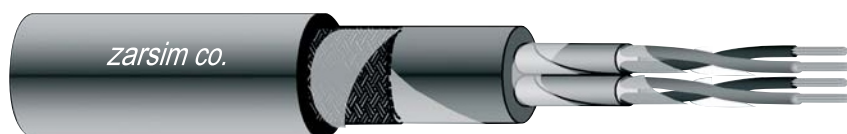


TFOI 250V

Armoured Instrumentation Cable

Cu/XLPE/BED/CWB/HF

Max. conductor temperature: 90°C



Application:

- Used in the ships for instrumentation and communication. Also can be used for other indoor and outdoor applications.

Standard:

- | | |
|------------------|----------------------------|
| ■ IEC 60092-376 | Design guidelines |
| ■ IEC 60228 | Conductor |
| ■ IEC 60092-360 | Insulation & sheath |
| ■ IEC 60332-1-2 | Flame retardant properties |
| ■ IEC 60332-3-22 | Flame retardant properties |
| ■ IEC 60754-1,2 | Halogen free properties |
| ■ IEC 61034-1,2 | Smoke emission properties |

Construction:

- | | |
|----------------|---|
| ■ Conductor | Plain or tinned annealed copper, IEC 60228 class 2 or class 5 |
| ■ Insulation | Halogen free cross-linked polyethylene XLPE, IEC 60092-360 |
| ■ Laying up | Laying up of pairs/triples/quads |
| ■ Bedding | Flame retardant halogen free polyolefin compound, extruded or lapped |
| ■ Armour | Plain or tinned copper wire braid |
| ■ Outer sheath | Flame retardant halogen free polyolefin compound, SHF1, IEC 60092-360 |

Electrical characteristics:

- Capacitance, nom. 800Hz
- Loop Inductance, nom.
- Insulation resistance at 20°C

Unit	0.75 mm ²
nF/km	24.5
mH/km	0.7
MOhm.km	≥3670

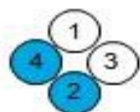
Pair identification:

- The pairs have the following number identification:

■ Pair no. 1	core no. 1 & 2
■ Pair no. 2	core no. 3 & 4
■ Pair no. 3	core no. 5 & 6
■ Pair no. 4	etc

- Triple cable is identified with no. 1, 2 and 3.

- Quad cable has the following identification.



Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 2 x 0.75	1.1	0.5	4.7	0.2	1.0	7.8 ± 0.5	24.5	85
2 x 2 x 0.75	1.1	0.5	7.8	0.2	1.2	11.3 ± 0.8	24.8	155
3 x 2 x 0.75	1.1	0.5	8.4	0.2	1.2	11.9 ± 0.8	24.8	180
4 x 2 x 0.75	1.1	0.5	9.1	0.2	1.2	12.6 ± 0.8	24.8	200
7 x 2 x 0.75	1.1	0.5	11.3	0.3	1.3	15.3 ± 0.8	24.8	320
8 x 2 x 0.75	1.1	0.5	12.2	0.3	1.3	16.2 ± 0.8	24.8	350
10 x 2 x 0.75	1.1	0.5	13.9	0.3	1.4	18.1 ± 0.8	24.8	420
12 x 2 x 0.75	1.1	0.5	14.6	0.3	1.4	18.8 ± 0.8	24.8	470
14 x 2 x 0.75	1.1	0.5	15.3	0.3	1.5	19.7 ± 0.8	24.8	530
16 x 2 x 0.75	1.1	0.5	16.6	0.3	1.5	21.0 ± 1	24.8	595
19 x 2 x 0.75	1.1	0.5	17.5	0.3	1.6	22.1 ± 1	24.8	670
24 x 2 x 0.75	1.1	0.5	20.1	0.3	1.7	24.9 ± 1	24.8	820
30 x 2 x 0.75	1.1	0.5	22.7	0.3	1.8	27.7 ± 1	24.8	990
32 x 2 x 0.75	1.1	0.5	23.2	0.3	1.8	28.2 ± 1	24.8	1040
37 x 2 x 0.75	1.1	0.5	24.5	0.3	1.8	29.5 ± 1	24.8	1160
1 x 2 x 1	1.3	0.5	5.1	0.2	1.0	8.2 ± 0.5	18.1	90
2 x 2 x 1	1.3	0.5	8.5	0.2	1.2	12.0 ± 0.8	18.3	170
3 x 2 x 1	1.3	0.5	9.2	0.2	1.2	12.7 ± 0.8	18.3	210
4 x 2 x 1	1.3	0.5	9.9	0.2	1.2	13.4 ± 0.8	18.3	240
7 x 2 x 1	1.3	0.5	12.3	0.3	1.3	16.3 ± 0.8	18.3	370
8 x 2 x 1	1.3	0.5	13.3	0.3	1.4	17.5 ± 0.8	18.3	420
10 x 2 x 1	1.3	0.5	15.2	0.3	1.5	19.6 ± 0.8	18.3	510
12 x 2 x 1	1.3	0.5	15.9	0.3	1.5	20.3 ± 1	18.3	570
14 x 2 x 1	1.3	0.5	16.6	0.3	1.5	21.0 ± 1	18.3	630
16 x 2 x 1	1.3	0.5	18.1	0.3	1.6	22.7 ± 1	18.3	710
19 x 2 x 1	1.3	0.5	19.0	0.3	1.6	23.6 ± 1	18.3	800
24 x 2 x 1	1.3	0.5	21.9	0.3	1.7	26.7 ± 1	18.3	990
30 x 2 x 1	1.3	0.5	24.8	0.3	1.8	29.8 ± 1	18.3	1200
32 x 2 x 1	1.3	0.5	25.3	0.3	1.9	30.5 ± 1	18.3	1280
37 x 2 x 1	1.3	0.5	26.7	0.3	1.9	31.9 ± 1	18.3	1420
1 x 2 x 1.5	1.6	0.6	6.1	0.2	1.1	9.4 ± 0.5	12.1	120
2 x 2 x 1.5	1.6	0.6	10.2	0.3	1.3	14.2 ± 0.8	12.2	240
3 x 2 x 1.5	1.6	0.6	11.0	0.3	1.3	15.0 ± 0.8	12.2	290
4 x 2 x 1.5	1.6	0.6	11.9	0.3	1.3	15.9 ± 0.8	12.2	340
7 x 2 x 1.5	1.6	0.6	14.8	0.3	1.4	19.0 ± 0.8	12.2	500
8 x 2 x 1.5	1.6	0.6	16.0	0.3	1.5	20.4 ± 1	12.2	570
10 x 2 x 1.5	1.6	0.6	18.3	0.3	1.6	22.9 ± 1	12.2	680
12 x 2 x 1.5	1.6	0.6	19.2	0.3	1.6	23.8 ± 1	12.2	770
14 x 2 x 1.5	1.6	0.6	20.0	0.3	1.7	24.8 ± 1	12.2	870
16 x 2 x 1.5	1.6	0.6	21.8	0.3	1.7	26.6 ± 1	12.2	970



TFOI 250V

Armoured Instrumentation Cable

Cu/XLPE/BED/CWB/HF

Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
19 x 2 x 1.5	1.6	0.6	22.9	0.3	1.8	27.9 ± 1	12.2	1110
24 x 2 x 1.5	1.6	0.6	26.4	0.3	1.9	31.6 ± 1	12.2	1360
30 x 2 x 1.5	1.6	0.6	29.9	0.3	2.0	35.3 ± 1.2	12.2	1670
32 x 2 x 1.5	1.6	0.6	30.5	0.4	2.1	36.6 ± 1.2	12.2	1860
37 x 2 x 1.5	1.6	0.6	32.2	0.4	2.2	38.5 ± 1.2	12.2	2090
1 x 3 x 0.75	1.1	0.5	5.0	0.2	1.0	8.1 ± 0.5	24.5	95
2 x 3 x 0.75	1.1	0.5	8.6	0.2	1.2	12.1 ± 0.8	24.8	180
3 x 3 x 0.75	1.1	0.5	9.2	0.2	1.2	12.7 ± 0.8	24.8	220
4 x 3 x 0.75	1.1	0.5	10.3	0.3	1.3	14.3 ± 0.8	24.8	290
7 x 3 x 0.75	1.1	0.5	13.4	0.3	1.4	17.6 ± 0.8	24.8	430
8 x 3 x 0.75	1.1	0.5	14.5	0.3	1.4	18.7 ± 0.8	24.8	480
10 x 3 x 0.75	1.1	0.5	16.7	0.3	1.5	21.1 ± 1	24.8	580
12 x 3 x 0.75	1.1	0.5	17.7	0.3	1.6	22.3 ± 1	24.8	660
14 x 3 x 0.75	1.1	0.5	18.6	0.3	1.6	23.2 ± 1	24.8	730
16 x 3 x 0.75	1.1	0.5	19.9	0.3	1.6	24.5 ± 1	24.8	810
19 x 3 x 0.75	1.1	0.5	21.7	0.3	1.7	26.5 ± 1	24.8	950
24 x 3 x 0.75	1.1	0.5	24.3	0.3	1.8	29.3 ± 1	24.8	1150
30 x 3 x 0.75	1.1	0.5	27.1	0.3	1.9	32.3 ± 1	24.8	1390
32 x 3 x 0.75	1.1	0.5	28.2	0.3	2.0	33.6 ± 1	24.8	1490
37 x 3 x 0.75	1.1	0.5	29.7	0.3	2.0	35.1 ± 1.2	24.8	1660
1 x 3 x 1	1.3	0.5	5.5	0.2	1.1	8.8 ± 0.5	18.1	110
2 x 3 x 1	1.3	0.5	9.5	0.2	1.2	13.0 ± 0.8	18.3	210
3 x 3 x 1	1.3	0.5	10.2	0.3	1.3	14.2 ± 0.8	18.3	280
4 x 3 x 1	1.3	0.5	11.4	0.3	1.3	15.4 ± 0.8	18.3	340
7 x 3 x 1	1.3	0.5	14.8	0.3	1.4	19.0 ± 0.8	18.3	520
8 x 3 x 1	1.3	0.5	16.0	0.3	1.5	20.4 ± 1	18.3	590
10 x 3 x 1	1.3	0.5	18.4	0.3	1.6	23.0 ± 1	18.3	700
12 x 3 x 1	1.3	0.5	19.6	0.3	1.6	24.2 ± 1	18.3	800
14 x 3 x 1	1.3	0.5	20.6	0.3	1.7	25.4 ± 1	18.3	900
16 x 3 x 1	1.3	0.5	22.0	0.3	1.7	26.8 ± 1	18.3	1000
19 x 3 x 1	1.3	0.5	24.0	0.3	1.8	29.0 ± 1	18.3	1160
24 x 3 x 1	1.3	0.5	26.8	0.3	1.9	32.0 ± 1	18.3	1420
30 x 3 x 1	1.3	0.5	30.0	0.4	2.1	36.1 ± 1.2	18.3	1830
32 x 3 x 1	1.3	0.5	31.2	0.4	2.1	37.3 ± 1.2	18.3	1940
37 x 3 x 1	1.3	0.5	32.9	0.4	2.2	39.2 ± 1.2	18.3	2180

TFOI 250V

Armoured Instrumentation Cable

Cu/XLPE/BED/CWB/HF

Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 3 x 1.5	1.6	0.6	6.5	0.2	1.1	9.8 ± 0.5	12.1	140
2 x 3 x 1.5	1.6	0.6	11.2	0.3	1.3	15.2 ± 0.8	12.2	300
3 x 3 x 1.5	1.6	0.6	12.1	0.3	1.3	16.1 ± 0.8	12.2	370
4 x 3 x 1.5	1.6	0.6	13.5	0.3	1.4	17.7 ± 0.8	12.2	450
7 x 3 x 1.5	1.6	0.6	17.6	0.3	1.6	22.2 ± 1	12.2	710
8 x 3 x 1.5	1.6	0.6	19.0	0.3	1.6	23.6 ± 1	12.2	790
10 x 3 x 1.5	1.6	0.6	21.9	0.3	1.7	26.7 ± 1	12.2	950
12 x 3 x 1.5	1.6	0.6	23.3	0.3	1.8	28.3 ± 1	12.2	1100
14 x 3 x 1.5	1.6	0.6	24.5	0.3	1.8	29.5 ± 1	12.2	1220
16 x 3 x 1.5	1.6	0.6	26.2	0.3	1.9	31.4 ± 1	12.2	1370
19 x 3 x 1.5	1.6	0.6	28.5	0.3	2.0	33.9 ± 1	12.2	1610
24 x 3 x 1.5	1.6	0.6	31.9	0.4	2.1	37.5 ± 1.2	12.2	1970
30 x 3 x 1.5	1.6	0.6	35.7	0.4	2.3	42.2 ± 1.2	12.2	2530
32 x 3 x 1.5	1.6	0.6	37.1	0.4	2.4	43.8 ± 1.2	12.2	2690
37 x 3 x 1.5	1.6	0.6	39.1	0.4	2.4	45.8 ± 1.2	12.2	3010



TFOI(c) 250V Armoured Instrumentation Cable

Cu/XLPE/OSCR/BED/CWB/HF

Max. conductor temperature: 90°C



Application:

- Used in the ships for instrumentation and communication. Also can be used for other indoor and outdoor applications

Standard:

- | | |
|----------------|----------------------------|
| IEC 60092-376 | Design guidelines |
| IEC 60228 | Conductor |
| IEC 60092-360 | Insulation & sheath |
| IEC 60332-1-2 | Flame retardant properties |
| IEC 60332-3-22 | Flame retardant properties |
| IEC 60754-1,2 | Halogen free properties |
| IEC 61034-1,2 | Smoke emission properties |

Construction:

- | | |
|--------------|---|
| Conductor | Plain or tinned annealed copper, IEC 60228 class 2 or class 5 |
| Insulation | Halogen free cross-linked polyethylene XLPE, IEC 60092-360 |
| Laying up | Laying up of pairs/triples/quads |
| Screen | Collective screen (Al/PET + tinned copper drain wire) |
| Bedding | Flame retardant halogen free polyolefin compound, extruded or lapped |
| Armour | Plain or tinned copper wire braid |
| Outer sheath | Flame retardant halogen free polyolefin compound, SHF1, IEC 60092-360 |

Electrical characteristics:

- Capacitance, nom. 800Hz
- Loop Inductance, nom.
- Insulation resistance at 20 °C

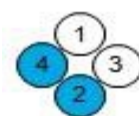
Unit	0.75 mm ²
nF/km	24.5
mH/km	0.7
MOhm.km	≥3670

Pair identification:

- The pairs have the following number identification:
- Pair no. 1 core no. 1 & 2
- Pair no. 2 core no. 3 & 4
- Pair no. 3 core no. 5 & 6
- Pair no. 4 etc

- Triple cable is identified with no. 1, 2 and 3.

- Quad cable has the following identification



TFOI(c) 250V**Armoured Instrumentation Cable****Cu/XLPE/OSCR/BED/CWB/HF**

Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 2 x 0.75	1.1	0.5	4.7	0.2	1.0	7.9 ± 0.5	24.5	90
2 x 2 x 0.75	1.1	0.5	7.8	0.2	1.2	11.4 ± 0.8	24.8	160
3 x 2 x 0.75	1.1	0.5	8.4	0.2	1.2	12.0 ± 0.8	24.8	185
4 x 2 x 0.75	1.1	0.5	9.1	0.2	1.2	12.7 ± 0.8	24.8	205
7 x 2 x 0.75	1.1	0.5	11.3	0.3	1.3	15.4 ± 0.8	24.8	325
8 x 2 x 0.75	1.1	0.5	12.2	0.3	1.3	16.3 ± 0.8	24.8	355
10 x 2 x 0.75	1.1	0.5	13.9	0.3	1.4	18.2 ± 0.8	24.8	425
12 x 2 x 0.75	1.1	0.5	14.6	0.3	1.4	18.9 ± 0.8	24.8	475
14 x 2 x 0.75	1.1	0.5	15.3	0.3	1.5	19.8 ± 0.8	24.8	535
16 x 2 x 0.75	1.1	0.5	16.6	0.3	1.5	21.1 ± 1	24.8	600
19 x 2 x 0.75	1.1	0.5	17.5	0.3	1.6	22.2 ± 1	24.8	680
24 x 2 x 0.75	1.1	0.5	20.1	0.3	1.7	25.0 ± 1	24.8	830
30 x 2 x 0.75	1.1	0.5	22.7	0.3	1.8	27.8 ± 1	24.8	1000
32 x 2 x 0.75	1.1	0.5	23.2	0.3	1.8	28.3 ± 1	24.8	1050
37 x 2 x 0.75	1.1	0.5	24.5	0.3	1.8	29.6 ± 1	24.8	1170
1 x 2 x 1	1.3	0.5	5.1	0.2	1.0	8.3 ± 0.5	18.1	95
2 x 2 x 1	1.3	0.5	8.5	0.2	1.2	12.1 ± 0.8	18.3	175
3 x 2 x 1	1.3	0.5	9.2	0.2	1.2	12.8 ± 0.8	18.3	215
4 x 2 x 1	1.3	0.5	9.9	0.2	1.2	13.5 ± 0.8	18.3	245
7 x 2 x 1	1.3	0.5	12.3	0.3	1.3	16.4 ± 0.8	18.3	375
8 x 2 x 1	1.3	0.5	13.3	0.3	1.4	17.6 ± 0.8	18.3	425
10 x 2 x 1	1.3	0.5	15.2	0.3	1.5	19.7 ± 0.8	18.3	515
12 x 2 x 1	1.3	0.5	15.9	0.3	1.5	20.4 ± 1	18.3	575
14 x 2 x 1	1.3	0.5	16.6	0.3	1.5	21.1 ± 1	18.3	635
16 x 2 x 1	1.3	0.5	18.1	0.3	1.6	22.8 ± 1	18.3	715
19 x 2 x 1	1.3	0.5	19.0	0.3	1.6	23.7 ± 1	18.3	810
24 x 2 x 1	1.3	0.5	21.9	0.3	1.7	26.8 ± 1	18.3	1000
30 x 2 x 1	1.3	0.5	24.8	0.3	1.8	29.9 ± 1	18.3	1210
32 x 2 x 1	1.3	0.5	25.3	0.3	1.9	30.6 ± 1	18.3	1290
37 x 2 x 1	1.3	0.5	26.7	0.3	1.9	32.0 ± 1	18.3	1430
1 x 2 x 1.5	1.6	0.6	6.1	0.2	1.1	9.5 ± 0.5	12.1	125
2 x 2 x 1.5	1.6	0.6	10.2	0.3	1.3	14.3 ± 0.8	12.2	245
3 x 2 x 1.5	1.6	0.6	11.0	0.3	1.3	15.1 ± 0.8	12.2	295
4 x 2 x 1.5	1.6	0.6	11.9	0.3	1.3	16.0 ± 0.8	12.2	345
7 x 2 x 1.5	1.6	0.6	14.8	0.3	1.4	19.1 ± 0.8	12.2	505
8 x 2 x 1.5	1.6	0.6	16.0	0.3	1.5	20.5 ± 1	12.2	575
10 x 2 x 1.5	1.6	0.6	18.3	0.3	1.6	23.0 ± 1	12.2	685
12 x 2 x 1.5	1.6	0.6	19.2	0.3	1.6	23.9 ± 1	12.2	775
14 x 2 x 1.5	1.6	0.6	20.0	0.3	1.7	24.9 ± 1	12.2	875
16 x 2 x 1.5	1.6	0.6	21.8	0.3	1.7	26.7 ± 1	12.2	975

TFOI(c) 250V

Armoured Instrumentation Cable

Cu/XLPE/OSCR/BED/CWB/HF

Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
19 x 2 x 1.5	1.6	0.6	22.9	0.3	1.8	28.0 ± 1	12.2	1120
24 x 2 x 1.5	1.6	0.6	26.4	0.3	1.9	31.7 ± 1	12.2	1370
30 x 2 x 1.5	1.6	0.6	29.9	0.3	2.0	35.4 ± 1.2	12.2	1680
32 x 2 x 1.5	1.6	0.6	30.5	0.4	2.1	36.7 ± 1.2	12.2	1870
37 x 2 x 1.5	1.6	0.6	32.2	0.4	2.2	38.6 ± 1.2	12.2	2100
1 x 3 x 0.75	1.1	0.5	5.0	0.2	1.0	8.2 ± 0.5	24.5	100
2 x 3 x 0.75	1.1	0.5	8.6	0.2	1.2	12.2 ± 0.8	24.8	185
3 x 3 x 0.75	1.1	0.5	9.2	0.2	1.2	12.8 ± 0.8	24.8	225
4 x 3 x 0.75	1.1	0.5	10.3	0.3	1.3	14.4 ± 0.8	24.8	295
7 x 3 x 0.75	1.1	0.5	13.4	0.3	1.4	17.7 ± 0.8	24.8	435
8 x 3 x 0.75	1.1	0.5	14.5	0.3	1.4	18.8 ± 0.8	24.8	485
10 x 3 x 0.75	1.1	0.5	16.7	0.3	1.5	21.2 ± 1	24.8	585
12 x 3 x 0.75	1.1	0.5	17.7	0.3	1.6	22.4 ± 1	24.8	665
14 x 3 x 0.75	1.1	0.5	18.6	0.3	1.6	23.3 ± 1	24.8	735
16 x 3 x 0.75	1.1	0.5	19.9	0.3	1.6	24.6 ± 1	24.8	815
19 x 3 x 0.75	1.1	0.5	21.7	0.3	1.7	26.6 ± 1	24.8	960
24 x 3 x 0.75	1.1	0.5	24.3	0.3	1.8	29.4 ± 1	24.8	1160
30 x 3 x 0.75	1.1	0.5	27.1	0.3	1.9	32.4 ± 1	24.8	1400
32 x 3 x 0.75	1.1	0.5	28.2	0.3	2.0	33.7 ± 1	24.8	1500
37 x 3 x 0.75	1.1	0.5	29.7	0.3	2.0	35.2 ± 1.2	24.8	1670
1 x 3 x 1	1.3	0.5	5.5	0.2	1.1	8.9 ± 0.5	18.1	115
2 x 3 x 1	1.3	0.5	9.5	0.2	1.2	13.1 ± 0.8	18.3	215
3 x 3 x 1	1.3	0.5	10.2	0.3	1.3	14.3 ± 0.8	18.3	285
4 x 3 x 1	1.3	0.5	11.4	0.3	1.3	15.5 ± 0.8	18.3	345
7 x 3 x 1	1.3	0.5	14.8	0.3	1.4	19.1 ± 0.8	18.3	525
8 x 3 x 1	1.3	0.5	16.0	0.3	1.5	20.5 ± 1	18.3	595
10 x 3 x 1	1.3	0.5	18.4	0.3	1.6	23.1 ± 1	18.3	705
12 x 3 x 1	1.3	0.5	19.6	0.3	1.6	24.3 ± 1	18.3	805
14 x 3 x 1	1.3	0.5	20.6	0.3	1.7	25.5 ± 1	18.3	905
16 x 3 x 1	1.3	0.5	22.0	0.3	1.7	26.9 ± 1	18.3	1005
19 x 3 x 1	1.3	0.5	24.0	0.3	1.8	29.1 ± 1	18.3	1170
24 x 3 x 1	1.3	0.5	26.8	0.3	1.9	32.1 ± 1	18.3	1430
30 x 3 x 1	1.3	0.5	30.0	0.4	2.1	36.2 ± 1.2	18.3	1840
32 x 3 x 1	1.3	0.5	31.2	0.4	2.1	37.4 ± 1.2	18.3	1950
37 x 3 x 1	1.3	0.5	32.9	0.4	2.2	39.3 ± 1.2	18.3	2190

TFOI(c) 250V**Armoured Instrumentation Cable****Cu/XLPE/OSCR/BED/CWB/HF**

Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 3 x 1.5	1.6	0.6	6.5	0.2	1.1	9.9 ± 0.5	12.1	145
2 x 3 x 1.5	1.6	0.6	11.2	0.3	1.3	15.3 ± 0.8	12.2	305
3 x 3 x 1.5	1.6	0.6	12.1	0.3	1.3	16.2 ± 0.8	12.2	375
4 x 3 x 1.5	1.6	0.6	13.5	0.3	1.4	17.8 ± 0.8	12.2	455
7 x 3 x 1.5	1.6	0.6	17.6	0.3	1.6	22.3 ± 1	12.2	715
8 x 3 x 1.5	1.6	0.6	19.0	0.3	1.6	23.7 ± 1	12.2	795
10 x 3 x 1.5	1.6	0.6	21.9	0.3	1.7	26.8 ± 1	12.2	955
12 x 3 x 1.5	1.6	0.6	23.3	0.3	1.8	28.4 ± 1	12.2	1105
14 x 3 x 1.5	1.6	0.6	24.5	0.3	1.8	29.6 ± 1	12.2	1225
16 x 3 x 1.5	1.6	0.6	26.2	0.3	1.9	31.5 ± 1	12.2	1375
19 x 3 x 1.5	1.6	0.6	28.5	0.3	2.0	34.0 ± 1	12.2	1620
24 x 3 x 1.5	1.6	0.6	31.9	0.4	2.1	37.6 ± 1.2	12.2	1980
30 x 3 x 1.5	1.6	0.6	35.7	0.4	2.3	42.3 ± 1.2	12.2	2540
32 x 3 x 1.5	1.6	0.6	37.1	0.4	2.4	43.9 ± 1.2	12.2	2700
37 x 3 x 1.5	1.6	0.6	39.1	0.4	2.4	45.9 ± 1.2	12.2	3020

TFOI(i & c) 250V

Armoured Instrumentation Cable

Cu/XLPE/ISCR/OSCR/BED/CWB/HF

Rated voltage: 150/250V Max. conductor temperature: 90°C



Application:

- Used in the ships for instrumentation and communication. Also can be used for other indoor and outdoor applications

Standard:

- | | |
|------------------|----------------------------|
| ■ IEC 60092-376 | Design guidelines |
| ■ IEC 60228 | Conductor |
| ■ IEC 60092-360 | Insulation & sheath |
| ■ IEC 60332-1-2 | Flame retardant properties |
| ■ IEC 60332-3-22 | Flame retardant properties |
| ■ IEC 60754-1,2 | Halogen free properties |
| ■ IEC 61034-1,2 | Smoke emission properties |

Construction:

- | | |
|----------------|---|
| ■ Conductor | Plain or tinned annealed copper, IEC 60228 class 2 or class 5 |
| ■ Insulation | Halogen free cross-linked polyethylene XLPE, IEC 60092-360 |
| ■ Screen | Individual screen (Al/PET + tinned copper drain wire) |
| ■ Laying up | Laying up of pairs/triples/quads |
| ■ Screen | Collective screen (Al/PET + tinned copper drain wire) |
| ■ Bedding | Flame retardant halogen free polyolefin compound, extruded or lapped |
| ■ Armour | Plain or tinned copper wire braid |
| ■ Outer sheath | Flame retardant halogen free polyolefin compound, SHF1, IEC 60092-360 |

Electrical characteristics:

- Capacitance, nom. 800Hz
- Loop Inductance, nom.
- Insulation resistance at 20 °C

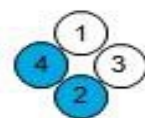
Unit	0.75 mm ²
nF/km	24.5
mH/km	0.7
MOhm.km	≥3670

Pair identification:

- The pairs have the following number identification:
- Pair no. 1 core no. 1 & 2
- Pair no. 2 core no. 3 & 4
- Pair no. 3 core no. 5 & 6
- Pair no. 4 etc

- Triple cable is identified with no. 1, 2 and 3.

- Quad cable has the following identification



TFOI(i & c) 250V

Armoured Instrumentation Cable

Cu/XLPE/ISCR/OSCR/BED/CWB/HF

Rated voltage: 150/250V Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20° C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 2 x 0.75	1.1	0.5	4.8	0.2	1.0	7.9 ± 0.5	24.5	80
2 x 2 x 0.75	1.1	0.5	8.5	0.2	1.2	12.0 ± 0.8	24.8	170
3 x 2 x 0.75	1.1	0.5	9.1	0.2	1.2	12.6 ± 0.8	24.8	210
4 x 2 x 0.75	1.1	0.5	10.2	0.3	1.3	14.2 ± 0.8	24.8	270
7 x 2 x 0.75	1.1	0.5	12.1	0.3	1.3	16.1 ± 0.8	24.8	380
8 x 2 x 0.75	1.1	0.5	13.5	0.3	1.4	17.7 ± 0.8	24.8	440
10 x 2 x 0.75	1.1	0.5	15.6	0.3	1.5	20.0 ± 1	24.8	530
12 x 2 x 0.75	1.1	0.5	16.3	0.3	1.5	20.7 ± 1	24.8	590
14 x 2 x 0.75	1.1	0.5	17.2	0.3	1.5	21.6 ± 1	24.8	660
16 x 2 x 0.75	1.1	0.5	18.6	0.3	1.6	23.2 ± 1	24.8	750
19 x 2 x 0.75	1.1	0.5	19.1	0.3	1.6	23.7 ± 1	24.8	830
24 x 2 x 0.75	1.1	0.5	22.6	0.3	1.8	27.6 ± 1	24.8	1050
30 x 2 x 0.75	1.1	0.5	24.3	0.3	1.8	29.3 ± 1	24.8	1240
32 x 2 x 0.75	1.1	0.5	24.7	0.3	1.8	29.7 ± 1	24.8	1300
37 x 2 x 0.75	1.1	0.5	26.2	0.3	1.9	31.4 ± 1	24.8	1470
1 x 2 x 1	1.3	0.5	5.2	0.2	1.0	8.3 ± 0.5	18.1	90
2 x 2 x 1	1.3	0.5	9.2	0.2	1.2	12.7 ± 0.8	18.3	200
3 x 2 x 1	1.3	0.5	9.9	0.2	1.2	13.4 ± 0.8	18.3	240
4 x 2 x 1	1.3	0.5	11.0	0.3	1.3	15.0 ± 0.8	18.3	320
7 x 2 x 1	1.3	0.5	13.1	0.3	1.4	17.3 ± 0.8	18.3	460
8 x 2 x 1	1.3	0.5	14.6	0.3	1.4	18.8 ± 0.8	18.3	520
10 x 2 x 1	1.3	0.5	16.9	0.3	1.5	21.3 ± 1	18.3	630
12 x 2 x 1	1.3	0.5	17.6	0.3	1.6	22.2 ± 1	18.3	710
14 x 2 x 1	1.3	0.5	18.7	0.3	1.6	23.3 ± 1	18.3	800
16 x 2 x 1	1.3	0.5	20.2	0.3	1.7	25.0 ± 1	18.3	910
19 x 2 x 1	1.3	0.5	20.7	0.3	1.7	25.5 ± 1	18.3	1010
24 x 2 x 1	1.3	0.5	24.5	0.3	1.8	29.5 ± 1	18.3	1270
30 x 2 x 1	1.3	0.5	26.3	0.3	1.9	31.5 ± 1	18.3	1520
32 x 2 x 1	1.3	0.5	26.8	0.3	1.9	32.0 ± 1	18.3	1580
37 x 2 x 1	1.3	0.5	28.4	0.3	2.0	33.8 ± 1	18.3	1800
1 x 2 x 1.5	1.6	0.6	6.2	0.2	1.1	9.5 ± 0.5	12.1	120
2 x 2 x 1.5	1.6	0.6	11.0	0.3	1.3	15.0 ± 0.8	12.2	280
3 x 2 x 1.5	1.6	0.6	11.8	0.3	1.3	15.8 ± 0.8	12.2	330
4 x 2 x 1.5	1.6	0.6	13.1	0.3	1.4	17.3 ± 0.8	12.2	410
7 x 2 x 1.5	1.6	0.6	15.6	0.3	1.5	20.0 ± 1	12.2	600
8 x 2 x 1.5	1.6	0.6	17.4	0.3	1.5	21.8 ± 1	12.2	680
10 x 2 x 1.5	1.6	0.6	20.1	0.3	1.7	24.9 ± 1	12.2	830
12 x 2 x 1.5	1.6	0.6	21.0	0.3	1.7	25.8 ± 1	12.2	930
14 x 2 x 1.5	1.6	0.6	22.3	0.3	1.7	27.1 ± 1	12.2	1050
16 x 2 x 1.5	1.6	0.6	24.1	0.3	1.8	29.1 ± 1	12.2	1180



TFOI(i & c) 250V

Armoured Instrumentation Cable

Cu/XLPE/ISCR/OSCR/BED/CWB/HF

Rated voltage: 150/250V Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20°C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
19 x 2 x 1.5	1.6	0.6	24.7	0.3	1.8	29.7 ± 1	12.2	1320
24 x 2 x 1.5	1.6	0.6	29.3	0.3	2.0	34.7 ± 1	12.2	1675
30 x 2 x 1.5	1.6	0.6	31.4	0.4	2.1	37.5 ± 1.2	12.2	2105
32 x 2 x 1.5	1.6	0.6	32.0	0.4	2.2	38.3 ± 1.2	12.2	2225
37 x 2 x 1.5	1.6	0.6	33.9	0.4	2.2	40.2 ± 1.2	12.2	2500
1 x 3 x 0.75	1.1	0.5	5.1	0.2	1.0	8.2 ± 0.5	24.5	100
2 x 3 x 0.75	1.1	0.5	9.1	0.2	1.2	12.6 ± 0.8	24.8	200
3 x 3 x 0.75	1.1	0.5	9.8	0.2	1.2	13.3 ± 0.8	24.8	250
4 x 3 x 0.75	1.1	0.5	11.0	0.3	1.3	15.0 ± 0.8	24.8	330
7 x 3 x 0.75	1.1	0.5	14.2	0.3	1.4	18.4 ± 0.8	24.8	500
8 x 3 x 0.75	1.1	0.5	15.4	0.3	1.5	19.8 ± 0.8	24.8	570
10 x 3 x 0.75	1.1	0.5	17.7	0.3	1.6	22.3 ± 1	24.8	680
12 x 3 x 0.75	1.1	0.5	18.9	0.3	1.6	23.5 ± 1	24.8	770
14 x 3 x 0.75	1.1	0.5	19.8	0.3	1.6	24.4 ± 1	24.8	860
16 x 3 x 0.75	1.1	0.5	21.2	0.3	1.7	26.0 ± 1	24.8	970
19 x 3 x 0.75	1.1	0.5	23.1	0.3	1.8	28.1 ± 1	24.8	1110
24 x 3 x 0.75	1.1	0.5	25.8	0.3	1.9	31.0 ± 1	24.8	1360
30 x 3 x 0.75	1.1	0.5	28.8	0.3	2.0	34.2 ± 1	24.8	1650
32 x 3 x 0.75	1.1	0.5	30.0	0.4	2.1	36.1 ± 1.2	24.8	1870
37 x 3 x 0.75	1.1	0.5	31.6	0.4	2.1	37.7 ± 1.2	24.8	2085
1 x 3 x 1	1.3	0.5	5.6	0.2	1.1	8.9 ± 0.5	18.1	125
2 x 3 x 1	1.3	0.5	10.0	0.3	1.3	14.0 ± 0.8	18.3	260
3 x 3 x 1	1.3	0.5	10.8	0.3	1.3	14.8 ± 0.8	18.3	320
4 x 3 x 1	1.3	0.5	12.0	0.3	1.3	16.0 ± 0.8	18.3	390
7 x 3 x 1	1.3	0.5	15.6	0.3	1.5	20.0 ± 1	18.3	610
8 x 3 x 1	1.3	0.5	16.9	0.3	1.5	21.3 ± 1	18.3	680
10 x 3 x 1	1.3	0.5	19.4	0.3	1.6	24.0 ± 1	18.3	810
12 x 3 x 1	1.3	0.5	20.7	0.3	1.7	25.5 ± 1	18.3	940
14 x 3 x 1	1.3	0.5	21.7	0.3	1.7	26.5 ± 1	18.3	1050
16 x 3 x 1	1.3	0.5	23.3	0.3	1.8	28.3 ± 1	18.3	1180
19 x 3 x 1	1.3	0.5	25.3	0.3	1.9	30.5 ± 1	18.3	1370
24 x 3 x 1	1.3	0.5	28.4	0.3	2.0	33.8 ± 1	18.3	1690
30 x 3 x 1	1.3	0.5	31.7	0.4	2.1	37.8 ± 1.2	18.3	2150
32 x 3 x 1	1.3	0.5	33.0	0.4	2.2	39.3 ± 1.2	18.3	2300
37 x 3 x 1	1.3	0.5	34.8	0.4	2.3	41.3 ± 1.2	18.3	2590

TFOI(i & c) 250V **Armoured Instrumentation Cable**

Cu/XLPE/ISCR/OSCR/BED/CWB/HF

Rated voltage: 150/250V Max. conductor temperature: 90°C

Range and dimensions

Number of pairs x conductor cross-section	Conductor diameter	Insulation thickness	Inner covering diameter	Armour wire diameter	Outer sheath thickness	Outer sheath diameter	Resistance at 20°C Max.	Weight Approx.
mm ²	mm	mm	mm	mm	mm	mm	Ohm/km	kg/km
1 x 3 x 1.5	1.6	0.6	6.6	0.2	1.1	9.9 ± 0.5	12.1	160
2 x 3 x 1.5	1.6	0.6	11.8	0.3	1.3	15.8 ± 0.8	12.2	330
3 x 3 x 1.5	1.6	0.6	12.7	0.3	1.4	16.9 ± 0.8	12.2	410
4 x 3 x 1.5	1.6	0.6	14.2	0.3	1.4	18.4 ± 0.8	12.2	500
7 x 3 x 1.5	1.6	0.6	18.4	0.3	1.6	23.0 ± 1	12.2	790
8 x 3 x 1.5	1.6	0.6	19.9	0.3	1.6	24.5 ± 1	12.2	890
10 x 3 x 1.5	1.6	0.6	22.9	0.3	1.8	27.9 ± 1	12.2	1080
12 x 3 x 1.5	1.6	0.6	24.4	0.3	1.8	29.4 ± 1	12.2	1230
14 x 3 x 1.5	1.6	0.6	25.6	0.3	1.9	20.8 ± 1	12.2	1390
16 x 3 x 1.5	1.6	0.6	27.4	0.3	1.9	32.6 ± 1	12.2	1570
19 x 3 x 1.5	1.6	0.6	29.9	0.3	2.0	35.3 ± 1.2	12.2	1830
24 x 3 x 1.5	1.6	0.6	33.5	0.4	2.2	39.8 ± 1.2	12.2	2360
30 x 3 x 1.5	1.6	0.6	37.4	0.4	2.4	44.1 ± 1.2	12.2	2880
32 x 3 x 1.5	1.6	0.6	38.9	0.4	2.4	45.6 ± 1.2	12.2	3060
37 x 3 x 1.5	1.6	0.6	41.0	0.4	2.5	47.9 ± 1.2	12.2	3450

