

CONDUCT TÜV SOLARcable (H1Z2Z2-K)



1. Outer sheath insulation
halogen-free copolymer
2. Inner sheath insulation
halogen-free copolymer
3. Conductor

1st and 2nd insulation sheath colour ●●●

Cable marking:

*CETSOLARCABLE1Xn,00mm21.0/1.0 kV H1Z2Z2-K TÜV
RheinlandType ApprovedR60113052 IEC 60332-1 CE*

UV-resistant, suitable for outdoor use, cold-resistant



Twisted flexible tinned copper
conductor



Technical data	
Nominal voltage U ₀ /U	1.0/1.0 kV AC –1,5/1.5kV DC
Maximum allowable voltage	1.8DC
Test voltage	6.5 kV AC
Operating temperature	-40°C to + 90°C
Maximum conductor temperature	+ 120°C (20.000 hours)
Minimum bending radius	5 x D (fixed installation)
Inspection	TÜV Rheinland
According to	EN50618: 2014 IEC 60228 –EN 50395 –EN50396 EN 60332-1-2– EN61034-1; -2 EN 50525-1-EN 60216-1; -2

TÜV SOLAR CABLE	Diameter	Max conductor thickness	Insulation thickness 1st/2nd	Average diameter	Max. resistance at 20°C tinned copper	Resistance at 50 Hz
Diameter tolerance	mm ²	mm	mm	mm	Ω/Km	Ω/Km
According to TÜV	1x2.5	0.26	0.70/0.80	5.00	8.21	/
	1x4.00	0.31	0.70/0.80	5.40	5.09	0.143
	1x6.00	0.31	0.70/0.80	6.20	3.39	0.135
	1x10.0	0.41	0.70/0.80	7.40	1.95	0.119

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Cross section	Current-carrying capacity of PV cables according to installation method		
	Single cable in free air	Single cable on surface	Bundled cables on surface
mm ²	(A)	(A)	(A)
1x2.5	41	39	33
1x4.0	55	52	44
1x6.0	70	67	57
1x10	98	93	79

Thermal properties	
Lifespan	According to EN50618: 25 years The cables are designed for a normal maximum conductor temperature of 90°C, but can operate up to 20,000 hours at a maximum conductor temperature of 120°C with an ambient temperature of 90°C (tested according to EN60216-1 and EN60216-2)
Maximum short-circuit temperature	250°C (5 seconds)
Cold resistance	EN 50618, Table 2 Cold bending test at -40°C according to EN60811-504; Cold elongation test at -40°C according to EN60811-505; Cold impact test at -40°C according to EN50618 Annex C and EN60811-506 Damp heat test according to EN50618, Table 2 (test according to EN60068-2-78): 90°C, 1000 hours with a minimum humidity of 85%

Chemical properties	
Halogen-free	According to EN50525-1 Annex B (EN50267-2-1, EN50267-2-2, IEC60754-1, IEC60754-2)
Low smoke emission	According to IEC61034, EN61034 (light transmittance >60%)
Weather resistance	Ozone resistance: according to EN 60811-403 test method A, EN50396 clause 8.1.3 test method B Weather-/UV-resistance: according to EN50618 Annex E, EN50289-4-17 (method A), EN ISO 4892-1/-2 tensile strength and elongation at break after 720h (360 cycles) of UV exposure
Acid and alkaline resistance	According to EN50618:2014 Annex B: 7 days at 23°C (N-oxalic acid, N-sodium hydroxide) as per EN60811-404
Flame retardancy	Flame propagation according to EN60332-1-2 (single cable test) Tested according to CPR: EN 50399 standard test method for cable in fire conditions. Measurement of heat release and smoke production during flame spread test. Reaction to fire class: D_{ca} Smoke emission class: s2 Production of flaming droplets/particles: d2

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The H1Z2Z2-K can be considered harmonized. This is because it has been tested and certified in accordance with the requirements of the harmonized standard EN50618:2014 (as cited in the official document of the European Union listing the harmonized standards under the LVD Directive 2006/95/EC (Low Voltage Directive)). Intended use and type of installation: for photovoltaic applications (HD60364-7-712). Suitable for fixed installation both indoors and outdoors. Installation on walls, cable trays, conduits, and similar systems. The cables are suitable for use with Class II equipment. They are inherently resistant to short circuits and ground faults in accordance with HD60364-5-52.

Mechanical properties	
	To prevent ageing of the insulation and sheath according to EN50618 Annex B (tested in accordance with EN60811-501): Tensile strength $\geq 8 \text{ N/mm}^2$ Elongation at break of both the insulation and sheath $\geq 125\%$
Shrink test on sheath	According to EN50618, Table 2: $<2\%$ (tested in accordance with EN60811-503)
Dynamic penetration test	According to EN50618
Durability of marking	According to EN50618 (tested in accordance with EN50396)
Cable strength (Direct Burial)	Impact resistance of single conductor USE and USE-2 cables (in accordance with UL854).
Water resistance	AD8 category Successfully tested according to EN 50525-2-21, Annex E (after 100 days / 2400 hours of immersion at 50°C) • Voltage test: 1 kV AC applied to the cable while immersed in water at 50°C for 100 days without any failure • Mechanical properties of the sheath after 100 days of immersion at 50°C • Minimum tensile strength after 100 days of immersion at 50°C: $> 7 \text{ MPa}$ • Minimum elongation at break after 100 days of immersion at 50°C: $> 200\%$ • Water absorption of the sheath after 100 days of immersion at 50°C: less than 40% • Insulation resistance test with a minimum resistance value of $10^{11} \Omega\cdot\text{cm}$, measured after 14 days in water at 50°C
Long-term insulation resistance under DC voltage	According to EN50618, Table 2. Tested according to EN50395, Clause 9: Cable immersed in water with 1% NaCl for 24 hours; water temperature $85^\circ\text{C} \pm 5$; test voltage 1.8 kV DC.

ConductCable meets the latest requirements for PV systems in accordance with the following standards: EN50618, EN60216-1-2, EN61034. The special insulation provides high abrasion resistance, even at elevated temperatures. In addition, the insulation contains flame retardants and is resistant to ozone. The cable is UV-resistant, and the outer sheath can be stripped from the inner layer of the extruded insulation.