

# Production Catalog

## Low voltage power cable

### Product overview

This product apply to power transmission and distribution system, electric power supply with rated voltage of 1~3kV, interior conduit, outdoor, underground and other occasions, also suitable for the power transmission and distribution system for hydropower, thermal power, petrochemical engineering and industrial projects.

#### Voltage grade:

BS standard:  $U_0/U (U_m)$  : 0.6/1(1.2)kV、1.9/3.3(3.6)kV

IEC standard:  $U_0/U (U_m)$  : 0.6/1(1.2)kV、1.8/3(3.6)kV

**Note:**  $U_0$ —Rated power frequency voltage between earth and metal shield to conductor for cable design

$U$ —Rated power frequency voltage among conductors for cable design

$U_m$ —Bearable max value of “Max System Voltage” for equipment.

#### Executive standard:

##### IEC 60502-1

Extruded and insulated power cable and accessory at rated voltage from 1kV ( $U_m=1.2kV$ ) to 30kV ( $U_m=36kV$ ), Part 1—Cable at rated voltage from 1kV ( $U_m=1.2kV$ ) to 3kV ( $U_m=3.6kV$ )

##### BS 7889

Thermosetting insulated non-armed fixed installation power cable with rated voltage of 600/1000V

##### BS 5467

Thermosetting insulated armored power cable with rated voltage of 600/1000V and 1900/3300V

##### BS 6346

PVC insulated armored cable with rated voltage of 600/1000V and 1900/3300V

##### BS 6724

Electric cables— Thermosetting insulated armored cables of rated voltage of 600/1000V and 1900/3300V for fixed installation, having low emission of smoke and corrosive gases when affected by fire

### Product features

Working temperature as following:

Conductor working temperature at normal operation /°C		Conductor working temperature at short circuit /°C		Allowable min. working temperature/°C		
XLPE insulation	PVC insulation	XLPE insulation	PVC insulation	LSZH sheath	PVC sheath	PE sheath
90	70	250	160	-15	-15	-40

#### Min. bending radius:

Single core: armored  $15 \times OD$ ; non-armed  $20 \times OD$ .

Three cores: armored  $12 \times OD$ ; non-armed  $15 \times OD$ .

**Note:** OD— finished cable diameter, mm

**Cable installation ambient temperature:** for PVC insulated or PVC sheathed cable, the ambient temperature during installation shall not less than 0°C.

**Flame retardant performance:** flame retardant low voltage power cable would pass the bunched cable flame vertical extension test in IEC 60332 or BS 4066.

**Low smoke halogen-free performance:** LSZH flame retardant cable would meet the requirements of IEC 60754 & IEC 61034-1 for pH value, conductivity, and minimum smoke luminousness.

**Fire resistant performance:** fire resistant cable could pass the circuit integrity test under fire condition in IEC 60331.

### Typical cable type and name

Cable type	Voltage grade	Type description
YJV	0.6/1kV	Copper core, XLPE insulated PVC sheathed low voltage power cable
YJY	0.6/1kV	Copper core, XLPE insulated PE sheathed low voltage power cable
YJV22	0.6/1kV	Copper core, XLPE insulated double-deck steel tape armored PVC sheathed low voltage power cable
YJV32	0.6/1kV	Copper core, XLPE insulation round steel wire armored PVC sheathed low voltage power cable
ZC-YJV	0.6/1kV	Copper core, XLPE insulation PVC sheathed flame retardant cat. C low voltage power cable
WDZ-YJY	0.6/1kV	Copper core, XLPE insulated PO sheathed LSZH flame retardant low voltage power cable
NH-YJV	0.6/1kV	Copper core, XLPE insulated PVC sheathed fire resistant low voltage power cable
WDZN-YJY	0.6/1kV	Copper core, XLPE insulated PO sheathed LSZH flame retardant and fire resistant low voltage power cable

The type in this table is proposed type, the unlisted cable types could be combined as per standard according to cable actual service conditions.

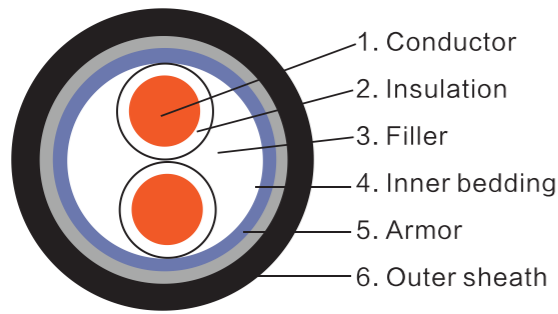
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## Manufacturing scope

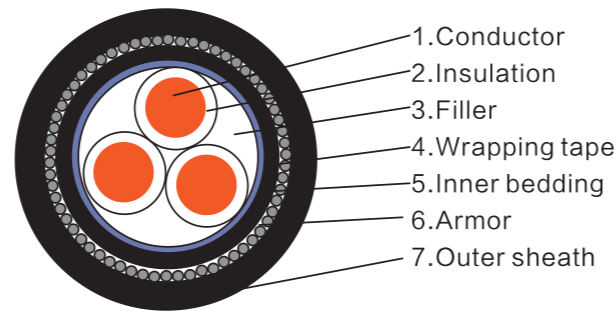
Cable category	Voltage grade	Specification	
		No. of cores	Nominal cross section (mm <sup>2</sup> )
Low voltage power cable	0.6/1kV 1.8/3kV 1.9/3.3kV	1 ~ 5	1.5 ~ 630

## Typical structure drawing

YJV22



YJV32



## Main performance index for cable

S.N	Items	Technical performance
1	Conductor D.C resistance test	As per IEC 60228 requirement
2	Power frequency voltage test	The power frequency voltage value for 0.6/1kV is 3.5kV; The power frequency voltage value for 1.8/3kV is 6.5kV; No breakdown occurs on insulation
3	Insulation resistance under ambient temperature (20°C)	PVC insulation: 36.7 MΩ · km
4	Insulation resistance measurement at conductor max. temperature under normal operation	XLPE insulation: 3.67MΩ · km
5	Bunched combustion test	Flame retardant cable conforms to the Cat. A/B/C bunched combustion test in IEC 60332 standard.
6	LSZH performance	LSZH flame retardant cable meet the requirement of IEC 60754.1&IEC 61034-1 for pH value, conductivity and minimum light luminousness: the pH value of gas released in combustion ≥4.3, conductivity ≤10 μs/mm, min smoke light luminousness ≥60%.
7	Fire resistant performance	Fire resistant cable could pass the circuit integrity test under fire condition in IEC 60331: Flame temperature: 750 ~ 800°C Fire time: 90min+15min ( cooling time ) Test voltage; rated voltage Qualified index: 2A fuse not break, the light keep on.

# Medium voltage power cable

## Product overview

This product apply to power transmission and distribution system, electric power supply with rated voltage of 6~30kV, interior conduit, outdoor, underground and other occasions, also suitable for the power transmission and distribution system for hydropower, thermal power, petrochemical engineering and industrial projects.

### Voltage grade:

BS standard:  $U_0/U (U_m)$  :

3.8/6.6(7.2)kV、6.35/11(12)kV、8.7/15(17.5)kV、12.7/22(24)kV、19/33(36)kV

IEC standard:  $U_0/U (U_m)$  :

3.6/6(7.2)kV, 6/6 ( 7.2 )、6/10(12)kV, 8.7/10 ( 12 )、8.7/15(17.5)kV, 12/20(24)kV, 18/30(36)kV

### Note:

$U_0$ —Rated power frequency voltage between earth and metal shield to conductor for cable design

$U$ —Rated power frequency voltage among conductors for cable design

$U_m$ —Bearable max value of “Max System Voltage” for equipment.

### Executive standard:

**IEC 60502-2**

Extruded and insulated power cable and accessory at rated voltage from 1kV ( $U_m=1.2kV$ ) to 30kV ( $U_m=36kV$ ), Part 2—Cable at rated voltage from 6kV ( $U_m=7.2kV$ ) to 30kV ( $U_m=36kV$ )

**BS 6622**

Extruded XLPE or EPR insulated cable with rated voltage of 3.8/6.6kV~19/33kV

**BS 7835**

Electric cables— Thermosetting insulated cables of rated voltage of 3.8/6.6kV~19/33kV, having low emission of smoke and corrosive gases when affected by fire

## Product features

### Working temperature:

-15°C ~ 90°C(PVC/LSZH sheathed medium voltage power cable)

-40°C ~ 90°C (PE sheathed medium voltage power cable)

Max. conductor temperature at short circuit: 250°C (Max duration for short circuit is 5s)

Cable installation ambient temperature: for PVC sheathed cable, the ambient temperature during installation shall not less than 0°C , preheating is need when the temperature less than 0°C.

### Min bending radius:

Single core cable: armored 15 × OD; non-armored 20 × OD.

Three cores cable: armored 12 × OD; non-armored 15 × OD.

**Note:** OD— finished cable diameter, mm

Flame retardant performance: flame retardant medium voltage power cable would pass

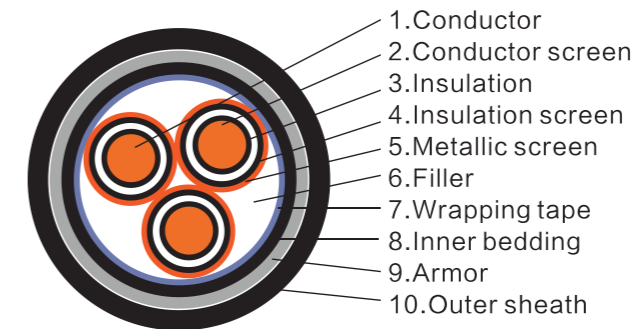
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the bunched cable flame vertical extension test in IEC 60332 or BS 4066.

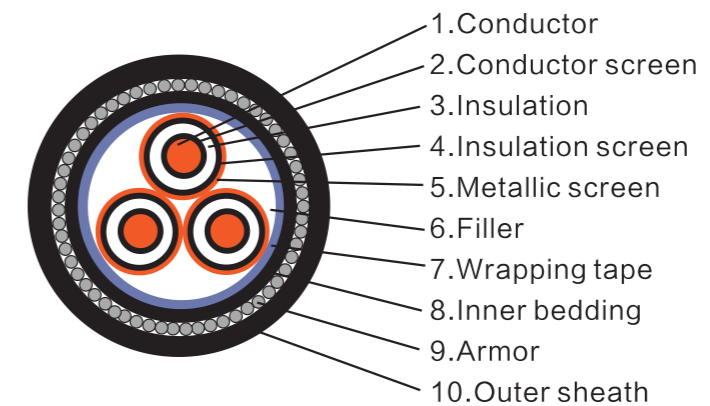
**Low smoke halogen-free performance:**LSZH flame retardant cable would meet the requirements of IEC 60754 & IEC 61034-1 for pH value, conductivity, and minimum smoke luminousness.

## Typical structure drawing

YJV22 (Three cores cable)



YJV32 (three cores cable)



## Main performance index for cable

S.N	Items	Technical performance
1	Conductor D.C resistance test	As per IEC 60228 requirement
2	Power frequency voltage test	Rated voltage: 3.6kV; Test voltage (3.5U <sub>0</sub> ): 12.5kV Rated voltage: 6kV; Test voltage (3.5U <sub>0</sub> ): 21kV Rated voltage: 8.7kV; Test voltage (3.5U <sub>0</sub> ): 30.5kV Rated voltage: 12kV; Test voltage (3.5U <sub>0</sub> ): 42kV Rated voltage: 18kV; Test voltage (3.5U <sub>0</sub> ): 63kV 5min, no breakdown occurs on insulation
3	Partial discharge test	At 1.73U <sub>0</sub> , no detectable partial discharge more than the specified test sensitivity (test sensitivity shall be 10Pc or better)
4	Bunched combustion test	Flame retardant cable conforms to the Cat. A/B/C bunched combustion test in IEC 60332 standard.
5	LSZH performance	LSZH flame retardant cable meet the requirement of IEC 60754&IEC 61034-1 for pH value, conductivity and minimum light luminousness: the pH value of gas released in combustion ≥4.3, conductivity ≤10 μs/mm, min smoke light luminousness ≥60%.

## Typical cable type and name

Cable type	Voltage grade	Type description
YJV	3.6/6kV 6/6kV 6/10kV 8.7/10kV 8.7/15kV 12/20kV 18/30kV	Copper core XLPE insulated PVC sheathed medium voltage power cable
YJY		Copper core XLPE insulated PE sheathed medium voltage power cable
YJLV		Aluminum core XLPE insulated PVC sheathed medium voltage power cable
YJV22		Copper core XLPE insulated double steel tape armored PVC sheathed medium voltage power cable
YJLV22		Aluminum core XLPE insulated double steel tape armored PVC sheathed medium voltage power cable
YJV32		Copper core XLPE insulated steel wire armored PVC sheathed medium voltage power cable
YJY23		Copper core XLPE insulated double steel tape armored PE sheathed medium voltage power cable
YJY33		Copper core XLPE insulated steel wire armored PE sheathed medium voltage power cable

The type in this table is proposed type, the unlisted cable types could be combined as per standard according to cable actual service conditions.

## Manufacturing scope

Cable category	Voltage grade	Specification	
		No. of cores	Nominal cross section (mm <sup>2</sup> )
Medium voltage power cable	6 ~ 30kV	1	10 ~ 630
		3	10 ~ 630