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# 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.

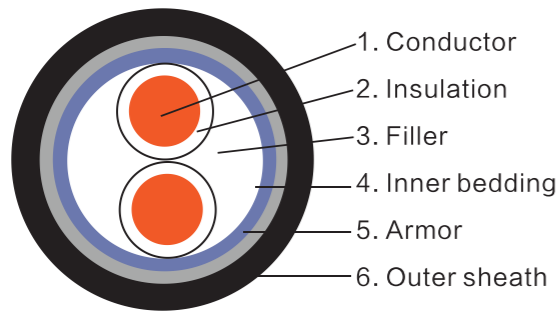
# Production Catalog

## Manufacturing scope

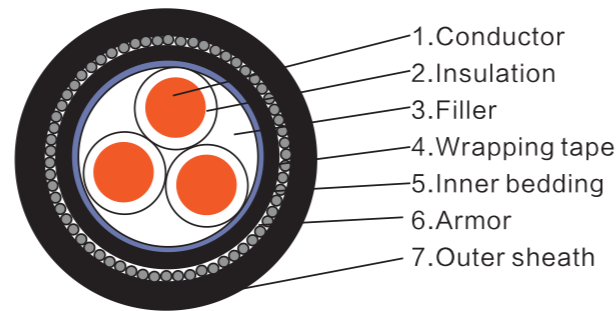
Cable category	Voltage grade	Specification	
		No. of cores	Nominal cross section (mm <sup>2</sup> )
Low voltage power cable	0.6/1kV 1.8/3kV 1.9/3.3kV	1 ~ 5	1.5 ~ 630

## 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

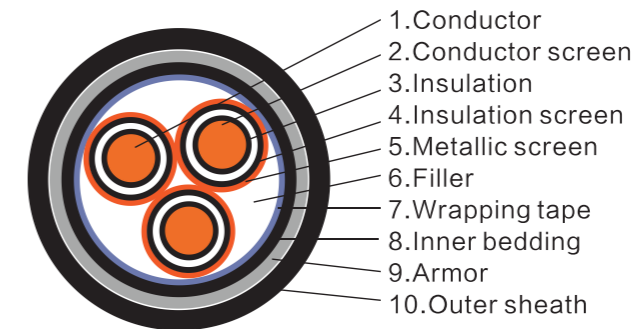
# Production Catalog

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

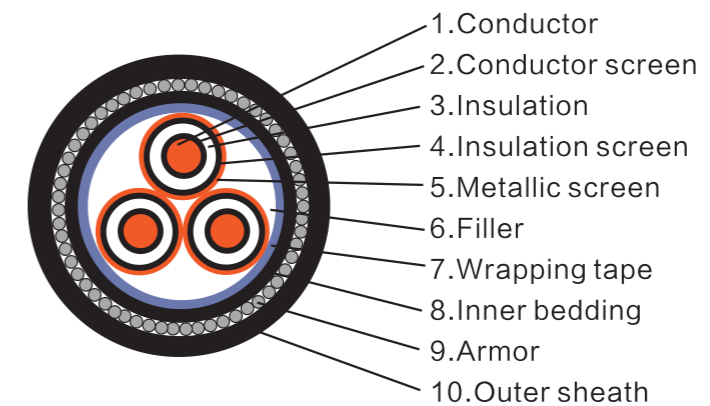
**Low smoke halogen-free performance:**LSZH flame retardant cable would meet the requirements of IEC 60754 & IEC 61034-1 for pH value, conductivity, and minimum smoke luminousness.

## 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

# Production Catalog

## High voltage and extra high voltage power cable

### Product overview

High voltage and extra high voltage power cable is used for high-capacity high voltage power transmission. With the development of social and economic and increasing of power demand, the demand of 66kV-500kV XLPE insulated A.C power cable is more urgent for large scale urban power grid transformation, especially, the previous XLPE insulated A.C power cable circuit with rated voltage of 10kV, 20kV, 33kV, 35kV in urban power grid would be changed to XLPE insulated A.C power cable circuit with rated voltage of 66kV, 69kV, 110kV, 132kV, the overhead line with rated voltage of 220kV, 230kV, 275kV, 330kV, 380kV, 400kV, 500kV in peri-urban areas would be changed to underground XLPE insulated A.C power cable.

### Product category differentiate

#### High voltage power cable:

36、38、48、50/66kV  
36、38、48、50/69kV  
64/110kV  
76/132kV

#### Extra high voltage power cable:

127/220kV  
127/230kV  
160/275kV  
190/330kV  
220/380kV  
220/400kV  
290/500kV

### Executive standard

66kV、69kV、110kV、132kV high voltage power cable: IEC60840  
220kV、230kV、275kV、330kV、380kV、400kV、500kV extra high voltage power cable: IEC62067

### Product qualification

110kV-1600mm<sup>2</sup> Type test report issued by Shanghai Cable Research Institute  
132kV-1600mm<sup>2</sup> Cable system type test report issued by KEMA Laboratories  
220kV-2500mm<sup>2</sup> Cable system type test report issued by Shanghai Cable Research Institute  
220kV-2500mm<sup>2</sup> Cable system pre-identification test report for Shanghai Cable Research Institute

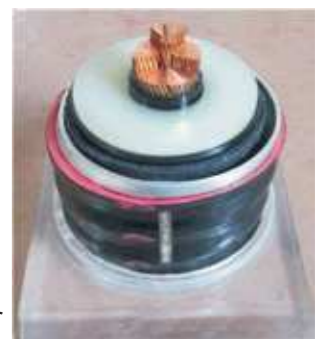
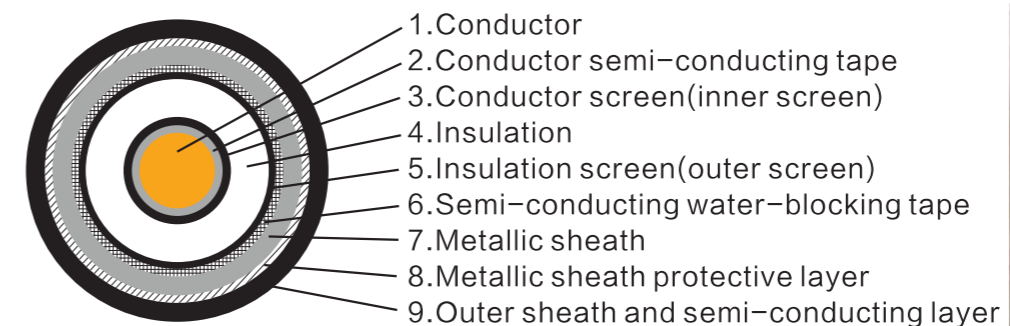
### Typical cable type and name

Cable type	Voltage grade	Type description
YJA03	48/66kV	XLPE insulated metallic composite PE sheathed power cable with rated voltage of 48/66kV
ZC-YJLW03-Z	64/110kV	XLPE insulated weld corrugated aluminum sheathed flameretardant PE sheathed longitudinal water-blocking flame retardant cat. C power cable with rated voltage of 64/110kV
FY-YJQ03	127/220kV	XLPE insulated lead sheathed anti-termite PE sheathed power cable with rated voltage of 127/220kV
YJLW02-Z <sub>2</sub>	290/500kV	XLPE insulated weld corrugated aluminum sheathed PVC sheathed conductor water-blocking power cable with rated voltage of 290/500kV

### Manufacturing scope

Cable type	Specification		
	No. of cores	Conductor material	Nominal cross section (mm <sup>2</sup> )
66kV、69kV、110kV、132kV high voltage power cable	1	Copper, aluminum	240 ~ 1600
220kV、230kV、275kV Extra high voltage power cable	1	Copper	400 ~ 2500
330kV、380kV、400kV、500kV extra high voltage power cable	1	Copper	800 ~ 2500

### Typical structure drawing



# Production Catalog

## Main performance index for cable

S.N	Items	Technical performance
1	Power frequency withstand voltage test	2.5U <sub>0</sub> , 2U <sub>0</sub> , maintain for 30min, 60min, no breakdown occurs on insulation
2	Partial discharge test	1.5U <sub>0</sub> , no detectable partial discharge more than the specified test sensitivity (test sensitivity shall be 5Pc or better)
3	Outer sheath D.C voltage test	25kV, 1 min no breakdown
4	Air tightness test	Nitrogen, 4 kg, 2h (state grid) or 30min (South Grid)
5	Conductor D.C resistance test	As per GB/T 3956 (IEC 60228)
6	Structure size	As per corresponding product standard
7	XLPE insulation hot set	Test according to GB/T 2951.5 (200 °C, 20 N/cm <sup>2</sup> , 15 min), max elongation shall not more than 125%, the permanent elongation after cooling shall not more than 10%.
8	Capacitance measurement	Not more than 8% of declared value
9	Insulation, micropore, impurity, protuberance semi-conducting layer	As per corresponding product standard
10	Cable system outer sheath D.C withstand voltage after installation	10kV, 1min no breakdown
11	Cable system insulation A.C withstand voltage after installation	2U <sub>0</sub> , 1.7U <sub>0</sub> , 1h no breakdown; U <sub>0</sub> , 24h no breakdown

# Computer and instrument cable

## Product overview

This product is used for computer, instrumentation, automatic detect devices and other signal transmission and control system with rated voltage of 300/500V in energy, metallurgy, petroleum, chemical engineering and other field.

### Voltage grade:

U<sub>0</sub>/U: 300/500V

**Note:** U<sub>0</sub>—Rated power frequency voltage between earth and metal shield to conductor for cable design

U—Rated power frequency voltage among conductors for cable design

### Executive standard:

**BS 5308**

Control and instrument cable

**BS EN 50288-7**

Sectional specification for instrument and control cable

## Product features

### Working temperature as following:

Conductor working temperature at normal operation /°C			Allowable minimum working temperature /°C		
XLPE insulation	PVC insulation	PE Insulation	LSZH sheath	PVC insulation	PE sheath
90	70	70	-15	-15	-40

### Min bending radius:

Armored or metallic tape screened cable: 12 × OD;

Non-armored or metallic wire braiding screened flexible cable: 6 × OD;

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

### Flame retardant performance:

Flame retardant medium voltage power cable could pass the bunched cable flame vertical extension test specified in IEC 60332 or BS 4066.

### LSZH performance:

LSZH flame retardant cable meet the requirements of IEC 60754&IEC 61034-1 for pH value, conductivity, min smoke luminousness.

### Fire resistant performance:

fire resistant cable could pass the circuit integrity test under fire condition specified in IEC 60331.

# Production Catalog

## Typical cable type and name

Cable type	Voltage grade	Description
DJYPV	300/500V	Copper core PE insulated copper wire braiding individual screened PVC sheathed computer and instrument cable
DJYPVP	300/500V	Copper core PE insulated copper wire braiding individual and overall screened PVC sheathed computer and instrument cable
DJYVP	300/500V	Copper core PE insulated copper wire braiding overall screened PVC sheathed computer and instrument cable
DJYP2V	300/500V	Copper core PE insulated copper plastic composite tape individual screened PVC sheathed computer and instrument cable
DJYP2VP2	300/500V	Copper core PE insulated copper plastic composite tape individual and overall screened PVC sheathed computer and instrument cable
DJYVP2	300/500V	Copper core PE insulated copper plastic composite tape overall screened PVC sheathed computer and instrument cable
DJYVP22	300/500V	Copper core PE insulated copper wire braiding individual screened steel tape armored PVC sheathed computer and instrument cable
DJYPVP22	300/500V	Copper core PE insulated copper wire braiding individual and overall screened steel tape armored PVC sheathed computer and instrument cable
DJYVP22	300/500V	Copper core PE insulated copper wire braiding overall screened steel tape armored PVC sheathed computer and instrument cable
DJYP2V22	300/500V	Copper core PE insulated copper plastic composite tape individual screened steel tape armored PVC sheathed computer and instrument cable
DJYJPV	300/500V	Copper core XLPE insulated copper wire braiding individual screened PVC sheathed computer and instrument cable
DJYJVP	300/500V	Copper core XLPE insulated copper wire braiding overall screened PVC sheathed computer and instrument cable
DJYJPVP	300/500V	Copper core XLPE insulated copper wire braiding individual and overall screened PVC sheathed computer and instrument cable

Cable type	Voltage grade	Description
DJYJP2VP2	300/500V	Copper core XLPE insulated copper plastic tape individual and overall screened PVC sheathed computer and instrument cable
DJYJPV	300/500V	Copper core XLPE insulated copper wire braiding individual screened PVC sheathed computer and instrument cable
WDZ-DJY P2Y23	300/500V	Copper core PE insulated copper plastic tape individual screened steel tape armored PO sheathed LSZH flame retardant computer and instrument cable
WDZN-DJY P2YP2-23	300/500V	Copper core PE insulated copper plastic tape individual and overall screened steel tape armored PO sheathed LSZH flame retardant fire resistant computer and instrument cable
WDZN-DJY YP2-23	300/500V	Copper core PE insulated copper plastic tape overall screened steel tape armored PO sheathed LSZH flame retardant fire resistant computer and instrument cable
WDZN-DJY P2Y23	300/500V	Copper core PE insulated copper plastic tape individual screened steel tape armored PO sheathed LSZH flame retardant fire resistant computer and instrument cable
WDZN-DJY P2YP2-23	300/500V	Copper core PE insulated copper plastic tape individual and overall screened steel tape armored PO sheathed LSZH flame retardant fire resistant computer and instrument cable
WDZ-DJY P2Y23	300/500V	Copper core PE insulated copper plastic tape individual screened steel tape armored PO sheathed LSZH flame retardant fire resistant computer and instrument cable

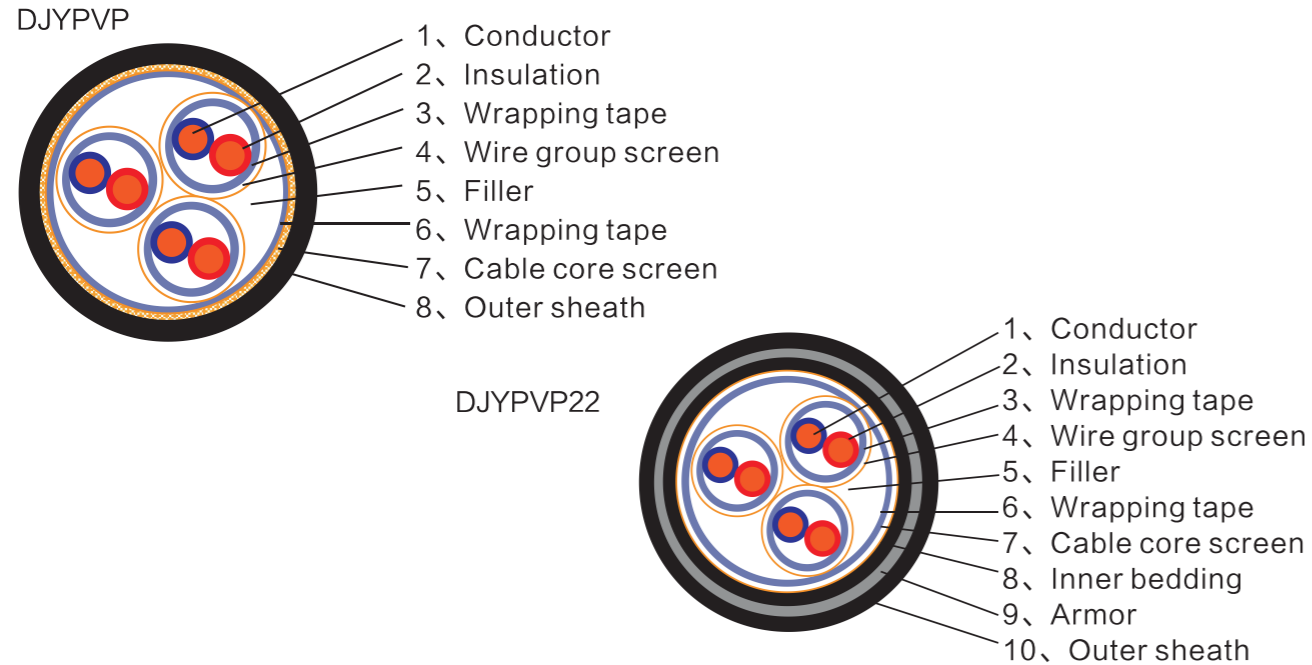
The type in this table is proposed type, the unlisted cable types could be combined as per standard according to cable actual service conditions.

## Manufacturing scope

Cable category	Voltage grade	Specification	
		No. of cores	Nominal cross section (mm <sup>2</sup> )
Computer and instrument cable	300/500V	1~61 groups (2, 3 or 4 cores)	0.5~4

# Production Catalog

## Typical structure drawing



## 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	For the cable with ordinary insulation thickness, add 40Hz-62Hz, 2000V sine-wave voltage for 1min. No breakdown occurs on insulation
3	Bunched combustion test	Flame retardant cable conforms to the cat. A/B/C bunched combustion test in IEC 60332 standard.
4	LSZH performance	LSZH flame retardant cable meet the requirement of IEC 607541&IEC 61034-1 for pH value, conductivity and minimum light luminousness: the pH value of gas released in combustion $\geq 4.3$ , conductivity $\leq 10 \mu s/mm$ , min smoke light luminousness $\geq 60\%$ .
5	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 Test voltage; rated voltage Qualified index: 2A fuse not break, the light keep on.

# Control cable

## Product overview

This product apply to control, monitoring loop and protective circuit with rated voltage of 450/750V.

**Voltage grade:**U<sub>0</sub>/U: 450/750V

**Note:** U<sub>0</sub>—Rated power frequency voltage between earth and metal shield to conductor for cable design

U —Rated power frequency voltage among conductors for cable design

**Executive standard:**

**IEC 60502-1**

Extruded and insulated power cable and accessory at rated voltage from 1kV (U<sub>m</sub>=1.2kV) to 30kV (U<sub>m</sub>=36kV), Part 1—Cable at rated voltage from 1kV (U<sub>m</sub>=1.2kV) to 3kV (U<sub>m</sub>=3.6kV)

## Product features

Working temperature as following:

Conductor working temperature at normal operation /°C		Conductor working temperature at short circuit /°C		Allowable minimum 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:**

Armored or copper tape screened cable: 12 × OD;

Non-armored or screened flexible cable: 6 × 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 control 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.



# Production Catalog

## Typical cable type and name

Cable type	Voltage grade	Type description
KYJV	450/750V	Copper core XLPE insulated PVC sheathed control cable
KVV	450/750V	Copper core PVC insulated PVC sheathed control cable
KYJVP	450/750V	Copper core XLPE insulated copper wire braided screened PVC sheathed control cable
KYJVP2	450/750V	Copper core XLPE insulated copper tape overall screened PVC sheathed control cable
KYJVP22	450/750V	Copper core XLPE insulated copper wire braiding screened double steel tape armored PVC sheathed control cable
KYJVP2-22	450/750V	Copper core XLPE insulated copper tape screened double steel tape armored PVC sheathed control cable
KVVP22	450/750V	Copper core PVC insulated copper wire braiding screened double steel tape armored PVC sheathed control cable
KVVP2-32	450/750V	Copper core PVC insulated copper tape screened steel wire armored PVC sheathed control cable

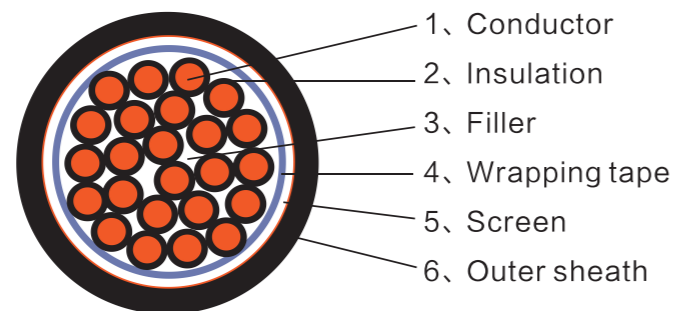
The type in this table is proposed type, the unlisted cable types could be combined as per standard according to cable actual service conditions.

## Production scope

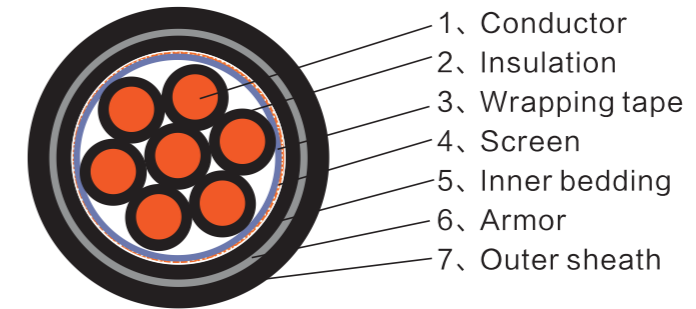
Cable category	Voltage grade	Specification	
		No. of cores	Nominal cross section (mm <sup>2</sup> )
Control cable	450/750V	2~61	0.5~10

## Typical structure drawing

KYJVP



KYJVP22



## Main performance index for cable

S.N	Items	Technical performance
1	Conductor D.C resistance test	As per IEC 60228 requirement
2	Insulation resistance at working temperature	As per product standard
3	Power frequency voltage test	Test voltage 3000V, 5min, no breakdown
4	Insulated core voltage test	Insulation thickness not more than 0.6mm, test voltage 2000V Insulation thickness more than 0.6mm, test voltage 2500V 5min, no breakdown occurs on insulation
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 $\geq 4.3$ , conductivity $\leq 10 \mu s / mm$ , min smoke light luminousness $\geq 60\%$ .
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.

# Production Catalog

## PVC insulated cable with rated voltage of 450/750V and below

### Product overview

This product apply to power plant, fixed wiring and flexible connected electric appliance with rated voltage of 450/750V and below.

**Voltage grade:**

**IEC standard:**  $U_0/U$ : 300/500V、450/750V、300/300V

**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

**Executive standard:**

**IEC 60227**

PVC insulated cable with rated voltage of 450/750V and below

### Product features

**Working temperature:**

60227IEC07(BV-90): 90°C;

60227IEC08(BV-90): 90°C;

Other types: 70°C

**Cable laying temperature:** the ambient temperature during cable laying shall not less than 0°C.

**Bending radius:**  $OD \leq 25mm$ : Bending radius  $\geq 4OD$ ;

$OD > 25mm$ : Bending radius  $\geq 6OD$ ;

**Note:** OD—finished cable diameter

### Typical cable type and manufacturing scope

Type	Voltage grade	Specification	Name
60227 IEC 01 (BV)	450/750V	1.5 ~ 400mm <sup>2</sup>	General use single core hard conductor unsheathed cable
60227 IEC 02 (RV)	450/750V	1.5 ~ 240mm <sup>2</sup>	General use single core flexible conductor unsheathed cable
60227 IEC 05 (BV)	300/500V	0.5 ~ 1mm <sup>2</sup>	Single core solid conductor unsheathed cable with conductor temperature of 70°C for internal wiring
60227 IEC 06 (RV)	300/500V	0.5 ~ 1mm <sup>2</sup>	Single core flexible conductor unsheathed cable with conductor temperature of 70°C for internal wiring

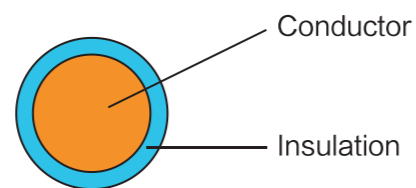
Type	Voltage grade	Specification	Name
60227 IEC 07 (BV-90)	300/500V	0.5 ~ 2.5mm <sup>2</sup>	Single core solid conductor unsheathed cable with conductor temperature of 90°C for internal wiring
60227 IEC 08 (RV-90)	300/500V	0.5 ~ 2.5mm <sup>2</sup>	Single core flexible conductor unsheathed cable with conductor temperature of 90°C for internal wiring
60227 IEC 10 (BVV)	300/500V	No. of cores: 2、3、4、5 Cross section: 1.5 ~ 35mm <sup>2</sup>	Light PVC sheathed cable
60227 IEC 52 (RVV)	300/300V	2 × 0.5、 2 × 0.75 3 × 0.5、 3 × 0.75	Light PVC sheathed flexible wire
60227 IEC 53 (RVV)	300/500V	No. of cores: 2、3、4、5 Cross section: 0.75 ~ 2.5mm <sup>2</sup>	Ordinary PVC sheathed flexible wire
60227 IEC 56 (RVV-90)	300/300V	No. of cores: 2、3、4、5 Cross section: 0.75 ~ 2.5mm <sup>2</sup>	Heat resistant light PVC sheathed flexible wire with conductor temperature of 90°C
60227 IEC 57 (RVV-90)	300/500V	No. of cores: 2、3、4、5 Cross section: 0.75 ~ 2.5mm <sup>2</sup>	Heat resistant ordinary PVC sheathed flexible wire with conductor temperature of 90°C
BV	300/500	0.75-1.0	Copper core PVC insulated cable
BLV	450/750	2.5-400	Aluminum core PVC insulated cable
BVR	450/750	2.5-185	Copper core PVC insulated flexible cable
BVV	300/500	0.75-185	Copper or aluminum core PVC insulated PVC sheathed round cable
BLVV	300/500	2.5-185	Copper or aluminum core PVC insulated PVC sheathed round cable

# Production Catalog

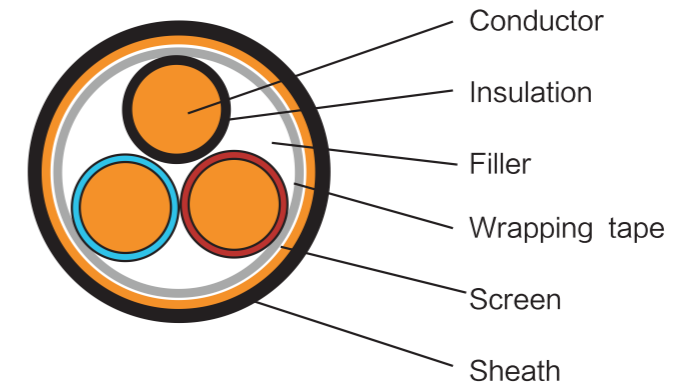
Type	Voltage grade	Specification	Name
BVV	300/500	No. of cores: 2、3 Cross section: 0.75-10	Copper or aluminum core PVC insulated PVC sheathed flat cable
BLVV	300/500	No. of cores: 2、3 Cross section: 2.5-10	Copper or aluminum PVC insulated PVC sheathed flat cable
RVS	300/300	No. of cores: 2 Cross section: 0.5-6	Copper core PVC insulated twisted flexible cable
RVB	300/300	No. of cores: 2 Cross section: 0.5-6	Copper PVC insulated flat unsheathed flexible cable
RVV	300/500	No. of cores: 2-41 Cross section: 0.5-10	Copper core PVC insulated PVC sheathed flexible cable
RVVP	300/300	No. of cores: 1、2、3-10、12、14、19、24、16、20、26 Cross section: 0.5-4	Copper core PVC insulated PVC sheathed screened flexible wire
RVP	300/300	No. of cores: 1、2 Cross section: 0.5-2.5	Copper PVC insulated screened flexible wire

### Typical structure drawing

60227 IEC 01(BV)



RVVP



### Main performance index for cable

S.N	Items	Technical performance
1	Conductor D.C resistance test	As per IEC 60227 standard
2	Insulated core voltage test	Rated voltage: 300/300V For the thickness not more than 0.6mm, test voltage: 1500V For the thickness more than 0.6mm, test voltage: 2000V Rated voltage: 300/500V For the thickness not more than 0.6mm, test voltage: 1500V For the thickness more than 0.6mm, test voltage: 2000V Rated voltage: 450/750V For the thickness more than 0.6mm, test voltage: 2500V, 5min, no breakdown occurs on insulation.
3	Finished cable voltage test	Rated voltage: 300/300V, test voltage: 2000V Rated voltage: 300/500V, test voltage: 2000V Rated voltage: 450/750V, test voltage: 2500V 5min, no breakdown occurs on insulation
4	Dimension	The average dimension of cable shall be in the range of product standard. The diameter difference (ovality) of any two points on the same cross section of round sheathed cable shall be not more than 15% of specified average diameter.

# Export performance

S.N	Contractor	Country	Project Name
1	China Energy Engineering Group Guangdong Power Engineering Co., Ltd.	Jordan	Jordan oil shale project
2	Wuxi Power Plant Auxiliary Equipment Co., Ltd.	Jordan	Jordan 2 × 235MW Attarat oil shale power station EPC project
3	Shandong Electrical Construction 3rd Engineering Company	Jordan	SAMRA power plant expansion project unit engineering
4	Shandong Electrical Construction Tiejun Electrical Engineering Company	Jordan	Hussein Re-powering Project
5	DQE International (Middle East) Branch	Iraq	Halfaya owned power plant pweriphery project
6	China Energy Construction Group Tianjin Electric Construction Company	Iraq	Iraq Maysan Project
7	China Shandong Foreign Economic & Technical Cooperation Group Co., Ltd.	Iraq	Overhead cable project in Iraq
8	China Petroleum Pipeline & Material Equipment Corp.	Iraq	Graff pipeline project in Iraq
9	Daqing oilfield construction Refco Group Ltd	Iraq	Halfaya CFPE oil tank engineering
10	China Petroleum Pipeline & Material Equipment Corp.	Iraq	GAZPROM Crude oil pipeline project in Iraq
11	China Petroleum Pipeline & Material Equipment Corp.	Iraq	Badr crude oil pipeline project in Iraq
12	China Petroleum Engineering and Construction Corp.	Iraq	Halfaya production project in Iraq
13	China Petroleum Pipeline & Material Equipment Corp.	Iraq	Halfya project in Iraq
14	China Petroleum Engineering and Construction Corp.	Iraq	Halfaya oilfield development project

S.N	Contractor	Country	Project Name
15	China Petroleum Pipeline & Material Equipment Corp.	Iraq	Ai Hardy Bbu oil pipeline project in Iraq
16	Harbin Electric International Engineering Co., Ltd.	Turkey	Turkey (SOMA)2x255MW Coal-fired Power Plant Project
17	Hubei Electric Power Construction First Engineering Company	Turkey	ATLAS phase I 2*600MW coal fired power station project in TurkeyATLAS
18	Dongfang Boiler Group Co., Ltd. (DBC)	Turkey	Desulfurization project in Turkey
19	China Energy Engineering Group Anhui No. 2 Electric Power Construction Co., Ltd.	Vietnam	Phu-Yen and Vihn Hao photovoltaic project in Vietnam
20	China Energy Engineering Group Anhui No. 2 Electric Power Construction Co., Ltd.	Vietnam	Hai Duong electric power station project in Vietnam
21	Zhongnan Engineering Corporation Limited	Vietnam	LongAn 50MWp photovoltaic EPC project in Vietnam
22	Jiaozuo Creation Reshipment Co., Ltd.	Vietnam	Vietnam Hoa Phat bulk cargo transport system
23	Shanghai Electric Group Co., Ltd.	Pakistan	Pakistan Karachi K2/K3 nuclear power project (ACP1000)
24	Dongfang Electric Coporation International Cooperation Co., Ltd.	Uzbekistan	4 hydropower station proejcts in Pakistan
25	Shanxi Zhongke International Trading Co., Ltd.	Vietnam	Vietnam Hoa phat Dung Quat steel Joint Stcok Company 2 million tons coke oven project (phase I)
26	Sinohydro Construction Group International Engineering Company	Equatorial Guinea	Bata urban power grid phase II power supply home-entry reorganization and expansion project in Equatorial Guinea
27	Beijing Huatai Coking Engineering Technology Co., Ltd.	Vietnam	Vietnam Hoa Phat Dung Quat Steel Joint Stock Company phase I 2*130 T/H dry quenching project

# Export performance

S.N	Contractor	Country	Project Name
28	China Energy Engineering Group Guangdong Power Engineering Co., Ltd.	Bangladesh	Bangladesh Gurashao power station #4 unit renovation project
29	China City Environment Protection Engineering Co., Ltd.	Vietnam	Vietnam Hoa Phat Dung Quat Steel Joint Stock Company 4x60 MW generation project phase I
30	CRRC Ziyang Locomotive Co., Ltd.	Bangladesh	Bangladesh ASHUGONJ 150MW heavy oil power plant project
31	Dongfang Electric Coporation International Cooperation Co., Ltd.	Angola	Angola diesel and photovoltaic complementation distributed generation EPC project (320MW diesel engine project)
32	TBEA Xinjiang New Energy Co., Ltd.	Egypt	28-4---Egypt Acciona 60 MW EPC project- ALSUBH SOLAR POWER S.A.E.
33	Hubei Electrical Construction No.2 Engineering Company	Laos	Laos Nansha project purchase
34	Sinohydro Construction Group International Engineering Company	Uganda	Karuma hydro power station and transmission and transformation project in Uganda
35	CRRC Ziyang Locomotive Co., Ltd.	Bengal	DPDC 8 Nos. 33/11kV gas insulated switchgear (GIS) substations project
36	Sinosteel Equipment Company	Algeria	Algeria 2.3 million tons per year steel-making and steel rolling project
37	China Harbor Engineering Compnay LTD (Namibia Branch)	Namibia	National oil storage facilities project: Walvis Bay, Namibia
38	China Energy Construction Group Tianjin Electrical Construction Compnay	Pakistan	CPHGC 2x660MW coal fired power plant project
39	Sinosteel Equipment Company	Algeria	Algeria Helical Weld Pipe Project
40	China Energy Construction Group Hunan Thermal Power Construction Company	Pakistan	Pakistan 50MW (2*25MW) Coal-fired Power Plant Project
41	Wuhan Kaidi Entironment Science and Technology Company	Vietnam	Thang Long 2*300MW Thermal Power Plant Project in Vietnam

S.N	Contractor	Country	Project Name
42	Sinosteel Equipment Company	Algeria	Algeria DRI Project
43	China Energy Construction Group Tianjin Electric Construction Company	Pakistan	Sacy Val Thermal Power Generation Project in Pakistan
44	China Energy Construction Group Tianjin Electrical Construction Compnay	Pakistan	Balloki 1180MW Combined Cycle Power Station in Pakistan
45	Wuhan Kaidi Electric Power Environmental Protection Company	Vietnam	2x600MW Unit Flue Gas Desulfurization Project of Taiping Power Plant 2nd Phase in Vietnam
46	Sinosteel Equipment Company	Algeria	Cable for Old Plant of 2.5 Million Tons DRI Project in Algeria
47	Tangshan Bohai Metallurgy Equipment Co., Ltd.	Vietnam	Cable procurement project for 1503 Engineering (Vietnam) steel-making and steel rolling system
48	China Energy Construction Group Tianjin Electric Construction Company	Pakistan	Bahbik 1180MW Combined Cycle Power Station in Pakistan
49	China Energy Construction Group Northeast Electrical 3th Engineeringing Company	Bangladesh	Project in Bangladesh
50	Xi'an West Mine Environmental Protection Science and Technology Co., Ltd.	Iran	XKM14801/803 Iran project
51	China Hydropower Engineering Consulting Group International Engineering Company	Ethiopia	Urban Power Grid Upgrading and Rebuilding Porject in Addis, Ethiopia
52	China Petroleum Pipeline & Material Equipment Corp.	Angola	Luanda oil depot project of fishing port in Angola
53	Beijing Oriental Qianpeng Energy Engineering Technology Co Ltd	Sudan	Inspection and maintenance project in Sudan
54	China Petroleum Engineering and Construction Corp.	Kazakhstan	China-Kazakhstan Gas Pipeline Line C

# Export performance

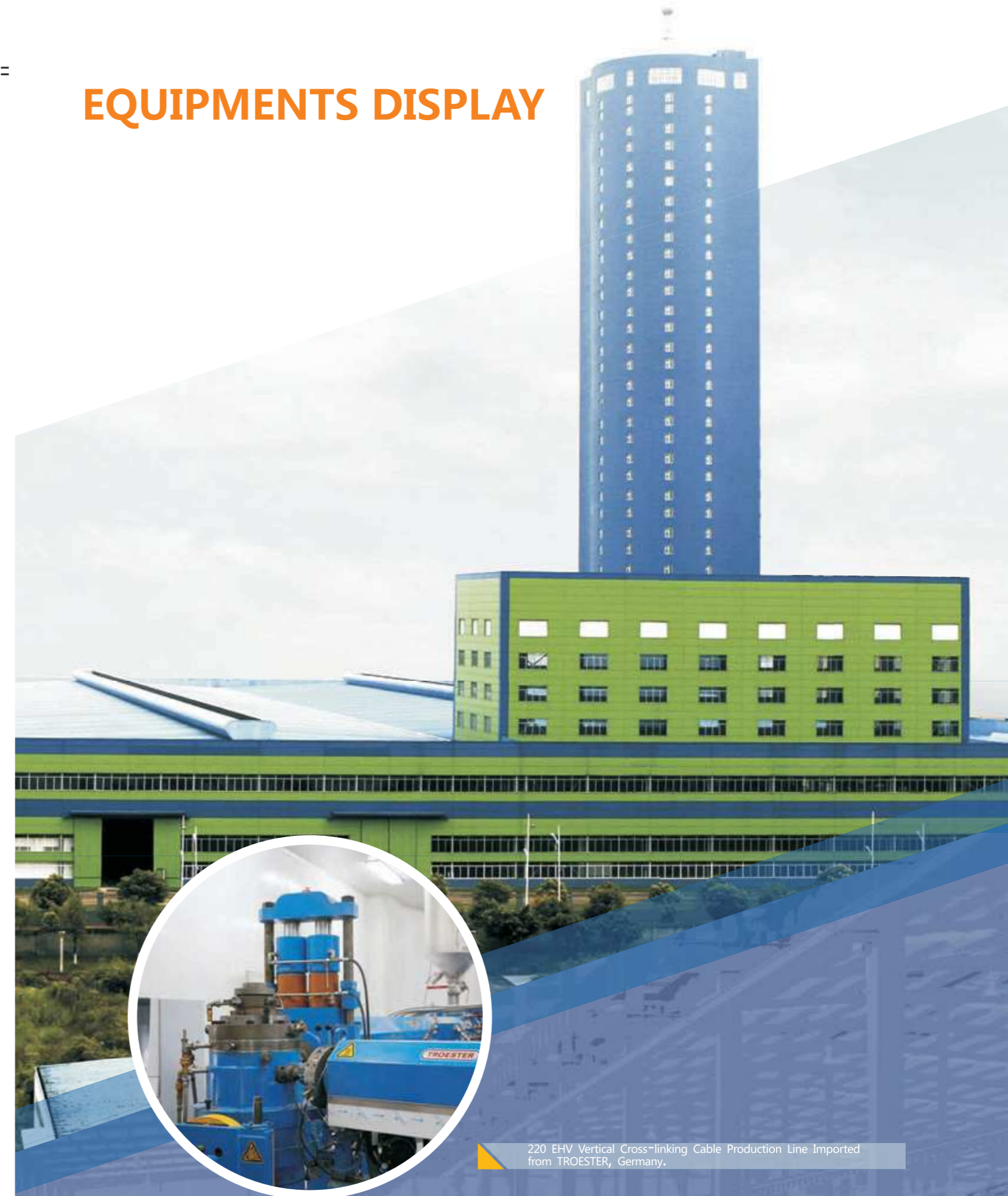
S.N	Contractor	Country	Project Name
55	TBEA Xinjiang New Energy Co., Ltd.	Pakistan	100 MW solar photovoltaic power generation project in Abubakar Jinnah solar Park in Pakistan
56	Beijing Whibop Energy Technology Co., Ltd.	Kazakhstan	Kenjiyak, Hawuzhake, zanarol project
57	Chongqing Hydraulic Turbine Works Co., Ltd.	Cameroon	MEKIN power station in Cameroon
58	Chongqing Hydraulic Turbine Works Co., Ltd.	Vietnam	Cable of the Tongnai 2 Hydropower Station in Vietnam
59	China Petroleum Engineering and Construction Corp.	Kazakhstan	CPECC Kazakhstan Aktobe Branch, Phase II and III project of the third oil and gas processing factory in Zhanaruoer
60	Hubei Electric Power Construction Second Engineering Company	Vietnam	Yongxin 2*623MW power plant in Vietnam
61	China Hydropower Consulting Group International Engineering Co., Ltd.	Ethiopia	Integrated lines, wires, cables and accessories procurement projects for Adama two wind farm engineering in Ethiopia
62	China Petroleum Pipeline & Material Equipment Corp.	Kazakhstan	Phase II project of China Kazakhstan natural gas pipeline
63	Sichuan Petroleum Management Bureau Material Corp.	Turkmenistan	South lolotan gas field block B gas processing plant ground construction project in Turkmenistan
64	China Petroleum Engineering and Construction Corp.	Turkmenistan	Phase II Project at the right bank of Amu River in Turkmenistan
65	Beijing Hualin Petroleum Science and Technology Co Ltd	Niger	Oil field inspection and maintenance project in Niger

S.N	Contractor	Country	Project Name
66	China Petroleum Longhui Automation Engineering Co. Ltd.	Burma	Instrument cable for overseas section of China-Bruma Pipeline
67	Sichuan Chuantou Imp. & Exp. Co. Ltd	Pakistan	Pakistan IC12*45t/h CFB EP project of 1*3MW steam turbine generator set in boiler island
68	Sichuan Petroleum Management Bureau Material Corp.	Turkmenistan	South lolotan gas field 100*108m <sup>3</sup> /a commercial gas productivity construction projects in Turkmenistan
69	Sichuan Petroleum Management Bureau Material Corp.	Afghanistan	EPC project in Block AD reservoir in Afghanistan
70	China Petroleum Pipeline & Material Equipment Corp.	Chad	Crud oil pipeline in Chad
71	China Petroleum Gas Pipeline Bureau	Kenya	Project in Kenya
72	China Petroleum Engineering and Construction Corp.	Chad	EPC project of Ndjamen refinery in Chad
73	Tianjin Electricity Construction Company Manufacturing Factory	India	Jingde Power Plant in India
74	SINOHYDRO Corporation Limited	Niger	Niger Azar Rick project
75	Tianjin Lianda Group Co., Ltd.	Niger	Dagang Oil Field, Niger
76	Guangdong Power Engineering Corporation	Indonesia	Indonesia Guohua Muyein Coal and Electricity Project

# Export performance

S.N	Contractor	Country	Project Name
77	China Petroleum Pipeline & Material Equipment Corp.	Kazakhstan	Central Asian gas pipeline ( Kazakhstan )
78	Sichuan Petroleum Management Bureau Material Corp.	Kazakhstan	Block A project on the right bank of Amu Darya in Turkmenistan
79	Sichuan Petroleum Management Bureau Material Corp.	Turkmenistan	Ground engineering in block A area of bagtyjjarlyk contractual area in Turkmenistan
80	Sichuan Machinery and Equipment Import and Export Co., Ltd.	India	Tengda 2*330MW coal-fired power plant in India
81	China Petroleum Pipeline & Material Equipment Corp.	Kenya	KPC PROPOSED LINE-1 CAPACITY ENHANCEMENT PROJECT
82	China Petroleum Pipeline & Material Equipment Corp.	Sudan	Finished oil tank project in Sudan
83	China Petroleum Gas & Pipeline Bureau Libya Project Dept.	Libya	Water injection project in Libya
84	Sichuan Eastern Electric Power Equipment Co Ltd – India power plant	Vietnam	2*300MW Haiphong thermal power project in Vietnam
85	Sichuan Eastern Electric Power Equipment Co Ltd – India power plant	Pakistan	Pakistan watts hydropower station electrical and Mechanical Engineering
86	Sichuan Eastern Electric Power Equipment Co Ltd – India power plant	India	2*300MW Sagardighi coal-fired power plant in West Bengal, India

# EQUIPMENTS DISPLAY



220 EHV Vertical Cross-linking Cable Production Line Imported from TROESTER, Germany.



500 EHV Vertical Cross-linking Cable Production Line Imported from TROESTER, Germany.



Irradiation Center (Workshop)



Electron Irradiation Accelerator



Electron Irradiation Beam Device

Online Derivometer Imported from SINKORA, Germany.



13 Dies Double Nose Bar-drawing Machines Imported from NIEHOFF, Germany.



91 Bobbins Frame Stranding Production Line Imported from POURTIER, France.



4000mm Drum Twister Production Line Imported from POURTIER, France.



Rubber Mixing Production Line



# EQUIPMENTS DISPLAY



Cabling Equipment



Double Layer Double Color Extrusion Production Line



Stranding Equipment



Pair-twisting Equipment



High-speed Braiding Machine Group



35KV XLPE Insulated Cable Production Line (Workshop)



Tinning and Annealing Production Line



13 Dies Large Size Wire-drawing Machine



35kV Triple Extrusion Rubber CV Production Line



Extruder for 35kV XPE insulated cable



# EQUIPMENTS DISPLAY

3200kV HV Impact Test Equipment



Cable Production Workshop

# EQUIPMENTS DISPLAY



Partial Discharge Withstand Voltage Control System



HV Partial Discharge Room



700kV Partial Discharge Equipment Imported from HIGH VOLT, Germany



Toxicity Index Detector Imported from British



High accuracy analyzer for oil and solid insulation materials imported from Swiss



Rheometer



Impurity Detector



Bunching Combustion Test Equipment



Chemical Analyzing Test



Microcomputer Controlled Electronic Universal Material Testing Machine



Direct Reading Spectrometer Analyzer Imported from Germany



SL-I Type Halogen Acid Gas Emission Determination Device



High Precision Micro - Megger meter Imported from Germany



Low Temperature Test Equipment



Ideal Shield Coefficient Test System



Oxygen Index Test Apparatus



Smoke Density Test Apparatus for Completed Cable



Rubber Milling Machine

# EQUIPMENTS DISPLAY

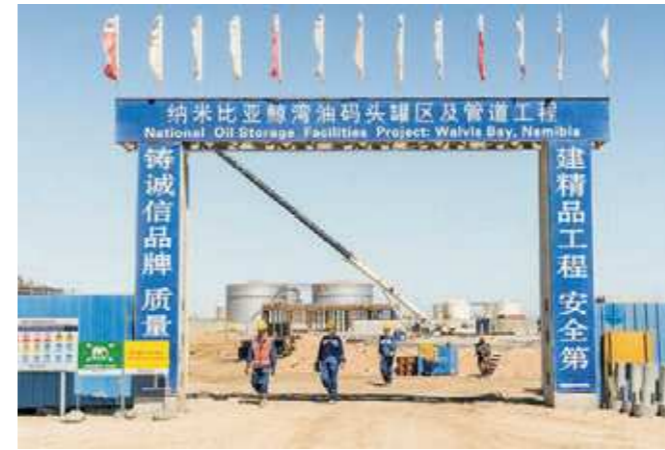


Test Sample Equipment



Fire-resistant Test Apparatus

Aging Test Equipment



National oil storage facilities project: Walvis Bay, Namibia



Iraq Maysan Project



Turkey (SOMA)2x255MW Coal-fired Power Plant Project



Kazakhstan Aktobe Project

# PICTURE OF PROJECT



Russian crude oil processing optimization and efficiency improvement project



100 MW solar photovoltaic power generation project in Abubakar Jinnah solar Park in Pakistan



Adama wind farm engineering in Ethiopia



SAMRA power plant expansion project unit engineering in Jordan



Balloki 1180MW Combined Cycle Power Station in Pakistan



Algeria 2.3 million tons per year steel-making and steel rolling project

## PICTURE OF PROJECT



Bahbik 1180MW Combined Cycle Power Station in Pakistan



Karuma hydro power station and transmission and transformation project in Uganda



Badr crude oil pipeline project in Iraq

## PICTURE OF PROJECT



EPC project of Ndjamena refinery in Chad