

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 provide major global organisations in many industries with best-in-class cable solutions, based on state-of-the-art technology.

Through two renowned commercial brands - Prysmian and Draka - based in almost 50 countries, we're constantly close to our customers, enabling them to further develop the world's energy and telecoms infrastructures, and achieve sustainable, 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, meeting and exceeding the precise needs of our customers across all continents, at the same time shaping 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 around the globe convert these new opportunities into reality.

Our technologies - which cover cables used in photovoltaic plants - are at work 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 planet, we're constantly driving innovation in our industry, aiming to help renewable industry partners deliver projects with benefits for the future of both our world and their businesses.





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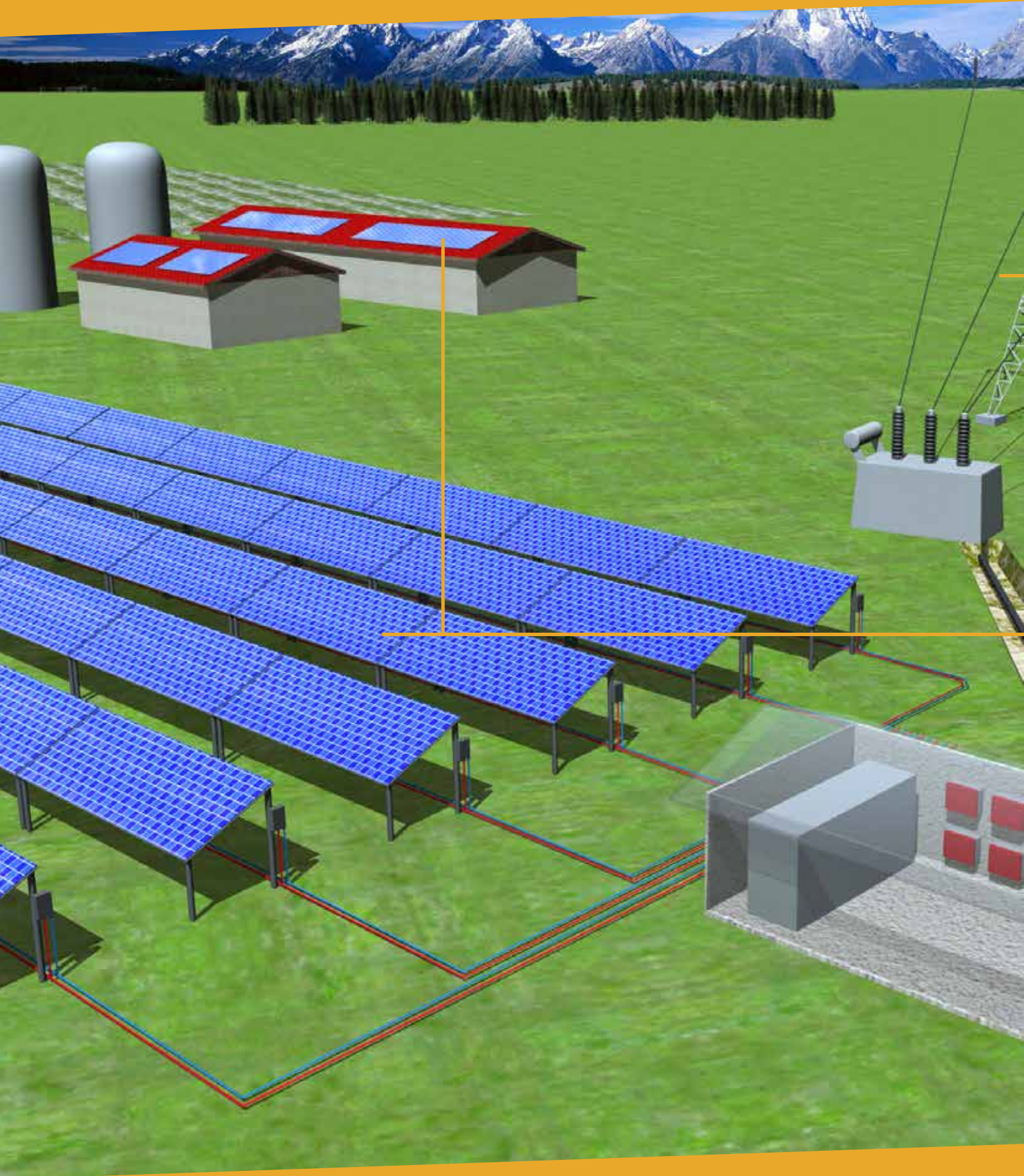
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Photovoltaic system



*„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

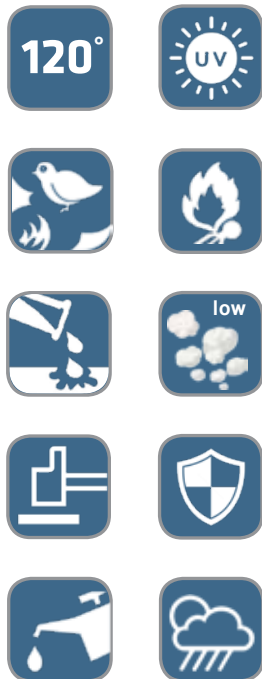


Special Cables

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
- > Color: 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 & 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 parametersMax. tensile load 15 N/mm² in operation:

- > 50 N/mm² 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



TECSUN (PV)					
Conductor Cross-section mm ²	Sheath colour	Outer diameter Min. mm	Outer diameter max.mm	Bending Radius Fixed mm	Weight Kg/km
1x1,5	Black	4.4	5.0	15	40
1x2,5	Black	4.8	5.4	17	50
1x4	Black, Blue, Red	5.3	5.9	18	70
1x6	Black, Blue, Red	5.8	6.4	20	80
1x10	Black, Blue, Red	7,0	7.6	23	130
1x16	Black	9,0	9.8	30	200
1x25	Black	10.4	11.2	34	290
1x35	Black	11.7	12.5	50	400
1x50	Black	13.5	14.5	58	550
1x70	Black	15.5	16.5	66	750
1x95	Black	17.7	18.7	75	970
1x120	Black	19.2	20.4	82	1220
1x150	Black	21.4	22.6	91	1510
1x185	Black	23.7	25.1	101	1850
1x240	Black	27.1	28.5	114	2400

TECSUN (PV)(C)					
1x4 (C)	Black	6	6.6	26,4	90
1x6 (C)	Black	6,5	7,1	28,4	110

TECSUN (PV)					
Conductor Cross-section mm ²	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/mm² in operation
 - > Max. 50 N/mm² 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

Fire 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	Conductor diameter max. mm	Outer diameter min.mm	Outer diameter max.mm	Bending radius fixed min.mm	Weight Kg/km
1x25	6.3	13.2	14.4	87	380
1x35	7.4	14.3	15.5	93	470
1x50	8.9	15.6	17.1	103	640
1x70	10.6	17.1	19.1	115	820
1x95	12.1	19.4	21.4	129	1060
1x120	14.2	21.5	23.5	141	1320
1x150	15.8	23.1	25.1	151	1590
1x185	17.4	25.1	27.1	163	1910
1x240	20.2	28	30	180	2450
1x300	22.9	31	34	204	3030

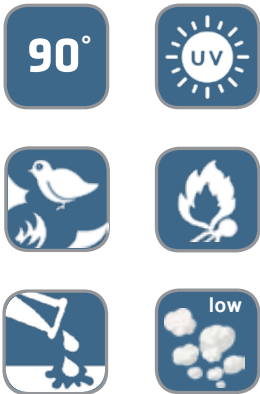
Conductor cross section mm	Permissible tensile force max.N	Conductor resistance 20°C max Ω/km	Current carrying cap. Air A	Short circuit current 90-250°C kA
1x25	375	0.795	176	3.58
1x35	525	0.565	218	5.01
1x50	750	0.393	276	7.15
1x70	1050	0.277	347	10.01
1x95	1425	0.21	416	13.59
1x120	1800	0.164	488	17.16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

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FIXED INSTALLATION

INSTALLATION CABLE HALOGEN-FREE HIK AL-M 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 cable pipes, trays or directly 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 tempe. at installation: -20°C
- > Below 0°C caution must be exercised

Standard & Directive & Approval

Standard:

- > Cenelec HD 604-5D, IEC 60502-1
- > Cenelec N1ZC7Z1-U (R-S), N1ZA5Z1-U

Directive:

- > Fulfills LVD, RoHS & REACH

CPR:

- > CE-marked acc. to class Eca
- > DoP no. 1002845 (≤25 mm²) [download](#)
- > DoP no. 1004273 (≥50 mm²) [download](#)
- > DoP finder: www.dop.prysmian.dk

Construction

Conductor:

- > Solid annealed aluminium
- > Acc. to IEC 60228 class 1.
- > From 16-25mm² : round
- > From 150-240mm² : sector shaped

Insulation:

- > PEX

Core coloring:

- > 4-core: brown, black, grey, blue
- > 5-core: brown, black, grey, blue, yellow/green

Separator:

- > Plastic tape

Outer sheath:

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

Material characteristics

- > Fire 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 ²	Outer diameter mm	Weight kg/km	Max. Current load A	Delivery m	Prysmian EAN-no.
4 x 16	20,0	506	77	T1000	4741532901002
5 G 16	21,3	582	77	T1000	4741532901026
4 x 25	24,0	740	97	T1000	4741532901019
5 G 25	25,6	856	97	T1000	4741532901033
4 x 50	25,4	775	146	T1000	5701498014849
4 x 95	33,2	1393	227	T1000	5701498014887
4 x 150	40,1	2104	304	T1000	5701498014931
4 x 240	49,7	3485	409	T1000	5701498014986



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 cable pipes, trays or directly 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

Norm:

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

Direktive:

- > Fulfills LVD, RoHS & REACH

CPR:

- > CE-mræket iht. klasse Eca
- > DoP nr. 1002844 - [download PDF](#)
- > DoP finder: www.dop.prysmian.dk

Construction

Conductor:

- > Stranded annealed aluminium
- > Acc. to EC 60228 class 2.
- > From 50-240 mm²: sector shaped

Insulation:

- > PEX

Core coloring:

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

Seperator:

- > Plastic tape

Outer sheath:

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

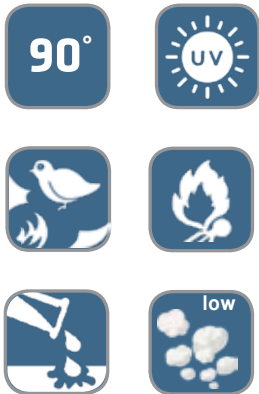
Material characteristics

- > Fire retardand: 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 ²	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 (facilitates evacuation) 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.

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-direktives
- CPR
- > CE-marked acc. to class Dca-s2d2a2
 - > DoP no. see table
 - > DoP finder: www.dop.prysmian.dk

Construction

Conductor:

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

Insulation:

- > PEX

Core coloring:

- > 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

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

DoP classification

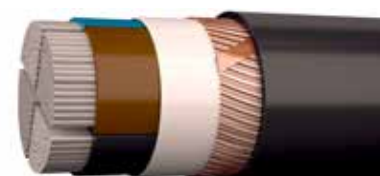
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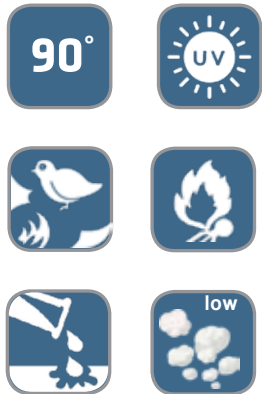
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Conductor cross-section mm ²	Outer diameter mm	Weight kg/km	Max. Current load A	Delivery m	DoP no. link to PDF	Prysmian EAN-no.
3 x 50/15	26,4	92	146	500	1000140	7330384719407
3 x 70/21	29,9	122	187	500	1000141	7330384719414
3 x 95/29	33,5	158	227	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, transparent (facilitates evacuation) 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.

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. see table
- > DoP finder: www.dop.prysmian.dk

Construction

Conductor:

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

Insulation:

- > PEX

Core coloring:

- > 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

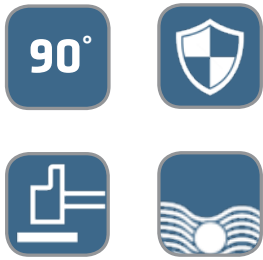
- > Fire retardant: IEC 6332-1 & 3
- > Halogen-free: IEC 60754-1, -2
- > Smoke density: IEC 61034-1,-2
- > Corrosivity: IEC 60754-1 & 2
- > Current load: Acc. to SB 2001:6

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	Outer diameter mm	Weight Kg/km	Delivery length m	Drum size	DoP no. link to PDF.	Prysmian EAN-no.
3×2,5/2,5	12,9	245	500	K07		
3×6/6	15,8	430	500	K09		
3×10/10	18,3	640	500	K11		
3×16/16	20,7	920	500	K11		
4×2,5/2,5	13,8	285	500	K07		
4×6/6	16,9	505	500	K09		
4×10/10	19,7	755	500	K11		
4×16/16	22,4	1095	500	K11		





FIXED INSTALLATION

POWER CABLE HALOGEN-FREE AXLJ-RMF 6/10 (12) kV

Application

AXLJ-RMF is a 3-core cable designed for replacement of bare overhead lines. Primary developed to be ploughed down but thanks to the robust design the cable can stand the stresses that appears when laid in water with moderate currents and limited depth.

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

Direktive:

- > Fulfills LVD
- > Fulfills RoHS and REACH-direktives

Construction

Conductor:

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

Inner conductive layer:

- > Sprayed

Insulation:

- > XLPE, thickness 2,96 mm

Outer conductive layer:

- > Adherent

Separator:

- > Conductive tape

Core coloring:

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

Screen:

- > Concentric screen of annealed copper wires

Draw string:

- > Kevlar

Outer sheath:

- > Composite PE
- > Black, 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	Diameter over Isolation mm	Outer diameter mm	Weight Kg/km	Standard delivery m	Drum size	Prysmian EAN-no.
3x50/16	15,3	42,4	1271	500	K18	70710
3x95/25	18,6	49,9	1921	500	K20	71800
3x150/25	21,5	56,8	2576	500	K22	70730
3x240/35	25,4	65,6	3587	500	K24	71810

Conductor cross section mm	Conductor resistance Ω /km	Screen resistance Ω /km	Inductance mH/km	Reactance Ω /km	Capacitance μ F/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	Current rating at core temp. 65°C in ground A	Current rating at core temp. 65°C in air A	Current rating at core 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	130	160	5,2	4,7	55
3x95/25	205	190	230	9,9	8,9	65
3x150/25	260	250	305	15,6	14,2	70
3x240/35	340	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 0.65 m
- Frequency 50 Hz

FIXED INSTALLATION

UC FIBRE - OUTDOOR CENTRAL TUBE CABLE

1000N 2-24 FIBRES LLDPE - A-DQ(ZN)B2Y (E16a)



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 also UV-resistant, metal-free and longitudinally watertight.

Standard

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

Construction

Loose tube:

- > $\varnothing 2.8$ mm jelly filled tube with 2-16 fibres
- > $\varnothing 3.5$ mm loose tube with 24 fibres

Strength member:

- > Waterblocker E-Glass fiber element

Fiber color code $\varnothing 2.8$ mm:

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

Fiber color code $\varnothing 3,5$ 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 $+60^{\circ}\text{C}$
- > Installation: -20°C to $+40^{\circ}\text{C}$
- > Operations: -20°C to $+60^{\circ}\text{C}$

Water penetration (F5B test method):

- > No water on free end

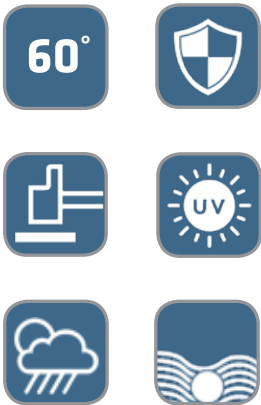
All information is presumed accurate upon issuing. Prysmian Group reserves the right to change in specifications without prior warning. Product specifications are not contractually binding without prior permission from Prysmian Group.

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 (E08a)



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 also 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 color code ø2.8 mm:

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

Fiber color 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 immersed 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 shall 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 N/mm^2 in operation and 50 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
- Shore-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.

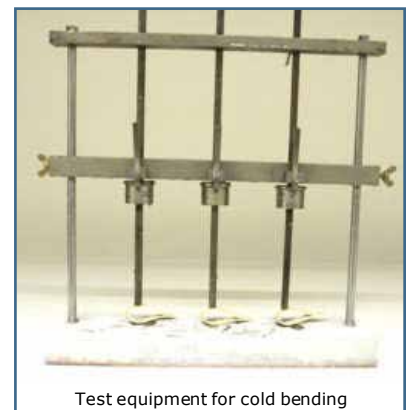
Resistance to Cold

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 cables according to EN 50305-9. The smoke evolution 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:

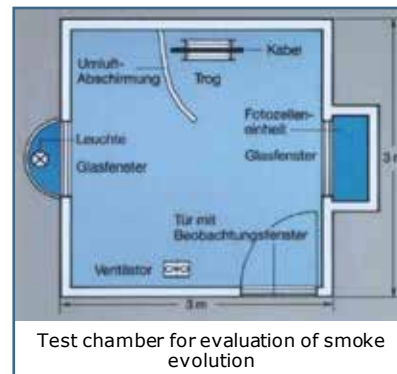
- Ozone resistance: complete cable has no cracks after 72 hours at 40°C, with 55% relative humidity and 2ppm of ozone concentration
- UV resistance: tensile strength and elongation at break are measured after a conditioning of 720 hours (360 cycles) exposed to UV light

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

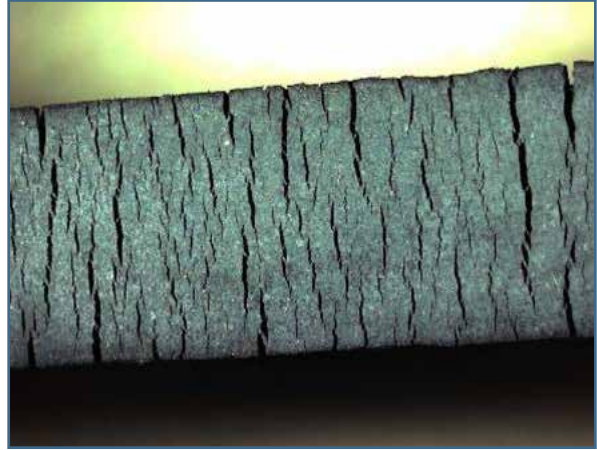
In addition to the normative requirements, TECSUN (PV) is tested for 30 days in saturated ammonia atmosphere.



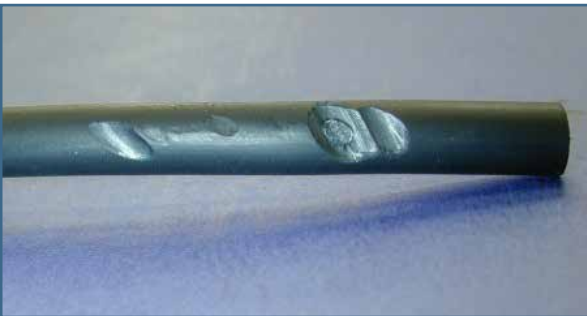
Ageing and Misuse Effects



Cable overheating effect



Ozone damage effect



Cable overheating effect



Ozone damage effect



Cable handling misuse - bending radius too small



Installation misuse - violent pressure

Linking the future

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