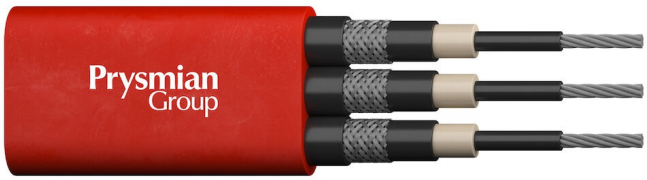
PROTOLON (FL) (N)TSFLCGEWOEU 3,6/6KV

Medium voltage flat reeling cable



Flexible medium voltage flat reeling cable for application under high mechanical stresses (e.g. dynamic tensile loads, multiple changes of direction within one plane, running over rollers). Mainly for mobile equipment, e.g. fast-moving container cranes and large moving equipment.

STANDARDS / APPROVALS

DIN VDE 0298-4	Electrical parameters
Based on DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
Reversed bending; roller bending	Mechanical parameters
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
HD 2216	Chemical behaviour

CABLE DESIGN

Conductor	Finely stranded copper, tinned, class 5 PE: individual concentric conductors distributed over the insulation of the three main cores
Inner semi-conducting layer	Yes
-	Semi-conductive EPR
Core insulation material	EPR rubber
-	PROTOLON HS
-	Special compound > 3GI3
Outer semi-conducting layer	Yes
-	Semi-conductive EPR
Core arrangement	Parallel core arrangement; earth conductor splitted and concentrically distributed around each core
Material outer sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	3.6/6 (7.2) kV
Test voltage [kV]	11
Nominal voltage U [V]	6,000

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

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Travel speed	- Gantry (reeling operation): up to 120 m/min
Bending radius (rule)	Acc. to VDE 0298-3: (Recommendation: applied cable diameter D = 1.5 x height of the flat cable) 6 X D fixed installation 10 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]	Height (min) [mm]	Height (max) [mm]	Width (min) [mm]	Width (max) [mm]	Cable weight [kg/km]
3x25+3x25/3E	20168971	5DK3469	6.9	24.2	27.2	64.3	68.3	2,730
3x35+3x25/3E	20151792	5DK3470	8.3	24.7	27.7	65.8	69.8	3,120
3x50+3x25/3E	20090795	5DK3471	9.8	27.8	30	71.1	75.1	3,860
3x70+3x35/3E	20091973	5DK3028	11.4	28.9	31.9	76.8	80.8	4,730
3x95+3x50/3E	20008330	5DK3030	13.3	29.2	30.9	75.5	79.5	5,280
3x120+3x70/3E	20141934	5DK3454	15.1	35.4	37.4	92.3	97.3	7,400

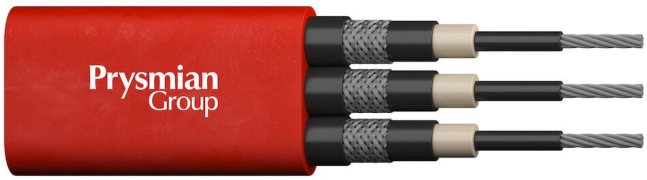
CABLE PROPERTIES ELECTRICAL / MECHANICAL

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]
3x25+3x25/3E	20168971	5DK3469	1,125	408	0.795	105
3x35+3x25/3E	20151792	5DK3470	1,575	416	0.565	130
3x50+3x25/3E	20090795	5DK3471	2,250	450	0.393	162
3x70+3x35/3E	20091973	5DK3028	3,150	479	0.277	200
3x95+3x50/3E	20008330	5DK3030	4,275	464	0.21	241
3x120+3x70/3E	20141934	5DK3454	5,400	561	0.164	282

Current carrying capacity acc. VDE 0298-4, cable reeled in 1 layer, at 30°C ambient temperature.

PROTOLON (FL) (N)TSFLCGEWOEU 6/10KV

Medium voltage flat reeling cable



Flexible medium voltage flat reeling cable for application under high mechanical stresses (e.g. dynamic tensile loads, multiple changes of direction within one plane, running over rollers). Mainly for mobile equipment, e.g. fast-moving container cranes and large moving equipment.

STANDARDS / APPROVALS

Based on DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
HD 2216	Chemical behaviour
DIN VDE 0298-4	Electrical parameters
Reversed bending; roller bending	Mechanical parameters

CABLE DESIGN

Conductor	Finely stranded copper, tinned, class 5 PE: individual concentric conductors distributed over the insulation of the three main cores
Inner semi-conducting layer	Yes
-	Semi-conductive EPR
Core insulation material	EPR rubber
-	PROTOLON HS
-	Special compound > 3GI3
Outer semi-conducting layer	Yes
-	Semi-conductive EPR
Core arrangement	Parallel core arrangement; earth conductor splitted and concentrically distributed around each core
Material outer sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	6/10 (12) kV
Test voltage [kV]	17
Nominal voltage U [V]	10,000

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

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Travel speed	- Gantry (reeling operation): up to 120 m/min
Bending radius (rule)	Acc. to VDE 0298-3: (Recommendation: applied cable diameter D = 1.5 x height of the flat cable) 6 X D fixed installation 10 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]	Height (min) [mm]	Height (max) [mm]	Width (min) [mm]	Width (max) [mm]	Cable weight [kg/km]
3x25+3x25/3E	20135391	5DK4505	6.9	25	27.5	66.7	69.7	2,860
3x35+3x25/3E	20008722	5DK4508	8.3	25.5	28.5	68.2	72.2	3,260
4x35+4x25/4E	20154113	5DK4514	8.3	25.5	28.5	86.7	91.7	4,110
3x50+3x25/3E	20014334	5DK4509	9.8	28.1	31.1	74.6	78.6	4,030
3x70+3x35/3E	20040832	5DK4512	11.4	29.7	32.7	79.2	83.2	4,850
4x70+4x35/4E	20048375	5DK4513	11.4	29.5	32.5	100.9	105.9	6,240
3x95+3x50/3E	FL_10KV_002	5DK4...	13.3	31.7	34.7	84.7	89.7	5,920
3x120+3x70/3E	20349690	5DK4...	15.1	35.1	38.1	92.9	97.9	7,420

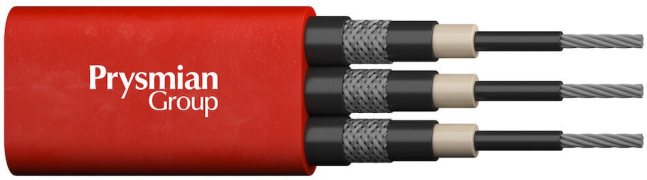
CABLE PROPERTIES ELECTRICAL / MECHANICAL

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]
3x25+3x25/3E	20135391	5DK4505	1,125	413	0.795	105
3x35+3x25/3E	20008722	5DK4508	1,575	428	0.565	130
4x35+4x25/4E	20154113	5DK4514	2,100	428	0.795	130
3x50+3x25/3E	20014334	5DK4509	2,250	467	0.393	162
3x70+3x35/3E	20040832	5DK4512	3,150	491	0.277	200
4x70+4x35/4E	20048375	5DK4513	4,200	488	0.277	200
3x95+3x50/3E	FL_10KV_002	5DK4...	4,275	521	0.21	241
3x120+3x70/3E	20349690	5DK4...	5,400	572	0.164	282

Current carrying capacity acc. VDE 0298-4, cable reeled in 1 layer, at 30°C ambient temperature.

PROTOLON (FL) (N)TSFLCGEWOEU 8,7/15KV

Medium voltage flat reeling cable



Flexible medium voltage flat reeling cable for application under high mechanical stresses (e.g. dynamic tensile loads, multiple changes of direction within one plane, running over rollers). Mainly for mobile equipment, e.g. fast-moving container cranes and large moving equipment.

STANDARDS / APPROVALS

DIN VDE 0298-4	Electrical parameters
Based on DIN VDE 0250-813	General
DIN EN 60228/ IEC 60228 / VDE 0295	Conductor
DIN EN 60811-404 / IEC 60811-404	Chemical behaviour
Reversed bending; roller bending	Mechanical parameters
HD 2216	Chemical behaviour

CABLE DESIGN

Conductor	Finely stranded copper, tinned, class 5 PE: individual concentric conductors distributed over the insulation of the three main cores
Inner semi-conducting layer	Yes
-	Semi-conductive EPR
Core insulation material	EPR rubber
-	PROTOLON HS
-	Special compound > 3GI3
Outer semi-conducting layer	Yes
-	Semi-conductive EPR
Core arrangement	Parallel core arrangement; earth conductor splitted and concentrically distributed around each core
Material outer sheath	Rubber - polychloroprene (PCP)
-	PROTOFIRM
-	Special compound > 5GM5

ELECTRICAL PARAMETERS

Rated voltage U0/U (Um)	8.7/15 (17.5) kV
Test voltage [kV]	24
Nominal voltage U [V]	15,000

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

MECHANICAL PARAMETERS

Permanent tensile strength (rule)	15 N/mm²
Travel speed	- Gantry (reeling operation): up to 120 m/min
Bending radius (rule)	Acc. to VDE 0298-3: (Recommendation: applied cable diameter D = 1.5 x height of the flat cable) 6 X D fixed installation 10 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]	Height (min) [mm]	Height (max) [mm]	Width (min) [mm]	Width (max) [mm]	Cable weight [kg/km]
3x25+3x25/3E	20168238	5DK5006	6.9	27.3	30.3	72	76	3,390
3x35+3x25/3E	20156862	5DK3470	8.3	28.7	31.7	76.2	80.2	3,820
3x50+3x25/3E	20213843	5DK5009	9.8	30.2	33.2	80.7	84.7	4,440
3x70+3x35/3E	20183694	5DK3028	11.4	33.3	36.3	87.5	92.5	5,610
3x95+3x50/3E	FL_15KV_001	5DK3030	13.3	35.3	38.3	93.5	98.5	6,700
3x120+3x70/3E	20183695	5DK3454	15.1	37.3	40.3	99.5	104.5	8,000

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]
3x25+3x25/3E	20168238	5DK5006	1,125	461	0.795	111
3x35+3x25/3E	20156862	5DK3470	1,575	476	0.565	138
3x50+3x25/3E	20213843	5DK5009	2,250	498	0.393	172
3x70+3x35/3E	20183694	5DK3028	3,150	545	0.277	212
3x95+3x50/3E	FL_15KV_001	5DK3030	4,275	575	0.21	255
3x120+3x70/3E	20183695	5DK3454	5,400	605	0.164	297

Current carrying capacity acc. VDE 0298-4, cable reeled in 1 layer, at 30°C ambient temperature.