Marine Grade

RFOU Offshore Power Cable 0,6/1 kV

Application

For fixed installations offshore units in all locations. Cables for power circuits where shielding is required or areas that require additional protection against possible shock. All cable materials are free of halogens, with low fumes emission and fire retardant. These cables are especially suitable for the installation in ships in power, lighting and control circuits.

Design Standards

This type of cable is designed, manufactured and tested according to IEC 60092-376 and NEK TS 606.

Cable Design

Conductor	Electrolytic annealed tinned copper conductor, class 2 in accordance with IEC 60228, stranded with fine wires and flexibility level equivalent to class 5.
Insulation	Ethylene propylene, type EPR according to IEC 60092-360. The standard identification is the following: - 1 core.....natural - 2 cores.....blue + brown - 3 cores.....brown + black + grey - 4 cores.....brown + black + grey + blue - ≥ 5 cores.....white numbered
Core Assembly	The cores are twisted together.
Inner covering	Halogen free compound.
Braid/Armour	Tinned copper wire braid.
Outer sheath	Mud resistant thermoset compound, black colour, with low smoke and halogen free under fire conditions, type SHF MUD.

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Specification/Dimensions

Formation [N° x mm²]	Diameter [mm]	Weight [kg/km]
1 x 150	26,1	1840
1 x 240	32,2	2945
1 x 300	36,2	3645
2 x 1,5/4	14,4	317
2 x 2,5/4	15,5	373
3 x 1,5/4	15,0	349
3 x 2,5/6	16,1	417
3 x 4/6	17,8	521
3 x 6/6	19,1	627
3 x 10/10	21,1	857
3 x 16/16	23,6	1148
3 x 35/16	30,9	2079
3 x 50/25	31,6	2380
3 x 70/35	36,6	3070
3 x 240/120	64,3	10400
4 x 1,5/4	15,9	397
4 x 2,5/6	17,1	479

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Characteristics

Nominal voltage		0,6/1 kV
Lowest installation temperature		-15 °C
Lowest ambient temperature for fixed installation		-40 °C
Maximum conductor operating temperature		90 °C
Maximum short-circuit conductor temperature		250 °C (maximum 5 s)
Minimum bending radius		6 x cable Ø
No flame propagation		acc. to IEC 60332-1-2
No fire propagation		acc. to IEC 60332-3-22 (Category A)
Halogen free	Acid gas emission	< 0,5 % according to IEC 60754-1
	pH	> 4,3 acc. to IEC 60754-2
	conductivity	< 10 µS/mm acc. to IEC 60754-2
Smoke emission		acc. to to IEC 61034-2
Mud Resistant		acc. to NEK TS 606

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Current-carrying capacities

Nominal current-carrying capacities

Table 1 shows the current-carrying capacities and voltage drop detailed for every cable.

Current-carrying capacities, in ampere, are calculated according to IEC 60092-352 and for the following conditions:

- Open air installation: one cable with adequate ventilation and ambient temperature of 45°C, supported by cleats and hangers or on perforated tray. Reference method F (three conductors trefoil) for single-core and E for multi core cables.
- For cables having 2 conductors and 3 conductors up to 10 mm2, it is supposed a single-phase circuit. For cables having more of 5 conductors is supposed that all are loaded. For the rest of the cables it is supposed a three-phase circuit.

For conditions other than this apply the adequate correction factors.

Voltage drop is the maximum that may occur. It is calculated for the maximum service temperature and for cos o= 1.

Table 1

Formation N° x mm²	Open Air Inst. [A]	Max. Conductor Resistance at 20°C [Ω/km]	Voltage Drop [V/A • km]
1 x 150	386	0,126	0,321
1 x 240	528	0,0762	0,194
1 x 300	612	0,0607	0,155
2 x 1,5/4	23	12,2	31,1
2 x 2,5/4	31	7,56	19,3
3 x 1,5/4	23	12,2	31,1
3 x 2,5/6	31	7,56	19,3
3 x 4/6	43	4,70	12,0
3 x 6/6	55	3,11	7,9
3 x 10/10	65	1,84	4,7

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Table 1 (continued)

Formation N° x mm²	Open Air Inst. [A]	Max. Conductor Resistance at 20°C [Ω/km]	Voltage Drop [V/A • km]
3 x 16/16	87	1,16	3,0
3 x 35/16	137	0,529	1,4
3 x 50/25	167	0,391	0,997
3 x 70/35	214	0,270	0,689
3 x 240/120	468	0,0762	0,194
4 x 1,5/4	20	12,2	26,9
4 x 2,5/6	28	7,56	16,7

Short-circuit current-carrying capacities

The maximum short-circuit current that a cable can withstand depend on the time of reaction of the protection elements installed in the line. The maximum current-carrying capacity in a short circuit accident, for a specific type of cable, is the result of multiplying the cross section of the cable for the values shown in table 2. These values are taken from IEC 949.

Table 2

Time (s)	0,1	0,2	0,3	0,5	1	1,5	2	2,5	3
A/mm²	452	320	261	202	143	117	101	90	83

Correction factors for air temperature other than 45 °C

The current-carrying capacities must be multiplied with the adequate correction factor when the installation conditions differs from the nominal current-carrying capacities.

Table 3

Air T (°C)	35	40	45	50	55	60	65	70	75	80
Factor	1,10	1,05	1	0,94	0,88	0,82	0,74	0,67	0,58	0,47

Other correction factors are in IEC 60092-352