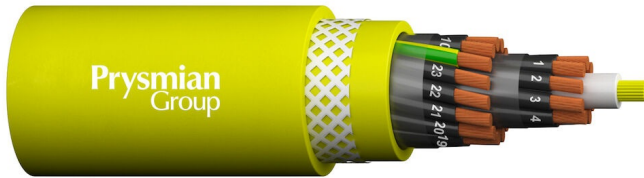


CORDAFLEX (SMK)-V (N)SHTOEU 0,6/1KV

Low voltage cables for vertical reeling



Flexible low voltage reeling cable for application under extreme mechanical stresses, specially designed for vertical reeling operation (spreader reeling application).

STANDARDS / APPROVALS

DIN VDE 0250-814	General
Reversed bending; roller bending; torsional stress	Mechanical parameters
VDE Reg. Nr. 7519	Certifications / Approvals
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
DIN VDE 0298-4	Electrical parameters
DIN VDE 0207-21	Compound
DIN VDE 0295 / DIN EN 60228 / IEC 60228	Conductor
DIN VDE 0207-20	Compound
DIN VDE 0298-3	Application
DIN EN 60332-1-2 / IEC 60332-1-2	Fire performance

CABLE DESIGN

Conductor	Very finely stranded copper, bare (class FS)
Core insulation material	Ethylene tetrafluoroethylene (ETFE)
Core arrangement	Laid-up in a maximum of 3 layers, with central aramid support element to increase the max. permissible tensile force on the cable; (where applicable) Individual Screen made of tinned copper braid, with coverage: individual 60%; TSP 80%
Material inner sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5
Armouring/reinforcement	Braiding
Armouring/reinforcement material	Polyester
Material outer sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U ₀ /U (Um)	0.6/1 (1.2) kV
Test voltage [kV]	3.5
Nominal voltage U [V]	1,000

THERMAL PARAMETERS

Max. conductor temperature [°C]	90
Max. conductor temperature at short circuit [°C]	250
Ambient temperature fix installation (min) [°C]	-50
Ambient temperature fix installation (max) [°C]	80
Ambient temperature flexible installation (min) [°C]	-35
Ambient temperature flexible installation (max) [°C]	80

CHEMICAL PARAMETERS

Oil resistant	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Sea water resistance	Yes

OPTICAL FIBER PROPERTIES

Fiber type	G62,5/125 µm Multi-mode graded index	G50/125 µm Multi-mode graded index	E9/125 µm Single-mode graded index
Cladding diameter	125 µm	125 µm	125 µm
Fiber diameter	250 µm	250 µm	250 µm
Attenuation at 850 nm	< 3,3 dB/km	< 2,8 dB/km	
Attenuation at 1310 nm	< 0,9 dB/km	< 0,8 dB/km	< 0,4 dB/km
Attenuation at 1550 nm			< 0,3 dB/km
Bandwidth at 850 nm	> 400 MHz	> 400 MHz	
Bandwidth at 1310 nm	> 600 MHz	> 1200 MHz	
Numerical Aperture	0,275 +/- 0,02	0,2 +/- 0,02	0,14 +/- 0,02
Chromatic Dispersion at 1300 nm			< 3,5 ps/nm km
Chromatic Dispersion at 1550 nm			< 18 ps/nm km

MECHANICAL PARAMETERS

Torsional stress +/- [°/m]	50
Permanent tensile strength (rule)	Increased tensile load through additional support elements (see table)
Travel speed	Hoist (vertical reeling): up to 240 m/min. It is recommended to consult the manufacturer for speeds beyond 240 m/min
Bending radius (rule)	Acc. to VDE 0298-3: 4 X D fixed installation 5 X D flexible operation 20 X D min distance with S-type directional changes

CABLE PROPERTIES

Basic construction	SAP code	External code	Diameter conductor [mm]	Cable diameter (min) [mm]	Cable diameter (max) [mm]	Cable weight [kg/km]
49x1	20004108	5DH3291	1.3	26.6	29.6	1,320
12x2,5	20004109	5DH3292	2	22	25	930
24x2,5	20004112	5DH3295	2	26.2	29.2	1,360
30x2,5	20004113	5DH3296	2	29.4	32.4	1,710
44x2,5	20004115	5DH3298	2	34.1	37.1	2,310
56x2,5	20004107	5DH3290	2	40.1	43.1	3,120
24x2,5+3x(2x1,5)	20004099	5DH3273	2	39.7	42.7	2,420
42x2,5+2x1(C)	20042616	5DH3982	2	34.1	37.1	2,300
45x2,5+(4x0,5)C	20163404	5DH3286	2	42.9	45.9	3,200
20x2,5+4x(3G62,5)	20171160	5DH3215	2	27.2	30.2	1,320
22x2,5+2x(3G62,5)	20008607	5DH3261	2	26.2	29.2	1,320
22x2,5+4x(3G50)	20004111	5DH3294	2	28.2	31.2	1,460
24x2,5+6x(2G62,5)	20079358	5DH3981	2	29.4	32.4	1,590
28x2,5+2x(3G62,5)	20156011	5DH3308	2	29.4	32.4	1,670
28x2,5+2x(3G50)	20149375	5DH3305	2	29.4	32.4	1,670
36x2,5+8x(1G62,5)	20091976	5DH3978	2	34.1	37.1	2,150
36x2,5+8x(2E9LWL)	20391155	5DH3***	2	34.1	37.1	2,150
36x2,5+8x(2G62,5)	20391156	5DH3***	2	34.1	37.1	2,150
38x2,5+6x(2G62,5)	20040061	5DH3259	2	34.1	37.1	2,190
41x2,5+3x(2G62,5)	20116888	5DH3301	2	34.1	37.1	2,250
41x2,5+3x(2G50)	20142021	5DH3304	2	34.1	37.1	2,270
42x2,5+2x(3G62,5)	20081032	5DH3980	2	34.1	37.1	2,290
44x2,5+3x(2G62,5)	20155500	5DH3314	2	35.5	38.5	2,420
44x2,5+4x(3G62,5)	20160144	5DH3315	2	35.5	38.5	2,450
44x2,5+3x(3G50)	20025456	5DH3300	2	35.5	38.5	2,420
44x2,5+3x(3G62,5)	20143212	5DH3313	2	35.5	38.5	2,420
50x2,5+6x(1G50)	20004095	5DH3269	2	40.1	43.1	3,000
52x2,5+4x(3G62,5)	20080536	5DH3979	2	40.1	43.1	3,040
56x2,5+3x(3G62,5)	20004096	5DH3270	2	41.3	44.3	3,190
56x2,5+4x(3G62,5)	20085758	5DH3258	2	41.3	44.3	3,250

CABLE PROPERTIES ELECTRICAL / MECHANICAL

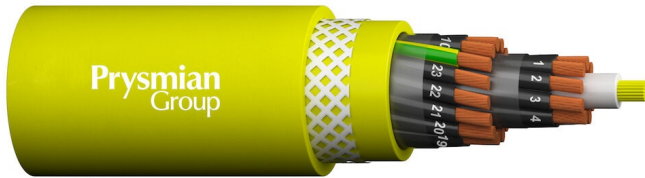
Basic construction	SAP code	External code	Max. tensile strength [N]	Bending radius moving (min) [mm]	Conductor resistance at 20° C [Ohm/km]	Current carrying capacity [A]
49x1	20004108	5DH3291	3,200	148	19.5	18
12x2,5	20004109	5DH3292	2,700	125	7.98	30
24x2,5	20004112	5DH3295	3,600	146	7.98	30
30x2,5	20004113	5DH3296	4,100	162	7.98	30
44x2,5	20004115	5DH3298	5,100	186	7.98	30
56x2,5	20004107	5DH3290	6,000	216	7.98	30
24x2,5+3x(2x1,5)	20004099	5DH3273	3,600	214	7.98	30
42x2,5+2x1(C)	20042616	5DH3982	4,950	186	7.98	30
45x2,5+(4x0,5)C	20163404	5DH3286	5,175	230	7.98	30
20x2,5+4x(3G62,5)	20171160	5DH3215	3,300	151	7.98	30
22x2,5+2x(3G62,5)	20008607	5DH3261	3,450	146	7.98	30
22x2,5+4x(3G50)	20004111	5DH3294	3,450	156	7.98	30
24x2,5+6x(2G62,5)	20079358	5DH3981	3,600	162	7.98	30
28x2,5+2x(3G62,5)	20156011	5DH3308	3,900	162	7.98	30
28x2,5+2x(3G50)	20149375	5DH3305	3,900	162	7.98	30
36x2,5+8x(1G62,5)	20091976	5DH3978	4,500	186	7.98	30
36x2,5+8x(2E9LWL)	20391155	5DH3***	4,500	186	7.98	30
36x2,5+8x(2G62,5)	20391156	5DH3***	4,500	186	7.98	30
38x2,5+6x(2G62,5)	20040061	5DH3259	4,650	186	7.98	30
41x2,5+3x(2G62,5)	20116888	5DH3301	4,875	186	7.98	30
41x2,5+3x(2G50)	20142021	5DH3304	4,875	186	7.98	30
42x2,5+2x(3G62,5)	20081032	5DH3980	4,950	186	7.98	30
44x2,5+3x(2G62,5)	20155500	5DH3314	5,100	193	7.98	30
44x2,5+4x(3G62,5)	20160144	5DH3315	5,100	193	7.98	30
44x2,5+3x(3G50)	20025456	5DH3300	5,100	193	7.98	30
44x2,5+3x(3G62,5)	20143212	5DH3313	5,100	193	7.98	30
50x2,5+6x(1G50)	20004095	5DH3269	5,550	216	7.98	30
52x2,5+4x(3G62,5)	20080536	5DH3979	5,700	216	7.98	30
56x2,5+3x(3G62,5)	20004096	5DH3270	6,000	222	7.98	30
56x2,5+4x(3G62,5)	20085758	5DH3258	6,000	222	7.98	30

Current carrying capacity acc. VDE 0298-4, Tab. 15, on a surface at 30°C ambient temperature.

Design with 6, 12, 18 or 24 fibers, in G62,5, G50 and E9 available upon request. Further combination with different fiber types is also possible.

CORDAFLEX (SMK) -V-S (N)SHTOEU 0,6/1KV

Low voltage reeling cables for vertical reeling



Flexible low voltage reeling cable for application under extreme mechanical stresses, specially designed for vertical reeling operation for mobile harbour cranes.

STANDARDS / APPROVALS

Based on DIN VDE 0250-814

DIN VDE 0295 / DIN EN 60228 / IEC 60228

DIN VDE 0298-3

DIN VDE 0298-4

DIN EN 60811-404 / IEC 60811-404

Reversed bending; roller bending; torsional stress

General

Conductor

Application

Electrical parameters

Chemical behaviour

Mechanical parameters

CABLE DESIGN

Conductor

Electrolytic bare copper, very finely stranded class FS

Core insulation material

EPR rubber

-

PROTOLON MS

-

Special compound > 3GI3

Core arrangement

Laid-up in 3 layers

Best core identification as a result of black colored insulation with light printed numbers, earth conductor green-yellow

Material inner sheath

Rubber - polychloroprene (PCP)

-

PROTOFIRM

-

Special compound > 5GM5

Armouring/reinforcement

Braiding

Armouring/reinforcement material

Polyester

Material outer sheath

Rubber - polychloroprene (PCP)

-

PROTOFIRM

-

Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U ₀ /U (Um)	0.6/1 (1.2) kV
Test voltage [kV]	3.5
Nominal voltage U [V]	1,000

THERMAL PARAMETERS

Max. conductor temperature [°C]	90
Max. conductor temperature at short circuit [°C]	250
Ambient temperature fix installation (min) [°C]	-50
Ambient temperature fix installation (max) [°C]	80
Ambient temperature flexible installation (min) [°C]	-35
Ambient temperature flexible installation (max) [°C]	80

CHEMICAL PARAMETERS

Oil resistant	Yes
Ozone resistance	Yes
Resistant to UV	Yes
Sea water resistance	Yes

MECHANICAL PARAMETERS

Torsional stress +/- [°/m]	50
Permanent tensile strength (rule)	Central aramid support element to increase the loading capability (breaking load of support element = 10000N)
Travel speed	Hoist (vertical reeling); up to 240 m / min. It is recommended to consult the manufacturer for speeds beyond 240 m/min.
Bending radius (rule)	Acc. to VDE 0298-3: 4 X D fixed installation 5 X D flexible operation 20 X D min distance with S-type directional changes

CABLE PROPERTIES

Basic construction	SAP code	External code	Diameter conductor [mm]	Cable diameter (min) [mm]	Cable diameter (max) [mm]	Cable weight [kg/km]
36x2,5	20316171	5DH3361	2	30.5	33.3	1,828

CABLE PROPERTIES ELECTRICAL / MECHANICAL

Basic construction	SAP code	External code	Max. tensile strength [N]	Bending radius moving (min) [mm]	Conductor resistance at 20° C [Ohm/km]	Current carrying capacity [A]
36x2,5	20316171	5DH3361	3,800	200	7.98	30

Current carrying capacity acc. VDE 0298-4, Tab. 15, on a surface at 30°C ambient temperature.