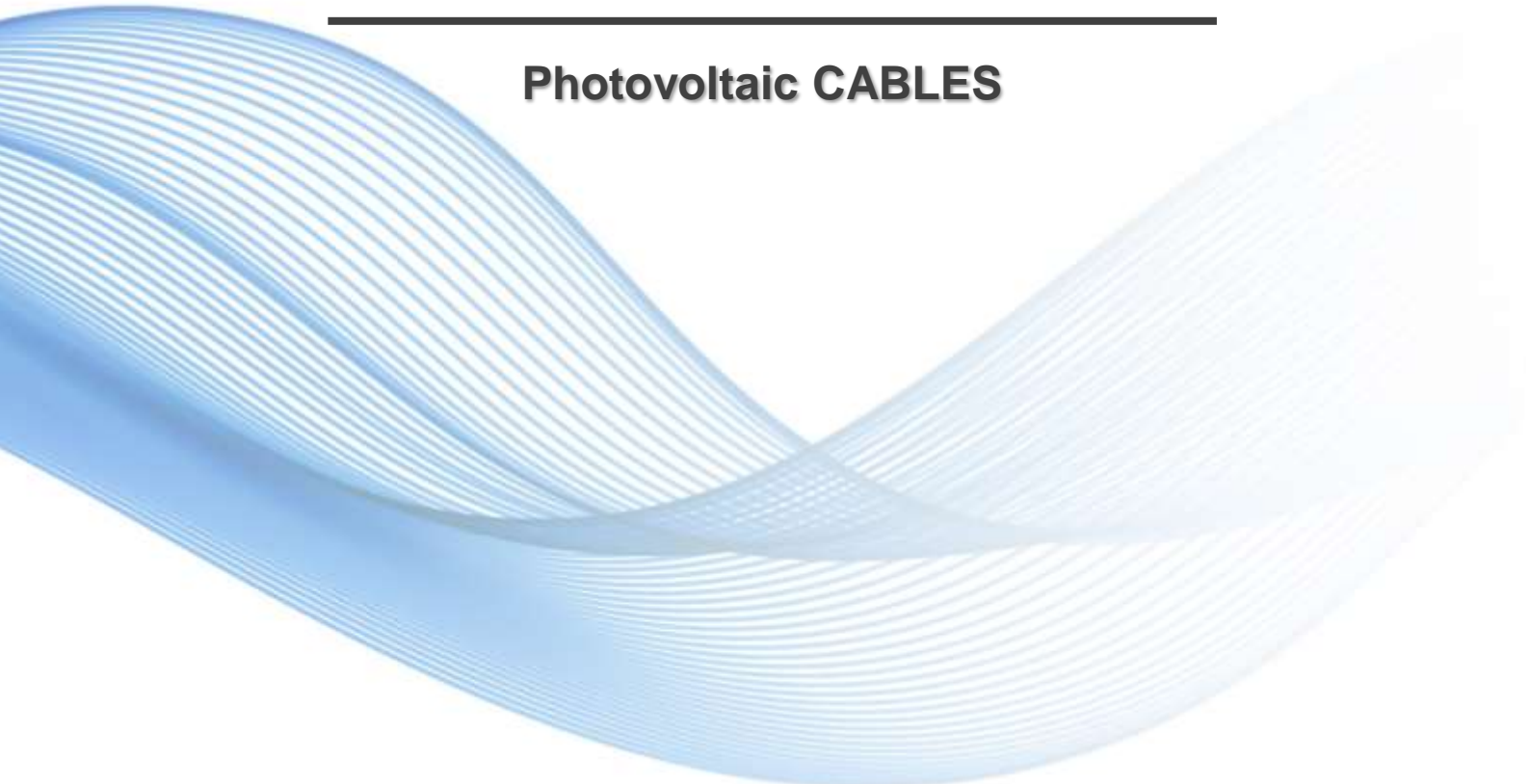


# TECHNICAL SPECIFICATION

## Photovoltaic CABLES



A	July 14, 2020	Joey	Reddy	Felix
<b>Version</b>	<b>Date</b>	<b>Prepared</b>	<b>Reviewed</b>	<b>Approved</b>

## 1. General

This listed specification covers the structure, test and packing information of Cables as manufactured by Zhongtian Technology Co., Ltd (ZTT). Matters not mentioned in this technical specification shall be negotiated by purchaser & supplier. This document confirms the two parties' agreement as technical agreement of contract unless otherwise in official written annexes.

## 2. Standards

The cable which ZTT offered shall be designed, manufactured and tested according to international standards as follows:

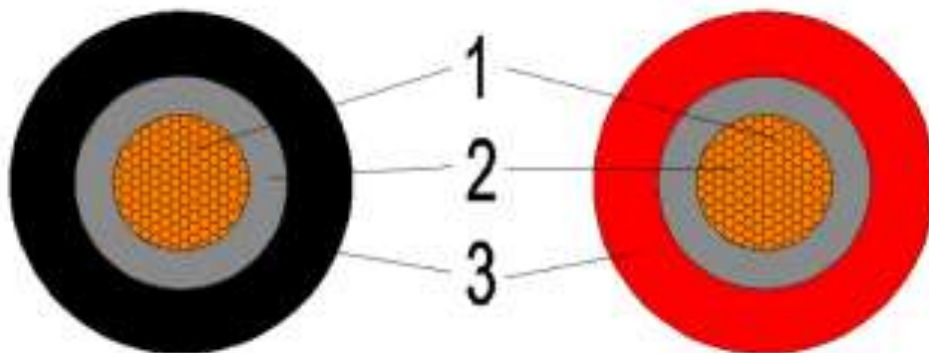
ISO 9001:2015	Quality Management Systems
ISO 14001:2015	Environmental Management Systems
OHSAS 18001:2007	Occupational health and safety management system
IEC 60228:2004	Conductors of insulated cables
EN 50618: 2014	This standard cables for use in Photovoltaic Systems in particular for installation at direct Current side.

**Note: ZTT shall comply with the latest vision standards.**

### 3 Construction, parameters and characteristics

- 1) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x1.5 mm<sup>2</sup>
- 2) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x2.5 mm<sup>2</sup>
- 3) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x4 mm<sup>2</sup>
- 4) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x6 mm<sup>2</sup>
- 5) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x10 mm<sup>2</sup>
- 6) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x16 mm<sup>2</sup>
- 7) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x25 mm<sup>2</sup>
- 8) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x35 mm<sup>2</sup>
- 9) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x50 mm<sup>2</sup>
- 10) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x70 mm<sup>2</sup>
- 11) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x95 mm<sup>2</sup>
- 12) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x120 mm<sup>2</sup>
- 13) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x150 mm<sup>2</sup>
- 14) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x185 mm<sup>2</sup>
- 15) H1Z2Z2-K 1/1(1.2)kV ac-1.5/1.5(1.8)kV DC 1x240 mm<sup>2</sup>

#### Cable construction



**Note:** The above drawing is only for reference.

Item	Description	Material	Apply method
1	Conductor	Tinned copper wire	Class 5 stranding
2	Insulation	XLPO	Extruding
3	Outer sheath	XLPO	Extruding
Core identification		Black or acc. to customer's requirement	
Outer sheath color		Black or Red	

### Dimension Data

Core No. x Cross section (mm <sup>2</sup> )	Nom./min. insulation thickness (mm)	Nom./min. outer sheath thickness (mm)	Nom. diameter over outer sheath (mm)	Max. mean diameter over outer sheath (mm)	Approx. weight (kg/km)
1x1.5	0.7/0.53	0.8/0.58	4.5	5.4	39.0
1x2.5	0.7/0.53	0.8/0.58	5.0	5.9	51.0
1x4	0.7/0.53	0.8/0.58	5.3	6.6	64.7
1x6	0.7/0.53	0.8/0.58	6.0	7.4	87.1
1x10	0.7/0.53	0.8/0.58	7.0	8.8	130.5
1x16	0.7/0.53	0.9/0.665	8.3	10.1	193.3
1x25	0.9/0.71	1.0/0.75	10.3	12.5	295.5
1x35	0.9/0.71	1.1/0.835	11.8	14	396.2
1x50	1.0/0.80	1.2/0.92	13.4	16.3	546.1
1x70	1.1/0.89	1.2/0.92	15.6	18.7	750.8
1x95	1.1/0.89	1.3/1.005	17.7	20.8	951.9
1x120	1.2/0.98	1.3/1.005	19.5	22.8	1209.4
1x150	1.4/1.16	1.4/1.09	21.6	25.5	1502.9
1x185	1.6/1.34	1.6/1.26	24.5	28.5	1839.5
1x240	1.7/1.43	1.7/1.345	27.4	32.1	2420.3

### Electrical Data

Core x Cross section (mm <sup>2</sup> )	Max. Continuous conductor temp.(°C)	Max. DC resistance of conductor at 20 °C(Ω/km)	Current Rating (A)		
			Single cable free in air	Single cable on a surface	Two loaded cables touching on a surface
1x1.5	120	13.7	30	29	24
1x2.5	120	8.21	41	39	33
1x4	120	5.09	55	52	44
1x6	120	3.39	70	67	57
1x10	120	1.95	98	93	79
1x16	120	1.24	132	125	107
1x25	120	0.795	176	167	142
1x35	120	0.565	218	207	176
1x50	120	0.393	276	262	221
1x70	120	0.277	347	330	278
1x95	120	0.210	416	395	333
1x120	120	0.164	488	464	390
1x150	120	0.132	566	538	453
1x185	120	0.108	644	612	515
1x240	120	0.0817	775	736	620

Note: Ambient temperature: 60 °C, Max conductor temperature: 120°C,

## Current rating conversion factors for different ambient temperatures

Ambient temperature	Conversion factor	Ambient temperature	Conversion factor
Up to 60			1.00
70			0.92
80			0.84
90			0.75

## Usage characteristics

Operation temperature (°C)	-40~+90
Min. bending radius (mm)	4D
Design standard	EN 50618
Flame retardant	IEC 60332-1-2
Low smoke	IEC 61034-2
Halogen free	IEC 60754-1

## 4 FAT Test requirements for cable

FAT test shall be in accordance with applicable standard of cable. The following test items shall be carried out according to relevant standards. ZTT reserves the right to impose additional charges for additional test as per request from customer or consultant(s).

No.	Test item
Routine test	
1	Measurement of electrical resistance of conductors
2	Voltage test
Sample test	
1	Measurement of thickness of insulation
2	Measurement of thickness of non-metallic sheath
3	Measurement of external diameter and ovality

## 5 PACKING AND DRUM

ZTT cables are packed on wooden drums. During transportation, right tools should be used to avoid damaging the package and to handle with ease. Cables should be protected from moisture; kept away from high temperature and fire sparks; protected from over bending and crushing; protected from mechanical stress and damage.

The inner end of cable is then sealed with heat shrinkable end cap to prevent ingress of water and is made available for testing. The outer end of cable is equipped with heat shrinkable end cap. Outer sheath marking legend can be changed according to user's requests.

