

ANHUI FEICHUN SPECIAL CABLE CO., LTD.

安徽飞纯特种电缆有限公司

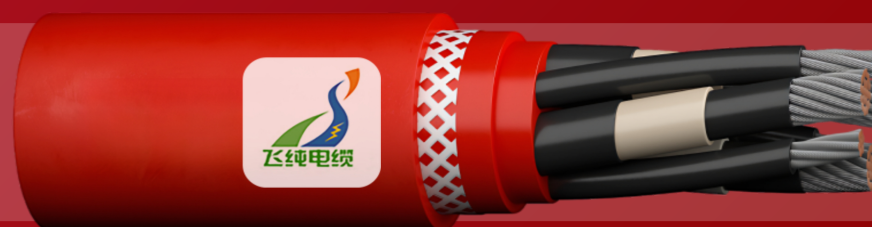


PROTOLON(SMK)-LWL (N)TSKCGEWOEU

RATED VOLTAGE: 6/10 kV

CABLE CONFIGURATION

3×50 + 2×25/2 + 1×(12E9 LWL) RED



PRODUCT DESIGNATION

Medium Voltage Reeling Cable with Fiber Optics

Flexible medium voltage reeling cable with integrated fibre-optics for the combined transmission of energy and data, designed for application under high or extreme mechanical stresses.

APPLICATION

- ▶ High travel speeds and dynamic tensile loads
- ▶ Multiple changes of direction into different planes
- ▶ Churning on running over rollers and torsional stresses
- ▶ Mobile equipment applications (fast-moving container cranes, large moving equipment)

DESIGN FEATURES

Conductor

Electrolytic copper tinned, very finely stranded, class FS (refer to DIN VDE 0295). Earth conductor split into 2 parts positioned in two interstices.

Insulation

PROTOLON HS: High grade special compound based on high-quality EPR (at least 3GI3) with improved mechanical and electrical characteristics (refer to DIN VDE 0207, Part 20).

Electrical Field Control

- ▶ Inner semiconductive layer: EPR
- ▶ Outer semiconductive layer: Modified NBR
- ▶ Easy Strip design: Capable of being stripped when cold for easy preparation

Optical Fiber (12E9 Configuration)

Fiber Type E9/125µm Monomode	Number of Fibers 12 Fibers	Core Diameter 9 µm
Cladding Diameter 125 µm	Coating Diameter 250 µm	Numerical Aperture 0.14 ± 0.02

Optical Performance:

- Attenuation at 1310 nm: <0.4 dB/km
- Attenuation at 1550 nm: <0.3 dB/km
- Chromatic dispersion at 1310 nm: <3.5 ps/nm·km
- Chromatic dispersion at 1550 nm: <3.5 ps/nm·km

Core Arrangement

Three-core design with cradle separator in center. Optical element consists of six tubes laid up around a central support element, with two optical fibers in each tube, positioned in the third interstice.

Sheath System - PROTOFIRM Sandwich

- ▶ **Double layer inner sheath:** Special compound based on EPR (quality at least 5GM3), serves as water barrier, color: red
- ▶ **Anti-torsion braid:** Reinforced braid made of polyester threads in vulcanized bond between sheaths
- ▶ **Double layer outer sheath:** Abrasion and tear-proof high grade rubber compounds based on PCP (quality at least 5GM5), color: bright red/red

ELECTRICAL PARAMETERS

Rated Voltage 6/10 kV	Max. Operating Voltage (AC) 7.2/12 kV	Max. Operating Voltage (DC) 10.8/18 kV
AC Test Voltage 11 kV		

THERMAL PARAMETERS

Max. Temperature at Conductor 90 °C	Max. Short Circuit Temperature 250 °C	Ambient Temp. (Fixed Installation) -50 °C to +80 °C
Ambient Temp. (Flexible Operation) -35 °C to +80 °C		

MECHANICAL PARAMETERS

Max. Tensile Load 20 N/mm²	Max. Tensile Load (Acceleration) Up to 30 N/mm²	Torsional Stress ± 25 °/m
Min. Distance (S-type Changes)		

TECHNICAL DATA - 3×50 + 2×25/2 + 1×(12E9)

Parameter	Value	Unit
Part Number	20004550 (Base Configuration)	-
MLFB Number	5DK4083 (Base Configuration)	-
Conductor Diameter (max.)	9.9	mm
Earth Conductor Diameter (max.)	5.0	mm
Outer Diameter (min.)	46.1	mm
Outer Diameter (max.)	49.1	mm
Bending Radius Free Moving (min.)	491	mm
Weight (approx.)	3,730	kg/km
Permissible Tensile Force (max.)	3,000	N
Dynamic Tensile Force (max.)	4,500	N
Conductor Resistance at 20°C (max.)	0.39	Ω/km
Current Carrying Capacity	202	A
Short Circuit Current (conductor)	7.15	kA

Note:

Current carrying capacity based on rubber cables laid on surface at 30°C ambient temperature (per VDE 0298-4, Table 15). This configuration features 12 E9/125µm monomode fibers as specified.

CHEMICAL PARAMETERS

- ▶ **Oil Resistance:** According to DIN EN 60811-404 and DIN VDE 0473-811-404, paragraph 10
- ▶ **Weather Resistance:** Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture
- ▶ **Water Resistance:** According to HD 2216

STANDARDS & CERTIFICATIONS

Standard	Certifications
Based on DIN VDE 0250-813	GOST-R

CABLE MARKING

PROTOLON (SMK) LWL (N)TSKCGEWOEU 3×50+2×25/2+1×(12E9) 6/10kV (year of manufacture) (serial number)

Installation Notes:

Preparation of fibre-optics requires special skills and use of elaborate tools. It is recommended that performance of this work is entrusted to factory assembly. Please provide the connection dimensions when ordering.



FEICHUN SPECIAL CABLES

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