

## 氟塑料绝缘耐高温控制电缆

# High-temperature resistant Control Cable with Fluoroplastics Insulation

### 一、产品特点及用途

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或改性聚四氟乙烯材料，产品具有比普通控制电缆更高的耐热等级，

### 二、产品执行标准

Q/TK08.4-2010

### 三、产品使用特性

- 1、交流额定电压：U<sub>0</sub>/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：  
聚氯乙烯护套电缆0℃；  
硅橡胶护套电缆-20℃；  
氟塑料护套电缆-20℃。
- 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6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12倍；  
有屏蔽层结构的软电缆，应不小于电缆外径的6倍；  
氟塑料绝缘护套材料的电缆应不小于电缆外径的8倍。

### Product Characteristic and Application

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, various chemical reagent(except chloroform) and corrosive gas resistance, aging resistance and bad weather resistance 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. F46 or Teflon insulation material is adopted by control cable with fluoroplastics insulation & sheath and high temperature resistance. It has better heat resistant degree compared with common control cable.

### Executive standard:

Q/TK08.4-2010

### Performance for Usage

- 1.A.C. rated voltage U<sub>0</sub>/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:  
0℃ for cable with PVC sheath  
-20℃ for cable with silicon rubber sheath  
-20℃ for cable with fluoroplastic sheath
- 4.Bending radius allowed by cable:  
It is no less than 6 times that of cable OD for cable with inarmored layer  
It is no less than 12 times that of cable OD for cable with armored layer or copper tape shielding  
It is no less than 6 times that of cable OD for soft cable with shielding structure  
It is no less than 8 times that of cable OD for cable with fluoroplastic insulation and sheath

#### 四、电缆型号及名称

#### Type and Description

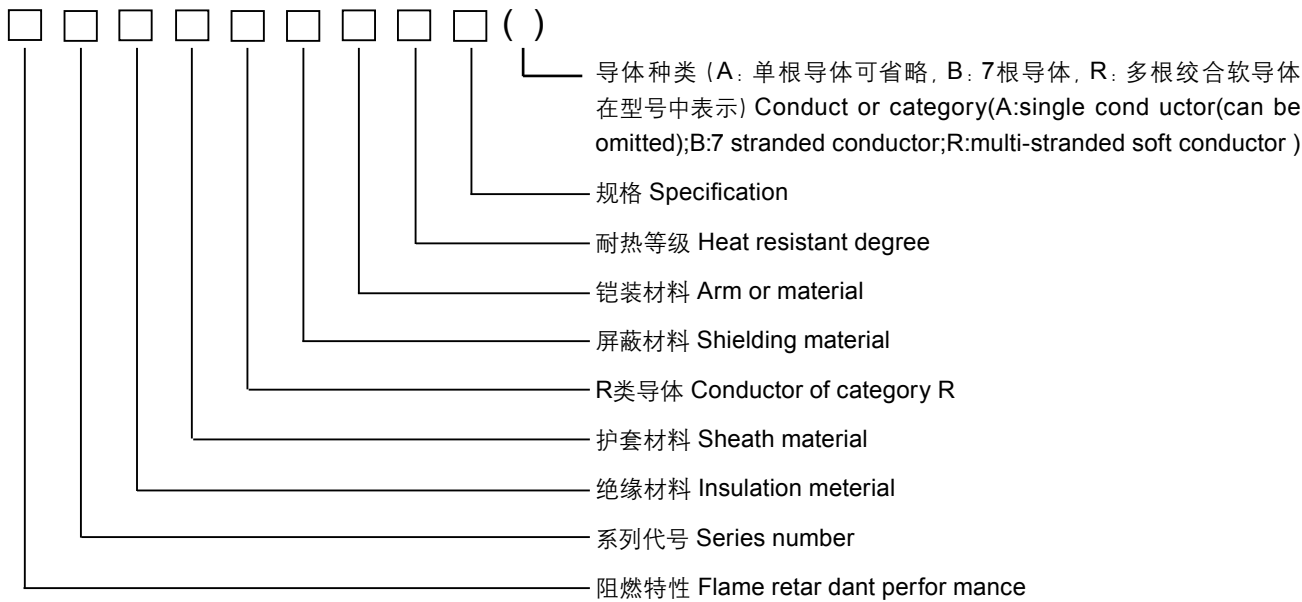
##### 1、基本型号及名称

##### Basic Type and Description

| 型 号<br>Type | 名 称<br>Description                                                                                                                         |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| KFF         | 氟塑料绝缘氟塑料护套控制电缆<br>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<br>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<br>Control 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<br>Control soft cable with fluoroplastic insulation and sheath, copper wire braided shielding                        |
| KFV         | 氟塑料绝缘聚氯乙烯护套控制电缆<br>Control cable with fluoroplastic insulation and PVC sheath                                                              |
| KFVP        | 氟塑料绝缘聚氯乙烯护套铜丝编织屏蔽控制电缆<br>Control cable with fluoroplastic insulation, PVC sheath, copper wire braided shielding                            |
| KFVR        | 氟塑料绝缘聚氯乙烯护套控制软电缆<br>Control soft cable with fluoroplastic insulation and PVC sheath                                                        |
| KFVRP       | 氟塑料绝缘聚氯乙烯护套铜丝编织屏蔽控制软电缆<br>Control soft cable with fluoroplastic insulation, PVC sheath, copper wire braided shielding                      |
| KFV22       | 氟塑料绝缘钢带铠装聚氯乙烯护套控制电缆<br>Control cable with fluoroplastic insulation, PVC sheath, steel tape armor                                           |
| KFVP22      | 氟塑料绝缘钢带铠装聚氯乙烯护套铜丝编织屏蔽控制电缆<br>Control cable with fluoroplastic insulation, PVC sheath, steel tape armor, copper wire braided shielding      |
| KFVR22      | 氟塑料绝缘钢带铠装聚氯乙烯护套控制软电缆<br>Control soft cable with fluoroplastic insulation, PVC sheath, steel tape armor                                     |
| KFVRP22     | 氟塑料绝缘钢带铠装聚氯乙烯护套铜丝编织屏蔽控制软电缆<br>Control soft cable with fluoroplastic insulation, PVC sheath, steel tape armor, copper wire braided shieldin |
| KFG         | 氟塑料绝缘硅橡胶护套控制电缆<br>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<br>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<br>Control 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<br>Control soft cable with fluoroplastic insulation, silicon rubber sheath, copper wire braided shielding            |
| KFG22       | 氟塑料绝缘钢带铠装硅橡胶护套控制电缆<br>Control cable with fluoroplastic insulation, silicon rubber sheath, steel tape armor                                 |

2、型号结构组合形式

Type-naming Indication



五、代号名称及含义

Codes Meaning

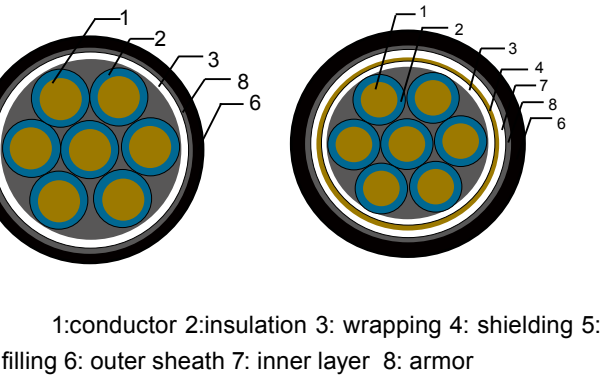
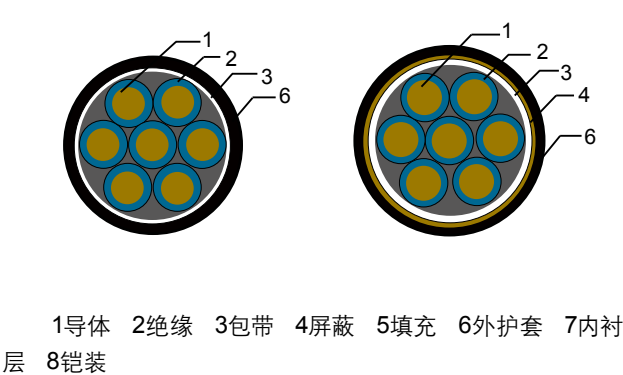
| 项 目<br>Item                         | 代 号Code | 说 明<br>Description                           |
|-------------------------------------|---------|----------------------------------------------|
| 阻燃特性<br>flame retardant performance | ZRA     | A类阻燃 Flame retardance of category A          |
|                                     | ZRB     | B类阻燃 Flame retardance of category B          |
|                                     | ZRC     | C类阻燃(C可以省略) Flame retardance of category C   |
| 系列代号<br>series number               | K       | 控制电缆 Control cable                           |
| 绝缘材料<br>insulation material         | F       | 聚全氟乙烯/聚四氟乙烯<br>F <sub>46</sub> /teflon       |
| 护套材料<br>sheath material             | F       | 聚全氟乙烯/聚四氟乙烯<br>F <sub>46</sub> /teflon       |
|                                     | G       | 硅橡胶silicon rubber                            |
|                                     | V       | 耐热105℃聚氯乙烯 heat resistance 105℃ PVC          |
| 屏蔽材料<br>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                    |
| 铠装材料<br>armor material              | 22      | 钢带铠装聚氯乙烯护套 steel tape armor PVC sheath       |

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.

六、电缆的结构图如下所示

The figure of cable structure



## 七、电缆的规格如下表所示

## Specification of Cable in Following Table

| 型 号<br>Type                        | 额定<br>电压<br>V<br>Rated voltage | Nominal cross section area导体标称截面mm <sup>2</sup> |      |     |      |     |      |   |      |
|------------------------------------|--------------------------------|-------------------------------------------------|------|-----|------|-----|------|---|------|
|                                    |                                | 0.5                                             | 0.75 | 1.0 | 1.5  | 2.5 | 4    | 6 | 10   |
|                                    |                                | 芯 数 core number                                 |      |     |      |     |      |   |      |
| KFF、KFV KFG、KFFP<br>KFVP、KFGP      | 450/750                        | 2~61                                            |      |     |      |     | 2~14 |   | 2~10 |
| KFFR、KFVR KFGP、FFRP<br>KFVRP、KFGRP |                                | 2~61                                            |      |     |      |     | -    |   |      |
| KFV22、KFVP22、KFVR22<br>KFVRP22     |                                | --                                              | 7~61 |     | 2~61 |     | 2~14 |   | 2~10 |

注：推荐的芯数系列为：2、3、4、5、7、8、10、12、14、16、19、24、27、30、37、44、48、52、61芯,但根据用户需要,可生产61芯以下任意芯数的电缆。

Note: recommended core No. series: 2、3、4、5、7、8、10、12、14、16、19、24、27、30、37、44、48、52、61core. We also produce cable with 61 cores or lower according to the requirement of customer.

## 八、主要技术指标

## Main Technical Indices

| 标称截面<br>(mm <sup>2</sup> )<br>nominal cross section<br>area | 导体结构conductor<br>structure<br>根数/直径(mm)<br>Pieces/diameter | 20℃时导体电阻(Ω/km)<br>conductor resistance at 20℃ |              | 耐电压强度<br>voltage withstand stress               |
|-------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------|--------------|-------------------------------------------------|
|                                                             |                                                            | 不镀锡<br>non-tinned                             | 镀锡<br>tinned |                                                 |
| 0.5                                                         | 1/0.8                                                      | 36.0                                          | 36.7         | 3kV/5min绝缘无击穿<br>Without puncture of insulation |
|                                                             | 7/0.30                                                     | 36.0                                          | 36.7         |                                                 |
|                                                             | 16/0.20                                                    | 39.0                                          | 40.1         |                                                 |
| 0.75                                                        | 1/0.97                                                     | 24.5                                          | 24.8         |                                                 |
|                                                             | 7/0.37                                                     | 24.5                                          | 24.8         |                                                 |
|                                                             | 24/0.20                                                    | 26.0                                          | 26.7         |                                                 |
| 1.0                                                         | 1/1.13                                                     | 18.1                                          | 18.2         |                                                 |
|                                                             | 7/0.43                                                     | 18.1                                          | 18.2         |                                                 |
|                                                             | 32/0.20                                                    | 19.5                                          | 20.0         |                                                 |
| 1.5                                                         | 1/1.38                                                     | 12.1                                          | 12.2         |                                                 |
|                                                             | 7/0.52                                                     | 12.1                                          | 12.2         |                                                 |
|                                                             | 30/0.25                                                    | 13.3                                          | 13.7         |                                                 |
| 2.5                                                         | 1/1.78                                                     | 7.41                                          | 7.56         |                                                 |
|                                                             | 7/0.68                                                     | 7.41                                          | 7.56         |                                                 |
|                                                             | 19/0.41                                                    | 7.41                                          | 7.56         |                                                 |
|                                                             | 49/0.26                                                    | 7.98                                          | 8.21         |                                                 |
| 4                                                           | 1/2.25                                                     | 4.61                                          | 4.70         |                                                 |
|                                                             | 7/0.85                                                     | 4.61                                          | 4.70         |                                                 |
|                                                             | 19/0.52                                                    | 4.61                                          | 4.70         |                                                 |
|                                                             | 56/0.30                                                    | 4.95                                          | 5.09         |                                                 |
| 6                                                           | 1/2.76                                                     | 3.08                                          | 3.11         |                                                 |
|                                                             | 7/1.04                                                     | 3.08                                          | 3.11         |                                                 |
|                                                             | 19/0.64                                                    | 3.08                                          | 3.11         |                                                 |
|                                                             | 84/0.30                                                    | 3.30                                          | 3.39         |                                                 |
| 10                                                          | 7/1.35                                                     | 1.83                                          | 1.84         |                                                 |

九、常用规格结构尺寸及参考重量如下表

Common Specification and Weight for Reference

Table 1 KFF, KFFP, KFFP2

| 芯数×标称<br>截面mm <sup>2</sup><br>core No.*nominal cross<br>section area | 线芯结构<br>(根数/直径)<br>mm<br>core structure<br>(pieces/diameter) | 最大外径mm<br>Max. outer diameter |      |       | 参考重量kg/km<br>weight for reference |      |       |
|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|------|-------|-----------------------------------|------|-------|
|                                                                      |                                                              | KFF                           | KFFP | KFFP2 | KFF                               | KFFP | KFFP2 |
| 2×0.5                                                                | 1/0.80                                                       | 4.5                           | 5.4  | 5.0   | 35                                | 51   | 69    |
| 2×0.75                                                               | 1/0.97                                                       | 4.9                           | 5.8  | 5.4   | 45                                | 63   | 84    |
| 2×1.0                                                                | 1/1.13                                                       | 5.2                           | 6.1  | 5.7   | 52                                | 72   | 95    |
| 2×1.5                                                                | 1/1.38                                                       | 5.8                           | 6.7  | 6.3   | 65                                | 86   | 111   |
| 2×2.5                                                                | 1/1.78                                                       | 6.5                           | 7.4  | 7     | 92                                | 118  | 151   |
| 2×4                                                                  | 1/2.25                                                       | 7.8                           | 8.7  | 8.3   | 142                               | 165  | 175   |
| 2×6                                                                  | 1/2.76                                                       | 8.9                           | 9.8  | 9.4   | 211                               | 245  | 279   |
| 3×0.5                                                                | 1/0.80                                                       | 4.7                           | 5.6  | 5.2   | 44                                | 62   | 80    |
| 3×0.75                                                               | 1/0.97                                                       | 5.2                           | 6.1  | 5.7   | 57                                | 77   | 99    |
| 3×1.0                                                                | 1/1.13                                                       | 5.3                           | 6.2  | 5.8   | 69                                | 89   | 114   |
| 3×1.5                                                                | 1/1.38                                                       | 6.1                           | 7    | 6.6   | 88                                | 110  | 141   |
| 3×2.5                                                                | 1/1.78                                                       | 7.1                           | 8    | 7.6   | 126                               | 153  | 191   |
| 3×4                                                                  | 1/2.25                                                       | 8.5                           | 9.4  | 9     | 215                               | 255  | 278   |
| 4×0.5                                                                | 1/0.80                                                       | 5.1                           | 6    | 5.6   | 54                                | 73   | 94    |
| 4×0.75                                                               | 1/0.97                                                       | 5.7                           | 6.6  | 6.2   | 70                                | 92   | 118   |
| 4×1.0                                                                | 1/1.13                                                       | 6.2                           | 7.1  | 6.7   | 86                                | 109  | 140   |
| 4×1.5                                                                | 1/1.38                                                       | 6.8                           | 7.7  | 7.3   | 111                               | 136  | 174   |
| 4×2.5                                                                | 1/1.78                                                       | 7.7                           | 8.6  | 8.2   | 157                               | 187  | 234   |
| 4×4                                                                  | 1/2.25                                                       | 9.6                           | 10.5 | 10.1  | 270                               | 295  | 311   |
| 5×0.5                                                                | 1/0.80                                                       | 5.9                           | 6.8  | 6.4   | 64                                | 85   | 110   |
| 5×0.75                                                               | 1/0.97                                                       | 6.4                           | 7.3  | 6.9   | 85                                | 108  | 138   |
| 5×1.0                                                                | 1/1.13                                                       | 6.8                           | 7.7  | 7.3   | 103                               | 129  | 165   |
| 5×1.5                                                                | 1/1.38                                                       | 7.5                           | 8.4  | 8     | 134                               | 162  | 207   |
| 5×2.5                                                                | 1/1.78                                                       | 8.8                           | 9.7  | 9.3   | 191                               | 224  | 280   |
| 5×4                                                                  | 1/2.25                                                       | 10.6                          | 11.5 | 12.1  | 325                               | 362  | 395   |
| 7×0.5                                                                | 1/0.80                                                       | 6.3                           | 7.3  | 6.8   | 82                                | 106  | 136   |
| 7×0.75                                                               | 1/0.97                                                       | 7.1                           | 8.1  | 7.6   | 110                               | 136  | 174   |
| 7×1.0                                                                | 1/1.13                                                       | 7.4                           | 8.4  | 7.9   | 135                               | 164  | 208   |
| 7×1.5                                                                | 1/1.38                                                       | 8.2                           | 9.2  | 8.7   | 177                               | 208  | 260   |
| 7×2.5                                                                | 1/1.78                                                       | 9.5                           | 10.5 | 10    | 262                               | 300  | 369   |
| 7×4                                                                  | 1/2.25                                                       | 11.6                          | 12.6 | 12.1  | 415                               | 458  | 485   |
| 8×0.5                                                                | 1/0.80                                                       | 6.8                           | 7.8  | 7.3   | 97                                | 122  | 150   |
| 8×0.75                                                               | 1/0.97                                                       | 7.5                           | 8.5  | 8     | 128                               | 157  | 192   |
| 8×1.0                                                                | 1/1.13                                                       | 7.9                           | 8.9  | 8.4   | 157                               | 189  | 229   |
| 8×1.5                                                                | 1/1.38                                                       | 8.7                           | 9.7  | 9.2   | 207                               | 241  | 284   |
| 8×2.5                                                                | 1/1.78                                                       | 10.3                          | 11.3 | 10.8  | 314                               | 367  | 426   |

Sequel table1 KFF, KFFP, KFFP2

| 芯数×标称<br>截面mm <sup>2</sup><br>Core No.*nominal cross<br>section area | 线芯结构<br>(根数/直径)<br>mm<br>core structure<br>(pieces/diameter) | 最大外径mm<br>Max. outer diameter |      |       | 参考重量kg/km<br>weight for reference |      |       |
|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|------|-------|-----------------------------------|------|-------|
|                                                                      |                                                              | KFF                           | KFFP | KFFP2 | KFF                               | KFFP | KFFP2 |
| 10×0.5                                                               | 1/0.80                                                       | 7.9                           | 8.9  | 8.4   | 113                               | 153  | 188   |
| 10×0.75                                                              | 1/0.97                                                       | 8.7                           | 9.7  | 9.2   | 152                               | 186  | 227   |
| 10×1.0                                                               | 1/1.13                                                       | 9.3                           | 10.3 | 9.8   | 202                               | 241  | 292   |
| 10×1.5                                                               | 1/1.38                                                       | 10.3                          | 11.3 | 10.8  | 263                               | 316  | 373   |
| 10×2.5                                                               | 1/1.78                                                       | 12.1                          | 13.1 | 12.6  | 378                               | 442  | 513   |
| 12×0.5                                                               | 1/0.80                                                       | 8.2                           | 9.2  | 8.7   | 130                               | 161  | 198   |
| 12×0.75                                                              | 1/0.97                                                       | 9.0                           | 10   | 9.5   | 177                               | 212  | 259   |
| 12×1.0                                                               | 1/1.13                                                       | 9.6                           | 10.6 | 10.1  | 233                               | 274  | 332   |
| 12×1.5                                                               | 1/1.38                                                       | 10.8                          | 11.8 | 11.3  | 305                               | 360  | 425   |
| 12×2.5                                                               | 1/1.78                                                       | 12.5                          | 13.5 | 13    | 442                               | 508  | 589   |
| 14×0.5                                                               | 1/0.80                                                       | 8.8                           | 9.8  | 9.3   | 147                               | 179  | 220   |
| 14×0.75                                                              | 1/0.97                                                       | 9.9                           | 10.9 | 10.4  | 215                               | 255  | 311   |
| 14×1.0                                                               | 1/1.13                                                       | 11.5                          | 12.6 | 12.3  | 265                               | 319  | 386   |
| 14×1.5                                                               | 1/1.38                                                       | 11.6                          | 12.7 | 12.4  | 350                               | 409  | 483   |
| 14×2.5                                                               | 1/1.78                                                       | 13.3                          | 14.4 | 14.1  | 533                               | 613  | 675   |
| 16×0.5                                                               | 1/0.80                                                       | 9.5                           | 10.6 | 10.3  | 165                               | 199  | 245   |
| 16×0.75                                                              | 1/0.97                                                       | 10.4                          | 11.5 | 11.2  | 241                               | 282  | 344   |
| 16×1.0                                                               | 1/1.13                                                       | 11.0                          | 12.1 | 11.8  | 298                               | 355  | 430   |
| 16×1.5                                                               | 1/1.38                                                       | 13.0                          | 14.3 | 13.8  | 394                               | 457  | 539   |
| 16×2.5                                                               | 1/1.78                                                       | 15.1                          | 16.4 | 16.0  | 604                               | 694  | 764   |
| 19×0.5                                                               | 1/0.80                                                       | 10.3                          | 11.4 | 11.1  | 205                               | 243  | 296   |
| 19×0.75                                                              | 1/0.97                                                       | 11.3                          | 12.4 | 12.1  | 279                               | 336  | 407   |
| 19×1.0                                                               | 1/1.13                                                       | 12.7                          | 14.0 | 14.0  | 345                               | 407  | 480   |
| 19×1.5                                                               | 1/1.38                                                       | 13.7                          | 15.2 | 14.8  | 459                               | 525  | 609   |
| 19×2.5                                                               | 1/1.78                                                       | 16.0                          | 17.2 | 16.8  | 707                               | 813  | 894   |
| 24×0.5                                                               | 1/0.80                                                       | 11.7                          | 12.8 | 12.5  | 255                               | 312  | 378   |
| 24×0.75                                                              | 1/0.97                                                       | 13.2                          | 14.4 | 14.0  | 348                               | 414  | 489   |
| 24×1.0                                                               | 1/1.13                                                       | 15.2                          | 16.4 | 16.0  | 423                               | 486  | 535   |
| 24×1.5                                                               | 1/1.38                                                       | 15.9                          | 17.1 | 17.0  | 586                               | 674  | 741   |
| 24×2.5                                                               | 1/1.78                                                       | 19.1                          | 20.6 | 20.1  | 901                               | 1036 | 1139  |
| 27×0.5                                                               | 1/0.80                                                       | 12.2                          | 13.7 | 13.2  | 280                               | 339  | 410   |
| 27×0.75                                                              | 1/0.97                                                       | 13.4                          | 14.9 | 14.5  | 384                               | 452  | 533   |
| 27×1.0                                                               | 1/1.13                                                       | 14.5                          | 16.5 | 16.0  | 469                               | 539  | 593   |
| 27×1.5                                                               | 1/1.38                                                       | 16.3                          | 18.0 | 17.5  | 651                               | 749  | 824   |
| 27×2.5                                                               | 1/1.78                                                       | 19.5                          | 21.0 | 20.5  | 1002                              | 1153 | 1268  |
| 30×0.5                                                               | 1/0.80                                                       | 12.6                          | 14.2 | 13.6  | 307                               | 367  | 444   |
| 30×0.75                                                              | 1/0.97                                                       | 13.7                          | 15.4 | 14.7  | 422                               | 485  | 534   |
| 30×1.0                                                               | 1/1.13                                                       | 14.6                          | 17.0 | 15.6  | 516                               | 593  | 652   |
| 30×1.5                                                               | 1/1.38                                                       | 16.9                          | 18.6 | 18.1  | 718                               | 825  | 908   |
| 30×2.5                                                               | 1/1.78                                                       | 20.3                          | 21.8 | 21.3  | 1106                              | 1271 | 1399  |

Sequel table1 KFF, KFFP, KFFP2

| 芯数×标称<br>截面mm <sup>2</sup><br>core No.*nominal<br>cross section area | 线芯结构<br>(根数/直径)<br>mm<br>core structure<br>(pieces/diameter) | 最大外径mm<br>Max. outer diameter |      |       | 参考重量kg/km<br>weight for reference |      |       |
|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|------|-------|-----------------------------------|------|-------|
|                                                                      |                                                              | KFF                           | KFFP | KFFP2 | KFF                               | KFFP | KFFP2 |
| 33×0.5                                                               | 1/0.80                                                       | 13.1                          | 14.6 | 14.1  | 333                               | 396  | 479   |
| 33×0.75                                                              | 1/0.97                                                       | 14.2                          | 15.5 | 15.0  | 460                               | 529  | 582   |
| 33×1.0                                                               | 1/1.13                                                       | 15.2                          | 16.7 | 16.2  | 563                               | 648  | 712   |
| 33×1.5                                                               | 1/1.38                                                       | 17.8                          | 19.3 | 18.8  | 797                               | 917  | 1008  |
| 33×2.5                                                               | 1/1.78                                                       | 21.1                          | --   | --    | 1209                              | --   | --    |
| 37×0.5                                                               | 1/0.80                                                       | 13.6                          | 15.2 | 14.6  | 268                               | 434  | 525   |
| 37×0.75                                                              | 1/0.97                                                       | 14.8                          | 16.3 | 15.8  | 510                               | 587  | 645   |
| 37×1.0                                                               | 1/1.13                                                       | 15.9                          | 17.6 | 17.1  | 625                               | 719  | 791   |
| 37×1.5                                                               | 1/1.38                                                       | 18.5                          | 20.0 | 19.5  | 886                               | 1018 | 1120  |

|         |        |      |      |      |      |      |      |
|---------|--------|------|------|------|------|------|------|
| 37×2.5  | 1/1.78 | 22.0 | --   | --   | 1346 | --   | --   |
| 44×0.5  | 1/0.80 | 14.3 | 15.6 | 15.1 | 433  | 497  | 547  |
| 44×0.75 | 1/0.97 | 16.9 | 18.4 | 17.9 | 615  | 707  | 777  |
| 44×1.0  | 1/1.13 | 18.1 | 19.6 | 19.1 | 752  | 865  | 951  |
| 44×1.5  | 1/1.38 | 20.9 | 21.9 | --   | 1047 | 1205 | --   |
| 48×0.5  | 1/0.80 | 14.5 | 16.0 | 15.5 | 467  | 537  | 590  |
| 48×0.75 | 1/0.97 | 17.2 | 18.7 | 18.2 | 663  | 763  | 839  |
| 48×1.0  | 1/1.13 | 18.4 | 19.9 | 19.4 | 813  | 935  | 1028 |
| 48×1.5  | 1/1.38 | 21.3 | --   | --   | 1134 | --   | --   |
| 52×0.5  | 1/0.80 | 15.0 | 16.5 | 16.0 | 502  | 577  | 634  |
| 52×0.75 | 1/0.97 | 17.7 | 19.2 | 18.7 | 713  | 820  | 902  |
| 52×1.0  | 1/1.13 | 18.9 | 20.4 | 19.9 | 875  | 1006 | 1107 |
| 52×1.5  | 1/1.38 | 21.9 | --   | --   | 1222 | --   | --   |

Table 2 KFFR, KFFRP, KFFRP2

| 芯数×标称<br>截面mm <sup>2</sup><br>Core No.*nominal<br>cross section area | 线芯结构<br>(根数/直径)<br>mm<br>core structure<br>(pieces/diameter) | 最大外径mm<br>Max. outer diameter |       |        | 参考重量kg/km<br>weight for reference |       |        |
|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|-------|--------|-----------------------------------|-------|--------|
|                                                                      |                                                              | KFFR                          | KFFRP | KFFRP2 | KFFR                              | KFFRP | KFFRP2 |
| 2×0.5                                                                | 16/0.20                                                      | 5.1                           | 6.3   | 5.7    | 38                                | 55    | 74     |
| 2×0.75                                                               | 24/0.20                                                      | 5.9                           | 7.1   | 6.5    | 50                                | 68    | 92     |
| 2×1.0                                                                | 32/0.20                                                      | 6.3                           | 7.5   | 6.9    | 58                                | 79    | 104    |
| 2×1.5                                                                | 30/0.25                                                      | 6.7                           | 7.9   | 7.3    | 72                                | 94    | 121    |
| 2×2.5                                                                | 49/0.25                                                      | 8.5                           | 9.7   | 9.1    | 104                               | 132   | 169    |
| 3×0.5                                                                | 16/0.20                                                      | 5.4                           | 6.6   | 6      | 48                                | 66    | 85     |
| 3×0.75                                                               | 24/0.20                                                      | 6.4                           | 7.6   | 7      | 64                                | 86    | 85     |
| 3×1.0                                                                | 32/0.20                                                      | 6.8                           | 8     | 7.4    | 76                                | 98    | 125    |
| 3×1.5                                                                | 30/0.25                                                      | 7.3                           | 8.5   | 7.9    | 97                                | 121   | 155    |
| 3×2.5                                                                | 49/0.25                                                      | 8.9                           | 10.1  | 9.5    | 144                               | 173   | 216    |
| 4×0.5                                                                | 16/0.20                                                      | 5.9                           | 7.1   | 6.5    | 59                                | 79    | 102    |
| 4×0.75                                                               | 24/0.20                                                      | 7.0                           | 8.2   | 7.6    | 80                                | 102   | 131    |
| 4×1.0                                                                | 32/0.20                                                      | 7.6                           | 8.8   | 8.2    | 96                                | 121   | 155    |
| 4×1.5                                                                | 30/0.25                                                      | 8.1                           | 9.3   | 8.7    | 123                               | 149   | 191    |
| 4×2.5                                                                | 49/0.25                                                      | 9.8                           | 11    | 10.4   | 181                               | 213   | 266    |
| 5×0.5                                                                | 16/0.20                                                      | 6.4                           | 7.6   | 7      | 69                                | 91    | 117    |
| 5×0.75                                                               | 24/0.20                                                      | 7.7                           | 8.9   | 8.3    | 96                                | 121   | 155    |
| 5×1.0                                                                | 32/0.20                                                      | 8.4                           | 9.6   | 9      | 116                               | 143   | 183    |
| 5×1.5                                                                | 30/0.25                                                      | 8.9                           | 10.1  | 9.5    | 149                               | 178   | 228    |
| 5×2.5                                                                | 49/0.25                                                      | 10.6                          | 11.8  | 11.2   | 219                               | 255   | 319    |
| 7×0.5                                                                | 16/0.20                                                      | 7.2                           | 8.4   | 7.8    | 90                                | 115   | 147    |
| 7×0.75                                                               | 24/0.20                                                      | 8.5                           | 9.7   | 9.1    | 125                               | 153   | 196    |
| 7×1.0                                                                | 32/0.20                                                      | 9.1                           | 10.3  | 9.7    | 151                               | 182   | 233    |
| 7×1.5                                                                | 30/0.25                                                      | 9.7                           | 10.9  | 10.3   | 197                               | 230   | 288    |
| 7×2.5                                                                | 49/0.25                                                      | 11.8                          | 13    | 12.4   | 303                               | 343   | 422    |
| 8×0.5                                                                | 16/0.20                                                      | 7.9                           | 9.1   | 8.5    | 105                               | 133   | 164    |
| 8×0.75                                                               | 24/0.20                                                      | 9.2                           | 10.4  | 9.8    | 145                               | 176   | 215    |
| 8×1.0                                                                | 32/0.20                                                      | 9.9                           | 11.1  | 10.5   | 177                               | 210   | 254    |
| 8×1.5                                                                | 30/0.25                                                      | 10.6                          | 11.8  | 11.2   | 231                               | 267   | 315    |
| 8×2.5                                                                | 49/0.25                                                      | 12.8                          | 14    | 13.4   | 262                               | 418   | 485    |
| 10×0.5                                                               | 16/0.20                                                      | 9.1                           | 10.3  | 9.7    | 124                               | 156   | 192    |
| 10×0.75                                                              | 24/0.20                                                      | 10.8                          | 12    | 11.4   | 173                               | 210   | 256    |
| 10×1.0                                                               | 32/0.20                                                      | 11.6                          | 12.8  | 12.2   | 227                               | 269   | 325    |
| 10×1.5                                                               | 30/0.25                                                      | 12.4                          | 13.6  | 13     | 294                               | 350   | 413    |
| 10×2.5                                                               | 49/0.25                                                      | 15.4                          | 16.6  | 16     | 438                               | 507   | 588    |
| 12×0.5                                                               | 16/0.20                                                      | 9.4                           | 10.6  | 10     | 142                               | 172   | 212    |
| 12×0.75                                                              | 24/0.20                                                      | 11.2                          | 12.4  | 11.8   | 200                               | 238   | 290    |
| 12×1.0                                                               | 32/0.20                                                      | 12.0                          | 13.2  | 12.6   | 261                               | 304   | 368    |
| 12×1.5                                                               | 30/0.25                                                      | 12.8                          | 14    | 13.4   | 340                               | 398   | 470    |
| 12×2.5                                                               | 49/0.25                                                      | 16.0                          | 17.2  | 16.6   | 512                               | 584   | 677    |

Sequel table2 KFFR, KFFRP, KFFRP2

| 芯数×标称<br>截面mm <sup>2</sup><br>Core No.*nominal<br>cross section area | 线芯结构<br>(根数/直径)<br>mm<br>core structure<br>(pieces/diameter) | 最大外径mm<br>Max. outer diameter |       |        | 参考重量kg/km<br>weight for reference |       |        |
|----------------------------------------------------------------------|--------------------------------------------------------------|-------------------------------|-------|--------|-----------------------------------|-------|--------|
|                                                                      |                                                              | KFFR                          | KFFRP | KFFRP2 | KFFR                              | KFFRP | KFFRP2 |
| 14×0.5                                                               | 16/0.20                                                      | 9.9                           | 11.0  | 10.6   | 162                               | 196   | 241    |
| 14×0.75                                                              | 24/0.20                                                      | 10.7                          | 11.8  | 11.4   | 244                               | 286   | 349    |
| 14×1.0                                                               | 32/0.20                                                      | 12.8                          | 13.9  | 13.5   | 298                               | 355   | 430    |
| 14×1.5                                                               | 30/0.25                                                      | 13.7                          | 14.8  | 14.4   | 390                               | 452   | 533    |
| 14×2.5                                                               | 49/0.25                                                      | 16.3                          | 17.4  | 17     | 597                               | 687   | 756    |
| 16×0.5                                                               | 16/0.20                                                      | 10.4                          | 11.5  | 11.1   | 181                               | 217   | 267    |
| 16×0.75                                                              | 24/0.20                                                      | 12.4                          | 13.5  | 13.1   | 274                               | 318   | 388    |
| 16×1.0                                                               | 32/0.20                                                      | 13.5                          | 14.6  | 14.2   | 335                               | 396   | 479    |
| 16×1.5                                                               | 30/0.25                                                      | 14.5                          | 15.6  | 15.2   | 440                               | 506   | 597    |
| 16×2.5                                                               | 49/0.25                                                      | 17.2                          | 18.3  | 17.9   | 625                               | 719   | 791    |
| 19×0.5                                                               | 16/0.20                                                      | 11.0                          | 12.1  | 11.7   | 225                               | 265   | 323    |
| 19×0.75                                                              | 24/0.20                                                      | 13.3                          | 14.4  | 14     | 318                               | 385   | 466    |
| 19×1.0                                                               | 32/0.20                                                      | 14.3                          | 15.4  | 15     | 389                               | 454   | 536    |
| 19×1.5                                                               | 30/0.25                                                      | 14.8                          | 15.9  | 15.5   | 507                               | 583   | 641    |
| 19×2.5                                                               | 49/0.25                                                      | 18.3                          | 19.4  | 19     | 792                               | 850   | 1002   |
| 24×0.5                                                               | 16/0.20                                                      | 13.1                          | 14.2  | 13.8   | 281                               | 341   | 413    |
| 24×0.75                                                              | 24/0.20                                                      | 14.4                          | 15.5  | 15.1   | 388                               | 446   | 491    |
| 24×1.0                                                               | 32/0.20                                                      | 15.3                          | 16.4  | 16     | 456                               | 524   | 577    |
| 24×1.5                                                               | 30/0.25                                                      | 17.8                          | 18.9  | 18.5   | 635                               | 730   | 803    |
| 24×2.5                                                               | 49/0.25                                                      | 22.3                          | 23.4  | 23     | 1009                              | --    | --     |
| 27×0.5                                                               | 16/0.20                                                      | 13.4                          | 14.5  | 14.1   | 308                               | 370   | 448    |
| 27×0.75                                                              | 24/0.20                                                      | 14.4                          | 15.5  | 15.1   | 429                               | 494   | 543    |
| 27×1.0                                                               | 32/0.20                                                      | 15.3                          | 16.4  | 16     | 505                               | 581   | 639    |
| 27×1.5                                                               | 30/0.25                                                      | 17.8                          | 18.9  | 18.5   | 705                               | 811   | 892    |
| 27×2.5                                                               | 49/0.25                                                      | 22.3                          | 23.4  | 23     | 1122                              | --    | --     |
| 30×0.5                                                               | 16/0.20                                                      | 13.9                          | 15    | 14.6   | 338                               | 402   | 486    |
| 30×0.75                                                              | 24/0.20                                                      | 15.0                          | 16.1  | 15.7   | 472                               | 543   | 597    |
| 30×1.0                                                               | 32/0.20                                                      | 15.9                          | 17    | 16.6   | 556                               | 639   | 703    |
| 30×1.5                                                               | 30/0.25                                                      | 18.5                          | 19.6  | 19.2   | 777                               | 894   | 983    |
| 33×0.5                                                               | 16/0.20                                                      | 13.9                          | 15    | 14.6   | 366                               | 433   | 524    |
| 33×0.75                                                              | 24/0.20                                                      | 15.6                          | 16.7  | 16.3   | 515                               | 592   | 651    |
| 33×1.0                                                               | 32/0.20                                                      | 16.6                          | 17.7  | 17.3   | 607                               | 698   | 765    |
| 33×1.5                                                               | 30/0.25                                                      | 19.5                          | 20.6  | 20.2   | 860                               | 995   | 1101   |
| 37×0.5                                                               | 16/0.20                                                      | 14.5                          | 15.6  | 15.2   | 420                               | 480   | 530    |
| 37×0.75                                                              | 24/0.20                                                      | 16.2                          | 17.3  | 16.9   | 568                               | 650   | 720    |
| 37×1.0                                                               | 32/0.20                                                      | 17.3                          | 18.4  | 18     | 670                               | 775   | 855    |
| 37×1.5                                                               | 30/0.25                                                      | 20.3                          | 21.4  | 21     | 965                               | 1150  | 1215   |
| 44×0.5                                                               | 16/0.20                                                      | 16.3                          | 17.4  | 17     | 495                               | 570   | 625    |
| 44×0.75                                                              | 24/0.20                                                      | 18.5                          | 19.6  | 19.2   | 685                               | 785   | 870    |
| 44×1.0                                                               | 32/0.20                                                      | 19.7                          | 20.8  | 20.4   | 810                               | 935   | 1050   |
| 48×0.5                                                               | 16/0.20                                                      | 16.8                          | 17.9  | 17.5   | 536                               | 616   | 678    |
| 48×0.75                                                              | 24/0.20                                                      | 18.9                          | 20.0  | 19.6   | 742                               | 854   | 945    |
| 48×1.0                                                               | 32/0.20                                                      | 20.6                          | 21.7  | 21.3   | 880                               | 1108  | 1172   |
| 52×0.5                                                               | 16/0.20                                                      | 17.5                          | 18.6  | 18.2   | 582                               | 665   | 735    |
| 52×0.75                                                              | 24/0.20                                                      | 19.5                          | 20.6  | 20.2   | 799                               | 925   | 1015   |
| 52×1.0                                                               | 32/0.20                                                      | 20.8                          | 21.9  | 21.5   | 945                               | 1100  | 1205   |

注：KFFV系列电缆的外径在上表相应的型号规格后的外径上加上2~3mm，  
KFFG系列电缆的外径在上表相应的型号规格后的外径上加上2~5mm。

Note: Outer diameter of KFFV series cable should be added by 2~3mm  
after relevant specification in the above table; Outer diameter of KFFG  
series cable should be added by 2~5mm after relevant specification in  
the above table;

## 九、交货长度

根据双方协议允许任何长度交货；长度计量误差不超过  
±0.5%。

## Delivery length

Delivery length of cable depends on both agreements  
with length error allowance of ±0.5%