

Chill out!

Our Arctic Mining cables will never freeze.



The planet's pathways



Our Arctic Mining cables will never freeze.

With a specially developed inner and outer sheath material, our Arctic Mining cables are fit to operate in a fully flexible operation mode down to -50°C . And even more important: without any limitation in the travelling speed, bending radii or tensile force required by your reeling, trailing or dredging application. Rest assured, our cables will stand steadfast as the arctic winds cover everything in ice.



Hardwearing

Superior impact and abrasion resistance, in cold as well as in warm ambient conditions.



Great longevity

The mix of quality components increase the service life, even in very cold environments.



Flexible

Very pliable and easy to work with, also in low temperatures.



Continues to work
flawlessly down to

-50°C



Impervious

Resistant to oil, ozone,
UV, moisture and water.



Top performing

First-rate mechanical and
electrical characteristics.



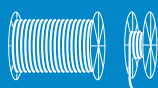
Double function

Provides both electricity
and digital information.

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LV REELING



CORDAFLEX (SMK) (N)SHTOEU

0.6/1 kV



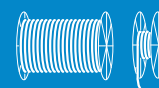
Flexible low voltage reeling cable for power supply of large material handling machines, e.g. gantry cranes or bulk-handling. Suitable for application under high and very high mechanical stresses. Available with integrated fibre optics and/or shielded control cores.

- Excellent **impact** and **abrasion resistance** in cold and warm conditions
- **Outstanding flexibility** also at very low temperatures
- **Resistant** to **oil, ozone, UV, moisture** and **water**
- Superior tensile load capacity of **30 N/mm²** on the conductors
- Winding speed: **240 meters per minute**



More info

LV REELING



TROMMELFLEX-M-PUR D2X11Y

0.6/1 kV



TROMMELFLEX-M-PUR is the best reeling cable for underground mining and tunneling equipment. It is specially designed for frequently changing dynamic loads such as reeling operations including drilling machines, scoops and LHD's.

- Suitable for **underground reeling operations** at the speed of 60 m/min
- Equipped with **flame retardant, halogen-free polyurethane** inner and outer sheath for rough environments
- Highly **flexible and lightweight**
- Very short length of lay for **greater reeling performances**



More info

VARIABLE FREQUENCY DRIVES



PROTOMONT EMV-FC (N)SSHCOEU

0.6/1 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, for laying on material handling equipment (even with continuous movement such as in cable booms or as connection between upper and lower car).

- **Outstanding EMC shielding** thanks to the metallic screen with >90% coverage
- Available as **single** and **multi-core** version
- **Water resistant** up to a depth of 500 m
- **Resistant** to **oil, ozone, UV** and **moisture**



More info

MV REELING



PROTOLON (M) R-(N)TSCGEWOEU

3.6/6 – 20 kV



For connection of large material handling machines such as excavators, dumpers, mobile crushers in open-cast mines. Flexible MV reeling cable suitable for high mechanical stresses in conjunction with mono-spiral reels and cylindrical reels, suitable for fully flexible operation.

- Available with **integrated fibre optics and/or shielded control cores**
- Reeling speed: **120 meters per minute**
- **Resistant** to **oil, ozone, UV, moisture** and **water**
- Outstanding **flexibility in cold and warm conditions**



More info

MV TRAILING



PROTOLON(SB) NTSCGEWOEU

3.6/6 – 20 kV



Medium voltage power supply or connection cable for large material handling machines, e.g. excavators in open-cast mines subject to extremely high mechanical stresses in which abrasion and chaffing stresses are to be expected in trailing operation, suitable for fully flexible operation.

- **Robust** rubber outer sheath
- **Tough** against **abrasion and tearing**
- **Resistant** to **UV, ozone, oil and moisture**



More info

MV TRAILING



TENAX-SAS NTSCGEWOEU

3.6/6 – 20 kV



Medium voltage power supply cable to large mobile equipment in mines subject to extremely high mechanical stresses. Trailing cable for use with shovels and draglines in trailing and reeling applications for fully flexible operation.

- **Very robust** rubber outer sheath
- **Resistant** to **UV, ozone, oil and moisture**
- **Tough** against **abrasion and tearing**
- Suitable for **trailing and reeling application**



More info

MV TRAILING



TENAX-PUR (N)TSCGEH3S

3.6/6 – 20 kV



Medium voltage trailing cable with PUR outer jacket, for the power supply to large mobile equipment in mines, such as shovels and draglines, suitable for fully flexible operation.

- **Extremely robust** PUR outer sheath
- **Resistant** to **UV, ozone, oil and moisture**
- **Tough** against **abrasion and tearing**
- **Polyurethane** outer sheath available in **orange, yellow or other colours**



More info

MV TRAILING



TENAX-LUMEN (N)TSCGEH3S

3.6/6 – 20 kV



The TENAX-LUMEN is intended as trailing cable for the power supply to large mobile equipment in mines, such as shovels and draglines. Especially intended for application where, to guarantee the safety of personnel and equipment, the cable must be visible in the dark.

- Brightly **self-luminous** in dark areas
- Excellent **impact** and **abrasion resistant**
- **Resistant** to **UV, ozone, oil and moisture**
- **Transparent polyurethane** outer sheath
- Active **illuminating elements** inside

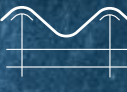
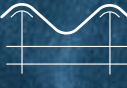


More info



Applications overview

Open cast

Application group		Product name	Designation	Description
REELING CABLES				
		CORDAFLEX (SMK)	(N)SHTOEU	LV reeling cable
		PROTOLON (M) with FO	R-(N)TSCGEWOEU	MV reeling cable with integrated fibre optic
		PROTOLON(IQ)	(N)TSKCGEWOEU	MV reeling cable with embedded sensor
MEDIUM VOLTAGE TRAILING CABLES				
		TENAX-SAS	NTSCGEWOEU	MV trailing cable abrasion and cold resistant (-50°)
		PROTOLON(SB)	NTSCGEWOEU / NTSCGECEWOEU	MV trailing cable with or without metallic screen
		TENAX-LUMEN	(N)TSCGEH3S	MV trailing cable with self-illuminating function
		TENAX-PUR	(N)TSCGEH3S	MV trailing cable abrasion and cold resistant (-50°)
MEDIUM VOLTAGE DREDGING CABLES				
		PROTOLON(ST).../3E	NTSCGEWOEU	MV water resistant cable with individual concentric earth
		PROTOLON(ST)	NTSCGEWOEU	MV water resistant cable with earth into interstices
CABLES FOR SEMI-FLEXIBLE INSTALLATION				
  		PROTOLON(M)	F-(N)TSCGEWOEU	MV cable for semi-flexible use
		PROTOMONT	NSSHOEU	LV cable for semi-flexible use, water resistant
		PROTOMONT	NSHXOEU	LV cable for semi-flexible use, LSOH
		PROTOMONT(MT)	(N)SSHOEU	LV cable for semi-flexible use, with optimized dimensions
		PROTOMONT EMV-FC	(N)SSHCOEU	LV screened cable EMC compliant for VFD
		PROTOMONT EMV-FC (-50°C)	(N)SSHCOEU	LV screened cable EMC compliant for VFD, cold-resistant
MEDIUM VOLTAGE SINGLE CORE CABLES				
 		FELTOFLEX	NTMCWOEU	MV single-core cable with cold removable semi-con. layer
		PROTOLON	NTMCGCWOEU	MV single-core cable
		PROTOLON(M)	(N)TMCGCWOEU	MV single-core cable with optimized dimensions
CONTROL AND SIGNALLING CABLES				
		OPTOFLEX(M)	G62.5/125, G50/125, E9/125	Flexible fibre optic cable, also suitable for underground installation
		PROTOMONT(MSR)	2YSLGCGOEU	Rubber sheathed screened data cable, also suitable for underground installation

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Voltage range	Travel speed max.	Tensile force max.	Torsion max.	Sheath quality	Abrasion resistance	Water resistance	S-bendings in operation	Temp. range in fully flexible operation (°C)	Certificate/Approvals
0.6/1 kV	240 m/min	30 N/mm ²	+/- 50 %/m	5GM5	Very good	Good	Multiple planes	-50 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 20/35 kV	120 m/min	25 N/mm ²	+/- 100 %/m	5GM5	Very good	Good	Multiple planes	-50 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 20/35 kV	240 m/min	30 N/mm ²	+/- 100 %/m	5GM5	Very good	Good	Multiple planes	-35 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 12/20 kV	–	25 N/mm ²	+/- 100 %/m	5GM5+	Excellent	Very good	–	-50 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 12/20 kV	–	15 N/mm ²	+/- 100 %/m*	5GM5	Very good	Very good	–	-50 to +80	VDE, MSHA, Gost-R/-K/-B, TR-CU
3.6/6 kV – 12/20 kV	–	25 N/mm ²	+/- 100 %/m	PUR	Very good	Very good	–	-50 to +80	–
3.6/6 – 6/10 kV	–	25 N/mm ²	+/- 100 %/m	PUR	Very good	Very good	–	-50 to +80	–
1.8/3 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	5GM3	Good	Excellent	–	-25 to +80	Gost-R/-K/-B, TR-CU
1.8/3 kV – 18/30 kV	–	15 N/mm ²	+/- 100 %/m	5GM3	Good	Excellent	–	-25 to +80	Gost-R/-K/-B, TR-CU
1.8/3 kV – 18/30 kV	–	15 N/mm ²	+/- 100 %/m	5GM3	Good	Very good	–	-25 to +80	Gost-R/-K/-B, TR-CU
0.6/1 kV	–	15 N/mm ²	+/- 100 %/m	5GM5	Very good	Very good	–	-25 to +80	VDE, MA–China, MSHA, EAC
0.6/1 kV	–	15 N/mm ²	+/- 100 %/m	5GM3 (LSOH)	Good	Very good	–	-25 to +80	–
0.6/1 kV	–	15 N/mm ²	+/- 100 %/m	5GM5	Very good	Very good	–	-25 to +80	VDE
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	Very good	Very good	–	-25 to +80	MSHA, EAC
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	Very good	Very good	–	-50 to +80	MSHA, EAC
3.6/6 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	Very good	Very good	–	-25 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	5GM3	Good	Very good	–	-25 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	5GM3	Good	Very good	–	-25 to +80	Gost-R/-K/-B, TR-CU
–	–	max. 2000 N	+/- 100 %/m	5GM5	Very good	Very good	–	-30 to +80	–
250/250 V	–	max. 15 N/mm ²	+/- 25 %/m	EM2	Good	Good	–	-25 to +60	EAC

* +/- 25 %/m if with metallic screen



Applications overview

Underground/Tunneling

Application		Product name	Designation	Description
LOW AND MEDIUM VOLTAGE SHEARER CABLES				
		PROTOMONT(V)	NSSHCGEOEU	LV chain cable for shearers with double screen techn. and cold removable semi-con. layer
		PROTOMONT(V)	NTSKCGECWOEU	MV chain cable for shearers with double screen techn. and cold removable semi-con. layer
		PROTOMONT(VO)	(N)TSKCGEWÖEU	MV chain cable for shearers with single screen techn. and cold removable semi-con. layer
		TENAX-CTE	NSSHKCGEOEU	LV chain cable for shearers with single screen techn. and semi-con. inner sheath
		PROTOMONT(Z)	NSSHKCGEOEU	LV trailing cable for shearers with double screen techn., cold removable semi-con. layer and steel armour
UNDERGROUND REELING CABLES				
		TENAX-LK	NTSKCGEWÖEU	LV reeling cable with single screen techn. and semi-con. inner sheath
		PROTOMONT(S)	(N)SSHCGEOEU	LV reeling cable with single screen techn. and cold removable semi-con. layer
		CORDAFLEX(S)	NSHTOEU	LV reeling cable for fast-moving LHDs, rubber sheathed
		TROMMELFLEX M-PUR	D2X11Y	LV reeling cable for slow-moving LHDs, PUR sheathed, halogen-free
TBM REELING				
		PROTOMONT TBM	(N)TSCGECWOEU	MV reeling cable for TBMs, with double screen techn. and cold removable semi-con. layer
		PROTOMONT TBM	(N)TSCGECWHX-OEU	MV reeling cable for TBMs, with double screen techn., cold removable semi-con. layer, LSOH
		TENAX-HTT	(N)TSCGEWOEU	MV reeling cable for TBMs, with single screen techn.
CABLES FOR SEMI-FIXED INSTALLATION IN UNDERGROUND MINES AND TUNNELS				
		PROTOMONT (Festoon)	NTSKCGECWOEU	MV cable for semi-flexible use, with double screen techn. and cold removable semi-con. layer
		SUPROMONT	(N)3GHSSYCY	MV armoured cable for fixed installation, with double screen techn. and cold removable semi-con. layer
		SUPROMONT	(N)3GHSSHCH	MV armoured cable for fixed installation, with double screen techn. cold removable semi-con. layer, LSOH
		PROTOMONT(MT)	(N)SSHOEU	LV cable for semi-flexible use, with optimized dimensions
		PROTOMONT/3E	NSSHOEU	LV cable for semi-flexible use with individual concentric earth
		PROTOMONT EMV-FC	(N)SSHCOEU	LV screened cable EMC compliant for VFD
		PROTOMONT EMV-FC (-50°C)	(N)SSHCOEU	LV screened cable EMC compliant for VFD, cold-resistant

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Voltage range	Travel speed max.	Tensile force max.	Torsion max.	Sheath quality	Min. bending radii at		S-bendings in operation	Temp. range in fully flexible operation (°C)	Certificate/Approvals
					max. 5N/mm ²	max. 15N/mm ²			
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	2.3xD	5xD	–	-20 to +80	MA–China, MSHA, EAC, BAS
1.8/3 kV – 3.6/6 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	2.3xD	5xD	–	-20 to +80	MA–China, MSHA, WUG, Gost -R/-K/-B, TR-CU
1.8/3 kV	–	15 N/mm ²	+/- 50 %/m	5GM3	2.3xD	5xD	–	-20 to +80	MA–China, Gost -R/-K/-B
0.6/1 kV	–	15 N/mm ²	+/- 50 %/m	5GM5	2.3xD	5xD	–	-20 to +80	EAC
0.6/1 kV	–	40 N/mm ²	+/- 10 %/m	5GM5	–	5xD	–	-20 to +80	MA–China, MSHA, EAC, BAS
0.6/1 kV	160 m/min	30 N/mm ²	+/- 100 %/m	5GM5	–	6xD	Multiple planes	-25 to +80	EAC
0.6/1 kV	160 m/min	30 N/mm ²	+/- 50 %/m	5GM5	–	6xD	Multiple planes	-25 to +80	MA–China, EAC
0.6/1 kV	160 m/min	30 N/mm ²	+/- 25 %/m	5GM5	–	6xD	Multiple planes	-25 to +80	MSHA, EAC
0.6/1 kV	60 m/min	25 N/mm ²	+/- 50 %/m	PUR (HF)	–	8xD	Single plane	-50 to +60	–
6/10 kV – 18/30 kV	30 m/min	30 N/mm ²	+/- 25 %/m	5GM5	–	12xD	Multiple planes	-20 to +80	Gost-R/-K/-B, TR-CU
6/10 kV – 18/30 kV	30 m/min	30 N/mm ²	+/- 25 %/m	5GM3 (LS0H)	–	12xD	Multiple planes	-20 to +80	Gost-R/-K/-B, TR-CU
6/10 kV – 18/30 kV	30 m/min	15 N/mm ²	+/- 100 %/m	5GM5	–	12xD	Multiple planes	-20 to +80	Gost-R/-K/-B, TR-CU
3.6/6 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	–	Fix 6xD Flex 10xD	–	-25 to +80	MA–China, WUG, BAS, Gost-R/-K/-B, TR-CU
3.6/6 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	PVC YM5	–	Fix 6xD Flex 10xD	–	-5 to +60	VDE
3.6/6 kV – 18/30 kV	–	15 N/mm ²	+/- 25 %/m	HM4 (LS0H)	–	Fix 6xD Flex 10xD	–	-5 to +60	VDE
0.6/1 kV	–	15 N/mm ²	+/- 100 %/m	5GM5	–	Fix 4xD Flex 5xD	–	-25 to +80	VDE
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	–	Fix 4xD Flex 5xD	–	-25 to +80	MA–China, MSHA, EAC, BAS
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	–	Fix 4xD Flex 5xD	–	-25 to +80	MSHA, EAC
0.6/1 kV	–	15 N/mm ²	+/- 25 %/m	5GM5	–	Fix 4xD Flex 5xD	–	-50 to +80	MSHA, EAC





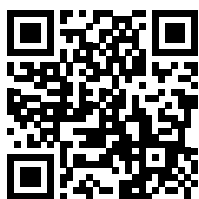
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down to the core.**

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