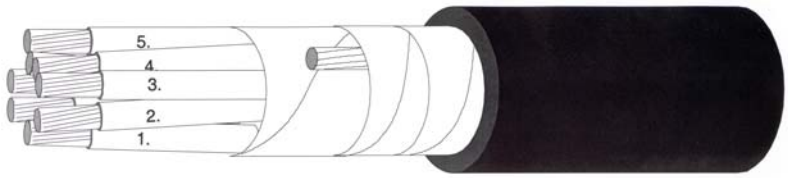
Draka Marine, Oil and Gas




**Flame retardant halogen-free power and control cable. Unbraided, but shielded.**

# TI (c) 1000V

**XLPE/PO**

| | |
|---|---|
| **Operating temperature** | **: 90°C** |
| **Operating Voltage** | **: 0,6/1kV** |

**Standards applied**

| | |
|---|---|
| IEC 60092-353 | - Design |
| IEC 60228 class 2 | - Conductor |
| IEC 60092-351 | - Insulation |
| IEC 60092-359 | - Sheath |
| IEC 60332-1 | - Flame Retardant |
| IEC 60332-3-22 | - Flame Retardant |
| IEC 60754-1,2 | - Halogen Free |
| IEC 61034-1,2 | - Low Smoke |

## Application

Unarmoured shielded cable for fixed installation in ships where cable protection is not required. Control cables and small power cables. Can be installed and operated both indoors and outdoors.

## Construction

| | Code Letter | |
|---|---|---|
| **Conductor** | | Annealed stranded circular copper, IEC 60228 class 2 |
| **Insulation** | **T** | Crosslinked Polyethylene, IEC 60092-351 (HFXLPE) |
| **Lay up / Shielding** | | Cores are laid up in concentric layers and wrapped with a PETP tape. Overall shielded by copper backed polyester tape with tinned copper drain wire, 1,5 mm² conductor area. |
| **Inner covering** | | No inner covering. (Additional tapes may be applied) |
| **Armour/screen** | | No armour. |
| **Outer sheath** | **I** | Flame retardant halogen-free thermoplastic compound, SHF1 |
| **Marking text** | | E.g. "meter" "year" DRAKA NORSK KABEL TI(c) 1000V 3 x 1,5 mm2 IEC 60332-3-22 ShipLine |
| **Outer sheath colour** | | Black |

## Core identification power cables

| | |
|---|---|
| Control cables, 1,5 mm² and 2,5 mm² | White cores, numbered with black numbers |
| Power cables: | |
| Two cores + earth (3G) | Yellow/green - Blue - Brown |
| Three cores | Brown - Black - Grey |
| Three cores + earth (4G) | Yellow/green - Brown - Black - Grey |
| Four cores + earth (5G) | Yellow/green - Blue - Brown - Black - Grey |

## Range and dimensions

| Number of elements | Cross section core, mm² | Conductor Diameter, mm | Insulation Thickness, mm | Thickness Outer Sheath, mm | Diameter outer sheath, mm | Weight of Cable Approx. (Kg/Km) | Copper content Approx. (kg/km) |
|---|---|---|---|---|---|---|---|
| 2 | 1.5 | 1.6 | 0.7 | 1.1 | 8.5 ± 0.5 | 100 | 41 |
| 3G | 1.5 | 1.6 | 0.7 | 1.1 | 9 ± 0.5 | 120 | 55 |
| 3 | 1.5 | 1.6 | 0.7 | 1.1 | 9 ± 0.5 | 120 | 55 |
| 4G | 1.5 | 1.6 | 0.7 | 1.1 | 10 ± 0.8 | 150 | 68 |
| 4 | 1.5 | 1.6 | 0.7 | 1.1 | 10 ± 0.8 | 150 | 68 |
| 5 | 1.5 | 1.6 | 0.7 | 1.1 | 11 ± 0.8 | 180 | 82 |
| 7 | 1.5 | 1.6 | 0.7 | 1.2 | 12 ± 0.8 | 220 | 110 |
| 12 | 1.5 | 1.6 | 0.7 | 1.3 | 15.5 ± 0.8 | 340 | 180 |
| 19 | 1.5 | 1.6 | 0.7 | 1.4 | 18.5 ± 0.8 | 500 | 277 |
| 24 | 1.5 | 1.6 | 0.7 | 1.5 | 21.5 ± 1 | 630 | 347 |
| 27 | 1.5 | 1.6 | 0.7 | 1.5 | 22 ± 1 | 690 | 389 |
| 37 | 1.5 | 1.6 | 0.7 | 1.6 | 24.5 ± 1 | 910 | 530 |
| 32 | 1.5 | 1.6 | 0.7 | 1.6 | 24 ± 1 | 820 | 459 |
| 2 | 2.5 | 2.0 | 0.7 | 1.1 | 9.5 ± 0.5 | 130 | 59 |
| 3G | 2.5 | 2.0 | 0.7 | 1.1 | 10 ± 0.8 | 160 | 82 |
| 3 | 2.5 | 2.0 | 0.7 | 1.1 | 10 ± 0.8 | 160 | 82 |
| 4G | 2.5 | 2.0 | 0.7 | 1.1 | 11 ± 0.8 | 195 | 104 |
| 4 | 2.5 | 2.0 | 0.7 | 1.1 | 11 ± 0.8 | 195 | 104 |
| 5G | 2.5 | 2.0 | 0.7 | 1.2 | 12 ± 0.8 | 245 | 127 |
| 5 | 2.5 | 2.0 | 0.7 | 1.2 | 12 ± 0.8 | 245 | 127 |
| 3 | 4 | 2.55 | 0.7 | 1.2 | 11.5 ± 0.8 | 220 | 123 |
| 3 | 6 | 3.15 | 0.7 | 1.2 | 12.5 ± 0.8 | 285 | 183 |
| 3 | 10 | 4.05 | 0.7 | 1.3 | 15 ± 0.8 | 420 | 285 |
| 3 | 16 | 5.15 | 0.7 | 1.3 | 17.5 ± 0.8 | 620 | 449 |
| 3 | 25 | 6.4 | 0.9 | 1.5 | 21 ± 1 | 930 | 704 |
| 3 | 35 | 7.6 | 0.9 | 1.6 | 24 ± 1 | 1240 | 962 |

## Ordering information

| Part number | Description | EAN No. DNK | EL No. | KDN Part number | EAN no. KDN |
|---|---|---|---|---|---|
| 838150 | TI(C) 1000V 2X 1.5mm2 | 7021528381504 | 1059600 | - | - |
| 838151 | TI(C) 1000V 3G 1.5mm2 | 7021528381511 | 1059620 | - | - |
| 838152 | TI(C) 1000V 3X 1.5mm2 | 7021528381528 | 1059601 | - | - |
| 838153 | TI(C) 1000V 4G 1.5mm2 | 7021528381535 | 1059621 | - | - |
| 838154 | TI(C) 1000V 4X 1.5mm2 | 7021528381542 | 1059602 | - | - |
| 838156 | TI(C) 1000V 5X 1.5mm2 | 7021528381566 | 1059603 | - | - |
| 838157 | TI(C) 1000V 7X 1.5mm2 | 7021528381573 | 1059605 | - | - |
| 838159 | TI(C) 1000V 12X 1.5mm2 | 7021528381597 | 1059607 | - | - |
| 838162 | TI(C) 1000V 19X 1.5mm2 | 7021528381627 | 1059610 | - | - |
| 838163 | TI(C) 1000V 24X 1.5mm2 | 7021528381634 | 1059612 | - | - |
| 838164 | TI(C) 1000V 27X 1.5mm2 | 7021528381641 | 1059613 | - | - |
| 838165 | TI(C) 1000V 37X 1.5mm2 | 7021528381658 | 1059615 | - | - |
| 838166 | TI(C) 1000V 32X 1.5mm2 | 7021528381665 | - | - | - |
| 838170 | TI(C) 1000V 2X 2.5mm2 | 7021528381702 | 1059650 | - | - |
| 838171 | TI(C) 1000V 3G 2.5mm2 | 7021528381719 | 1059670 | - | - |
| 838172 | TI(C) 1000V 3X 2.5mm2 | 7021528381726 | 1059651 | - | - |
| 838173 | TI(C) 1000V 4G 2.5mm2 | 7021528381733 | 1059671 | - | - |
| 838174 | TI(C) 1000V 4X 2.5mm2 | 7021528381740 | 1059652 | - | - |
| 838175 | TI(C) 1000V 5G 2.5mm2 | 7021528381757 | 1059672 | - | - |
| 838176 | TI(C) 1000V 5X 2.5mm2 | 7021528381764 | 1059653 | - | - |
| 838178 | TI(C) 1000V 3X 4mm2 | 7021528381788 | 1059680 | - | - |
| 838182 | TI(C) 1000V 3X 6mm2 | 7021528381825 | 1059681 | - | - |
| 838185 | TI(C) 1000V 3X 10mm2 | 7021528381856 | 1059683 | - | - |

| Part number | Description | EAN No. DNK | EL No. | KDN Part number | EAN no. KDN |
|---|---|---|---|---|---|
| 838188 | TI(C) 1000V 3X 16mm2 | 7021528381887 | 1059684 | - | - |
| 838191 | TI(C) 1000V 3X 25mm2 | 7021528381917 | 1059685 | - | - |
| 838194 | TI(C) 1000V 3X 35mm2 | 7021528381948 | 1059686 | - | - |

**Electrical values power cables**

| Number of elements | Cross section core, mm² | Conductor type 2 | Max. conductor resistance at 20°C, Ohm/km | Max. conductor resistance at 90°C, Ohm/km | Reactance at 50Hz, Ohm/km | Reactance at 60Hz, Ohm/km | Current rating IEC 60092-352, Ampere | Short circuit rating 1 second, Ampere |
|---|---|---|---|---|---|---|---|---|
| 2 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 17 | 210 |
| 3G | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 17 | 210 |
| 3 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 14 | 210 |
| 4G | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 14 | 210 |
| 4 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 14 | 210 |
| 5 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 7 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 12 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 19 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 24 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 27 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 37 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 32 | 1.5 | SCC | 12.1 | 15.428 | 0.099 | 0.119 | 20 | 210 |
| 2 | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 24 | 350 |
| 3G | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 24 | 350 |
| 3 | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 20 | 350 |
| 4G | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 20 | 350 |
| 4 | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 20 | 350 |
| 5G | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 20 | 350 |
| 5 | 2.5 | SCC | 7.41 | 9.448 | 0.093 | 0.111 | 28 | 350 |
| 3 | 4 | SCC | 4.61 | 5.878 | 0.087 | 0.104 | 27 | 560 |
| 3 | 6 | SCC | 3.08 | 3.927 | 0.082 | 0.099 | 34 | 840 |
| 3 | 10 | SCC | 1.83 | 2.333 | 0.078 | 0.093 | 47 | 1400 |
| 3 | 16 | SCC | 1.15 | 1.466 | 0.074 | 0.089 | 63 | 2240 |
| 3 | 25 | SCC | 0.727 | 0.927 | 0.075 | 0.09 | 84 | 3500 |
| 3 | 35 | SCC | 0.524 | 0.668 | 0.073 | 0.087 | 100 | 4900 |

**Ambient temperature correction factors**

| Ambient Temp °C | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rating factor | 1.22 | 1.17 | 1.12 | 1.06 | 1.00 | 0.94 | 0.87 | 0.79 | 0.71 | 0.61 | 0.50 |

**Installation recommendations**

| Minimum Bending Radius during Installation | Minimum Bending Radius Fixed Installed | Maximum Tensile Load During Installation | Minimum Installation Temperature |
|---|---|---|---|
| 8 x D | 6 x D | 50 N /mm² | -10°C |