TSLF 18/30 (36) kV 1-core CAS

Medium voltage cable

18/30 (36) kV

DryRex

Application

Medium-voltage cable for fixed installations outdoors. May be buried directly in soil. 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 K
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 PE-plastic PEMD, Grey + black CL
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	-20
Min. cable temperature during transport °C	-40

Transverse watertightness	Polyethylene laminated aluminium foil bonded to the sheath

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Technical information	1x95/25 CAS	1x120/35 CAS	1x150/35 CAS	1x240/35 CAS	1x300/35 CAS	1x400/35 CAS	1x500/35 CAS	1x630/35 CAS	1x630/50 CAS	1x800/50 CAS
Product code	**1181229**	**1181227**	**1181230**	**1181231**	**1181232**	**1181233**	**1181234**	**1181242**	**1181235**	**1181236**
Nominal cross-sectional area of conductor mm²	95	120	150	240	300	400	500	630	630	800
Nominal diameter of conductor mm	11,1	12,6	13,9	17,8	19,8	22,4	25,7	29,3	29,3	33,3
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 thickness of insulation mm	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0	8,0
Nominal diameter over the insulation without insulation screen mm	26,8	28,2	29,5	33,6	35,9	38,0	41,3	45,1	45,1	49,1
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	25	35	35	35	35	35	35	35	50	50
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	2,1	2,1	2,2	2,3	2,4	2,5	2,6	2,7	2,7	2,9
Nominal cable diameter mm	35,990	37,920	39,370	43,520	45,290	48,140	51,640	55,590	55,970	60,420
Nominal cable weight kg/km	1194,107	1379,762	1511,490	1917,628	2173,547	2440,033	2921,179	3514,807	3601,625	4308,741
Nominal weight of copper kg/m	0,140	0,198	0,198	0,198	0,195	0,195	0,195	0,195	0,278	0,278
Nominal weight of aluminium kg/m	0,244	0,316	0,381	0,631	0,806	0,960	1,298	1,718	1,718	2,204
Maximum forces during installation when pulling by										
Max. pulling force by pulling-eye kN	4,8	6,0	7,5	12,0	15,0	20,0	20,0	20,0	20,0	20,0
Max. pulling force by pulling-stocking kN	1,4	1,8	2,3	3,6	4,5	6,0	7,5	8,5	8,5	8,5
Minimum bending radii										
During handling and installation, cable cm	54	57	59	65	68	72	77	83	84	91
In final installation, cable cm	38	40	41	46	48	51	54	58	59	63
Minimum bending radii										
During handling and installation, cable m	0,54	0,57	0,59	0,65	0,68	0,72	0,78	0,83	0,84	0,91
In final installation, cable m	0,38	0,40	0,41	0,46	0,48	0,51	0,54	0,58	0,59	0,63
DC resistance										
Max. DC resistance of conductor at 20 °C Ω/km	0,320	0,253	0,206	0,125	0,100	0,0778	0,0605	0,0469	0,0469	0,0367
Maximum DC resistance at 20 °C, metal screen Ω/km	0,727	0,524	0,524	0,524	0,524	0,524	0,524	0,524	0,387	0,387
AC resistance of phase conductor, screen circuit closed										
Conductor temperature 40 °C Ω/km	0,3460	0,2736	0,2229	0,1356	0,1088	0,0850	0,0666	0,0522	0,0522	0,0416
Conductor temperature 65 °C Ω/km	0,3782	0,2991	0,2436	0,1482	0,1188	0,0927	0,0726	0,0568	0,0568	0,0451
Conductor temperature 70 °C Ω/km	0,3846	0,3042	0,2478	0,1507	0,1208	0,0943	0,0738	0,0577	0,0577	0,0458
Conductor temperature 90 °C Ω/km	0,4104	0,3246	0,2644	0,1607	0,1288	0,1005	0,0786	0,0614	0,0614	0,0487

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Inductance per phase										
In flat formation, free space between cables equal to one cable diam	0,60	0,59	0,58	0,55	0,53	0,52	0,51	0,50	0,50	0,49
In trefoil formation, cables touching each other mH/km	0,42	0,40	0,39	0,36	0,35	0,34	0,32	0,31	0,31	0,30
Electrical values										
Calculated operation capacitance µF/km	0,16	0,17	0,18	0,22	0,23	0,26	0,29	0,32	0,32	0,36
Calculated charging current with main voltage A/km	0,9	0,9	1,0	1,2	1,3	1,4	1,6	1,7	1,8	1,9
Calculated earth fault current with main voltage A/km	2,6	2,8	3,0	3,6	3,8	4,2	4,7	5,2	5,3	5,8
Current ratings										
Cables in air (25 °C)										
Flat, conductor 90 °C, open screen A	320	370	425	570	650	790	920	1040	1040	1220
Flat, conductor 90 °C, closed screen A	310	350	395	515	580	680	755	840	840	950
Trefoil, conductor 90 °C, open screen A	285	330	380	505	580	695	800	915	915	1045
Trefoil, conductor 90 °C, closed screen A	280	325	370	490	565	680	775	880	880	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	255	295	330	435	485	570	645	720	720	805
Flat, conductor 65 °C, closed screen A	250	280	315	395	440	500	550	610	610	650
Flat, conductor 90 °C, open screen A	300	345	390	510	570	670	760	850	850	950
Flat, conductor 90 °C, closed screen A	295	330	370	465	515	590	650	715	715	841
Trefoil, conductor 65 °C, open screen A	240	270	305	395	445	525	590	665	665	725
Trefoil, conductor 65 °C, closed screen A	235	265	300	385	435	510	570	635	635	695
Trefoil, conductor 90 °C, open screen A	280	320	360	465	525	615	695	780	780	863
Trefoil, conductor 90 °C, closed screen A	275	310	355	455	510	600	670	745	745	845
Maximum thermal short circuit current during 1 s										
Phase (initial 90 °C, final 250 °C) kA	8,9	11,3	14,1	22,6	28,3	37,8	47,2	59,5	59,5	75,6
Metal screen (initial 80 °C, final 250 °C) kA	3,7	5,2	5,2	5,2	5,2	5,2	5,2	5,2	7,4	7,4

Technical information	1x1000/50 CAS
Product code	**1181237**
Nominal cross-sectional area of conductor mm²	1000
Nominal diameter of conductor mm	37,8
Nominal thickness of conductor screen mm	0,5
Nominal thickness of insulation mm	8,0
Nominal diameter over the insulation without insulation screen mm	55,0
Nominal thickness of insulation screen mm	0,5
Nominal size of metal screen mm²	50
Nominal thickness of PE-laminated aluminium foil mm	0,2
Nominal thickness of oversheath mm	3,0
Nominal cable diameter mm	66,140
Nominal cable weight kg/km	5067,062
Nominal weight of copper kg/m	0,279
Nominal weight of aluminium kg/m	2,826
Maximum forces during installation when pulling by	
Max. pulling force by pulling-eye kN	20,0
Max. pulling force by pulling-stocking kN	8,5
Minimum bending radii	
During handling and installation, cable cm	99
In final installation, cable cm	69
Minimum bending radii	
During handling and installation, cable m	0,99
In final installation, cable m	0,69
DC resistance	
Max. DC resistance of conductor at 20 °C Ω/km	0,0291
Maximum DC resistance at 20 °C, metal screen Ω/km	0,387
AC resistance of phase conductor, screen circuit closed	
Conductor temperature 40 °C Ω/km	0,0338
Conductor temperature 65 °C Ω/km	0,0366
Conductor temperature 70 °C Ω/km	0,0371
Conductor temperature 90 °C Ω/km	0,0394

Technical information	1x1000/50 CAS
Inductance per phase	
In flat formation, free space between cables equal to one cable diam	0,48
In trefoil formation, cables touching each other mH/km	0,30
Electrical values	
Calculated operation capacitance µF/km	0,41
Calculated charging current with main voltage A/km	2,2
Calculated earth fault current with main voltage A/km	6,7
Current ratings	
Cables in air (25 °C)	
Flat, conductor 90 °C, open screen A	1390
Flat, conductor 90 °C, closed screen A	1060
Trefoil, conductor 90 °C, open screen A	1170
Trefoil, conductor 90 °C, closed screen A	1130
Cables in the ground (15 °C and 1,0 K.m/W), Installation depth 0,7 m	
Flat, conductor 65 °C, open screen A	900
Flat, conductor 65 °C, closed screen A	700
Flat, conductor 90 °C, open screen A	1067
Flat, conductor 90 °C, closed screen A	922
Trefoil, conductor 65 °C, open screen A	800
Trefoil, conductor 65 °C, closed screen A	760
Trefoil, conductor 90 °C, open screen A	968
Trefoil, conductor 90 °C, closed screen A	940
Maximum thermal short circuit current during 1 s	
Phase (initial 90 °C, final 250 °C) kA	94,5
Metal screen (initial 80 °C, final 250 °C) kA	7,4