

PROTOLON XPRT-LWL (N)TSKCGEWOEU 8,7/15KV

Medium voltage reeling cable with fibre-optics



Flexible medium voltage reeling cable with integrated fibre-optics for the combined transmission of energy and data, for application under high or extreme mechanical stresses, e.g. high travel speeds, dynamic tensile loads, multiple changes of direction into different planes, churning on running over rollers and torsional stresses. Mainly for mobile equipment, e.g. fast-moving container cranes and large moving equipment.

STANDARDS / APPROVALS

Based on DIN VDE 0250-813

DIN EN 60228/ IEC 60228 / VDE 0295

DIN EN 60811-404 / IEC 60811-404

DIN VDE 0298-4

Reversed bending; roller bending; torsional stress

GOST -R/-K/-B Fire Certificate of Russian Federation

General

Conductor

Chemical behaviour

Electrical parameters

Mechanical parameters

Certifications / Approvals

CABLE DESIGN

Conductor	Very finely stranded copper, tinned (class FS)
Inner semi-conducting layer	PE: Very finely stranded copper, tinned (class FS)
-	Yes
Core insulation material	Semi-conductive EPR
-	EPR rubber
-	PROTOLON HS
-	Special compound > 3GI3
Outer semi-conducting layer	Yes
-	Semi-conductive NBR easy-strip
Core arrangement	Three core design, with split earth conductor and optical element in the interstices with a central carrier element; Optical element: six tubes, laid up around a central support element, each with one, two, three or four optical fibers
Material inner sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special sandwich EPR/CR
Armouring/reinforcement	Braiding
Armouring/reinforcement material	Polyester
Material outer sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U ₀ /U (U _m)	8.7/15 (17.5) kV
Test voltage [kV]	24
Nominal voltage U [V]	15,000

THERMAL PARAMETERS

Max. conductor temperature [°C]	90
Max. conductor temperature at short circuit [°C]	250
Ambient temperature fix installation (min) [°C]	-50
Ambient temperature fix installation (max) [°C]	80
Ambient temperature flexible installation (min) [°C]	-35
Ambient temperature flexible installation (max) [°C]	80

CHEMICAL PARAMETERS

Flame retardant	In accordance with EN/IEC 60332-1-2
Oil resistant	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Sea water resistance	Yes

OPTICAL FIBER PROPERTIES

Fiber type	G62,5/125 µm Multi-mode graded index	G50/125 µm Multi-mode graded index	E9/125 µm Single-mode graded index
Cladding diameter	125 µm	125 µm	125 µm
Fiber diameter	250 µm	250 µm	250 µm
Attenuation at 850 nm	< 3,3 dB/km	< 2,8 dB/km	
Attenuation at 1310 nm	< 0,9 dB/km	< 0,8 dB/km	< 0,4 dB/km
Attenuation at 1550 nm			< 0,3 dB/km
Bandwidth at 850 nm	> 400 MHz	> 400 MHz	
Bandwidth at 1310 nm	> 600 MHz	> 1200 MHz	
Numerical Aperture	0,275 +/- 0,02	0,2 +/- 0,02	0,14 +/- 0,02
Chromatic Dispersion at 1300 nm			< 3,5 ps/nm km
Chromatic Dispersion at 1550 nm			< 18 ps/nm km

MECHANICAL PARAMETERS

Torsional stress +/- [%/m]	25
Permanent tensile strength (rule)	Increased tensile load through additional support element (see table)
Travel speed	- Gantry (reeling operation): no restriction. For speeds beyond 300 m/min it is recommended to consult the cable manufacturer
Bending radius (rule)	Acc. to VDE 0298-3: 6 X D fixed installation 10 X D flexible operation 20 X D min distance with S-type directional changes

SUSTAINABILITY COMMITMENT

Our commitment to a low-carbon future remains unwavering as we strive to create sustainable solutions while upholding quality standards. We prioritize sustainability and environmental protection in our daily operations, collaborating with local communities to ensure workplace safety and safeguard the areas we operate in.

Sustainability and environmental responsibility is evident also in our **packaging** solutions across the CEE region. We use fully recyclable drum cover foils to minimize environmental impact. Our packaging for rings is made from 30% recycled materials, supporting a circular economy. Additionally, our boxes are made from recyclable, environment-friendly cardboard, promoting eco-conscious choices. By choosing Prysmian, you are not only selecting high-quality products but also contributing to a greener future.

Check for more details about our sustainability commitment here: [Sustainability report and responsibility](#).



CABLE PROPERTIES

Basic construction	SAP code	External code	Diameter conductor [mm]	Cable diameter (min) [mm]	Cable diameter (max) [mm]	Cable weight [kg/km]
3x25+2x25/2 +1x(24E9LWL)	20470344		7.1	43.4	46.4	3,000
3x35+2x25/2 +1x(24E9LWL)	20470345		8.3	46	49	3,450
3x50+2x25/2 +1x(24E9LWL)	20470346		9.9	50.8	53.8	4,350
3x70+2x35/2 +1x(24E9LWL)	20470347		11.8	54.9	57.9	5,350
3x95+2x50/2 +1x(24E9LWL)			13.8	60.9	64.9	6,950
3x120+2x70/2 +1x(24E9LWL)			15.4	64.4	68.4	8,100
3x150+2x70/2 +1x(24E9LWL)			17.2	68.8	72.8	9,450
3x185+2x95/2 +1x(24E9LWL)			19	74.1	78.1	11,300
3x240+2x120/2 +1x(24E9LWL)			21.8	80.8	84.8	14,050
3x300+2x150/2 +1x(24E9LWL)			24.4	87.7	92.7	17,100

CABLE PROPERTIES ELECTRICAL / MECHANICAL

Basic construction	SAP code	External code	Max. tensile strength [N]	Max. tensile strength during acceleration [N]	Bending radius moving (min) [mm]	Conductor resistance at 20° C [Ohm/km]	Current carrying capacity [A]
3x25+2x25/2 +1x(24E9LWL)	20470344		2,700	3,950	469	0.795	139
3x35+2x25/2 +1x(24E9LWL)	20470345		3,300	4,850	490	0.565	172
3x50+2x25/2 +1x(24E9LWL)	20470346		4,200	6,200	538	0.393	215
3x70+2x35/2 +1x(24E9LWL)	20470347		5,400	8,000	579	0.277	265
3x95+2x50/2 +1x(24E9LWL)			6,900	10,250	649	0.21	319
3x120+2x70/2 +1x(24E9LWL)			8,400	12,500	684	0.164	371
3x150+2x70/2 +1x(24E9LWL)			10,200	15,200	728	0.132	428
3x185+2x95/2 +1x(24E9LWL)			12,300	18,350	781	0.108	488
3x240+2x120/2 +1x(24E9LWL)			15,600	23,300	848	0.0817	574
3x300+2x150/2 +1x(24E9LWL)			19,200	28,700	927	0.0654	660

Current carrying capacity acc. VDE 0298-4, Tab. 15, on a surface at 30°C ambient temperature.

Design with 12 or 24 fibers, in G62,5, G50 and E9 available upon request. Further combination with different fiber types is also possible.