TOXFREE® LSZH
RZ1MZ1-K (AS)

Halogen free armoured cable with galvanized steel wire armour (ATEX).

ACCORDING TO: IEC 60502-1

C_{ca}

APPLICATION

Toxfree® RZ1MZ1-K (AS) is a LSZH is a safety cable. In case of fire, it does not emit toxic or corrosive gases, protecting people and avoiding possible damage to electronic equipment. Therefore, its use is recommended for public places, in hazardous areas with explosive gas atmospheres (ATEX), 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 DIX-3 according to HD 603 and type XLPE according to IEC 60502-1.
The standard identification of insulated conductors according to HD 308 is:

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 + Green/Yellow + Blue
6 or more	Black numbered + Green/Yellow

Armour bedding
Low smoke halogen free polyolefin.

Armour
Galvanized steel wire armour.
Aluminium armour is used in single core cables to avoid parasite currents that may overheat the cable.

Outer sheath
Low smoke halogen free polyolefin, type ST8 according to IEC 60502-1.
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).
Minimum service temperature: -50 °C according to GOST 31996.
Minimum installation and handling temperature: 0 °C

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 60332-3-24 / IEC 60332-3-24 and EN 50399.
Reaction to fire CPR: C_{ca}-s1b, d1, a1 according to EN 50575.
Low smoke 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 > 60%.

Mechanical performance
Minimum bending radius during installation: 10x cable diameter.
Impact resistance: AG4 High severity.
Rodent proof.

Environmental performance
Chemical & Oil resistance: Acceptable.
Hydrocarbon resistant.
UV Resistant according to EN 50618.
Potentially explosion hazard locations (ATEX).
Water resistance: AD5 Jets.

Installation conditions
Open Air.
Buried.
In Conduit.

STANDARDS / COMPLIANCE

According to
IEC 60502-1

Standards and approvals
CE / RoHS

CPR (Construction Products Regulation)
C_{ca}-s1b, d1, a1

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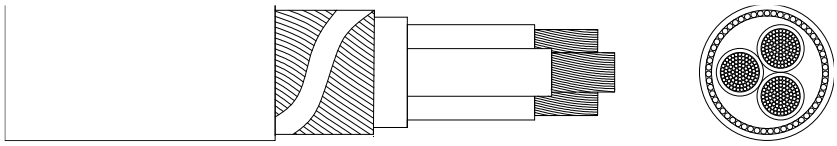
DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm^2)	Diameter (mm)	Weight (kg/km)	Open air (A) [1]	Buried (A) [2]	Voltage drop (V/A · km) [3]
1 x 10	14,6	340	93	77	4,87
1 x 16	15,3	405	124	100	3,08
1 x 25	16,7	505	161	129	1,98
1 x 35	17,8	620	200	155	1,41
1 x 50	19,6	790	242	183	0,984
1 x 70	21,4	1.010	310	225	0,693
1 x 95	23,0	1.240	377	270	0,525
1 x 120	24,8	1.510	437	306	0,410
1 x 150	26,7	1.810	504	343	0,328
1 x 185	28,8	2.135	575	387	0,270
1 x 240	32,5	2.765	679	448	0,204
1 x 300	37,7	3.405	783	502	0,163
1 x 400	42,1	4.440	930	592	0,123
1 x 500	45,8	5.810	1.070	670	0,097
1 x 630	51,6	7.545	1.232	762	0,073
1 x 800	61,1	9.760	1.426	870	0,056
2 x 1,5	11,9	270	26	27	33,9
2 x 2,5	12,8	315	36	35	20,3
2 x 4	13,9	385	49	46	12,6
2 x 6	14,9	455	63	58	8,41
2 x 10	17,0	615	86	77	4,87
2 x 16	19,3	820	115	100	3,08
2 x 25	24,2	1.390	149	129	1,98
2 x 35	26,3	1.700	185	155	1,41
3 G 1,5	12,6	295	26	27	33,9
3 G 2,5	13,5	350	36	35	20,3
3 G 4	14,6	430	49	46	12,6
3 G 6	15,9	520	63	58	8,41
3 G 10	18,1	735	86	77	4,87
3 x 16	22,7	1.345	115	100	3,08
3 x 25	25,0	1.620	149	129	1,98
3 x 35	27,8	2.020	185	155	1,41
3 x 50	31,8	2.675	225	183	0,984
3 x 70	36,6	4.030	289	225	0,693
3 x 95	41,8	5.060	352	270	0,525
3 x 120	45,3	6.075	410	306	0,410
3 x 150	50,8	7.400	473	343	0,328
3 x 185	55,7	8.705	542	387	0,270
3 x 240	62,7	11.065	641	448	0,204

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3 x 70 + 1 x 35	39,4	4.525	289	225	0,693
4 G 1,5	13,4	355	26	27	33,9
4 G 2,5	14,3	400	36	35	20,3
4 G 4	15,8	500	49	46	12,6
4 G 6	17,2	610	63	58	8,41
4 G 10	19,7	870	86	77	4,87
4 x 16	24,5	1.505	115	100	3,08
4 x 25	27,3	1.940	149	129	1,98
4 x 35	29,6	2.405	185	155	1,41
4 x 50	34,7	3.240	225	183	0,984
4 x 70	41,1	4.960	289	225	0,693
4 x 95	45,2	6.105	352	270	0,525
4 x 120	50,8	7.495	410	306	0,410
4 x 150	57,1	9.240	473	343	0,328
4 x 185	61,3	10.715	542	387	0,270
4 x 240	69,6	13.720	641	448	0,204
5 G 1,5	14,1	370	26	27	33,9
5 G 2,5	15,3	455	36	35	20,3
5 G 4	17,0	580	49	46	12,6
5 G 6	18,5	735	63	58	8,41
5 G 10	23,5	1.325	86	77	4,87
5 G 16	26,6	1.755	115	100	3,08
5 G 25	29,5	2.275	149	129	1,98
5 G 35	32,6	3.880	185	155	1,41
5 G 50	38,3	3.875	225	183	0,984
5 G 70	44,9	5.860	289	225	0,693
5 G 95	50,0	7.270	352	270	0,525
5 G 120	56,0	8.995	410	306	0,410
5 G 150	61,5	10.835	473	343	0,328
5 G 185	67,4	12.845	542	387	0,270
5 G 240	74,0	16.105	641	448	0,204
7 G 1,5	14,6	420	26	27	33,9
7 G 2,5	16,1	535	36	35	20,3
10 G 1,5	17,7	570	26	27	33,9
10 G 2,5	19,8	725	36	35	20,3
12 G 1,5	17,4	580	26	27	33,9
12 G 2,5	22,2	1.065	36	35	20,3
16 G 1,5	21,6	995	26	27	33,9
18 G 1,5	22,8	1.070	26	27	33,9
19 G 1,5	22,8	1.080	26	27	33,9
19 G 2,5	25,2	1.370	36	35	20,3
24 G 1,5	24,4	1.235	26	27	33,9
37 G 1,5	28,0	1.580	26	27	33,9

[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 $\cos\varphi=1$.
In all cases are supposed a single-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.