



# SOLAR ENERGY CABLES

For panels, inverters, transformers and communications



# CONNECT TO LEAD

As the worldwide leader in energy and telecom cable solutions, Prysmian 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 organisations within multiple industries with best-in-class products and services, based on state-of-the-art technology.

The challenge and opportunity before us require us to harness the power of human ingenuity to drive new forms of energy and information, to each and every corner of the earth.

At Prysmian we want to lead the energy transition and digital transformation and we are evolving our brand to reflect this ambition.

Through our knowledge, innovation and reach, we connect people and businesses with the energy and information they need.

Pushing the boundaries of electrification and digitalisation, our cables are powering the circular economy, focusing on what matters most, wherever you are.

We help drive new energy and communications to wherever it is needed.

Together, we can lead the shift to a more sustainable way of living, that we and our planet so clearly need.

Together, we can navigate the way for-

To meet an ever-growing need for power, the world is increasingly turning to renewable and sustainably sourced solar energy.

Prysmian's cables are helping businesses in the renewable industry to convert this opportunity into reality.

Our technologies, which cover cables used in photovoltaic plants, support the operations of contractors and developers, grid operators, transmission and distribution system operators and panel makers.

Always aware of our responsibility to the planet, we are 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

The choice of components is critical in any PV system. Good quality and properly sized cables provide optimized safety and longerlasting systems.

Solar PV cables are often exposed to harsh environmental conditions: UV radiation, moisture, temperature fluctuations as well as wind, snow and rain. Inadequate or low-quality cables can deteriorate quickly, thus reducing a system's power generation capacity and, therefore, its revenues.

Every KW lost in generation due to poor quality cables is a loss in terms of return on investment.

Cables are one of the first components of a system to show failures, causing power generation disruptions and implying high replacement costs related not only to the replacement of cables, but also, and mostly, to the works required and the possible collateral damages on panels or other components.





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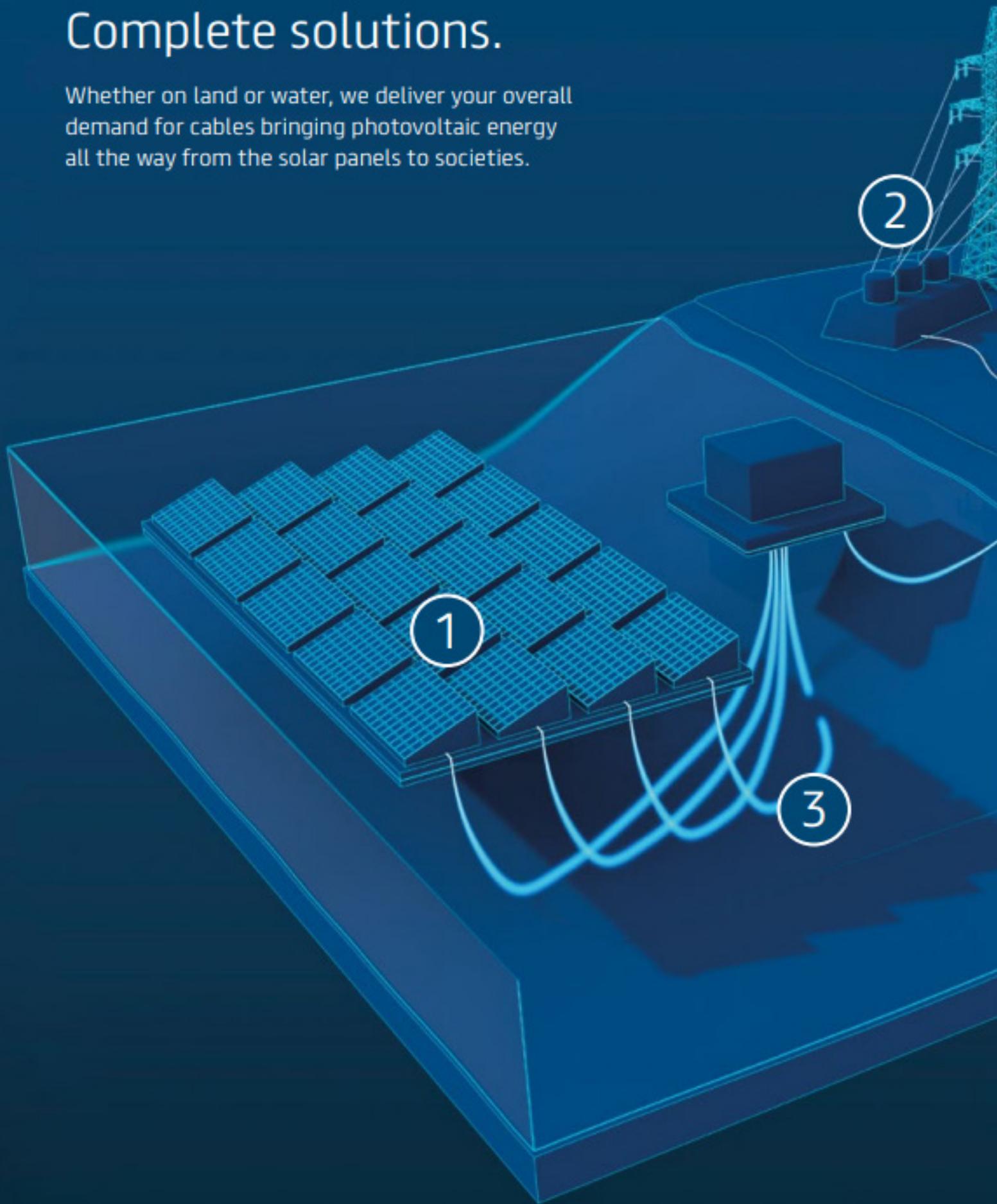
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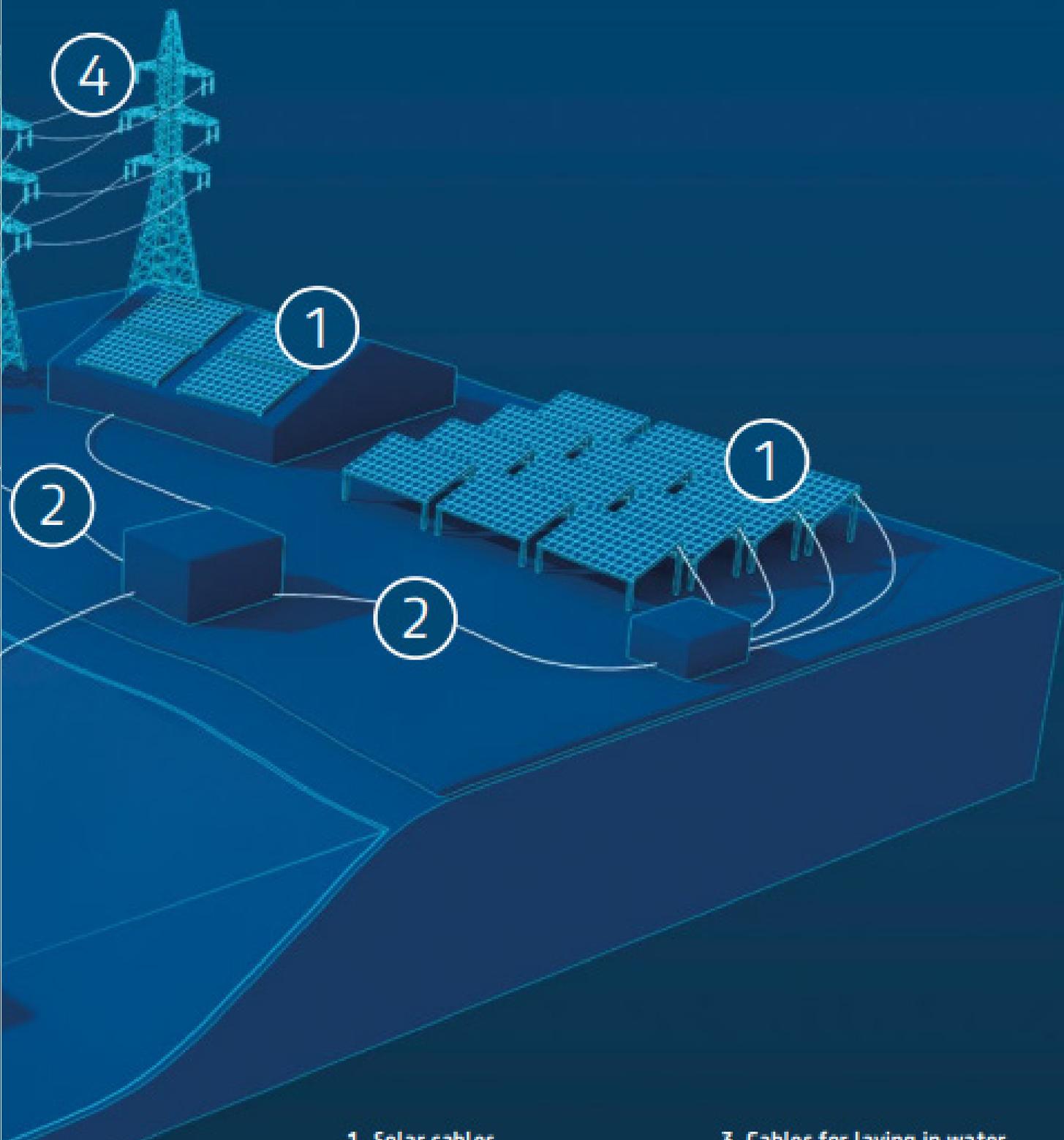
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# Complete solutions.

Whether on land or water, we deliver your overall demand for cables bringing photovoltaic energy all the way from the solar panels to societies.





**1. Solar cables**

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

**2. Energy cables**

- Low voltage
- Medium voltage
- High voltage

**3. Cables for laying in water**

TECSUN (PV) H1Z2Z2-K

# TECSUN (PV) H1Z2Z2-K

## 1.5 kV DC Eca

### Solar panel cable

EN 50618



#### DESIGN & CONSTRUCTION

- Standard: DIN EN 50618
- Directive: CE, RoHS, REACH
- Approval: VDE, TÜV-certificate no. 60103637
- CPR tested acc. to EN 50575
- Adheres to RoHS & REACH



#### APPLICATION

Prysmian solar cable 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.

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

- > Rated voltage: 1.5 kV DC / 1.0 kV AC
- > Max. voltage: 1.8 kV DC / 1.2 kV AC
- > Test voltage: 6.5 kV
- > Current carrying cap: EN 50618, A-3
- > Electrical tests: EN 50618, Table 2:

#### TEMPERATURE

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

#### CONSTRUCTION

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

#### INSULATION

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

#### 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

#### FIRE RESISTANCE

- > Acc. to EN 50618, Table 2
- > Single Cable Flame Test: EN 60332-1-2
- > Low Smoke EN 61034-2 (Light Transmittance > 70%)
- > Halogen-free per EN 50525-1, Annex B.
- > Multiple Cable Flame Test: EN 50305-9
- > Low Toxicity per EN 50305 (ITC < 3)
- > CPR fire class Eca acc. to EN 50575
- > DoP no. 1007351

#### OIL RESISTANCE

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

#### WEATHER RESISTANCE

- > 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).
- > 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

- > Internal test: 30 days in saturated ammonia atmosphere. > TECSUN (PV) PV complies with the RoHS directive 2011/65/EU.

#### THERMAL RESISTANCE

- > Cold resistance 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. EN 60811-506, 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).

#### TENSILE LOAD

- > In operation: max 15 N/mm<sup>2</sup>
- > During installation: max 50 N/mm<sup>2</sup> acc. to 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

Abrasion resistance test acc. to DIN ISO 4649 against

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

#### SHRINKAGE

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

#### PRESSURE

- > Pressure test at high temperature -
- > 50% acc. to EN 60811-508.

#### IMPACT

- > Dynamic penetraton test acc. to EN 50618, Annex D meets requirements of EN 50618.
- > Shore hardness type A: 85 acc. to DIN EN ISO 868

#### DURABILITY OF PRINT:

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

# TECSUN (PV) H1Z2Z2-K



## 1.5 kV DC Eca

### Solar panel cable

EN 50618

DELIVERY DETAILS							
Conductor cross-section mm <sup>2</sup>	Sheath colour	Outer diameter min. mm	Outer diameter max.mm	Bending radius fixed mm	Weight Kg/km	Standard length m	Prysmian SAP no.
1x4	Black	5.3	5.9	18	70	1000	20197214
1x4	Black	5.3	5.9	18	70	5000	20169632
1x4	Black	5.3	5.9	18	70	500	20149014
1x4	Red	5.3	5.9	18	70	500	20165491
1x4	Red	5.3	5.9	18	70	1000	20197215
1x4	Red	5.3	5.9	18	70	5000	20175536
1x4	Blue	5.3	5.9	18	70	500	20165492
1x6	Red	5.8	6.4	20	80	500	20165494
1x6	Blue	5.8	6.4	20	80	1000	20197216
1x6	Black	5.8	6.4	20	80	5000	20169633
1x6	Black	5.8	6.4	20	80	500	20165494
1x6	Black	5.8	6.4	20	80	1000	20197216
1x6	Red	5.8	6.4	20	80	5000	20169633
1x6	Red	5.8	6.4	20	80	500	20144915
1x6	Red	5.8	6.4	20	80	1000	20197217
1x10	Black	7.0	7.6	23	130	500	20165493
1x10	Red	7.0	7.6	23	130	5000	20175537
1x16	Black	9.0	9.8	30	200	1000	
1x25	Black	10.4	11.2	34	290	1000	20154859
1x35	Black	11.7	12.5	50	400	1000	
1x50	Black	13.5	14.5	58	550	1000	20154860
1x70	Black	15.5	16.5	66	750	1000	
1x95	Black	17.7	18.7	75	970	1000	
1x120	Black	19.2	20.4	82	1220	1000	
1x150	Black	21.4	22.6	91	1510	1000	
1x185	Black	23.7	25.1	101	1850	1000	
1x240	Black	27.1	28.5	114	2400	1000	

#### TECSUN (PV)(C)

1x4 (C)	Black	6	6.6	26.4	90	1000	
1x6 (C)	Black	6.5	7.1	28.4	110		



# TECSUN URBAN (PV) H1Z2Z2-K 1.5 kV DC Eca



Solar panel cable

EN 50618



## DESIGN & CONSTRUCTION

- Standard: DIN EN 50618
- Standard EN 62930
- CPR fire class Eca
- Approved by HAR & TÜV
- Adheres to RoHS & REACH



## APPLICATION

The Tecsun Urban is an UV-resistant, halogen-free solar cable, suitable for use in photovoltaic power supply systems, indoor and/or outdoor.

With its class 5 conductor and state of the art compound system, the cable offers excellent flexibility even in cold conditions.

Tecsun Urban is an excellent choice for e.g. rooftop installations with HAR and TÜV approval.

The cables may be installed fixed, freely suspended or free moveable, in cable trays, conduits or on walls. The cable is water resistant and AD8 approved acc. EN 50525- 2-21 (50°C, 100days) and if protected properly and

installation is done acc. applicable standards and rules, the cable can be laid directly into the ground .

The expected lifetime under normal conditions is min. 25 years and the operating temperature of the cable is from -40°C up to 90°C (120°C for min. 20,000h).

## TECHNICAL

- > Rated voltage: 1.5 kV DC /1.0 kV AC
- > Max. voltage: 1.8 kV DC /1.2 kV AC
- > Test voltage: 4.0 kV
- > Current carrying cap: EN 50618, A-3
- > Electrical tests: EN 50618, Table 2:

## TEMPERATURE

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

## CONSTRUCTION

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

## INSULATION

- > Halogen-free
- > Cross-linked polymer, white

## SHEATH

- > Halogen-free
- > Cross-linked polymer
- > Insulation and sheath solidly bound
- > Colour: Black, blue or red
- > UV-resistant EN 50289-4-17 method A

## MECHANICAL

- > Bending radius EN 50565-1-3, 3 X D for fixed installations 4 X D for flexible installations

## CHEMICAL

- > Flame retardant EN/IEC 60332-1-2
- > Halogen free acc. IEC/EN 60754-1/2
- > CPR class Eca
- > DoP no 1018612
- > Resistant to chemicals
- > Oil resistant acc. IEC/EN 60811-404
- > Ozone resistance
- > Resistant to UV
- > Moisture resistance

# TECSUN URBAN (PV)

## H1Z2Z2-K 1.5 kV DC

Solar panel cable

EN 50618

DELIVERY DETAILS					
Conductor cross section mm <sup>2</sup>	Outer diameter nom.mm	Weight kg/km	Colour outer sheath	Standard length m	Prysmian SAP code
1x4	5.7	55.9	Black	100 m ring	20432556
1x4	5.7	55.9	Red	100 m ring	20432567
1x6	6.2	75.1	Black	100 m ring	20432569
1x6	6.2	75.1	Red	100 m ring	20432570
1x10	8.8	116	Black	100 m ring	20432642
1x10	8.8	116	Red	100 m ring	20432634

ELECTRICAL DATA					
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
1x4	2.4	5.09	55	52	0.57
1x6	2.9	3.39	70	67	0.86
1x10	4.0	1.95	98	93	1.43

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



# PRYSUN (PV) H1Z2Z2-K

## 1.5 kV DC Dca

### Solar panel cable

EN 50618



#### DESIGN & CONSTRUCTION

- Standard: DIN EN 50618
- Standard EN 62930
- CPR class Eca
- Approved by TÜV
- Adheres to RoHS & REACH



#### APPLICATION

PRYSUN is a solar cable type H1Z2Z2-K for PV installations, in particular for connecting solar panels to converters.

This PV cable is suitable for indoor and outdoor as well as underground installation and is used in building installations, residential construction and installations for sustainable and renewable energy.

The cable guarantees good quality and long service life of 25 years..

This solar panel cable complies with fire class Dca-s2 according to NEN-EN 50575 for use in buildings with a low fire risk according to NEN 8012.

The cable is halogen-free and resistant to oils, chemicals, moisture and UV-light.



#### TECHNICAL

- > Rated voltage: 1.5 kV DC
- > Rated voltage: 1.0 kV AC
- > Max. voltage: 1.8 kV DC
- > Max. voltage: 1.2 kV AC
- > Test voltage: 6.5 kV
- > Current carrying cap: EN 50618, A-3
- > Electrical tests: EN 50618, Table 2:

#### TEMPERATURE

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

#### CONSTRUCTION

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

#### INSULATION

- > Halogen-free
- > Cross-linked rubber, white

#### SHEATH

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

#### MECHANICAL

- > Bending radius acc. to EN 50565-1
- > Acc. to EN 50565-1
- > 3 X D for fixed installations
- > 4 X D for flexible installations

#### CHEMICAL

- > Flame retardant EN/IEC 60332-1-2
- > Halogen free acc. IEC/EN 60754-1/2
- > CPR class Dca, s2, d2, a3
- > DoP no. 1009483
- > Resistant to chemicals
- > Oil resistant acc. IEC/EN 60811-404
- > Ozone resistance
- > Resistant to UV
- > Moisture resistance

# PRYSUN (PV) H1Z2Z2-K

## 1.5 kV DC Dca

Solar panel cable

EN 50618

DELIVERY DETAILS					
Conductor cross section mm <sup>2</sup>	Outer diameter nom.mm	Weight kg/km	Colour outer sheath	Standard length m	Prysmian SAP code
1x4	5.61	61	Red	T500	20352680
1x4	5.61	61	Black	T500	20154478
1x6	6.27	80	Red	T500	20352927
1x6	6.27	80	Black	T500	20294412
1x10	7.18	125	Red	T500	20352934
1x10	7.18	125	Black	T500	20294415

ELECTRICAL DATA					
Conductor cross-section mm <sup>2</sup>	Min. bending radius fixed mm	Max.conductor resistance at 20°C Ω /km	Current carrying capacity A	Conductor resistance operation temp. Ω /km	CPR DoP no.
1x4	17	5.09	52	6.49	1009483
1x6	18	4.32	70	4.32	1009483
1x10					1009483

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# TECSUN (PV) S3Z2Z2-K

## 1,8/3 kV AC

### Solar panel cable

### EN 50618



#### DESIGN & CONSTRUCTION

- Standard: DIN EN 50618
- Directive: CE, RoHS, REACH



#### 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

- > Rated voltage: 1.8/3 kV AC
- > Max. operating AC: 2.1/3,6 kV
- > Max. operating DC: 2.7/5,4 kV
- > AC test voltage: 6.5 kV (5.min)
- > Current carrying capacity acc. to DIN VDE 0298-4

#### MECHANICAL

##### 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

- > 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

#### 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

##### 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

# TECSUN (PV) S3Z2Z2-K

## 1,8/3 kV AC

Solar panel cable

EN 50618

DELIVERY DETAILS					
Conductor cross section mm <sup>2</sup>	Outer diameter min.mm	Outer diameter max.mm	Bending radius fixed min.mm	Weight Kg/km	Prysmian SAP no.
1x25	13.2	14.4	87	380	20179993
1x35	14.3	15.5	93	470	20180776
1x50	15.6	17.1	103	640	20180777
1x70	17.1	19.1	115	820	20171198
1x95	19.4	21.4	129	1060	20180778
1x120	21.5	23.5	141	1320	20179994
1x150	23.1	25.1	151	1590	20180779
1x185	25.1	27.1	163	1910	20180780
1x240	28	30	180	2450	20170658
1x300	31	34	204	3030	20182281

ELECTRICAL DATA					
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



# HIK-AL-S 0,6/1 kV Solar Eco Cable

## Installation cable

## HD 503-5B



### DESIGN & CONSTRUCTION

- Standard HD 603-5B, EN 60228
- Direktive RoHS, REACH
- \*1-core acc. to standard EN 60502-1
- Eco Cable after August



### APPLICATION

Aluminium cable with stranded and sector-shaped conductor. Applicable for outdoor application in pipes, trays, free hanging in air or for direct burial in the ground. Can be ploughed down with caution.

### TECHNICAL

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

### CONSTRUCTION

- Conductor:
- > Stranded annealed aluminium
  - > Acc. to EC 60228 class 2.
  - > Sector shaped
- Insulation: PEX
- Core colouring: Acc. to HD 308 S2
- Separator: Plastic tape
- Outer sheath:
- > Halogen-free
  - > MDPE compound
  - > 90% recycled material
  - > UV-stabilized
  - > Black and meter marked



### TEMPERATURE

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

### MECHANICAL

- > Current load: Acc. to SB 2001:6

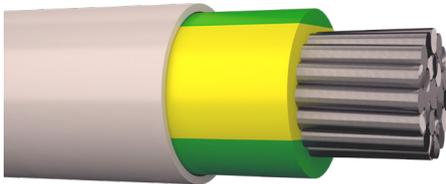
### DELIVERY DETAILS

Conductor cross section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Max. tensile load N	Current carrying cap. A soil	Delivery m	Prysmian SAP no.
1 x 150 *	21	379	2250		1000	20386143
1 x 240 *	26	640	2600		1000	20386142
1 x 300 *	29	795	4500		1000	20386144
1 x 400 *	32	1020	6000		1000	20386095
3 X 150	37	1622	6750	220	500	20233163
3 X 185	45.1	2105	8325	250	1000	20361141
3 X 240	50.6	2570	8500	290	500	20360949
3 X 300	51	3145	12000	326	500	20433031
4 X 95	34	1400	5700	172	1000	20358977
4 G 95	34	1400	5700	172	100	20435213
4 X 150	41.1	2058	12000	220	500	20397737
4 G 150	41.1	2058	12000	220	500	20405584
4 G 185	47	2650	8000	250	500	20419398
4 X 240	51.8	3347	19000	290	500	20407724
4 G 240	51.8	3347	19000	290	500	20432972
4 G 300	56.5	4095	20000	326	500	20435373

# HIK(J)-AL 0,6/1 kV Eca

## Installation cable

## HD 503-5B



### DESIGN & CONSTRUCTION

- Standard: HD 603-5B
- Standard: IEC 50575, EN 50399
- Standard: EN 60228
- Direktive: RoHS, REACH

### APPLICATION

Halogen-free and fire-retardant single core cable with aluminum conductor. The cable is CPR fire class Eca approved for fixed indoor installation in walls, trays, ladders or ducts or outdoors in pipes, free air or directly in soil.

### TECHNICAL

- > Rated voltage: 0,6/1 kV
- > Test voltage: 4000 V
- > Bending radius installation: 15 x D
- > Bending radius fixed: 12 x D

### TEMPERATURE

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

### CONSTRUCTION

- Conductor:
- > Stranded annealed aluminium
  - > Acc. to EC 60228 class 2.
- Insulation:
- > PEX
- Core colouring:
- > Yellow/Green
  - > Grey for 240 mm<sup>2</sup>
- Outer sheath:
- > Halogen-free compound
  - > UV-stabilized
  - > Shape: round
  - > Grey and meter marked

### MECHANICAL

- > Current load: Acc. to SB 2001:6

### CHEMICAL

- > Flame-retardant: IEC 60332-1-2
- > Smoke emission: EN 61034-2
- > Halogen-free: EN 60754-1 & 2
- > CPR fire class Eca acc. EN 13501-6
- > DoP no.1002846



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

### DELIVERY DETAILS

Conductor cross section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Current carrying cap. A	Delivery m	Core colours	Prysmian SAP no.
1G50	12.8	217	146	500	Yellow/Green	20094098
1G70	14.6	289	187	500	Yellow/Green	20094093
1G95	16.4	371	227	500	Yellow/Green	20094094
1G120	18.2	465	263	500	Yellow/Green	20094095
1G150	20.2	559	304	500	Yellow/Green	20094096
1G240	24.9	878	409	500	Yellow/Green	20094097
1G240	24.9	878	409	500	Grey	20319288

# AXLJ-RMF 6/10 (12) kV LT Spec Eco Cable

MV-cable

HD 620



## DESIGN & CONSTRUCTION

- Standard: HD 620 part 10, section M & K
- Standard SS 424 14 16
- Standard: EN 60228
- Direktive: RoHS, REACH

## APPLICATION

AXLJ-RMF is a 3-core cable designed for replacement of bare overhead lines.

Primary developed to be ploughed down in soil but is also suitable for permanent installation in minimal dept water with moderate current or for installation in pipes. Ripcords for easier and safer stripping of the outer sheath.

The cable is halogen-free with a UV-stabilized outer sheath, copper screen and a longitudinal watertight 3-core conductor.

The cable is part of our Eco Cable concept as the outer sheath is made with 90% recycled MDPE compound. Third-party EPD documentation is available per cross-section.



## TECHNICAL

- > Rated voltage: 6/10 (12) kV
- > Test voltage: 30 kV

Shape: Triangular

Bending radius:

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

## TEMPERATURE

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

## CHEMICAL

Halogen-free acc. to EN 60754-1

## CONSTRUCTION

Conductor:

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

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen
- > Annealed copper wires

Rip cord:

- > Kevlar

Outer sheath:

- > MDPE compound
- > 90% circular material
- > UV-stabilized
- > Black and meter marked



- NEPD-6051-5325 (3X50/16)
- NEPD-6059-5319 (3X95/25)
- NEPD-6056-5322 (3X150/25)
- NEPD-6249-5509 (3X240/35)



# AXLJ-RMF 6/10 (12) kV LT Spec Eco Cable

MV-cable

HD 620

DELIVERY DETAILS						
Conductor cross-section mm <sup>2</sup>	Diameter over insulation mm	Outer diameter mm	Weight Kg/km	Delivery length m	Drum size	Prysmian SAP no.
3x50/16	15.9	43.5	1300	500	K18	20078179
3x95/25	18.6	49.9	1890	500	K20	20095493
3x150/25	21.5	56.8	2535	500	K22	20078182
3x240/35	25.4	65.6	3540	500	K24	20087130
3x300/35	27.9	71.0	4330	500		20118045

MECHANICAL DATA						
Conductor cross section mm <sup>2</sup>	Conductor resistance 20°C Ω/km	Screen resistance Ω/km	Capacitance pr. phase μF/km	Reactance Ω/km	Diameter conductor mm	Thickness outer sheath nom. mm
3x50/16	0.641	1.2	0.24	0.11	8	2.2
3x95/25	0.32	1.2	0.3	0.1	11.3	2.4
3x150/25	0.206	0.8	0.38	0.09	14.2	2.7
3x240/35	0.125	0.6	0.46	0.09	18	2.9
3x300/35	0.100	0.8	0.51	0.08	20.5	3.1

ELECTRICAL DATA						
Conductor cross-section mm <sup>2</sup>	Current carrying cap. air A	Current carrying cap. ground A	Min. bending radius mm	Torsion strength stocking N	Short-circuit current screen 1 sec kA	Short-circuit current conductor 1 sec kA
3x50/16	160	170	525	5000	3.2	4.8
3x95/25	230	240	600	7500	5	9.0
3x150/25	305	310	685	10000	5	14.2
3x240/35	400	400	790	15000	7	22.6
3x300/35	460	450	855	17500	7	28.2

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

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

# AXLJ-RMF 12/20 (24) kV LT Spec Eco Cable

MV-cable

HD 620



## DESIGN & CONSTRUCTION

- Standard: HD 620 part 10, section M & K
- Standard SS 424 14 16
- Standard: EN 60228
- Direktive: RoHS, REACH

## APPLICATION

Halogen-free utility cable with a longitudinal water blocked conductor and copper wire screen. Primary developed for outdoor installation to be ploughed down in soil.

The cable has two ripcords for easier and safer stripping of the outer sheath.

Core identification by individually colored tapes (red, yellow and blue). The cable is part of our Eco Cable concept as the outer sheath is made with 90% recycled MDPE compound.

Third-party EPD documentation is available per cross-section.



## TECHNICAL

- > Rated voltage: 12/20 (24) kV
- > Test voltage: 50 kV
- > Shape: Triangular

Bending radius:

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

## TEMPERATURE

- > Max. conductor temp.: +90°C
- > Short-circuit temp.: +250°C
- > Lowest temp. at installation: -15°C
- > Below 0°C exercised caution

## CHEMICAL

- > Halogen-free acc. EN 60754-1/2

## CONSTRUCTION

Conductor:

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

Inner semi-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:

- > MDPE compound
- > 90% circular material
- > Halogen-free
- > UV-stabilized
- > Black and meter marked



NEPD-6130-53396 (3x95/50)

NEPD-6131-5394 (3x150/35)

NEPD-6129-5400 (3x240/50)



# AXLJ-RMF 12/20 (24) kV LT Spec Eco Cable

MV-cable

HD 620

DELIVERY DETAILS						
Conductor cross-section mm <sup>2</sup>	Diameter conductor mm	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian SAP no.
3x95/25	11,3	59,5	2490	500	K22	20427498
3x95/50	11,3	60,2	2490	500	K22	20427496
3x150/25	14,2	66		500	K24	
3x150/35	14,2	66	3400	500	K24	20427499
3x240/35	18	75		500	K26	20427497
3x240/50	18	75	4465	500	K26	20427769

MECHANICAL DATA						
Conductor cross section mm <sup>2</sup>	Conductor resistance 20°C Ω/km	Screen resistance Ω/km	Capacitance pr. phase μF/km	Reactance Ω/km	Diameter conductor mm	Thickness outer sheath nom. mm
3x95/25	0,32	0,8	0,21	0,11	11,3	2,8
3x95/50	0,32		0,21	0,11	11,3	2,8
3x150/25	0,206	0,8	0,25	0,10	18	3,3
3x150/35	0,206	0,6	0,25	0,10	18	3,3
3x240/35	0,125	0,6	0,30	0,09	18	3,3
3x240/50	0,125		0,30	0,09	18	3,3

ELECTRICAL DATA						
Conductor cross-section mm <sup>2</sup>	Current carrying cap. air A	Current carrying cap. ground A	Min. bending radius mm	Torsion strength stocking N	Short-circuit current screen 1 sec kA	Short-circuit current conductor 1 sec kA
3x95/25	230	240	715	7500	5,0	9,0
3x95/50	230	240	725	7500	10,0	9,0
3x150/25	305	310			5,0	14,2
3x150/35	305	310			7,0	14,2
3x240/35	400	400	900	15000	7,0	22,6
3x240/50	400	400	900	15000	10,0	22,6

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

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# AXLJ-RMF 18/30 (36) kV LT Spec Eco Cable

MV-cable

HD 620



## DESIGN & CONSTRUCTION

- Standard: HD 620 part 10, section M & K
- Standard SS 424 14 16
- Standard: EN 60228
- Direktive: RoHS, REACH

## APPLICATION

Halogen-free utility cable with a longitudinal water blocked conductor and copper wire screen. Primary developed for outdoor installation to be ploughed down in soil.

The cable has two ripcords for easier and safer stripping of the outer sheath. Core identification by individually colored tapes (red, yellow and blue).

The cable is part of our Eco Cable concept as the outer sheath is made with 90% recycled MDPE compound from a domestic supplier.



## TECHNICAL

- > Rated voltage: 18/30 (36) kV
- > Test voltage: 60 kV
- > Shape: Triangular

Bending radius:

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

## TEMPERATURE

- > Max. conductor temp.: +90°C
- > Short-circuit temp.: +250°C
- > Lowest temp. at installation: -15°C
- > Below 0°C exercised caution

## CHEMICAL

- > Halogen-free acc. EN 60754-1/2

## CONSTRUCTION

Conductor:

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

Inner semi-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:

- > MDPE compound
- > 90% circular material
- > Halogen-free
- > UV-stabilized
- > Black and meter marked

# AXLJ-RMF 18/30 (36) kV LT Spec Eco Cable

MV-cable

HD 620

DELIVERY DETAILS						
Conductor cross-section mm <sup>2</sup>	Diameter over insulation mm	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian SAP no.
3x95/25	27,7	70,7	3220	500	K24	80240015
3x150/25	30,5	76,3	3965	500	K26	20427770
3x240/25 LT						20102144
3x300/35	36,9	91,7	6110	500	K28	80230196

MECHANICAL DATA						
Conductor cross section mm <sup>2</sup>	Conductor resistance 20°C Ω/km	Screen resistance Ω/km	Capacitance pr. phase μF/km	Reactance Ω/km	Diameter conductor mm	Thickness outer sheath nom. mm
3x95/25	0,320	0,8	0,16	0,12	11,4	3,2
3x150/25	0,206	0,8	0,19	0,11	14,2	3,2
3x240/25 LT						
3x300/35	0,100	0,6	0,24	0,10	20,5	4,0

ELECTRICAL DATA						
Conductor cross-section mm <sup>2</sup>	Current carrying cap. air A	Current carrying cap. soil A	Min. bending radius mm	Torsion strength stocking N	Short-circuit current screen 1 sec kA	Short-circuit current conductor 1 sec kA
3x95/25	230	240	850	7500	5,0	9,0
3x150/25	305	310	920	10000	5,0	14,2
3x240/25 LT						
3x300/35	460	450	1110	17500	7,0	28,3

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

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

# AXLJ-TTCL 18/30 (36) kV TSLF AFR

MV-cable

HD 620



## DESIGN & CONSTRUCTION

- Standard: HD 620 part 10, section M & K
- Standard SS 424 14 16
- Standard: EN 60228
- Direktive: RoHS, REACH

## APPLICATION

Halogen-free single-core, distribution cable for outdoor use in 3-phase formation.

Suitable for installation in pipes, directly in soil and permanently in water. Can also be ploughed down. Both radial and longitudinal water sealed.

With ripcords for easier and safer stripping of the outer sheath.

The outer sheath has a conductive layer that greatly extends the possibilities to do a sheath testing before, during and after installation.

With third-party EPD documentation for largest cross-section.



## TECHNICAL

- > Rated voltage: 18/30 (36) kV
- > Test voltage: 63 kV
- > Shape: Round

Bending radius:

- > Fixed 10 x D
- > During laying: 15 x D
- > Ploughed down: 8 x D

## TEMPERATURE

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

## CHEMICAL

- > Halogen-free acc. EN 60754-1/2

## CONSTRUCTION

Conductor:

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

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen
- > Annealed copper wires

Screen:

- > Radial watertight

Draw string:

- > Kevlar

Outer sheath:

- > Composite PE
- > UV-stabilized
- > Black and meter marked



NEPD-6142-5402 (1x240/35)



# AXLJ-TTCL 18/30 (36) kV TSLF AFR



MV-cable

HD 620

DELIVERY DETAILS						
Conductor cross-section mm <sup>2</sup>	Diameter over insulation mm	Outer diameter mm	Weight Kg/km	Delivery m	Drum size	Prysmian SAP no.
1x120/35				500		20114472
1x300/35	36,9	47	2250	500	K20	20102190
1x630/50	46,9	57	3585	500	K22	20114469
1x800/50						20114475

MECHANICAL DATA						
Conductor cross section mm <sup>2</sup>	Conductor resistance 20°C Ω/km	Screen resistance Ω/km	Capacitance pr. phase μF/km	Reactance Ω/km	Diameter conductor mm	Thickness outer sheath nom. mm
1x120/35						
1x300/35	0,1			0,11/0,18	20,5	
1x630/50	0,0469	0,387		0,10/0,16	30,3	
1x800/50						

ELECTRICAL DATA						
Conductor cross-section mm <sup>2</sup>	Current carrying cap. air A	Current carrying cap. soil A	Min. bending radius mm	Torsion strength stocking N	Short-circuit current screen 1 sec kA	Short-circuit current conductor 1 sec kA
1x120/35						
1x300/35						
1x630/50						
1x800/50						

Nominal values unless otherwise specified.

Conditions:

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

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



### DESIGN & CONSTRUCTION

- Standard: IEC 60840
- Standard: EN 60228
- Direktive: RoHS & REACH



### APPLICATION

Longitudinal and radial water blocked 1-core utility cable with aluminium conductor, copper wire screen, laminated alu foil and UV-stabilized outer sheath. The cable is triple extruded and halogen-free. Suitable for installation in pipes or directly in soil.

### TECHNICAL

- > Rated voltage: 36/60 (72) kV
- > Test voltage: 90 kV
- > Shape: Round

Bending radius:

- > Fixed 15 x D
- > During laying: 20 x D

### TEMPERATURE

- > Max. conductor temperature: +90°C
- > Short-circuit temperature: +250°C
- > Lowest temp. at installation: -15°C
- > Max. temp. at installation: +40°C

### CONSTRUCTION

Conductor:

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

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen of annealed copper wires

Barrier:

- > Alu foil
- > Fixed - radial watertight

Outer sheath:

- > MDPE compound<sup>2</sup>
- > HDPE > 800 mm<sup>2</sup>
- > UV-stabilized
- > Halogen-free acc. EN 60754-1/2
- > Red and meter marked

### DELIVERY DATA

Conductor cross-section mm <sup>2</sup>	Outer diameter mm	Weight ca. kg/km	Bending radius assembly min.mm	Standard length meter	Prysmian SAP no.
1x150/25	50	2250	1000	750	20391374
1x240/35	51.7	2500	1040	1000	20393925
1x300/35	54	2915	1080	750	20301710
1x400/50	58	3308	1160	1000	20132789
1x500/50	59.7	3715	1195	1000	80140132
1x630/50	64.2	4255	1280	800	20132791
1x800/50	59.5	4945	1380	700	20299380
1x1000/50	74.4	6041	1500	600	80240039
1x1000/95	75.3	6465	1520	600	80240040

# PEX-AL-LRT 36/60(72) kV

## MECHANICAL DATA

Conductor cross-section mm <sup>2</sup>	Conductor diameter mm	Insulation thickness nom.mm	Diameter over insulation mm	Sheath thickness mm	Pulling strenght with hose N
1x150/25	14.2	12	39.6	2.5	5700
1x240/35	18	11	41.5	2.5	8500
1x300/35	20.5	11	43.9	2.6	10000
1x400/50	23.7	10	45.1	2.7	12500
1x500/50	26.6	10	48	2.7	15000
1x630/50	30.3	10	51.7	2.9	18200
1x800/50	34.6	10	56	3.0	22400
1x1000/50	38.7	10	61.5	3.1	22400
1x1000/95	38.7	10	61.5	3.1	22400

## ELECTRICAL DATA

Conductor cross-section mm <sup>2</sup>	DC resistance at 20 °C Ω/km	Capacitance per phase µF/km	Reaktance Trefoil/Flat Ω/km	Short circuit current conductor kA/1 sec	Short circuit current screen kA/1 sec
1x150/25	0.206	0.15	0.14 / 0.21	14.2	5.0
1x240/35	0.125	0.18	0.13 / 0.20	22.6	7.0
1x300/35	0.100	0.20	0.12 / 0.19	28.3	7.0
1x400/50	0.0778	0.22	0.12 / 0.18	37.8	10.0
1x500/50	0.0605	0.24	0.11 / 0.17	47.2	10.0
1x630/50	0.0469	0.27	0.11 / 0.17	59.5	10.0
1x800/50	0.0367	0.29	0.10 / 0.16	75.6	10.0
1x1000/50	0.0291	0.33	0.10 / 0.16	94.5	10.0
1x1000/95	0.0291	0.33	0.10 / 0.16	94.5	19.0

## CURRENT VALUES

Conductor cross-section mm <sup>2</sup>	Trefoil 1 m open screen A	Trefoil 1 m closed screen A	Trefoil 1.3 m open screen A	Trefoil 1.3 m closed screen A
1x150/25	333	330	325	323
1x240/35	438	432	428	421
1x300/35	495	486	484	424
1x400/50	567	549	553	535
1x500/50	652	626	635	609
1x630/50	742	703	722	684
1x800/50	840	786	818	764
1x1000/50	942	869	915	844
1x1000/95	942	837	915	813

VALUES ARE BASED ON FOLLOWING ASSUMPTIONS:

- Max, conductor temperature: +90°C
- Ambient temperature in air: +25°C
- Ambient temperature in soil: +15°C
- Thermal resistivity in soil: 1 K·m/W
- Burial debth in soil: 0,7 m
- In triangular formation: Tight trefoil
- In flat formation: Kabel diameter 70 mm



# AXLJ-TTCL 36/60 (72) kV TSLF

MV-cable

EN 60840



## DESIGN & CONSTRUCTION

- Standard: EN 60840
- Standard EN 60228 class 2
- Standard IEC 60754-1 & 2 and IEC 61034
- Directive: RoHS, REACH

## APPLICATION

Halogen-free single-core distribution cable for outdoor use in 3-phase formation.

Suitable for permanent installation in pipes or directly in soil. Can also be ploughed down with caution.

With ripcords for easier and safer stripping of the outer sheath.

The outer sheath has a conductive layer that greatly extends the possibilities to do a sheath testing before, during and after installation.

Both radial and longitudinal water sealed.



## TECHNICAL

- > Rated voltage: 36/60 (72) kV
- > Test voltage: 90 kV
- > Shape: Round

Bending radius:

- > Fixed 10 x D
- > During laying: 15 x D
- > Ploughed down: 8 x D

## TEMPERATURE

- > Max. conductor temp.: +90°C
- > Short-circuit temp.: +250°C
- > Lowest temp. at installation: -15°C
- > Below 0°C exercise caution

## CHEMICAL

- > Halogen-free acc. EN 60754-1/2

## CONSTRUCTION

Conductor:

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

Inner conductive layer:

- > Extruded

Insulation:

- > XLPE

Outer conductive layer:

- > Bonded to insulation

Separator:

- > Conductive tape

Screen:

- > Concentric screen
- > Annealed copper wires

Barrier:

- > Alu foil, radial watertight

Draw string:

- > Kevlar

Outer sheath:

- > MDPE compound, halogen-free
- > Laminated
- > UV-stabilized
- > Black and meter marked

# AXLJ-TTCL 36/60 (72) kV TSLT

MV-cable

HD 620

DELIVERY DATA				
Conductor cross-section mm <sup>2</sup>	Outer diameter mm	Weight ca. kg/km	Standard length meter	Prysmian SAP no.
1x500/50	59	3550	500	20117668
1x630/50	63	4200	500	20117218
1x630/95	63	4800	500	20358178
1x800/50	70	5200	500	20121491

MECHANICAL DATA						
Conductor cross-section mm <sup>2</sup>	Conductor diameter mm	Insulation thickness nom.mm	Diameter over insulation mm	Sheath thickness mm	Bending radius installation min. mm	Pulling strenght with hose N
1x500/50	26.6	10	48			
1x630/50	30.3	10	51.7			
1x630/95	30.3	10	51.7	2.9	1320	18200
1x800/50	34.6	10	56.8			

ELECTRICAL DATA					
Conductor cross-section mm <sup>2</sup>	DC resistance at 20 °C Ω/km	Capacitance per phase nF/km	Reaktance Trefoil/Flat Ω/km	Short circuit current conductor kA/1 sec	Short circuit current screen kA/1 sec
1x500/50	0.0605	220	0.11 / 0.17		8
1x630/50	0.0469	260	0.10 / 0.17		8
1x630/95	0.0469	260	0.10 / 0.17		8
1x800/50	0.0367	280	0.10 / 0.67		8

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## Earth conductor

## EN 60228



### DESIGN & CONSTRUCTION

- Standard: IEC 60228
- Directive: RoHS



### APPLICATION

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

### TEMPERATURE

Short circuit temp.: 300°C

### 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>

### CONSTRUCTION

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

### DELIVERY DATA

Conductor cross-section mm <sup>2</sup>	Outer diameter mm	Weight kg/km	Bending radius min.mm	Conductor resistance 20°C Ω/km	Standard length m	Prysmian SAP no.
HK 6	3.1	52	50	3.08	1000	20297109
HK 16	5	140	80	1.15	500	20075421
HK 16	5	140	80	1.15	25	20075784
HK 16	5	140	80	1.15	50	20075786
HK 16	5	140	80	1.15	100	20075787
HK 25	6.4	220	100	0.727	500	20075802
HK 25	6.4	220	100	0.727	100	20075805
HK 25	6.4	220	100	0.727	50	20075814
HK 25	6.4	220	100	0.727	25	20075822
HK 35	7.5	310	110	0.524	500	20116866
HK 35	7.5	310	110	0.524	1000	20075423
HK 50	8.9	430	130	0.387	1000	20075803
HK 70	11	610	160	0.268	1000	20075425
HK 95	13	850	190	0.193	1000	20075428
HK 120	15	110	210	0.153	500	20075453
HK 185	18	1642	270	0.0991		20075763
HK 240	20	2165	300	0.0754		20163530

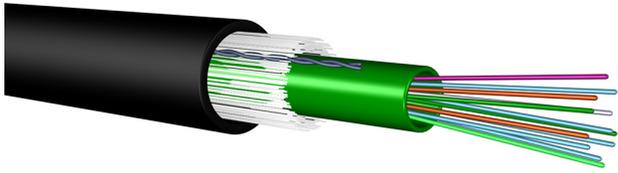


# UCFIBRE OUTDOOR CENTRAL TUBE 4.0 kN



Fiber optical cable

IEC 11801



## DESIGN & CONSTRUCTION

- Standard: ISO /IEC 11801
- Standard EN 50173-1
- Standard IEC C 60794-1 & 22 & 21

## APPLICATION

This cable can be used 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. The cable features a very high tensile strength and a degree of rodent protection, effective in most cases.

Robust features make the cable more suitable for blowing applications with limited distances, when it is used with HDPE sheath. This cable can be used for FTTH access and drop lines, and is suitable for installation in ducts, on trays and directly buried.



## CONSTRUCTION

Central tube:

- >  $\varnothing$ 2.8 mm jelly filled tube <
- > 2 to .24fibres

Reinforcement - strain relief:

- > E-Glass yarns

Waterblocking::

- > Longitudinal

Fiber colour code  $\varnothing$ 2.8 mm:

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

Fiber colour code:

- > Acc. to IEC 60794-2, VDE 0888
- > Red, Green,, Blue, Yellow, White Grey, Brown, Violet, Turquoise, Black Orange, Pink etc.

Ripcord:

- > Polyester

Sheath:

- > Thermal plastic polymer - LLDPE
- > 1.8 mm
- > UV-stabalized
- > Round
- > Black RAL 9005

## PHYSICAL PROPERTIES

Nominal outer diameter:

- > 19 mm

Nominal weight:

- > 70 kg/km

Tensile strength:

- > Acc. to IEC 60794-1-2/22 E1
- > At assembly max: 4000 N
- > Permantly: 2000 N

Crush acc. to IEC 60794-1-21/22 E3:

- > 3000 N

Impact acc. to IEC 60794-1-21 E4:

- > 25 Nm

Torsion acc. to IEC 60794-1-21 E7:

- > 5 cycles  $\pm$  1 turn

No kink acc- OEC 60794:

- > For loop diameter 100mm

Bending radius:

- > Assembly loaded: 20 x D
- > Fixed unloaded: 10 x D

Temperature:

- > Storage: -40°C to +70°C
- > Operations: -40°C to +70°C
- > Assembly: -15°C to +60°C

Water penetration:

- > Acc. to IEC 60794-1-22 F5B
- > No water on free end

# UCFIBRE OUTDOOR CENTRAL TUBE 4.0 kN



Fiber optical cable

IEC 11801

DELIVERY DATA				
Product name E16a datasheet	Number of fibers	Fiber type	Fiber datasheet	Prysmian SAP no.
UCFIBRE O CT PE 4.0 KN 6 SM7A1 BK	6	OS2	C03	60055719
UCFIBRE O CT PE 4.0 KN 8 MM61 BK	8	OM1	C03	60058059
UCFIBRE O CT PE 4.0 KN 12 MM61 BK	12	OM1	C03	60018794
UCFIBRE O CT PE 4.0 KN 12 OM2B BK	12	OM2	C03	60020123
UCFIBRE O CT PE 4.0 KN 12 OM4B BK	12	OM4	C03	60081194
UCFIBRE O CT PE 4.0 KN 12 SM7A1 BK	12	OS2	C03	60020739

PROPERTIES				
Product name E16a datasheet	Outer diameter mm	Weight kg/km	Sheath color	
UCFIBRE O CT PE 4.0 KN 6 SM7A1 BK	9	70	Black	
UCFIBRE O CT PE 4.0 KN 8 MM61 BK	9	70	Black	
UCFIBRE O CT PE 4.0 KN 12 MM61 BK	9	70	Black	
UCFIBRE O CT PE 4.0 KN 12 OM2B BK	9	70	Black	
UCFIBRE O CT PE 4.0 KN 12 OM4B BK	9	70	Black	
UCFIBRE O CT PE 4.0 KN 12 SM7A1 BK	9	70	Black	

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

### ELECTRICAL PARAMETERS

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 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 N/mm<sup>2</sup> in operation and 50 N/mm<sup>2</sup> 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. 3xD).

For TECSUN (PV) the minimum bending radius according to EN 50565-1, is 3xD (for D≤12mm) or 4xD (for D>12mm). 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.

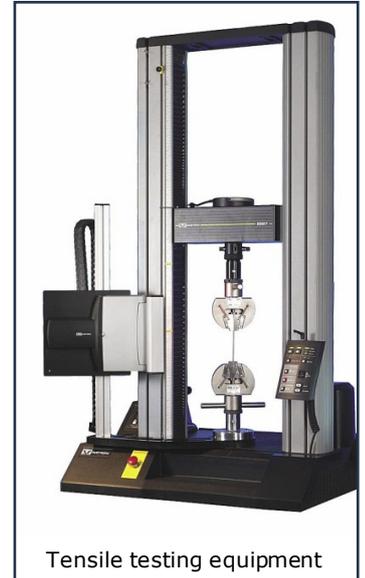
#### Abrasion Resistance

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

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

#### Additional Tests

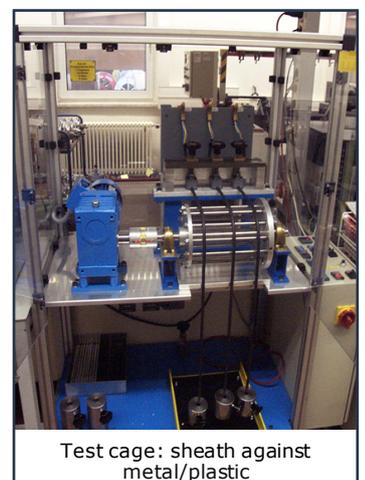
- Shrinkage Test
- Pressure Test at High Temperature
- Dynamic Penetration Test
- Durability of Print
- Sheath-Hardness



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.

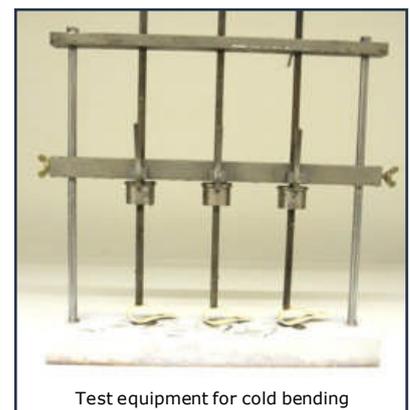
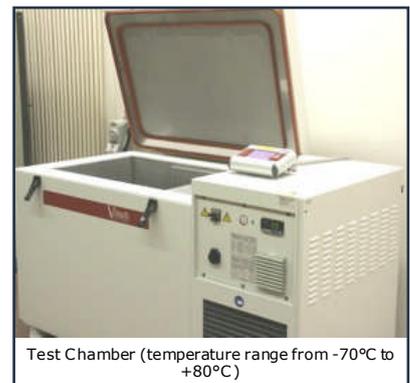
#### Resistance to Cold

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:

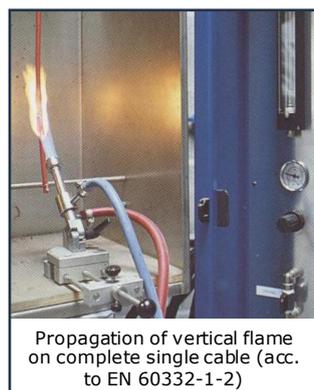
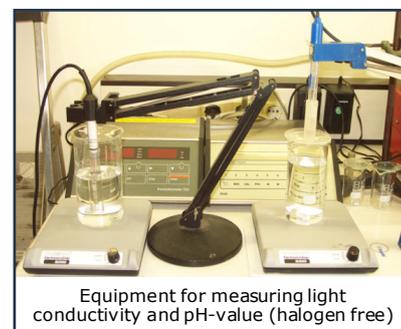
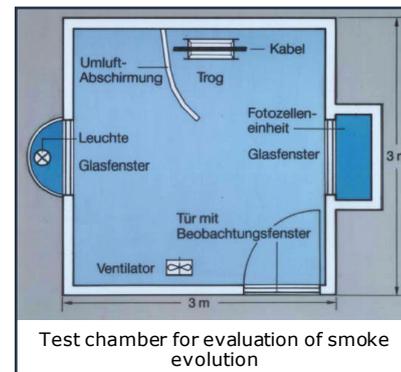
- Ozone resistance: complete cable has no cracks after 72 hours at 40°C, with 55% relative humidity and 2ppm of ozone concentration
- UV resistance: tensile strength and elongation at break are measured after a conditioning of 720 hours (360 cycles) UV light

#### 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.

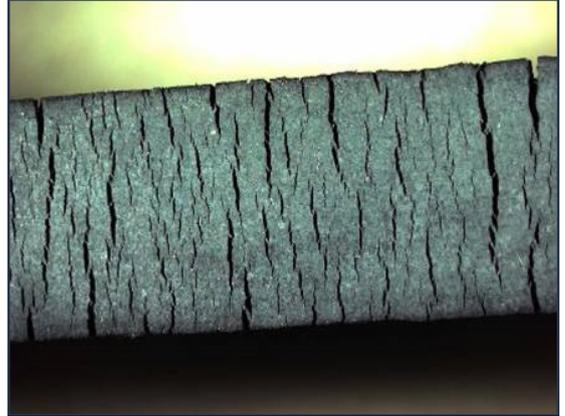


Properties of TECSUN (PV) H1Z2Z2-K acc. to DIN EN 50618

## 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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