

Aluminum Alloy Photovoltaic Wire Series



APPLICATION

Used for the series cable between photovoltaic modules and modules on the DC side of the photovoltaic power generation system, the parallel connection between the strings between the strings and the DC distribution box (combiner box), and the connection between the cable and the DC distribution box to the inverter. Cables for photovoltaic power generation systems with aluminum alloy conductors that meet the requirements of outdoor environments

TECHNICAL INDICATORS

Nominal voltage: DC1500V
 Test voltage: AC6.5kV/5min or DC15kV/5min without breakdown
 Conductor maximum working temperature when air laying: 120°C/2000h
 Conductor long-term working temperature: 90°C
 Ambient temperature: -40°C~+90°C
 Maximum short circuit temperature: $\leq 250^{\circ}\text{C}/5\text{S}$
 Expected service life: 25 years
 Bending radius: $6 \times D$

STRUCTURE

Conductor: 2 PFG 2642 fifth aluminum alloy flexible conductor
 Insulation: LSZH cross-linked Polyolefin (120°C)
 Sheath: LSZH cross-linked Polyolefin (120°C)
 Color: red or black

CHARACTERISTICS COMPLIANCE

Fire performance: IEC 60332-1
 Salt spray emission: IEC 61034; EN 50268-2
 Low fire load: DIN 51900
 Product certification: TUV 2 PFG 2642/01.22

Structural dimensions and parameters

Model	Specification (mm ²)	Insulation Nominal Thickness (mm)	Sheath Nominal Thickness (mm)	Approximate outer diameter (mm)	Approximate weight (kg/km)	Maximum DC resistance of conductor at 20°C (Ω/km)	Minimum insulation resistance at 90°C (MΩ/km)
PV1500DC-AL-K	1×4	0.7	0.8	5.6	39.1	8.1	0.709
PV1500DC-AL-K	1×6	0.7	0.8	6.2	48.82	5.05	0.61
PV1500DC-AL-K	1×10	0.8	0.8	7.3	69.3	3.08	0.489
PV1500DC-AL-K	1×16	0.9	0.9	8.8	101.66	1.91	0.395
PV1500DC-AL-K	1×25	1	1	11.3	159.43	1.2	0.393
PV1500DC-AL-K	1×35	1.1	1.1	13	211.61	0.868	0.335
PV1500DC-AL-K	1×50	1.2	1.2	15.2	289.86	0.641	0.314
PV1500DC-AL-K	1×70	1.2	1.2	17.1	369.57	0.443	0.291
PV1500DC-AL-K	2×4	0.7	0.8	5.6×11.4	79.89	8.1	0.709
PV1500DC-AL-K	2×6	0.7	0.8	6.2×12.6	99.54	5.05	0.61
PV1500DC-AL-K	2×10	0.8	0.8	7.3×14.8	140.78	3.08	0.489

Reference table for quick selection of carrying capacity

Cross-sectional area		Recommended value of ampacity (A)		Download traffic conversion factor for different ambient temperatures	
Aluminum	Copper	Laying in the air	Buried laying	Ambient temperature °C	Conversion factor
1×2.5	1×1.5	31	43	0	1.22
1×4	1×2.5	42	59	10	1.15
1×6	1×4	57	80	20	1.08
1×10	1×6	72	106	30	1
1×16	1×10	98	139	40	0.91
1×25	1×16	132	178	50	0.82
1×35	1×25	183	213	60	0.71
1×50	1×35	227	251	70	0.58
1×70	1×50	287	308		
2×2.5	2×1.5	24	33		
2×4	2×2.5	33	46		
2×6	2×4	45	63		
2×10	2×6	58	85		
2×16	2×10	80	113		
2×25	2×16	107	144		
2×35	2×25	138	161		
2×50	2×35	171	189		
2×70	2×50	209	224		

Note: Ambient temperature is 30°C; conductor maximum temperature is 90°C



PRODUCT CHARACTERISTICS

reduce cable weight
resistance to external environment such as ozone resistance, acid and alkali resistance and environmental climate resistance, and has a long service life of 25 years
Reduce installation costs, can be directly buried, and can be used for series and parallel connection of multiple components
Carrying capacity meets the requirements
The mechanical properties of aluminum conductors meet the standards
Copper-aluminum connection safety
Copper-aluminum connectors and cable connections



Requirements for copper aluminum connectors

Use copper-aluminum connectors that meet the relevant requirements of EC62852, IEC61238 and 2pg standards. In view of the continuous technological progress of copper-aluminum connectors, there may be problems in the matching between cables and connectors of different brands. It is recommended that connectors of a specific brand and model need to be matched with aluminum alloy photovoltaic cables of a specific brand and model.

Matching Verification Requirements for Copper-Aluminum Connectors and Aluminum Alloy Photovoltaic Cables

Number	Experimental project	Performance requirements
1	Thermal cycle test (1000 times) thermal cycle	Initial dispersion: ≤ 0.3 Average dispersion: ≤ 0.3 Variation of resistance ratio: ≤ 0.15 Resistance ratio growth rate: ≤ 2.0 Maximum temperature: \leq reference conductor temperature
2	Short circuit test (6 times)	Only for type A connector
3	Mechanical property test	40XA*, up to 20000N. The joint bears the above tensile load and keeps it for 1min. No slippage at the crimp

Note: A* indicates the nominal cross-sectional area of aluminum or aluminum alloy conductor (mm²)