DIGGING DEEPER, REACHING FURTHER

Reliable Cables for Underground Mining

prysmian

The planet's pathways

Connecting the world.

Today and in the future.

25
R&D CENTRES AROUND THE WORLD

Prysmian – the world leader in the energy and telecom cables and systems industry.

150
YEARS OF EXPERIENCE

With 150 years' experience, Prysmian is strongly positioned in high-tech markets and offers the widest possible range of products, services, technologies and know-how.

We specialise in underground and submarine cables and systems for power transmission and distribution, special cables for applications in many different industries, and medium and low voltage cables for the construction and infrastructure sectors.

For the telecommunications industry, Prysmian is the world's largest provider of cutting-edge cables and accessories for voice, video and data transmission, offering a comprehensive range of optical fibres, optical and copper cables and connectivity systems.

We are committed to environmental responsibility in our production processes, the protection of the global environment, and the responsible management of relations with the local communities in which we work.

For us, innovation means meeting the needs of our customers and communities by understanding their business drivers as quickly as they do. To do that, our team of over 900 Research & Development professionals is constantly looking to the future, predicting and identifying emerging trends in each of our industries and sectors. Acting on this intelligence from 25 R&D centres around the world, we're constantly close to our customers in their own local markets.

DOWN TO THE CORE

Powering the Future of Mining

The mining industry demands power, control, and reliability in the harshest conditions. Prysmian delivers cutting-edge cable solutions engineered for durability, safety, and superior performance – whether in opencast, underground mining, or tunneling. Our advanced technology ensures seamless operation in the most extreme environments, meeting the needs of OEMs, contractors, installers, and mining companies worldwide.

COMPREHENSIVE CABLE SOLUTIONS FOR MINING & TUNNELING

Prysmian provides a full range of cables for both fixed installations and movable equipment, ensuring efficient power transmission and operational safety. With decades of expertise and close collaboration with leading mining companies, we continuously innovate to meet the evolving demands of the industry.

Why Choose Prysmian Mining Cables?

Our mining and tunneling cables are designed to excel in demanding applications, offering numerous benefits:

EXTENDED LIFE SPAN
Engineered for longevity, reducing down-time and maintenance costs.

SUPERIOR CLIMATE & CHEMICAL RESISTANCE
Withstanding extreme temperatures, oil, fuel, moisture, acids, and bases, as well as UV irradiation and ozone.

UNMATCHED MECHANICAL STRENGTH & FLEXIBILITY
Designed for high-speed reeling, acceler-ation, extreme bending, torsional loads, and misalignment.

COMPACT & LIGHTWEIGHT DESIGN
Up to 30% reduction in cable size and 40% weight reduction without com-promising performance.

TAILORED ENGINEERING
Customized solutions for specific mining requirements, including LV/MV, instrumentation, and optical fibre cables.

ENHANCED SAFETY STANDARDS
High-grade rubber sheathing ensur-ing optimal mechanical resistance and protection against harsh mining conditions.

ENGINEERED FOR THE TOUGHEST MINING APPLICATIONS

1. Opencast & Underground Mining
Large-scale mining operations rely on highly mobile, heavy-duty machinery that requires flexible and durable power cables. Prysmian provides Medium Voltage (MV) reeling and trailing cables, specially designed to perform under extreme stress, ensuring efficient power distribution for excavators, drills, and conveyor systems.

2. Tunneling: Beyond Mining
Tunneling technology is essential not only in mining but also in critical infrastructure projects worldwide, including subway systems and high-speed rail networks. From the Channel Tunnel to San Gottardo, Prysmian cables power the world's most challenging tunneling projects.

PROVEN RELIABILITY, WORLDWIDE

With manufacturing facilities strategically located near major mining regions across all continents, Prysmian ensures local availability, rapid delivery, and expert support. Our cables have been field-tested and proven in global mining and tunneling applications, reinforcing Prysmian's position as the trusted partner for the industry's most demanding projects.

PRYSMIAN: DRIVING MINING INNOVATION

As the mining industry evolves, efficiency, safety, and sustainability are paramount. With our state-of-the-art cable solutions, we power the future of mining and tunneling, ensuring operational excellence in even the most challenging environments.
Explore Prysmian's mining and tunneling cable solutions and experience unmatched durability, reliability, safety, and performance down to the core.

MINING & SUSTAINABILITY

Powering the Future Responsibly

The world's need for minerals is expected to ten-fold during the next decade. The production of minerals such as graphite, lithium, and cobalt could increase by nearly 500% by 2050. To mine all these minerals while at the same time achieving zero-carbon emissions in the mining operations, calls for a transition towards clean energy and greater energy efficiency.

In fact, from lithium-ion batteries to photovoltaic cells, most green technologies require metals and minerals in their construction, thus essential for a low-carbon future. Consequently, the mining industry is driving the change, aiming for fully electrified, data-driven fleets.

In parallel, innovations and increased efficiency requirements within mines are leading to an increasingly extensive use of equipment operating at higher and higher voltages. The safety of personnel working in proximity to energised equipment, especially in underground mines, has become an increasingly crucial theme, too.

This is What We Do

INNOVATION MEETS SUSTAINABILITY

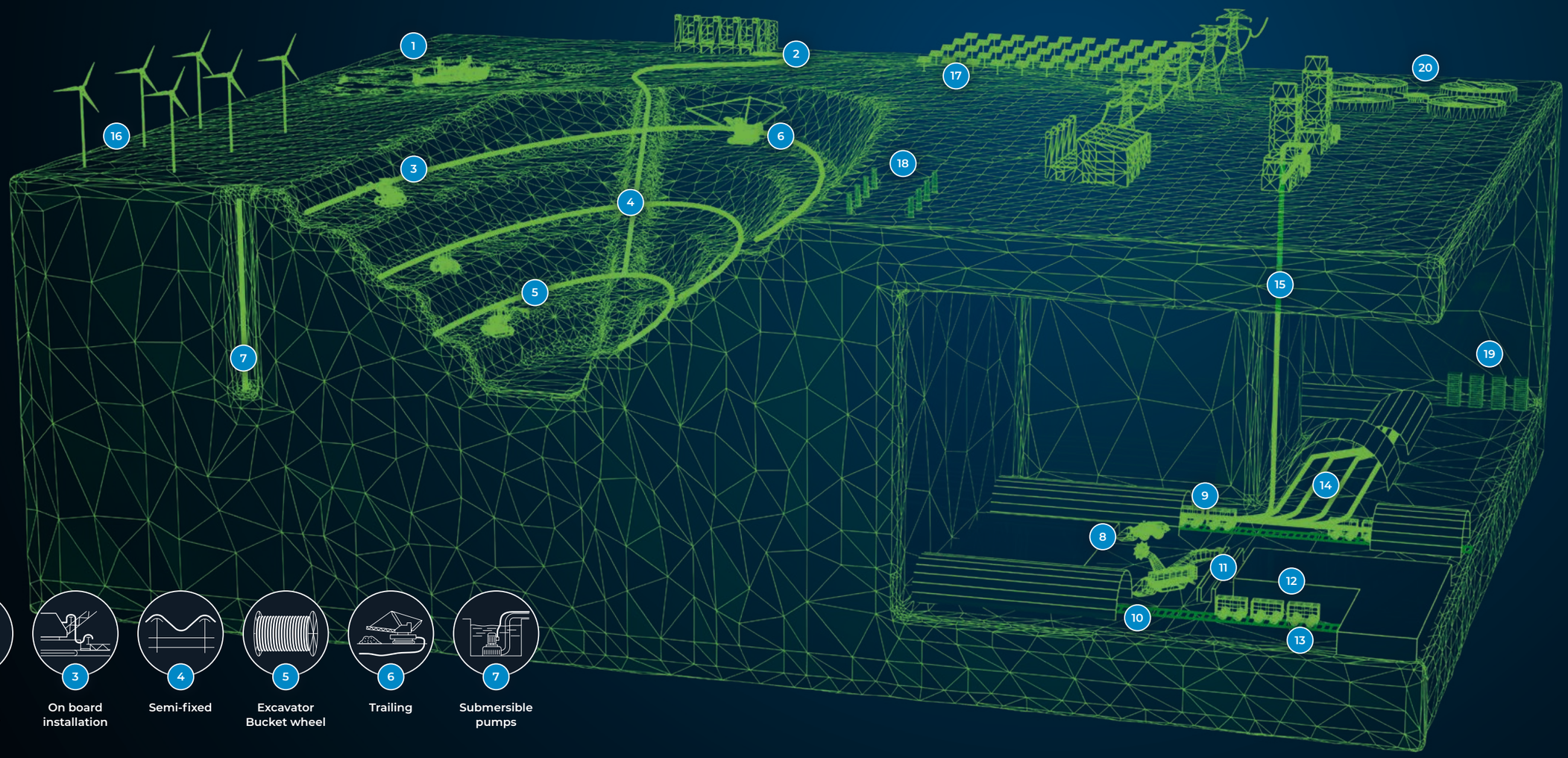
To meet these challenges, Prysmian has, besides extremely resistant and flexible mining cables and technological breakthroughs, developed complete cable solutions for the mining industry. Solutions that will make the production flow flawless, enhance the safety of the workforce, and bring sustainable energy to power it all up.

Our complete cable offer makes mining more sustainable – in many different ways. Safe and sturdy cables saving you on cost, and the environment on CO_2 emissions? Sounds too good to be true, doesn't it? But it is the truth! Our complete offer of top-notch mining cables will cost you less in the long run.

Being tough enough to endure the most uncompromising environments, in terms of everything from mechanical strains to chemical liquids and climate conditions, these cables will run flawlessly for years to come. Add to that a complete range of cables ready to provide every equipment on site with sustainable energy, and your business will have saved a lot more than just money.

SUSTAINABLE MINING ACTIVITIES

Our electrification solutions



OPENCAST MINING

1 Dredger
2 Stacker/ Reclaimer
3 On board installation
4 Semi-fixed
5 Excavator Bucket wheel
6 Trailing
7 Submersible pumps

UNDERGROUND MINING & TUNNELING

8 LHD, Scoop, Loader
9 Drill
10 Coal cutter – free trailing
11 Coal cutter – chain application
12 Festoon
13 Shuttle car
14 Fixed installation
15 Shaft cable

SUPPLEMENTARY SOLUTIONS

16 Wind turbines
17 PV plants
18 EV Charging
19 Server
20 Water treatment

APPLICATION OVERVIEW

Underground

● Main Application
● Suitable

Application groups	Shearer / Chain	Shearer / trailing	Reeling	Reeling	Festoon	Semi-fixed
SHEARER CABLES FOR CHAIN						
PROTOMONT(V) NSSHCGEOEU NEW	●				●	●
PROTOMONT (V) NTSKCGECWOEU	●				●	●
PROTOMONT (VO) (N)TSKCGEWOEU	●				●	●
SHEARER CABLES FOR TRAILING						
PROTOMONT(Z) NSSHKCGEOEU		●	●	●	●	●
UNDERGROUND REELING CABLES						
PROTOMONT (S) (N)SSHCGEOEU			●	●	●	●
CORDAFLEX(S) NSHTOEU			●	●	●	●
TROMMELFLEX-M-PUR D2X11Y			●	●	●	●
TROMMELFLEX-M-PUR BRAIDED D2X11Y			●	●	●	●
TUNNELFLEX-PUR-HF WITHOUT ANTITWISTING PROTECTION			●	●	●	●
TUNNELFLEX-R-PUR-HF WITH ANTITWISTING PROTECTION			●	●	●	●
CABLES FOR SEMI-FIXED INSTALLATION						
PROTOMONT FESTOON NTSKCGECWOEU					●	●
PROTOMONT FESTOON NTSKCGECWOEU LWL					●	●
PROTOMONT (N)SSHOEU 3E					●	●
PROTOMONT EMV-FC (N)SSHCOEU					●	●
PROTOMONT EMV-FC ((N)SHXCOEU					●	●

PROTOMONT (V)

NEW

NSSHCGEOEU | 1 KV

Used as power supply connection cable for mobile equipment and machines in underground mining applications, such as coal cutting machines, etc. (V) Coal cutter cables are designed for use in cable protection chains (cable handler), which are trailed behind the machine and which absorb the thereby occuring tensile forces.

STANDARDS / APPROVALS

DIN VDE 0250-812	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-4	Electrical parameters
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
BAS Bosnia-Herzegovina	Certifications / Approvals
EAC	Certifications / Approvals
MSHA P-07-KA140034	Certifications / Approvals
MA China	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-20 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	25 °/m
Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	2,3 x D at 5 N/mm²
	20 x D min distance with S-type directional changes

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Test voltage	3 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	1,000 V

1 Very finely stranded copper conductor, tinned, class FS
PE: Double concentric control/PE wire spinning in outer interstices

2 EPR rubber
PROTOLON
Special compound 3GI3

3 Three main cores laid-up, with double concentric control/PE conductor elements in the outer interstice
Main cores: Colored, Black, Grey, Brown
Control cores: Blue

4 Semi-conductive NBR easy-strip

5 EPR rubber
Special compound GM1b

6 Spinning of steel / Cu-tinned wires

7 Rubber - polychloroprene (PCP)
PROTOFIRM
Special compound 5GM5

COAL CUTTER CABLES FOR CHAIN OP. WITH CONCENTRIC MONITORING CONDUCTOR

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Ø conductor	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT (V) NSSHCGEOEU NEW 0.6/1KV									
3X25+3X(1,5STKON+16/3KON) +UELKON	7.1	38.4	41.4	2,900	1,125	350	0.33	0.795	131
3X35+3X(1,5STKON+16/3KON) +UELKON	8.4	41	44	3,520	1,575	400	0.3	0.565	162
3X50+3X(1,5STKON+25/3KON) +UELKON	10.1	45.4	48.4	4,300	2,250	460	0.28	0.393	202
3X70+3X(1,5STKON+35/3KON) +UELKON	11.9	48.8	52.8	5,400	3,150	530	0.27	0.277	250
3X95+3X(1,5STKON+50/3KON) +UELKON	14	56	60	7,020	4,275	540	0.27	0.21	301
3X120+3X(1,5STKON+70/3KON) +UELKON	15.5	60.3	64.3	8,600	5,400	580	0.26	0.164	352
3X150+3X(1,5STKON+70/3KON) +UELKON	17.2	66.7	70.7	10,310	6,750	640	0.26	0.132	404
3X185+3X(1,5STKON+95/3KON) +UELKON	19.1	71.7	75.7	12,300	8,325	700	0.26	0.108	461
3X240+3X(1,5STKON+120/3KON) +UELKON	22	80.1	85.1	15,400	10,800	790	0.25	0.0817	540

PROTOMONT (V)

NTSKCGECWOEU | 3 - 6 KV

Used as power supply connection cable for mobile equipment and machines in underground mining applications, such as coal cutting machines, etc. (VO) Coal cutter cables are designed for use in cable protection chains (cable handler), which are trailed behind the machine and which absorb the thereby occuring tensile forces.

STANDARDS / APPROVALS

DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295 C	onductor
DIN VDE 0298-4	Electrical parameters
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
GOST -R/-K/-B Fire Certificate of Russian Federation	Certifications / Approvals
MSHA P-07-KA140034	Certifications / Approvals
MA China	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-20 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	25 °/m
Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	2,3 x D at 5 N/mm²
	20 x D min distance with S-type directional changes

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	1.8/3 (3.6) kV
Test voltage	6 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	3,000 V

1 Very finely stranded copper conductor, tinned, class FS
PE: Double concentric control/PE wire spinning in outer interstices

3 EPR rubber
PROTOLON
Special compound 3GI3

4 Three main cores laid-up, with double concentric control/PE conductor elements in the outer interstice
Main cores: Natural color
Control cores: Blue

5 Semi-conductive NBR easy strip

6 EPR rubber
Special compound GM1b

7 Spinning of steel/Cu-tinned wires

8 Rubber - polychloroprene (PCP)
PROTOFIRM
Special compound 5GM5

COAL CUTTER CABLES FOR CHAIN OPERATION

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Ø conductor	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT (V) NTSKCGECWOEU 1,8/3KV									
3x25+3x(1,5STKON+16/3KON) +UELKON	7.1	40.1	43.1	3,100	1,125	330	0.32	0.795	131
3x35+3x(1,5STKON+25/3KON) +UELKON	8.4	44.3	47.3	3,970	1,575	380	0.3	0.565	162
3x50+3x(1,5STKON+25/3KON) +UELKON	10.1	49.7	52.7	4,900	2,250	440	0.29	0.393	202
3x70+3x(1,5STKON+35/3KON) +UELKON	11.9	53.2	57.2	6,020	3,150	500	0.27	0.277	250
3x95+3x(1,5ST-KON+50/3KON)+UELKON	14	58.6	62.6	7,450	4,275	540	0.27	0.21	301
3x120+3x(1,5ST-KON+70/3KON)+UELKON	15.5	62.9	66.9	9,060	5,400	580	0.27	0.164	352
3x150+3x(1,5STKON+70/3KON) +UELKON	17.2	69	73	10,820	6,750	640	0.26	0.132	404
3x185+3x(1,5STKON+95/3KON) +UELKON	19.1	73.2	77.2	12,530	8,325	700	0.25	0.108	461
3x240+3x(1,5STKON+120/3KON) +UELKON	22	80.7	85.7	15,700	10,800	790	0.25	0.0817	540
3x50+3x(2x1,5ST+25/3KON) +UELKON	10.1	50.2	53.2	4,950	2,250	440	0.29	0.393	202
3x70+3x(2x1,5ST+35/3KON) +UELKON	11.9	54.9	58.9	6,100	3,150	500	0.27	0.277	250
PROTOMONT (V) NTSKCGECWOEU 3.6/6KV									
3x25+3x(1,5STKON+16/3KON) +UELKON	7.1	45	48	3,600	1,125	340	0.33	0.795	131
3X35+3X(1,5STKON+25/3KON) +UELKON	8.4	47.3	51.3	4,360	1,575	380	0.31	0.565	162
3X50+3X(1,5STKON+25/3KON) +UELKON	10.1	51.4	55.4	5,320	2,250	430	0.3	0.393	202
3X70+3X(1,5STKON+35/3KON) +UELKON	11.9	56.7	60.7	6,560	3,150	490	0.29	0.277	250
3X95+3X(1,5STKON+50/3KON) +UELKON	14	61.2	65.2	7,890	4,275	550	0.28	0.21	301
3X120+3X(1,5STKON+70/3KON) +UELKON	15.5	67.3	71.3	9,780	5,400	600	0.27	0.164	352
3X150+3X(1,5STKON+70/3KON) +UELKON	17.2	71.7	75.7	11,300	6,750	640	0.26	0.132	404
3X185+3X(1,5STKON+95/3KON) +UELKON	19.1	75.1	79.1	12,790	8,325	690	0.25	0.108	461
3x240+3x(1,5STKON+120/3KON) +UELKON	22	82.7	87.7	15,900	10,800	770	0.25	0.0817	540
3X35+3X(2X1,5ST+25/3KON) +UELKON	8.4	49	53	4,620	1,575	380	0.31	0.565	162
3x50+3x(2x1,5ST+25/3KON) +UELKON	10.1	53.9	57.9	5,550	2,250	430	0.3	0.393	202
3X70+3X(2X1,5ST+35/3KON) +UELKON	11.9	56.7	60.7	6,760	3,150	490	0.39	0.277	250
3X95+3X(2X1,5ST+50/3KON) +UELKON	14	62	66	7,900	4,275	550	0.28	0.21	301
3x120+3x(2x1,5ST+70/3KON) +UELKON	15.5	67.3	71.3	9,800	5,400	600	0.27	0.164	352
3x150+3x(2x1,5ST+70/3KON) +UELKON	17.2	71	75	11,100	6,750	640	0.26	0.132	404
3x185+3x(2x1,5ST+95/3KON) +UELKON	19.1	75.1	79.1	13,000	8,325	690	0.25	0.108	461
3x240+3x(2x1,5ST+120/3KON) +UELKON	22	82.7	87.7	16,000	10,800	770	0.25	0.0817	540

PROTOMONT (VO)

(N)TSKCGEWOEU | 3 KV

Used as power supply connection cable for mobile equipment and machines in underground mining applications, such as coal cutting machines, etc. (VO) Coal cutter cables are designed for use in cable protection chains (cable handler), which are trailed behind the machine and which absorb the thereby occuring tensile forces.

STANDARDS / APPROVALS

DIN VDE 0250-813	General
GOST -R/-K/-B Fire Certificate of Russian Federation	Certifications / Approvals
MA China	Certifications / Approvals
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN VDE 0298-4	Electrical parameters
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-20 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	50 °/m
Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	2,3 x D at 5 N/mm²
	20 x D min distance with S-type directional changes

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	1,8/3 (3,6) kV
Test voltage	6 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	3,000 V

1 Finely stranded copper, tinned, class FS
3 EPR rubber PROTOLON Special compound 3GI3
4 Three Double-concentric control / PE elements in the outer interstices
5 Three main cores laid-up, with double concentric control / PE conductor elements in the outer interstices Main cores: Natural color Control cores: Blue
6 Semi-conductive NBR easy strip
7 Special EPR compound GM1b
8 Chlorinated polyethylene (CM/CPE) PROTOFIRM Special compound 5GM5

COAL CUTTER CABLES FOR CHAIN OPERATION

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Ø conductor	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT (VO) (N)TSKCGEWOEU 1.8/3KV									
3x25+3x(1,5STKON+16/3KON)	7.1	37.8	40.8	2,500	1,125	280	0.34	0.795	131
3x35+3x(1,5STKON+16/3KON)	8.4	42	45	3,150	1,575	310	0.33	0.565	162
3x50+3x(1,5STKON+25/3KON)	10.1	45.7	48.7	3,950	2,250	360	0.31	0.393	202
3X70+3X(1,5STKON+35/3KON)	11.9	50.9	54.9	5,000	3,150	420	0.3	0.277	250
3X95+3X(1,5STKON+50/3KON)	14	58.2	62.2	6,310	4,275	450	0.29	0.21	301
3X120+3X(1,5STKON+70/3KON)	15.5	60.1	64.1	7,690	5,400	490	0.28	0.164	352
3X150+3X(1,5STKON+70/3KON)	17.2	65.6	69.6	9,150	6,750	540	0.28	0.132	404
3X185+3X(1,5STKON+95/3KON)	19.1	69.7	73.7	10,800	8,325	590	0.27	0.108	461
3X240+3X(1,5STKON+120/3KON)	22	78.9	82.9	13,940	10,800	670	0.26	0.0817	540
3X300+3X(1,5STKON+150/3KON)	24.8	83.4	88.4	17,000	13,500	740	0.25	0.0654	620
3X95+3X(2X1,5ST+3X50/3KON)	14	57.2	62.2	6,350	4,275	450	0.29	0.21	301
3X120+3X(2X1,5ST+3X70/3KON)	15.5	62.8	66.8	7,950	5,400	490	0.28	0.164	352
3X150+3X(2X1,5STKON+3X-70/3KON)	17.2	66.2	70.2	9,100	6,750	540	0.28	0.132	404
3X185+3X(2X1,5ST+3X95/3KON)	19.1	70.4	74.4	10,750	8,325	590	0.27	0.108	461
3X240+3X(2X1,5ST+3X120/3KON)	22	78.9	82.9	13,650	10,800	670	0.26	0.0817	540

PROTOMONT (Z)

NSSHKCGEOEU | 1 KV

Used as power supply connection cable for mobile equipment in underground machine applications, such ascoal shearer, roadheader, TBM`s or scoops (LHDs). (Z)-Coal-Cutter cables are designed for free trailing operation and due to their special construction may be trailed for considerable distances behind the machine during operation.

STANDARDS / APPROVALS

DIN VDE 0250-812	General
DIN VDE 0298-4	Electrical parameters
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
BAS Bosnia-Herzegovina	Certifications / Approvals
EAC	Certifications / Approvals
MSHA P-189-4	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-20 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	10 °/m
Permanent tensile strength (rule)	40 N/mm² (min. Breaking load of steel braid: 45kN)
Travel speed	150 m/min
Bending radius (rule)	Acc. to DIN VDE 0298 part 3

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Test voltage	3 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	1,000 V

1 Very finely stranded copper, tinned, class FS
2 PE: Double-concentric control/PE wire spinning in the outer interstice
2 Semi-conductive EPR
3 EPR rubber PROTOLON Special compound 3GI3
5 Three main cores laid-up, with double concentric control/PE and FO/PE conductor in the outer interstices Core identification: Power cores in natural color Control cores: Blue
6 Semi-conductive NBR easy strip
7 EPR rubber Special EPR compound GM1b
8 Galvanized Steel Braiding
9 Rubber - polychloroprene (PCP) PROTOFIRM Special compound 5GM5

COAL CUTTER CABLES FOR TRAILING OPERATIONS

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Ø conductor	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT(Z) NSSHKCGEOEU 0.6/1KV									
3x25+3x(1,5ST-KON+16/3KON)	7.1	39.2	42.2	2,700	3,000	370	0.33	0.795	131
3x35+3x(1,5ST-KON+16/3KON)	8.4	40.8	43.8	3,100	4,200	420	0.3	0.565	162
3x50+3x(1,5ST-KON+25/3KON)	10.1	46.2	49.2	4,000	6,000	450	0.28	0.393	202
3x70+3x(1,5ST-KON+35/3KON)	11.9	49.6	53.6	5,100	8,400	520	0.27	0.277	250
3x95+3x(1,5ST-KON+50/3KON)	14	56.8	60.8	6,700	11,400	550	0.27	0.21	301
3x120+3x(1,5ST-KON+70/3KON)	15.5	60.6	64.6	8,000	14,400	590	0.26	0.164	352
3x150+3x(1,5ST-KON+70/3KON)	17.6	67	71	9,740	18,000	610	0.26	0.132	404
3x150+3x(2x1,5ST-KON+70/3KON)	17.6	67	71	9,750	18,000	610	0.26	0.132	404
3x185+3x(1,5ST-KON+95/3KON)	19.1	72	76	11,500	22,200	630	0.26	0.108	461
3x240+3x(1,5ST-KON+120/3KON)	22	80.4	85.4	14,600	28,800	670	0.25	0.0817	540
3x300+3x(1,5ST-KON+150/3KON)	24.8	89.1	94.1	18,700	36,000	700	0.25	0.0654	620

PROTOMONT (S)

(N)SSHCGEOEU | 1 KV

For frequently changing dynamic loads, such as reeling cables for scoops (LHDs) in underground mines, suitable for mono-spiral reels and cylincrical reels. High tensile strength through central reinforcement element and very high abrasion and tear resistance of the outer sheath.

STANDARDS / APPROVALS

Based on DIN VDE 0250-812	General
MA China	Certifications / Approvals
EAC	Certifications / Approvals
DIN VDE 0298-4 E	lectrical parameters
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
Reversed bending; roller bending; torsional stress	Mechanical parameters

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	50 °/m
Permanent tensile strength (rule)	30 N/mm²
Travel speed	160 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D
20 X D min distance with S-type directional changes	

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Also permitted for Uo/U = 640/1140V	
Test voltage	3 kV
AC test voltage (control cores)	2 kV

1 Very finely stranded copper, tinned, class FS
PE: Double concentric control/earth wire spinning in outer interstices

2 EPR rubber
Special compound 3GI3

3 Three main cores stranded with three control/earth cores in outer interstices
Central support element made of aramid yarns embedded in cradle separator
Core identification: Black, Brown, Grey

4 Three control/earth cores in outer interstices

5 EPR rubber
Special compound GM1b

6 Polyester Braiding

7 Rubber - polychloroprene (PCP)
Special compound 5GM5

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Bending radius moving (min)	Bending radius fix (min)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self inductance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT (S) (N)SSHCGEOEU 0.6/1KV											
3x16+3x(1,5STKON +10/3KON)	5.8	31.1	34.4	138	138	1,850	1,440	500	0.3	1.24	99
3x25+3x(1,5STKON +16/3KON)	7.3	36.3	39.3	157	157	2,540	2,250	520	0.29	0.795	131
3x35+3x(1,5STKON +16/3KON)	8.4	41.2	44.2	177	177	3,130	3,150	600	0.28	0.565	162
3x50+3x(1,5STKON +25/3KON)	10.3	44.5	47.5	190	190	3,800	4,500	610	0.27	0.393	202
3x70+3x(1,5ST-KON+35/3KON)	12	47.3	50.3	201	201	4,500	6,300	700	0.26	0.277	250
3x95+3x(1,5ST-KON+50/3KON)	14	54.8	58.8	235	235	5,300	8,550	720	0.26	0.21	301
3x120+3x(1,5ST-KON+70/3KON)	15.8	58.7	62.7	251	251	6,100	0,800	790	0.25	0.164	352

CORDAFLEX (S)

NSHTOEU | 1 KV

For frequently changing dynamic loads, such as reeling cables for scoops (LHDs) in underground mines, suitable for mono-spiral reels and cylindrical reels.

STANDARDS / APPROVALS

DIN VDE 0250-814	General
MSHA P-189-3	Certifications / Approvals
EAC	Certifications / Approvals
DIN EN 60332-1-2 / DIN EN 60332-3-24	Fire performance
DIN VDE 0298-4	Electrical parameters
Reversed bending; roller bending; torsional stress	Mechanical parameters
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Torsional stress +/-	25 °/m
Permanent tensile strength (rule)	30 N/mm²
Travel speed	max. 160 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	5 x D flexible operation
	20 x D min distance with S-type directional changes

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
	Also permitted for Uo/U = 640/1140V
Test voltage	2.5 kV

1 Very finely stranded copper conductor, tinned, class FS
2 Cores laid up around central support element made of armid yarns with rubber covering. Power cores: Black, Grey, Brown or natural coloring with black numbers; PE: Green-Yellow
3 EPR rubber Special compound 3GI3
5 Rubber - polychloroprene (PCP) PROTOFIRM Special compound 5GM5
6 Polyester braiding
7 Rubber - polychloroprene (PCP) PROTOFIRM Special compound 5GM5

LHD-CABLES FOR SCOOP OPERATIONS

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Bending radius moving (min)	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	mm	Ω/km	A
CORDAFLEX (S) NSHTOEU-J 0,6/1KV								
4x16(6kN) OR	5.8	28	31	1,450	1,920		1.24	99
4x25(6kN)	7.3	34	37	2,260	3,000		0.795	131
4x35(12kN)	8.4	38	41	2,930	4,200		0.565	162
4x50(30kN)	10.3	42	44	3,660	6,000		0.393	202
4x70(20kN)	12	48.3	51.3	5,050	8,400		0.277	250
4x95(50kN)	14	51	53	6,030	11,400		0.21	301

TROMMELFLEX-M-PUR

D2X11Y | 1 KV

TROMMELFLEX-M-PUR is a flexible low voltage reeling cable with optimized dimensions and flame retardant, halogen-free polyurethane outer sheath. The cable is used as power supply for underground mining and tunnelling equipment and designed for frequently changing dynamic loads, such as reeling operation on drilling machines, scoops and LHD's. Suitable to withstand the high mechanical stresses caused by reeling application and the abrasion to be expected in trailing operation.

STANDARDS / APPROVALS

DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-300	Core identification
IEC 60502-1	Compound
DIN VDE 0298-4	Electrical parameters
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-30 °C
Ambient temperature flexible installation (max)	80 °C

CHEMICAL PARAMETERS

Halogen free	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Max. water depth	10 m

MECHANICAL PARAMETERS

Torsional stress +/-	50 °/m
Permanent tensile strength (rule)	20 N/mm²
Travel speed	Reeling operation underground: 60 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	8 x D reeling operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Test voltage	2.5 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	1,000 V

1 Finely stranded copper, bare, class 5
2 XLPE
5 Three main conductors laid-up together with split earth conductor and control cores in the interstices. Cores twisted with very short length of lay
Main cores: brown, black, grey
Control cores: blue, white
6 Halogenfree polymer
7 Polyurethane (PUR)

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Bending radius moving (min)	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	mm	Ω/km	A
TROMMELFLEX-M-PUR D2X11Y 0.6/1KV								
3x25 + 3G6 + 2x1	6.2	22.5	24	1,130	1,500	192	0.78	131
3x35 + 3G6 + 2x1,5	7.8	26.5	28	1,530	2,100	224	0. 554	162
3x50 + 3G10 + 2x1,5	9.6	30	32	2,160	3,000	256	0.386	202
3x70 + 3G16 + 2x1,5	11.1	35	37	3,050	4,200	296	0.272	250
3x95 + 3G16 + 2x1,5	12.6	39.5	42	3,690	5,700	336	0.206	302
3x120 + 3G25 + 2x1,5	14.8	44	46.5	4,810	7,200	372	0.161	352
3x150 + 3G25 + 2x1,5	16	49	52	5,780	9,000	416	0.129	404
3x185 + 3G35 + 2x1,5	17.7	53.5	56	7,300	11,100	448	0.106	461
3x240 + 3G50 + 2x1,5	20.2	61.5	64.5	9,600	14,400	516	0.0801	540
4x50	9.6	33	35	2,450	4,000	280	0.386	202
4x70	11.1	38.1	40.6	3,300	5,600	325	0.272	250
4G70 + 2x (10x2,5) + 1x (8x1,5)C	11.1	62	66	5,300	5,600	528	0.272	250

TROMMELFLEX-M-PUR BRAIDED

D2X11Y | 1 KV

TROMMELFLEX-M-PUR is a flexible low voltage reeling cable with optimized dimensions and flame retardant, halogen-free polyurethane outer sheath. The cable is used as power supply for underground mining and tunnelling equipment and designed for frequently changing dynamic loads, such as reeling operation on drilling machines, scoops and LHD's. Suitable to withstand the high mechanical stresses caused by reeling application and the abrasion to be expected in trailing operation.

STANDARDS / APPROVALS

DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-300	Core identification
IEC 60502-1	Compound
DIN VDE 0298-4	Electrical parameters
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-30 °C
Ambient temperature flexible installation (max)	80 °C

CHEMICAL PARAMETERS

Halogen free	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Max. water depth	10 m

MECHANICAL PARAMETERS

Torsional stress +/-	50 °/m
Permanent tensile strength (rule)	25 N/mm²
Travel speed	Reeling operation underground: 100 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	8 x D reeling operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Test voltage	2.5 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	1,000 V

2 Finely stranded copper, bare, class 5
3 XLPE
4 Central Aramid carrier element; Three main conductors laid-up together with split earth conductor in the interstices. Cores twisted with very short length of lay
Main cores: brown, black, grey
6 Halogenfree polymer
7 Braiding
8 Polyurethane (PUR)

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Bending radius moving (min)	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	mm	Ω/km	A
TROMMELFLEX-M-PUR D2X11Y 0.6/1KV								
3x25+3G6	6.2	23	25	1,215	1,875	200	0.78	131
3x50+3G10	9.6	30.5	32.5	2,250	3,750	260	0.386	202
3x70+3G16	11.1	35.5	37.5	3,210	5,250	300	0.272	250
3x95+3G16	12.6	39.5	42.5	3,925	7,125	340	0.206	301
3x25+3G6+2X1	6.2	23	24.5	1,243	1,875	196	0.78	131
3x35+3G6+2X1,5	7.8	26.5	28	1,570	2,100	224	0.554	162
3x50+3G10+2X1,5	9.6	30.5	32.5	2,376	3,750	260	0.386	202
3x70+3G16+2X1,5	11.1	35.5	37.5	3,355	5,250	300	0.272	250
3x95+3G16+2X1,5	12.6	40	42.5	4,059	7,125	340	0.206	301
3x120+3G25+2X1,5	14.8	44.5	47	5,291	9,000	376	0.161	352
3x150+3G25+2X1,5	16	49.5	52.5	6,358	11,250	420	0.129	404
3x185+3G35+2X1,5	17.7	54	56.5	8,030	13,875	452	0.106	461
3x240+3G50+2X1,5	20.2	62	65	10,560	18,000	520	0.0801	540
4x16	5.1	22	23.5	900	1,600	188	1.21	99

TUNNELFLEX-PUR HF

WITHOUT ANTITWISTING PROTECTION | 1 KV

Power supply to mobile equipment with high risk of mechanical damage in mining and tunneling. TUNNELFLEX/PUR HF cable, due to without anti-twisting protection, is suitable for application where it is deflected in one plane only. Maximum speed 60 m/min.

STANDARDS / APPROVALS

DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-300	Core identification
IEC 60754-1	Halogen-free
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-30 °C
Ambient temperature flexible installation (max)	80 °C

CHEMICAL PARAMETERS

Fire behaviour	Yes
Flame retardant	In accordance with EN/IEC 60332-1-2
Halogen free	Yes

MECHANICAL PARAMETERS

Travel speed	60 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	6 x D fixed installation
	10 x D on drums

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Max. operating voltage Um	1.2 kV
Test voltage	3.5 kV

1 Plain copper, flexible, class 5
2 XLPE special compound Brown - Black - Grey
3 Phase cores laid up with earth cores in the inter-stices
4 Conductor: Plain copper, flexible, class 5
5 optional without control cores
6 HFFR* thermoplastic polyurethane compound
7 HFFR* thermoplastic polyurethane compound, abrasion, tear, oil & chemical resistant

* halogen free and flame retardant

HALOGEN-FREE LOW VOLTAGE POWER CABLES FOR MOBILE APPLICATIONS

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Bending radius fixed (min)	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	mm	A
TUNNELFLEX-PUR HF-0.6/1KV							
4G10	4.0	18.0	20.0	580	800	120	74
4G16	5.1	20.0	22.0	870	1280	132	99
3x25+3G6	6.5	22.5	24.0	1120	1500	144	131
3x35+3G6	7.5	25.5	28.0	1490	2100	168	162
3x50+3G10	9.1	29.5	32.0	2100	3000	192	202
3x70+3G16	10.8	34.0	37.0	2960	4200	222	250
3x95+3G16	12.1	37,5	40,5	3640	5700	243	301
3x120+3G25	14.3	42.0	45.0	4750	7200	270	352
3x150+3G25	16.1	47.5	50.5	5740	9000	303	404
3x185+3G35	17.5	52.0	55.0	6960	11100	330	461
3x240+3G50	19.9	58.0	61.0	9130	14400	366	540
TUNNELFLEX-R-PUR HF-0.6/1KV WITH CONTROL CORES							
3x25+3G6+2x1	6.5	22.5	24.0	1150	1500	144	131
3x35+3G6+2x1,5	7.5	26.0	28.0	1530	2100	168	162
3x50+3G10+2x1,5	9.1	29.5	32.0	2130	3000	192	202
3X70+3G16+2x1,5	10.8	34.0	37.0	2990	4200	222	250
3x95+3G16+2x1,5	12.1	37.5	40.5	3670	5700	243	301
3X120+3G25+2x1,5	14.3	42.0	45.0	4780	7200	270	352
3x150+3G25+2x1,5	16.1	47.5	50.5	5780	9000	303	404
3X185+3G35+2x1,5	17.5	52.0	55.0	7000	11100	330	461
3X240+3G50+2x1,5	19.9	58.0	61.0	9170	14400	366	540

TUNNELFLEX-R-PUR HF

WITH ANTITWISTING PROTECTION | 1 KV

Power supply to mobile equipment with high risk of mechanical damage in mining and tunneling.
Maximum speed 120 m/min.

STANDARDS / APPROVALS

DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-300	Core identification
IEC 60754-1	Halogen-free
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-30 °C
Ambient temperature flexible installation (max)	80 °C

CHEMICAL PARAMETERS

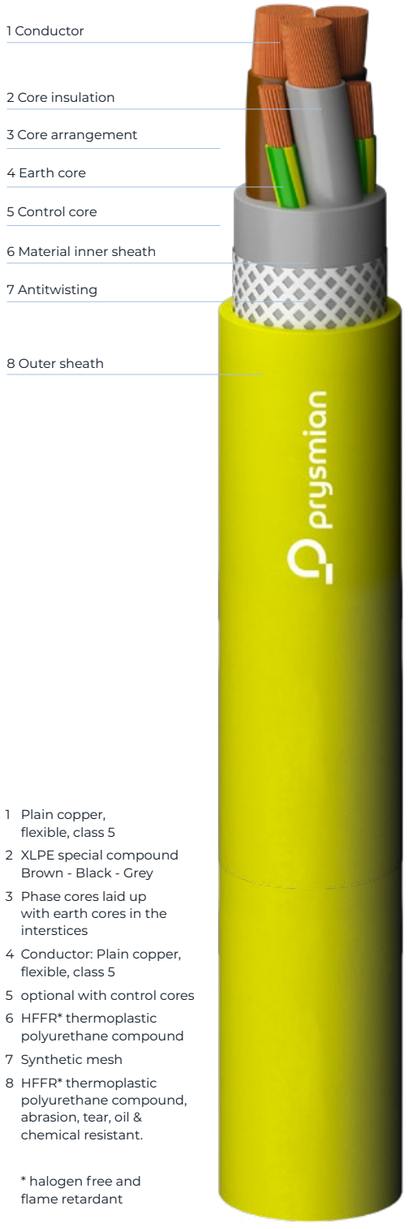
Fire behaviour	Yes
Flame retardant	In accordance with EN/IEC 60332-1-2
Halogen free	Yes

MECHANICAL PARAMETERS

Travel speed	120 m/min
Bending radius (rule)	
Acc. to VDE 0298-3:	6 x D fixed installation 10 x D on drums

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
Max. operating voltage Um	1.2 kV
Test voltage	3.5 kV



1 Plain copper, flexible, class 5
2 XLPE special compound Brown - Black - Grey
3 Phase cores laid up with earth cores in the interstices
4 Conductor: Plain copper, flexible, class 5
5 optional with control cores
6 HFFR* thermoplastic polyurethane compound
7 Synthetic mesh
8 HFFR* thermoplastic polyurethane compound, abrasion, tear, oil & chemical resistant.

* halogen free and flame retardant

HALOGEN-FREE LOW VOLTAGE POWER CABLES FOR MOBILE APPLICATIONS

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Bending radius fixed (min)	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	mm	A
TUNNELFLEX-R-PUR HF-0.6/1KV							
4G10	4.0	18.5	20.5	630	800	123	74
4G16	5.1	21.5	23.5	930	1280	141	99
3x25+3G6	6.5	24.5	26.5	1240	1500	159	131
3x35+3G6	7.5	26.0	28.5	1520	2100	171	162
3x50+3G10	9.1	30.0	32.5	2130	3000	195	202
3x70+3G16	10.8	34.0	37.0	3000	4200	222	250
3x95+3G16	12.1	37,5	40,5	3710	5700	243	301
3x120+3G25	14.3	42.5	45.5	4830	7200	273	352
3x150+3G25	16.1	47.5	50.5	5830	9000	303	404
3x185+3G35	17.5	52.0	55.0	7050	11100	330	461
3x240+3G50	19.9	58.0	61.0	9240	14400	366	540
TUNNELFLEX-R-PUR HF-0.6/1KV WITH CONTROL CORES							
3x25+3G6+2x1	6.5	25,5	28.0	1260	1500	168	131
3x35+3G6+2x1,5	7.5	26.5	29.0	1560	2100	174	162
3x50+3G10+2x1,5	9.1	30.0	32.5	2160	3000	195	202
3X70+3G16+2x1,5	10.8	34.0	37.0	3030	4200	222	250
3x95+3G16+2x1,5	12.1	37.5	40.5	3740	5700	243	301
3X120+3G25+2x1,5	14.3	42.5	45.5	4860	7200	273	352
3x150+3G25+2x1,5	16.1	47.5	50.5	5860	9000	303	404
3X185+3G35+2x1,5	17.5	52.0	55.0	7080	11100	330	461
3X240+3G50+2x1,5	19.9	58.0	61.0	9270	14400	366	540

PROTOMONT FESTOON

NTSKCGECWOEU | 6 KV

As power feeder cable in underground mines and in tunnel sites. The cables are used in underground festoon systems for the power supply of mobile transformer and shiftable units in underground mining applications.

STANDARDS / APPROVALS

DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-4	Electrical parameters
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
GOST -R/-K/-B Fire Certificate of Russian Federation	Certifications / Approvals
WUG Poland (6kV only)	Certifications / Approvals
MA China	Certifications / Approvals
BAS Bosnia-Herzegovina	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	
Acc. to VDE 0298-3:	6 x D fixed installation 10 x D flexible operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	3.6/6 (7.2)) kV
Test voltage	11 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	6,000 V

1 Finely stranded copper, tinned, class 5
2 Semi-conductive EPR
3 Concentric spinning of copper wires over each control core and FO element in the outer interstices
4 EPR rubber PROTOLON Special compound 3GI3
5 Three main cores laid-up, with double concentric control/PE and FO/PE conductor in the outer interstices Core identification: Power cores in natural color Control cores: Blue
6 Semi-conductive NBR easy strip
7 EPR rubber Special compound GM1b
8 Spinning of steel/Cu-tinned wires
9 Rubber - polychloroprene (PCP) PROTOFIRM Special compound 5GM5

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT FESTOON NTSKCGECWOEU 3.6/6KV									
3x35+3x(1,5ST-KON+25/3KON)+6UELKON	8.2	47.6	50.6	3,870	1,575	280	0.3	0.565	162
3x50+3x(1,5ST-KON+25/3KON)+6UELKON	9.8	50.6	54.6	4,600	2,250	330	0.29	0.393	202
3x70+3x(1,5ST-KON+35/3KON)+6UELKON	11.3	55	59	5,640	3,150	370	0.28	0.277	250
3x95+3x(1,5ST-KON+50/3KON)+6UELKON	13.4	60.3	64.3	6,910	4,275	420	0.27	0.21	301
3x120+3x(1,5ST-KON+70/3KON)+6UELKON	15.1	65.8	69.8	8,410	5,400	460	0.26	0.164	352
3x150+3x(1,5ST-KON+70/3KON)+6UELKON	16.8	69.7	73.7	9,700	6,750	510	0.25	0.132	404
3x185+3x(1,5ST-KON+95/3KON)+6UELKON	18.2	72.8	76.8	12,770	8,325	590	0.25	0.108	461
3X35+3X(2x-1,5ST+25/3KON)+6UELKON	8.2	49.4	53.4	4,230	1,575	280	0.3	0.565	162
3X50+3X(2x-1,5ST+25/3KON)+6UELKON	9.8	53.7	57.7	5,110	2,250	330	0.29	0.393	202
3X70+3X(2x-1,5ST+35/3KON)+6UELKON	11.3	55.8	59.8	5,810	3,150	370	0.28	0.277	250
6X35+6X35/6E+1X(6X-1,5ST)+UELKON	8.2	60.2	64.2	6,180	3,150	340	0.44	0.565	110
6X50+6X50/6E+1X(6X-1,5ST)+UELKON	9.8	67.2	71.2	7,870	4,500	450	0.39	0.393	137
6X70+6X70/6E+1X(6X-1,5ST)+UELKON	11.3	71.4	75.4	9,670	6,300	580	0.35	0.277	170
6X95+6X95/6E+1X(6X-1,5ST)+UELKON	13.4	80.2	84.2	11,900	8,550	700	0.33	0.21	205

PROTOMONT FESTOON

NTSKCGECWOEU LWL | 6 KV

As power feeder cable in underground mines and in tunnel sites. The cables are used in underground festoon systems for the power supply of mobile transformer and shiftable units in underground mining applications.

STANDARDS / APPROVALS

DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0298-4	Electrical parameters
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
GOST -R/-K/-B Fire Certificate of Russian Federation	Certifications / Approvals
WUG Poland (6kV only)	Certifications / Approvals
MA China	Certifications / Approvals
BAS Bosnia-Herzegovina	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

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

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	
Acc. to VDE 0298-3:	6 x D fixed installation 10 x D flexible operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	3.6/6 (7.2)) kV
Test voltage	11 kV
AC test voltage (control cores)	2 kV
Nominal voltage U	6,000 V

1 Finely stranded copper, tinned, class 5
2 Semi-conductive EPR
3 Concentric spinning of copper wires over each control core and FO element in the outer interstices
4 EPR rubber PROTOLON Special compound 3GI3
5 Three main cores laid-up, with double concentric control/PE and FO/PE conductor in the outer interstices Core identification: Power cores in natural color Control cores: Blue
6 Semi-conductive NBR easy strip
7 EPR rubber Special compound GM1b
8 Spinning of steel/Cu-tinned wires
9 Rubber - polychloroprene (PCP) PROTOFIRM Special compound 5GM5

UNDERGROUND FESTOON CABLE WITH FIBRE-OPTICS

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self induct-ance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT FESTOON NTSKCGECWOEU 3.6/6KV									
3x25+2x((3x1,5ST)+16/3KON)+1X-(6E9LWL+16/3KON)+6UELKON	7	47	51	3,300	1,125	250	0.3	0.795	131
3x35+2x((3x1,5ST)+25/3KON)+1X-(6E9LWL+25/3KON)+6UELKON	8.2	49.4	53.4	4,300	1,575	280	0.3	0.565	162
3x50+2x((3x1,5ST)+25/3KON)1X-(6E9LWL+25/3KON)+6UELKON	9.8	53.7	57.7	5,100	2,250	330	0.29	0.393	202
3x70+2x((3x1,5ST)+35/3KON)+1X-(6E9LWL+35/3KON)+6UELKON	11.3	55.8	59.8	5,800	3,150	370	0.28	0.277	250
3X95+2x((3x1,5ST)+50/3KON)+1X-(6E9LWL+50/3KON)+6UELKON	13.4	60.3	64.3	7,300	4,275	420	0.27	0.21	301
3x120+2x((3x1,5ST)+70/3KON)+1X-(6E9LWL+70/3KON)+6UELKON	15.1	66	70	8,400	5,400	420	0.26	0.164	352
3x150+2x((3x1,5ST)+70/3KON)+1X-(6E9LWL+70/3KON)+6UELKON	6.8	69.7	73.7	9,700	6,750	470	0.25	0.132	404
3x185+2x((3x1,5ST)+95/3KON)+1X-(6E9LWL+95/3KON)+6UELKON	18.2	73	77	12,800	8,325	550	0.25	0.108	461
3x240+2x((3x1,5ST)+120/3KON)+1X-(6E9LWL+120/3KON)+6UELKON	21	81	85	15,800	10,800	600	0.24	0.08	540

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

PROTOMONT

(N)SSHOEU 3E | 1 KV

The cables are suitable for fixed installation and flexible operation as power supply cables to motors, distribution boards, pumps, drilling rigs, etc., for underground mining applications, for tunnel building applications, for open-cast mining applications, for use in quarries and similar applications. Permitted for applications according to DIN VDE 0118.

STANDARDS / APPROVALS

Based on DIN VDE 0250-812	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN VDE 0293-308	Core identification
DIN EN 50363 / DIN VDE 0207-20	Compound
DIN EN 50363 / DIN VDE 0207-21	Compound
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN EN 50525-2-21	Chemical behaviour
DIN VDE 0298-4	Electrical parameters

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

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	Excellent
Max. water depth	2,000 m

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	5 x D flexible operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
	Also permitted for Uo/U = 640/1140V
	Peak voltage 2400 V
Test voltage	3 kV
AC test voltage (control cores)	2 kV

1 Finely stranded copper, bare, class 5
PE: Individual-concentric or overall concentric spinning of bare copper wires

2 EPR rubber
PROTOLON
Special compound 3GI3

3 Three main conductors laid-up with individual concentric protective-earth over the insulation and, where applicable, control cores in the interstices

5 Individual concentric over all concentric spinning of bare copper wires

6 Rubber
Special EPR compound waterproof

7 Chlorinated polyethylene (CM/CPE)
Special compound 5GM5

RUBBER-SHEATHED FLEXIBLE CABLE WITH COPPER CORE SHIELD

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Bending radius moving (min)	Bending radius fix (min)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self inductance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT (N)SSHOEU 3E 0.6/1KV											
3x1,5+3x1,5/3E	1.6	12.5	14.1	71	56	279	68	210	0.33	13.3	23
3x2,5+3x2,5/3E	2	13.6	15.2	76	61	342	113	240	0.32	7.98	30
3x2,5+ 3x2,5/3E +3x1,5ST	2	17.1	19.1	96	76	517	113	240	0.32	7.98	30
3x4+3x4/3E	2.4	16.1	18.1	91	72	484	180	260	0.31	4.95	41
3x4+3x4/3E +3x1,5ST	2.4	17.8	19.8	99	79	588	180	260	0.31	4.95	41
3x6+3x6/3E	2.9	17.4	19.4	97	78	576	270	300	0.29	3.3	53
3x6+3x6/3E +3x1,5ST	2.9	18.4	20.4	102	82	651	270	300	0.29	3.3	53
3x10+3x10/3E	4	20.3	22.3	112	89	831	450	330	0.28	1.91	74
3x10+3x10/3E +3x2,5ST	4	22.1	24.1	121	96	977	450	330	0.28	1.91	74
3x16+3x16/3E	5	23.9	25.9	130	104	1,198	720	400	0.27	1.21	99
3x16+3x16/3E +3x2,5ST	5	23.9	25.9	130	104	1,263	720	400	0.27	1.21	99
3x25+3x16/3E	6.4	27.7	30.7	154	123	1,660	1,125	420	0.26	0.78	131
3x25+3x16/3E +3x2,5ST	6.4	27.7	30.7	154	123	1,710	1,125	420	0.26	0.78	131
3x35+3x16/3E	6.5	30.1	33.1	166	132	2,016	1,575	490	0.25	0.554	162
3x35+3x16/3E +3x2,5ST	7.5	30.1	33.1	166	132	2,070	1,575	490	0.25	0.554	162
3x50+3x25/3E	9	35.9	38.9	195	156	2,878	2,250	510	0.25	0.386	202
3x50+3x25/3E +3x2,5ST	9	35.9	38.9	195	156	2,929	2,250	510	0.25	0.386	202
3x70+3x35/3E	10.7	40.6	43.6	218	174	3,827	3,150	600	0.24	0.272	250
3x70+3x35/3E +3x2,5ST	10.7	40.6	43.6	218	174	3,924	3,150	600	0.24	0.272	250
3X70+3X35/3E +3X(2X1,5ST)	10.7	40.6	43.6	218	174	3,950	3,150	600	0.24	0.272	250
3x95+3x50/3E	12.3	45.5	48.5	243	194	4,936	4,275	610	0.24	0.206	301
3x95+3x50/3E +3x2,5ST	12.3	45.5	48.5	243	194	5,031	4,275	610	0.24	0.206	301
3x120+3x70/3E	14.3	51.9	55.9	280	224	6,415	5,400	700	0.23	0.161	352
3x120+3x70/3E +3x2,5ST	14.3	51.9	55.9	280	224	6,515	5,400	690	0.23	0.161	352
3x150+3x70/3E	16	56.2	60.2	301	241	7,591	6,750	700	0.23	0.129	404
3x150+3x70/3E +3x2,5ST	16	56.2	60.2	301	241	7,412	6,750	700	0.23	0.129	404
3x185+3x95/3E	17.7	62.8	66.8	334	267	9,421	8,325	700	0.23	0.106	461
3x185+3x95/3E +3x2,5ST	17.7	62.8	66.8	334	267	9,510	8,325	700	0.23	0.106	461
3x240+3x120/3E	20.3	69.6	73.6	368	294	11,930	10,800	710	0.22	0.0801	540
3x240+3x120/3E +3x2,5ST	20.3	69.6	73.6	368	294	11,953	10,800	710	0.22	0.0801	540

PROTOMONT EMV-FC

(N)SSHCOEU | 1 KV

The cables are suitable for fixed installation and flexible operation as motor power supply cables for Variable Frequency Drives and Frequency Converter controlled drives in the mining industry, on construction sites and similar applications, with heavy mechanical stresses. For laying on material handling equipment (even with continuous movement such as in cable booms or as connection between upper and lower car). Can be used permanently in waste water up to 40°C at a depth of max. 500m.

STANDARDS / APPROVALS

DIN VDE 0250-812	General
DIN VDE 0207-20 / DIN VDE 0207-21	Compound
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 61034-2 / DIN EN 50267-2-2	Fire performance
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN VDE 0298-4	Electrical parameters
MSHA P-189-3	Certifications / Approvals
EAC	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

CHEMICAL PARAMETERS

Flame retardant	In accordance with EN/IEC 60332-1-2
Halogen free	Yes
Oil resistant	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Sea water resistance	Excellent
Max. water depth	500 m

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	5 x D flexible operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
	Also permitted for Uo/U = 640/1140V
	Peak voltage 2400 V
Test voltage	5 kV
EMC compatibility	Yes

1 Finely stranded copper, tinned, class 5
2 EPR rubber PROTOLON Special compound 3GI3
4 Three main conductors, with split earth in the interstices Core identification: light colored insulation with black numbers for power and control cores, earth conductor green/yellow
5 Tinned Copper Braided
6 Rubber Special EPR compound waterproof
7 EVA rubber Special compound HM4

HALOGEN-FREE FLEXIBLE RUBBER CABLE FOR VFD AND FC

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Bending radius moving (min)	Bending radius fix (min)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self inductance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT EMV-FC (N)SSHCOEU 0.6/1KV											
3x16+3x2,5	5.4	24.4	27.4	137	110	1,200	720	420	0.26	1.24	99
3x25+3x4	6.3	28.2	31.2	156	125	1,710	1,125	420	0.26	0.795	131
3x35+3x16/3	7.5	30.5	33.5	168	134	2,020	1,575	490	0.25	0.565	162
3x50+3x25/3	8.9	36	39	195	156	2,850	2,250	510	0.25	0.393	202
3x70+3x35/3	10.6	41.2	44.2	221	177	3,850	3,150	590	0.24	0.277	250
3x95+3x50/3	12.1	45.7	48.7	244	195	4,810	4,275	600	0.24	0.21	301
3x120+3x70/3	14.1	48.7	52.7	264	211	5,940	5,400	690	0.23	0.164	352
3x150+3x70/3	16	55.7	59.7	299	239	7,270	6,750	700	0.23	0.132	404
3x185+3x95/3	17.8	60.4	64.4	322	258	8,700	9,200	710	0.23	0.108	461
3x240+3x120/3	20.2	68.2	72.2	361	289	11,500	11,500	730	0.23	0.0817	540

PROTOMONT EMV-FC

(N)SHXCOEU | 1 KV

The cables are suitable for fixed installation and flexible operation as motor power supply cables for Variable Frequency Drives and Frequency Converter controlled drives in the mining industry, on construction sites and similar applications, with heavy mechanical stresses. For laying on material handling equipment (even with continuous movement such as in cable booms or as connection between upper and lower car). Can be used permanently in waste water up to 40°C at a depth of max. 500m.

STANDARDS / APPROVALS

DIN VDE 0250-812	General
DIN VDE 0207-20	Compound
DIN VDE 0207-21	Compound
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance
DIN VDE 0298-4	Electrical parameters
MSHA P-189-3	Certifications / Approvals
EAC	Certifications / Approvals

THERMAL PARAMETERS

Max. conductor temperature	90 °C
Max. conductor temperature at short circuit	250 °C
Ambient temperature fix installation (min)	-40 °C
Ambient temperature fix installation (max)	80 °C
Ambient temperature flexible installation (min)	-25 °C
Ambient temperature flexible installation (max)	60 °C

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	Excellent
Max. water depth	500 m

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Bending radius (rule)	
Acc. to VDE 0298-3:	4 x D fixed installation
	5 x D flexible operation

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	0.6/1 (1.2) kV
	Also permitted for Uo/U = 640/1140V
	Peak voltage 2400 V
Test voltage	5 kV
EMC compatibility	Yes

1 Finely stranded copper, tinned, class 5
2 EPR rubber PROTOLON Special compound 3GI3
4 Three main conductors, with split earth in the interstices Core identification: light colored insulation with black numbers for power and control cores, earth conductor green/yellow
5 Tinned copper braided
6 Rubber Special EPR compound waterproof
7 Chlorinated polyethylene (CM/CPE) Special compound 5GM5

FLEXIBLE RUBBER CABLE FOR VFD AND FC

ONLINE DATA SHEET
Here you can find the online data sheet of this product.

CABLE PROPERTIES

Basic construction	Conductor Ø	Cable Ø (min)	Cable Ø (max)	Bending radius moving (min)	Bending radius fix (min)	Cable weight	Max. tensile strength	Nominal operation capacitance	Operation self inductance	Conductor resistance at 20 °C	Current carrying capacity
mm²	mm	mm	mm	mm	mm	kg/km	N	nF/km	mH/km	Ω/km	A
PROTOMONT EMV-FC ((N)SHXCOEU 0.6/1KV											
3x16+3x2,5	5.4	24.4	27.4	137	110	1,190	720	420	0.26	1.24	99
3x25+3x4	6.3	28.2	31.2	156	125	1,680	1,125	420	0.26	0.795	131
3x35+3x16/3	7.5	30.5	33.5	168	134	2,000	1,575	490	0.25	0.565	162
3x50+3x25/3	8.9	36	39	195	156	2,820	2,250	510	0.25	0.393	202
3x70+3x35/3	10.6	41.2	44.2	221	177	3,800	3,150	590	0.24	0.277	250
3x95+3x50/3	12.1	45.7	48.7	244	195	4,760	4,275	600	0.24	0.21	301
3x120+3x70/3	14.1	48.7	52.7	264	211	5,890	5,400	690	0.23	0.164	352
3x150+3x70/3	16	55.7	59.7	299	239	7,230	6,750	700	0.23	0.132	404
3x185+3x95/3	17.8	60.4	64.4	322	258	8,640	8,325	710	0.23	0.108	461
3x240+3x120/3	20.2	68.2	72.2	361	289	11,100	10,800	730	0.23	0.0817	540

GLOBAL REACH, LOCAL EXPERTISE

Different Technologies for Different Challenges

No matter which country you are in, Prysmian offers local solutions and dedicated points of contact to support you.

SOLUTIONS DESIGNED TO MEET LOCAL NEEDS

At Prysmian, we understand that every region comes with its own unique set of challenges. That's why we ensure our portfolio includes tailored solutions, produced locally or sourced from our global Centres of Excellence, to meet the specific demands of each market.

Our approach combines deep local expertise with cutting-edge technology, ensuring that every solution aligns with both regional requirements and global standards. Additionally, we prioritize rapid delivery to keep your operations running smoothly and efficiently, no matter where you are.

HARNESSING THE POWER OF INNOVATION

From locally produced cables to advanced products developed in our global Centres of Excellence, we deliver the best solutions for every application. By leveraging our innovation hubs worldwide, we can address the most complex challenges with precision and reliability.

COMPREHENSIVE SUPPORT, WHEREVER YOU ARE

Prysmian provides end-to-end support to ensure your projects succeed. With a presence in over 50 countries, our global reach and local expertise enable us to respond quickly and effectively to your needs.
We are more than a cable provider—we are your trusted partner for overcoming challenges and achieving success, any time and any place.

CABLES. DELIVERED. NO MATTER WHAT.

Navigating the New Landscape of Global Trade

The world of international trade is evolving rapidly. New policies, like the Built America Buy America Act, Chinese market regulations, or rising international trade tariffs, present challenges for businesses worldwide. Despite these changes, our customers can rest assured that they will continue to receive our high-quality cable products without disruption.

With our global presence and local production facilities, we are fully prepared to adapt to new market demands – no matter where you operate. Our worldwide manufacturing and logistics network ensures consistent supply with our high-quality products, always in compliance with regional regulations.
At Prysmian, we believe that new trade regulations shouldn't hinder your access to the world's best cable solutions. We're here to support you every step of the way.

Because We Care About Cables – and About You

At our Centers of Excellence in Germany, Prysmian offers cutting-edge services for rubber-insulated flexible cables, customized to fit your specific requirements. Our expertise spans three key areas:

Medium & High Voltage Cable Services

Medical & Low Voltage Cable Harnessing

Submersible Pump & Wind Turbine Cable Harnessing

We provide solutions that are not only quick but also crafted with the utmost attention to detail.

> From the start, their expert advice on component selection and system design was invaluable. The entire project was seamless, thanks to their comprehensive approach.

> We rely on Prysmian for regular VLF testing of our critical cable infrastructure. Their testing process is thorough and efficient, and we have complete confidence in the results.

ASSEMBLY & TERMINATION – PERFECT FIT, EVERY TIME

At our Centers of Excellence in Germany or directly on-site, we prepare your special cables (1–66 kV AC) for a seamless connection. Our services are customized to fit your exact requirements, ensuring flawless execution every time:

- **PRECISION SEALING**
  Cast-resin, hybrid, and vulcanization types
- **SPECIAL SEALING ENDS**
  Tailored to your needs
- **PLUG-ON SEALING ENDS**
  Medium and low voltage, with fiber optics

FIBER-OPTIC MEASUREMENTS – PRECISION YOU CAN TRUST

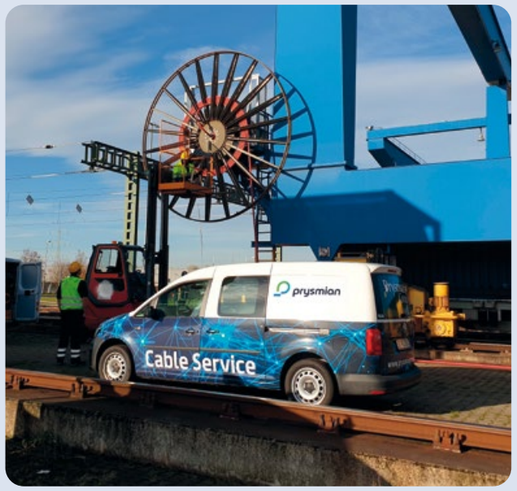
We offer a comprehensive suite of fiber-optic measuring methods to guarantee precision and accuracy:

- **VISUAL INSPECTIONS**
  Thorough assessment of every fiber
- **ATTENUATION MEASUREMENT**
  Across various wavelengths
- **FAULT LOCATION**
  Through OTDR reflectometry
- **ADVANCED MONITORING**
  Temperature and stress tracking with Brillouin frequency measurement

VLF-TESTING TECHNOLOGY – ENERGIZED AND SECURE

Our portable VLF-Testing System ensures your cable infrastructure is safe and reliable. Using a voltage waveform recommended by DIN VDE standards, we provide on-site testing that meets the highest safety benchmarks:

- **UP TO 60 kV VLF CR**
- **0.1 Hz TEST FREQUENCY**
- **MAX. TESTING LENGTHS:**
  240 mm² cables up to 5 km



CUSTOMIZED SYSTEM CONCEPTS – BUILT RIGHT FROM THE START

From the initial planning phase, our team is ready to support you. We provide expert advice on component selection, assembly configurations, and termination methods. If needed, we can supply all necessary components and manage sub-projects to ensure everything aligns perfectly with your goals.

FIBER-OPTIC PREASSEMBLY & CONNECTION – EXPERTISE IN ACTION

Our specialists develop and configure fiber-optic cable systems for industrial applications, offering:

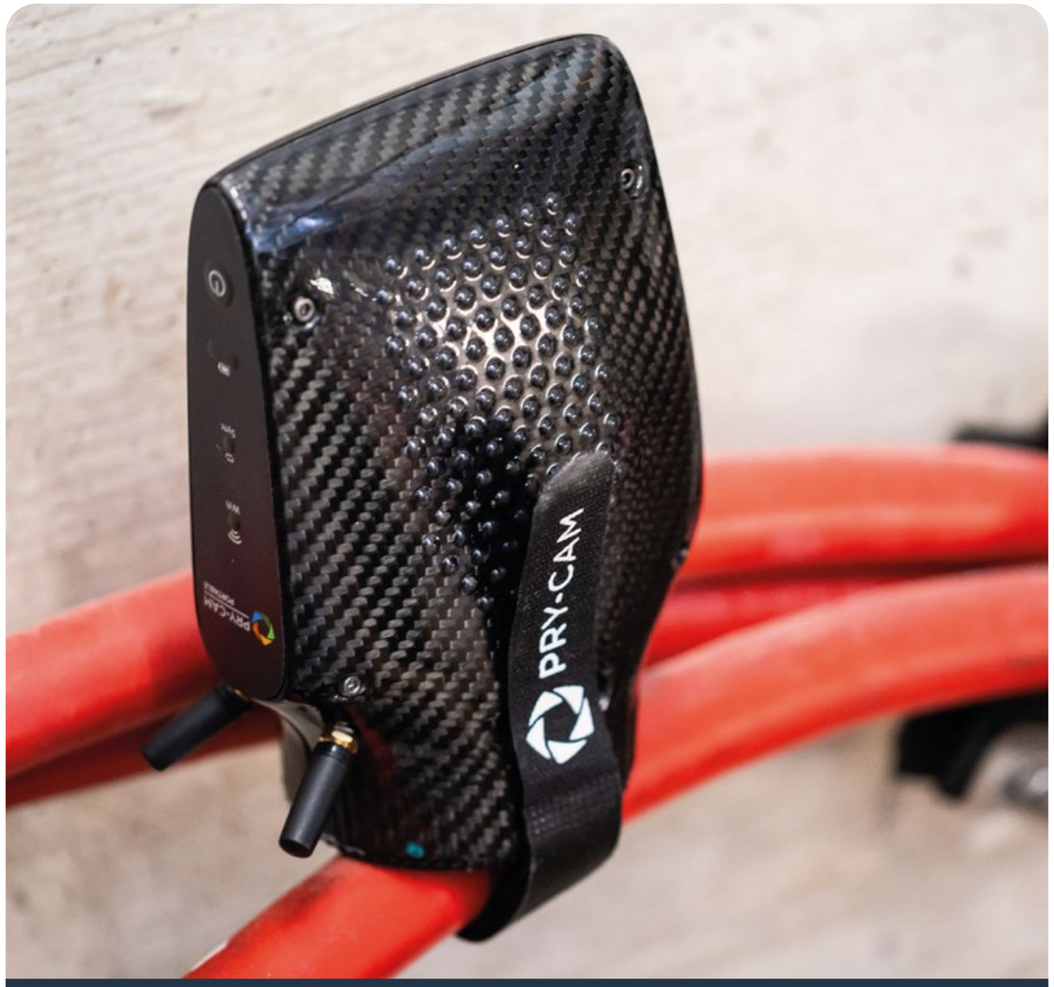
- **HIGH MECHANICAL STRENGTH**
- **MOISTURE PROTECTION**
- **SLEEK, COMPACT DESIGN**
- **OPTIONS FOR FIBER NUMBERS:**
  6, 12, 18, or 24

We also connect fiber-optic cables and combined cables with integrated optical fibers, using the latest techniques like fusion splicing, ensuring reliable and precise connections.

REPAIR & CONNECTION – FAST, RELIABLE, AND COST-EFFECTIVE

When your cables suffer damage, whether minor or major, we are here to help – quickly and affordably. We repair rubber-insulated flexible cables on-site or at our facilities, using original materials and proven technology. Our expert fitters ensure that your cables remain fully operational.

If you prefer to handle repairs yourself, we provide all necessary original materials in convenient installation sets, ensuring your cables are correctly connected using shrink-on, cast-resin, or vulcanization methods.



PRY-CAM ASSET MONITORING SYSTEM

Unlocking the Power of Data-Driven Efficiency

In port infrastructure, the reliability and safety of electrical systems are crucial. Ports are especially vulnerable to disruptions from power outages or malfunctions, leading to significant risks and economic losses.

PRY-CAM: REVOLUTIONIZING POWER MANAGEMENT

PRY-CAM is a groundbreaking technology for electrical system monitoring and condition assessment. It provides online, accurate, and reliable measurements, diagnosing and localizing defects remotely. This results in enhanced grid reliability, safety, and cost efficiency for port infrastructure.

Key Features

- **ADAPTABLE PLATFORM**
  Compatible with various SCADA protocols, customizable to customer requirements.
- **COMPREHENSIVE COVERAGE**
  Suitable for electrical equipment from 3 kV to 600 kV, including cables, transformers, and switchgear.
- **INTEGRATED MONITORING**
  Continuous or temporary monitoring of key parameters like partial discharge, temperature, and humidity.
- **FLEXIBLE SOLUTIONS**
  Configurable for specific maintenance and asset management strategies.
- **REAL-TIME DATA**
  Monitoring conditions, malfunctions, and overheating without the need for specific expertise.
- **ADVANCED TECHNOLOGY AND DATABASE**
  Harnessing IoT and a cloud-based system with over three million measurements for effective monitoring and continuous improvement.

Discover more at www.pry-cam.com

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