TOXFREE® MARINE XZ1-K (AS)

The marine power cable.

ACCORDING TO: IEC 60092-353

APPLICATION

The Toxfree® Marine XZ1-K (AS) cable with halogen free is a safety 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.

- Marine use.
- Public use.

CONSTRUCTION

Conductor
Electrolytic annealed copper, class 5 (flexible), according to IEC 60228.

Insulation
Cross-linked polyethylene type HF XLPE-90 °C according to IEC 60092-360.
The standard identification of insulated conductors is the following:

1 x	Natural
2 x	Blue + Brown
3 x	Brown + Black + Grey
3 G	Blue + Brown + Green/Yellow
4 x	Brown + Black + Grey + Blue
4 G	Brown + Black + Grey + Green/Yellow
5 or more conductors	Black numbered

Other colours available on request.

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

CHARACTERISTICS

Electrical performance
Low voltage: 0,6/1 kV.

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

Fire performance
Flame non-propagation according to IEC 60332-1.
Fire non-propagation according to IEC 60332-3-22.
Low smoke 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: AG2 medium severity.

Environmental performance
Chemical & Oil resistance: Good.
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 60092-353

Standards and approvals
ABS / DNV-GL / BUREAU VERITAS / LLOYD'S REGISTER / CE / RoHS

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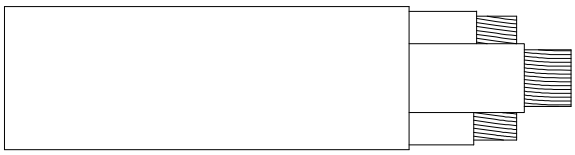
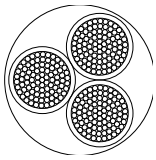
TOXFREE® MARINE
XZ1-K (AS)

DIMENSIONS & ADMISSIBLE INTENSITIES





Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R20°C (Ω/km)	Voltage drop (V/A · km) [2]
1 x 2,5	6,1	55	25	7,98	17,7
1 x 4	6,7	75	35	4,95	11,0
1 x 6	7,2	95	46	3,3	7,32
1 x 10	8,2	135	64	1,91	4,23
1 x 16	9,2	190	88	1,21	2,68
1 x 25	10,9	285	117	0,78	1,73
1 x 35	11,8	380	147	0,554	1,23
1 x 50	13,5	520	180	0,386	0,86
1 x 70	15,4	710	233	0,272	0,603
1 x 95	17,2	925	285	0,206	0,457
1 x 120	19,1	1.165	333	0,161	0,357
1 x 150	21,3	1.445	386	0,129	0,286
1 x 185	23,4	1.740	444	0,106	0,235
1 x 240	26,3	2.275	528	0,0801	0,178
1 x 300	29,1	2.870	612	0,0641	0,142
1 x 400	34,0	3.800	716	0,0486	0,108
1 x 500	37,7	4.855	823	0,0384	0,085
2 x 1,5	7,3	80	23	13,3	34,0
2 x 2,5	8,6	115	31	7,98	20,4
2 x 4	9,6	155	43	4,95	12,7
2 x 6	10,5	205	55	3,3	8,45
2 x 10	13,3	350	75	1,91	4,89
2 x 16	14,8	460	100	1,21	3,1
3 x 1,5	8,1	100	23	13,3	34,0
3 x 2,5	9,0	140	31	7,98	20,4
3 x 4	10,3	195	43	4,95	12,7
3 x 6	11,5	260	55	3,3	8,45
3 x 10	14,6	435	75	1,91	4,89
3 x 16	16,8	645	87	1,21	2,68
3 x 25	20,7	975	110	0,780	1,73
3 x 35	23,5	1.305	137	0,554	1,23
3 x 50	27,1	1.800	167	0,386	0,86
3 x 70	30,6	2.470	214	0,272	0,603
3 x 95	35,0	3.180	259	0,206	0,457
3 x 120	39,3	4.045	301	0,161	0,357
3 x 150	44,7	5.075	347	0,129	0,286
3 x 185	49,9	6.265	397	0,106	0,235
3 x 240	55,8	8.035	468	0,0801	0,178
4 x 1,5	9,0	125	20	13,3	29,5

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Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open Air (A) [1]	R20°C (Ω/km)	Voltage drop (V/A · km) [2]
4 x 2,5	9,8	170	28	7,98	17,7
4 x 4	11,5	245	37	4,95	11,0
4 x 6	12,8	325	47	3,3	7,32
4 x 10	15,5	520	65	1,91	4,23
4 x 16	18,2	770	87	1,21	2,68
4 x 25	23,4	1.225	110	0,780	1,73
4 x 35	25,2	1.625	137	0,554	1,23
4 x 50	30,1	2.270	167	0,386	0,86
4 x 70	35	3.150	214	0,272	0,603
4 x 95	40,3	4.160	259	0,206	0,457
4 x 120	44,6	5.210	301	0,161	0,357
4 x 150	49,7	6.510	347	0,129	0,286
4 x 185	55,2	7.910	397	0,106	0,235
4 x 240	62,1	10.300	468	0,0801	0,178
5 x 1,5	9,6	145	20	13,3	29,5
5 x 2,5	11,0	210	28	7,98	17,7
5 x 4	12,7	295	37	4,95	11,0
5 x 6	14,2	400	47	3,3	7,32
5 x 10	17,2	635	65	1,91	4,23
5 x 16	20,2	950	87	1,21	2,68
5 x 25	25,7	1.510	110	0,780	1,73
5 x 35	28,3	2.015	137	0,554	1,23
5 x 50	33,7	2.795	167	0,386	0,86
5 x 70	38,8	3.870	214	0,272	0,603
7 x 1,5	10,4	185	11	13,3	29,5
7 x 2,5	12,3	265	15	7,98	17,7
12 x 1,5	13,5	295	9	13,3	29,5
14 x 1,5	14,5	340	8,5	13,3	29,5
16 x 1,5	15,5	385	8	13,3	29,5
19 x 1,5	16,3	445	7,5	13,3	29,5
19 x 2,5	19,3	650	11	7,98	17,7
24 x 1,5	18,2	540	7	13,3	29,5
27 x 1,5	19,6	600	6,5	13,3	29,5

[1] Reference method F for single-core and method E for multicore cables according to IEC 60092-352 in open air at 45°C ambient temperature.
[2] At maximum conductor temperature and $\cos\varphi=1$.
For cables having 2 conductors and 3 conductors up to 10 mm^2, are supposed a single-phase circuit. For cables having more of 5 conductors are supposed that all are loaded. For the rest of the cables are supposed a three-phase circuit.

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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)	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 (for grouping cables, for harmonic currents), that are not in this specification, can be applied. Further information can be found in IEC 60092-352.