

Mining / Tunnelling / Bulk Material Handling Cables



Linking the Future

Prysmian Group is world leader in the energy and telecom cable systems industry.

With almost 140 years of experience, sales exceeding €11 billion, about 30,000 employees in over 50 countries and 112 plants, the Group is strongly positioned in high-tech markets and offers the widest possible range of products, services, technologies and know-how.

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

For the telecommunications industry, the Group manufactures cables and accessories for voice, video and data transmission, offering a comprehensive range of optical fibres, optical and copper cables and connectivity systems.

Prysmian is a public company, listed on the Italian Stock Exchange in the FTSE MIB index.



Benefits

Prysmian Group's Mining and Tunnelling cables offer significant benefits to a broad variety of specialized mining professionals such as OEMs, specifiers, contractors, installers, mining companies and more. These benefits include:

Unique Mechanical Performance

Prysmian Group's Mining and Tunnelling cables have been designed to withstand extreme conditions in terms of:

- Tensile loads,
- Torsional stresses occurring during misalignment of cable guidance systems and oblique pay out,
- Minimum bending radius at any ambient temperature range and stress conditions,
- High travel speeds and acceleration.

Chemical and Climate Resistance

Prysmian Group's Mining and Tunnelling cables have been designed to withstand the most severe conditions. For these applications Prysmian has developed the high performance compounds that are used in Mining and Tunnelling cables to guarantee resistance to extreme conditions (such as high-speed, oil and fuel, mud, moisture, and acids and basis), as well as to harsh environments (for instance, extreme low/hot temperature, UV irradiation and ozone).

Customised and Multifunctional Engineering

Prysmian designs, compounds and builds cables according to specific customer needs. This allows us to have an exhaustive product range covering all functionalities (MV/LV, Instrumentation and Control, Optical fibres). Prysmian designs multifunctional cables from the simplest to the most sophisticated.

Longer Lifetime

Prysmian Group's Mining and Tunnelling cables guarantee an extended working lifetime (lower failure rate) in comparison with standard and traditional Mining and Tunnelling cables. As a consequence the total cost of ownership is lower.

Miniaturized

Prysmian Group's Mining and Tunnelling cables have the smallest possible dimensions. For instance, in MV cables:

- Dimension - up to 30% less and yet in strict compliance with the existing standards.
- Weight - higher cable performance allowing up to 40% reduction in the cable weight.
- Robustness - higher physical/mechanical resistance, exceeding standard requirements in terms of abrasion, cut-through and repeated bending.

Applications

Mining



Global growth and infrastructure development depends heavily on mined natural resources such as minerals, metal ores, and coal. Open-cut and underground mining operations require an array of powerful electric machines to do the heavy work and minimize emissions. Specialized energy and data transmission systems must provide safe and reliable power in dusty and sometimes explosive environments, and often must withstand high vibration and G-forces. Due to their enormous size and power, mining machines must work continuously in very demanding conditions, and often require voltages up to 36kV.

Tunnelling



Tunnels for highways, railways, and hydroelectric dams are often dug by a very large electric-powered piece of equipment called a " Tunnel Drilling Machine" - also called a TBM or "mole". When done in hard rock, this type of tunneling is called Mechanized Rock Excavation (MRE). TBMs and MREs require electrical power, as well as compressed air and water for operation and service.

Bulk Material Handling



Although most global trade travels by container, a substantial portion is handled as bulk cargo. Dry bulk cargo facilities process, store, and move a wide range of minerals, ores, agricultural goods, and forest products. Many bulk facilities run 24/7, so the material handling machinery must be heavy-duty, safe, and easy to maintain. Durable and reliable energy and data transmission systems are needed to power stacker / reclaimers, tripper conveyors, ship loaders and unloaders, radial stackers, stack racks, hoppers, and cranes, as well as processing equipment such as crushers and sizers. Electrification must be customized to the type of machine, the application, and the specific material being handled



Our Products and Brands



Product Suitability

	Mining	Tunneling	Bulk Material Handling
Tunnelflex(Std) 0.6/1 kV	X	X	
Tunnelflex-PUR 0.6/1 kV	X	X	
Tunnelflex-R/PUR	X	X	
Tunnelflex MV (No anti twisting protection)- 3.6/6 -12/20kV	X	X	
Tunnelflex MV (Anti twisting protection)- 3.6/6 -12/20kV	X	X	
Panzerflex-ELX MV - 3.6/6 - 12/20kV			X
Panzerflex-ELX MV with fiber optic- 3.6/6 - 12/20kV			X
Panzerflat-ELX MV - 3.6 - 12/20kV	X		X
Panzerflex-L 0.6/1kV	X		X
Festoonflex 0.6/1kV	X		
Custom Design	X	X	X



FG7ORPu-TUNNELFLEX-0,6/1kV

MAIN APPLICATION - Mining / Tunneling

Power supply to mobile equipment with high risk of mechanical damage in mining and tunneling. TUNNELFLEX cable is suitable for application where it is deflected in one plane only.
Maximum speed 60 m/min

CONSTRUCTION

Phase Cores Conductor:	Plain copper, flexible class 5 IEC 60228 special construction for mobile application
Insulation:	XLPE special compound Brown - Black - Grey
Earth Cores: Conductor:	Plain copper, flexible class 5 according to IEC 60228
Insulation:	XLPE special compound colour: yellow/green
Cable Cores arrangements:	Phase cores laid up with earth cores in the interstices
Inner Sheath:	PVC flexible special compound
Outer Sheath:	Polyurethane special compound abrasion and tear resistant, excellent hydrolysis resistant. Colour: YELLOW
Marking example:	Prismian Group PALAZZO - TUNNELFLEX 0,6/1 kV 3x..+3x..

PARAMETERS

Electrical	Rated voltage U ₀ /U	0,6/1
	kV Max. oper. voltage	1,2
	kV Test voltage kV	3,5



CORRECTION FACTORS FOR AMBIENT TEMPERATURE OTHER THAN 30 °C

°C	20	25	35	40	45	50
K	1,1	1,05	0,95	0,89	0,84	0,77

MINIMUM BENDING RADIUS

Fixed installation	6 x OD
On drums	10 x OD

TEMPERATURE LIMITS

Ambient	fixed -30°C	flex -20 °C
Conductor	+90 °C	

TECHNICAL PARAMETERS

CABLE SIZE	CONDUCTORS DIAMETER APPROX PHASE - EARTH MM	OVERALL DIAMETER		WEIGHT APPROX. KG/KM	MAX PERMISSIBLE TENSILE FORCE		LAID STRAIGHT A	CURRENT CARRYING CAPACITY		
		MIN. VALUE MM	MAX. VALUE MM		STATIC	DYNAMIC		SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A
3x25+3G6	6,5-3,0	24,0	26,0	1200	1125	1500	131	105	80	65
3x35+3G6	7,5-3,0	25,5	28,0	1480	1575	2100	162	130	99	80
3x50+3G10	9,1-3,9	29,5	32,0	2070	2250	3000	202	162	123	99
3x70+3G16	10,8-5,1	34,0	37,0	2980	3150	4200	250	200	153	123
3x95+3G16	12,1-5,1	37,5	40,5	3610	4275	5700	301	241	184	147
3x120+3G25	14,3-6,5	42,0	45,0	4760	5400	7200	352	282	215	172
3x150+3G25	16,1-6,5	47,5	50,5	5800	6750	9000	404	323	246	198
3x185+3G35	17,5-7,5	52,0	55,0	7040	8325	11100	461	369	281	226
3x240+3G50	19,9-9,1	58,0	61,0	9150	10800	14400	540	432	329	265

TUNNELFLEX-PUR 0.6/1 kV - Without anti-twisting protection
 TUNNELFLEX-R/PUR 0.6/1 kV - With anti-twisting protection

MAIN APPLICATION - Mining / Tunneling

Power supply to mobile equipment with high risk of mechanical damage in mining and tunneling. TUNNELFLEX cable is suitable for application where it is deflected in one plane only.
 Maximum speed 60 m/min



CONSTRUCTION

Phase Cores
 Conductor: Plain copper, flexible class 5 IEC 60228 special construction for mobile application

Insulation: XLPE special compound Brown - Black - Grey

Earth Cores:
 Conductor: Plain copper, flexible class 5 according to IEC 60228

Insulation: XLPE special compound colour: yellow/green

Bedding: Special flexible Technopolymer compound

Anti-twisting (R/PUR): Synthetic Mesh

Outer Sheath: Polyurethane special compound abrasion and tear resistant, excellent hydrolysis resistant.
 Colour: YELLOW

Marking example: Prysmian Group PALAZZO - TUNNELFLEX 0,6/1 kV 3x..+3x..



PARAMETERS

Electrical	Rated voltage U ₀ /U	0,6/1
	kV Max. oper. voltage	1,2
	kV Test voltage kV	3,5



CORRECTION FACTORS FOR AMBIENT TEMPERATURE OTHER THAN 30 °C

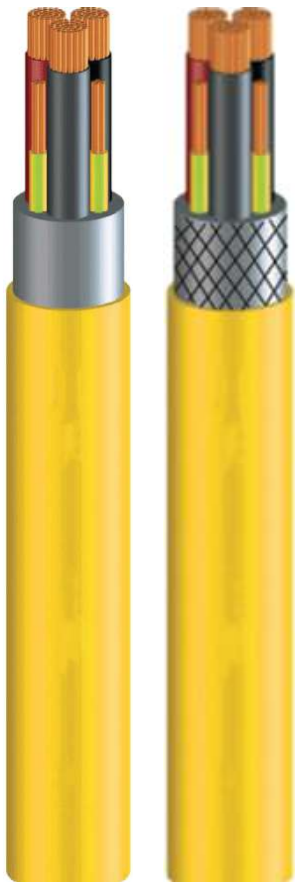
°C	20	25	35	40	45	50
K	1,1	1,05	0,95	0,89	0,84	0,77

MINIMUM BENDING RADIUS

Fixed installation	6 x OD
On drums	10 x OD

TEMPERATURE LIMITS

Ambient	fixed -30°C	flex -20 °C
Conductor	+90 °C	





RS-(N)TSCGEWUEU-TUNNELFLEX-TX from 3,6/6 to 12/20 kV

WITHOUT ANTITWISTING PROTECTION

MAIN APPLICATION - Tunneling

Power supply to mobile equipment with high risk of mechanical damage.



CONSTRUCTION

Phase Cores	
Conductor:	Plain copper, flexible class 5 according to DIN VDE 0295, special construction for mobile applications
Conductor screen:	Extruded layer made of special semi-conducting compound
Insulation:	HEPR-MV micro filtered special compound better than 3GI3 Extruded layer
Core screen:	made of special semi-conducting compound
Earth Cores	
Conductor:	Plain copper, flexible class 5 according to DIN VDE 0295, special construction for mobile applications
Conductor covering:	Extruded layer made of special semiconducting compound
Cable Core	
Arrangements	Phase cores laid up with earth cores in the interstices
Inner Sheath	PCP special compound
Outer Sheath	PCP special compound colour: RED
Marking example:	Prysmian Group PALAZZO - TUNNELFLEX-TX (U ₀ /U) kV 3x..+3x../3 year



PARAMETERS

	Rated voltage U ₀ /U	3,6/6	6/10	8,7/15	12/20
Electrical	kV Max. oper. voltage	5,4	12	18	24
	kV Test voltage kV	11	17	24	29

CORRECTION FACTORS FOR AMBIENT TEMPERATURE OTHER THAN 30 °C

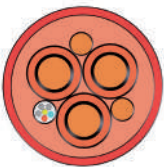
°C	20	25	35	40	45	50
K	1,1	1,05	0,95	0,89	0,84	0,77

MINIMUM BENDING RADIUS

Fixed installation	5 × OD
On drums	10 × OD

TEMPERATURE LIMITS

Ambient	fixed -30°C	flex -20 °C
Conductor	+90 °C	



TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL CROSS SECTION (N X MM ² + N X MM ²)	MAIN CONDUCTOR NOM. DIAM. MM	PROTECTIVE EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	CURRENT CARRYING CAPACITY AT 30 °C*			SHORT CIRCUIT CURRENT 90° TO 250 °C kA
			MIN. VALUE MM	MAX. VALUE MM				SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
U₀/U(Um) 3,6/6(7,2) kV											
3x25+3x25/3	6,6	4,0	38,6	41,6	2420	1500	131	105	80	64	3,6
3x35+3x25/3	8,0	4,0	41,2	44,2	2940	2100	162	130	99	79	5,0
3x50+3x25/3	9,3	4,0	44,0	47,0	3470	3000	202	162	123	99	7,2
3x70+3x25/3	11,2	4,9	48,1	51,1	4370	4200	250	200	153	123	10,0
3x95+3x50/3	13,0	5,4	51,5	55,5	5370	5700	301	241	184	147	13,6
3x120+3x70/3	15,0	6,6	55,8	59,8	6730	7200	352	282	215	172	17,2
3x150+3x70/3	16,9	6,6	60,3	64,3	7750	9000	404	323	246	198	21,5
3x185+3x95/3	18,3	8,0	63,3	67,3	9180	11100	461	369	281	226	26,5
3x240+3x120/3	20,5	9,3	71,7	75,7	11970	14400	540	432	329	265	34,3
U₀/U(Um) 6/10(12) kV											
3x25+3x25/3	6,6	4,0	40,3	43,3	2570	1500	131	105	80	64	3,6
3x35+3x25/3	8,0	4,0	43,0	46,0	3100	2100	162	130	99	79	5,0
3x50+3x25/3	9,3	4,0	45,8	48,8	3640	3000	202	162	123	99	7,2
3x70+3x25/3	11,2	4,9	49,4	53,4	4560	4200	250	200	153	123	10,0
3x95+3x50/3	13,0	5,4	53,2	57,2	5570	5700	301	241	184	147	13,6
3x120+3x70/3	15,0	6,6	57,5	61,5	6940	7200	352	282	215	172	17,2
3x150+3x70/3	16,9	6,6	62,0	66,0	7980	9000	404	323	246	198	21,5
3x185+3x95/3	18,3	8,0	65,1	69,1	9420	11100	461	369	281	226	26,5
3x240+3x120/3	20,5	9,3	72,9	76,9	12170	14400	540	432	329	265	34,3
U₀/U(Um) 8,7/15(18) kV											
3x25+3x25/3	6,6	4,0	43,7	46,7	2890	1500	139	111	85	68	3,6
3x35+3x25/3	8,0	4,0	46,4	49,4	3430	2100	172	138	105	84	5,0
3x50+3x25/3	9,3	4,0	48,7	52,7	3990	3000	215	172	131	105	7,2
3x70+3x25/3	11,2	4,9	52,8	56,8	4940	4200	265	212	162	130	10,0
3x95+3x50/3	13,0	5,4	56,7	60,7	5980	5700	319	255	195	156	13,6
3x120+3x70/3	15,0	6,6	61,4	65,4	7440	7200	371	297	226	182	17,2
3x150+3x70/3	16,9	6,6	65,5	69,5	8450	9000	428	342	261	210	21,5
3x185+3x95/3	18,3	8,0	69,9	73,9	10150	11100	488	390	298	239	26,5
3x240+3x120/3	20,5	9,3	75,5	79,5	12580	14400	574	459	350	281	34,3
U₀/U(Um) 12/20(24) kV											
3x25+3x25/3	6,6	4,0	48,5	51,5	3370	1500	139	111	85	68	3,6
3x35+3x25/3	8,0	4,0	50,7	54,7	3940	2100	172	138	105	84	5,0
3x50+3x25/3	9,3	4,0	53,5	57,5	4520	3000	215	172	131	105	7,2
3x70+3x25/3	11,2	4,9	57,5	61,5	5510	4200	265	212	162	130	10,0
3x95+3x50/3	13,0	5,4	61,8	65,8	6650	5700	319	255	195	156	13,6
3x120+3x70/3	15,0	6,6	66,1	70,1	8090	7200	371	297	226	182	17,2
3x150+3x70/3	16,9	6,6	71,6	75,6	9380	9000	428	342	261	210	21,5
3x185+3x95/3	18,3	8,0	74,6	78,6	10870	11100	488	390	298	239	26,5



RS-(N)TSCGEW0EU - TUNNELFLEX-TTX from 3,6/6 to 12/20kV

WITH ANTITWISTING PROTECTION

MAIN APPLICATION - Tunneling

Power supply to mobile equipment with high risk of mechanical damage.

CONSTRUCTION

Phase Cores Conductor:	Plain copper, flexible class 5 according to DIN VDE 0295, special construction for mobile applications
Conductor screen:	Extruded layer made of special semi-conducting compound
Insulation:	HEPR-MV micro filtered special compound better than 3GI3
Core screen:	Extruded layer made of special semi-conducting compound
Earth Cores Conductor:	Plain copper, flexible class 5 according to DIN VDE 0295, special construction for mobile applications
Conductor covering:	Extruded layer made of special semiconducting compound
Cable Core Arrangements	Phase cores laid up with earth cores in the interstices
Inner Sheath	PCP special compound
Anti-twisting Braid	Open mesh of synthetic yarns
Outer Sheath	PCP special compound colour: RED
Marking example:	Prysmian Group PALAZZO - TUNNELFLEX-TTX (U ₀ /U) kV 3x..+3x../3 year

PARAMETERS

Electrical	Rated voltage U ₀ /U	3,6/6	6/10	8,7/15	12/20
	kV Max. oper. voltage	5,4	12	18	24
	kV Test voltage kV	11	17	24	29

CORRECTION FACTORS FOR AMBIENT TEMPERATURE OTHER THAN 30 °C

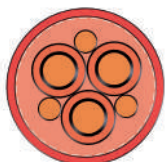
°C	20	25	35	40	45	50	55
K	1,1	1,05	0,95	0,89	0,84	0,77	0,71

MINIMUM BENDING RADIUS

Fixed installation	5 x OD
On drums	10 x OD

TEMPERATURE LIMITS

Ambient	fixed -30 °C	flex -20 °C
Conductor	+90 °C	



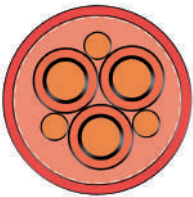
TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL CROSS SECTION (NXMM ² +NXMM ²)	MAIN CONDUCTOR NOM. DIAM. MM	PROTECTIVE EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	CURRENT CARRYING CAPACITY AT 30 °C*			SHORT CIRCUIT CURRENT 90° TO 250 °C KA
			MIN. VALUE MM	MAX. VALUE MM				SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
Uo/U(Um) 3,6/6(7,2) kV											
3x25+3x25/3	6,6	4,0	39,4	42,4	2520	1500	131	105	80	64	3,6
3x35+3x25/3	8,0	4,0	42,0	45,0	3040	2100	162	130	99	79	5,0
3x50+3x25/3	9,3	4,0	44,8	47,8	3570	3000	202	162	123	99	7,2
3x70+3x25/3	11,2	4,9	48,4	52,4	4490	4200	250	200	153	123	10,0
3x95+3x50/3	13,0	5,4	52,3	56,3	5490	5700	301	241	184	147	13,6
3x120+3x70/3	15,0	6,6	56,6	60,6	6880	7200	352	282	215	172	17,2
3x150+3x70/3	16,9	6,6	61,1	65,1	7910	9000	404	323	246	198	21,5
3x185+3x95/3	18,3	8,0	64,1	68,1	9340	11100	461	369	281	226	26,5
3x240+3x120/3	20,5	9,3	72,5	76,5	12150	14400	540	432	329	265	34,3
Uo/U(Um) 6/10(12) kV											
3x25+3x25/3	6,6	4,0	41,1	44,1	2670	1500	131	105	80	64	3,6
3x35+3x25/3	8,0	4,0	43,8	46,8	3200	2100	162	130	99	79	5,0
3x50+3x25/3	9,3	4,0	46,6	49,6	3740	3000	202	162	123	99	7,2
3x70+3x25/3	11,2	4,9	50,2	54,2	4670	4200	250	200	153	123	10,0
3x95+3x50/3	13,0	5,4	54,0	58,0	5690	5700	301	241	184	147	13,6
3x120+3x70/3	15,0	6,6	58,3	62,3	7090	7200	352	282	215	172	17,2
3x150+3x70/3	16,9	6,6	62,8	66,8	8140	9000	404	323	246	198	21,5
3x185+3x95/3	18,3	8,0	65,9	69,9	9590	11100	461	369	281	226	26,5
3x240+3x120/3	20,5	9,3	73,7	77,7	12350	14400	540	432	329	265	34,3
Uo/U(Um) 8,7/15(18) kV											
3x25+3x25/3	6,6	4,0	44,5	47,5	2990	1500	139	111	85	68	3,6
3x35+3x25/3	8,0	4,0	47,2	50,2	3540	2100	172	138	105	84	5,0
3x50+3x25/3	9,3	4,0	49,5	53,5	4110	3000	215	172	131	105	7,2
3x70+3x25/3	11,2	4,9	53,6	57,6	5070	4200	265	212	162	130	10,0
3x95+3x50/3	13,0	5,4	57,5	61,5	6130	5700	319	255	195	156	13,6
3x120+3x70/3	15,0	6,6	62,2	66,2	7600	7200	371	297	226	182	17,2
3x150+3x70/3	16,9	6,6	66,3	70,3	8620	9000	428	342	261	210	21,5
3x185+3x95/3	18,3	8,0	70,7	74,7	10320	11100	488	390	298	239	26,5
3x240+3x120/3	20,5	9,3	76,3	80,3	12770	14400	574	459	350	281	34,3
Uo/U(Um) 12/20(24) kV											
3x25+3x25/3	6,6	4,0	48,8	52,8	3480	1500	139	111	85	68	3,6
3x35+3x25/3	8,0	4,0	51,5	55,5	4060	2100	172	138	105	84	5,0
3x50+3x25/3	9,3	4,0	54,3	58,3	4650	3000	215	172	131	105	7,2
3x70+3x25/3	11,2	4,9	58,3	62,3	5670	4200	265	212	162	130	10,0
3x95+3x50/3	13,0	5,4	62,6	66,6	6810	5700	319	255	195	156	13,6
3x120+3x70/3	15,0	6,6	66,9	70,9	8260	7200	371	297	226	182	17,2
3x150+3x70/3	16,9	6,6	72,4	76,4	9560	9000	428	342	261	210	21,5
3x185+3x95/3	18,3	8,0	75,4	79,4	11050	11100	488	390	298	239	26,5

PANZERFLEX-ELX MV from 3,6/6 to 12/20kV

MAIN APPLICATION - Mining / Bulk Material Handling

Flexible H.V. reeling power cables for use on connecting movable parts of machine tools and any material handling equipment (i.e. Stacker/reclaimer, ship to shore crane, container crane, excavators, also suitable for festoon system). Perfectly suitable for any energy supply on cable reels systems associated from high to extreme mechanical stresses, frequent bending/torsional operation and fast movement with strong acceleration.



Conductor:	Tinned copper conductor, flexible cl.5 IEC 60228 Specially designed for mobile application
Insulation:	Micro filtered HEPR rubber compound better than 3GI3 New specially developed compound with improved electrical and mechanical characteristics
Cores identification:	Main cores: natural colour with black semiconductive layer Splitted earth cores: identified by position and covered with special black semiconductive compound
Field control:	- Conductor screen: semiconductive layer - Insulation screen: semiconductive layer of special compound Applied with insulation
Identification:	Printed numbers on semiconductor layer
Laying-up:	Short lay length for better flexibility and mechanical characteristics ≤ 8 times the laying-up cores diameter, three cores design with protective earth cores split in 3 interstitial areas
Separation (if any):	Tape(s)
Inner sheath:	Polychloroprene rubber based compound Special developed with improved mechanical characteristics
Antitwisting protection:	Textile braid of synthetic yarns Firmly bonded between inner and outer sheath
Outer sheath:	Red polychloroprene rubber compound UV resistant, oil and chemical resistant better then 5GM3 compound
Marking:	Prysman Group PALAZZO - PANZERFLEX-ELX <i>rated voltage nc x cross section year of manufacturing</i>

PARAMETERS

ELECTRICAL	Rated voltage	U ₀ /U = 3,6/6 kV to 12/20 kV* U _m =
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	7,2 kV to 24 kV 11 kV to 29 kV according to VDE 0250 part 813 According to DIN VDE 0298 part 4
	Current Carrying Capacity	Very low interference
THERMAL	Fully flexible operation	- 30 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor	90 °C
	Short-circuit temperature of the conductor	250 °C
MECHANICAL	Tensile load Minimum bending radii Reeling operation	Up to 20 N/mm ² According to DIN VDE 0298 part 3 No restriction. Consult the manufacturer if speed exceeds 180 m/min
	Festoon systems	Up to 120 m/min
CHEMICAL	Resistance to oil	According to VDE / IEC standard
	Weather resistance	Unrestricted use outdoor and indoor, UV resistant, moisture resistant.

TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION N·MM ² +N·MM ² /3	MAIN CONDUCTOR		PROTECTIVE EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	CURRENT CARRYING CAPACITY AT 30 °C*			SHORT CIRCUIT CURRENT 80 ° TO 200 °C kA·1 SEC.
	D.C. RESIST. AT 20 °C OHM/KM	NOM. DIAM. MM		MIN. MM	MAX. MM				SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
3,6/6 kV												
3x25+3x25/3	0,795	6,6	4,0	38,5	41,5	2460	1500	131	105	80	64	3,2
3x35+3x25/3	0,565	8,0	4,0	41,2	44,2	2970	2100	162	130	99	79	4,5
3x50+3x25/3	0,393	9,3	4,0	44,0	47,0	3500	3000	202	162	123	99	6,4
3x70+3x35/3	0,277	11,2	4,9	48,1	51,1	4460	4200	250	200	153	123	9,0
3x96+3x50/3	0,210	13,0	5,4	52,7	56,7	5560	5700	301	241	184	147	12,2
3x120+3x70/3	0,164	15,0	6,6	57,0	61,0	6930	7200	352	282	215	172	15,4
3x150+3x70/3	0,132	16,9	6,6	62,7	66,7	8190	9000	404	323	246	198	19,2
3x185+3x95/3	0,108	18,3	8,0	66,8	70,8	9750	11100	461	369	281	226	23,7
3x240+3x120/3	0,0817	20,5	9,3	73,9	77,9	12450	14400	540	432	329	265	30,7
6/10 kV												
3x25+3x25/3	0,795	6,6	4,0	39,4	42,4	2530	1500	131	105	80	64	3,2
3x35+3x25/3	0,565	8,0	4,0	42,0	45,0	3050	2100	162	130	99	79	4,5
3x50+3x25/3	0,393	9,3	4,0	44,8	47,8	3590	3000	202	162	123	99	6,4
3x70+3x35/3	0,277	11,2	4,9	48,4	52,4	4550	4200	250	200	153	123	9,0
3x95+3x50/3	0,210	13,0	5,4	53,5	57,5	5670	5700	301	241	184	147	12,2
3x120+3x70/3	0,164	15,0	6,6	57,8	61,8	7040	7200	352	282	215	172	15,4
3x150+3x70/3	0,132	16,9	6,6	63,5	67,5	8310	9000	404	323	246	198	19,2
3x185+3x95/3	0,108	18,3	8,0	67,4	71,4	9820	11100	461	369	281	226	23,7
3x240+3x120/3	0,0817	20,5	9,3	74,8	78,8	12600	14400	540	432	329	265	30,7
8,7/15 kV												
3x25+3x25/3	0,795	6,6	4,0	42,8	45,8	2840	1500	139	111	85	68	3,2
3x35+3x25/3	0,565	8,0	4,0	45,5	48,5	3380	2100	172	138	105	84	4,5
3x50+3x25/3	0,393	9,3	4,0	48,3	51,3	3940	3000	215	172	131	105	6,4
3x70+3x35/3	0,277	11,2	4,9	53,1	57,1	5080	4200	265	212	162	130	9,0
3x95+3x50/3	0,210	13,0	5,4	57,0	61,0	6100	5700	319	255	195	156	12,2
3x120+3x70/3	0,164	15,0	6,6	62,9	66,9	7730	7200	371	297	226	182	15,4
3x150+3x70/3	0,132	16,9	6,6	67,0	71,0	8800	9000	428	342	261	210	19,2
3x185+3x95/3	0,108	18,3	8,0	70,0	74,0	10230	11100	488	390	298	239	23,7
3x240+3x120/3	0,0817	20,5	9,3	77,4	81,4	13020	14400	574	459	350	281	30,7
12/20 kV												
3x25+3x25/3	0,795	6,6	4,0	48,0	51,0	3360	1500	139	111	85	68	3,2
3x35+3x25/3	0,565	8,0	4,0	51,4	55,4	4070	2100	172	138	105	84	4,5
3x50+3x25/3	0,393	9,3	4,0	54,2	58,2	4660	3000	215	172	131	105	6,4
3x70+3x35/3	0,277	11,2	4,9	58,3	62,3	5730	4200	265	212	162	130	9,0
3x95+3x50/3	0,210	13,0	5,4	63,7	67,7	7020	5700	319	255	195	156	12,2
3x120+3x70/3	0,164	15,0	6,6	68,0	72,0	8470	7200	371	297	226	182	15,4
3x150+3x70/3	0,132	16,9	6,6	73,9	77,9	9890	9000	428	342	261	210	19,2
3x185+3x95/3	0,108	18,3	8,0	77,0	81,0	11370	11100	488	390	298	239	23,7
3x240+3x120/3	0,0817	20,5	9,3	82,6	86,6	13890	14400	574	459	350	281	34,3

PANZERFLEX-ELX MV + Fiber optic from 3,6/6 to 12/20 kV

MAIN APPLICATION - Mining / Bulk Material Handling

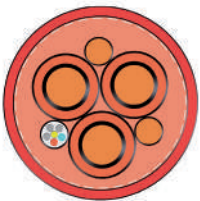
Flexible H.V. reeling combined power and data transmission cables for use on connecting movable parts of machine tools and any material handling equipment (i.e. Stacker/reclaimer, ship to shore crane, container crane, excavators, also suitable for festoon system). Perfectly suitable for any energy supply on cable reels systems associated from high to extreme mechanical stresses, frequent bending/torsional operation and fast movement with strong acceleration.

CONSTRUCTION

Conductor:	Tinned copper conductor, flexible cl.5 IEC 60228 Specially designed for mobile application
Insulation:	Micro filtered HEPR rubber compound better than 3GB New specially developed compound with improved electrical and mechanical characteristics
Cores identification:	Main cores: natural colour with black semiconductive layer Splitted earth cores: identified by position and covered with special black semiconductive compound
Field control:	- Conductor screen: semiconductive layer - Insulation screen: semiconductive layer of special compound Applied with insulation
Identification:	Printed numbers on semiconductor layer
Laying-up:	Short lay length for better flexibility and mechanical characteristics ≤ 8 times the laying-up cores diameter, three cores design with protective earth cores split in 2 interstitial areas
Separation (if any):	Tape(s)
Inner sheath:	Polychloroprene rubber based compound Special developed with improved mechanical characteristics
Antitwisting protection:	Textile braid of synthetic yarns Firmly bonded between inner and outer sheath
Outer sheath:	Red polychloroprene rubber compound UV resistant, oil and chemical resistant better than 5GM3 compound
Marking:	Prysmian Group PALAZZO - PANZERFLEX-ELX rated voltage <i>nc x cross section, fiber optics n, & type</i> - OPTICAL FIBER year of manufacturing

PARAMETERS

ELECTRICAL	Rated voltage	U ₀ /U= 3,6/6 kV to 12/20 kV* U _m =
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	7,2 kV to 24 kV 11 kV to 29 kV according to VDE 0250 part 813
EMC	Current Carrying Capacity	According to DIN VDE 0298 part 4
	Simmetrical design + narrow production tolerances	Very low interference
DATA TRANSMISSION	Fibre-optics for absolute immunity from electrical interferences. Main type: graded index 62,5/125. Available also graded index 50/125 and monomode E9/125 6 (main type), 12, 18 fibre-optics in a structure composed by 6 loose tubes (1, 2 or 3 fibres per tube)	
THERMAL	Fully flexible operation	- 30 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor Short-circuit temperature of the conductor	90 °C 250 °C
MECHANICAL	Tensile load Minimum	Up to 20 N/mm ²
	bending radius	According to DIN VDE 0298 part 3 No restriction. Consult the manufacturer if speed exceeds 180 m/min
	Reeling operation Festoon systems	Up to 120 m/min
CHEMICAL	Resistance to oil	According to VDE / IEC standard
	Weather resistance	Unrestricted use outdoor and indoor, UV resistant, moisture resistant.



TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION N-MM ² +N-MM ² /2	MAIN CONDUCTOR		PROTECTIVE EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	CURRENT CARRYING CAPACITY AT 30 °C*			SHORT CIRCUIT CURRENT 80 ° TO 200 °C kA
	D.C. RESIST. AT 20 °C OHM/KM	NOM. DIAM. MM		MIN. VALUE MM	MAX. VALUE MM				SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
3,6/6 kV												
3x25+2x25/2+1x(60F)	0,795	6,6	4,9	38,8	41,8	2490	1500	131	105	80	64	3,2
3x35+2x25/2+1x(60F)	0,565	8,0	4,9	41,2	44,2	2980	2100	162	130	99	79	4,5
3x50+2x25/2+1x(60F)	0,393	9,3	4,9	44,0	47,0	3510	3000	202	162	123	99	6,4
3x70+2x35/2+1x(60F)	0,277	11,2	6,6	48,1	51,1	4500	4200	250	200	153	123	9,0
3x95+2x50/2+1x(60F)	0,210	13,0	6,6	52,7	56,7	5580	5700	301	241	184	147	12,2
3x120+2x70/2+1x(60F)	0,164	15,0	8,0	56,9	60,9	6950	7200	352	282	215	172	15,4
3x150+2x70/2+1x(60F)	0,132	16,9	8,0	62,7	66,7	8190	9000	404	323	246	198	19,2
3x185+2x95/2+1x(60F)	0,108	18,3	9,3	66,4	70,4	9630	11100	461	369	281	226	23,7
3x240+2x120/2+1x(60F)	0,0817	20,5	11,2	76,1	80,1	12770	14400	540	432	329	265	30,7
6/10 kV												
3x25+2x25/2+1x(60F)	0,795	6,6	4,9	39,5	42,5	2540	1500	131	105	80	64	3,2
3x35+2x25/2+1x(60F)	0,565	8,0	4,9	42,0	45,0	3060	2100	162	130	99	79	4,5
3x50+2x25/2+1x(60F)	0,393	9,3	4,9	44,8	47,8	3590	3000	202	162	123	99	6,4
3x70+2x35/2+1x(60F)	0,277	11,2	6,6	48,3	52,3	4570	4200	250	200	153	123	9,0
3x95+2x50/2+1x(60F)	0,210	13,0	6,6	53,5	57,5	5680	5700	301	241	184	147	12,2
3x120+2x50/2+1x(60F)	0,164	15,0	8,0	57,6	61,6	7020	7200	352	282	215	172	15,4
3x150+2x70/2+1x(60F)	0,132	16,9	8,0	63,3	67,3	8280	9000	404	323	246	198	19,2
3x185+2x95/2+1x(60F)	0,108	18,3	9,3	67,0	71,0	9720	11100	461	369	281	226	23,7
3x240+2x120/2+1x(60F)	0,0817	20,5	11,2	76,8	80,8	12880	14400	540	432	329	265	30,7
8,7/15 kV												
3x25+2x25/2+1x(60F)	0,795	6,6	4,9	42,7	45,7	2830	1500	139	111	85	68	3,2
3x35+2x25/2+1x(60F)	0,565	8,0	4,9	45,5	48,5	3390	2100	172	138	105	84	4,5
3x50+2x25/2+1x(60F)	0,393	9,3	4,9	48,3	51,3	3590	3000	215	172	131	105	6,4
3x70+2x35/2+1x(60F)	0,277	11,2	6,6	53,1	57,1	5130	4200	265	212	162	130	9,0
3x95+2x50/2+1x(60F)	0,210	13,0	6,6	57,0	61,0	6120	5700	319	255	195	156	12,2
3x120+2x70/2+1x(60F)	0,164	15,0	8,0	62,9	66,9	7770	7200	371	297	226	182	15,4
3x150+2x70/2+1x(60F)	0,132	16,9	8,0	67,0	71,0	8820	9000	428	342	261	210	19,2
3x185+2x95/2+1x(60F)	0,108	18,3	9,3	70,0	74,0	10190	11100	488	390	298	239	23,7
3x240+2x120/2+1x(60F)	0,0817	20,5	11,2	78,2	83,2	13190	14400	574	459	350	281	30,7
12/20 kV												
3x25+2x25/2+1x(60F)	0,795	6,6	4,9	48,0	51,0	3360	1500	139	111	85	68	3,2
3x35+2x25/2+1x(60F)	0,565	8,0	4,9	51,4	55,4	4080	2100	172	138	105	84	4,5
3x50+2x25/2+1x(60F)	0,393	9,3	4,9	54,2	58,2	4670	3000	215	172	131	105	6,4
3x70+2x35/2+1x(60F)	0,277	11,2	6,6	58,3	62,3	5790	4200	265	212	162	130	9,0
3x95+2x50/2+1x(60F)	0,210	13,0	6,6	63,7	67,7	7040	5700	319	255	195	156	12,2
3x120+2x70/2+1x(60F)	0,164	15,0	8,0	68,0	72,0	8510	7200	371	297	226	182	15,4
3x150+2x70/2+1x(60F)	0,132	16,9	8,0	73,9	77,9	9920	9000	428	342	261	210	19,2
3x185+2x95/2+1x(60F)	0,108	18,3	9,3	77,0	81,0	11310	11100	488	390	298	239	23,7
3x240+2x120/2+1x(60F)	0,0817	20,5	11,2	82,1	87,1	13840	14400	574	459	350	281	34,3



PANZERFLAT- ELX from 3,6/6 to 12/20 kV

With or without integrated Optical Fibers

MAIN APPLICATION - Mining / Bulk Material Handling

Flexible H.V. reeling combined power with or without data transmission cables for use on connecting movable parts of machine tools and any material handling equipment Suitable for any energy supply on cable reels systems associated from mechanical stresses, frequent bending operation (IN ONE PLANE ONLY) in movement with medium acceleration.

CONSTRUCTION

Conductor:	Tinned copper conductor, flexible cl.5 IEC 60228 Specially designed for mobile application
Insulation:	Micro filtered HEPR rubber compound better than 3GI3 New specially developed compound with improved electrical and mechanical characteristics
Cores identification:	Main cores: natural colour with black semiconductive layer. Earth core: - of the same size of main conductor identified by yellow/green colour of insulation - splitted on the main cores
Field control:	- Conductor screen: semiconductive layer - Insulation screen: semiconductive layer of special compound Applied with insulation
Identification:	Printed numbers on semiconductor layer
Metallic screen:	Tinned copper wire braid on phase cores
Cores arrangement:	Parallel Fiber optic module (if any) in the centre
Separation (if any):	Tape(s)
Outer sheath:	Red polychloroprene based compound UV resistant, oil and chemical resistant better than 5GM3 compound
Marking:	Prysmian Group PALAZZO - PANZERFLAT-ELX <i>rated voltage nc x cross section year of manufacturing</i>

PARAMETERS

ELECTRICAL	Rated voltage	U ₀ /U _n = 1,8/3 kV to 6/10 kV U _m =
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	3,6 kV to 12 kV 6 kV to 11 kV according to VDE 0250 part 813 According to DIN VDE 0298 part 4
DATA TRANSMISSION (IF ANY)	Current Carrying Capacity	
	Fibre-optics for absolute immunity from electrical interferences. Main type: graded index 62,5/125 Available also graded index 50/125 and monomode E9/125	6, 12, 18 fibre-optics In a structure composed by 6 loose tubes (1, 2 or 3 fibres per tube)
THERMAL	Fully flexible operation	- 30 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor	90 °C
	Short-circuit temperature of the conductor	250 °C
MECHANICAL	Tensile load Minimum bending radii Reeling operation	Up to 15 N/mm ² According to DIN VDE 0298 part 3 No restriction. Consult the manufacturer if speed exceeds 180 m/min
	CHEMICAL	Resistance to oil
Weather resistance		

TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION N-MM ²	MAIN CONDUCTOR		EARTH CONDUCTOR		OVERALL DIMENSION		CABLE WEIGHT APPROX. KG/KM	PERMISSIBLE TENSILE FORCE MAXIMUM N	CURRENT CARRYING CAPACITY		SHORT CIRCUIT CURRENT 80 ° TO 200 °C KA·1 SEC.
	D.C. RESIST. AT 20 °C OHM/KM	NOM. DIAM. MM	SINGLE COND. NOM. DIAM. MM	SPLITTED IN 3 BRAIDS NOM. DIAM. OVER BRAID MM	NOM. MM	MAX. MM			AT 30 °C*	LAI D STRAIGHT A	
6/10 kV											
3x25+3x25/3E	0,565	8,0	N.A.	17,5	26X65	28X67	3.100	1.575	162	79	4,5
3x35+3x25/3E	0,393	9,3	N.A.	19,0	28x69	30x71	3.650	2.250	202	99	6,4
4x35	0,565	8,0	8,0	N.A.	26,5X80,5	28,5X83	3.870	2.100	162	79	4,5
3x35+3x25/3E+0F	0,565	8,0	N.A.	17,5	26X76	28X78	3.490	1.575	162	79	4,5
3x50+3x25/3E+0F	0,393	9,3	N.A.	19,0	28x80	30x82	4.050	2.250	202	99	6,4
4X35+0F	0,565	8,0	8,0	17,5	26X90	28X93	4.200	2.100	162	79	4,5
4X50+0F	0,393	9,3	9,3	N.A.	27x94	29X96,5	4.800	3.000	202	99	6,4
8,7/15 kV											
3x35+3x25/3	0,565	8,0	N.A.	19,0	26X79	28X81	3.560	1.575	172	84	4,5
3x50+3x25/3	0,565	8,0	8,0	N.A.	27X94	29x96,5	4.500	2.100	172	84	4,5



PANZERFLEX-L 0,6/1 kV - Power

MAIN APPLICATION - Mining

Flexible power cables for use on connecting movable parts of machine tools and any material handling equipment. (Suitable for any energy supply on cable reels and festoon systems associated to high mechanical stresses, frequent bending/torsional operation and fast movement with strong acceleration.

CONSTRUCTION

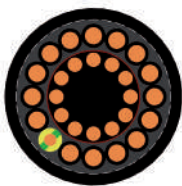
Conductor:	Tinned copper conductor, flexible cl.5 IEC 60228 Specially designed for mobile application
Insulation:	HEPR compound better than 3G13 - New specially developed crushproof compound with improved electrical and mechanical characteristics
Cores identification:	Colours according to according to DIN VDE 0293 part 308 / HD 308 S2 Standard colours: - 1 core: black - 3+3 cores: brown, black, grey + 3 green/yellow - 4 cores: green/yellow, brown, black, grey - 5 cores: green/yellow, blue, brown, black, grey
Laying-up:	Short lay length for better flexibility $\leq 7,5$ times the laying-up cores diameter
Separation (if any):	Tape(s)
Inner sheath:	Polychloroprene rubber based compound Better than GM1b
Antitwisting protection:	Synthetic yarns firmly bonded between inner and outer sheath
Outer sheath:	Black polychloroprene rubber compound UV resistant oil and chemical resistant better then 5GM2
Marking:	Prysmian Group PALAZZO - PANZERFLEX-L 0,6/1 kV nc x cross section

PARAMETERS

ELECTRICAL	Rated voltage	$U_0/U = 0,6/1$ kV
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	$U_m = 1,2$ kV
	Current Carrying Capacity	3,5 kV According to DIN VDE 0298 part 4
THERMAL	Fully flexible operation	- 25 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor	90 °C
	Short-circuit temperature of the conductor	250 °C
MECHANICAL	Tensile load Minimum	Up to 20N/mm ²
	bending radius Reeling operation Festoon systems	According to DIN VDE 0298 part 3
		No restriction, speed up to 240m/min
CHEMICAL	Resistance to oil	Resistance to oil According to VDE /IEC standard
	Weather resistance	Unrestricted use outdoor and indoor, UV resistant, moisture resistant.

TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION (N·MM ²)	MAIN CONDUCTOR		SPLITTED PROTEC. EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	CURRENT CARRYING CAPACITY AT 30 °C*				SHORT CIRCUIT CURRENT 80 ° TO 200 °C kA·1 SEC.
	D.C. RESIST. AT 20 °C OHM/KM	NOM. DIAM. MM		MIN. MM	MAX. MM				SUSPENDED IN FREE AIR A	SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
1x16	1,24	5,4	-	10,6	12,7	265	320	141	148	-	-	-	2,0
1x25	0,795	6,6	-	12,2	14,3	370	500	187	196	-	-	-	3,2
1x35	0,565	8,0	-	13,9	15,9	505	700	231	243	-	-	-	4,5
1x50	0,393	9,3	-	15,6	17,7	650	1000	288	302	-	-	-	6,4
1x70	0,277	11,2	-	17,6	19,7	875	1400	357	375	-	-	-	9,0
1x95	0,210	13,0	-	20,0	22,1	1120	1900	430	452	-	-	-	12,2
1x120	0,164	15,0	-	22,2	24,3	1440	2400	503	528	-	-	-	15,4
1x150	0,132	16,9	-	24,9	27,0	1730	3000	577	606	-	-	-	19,2
1x185	0,108	18,3	-	26,7	28,8	2070	3700	658	691	-	-	-	23,7
1x240	0,0817	20,5	-	29,0	32,2	2660	4800	771	810	-	-	-	30,7
3x4	5,09	2,4	-	14,9	17,0	395	240	41	43	33	25	20	0,51
3x6	3,39	3,1	-	17,2	19,3	525	360	53	56	42	32	26	0,77
3x10	1,95	4,2	-	20,3	22,4	765	600	74	78	59	45	36	1,3
3x16	1,24	5,4	-	23,6	25,7	1080	960	99	104	79	60	49	2,0
3x25	0,795	6,6	-	27,0	29,1	1470	1500	131	138	105	80	64	3,2
3x35	0,565	8,0	-	30,4	33,6	2030	2100	162	170	130	99	79	4,5
3x50	0,393	9,3	-	35,4	38,6	2680	3000	202	212	162	123	99	6,4
3x70	0,277	11,2	-	39,6	42,8	3530	4200	250	263	200	153	123	9,0
3x95	0,210	13,0	-	43,8	47,0	4400	5700	301	316	241	184	147	12,2
3x120	0,164	15,0	-	49,0	53,5	5730	7200	352	370	282	215	172	15,4
3x150	0,132	16,9	-	55,5	60,0	7040	9000	404	424	323	246	198	19,2
3x185	0,108	18,3	-	59,5	64,0	8320	11100	461	484	369	281	226	23,7
3x240	0,0817	20,5	-	67,5	72,0	10850	14400	540	567	432	329	265	30,7
4x4	5,09	2,4	-	16,0	18,1	460	320	41	43	33	25	20	0,51
4x6	3,39	3,1	-	18,4	20,5	615	480	53	56	42	32	26	0,77
4x10	1,95	4,2	-	21,9	24,0	920	800	74	78	59	45	36	1,3
4x16	1,24	5,4	-	25,5	27,6	1310	1280	99	104	79	60	49	2,0
4x25	0,795	6,6	-	29,6	32,8	1860	2000	131	138	105	80	64	3,2
4x35	0,565	8,0	-	33,2	36,4	2490	2800	162	170	130	99	79	4,5
4x50	0,393	9,3	-	38,4	41,6	3300	4000	202	212	162	123	99	6,4
4x70	0,277	11,2	-	43,6	46,8	4420	5600	250	263	200	153	123	9,0
4x95	0,210	13,0	-	48,5	53,0	5610	7600	301	316	241	184	147	12,2
4x120	0,164	15,0	-	55,5	60,0	7360	9600	352	370	282	215	172	15,4
4x150	0,132	16,9	-	61,0	65,5	8770	12000	404	424	323	246	198	19,2
4x185	0,108	18,3	-	67,5	72,0	10730	14800	461	484	369	281	226	23,7
4x240	0,0817	20,5	-	74,0	78,5	13560	19200	540	567	432	329	265	30,7
5x4	5,09	2,4	-	18,0	20,1	575	400	41	43	33	25	20	0,51
5x6	3,39	3,1	-	19,8	21,9	725	600	53	56	42	32	26	0,77
5x10	1,95	4,2	-	24,5	26,6	1140	1000	74	78	59	45	36	1,3
5x16	1,24	5,4	-	27,6	29,7	1550	1600	99	104	79	60	49	2,0
5x25	0,795	6,6	-	32,2	35,4	2170	2500	131	138	105	80	64	3,2
5x35	0,565	8,0	-	37,0	40,2	3080	3500	162	170	130	99	79	4,5
5x50	0,393	9,3	-	42,2	45,4	4010	5000	202	212	162	123	99	6,4
5x70	0,277	11,2	-	48,0	52,5	5480	7000	250	263	200	153	123	9,0
5x95	0,210	13,0	-	54,5	59,0	7010	9500	301	316	241	184	147	12,2
3x50+3x25/3	0,393	9,3	4,0	34,2	37,4	2730	3000	202	212	162	123	99	6,4
3x70+3x35/3	0,277	11,2	4,9	39,6	42,8	3740	4200	250	263	200	153	123	9,0
3x95+3x50/3	0,210	13,0	5,4	43,8	47,0	4690	5700	301	316	241	184	147	12,2
3x120+3x70/3	0,164	15,0	6,6	49,5	54,0	6220	7200	352	370	282	215	172	15,4
3x150+3x70/3	0,132	16,9	6,6	55,5	60,0	7480	9000	404	424	323	246	198	19,2
3x185+3x95/3	0,108	18,3	8,0	59,5	64,0	9020	11100	461	484	369	281	226	23,7
3x240+3x120/3	0,0817	20,5	9,3	67,5	72,0	11760	14400	540	567	432	329	265	30,7
4x10+4x2,5	1,95	4,2	-	23,2	25,3	1060	80	74	78	59	45	36	1,3
4x16+4x2,5	1,24	5,4	-	25,5	27,6	1360	1280	99	104	79	60	4	2,0
4x25+4x2,5	0,795	6,6	-	29,6	32,8	1910	2000	131	138	105	80	64	3,2
4x35+4x2,5	0,565	8,0	-	32,8	36,0	2530	2800	162	170	130	99	79	4,5
4x50+4x4	0,393	9,3	-	38,0	41,2	3370	4000	202	212	162	123	99	6,4



PANZERFLEX-L 0,6/1 kV - Instrumentation and Control

MAIN APPLICATION - Mining

Flexible power cables for use on connecting movable parts of machine tools and any material handling equipment. (Suitable for any energy supply on cable reels and festoon systems associated to high mechanical stresses, frequent bending/torsional operation and fast movement with strong acceleration.

CONSTRUCTION

Conductor:	Tinned copper conductor, flexible cl.5 IEC 60228 Specially designed for mobile application
Insulation:	HEPR compound better than 3G13 New specially developed crushproof compound with improved electrical and mechanical characteristics
Cores identification:	Black with printed numbers with or without 1 green/yellow Standard: with green/yellow core in the outer layer
Laying-up:	Short lay length for better flexibility ≤7,5 times the laying-up cores diameter in maximum 3 layer
Separation (if any):	Tape(s)
Inner sheath:	Polychloroprene rubber based compound Better than GM1b
Antitwisting protection:	Synthetic yarns Firmly bonded between inner and outer sheath
Outer sheath:	Black polychloroprene rubber compound UV resistant, oil and chemical resistant better than 5GM2
Marking:	Prysmian Group PALAZZO - PANZERFLEX-L 0,6/1 kV <i>nc x cross section</i>

PARAMETERS

ELECTRICAL	Rated voltage	U ₀ /U = 0,6/1 kV
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	U _m = 1,2 kV 3,5 kV
	Current Carrying Capacity	According to DIN VDE 0298 part 4
THERMAL	Fully flexible operation	- 25 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor Short-circuit temperature of the conductor	90 °C 250 °C
MECHANICAL	Tensile load Minimum bending radii Reeling operation	Up to 15 N/mm ² According to DIN VDE 0298 part 3 No restriction. Consult the manufacturer if speed exceeds 180 m/min
CHEMICAL	Festoon systems	Up to 240 m/min
	Resistance to oil Weather resistance	According to VDE / IEC standard Unrestricted use outdoor and indoor, UV resistant, moisture resistant.

TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION (N·MM ²)	CONDUCTOR		SPLITTED PROTEC. EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	LAID STRAIGHT A	SUSPENDED IN FREE AIR A	CURRENT CARRYING CAPACITY AT 30 °C*			SHORT CIRCUIT CURRENT 80° TO 200 °C kA
	D.C. RESIST. AT 20 °C 0HM/KM	NOM. DIAM. MM		MIN. MM	MAX. MM					SPIRAL OR 1 LAYER A	2 LAYER A	3 LAYER A	
3x1.5	13,7	1,5	-	12,4	14,5	255	68	23	24	18	14	11	0,19
4x1.5	13,7	1,5	-	13,1	15,2	285	90	23	24	18	14	11	0,19
5x1.5	13,7	1,5	-	14,0	16,0	320	113	23	24	18	14	11	0,19
7x1.5	13,7	1,5	-	15,8	17,9	415	158	23	24	18	14	11	0,19
12x1.5	13,7	1,5	-	19,1	21,2	585	270	23	24	18	14	11	0,19
18x1.5	13,7	1,5	-	21,6	23,7	765	405	23	24	18	14	11	0,19
24x1.5	13,7	1,5	-	25,6	27,6	1040	540	23	24	18	14	11	0,19
30x1.5	13,7	1,5	-	26,6	28,7	1140	675	23	24	18	14	11	0,19
36x1.5	13,7	1,5	-	28,6	31,8	1370	810	23	24	18	14	11	0,19
3x2.5	8,21	2,0	-	13,4	15,5	310	113	30	32	24	18	15	0,32
4x2.5	8,21	2,0	-	14,3	16,3	355	150	30	32	24	18	15	0,32
5x2.5	8,21	2,0	-	15,2	17,3	410	188	30	32	24	18	15	0,32
7x2.5	8,21	2,0	-	18,1	20,2	570	263	30	32	24	18	15	0,32
12x2.5	8,21	2,0	-	21,1	23,2	760	450	30	32	24	18	15	0,32
18x2.5	8,21	2,0	-	24,7	26,8	1070	675	30	32	24	18	15	0,32
24x2.5	8,21	2,0	-	28,6	31,8	1450	900	30	32	24	18	15	0,32
30x2.5	8,21	2,0	-	30,0	33,0	1600	1125	30	32	24	18	15	0,32
36x2.5	8,21	2,0	-	31,8	35,0	1850	1350	30	32	24	18	15	0,32
7x4	5,09	2,4	-	20,6	22,6	760	420	41	43	33	25	20	0,51
12x4	5,09	2,4	-	25,0	27,0	1085	720	41	43	33	25	20	0,51
18x4	5,09	2,4	-	28,4	30,4	1460	1080	41	43	33	25	20	0,51

FESTOONFLEX-LX 0,6/1 kV - Instrumentation and Control

MAIN APPLICATION - Mining / Bulk Material Handling

Flexible power and cables for use on festoon system and for connecting movable parts of machine tools and any material handling equipment with fast movement strong acceleration and frequent bending during operation.

CONSTRUCTION

Conductor:	Bare copper conductor, flexible cl.5 IEC 60228
Insulation:	EPR compound better than 3GI3 Specially developed crushproof compound with improved electrical and mechanical characteristics
Cores identification:	Colours according to DIN VDE 0293 part 308 / HD 308 S2 Standard colours: - 1 core: black - 3 cores: brown, black, grey - 4C cores: green/yellow, brown, black, grey - 5C cores: green/yellow, blue, brown, black, grey - >5 cores: black with printed numbers + 1 green/yellow
Screen:	For individually screened pairs Made of tinned copper surface covered: approx 80%
Laying-up:	Short lay length for better flexibility Cores arrangement in maximum 3 layer
Separation (if any):	Tape(s)
Outer sheath:	Black polychloroprene rubber based compound UV resistant, oil and chemical resistant better than 5GM3
Antitwisting protection:	Synthetic yarns Firmly bonded between inner and outer sheath
Outer sheath:	Black polychloroprene rubber compound UV resistant oil and chemical resistant better then 5GM2
Marking:	Prysmian Group PALAZZO - FESTOONFLEX-L 0,6/1 kV nc x cross section

PARAMETERS

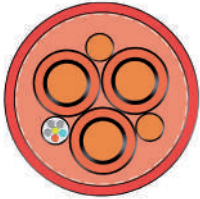
ELECTRICAL	Rated voltage	U ₀ /U = 0,6/1 kV
	Maximum permissible operating voltage in AC systems AC test voltage over 5 minutes	U _m = 1,2 kV 3,5 kV - power cores & control 2,5 kV - screened pairs cables
	Current Carrying Capacity	According to DIN VDE 0298 part 4
THERMAL	Fully flexible operation	- 30 °C
	Fixed installation	- 40 °C
	Maximum permissible operating temperature of the conductor	90 °C
	Short-circuit temperature of the conductor	250 °C
MECHANICAL	Tensile load Minimum	Up to -15N/mm ²
	bending radii Reeling operation Festoon systems	According to DIN VDE 0298 part 3 60 m/min Up to 240 m/min
CHEMICAL	Resistance to oil	According to VDE / IEC standard
	Weather resistance	Unrestricted use outdoor and indoor, UV resistant, moisture resistant.



TECHNICAL PARAMETERS

N. OF CORES AND NOMINAL SECTION (N-MM ²)	MAIN CONDUCTOR		SPLITTED PROTEC. EARTH COND. NOM. DIAM. MM	OVERALL DIAMETER		NET WEIGHT APPROX. KG/KM	MAXIMUM PERMISSIBLE TENSILE FORCE N	CURRENT CARRYING CAPACITY AT 30 °C*	
	D.C. RESIST. AT 20 °C OHM/KM	NOM. DIAM. MM		MIN. MM	MAX. MM			LAID STRAIGHT A	SUSPENDED IN FREE AIR A
1x16	1,21	5,1	-	9,9	12,0	233	240	141	148
1x25	0,780	6,5	-	11,8	13,9	333	375	187	196
1x35	0,554	7,5	-	12,8	14,9	425	525	231	243
1x50	0,386	9,1	-	15,3	17,4	603	750	288	302
1x70	0,272	10,8	-	17,1	19,2	816	1050	357	375
1x95	0,206	12,1	-	18,4	20,5	1.012	1425	430	452
1x120	0,161	14,3	-	21,4	23,5	1.323	1800	503	528
1x150	0,129	16,1	-	23,6	25,7	1.627	2250	577	606
1x185	0,106	17,5	-	25,8	27,9	1.950	2775	658	691
1x240	0,0801	19,9	-	28,0	31,2	2.466	3600	771	810
3x25+3G16/3	0,780	6,5	3,0	25,5	27,6	1.354	1125	131	138
3x35+3G16/3	0,554	7,5	3,0	27,4	30,6	1.685	1575	162	170
3x50+3G25/3	0,386	9,1	4,0	32,0	35,2	2.329	2250	202	212
3x70+3G35/3	0,272	10,8	4,9	36,2	39,4	3.188	3150	250	263
3x95+3G50/3	0,206	12,1	5,4	39,9	43,1	4.032	4275	301	316
3x120+3G70/3	0,161	14,3	6,6	46,3	50,3	5.382	5400	352	370
4G1,5	13,3	1,5	-	11,5	13,6	201	90	23	24
4G2,5	7,98	2,0	-	12,5	14,6	260	150	30	32
4G4	4,95	2,4	-	14,1	16,2	354	240	41	43
4G6	3,30	3,0	-	16,4	18,5	476	360	53	56
4G10	1,91	4,0	-	19,2	21,3	696	600	74	78
4G16	1,21	5,1	-	22,3	24,4	1.020	960	99	104
4G25	0,780	6,5	-	27,2	30,4	1.536	1500	131	138
4G35	0,554	7,5	-	30,0	33,2	1.963	2100	162	170
4G50	0,386	9,1	-	35,4	38,6	2.764	3000	202	212
4G70	0,272	10,8	-	40,2	43,4	3.798	4200	250	263
4G95	0,206	12,1	-	44,0	48,0	4.764	5700	301	316
5G4	4,95	2,4	-	16,0	18,1	450	300	41	43
5G6	3,30	3,0	-	17,8	19,9	565	450	53	56
5G10	1,91	4,0	-	20,1	22,2	835	750	74	78
5G16	1,210	5,1	-	24,3	26,4	1.232	1200	99	104
5G25	0,780	6,5	-	29,7	32,9	1.860	1875	131	138
5G35	0,554	7,50	-	33,1	36,3	2.408	2625	162	170
7X1,5	13,3	1,5	-	15,0	17,1	340	158	23	24
12X1,5	13,3	1,5	-	20,0	22,1	573	270	23	24
18X1,5	13,3	1,5	-	20,5	22,6	637	405	23	24
24X1,5	13,3	1,5	-	23,8	25,9	837	540	23	24
30X1,5	13,3	1,5	-	27,2	29,3	1.090	675	23	24
36X1,5	13,3	1,5	-	27,0	30,2	1.135	810	23	24
7X2,5	7,98	2,0	-	16,4	18,5	443	263	30	32
12X2,5	7,98	2,0	-	22,4	24,5	785	450	30	32
18X2,5	7,98	2,0	-	22,6	24,7	868	675	30	32
24X2,5	7,98	2,0	-	27,1	29,2	1.203	900	30	32
30X2,5	7,98	2,0	-	29,7	32,9	1.495	1125	30	32
36X2,5	7,98	2,0	-	29,9	33,1	1.582	1350	30	32
3x(2x1)C	19,5	1,3	-	18,5	20,6	500	90	-	-
4x(2x1)C	19,5	1,3	-	20,5	22,6	615	120	-	-
6x(2x1)C	19,5	1,3	-	24,1	26,2	850	180	-	-
3x(2x1,5)C	13,3	1,5	-	19,6	21,7	563	135	-	-
4x(2x1,5)C	13,3	1,5	-	21,7	23,8	693	180	-	-
6x(2x1,5)C	13,3	1,5	-	26,4	28,5	1.003	270	-	-

CUSTOM CABLE - Specific Requests



MAIN APPLICATION - Mining / Tunneling / Bulk Material Handling

We understand that in the OEM market it is often difficult to match the application towards pre-defined list of standard cables, therefore we are always open to design and produce products tailored specifically to customer request.

MOST OFTEN USED MATERIALS FOR SPECIFIC CONSTRUCTION REQUESTS:

Conductor:	Bare copper conductor, flexible cl.5 IEC 60228
Insulation:	EPR compound better than 3GI3 Specially developed crushproof compound with improved electrical and mechanical characteristics
Screen:	For individually screened pairs Made of tinned copper surface covered: approx 80%
Laying-up:	Short lay length for better flexibility Cores arrangement in maximum 3 layer
Separation (if any):	Tape(s)
Outer sheath:	Black polychloroprene rubber based compound UV resistant, oil and chemical resistant better than 5GM3
Antitwisting protection:	Synthetic yarns Firmly bonded between inner and outer sheath
Outer sheath:	Black polychloroprene rubber compound UV resistant oil and chemical resistant better then 5GM2
Marking:	Prysmian Group PALAZZO - CUSTOM 0,6/1 kV nc x cross section

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