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CABLES FOR VARIABLE FREQUENCY DRIVES

STANDARDS

Product IEC 60228

Installation IEC 60092-350; IEC 60092-353; IEC 60092-360

Test a; IEC 60332-3-22; IEC 60754-1; IEC 61034

APPLICATION

Motor supply cable for frequency converters controlled low voltage AC drives on ships, called VFD applications. MPRXCX® FLEXISHIP® EMC cables are designed with a special coverage, copper-polyester tape and braid, which provide a 100% EMC protection. Insulation with low dielectric constant is used to reduce reflected wave voltage peak magnitude.

Symmetrical insulated ground wires, placed in corner, can reduce reflected wave and return common mode noisy currents back to the drive. Enhanced insulation is implemented for 0.6/1 (1.2) kV cable to fulfil periodic peak voltage up to $2xU=2$ kV due to harmonics.

These cables are used on board of ships in all locations for fixed installations.

Design

1. **Conductor:**
Flexible bare copper class 5
Stranded bare copper class 2 for cross-section < 4 mm²
2. **Insulation:**
XLPE (cross linked polyethylene)
3. **Optional**
Return earth conductor
4. **Assembling:**
Polyester tape
5. **Screen / Armouring:**
Copper / polyester tape
Bare copper braid
6. **Outer sheath:**
Polyolefin SHF1
Colour: black

Example of marking:

LYNXEO 279 MPRXCX FLEXISHIP EMC Nbr of cores & cross-section 0.6/1 kV 90C
 IEC 60092-353 IEC 60332-22 Cat. A SS YYYY *CE* Manufacturing n° + metric marking

Core Identification

3 cores: black-grey-brown

Earth: green/yellow split in 3 conductors



Conductor flexibility
Flexible class 5



Halogen free
IEC 60754-1



Rated Voltage U₀/U
(Um)
0.6/ 1 (1.2) kV



Fire retardant
EN IEC 60332-3-22
(cat A)



Flame retardant
IEC 60332-1



Smoke density
IEC 61034



Gases corrosivity
IEC 60754-2



Electro magnetic
interference
resistance
Yes

CHARACTERISTICS

Construction characteristics

Conductor material	Bare copper
Conductor flexibility	Flexible class 5
Insulation	XLPE (Cross-linked Polyethylene)
Screen	Copper tape
Armour type	Bare copper braid
Outer sheath	Polyolefin
Sheath colour	Black
With Green/Yellow core	Yes
Construction type	
Halogen free	IEC 60754-1

Dimensional characteristics

Number of cores	3
Conductor cross-section	70 mm ²
Nominal outer diameter	39.4 mm
Minimum outer diameter	36.6 mm
Maximum outer diameter	42.2 mm
Approximate weight	3317.08 kg/km
Earth conductor cross section	16 mm ²
Number of auxiliary conductors	3

Electrical characteristics

Permissible current rating in open air	- A
Rated Voltage U ₀ /U (U _m)	0.6/ 1 (1.2) kV

Usage characteristics

Fire retardant	EN IEC 60332-3-22 (cat A)
Flame retardant	IEC 60332-1
Smoke density	IEC 61034
Gases corrosivity	IEC 60754-2
Electro magnetic interference resistance	Yes
Operating temperature, range	-30 ... 80 °C
Max. conductor temperature in service	90 °C



Conductor flexibility
Flexible class 5



Halogen free
IEC 60754-1



Rated Voltage U₀/U (U_m)
0.6/ 1 (1.2) kV



Fire retardant
EN IEC 60332-3-22 (cat A)



Flame retardant
IEC 60332-1



Smoke density
IEC 61034



Gases corrosivity
IEC 60754-2



Electro magnetic interference resistance
Yes

OTHER CHARACTERISTICS

Test Voltage

AC between cores..... 5 kV AC

Minimum bending radius for fixed installations..... 5 x outer diameter