CORDAFLEX(SMK) | (N)SHTOEU-J/-O | E-RTG | CORDAFLEX(SMK)-V | Arctic | SMK-200

# CORDAFLEX (SMK) — Complete Low-Voltage Reeling Cable Series

A professional engineering guide to the yellow high-performance reeling family, E-RTG power and fibre-optic variants, vertically supported spreader cables, Arctic compounds and the separate 2023 SMK-200 generation.

105 published table records | 97 unique records | 60 standard | 17 E-RTG | 28 vertical/current+archive | 5 engineering diagrams

| Rated voltage | Standard tensile class | High-speed class | Standard torsion |
|---|---|---|---|
| 0.6/1 kV | 30 N/mm² | 240 m/min | ±50°/m |

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## 1. Source hierarchy and record count

**2019 standard matrix**
60 power, control, screened-pair, combined-control and control+FO records.

**2019 E-RTG matrix**
17 power records, including nine 3C+2G+FO designs. Eight non-FO rows exactly repeat the standard matrix.

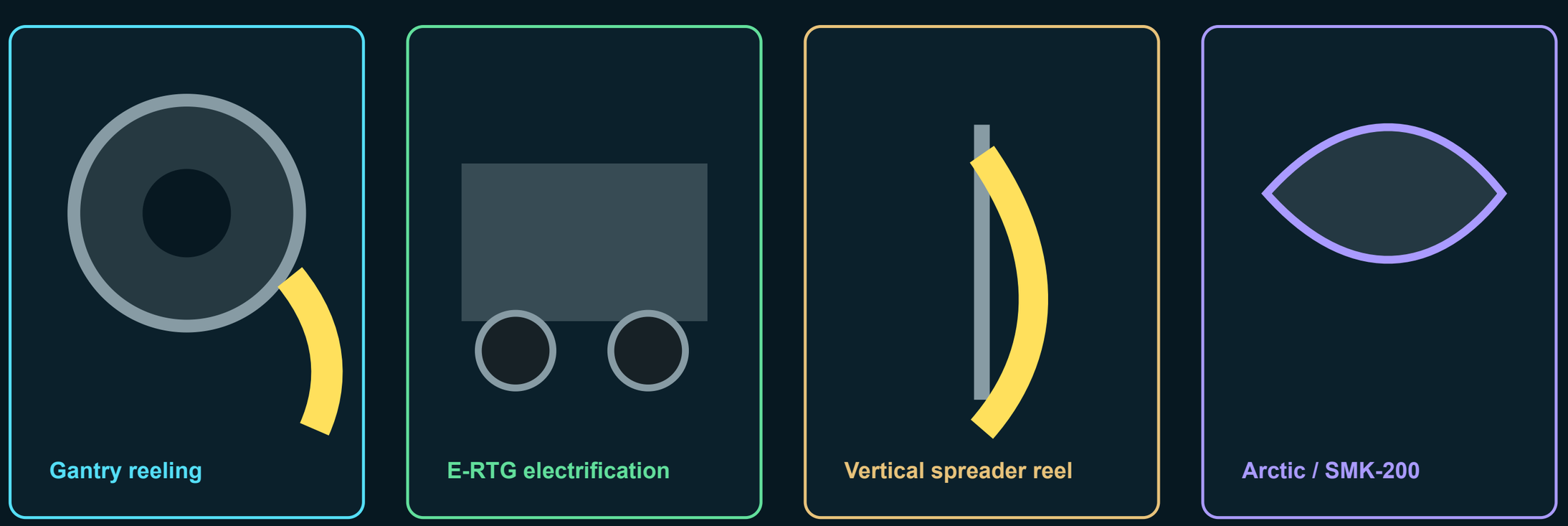
**2019 vertical matrix**
27 current records with central support; one additional 2016-only composite row is retained separately.

**Variant brochures**
Arctic and SMK-200 are separate material/product generations and do not supply a complete compatible matrix.

**Counting rule:** 105 published table records are reproduced. Removing the eight exact standard/E-RTG repetitions leaves 97 unique branch-specific or archival records.

## 2. Application architecture

### CORDAFLEX(SMK) application architecture

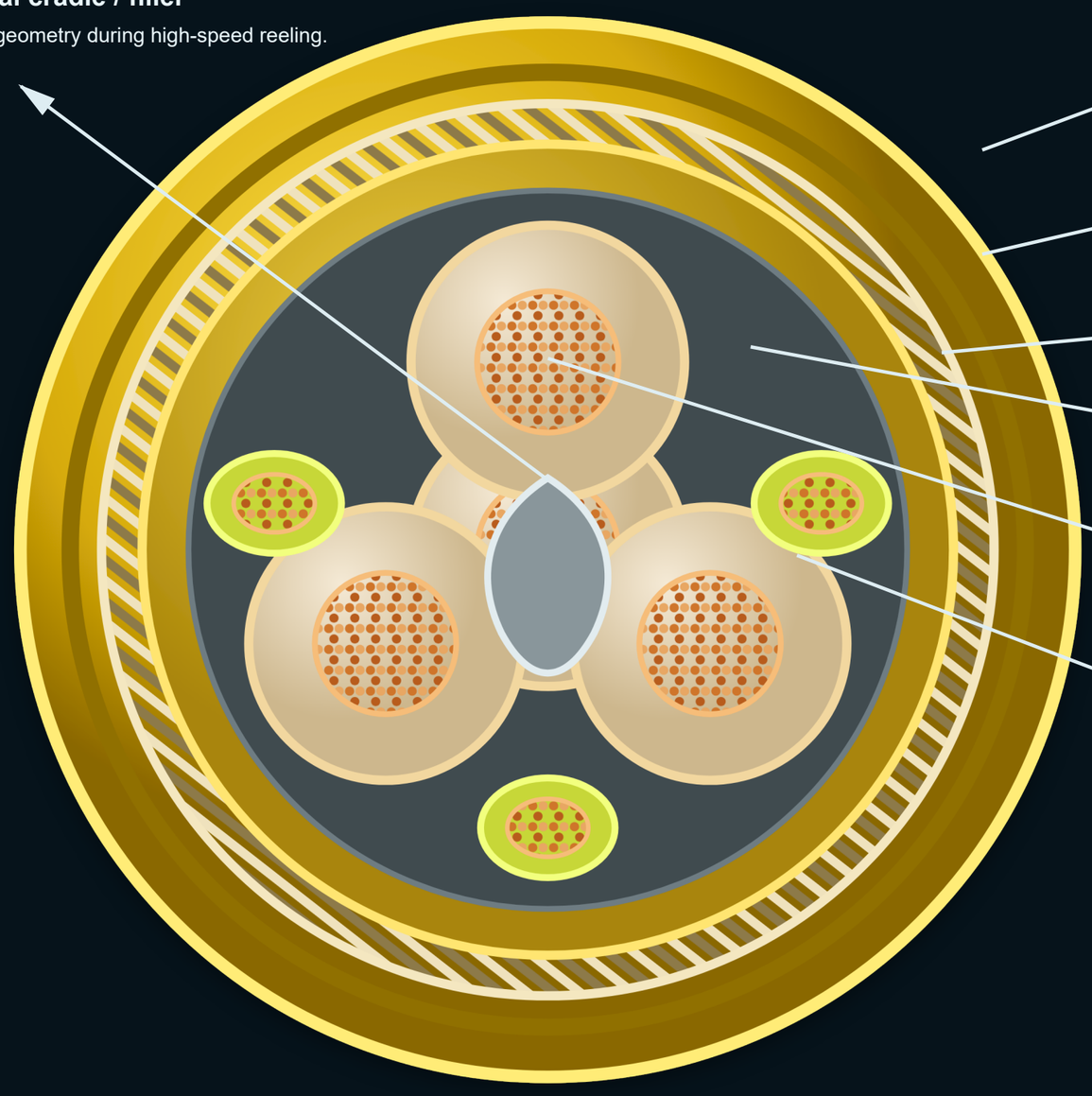


Standard CORDAFLEX(SMK) serves high and very high mechanical reeling duty. E-RTG adds application-specific power+FO constructions. The -V branch adds a central aramid support for suspended vertical reeling.

## 3. Standard 3C + split-PE construction

### CORDAFLEX(SMK) (N)SHTOEU — three-core power cable with split PE

Detailed engineering reconstruction of the 2019 yellow PROTOFIRM design; wall proportions are not manufacturing dimensions.



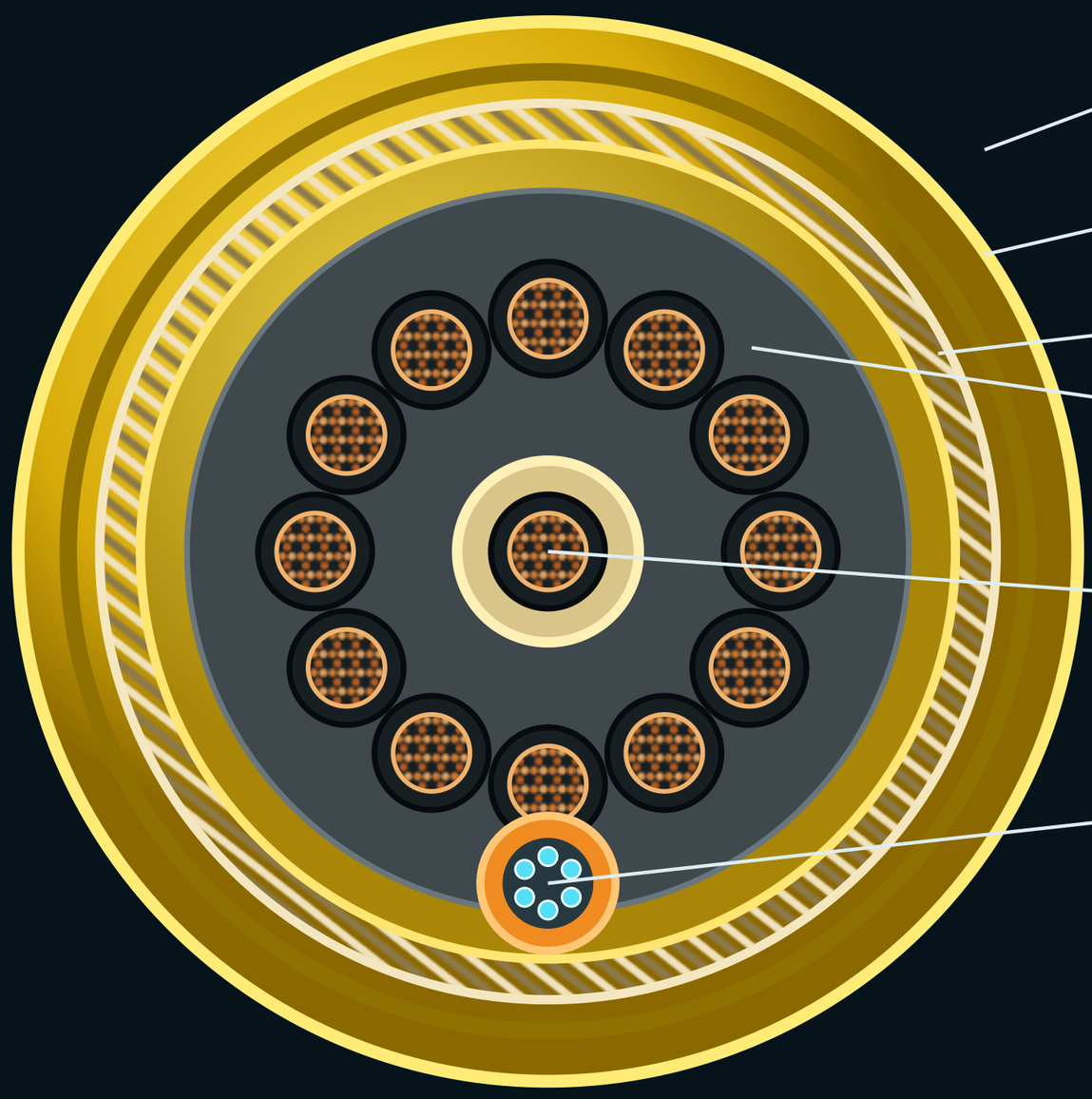

**Integrated-FO E-RTG variant**

The third PE interstice is replaced by an optical unit, producing a 3C + 2G + FO topology. The table design uses 6G62.5; 12, 18, 24, G50 and E9 variants are referenced on request.

## 4. Vertically supported construction

## CORDAFLEX(SMK)-V — vertical control cable with central aramid support

Representative multi-control/FO reconstruction. The exact number and placement of elements are construction-specific.



**1. Yellow PCP outer sheath**
Abrasion- and tear-resistant PROTOFIRM Special.

**2. Polyester anti-torsion braid**

**3. Yellow PCP inner sheath**

**4. Control conductors**
Bare class-FS copper with black thermoplastic insulation.

**5. Central aramid support**
The table tensile value includes the additional support element

**6. Optional fibre-optic elements**
G62.5/125 or G50/125 groups are published in the matrix.

**Vertical-load principle**
The central support carries a construction-specific share of the suspended load. It must be anchored with the approved termination and must not be replaced by conductor-only tensile calculations.

**Support termination:** the source Fmax is a complete-cable value increased by the aramid support. The support element must be mechanically anchored; conductor-only clamps do not reproduce the rated vertical load.

## 5. Product generations must remain separate

### Product generations and mechanical limits

**2019 yellow standard / E-RTG**

30 N/mm² conductor load

±50°/m family torsion

240 m/min; consult above

−35…+80°C flexible

Tinned class-FS copper

Yellow PCP sheath system

**Vertical / Arctic**

Vertical: aramid-supported Fmax

Vertical: 240 m/min hoist

Arctic: fully flexible to −50°C

Arctic brochure: 240 m/min

Separate compounds and exact datasheet

**SMK-200, 2023**

Optimised for 200 m/min

Class-5 copper shown

EPR + rubber inner sheath

Torsion protection

Black CR/PCP outer sheath

Do not substitute for yellow archive rows

| Version | Designation | Construction/material | Tensile | Torsion | Speed | Flexible temperatur |
|---|---|---|---|---|---|---|
| **Standard 2019** | (N)SHTOEU-J/-O | Yellow PCP inner/outer sheath; tinned class-FS conductor | 30 N/mm² | ±50°/m | 240 m/min; consult above | −35…+80°C |

| Version | Designation | Construction/material | Tensile | Torsion | Speed | Flexible temperatur |
|---|---|---|---|---|---|---|
| E-RTG 2019 | (N)SHTOEU-J/-O | Standard power or 3C+2G+FO power design | 30 N/mm² | ±50°/m family value | 240 m/min; consult above | −35…+80°C |
| Vertical 2019 | CORDAFLEX(SMK)-V | Bare class-FS conductor, thermoplastic insulation, central aramid support | Table-specific supported load | ±50°/m | 240 m/min hoist | −35…+80°C |
| Cordaflex Arctic | Separate Arctic design | Special low-temperature inner and outer sheath; black brochure design | No reduction claimed in brochure | No reduction claimed | 240 m/min | −50…+80°C fle |
| SMK-200, 2023 | CORDAFLEX(SMK-200) | Black CR/PCP, class-5 copper, EPR, FO element shown | Generation-specific | Generation-specific | 200 m/min | down to −35°C |

## 6. Electrical, thermal and environmental framework

**Rated / operating voltage**
0.6/1 kV; maximum AC 0.7/1.2 kV; maximum DC 0.9/1.8 kV.

**Test voltage**
3.5 kV AC for 5 minutes.

**Thermal**
90°C conductor; 250°C short circuit; standard fixed −50…+80°C and flexible −35…+80°C.

**Mechanical**
30 N/mm² standard conductor load; S-direction spacing 20D; reversed-bending, roller-bending and torsional tests.

**Environment**
Oil resistance to DIN EN 60811-404; outdoor/indoor use; ozone, UV, moisture and long-term water resistance.

**Data elements**
ASI-Bus, Profibus, CAN-Bus and Industrial Ethernet special elements, or fibre optics.

## 7. Fibre-optic properties

| Fibre | Type | 850 nm | 1310/1550 nm | Bandwidth / dispersion | NA |
|---|---|---|---|---|---|
| G62.5/125 | Multimode graded index | <3.3 dB/km @850 nm | <0.9 dB/km @1310 nm | >400 MHz @850; >600 MHz @1310 | 0.275 ±0.02 |
| G50/125 | Multimode graded index | <2.8 dB/km @850 nm | <0.8 dB/km @1310 nm | >400 MHz @850; >1200 MHz @1310 | 0.20 ±0.02 |
| E9/125 | Single-mode step index | — | <0.4 dB/km @1310; <0.3 @1550 | Dispersion <3.5 ps/(nm·km) @1300; <18 @1550 | 0.14 ±0.02 |

FO counts shown in the specification tables are mathematically derived from the construction notation. This does not define tube design, colour code, connector or breakout architecture.

## 8. Complete standard matrix — 60 rows

▼ Standard CORDAFLEX(SMK) · Three-core power, PE split in three · 9 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3x35+3x16/3 | 20004037 | 5DH3121 | catalogue | 8.4 | 28.7 | 31.7 | 159 | 199 | 315 | 0.57 | 162 | 5.01 | — |
| 3x50+3x25/3 | 20004038 | 5DH3122 | catalogue | 10.3 | 34.4 | 37.4 | 187 | 281 | 45 | 0.39 | 202 | 7.15 | — |
| 3x70+3x35/3 | 20004039 | 5DH3123 | catalogue | 12 | 39.7 | 42.7 | 214 | 386 | 63 | 0.28 | 25 | 10.01 | — |
| 3x95+3x50/3 | 20004040 | 5DH3124 | catalogue | 14 | 44.3 | 47.3 | 237 | 495 | 855 | 0.21 | 301 | 13.59 | — |
| 3x120+3x70/3 | 20004041 | 5DH3125 | catalogue | 15.8 | 51 | 55 | 275 | 644 | 108 | 0.16 | 352 | 17.16 | — |
| 3x150+3x70/3 | 20004042 | 5DH3126 | catalogue | 17.5 | 53.9 | 57.9 | 29 | 75 | 135 | 0.13 | 404 | 21.45 | — |
| 3x185+3x95/3 | 20004043 | 5DH3127 | catalogue | 19.4 | 58.9 | 62.9 | 315 | 899 | 1665 | 0.11 | 461 | 26.46 | — |
| 3x240+3x120/3 | 20004044 | 5DH3128 | catalogue | 22.5 | 67.4 | 71.4 | 357 | 1194 | 216 | 0.08 | 54 | 34.32 | — |
| 3x300+3x150/3 | 20051390 | 5DH3119 | catalogue | 25.2 | 75.6 | 79.6 | 398 | 1474 | 27 | 0.07 | 62 | 42.9 | — |

▼ Standard CORDAFLEX(SMK) · Four-core power · 5 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4x4 | 20004047 | 5DH3132 | catalogue | 3 | 16 | 18 | 9 | 45 | 48 | 5.09 | 41 | 0.57 | — |
| 4x6 | 20004048 | 5DH3133 | catalogue | 3.6 | 17.4 | 19.4 | 97 | 6 | 72 | 3.39 | 53 | 0.86 | — |
| 4x10 | 20004049 | 5DH3134 | catalogue | 4.6 | 21.6 | 23.6 | 118 | 9 | 12 | 1.95 | 74 | 1.43 | — |
| 4x16 | 20004050 | 5DH3135 | catalogue | 5.6 | 23.7 | 26.7 | 134 | 124 | 192 | 1.24 | 99 | 2.29 | — |

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4x25 | 20004051 | 5DH3136 | catalogue | 7.3 | 28.5 | 31.5 | 158 | 185 | 3 | 0.8 | 131 | 3.58 | — |

▼ Standard CORDAFLEX(SMK) · Five-core power · 5 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5x4 | 20014479 | 5DH3151 | catalogue | 3 | 17.4 | 19.4 | 97 | 55 | 6 | 5.09 | 41 | 0.57 | — |
| 5x6 | 20004056 | 5DH3152 | catalogue | 3.6 | 19 | 21 | 105 | 69 | 9 | 3.39 | 53 | 0.86 | — |
| 5x10 | 20004057 | 5DH3153 | catalogue | 4.6 | 23.4 | 25.4 | 127 | 107 | 15 | 1.95 | 74 | 1.43 | — |
| 5x16 | 20004058 | 5DH3154 | catalogue | 5.6 | 26.1 | 29.1 | 146 | 15 | 24 | 1.24 | 99 | 2.29 | — |
| 5x25 | 20004059 | 5DH3155 | catalogue | 7.3 | 33.7 | 36.7 | 184 | 234 | 375 | 0.8 | 131 | 3.58 | — |

▼ Standard CORDAFLEX(SMK) · Multicore control · 22 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3x1.5 | 20007588 | 5DH3129 | catalogue | 1.6 | 11.7 | 13.3 | 67 | 21 | 13 | 13.7 | 23 | 0.21 | — |
| 4x1.5 | 20004045 | 5DH3130 | catalogue | 1.6 | 12.2 | 13.8 | 69 | 24 | 18 | 13.7 | 23 | 0.21 | — |
| 5x1.5 | 20004052 | 5DH3140 | catalogue | 1.6 | 13 | 14.6 | 73 | 28 | 22 | 13.7 | 23 | 0.21 | — |
| 7x1.5 | 20004054 | 5DH3142 | catalogue | 1.6 | 15.2 | 17.2 | 86 | 39 | 31 | 13.7 | 23 | 0.21 | — |
| 12x1.5 | 20004061 | 5DH3161 | catalogue | 1.6 | 21.4 | 23.4 | 117 | 72 | 54 | 13.7 | 23 | 0.21 | — |
| 18x1.5 | 20004062 | 5DH3162 | catalogue | 1.6 | 21.3 | 23.3 | 117 | 77 | 81 | 13.7 | 23 | 0.21 | — |
| 24x1.5 | 20004063 | 5DH3163 | catalogue | 1.6 | 23.8 | 26.8 | 134 | 102 | 108 | 13.7 | 23 | 0.21 | — |
| 30x1.5 | 20135223 | 5DH3164 | catalogue | 1.6 | 26.5 | 29.5 | 148 | 124 | 135 | 13.7 | 23 | 0.21 | — |
| 36x1.5 | 20024745 | 5DH3165 | catalogue | 1.6 | 26.5 | 29.5 | 148 | 129 | 162 | 13.7 | 23 | 0.21 | — |
| 44x1.5 | *not published* | 5DH3166 | catalogue | 1.6 | 29.5 | 32.5 | 163 | 153 | 198 | 13.7 | 23 | 0.21 | — |
| 56x1.5 | 20054721 | 5DH3167 | catalogue | 1.6 | 35.9 | 38.9 | 195 | 204 | 252 | 13.7 | 23 | 0.21 | — |
| 3x2.5 | 20004036 | 5DH3111 | catalogue | 2 | 12.7 | 14.3 | 72 | 27 | 22 | 8.21 | 3 | 0.36 | — |
| 4x2.5 | 20004046 | 5DH3131 | catalogue | 2 | 13.2 | 14.8 | 74 | 3 | 3 | 8.21 | 3 | 0.36 | — |
| 5x2.5 | 20004053 | 5DH3141 | catalogue | 2 | 14.2 | 15.8 | 79 | 35 | 37 | 8.21 | 3 | 0.36 | — |
| 7x2.5 | 20004055 | 5DH3143 | catalogue | 2 | 16.6 | 18.6 | 93 | 5 | 52 | 8.21 | 3 | 0.36 | — |
| 12x2.5 | 20004064 | 5DH3171 | catalogue | 2 | 23.4 | 25.4 | 127 | 91 | 9 | 8.21 | 3 | 0.36 | — |
| 18x2.5 | 20004065 | 5DH3172 | catalogue | 2 | 23.3 | 25.3 | 127 | 101 | 135 | 8.21 | 3 | 0.36 | — |
| 24x2.5 | 20004066 | 5DH3173 | catalogue | 2 | 26.2 | 29.2 | 146 | 134 | 18 | 8.21 | 3 | 0.36 | — |
| 30x2.5 | 20004067 | 5DH3174 | catalogue | 2 | 29.4 | 32.4 | 162 | 166 | 225 | 8.21 | 3 | 0.36 | — |
| 36x2.5 | 20004068 | 5DH3175 | catalogue | 2 | 30.3 | 33.3 | 167 | 175 | 27 | 8.21 | 3 | 0.36 | — |
| 44x2.5 | 20004069 | 5DH3176 | catalogue | 2 | 34.1 | 37.1 | 186 | 218 | 33 | 8.21 | 3 | 0.36 | — |
| 56x2.5 | 20004070 | 5DH3177 | catalogue | 2 | 40.1 | 43.1 | 216 | 287 | 42 | 8.21 | 3 | 0.36 | — |

▼ Standard CORDAFLEX(SMK) · Individually screened pairs / bus · 7 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6x(2x0.5)C | *not published* | 5DH3187 | catalogue | 0.9 | 23.1 | 25.1 | 126 | 885 | 18 | 40.1 | 1 | 0.07 | — |
| 3x(2x1)C | 20004074 | 5DH3186 | catalogue | 1.3 | 22 | 24 | 12 | 73 | 18 | 20 | 18 | 0.14 | — |
| 6x(2x1)C | 20004075 | 5DH3188 | catalogue | 1.3 | 28.9 | 31.9 | 16 | 13 | 36 | 20 | 18 | 0.14 | — |
| 9x(2x1)C | 20004076 | 5DH3189 | catalogue | 1.3 | 39.3 | 42.3 | 212 | 215 | 54 | 20 | 18 | 0.14 | — |
| 12x(2x1)C | *not published* | 5DH3206 | catalogue | 1.3 | 38.9 | 40.9 | 205 | 217 | 72 | 20 | 18 | 0.14 | — |
| 12x1(C) | 20007925 | 5DH3183 | catalogue | 1.3 | 22.9 | 25.9 | 13 | 88 | 36 | 20 | 18 | 0.14 | — |
| 12x(2x2.5)C | 20233251 | — | catalogue update | 2 | 46.6 | 49.6 | 248 | 315 | 18 | 8.21 | 3 | 0.36 | — |

▼ Standard CORDAFLEX(SMK) · Combined control · 4 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12x2.5+12x1(C) | 20004073 | 5DH3184 | catalogue | 2 | 27.2 | 30.2 | 151 | 128 | 9 | 8.21 | 3 | 0.36 | — |
| 19x2.5+5x1(C) | 20004071 | 5DH3180 | catalogue | 2 | 26.2 | 29.2 | 146 | 131 | 142 | 8.21 | 3 | 0.36 | — |
| 19x2.5+5x1.5(C) | 20037707 | 5DH3222 | catalogue | 2 | 31 | 34 | 17 | 158 | 142 | 8.21 | 3 | 0.36 | — |
| 25x2.5+5x1(C) | 20004072 | 5DH3181 | catalogue | 2 | 29.4 | 32.4 | 162 | 164 | 187 | 8.21 | 3 | 0.36 | — |

▼ Standard CORDAFLEX(SMK) · Control with integrated fibre optics · 8 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24x1.5+6x(2G62.5) | 20040297 | 5DH3257 | catalogue | 1.6 | 26.6 | 29.6 | 148 | 118 | 108 | 13.7 | 23 | 0.21 | 12 |
| 24x1.5+6x(2G50) | 20025841 | 5DH3255 | catalogue | 1.6 | 26.6 | 29.6 | 148 | 118 | 108 | 13.7 | 23 | 0.21 | 12 |
| 24x1.5+12x(2xE9) | 20025742 | 5DH3254 | catalogue | 1.6 | 26.5 | 29.5 | 148 | 12 | 108 | 13.7 | 23 | 0.21 | 24 |
| 20x2.5+6x(3G62.5) | 20070669 | 5DH3170 | catalogue | 2 | 28.4 | 31.4 | 157 | 128 | 15 | 8.21 | 3 | 0.36 | 18 |
| 20x2.5+6x(3E9) | 20004087 | 5DH3234 | catalogue | 2 | 28.4 | 31.4 | 157 | 129 | 15 | 8.21 | 3 | 0.36 | 18 |
| 24x2.5+6x(2E9) | 20040470 | 5DH3194 | catalogue | 2 | 29.4 | 32.4 | 162 | 152 | 18 | 8.21 | 3 | 0.36 | 12 |
| 28x2.5+2x(3G50) | 20009380 | 5DH3249 | catalogue | 2 | 29.4 | 32.4 | 162 | 159 | 21 | 8.21 | 3 | 0.36 | 6 |
| 30x2.5+6x(3E9) | 20154112 | 5DH3169 | catalogue | 2 | 30.2 | 33.3 | 167 | 164 | 225 | 8.21 | 3 | 0.36 | 18 |

## 9. E-RTG application matrix — 17 rows

▼ E-RTG matrix · E-RTG power, PE split in three · 8 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3x50+3x25/3 | 20004038 | — | catalogue | 10.3 | 34.4 | 37.4 | 187 | 281 | 45 | 0.393 | 202 | 7.15 | — |
| 3x70+3x35/3 | 20004039 | — | catalogue | 12 | 39.7 | 42.7 | 214 | 386 | 63 | 0.277 | 25 | 10.01 | — |
| 3x95+3x50/3 | 20004040 | — | catalogue | 14 | 44.3 | 47.3 | 237 | 495 | 855 | 0.21 | 301 | 13.59 | — |
| 3x120+3x70/3 | 20004041 | — | catalogue | 15.8 | 51 | 55 | 275 | 644 | 108 | 0.164 | 352 | 17.16 | — |
| 3x150+3x70/3 | 20004042 | — | catalogue | 17.5 | 53.9 | 57.9 | 29 | 75 | 135 | 0.132 | 404 | 21.45 | — |
| 3x185+3x95/3 | 20004043 | — | catalogue | 19.4 | 58.9 | 62.9 | 315 | 899 | 1665 | 0.108 | 461 | 26.46 | — |
| 3x240+3x120/3 | 20004044 | — | catalogue | 22.5 | 67.4 | 71.4 | 357 | 1194 | 216 | 0.0817 | 54 | 34.32 | — |
| 3x300+3x150/3 | 20051390 | — | catalogue | 25.2 | 75.6 | 79.6 | 398 | 1474 | 27 | 0.0654 | 62 | 42.9 | — |

▼ E-RTG matrix · E-RTG power with FO, PE split in two · 9 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3x35+2x16/2+1x(6G62.5) | *not published* | — | catalogue | 8.4 | 35.7 | 38.7 | 194 | 239 | 315 | 0.565 | 162 | 5.01 | 6 |
| 3x50+2x25/2+1x(6G62.5) | *not published* | — | catalogue | 10.3 | 39.9 | 42.9 | 215 | 322 | 45 | 0.393 | 202 | 7.15 | 6 |
| 3x70+2x35/2+1x(6G62.5) | 20170684 | — | catalogue | 12 | 43.7 | 46.7 | 234 | 42 | 63 | 0.277 | 25 | 10.01 | 6 |
| 3x95+2x50/2+1x(6G62.5) | *not published* | — | catalogue | 14 | 47.6 | 50.6 | 253 | 522 | 855 | 0.21 | 301 | 13.59 | 6 |
| 3x120+2x70/2+1x(6G62.5) | *not published* | — | catalogue | 15.8 | 54 | 58 | 29 | 67 | 108 | 0.164 | 352 | 17.16 | 6 |
| 3x150+2x70/2+1x(6G62.5) | 20196602 | — | catalogue | 17.5 | 57 | 61 | 305 | 775 | 135 | 0.132 | 404 | 21.45 | 6 |
| 3x185+2x95/2+1x(6G62.5) | 20155139 | — | catalogue | 19.4 | 61.9 | 65.9 | 33 | 93 | 1665 | 0.108 | 461 | 26.46 | 6 |
| 3x240+2x120/2+1x(6G62.5) | 20168346 | — | catalogue | 22.5 | 69.7 | 73.7 | 369 | 1232 | 216 | 0.0817 | 54 | 34.32 | 6 |
| 3x300+2x150/2+1x(6G62.5) | *not published* | — | catalogue | 25.2 | 78 | 82 | 41 | 15 | 27 | 0.0654 | 62 | 42.9 | 6 |

Five E-RTG power+FO rows do not publish a Part number. No numerical sequence is reliable enough to infer one.

## 10. Vertical-reeling matrix — 27 current + 1 archive row

▼ CORDAFLEX(SMK)-V · Vertical control / composite · 7 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 49x1 | 20004108 | 5DH3291 | catalogue | 1.3 | 26.6 | 29.6 | 148 | 125 | 32 | 19.5 | 18 | 0.14 | — |
| 12x2.5 | 20004109 | 5DH3292 | catalogue | 2 | 22 | 25 | 125 | 87 | 27 | 7.98 | 3 | 0.36 | — |
| 24x2.5 | 20004112 | 5DH3295 | catalogue | 2 | 26.2 | 29.2 | 146 | 13 | 36 | 7.98 | 3 | 0.36 | — |
| 30x2.5 | 20004113 | 5DH3296 | catalogue | 2 | 29.4 | 32.4 | 162 | 163 | 41 | 7.98 | 3 | 0.36 | — |
| 44x2.5 | 20004115 | 5DH3298 | catalogue | 2 | 34.1 | 37.1 | 186 | 22 | 51 | 7.98 | 3 | 0.36 | — |
| 56x2.5 | 20004107 | 5DH3290 | catalogue | 2 | 40.1 | 43.1 | 216 | 296 | 6 | 7.98 | 3 | 0.36 | — |
| 45x2.5+(4x0.5)C | 20163404 | 5DH3286 | catalogue | 2 | 42.9 | 45.9 | 23 | 283 | 5175 | 7.98 | 3 | 0.36 | — |

▼ CORDAFLEX(SMK)-V · Vertical control with integrated fibre optics · 18 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22x2.5+4x(3G50) | 20004111 | 5DH3294 | catalogue | 2 | 28.2 | 31.2 | 156 | 139 | 345 | 7.98 | 3 | 0.36 | 12 |
| 22x2.5+2x(3G62.5) | 20008607 | 5DH3261 | catalogue | 2 | 26.2 | 29.2 | 146 | 126 | 345 | 7.98 | 3 | 0.36 | 6 |
| 24x2.5+6x(2G62.5) | 20079358 | 5DH3981 | catalogue | 2 | 29.4 | 32.4 | 162 | 151 | 36 | 7.98 | 3 | 0.36 | 12 |
| 28x2.5+2x(3G62.5) | 20156011 | 5DH3308 | catalogue | 2 | 29.4 | 32.4 | 162 | 159 | 39 | 7.98 | 3 | 0.36 | 6 |
| 28x2.5+2x(3G50) | 20149375 | 5DH3305 | catalogue | 2 | 29.4 | 32.4 | 162 | 159 | 39 | 7.98 | 3 | 0.36 | 6 |
| 36x2.5+8x(1G62.5) | 20091976 | 5DH3978 | catalogue | 2 | 34.1 | 37.1 | 186 | 205 | 45 | 7.98 | 3 | 0.36 | 8 |
| 38x2.5+6x(2G62.5) | 20040061 | 5DH3259 | catalogue | 2 | 34.1 | 37.1 | 186 | 209 | 465 | 7.98 | 3 | 0.36 | 12 |
| 41x2.5+3x(2G62.5) | 20116888 | 5DH3301 | catalogue | 2 | 34.1 | 37.1 | 186 | 215 | 4875 | 7.98 | 3 | 0.36 | 6 |
| 41x2.5+3x(2G50) | 20142021 | 5DH3304 | catalogue | 2 | 34.1 | 37.1 | 186 | 216 | 4875 | 7.98 | 3 | 0.36 | 6 |
| 42x2.5+2x(3G62.5) | 20081032 | 5DH3980 | catalogue | 2 | 34.1 | 37.1 | 186 | 217 | 495 | 7.98 | 3 | 0.36 | 6 |
| 44x2.5+3x(2G62.5) | 20155500 | 5DH3314 | catalogue | 2 | 35.5 | 38.5 | 193 | 23 | 51 | 7.98 | 3 | 0.36 | 6 |
| 44x2.5+4x(3G62.5) | 20160144 | 5DH3315 | catalogue | 2 | 35.5 | 38.5 | 193 | 233 | 51 | 7.98 | 3 | 0.36 | 12 |
| 44x2.5+3x(3G50) | 20025456 | 5DH3300 | catalogue | 2 | 35.5 | 38.5 | 193 | 231 | 51 | 7.98 | 3 | 0.36 | 9 |
| 44x2.5+3x(3G62.5) | 20143212 | 5DH3313 | catalogue | 2 | 35.5 | 38.5 | 193 | 231 | 51 | 7.98 | 3 | 0.36 | 9 |
| 50x2.5+6x(1G50) | 20004095 | 5DH3269 | catalogue | 2 | 40.1 | 43.1 | 216 | 284 | 555 | 7.98 | 3 | 0.36 | 6 |
| 52x2.5+4x(3G62.5) | 20080536 | 5DH3979 | catalogue | 2 | 40.1 | 43.1 | 216 | 289 | 57 | 7.98 | 3 | 0.36 | 12 |
| 56x2.5+3x(3G62.5) | 20004096 | 5DH3270 | catalogue | 2 | 41.3 | 44.3 | 222 | 303 | 6 | 7.98 | 3 | 0.36 | 9 |
| 56x2.5+4x(3G62.5) | 20085758 | 5DH3258 | catalogue | 2 | 41.3 | 44.3 | 222 | 308 | 6 | 7.98 | 3 | 0.36 | 12 |

▼ CORDAFLEX(SMK)-V · Vertical composite control · 2 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24x2.5+3x(2x1.5) | 20004099 | — | catalogue update | 2 | 39.7 | 42.7 | 214 | 238 | 36 | 7.98 | 3 | 0.36 | — |
| 42x2.5+2x1(C) | 20042616 | — | catalogue update | 2 | 34.1 | 37.1 | 186 | 228 | 495 | 7.98 | 3 | 0.36 | — |

▼ CORDAFLEX(SMK)-V · archived 2016-only construction · 1 rows

| Construction | Part | MLFB | Status | Conductor Ø | Dmin | Dmax | R moving | kg/km | Fmax N | R20 | A | Isc kA | Derived FO cou |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12x2.5+(4x0.5)C | 20008558 | 5DH3262 | archive 2016 | 2 | 19 | 22 | 11 | 77 | 27 | 7.98 | 3 | 0.36 | — |

## 11. Dimensional effect of E-RTG integrated FO

| Main mm² | Dmax standard | Dmax FO | ΔD | kg/km standard | kg/km FO | Δ mass |
|---|---|---|---|---|---|---|
| 35 | 31.7 | 38.7 | 7 | 199 | 239 | 4 |
| 50 | 37.4 | 42.9 | 5.5 | 281 | 322 | 41 |
| 70 | 42.7 | 46.7 | 4 | 386 | 42 | 34 |
| 95 | 47.3 | 50.6 | 3.3 | 495 | 522 | 27 |
| 120 | 55 | 58 | 3 | 644 | 67 | 26 |
| 150 | 57.9 | 61 | 3.1 | 75 | 775 | 25 |

| Main mm² | Dmax standard | Dmax FO | ΔD | kg/km standard | kg/km FO | Δ mass |
|---|---|---|---|---|---|---|
| **185** | 62.9 | 65.9 | 3 | 899 | 93 | 31 |
| **240** | 71.4 | 73.7 | 2.3 | 1194 | 1232 | 38 |
| **300** | 79.6 | 82 | 2.4 | 1474 | 15 | 26 |

The FO power design replaces one of the three PE interstices, so the dimensional increase is construction-specific rather than a universal optical allowance.

## 12. Representative engineering calculations

Three-phase apparent power at 1 kV: S = √3 × U × I
Active power at cosφ 0.9: P = S × 0.9
Resistive voltage drop for 100 m: ΔU = √3 × I × R20 × 0.1 km
Weight of 100 m: mass × 0.1 × g
Free loop diameter: approximately 2 × published moving radius
Conductor tensile reference: 30 N/mm² × electrical copper area
Vertical support residual: published Fmax − conductor tensile reference

The residual is an engineering comparison only; it is not the rated aramid breaking load.

| Family | Construction | A | kVA | kW | ΔU/100m | Weight 100m | Loop Ø | 30×Cu area | Fmax source | Support residu |
|---|---|---|---|---|---|---|---|---|---|---|
| **Standard power** | 3x95+3x50/3 | 301 | 521.3 | 469.2 | 1.09% | 4.86 kN | 474 mm | 855 | 855 | |
| **Standard power** | 4x25 | 131 | 226.9 | 204.2 | 1.82% | 1.81 kN | 316 mm | 3 | 3 | |
| **Standard control** | 30x2.5 | 30 | 52 | 46.8 | 4.27% | 1.63 kN | 324 mm | 225 | 225 | |
| **E-RTG power + FO** | 3x95+2x50/2+1x(6G62.5) | 301 | 521.3 | 469.2 | 1.09% | 5.12 kN | 506 mm | 855 | 855 | |
| **Vertical + FO** | 56x2.5+4x(3G62.5) | 30 | 52 | 46.8 | 4.15% | 3.02 kN | 444 mm | 42 | 6 | 18 |

## 13. Source anomalies and inference audit

| Item | Field | Source | Treatment | Basis |
|---|---|---|---|---|
| **Standard bus 6x(2x0.5)C** | Part number | Not published | Not inferred | Numbering is non-sequential; MLFB 5DH3187 is retained. |
| **Standard bus 12x(2x1)C** | Part number | Not published | Not inferred | MLFB 5DH3206 is retained; no defensible SAP sequence. |
| **E-RTG FO 35, 50, 95, 120 and 300 mm²** | Part number | Not published | Not inferred | Published Part numbers are too sparse to reconstruct reliably. |
| **Standard 18x1.5** | Diameter | 21.3–23.3 mm | Preserved source anomaly | It is 0.1 mm below the 12x1.5 row. |
| **Standard 18x2.5** | Diameter | 23.3–25.3 mm | Preserved source anomaly | It is 0.1 mm below the 12x2.5 row. |
| **Vertical 12x2.5+(4x0.5)C** | Catalogue status | Present in 2016; absent in 2019 matrix | Archive-only row | Kept separately rather than merged into the current vertical matrix. |
| **Vertical supported rows** | Support contribution | Fmax minus 30×electrical copper area | Derived | Represents a preliminary residual, not the rated aramid breaking lo |

## 14. Engineering selection workflow

## CORDAFLEX(SMK) engineering selection workflow

**1. Motion**
gantry / E-RTG / vertical

**2. Circuit**
power / control / bus / FO

**3. Mechanics**
F · R · speed · torsion

**4. Environment**
standard / Arctic / 200

- Select exact topology: 3C+3G, 3C+2G+FO, multicore control, screened pair or vertical supported design.
- Verify Dmin/Dmax, moving radius, mass, tensile force and the applicable product generation.
- For vertical duty, define suspended length and terminate the aramid support with the approved anchoring system.
- For FO, specify fibre type/count, wavelength, breakout, connector/splice arrangement and OTDR baseline.
- Never infer missing Part numbers or combine Arctic/SMK-200 claims with 2019 catalogue dimensions without written confirmation.

## 15. Installation and acceptance checklist

- Confirm exact branch: standard, E-RTG, vertical, Arctic or SMK-200.
- Verify -J/-O, PE topology, screened pair, bus element and optical construction.
- Use the published Dmin/Dmax, moving radius, mass and Fmax for the exact Part number.
- Control reel torque, acceleration, cable guide alignment, roller pressure and S-direction geometry.
- For vertical duty, calculate suspended cable weight and terminate the central support in an approved load-bearing fitting.
- For FO, define count/type, wavelength, optical budget, factory breakout and OTDR baseline.
- For bus elements, verify characteristic impedance, attenuation, termination and protocol-specific segment length.
- Complete conductor resistance, PE continuity, agreed insulation/withstand and optical insertion-loss tests before commissioning.

## 16. Failure mode and effects analysis

**Reel over-tension:** torque or acceleration exceeds the 30 N/mm² envelope.

**Torsion accumulation:** misaligned guides exceed ±50°/m.

**Wrong PE topology:** a 3G termination is applied to a 2G+FO E-RTG design.

**Vertical support bypass:** the aramid element is not mechanically anchored.

**FO microbending:** guide pressure or small radius increases attenuation.

**Generation mixing:** Arctic or SMK-200 claims are applied to an unverified 2019 Part number.

## 17. Source map and scope

| Document | Pages | Role |
|---|---|---|
| Prysmian Crane Cables General Catalogue 2021, product revisions 2019 | 16–19 | Standard construction, limits and 60-row matrix. |
| Same catalogue | 28–30 | E-RTG design, optical properties and 17-row power matrix. |
| Same catalogue | 38–39 | Vertical construction, aramid support and 27-row matrix. |
| CORDAFLEX(SMK)-V datasheet, revision 2016 | 2–4 | Archive-only composite row and MLFB cross-checks. |
| Cordaflex Arctic brochure | 3 | −50°C flexible operation and 240 m/min brochure claims. |
| SMK-200 brochure, 2023 | 2–3 | Separate 200 m/min black CR/PCP generation. |

This guide supports preliminary engineering and technical comparison. Current availability, Part numbers, compounds, approvals and guaranteed operating limits must be confirmed for the exact production batch.

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