氟塑料绝缘控制电缆

Control Cable with Fluoroplastics Insulation

本产品适用于交流额定电压450/750V及以下控制、监控回路以及电器仪表的连接线和自动控制系统的传输线。产品具有耐油、防水、耐磨、耐酸碱及各种化学试剂（除氯仿外）和各种腐蚀性气体、耐老化、不燃烧等优异性能；本产品主要适用于冶金、电力、化工、石油等工矿企业在高温、低温及各种恶劣环境中作电器、仪表的连接线和自动控制系统的传输线。氟塑料绝缘和护套耐高温控制电缆采用聚全氟乙丙烯材料，产品具有比普通控制电缆更高的耐热等级。

It is used as connection cable for electric appliances & instruments and transmission cable for automatic control system in controlling and supervising loop of A.C.rated voltage of 450/750V or lower. It has good feature of oil resistance, abrasion resistance, acid & alkali resistance, resistant to various chemical reagent(except chloroform) and corrosive gas resistance, aging resistance and incombustible etc. It is used as connection cable for electric appliances & instruments and transmission cable for automatic control system under bad environment of extreme temperature mainly in the field of metallurgy, power, chemical and petroleum enterprises. FEP material used in high temperature resistant cable with fluoroplastic insulation and sheath. It has better heat resistant degree compared with common control cable.

一、生产执行标准

TICW3-2009，JB/T13485-2018及企业标准。

Executive standard

TICW3-2009,JB/T13485-2018 and Enterprise standard.

二、使用特点

1、交流额定电压：U_0/U为450/750V；

2、电缆导体长期允许工作温度为：氟塑料绝缘为200℃；

3、电缆的敷设温度应不低于： 硅橡胶护套电缆-20℃，氟塑料护套电缆-15℃；

4、电缆推荐允许弯曲半径：无铠装层的电缆，应不小于电缆外径的8倍；有铠装层的电缆或带铜带屏蔽结构的电缆，应不小于电缆外径的15倍。

Operational performance

1.A.C. rated voltage U_0/U: 450/750V.

2.Long-term working temperature of cable conductor:
Temperature of fluoroplastics insulation is 200℃.

3.Temperature for installing cable is no lower than: -20 ℃ for cable with silicon rubber sheath.-15℃ for cable with fluoroplastic sheath.

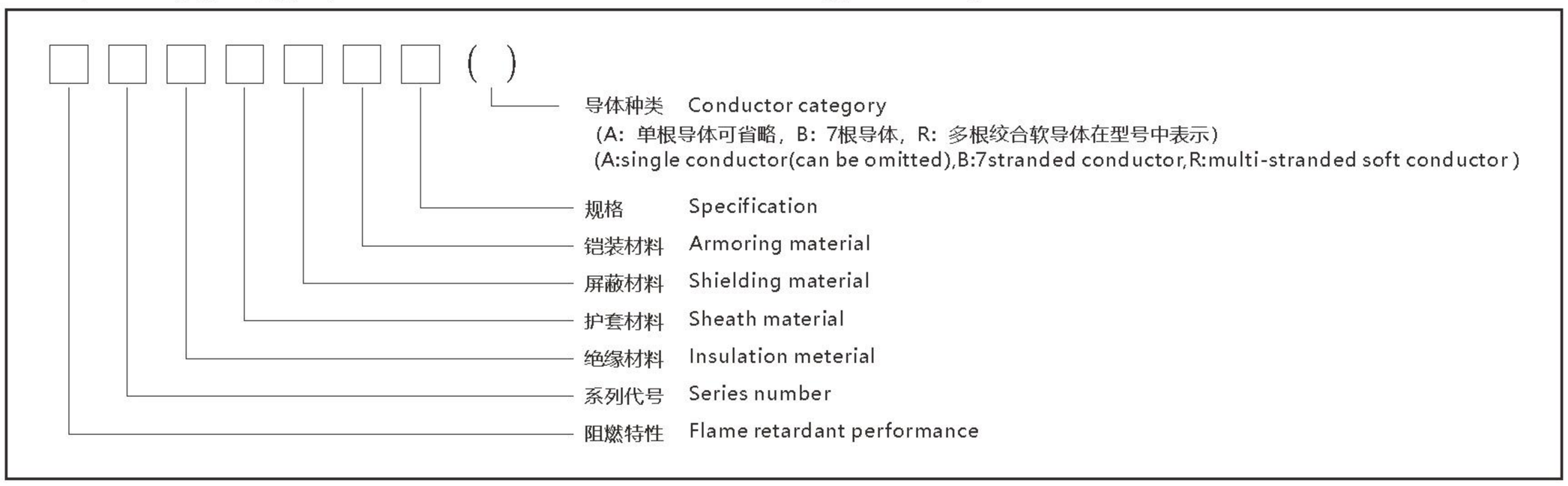
4.Bending radius allowed by cable:It is no less than 8 times that of cable OD for cable with unarmored.It is no less than 15times that of cable OD for cable with armored layer or copper tape shielding.

三、型号名称

1、型号结构组合形式

Type and Description

Type-naming Indication



2、基本型号与名称

Basic Type and Description

型号 Type	名称 Description
KFF	氟塑料绝缘氟塑料护套控制电缆 Control cable with fluoroplastic insulation and sheath
KFFP	氟塑料绝缘氟塑料护套铜丝编织屏蔽控制电缆 Control cable with fluoroplastic insulation and sheath,copper wire braided shielding

KFFR	氟塑料绝缘氟塑料护套控制软电缆 Control flexible soft cable with fluoroplastic insulation and sheath
KFFRP	氟塑料绝缘氟塑料护套铜丝编织屏蔽控制软电缆 Control flexible cable with fluoroplastic insulation and sheath,copper wire braided shielding
KFG	氟塑料绝缘硅橡胶护套控制电缆 Control cable with fluoroplastic insulation,silicon rubber sheath
KFGP	氟塑料绝缘硅橡胶护套铜丝编织屏蔽控制电缆 Control cable with fluoroplastic insulation,silicon rubber sheath,copper wire braided shielding
KFGR	氟塑料绝缘硅橡胶护套控制软电缆 Control flexible soft cable with fluoroplastic insulation,silicon rubber sheath
KFGRP	氟塑料绝缘硅橡胶护套铜丝编织屏蔽控制软电缆 Control flexible cable with fluoroplastic insulation,silicon rubber sheath,copper wire braided shielding

四、代号名称及含义 Codes Meaning

项目 Item	代号 Code	说明 Description
阻燃特性 Flame-retarding characteristics	ZRA/ZA	A类阻燃 Flame retardance of category A
	ZRB/ZB	B类阻燃 Flame retardance of category B
	ZRC/ZC	C类阻燃 Flame retardance of category C
系列代号 Series number	K	控制电缆 Control cable
绝缘材料 Insulation material	F	氟塑料 Fluoroplastic
护套材料 Sheath material	G	硅橡胶 Silicon rubber
	F	氟塑料 Fluoroplastic
屏蔽材料 Shielding material	P	铜丝编织屏蔽 Copper wire braided shielding
	P1	镀锡铜丝编织屏蔽 Tinned copper wire braided shielding
	P2	铜带屏蔽 Copper tape shielding
	P3	铝/塑复合带屏蔽 Aluminum/plastic composite tape shielding
铠装材料 Armoring material	9	细钢丝编织铠装 Fine steel wire braiding armored

注：可根据用户需要生产、设计特殊规格和型号电缆。

Note: we also produce cable with special specification and type according to the requirement of customer.

五、规格 Specication

型号 Type	额定电压V Rated voltage	导体标称截面 mm² Nominal cross section of conductor area							
		0.5	0.75	1.0	1.5	2.5	4	6	10
		芯数 Core number							
KFF,KFG,KFFP KFGP,KFFP2	450/750	2~19					2~12		
KFFP,KFGP,FFRP KFGR,KFFR	450/750	2~19					-		
KFF9F		-	7~61		2~61		2~12		

注：推荐的芯数系列为2、3、4、5、7、8、10、12、14、16、19芯，如用户有特殊需要，也可生产61芯以下任意芯数的电缆。

Note: Recommended series of core number 2,3,4,5,7,8,10,12,14,16,19. we also produce cables with any number of cores below 61 cores.

六、主要技术指标 Main Technical Indices

1、20℃时导体直流电阻值应符合GB/T3956标准要求。

2、成品电缆应经受交流3000V/5min电压试验。

1.Conductor DC resistance value at 20℃ shall meet the requirements of GB/T3956 standard.

2.The finished cable shall bear A.C Voltage test of 3000V for 5min.

七、常用规格结构尺寸及参考重量

The usual specification structure size and reference weight

Table1 KFF、KFFP、KFFP2

芯数×标称截面 mm² Core No.*nominal cross	导体种类 Category of conductor	最大外径 mm Max. outer diameter		
		KFF	KFFP	KFFP2
2×0.5	1	4.5	5.4	5.0
2×0.75	1	4.9	5.8	5.4
2×1.0	1	5.2	6.1	5.7
2×1.5	1	5.8	6.7	6.3
2×2.5	1	6.5	7.4	7.0
2×4	1	7.8	8.7	8.3
2×6	1	8.9	9.8	9.4
3×0.5	1	4.7	5.6	5.2
3×0.75	1	5.2	6.1	5.7
3×1.0	1	5.3	6.2	5.8
3×1.5	1	6.1	7	6.6
3×2.5	1	7.1	8	7.6
3×4	1	8.5	9.4	9.0
4×0.5	1	5.1	6	5.6
4×0.75	1	5.7	6.6	6.2
4×1.0	1	6.2	7.1	6.7
4×1.5	1	6.8	7.7	7.3
4×2.5	1	7.7	8.6	8.2
4×4	1	9.6	10.5	10.1
5×0.5	1	5.9	6.8	6.4
5×0.75	1	6.4	7.3	6.9
5×1.0	1	6.8	7.7	7.3
5×1.5	1	7.5	8.4	8.0
5×2.5	1	8.8	9.7	9.3
5×4	1	10.6	11.5	12.1
7×0.5	1	6.3	7.3	6.8
7×0.75	1	7.1	8.1	7.6
7×1.0	1	7.4	8.4	7.9
7×1.5	1	8.2	9.2	8.7
7×2.5	1	9.5	10.5	10
7×4	1	11.6	12.6	12.1
8×0.5	1	6.8	7.8	7.3
8×0.75	1	7.5	8.5	8.0
8×1.0	1	7.9	8.9	8.4
8×1.5	1	8.7	9.7	9.2
8×2.5	1	10.3	11.3	10.8

Sequel table1 KFF、KFFP、KFFP2

芯数×标称截面 mm² Core No.*nominal cross	导体种类 Category of conductor	最大外径 mm Max. outer diameter		
		KFF	KFFP	KFFP2
10×0.5	1	7.9	8.9	8.4
10×0.75	1	8.7	9.7	9.2
10×1.0	1	9.3	10.3	9.8
10×1.5	1	10.3	11.3	10.8
10×2.5	1	12.1	13.1	12.6
12×0.5	1	8.2	9.2	8.7
12×0.75	1	9.0	10.0	9.5
12×1.0	1	9.6	10.6	10.1
12×1.5	1	10.8	11.8	11.3

12×2.5	1	12.5	13.5	13.0
14×0.5	1	8.8	9.8	9.3
14×0.75	1	9.9	10.9	10.4
14×1.0	1	11.5	12.6	12.3
14×1.5	1	11.6	12.7	12.4
14×2.5	1	13.3	14.4	14.1
16×0.5	1	9.5	10.6	10.3
16×0.75	1	10.4	11.5	11.2
16×1.0	1	11.0	12.1	11.8
16×1.5	1	13.0	14.3	13.8
16×2.5	1	15.1	16.4	16.0
19×0.5	1	10.3	11.4	11.1
19×0.75	1	11.3	12.4	12.1
19×1.0	1	12.7	14.0	14.0
19×1.5	1	13.7	15.2	14.8
19×2.5	1	16.0	17.2	16.8
24×0.5	1	11.7	12.8	12.5
24×0.75	1	13.2	14.4	14.0
24×1.0	1	15.2	16.4	16.0
24×1.5	1	15.9	17.1	17.0
24×2.5	1	19.1	20.6	20.1
27×0.5	1	12.2	13.7	13.2
27×0.75	1	13.4	14.9	14.5
27×1.0	1	14.5	16.5	16.0
27×1.5	1	16.3	18.0	17.5
27×2.5	1	19.5	21.0	20.5
30×0.5	1	12.6	14.2	13.6
30×0.75	1	13.7	15.4	14.7
30×1.0	1	14.6	17.0	15.6
30×1.5	1	16.9	18.6	18.1
30×2.5	1	20.3	21.8	21.3

Sequel table1 KFF、KFFP、KFFP2

芯数×标称截面 mm² Core No.*nominal cross	导体种类 Category of conductor	最大外径 mm Max. outer diameter		
		KFF	KFFP	KFFP2
33×0.5	1	13.1	14.6	14.1
33×0.75	1	14.2	15.5	15.0
33×1.0	1	15.2	16.7	16.2
33×1.5	1	17.8	19.3	18.8
33×2.5	1	21.1	/	/
37×0.5	1	13.6	15.2	14.6
37×0.75	1	14.8	16.3	15.8
37×1.0	1	15.9	17.6	17.1
37×1.5	1	18.5	20.0	19.5
37×2.5	1	22.0	/	/
44×0.5	1	14.3	15.6	15.1
44×0.75	1	16.9	18.4	17.9
44×1.0	1	18.1	19.6	19.1
44×1.5	1	20.9	21.9	/
48×0.5	1	14.5	16.0	15.5
48×0.75	1	17.2	18.7	18.2
48×1.0	1	18.4	19.9	19.4
48×1.5	1	21.3	/	/
52×0.5	1	15.0	16.5	16.0
52×0.75	1	17.7	19.2	18.7
52×1.0	1	18.9	20.4	19.9
52×1.5	1	21.9	/	/

Sequel table 2 KFFR、KFFRP、KFFRP2

芯数×标称截面 mm² Core No.*nominal cross	导体种类 Category of conductor	最大外径 mm Max. outer diameter		
		KFFR	KFFRP	KFFRP2
2×0.5	5	5.1	6.3	5.7
2×0.75	5	5.9	7.1	6.5
2×1.0	5	6.3	7.5	6.9
2×1.5	5	6.7	7.9	7.3
2×2.5	5	8.5	9.7	9.1
3×0.5	5	5.4	6.6	6.0
3×0.75	5	6.4	7.6	7.0
3×1.0	5	6.8	8.0	7.4
3×1.5	5	7.3	8.5	7.9
3×2.5	5	8.9	10.1	9.5
4×0.5	5	5.9	7.1	6.5
4×0.75	5	7.0	8.2	7.6
4×1.0	5	7.6	8.8	8.2
4×1.5	5	8.1	9.3	8.7
4×2.5	5	9.8	11.0	10.4
5×0.5	5	6.4	7.6	7.0
5×0.75	5	7.7	8.9	8.3
5×1.0	5	8.4	9.6	9.0
5×1.5	5	8.9	10.1	9.5
5×2.5	5	10.6	11.8	11.2
7×0.5	5	7.2	8.4	7.8
7×0.75	5	8.5	9.7	9.1
7×1.0	5	9.1	10.3	9.7
7×1.5	5	9.7	10.9	10.3
7×2.5	5	11.8	13.0	12.4
8×0.5	5	7.9	9.1	8.5
8×0.75	5	9.2	10.4	9.8
8×1.0	5	9.9	11.1	10.5
8×1.5	5	10.6	11.8	11.2
8×2.5	5	12.8	14.0	13.4
10×0.5	5	9.1	10.3	9.7
10×0.75	5	10.8	12.0	11.4
10×1.0	5	11.6	12.8	12.2
10×1.5	5	12.4	13.6	13.0
10×2.5	5	15.4	16.6	16.0
12×0.5	5	9.4	10.6	10.0
12×0.75	5	11.2	12.4	11.8
12×1.0	5	12.0	13.2	12.6
12×1.5	5	12.8	14.0	13.4
12×2.5	5	16.0	17.2	16.6

Sequel table 2 KFFR、KFFRP、KFFRP2

芯数×标称截面 mm² Core No.*nominal cross	导体种类 Category of conductor	最大外径 mm Max. outer diameter		
		KFFR	KFFRP	KFFRP2
14×0.5	5	9.9	11.0	10.6
14×0.75	5	10.7	11.8	11.4
14×1.0	5	12.8	13.9	13.5
14×1.5	5	13.7	14.8	14.4
14×2.5	5	16.3	17.4	17.0
16×0.5	5	10.4	11.5	11.1
16×0.75	5	12.4	13.5	13.1
16×1.0	5	13.5	14.6	14.2
16×1.5	5	14.5	15.6	15.2
16×2.5	5	17.2	18.3	17.9

19×0.5	5	11.0	12.1	11.7
19×0.75	5	13.3	14.4	14.0
19×1.0	5	14.3	15.4	15.0
19×1.5	5	14.8	15.9	15.5
19×2.5	5	18.3	19.4	19.0
24×0.5	5	13.1	14.2	13.8
24×0.75	5	14.4	15.5	15.1
24×1.0	5	15.3	16.4	16.0
24×1.5	5	17.8	18.9	18.5
24×2.5	5	22.3	23.4	23.0
27×0.5	5	13.4	14.5	14.1
27×0.75	5	14.4	15.5	15.1
27×1.0	5	15.3	16.4	16.0
27×1.5	5	17.8	18.9	18.5
27×2.5	5	22.3	23.4	23.0
30×0.5	5	13.9	15.0	14.6
30×0.75	5	15.0	16.1	15.7
30×1.0	5	15.9	17.0	16.6
30×1.5	5	18.5	19.6	19.2
33×0.5	5	13.9	15.0	14.6
33×0.75	5	15.6	16.7	16.3
33×1.0	5	16.6	17.7	17.3
33×1.5	5	19.5	20.6	20.2
37×0.5	5	14.5	15.6	15.2
37×0.75	5	16.2	17.3	16.9
37×1.0	5	17.3	18.4	18.0
37×1.5	5	20.3	21.4	21.0
44×0.5	5	16.3	17.4	17.0
44×0.75	5	18.5	19.6	19.2
44×1.0	5	19.7	20.8	20.4
48×0.5	5	16.8	17.9	17.5
48×0.75	5	18.9	20.0	19.6
48×1.0	5	20.6	21.7	21.3
52×0.5	5	17.5	18.6	18.2
52×0.75	5	19.5	20.6	20.2
52×1.0	5	20.8	21.9	21.5

八、交货长度

1、根据双方协议，允许任何长度的电缆交货；

2、长度计量误差不超过±0.5%。

Delivery Length

1.Delivery length of cable depends on both agree-ments.

2.The measurement error of lenth is no more than ±0.5%.