



Application

Solar cables are intended for use in photovoltaic power supply systems and similar applications as free hanging, movable, fixed installation and buried in ground in constructional covered systems. The cables can be used indoor, outdoor, in hazard explosion areas, in industry and agriculture. They are suitable for applications in equipment with protective insulation (protecting Class 2).

Standard

Adapted to PV systems, 2 Pfg 1169 / 08.2007 and EN 50618:2015.

Thermal parameters

Max. Permissible Ambient Temperature: +90°C (stationary and in motion)

Max. Permissible Operating Temperature of The Conductor :

+120°C, Interpretation according to IEC 60216 : permanent temperature.

120°C for 20,000 h (= 2.3 years), at max. 90°C permanent temperature (= 30 years).

Short - Circuit Temperature : +200°C (at the conductor max. 5 sec.)

Damp - Heat Test : According to EN 60068 - 2 - 78. 1,000h at 90°C and 85% humidity.

Min. Permissible Ambient Temperature : -40°C (stationary and in motion)

Resistance to Cold :

Bending test at low temperature according to DIN EN 60811 - 1 - 4, Impact test similar to DIN EN 50305.

Minimum Bending Radius : Fixed Installation approx. 4 x cable Ø

Electrical Parameters

Voltage Rating : AC 0.6 / 1.0 kV

Max. PV - System Voltage : DC up to 2.0 kV possible

Max. Permissible Operating Voltage in AC Systems : 0.7 / 1.2 kV

Max. Permissible Operating Voltage in DC Systems : 0.9 / 1.8 kV

Test Voltage : AC 6 kV / DC 10 kV (15 min.)

Mechanical Parameters

Tensile Load : 15 N / mm² in operation. 50 N/mm² during installation

Shrinkage Test : According to EN 60811 - 1 - 3

Shore-Hardness : 85 shore A according to DIN EN 53505

Pressure Test at High Temperature : According to EN 60811 - 3 - 1

Dynamic Penetration Test : According to requirements for cables for PV systems, DKE / VDE 411.2.3

Chemical Parameters

Mineral Oil Resistance : 24h, 100°C according to DIN VDE 0473 - 811 - 2 - 1, DIN EN 60811-2-1

Acid and Alkaline Resistance : According to EN 60811-2-1

7 days, 23°C (N-Oxalic Acid, N-Sodium Hydroxide)

Ammonia Resistance : 30 days in saturated ammonia atmosphere (internal testing)

Weather Resistance : Ozone resistance according to DIN EN 50396 test Type B, HD 22.2 test Type B UV - resistance according to UL 1581 (Xenon - Test), ISO 4892 - 2 (Method A) and HD 506/A1-2.4.20

Absorption of water (gravimetric) according to DIN VDE 0473-811-1-3, DIN EN 60811 - 1 - 3.

Behavior in Case of Fire :

Flame propagation.

Single cable according to DIN VDE 0482 Part 332 - 1 - 2, DIN EN 60332 - 1 - 2.

Multiple cable according to DIN VDE 0482 Part 266 - 2 - 5, DIN EN 50305 - 9.

Low smoke emission according to DIN VDE 0482 Part 268 - 2.
 DIN EN 50268-2 (light transmittance > 70%).
 Corrosivity according to DIN EN 50267 - 2 - 2.
 Toxicity according to DIN EN 50305, ITC - index < 3.

Cable Construction

Conductor : Fine Wire Tinned Copper Conductor according to BS EN 60228:2005 cl. 5.

Insulation : UV resistant, cross linkable, halogen free, flame retardant compound for core insulation.

Core Identification : Red, black or natural

Sheath : UV resistant, cross linkable, halogen free, flame retardant compound for Sheath over insulation.

Cable Colour : Black

Please complete the part numbers for these cables by adding the suffix (in place of 'xx') for the insulation colour required as per the list:
 02 - black, 03 - red, 13 - natural.

Cable Design Parameters

Part Number	Nominal Cross-Sectional (Sq. mm)	Insulation Thickness (mm)		Outer sheath Thickness (mm)		Approx. Cable Diameter (mm) as per TUV 2 Pfg	Approx. Cable Diameter (mm) as per EN 50618	Current carrying capacity according to method of installation			Max. Conductor Resistance at 20°C, (Ω/Km)
		TUV 2 Pfg (Minimum)	EN 50618 (Nominal)	TUV 2 Pfg (Minimum)	EN 50618 (Nominal)			Single cable free in air (A)	Single cable on a surface (A)	Two loaded cables touching, on a surface (A)	
12010101xx01	1.5	0.5	0.70	0.5	0.80	4.06	4.66	30	29	24	13.7
12010102xx01	2.5	0.5	0.70	0.5	0.80	4.49	5.09	41	39	33	8.21
12010103xx01	4.0	0.5	0.70	0.5	0.80	4.99	5.59	55	52	44	5.09
12010104xx01	6.0	0.5	0.70	0.5	0.80	5.53	6.13	70	67	57	3.39
12010105xx01	10.0	0.5	0.70	0.5	0.80	6.47	7.07	98	93	79	1.95
12010106xx01	16.0	0.5	0.70	0.5	0.90	7.52	8.32	132	125	107	1.24
12010107xx01	25.0	0.5	0.90	0.5	1.00	8.74	10.14	176	167	142	0.795
12010108xx01	35.0	0.5	0.90	0.5	1.10	9.89	11.49	218	207	176	0.565
12010109xx01	50.0	-	1.00	-	1.20	-	13.33	276	262	221	0.393
12010110xx01	70.0	-	1.10	-	1.20	-	15.19	347	330	278	0.277
12010111xx01	95.0	-	1.10	-	1.30	-	16.94	416	395	333	0.210
12010112xx01	120.0	-	1.20	-	1.30	-	18.71	488	464	390	0.164
12010113xx01	150.0	-	1.40	-	1.40	-	20.86	566	538	453	0.132
12010114xx01	185.0	-	1.60	-	1.60	-	23.24	644	612	515	0.108
12010115xx01	240.0	-	1.70	-	1.70	-	26.14	755	736	620	0.0817