

HVR-FO

FLEXIBLE CABLES FOR REELING APPLICATIONS - WITH OPTICAL FIBRE ELEMENTS - H.V.



All the very stringent characteristics of the insulating cover and the sheath make the cable suitable for use with reeling systems such as power supply of moving machines. In addition to its excellent mechanical characteristics, the **polychloroprene** sheath has a good resistance to wear combined with a high flexibility over a large range of temperatures.

Design

- 1 Red polychloroprene outer sheath
- 2 Textile anti twist braid
- 3 Polychloroprene inner sheath (V < 10 kV)
Semi conductive tape (V ≥ 10 kV)
- 4 Phase conductors: annealed tinned copper cores, elastomer EPR insulation between 2 semi conductive layers
- 5 Earth conductors: annealed tinned copper cores, elastomer EPR insulation wrapped in a semi conductive layer
- 6 Optical cable: 6 multimode fibres laid in a tube

Short lay-length assembled conductors wrapped in a semi conductive strip.

Marking

« CONDUCTIX WAMPFLER / HVR-FO 3×__+2×__/2+6FO 62.5/125-__/_/__ kV »

Standards

- VDE 0250 Part 813
- VDE 0298 Part 4 (temperature of cores in service)
- Flame resistance: class C3 (not tested)

Conditions of use

- Suitable for all spool types in adequacy with the minimum bending radius.

Voltage

- 3.6/6 (7.2) kV up to 12/20 (24) kV - High Voltage

Linear reeling speed

- 180 m/min max

Ambient temperature

- -30 up to +90°C (see table of de-rating factors on next page).



| Câbles HVR-FO Technical Data | | | | | | | | | |
|---|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
| Number of Cores and Nominal C.S.A. (mm ²) | 3×25 + 2×25/2 +FO | 3×35 + 2×25/2 +FO | 3×50 + 2×25/2 +FO | 3×70 + 2×35/2 +FO | 3×95 + 2×50/2 +FO | 3×120+ 2×70/2 +FO | 3×150+ 2×70/2 +FO | 3×185+ 2×95/2 +FO | 3×240+ 2×120/2 +FO |
| Type - Rated Voltage | HVR-FO 3.6/6 (7.2) kV | | | | | | | | |
| Min. outer diameter (mm) | 38.8 | 41.2 | 44.0 | 48.1 | 52.7 | 56.9 | 62.7 | 66.4 | 76.1 |
| Max. outer diameter (mm) | 41.8 | 44.2 | 47.0 | 51.1 | 56.7 | 60.9 | 66.7 | 70.4 | 80.1 |
| Linear weight (kg/m) | 2.49 | 2.98 | 3.51 | 4.50 | 5.58 | 6.95 | 8.19 | 9.63 | 12.77 |
| Type - Rated Voltage | HVR-FO 6/10 (12) kV | | | | | | | | |
| Min. outer diameter (mm) | 39.5 | 42.0 | 44.8 | 48.3 | 53.5 | 57.6 | 63.3 | 67.0 | 76.8 |
| Max. outer diameter (mm) | 42.5 | 45.0 | 47.8 | 52.3 | 57.5 | 61.6 | 67.3 | 71.0 | 80.8 |
| Linear weight (kg/m) | 2.54 | 3.06 | 3.59 | 4.57 | 5.68 | 7.02 | 8.28 | 9.72 | 12.88 |
| Type - Rated Voltage | HVR-FO 8.7/15 (18) kV | | | | | | | | |
| Min. outer diameter (mm) | 42.7 | 45.5 | 48.3 | 53.1 | 57.0 | 62.9 | 67.0 | 70.0 | 78.2 |
| Max. outer diameter (mm) | 45.7 | 48.5 | 51.3 | 57.1 | 61.0 | 66.9 | 71.0 | 74.0 | 83.2 |
| Linear weight (kg/m) | 2.83 | 3.39 | 3.95 | 5.13 | 6.12 | 7.77 | 8.82 | 10.19 | 13.19 |
| Type - Rated Voltage | HVR-FO 12/20 (24) kV | | | | | | | | |
| Min. outer diameter (mm) | 48.0 | 51.4 | 54.2 | 58.3 | 63.7 | 68.0 | 73.9 | 77.0 | 82.1 |
| Max. outer diameter (mm) | 51.0 | 55.4 | 58.2 | 62.3 | 67.7 | 72.0 | 77.9 | 81.0 | 87.1 |
| Linear weight (kg/m) | 3.36 | 4.08 | 4.67 | 5.79 | 7.04 | 8.51 | 9.92 | 11.31 | 13.84 |
| Mechanical & Electrical Data | | | | | | | | | |
| Max. tensile load (daN) | 150 | 210 | 300 | 420 | 570 | 720 | 900 | 1 110 | 1 440 |
| Current carrying capacity (A) $V \leq 10$ kV ^(a) | 131 | 162 | 202 | 250 | 301 | 352 | 404 | 461 | 540 |
| Current carrying capacity (A) $V > 10$ kV ^(a) | 139 | 172 | 215 | 265 | 319 | 371 | 428 | 488 | 574 |
| Voltage drop (V/A.km) ^(b) | 1.50 | 1.09 | 0.79 | 0.58 | 0.46 | 0.38 | 0.32 | 0.28 | 0.23 |
| Thermal short circuit current (kA/sec) | 3.6 | 5.0 | 7.2 | 10.0 | 13.6 | 17.2 | 21.5 | 26.5 | 34.3 |
| Min. bending radius (mm) | Static: 6 × cable max. O.D. / Dynamic: 12 × cable max. O.D. | | | | | | | | |
| Optical Fibres Data | | | | | | | | | |
| Number and properties | 6 fibres 62.5/125 µm (12 or 18 fibres and/or 50/125 µm on request) | | | | | | | | |
| Attenuation (dB/km) | ≤ 5 up to 850 nm | | | | | | | | |
| Numerical aperture (O.N.) | 0.275 ± 0.015 | | | | | | | | |

(a): Cable laid on the ground @ +30°C

(b): $\cos \varphi = 0.8$ / temperature of cores = +90°C

Recommendations

- Amperage de-rating factor for reeling applications: 0.85
- De-rating factors in relation to the ambient temperature above 30°C:

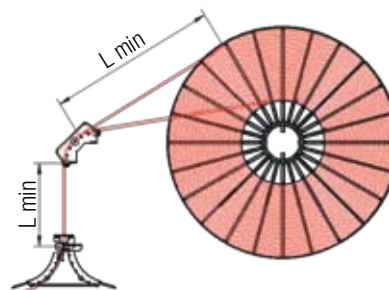
| | |
|-----------------|------|
| 30°C up to 40°C | 0.90 |
| 40°C up to 50°C | 0.80 |
| 50°C up to 55°C | 0.74 |
| 55°C up to 60°C | 0.65 |

- Recommended voltage drop limits:

| | |
|--------------------|------|
| Usual | 5% |
| Lighting | 3% |
| Frequency inverter | 2.5% |

Installation

- Minimum distance between two guiding devices: $L_{\min} = 20 \times \text{cable O.D.}$



- Deflection angle (if $\varnothing r < \text{bending radius}$) = 15° max for laying on rollers

