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AXQJ-F TT D / AHXCAMK-HF D 12/20 (24) kV 1-core CAS

Medium voltage cable

12/20 (24) kV

Application

Medium-voltage cable for fixed installations indoors and outdoors. May be buried directly in soil. Installations must be in accordance with national regulations and rules of installations. The cable is halogen-free and flame-retardant according to CPR-class Dca-s2,d2,a2.

Design

Standards	SS 424 14 16:2024, HD 622 S1 Section 4B:2023
Reaction to fire	Dca-s2,d2,a2; EN 13501-6, EN 50575:2014+A1:2016
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
Inner covering	Semiconducting waterswellable tape
Metal screen	Copper wires and aluminium foil (CAS). Polyethylene laminated aluminium foil acts as a part of the metallic screen and needs to be connected in cable joints and terminations
Oversheath	UV-protected halogen-free polyolefin compound , Black
Longitudinal watertightness	Water swellable tape applied under and over metal screen

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	-15
Min. cable temperature during transport °C	-25

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Transverse watertightness	Polyethylene laminated aluminium foil bonded to the sheath

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Technical information	1x50/16 CAS	1x70/16 CAS	1x95/25 CAS	1x120/25 CAS	1x150/25 CAS	1x185/35 CAS	1x240/35 CAS	1x300/35 CAS	1x400/35 CAS	1x500/35 CAS
Product code	**1181575**	**1181576**	**1181577**	**1181578**	**1181579**	**1181580**	**1181581**	**1181582**	**1181583**	**1181584**
Nominal cable diameter mm	27	29	31	33	34	36	38	40	43	46
Nominal cable weight kg/km	765	879	1042	1179	1282	1522	1759	2001	2259	2730
Nominal weight of copper kg/km	91	91	139	139	139	198	198	198	198	195
Nominal weight of Aluminium kg/km	127	181	244	316	381	485	631	806	960	1298
Nominal diameter of conductor mm	8,0	9,5	11,0	12,6	13,8	15,6	17,8	19,8	22,4	25,7
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	19,2	20,7	22,2	23,8	25,5	26,8	29,2	31,0	33,6	36,9
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 size of metal screen mm²	16	16	25	25	25	35	35	35	35	35
Nominal thickness of PE-laminated aluminium foil mm	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
Nominal thickness of oversheath mm	1,8	1,9	1,9	2,0	2,0	2,1	2,2	2,3	2,4	2,5
Fire load										
Fire load MJ/m	18,006	19,910	21,742	23,774	25,142	27,595	30,839	33,272	36,555	41,014
Fire load kWh/m	5,002	5,530	6,040	6,604	6,984	7,665	8,566	9,242	10,154	11,393
Maximum forces during installation when pulling by										
Max. pulling force by pulling-eye kN	1,5	2,1	2,8	3,6	4,5	5,5	7,2	9,0	12,0	15,0
Max. pulling force by pulling-stocking kN	0,8	1,1	1,4	1,8	2,3	2,8	3,6	4,5	6,0	7,5
Minimum bending radii										
Minimum bending radius, handling mm	410	436	465	491	510	539	575	604	647	694
Minimum bending radius, final bending mm	287	305	325	344	357	377	402	423	453	486
Minimum bending radii										
During handling and installation, cable cm	41	44	46	49	51	54	57	60	65	69
In final installation, cable cm	29	30	33	34	36	38	40	42	45	49
Minimum bending radii										
During handling and installation, cable m	0,41	0,44	0,47	0,49	0,51	0,54	0,57	0,60	0,65	0,69
In final installation, cable m	0,29	0,30	0,33	0,34	0,36	0,38	0,40	0,42	0,45	0,49
DC resistance										
Max. DC resistance of conductor at 20 °C Ω/km	0,641	0,443	0,32	0,253	0,206	0,164	0,125	0,1	0,0778	0,0605
Maximum DC resistance at 20 °C, metal screen Ω/km	1,2	1,2	0,8	0,8	0,8	0,524	0,524	0,524	0,524	0,524

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Technical information	1x50/16 CAS	1x70/16 CAS	1x95/25 CAS	1x120/25 CAS	1x150/25 CAS	1x185/35 CAS	1x240/35 CAS	1x300/35 CAS	1x400/35 CAS	1x500/35 CAS
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	0,1088	0,0850	0,0666
Conductor temperature 65 °C Ω/km	0,7573	0,5234	0,3782	0,2991	0,2436	0,1941	0,1482	0,1188	0,0927	0,0726
Conductor temperature 70 °C Ω/km	0,7702	0,5324	0,3846	0,3042	0,2478	0,1974	0,1507	0,1208	0,0943	0,0738
Conductor temperature 90 °C Ω/km	0,8219	0,5681	0,4104	0,3246	0,2644	0,2106	0,1607	0,1288	0,1005	0,0786
Inductance per phase										
In flat formation, free space between cables equal to one cable diameter	0,61	0,59	0,57	0,56	0,55	0,54	0,52	0,51	0,50	0,49
mH/km	0,43	0,41	0,39	0,37	0,36	0,35	0,34	0,33	0,31	0,30
In trefoil formation, cables touching each other mH/km										
Electrical values										
Calculated operation capacitance µF/km	0,16	0,18	0,20	0,22	0,23	0,26	0,29	0,31	0,34	0,39
Calculated charging current with main voltage A/km	0,6	0,7	0,7	0,8	0,8	0,9	1,1	1,1	1,3	1,4
Calculated earth fault current with main voltage A/km	1,8	2,0	2,2	2,4	2,5	2,8	3,2	3,4	3,8	4,2
Current ratings										
Cables in air (25 °C)										
Flat, conductor 90 °C, open screen A	210	265	320	370	425	485	570	650	790	920
Flat, conductor 90 °C, closed screen A	205	255	310	350	395	440	515	580	680	755
Trefoil, conductor 90 °C, open screen A	195	235	285	330	380	430	505	580	695	800
Trefoil, conductor 90 °C, closed screen A	195	235	280	325	370	425	490	565	680	775
Cables in the ground (15 °C and 1,0 K.m/W), Installation depth 0,7 m										
Flat, conductor 65 °C, open screen A	175	220	255	295	330	375	435	485	570	645
Flat, conductor 65 °C, closed screen A	170	215	250	280	315	350	395	440	500	550
Flat, conductor 90 °C, open screen A	205	260	300	345	390	440	510	570	670	760
Flat, conductor 90 °C, closed screen A	200	250	295	330	370	410	465	515	590	650
Trefoil, conductor 65 °C, open screen A	155	205	240	270	305	345	395	445	525	590
Trefoil, conductor 65 °C, closed screen A	155	200	235	265	300	330	385	435	510	570
Trefoil, conductor 90 °C, open screen A	185	240	280	320	360	405	465	525	615	695
Trefoil, conductor 90 °C, closed screen A	185	235	275	310	355	390	455	510	600	670
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	28,3	37,8	47,2
Metal screen (initial 80 °C, final 250 °C) kA	2,3	2,3	3,4	3,4	3,4	4,7	4,7	4,7	4,7	4,7

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STANDARD PACKAGES	1x50/16 CAS	1x70/16 CAS	1x95/25 CAS	1x120/25 CAS	1x150/25 CAS	1x185/35 CAS	1x240/35 CAS	1x300/35 CAS	1x400/35 CAS	1x500/35 CAS
Product code							1181581	1181582	1181583	1181584
Package							1000 K22	1000 K24	1000 K24	1000 K26
Product code							1181581	1181582	1181583	1181584
Package							500 K20	500 K20	500 K22	500 K26

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Technical information	1x630/35 CAS	1x630/50 CAS	1x800/35 CAS	1x800/50 CAS
Product code	**1181585**	**1181586**	**1181587**	**1181588**
Nominal cable diameter mm	50	51	55	55
Nominal cable weight kg/km	3318	3430	4027	4116
Nominal weight of copper kg/km	195	278	195	278
Nominal weight of Aluminium kg/km	1718	1718	2204	2204
Nominal diameter of conductor mm	29,3	29,3	33,3	33,3
Nominal thickness of conductor screen mm	0,5	0,5	0,5	0,5
Nominal Insulation thicness mm	5,5	5,5	5,5	5,5
Nominal diameter over the insulation without insulation screen mm	40,7	40,7	44,7	44,7
Nominal thickness of insulation screen mm	0,5	0,5	0,5	0,5
Nominal size of metal screen mm²	35	50	35	50
Nominal thickness of PE-laminated aluminium foil mm	0,2	0,2	0,2	0,2
Nominal thickness of oversheath mm	2,6	2,6	2,7	2,7
Fire load				
Fire load MJ/m	46,889	46,536	53,195	53,270
Fire load kWh/m	13,025	12,927	14,776	14,797
Maximum forces during installation when pulling by				
Max. pulling force by pulling-eye kN	18,9	18,9	20,0	20,0
Max. pulling force by pulling-stocking kN	8,5	8,5	8,5	8,5
Minimum bending radii				
Minimum bending radius, handling mm	753	762	820	825
Minimum bending radius, final bending mm	527	533	574	578
Minimum bending radii				
During handling and installation, cable cm	75	76	82	83
In final installation, cable cm	53	53	57	58
Minimum bending radii				
During handling and installation, cable m	0,75	0,76	0,82	0,82
In final installation, cable m	0,53	0,53	0,57	0,58
DC resistance				
Max. DC resistance of conductor at 20 °C Ω/km	0,0469	0,0469	0,0367	0,0367
Maximum DC resistance at 20 °C, metal screen Ω/km	0,524	0,387	0,6	0,387

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Technical information	1x630/35 CAS	1x630/50 CAS	1x800/35 CAS	1x800/50 CAS
AC resistance of phase conductor, screen circuit closed				
Conductor temperature 40 °C Ω/km	0,0522	0,0522	0,0416	0,0416
Conductor temperature 65 °C Ω/km	0,0568	0,0568	0,0451	0,0451
Conductor temperature 70 °C Ω/km	0,0577	0,0577	0,0458	0,0458
Conductor temperature 90 °C Ω/km	0,0614	0,0614	0,0487	0,0487
Inductance per phase				
In flat formation, free space between cables equal to one cable diameter mH/km	0,48	0,48	0,47	0,47
In trefoil formation, cables touching each other mH/km	0,29	0,29	0,28	0,28
Electrical values				
Calculated operation capacitance µF/km	0,43	0,43	0,48	0,48
Calculated charging current with main voltage A/km	1,6	1,6	1,8	1,8
Calculated earth fault current with main voltage A/km	4,7	4,7	5,3	5,3
Current ratings				
Cables in air (25 °C)				
Flat, conductor 90 °C, open screen A	1040	1040	1250	1250
Flat, conductor 90 °C, closed screen A	840	840	910	910
Trefoil, conductor 90 °C, open screen A	915	915	1045	1045
Trefoil, conductor 90 °C, closed screen A	880	880	1010	1010
Cables in the ground (15 °C and 1,0 K.m/W), Installation depth 0,7 m				
Flat, conductor 65 °C, open screen A	720	720	780	780
Flat, conductor 65 °C, closed screen A	610	610	665	665
Flat, conductor 90 °C, open screen A	850	850	920	920
Flat, conductor 90 °C, closed screen A	715	715	790	790
Trefoil, conductor 65 °C, open screen A	665	665	725	725
Trefoil, conductor 65 °C, closed screen A	635	635	695	695
Trefoil, conductor 90 °C, open screen A	780	780	863	863
Trefoil, conductor 90 °C, closed screen A	745	745	845	845
Maximum thermal short circuit current during 1 s				
Phase (initial 90 °C, final 250 °C) kA	59,5	59,5	75,6	75,6
Metal screen (initial 80 °C, final 250 °C) kA	4,7	7,4	4,7	7,4

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STANDARD PACKAGES	1x630/35 CAS	1x630/50 CAS	1x800/35 CAS	1x800/50 CAS
Product code	1181585			
Package	1000 K26			
Product code	1181585			
Package	500 K26			