



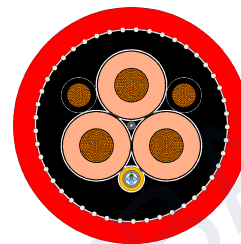
TEBAOFLEX CABLE

DATA SHEET

Mining&Industrial cable

(N)TSCGEWÖU-FO (LWL)

Trailing cable with integrated fiber optic



APPLICATION

Flexible medium-voltage trailing and reeling cable for mining and tunnelling equipment, combining power transmission with integrated fibre optic data transmission. Suitable for excavators, cranes, dumpers, festoon systems and moving equipment.

CONSTRUCTION

Component	Description
Conductors	Electrolytic stranded tinned copper wire, DIN VDE 0295 Class 5
Insulation	3GI3 type EPR compound
Electrical field control	Inner and outer semi-conductive rubber layers
Protective earth conductor	Tinned copper conductor with semi-conductive layer
Optical fibre	9 um, 62.5 um or 50 um fibre core; 125 um cladding; 250 um coating; designs up to 24 fibres
Fibre covering	Hollow core with filling compound, ETFE basic material
Lay up	Three main conductors laid up with two control cores and fibre optic element in the outer interstice
Inner sheath	GM1b type EPR compound
Reinforcement	Embedded anti-torsion synthetic braid
Outer sheath	5GM5 type elastomer compound, red

OPERATING CHARACTERISTICS

Parameter	Value
Voltage rating U _o /U	3.6/6 kV; 6/10 kV; 8.7/15 kV; 12/20 kV; 18/30 kV
AC test voltage	11 kV; 17 kV; 24 kV; 29 kV; 43 kV
Fixed working temperature	-40 °C to +90 °C
Mobile working temperature	-25 °C to +90 °C
Maximum tensile load	20 N/mm ²
Maximum torsion	25 °/m
Travel speed for tunnelling applications	max. 30 m/min
Minimum distance for change of direction	20 x D

STANDARDS

Parameter	Value
Construction	Based on DIN VDE 0250-813
Guide to use	DIN VDE 0298-3
Electrical tests	DIN VDE 0472-501, 503, 508
Flame retardant	VDE 0482-332-1-2, DIN EN 60332-1-2, IEC 60332-1
Oil resistant	HD/EN/IEC 60811-2-1, DIN VDE 0473-811-2-1

TECHNICAL DATA - LOW VOLTAGE RANGE

Values are technical parameters only. Cable dimensions may vary due to manufacturing tolerances.

Voltage	Cross section	OD min-max mm	Tensile N	DC res. ohm/km	Weight kg/km
3.6/6 kV					
3.6/6 kV	3 x 25 + 2 x 25/2 + FO	42.2 - 45.2	1500	0.78	2660
3.6/6 kV	3 x 25 + 2 x 50/2 + FO	45.0 - 48.0	1500	0.78	2990
3.6/6 kV	3 x 35 + 2 x 25/2 + FO	43.8 - 46.8	2100	0.554	3050
3.6/6 kV	3 x 35 + 2 x 50/2 + FO	45.9 - 48.9	2100	0.554	3400
3.6/6 kV	3 x 50 + 2 x 25/2 + FO	45.1 - 48.1	3000	0.386	3540
3.6/6 kV	3 x 50 + 2 x 50/2 + FO	48.8 - 51.8	3000	0.386	4070
3.6/6 kV	3 x 70 + 2 x 35/2 + FO	48.8 - 51.8	4200	0.272	4480
3.6/6 kV	3 x 70 + 2 x 50/2 + FO	52.5 - 56.5	4200	0.272	4840
3.6/6 kV	3 x 95 + 2 x 50/2 + FO	54.3 - 58.3	5700	0.206	5800
3.6/6 kV	3 x 120 + 2 x 70/2 + FO	58.2 - 62.2	7200	0.161	7010
3.6/6 kV	3 x 150 + 2 x 70/2 + FO	62.4 - 66.4	9000	0.129	8210
3.6/6 kV	3 x 185 + 2 x 95/2 + FO	67.8 - 71.8	11100	0.106	9920
3.6/6 kV	3 x 240 + 2 x 120/2 + FO	74.4 - 78.4	14400	0.08	12530
3.6/6 kV	3 x 300 + 2 x 150/2 + FO	80.6 - 85.6	18000	0.064	15330
6/10 kV					
6/10 kV	3 x 25 + 2 x 25/2 + FO	42.7 - 45.7	1500	0.78	2740
6/10 kV	3 x 25 + 2 x 50/2 + FO	46.0 - 49.0	1500	0.78	2980
6/10 kV	3 x 35 + 2 x 25/2 + FO	45.2 - 48.2	2100	0.554	3160
6/10 kV	3 x 35 + 2 x 50/2 + FO	47.6 - 50.6	2100	0.554	3610
6/10 kV	3 x 50 + 2 x 25/2 + FO	46.5 - 49.5	3000	0.386	3670
6/10 kV	3 x 50 + 2 x 50/2 + FO	50.4 - 53.4	3000	0.386	4020
6/10 kV	3 x 70 + 2 x 35/2 + FO	50.3 - 53.3	4200	0.272	4610
6/10 kV	3 x 70 + 2 x 50/2 + FO	53.8 - 56.8	4200	0.272	5160
6/10 kV	3 x 95 + 2 x 50/2 + FO	55.6 - 59.6	5700	0.206	5940
6/10 kV	3 x 120 + 2 x 70/2 + FO	60.4 - 63.4	7200	0.161	7150
6/10 kV	3 x 150 + 2 x 70/2 + FO	65.2 - 69.2	9000	0.129	8600
6/10 kV	3 x 185 + 2 x 95/2 + FO	69.2 - 73.2	11100	0.106	10110
6/10 kV	3 x 240 + 2 x 120/2 + FO	77.2 - 81.2	14400	0.08	12980
6/10 kV	3 x 300 + 2 x 150/2 + FO	81.8 - 86.8	18000	0.064	15550

TECHNICAL DATA - MEDIUM VOLTAGE RANGE

Values are technical parameters only. Cable dimensions may vary due to manufacturing tolerances.

Voltage	Cross section	OD min-max mm	Tensile N	DC res. ohm/km	Weight kg/km
8.7/15 kV					
8.7/15 kV	3 x 25 + 2 x 25/2 + FO	46.0 - 49.0	1500	0.78	3000
8.7/15 kV	3 x 25 + 2 x 50/2 + FO	47.4 - 51.4	1500	0.78	3350
8.7/15 kV	3 x 35 + 2 x 25/2 + FO	46.3 - 49.3	2100	0.554	3550
8.7/15 kV	3 x 35 + 2 x 50/2 + FO	50.1 - 53.1	2100	0.554	3710
8.7/15 kV	3 x 50 + 2 x 25/2 + FO	50.1 - 53.1	3000	0.386	4020
8.7/15 kV	3 x 50 + 2 x 50/2 + FO	53.8 - 57.8	3000	0.386	4640
8.7/15 kV	3 x 70 + 2 x 35/2 + FO	54.8 - 58.8	4200	0.272	5170
8.7/15 kV	3 x 70 + 2 x 50/2 + FO	54.8 - 58.8	4200	0.272	5280
8.7/15 kV	3 x 95 + 2 x 50/2 + FO	59.2 - 63.2	5700	0.206	6370
8.7/15 kV	3 x 120 + 2 x 70/2 + FO	64.6 - 68.6	7200	0.161	7830
8.7/15 kV	3 x 150 + 2 x 70/2 + FO	68.8 - 72.8	9000	0.129	9090
8.7/15 kV	3 x 185 + 2 x 95/2 + FO	72.8 - 76.8	11100	0.106	10610
8.7/15 kV	3 x 240 + 2 x 120/2 + FO	79.7 - 84.7	14400	0.08	13540
8.7/15 kV	3 x 300 + 2 x 150/2 + FO	87.9 - 92.9	18000	0.064	16530
12/20 kV					
12/20 kV	3 x 25 + 2 x 25/2 + FO	46.5 - 49.5	1500	0.78	3070
12/20 kV	3 x 25 + 2 x 50/2 + FO	49.5 - 52.5	1500	0.78	3400
12/20 kV	3 x 35 + 2 x 25/2 + FO	49.3 - 52.3	2100	0.554	3590
12/20 kV	3 x 35 + 2 x 50/2 + FO	53.1 - 57.1	2100	0.554	4200
12/20 kV	3 x 50 + 2 x 25/2 + FO	54.1 - 58.1	3000	0.386	4500
12/20 kV	3 x 50 + 2 x 50/2 + FO	54.1 - 58.1	3000	0.386	4590
12/20 kV	3 x 70 + 2 x 35/2 + FO	58.0 - 62.0	4200	0.272	5540
12/20 kV	3 x 70 + 2 x 50/2 + FO	58.0 - 62.0	4200	0.272	5650
12/20 kV	3 x 95 + 2 x 50/2 + FO	62.4 - 66.4	5700	0.206	6750
12/20 kV	3 x 120 + 2 x 70/2 + FO	67.7 - 71.7	7200	0.161	8400
12/20 kV	3 x 150 + 2 x 70/2 + FO	71.9 - 75.9	9000	0.129	9520
12/20 kV	3 x 185 + 2 x 95/2 + FO	77.3 - 81.3	11100	0.106	11340
12/20 kV	3 x 240 + 2 x 120/2 + FO	83.8 - 87.8	14400	0.08	14060
12/20 kV	3 x 300 + 2 x 150/2 + FO	91.0 - 96.0	18000	0.064	17090

TECHNICAL DATA - HIGH VOLTAGE RANGE

Values are technical parameters only. Cable dimensions may vary due to manufacturing tolerances.

Voltage	Cross section	OD min-max mm	Tensile N	DC res. ohm/km	Weight kg/km
14/25 kV					
14/25 kV	3 x 25 + 2 x 25/2 + FO	50.5 - 53.5	1500	0.78	3460
14/25 kV	3 x 25 + 2 x 50/2 + FO	50.5 - 53.5	1500	0.78	3550
14/25 kV	3 x 35 + 2 x 25/2 + FO	54.2 - 57.2	2100	0.554	4180
14/25 kV	3 x 35 + 2 x 50/2 + FO	54.2 - 57.2	2100	0.554	4260
14/25 kV	3 x 50 + 2 x 25/2 + FO	57.0 - 61.0	3000	0.386	4980
14/25 kV	3 x 50 + 2 x 50/2 + FO	57.0 - 61.0	3000	0.386	5050
14/25 kV	3 x 70 + 2 x 35/2 + FO	62.0 - 66.0	4200	0.272	6020
14/25 kV	3 x 70 + 2 x 50/2 + FO	62.0 - 66.0	4200	0.272	6130
14/25 kV	3 x 95 + 2 x 50/2 + FO	67.9 - 71.9	5700	0.206	7500
14/25 kV	3 x 120 + 2 x 70/2 + FO	71.6 - 75.6	7200	0.161	8790
14/25 kV	3 x 150 + 2 x 70/2 + FO	77.3 - 81.3	9000	0.129	10390
14/25 kV	3 x 185 + 2 x 95/2 + FO	81.4 - 85.4	11100	0.106	11980
14/25 kV	3 x 240 + 2 x 120/2 + FO	89.2 - 94.2	14400	0.08	15130
14/25 kV	3 x 300 + 2 x 150/2 + FO	95.0 - 100.0	18000	0.064	17830
18/30 kV					
18/30 kV	3 x 25 + 2 x 25/2 + FO	55.1 - 59.1	1500	0.78	4020
18/30 kV	3 x 25 + 2 x 50/2 + FO	55.1 - 59.1	1500	0.78	4100
18/30 kV	3 x 35 + 2 x 25/2 + FO	58.0 - 62.0	2100	0.554	4590
18/30 kV	3 x 35 + 2 x 50/2 + FO	58.0 - 62.0	2100	0.554	4670
18/30 kV	3 x 50 + 2 x 25/2 + FO	61.8 - 65.8	3000	0.386	5410
18/30 kV	3 x 50 + 2 x 50/2 + FO	61.8 - 65.8	3000	0.386	5480
18/30 kV	3 x 70 + 2 x 35/2 + FO	67.0 - 71.0	4200	0.272	6710
18/30 kV	3 x 70 + 2 x 50/2 + FO	67.0 - 71.0	4200	0.272	6810
18/30 kV	3 x 95 + 2 x 50/2 + FO	71.4 - 75.4	5700	0.206	7960
18/30 kV	3 x 120 + 2 x 70/2 + FO	76.7 - 80.7	7200	0.161	9510
18/30 kV	3 x 150 + 2 x 70/2 + FO	81.0 - 85.0	9000	0.129	10950
18/30 kV	3 x 185 + 2 x 95/2 + FO	83.9 - 88.9	11100	0.106	12560
18/30 kV	3 x 240 + 2 x 120/2 + FO	92.8 - 97.8	14400	0.08	15770
18/30 kV	3 x 300 + 2 x 150/2 + FO	99.6 - 104.6	18000	0.064	18770
20/35 kV					
20/35 kV	3 x 25 + 2 x 25/2 + FO	59.8 - 63.8	1500	0.78	4580
20/35 kV	3 x 35 + 2 x 25/2 + FO	64.4 - 68.4	2100	0.554	5410
20/35 kV	3 x 50 + 2 x 25/2 + FO	68.1 - 72.1	3000	0.386	6270
20/35 kV	3 x 50 + 2 x 35/2 + FO	68.1 - 72.1	3000	0.386	6350
20/35 kV	3 x 70 + 2 x 35/2 + FO	71.8 - 75.8	4200	0.272	7350

NOTES AND CERTIFICATIONS

NOTES

- Current carrying capacity is according to DIN VDE 0298, Part 4.
- Minimum bending radius is according to DIN VDE 0298 Part 3.
- The cable is ozone resistant, cold resistant, tear resistant, UV resistant, weather resistant and moisture resistant.
- Fibre designs up to 24 fibres are available depending on project requirements.

CERTIFICATIONS



TEBAOFLEX CABLE