

变频器专用电力电缆

Frequency converter power cables

低压变频电缆 Low voltage frequency converter cables

■ 适用范围

本产品适用于交流额定电压0.6/1kV及以下变频控制系统作供电电缆或电气连接，产品具有较强的耐电压冲击性，能经受变频时的脉冲电压，电缆具有良好的屏蔽性，并有效消除电磁干扰，降低变频电机噪音，保证系统稳定运行。广泛用于冶金、电力、石化等行业。

■ 执行标准 Q/321084KLA080

■ 使用特性

- 1、交流额定电压 U_0/U : 0.6/1kV
- 2、电缆长期工作温度：聚氯乙烯绝缘70℃
交联聚乙烯绝缘90℃
硅橡胶绝缘180℃
氟塑料绝缘200℃和260℃两种
- 3、电缆允许弯曲半径：最小为电缆外径的15倍

■ Range of application

This product can be applied in power supply of frequency converter controlling system with 0.6/1kV and below AC rated voltage. It is with good voltage impact resistance which can withstand the impulse voltage in frequency converting; meanwhile, it is with good shielding property which can eliminate the electromagnetic interference and decrease the noise of frequency converter motor so as to guarantee the steady operation of systems. It is widely applied in metallurgy, power supply, petrochemical industry, etc.

■ Executive standard Q/321084KLA080

■ Operating characteristics

1. A/C rated voltage U_0/U : 0.6/1kV
2. Long-term operating temperature:
70℃ for PVC insulation
90℃ for XLPE insulation
180℃ for silicone rubber insulation
200℃ or 260℃ for fluoroplastic insulation
3. Min. allowable bending radius: Min. as 15 times of cable outer diameter.

■ 型号及名称 Type and description

表1 Table 1

型号 Types	名称 Descriptions
BPVVP	聚氯乙烯绝缘和护套铜丝编织屏蔽变频电力电缆。 PVC insulated and sheathed, Cu. wire braided screened, frequency converter power cable
BPVVP2	聚氯乙烯绝缘和护套铜带绕包屏蔽变频电力电缆。 PVC insulated and sheathed, Cu. tape wrapping screened, frequency converter power cable
BPVVP2	聚氯乙烯绝缘和护套铜丝编织铜带绕包屏蔽变频电力电缆。 PVC insulated and sheathed, Cu. wire braided, Cu. tape wrapping screened, frequency converter power cable
BPVVP3	聚氯乙烯绝缘和护套铝聚酯复合膜绕包屏蔽变频电力电缆。 PVC insulated and sheathed, Al. polyester compound film wrapping screened, frequency converter power cable
BPYJVP	交联聚乙烯绝缘聚氯乙烯护套铜丝编织屏蔽变频电力电缆。 XLPE insulated, PVC sheathed, Cu. wire braided screened, frequency converter power cable
BPYJVP2	交联聚乙烯绝缘聚氯乙烯护套铜带绕包屏蔽变频电力电缆。 XLPE insulated, PVC sheathed, Cu. tape wrapping screened, frequency converter power cable
BPYJVP2	交联聚乙烯绝缘聚氯乙烯护套铜丝编织铜带绕包屏蔽变频电力电缆。 XLPE insulated, PVC sheathed, Cu. wire braided, Cu. tape wrapping screened, frequency converter power cable
BPYJVP3	交联聚乙烯绝缘聚氯乙烯护套铝聚酯复合膜绕包屏蔽变频电力电缆。 XLPE insulated, PVC sheathed, Al. polyester compound film wrapping screened, frequency converter power cable
BPGGP	硅橡胶绝缘和护套铜丝编织屏蔽耐高温变频电力电缆。 Silicone rubber insulated and sheathed, Cu. wire braided screened, high temperature resistant, frequency converter power cable
BPGGP2	硅橡胶绝缘和护套铜带绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated and sheathed, Cu. tape wrapping screened, frequency converter power cable
BPGGP2	硅橡胶绝缘和护套铜丝编织铜带绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated and sheathed, Cu. wire braided, Cu. tape wrapping screened, high temperature resistant, frequency converter power cable
BPGGP3	硅橡胶绝缘和护套铝聚酯复合膜绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated and sheathed, Al. polyester compound film wrapping screened, high temperature resistant, frequency converter power cable
BPGVFP	硅橡胶绝缘丁腈护套铜丝编织屏蔽耐高温变频电力电缆。 Silicone rubber insulated, butyronitrile sheathed, Cu. wire braided screened, high temperature resistant, frequency converter power cable
BPGVFP2	硅橡胶绝缘丁腈护套铜带绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated, butyronitrile sheathed, Cu. tape wrapping screened, high temperature resistant, frequency converter power cable
BPGVFP2	硅橡胶绝缘丁腈护套铜丝编织铜带绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated, butyronitrile sheathed, Cu. wire braided, Cu. tape wrapping screened, high temperature resistant, frequency converter power cable
BPGVFP3	硅橡胶绝缘丁腈护套铝聚酯复合膜绕包屏蔽耐高温变频电力电缆。 Silicone rubber insulated, butyronitrile sheathed, Al. polyester compound film wrapping screened, high temperature resistant, frequency converter power cable
BPFFP	氟46绝缘和护套铜丝编织屏蔽耐高温变频电力电缆。 F46 insulated and sheathed, Cu. wire braided screened, high temperature resistant, frequency converter power cable
BPFFP2	氟46绝缘和护套铜带绕包屏蔽耐高温变频电力电缆。 F46 insulated and sheathed, Cu. tape wrapping screened, high temperature resistant, frequency converter power cable
BPFFP2	氟46绝缘和护套铜丝编织铜带绕包屏蔽耐高温变频电力电缆。 F46 insulated and sheathed, Cu. wire braided, Cu. tape wrapping screened, high temperature resistant, frequency converter power cable
BPFFP3	氟46绝缘和护套铝聚酯复合膜绕包屏蔽耐高温变频电力电缆。 F46 insulated and sheathed, Al. polyester compound film wrapping screened, high temperature resistant, frequency converter power cable

注：导体线芯中铜丝可以采用镀锡，阻燃型电缆型号前加ZR，软结构电缆加R。

Note: Tinned copper wire can be used as the conductor core, and "ZR" shall be added before type of flame retardant cables, and "R" shall be added after the type of flexible cables.

■ 代号名称及含义 Code and definition

表2 Table2

代号 Codes	代号含义 Descriptions
BP	变频电力电缆 Power cable for frequency convertor
铜导体 Cu-conductor	省略 Omitted
G	硅橡胶绝缘或护套 Silicone rubber insulation or sheath
F	F46绝缘或护套 F46 insulation or sheath
V	聚氯乙烯绝缘或护套 PVC insulation or sheath
YJ	交联聚乙烯绝缘 XLPE insulation
VF	丁腈护套 Butyronitrile
P(P1)	铜编织屏蔽(镀锡编织屏蔽) Cu. wire braided shield(Tinned wire braided shield)
P2	铜带绕包屏蔽 Cu. tape wrapping shield
P3	铝聚酯复合膜绕包屏蔽 Al. polyester compound tape wrapping shield
PP2	铜丝编织铜带绕包屏蔽 Cu. wire braided cu tape wrapping shield

■ 线缆规格 Cable specification

主线芯截面 Cross section of main core

型号 Types	芯数 Core number	标称截面 (mm ²) Nominal cross section
全部型号 All types	3+3 3+1 1	4, 6, 10, 16, 25, 35, 50, 70, 95, 120, 150, 185, 240, 300

接地线芯截面 Cross section of grounding core

主线芯标称截面 (mm ²) Nominal cross section of main core	接地线芯截面 (mm ²) Cross section of grounding wire core
4	1(0.75)
6	1.5(1)
10	2.5 (1.5)
16,25	4(2.5)
35	6
50,70	10
95	16
120,150	25
185	35
240	50(35)

■ 主要技术指标

- 成品电缆导体直流电阻符合GB/T3956-2008规定。
- 成品电缆的绝缘电阻 (20℃) 氟塑料及硅橡胶绝缘应不小于100MΩ·km。聚氯乙烯绝缘应不小于50 MΩ·km。
- 成品电缆经受交流50Hz, 3.5kV/5min电压试验不击穿。
- 电缆经受35kV正负十次冲击电压试验, 绝缘不击穿。
- 屏蔽层特性
电缆在100MHz时传输阻抗不大于100Ω/m。
电缆的理想屏蔽抑制系数不大于0.01。
抗外磁场干扰能力: 在磁场强度为400A/m50Hz的外磁场中, 线芯间感应电压不大于0.1V。
抗静电感应能力: 在静电放电试验电压为10kV时, 电缆线芯间感应电压不大于0.1V。
- 阻燃电缆阻燃性能符合GB/T 18380 的相关规定。

■ Main technical index

- DC resistance of finished cable conductor complies with GB/T 3956-2008.
- Insulation resistance(20℃) for fluoro plastic and Silicone rubber insulated cables should be no less than 100MΩ·km, and 50 MΩ·km for PVC insulated cables.
- The finished cables can stand AC 50Hz, 3.5kV voltage withstand test for 5 min without breakdown on insulation.
- The cable can withstand 10 times of 35kV plus/minus impact voltage test without breakdown on insulation.
- Shield characteristics
The transmission impedance should not exceed 100MΩ·km, at 100MHz;
Ideal inhibition sheath coefficient should not exceed 0.01;
Anti-interference capability to external magnetic field: induced voltage between cores should be no more than 0.1V in 400A/m 50Hz external magnetic field;
Anti-static electricity induction capability: induced voltage between cores should be no more than 0.1V when static electricity discharge test voltage is 10kV.
- Flame retardant property complies with GB/T 18380.

基本电缆规格及结构参数 Basic cable specifications and structure parameters

芯数 × 截面 Core number × cross section (mm ²)	导体结构 根数 × 直径 Conductor structure No of conductor × diameter (mm ²)	电缆最大外径 (mm) Max. outer diameter of cable	
		BPVVPP2, BPYJVPP2	BPGGPP2
3×4	1/2.26	13.5	15.5
3×6	1/2.78	14.0	16.0
3×10	7/1.35	19.0	21.0
3×16	7/1.70	22.0	24.0
3×25	7/2.15	25.0	26.5
3×35	7/2.52	26.0	35.5
3×50	10/2.52	28.5	40.0
3×70	14/2.52	31.5	43.5
3×95	19/2.52	36.5	50.0
3×120	24/2.52	40.0	56.0
3×150	30/2.52	45.0	60.0
3×185	37/2.52	47.0	67.0
3×4+3×0.75	1/2.26	14.5	16.5
3×6+3×1	1/2.78	15.0	17.0
3×10+3×2.5	7/1.35	20.8	22.0
3×16+3×2.5	7/1.70	23.0	25.0
3×25+3×4	7/2.15	28.0	27.5
3×35+3×6	7/2.52	32.0	36.5
3×50+3×10	10/2.52	37.0	41.0
3×70+3×10	14/2.52	41.6	44.5
3×95+3×16	19/2.52	47.0	51.0
3×120+3×25	24/2.52	50.1	57.0
3×150+3×25	30/2.52	52.0	61.0
3×185+3×35	37/2.52	58.5	68.0