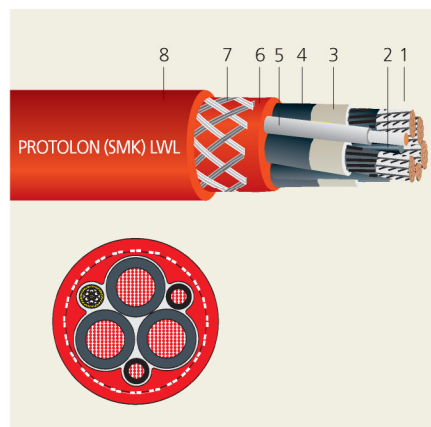


Protolon™ (SMK) LWL; medium voltage power cable with optical fibre

MEDIUM VOLTAGE



Construction & Characteristics PROTOLON (SMK) LWL

- 1 Conductor
- 2 EPR cradle separator
- 3 Insulation
- 4 Outer semiconductive layer
- 5 Fibre-optic element*
- 6 Inner sheath
- 7 Anti-torsion braid
- 8 Outer sheath - Sandwich system

Applications

The PROTOLON™ (SMK) LWL is a medium voltage reeling cable, specifically designed to withstand extremely high mechanical stresses associated with high travel speed, dynamic tensile loads or torsional stresses.

PROTOLON™ (SMK) LWL features an integrated fiber optic element consisting of 6 or 18 optical fibers for transmission of control signals, voice, video and other data signals. Applications include container cranes, shiploaders, stacker/reclaimers, RMG's, log handling cranes and much more. PROTOLON™ (SMK) LWL is also suitable for mining applications like bucket wheel excavators and tunneling equipment. If PROTOLON™ (SMK) LWL cables are damaged they are easily repaired by qualified personnel, so it can be used again within its nominal parameters without restrictions.

If application parameters exceed specified values in the technical tables, please consult your local Cavotec office.

Ratings and Specifications

VDE 0250 part 813

VDE 0168/0118

Rating and test voltages

Rated voltage U ₀ /U	3,6/6 kV A.C.
Max voltage U _m	4,2/7,2 kV A.C.
Test voltage	11 kV A.C.
Rated voltage U ₀ /U	6/10 kV A.C.
Max voltage U _m	7,2/12 kV A.C.
Test voltage	17 kV A.C.
Rated voltage U ₀ /U	8,7/15 kV A.C.
Max voltage U _m	10,4/18 kV A.C.
Test voltage	24 kV A.C.
Rated voltage U ₀ /U	12/20 kV A.C.
Max voltage U _m	13,9/24 kV A.C.
Test voltage	29 kV A.C.

Temperature ratings

- + 90°C Maximum conductor temperature
- 35°C Minimum ambient temperature during work (flexible)
- 50°C Minimum ambient temperature during work (fixed)

Dimensional data

Nominal cross section n x mm ²	A.C. Rated voltage 3,6/6 kV		A.C. Rated voltage 6/10 kV		A.C. Rated voltage 8,7/15 kV		A.C. Rated voltage 12/20 kV		Max. continuous safe reeling tension N
	Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	
3x25 + 2x25/2 + 6 LWL	43,7	2610	43,7	2610	46,5	2860	49,6	3150	1500
3x35 + 2x25/2 + 6 LWL	45,7	3010	45,7	3010	49,1	3330	54,1	3810	2100
3x50 + 2x25/2 + 6 LWL	49,1	3680	49,1	3680	54,5	4210	58,1	4610	3000
3x70 + 2x35/2 + 6 LWL	55,1	4810	55,1	4810	59,2	5270	62,2	5640	4200
3x95 + 2x50/2 + 6 LWL	60,1	6000	60,1	6000	64,9	6640	68	7050	5700
3x120 + 2x70/2 + 6 LWL	64,9	7410	64,9	7410	68,4	7870	72	8360	7200
3x150 + 2x70/2 + 6 LWL	68,8	8570	68,8	8570	72,8	9130	77,3	9840	9000
3x185 + 2x95/2 + 6 LWL	73,3	10160	73,3	10160	78,1	10920	81,2	11410	11100

* Fibre optic elements are available in size 62,5/125μ, 50/125μ and E9/125μ



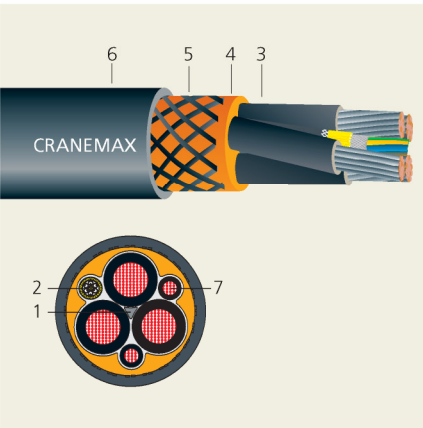
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CraneMAX; medium voltage power cable

MEDIUM VOLTAGE



Construction & Characteristics CRANEMAX

- 1 Filler
- 2 Conductor
- 3 Insulation & Extruded conductive shield
- 4 Inner jacket
- 5 Aramid reinforcement
- 6 Outer jacket
- 7 Ground conductor
- 8 Ground check

Applications

AmerCable's High Speed Reeling Cables are designed to provide safe and optimum performance on cable reels operating worldwide at temperatures from -40°C to +50°C at speeds up to 305 m./min. These three conductor cables are specially designed for use with monospiral, level wind and random wind reels on gantry cranes, container cranes, log handling cranes, stacker/reclaimers and other similar lifting equipment. They are suitable for outdoor use in ports, shipyards, lumber mills, steel mills and mines. Please note that this cable is designed and built according to US standards.

Ratings and Specifications

ASTM B-172; ASTM B-33

Rating and test voltages

Rated voltage U ₀ /U	1,2/2,1 kV to 9,0/15 kV A.C.
Max voltage U _m	1,2/2,1 kV to 9,0/15 kV A.C.
Max voltage U _m	1,5/3,2 kV to 11,3/22,5 kV D.C.
Test voltage	18 to 27 kV A.C.

Temperature ratings

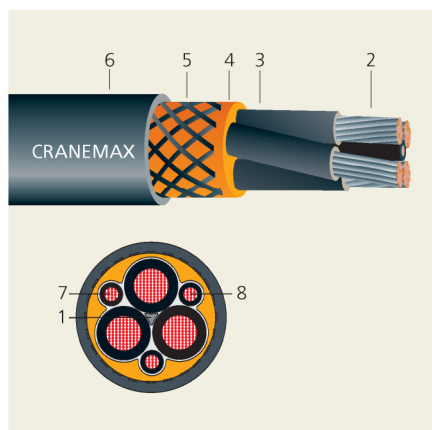
+ 90°C Maximum conductor temperature
- 40°C Minimum ambient temperature during work

Dimensional data

AWG	Nominal cross section mm ²	A.C. Rated voltage 2,1/6 kV		A.C. Rated voltage 6,1/10 kV		A.C. Rated voltage 10,1/15 kV		Max. continuous safe reeling tension N
		Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	
4	21,5	38,9	2149	40,5	2223	45,6	2609	3780
2	33,6	42,4	2707	44,0	2838	49,0	3256	3780
1	42,4	45,0	3144	46,6	3283	51,7	3720	4670
1/0	53,5	47,7	3653	49,3	3799	55,6	4512	5560
2/0	67,4	50,9	4360	52,5	4444	58,7	5202	6450
3/0	85	53,8	5315	55,4	5483	61,5	6029	7339
4/0	107,2	57,6	6330	59,2	6522	—	—	8229

CraneMAX FO; medium voltage power cable with optical fibre

MEDIUM VOLTAGE



Construction & Characteristics CRANEMAX

- 1 Filler
- 2 Fiber optic element
- 3 Insulation & Extruded conductive shield
- 4 Inner jacket
- 5 Aramid reinforcement
- 6 Outer jacket
- 7 Ground conductor

Applications

AmerCable's High Speed Reeling Cables are designed to provide safe, optimum performance on cable reelers operating worldwide at temperatures from -40°C to +50°C at speeds up to 260 m/min. These cables are for the combined transmission of power and data and are specially designed for use with monospiral, level wind and random wind reelers on gantry cranes, container cranes, log handling cranes, stacker/reclaimers and other similar lifting equipment. They are suitable for outdoor use in ports, shipyards, lumber mills, steel mills and mines. Please note that this cable is designed and built according to US standards.

Ratings and Specifications

ASTM B-172; ASTM B-33

Rating and test voltages

Rated voltage U ₀ /U	1,2/2,1 kV to 9,0/15 kV A.C.
Max voltage U _m	1,2/2,1 kV to 9,0/15 kV A.C.
Max voltage U _m	1,5/3,2 kV to 11,3/22,5 kV D.C.
Test voltage	18 to 27 kV A.C.

Temperature ratings

+ 90°C Maximum conductor temperature
– 40°C Minimum ambient temperature during work

Dimensional data

AWG	Nominal cross section mm ²	A.C. Rated voltage 2,1/6 kV		A.C. Rated voltage 6,1/10 kV		A.C. Rated voltage 10,1/15 kV		Max. continuous safe reeling tension N
		Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	Max. overall diam. mm ²	Net weight kg/km	
4	21,5	38,9	2127	40,5	2201	45,6	2586	3780
2	33,6	42,4	2685	44,0	2816	49,0	3234	3780
1	42,4	45,0	3122	46,6	3261	51,7	3698	4670
1/0	53,5	47,7	3631	49,3	3777	55,6	4490	5560
2/0	67,4	50,9	4289	52,5	4421	58,7	5181	6450
3/0	85	53,8	5295	55,4	5406	61,5	6007	7339
4/0	107,2	57,6	6305	59,2	6501	–	–	8229

* Fibre optic elements are available in size 62,5/125.
6 fiber bundle is standard. 12 & 18 fiber bundles available on special order



Comparison chart Metric cross-section – AWG* numbers

To ensure accurate translation between metric cross-sections and American Wire Gauge (AWG) numbers we have included this comparison chart. We do advise however to contact your local Cavotec office in the case of any uncertainty.

Metric nominal cross-section mm ²	mm ²	AWG number
0.75	0.653	19
	0.823	18
	1.04	17
	1.31	16
1.5	1.65	15
	2.08	14
2.5	2.62	13
	3.31	12
4.0	4.17	11
	5.26	10
6.0	6.63	9
	8.37	8
	10.55	7
10.0	13.30	6
16.0	16.77	5
	21.15	4
25.0	26.27	3
	33.63	2
35.0	42.41	1
	53.48	1/0
50	67.43	2/0
70.0	85.03	3/0
95.0	107.20	4/0
120.0	126.64	250 MCM
150.0	152.00	300 MCM
	177.35	350 MCM
185.00	202.71	400 MCM
240.0	253.35	500 MCM
300.0	380.00	750 MCM
400.0		
500.0	506.71	1000 MCM
625.0		

*AWG American Wire Gauge



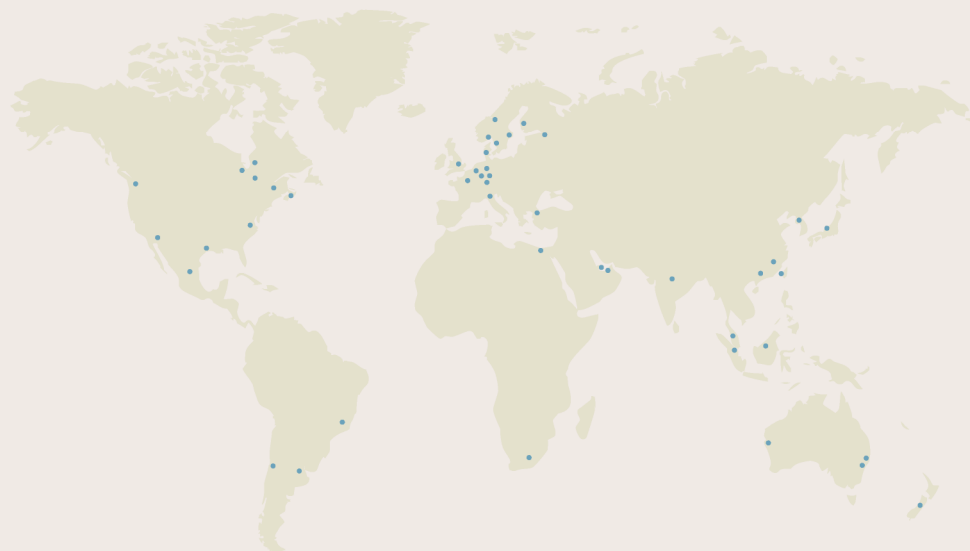
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