TOXFREE® MARINE (EMC) XTCuZ1-K (AS)

The marine power cable.

ACCORDING TO: IEC 60092-353



APPLICATION

The Toxfree® Marine (EMC) XTCuZ1-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.

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.

Bedding
Thermoplastic polyolefin, natural colour, with low smoke and halogen free under fire conditions (single-cores and multi-cores from 25 mm^2).

Screen
Aluminium polyester tape screen with overlapping tinned copper braid armour, ensuring 100% screening coverage.

Outer sheath
Low smoke halogen free thermoplastic 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.
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 during installation: 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 60092-353

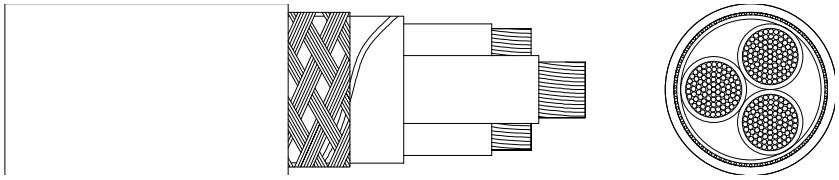
Standards and approvals
ABS / DNV-GL / BUREAU VERITAS / LLOYD'S REGISTER / CE / RoHS

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DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	R max. 20°C (Ω/km)	Voltage drop (V/A · km) [2]
1 x 2,5	8,2	110	25	7,98	17,7
1 x 4	8,9	135	35	4,95	11,0
1 x 6	9,5	160	46	3,30	7,32
1 x 10	10,5	215	64	1,91	4,23
1 x 16	11,5	275	88	1,21	2,68
1 x 25	13,0	380	117	0,78	1,73
1 x 35	14,1	480	147	0,554	1,23
1 x 50	16,5	690	180	0,386	0,860
1 x 70	18,5	900	233	0,272	0,603
1 x 95	20,1	1.115	285	0,206	0,457
1 x 120	22,2	1.385	333	0,161	0,357
1 x 150	24,3	1.700	386	0,129	0,286
1 x 185	26,3	2.010	444	0,106	0,235
1 x 240	29,5	2.585	528	0,0801	0,178
1 x 300	32,3	3.170	612	0,0641	0,142
1 x 400	37,7	4.240	716	0,0486	0,108
1 x 500	41,6	5.285	823	0,0384	0,0848
1 x 630	47,3	7.045	947	0,0287	0,0633
2 x 1,5	8,6	115	23	13,3	34,0
2 x 2,5	9,5	135	31	7,98	20,4
2 x 4	10,7	180	43	4,95	12,7
2 x 6	11,3	220	55	3,3	8,45
2 x 10	15,3	475	75	1,91	4,89
2 x 16	17,3	630	100	1,21	3,1
3 x 1,5	9,1	135	23	13,3	34,0
3 x 2,5	10,0	170	31	7,98	20,4
3 x 4	11,4	225	43	4,95	12,7
3 x 6	12,4	285	55	3,3	8,45
3 x 10	15,5	475	75	1,91	4,89
3 x 16	17,7	655	87	1,21	2,68
3 x 25	20,5	940	110	0,78	1,73
3 x 35	23,4	1.255	137	0,554	1,23
3 x 50	27,7	1.740	167	0,386	0,860
3 x 70	30,5	2.340	214	0,272	0,603

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Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	R max. 20°C (Ω/km)	Voltage drop (V/A · km) [2]
3 x 95	35,2	3.000	259	0,206	0,457
3 x 120	39,8	3.880	301	0,161	0,357
3 x 150	45,7	5.470	347	0,129	0,286
3 x 185	50,6	6.620	397	0.106	0,235
3 x 240	57,2	8.565	468	0,0801	0,178
3 x 400	73,7	14.035	634	0,0486	0,107
4 x 1,5	9,9	155	20	13,3	29,5
4 x 2,5	10,9	205	28	7,98	17,7
4 x 4	12,4	275	37	4,95	11,0
4 x 6	13,8	405	47	3,3	7,32
4 x 10	17,1	585	65	1,91	4,23
4 x 16	19,9	840	87	1,21	2,68
4 x 25	23,0	1.205	110	0,78	1,73
4 x 35	26,5	1.825	137	0,554	1,23
4 x 50	32,3	2.530	167	0,386	0,860
4 x 70	35,0	3.040	214	0,272	0,603
4 x 95	40,8	4.475	259	0,206	0,457
4 x 120	46,2	5.635	301	0,161	0,357
4 x 150	50,7	6.955	347	0,129	0,286
4 x 185	56,2	8.415	397	0,106	0,235
4 x 240	63,7	10.920	468	0,0801	0,178
5 x 1,5	10,9	190	20	13,3	29,5
5 x 2,5	12,1	245	28	7,98	17,7
5 x 4	14,3	385	37	4,95	11,0
5 x 6	15,7	480	47	3,3	7,32
5 x 10	18,6	710	65	1,91	4,23
5 x 16	21,8	1.020	87	1,21	2,68
5 x 25	25,1	1.495	110	0,78	1,73
5 x 35	29,6	2.235	137	0,554	1,23
5 x 50	35,2	3.065	167	0,386	0,860
7 x 1,5	11,5	230	11	13,3	29,5
7 x 2,5	13,8	360	15	7,98	17,7
12 x 1,5	15,2	405	9	13,3	29,5
12 x 2,5	16,6	530	12,5	7,98	17,7
12 x 4	20,2	735	37	4,95	11,0
16 x 1,5	17,6	495	20	13,3	29,5
19 x 1,5	18,2	560	20	13,3	29,5
19 x 2,5	20,2	760	28	7,98	17,7
24 x 1,5	20,4	690	20	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 $\cos\varphi=1$.

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For cables having 2 conductors and 3 conductors up to 10 mm^2, 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.

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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	1,1	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.

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