

TOPDRIVE® VFD (EMC) ROZ1-K (AS+) 0,6/1 kV

Flexible LSHF and fire resistant screened cable for Variable Frequency Drive cables (VFD cables).

ACCORDING TO: IEC 60502-1



APPLICATION

TOPDRIVE® VFD (EMC) ROZ1-K (AS+) is a fire resistant cable, specially designed for Variable Frequency Drive Motors and installations where it is necessary to limit the effects of electromagnetic interference (EMI). This is a flexible cable for fixed installations, for variable speed motors or pumps.

CONSTRUCTION

Conductor

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

Protective Conductor

The ground conductor is divided into three conductors; the equivalent cross-section is approximately 50% of the section of the phase conductor.

For 4G cables, ground conductor has the same cross-section as the phase conductors.

Insulation

Mica tape + Cross-linked polyethylene type XLPE according to IEC 60502-1.

The standard identification of insulated conductors is the following:
3 x +3 G Grey + Brown + Black + Green/Yellow (3 G) (from 6 mm² onwards)

4 G Grey + Brown + Black + Green/Yellow (up to 4 mm²)

Assembly of cores

For 3x+3G cables, the three phase conductors are cabled helically with the three protective conductors distributed in the interstices.

For 4G cables, the three phase conductors and protection conductor are cabled helically.

Screen


Aluminium-polyester tape screen helically placed over the insulated conductors. Over the tape there is a tinned copper braid screen. The tape and the braid act as a double screen to cut out all of the electromagnetic interference, with a minimum total section of 10% of the phase conductor, ensuring a total shielding coverage.


Outer sheath


Fireproof polyolefin type ST8 according to IEC 60502-1.


Orange colour, other colours available under request.


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).
Maximum ambient temperature: 60 °C.
Minimum installation and handling temperature: 0 °C.
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
Fire resistant (PH120) minimum 120 minutes at 840 °C:
According to IEC 60331-2 / EN 50200 for cable diameter ≤ 20 mm.
According to IEC 60331-1 / EN 50362 for cable diameter > 20 mm.
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: 10x cable diameter.
Impact resistance: AG2 Medium severity.

 **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

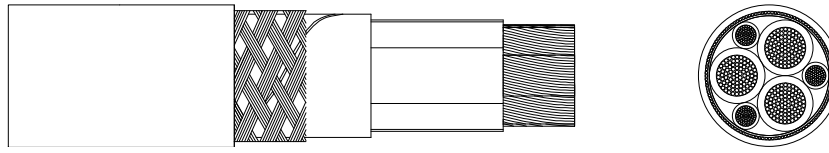
 Standards and approvals
RoHS / CE

 CPR (Construction Products Regulation)



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DIMENSIONS & ADMISSIBLE INTENSITIES



Cross-section (mm ²)	Diameter under the braid (mm)	Outer diameter (mm)	Weight (Kg/km)	Open air (A) ¹	Buried (A) ²	R20°C (Ω/km)	Voltage drop (V/A · km) ³
3 x 10 + 3 G 1,5	11,8	15,9	520	86	77	1,91	4,87
3 x 16 + 3 G 2,5	14,6	19,4	815	115	100	1,21	3,08
3 x 25 + 3 G 4	17,5	22,4	1.150	149	129	0,780	1,98
3 x 35 + 3 G 6	19,4	24,4	1.500	185	155	0,554	1,41
3 x 50 + 3 G 10	23,4	28,6	2.085	225	183	0,386	0,984
3 x 70 + 3 G 10	27,7	33,1	2.705	289	225	0,272	0,693
3 x 70 + 3 G 16	27,7	33,1	2.875	289	225	0,272	0,693
3 x 95 + 3 G 16	31,0	36,6	3.550	352	270	0,206	0,525
3 x 120 + 3 G 16	34,7	41,1	4.435	410	306	0,161	0,410
3 x 150 + 3 G 25	40,2	47,0	5.605	473	343	0,129	0,328
3 x 185 + 3 G 35	44,7	51,7	6.805	542	387	0,106	0,270
3 x 240 + 3 G 50	49,8	57,1	8.875	641	448	0,0801	0,204
3 x 300 + 3 G 50	56,1	63,9	10.655	741	502	0,0641	0,163
4 G 6	11,6	15,7	400	63	58	3,30	8,41
4 G 10	13,7	17,8	570	86	77	1,91	4,87

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.

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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.