**Technical Parameters**

Product Technical Parameters

1、The rated voltage of mineral-insulated cables:light load(BTTQ、BTTVQ、WD-BTTYQ)500V and heavy load (BTYTZ、BTTVZ 、WD-BTTYZ)750V.

2、Testing voltage of mineral-insulated cables:light load 2000V/1min and heavy 2500V/1min.

3、The insulation resistance of mineral-insulation cables shall be more than 1000MW; when the length of cable is less than 1000m, the insolation resistance shall be more than 10,000MW.

4、Long-term service temperature of mineral-insulated cables:The long-term service temperature of mineral insulated cables is 70℃.In areas inaccessible to people ,the long-term service temperature is 105℃;in special high temperature circumstance,the long-term service temperature can reach 250℃.When the temperature keeps at 950-1000℃, the cable can sustain power supply for at least 3 hours;during a short or extremely short period,the service temperature can reach 1083℃.

1. Curve radius:The possible minimum curve radius of mineral-insulated cables shall be in line with the above form.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| External diameter of the cable | D＜7 | 7≤D＜12 | 12≤D＜12 | D≥15 |
| Minimum curve radius | 2D | 3D | 4D | 6D |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Model | Number of cores × Standard cross section size | External diameter of the cable | | Rated current capacity | | Cross section size of copper sheath | Maximum length of a finished cable | | Theoretical Weight | |
| Bare cable | Plastic sheath | Bare cable | Plastic sheath | Bare cable | Plastic sheath |
| BTTQ  (BTTVQ)  (WD-BTTYQ) | mm² | mm | mm | A | A | mm² | m | | Kg/Km | Kg/Km |
| 2×1.0 | 5.1 | 6.4 | 17.5 | 19.5 | 6.0 | 800 | Base on actual delivery length | 104 | 125 |
| 2×1.5 | 5.7 | 7.0 | 22.5 | 25 | 7.1 | 800 | 130 | 153 |
| 2×2.5 | 6.6 | 7.9 | 30 | 33 | 9.4 | 600 | 179 | 205 |
| 2×4 | 7.7 | 9.2 | 40 | 44 | 12.1 | 450 | 248 | 287 |
| 3×1.0 | 5.8 | 7.1 | 15 | 16.5 | 7.6 | 800 | 135 | 159 |
| 3×1.5 | 6.4 | 7.7 | 19 | 21 | 8.9 | 650 | 168 | 193 |
| 3×2.5 | 7.3 | 8.8 | 25 | 28 | 10.7 | 500 | 224 | 261 |
| 4×1.0 | 6.3 | 7.6 | 14.5 | 16 | 8.8 | 700 | 161 | 187 |
| 4×1.5 | 7.0 | 8.3 | 19 | 21 | 10.2 | 550 | 202 | 230 |
| 4×2.5 | 8.1 | 9.6 | 25 | 28 | 12.8 | 400 | 278 | 319 |
| 7×1.0 | 7.6 | 9.1 | 10 | 11 | 11.6 | 650 | 233 | 271 |
| 7×1.5 | 8.4 | 9.9 | 12.5 | 14 | 13.3 | 530 | 291 | 333 |
| 7×2.5 | 9.7 | 11.2 | 17 | 19 | 17.4 | 400 | 407 | 455 |
| BTTZ  (BTTVZ)  (WD-BTTYZ)    BTTZ  (BTTVZ)  (WD-BTTYZ) | 1×1.5 | 4.9 | 6.2 | 30 | 33 | 5.8 | 880 | 97 | 117 |
| 1×2.5 | 5.3 | 6.6 | 39 | 43 | 6.4 | 780 | 116 | 137 |
| 1×4 | 5.9 | 7.2 | 51 | 56 | 7.7 | 640 | 146 | 170 |
| 1×6 | 6.4 | 7.7 | 63 | 69 | 8.9 | 720 | 180 | 206 |
| 1×10 | 7.3 | 8.8 | 81 | 90 | 10.7 | 550 | 241 | 278 |
| 1×16 | 8.3 | 9.8 | 107 | 119 | 13.2 | 438 | 329 | 371 |
| 1×25 | 9.6 | 11.1 | 139 | 154 | 17.0 | 336 | 455 | 502 |
| 1×35 | 10.7 | 12.2 | 168 | 187 | 20.2 | 280 | 584 | 637 |
| 1×50 | 12.1 | 13.6 | 207 | 230 | 24.7 | 230 | 773 | 831 |
| 1×70 | 13.7 | 15.2 | 251 | 279 | 30.9 | 185 | 1022 | 1088 |
| 1×95 | 15.4 | 17.4 | 300 | 333 | 36.7 | 164 | 1315 | 1403 |
| 1×120 | 16.8 | 18.8 | 344 | 382 | 42.6 | 145 | 1604 | 1701 |
| 1×150 | 18.4 | 20.4 | 388 | 431 | 49.5 | 119 | 1950 | 2054 |
| 1×185 | 20.4 | 22.9 | 434 | 482 | 58.1 | 97 | 2360 | 2496 |
| 1×240 | 23.3 | 25.8 | 483 | 537 | 70.1 | 89 | 2993 | 3147 |
| 1×300 | 26.0 | 28.6 | 795 | 883 | 86.7 | 80 | 3680 | 3852 |
| 1×400 | 30.0 | 32.8 | 948 | 1053 | 110.8 | 60 | 4805 | 5007 |
| 2×1.5 | 7.9 | 9.4 | 23.5 | 26 | 12.5 | 465 | 230 | 270 |
| 2×2.5 | 8.7 | 10.2 | 32 | 36 | 14.6 | 380 | 284 | 327 |
| 2×4 | 9.8 | 11.3 | 42 | 47 | 17.6 | 313 | 365 | 413 |
| 2×6 | 10.9 | 12.4 | 54 | 60 | 20.9 | 257 | 459 | 512 |
| 2×10 | 12.7 | 14.2 | 74 | 82 | 26.7 | 185 | 634 | 695 |
| 2×16 | 14.7 | 16.2 | 98 | 109 | 34.1 | 138 | 871 | 941 |
| 2×25 | 17.1 | 19.1 | 128 | 142 | 43.4 | 114 | 1201 | 1299 |
| 3×1.5 | 8.3 | 9.8 | 20 | 22 | 13.6 | 418 | 260 | 302 |
| 3×2.5 | 9.3 | 10.8 | 27 | 30 | 16.1 | 325 | 332 | 378 |
| 3×4 | 10.4 | 11.9 | 36 | 40 | 19.3 | 280 | 426 | 477 |
| 3×6 | 11.5 | 13.0 | 46 | 51 | 23.1 | 230 | 537 | 593 |
| 3×10 | 13.6 | 15.1 | 62 | 69 | 30.3 | 160 | 768 | 833 |
| 3×16 | 15.6 | 17.6 | 83 | 92 | 38.1 | 125 | 1050 | 1140 |
| 3×25 | 18.2 | 20.2 | 108 | 120 | 47.4 | 100 | 1460 | 1564 |
| 4×1.5 | 9.1 | 10.6 | 20.5 | 23 | 15.8 | 335 | 312 | 358 |
| 4×2.5 | 10.1 | 11.6 | 27 | 30 | 18.5 | 278 | 395 | 444 |
| 4×4 | 11.4 | 12.9 | 36 | 40 | 22.9 | 235 | 519 | 574 |
| 4×6 | 12.7 | 14.2 | 46 | 51 | 26.7 | 183 | 658 | 719 |
| 4×10 | 14.8 | 16.3 | 61 | 68 | 34.4 | 138 | 927 | 997 |
| 4×16 | 17.3 | 19.3 | 80 | 89 | 45.8 | 120 | 1353 | 1455 |
| 4×25 | 20.1 | 22.6 | 104 | 116 | 56.0 | 96 | 1822 | 1956 |
| 7×1.5 | 10.8 | 12.3 | 14 | 15.5 | 20.7 | 220 | 444 | 496 |
| 7×2.5 | 12.1 | 13.6 | 19 | 21 | 24.7 | 170 | 562 | 620 |
| 10×1.5 | 13.5 | 15.1 | 12.5 | 13.5 | 26.0 | 150 | 638 | 703 |
| 10×2.5 | 15.2 | 17.2 | 17 | 19 | 29.7 | 120 | 836 | 924 |
| 12×1.5 | 14.1 | 15.6 | 11.5 | 13 | 32.2 | 156 | 706 | 774 |
| 12×2.5 | 15.6 | 17.6 | 15.5 | 17 | 38.1 | 137 | 907 | 997 |
| 19×1.5 | 16.6 | 18.6 | 10 | 11 | 41.6 | 110 | 982 | 1077 |

**Form 1 Mineral-insulated cables, cables with plastic sheath or touch installed on wooden wall**

**The temperature of the metal sheath:70℃; temperature of the environment:30℃**

|  |  |  |  |
| --- | --- | --- | --- |
| Standard cross section of conductors mm² | Current carrying capacity A | | |
| Two loading conductors,two-core or single-core cables | Thee loading conductors | |
| Multi-core cables or single-core cables lined up in a triangular shape | Single-core cables lined up in a flat array |
| 500V | | | |
| 1.5 | 23 | 19 | 21 |
| 2.5 | 31 | 26 | 29 |
| 4 | 40 | 35 | 38 |
| 750V | | | |
| 1.5 | 25 | 21 | 23 |
| 2.5 | 34 | 28 | 31 |
| 4 | 45 | 37 | 41 |
| 6 | 57 | 48 | 52 |
| 10 | 77 | 65 | 70 |
| 16 | 102 | 86 | 92 |
| 25 | 133 | 112 | 120 |
| 35 | 163 | 137 | 147 |
| 50 | 202 | 169 | 181 |
| 70 | 247 | 207 | 221 |
| 95 | 296 | 249 | 264 |
| 120 | 340 | 286 | 303 |
| 150 | 388 | 327 | 346 |
| 185 | 440 | 371 | 392 |
| 240 | 514 | 434 | 457 |
| 300 | 782 | 748 | 879 |
| 400 | 940 | 893 | 1032 |

Note:

1. The two ends of the copper sheath of a single-core cable are connected in the circuit

2. The current capacity values of touchable bare cables shall be the data in this Form multiplied by 0.9.

**Form 2 Mineral-insulated cables, untouchable bare cables installed on a brick wall**

**The temperature of the metal sheath:105℃; temperature of the environment: 30℃**

|  |  |  |  |
| --- | --- | --- | --- |
| Standard cross section of conductors mm² | Current carrying capacity A | | |
| Two loading conductors,two-core or single-core cables | Three loading conductors | |
| Multi-core cables or single-core cables lined up in a triangular shape | Single-core cables lined up in a flat array |
| 500V | | | |
| 1.5 | 28 | 24 | 27 |
| 2.5 | 38 | 33 | 36 |
| 4 | 51 | 44 | 47 |
| 750V | | | |
| 1.5 | 31 | 26 | 30 |
| 2.5 | 42 | 35 | 41 |
| 4 | 55 | 47 | 53 |
| 6 | 70 | 59 | 67 |
| 10 | 96 | 81 | 91 |
| 16 | 127 | 107 | 119 |
| 25 | 166 | 140 | 154 |
| 35 | 203 | 171 | 187 |
| 50 | 251 | 212 | 230 |
| 70 | 307 | 260 | 280 |
| 95 | 369 | 312 | 334 |
| 120 | 424 | 359 | 383 |
| 150 | 485 | 410 | 435 |
| 185 | 550 | 465 | 492 |
| 240 | 643 | 544 | 572 |
| 300 | 973 | 947 | 964 |
| 400 | 1230 | 1136 | 1146 |

Note:

1. The two ends of the copper sheath of a single-core cable are connected in the circuit.
2. When installed in a bundle, the cable current capacity value doesn’t need to be adjusted.

**Form 3 Mineral-insulated cables, cables with plastic sheath or touchable bare cables exposed in the air**

**The temperature of the metal sheath:70℃: temperature of the environment:30℃**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Standard cross section of conductors mm² | Current carrying capacity A | | | | |
| Two loading conductors,two-core or single-core cables | Three loading conductors | | | |
| Multi-core cables or single-core cables lined up in a triangular shape | Single-core cables lined up in a flat array | Intervals are created when single-core cables are vertically installed | Intervals are created when single-core cables are horizontally installed |
| 500V | | | | | |
| 1.5 | 25 | 21 | 23 | 26 | 29 |
| 2.5 | 33 | 28 | 31 | 34 | 39 |
| 4 | 44 | 37 | 41 | 45 | 51 |
| 750V | | | | | |
| 1.5 | 26 | 22 | 26 | 28 | 32 |
| 2.5 | 36 | 30 | 34 | 37 | 43 |
| 4 | 47 | 40 | 45 | 49 | 56 |
| 6 | 60 | 51 | 57 | 62 | 71 |
| 10 | 82 | 69 | 77 | 84 | 95 |
| 16 | 109 | 92 | 102 | 110 | 125 |
| 25 | 142 | 120 | 132 | 142 | 162 |
| 35 | 174 | 147 | 161 | 173 | 197 |
| 50 | 215 | 182 | 198 | 213 | 242 |
| 70 | 264 | 223 | 241 | 259 | 294 |
| 95 | 317 | 267 | 289 | 309 | 351 |
| 120 | 364 | 308 | 331 | 353 | 402 |
| 150 | 416 | 352 | 377 | 400 | 454 |
| 185 | 472 | 399 | 426 | 446 | 507 |
| 240 | 552 | 466 | 496 | 497 | 565 |
| 300 | 812 | 758 | 789 | 792 | 889 |
| 400 | 965 | 913 | 933 | 938 | 1058 |

Note:

1. The two ends of the copper sheath of a single-core cable are connected in the circuit.

2. The current capacity values of touchable bare cables shall be the data in this Form multiplied by 0.9.

3. When intervals exist, the intervals shall be at least as long as the external diameter of one cable.

**Form 4 Mineral-insulated cables, untouchable cables exposed in the air**

**The temperature of the metal sheath: l05℃; temperature of the environment:30℃**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Standard cross section of conductors mm² | Current carrying capacity A | | | | |
| Two loading conductors,two-core or single-core cables | Three loading conductors | | | |
| Multi-core cables or single-core cables lined up in a triangular shape | Single-core cables lined up in a flat array | Intervals are created when single-core cables are vertically installed | Intervals are created when single-core cables are horizontally installed |
| 500V | | | | | |
| 1.5 | 31 | 26 | 29 | 33 | 37 |
| 2.5 | 41 | 35 | 39 | 43 | 49 |
| 4 | 54 | 46 | 51 | 56 | 64 |
| 750V | | | | | |
| 1.5 | 33 | 28 | 32 | 35 | 40 |
| 2.5 | 45 | 38 | 43 | 47 | 54 |
| 4 | 60 | 50 | 56 | 61 | 70 |
| 6 | 76 | 64 | 71 | 78 | 89 |
| 10 | 104 | 87 | 96 | 105 | 120 |
| 16 | 137 | 115 | 127 | 137 | 157 |
| 25 | 179 | 150 | 164 | 178 | 204 |
| 35 | 220 | 184 | 200 | 216 | 248 |
| 50 | 272 | 228 | 247 | 266 | 304 |
| 70 | 333 | 279 | 300 | 323 | 370 |
| 95 | 400 | 335 | 359 | 385 | 441 |
| 120 | 460 | 385 | 411 | 411 | 505 |
| 150 | 526 | 441 | 469 | 498 | 565 |
| 185 | 596 | 500 | 530 | 557 | 629 |
| 240 | 697 | 584 | 617 | 624 | 704 |
| 300 | 1012 | 945 | 973 | 1026 | 1098 |
| 400 | 1197 | 1129 | 1161 | 1209 | 1312 |

Note:

1. The two ends of the copper sheath of a single-core cable are connected in the circuit.

2. When installed in a bundle, the cable current capacity value doesn’t need to be adjusted.

3. When intervals exist, the intervals shall he at least as long as the external diameter of one cable.

**Form 5 Adjustment Coefficients when Air Temperature in the Environment is not Equal to 30℃.**

|  |  |  |
| --- | --- | --- |
| Temperature of the environment ℃ | Plastic sheath and touchable bare cables 70℃ | Untouchable bare cables 105℃ |
| 10 | 1.26 | 1.14 |
| 15 | 1.21 | 1.11 |
| 20 | 1.14 | 1.07 |
| 25 | 1.07 | 1.04 |
| 34 | 0.93 | 0.96 |
| 40 | 0.85 | 0.92 |
| 45 | 0.77 | 0.88 |
| 50 | 0.67 | 0.84 |
| 55 | 0.57 | 0.80 |
| 60 | 0.45 | 0.75 |
| 65 | —— | 0.70 |
| 70 | —— | 0.65 |
| 75 | —— | 0.60 |
| 80 | —— | 0.54 |
| 85 | —— | 0.47 |
| 90 | —— | 0.40 |
| 95 | —— | 0.32 |

**Form 6 List of Laying Approaches (index for checking current capacities of various installation approaches)**

|  |  |  |
| --- | --- | --- |
| **Item number** | **Explanation** | **Current capacity selection approach** |
| 1 | Single-core or multi-core cables Fixed on a wooden wall | Select according to Form 1 |
| 2 | Single-core or multi-core cables Fixed on a brick wall | Select according to Form 2 |
| 3 | Directly fixed under a wooden ceiling | Select according to Form 1、2 |
| 4 | Laid on a tray without holes | Select according to Form 1、2 |
| 5 | Laid on a tray with holes | Select according to Form 3、4 |
| 6 | Laid on a supporter or metal net | Select according to Form 3、4 |
| 7 | Laid on ladder racks | Select according to Form 3、4 |
| 8 | Hung on a suspension line | Select according to Form 3、4 |
| 9 | Vertically buried in a brick wall | Select according to Form 1、2 |
| 10 | Laid inside a wall or notch in the ceiling | Multiply the current carrying capacity in Form 3 and 4 by 0.8 |

**Form 7 Voltage Drop**

|  |  |  |
| --- | --- | --- |
| **Nominal cross section of mm²** | **Voltage drop in single-phase power supply mV/A/m** | |
| **2 connected single-core cable** | **Multi-core cable** |
| 1.5 | — | 42 |
| 2.5 | — | 28 |
| 4 | — | 17 |
| 6 | — | 10 |
| 10 | 4.2 | 7 |
| 16 | 2.6 | 4.2 |
| 25 | 1.65 | 2.6 |
| 35 | 1.20 | 1.65 |
| 50 | 0.89 | — |
| 70 | 0.62 | — |
| 95 | 0.46 | — |
| 120 | 0.37 | — |
| 150 | 0.30 | — |
| 185 | 0.25 | — |
| 240 | 0.19 | — |
| 300 | 0.15 | — |
| 400 | 0.112 | — |

|  |  |  |  |
| --- | --- | --- | --- |
| **Voltage drop in three-phase power supply mV/A/m** | | | |
| **Three single-core cables** | | | **Multi-core cable** |
| **Triangle contact arrangement** | **Horizontal contact arrangement** | **Horizontal Pitch Arrangement** |
| — | — | — | **36** |
| — | — | — | **24** |
| — | — | — | **14** |
| — | — | — | **9.1** |
| — | — | — | **6.0** |
| **3.6** | **3.6** | **3.6** | **3.6** |
| **2.3** | **2.3** | **2.3** | **2.3** |
| **1.45** | **1.45** | **1.45** | **1.45** |
| **1.05** | **1.05** | **1.05** | — |
| **0.78** | **0.97** | **0.82** | — |
| **0.54** | **0.55** | **0.58** | — |
| **0.40** | **0.41** | **0.44** | — |
| **0.32** | **0.33** | **0.36** | — |
| **0.26** | **0.29** | **0.32** | — |
| **0.21** | **0.25** | **0.28** | — |
| **0.165** | **0.21** | **0.26** | — |
| **0.130** | **0.16** | **0.18** | — |
| **0.097** | **0.12** | **0.14** | — |