TOXFREE® LSZH FR-N1 X1G1

100% Green Energy Cable Production

Halogen free (LSZH) power cable for public places.

ACCORDING TO: NF C 32-323

C_{ca}

APPLICATION

Toxfree® LSZH FR-N1 X1G1-U and FR-N1 X1G1-R is a LSZH safety cable. In the event of fire, it does not emit toxic gases, nor does it give off corrosive gases, avoiding any possible damage to people or electronic equipment. For these reasons it is highly recommended for use in public places such as: hospitals, schools, museums, airports, bus terminals, shopping centres, offices, laboratories, etc.

- Industrial use.
- Public places.

CONSTRUCTION

Conductor
Electrolytic annealed copper, class 1 (FR-N1 X1G1-U from 1,5 mm^2 to 4 mm^2) or class 2 (FR-N1 X1G1-R to 6 mm^2), according to EN 60228 and IEC 60228.

Insulation
Cross-linked polyethylene (XLPE).
The standard identification of insulated conductors according to HD 308 is the following:

2 x	Blue + Brown
3 G	Blue + Brown + Green/Yellow
3 x	Brown + Black + Grey
4 G	Brown + Black + Grey + Green/Yellow
4 x	Brown + Black + Grey + Blue
5 G	Brown + Black + Grey + Blue + Green/Yellow

Outer sheath
Low Smoke Halogen Free polyolefin.
Green 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).
Minimum service temperature: -40°C (fixed and protected installations).
Minimum installation and handling temperature: -0°C

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1 / NF EN 50265-2-1 (category C).
Fire non-propagation according to EN 60332-3 / IEC 60332-3 and NF C 32-070 (category C1).
Low Smoke Halogen Free according to EN 60754-1 / IEC 60754-1.
Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.
Reaction to fire CPR: C_{ca}-s1a,d1,a1 according to EN 50575.
Low smoke emission according to EN 61034 / IEC 61034:
Light transmittance > 80%.

Mechanical performance
Minimum bending radius: 5x cable diameter.
Impact resistance: AG2 Medium severity.

Environmental performance
Chemical & Oil resistance: Acceptable.
Water resistance: AD5 Jets.

Installation conditions
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

According to
NF C 32-323

Standards and approvals
NF-USE / RoHS / CE

CPR (Construction Products Regulation)
C_{ca}-s1a, d1, a1

NF-USE

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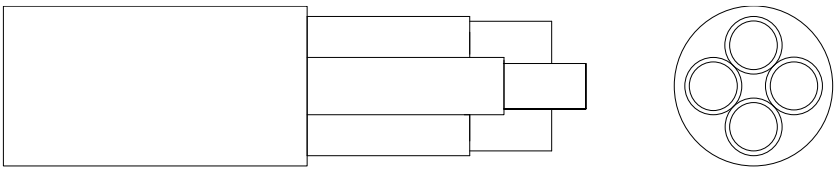
DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	Buried (A) [2]	Voltage drop (V/A · km) [3]
2 x 1,5	9,4	125	26	27	34,0
2 x 2,5	9,6	140	36	35	20,4
2 x 4	10,5	190	49	46	12,7
2 x 6	12,2	255	63	58	8,45
3 G 1,5	10,2	150	26	27	34,0
3 G 2,5	10,6	185	36	35	20,4
3 G 4	11,5	240	49	46	12,7
3 G 6	13,2	325	63	58	8,45
4 G 1,5	10,9	175	23	23	29,5
4 G 2,5	11,4	215	32	30	17,7
4 G 4	12,4	290	42	39	11,0
4 G 6	14,4	395	54	49	7,32
5 G 1,5	12,5	230	23	23	29,5
5 G 2,5	12,7	270	32	30	17,7
5 G 4	13,7	355	42	39	11,0
5 G 6	16,1	490	54	49	7,32

[1] Reference method F for single-core and method E for multicore cables according to IEC 60364-5-52 in open air at 30°C ambient temperature.
[2] Reference method D2 according to IEC 60364-5-52. Directly buried at 0,7 m depth with soil thermal resistivity of 2,5 K·m/W and 20°C of ground temperature.
[3] At maximum conductor temperature and cosφ=1.
For cables having 2 conductors and 3 conductors up to 10 mm^2, are supposed a single-phase circuit. 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)	20	25	30	35	40	45	50	55	60
Factor	1,08	1,04	1	0,96	0,91	0,87	0,82	0,76	0,71

CORRECTION FACTORS FOR GROUND TEMPERATURE

Ground T. (°C)	10	15	20	25	30	35	40	45	50
Factor	1,07	1,04	1	0,96	0,93	0,89	0,85	0,8	0,76

CORRECTION FACTORS FOR SOIL THERMAL RESISTIVITY

Moisture degree of soil	Very damp	Slightly damp	Slightly dry	Dry	Very dry
Thermal Resist. (K·m/W)	1	1,5	2	2,5	3
Factor	1,50	1,28	1,12	1	0,90

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 60364-5-52.