



TEBAOFLEX CABLE

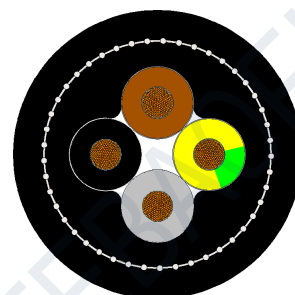
# DATA SHEET

Mining&Industrial cable

## (N)SHTÖU-O/J

Flexible power and signalling cable for reeling applications

Voltage rating: 0.6/1 kV.



### APPLICATION

Flexible cable designed for power and signalling mobile connections under severe mechanical stresses, including tensile strength and torsion, in heavy duty conditions with abrasion and crushing. Typically used in cable winding reels for harbour cranes, container cranes, conveyors, handling machines, mining and tunnelling equipment.

### CONSTRUCTION

| Component             | Description                                                                                                                                                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conductor             | Class 5 flexible tinned copper                                                                                                                                                             |
| Insulation            | Rubber compound                                                                                                                                                                            |
| Inner sheath          | Rubber compound                                                                                                                                                                            |
| Anti-twisting element | Polyester braid                                                                                                                                                                            |
| Outer sheath          | Rubber compound                                                                                                                                                                            |
| Core identification   | 3 core: green/yellow, blue, brown; 4 core: green/yellow, brown, black, grey; 5 core: green/yellow, blue, brown, black, grey; 7 core and above: black with white numerals plus green/yellow |
| Outer sheath colour   | Black or yellow                                                                                                                                                                            |

### CHARACTERISTICS

| Parameter                        | Value                                                                                         |
|----------------------------------|-----------------------------------------------------------------------------------------------|
| Voltage rating U <sub>0</sub> /U | 0.6/1 kV                                                                                      |
| Test voltage                     | 3 kV                                                                                          |
| Twist limits                     | 50 deg/m                                                                                      |
| Travel speed                     | Up to 100 m/min                                                                               |
| Temperature rating, flexing      | -25 deg C to +90 deg C                                                                        |
| Temperature rating, fixed        | -40 deg C to +90 deg C                                                                        |
| Standards                        | DIN VDE 0250-814, IEC 60228, DIN VDE 0207/20, DIN VDE 0207/21, DIN VDE 0298-4, DIN VDE 0298-3 |
| Resistance                       | Flame propagation, oil, UV and ozone resistant                                                |

## TECHNICAL DATA

| DIMENSIONS   |                        |            |                   |                     |
|--------------|------------------------|------------|-------------------|---------------------|
| Construction | Conductor dia.<br>(mm) | OD<br>(mm) | Weight<br>(kg/km) | Tensile load<br>(N) |
| 3G 1.5       | 1.5                    | 11.9       | 205               | 135                 |
| 3G 2.5       | 2.1                    | 13.5       | 271               | 225                 |
| 3G 4         | 2.7                    | 16.9       | 418               | 360                 |
| 3G 6         | 3                      | 17.6       | 487               | 540                 |
| 3G 10        | 4.1                    | 21.6       | 764               | 900                 |
| 3G 16        | 5.2                    | 23.8       | 1014              | 1440                |
| 3G 25        | 6.6                    | 28.7       | 1501              | 2250                |
| 3G 35        | 7.5                    | 32.2       | 1975              | 3150                |
| 3G 50        | 9.3                    | 38.3       | 2774              | 4500                |
| 3G 70        | 11.1                   | 42.1       | 3568              | 6300                |
| 3G 95        | 13                     | 48.8       | 4746              | 8550                |
| 3G 120       | 14.5                   | 52.0       | 5730              | 10800               |
| 3G 150       | 16.2                   | 56.6       | 6991              | 13500               |
| 3G 185       | 18.3                   | 63.8       | 8572              | 16650               |
| 3G 240       | 20.7                   | 71.6       | 11227             | 21600               |
| 4G 1.5       | 1.5                    | 12.7       | 238               | 180                 |
| 4G 2.5       | 2.1                    | 15.7       | 362               | 300                 |
| 4G 4         | 2.7                    | 18.1       | 495               | 480                 |
| 4G 6         | 3                      | 19.0       | 583               | 720                 |
| 4G 10        | 4.1                    | 23.3       | 924               | 1200                |
| 4G 16        | 5.2                    | 27.0       | 1307              | 1920                |
| 4G 25        | 6.6                    | 32.6       | 1951              | 3000                |
| 4G 35        | 7.5                    | 34.9       | 2434              | 4200                |
| 4G 50        | 9.3                    | 41.5       | 3428              | 6000                |
| 4G 70        | 11.1                   | 45.8       | 4442              | 8400                |
| 4G 95        | 13                     | 53.1       | 5905              | 11400               |
| 4G 120       | 14.5                   | 58.6       | 7417              | 14400               |
| 4G 150       | 16.2                   | 63.6       | 9062              | 18000               |
| 4G 185       | 18.3                   | 71.5       | 11048             | 22200               |
| 5G 1.5       | 1.5                    | 13.6       | 276               | 225                 |
| 5G 2.5       | 2.1                    | 16.8       | 420               | 375                 |
| 5G 4         | 2.7                    | 19.5       | 581               | 600                 |
| 5G 6         | 3                      | 21.3       | 728               | 900                 |
| 5G 10        | 4.1                    | 25.2       | 1104              | 1500                |
| 5G 16        | 5.2                    | 29.0       | 1562              | 2400                |
| 5G 25        | 6.6                    | 35.3       | 2339              | 3750                |

## TECHNICAL DATA CONTINUED

| DIMENSIONS   |                        |            |                   |                     |
|--------------|------------------------|------------|-------------------|---------------------|
| Construction | Conductor dia.<br>(mm) | OD<br>(mm) | Weight<br>(kg/km) | Tensile load<br>(N) |
| 5G 35        | 7.5                    | 39.3       | 3066              | 5250                |
| 5G 50        | 9.3                    | 45.2       | 4142              | 7500                |
| 5G 70        | 11.1                   | 51.7       | 5613              | 10500               |
| 7G 1.5       | 1.5                    | 16.9       | 410               | 2315                |
| 7G 2.5       | 2.1                    | 19.4       | 556               | 2525                |
| 12G 1.5      | 1.5                    | 22.6       | 724               | 2540                |
| 12G 2.5      | 2.1                    | 26.2       | 1002              | 2900                |
| 18G 1.5      | 1.5                    | 24.9       | 893               | 2810                |
| 18G 2.5      | 2.1                    | 30.1       | 1320              | 3350                |
| 24G 1.5      | 1.5                    | 25.9       | 1028              | 3080                |
| 24G 2.5      | 2.5                    | 31.3       | 1527              | 3800                |
| 30G 1.5      | 1.5                    | 29.8       | 1333              | 3350                |
| 30G 2.5      | 2.1                    | 36.3       | 2000              | 4250                |
| 36G 1.5      | 1.5                    | 32.4       | 1547              | 3620                |
| 36G 2.5      | 2.1                    | 39.4       | 2322              | 4700                |
| 42G 1.5      | 1.5                    | 34.8       | 1795              | 3890                |
| 42G 2.5      | 2.1                    | 42.0       | 2671              | 5150                |
| 44G 1.5      | 1.5                    | 34.8       | 1817              | 3980                |
| 44G 2.5      | 2.1                    | 42.0       | 2706              | 5300                |
| 48G 1.5      | 1.5                    | 34.0       | 1680              | 4160                |
| 48G 2.5      | 2.1                    | 39.9       | 2380              | 5600                |
| 50G 1.5      | 1.5                    | 36.7       | 2032              | 4250                |
| 50G 2.5      | 2.1                    | 44.4       | 3030              | 5750                |
| 56G 1.5      | 1.5                    | 38.5       | 2090              | 4520                |
| 56G 2.5      | 2.5                    | 47.1       | 3443              | 6200                |

# ELECTRICAL DATA

## ELECTRICAL CHARACTERISTICS

| Cross-section (mm <sup>2</sup> ) | DC resistance plain wires (Ohm/km) | DC resistance tinned wires (Ohm/km) | Twist (deg/m) | Speed (m/min) |
|----------------------------------|------------------------------------|-------------------------------------|---------------|---------------|
| 1.5                              | 13.3                               | 13.7                                | 50            | 100           |
| 2.5                              | 7.98                               | 8.21                                | 50            | 100           |
| 4                                | 4.95                               | 5.09                                | 50            | 100           |
| 6                                | 3.3                                | 3.39                                | 50            | 100           |
| 10                               | 1.91                               | 1.95                                | 50            | 100           |
| 16                               | 1.21                               | 1.24                                | 50            | 100           |
| 25                               | 0.78                               | 0.795                               | 50            | 100           |
| 35                               | 0.554                              | 0.565                               | 50            | 100           |
| 50                               | 0.386                              | 0.393                               | 50            | 100           |
| 70                               | 0.272                              | 0.277                               | 50            | 100           |
| 95                               | 0.206                              | 0.21                                | 50            | 100           |
| 120                              | 0.161                              | 0.164                               | 50            | 100           |
| 150                              | 0.129                              | 0.132                               | 50            | 100           |
| 185                              | 0.106                              | 0.108                               | 50            | 100           |

## DE-RATING FACTORS

| Ambient temp. | 10C  | 15C  | 20C  | 25C  | 30C  | 35C  | 40C  | 45C  | 50C  | 55C  | 60C  | 65C  | 70C  | 75C  | 80C  |
|---------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Factor        | 1.15 | 1.12 | 1.08 | 1.04 | 1.00 | 0.96 | 0.91 | 0.87 | 0.82 | 0.76 | 0.71 | 0.65 | 0.58 | 0.50 | 0.41 |

## CURRENT CARRYING CAPACITY

| mm <sup>2</sup> | Floor (A) | Free air (A) | 1 layer | 2 layer | 3 layer | 4 layer | 5 layer | 6 layer | 7 layer |
|-----------------|-----------|--------------|---------|---------|---------|---------|---------|---------|---------|
| 1.5             | 24        | 25           | 19      | 15      | 12      | 10      | 9       | 6       | 5       |
| 2.5             | 30        | 32           | 24      | 18      | 15      | 13      | 11      | 8       | 7       |
| 4               | 41        | 42           | 33      | 25      | 20      | 17      | 16      | 11      | 9       |
| 6               | 53        | 56           | 42      | 32      | 26      | 22      | 20      | 14      | 12      |
| 10              | 74        | 78           | 59      | 45      | 36      | 31      | 28      | 20      | 16      |
| 16              | 99        | 104          | 79      | 60      | 49      | 42      | 38      | 27      | 22      |
| 25              | 131       | 138          | 105     | 80      | 64      | 55      | 50      | 35      | 29      |
| 35              | 162       | 170          | 130     | 99      | 79      | 68      | 62      | 44      | 36      |
| 50              | 202       | 212          | 162     | 123     | 99      | 85      | 77      | 55      | 44      |
| 70              | 250       | 263          | 200     | 153     | 123     | 105     | 95      | 68      | 55      |
| 95              | 301       | 316          | 241     | 184     | 147     | 126     | 114     | 81      | 66      |
| 120             | 352       | 370          | 282     | 215     | 172     | 148     | 134     | 95      | 77      |
| 150             | 404       | 424          | 323     | 246     | 198     | 170     | 154     | 109     | 89      |
| 185             | 461       | 484          | 369     | 281     | 226     | 194     | 175     | 124     | 101     |
| 240             | 528       | 554          | 422     | 322     | 259     | 222     | 201     | 143     | 116     |

## MINIMUM BENDING RADIUS

| Cable OD     | Fixed  | On drums | On deflection pulleys | Moving freely |
|--------------|--------|----------|-----------------------|---------------|
| >8 <= 12 mm  | 3 x OD | 5 x OD   | 7.5 x OD              | 4 x OD        |
| >12 <= 20 mm | 4 x OD | 5 x OD   | 7.5 x OD              | 5 x OD        |
| >20 mm       | 4 x OD | 5 x OD   | 7.5 x OD              | 5 x OD        |

## CERTIFICATIONS



TEBAOFLEX CABLE