TOPDRIVE® VFD (EMC)
ROZ1-K (AS) 1,8/3 kV

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

ACCORDING TO: IEC 60502-1 / IEC 60092-353

C_{ca}

APPLICATION

TOPDRIVE® VFD (EMC) ROZ1-K (AS) cable has been 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.

Insulation
Cross-linked polyethylene type XLPE according to IEC 60502-1 and type HF XLPE 90°C according to IEC 60092-351.
The standard identification of insulated conductors is the following:
3 x +3 G Grey + Brown + Black + Green/Yellow (3 G) (from 6 mm^2 onwards)

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

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
Polyolefin type ST8 according to IEC 60502-1 and type SHF1 according to IEC 60092-360.
Black colour.
The ripcord allows you to tear the outer sheath without damaging the screen.

CHARACTERISTICS

Electrical performance
Low voltage: 1,8/3 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}-s1a, 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 > 80%.

Mechanical performance
Minimum bending radius during installation: 10x cable diameter.
Minimum bending radius, fixed: 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 / IEC 60092-353

Standards and approvals
BUREAU VERITAS / DNV-GL / ABS / LLOYD'S REGISTER / RoHS / CE

CPR (Construction Products Regulation)
C_{ca}-s1a, d1, a1

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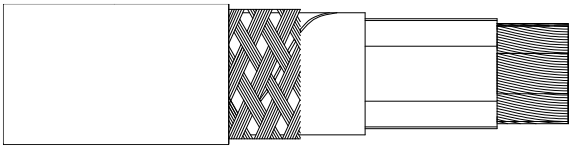
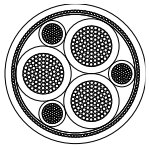
DIMENSIONS & ADMISSIBLE INTENSITIES





Cross-section (mm^2)	Diameter under the braid (mm)	Outer diameter (mm)	Weight (Kg/km)	Open air (A) [1]	Buried (A) [2]	Max.R 20°C (Ω/km)	Voltage drop (V/A · km) [3]
3 x 50 + 3 G 10	27,3	32,6	2.235	225	183	0,386	0,984
3 x 70 + 3 G 16	30,1	35,5	2.980	289	225	0,272	0,693
3 x 95 + 3 G 16	34,3	40,4	3.785	352	270	0,206	0,525
3 x 120 + 3 G 25	36,5	42,8	4.750	410	306	0,161	0,410
3 x 150 + 3 G 25	41,0	47,5	5.610	473	343	0,129	0,328
3 x 185 + 3 G 35	43,3	50,3	6.810	542	387	0,106	0,270
3 x 240 + 3 G 50	50,2	57,6	8.860	641	448	0,0801	0,204
3 x 300 + 3 G 50	55,7	62,5	10.560	741	502	0,0641	0,163

[1] Reference 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.