

TOXFREE® LSZH RZ1FZ1-K (AS)

Halogen free (LSZH) armoured cable with steel or aluminium tape armour.

ACCORDING TO: IEC 60502-1 / UNE 21123-4



C_{ca}

APPLICATION

Toxfree® LSZH RZ1FZ1-K (AS) is an armoured LSHF 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.

Its use is highly recommended for public places, in installations with presence of rodents, and installations where the cable is subject to risk of mechanical aggression.

CONSTRUCTION

Conductor

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

Insulation

Cross-linked polyethylene type XLPE according to IEC 60502-1 and type DIX-3 according to HD 603.

The standard identification of insulated conductors according to HD 308 is the following:

1 x	Natural
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
6 or more	Black numbered + Green/Yellow

Separation sheath

Low smoke halogen free polyolefin.

Armour

Double steel or aluminium tape armour.

Aluminium armour is used in single-core cables to avoid parasite currents that may overheat the cable.

Steel tape is used in the multicore cables.

Outer sheath

Low smoke halogen free polyolefin type ST8 according to IEC 60502-1 and type DMZ-E according to UNE 21123-4.

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).



Fire performance

Flame non-propagation according to EN 60332-1 / IEC 60332-1.

Fire non-propagation according to EN 60332-3 / IEC 60332-3 and EN 50399.

Reaction to fire CPR: C_{ca}-s1b,d1,a1, according to EN 50575.

Low Smoke Halogen Free according to EN60754-1 / IEC60754-1.

Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.

Low smoke emission according to EN 61034 / IEC 61034.

Light transmittance > 60%.



Mechanical performance

Minimum bending radius during installation: 10x cable diameter.

Impact resistance: AG4 High severity.

Rodent proof.



Environmental performance

Chemical & Oil resistance: acceptable.

UV Resistant according to EN 50618.

Water resistance: AD5 Jets.



Installation conditions

Open Air.

Buried.

In conduit.

STANDARDS / COMPLIANCE



According to

IEC 60502-1 / UNE 21123-4



Standards and approvals

RoHS / CE

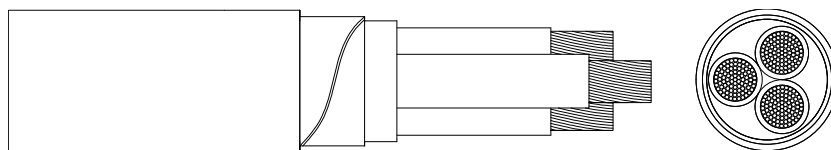


CPR (Construction Products Regulation)

C_{ca}-s1b, d1, a1



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
1 x 10	14,5	340	74	65	4,23
1 x 16	14,6	375	101	84	2,68
1 x 25	15,3	450	135	107	1,73
1 x 35	16,4	550	169	129	1,23
1 x 50	18,2	710	207	153	0,86
1 x 70	20,0	925	268	188	0,603
1 x 95	21,6	1.145	328	226	0,457
1 x 120	23,5	1.410	383	257	0,357
1 x 150	25,4	1.700	444	287	0,286
1 x 185	27,4	2.020	510	324	0,235
1 x 240	30,5	2.575	607	375	0,178
1 x 300	33,0	3.150	703	419	0,142
1 x 400	37,6	4.150	823	493	0,107
1 x 500	41,9	5.165	946	558	0,084
1 x 630	48,7	6.975	1.088	634	0,063
2 x 1,5	12,3	235	26	27	34,0
2 x 2,5	13,2	275	36	35	20,4
2 x 4	14,3	335	49	46	12,7
2 x 6	15,3	400	63	58	8,45
2 x 10	17,2	535	86	77	4,89
2 x 16	19,0	700	115	100	3,1
2 x 25	21,7	950	149	129	2,0
2 x 35	23,8	1.215	185	155	1,42
3 G 1,5	13,0	265	26	27	34,0
3 G 2,5	13,9	315	36	35	20,4
3 G 4	15,0	380	49	46	12,7
3 G 6	16,1	465	63	58	8,45
3 G 10	18,3	640	86	77	4,89
3 x 16	20,3	855	100	84	2,68
3 x 25	22,5	1.160	127	107	1,73
3 x 35	25,2	1.515	158	129	1,23
3 x 50	29,1	2.060	192	153	0,86
3 x 70	33,6	2.785	246	188	0,603
3 x 95	38,5	3.895	298	226	0,457
3 x 120	42,1	4.795	346	257	0,357
3 x 150	48,7	6.050	399	287	0,286
3 x 185	52,3	7.135	456	324	0,235
3 x 240	61,5	9.450	538	375	0,178

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Cross-section (mm ²)	Diameter (mm)	Weight (kg/km)	Open air (A) ¹	Buried (A) ²	Voltage drop (V/A·km) ³
4 G 1,5	13,8	295	23	23	29,5
4 G 2,5	14,7	355	32	30	17,7
4 G 4	16,0	440	42	39	11,0
4 G 6	17,4	550	54	49	7,32
4 G 10	19,7	765	75	65	4,23
4 x 16	22,2	1.039	100	84	2,68
4 x 25	24,3	1.415	127	107	1,73
4 x 35	26,8	1.845	158	129	1,23
4 x 50	32,0	2.575	192	153	0,86
4 x 70	37,6	3.800	246	188	0,603
4 x 95	42,0	4.820	298	226	0,457
4 x 120	47,3	6.055	346	257	0,357
4 x 150	54,2	7.675	399	287	0,286
4 x 185	57,8	8.970	456	324	0,235
4 x 240	67,6	11.870	538	375	0,178
4 x 300	71,4	14.130	621	419	0,142
4 x 500	97,3	25.240	835	558	0,085
5 G 1,5	14,7	335	23	23	29,5
5 G 2,5	15,6	400	32	30	17,7
5 G 4	17,2	510	42	39	11,0
5 G 6	18,7	640	54	49	7,32
5 G 10	21,2	900	75	65	4,23
5 G 16	24,1	1.240	100	84	2,68
5 G 25	26,7	1.715	127	107	1,73
5 G 35	29,9	2.260	158	129	1,23

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 or 3 conductors up to 10 mm², 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/mm ²	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.