TOXFREE® MARINE XOxZ1-K (AS) XOxTCuZ1-K (AS)

The marine armoured instrumentation cable.

ACCORDING TO: IEC 60092-376

APPLICATION

The Toxfree Marine XOxZ1-K (AS) and XOxTCuZ1-K (AS) cable with halogen frees is a safety instrumentation and telecommunication cable. In case of fire, it does not emit toxic or corrosive gases, thereby protecting public health and avoiding any possible damage to electronic equipment. For this reason, its use is recommended in marine applications.

CONSTRUCTION

Conductor
Electrolytic annealed copper, class 5 (flexible) according to IEC 60228 (conductor resistance according to IEC 60092-376, Table 1).

Insulation
Cross-linked polyethylene type HF XLPE 90°C according to IEC 60092-360.
The standard identification of insulated conductors is the following:
Pair White + Blue (each core numbered with the pair number)
Other colours available on request.

Assembly of cores
Cores twisted to form a pair.

Individual screen (XO3Z1-K and XO3TCuZ1-K)
Aluminium + polyester tape with 100% coverage + tinned copper drain wire applied over the assembled cores.

Assembly of pairs
Cabled in concentric layers.

Collective screen
Aluminium + polyester tape with 100% coverage + tinned copper drain wire applied over the assembled pairs
Only for XO2TCuZ1-K (AS) cables, the tinned copper drain wire will be removed, and the aluminium side of the tape will put in contact with the braid armour.

Braid armour (XO2TCuZ1-K and XO3TCuZ1-K)
Tinned copper wire braid armour over the collective screen.

Outer sheath
Low smoke halogen free thermoplastic polyolefin, type SHF1 according to IEC 60092-360.
Grey colour.

CHARACTERISTICS

Electrical performance
Instrumentation: 150/250 V.

Thermal performance
Maximum conductor temperature: 90°C.
Maximum short-circuit temperature: 250°C (max 5 s).
Minimum service temperature: -40°C (fixed installations).
Lowest installation temperature: -15°C

Fire performance
Flame non-propagation according to IEC 60332-1.
Fire non-propagation according to IEC 60332-3-22.
Halogen free according to IEC 60754-1.
Low corrosive gases emission according to IEC 60754-2.
Low smoke emission according to IEC 61034:
light transmittance > 60%.

Mechanical performance
Minimum bending radius:
Ø ≤ 25mm 4x cable diameter.
Ø > 25mm 6x cable diameter.
Impact resistance: AG3 high severity.

Environmental performance
Chemical & Oil resistance: Acceptable.
UV Resistant according to EN 50618.
Water resistance: AD6 waves.

Installation conditions
Open Air.
In conduit on a bulkhead.
On a bulkhead.

STANDARDS / COMPLIANCE

According to
IEC 60092-376

Standards and approvals
ABS / DNV-GL / BUREAU VERITAS / CE / RoHS

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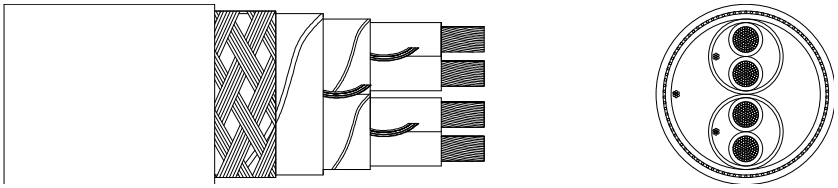
DIMENSIONS & ADMISSIBLE INTENSITIES



XO2Z1-K (AS)				
Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R20°C (Ω/km)
1 x 2 x 0,75	6,7	55	17,1	27,6
2 x 2 x 0,75	9,0	95	13,7	27,6
4 x 2 x 0,75	10,3	130	11,2	27,6
7 x 2 x 0,75	13,5	205	9,2	27,6
10 x 2 x 0,75	16,1	265	8,6	27,6
14 x 2 x 0,75	17,8	370	7,4	27,6
19 x 2 x 0,75	20,0	480	6,5	27,6
24 x 2 x 0,75	23,5	605	6,5	27,6

XO3Z1-K (AS)				
Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R20°C (Ω/km)
2 x 2 x 0,75	10,1	115	13,7	27,6
4 x 2 x 0,75	11,5	180	11,2	27,6
7 x 2 x 0,75	13,9	265	9,2	27,6
10 x 2 x 0,75	18,1	380	8,6	27,6
14 x 2 x 0,75	19,6	495	7,4	27,6
19 x 2 x 0,75	22,0	660	6,5	27,6
24 x 2 x 0,75	26,2	830	6,5	27,6

XO2TCuZ1-K (AS)				
Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R20°C (Ω/km)
1 x 2 x 0,75	7,6	95	17,1	27,6
2 x 2 x 0,75	9,8	130	13,7	27,6
4 x 2 x 0,75	11,8	180	11,2	27,6
7 x 2 x 0,75	13,9	260	9,2	27,6
10 x 2 x 0,75	17,0	390	8,6	27,6
14 x 2 x 0,75	17,5	480	7,4	27,6
19 x 2 x 0,75	21,2	615	6,5	27,6
24 x 2 x 0,75	25,0	780	6,5	27,6
1 x 2 x 1,5	8,3	110	26,0	14,1

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XO3TCuZ1-K (AS)				
Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R 20°C (Ω/km)
2 x 2 x 0,75	10,6	155	13,7	27,6
4 x 2 x 0,75	12,0	220	11,2	27,6
7 x 2 x 0,75	15,8	380	9,2	27,6
10 x 2 x 0,75	18,9	490	8,6	27,6
14 x 2 x 0,75	21,1	645	7,4	27,6
19 x 2 x 0,75	23,6	820	6,5	27,6
24 x 2 x 0,75	27,6	1.020	6,5	27,6
2 x 2 x 1,5	13,3	215	20,8	14,1

[1] Reference method E according to IEC 60092-352 and IEC 60364-5-52 in open air at 30°C ambient temperature.
For cables having more than 1 unit a factor is applied according to the Table A6 of the IEC 60092-352 standard

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SHORT-CIRCUIT CURRENT-CARRYING CAPACITIES

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

Air T. (°C)	10	15	20	25	30	35	40	45	50	55
Factor	1,15	1,12	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76

Other correction factors (for grouping cables, for harmonic currents), that are not in this specification, can be applied. Further information can be found in IEC 60092-352 and IEC 60364-5-52.

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