289-4-17, method A

All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.



## FIXED &amp; FLEXIBLE INSTALLATION

## INSTALLATION CABLE HALOGEN-FREE

**TECSUN (PV) H1Z2Z2-K****Chemical parameters**

Resistance to fire:

- > Acc. to EN 50618, Table 2
- > Single Cable Flame Test: EN 60332-1-2
- > Low Smoke Emission: EN 61034-2 (Light Transmittance > 70%)
- > Halogen-free per EN 50525-1, Annex B.

Prysmian internal tests:

- > Multiple Cable Flame Test: EN 50305-9
- > Low Toxicity per EN 50305 (ITC < 3)

Resistance to oil:

PRYSMIAN internal test, on sheath

- > 24h, 100°C (meets VDE 0473-811-404 and EN 60811-404)

Weather resistance

- > Acc. to EN 50618, Annex E and Table 2:
- > UV Resistance on sheath: tensile strength and elongation at break after 720h (360 Cycles) of exposure to UV lights acc. to EN 50289-4-17, Method A.
- > Ozone resistance: per Test Type B (DIN EN 50396).

PRYSMIAN internal test:

- > Water Absorption (Gravimetric) per DIN EN 60811-402.
- > Acid and alkaline resistance Acc. to EN 50618, Annex B:
- > 7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide) acc. to EN 60811-404.

Ammonia Resistance:

PRYSMIAN Internal Testing:

- > 30 days in Saturated Ammonia Atmosphere. Environmentally Friendly TECSUN (PV) PV-Wire complies with the RoHS directive 2011/65/EU of the European Union.

**Thermal parameters**

Max. operating temperature of the conductor:

- > Max. 90°C at conductor (lifetime acc. to EN 50618 = 25 years lifetime acc. to Arrhenius-Diagram TECSUN = 30 years).
- For a maximum of 20.000 hours a max. conductor temperature of 120 °C at a max. ambient temperature of 90 °C is permitted.

Max. short circuit temperature of the conductor:

- > 250 °C (5 s.)

Ambient temperature:

- > Installation and handling: -25°C up to 60°C
- > In operation: -40°C up to +90°C

Resistance to cold:

- > Acc. to EN 50618, Table 2:
- > Cold Bending Test at -40°C acc. to DIN EN 60811-504;
- > Cold Elongation Test at -40°C acc. to DIN EN 60811-505;
- > Cold Impact Test at -40°C acc. to DIN EN 60811-506, EN 50618-C.
- > Damp-Heat Test Acc. to EN 50618, Table 2:
- > 1.000h at 90°C and 85% humidity (test acc. to EN 60068-2-78).

**Mechanical parameters**Max. tensile load 15 N/mm<sup>2</sup> in operation:

- > 50 N/mm<sup>2</sup> during installation per HD 516, DIN VDE 0298 section 3 § 7.1 and Section 300 § 5.4.1

Bending radius:

- > Acc. to EN 50565-1. See table

Abrasion resistance:

PRYSMIAN Internal Testing:

- > Acc. to DIN ISO 4649 against abrasive paper;
- > Sheath against sheath;
- > Sheath against metal;
- > Sheath against plastics.

Shrinkage Test:

- > Acc. to EN 50618. See table
- > Maximum Shrinkage < 2% (test acc. to EN 60811-503)

Pressure Test at High Temperature:

PRYSMIAN Internal Testing:

- > 50% acc. to EN 60811-508.

Dynamic Penetration Test:

- > Acc. to EN 50618, Annex D:
- > Meets requirements of EN 50618.

Shore-Hardness:

PRYSMIAN Internal Testing:

- > Type A: 85 acc. to DIN EN ISO 868

Durability of Print:

- > Acc. to EN 50618:
- > Test acc. to EN 50396.

Rodent resistance:

- > Safety can be optimized by utilizing protective hoses and cables with spinning or braid metallic coatings

## Solar cable

TECSUN (PV)						
Conductor cross-section mm <sup>2</sup>	Sheath colour	Outer diameter min. mm	Outer diameter max. mm	Bending radius fixed mm	Weight Kg/km	Prysmian EAN-no.
1x1,5	Black	4.4	5.0	15	40	8712943
1x2,5	Black	4.8	5.4	17	50	8712943
1x4	Black	5.3	5.9	18	70	8712943063548
1x4	Blue	5.3	5.9	18	70	8712943140760
1x4	Red	5.3	5.9	18	70	8712943140753
1x6	Black	5.8	6.4	20	80	8712943140746
1x6	Blue	5.8	6.4	20	80	8712943140784
1x6	Red	5.8	6.4	20	80	8712943140777
1x10	Black	7.0	7.6	23	130	8712943149046
1x10	Blue	7.0	7.6	23	130	8712943
1x10	Red	7.0	7.6	23	130	8712943149039
1x16	Black	9.0	9.8	30	200	8430220138412
1x25	Black	10.4	11.2	34	290	8712943
1x35	Black	11.7	12.5	50	400	8712943
1x50	Black	13.5	14.5	58	550	8712943
1x70	Black	15.5	16.5	66	750	8712943
1x95	Black	17.7	18.7	75	970	8712943
1x120	Black	19.2	20.4	82	1220	8712943
1x150	Black	21.4	22.6	91	1510	8712943
1x185	Black	23.7	25.1	101	1850	8712943
1x240	Black	27.1	28.5	114	2400	8712943
TECSUN (PV)(C)						
1x4 (C)	Black	6	6,6	26,4	90	8712943
1x6 (C)	Black	6,5	7,1	28,4	110	8712943



TECSUN (PV)					
Conductor cross-section mm <sup>2</sup>	Conductor outer diameter max. mm	Max. conductor resistance at 20°C Ω /km	Current carrying capacity A In air at 60°C	Current carrying capacity A On surface 60°C	Short Circuit current kA 1sec. 90-250°C
1x1,5	1.6	13.7	30	29	0.21
1x2,5	1.9	8.21	41	39	0.36
1x4	2.4	5.09	55	52	0.57
1x6	2.9	3.39	70	67	0.86
1x10	4	1.95	98	93	1.43
1x16	5.6	1.24	132	125	2.29
1x25	6.4	0.795	176	167	3.58
1x35	7.5	0.565	218	207	5.01
1x50	9	0.393	276	262	7.15
1x70	10.8	0.277	347	330	10.01
1x95	12.6	0.21	416	395	13.59
1x120	14.2	0.164	488	464	17.16
1x150	15.8	0.132	566	538	21.45
1x185	17.4	0.108	644	612	26.46
1x240	20.4	0.082	775	736	34.32
TECSUN (PV)(C)					
1x4 (C)	2,4	5,09	55	52	0,57
1x6 (C)	2,9	3,39	70	67	0,86

## FIXED & FLEXIBLE INSTALLATION

### INSTALLATION CABLE HALOGEN-FREE

## TECSUN (PV) S3Z2Z2-K 1,8/3 kV AC



#### Application

Halogen-free single core cables, sheathed, for junction boxes and inverters, with improved fire performance, increased heat resistance and suitable for direct burial. Intended for use in photovoltaic power supply systems, at nominal voltage rate of 1,8/3kV AC, as interconnection between central inverter and transformer station.

Applicable indoor and outdoor in explosive and hazardous areas within industry and agriculture. Also suitable for applications in equipment with protective insulation class II or as short and ground fault protection. Can also be used as unfused connections in switchgear and distribution boards up to 1000 V (DIN VDE 0100-520 and DIN VDE 0660-500) and in accumulator circuits (DIN 5510 part 5).

#### Installation note

TECSUN(PV) cables are suitable for direct burial in ground. Installation conditions per VDE 0800 Section 174 § 5.4.2 and VDE 0891 Section 6 § 4.2 should be taken in consideration.

#### Technical data

- > Rated voltage: 1,8/3 kV AC
- > Max. operating voltage AC: 2,1/3,6 kV
- > Max. operating voltage DC: 2,7/5,4 kV
- > AC test voltage: 6,5 kV (5.min)
- > Current carrying cap: DIN VDE 0298-4

#### Mechanical data

- Tensile load:
- > Max. 15 N/mm<sup>2</sup> in operation
  - > Max. 50 N/mm<sup>2</sup> during installation
- Torsion stress:
- > Max. ± 150°/m during installation
- Bending radius:
- > Acc. to DIN VDE 0298 part 3.

#### Temperature range

- > Operating temperature: +90°C
- > Max. conductor temperature: +120°C for max. 20,000 hours
- > Short circuit temperature: +250°C
- > Fixed installation: -40°C to +90°C
- > Flexible installation: -40°C to +90°C

#### Standard & Direktive

- > Standard: DIN EN 50618
- > Direktive: CE, RoHS, REACH

#### Construction

Conductor:

- > Finely stranded tinned copper
- > Class 5 acc. to IEC 60228

Insulation:

- > Halogen-free
- > Heat resistant
- > Cross-linked rubber compound
- > Acc. to DIN VDE 0250-606

Outer sheath:

- > Halogen-free cross-linked
- > Heat resistant
- > Cross-linked rubber compound
- > Acc. to DIN VDE 0250-606
- > Black and meter marked
- > UV-resistant

#### Chemical data

Flame-retardant:

- > IEC 60332-1-2 single cable
- > IEC 60332-3-24 bunched cables

Smoke emission:

- > EN 61034-2 light emission ≥ 70%

Halogen-free:

- > EN 60754-1

Corrosivity:

- > EN 60754-1
- > pH ≥ 4,3 and
- > Conductivity ≤ 2,5 µS/mm

Toxicity:

- > EN 50305 index ITC = 3

Weather resistance:

- > EN 50618
- > Ozone resistant
- > UV-resistant

Acidity and alkaline resistance:

- > EN 50618



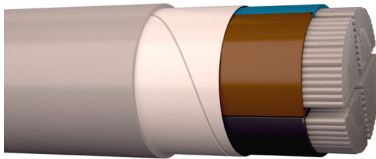
Conductor cross section mm <sup>2</sup>	Outer diameter min.mm	Outer diameter max.mm	Bending radius fixed min.mm	Weight Kg/km	Prysmian EAN-no.
1x25	13.2	14.4	87	380	
1x35	14.3	15.5	93	470	
1x50	15.6	17.1	103	640	
1x70	17.1	19.1	115	820	
1x95	19.4	21.4	129	1060	
1x120	21.5	23.5	141	1320	
1x150	23.1	25.1	151	1590	
1x185	25.1	27.1	163	1910	
1x240	28	30	180	2450	
1x300	31	34	204	3030	

Conductor cross section mm <sup>2</sup>	Conductor diameter max.mm	Permissible tensile force max.N	Conductor resistance 20°C max Ω/km	Current carrying cap. Air A	Short circuit current 90-250°C kA
1x25	6,3	375	0.795	176	3.58
1x35	7,4	525	0.565	218	5.01
1x50	8,9	750	0.393	276	7.15
1x70	10,6	1050	0.277	347	10.01
1x95	12,1	1425	0.21	416	13.59
1x120	14,2	1800	0.164	488	17.16
1x150	15,8	2250	0.132	566	21.45
1x185	17,4	2775	0.108	644	26.46
1x240	20,2	3600	0.082	775	34.32
1x300	22,9	4500	0.065	898	42.9

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## FIXED INSTALLATION

### INSTALLATION CABLE HALOGEN-FREE HIK AL-S 0,6/1 kV



#### Application

Halogen-free fire retardant cable with low smoke and corrosive gas emission during fire. Suitable for application indoors and outdoors in pipes, trays or for directly burial in soil. Can be ploughed down with caution. Must be installed according to S.B.

#### Technical data

- > Rated voltage: 0,6/1 kV
- > Test voltage: 4000 V
- > Bending radius: 15 x D

#### Temperature area

- > Max. conductor temperature: +90°C
- > Short circuit temperature: +250°C
- > Lowest temp. at installation: -20°C
- > Below 0°C caution must be exercised

#### Standard & Direktive & Godkendelse

Standard:

- > Cenelec HD 604-5D, IEC 60502-1

Direktive:

- > Fulfills LVD, RoHS & REACH

CPR:

- > CE-marked acc. to class Eca
- > DoP no. 1002844 - [download PDF](#)
- > [www.prysmiangroup.dk/dop](http://www.prysmiangroup.dk/dop)

#### Construction

Conductor:

- > Stranded annealed aluminium
- > Acc. to EC 60228 class 2.
- > From 50-240 mm<sup>2</sup>: sector shaped

Insulation:

- > PEX

Core colouring:

- > 4-core: brown, black, grey, blue

Separator:

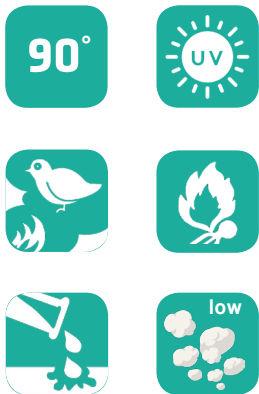
- > Plastic tape

Outer sheath:

- > Halogen-free compound
- > UV-resistant
- > Gray and meter marked

#### Material characteristics

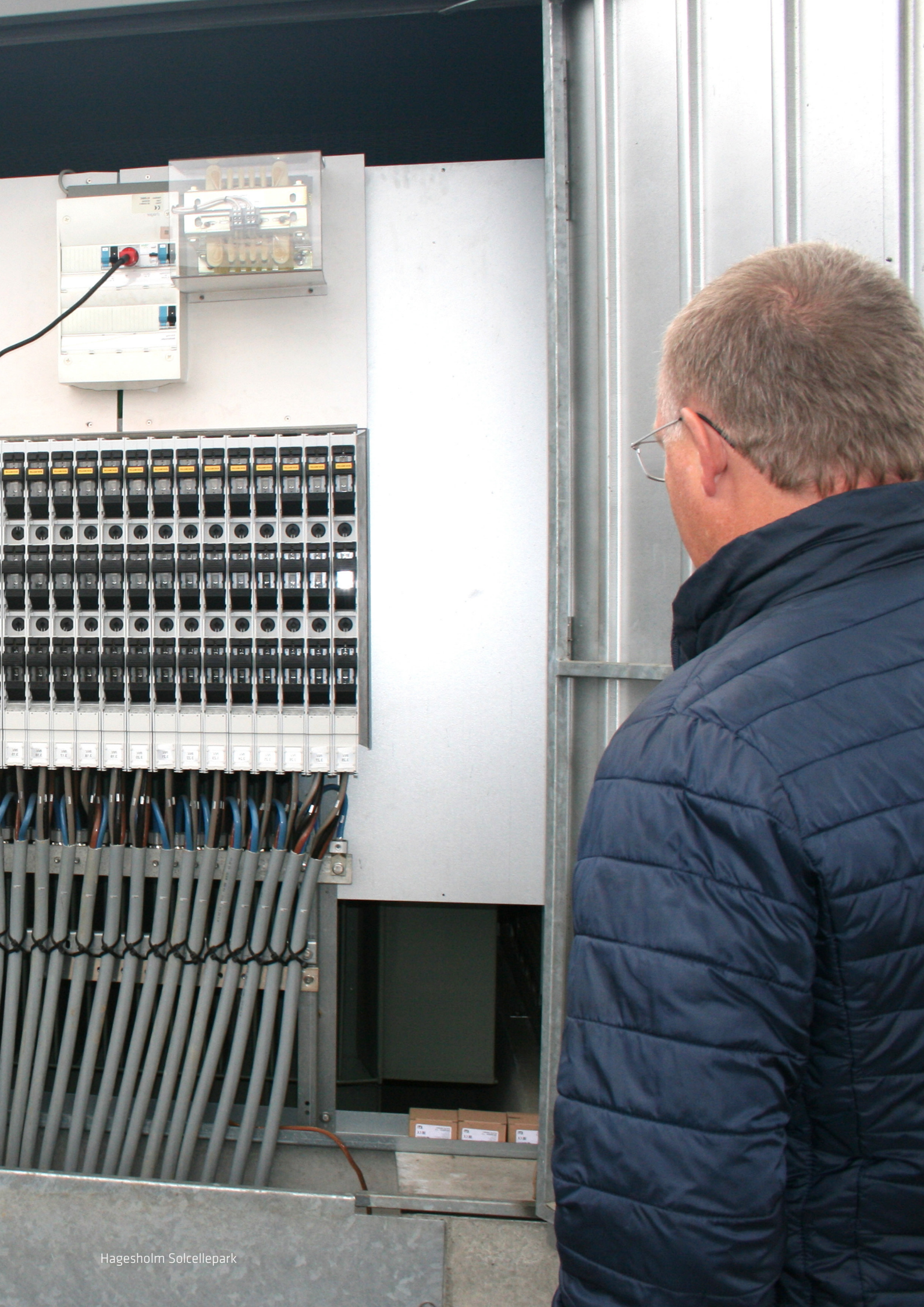
- > Flame-retardant: IEC 60332-1
- > Halogen-free: IEC 60754-1
- > Corrosivity: IEC 60754-2
- > Smoke density: IEC 61034
- > Current load: Acc. to SB 2001:6



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Conductor cross section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Max. current load A	Delivery m	Prysmian EAN-no.
4 x 50	27,7	900	146	1000	5701498014719
4 x 70	31,0	1180	187	1000	4741532901040
4 x 95	35,1	1450	227	1000	5701498014726
4 x 120	42,0	1945	263	1000	4741532901057
4 x 150	43,6	2210	304	1000	5701498014733
4 x 185	48,0	2925	347	1000	4741532901064
4 x 240	53,7	3485	409	500	5701498014740
4 x 300	59,0	4575	471	500	4741532900043

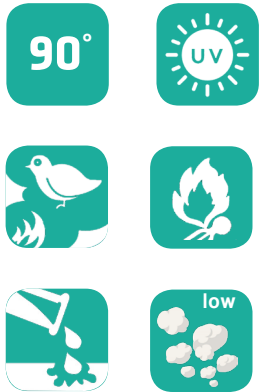
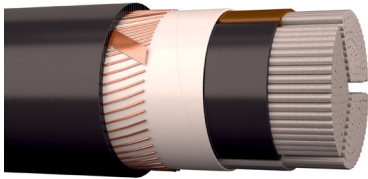






## FIXED INSTALLATION

### INSTALLATION CABLE HALOGEN-FREE **AXQJ PURE 0,6/1 kV**



#### Application

Halogen-free, flame retardant and self-extinguishing in case of fire. Smoke emission during fire is low, transparent and not harmful to electronic equipment. Applicable as power cable for fixed installation indoors and outdoors, in pipes, ground or water as well as in switchgear and explosive environments. Can with caution be plowed down.

#### Technical data

- > Rated voltage: 0,6/1 kV
- > Test voltage: 4000 V

#### Bending radius:

- > Fixed installation 8 x D
- > During installation 12 x D
- > Ploughed down: 8 x D

#### Temperature area

- > Max. conductor temperature: +90°C
- > Short circuit temperature: +250°C
- > Lowest temp. at installation: -20°C
- > Below 0°C caution must be exercised

#### Standard & Directive & Approval

##### Standard:

- > Cenelec HD 603 part 3, section L
- > Cenelec HD 604 - HF materials

##### Directive:

- > Fulfills LVD, RoHS, REACH-direktives

##### CPR:

- > CE-marked acc. to class Dca-s2d2a2
- > DoP no. see table
- > [www.prysmiangroup.dk/dop](http://www.prysmiangroup.dk/dop)

#### Construction

##### Conductor:

- > Multi-stranded annealed
- > Sector-shaped
- > Aluminium acc. to IEC/EN 60228 class 2.

##### Insulation:

- > PEX

##### Core colouring:

- > 3-core: brown, black, grey
- > 4-core: brown, black, grey, blue

##### Screen:

- > Concentric screen of annealed copper wire with counter spiral of copper band

##### Inner sheath:

- > Halogen-free compound

##### Outer sheath:

- > Halogen-free compound
- > UV-resistant
- > Black and meter marked

#### Material characteristics

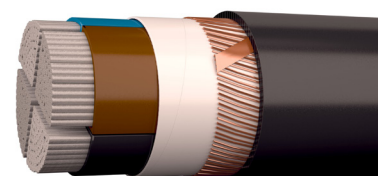
- > Flame-retardant: IEC 60332-1 & 3
- > Halogen-free: IEC 60754-1 & 2
- > Smoke density: IEC 61034
- > Corrosivity: IEC 60754-1 & 2
- > Current load: Acc. to SB 2001:6

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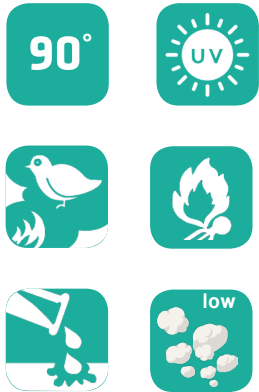
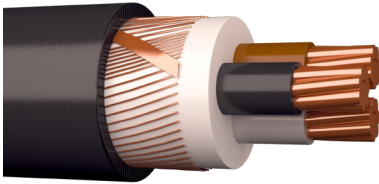
Conductor cross-section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Max. current load A	Delivery m	DoP no. link to PDF	Prysmian EAN-no.
3 x 50/15	26,4	92	146	500	1000140	7330384719407
3 x 70/21	29,9	122	187	500	1000141	7330384719414
3 x 95/29	33,5	158	227	500	1000142	7330384719421
3 x 120/41	37,4	176	263	500	1000143	7330384719438
3 x 150/41	40,8	208	304	500	1000144	7330384719445
3 x 185/57	45,4	265	347	500	1000145	7330384719452
3 x 240/72	49,7	334	409	500	1000146	7330384719469
4 x 50/15	29,7	113	146	500	1000148	7330384719483
4 x 70/21	33,6	150	187	500	1000149	7330384719490
4 x 95/29	37,7	194	227	500	1000150	7330384719506
4 x 120/41	42,2	217	263	500	1000151	7330384719513
4 x 150/41	46,2	261	304	500	1000152	7330384719520
4 x 185/57	51,3	329	347	500	1000153	7330384719537
4 x 240/72	56,2	415	409	500	1000154	7330384719544
4x300/88	61,2	538	471	500	1000155	7330384719551

\* Additional cross-sections can be ordered upon request



## FIXED INSTALLATION

### INSTALLATION CABLE HALOGEN-FREE FXQJ PURE 0,6/1 kV



#### Application

Halogen-free, flame-retardant and self-extinguishing in case of fire. Smoke emission during fire is low and transparent and not harmful to electronic equipment. Applicable as power cable for fixed installation indoors and outdoors, in pipes, ground or water as well as in switchgear and explosive environments. Can with caution be ploughed down.

#### Technical data

- > Rated voltage: 0,6/1 kV
- > Test voltage: 4000 V
- Bending radius:
  - > Fixed installation 8 x D
  - > During installation 12 x D
  - > Ploughed down: 8 x D

#### Temperature area

- > Max. conductor temperature: +90°C
- > Short circuit temperature: +250°C
- > Lowest temp. at installation: -20°C
- > Below 0°C caution must be exercised

#### Standard & Directive & Approval

Standard:

- > Cenelec HD 603 part 3, section L
- > Cenelec HD 604 - HF materials

Direktive:

- > Fulfills LVD, RoHS & REACH

CPR:

- > CE-marked acc. to class Dca-s2d2a2
- > DoP no. 1001413 - download PDF
- > [www.prysmiangroup.dk/dop](http://www.prysmiangroup.dk/dop)

#### Construction

Conductor:

- > Multi stranded annealed copper
- > Acc. to IEC/EN 60228 class 2.
- > Round

Insulation:

- > PEX

Core colouring:

- > 3-core: brown, black, grey
- > 4-core: brown, black, grey, blue

Screen:

- > Concentric screen of annealed copper wire with counter spiral of copper band

Inner sheath:

- > Halogen-free compound, extruded

Outer sheath:

- > Halogen-free compound
- > UV-resistant
- > Black and meter marked

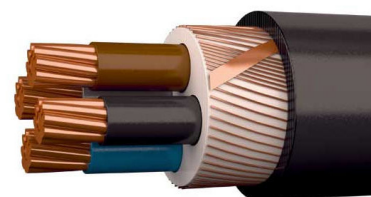
#### Material characteristics

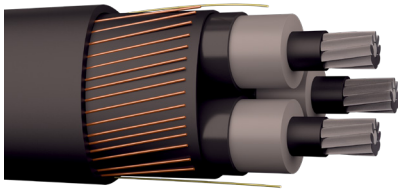
- > Flame-retardant: IEC 6332-1 & 3
- > Halogen-free: IEC 60754-1, -2
- > Smoke density: IEC 61034-1,-2
- > Corrosivity: IEC 60754-1 & 2
- > Current load: Acc. to SB 2001:6

All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.



Conductor cross section mm <sup>2</sup>	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian EAN-no.
3×2,5/2,5	12,9	245	500	K07	6430010758174
3×6/6	15,8	430	500	K09	6430010758181
3×10/10	18,3	640	500	K11	6430010758150
3×16/16	20,7	920	500	K11	6430010758167
4×2,5/2,5	13,8	285	500	K07	6430010758211
4×6/6	16,9	505	500	K09	6430010758228
4×10/10	19,7	755	500	K11	6430010758198
4×16/16	22,4	1095	500	K11	6430010758204





## BURIAL INSTALLATION

### POWER CABLE HALOGEN-FREE

## AXLJ-RMF 6/10 (12) kV

#### Application

Halogen-free and UV-stabilized 3-core cable suitable for installation in pipes, directly in the ground or for ploughing down. The conductor is longitudinal watertight.

#### Technical data

> Rated voltage: 6/12 kV

Bending radius:

- > Fixed 8 x D
- > During laying: 12 x D
- > Ploughed down: 8 x D

#### Temperature area

- > Max. conductor temperature: +90°C
- > Short-circuit temperature: +250°C
- > Lowest temp. at installation: -20°C
- > Below 0°C caution must be exercised

#### Standard & Directive

Standard:

- > Cenelec HD 620 part 10, section M

Directive:

- > Fulfills RoHS and REACH-directives

#### Construction

Conductor:

- > Stranded aluminium
- > Round and compacted
- > Acc. to IEC 60228 class 2.
- > Longitudinal watertight

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE, min. thickness 2,96 mm

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen of annealed copper wires

Draw string:

- > Kevlar

Outer sheath:

- > Composite PE
- > Black and meter marked

All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.

Conductor cross-section mm <sup>2</sup>	Diameter over Isolation mm	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian EAN-no.
3x50/16	15,3	42,4	1271	500	K18	
3x95/25	18,6	49,9	1921	500	K20	
3x150/25	21,5	56,8	2576	500	K22	
3x240/35	25,4	65,6	3587	500	K24	

Conductor cross section mm <sup>2</sup>	Conductor resistance Ω/km	Screen resistance Ω/km	Inductance mH/km	Reactance Ω/km	Capacitance μF/km	Changing current / phase A/km	Earth fault current A/km
3x50/16	0,641	1,2	0,34	0,11	0,23	0,5	1,4
3x95/25	0,32	0,8	0,31	0,1	0,3	0,6	1,8
3x150/25	0,206	0,8	0,29	0,09	0,35	0,7	2
3x240/35	0,125	0,6	0,27	0,09	0,43	0,8	2,5

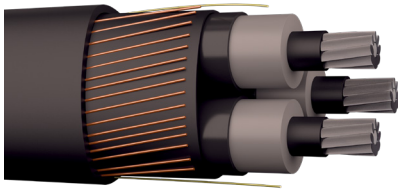
Conductor cross-section mm <sup>2</sup>	Current rating at core temperature at 90°C in ground A	Current rating at core temperature at 65°C in ground A	Current rating at core temp. temp. 65°C in air A	Current rating at core temp. temp. 90°C in air A	Max. short-circuit current at 65°C kA	Max. short-circuit current at 90°C kA	Max. pulse current kA
3x50/16	145	170	130	160	5,2	4,7	55
3x95/25	205	240	190	230	9,9	8,9	65
3x150/25	260	310	250	305	15,6	14,2	70
3x240/35	340	400	330	400	25	22,7	70

Nominal values unless otherwise specified.

Conditions:

- Maximum operating temperature 90 °C
- Soil temperature 15 °C
- Air temperature 20 °C
- Soil heat resistivity 1.0 °K \* m / W
- Accommodation depth 0.7 m
- Frequency 50 Hz





## BURIAL INSTALLATION

### POWER CABLE HALOGEN-FREE

## AXLJ-RMF 12/20 (24) kV

#### Application

Halogen-free and UV-stabilized 3-core cable suitable for installation in pipes, directly in the ground or for ploughing down. The conductor is longitudinal watertight.

#### Technical data

- > Rated voltage: 12/20 (24) kV

Bending radius:

- > Fixed 8 x D
- > During laying: 12 x D
- > Ploughed down: 8 x D

#### Temperature area

- > Max. conductor temperature: +90°C
- > Short-circuit temperature: +250°C
- > Lowest temp. at installation: -20°C
- > Below 0°C caution must be exercised

#### Standard & Directive

Standard:

- > Cenelec HD 620 part 10, section M

Directive:

- > Fulfills RoHS and REACH-direktives

#### Construction

Conductor:

- > Stranded aluminium
- > Round and compacted
- > Acc. to IEC 60228 class 2.
- > Longitudinal watertight

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE, min. thickness 4,85 mm

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen of annealed copper wires

Draw string:

- > Kevlar

Outer sheath:

- > Composite PE
- > Black and meter marked



All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.

Conductor cross-section mm <sup>2</sup>	Diameter over Isolation mm	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian EAN-no.
3x50/16	19,5	52,4	1.739	500	K20	
3x95/25	22,8	59,9	2.464	500	K22	
3x150/25	25,7	66,5	3.169	500	K24	
3x240/35	29,6	75,6	4.285	500	K26	

Conductor cross section mm <sup>2</sup>	Conductor resistance Ω/km	Screen resistance Ω/km	Inductance mH/km	Reactance Ω/km	Capacitance μF/km	Changing current / phase A/km	Earth fault current A/km
3x50/16	0,641	1,2	0,38	0,12	0,17	0,7	2,1
3x95/25	0,320	0,8	0,34	0,11	0,20	0,9	2,7
3x150/25	0,206	0,8	0,32	0,10	0,24	1,1	3,2
3x240/35	0,125	0,6	0,30	0,09	0,29	1,3	3,8

Conductor cross-section mm <sup>2</sup>	Current rating at core temperature at 90°C in ground A	Current rating at core temperature at 65°C in ground A	Current rating at core temp. temp. 65°C in air A	Current rating at core temp. temp. 90°C in air A	Max. short-circuit current at 65°C kA	Max. short-circuit current at 90°C kA	Max. pulse current kA
3x50/16	145	170	130	160	5,2	4,7	55
3x95/25	205	240	190	230	9,9	8,9	65
3x150/25	260	310	250	305	15,6	14,2	70
3x240/35	340	400	330	400	25	22,7	70

Nominal values unless otherwise specified.

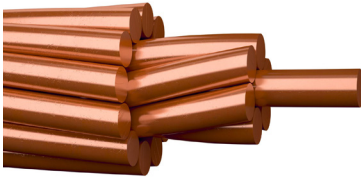
Conditions:

- Maximum operating temperature 90 °C
- Soil temperature 15 °C
- Air temperature 20 °C
- Soil heat resistivity 1.0 °K \* m / W
- Accommodation depth 0.7 m
- Frequency 50 Hz

## GROUNDING

### STRANDED ANNEALED COPPER CONDUCTOR

#### HK



#### Application

Annealed copper wire for grounding of metal parts from transformer station to different systems of railway networks.

#### Technical data

Bending radius:

- > During installation: 15 x D
- > Fixed: 10 x D

Pulling force:

- > Using eye or grip: max. 50 N/mm<sup>2</sup>

#### Standard & Directive

Standard:

- > IEC 60228

Directive:

- > Fulfills RoHS

#### Construction

Conductor:

- > Round
- > Copper wires
- > Annealed
- > Stranded acc. to IEC 60228 class 2.

All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.

Conductor cross-section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Standard length m	Prysmian EAN no.
1 x 16	5.1	145	500 - K6	6410001053167
1 x 16	5.1	145	25	6410001052054
1 x 16	5.1	145	50	6410001052061
1 x 16	5.1	145	100	6410001052078
1 x 25	6.5	225	500 - K6	6410001053273
1 x 25	6.5	225	100	6410001053259
1 x 25	6.5	225	50	6410001053242
1 x 25	6.5	225	25	6410001053235
1 x 35	7.6	315	1000 - K7	6410001053358
1 x 50	9	430	1000 - K7	6410001053501
1 x 70	11	610	1000 - K9	6410001053709
1 x 95	13	850	1000 - K11	6410001053952
1 x 120	15	1,100	500 - K11	6410001053976
1 x 150	16	1,312	500 - K11	6410001050142

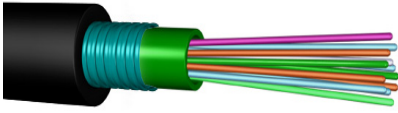




## FIXED INSTALLATION

### UC FIBRE - OUTDOOR CENTRAL TUBE CABLE

## 1000N 2-24 FIBRES LLDPE - A-DQ(ZN)B2Y



#### Application

Outdoor central tube cable with 2-24 fibres, glass elements and LLDPE sheath. Applicable for LAN and WAN backbones, telecom access lines, fibre to business and fibre to the building drop connections as well as fibre to the home drop and access connections. With its LLDPE sheathing this cable is ideal for outdoor installation where the installation conditions are not too harsh.

The cable features a high tensile strength and a degree of rodent protection, effective in many cases. It is equally suited for installation in ducts and on trays.

The cable is UV-resistant, metal-free and longitudinally watertight.

#### Standard

- > IEC 60794-1
- > ISO 11801 2nd edition
- > EN 50173-1:2002

#### Construction

Loose tube:

- > ø2.8 mm jelly filled tube with 2-16 fibres
- > ø3.5 mm loose tube with 24 fibres

Strength member:

- > Waterblocker E-Glass fiber element

Fiber colour code ø2.8 mm:

- > Red, green, blue, yellow, white, grey, brown, violet, turquoise, black, orange, pink

Fiber colour code ø3,5 mm:

- > Yellow, white, grey, turquoise, orange, pink, yellow, white, grey, turquoise, orange, pink.

Sheath:

- > LLDPE 1.0 mm
- > Acc. to IEC 60811 and IEC 60708
- > Black

#### Physical properties

Nominal outer diameter:

- > 2-16 fibres: 6,0 mm
- > 18-24 fibres: 6,5 mm

Nominal weight:

- > 2-6 fibres: 40 kg/km
- > 18-24 fibres: 45 kg/km

Tensile strength:

- > Test E1 acc. to IEC 60794-1-2
- > Max. installation: 1000 N
- > Short term: 750 N

Compressive strength (crush):

- > E3 test method: 1500 N

Impact:

- > E4 test method: 15 Nm

Torsion (E7 test method):

- > 5 cycles ± 1 turn

Kink (E10 test method):

- > No kink for loop of diameter 100mm

Bending radius (E11 test method):

- > Unloaded: min. R = 60 mm
- > Loaded: min. R = 100 mm

Temperature range (F1 test method):

- > Storage: -40°C to +60°C
- > Installation: -20°C to +40°C
- > Operations: -20°C to +60°C

Water penetration (F5B test method):

- > No water on free end

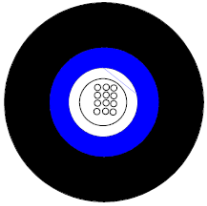
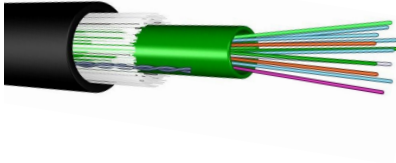
All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.

Product name: E16a datasheet	Fiber count	Fiber type	Fiber datasheet	Material code
UCFIBRE O CT D DA PE 1.0kN 2 MM51	2	OM2 50/125 multi mode 500/500	C23	1021177
UCFIBRE O CT D DA PE 1.0kN 4 MM51	4	OM2 50/125 multi mode 500/500	C23	1017451
UCFIBRE O CT D DA PE 1.0kN 6 MM51	6	OM2 50/125 multi mode 500/500	C23	1027494
UCFIBRE O CT D DA PE 1.0kN 8 MM51	8	OM2 50/125 multi mode 500/500	C23	1017452
UCFIBRE O CT D DA PE 1.0kN 12 MM51	12	OM2 50/125 multi mode 500/500	C23	1017071
UCFIBRE O CT D DA PE 1.0kN 24 MM51	24	OM2 50/125 multi mode 500/500	C23	1017122
UCFIBRE O CT D DA PE 1.0kN 6 OM3B	2	MaxCap-BB-OM3 multi mode	C31	1024672
UCFIBRE O CT D DA PE 1.0kN 12 OM3B	4	MaxCap-BB-OM3 multi mode	C31	1019213
UCFIBRE O CT D DA PE 1.0kN 24 OM3B	8	MaxCap-BB-OM3 multi mode	C31	1019214
UCFIBRE O CT D DA PE 1.0kN 4 MM61	4	OM1 62.5/125 multi mode	C02	1017063
UCFIBRE O CT D DA PE 1.0kN 6 MM61	6	OM1 62.5/125 multi mode	C02	1017065
UCFIBRE O CT D DA PE 1.0kN 8 MM61	8	OM1 62.5/125 multi mode	C02	1019212
UCFIBRE O CT D DA PE 1.0kN 12 MM61	12	OM1 62.5/125 multi mode	C02	1017069
UCFIBRE O CT D DA PE 1.0kN 16 MM61	16	OM1 62.5/125 multi mode	C02	1017120
UCFIBRE O CT D DA PE 1.0kN 24 MM61	24	OM1 62.5/125 multi mode	C02	1017542
UCFIBRE O CT D DA PE 1.0kN 2 SM2D	2	OS2 Single mode	C03e	1021176
UCFIBRE O CT D DA PE 1.0kN 4 SM2D	4	OS2 Single mode	C03e	1017064
UCFIBRE O CT D DA PE 1.0kN 6 SM2D	6	OS2 Single mode	C03e	1017066
UCFIBRE O CT D DA PE 1.0kN 12 SM2D	12	OS2 Single mode	C03e	1017070
UCFIBRE O CT D DA PE 1.0kN 16 SM2D	16	OS2 Single mode	C03e	1025745
UCFIBRE O CT D DA PE 1.0kN 24 SM2D	24	OS2 Single mode	C03e	1017121

## FIXED INSTALLATION

### UC FIBRE - OUTDOOR CENTRAL TUBE CABLE

## 1500N 2-24 FIBERS LLDPE A-DQ(ZN)B2Y



#### Application

Central tube cable with up to 24 fibers and a diameter of 2.8 or 3.5 mm. Coated glass rovings gives the cable a high tensile strength and a certain rodent protection. With its LLDPE sheathing this cable is ideal for outdoor installation. Applicable for primary area (campus backbone) for medium and long distances, with installation in ducts or trays as well as for direct burial with proper sand back filling.

The cable is UV-resistant, metal-free and longitudinally watertight.

#### Standard

- > IEC 60794-1
- > ISO 11801 2nd edition
- > EN 50173-1

#### Construction

Loose tube:

- > ø2.8 mm jelly filled with 2-16 fibres
- > ø3.5 mm loose tube with 24 fibres

Strength member:

- > Waterblocker E-Glass fiber element

Fiber colour code ø2.8 mm:

- > Red, green, blue, yellow, white, grey, brown, violet, turquoise, black, orange, pink

Fiber colour code ø3,5 mm:

- > Yellow, white, grey, turquoise, orange, pink, yellow, white, grey, turquoise, orange, pink.

Sheath:

- > LLDPE 1.2 mm
- > Acc. to IEC 60811 and IEC 60708
- > Black

#### Physical properties

Nominal outer diameter:

- > 2-6 fibres: 6,5 mm
- > 24 fibres: 7,0 mm

Nominal weight:

- > 2-6 fibres: 40 kg/km
- > 24 fibres: 45 kg/km

Maximum installation tensile strength:

- > 1500 N

Tensile strength (E1 test method):

- > Dynamic: 1000 N
- > Permanent: 750 N

Compressive strength (crush):

- > E3 test method: 2000 N

Impact:

- > E7 test method: 20 Nm

Torsion (E7 test method):

- > 5 cycles ± 1 turn

Kink (E10 test method):

- > No kink for loop of 200 mm

Bending radius (E11 test method):

- > Unloaded: min. R = 60 mm
- > Loaded: min. R= 100 mm

Temperature range (F1 test method):

- > Storage: -40°C to +60°C
- > Installation: -15°C to +40°C
- > Operations: -30°C to +60°C

Water penetration (F5B test method):

- > No water on free end

All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.



Product name: Datasheet E08a	Fiber count	Fiber type	Fiber datasheet	Material code
UCFIBRE O CT D DA PE 1.5kN 2 OM2B	2	MaxCap-BB-OM2 multi mode	C34	60029226
UCFIBRE O CT D DA PE 1.5kN 4 OM2B	4	MaxCap-BB-OM2 multi mode	C34	60011397
UCFIBRE O CT D DA PE 1.5kN 6 OM2B	6	MaxCap-BB-OM2 multi mode	C34	60011378
UCFIBRE O CT D DA PE 1.5kN 8 OM2B	8	MaxCap-BB-OM2 multi mode	C34	60018763
UCFIBRE O CT D DA PE 1.5kN 12 OM2B	12	MaxCap-BB-OM2 multi mode	C34	60011380
UCFIBRE O CT D DA PE 1.5kN 16 OM2B	16	MaxCap-BB-OM2 multi mode	C34	60019409
UCFIBRE O CT D DA PE 1.5kN 24 OM2B	24	MaxCap-BB-OM2 multi mode	C34	60011385
UCFIBRE O CT D DA PE 1.5kN 2 OM3B	2	MaxCap-BB-OM3 multi mode	C31	60020590
UCFIBRE O CT D DA PE 1.5kN 4 OM3B	4	MaxCap-BB-OM3 multi mode	C31	60020056
UCFIBRE O CT D DA PE 1.5kN 8 OM3B	8	MaxCap-BB-OM3 multi mode	C31	60028116
UCFIBRE O CT D DA PE 1.5kN 12 OM3B	12	MaxCap-BB-OM3 multi mode	C31	60019415
UCFIBRE O CT D DA PE 1.5kN 24 OM3B	24	MaxCap-BB-OM3 multi mode	C31	60019416
UCFIBRE O CT D DA PE 1.5kN 4 OM4B	4	MaxCap-BB-OM4 multi mode	C32	60019381
UCFIBRE O CT D DA PE 1.5kN 8 OM4B	8	MaxCap-BB-OM4 multi mode	C32	60019382
UCFIBRE O CT D DA PE 1.5kN 12 OM4B	12	MaxCap-BB-OM4 multi mode	C32	
UCFIBRE O CT D DA PE 1.5kN 16 OM4B	16	MaxCap-BB-OM4 multi mode	C32	
UCFIBRE O CT D DA PE 1.5kN 24 OM4B	24	MaxCap-BB-OM4 multi mode	C32	
UCFIBRE O CT D DA PE 1.5kN 2 MM61	2	OM1 62.5/125 multi mode	C02	60019593
UCFIBRE O CT D DA PE 1.5kN 4 MM61	4	OM1 62.5/125 multi mode	C02	60011341
UCFIBRE O CT D DA PE 1.5kN 6 MM61	6	OM1 62.5/125 multi mode	C02	60018761
UCFIBRE O CT D DA PE 1.5kN 8 MM61	8	OM1 62.5/125 multi mode	C02	60018819
UCFIBRE O CT D DA PE 1.5kN 12 MM61	12	OM1 62.5/125 multi mode	C02	60018766
UCFIBRE O CT D DA PE 1.5kN 24 MM61	24	OM1 62.5/125 multi mode	C02	60018844
UCFIBRE O CT D DA PE 1.5kN 2 SM2D	2	OS2 Single mode	C03e	60018939
UCFIBRE O CT D DA PE 1.5kN 4 SM2D	4	OS2 Single mode	C03e	60018842
UCFIBRE O CT D DA PE 1.5kN 6 SM2D	6	OS2 Single mode	C03e	60018762
UCFIBRE O CT D DA PE 1.5kN 8 SM2D	8	OS2 Single mode	C03e	60018764
UCFIBRE O CT D DA PE 1.5kN 12 SM2D	12	OS2 Single mode	C03e	60018767
UCFIBRE O CT D DA PE 1.5kN 16 SM2D	16	OS2 Single mode	C03e	60018843
UCFIBRE O CT D DA PE 1.5kN 24 SM2D	24	OS2 Single mode	C03e	60018769
UCFIBRE O CT D DA PE 1.5kN 4 SM7B	4	BendBright XS G.657.A2	C24	
UCFIBRE O CT D DA PE 1.5kN 6 SM7B	6	BendBright XS G.657.A2	C24	60031854
UCFIBRE O CT D DA PE 1.5kN 8 SM7B	8	BendBright XS G.657.A2	C24	
UCFIBRE O CT D DA PE 1.5kN 12 SM7B	12	BendBright XS G.657.A2	C24	
UCFIBRE O CT D DA PE 1.5kN 16 SM7B	16	BendBright XS G.657.A2	C24	
UCFIBRE O CT D DA PE 1.5kN 24 SM7B	24	BendBright XS G.657.A2	C24	

## Properties of TECSUN (PV) H1Z2Z2-K acc. to DIN EN 50618

### Electrical Parameters

#### Voltage Rating

Rated voltage DC	Rated voltage AC	Max. permissible operating voltage DC	Max. permissible operating voltage AC	Test voltage
$U_0/U$	$U_0/U$	$U_0/U$	$U_0/U$	
1,5/1,5 kV	1,0/1,0 kV	1,8/1,8 kV	1,2/1,2 kV	AC: 6,5 kV (5 min.) DC: 15 kV (5 min.)

#### Current Carrying Capacity

The current carrying capacity values (in ampere) for each installation method at an ambient temperature of 60°C are according to EN50618, Table A3.

Number of cores x nominal cross section	Single cable free in air	Single cable on surface	Two loaded cables touching, on a surface
1 x 1,5	30	29	24
1 x 2,5	41	39	33
1 x 4	55	52	44
1 x 6	70	67	57
1 x 10	98	93	79
1 x 16	132	125	107
1 x 25	176	167	142
1 x 35	218	207	176
1 x 50	276	262	221
1 x 70	347	330	278
1 x 95	416	395	333
1 x 120	488	464	390
1 x 150	566	538	453
1 x 185	644	612	515
1 x 240	775	736	620

#### Long-Term Immersion in Water

TECSUN (PV) cables are tested for minimum 10 days completely immersion in water at 85°C, with 1,8kV DC voltage applied.

#### De-rating Factors

De-rating factors are used to properly calculate the current carrying capacity, taking into account the installation and operating conditions. In case of use at an ambient temperature greater than 60°C, please consider the de-rating factors indicated in EN50618, Table A4. For installation in groups, the de-rating factors from HD60364-5-52 apply.

Ambient temperature (°C)	Reduction factor
up to 60	1,00
70	0,92
80	0,84
90	0,75

## Properties of TECSUN (PV) H1Z2Z2-K acc. to DIN EN 50618

### Mechanical Parameters

#### Tensile Load

The maximum tensile load on the TECSUN (PV) cables is equal to  $15 \text{ N/mm}^2$  in operation and  $50 \text{ N/mm}^2$  only during installation, according to HD 516, DIN VDE 0298-3 and DIN VDE 0298-300.

#### Bending Radius

The minimum bending radius is indicated as the product of the overall diameter of the finished cable (D) and a factor (i.e.  $3 \times D$ ). For TECSUN (PV) the minimum bending radius according to EN 50565-1, is  $3 \times D$  (for  $D \leq 12 \text{ mm}$ ) or  $4 \times D$  (for  $D > 12 \text{ mm}$ ). Smaller bending radii than permitted can cause a reduced service lifetime.

#### Mechanical Characteristics of Insulation and Sheathing Materials

The properties of the materials (tensile strength and elongation at break) are tested before and after ageing. Hot-Set test and thermal endurance test are performed in addition.

#### Abrasion Resistance

TECSUN (PV) cables are tested against several abrasive materials:

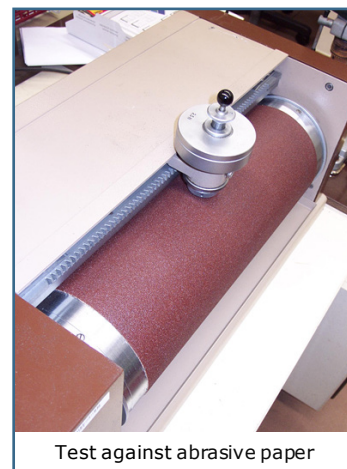
- sheath against abrasive paper
- sheath against sheath
- sheath against metal
- sheath against plastics

#### Additional Tests

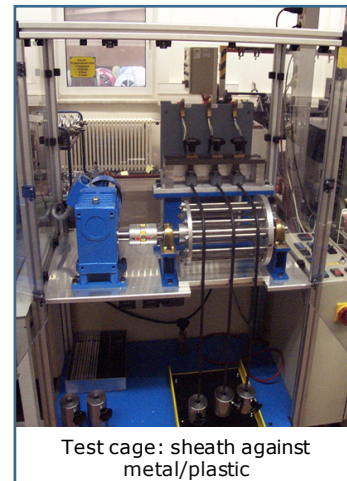
- Shrinkage Test
- Pressure Test at High Temperature
- Dynamic Penetration Test
- Durability of Print
- Sheath-Hardness



Tensile testing equipment



Test against abrasive paper



Test cage: sheath against metal/plastic

## Properties of TECSUN (PV) H1Z2Z2-K acc. to DIN EN 50618

### Thermal Parameters

#### Maximum Temperature of the Conductor during Operation

TECSUN (PV) cables are designed to operate at 90°C for a total lifetime equal to 30 years, according to Arrhenius-Diagram (EN 50618 requires a minimum of 25 years). For a maximum of 20.000 hours (= 2,3 years) the cables can operate at a maximum conductor temperature of 120 °C.

#### Maximum Temperature of the Conductor during Short Circuit

The maximum permitted short-circuit temperature is 250°C, for a duration of 5 seconds.

#### Ambient Temperature

The temperature range on the surface of the cable during operation is from -40°C to +90°C. During installation and handling, the range is from -25°C to +60°C.

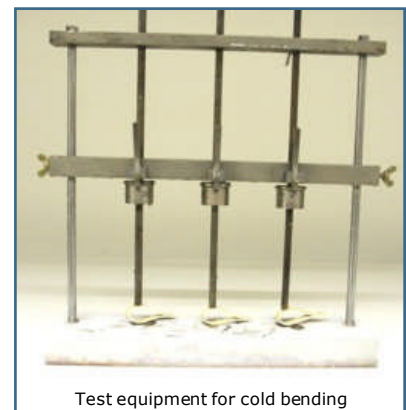
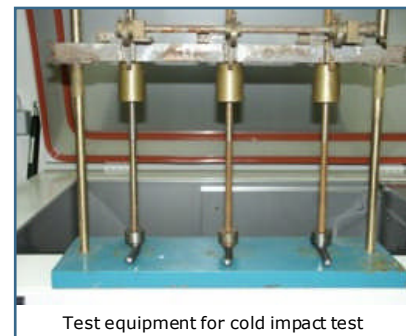
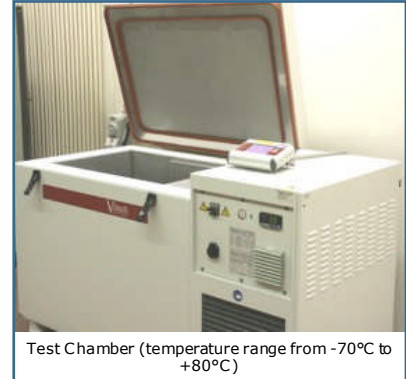
#### Resistance to Cold

The following tests are performed on TECSUN (PV) cables:

- Cold impact at -40°C
- Cold bending at -40°C
- Cold elongation at -40°C

#### Damp Heat Test

Mechanical properties of the materials are tested after a 1.000 hours conditioning at +90°C and 85% relative humidity.





## Properties of TECSUN (PV) H1Z2Z2-K acc. to DIN EN 50618

### Chemical Parameters

#### Behaviour against Fire

TECSUN (PV) cables are tested for flame propagation on single cable according to EN 60332-1-2 and on multiple cable according to EN 50305-9. The smoke density is tested according to EN 61034-2, with light transmittance > 70%. The cables are halogen-free according to EN 50525-1 - Annex B, and with a toxicity index < 3 (per EN 50305).

#### Oil Resistance

In addition to the normative requirements, sheathing material is tested for 24 hours immersion in oil at 100°C.

#### Weather Resistance

External agents related to weather conditions (such as UV radiations, ozone and water) can degrade the rubber materials, causing a reduction of the performances of the cables. Therefore TECSUN (PV) cables are tested in order to ensure:

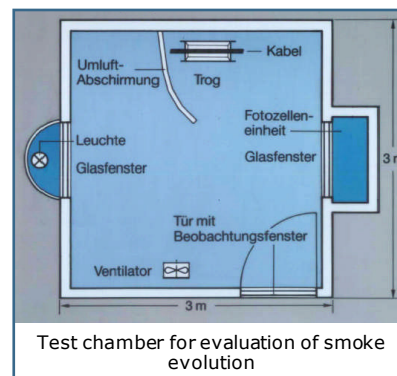
- Ozone resistance: complete cable has no cracks after 72 hours at 40°C, with 55% relative humidity and 2ppm of ozone concentration
- UV resistance: tensile strength and elongation at break are measured after a conditioning of 720 hours (360 cycles) exposed to UV light

#### Acid and Alkaline Resistance

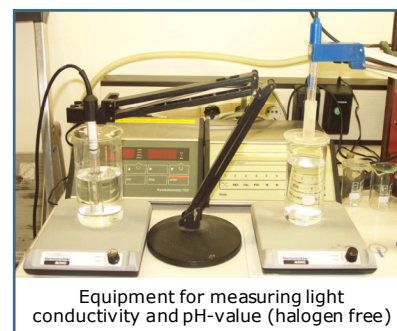
Resistance of the sheathing material against a 23°C acid (N-Oxalic Acid) and alkaline solution (N-Sodium Hydroxide) is tested for 7 days.

#### Ammonia Resistance

In addition to the normative requirements, TECSUN (PV) is tested for 30 days in saturated ammonia atmosphere.



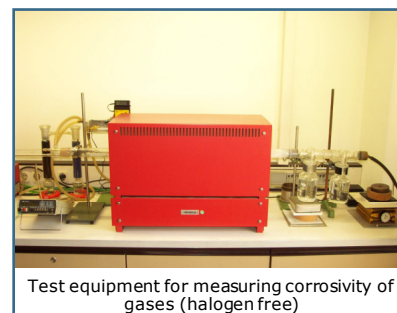
Test chamber for evaluation of smoke evolution



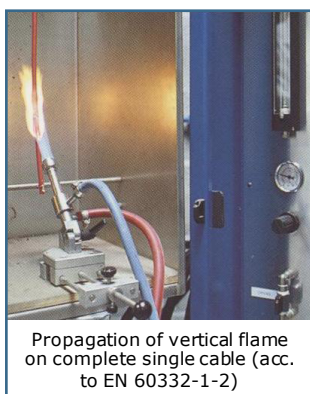
Equipment for measuring light conductivity and pH-value (halogen free)



Test chamber for UV test



Test equipment for measuring corrosivity of gases (halogen free)



Propagation of vertical flame on complete single cable (acc. to EN 60332-1-2)

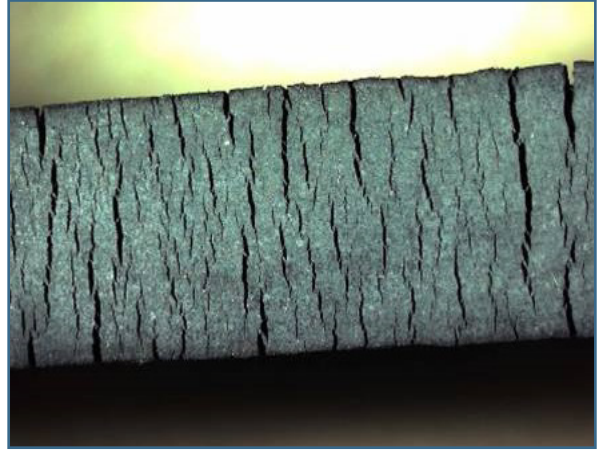


Test chamber for ozone test

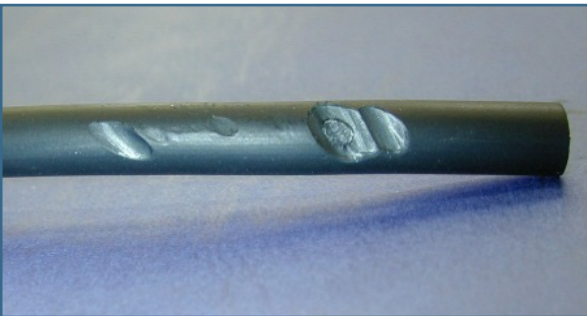
**Ageing and Misuse Effects**



**Cable overheating effect**



**Ozone damage effect**



**Cable overheating effect**



**Ozone damage effect**



**Cable handling misuse - bending radius too small**



**Installation misuse - violent pressure**



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