

TOXFREE® LSZH RZ1-K (AS)

Flexible LSZH power cable, for public places.
ACCORDING TO: IEC 60502-1 / UNE 21123-4

B2_{ca}
C_{ca}



APPLICATION

Toxfree® ZH RZ1-K (AS) 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 centers, offices, laboratories, etc.

- Industrial use.
- Public places.

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
3 x + 1 x	Brown + Black + Grey + Blue (reduced cross-section)
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


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)
Minimum installation and handling temperature: 0°C.
- Fire performance**
Flame non-propagation according to IEC 60332-1 / EN 60332-1.
Fire non-propagation according to EN 60332-3 / IEC 60332-3 and EN 50399.
Reaction to fire CPR: B2_{ca}-s1a,d1, a1 or C_{ca}-s1a,d1,a1 according to EN 50575 (see cross-section).
Halogen free according to EN 60754-1 / IEC 60754-1.
Low corrosive gases emission according to EN 60754-2 / IEC 60754-2.
Low smoke emission according to EN 61034 / IEC 61034:
Light transmittance > 80%.
- Mechanical performance**
Minimum bending radius during installation: 5x cable diameter.
Impact resistance: AG2 Medium severity.
Test impact at -25°C according HD 604-5D.
- Environmental performance**
Chemical & Oil resistance: Acceptable.
UV Resistant according to EN 50618.
Water resistance: AD8 Submersion.
- Installation conditions**
Open Air.
Buried.
In conduit.

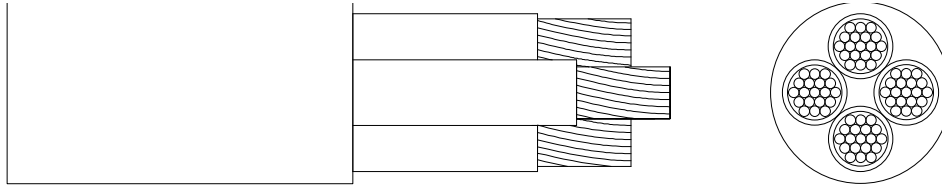
STANDARDS / COMPLIANCE

-  According to IEC 60502-1 / UNE 21123-4
-  Standards and approvals AENOR / SEC / KEMA-KEUR / RoHS / CE
-  CPR (Construction Products Regulation) B2_{ca}-s1a,d1,a1 (according to cross-section) or C_{ca}-s1a,d1,a1 (according to cross-section)



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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
1 x 2,5	7,1	75	39	35	20,3
1 x 4	7,6	95	53	46	12,6
1 x 6	8,2	115	68	58	8,41
1 x 10	9,2	165	93	77	4,87
1 x 16	10,2	225	124	100	3,08
1 x 25	11,5	310	161	129	1,98
1 x 35	12,1	390	200	155	1,41
1 x 50	13,9	535	242	183	0,984
1 x 70	15,7	730	310	225	0,693
1 x 95	17,1	920	377	270	0,525
1 x 120	18,9	1.155	437	306	0,410
1 x 150	21,0	1.445	504	343	0,328
1 x 185	23,1	1.740	575	387	0,270
1 x 240	26,1	2.260	679	448	0,204
1 x 300	28,6	2.800	783	502	0,163
1 x 400	33,8	3.760	940	592	0,123
1 x 500	37,9	4.835	1.083	670	0,097
1 x 630	43,7	6.385	1.254	762	0,073
1 x 800	52,3	8.405	1.454	870	0,056
1 x 1000	60,9	10.645	1.670	988	0,044
2 x 1,5	9,3	125	26	27	33,9
2 x 2,5	9,8	145	36	35	20,3
2 x 4	10,8	190	49	46	12,6
2 x 6	11,8	245	63	58	8,41
2 x 10	13,6	355	86	77	4,87
2 x 16	15,3	495	115	100	3,08
2 x 25	19,9	780	149	129	1,98
2 x 35	22,3	1.025	185	155	1,41
2 x 50	25,7	1.405	225	183	0,984
2 x 70	29,8	1.150	289	225	0,693
2 x 95	33,7	2.505	352	270	0,525
2 x 120	37,6	3.155	410	306	0,410
2 x 150	42,0	3.935	473	343	0,328
2 x 185	46,3	4.765	542	387	0,270
2 x 240	52,4	6.180	641	448	0,204
3 G 1,5	10,4	155	26	27	33,9
3 G 2,5	10,9	190	36	35	20,3
3 G 4	11,9	240	49	46	12,6
3 G 6	13,0	310	63	58	8,41
3 G 10	14,8	450	86	77	4,87
3 x 16	16,8	645	115	100	3,08
3 x 25	20,7	975	149	129	1,98
3 x 35	23,4	1.305	185	155	1,41
3 x 50	27,1	1.800	225	183	0,984
3 x 70	30,6	2.470	289	225	0,693
3 x 95	35,3	3.220	352	270	0,525
3 x 120	39,3	4.070	410	306	0,410
3 x 150	43,9	5.105	473	343	0,328

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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
3 x 185	49,5	6.215	542	387	0,270
3 x 16 + 1 x 10	19,1	800	115	100	3,08
3 x 25 + 1 x 16	21,7	1.125	149	129	1,98
3 x 35 + 1 x 16	24,1	1.440	185	155	1,41
3 x 50 + 1 x 25	28,3	2.015	225	183	0,984
3 x 70 + 1 x 35	33,2	2.815	289	225	0,693
3 x 95 + 1 x 50	37,4	3.685	352	270	0,525
3 x 120 + 1 x 70	40,9	4.685	410	306	0,410
3 x 150 + 1 x 70	46,2	5.730	473	343	0,328
3 x 185 + 1 x 95	51,6	6.990	542	387	0,270
3 x 240 + 1 x 120	59,1	9.155	641	448	0,204
3 x 300	61,3	9.975	741	502	0,163
4 G 1,5	11,2	180	26	27	33,9
4 G 2,5	11,9	225	36	35	20,3
4 G 4	12,9	290	49	46	12,6
4 G 6	14,3	380	63	58	8,41
4 G 10	16,3	565	86	77	4,87
4 x 16	18,8	815	115	100	3,08
4 x 25	23,0	1.225	149	129	1,98
4 x 35	25,0	1.620	185	155	1,41
4 x 50	30,0	2.285	225	183	0,984
4 x 70	35,0	3.165	289	225	0,693
4 x 95	39,7	4.090	352	270	0,525
4 x 120	44,5	5.200	410	306	0,410
4 x 150	49,3	6.550	473	343	0,328
4 x 185	54,9	7.890	542	387	0,270
4 x 240	61,7	10.370	641	448	0,204
4 x 300	68,2	12.695	741	502	0,163
4 x 400	78,9	17.195	886	592	0,123
5 G 1,5	12,6	230	26	27	33,9
5 G 2,5	13,2	275	36	35	20,3
5 G 4	14,4	355	49	46	12,6
5 G 6	15,9	470	63	58	8,41
5 G 10	18,0	685	86	77	4,87
5 G 16	20,9	1.000	115	100	3,08
5 G 25	24,9	1.490	149	129	1,98
5 G 35	27,9	1.990	185	155	1,41
5 G 50	33,6	2.810	225	183	0,984
5 G 70	38,8	3.880	289	225	0,693
5 G 95	43,7	5.035	352	270	0,525
5 G 120	49,5	6.400	410	306	0,410
5 G 150	55,1	7.935	473	343	0,328
5 G 185	61,2	9.680	542	387	0,270
5 G 240	68,8	12.620	641	448	0,204

¹Reference 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.

²Reference 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.

³At maximum conductor temperature and cosφ=1.

In all cases are supposed a single-phase circuit.

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	0,80	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.