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AHXAMK-W 12/20 (24) kV 3-core

Medium voltage cable

12/20 (24) kV

Application

Medium-voltage cable for fixed installations outdoors. May be buried directly in soil, also by ploughing. Cable is longitudinally and radially watertight and therefore it is suitable where wet soil and / or fresh water permanently occurs. Installations must be in accordance with national regulations and rules of installations. The cable is halogen-free, but without fire protection. The cable is not CPR-classified.

Design

Standards	HD 620 10 F, SFS 5636
Product Environmental Profile (PEP/EPD)	PEP NXNS-00428-V01.01-EN
Conductor	Watertight, circular, stranded aluminium, EN/IEC 60228 class 2
Conductor screen	Semiconducting cross-linked polyethylene XLPE
Insulation	Cross-linked polyethylene XLPE
Insulation screen	Semiconducting cross-linked polyethylene XLPE
Core Identification	White phase numbering: L1, L2, L3
Cable lay up	Three sheathed cores are laid up around a bare copper earth conductor
Inner covering	Semiconducting waterswellable tape against longitudinal water penetration

Temperature limits

Max. conductor temperature °C	90
Max. cond. temp. short circuit max. 5 s °C	250
Min. cable temperature during operation °C	-50
Min. cable temperature during handling °C	-20
Min. cable temperature during transport °C	-40

Metal screen	Polyethylene laminated aluminium foil, which acts also as a radial water barrier
Oversheath	UV-protected PE-plastic PELLD , Black
Longitudinal watertightness	Semiconducting water swellable tape

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Technical information	3x50+35 Cu	3x70+35 Cu	3x95+35 Cu	3x120+35 Cu	3x150+35 Cu	3x185+35 Cu	3x240+35 Cu	3x240+70 Cu	3x300+35 Cu	3x300+70 Cu
Product code	**1187002**	**1187003**	**1187004**	**1187005**	**1187006**	**1187007**	**1187018**	**1187008**	**1187019**	**1187009**
Nominal diameter of a sheathed phase conductor mm	27	29	31	32	33	35	38	38	40	40
Nominal cable diameter mm	59	62	66	68	71	76	82	82	86	86
Nominal cable weight kg/km	2243	2531	2905	3200	3570	4091	4868	5173	5603	5893
Nominal weight of copper kg/km	302	302	302	302	302	302	302	592	302	592
Nominal weight of Aluminium kg/km	383	545	735	953	1149	1461	1901	1902	2428	2428
Nominal diameter of conductor mm	8,0	9,5	11,1	12,6	13,9	15,6	17,8	17,8	19,8	19,8
Nominal thickness of conductor screen mm	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Nominal Insulation thicness mm	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5	5,5
Nominal diameter over the insulation without insulation screen mm	19,3	20,7	22,4	23,4	25,1	27,0	29,2	29,2	31,0	31,0
Nominal thickness of insulation screen mm	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
Nominal diameter of earth conductor mm	6,9	6,9	6,9	6,9	6,9	6,9	6,9	9,9	6,9	9,9
Nominal thickness of PE-laminated aluminium foil mm	0,2	0,2	0,2	0,2	0,2	0,2	0,3	0,3	0,3	0,3
Nominal thickness of oversheath mm	2,8	2,8	2,9	2,9	2,9	3,0	3,1	3,1	3,2	3,2
Maximum forces during installation when pulling by										
Max. pulling force by pulling-eye kN	7,5	10,5	14,3	18,0	20,0	20,0	20,0	20,0	20,0	20,0
Max. pulling force by pulling-stocking kN	2,3	3,2	4,3	5,4	6,8	8,3	8,5	8,5	8,5	8,5
Minimum bending radii										
Minimum bending radius, handling mm	704	741	789	815	858	912	980	980	1031	1031
Minimum bending radius, final bending mm	493	518	553	571	601	638	686	686	721	721
Minimum bending radii										
During handling and installation, phase conductor cm	41	44	47	48	50	53	57	57	60	60
During handling and installation, cable cm	70	74	79	82	86	91	98	98	103	103
In final installation, phase conductor cm	28	30	33	34	35	37	40	40	42	42
In final installation, cable cm	49	52	55	57	60	64	69	69	72	72
Minimum bending radii										
During handling and installation, phase conductor m	0,41	0,44	0,47	0,48	0,50	0,53	0,57	0,57	0,60	0,60
During handling and installation, cable m	0,70	0,74	0,79	0,81	0,86	0,91	0,98	0,98	1,03	1,03
In final installation, phase conductor m	0,28	0,30	0,33	0,34	0,35	0,37	0,40	0,40	0,42	0,42
In final installation, cable m	0,49	0,52	0,55	0,57	0,60	0,64	0,69	0,69	0,72	0,72
DC resistance										
Max. DC resistance of conductor at 20 °C Ω/km	0,641	0,443	0,320	0,253	0,206	0,164	0,125	0,125	0,100	0,100
Nominal DC resistance of PE-laminated aluminium foil 20 °C Ω/km	2,0	1,9	1,8	1,7	1,6	1,5	0,9	0,9	0,9	0,9

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AC resistance of phase conductor, screen circuit closed										
Conductor temperature 40 °C Ω/km	0,6927	0,4788	0,3460	0,2736	0,2229	0,1776	0,1356	0,1356	0,1088	0,1088
Conductor temperature 65 °C Ω/km	0,7573	0,5234	0,3782	0,2991	0,2436	0,1941	0,1482	0,1482	0,1188	0,1188
Conductor temperature 70 °C Ω/km	0,7702	0,5324	0,3846	0,3042	0,2478	0,1974	0,1507	0,1507	0,1208	0,1208
Conductor temperature 90 °C Ω/km	0,8219	0,5681	0,4104	0,3246	0,2644	0,2106	0,1607	0,1607	0,1288	0,1288
Inductance per phase										
In flat formation, free space between cables equal to one cable diameter	0,61	0,59	0,57	0,55	0,54	0,53	0,52	0,52	0,51	0,51
mH/km	0,43	0,41	0,39	0,37	0,36	0,35	0,34	0,34	0,32	0,32
In trefoil formation, cables touching each other mH/km										
Electrical values										
Calculated operation capacitance µF/km	0,17	0,18	0,20	0,23	0,24	0,26	0,29	0,29	0,31	0,31
Calculated charging current with main voltage A/km	0,6	0,7	0,7	0,8	0,9	1,0	1,1	1,1	1,1	1,1
Calculated earth fault current with main voltage A/km	1,8	2,0	2,2	2,5	2,6	2,9	3,2	3,2	3,4	3,4
Current ratings										
Cables in air (25 °C)										
Flat, conductor 90 °C, open screen A	210	265	320	370	425	485	570	570	650	650
Flat, conductor 90 °C, closed screen A	205	255	310	350	395	440	515	515	580	580
Trefoil, conductor 90 °C, open screen A	195	235	285	330	380	430	505	505	580	580
Trefoil, conductor 90 °C, closed screen A	195	235	280	325	370	425	490	490	565	565
Cables in the ground (15 °C and 1,0 K.m/W), Installation depth 0,7 m										
Trefoil, conductor 65 °C, open screen A	155	205	240	270	305	345	395	395	445	445
Trefoil, conductor 65 °C, closed screen A	155	200	235	265	300	330	385	385	435	435
Trefoil, conductor 90 °C, open screen A	185	240	280	320	360	405	465	465	525	525
Trefoil, conductor 90 °C, closed screen A	185	235	275	310	355	390	455	455	510	510
Maximum thermal short circuit current during 1 s										
Phase (initial 90 °C, final 250 °C) kA	4,7	6,6	8,9	11,3	14,1	17,4	22,6	22,6	28,3	28,3
Metal screen (initial 35 °C, final 250 °C) kA	2,9	3,0	3,2	3,4	3,6	3,8	5,3	5,3	5,7	5,7
Metal screen (initial 60 °C, final 250 °C) kA	2,7	2,8	2,9	3,1	3,3	3,5	4,9	4,9	5,3	5,3
Metal screen (initial 85 °C, final 250 °C) kA	2,4	2,5	2,7	2,9	3,0	3,2	4,4	4,4	4,8	4,8
Bare earth conductor (initial 55 °C, final 200 °C) kA	5	5	5	5	5	5	5	10	5	10
Environmental information										
(A1-A3) GWP emission kgCO2e/km	11834	13722	16169	18096	20518	23923	30538	31006	33815	35712
GWP emissions calculation standard	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019	EN15804:2012 + A2:2019

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STANDARD PACKAGES	3x50+35 Cu	3x70+35 Cu	3x95+35 Cu	3x120+35 Cu	3x150+35 Cu	3x185+35 Cu	3x240+35 Cu	3x240+70 Cu	3x300+35 Cu	3x300+70 Cu
Product code	1187002	1187003	1187004	1187005	1187006	1187007	1187018	1187008	1187019	1187009
GTIN code	6410006224302	6410006224319	6410006224326	6410006224333	6410006224340	6410006224357	6410006224500	6410006224364	6438176300084	6410006224371
Package	1000 K26	500 K24	500 K24	500 K24	500 K26	500 K26	500 K28	500 K28	500 K28	500 K28
Product code						1187007				
GTIN code						6410006224388				
Package						600 K26				