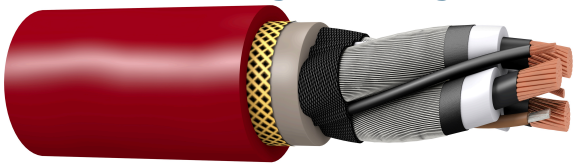
TENAX-HTT 20kV: Medium voltage reeling cable for use with TBMs



Application

For the connection of electrical equipment, in mines and underground excavations with hazardous environments under particularly high mechanical loads, e.g. high-voltage transformers on power lines in underground mining and tunneling.The flexible cable design allows for movement of the equipment during operation and even slow reeling operations

Global data

Brand	TENAX-HTT
Type designation	(N)TSCGEWOEU
Standard	Based on DIN VDE 0250-813
Certifications / Approvals	Fire Certificate of Russian Federation GOST K GOST B

Design features

Conductor	Finely stranded copper conductor (class 5) according to DIN VDE 0295
PE-Conductor	Spinning of tinned annealed copper wires according to IEC 60228 (class 5)
Insulation	Rubber, Compound type: 3GI3 according to DIN VDE 0207 part 20
Core identification	According to DIN VDE 0250 Pt. 813, Color: Natural
Inner sheath	Rubber, Compound type: GM1B according to DIN VDE 0207 part 21
Reinforcement	Polyester anti-torsion braid between the jackets embedded
Outer sheath	Rubber, Compound type: 5GM5 according to DIN VDE 0207 part 21, Color: Red

Electrical parameters

Rated voltage	12/20 kV
Maximum permissible operating voltage AC	13.9/24 kV
Maximum permissible operating voltage DC	18/36 kV
AC test voltage	29 kV

Chemical parameters

Resistance to fire	EN 60332-1-2, IEC 60332-1-2
Resistance to oil	EN 60811-404, IEC 60811-404

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.	-25 °C
Ambient temp. in fully flex. operation max.	60 °C

Mechanical parameters

Max. tensile load of cable	15 N/mm²
Torsional stress	100 °/m
Bending radii min.	Acc. to DIN VDE 0298 part 3
Travel speed	max. 30 m/min

Number of cores x cross section	Conductor diameter max. mm	Outer diameter min. mm	Outer diameter nom. 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
3x25x3x16/3E	6.2	56	60.5	4125	1125	0.78	0.17	0.41	135	3.58
3x35+3x25/3E	7.8	59.9	64.4	4875	1575	0.554	0.19	0.38	172	5.01
3x50+3x25/3E	9.6	65.6	70.1	5950	2250	0.386	0.22	0.36	216	7.15
3x70+3x35/3E	10.6	68.2	72.7	6925	3150	0.272	0.23	0.35	265	10.01
3x95+3x50/3E	12.6	74.3	78.8	8775	4275	0.206	0.26	0.33	319	13.59
3x120+3x70/3E	14.8	79.5	84	10400	5400	0.161	0.29	0.31	371	17.16
3x150+3x70/3E	16	82	86.5	11175	6750	0.129	0.31	0.31	428	21.45