



## Medium voltage aluminium power cable

### CONSTRUCTION

**CENELEC HD 620 S2 2010 Part 10 Section F; SFS 5636**

Phase conductor:	Watertight, round stranded and compacted aluminium conductor, IEC 60228 class 2
Conductor screen:	Semi-conducting cross-linked polyethylene (XLPE) with nominal thickness of 0,5 mm
Insulation:	Semi-conducting cross-linked polyethylene (XLPE) with nominal thickness of 5,5 mm
Insulation screen:	Semi-conducting XLPE with nominal thickness of 0,5 mm  Conductor screen, insulation and insulation screen are all extruded in the same operation by triple extrusion
Longitudinal watertightness:	Semi-conducting water swellable tape over insulation screen
Radial watertightness:	PE-laminated aluminium foil bonded to the sheath. Aluminium foil serves also as a metallic shield
Oversheath:	Extruded black weather resistant polyethylene sheath, PE-LLD
Laying up of cores:	Three sheathed cores are laid up around a bare earth conductor
Rated voltage:	$U_0/U (U_m) = 12/20 (24) \text{ kV}$
Temperature limits:	Max. conductor temperature 90 °C Max. short circuit temperature 250 °C (duration not exceeding 5 sec.)  Min. temperature during handling and installation -20 °C Min. temperature during transport -40 °C
Applications:	Cable is intended for fixed installations outdoors and may also be buried in soil. Cable is both longitudinally and radially watertight and therefore suitable where wet soil and/or water permanently occurs. Suitable for ploughing. Not for submarine or similar applications.

**AHXAMK-W**  
 12/20 (24) kV

**Technical information**

	3x50+35	3x70+35	3x95+35	3x120+35	3x150+35	3x185+35	3x240+35	3x240+70	3x300+35	3x300+70
<b>Product code</b>	<b>1187002</b>	<b>1187003</b>	<b>1187004</b>	<b>1187005</b>	<b>1187006</b>	<b>1187007</b>	<b>1187018</b>	<b>1187008</b>	<b>1187019</b>	<b>1187009</b>
Nominal diameter of phase conductor (mm)	8,1	9,5	11,2	12,6	14,1	15,8	18,0	18,0	20,3	20,3
Nominal thickness of insulation (mm)	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5
Nominal diameter over insulation without insulation screen (mm)	19,3	20,7	22,4	23,4	25,3	26,7	29,2	29,2	31,5	31,5
Nominal cross-sectional area of bare earth conductor (mm <sup>2</sup> )	35	35	35	35	35	35	35	70	35	70
Nominal thickness of sheath (mm)	2,8	2,8	2,9	2,9	2,9	3,0	3,1	3,1	3,2	3,2
Nominal diameter of a sheathed phase conductor (mm)	29	30	31	32	34	36	40	40	41	41
Nominal diameter of complete cable (mm) <sup>1</sup>	62	64	66	67	72	76	85	85	87	87
Weight of cable (kg/km) <sup>1</sup>	2300	2550	2900	3200	3600	4100	4900	5300	5700	6000
<b>Maximum forces during installation when pulling by</b>										
- Pulling-eye (kN)	7,5	10,5	14,3	18,0	20,0	20,0	20,0	20,0	20,0	20,0
- Pulling-stocking (kN)	2,3	3,2	4,3	5,4	6,8	8,3	8,5	8,5	8,5	8,5
<b>Minimum bending radii</b>										
- During handling and installation, one phase conductor (m)	0,44	0,45	0,47	0,48	0,51	0,54	0,60	0,60	0,62	0,62
- During handling and installation, cable (m)	0,74	0,77	0,79	0,80	0,86	0,91	1,02	1,02	1,04	1,04
- In case of only one single smooth bending to final position, one phase conductor (m)	0,29	0,30	0,31	0,32	0,34	0,36	0,40	0,40	0,41	0,41
- In case of only one single smooth bending to final position, cable (m)	0,50	0,51	0,53	0,54	0,58	0,61	0,68	0,68	0,70	0,70
<b>Max. d.c-resistance at 20 °C</b>										
- Phase conductor (Ω/km)	0,641	0,443	0,320	0,253	0,206	0,164	0,125	0,125	0,100	0,100
- Bare earth conductor (Ω/km)	0,524	0,524	0,524	0,524	0,524	0,524	0,524	0,268	0,524	0,268
<b>AC-resistance of phase conductor, screen circuit closed<sup>1</sup></b>										
- Conductor temperature 65 °C (Ω/km)	0,76	0,52	0,38	0,30	0,24	0,19	0,15	0,15	0,12	0,12
- Conductor temperature 90 °C (Ω/km)	0,82	0,57	0,41	0,32	0,26	0,21	0,16	0,16	0,13	0,13
Inductance per phase (mH/km) <sup>1</sup>	0,44	0,41	0,39	0,37	0,36	0,35	0,34	0,34	0,33	0,33
Capacitance (μF/km) <sup>1</sup>	0,16	0,17	0,20	0,23	0,24	0,26	0,29	0,29	0,32	0,32
Charging current (A/km) <sup>2</sup>	0,6	0,6	0,7	0,8	0,9	1,0	1,0	1,0	1,2	1,2
Earth fault current (A/km) <sup>1</sup>	1,8	1,9	2,2	2,5	2,6	2,9	3,1	3,1	3,5	3,5
<b>Current ratings (according to CENELEC HD 620 S2 2010 Part 10F) when screen circuit is closed</b>										
- Cables in air 25 °C, conductor temperature 90 °C (A)	195	235	280	325	370	425	490	490	565	565
- Cables in ground (15 °C and 1,0 Km/W) installation depth 0,7 m, conductor temperature 65 °C (A)	155	200	235	265	300	330	385	385	435	435
<b>Maximum 1 second thermal short-circuit current</b>										
- Phase conductor (temp. at the beginning 90 °C, final temperature 250 °C) (kA)	4,7	6,6	8,9	11,3	14,1	17,4	22,6	22,6	28,3	28,3
- Bare earth conductor (temp. at the beginning 55 °C, final temperature 200 °C) (kA)	5,0	5,0	5,0	5,0	5,0	5,0	5,0	10,0	5,0	10,0
- Metallic screen (temp. at the beginning 85 °C, final temperature 250 °C) (kA)	2,4	2,5	2,7	2,9	3,0	3,2	4,6	4,6	4,9	4,9

**AHXAMK-W**  
12/20 (24) kV

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- 1) Calculated value, for guidance only
  - 2) Calculated value for guidance, with operational voltage  $U = 20$  kV