TOXFREE® ZH RC4Z1-K (AS)

Halogen free (LSHF) screened power cable.

BASED ON: IEC 60502-1

APPLICATION

Toxfree®ZH RC4Z1-K is a screened LSHF safety cable.
Suitable for transport and distribution of electric power in installations where its required low smoke and halogen free emissions under fire conditions. These cables are adequate for buildings into different categories of fire hazard (public buildings, cinemas hospitals, etc).
The 100% coverage screen, makes it suitable for installations where it is necessary avoid electrical interference of nearby circuits.

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

2 x	Blue + brown
3G	Blue + brown + green/yellow
4G	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

Screen
Coverage of 100% composed by aluminium-polyester tape and tinned copper braid.

Outer sheath
Low smoke halogen free polyolefin, type ST8 according to IEC 60502-1.
Black colour.
The ripcord allows you to gently tear the outer sheath allowing you to gently peel it away without damaging the screen.

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 (static, with protection).

Fire performance
Flame non-propagation according to EN 60332-1 / IEC 60332-1.
Fire non-propagation according to EN 60332-3 / IEC 60332-3.
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: 5x cable diameter.
Impact resistance: AG2 Medium severity.

Environmental performance
Chemical & Oil resistance: Acceptable.
UV Resistant according to EN 50618.
Water resistance: AD7 Immersion.

Installation conditions
Open Air.
Buried.
In conduit.

STANDARDS / COMPLIANCE

Based on
IEC 60502-1

Standards and approvals
RoHS / CE

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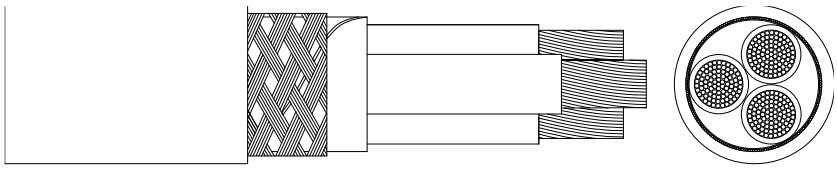
DIMENSIONS & ADMISSIBLE INTENSITIES



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	9,0	100	26	27	33,9
2 x 2,5	10,2	135	36	35	20,3
2 x 4	11,2	170	49	46	12,6
2 x 6	11,8	210	63	58	8,41
2 x 10	14,0	325	86	77	4,87
3 G 1,5	9,8	130	26	27	33,9
3 G 2,5	10,7	165	36	35	20,3
3 G 4	11,9	220	49	46	12,6
3 G 6	12,9	280	63	58	8,41
3 G 10	15,1	410	86	77	4,87
4 G 1,5	10,6	155	26	27	33,9
4 G 2,5	11,4	195	36	35	20,3
4 G 4	12,9	270	49	46	12,6
4 G 6	13,7	345	63	58	8,41
4 G 10	16,5	520	86	77	4,87
4 G 16	19,1	750	115	100	3,08
4 x 25 *	23,9	1.355	149	129	1,98
4 x 35 *	26,1	1.800	185	155	1,41
5 G 1,5	11,4	180	26	27	33,9
5 G 2,5	12,5	235	36	35	20,3
5 G 4	14,1	320	49	46	12,6
5 G 6	15,4	420	63	58	8,41
7 G 1,5	12,0	220	26	27	33,9
7 G 2,5	13,6	295	36	35	20,3
7 x 4	15,1	320	49	46	12,6
10 G 1,5	13,6	275	26	27	33,9
10 G 2,5	16,8	405	36	35	20,3
12 G 1,5	14,7	325	26	27	33,9
12 G 2,5	16,3	450	36	35	20,3
14 G 1,5	16,4	370	26	27	33,9
14 G 2,5	18,2	520	36	35	20,3
19 G 1,5	18,1	465	26	27	33,9
19 G 2,5	19,6	660	36	35	20,3
24 G 1,5	19,3	570	26	27	33,9
24 G 2,5	21,7	815	36	35	20,3
27 G 1,5	21,1	640	26	27	33,9
27 G 2,5	23,1	905	36	35	20,3

[1] Reference method E 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. (ºC)	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. (ºC)	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.

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