



ARISTONCAVI



CRANES



ELECTRIC CABLES

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ELECTRIC CABLES FOR MOBILE CONNECTIONS





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THE ENERGY OF HERITAGE

Aristoncavi starts its activity in Brendola (Vicenza) in 1958 on a 1.600 sqm surface, since then it has grown up to the present 35.000 sqm due to a expansion and re-allocation of the manufacturing sites and warehouses, shared between the two production units dedicated to the manufacture of conductors and electric cables.

Today it is one of the most important independent man-

ufacturers of rubber insulated low voltage and medium voltage (up to 45kV) cables. Aristoncavi has moreover achieved leading positions in some market segments for the “special application” cables. In the last years the company has especially invested in the technological growth, by strengthening the technical department with a particular care for the Research & Development.

HEAD QUARTER

• VICENZA, Italy

BRANCH OFFICES

- DUBAI, United Arab Emirates
- SHANGHAI, China
- SANTIAGO, Chile

IN THE WORLD

Aristoncavi, with its products, has contributed to the realization of important projects worldwide and it more than 80% exports today in more than 50 countries in the world also thanks to its branch offices: in Dubai (for the Middle East and African market), in Shanghai (for the Chinese, Australian and South Pacific market) and in Santiago de Chile (for the North and South American market).



Aristoncavi has its own innovative specific production and laboratory equipment, capable of engineering and manufacturing "high-tech" cables for different applications. The company can boast the quality of the Italian products that, in relation to the different construction characteristics and different uses can be listed in the following main families:

- reeling application
- mining application
- tunneling application
- wind towers application
- railways application
- resistant to the permanent immersion in liquids
- infrastructure

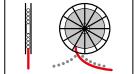
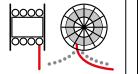
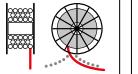
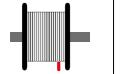
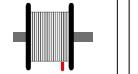
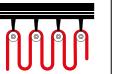
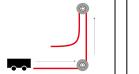
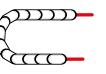


MAIN FEATURES SUMMARY

	MAX WOR- KING- SPEED	RATED VOLTAGE	TEST VOLTAGE	WORKING TEMP. ON THE CON- DUCTOR	SHORT CIRCUIT TEMP.	OIL RESI- STANCE	OZONE RESI- STANCE	UV RESI- STANCE	BURNING BEHAVIOR
	m/min	V-kV	kV	°C	°C				
URSUS®	120	0,6/1	4	90	250	•	•	•	•
URSUS® VS / VS SL	180	0,6/1	4	90	250	•	•	•	•
URSUS® PUR HF	180	0,6/1	4	90	250	•	•		•
URSUS® V PLUS	240	0,6/1	4	90	200	•	•	•	•
URSUS® BASKET	160	300/500	2	70*	150**	•	•		•
URSUS® FESTOON / FESTOON FO	240	0,6/1	4	90	250	•	•	•	•
URSUS® MT PLUS	120	3,6/6 6/10 8,7/15 12/20	11/17/24/29	90	250	•	•	•	•
URSUS® MT FO / FO KN PLUS	240	3,6/6 6/10 8,7/15 12/20	11/17/24/29	90	250	•	•	•	•

* 90°C for the version URSUS® BASKET LT

** 250°C for the version URSUS® BASKET LT

MONOSPI- RAL DRUM	MULTISPI- RAL DRUM	CYLINDRINC DRUM	VERTICAL DRUM	SPREADER BASKET	MOTORIZED SPREADER	FESTOON	SYSTEM WITH CABLE TENDERS	GUIDE PULLEY SYSTEMS	CARRIER CHAINS
									

■	■	■							■
■	■	■	■				■	■	
■	■	■	■				■	■	
				■					
■	■	■				■			■
■	■	■							■

■ Main application ■ Suitable

URSUS® 0,6/1kV

NSHTÖU-O/J

DIN VDE 0250 Part 814 Approved

① PHASE CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: 3GI3 rubber compound, according to VDE 0207 Part 20

THICKNESS: According to VDE 0250 Part 814

CORES IDENTIFICATION

According to DIN VDE 0293 Part 308 (HD 308 S2)

LAYING-UP

≤ 8 times the laying-up cores diameter

③ INNER SHEATH

MATERIAL: GM1b quality rubber compound, according to VDE 0207 Part 21

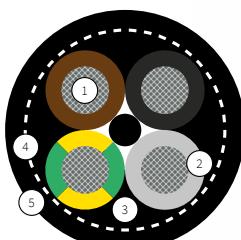
④ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

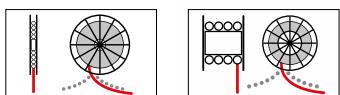
⑤ OUTER SHEATH

MATERIAL: special rubber compound, at least 5GM3 quality,
according to VDE 0207 Part 21

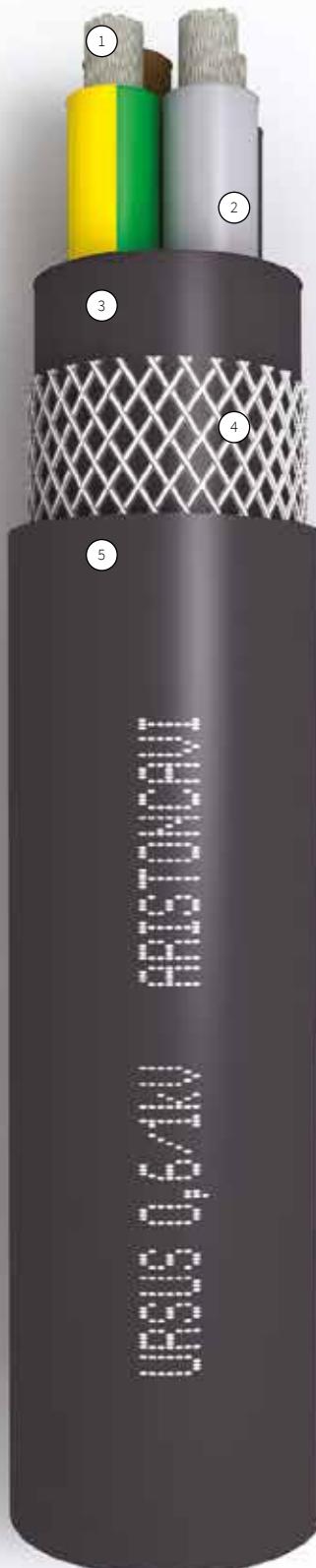
COLOUR: black



APPLICATION



Flexible cable designed for power and signalling mobile connections, under severe mechanical stresses (tensile strength and torsion), for heavy duty conditions, abrasion and crushing. The cable is typically used in cable winding reels for harbour cranes, container cranes, conveyors, handling machines and mining and tunnelling equipment.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV 0,6/1
Test voltage	kV 4
Max AC voltage	kV 0,7/1,2
Max DC voltage	kV 1,8
Current rating	A According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C 250
Maximum working temp. on the conductor	°C 90
Minimum ambient temperature*	°C Mobile condition: - 25 Static condition: - 40

* For ambient temperature up to -40 °C in mobile application the cable URSUS-K is available

MECHANICAL WORKING DATA

Bending radius	mm According to VDE 0298 Part 3
Maximum torsional stress	°/m ± 25
Maximum tensile load*	N/mm ² 20
Max working speed	m/min 120
Special test	Reeling test

* Referred to the total phase conductors cross section

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® 0,6/1kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	3G1,5	1,5	13,8	14,8	270	90
0,6/1	3G2,5	1,9	15,3	16,3	330	150
0,6/1	3G4	2,4	17,0	18,0	420	240
0,6/1	3G6	2,9	18,3	19,3	520	360
0,6/1	3G10	3,8	21,4	23,3	750	600
0,6/1	3G16	4,8	23,5	25,4	970	960
0,6/1	3G25	6,9	28,2	30,2	1450	1500
0,6/1	3G35	7,8	31,6	33,6	1890	2100
0,6/1	3G50	9,3	36,8	38,8	2600	3000
0,6/1	3G70	11,1	40,4	43,3	3340	4200
0,6/1	3G95	12,7	46,3	49,2	4380	5700
0,6/1	3G120	14,5	49,9	52,9	5330	7200
0,6/1	3G150	16,7	55,4	58,4	6700	9000
0,6/1	3G185	17,6	62,6	66,5	8100	11100
0,6/1	3G240	20,6	67,8	70,2	10850	14400
0,6/1	3x35+3G16/3	7,8	31,6	33,6	2100	2100
0,6/1	3x50+3G25/3	9,3	36,8	38,8	2800	3000
0,6/1	3x70+3G35/3	11,1	40,4	43,3	3790	4200
0,6/1	3x95+3G50/3	12,7	46,3	49,2	4710	5700
0,6/1	3x120+3G70/3	14,5	49,9	52,9	5840	7200
0,6/1	3x150+3G70/3	16,7	55,4	58,4	7080	9000
0,6/1	3x185+3G95/3	17,6	62,6	66,5	8940	11100
0,6/1	3x240+3G120/3	20,6	67,8	70,2	11320	14400
0,6/1	4G1,5	1,5	14,6	15,6	300	120
0,6/1	4G2,5	1,9	16,7	17,7	400	200
0,6/1	4G4	2,4	18,2	19,2	500	320
0,6/1	4G6	2,9	19,6	20,6	620	480
0,6/1	4G10	3,8	23,0	24,9	890	800
0,6/1	4G16	4,8	25,1	27,0	1170	1280
0,6/1	4G25	6,9	32,2	34,2	1900	2000
0,6/1	4G35	7,8	34,4	36,4	2340	2800
0,6/1	4G50	9,3	40,0	42,9	3250	4000
0,6/1	4G70	11,1	44,2	47,1	4180	5600
0,6/1	4G95	12,7	50,6	53,6	5500	7600
0,6/1	4G120	14,5	56,5	59,5	6950	9600
0,6/1	4G150	16,7	62,6	66,5	8570	12000
0,6/1	4G185	17,6	67,4	71,4	10160	14800

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	5G1,5	1,5	15,5	16,5	350	150
0,6/1	5G2,5	1,9	17,8	18,8	460	250
0,6/1	5G4	2,4	19,4	20,4	580	400
0,6/1	5G6	2,9	21,3	23,2	750	600
0,6/1	5G10	3,8	24,8	26,7	1060	1000
0,6/1	5G16	4,8	27,1	29,0	1410	1600
0,6/1	5G25	6,9	35,0	37,0	2290	2500
0,6/1	5G35	7,8	38,8	40,8	2940	3500
0,6/1	5G50	9,3	43,6	46,5	3940	5000
0,6/1	5G70	11,1	50,0	53,0	5300	7000
0,6/1	7G1,5	1,5	18,0	19,0	440	210
0,6/1	12G1,5	1,5	20,0	21,9	580	360
0,6/1	18G1,5	1,5	23,1	25,0	790	540
0,6/1	24G1,5	1,5	26,7	28,6	1040	720
0,6/1	30G1,5	1,5	27,7	29,6	1140	900
0,6/1	36G1,5	1,5	30,0	32,0	1360	1080
0,6/1	42G1,5	1,5	32,1	34,1	1570	1260
0,6/1	44G1,5	1,5	35,0	37,0	1790	1320
0,6/1	50G1,5	1,5	36,7	38,7	1990	1500
0,6/1	7G2,5	1,9	20,2	22,1	590	350
0,6/1	12G2,5	1,9	23,2	25,1	790	600
0,6/1	18G2,5	1,9	26,8	28,7	1110	900
0,6/1	24G2,5	1,9	31,2	33,2	1480	1200
0,6/1	30G2,5	1,9	32,4	34,4	1620	1500
0,6/1	36G2,5	1,9	36,1	38,1	2030	1800
0,6/1	42G2,5	1,9	38,7	40,7	2330	2100
0,6/1	44G2,5	1,9	41,8	44,7	2650	2200
0,6/1	50G2,5	1,9	43,9	45,6	2990	2500
0,6/1	7G4	2,4	22,6	24,5	760	560
0,6/1	12G4	2,4	30,3	32,3	1400	960
0,6/1	18G4	2,4	31,9	33,9	1580	1440

URSUS® VS 0,6/1kV

(N)SHTÖU - O/J

Based on DIN VDE 0250 Part 814

① PHASE CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: 3GI3 rubber compound, according to VDE 0207 Part 20

THICKNESS: According to VDE 0250 Part 814

CORES IDENTIFICATION

According to DIN VDE 0293 Part 308 (HD 308 S2)

LAYING-UP

≤ 8 times the laying-up cores diameter

③ INNER SHEATH

MATERIAL: special rubber compound 5GM5 quality,

according to VDE 0207 Part 21

④ ANTITWISTING ELEMENT

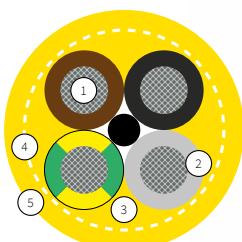
MATERIAL: polyester braid between inner and outer sheath

⑤ OUTER SHEATH

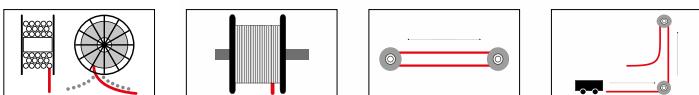
MATERIAL: special rubber compound, at least 5GM5 quality,

according to VDE 0207 Part 21

COLOUR: yellow



APPLICATION



Flexible cable designed for power mobile connections, under very high mechanical stresses (tensile strength and torsion), for heavy duty conditions, abrasion and crushing. The cable is typically used in cable winding reels for harbour cranes, container cranes, conveyors, handling machines for vertical reeling applications.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV	0,6/1
Test voltage	kV	4
Max AC voltage	kV	0,7/1,2
Max DC voltage	kV	1,8
Current rating	A	According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C	250
Maximum working temp. on the conductor	°C	90
Minimum ambient temperature*	°C	Mobile condition: - 30 Static condition: - 50

* For ambient temperature up to -40 °C in mobile application the cable URSUS VS K is available

MECHANICAL WORKING DATA

Bending radius	mm	According to VDE 0298 Part 3
Maximum torsional stress	°/m	± 50
Maximum tensile load*	N/mm ²	30
Max working speed	m/min	180
Special test		Reeling test

* Referred to the total phase conductors cross section

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® VS 0,6/1kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	3G1,5	1,5	13,8	14,8	270	135
0,6/1	3G2,5	1,9	15,3	16,3	330	225
0,6/1	3G4	2,4	17,0	18,0	420	360
0,6/1	3G6	2,9	18,3	19,3	520	540
0,6/1	3G10	3,8	21,4	23,3	750	900
0,6/1	3G16	4,8	23,5	25,4	970	1440
0,6/1	3G25	6,9	28,2	30,2	1450	2250
0,6/1	3G35	7,8	31,6	33,6	1890	3150
0,6/1	3G50	9,3	36,8	38,8	2600	4500
0,6/1	3G70	11,1	40,4	43,3	3340	6300
0,6/1	3G95	12,7	46,3	49,2	4380	8550
0,6/1	3G120	14,5	49,9	52,9	5330	10800
0,6/1	3G150	16,7	55,4	58,4	6700	13500
0,6/1	3G185	17,6	62,6	66,5	8100	16650
0,6/1	3G240	20,6	67,8	70,2	10850	21600
0,6/1	3x35+3G16/3	7,8	31,6	33,6	2100	3150
0,6/1	3x50+3G25/3	9,3	36,8	38,8	2800	4500
0,6/1	3x70+3G35/3	11,1	40,4	43,3	3790	6300
0,6/1	3x95+3G50/3	12,7	46,3	49,2	4710	8550
0,6/1	3x120+3G70/3	14,5	49,9	52,9	5840	10800
0,6/1	3x150+3G70/3	16,7	55,4	58,4	7080	13500
0,6/1	3x185+3G95/3	17,6	62,6	66,5	8940	16650
0,6/1	3x240+3G120/3	20,6	67,8	70,2	11320	21600



VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	4G1,5	1,5	14,6	15,6	300	180
0,6/1	4G2,5	1,9	16,7	17,7	400	300
0,6/1	4G4	2,4	18,2	19,2	500	480
0,6/1	4G6	2,9	19,6	20,6	620	720
0,6/1	4G10	3,8	23,0	24,9	890	1200
0,6/1	4G16	4,8	25,1	27,0	1170	1920
0,6/1	4G25	6,9	32,2	34,2	1900	3000
0,6/1	4G35	7,8	34,4	36,4	2340	4200
0,6/1	4G50	9,3	40,0	42,9	3250	6000
0,6/1	4G70	11,1	44,2	47,1	4180	8400
0,6/1	4G95	12,7	50,6	53,6	5500	11400
0,6/1	4G120	14,5	56,5	59,5	6950	14400
0,6/1	4G150	16,7	62,6	66,5	8570	18000
0,6/1	4G185	17,6	67,4	71,4	10160	22200
0,6/1	5G1,5	1,5	15,5	16,5	350	225
0,6/1	5G2,5	1,9	17,8	18,8	460	375
0,6/1	5G4	2,4	19,4	20,4	580	600
0,6/1	5G6	2,9	21,3	23,2	750	900
0,6/1	5G10	3,8	24,8	26,7	1060	1500
0,6/1	5G16	4,8	27,1	29,0	1410	2400
0,6/1	5G25	6,9	35,0	37,0	2290	3750
0,6/1	5G35	7,8	38,8	40,8	2940	5250
0,6/1	5G50	9,3	43,6	46,5	3940	7500
0,6/1	5G70	11,1	50,0	53,0	5300	10500



URSUS® VS SL 0,6/1kV

(N)SHTÖU - O/J

Based on DIN VDE 0250 Part 814

① PHASE CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: 3GI3 rubber compound, according to VDE 0207 Part 20

CORES IDENTIFICATION

According to DIN VDE 0293 Part 308 (HD 308 S2)

LAYING-UP

≤ 8 times the laying-up cores diameter

③ CENTRAL FILLER

rubber compound on KEVLAR® support

④ INNER SHEATH

MATERIAL: special rubber compound 5GM5 quality,

according to VDE 0207 Part 21

⑤ ANTITWISTING ELEMENT

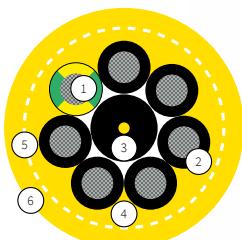
MATERIAL: polyester braid between inner and outer sheath

⑥ OUTER SHEATH

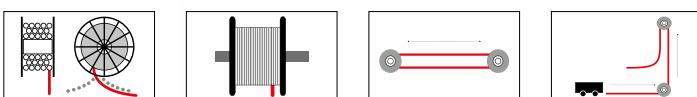
MATERIAL: special rubber compound, at least 5GM5 quality,

according to VDE 0207 Part 21

COLOUR: yellow



APPLICATION



Flexible cable designed for signalling mobile connections, under very high mechanical stresses (tensile strength and torsion), for heavy duty conditions, abrasion and crushing. The cable is typically used in cable winding reels for harbour cranes, container cranes, conveyors, handling machines, for vertical reeling application like for spreaders.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV 0,6/1
Test voltage	kV 4
Max AC voltage	kV 0,7/1,2
Max DC voltage	kV 1,8
Current rating	A According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C 250
Maximum working temp. on the conductor	°C 90
Minimum ambient temperature*	°C Mobile condition: - 30 Static condition: - 50

* For ambient temperature up to -40 °C in mobile application the cable URSUS VS SL K is available

MECHANICAL WORKING DATA

Bending radius	mm According to VDE 0298 Part 3
Maximum torsional stress*	°/m ± 50
Maximum tensile load**	N/mm ² 30
Max working speed	m/min 180
Special test	Reeling test

* Upon request it's available also the version URSUS VS SL KN with aramide antitwisting braid ** Referred to the total phase conductors cross section

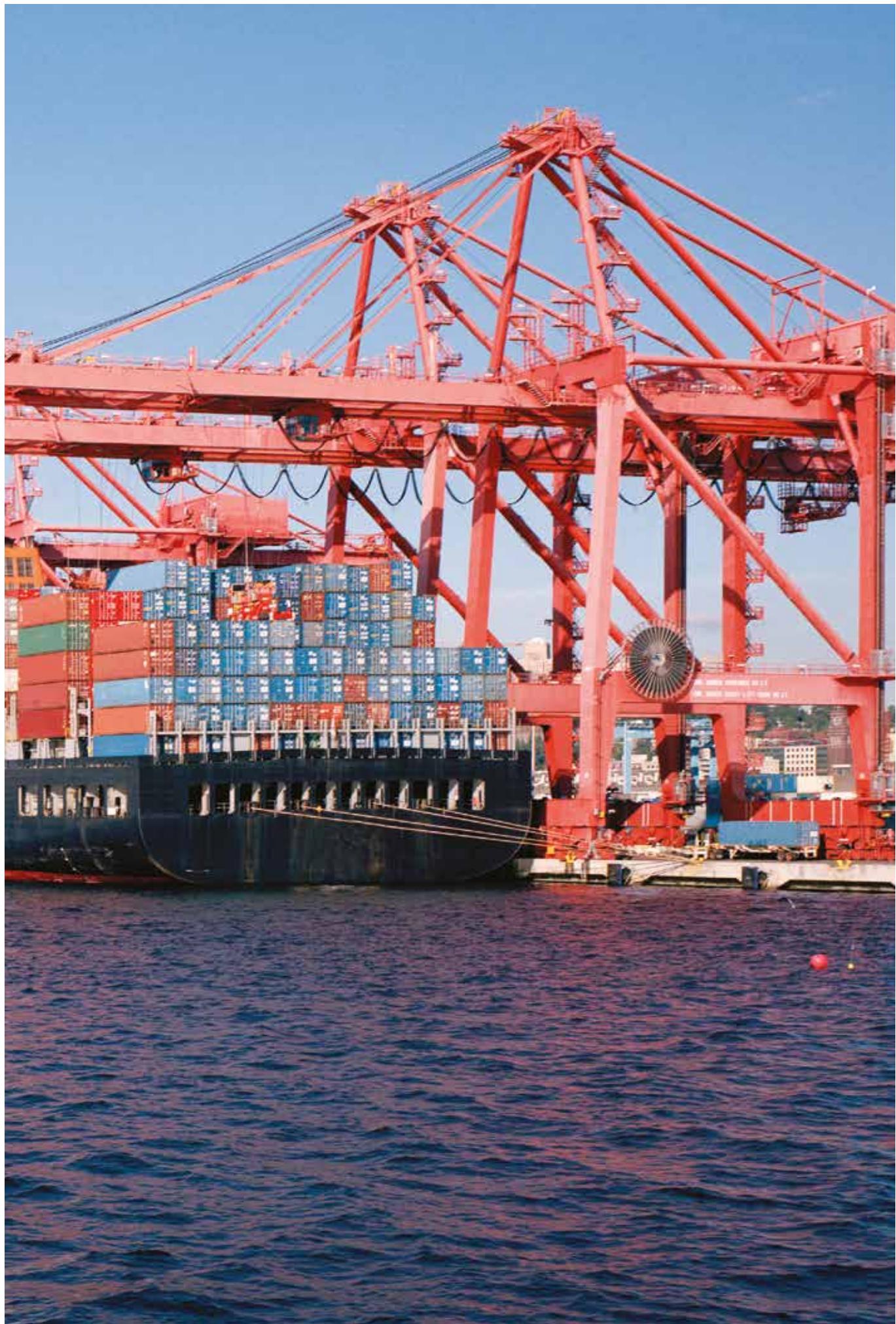
CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® VS SL 0,6/1kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	7G1,5	1,5	17,1	18,1	390	2315
0,6/1	12G1,5	1,5	22,3	24,2	690	2540
0,6/1	18G1,5	1,5	22,1	24,0	720	2810
0,6/1	24G1,5	1,5	25,9	27,8	1000	3080
0,6/1	30G1,5	1,5	28,8	30,8	1260	3350
0,6/1	36G1,5	1,5	29,2	31,2	1310	3620
0,6/1	44G1,5	1,5	32,6	34,6	1590	3980
0,6/1	48G1,5	1,5	33,0	35,0	1680	4160
0,6/1	56G1,5	1,5	37,5	39,5	2090	4520
0,6/1	7G2,5	1,9	19,2	20,2	490	2525
0,6/1	12G2,5	1,9	25,2	27,1	930	2900
0,6/1	18G2,5	1,9	24,9	26,8	960	3350
0,6/1	24G2,5	1,9	29,3	31,3	1320	3800
0,6/1	30G2,5	1,9	32,2	34,2	1640	4250
0,6/1	36G2,5	1,9	32,6	34,6	1720	4700
0,6/1	44G2,5	1,9	38	40,0	2240	5300
0,6/1	48G2,5	1,9	38,9	40,9	2380	5600
0,6/1	56G2,5	1,9	43,3	46,2	2940	6200



URSUS® PUR HF 0,6/1kV

(N)SHTÖU - O/J

Based on DIN VDE 0250 Part 814

① PHASE CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: 3GI3 rubber compound, according to VDE 0207 Part 20

CORES IDENTIFICATION

According to DIN VDE 0293 Part 308 (HD 308 S2)

LAYING-UP

≤ 8 times the laying-up cores diameter

③ INNER SHEATH

MATERIAL: halogen free polyurethane

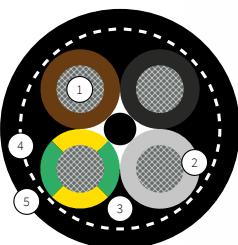
ANTITWISTING ELEMENT

④ MATERIAL: polyester braid between inner and outer sheath

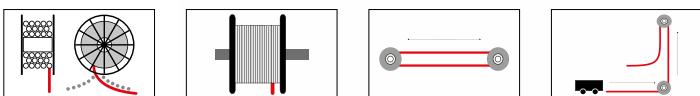
OUTER SHEATH

⑤ MATERIAL: halogen free polyurethane

COLOUR: black



APPLICATION



Flexible cable designed for power and signalling mobile connections, under severe mechanical stresses (tensile strength and torsion), for heavy duty conditions, abrasion and crushing. The cable is typically used in cable winding reels for harbour cranes, container cranes, conveyors, handling machines and mining and tunnelling equipment. The halogen free polyurethane sheath grants more lightness by retaining the mechanical properties and abrasion resistance.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV 0,6/1
Test voltage	kV 4
Max AC voltage	kV 0,7/1,2
Max DC voltage	kV 1,8
Current rating	A According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C 250
Maximum working temp. on the conductor	°C 90
Minimum ambient temperature	°C Mobile condition: - 40 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm According to VDE 0298 Part 3
Maximum torsional stress	°/m ± 25
Maximum tensile load*	N/mm ² 30
Max working speed	m/min 180
Special test	Reeling test

* Referred to the total phase conductors cross section

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
Gas emission during combustion	According to IEC 60754-1



URSUS® PUR HF 0,6/1kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	3x25+3G16/3	6,9	27,1	27,5	1390	2250
0,6/1	3x35+3G16/3	7,8	29,6	30,0	1740	3150
0,6/1	3x50+3G25/3	9,3	34,6	35,4	2470	4500
0,6/1	3x70+3G35/3	11,1	38,5	39,3	3290	6300
0,6/1	3x95+3G50/3	12,7	42,8	43,6	4090	8550
0,6/1	3x120+3G70/3	14,5	46,7	47,5	5220	10800
0,6/1	3x150+3G70/3	16,7	53,3	54,2	6460	13500
0,6/1	3x185+3G95/3	17,6	56,9	57,8	7720	16650
0,6/1	4G4	2,4	16,5	16,9	380	480
0,6/1	4G6	2,9	18,0	18,4	490	720
0,6/1	4G10	3,8	21,3	21,7	720	1200
0,6/1	4G16	4,8	23,8	24,2	990	1920
0,6/1	4G25	6,9	30,3	31,1	1610	3000
0,6/1	4G35	7,8	33,3	34,1	2090	4200
0,6/1	4G50	9,3	37,9	38,7	2830	6000
0,6/1	4G70	11,1	42,2	43,0	3720	8400
0,6/1	4G95	12,7	47,1	47,9	4770	11400
0,6/1	4G120	14,5	52,4	53,3	6040	14400
0,6/1	4G150	16,7	58,7	59,6	7520	18000



VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	5G4	2,4	17,8	18,2	460	600
0,6/1	5G6	2,9	19,4	19,8	590	900
0,6/1	5G10	3,8	23,1	23,5	870	1500
0,6/1	5G16	4,8	25,8	26,2	1200	2400
0,6/1	5G25	6,9	33,1	33,9	1970	3750
0,6/1	5G35	7,8	36,3	37,1	2560	5250
0,6/1	4G1,5	1,5	11,5	11,9	170	2180
0,6/1	5G1,5	1,5	12,1	12,5	190	2225
0,6/1	7G1,5	1,5	13,9	14,3	260	2315
0,6/1	12G1,5	1,5	17,7	18,1	450	2540
0,6/1	18G1,5	1,5	18,1	18,5	480	2810
0,6/1	24G1,5	1,5	20,7	21,1	630	3080
0,6/1	30G1,5	1,5	22,7	23,1	770	3350
0,6/1	36G1,5	1,5	23,1	23,5	800	3620
0,6/1	42G1,5	1,5	24,6	25,0	910	3890
0,6/1	4G2,5	1,9	12,7	13,1	220	2300
0,6/1	5G2,5	1,9	13,5	13,9	260	2375
0,6/1	7G2,5	1,9	15,6	16	360	2525
0,6/1	12G2,5	1,9	20,2	20,6	590	2900
0,6/1	18G2,5	1,9	20,6	21,0	660	3350
0,6/1	24G2,5	1,9	23,8	24,2	910	3800
0,6/1	30G2,5	1,9	26,2	26,6	1120	4250
0,6/1	36G2,5	1,9	26,6	27,0	1170	4700
0,6/1	42G2,5	1,9	29,1	29,5	1390	5150



URSUS® V PLUS 0,6/1kV

Aristoncavi specification

① PHASE CONDUCTORS

MATERIAL: tinned copper, extremely flexible

CONSTRUCTION: better than class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: special compound developed to have higher tensile load (more than 30MPa), high stability and excellent thermal resistance

③ CENTRAL FILLER

MATERIAL: rubber compound on Kevlar® tensile strength element, to increase max cable permissible tensile force and against whiplash

CORE ARRANGEMENT

Made by untwisting technology in order to avoid internal stress in the core arrangement, with a laid-up geometry for better torsion resistance

④ INNER SHEATH

MATERIAL: CR rubber compound in compliance with VDE

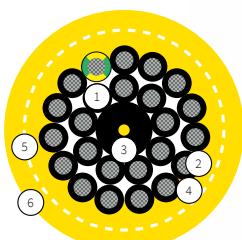
⑤ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

⑥ OUTER SHEATH

MATERIAL: CR rubber compound in compliance with VDE

COLOUR: yellow



APPLICATION



Heavy duty flexible cable designed for vertical reeling application like for spreaders; it is also used in other mobile application as in cable winding reels for harbour cranes, container cranes, conveyors, handling machines and other applications under high mechanical stresses.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV	0,6/1
Test voltage	kV	4
Max AC voltage	kV	0,7/1,2
Max DC voltage	kV	1,8
Current rating	A	According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C	200
Maximum working temp. on the conductor	°C	90
Minimum ambient temperature	°C	Mobile condition: - 35 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm	According to VDE 0298 Part 3
Maximum torsional stress	°/m	± 50
Maximum tensile load	N	See table below
Max working speed	m/min	240

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2

VOLTAGE	CORES X CROSS SECTION	CONDUCTOR Ø	MIN OVERALL Ø	MAX OVERALL Ø	APPROX WEIGHT	MAX TENSILE LOAD
kV	Nr x mm ²	mm	mm	mm	kg/km	N
0,6/1	24G2,5	2,1	27,8	28,8	1400	3800
0,6/1	30G2,5	2,1	30,3	31,3	1710	4200
0,6/1	36G2,5	2,1	30,4	31,4	1820	4700
0,6/1	44G2,5	2,1	35,7	36,7	2390	5300
0,6/1	56G2,5	2,1	39,2	40,3	2970	6200

Upon request different core design

URSUS® BASKET 300/500 V

YSLTOE-J

Based on DIN VDE 0250 Part 405

① CENTRAL SUPPORT ELEMENT

Lead balls ropes stranded around, KEVLAR® supports

② PHASE CONDUCTORS

MATERIAL: bare flexible copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

③ INSULATION

MATERIAL: Special thermoplastic compound

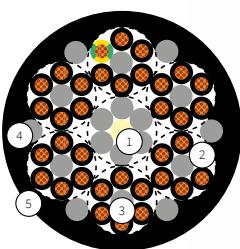
④ CORE ASSEMBLY

6 cores bundles, with central lead ball rope, stranded around the central support with interstitial lead ball ropes

⑤ SHEATH

MATERIAL: halogen free polyurethane

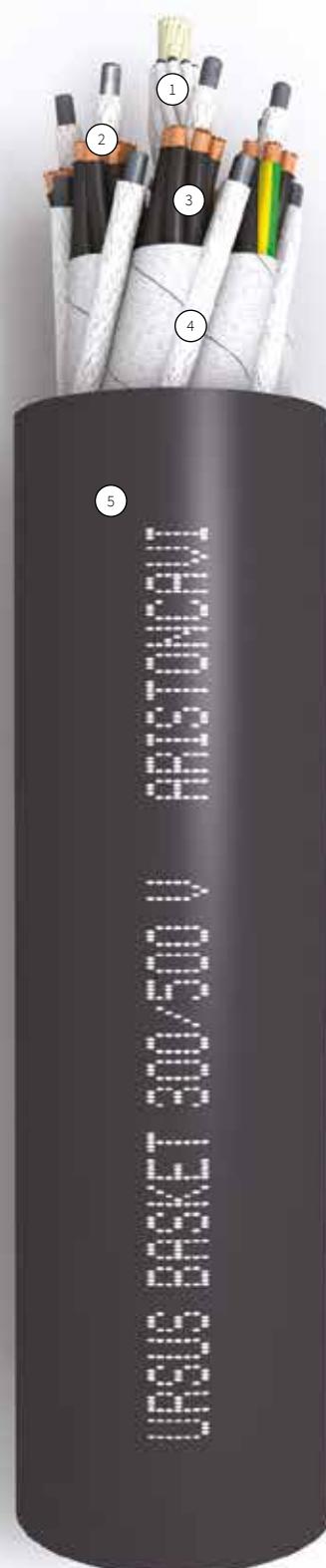
COLOUR: black



APPLICATION



Control cable specifically designed for gravity-feed collector baskets of latest generation high-speed container cranes. In order to avoid cable damages, the cable must be installed into the basket in counter-clockwise direction, free of torsion. The basket diameter has to be bigger than $30 \times D$ ($D =$ cable diameter) and the cable has to be hooked on the top with a proper system (cable mesh grip or 2,5 cable loops on anchoring drum).



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	V 300/500
Test voltage	kV 2
Max AC voltage	V 318/550
Max DC voltage	V 825
Current rating	A According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C 150
Maximum working temp. on the conductor	°C 70
Minimum ambient temperature	°C -20

Upon request URSUS® BASKET LT 0,6/1kV special version for low temperature (up to -40°C in mobile application)

MECHANICAL WORKING DATA

Bending radius	mm According to VDE 0298 Part 3
Maximum tensile load	N See table below
Max working speed on systems to basket	m/min 160

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2

VOLTAGE V	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
300/500	48G1	1,3	32,4	33	2460	13000
300/500	30G2,5	2	32,1	32,7	2060	13000
300/500	36G2,5	2	35,8	36,4	2670	13000
300/500	42G2,5	2	39,5	40,2	3330	13000
300/500	48G2,5	2	42,7	43,6	4260	13000

URSUS® FESTOON 0,6/1kV

(N)GRDGÖU - O/J

Based on DIN VDE 0250 Part 814

① PHASE CONDUCTORS

MATERIAL: bare flexible copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

② INSULATION

MATERIAL: 3GI3 quality rubber compound, according to VDE 0270 Part 20

SHIELD (WHERE APPLICABLE)

braid screen of tinned copper wires, approx coverage 80%

③ INNER SHEATH

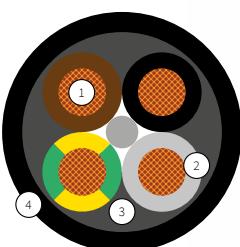
MATERIAL: rubber compound EPR based, GM1b quality

according to VDE 0270 Part 21

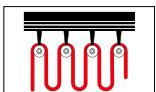
④ OUTER SHEATH

MATERIAL: special rubber compound at least 5GM3 quality,
according to VDE 0270 Part 21

COLOUR: black



APPLICATION



Power and control cable for festooning systems and connecting moveable parts of container cranes, industrial machines, material handling equipment, etc., under high mechanical stress and frequent bending.



ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV 0,6/1
Test voltage	kV 4
Max AC voltage	kV 0,7/1,2
Max DC voltage	kV 1,8
Current rating	A According to VDE 0298 Part 4

THERMAL WORKING DATA

Maximum short circuit temperature	°C 250
Maximum working temp. on the conductor	°C 90
Minimum ambient temperature	°C Mobile condition: - 30 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm According to VDE 0298 Part 3
Maximum torsional stress	°/m ± 90
Maximum tensile load*	N/mm ² 15
Max working speed	m/min 240

* Referred to the total phase conductors cross section

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® FESTOON 0,6/1kV

POWER CABLES

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	1x25	6,1	12	12,7	350	375
0,6/1	1x35	7,2	13,9	14,6	480	525
0,6/1	1x50	8,9	16	16,7	650	750
0,6/1	1x70	10,6	17,7	18,4	870	1050
0,6/1	1x95	12,5	20,3	21,3	1140	1425
0,6/1	1x120	14,2	22	23	1390	1800
0,6/1	1x150	15,9	24,1	25,1	1750	2250
0,6/1	1x185	17,7	26,9	27,9	2150	2775
0,6/1	3x35 + 3G16/3	7,2	26,6	27,6	1700	1575
0,6/1	3x50 + 3G25/3	8,9	31,9	33	2480	2250
0,6/1	3x70 + 3G50/3	10,6	35,8	36,9	3360	3150
0,6/1	4x4	2,4	14,1	14,8	360	240
0,6/1	4x6	2,9	15,5	16,2	460	360
0,6/1	4x10	3,8	18,9	19,6	720	600
0,6/1	4x16	4,9	21,8	22,5	1020	960
0,6/1	4x25	6,1	26,7	27,7	1550	1500
0,6/1	4x35	7,2	29,2	30,3	1990	2100
0,6/1	4x50	8,9	35,7	36,8	2920	3000
0,6/1	5x4	2,4	15,3	16	440	300
0,6/1	5x6	2,9	17,3	18	600	450
0,6/1	5x10	3,8	20,6	21,6	910	750
0,6/1	5x16	4,9	23,8	24,8	1300	1200

CONTROL CABLES

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	12G1,5	1,5	19,8	20,8	610	270
0,6/1	18G1,5	1,5	19,9	20,9	650	405
0,6/1	24G1,5	1,5	23,3	24,3	880	540
0,6/1	30G1,5	1,5	26,6	27,6	1160	675
0,6/1	36G1,5	1,5	27,6	28,6	1280	810
0,6/1	12G2,5	1,9	23,3	24,3	860	450
0,6/1	18G2,5	1,9	23,4	24,4	940	675
0,6/1	24G2,5	1,9	28,2	29,2	1330	900
0,6/1	30G2,5	1,9	32,4	33,5	1760	1125
0,6/1	36G2,5	1,9	33,4	34,5	1910	1350

SCREENED CABLES

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
0,6/1	3x(2x0,5)c	0,8	21,1	22,2	590	90
0,6/1	3x(2x1)c	1,2	25,6	26,7	880	90

URSUS® FESTOON FO

Aristoncavi specification

① FIBRE

NUMBER OF LOOSE TUBES: 6

ARRANGEMENT: six loose tubes laid in one layer around a glass-fibre reinforced element

② INNER SHEATH

MATERIAL: special rubber compound

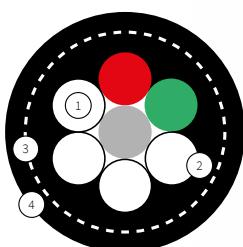
③ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

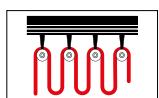
④ OUTER SHEATH

MATERIAL: special rubber compound at least 5GM3 quality

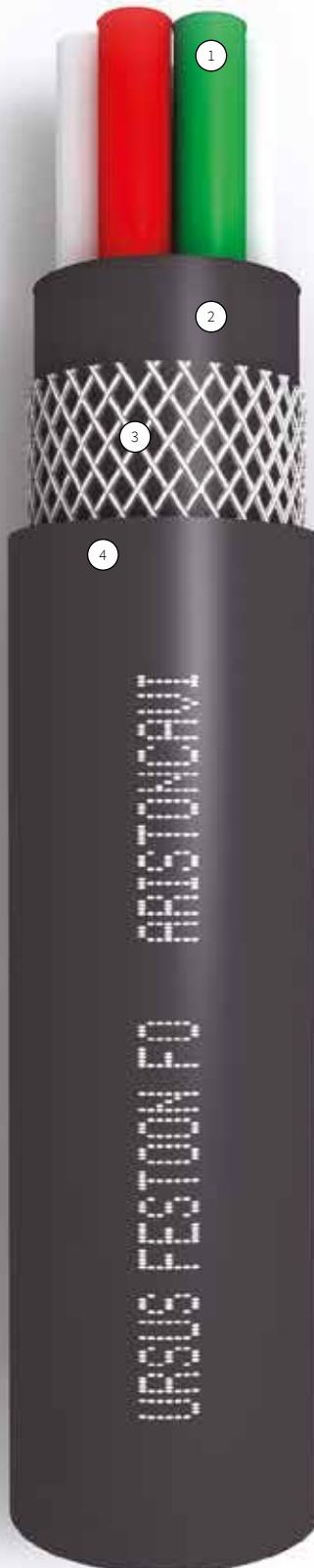
COLOUR: black



APPLICATION



Fiber optic very flexible cable for festooning systems and connecting moveable parts of container cranes, industrial machines, material handling equipment, etc., under high mechanical stress and frequent bending.



THERMAL WORKING DATA

Minimum ambient temperature	°C	Mobile condition: - 35 Static condition: - 50
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MECHANICAL WORKING DATA

Min. bending radius	mm	200
Min. distance with S-type directional changes	mm	400
Maximum torsional stress	/m	± 50
Maximum tensile load	N	500
Max working speed	m/min	240

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® FESTOON FO

GRADED INDEX MULTIMODE FIBRE	CORE Ø µm	CLADDING Ø µm	ATTENUATION AT 850 NM dB/km	ATTENUATION AT 1300 NM dB/km
50/125	50	125	≤ 2,8	≤ 0,8
62,5/125	62,5	125	≤ 3,3	≤ 0,9

STEP INDEX SINGLEMODE FIBRE	CORE Ø µm	CLADDING Ø µm	ATTENUATION AT 850 NM dB/km	ATTENUATION AT 1300 NM dB/km
9/125	9	125	≤ 0,35	≤ 0,24

CABLE	NUMBER OF FIBRE	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km
12x1x(50/125)	12	14,6	16,8	240
18x1x(50/125)	18	14,6	16,8	240
12x1x(62,5/125)	12	14,6	16,8	240
18x1x(62,5/125)	18	14,6	16,8	240
12x1x(9/125)	12	14,6	16,8	240
18x1x(9/125)	18	14,6	16,8	240



URSUS® MT PLUS 3,6/6 ÷ 12/20 kV

(N)TSCGEWÖU

Based on DIN VDE 0250 Part 813

① PHASE CONDUCTORS

MATERIAL: tinned copper

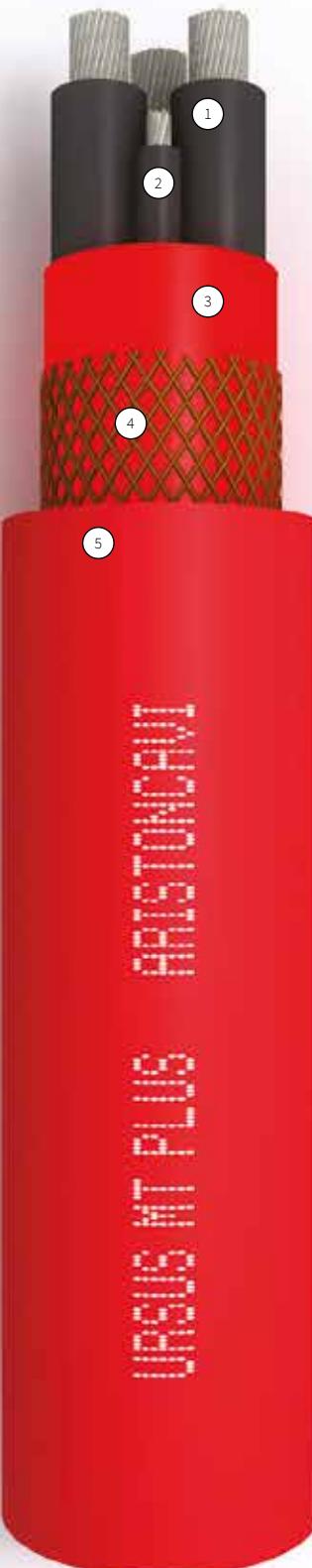
CONSTRUCTION: class 5 VDE 0295 (IEC 60228),

special construction for higher flexibility

INSULATION MATERIAL: 3GI3 quality rubber compound,

according to VDE 0207 Part 20

SEMICONDUCTIVE LAYERS: semiconductive tape over the conductor and inner and outer semiconductive rubber layer on the insulation



② EARTH CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228),

special construction for higher flexibility

COVERING MATERIAL: semiconductive layer

CENTRAL FILLER

MATERIAL: semiconductive compound on textile polyester support

CORES ASSEMBLY

ASSEMBLY: twisted cores with earth conductor split into 3 parts

SEPARATOR ON THE TWISTED ASSEMBLY: semiconductive tape wound on the twisted cores

③ INNER SHEATH

MATERIAL: Gm1b/5GM5 quality rubber compound,

according to VDE 0207 Part 21

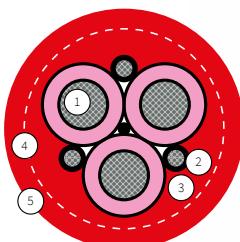
④ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

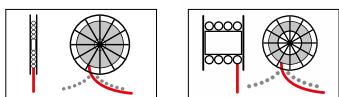
⑤ OUTER SHEATH

MATERIAL: 5GM5 quality rubber compound, according to VDE 0207 Part 21

COLOUR: red



APPLICATION



Flexible reeling cable with reduced weight and dimensions (URSUS MT PLUS) for high and extreme mechanical stresses, e.g. torsional stress, deflection into different planes and high reeling speed. Also usable for reeling application in underground and opencast mining.

ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV	3,6/6	6/10	8,7/15	12/20
Test voltage	kV	11	17	24	29
Max AC voltage	kV	4,2/7,2	6,9/12	10,4/18	13,9/24
Electrical field control	Inner and outer semiconductive layers extruded in a single-pass with the insulation				
Current rating	A	According to VDE 0298 Part 4			

THERMAL WORKING DATA

Maximum short circuit temperature	°C	250
Maximum working temp. on the conductor	°C	90
Minimum ambient temperature	°C	Mobile condition: - 30 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm	According to VDE 0298 Part 3
Maximum torsional stress	°/m	± 25
Maximum tensile load*	N/mm ²	30
Max working speed	m/min	120
Special test	Reeling test	

* Referred to the total phase conductors cross section.

Upon request it's available the KN version with improved mechanical characteristics designed for ASC's and ARMG's

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404	
Ozone resistance	According to IEC 60811-403	
Burning behaviour	According to IEC 60332-1-2	
UV resistance	According to ISO 4892-2	



URSUS® MT PLUS 3,6/6 ÷ 12/20 kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
3,6/6	3x25 + 3x25/3	6,9	39,2	40,3	2380	1500
3,6/6	3x35 + 3x25/3	7,8	42,9	44,6	2920	2100
3,6/6	3x50 + 3x25/3	9,3	46	47,7	3520	3000
3,6/6	3x70 + 3x35/3	11,1	49,8	51,6	4430	4200
3,6/6	3x95 + 3x50/3	12,7	55,8	57,6	5580	5700
3,6/6	3x120 + 3x70/3	14,5	59,6	61,4	6770	7200
3,6/6	3x150 + 3x70/3	16,7	66	68,3	8260	9000
3,6/6	3x185 + 3x95/3	17,6	67,9	70,2	9400	11100
6/10	3x25 + 3x25/3	6,9	39,2	40,3	2380	1500
6/10	3x35 + 3x25/3	7,8	42,9	44,6	2920	2100
6/10	3x50 + 3x25/3	9,3	46	47,7	3520	3000
6/10	3x70 + 3x35/3	11,1	49,8	51,6	4430	4200
6/10	3x95 + 3x50/3	12,7	55,8	57,6	5640	5700
6/10	3x120 + 3x70/3	14,5	59,6	61,4	6830	7200
6/10	3x150 + 3x70/3	16,7	66	68,3	8320	9000
6/10	3x185 + 3x95/3	17,6	67,9	70,2	9500	11100

The original URSUS® MT product range is still available upon request.



VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
8,7/15	3x25 + 3x25/3	6,9	44,7	46,4	2860	1500
8,7/15	3x35 + 3x25/3	7,8	46,2	47,9	3210	2100
8,7/15	3x50 + 3x25/3	9,3	49,4	51,2	3830	3000
8,7/15	3x70 + 3x35/3	11,1	55	56,8	5000	4200
8,7/15	3x95 + 3x50/3	12,7	58,4	60,2	5870	5700
8,7/15	3x120 + 3x70/3	14,5	63,9	66,2	7370	7200
8,7/15	3x150 + 3x70/3	16,7	68,5	70,9	8590	9000
8,7/15	3x185 + 3x95/3	17,6	70,6	73	9750	11100
12/20	3x25 + 3x25/3	6,9	46,4	48,1	3080	1500
12/20	3x35 + 3x25/3	7,8	48,8	50,6	3460	2100
12/20	3x50 + 3x25/3	9,3	53,7	55,5	4310	3000
12/20	3x70 + 3x35/3	11,1	57,5	59,3	5310	4200
12/20	3x95 + 3x50/3	12,7	60,8	63,1	6180	5700
12/20	3x120 + 3x70/3	14,5	66,4	68,7	7730	7200
12/20	3x150 + 3x70/3	16,7	71	73,4	8970	9000



URSUS® MT FO PLUS 3,6/6 ÷ 12/20 kV

(N)TSKCGEWÖU

Based on DIN VDE 0250 Part 813

① PHASE CONDUCTORS

MATERIAL: tinned copper

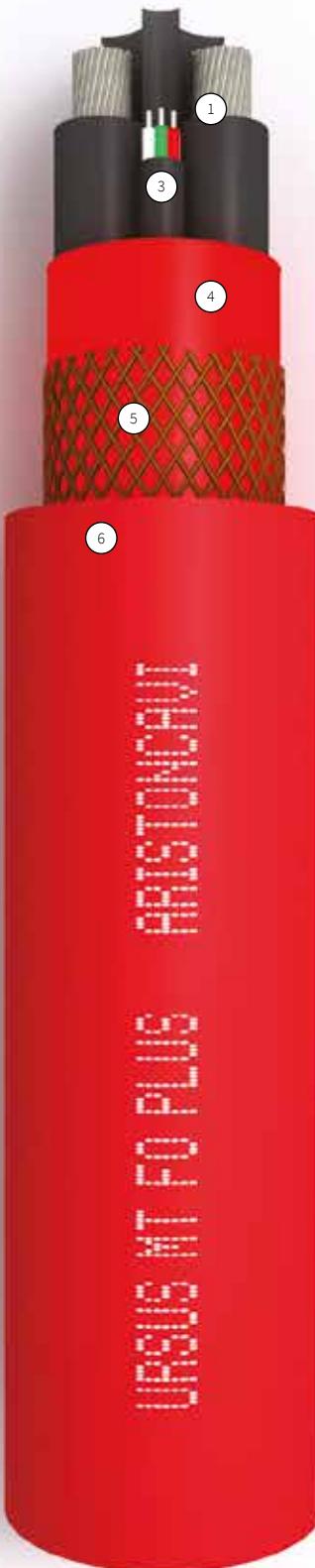
CONSTRUCTION: class 5 VDE 0295 (IEC 60228),

special construction for higher flexibility

INSULATION MATERIAL: 3G13 quality rubber compound,

according to VDE 0207 Part 20

SEMICONDUCTIVE LAYERS: semiconductive tape over the conductor and inner and outer semiconductive rubber layer on the insulation



② EARTH CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228),

special construction for higher flexibility

COVERING MATERIAL: semiconductive layer

③ FIBRE OPTICS

FIBRE: transmission data kind 50/125 multimode, 62.5/125 multimode, 9/125 singlemode

NOMINAL NUM. APERTURE: 250 µm

FIBRES ARRANGEMENT COVERING: special rubber compound over the twisted cores

CENTRAL CRADLE

MATERIAL: semiconductive compound

CORES ASSEMBLY

ASSEMBLY: twisted cores with earth conductor split into 2 parts + FO

SEPARATOR ON THE TWISTED ASSEMBLY: semiconductive tape wound on the twisted cores

④ INNER SHEATH

MATERIAL: Gm1b / 5GM5 quality rubber compound, according to VDE 0207 Part 21

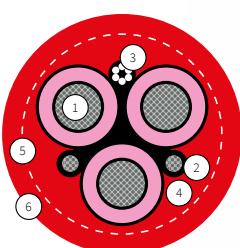
⑤ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

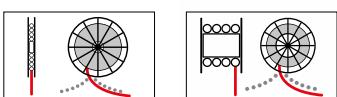
⑥ OUTER SHEATH

MATERIAL: 5GM5 quality rubber compound, according to VDE 0207 Part 21

COLOUR: red



APPLICATION



Flexible reeling cable with integrated fibre optics wires for high and extreme mechanical stresses, e.g. torsional stress, deflection into different planes and high reeling speed. Also usable for reeling application in underground and opencast mining.

ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV	3,6/6	6/10	8,7/15	12/20
Test voltage	kV	11	17	24	29
Max AC voltage	kV	4,2/7,2	6,9/12	10,4/18	13,9/24
Electrical field control	Inner and outer semiconductive layers extruded in a single-pass with the insulation				
Current rating	A	According to VDE 0298 Part 4			

THERMAL WORKING DATA

Maximum short circuit temperature	°C	250
Maximum working temp. on the conductor	°C	90
Minimum ambient temperature	°C	Mobile condition: - 30 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm	According to VDE 0298 Part 3	
Maximum torsional stress	°/m	± 25	
Maximum tensile load*	N/mm ²	30	
Max working speed	m/min	240	
Special test	Reeling test		

* Referred to the total phase conductors cross section.

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404		
Ozone resistance	According to IEC 60811-403		
Burning behaviour	According to IEC 60332-1-2		
UV resistance	According to ISO 4892-2		

OPTICAL WORKING DATA

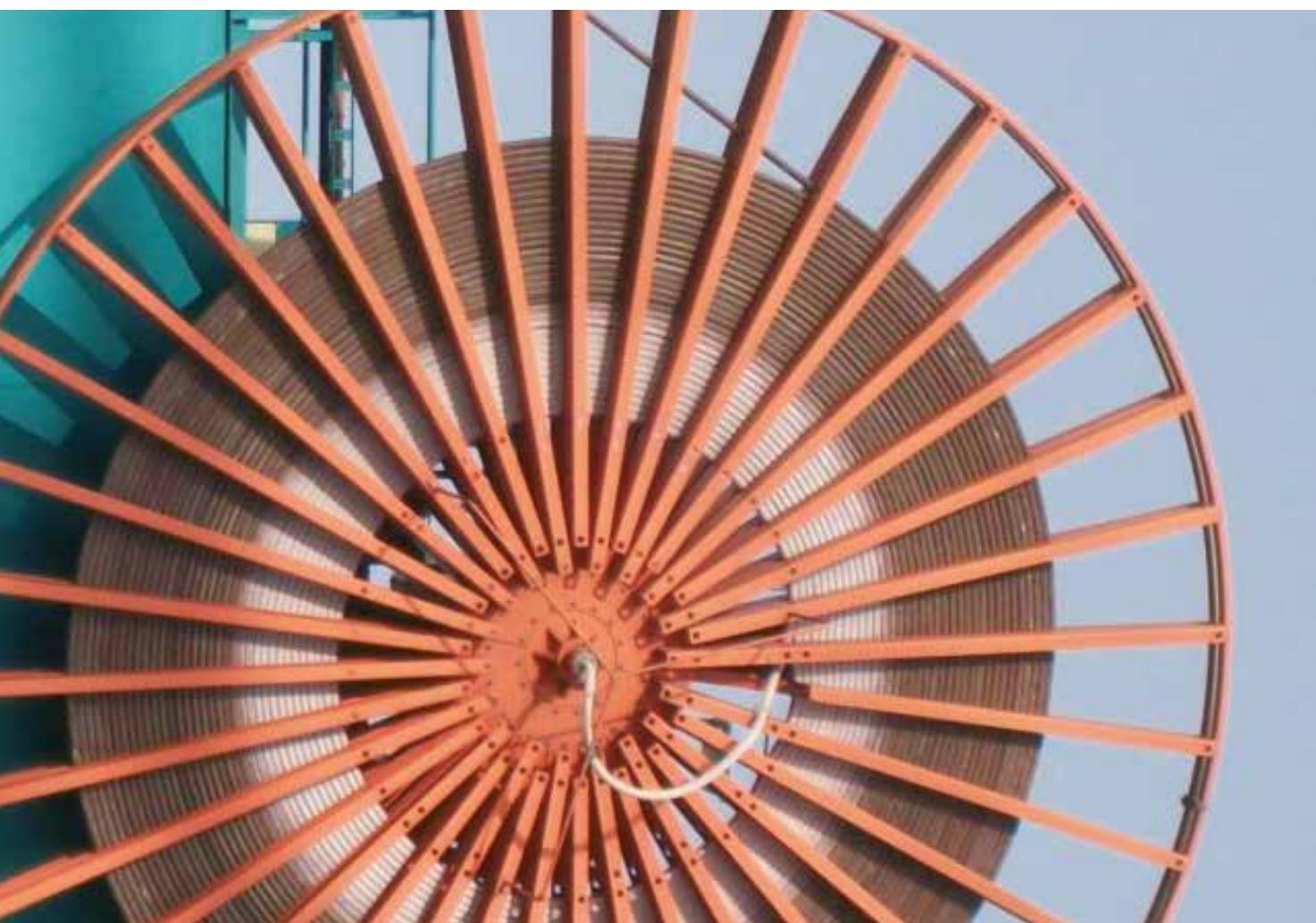
FIBRE	GRADED INDEX MULTIMODE FIBRE					STEP INDEX SINGLEMODE FIBRE				
	Attenuation at 850 nm (dB/km)	Attenuation at 1300 nm (dB/km)	Bandwidth at 850 nm (MHz*km)	Bandwidth at 1300 nm (MHz*km)	Numerical aperture	Attenuation at 1310 nm (dB/km)	Attenuation at 1550 nm (dB/km)	Chromatic disp. at 1285-1300 nm (ps/nm km)	Chromatic dispersion at 1550 nm (ps/nm km)	
50/125	$\leq 2,5$	$\leq 0,7$	≥ 200	≥ 500	$0,200 \pm 0,015$					
62,5/125	$\leq 3,0$	$\leq 0,7$	≥ 200	≥ 500	$0,275 \pm 0,015$					
9/125						$\leq 0,35$	$\leq 0,24$	≤ 3	≤ 18	

URSUS® MT FO PLUS 3,6/6 ÷ 12/20 kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
3,6/6	3x25 + 2x25/2 + FO	6,9	42,9	44,6	2930	1500
3,6/6	3x35 + 2x25/2 + FO	7,8	46,2	47,9	3490	2100
3,6/6	3x50 + 2x25/2 + FO	9,3	49,4	51,2	4170	3000
3,6/6	3x70 + 2x35/2 + FO	11,1	53,2	55,3	5190	4200
3,6/6	3x95 + 2x50/2 + FO	12,7	59,3	61,4	6460	5700
3,6/6	3x120 + 2x70/2 + FO	14,5	63,1	65,5	7740	7200
3,6/6	3x150 + 2x70/2 + FO	16,7	69,6	72,1	9340	9000
6/10	3x25 + 2x25/2 + FO	6,9	42,9	44,6	2930	1500
6/10	3x35 + 2x25/2 + FO	7,8	46,2	47,9	3490	2100
6/10	3x50 + 2x25/2 + FO	9,3	49,4	51,2	4170	3000
6/10	3x70 + 2x35/2 + FO	11,1	53,2	55,3	5190	4200
6/10	3x95 + 2x50/2 + FO	12,7	59,3	61,4	6520	5700
6/10	3x120 + 2x70/2 + FO	14,5	63,1	65,5	7800	7200
6/10	3x150 + 2x70/2 + FO	16,7	69,6	72,1	9400	9000



VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
8,7/15	3x25 + 2x25/2 + FO	6,9	47,7	49,4	3450	1500
8,7/15	3x35 + 2x25/2 + FO	7,8	49,6	51,7	3900	2100
8,7/15	3x50 + 2x25/2 + FO	9,3	52,8	54,9	4580	3000
8,7/15	3x70 + 2x35/2 + FO	11,1	58,5	60,6	5870	4200
8,7/15	3x95 + 2x50/2 + FO	12,7	61,8	64,2	6820	5700
8,7/15	3x120 + 2x70/2 + FO	14,5	67,5	69,9	8380	7200
12/20	3x25 + 2x25/2 + FO	6,9	50,2	52,3	3730	1500
12/20	3x35 + 2x25/2 + FO	7,8	52,3	54,4	4190	2100
12/20	3x50 + 2x25/2 + FO	9,3	57,2	59,3	5110	3000
12/20	3x70 + 2x35/2 + FO	11,1	61	63,4	6220	4200
12/20	3x95 + 2x50/2 + FO	12,7	64,4	66,8	7190	5700
12/20	3x120 + 2x70/2 + FO	14,5	70,1	72,6	8820	7200



URSUS® MT FO KN PLUS 3,6/6 ÷ 12/20 kV

(N)TSKCGEWÖU

Based on DIN VDE 0250 Part 813

① PHASE CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

INSULATION MATERIAL: 3GI3 quality rubber compound,
according to VDE 0207 part 20

SEMICONDUCTIVE LAYERS: semiconductive tape over the conductor and
inner and outer semiconductive rubber layer on the insulation



② EARTH CONDUCTORS

MATERIAL: tinned copper

CONSTRUCTION: class 5 VDE 0295 (IEC 60228)

COVERING MATERIAL: semiconductive layer

③ FIBRE OPTICS

FIBRE: transmission data kind 50/125 multimode, 62,5/125 multimode,
9/125 singlemode

NOMINAL NUM. APERTURE: 250 µm

CENTRAL CRADLE

MATERIAL: semiconductive compound on Kevlar® element

CORES ASSEMBLY

ASSEMBLY: twisted cores with earth conductor split into 2 parts + FO

SEPARATOR ON THE TWISTED ASSEMBLY: semiconductive tape wound on
the twisted cores

④ INNER SHEATH

MATERIAL: Gm1b/5GM5 quality rubber compound,
according to VDE 0207 part 21

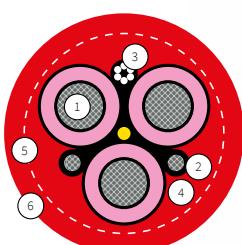
⑤ ANTITWISTING ELEMENT

MATERIAL: polyester braid between inner and outer sheath

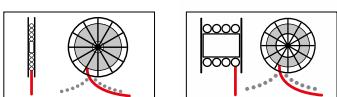
⑥ OUTER SHEATH

MATERIAL: 5GM5 quality rubber compound, according to VDE 0207 part 21

COLOUR: red



APPLICATION



Flexible reeling cable with integrated fibre optics wires for high and extreme mechanical stresses, e.g. torsional stress, deflection into different planes and high reeling speed. Also usable for reeling application in underground and opencast mining.

ELECTRICAL WORKING DATA

Nominal rated voltage U_0 / U	kV	3,6/6	6/10	8,7/15	12/20
Test voltage	kV	11	17	24	29
Max AC voltage	kV	4,2/7,2	6,9/12	10,4/18	13,9/24
Electrical field control	Inner and outer semiconductive layers extruded in a single-pass with the insulation				
Current rating	A	According to VDE 0298 Part 4			

THERMAL WORKING DATA

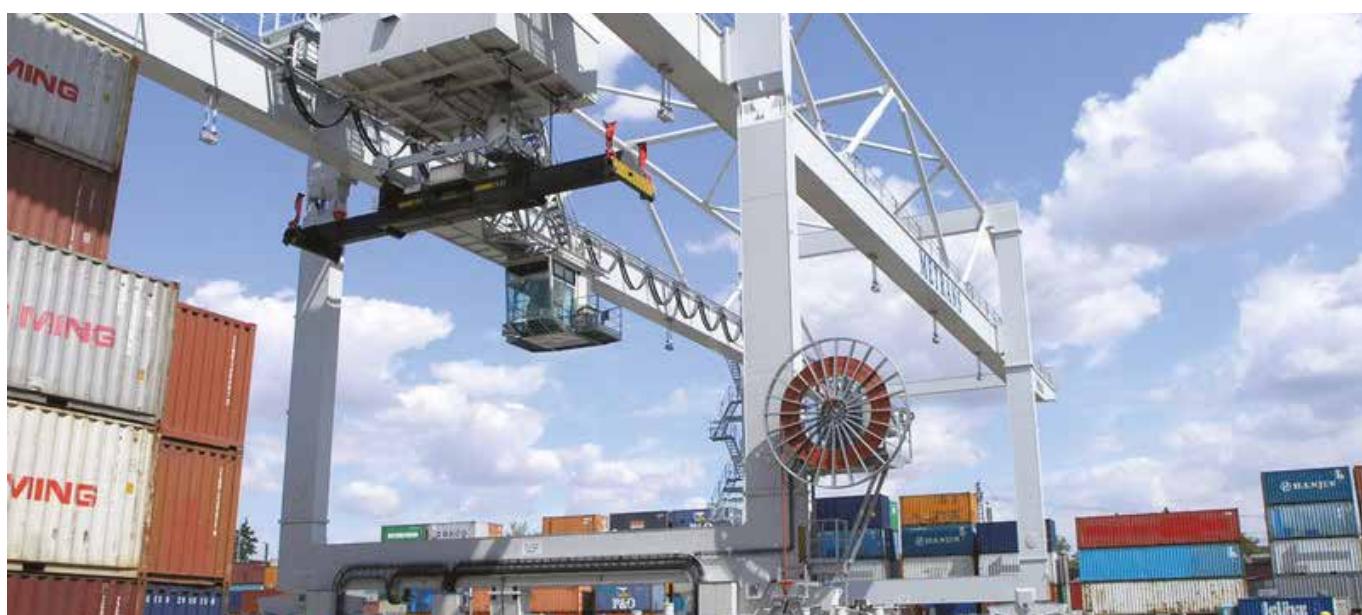
Maximum short circuit temperature	°C	250
Maximum working temp. on the conductor	°C	90
Minimum ambient temperature	°C	Mobile condition: - 30 Static condition: - 50

MECHANICAL WORKING DATA

Bending radius	mm	According to VDE 0298 Part 3
Maximum torsional stress	°/m	± 25
Maximum tensile load	N	See table on pages 48 and 49
Max working speed	m/min	240

CHEMICAL WORKING DATA

Oil resistance	According to IEC 60811-404
Ozone resistance	According to IEC 60811-403
Burning behaviour	According to IEC 60332-1-2
UV resistance	According to ISO 4892-2



URSUS® MT FO KN PLUS 3,6/6 ÷ 12/20 kV

VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
3,6/6	3x25 + 2x25/2 + FO	6,9	42,9	44,6	2930	6250
3,6/6	3x35 + 2x25/2 + FO	7,8	46,2	47,9	3490	7150
3,6/6	3x50 + 2x25/2 + FO	9,3	49,4	51,2	4170	8500
3,6/6	3x70 + 2x35/2 + FO	11,1	53,2	55,3	5190	10300
3,6/6	3x95 + 2x50/2 + FO	12,7	59,3	61,4	6460	12550
3,6/6	3x120 + 2x70/2 + FO	14,5	63,1	65,5	7740	14800
3,6/6	3x150 + 2x70/2 + FO	16,7	69,6	72,1	9340	17500
6/10	3x25 + 2x25/2 + FO	6,9	42,9	44,6	2930	6250
6/10	3x35 + 2x25/2 + FO	7,8	46,2	47,9	3490	7150
6/10	3x50 + 2x25/2 + FO	9,3	49,4	51,2	4170	8500
6/10	3x70 + 2x35/2 + FO	11,1	53,2	55,3	5190	10300
6/10	3x95 + 2x50/2 + FO	12,7	59,3	61,4	6520	12550
6/10	3x120 + 2x70/2 + FO	14,5	63,1	65,5	7800	14800
6/10	3x150 + 2x70/2 + FO	16,7	69,6	72,1	9400	17500



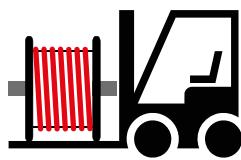
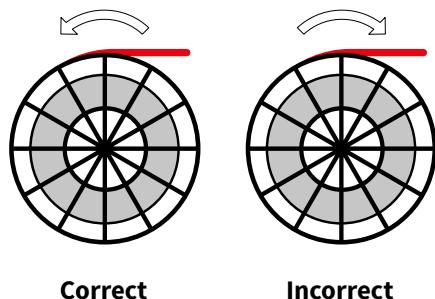
VOLTAGE kV	CORES X CROSS SECTION Nr x mm ²	CONDUCTOR Ø mm	MIN OVERALL Ø mm	MAX OVERALL Ø mm	APPROX WEIGHT kg/km	MAX TENSILE LOAD N
8,7/15	3x25 + 2x25/2 + FO	6,9	47,7	49,4	3450	6250
8,7/15	3x35 + 2x25/2 + FO	7,8	49,6	51,7	3900	7150
8,7/15	3x50 + 2x25/2 + FO	9,3	52,8	54,9	4580	8500
8,7/15	3x70 + 2x35/2 + FO	11,1	58,5	60,6	5870	10300
8,7/15	3x95 + 2x50/2 + FO	12,7	61,8	64,2	6820	12550
8,7/15	3x120 + 2x70/2 + FO	14,5	67,5	69,9	8380	14800
12/20	3x25 + 2x25/2 + FO	6,9	50,2	52,3	3730	6250
12/20	3x35 + 2x25/2 + FO	7,8	52,3	54,4	4190	7150
12/20	3x50 + 2x25/2 + FO	9,3	57,2	59,3	5110	8500
12/20	3x70 + 2x35/2 + FO	11,1	61	63,4	6220	10300
12/20	3x95 + 2x50/2 + FO	12,7	64,4	66,8	7190	12550
12/20	3x120 + 2x70/2 + FO	14,5	70,1	72,6	8820	14800



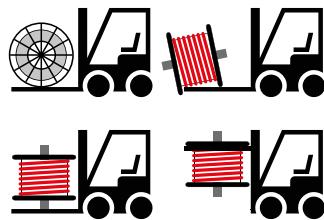
GUIDE TO USE

HANDLING

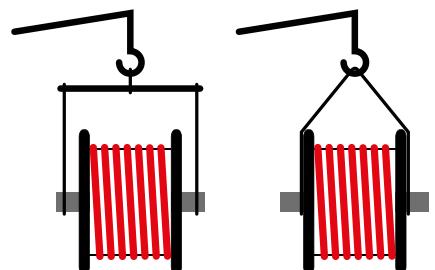
When handling drums, reasonable precautions should be taken in consideration in order to avoid damage to the cable and injury to people. Due regard should be paid to the mass of the drum, the method and direction of rolling and the method of lifting.



Correct



Incorrect



Correct

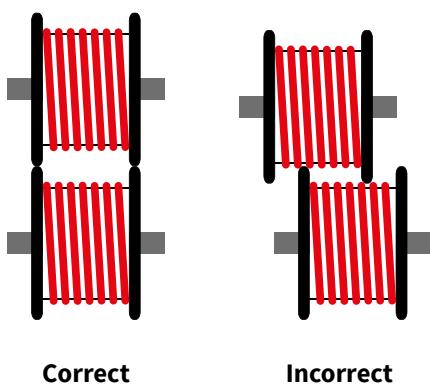
Incorrect

STORAGE

Cable drums should be stored so that the drum flanges do not contact cable on another drum.

Cables stored at temperatures which are below those recommended for installation conditions, should not be subject to any mechanical stress including shocks, impacts, bending and torsions.

If cables are not fully protected (with battens or plastic foils for example), store should be in a protected area and not weather-beaten. The cable end should be sealed, in case, to prevent ingress of moisture during transport and storage.

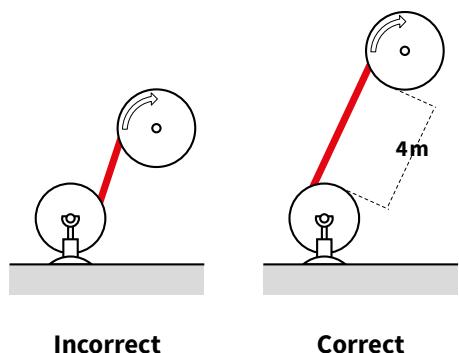


Correct

Incorrect

INSTALLATION & USE

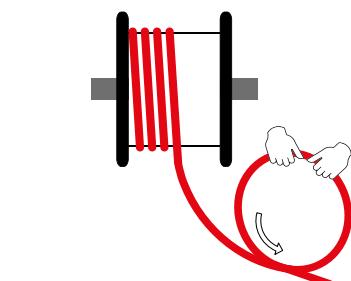
The correct installation method should be done by unwinding the cable along the machine with standard cable pulling system and rollers. If this is not possible, because of the site conditions, it's possible to transfer the cable directly to the operating drum but avoiding reverse bending and, if possible, with a distance between the reels at least of 4 meters.



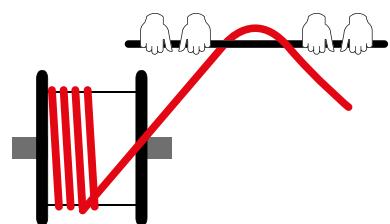
It's necessary to be careful during the transfer of the cable because it could have a residual torsion from the beginning, before to start its real application.

In order to remove the initial torsions, if present, we suggest a couple of solutions:

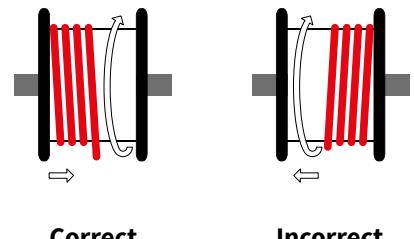
- Create a spiral with the cable from the drum jacked on and roll it up to the free end, this operation will remove the twisting
Fix the cable in order to start the operation. If after the first operation there is still a twisting it's better to repeat the removal process.



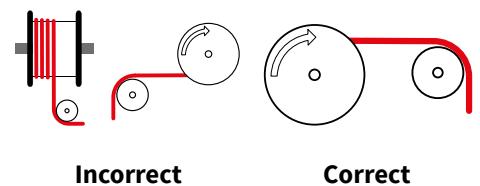
- A couple of people could walk handling a cylinder bar under the cable from the drum jacked on up to free end, in this way they will push the twisting out from the cable. In case of residual twisting repeat the operation.



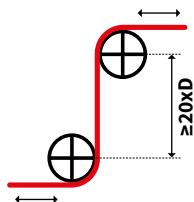
Aristoncavi's cables are produced with S stranding direction. In this case we recommend to start winding the cables, on the reeling drum, from the left side of reel as shown in the pictures:



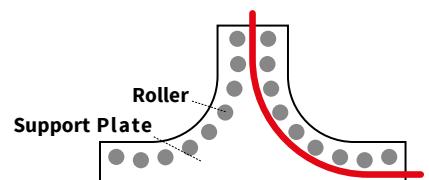
Changing direction during winding or unwinding, is a dangerous operation: it has to be gradual. The rollers and the shaves must be well positioned at an adequate distance in order to avoid mechanical stresses to the cores.



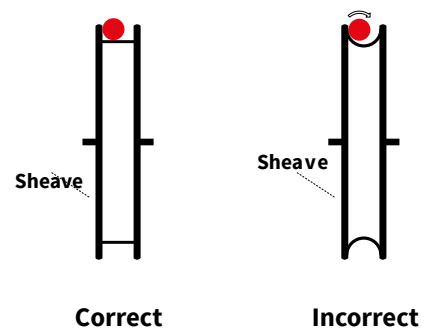
If the change of direction cannot be avoided, the minimum distance with double or S-type directional changer must be bigger than $20xD$ (D = overall cable diameter).



For a large diameter cable it would be better to use rollers to reduce the friction with the sheath during the change of direction.

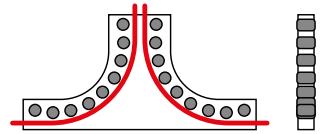


If sheaves are used, it is important to have a flat surface profile, to avoid unwanted rotations or twisting caused by the continuous clash with the sides of the sheave. In any case, the width of a cradle or that of a roller, should be 10-15% larger than the outer cable diameter to allow a correct running.



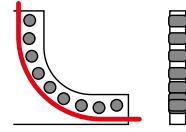
CABLE GUIDE

Safe and smooth guidance of the cable for end and centre feed.



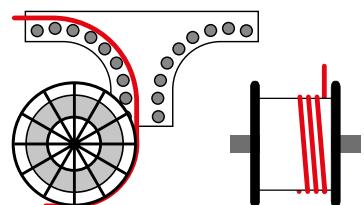
ROLLER GUIDE

Defined guidance of the cable from reel body to feed point.



CABLE FEED POINT

Ideal cable guidance at feeding point for centre feed applications.



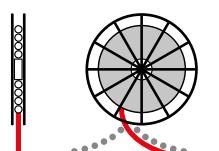
CABLE MESH GRIP

Ideal tension relief for cable at feeding point. Safe and simple to handle, it spreads the forces over a wide surface area to prevent cable damage.

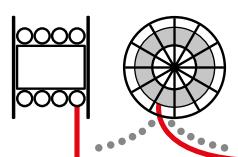


TYPES

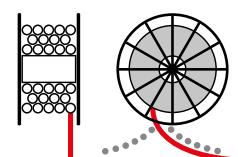
Monospiral drum (single spire multi layers) ideal to guarantee the heat dissipation and the control of irregular twisting during unwinding. The limit could be the cable's length in relation with the reel's diameter.



Multispiral drum (multi spires single layer) used in case of long cable lengths. It is important to ensure that the guide mechanism doesn't damage the cable during unwinding, for example: avoiding anomalous rub against the surface of the previous spire or irregular twisting. It is advisable to use maximum two layers to allow the thermal balance.

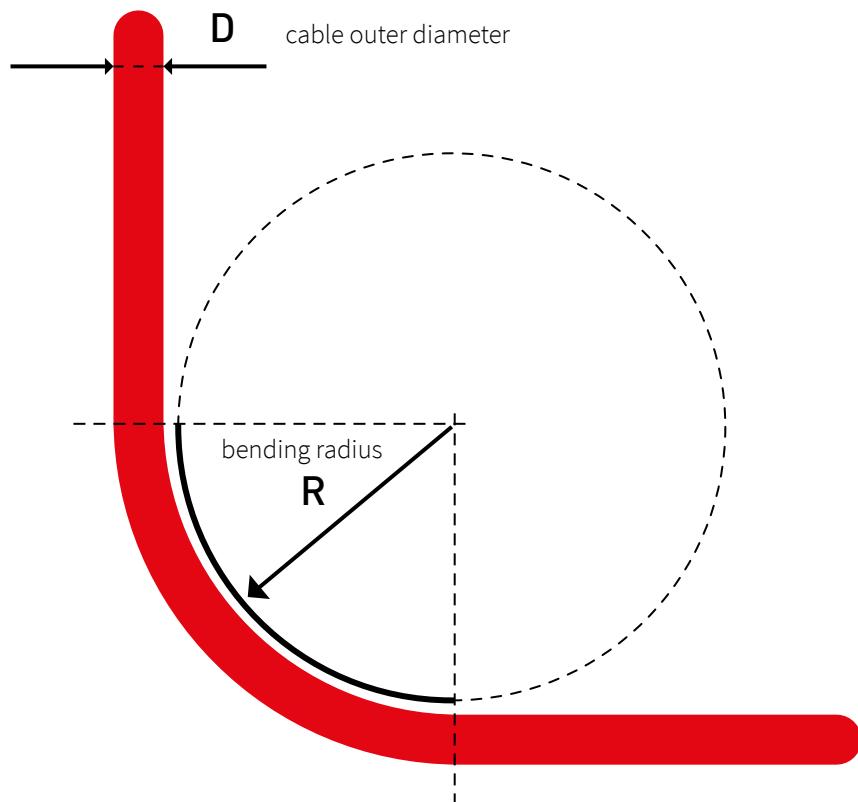


Cylindric drum (multi spires multi layers random wound) it is the cheaper reel but it doesn't guarantee the control over the layers of cable: the cable could be stacked, for example, on one side of the drum.



MECHANICAL PARAMETERS

According to VDE 0298-3



CABLE DIAMETER D mm	UP TO 0,6/1KV				ABOVE 0,6/1KV
	Up to 8	from 8 to 12	from 12 to 20	above 20	
Fixed installation	3 x D	3 x D	4 x D	4 x D	6 x D
Freely flexing	3 x D	4 x D	5 x D	5 x D	10 x D
For the entry e.g. at a center feed point	3 x D	4 x D	5 x D	5 x D	10 x D
Forced guidance with reeling operation	5 x D	5 x D	5 x D	6 x D	12 x D
Forced guidance with festoon operation	3 x D	4 x D	5 x D	5 x D	10 x D
Forced guidance with power tracks	4 x D	4 x D	5 x D	5 x D	10 x D
Forced guidance with sheaves and multiroller guides	7,5 x D	7,5 x D	7,5 x D	7,5 x D	15 x D
Forced guidance with cable tenders	7,5 x D	7,5 x D	7,5 x D	7,5 x D	15 x D

MAXIMUM TENSILE LOAD

CABLE	TENSILE LOAD (N/mm ²)
URSUS ®	20
URSUS ® VS / VS SL	30
URSUS ® PUR HF	30
URSUS ® V PLUS	see technical data sheet
URSUS ® BASKET	see technical data sheet
URSUS ® FESTOON	15
URSUS ® MT PLUS	30
URSUS ® MT FO PLUS	30
URSUS ® MT FO kN PLUS	see technical data sheet

The tensile load for flexible cables in fixed application can be considered 50 N/mm² referred to the cross section of the conductors. In case of mobile application the value would be 15 N/mm² (according to the Standard DIN VDE 0298 Part 3) but we took in consideration the static and dynamic load and we have improved the value according to the table beside. The load must be calculated with the power conductor cross sections without considering earth conductors, screens, etc... If a higher tensile load is required for a specific application we can add a reinforced central element in order to improve this performance.

MAXIMUM TORSIONAL STRESS

CABLE	TORSIONAL STRESS (°/m)
URSUS ®	±25
URSUS ® VS / VS SL	±50
URSUS ® PUR HF	±25
URSUS ® V PLUS	±50
URSUS ® BASKET	N.A.
URSUS ® FESTOON	±90
URSUS ® FESTOON FO	±50
URSUS ® MT PLUS	±25
URSUS ® MT FO PLUS	±25
URSUS ® MT FO kN PLUS	±25

The construction of the families of this catalogue is designed in order to withstand to different mechanical stresses, during the operation the cables could be also under torsion stress but this is a parameter that must be evaluated with attention because they're not specifically studied for it. Anyway in the table beside you can find the values of maximum torsional stress in standard conditions, in case of unexpected problems during the application these values can not be taken in consideration.

ELECTRICAL PARAMETERS

CURRENT CARRYING CAPACITY UP TO 6/10 kV (VDE 0298-4) ambient temperature 30°C

Application									
	Laying on the floor	Free in air	Reeled						
Cross section mm ²			1 layer	2 layer	3 layer	4 layer	5 layer	6 layer	7 layer
	A	A	A	A	A	A	A	A	A
1	19	20	15	12	9	8	7	5	4
1,5	24	25	19	15	12	10	9	6	5
2,5	30	32	24	18	15	13	11	8	7
4	41	43	33	25	20	17	16	11	9
6	53	56	42	32	26	22	20	14	12
10	74	78	59	45	36	31	28	20	16
16	99	104	79	60	49	42	38	27	22
25	131	138	105	80	64	55	50	35	29
35	162	170	130	99	79	68	62	44	36
50	202	212	162	123	99	85	77	55	44
70	250	263	200	153	123	105	95	68	55
95	301	316	241	184	147	126	114	81	66
120	352	370	282	215	172	148	134	95	77
150	404	424	323	246	198	170	154	109	89
185	461	484	369	281	226	194	175	124	101
240	528	554	422	322	259	222	201	143	116
300	608	638	486	371	298	255	231	164	134

CURRENT CARRYING CAPACITY ABOVE 6/10 kV (VDE 0298-4) ambient temperature 30°C

Application								
		Laying on the floor	Reeled					
Cross section		1 layer	2 layer	3 layer	4 layer	5 layer	6 layer	7 layer
mm ²	A	A	A	A	A	A	A	A
16	105	84	64	51	44	40	28	23
25	139	111	85	68	58	53	38	31
35	172	138	105	84	72	65	46	38
50	216	173	132	106	91	82	58	48
70	265	212	162	130	111	101	72	58
95	319	255	195	156	134	121	86	70
120	371	297	226	182	156	141	100	82
150	428	342	261	210	180	163	116	94
185	488	390	298	239	205	185	132	107
240	574	459	350	281	241	218	155	126
300	660	528	403	323	277	251	178	145

CORRECTION FACTORS (VDE 0298-4)

Nº operating cores	5	7	10	14	19	24	40	61
Factor	0,75	0,65	0,55	0,50	0,45	0,40	0,35	0,30
Ambient temp. (C°)	10	15	20	25	30	35	40	45
Factor	1,15	1,12	1,08	1,04	1	0,96	0,91	0,87

The maximum temperature allowed for rubber cables, during short circuit, is 250°C. The maximum thermal short circuit current allowed, for a time t , can be calculated by the following formulas, valid in adiabatic conditions :

$$I_{cc} = \frac{143 \cdot S}{\sqrt{t}}$$

Where:

I_s = Short circuit current (A)

S = Conductor size (mm^2)

t = Time period of short circuit (max 5 s)

CONDUCTORS

ELECTRICAL RESISTANCE

Electrical resistance Ohm/km (according to IEC 60228 - VDE 0295)

CROSS-SECTION mm ²	FLEXIBLE CONDUCTORS, RESISTANCE AT 20°C		FLEXIBLE CONDUCTORS, RESISTANCE AT 90°C		RIGID CONDUCTORS, RESISTANCE AT 20°C		RIGID CONDUCTORS, RESISTANCE AT 90°C	
	Bare copper	Tinned cop- per	Bare copper	Tinned cop- per	Bare copper	Tinned cop- per	Bare copper	Tinned cop- per
1,5	13,30	13,70	16,93	17,44	12,1	12,2	15,40	15,53
2,5	7,98	8,21	10,16	10,45	7,41	7,56	9,43	9,62
4	4,95	5,09	6,30	6,48	4,61	4,70	5,87	5,98
6	3,30	3,39	4,20	4,32	3,08	3,11	3,92	3,96
10	1,91	1,95	2,43	2,48	1,83	1,84	2,33	2,34
16	1,21	1,24	1,54	1,58	1,15	1,16	1,46	1,48
25	0,78	0,795	0,993	1,012	0,727	0,734	0,925	0,934
35	0,554	0,565	0,705	0,719	0,524	0,529	0,667	0,673
50	0,386	0,393	0,491	0,500	0,387	0,391	0,493	0,498
70	0,272	0,277	0,346	0,353	0,268	0,27	0,341	0,344
95	0,206	0,210	0,262	0,267	0,193	0,195	0,246	0,248
120	0,161	0,164	0,205	0,209	0,153	0,154	0,195	0,196
150	0,129	0,132	0,164	0,168	0,124	0,126	0,158	0,160
185	0,106	0,108	0,135	0,137	0,0991	0,100	0,126	0,127
240	0,0801	0,0817	0,102	0,104	0,0754	0,0762	0,0960	0,0970
300	0,0641	0,0654	0,0816	0,0833	0,0601	0,0607	0,0765	0,0773
400	0,0486	0,0495	0,0619	0,0630	0,0470	0,0475	0,0598	0,0605
500	0,0384	0,0391	0,0489	0,0498	0,0366	0,0369	0,0466	0,0470
630	0,0287	0,0292	0,0365	0,0372	0,0283	0,0286	0,0360	0,0364

NOTE

NOTE

NOTE



CSQ: this certified that Aristoncavi S.p.A. implements a quality system in conformity with the standard UNI EN ISO 9001 to ensure quality in design, development, manufacture, selling/marketing and installation of the product.



ARISTONCAVI

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