

Application

Type P control cable is a flexible multi-conductor offshore and marine control cable to IEEE 1580, dual certified to UL 1309 / CSA 245 as Type X110 and rated 0.6/1 kV at +110 °C. It has soft annealed flexible stranded tinned copper conductors to IEEE 1580 Table 11,

cross-linked flame-retardant polyolefin (XLPO) insulation, a black

arctic-grade thermosetting jacket, a basket-weave bronze wire armour and an overall black arctic-grade thermosetting

sheath. It is designed for the demanding environments of offshore drilling and energy production facilities: the high strand count makes the cable markedly more flexible, easier to install and more resistant to vibration than Type MC,

IEC-specification or commercial cables, and the jacket and sheath resist oil, drilling mud, abrasion, chemicals and sunlight.

The cable is available unarmoured, armoured (B) or armoured and sheathed (BS); only the armoured and sheathed construction is suitable for use in Class I Division 1 and Zone 1 environments. The power range of the same family is

covered on a separate sheet.



CONSTRUCTION

Conductor	Soft annealed flexible stranded tinned copper acc. to IEEE 1580 Table 11; 19 strands in all three sizes.
Insulation	Cross-linked, flame-retardant polyolefin (XLPO), meeting the requirements for Type P of IEEE 1580 and Type X110 of UL 1309 / CSA 245.
Core identification	Colour code acc. to IEEE 1580 Table 22: coloured cores up to and including 37 conductors, black cores with printed numbers above 37 conductors.
Jacket	Black, arctic-grade, flame-retardant thermosetting compound, resistant to oil, drilling mud, abrasion, chemicals and sunlight, meeting UL 1309 / CSA 245 and IEEE 1580.
Armour (B and BS)	Basket-weave wire armour acc. to IEEE 1580 and UL 1309 / CSA 245; bronze as standard, tinned copper available on request.
Sheath (BS)	Black, arctic-grade, flame-retardant thermosetting compound over the armour, resistant to oil, drilling mud, abrasion, chemicals and sunlight, meeting UL 1309 / CSA 245 and IEEE 1580. A sheath resistant to ester-based drilling mud acc. to NEK 606 is available.

ELECTRICAL & THERMAL PROPERTIES

Rated voltage Uo/U	0.6/1 kV.
Standard	IEEE 1580 Type P; UL 1309 / CSA 245 Type X110; conductors acc. to IEEE 1580 Table 11.
Max. conductor temperature	+110 °C.
Classification society ratings	Highest ampacity ratings: ABS +100 °C, DNV +95 °C, Lloyd's Register +95 °C, Transport Canada +95 °C.
Cold durability	Exceeds the CSA cold bend and cold impact tests (-40 °C / -35 °C).
Flame-retardant	Acc. to IEC 60332-3 Category A and IEEE 1202.
Hazardous areas	Suitable for use in Class I Division 1 and Zone 1 environments in the armoured and sheathed (BS) construction only. NEC Article 337 additionally requires termination with fittings listed for the location.
Approvals	American Bureau of Shipping (ABS); Det Norske Veritas (DNV); Lloyd's Register of Shipping (LRS); Transport Canada; United States Coast Guard; UL listed as marine shipboard cable; CSA listed as marine shipboard cable.
Reaction to fire (CPR)	Outside the scope of EN 50575 (shipboard / offshore cable; not a construction product for permanent installation in construction works).

INSTALLATION DATA

Min. bending radius, unarmoured	6 × outer diameter (IEEE 45).
Min. bending radius, armoured (B)	8 × outer diameter (IEEE 45).
Min. bending radius, armoured and sheathed (BS)	8 × outer diameter (IEEE 45 and IEC 60092).
Reference conditions for the ampacities	+110 °C and +100 °C acc. to IEEE Std 45 at 45 °C ambient, single bank per hanger (multiply by 0.8 when double banked); +95 °C acc. to Table 4/3C.10 of the 1997 ABS MODU rules at 45 °C ambient. For free-air ratings the IEEE Std 45 values may be divided by 0.85.
Four-conductor ampacities	Based on one conductor not acting as a normal current-carrying conductor (e.g. an earthed neutral or an earth conductor).

DIMENSIONS & TECHNICAL DATA

Three constructions: unarmoured, armoured (B, bronze braid as outer layer) and armoured and sheathed (BS, bronze braid with an overall sheath). Nominal cross-sections, strand counts and resistances per size are in the conductor table.

Cores × size	Unarmoured Ø (mm)	Unarmoured (kg/km)	Armoured (B) Ø (mm)	Armoured (B) (kg/km)	Armoured and sheathed (BS) Ø (mm)	Armoured and sheathed (BS) (kg/km)
4 × 16 AWG	11.0	144	12.3	238	15.7	330
5 × 16 AWG	11.9	174	13.2	277	16.3	375
7 × 16 AWG	13.1	219	14.4	455	17.2	560
8 × 16 AWG	14.8	301	16.0	430	19.4	554
10 × 16 AWG	16.1	374	17.4	479	22.4	692
16 × 16 AWG	18.3	496	19.6	656	24.4	923
20 × 16 AWG	20.0	568	21.2	765	25.7	1015
24 × 16 AWG	22.9	817	24.1	961	29.3	1339
37 × 16 AWG	26.6	1088	28.1	1293	32.5	1674
44 × 16 AWG	29.8	1409	31.1	1686	35.6	1752
60 × 16 AWG	32.1	1662	33.3	1957	37.7	2344
91 × 16 AWG	39.4	2399	40.6	2792	46.5	3426
4 × 14 AWG	11.1	188	12.4	292	16.5	390
5 × 14 AWG	12.2	228	13.4	341	17.5	455
6 × 14 AWG	14.2	298	15.5	427	18.5	646
7 × 14 AWG	14.0	332	15.3	440	18.7	616
10 × 14 AWG	17.5	487	18.8	600	22.9	891
12 × 14 AWG	18.1	530	19.4	668	24.4	948
14 × 14 AWG	19.3	621	20.6	817	24.9	1055
20 × 14 AWG	23.7	890	25.0	1054	29.5	1426
24 × 14 AWG	26.0	1073	27.3	1234	31.6	1527
30 × 14 AWG	27.3	1159	28.6	1421	33.3	1755
37 × 14 AWG	29.3	1442	30.6	1667	35.5	2091
44 × 14 AWG	32.3	1621	33.6	1924	38.1	2235
91 × 14 AWG	45.0	3607	46.3	4052	53.1	4715
4 × 12 AWG	13.1	299	14.4	368	17.0	475
5 × 12 AWG	14.2	353	15.5	469	18.9	627
6 × 12 AWG	15.5	420	16.8	591	20.7	731
10 × 12 AWG	19.6	646	20.8	757	25.8	1089
20 × 12 AWG	25.9	1198	27.2	1402	32.0	1777
24 × 12 AWG	28.8	1537	30.1	1729	34.5	2012

Cores × size	Unarmoured Ø (mm)	Unarmoured (kg/km)	Armoured (B) Ø (mm)	Armoured (B) (kg/km)	Armoured and sheathed (BS) Ø (mm)	Armoured and sheathed (BS) (kg/km)
37 × 12 AWG	32.8	1890	34.1	2204	39.4	2692

Conductor data per size

Size	Equivalent c.s.a. (mm ²)	No. of strands	DC R @25°C (Ω/km)	AC R @110°C, 60 Hz (Ω/km)
16 AWG	1.32	19	15.1	20.1
14 AWG	2.08	19	9.54	12.7
12 AWG	3.3	19	5.99	7.95

Current-carrying capacity (A)

Cores × size	+110 °C	+100 °C	+95 °C
4 × 16 AWG	17	16	16
5 × 16 AWG	14	13	13
7 × 16 AWG	12	11	11
8 × 16 AWG	12	11	11
10 × 16 AWG	9	8	11
16 × 16 AWG	9	8	11
20 × 16 AWG	9	8	11
24 × 16 AWG	8	7	11
37 × 16 AWG	6	6	8
44 × 16 AWG	6	6	8
60 × 16 AWG	6	6	8
91 × 16 AWG	6	6	8
4 × 14 AWG	27	25	22
5 × 14 AWG	21	20	18
6 × 14 AWG	21	20	18
7 × 14 AWG	19	18	15
10 × 14 AWG	14	13	15
12 × 14 AWG	14	13	15
14 × 14 AWG	14	13	15
20 × 14 AWG	14	13	15
24 × 14 AWG	12	11	15
30 × 14 AWG	12	11	13
37 × 14 AWG	11	10	13
44 × 14 AWG	10	9	11
91 × 14 AWG	10	9	11
4 × 12 AWG	33	31	27
5 × 12 AWG	27	25	22
6 × 12 AWG	27	25	22
10 × 12 AWG	17	16	19
20 × 12 AWG	17	16	19
24 × 12 AWG	15	14	19
37 × 12 AWG	13	12	16

Outer diameters and weights are nominal manufacturer values and are subject to a ±5 % manufacturing tolerance. The equivalent c.s.a. per size is the manufacturer's value for its stranded conductor, not the nominal AWG cross-section (18 AWG: 19 strands of 0.0100 inch, 0.96 mm²; nominal 0.82 mm²). Please note that in 16 AWG the weights do not rise consistently with conductor count (8 × 16 AWG is lighter than 7 × 16 AWG), and the same applies to 7 × 14 AWG against 6 × 14 AWG; these figures are reproduced as published. All values are indicative and non-binding.