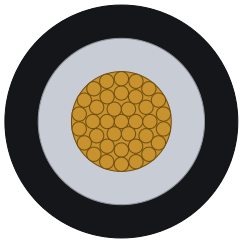
PV1-F Photovoltaic Cable, 0.6/1 kV

SORIVO Product Series: **Solar cable** | 0.6/1 kV AC · 0.9/1.8 kV DC | TÜV 2 PfG 1169 | 1.5–240 mm²



- XLPO sheath — 120 °C, halogen-free
- XLPO insulation — 120 °C, bonded to the sheath
- Tinned copper, Class 5 to IEC 60228

APPLICATION

Single-core flexible cable for the DC side of photovoltaic arrays — module interconnects, string runs and array-to-inverter home runs, in free air, on trays or in conduit. Rated 0.6/1 kV AC and 0.9/1.8 kV DC to TÜV 2 PfG 1169, and rated for a 120 °C conductor, which is what keeps the derated ampacity usable on a roof at 60 °C ambient.

CONSTRUCTION

Conductor
Tinned copper, Class 5 flexible to IEC 60228 (VDE 0295)

Insulation
XLPO (cross-linked polyolefin), electron-beam cross-linked, 120 °C

Sheath
XLPO (cross-linked polyolefin), 120 °C, bonded to the insulation as a two-layer wall

MODEL DESIGNATION

PV1-F Photovoltaic cable, single-core, flexible · built to **TÜV 2 PfG 1169/08.2007**; the certificate for the delivered construction is quoted with the offer

KEY FEATURES

- TÜV 2 PfG 1169 is the design basis — construction, wall thicknesses and the test schedule all come from it
- Insulation and sheath are bonded, not separable: no water path between the two walls, which is the failure mode on unbonded PV cable
- 120 °C conductor rating — 30 years design life at 90 °C continuous per IEC 60216
- UV, ozone, ammonia and salt-water tested; -40 °C cold bend

STANDARDS

- TÜV 2 PfG 1169/08.2007 — PV cable type approval
- IEC 60228 — Class 5 tinned copper conductors
- IEC 60502-1 — compound and test requirements for cross-linked insulation and sheath
- IEC 60332-1-2 — flame propagation, single cable
- IEC 60754-1 — halogen-free
- EN 60811 series — mechanical and thermal test methods

TECHNICAL PARAMETERS

Rated Voltage
0.6/1 kV AC · 0.9/1.8 kV DC

Max. System Voltage
1.8 kV DC between conductors of opposite polarity

Test Voltage
6.5 kV AC / 15 kV DC, 5 min

Conductor Temperature
+120 °C continuous
+200 °C short circuit, 5 s max

Ambient Temperature
-40 °C to +90 °C, fixed and flexible

Min. Bending Radius
4 × overall diameter

Design Life
25 years — 30 years at 90 °C conductor

Sheath Colours
Black, blue, red

Cross-sections
1.5–240 mm²; 1.5–35 mm² from stock

1.8 kV	+120 °C	TÜV
DC rated	conductor	2 PfG 1169

DIMENSIONS AND CURRENT RATING

Table 1 — the full published range; shaded rows are held in stock

CROSS-section	CONDUCTOR dia. mm	OVERALL DIA. mm	WEIGHT kg/km	BEND RADIUS mm	AMPACITY 60 °C in air, A	ISC 1 S kA
1.5	**1.6**	**4.4–4.8**	**29**	**14.4**	**29**	**0.19**
2.5	**1.9**	**4.7–5.1**	**43**	**15.3**	**41**	**0.32**
4	**2.4**	**5.2–5.6**	**58**	**16.8**	**55**	**0.50**
6	**2.9**	**5.7–6.1**	**76**	**18.3**	**70**	**0.76**
10	**4.0**	**6.8–7.2**	**120**	**21.6**	**98**	**1.26**
16	**5.5**	**8.3–9.0**	**178**	**36**	**132**	**2.01**
25	**6.4**	**10.0–10.7**	**273**	**43**	**176**	**3.15**
35	**7.5**	**11.1–11.8**	**364**	**47**	**218**	**4.41**
50	9.0	12.6–13.3	500	53	276	6.30
70	10.8	14.4–15.2	686	61	347	8.82
95	12.6	16.2–17.0	899	68	416	12.0
120	14.3	17.7–18.7	1131	75	488	15.1
150	15.9	19.7–20.7	1382	83	566	18.9
185	17.5	21.3–22.3	1669	89	644	23.3
240	20.5	24.2–25.5	2208	102	775	30.4

Ampacity is quoted at 60 °C ambient, cable free in air, one circuit. That is the reference condition TÜV 2 PfG 1169 uses, and it is not the 30 °C basis used for building wire. A string run bundled with others, or in conduit on a roof, carries less — apply the manufacturer's correction table, not the bare number.

> **PV1-F is not H1Z2Z2-K.** Both are 120 °C halogen-free solar cables and both are sold as "PV cable", but PV1-F is approved to TÜV 2 PfG 1169 at 0.6/1 kV AC and 0.9/1.8 kV DC, while H1Z2Z2-K is approved to EN 50618 at 1.5 kV DC. On a 1500 V DC array the DC rating is what the inspector checks — specify the standard, not the colour of the sheath.

Disclaimer. The information in this datasheet is for guidance only and is subject to change without notice. Dimensions and masses are nominal and subject to manufacturing tolerance; confirm against the certificate of the delivered product. This document is uncontrolled once printed or forwarded — the current revision, issued under document number SORIVO-TM-PV1F-001, governs. © 2026 SORIVO. All rights reserved. Bending radius follows the 4 × D rule of TÜV 2 PfG 1169; the per-size column is the published value and is 3 × the maximum diameter. Both appear in the type approval.

CONDUCTOR RESISTANCE AND VOLTAGE DROP

Table 2 — max. DC resistance at 20 °C, IEC 60228 Class 5 tinned

CROSS-SECTION mm²	R′ @20 °C Ω/km	LOOP DROP V/A/km	CROSS-SECTION mm²	R′ @20 °C Ω/km	LOOP DROP V/A/km
1.5	13.7	27.4	10	1.95	3.90
2.5	8.21	16.4	16	1.24	2.48
4	5.09	10.2	25	0.795	1.59
6	3.39	6.78	35	0.565	1.13

Loop drop = 2 × R′. A string is a go-and-return circuit, so the loss is twice the one-way resistance: at 4 mm², 10.2 V per amp per kilometre — under 1 % of a 1500 V string over 100 m at 10 A. Calculated, not published.

TYPE TESTS

Table 3 — proved once on the design, not per delivery

TEST	CONDITION	REQUIREMENT
Cold bend	-40 °C, EN 60811-1-4	No crack after bending
Impact at low temperature	-40 °C	No breakdown
Damp heat	1000 h, 90 °C, 85 % RH	Per TÜV 2 PfG 1169
Ozone	EN 50396 type B	No crack
UV	UL 1581 xenon, ISO 4892-2 A	No crack
Mineral oil	24 h at 100 °C	Per EN 60811-2-1
Acid and alkali	7 days at 23 °C	Per TÜV 2 PfG 1169
DC stability	10 days, 85 °C, salt water, 1.5 kV DC	No breakdown
Flame	IEC 60332-1-2, single cable	Pass

BENDING RADIUS

4 × the overall diameter, measured to the inside of the bend. Below that the bonded insulation and sheath wall is strained, and the two-layer construction that gives the cable its water blocking is the first thing to fail.

CONNECTORS

Use one brand and series of connector on both sides of a joint — mixed-brand MC4 pairs are the largest single cause of field fires on PV arrays.

Disclaimer. The information in this datasheet is for guidance only and is subject to change without notice. Dimensions and masses are nominal and subject to manufacturing tolerance; confirm against the certificate of the delivered product. This document is uncontrolled once printed or forwarded — the current revision, issued under document number SORIVO-TM-PV1F-001, governs. © 2026 SORIVO. All rights reserved. Design life per TÜV 2 PfG 1169 / IEC 60216, at rated temperature and bend limits.