

TOXFREE® MARINE PLUS XTCuZ1-K (AS+)

Marine armoured fire resistant power cable.

ACCORDING TO: IEC 60092-353



100% Green Energy
Cable Production

APPLICATION

The Toxfree® Marine Plus XTCuZ1-K (AS+) is specially designed to transmit electric power in the presence of fire, assuring electric supply to emergency circuits, like signalling lights, smoke extractors, acoustic alarms, water pumps, etc. 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 public places and marine applications.

CONSTRUCTION

Conductor

Electrolytic annealed copper conductor class 5 (flexible) according to EN 60228 and IEC 60228.

Insulation

Mica Tape + Cross linked polyethylene insulation type HF XLPE 90°C according to IEC 60092-360.

The standard identification is the following:

2 x	Blue + Brown
3 x	Brown + Black + Grey
4 x	Brown + Black + Grey + Blue
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 mm²).

Screen

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

Outer sheath

Low smoke halogen free (LSHF) thermoplastic polyolefin outer sheath type SHF1 according to IEC 60092-360. Orange colour, non-toxic, fire retardant and fire resistant.

CHARACTERISTICS



Electrical performance

Low voltage: 0,6/1 kV.



Thermal performance

Maximum service 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 EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 60332-3-22 / IEC 60332-3-22.
Fire resistant according to EN 60331-2 (overall diameter ≤ 20 mm) and IEC 60331-1 (overall diameter > 20 mm).
LSHF (Low Smoke Halogen Free) according to EN 60754-1 / IEC 60754-1.
Low smoke emission according to EN 61034 / IEC 61034:
light transmittance > 60%.
Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.



Mechanical performance

Minimum bending radius: 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



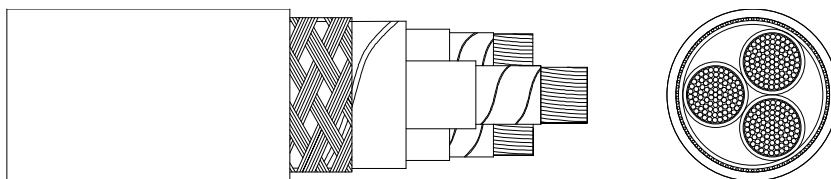
According to
IEC 60092-353



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



DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm²)	Diameter (mm)	Weight (kg/km)	Open Air (A) ¹	Voltage drop (V/A · km) ²	Resistance at 20°C (Ω/km)
1 x 16	11,8	240	88	2,68	1,21
1 x 35	15,1	562	147	1,23	0,554
1 x 70	19,1	920	233	0,60	0,272
1 x 95	20,7	1.055	285	0,46	0,206
1 x 120	23,1	1.420	333	0,36	0,161
1 x 150	25,1	1.620	386	0,29	0,129
1 x 185	27,2	2.045	444	0,24	0,106
1 x 240	29,8	2.610	528	0,18	0,0801
1 x 300	32,9	3.275	612	0,14	0,0641
2 x 1,5	10,3	130	23	34,0	13,3
2 x 2,5	10,4	150	31	20,4	7,98
2 x 4	11,9	191	43	12,7	4,95
2 x 6	12,9	239	55	8,45	3,3
2 x 10	15,4	379	75	4,89	1,91
2 x 16	17,2	515	100	3,1	1,21
3 x 1,5	10,4	144	23	34,0	13,3
3 x 2,5	11,5	187	31	20,4	7,98
3 x 4	12,6	242	43	12,7	4,95
3 x 6	14,3	345	55	8,45	3,3
3 x 10	16,7	504	75	4,89	1,91
3 x 16	18,7	693	87	2,68	1,21
3 x 25	23,2	1.175	110	1,73	0,78
3 x 35	26,4	1.550	137	1,23	0,554
3 x 50	29,6	2.065	167	0,86	0,386
3 x 70	33,9	2.845	214	0,60	0,272
3 x 95	37,8	3.560	259	0,46	0,206
3 x 120	43,2	4.595	301	0,36	0,161
3 x 150	47,4	5.605	347	0,29	0,129
3 x 185	52,3	6.765	397	0,24	0,106
3 x 240	57,8	8.645	468	0,18	0,0801
4 x 1,5	11,2	180	20	29,5	13,3
4 x 2,5	11,9	225	28	17,7	7,98
4 x 4	13,3	295	37	11,0	4,95
4 x 6	15,4	435	47	7,32	3,3
4 x 10	17,9	615	65	4,23	1,91
4 x 16	20,5	865	87	2,68	1,21
4 x 25	26,2	1.475	110	1,73	0,78
4 x 35	28,4	1.915	137	1,23	0,554

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4 x 70	38,9	3.630	214	0,60	0,272
4 x 120	47,8	5.765	301	0,36	0,161
4 x 185	58,1	8.555	397	0,24	0,106
4 x 240	64,4	10.990	468	0,18	0,0801
5 x 1,5	12,4	210	20	29,5	13,3
5 x 2,5	14,2	308	28	17,7	7,98
5 x 4	15,2	405	37	11,0	4,95
5 x 6	16,8	505	47	7,32	3,3
5 x 10	19,6	740	65	4,23	1,91
5 x 16	22,5	1.055	87	2,68	1,21
7 x 1,5	13,2	265	11	29,5	13,3
7 x 2,5	14,8	375	15	17,7	7,98
10 x 1,5	16,9	400	10	29,5	13,3
12 x 1,5	17,3	460	9	29,5	13,3
12 x 2,5	19,4	585	12	17,7	7,98
14 x 1,5	18,6	520	9	29,5	13,3
19 x 1,5	21,1	650	8	29,5	13,3
19 x 2,5	22,7	840	11	17,7	7,98
24 x 1,5	23,3	795	7	29,5	13,3

¹Reference 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 service temperature and cosφ=1.

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.