

PROTOLON(SB-SAM) 6kV: Flexible Trailing Cable



Application

As power supply or connection cables for large material handling machines, e.g. excavators in opencast mines subject to extremely high mechanical stresses in which abrasion and chaffing stresses are to be expected in trailing operation.

Global data

Brand	PROTOLON(SB-SAM)
Type designation	(N)TSCGEWOU
Standard	Based on DIN VDE 0250-813
Certifications / Approvals	MSHA P-189-4 Fire Certificate of Russian Federation GOST K GOST B

Notes on installation

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Design features

Conductor	Electrolytic copper, not tinned, finely stranded (class 5)
PE-Conductor	Electrolytic copper, not tinned, very finely stranded (class FS)
Insulation	PROTOLON, Basic material: EPR, Compound type: Special compound, better 3GI3
Electrical field control	Inner and outer layer of semiconductive rubber compound
Core identification	Natural coloring with black semiconductive rubber on which white digits 1 to 3 are printed
Core arrangement	Three main conductors laid-up, with protective-earth conductor and pilot core in the outer interstices
Pilot conductor	EPR insulated copper conductor (class FS), Color: Yellow
Reinforcement	Extremely tear-resistant reinforcing tape, which prevents sheath movement
Sheath system	Complete sheath (inner and outer sheath) of special extremely abrasion-resistant and tearproof chloroprene rubber compound, inner and outer sheath inseparably bonded, compound, Type: 5GM5 Standard Sheath Color: Black (other colors available upon request)

Electrical parameters

Rated voltage	3.6/6 kV
Maximum permissible operating voltage AC	4.2/7.2 kV
Maximum permissible operating voltage DC	5.4/10.8 kV
AC test voltage	11 kV

Chemical parameters

Resistance to fire	EN 60332-1-2, IEC 60332-1-2
Resistance to oil	Given according to EN 60811-404, IEC 60811-404
Weather resistance	Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture

Thermal parameters

Max. permissible temperature at conductor	90 °C
Max. short circuit temperature of the conductor	250 °C
Ambient temperature for fix installation min.	-40 °C
Ambient temperature for fix installation max.	80 °C
Ambient temp. in fully flex. operation min.	-30 °C
Ambient temp. in fully flex. operation max.	60 °C

Mechanical parameters

Max. tensile load of cable	20 N/mm ²
Torsional stress	100 °/m
Bending radii min.	Acc. to DIN VDE 0298 part 3

Number of cores x cross section	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter max. mm	Net weight approx. kg/km	Permissible tensile force max. N	Conductor resistance at 20°C max. Ω/km	Nom. operating capacitance μF/km	Inductance nom. mH/km	Current carrying capacity (1) A	Short Circuit Current (conductor) kA
3x25 + 2x25/2 + 1x10ST	6.5	35.5	42.5	2500	1125	0.78	0.35	0.32	131	3.58
3x35 + 2x25/2 + 1x10ST	7.6	41.9	44.9	2800	1575	0.554	0.39	0.31	162	5.01
3x50 + 2x25/2 + 1x10ST	9.1	42.7	45.7	3300	2250	0.386	0.45	0.29	202	7.15
3x70 + 2x35/2 + 1x10ST	10.9	46.5	49.5	4300	3150	0.272	0.52	0.28	250	10.01
3x95 + 2x50/2 + 1x10ST	12.7	52.9	56.9	5600	4275	0.206	0.58	0.27	301	13.6
3x120 + 2x70/2 + 1x10ST	14.4	56.5	60.5	6750	5400	0.161	0.65	0.26	352	17.16
3x150 + 2x70/2 + 1x10ST	16.2	63	67	8100	6750	0.129	0.71	0.25	404	21.45
3x185 + 2x95/2 + 1x10ST	17.8	66.4	70.4	9400	8352	0.106	0.77	0.25	462	26.46
3x240 + 2x120/2 + 1x10ST	20.6	72.3	76.3	11700	10800	0.08	0.88	0.24	540	34.32

(1) Ambient temperature 30°C