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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



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



Operating temp.
-30 ... 80 °C

CHARACTERISTICS

Construction characteristics

Halogen free IEC 60754-1

Electrical characteristics

Rated Voltage U₀/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

MPRXCX® FLEXISHIP® EMC 3X..

Reference	Nb. of cores	Cross section [mm ²]	Min. outer diam. [mm]	Nom. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]
10279818	3	16	18.0	18.9	20.5	790
10280564	3	50	27.16	29.2	31.24	1924
10285683	3	70	36.5	37.3	39.5	3205
10282645	3	120	39.4	42.4	45.4	4135
10285124	3	150	49.5	51.4	54.5	6080
10285576	3	185	54.5	56.5	60.0	7320

MPRXCX® FLEXISHIP® EMC 3X..+..G

Reference	Nb. of cores	Cross section [mm ²]	Nb aux. cond.	Earth cond. sect. [mm ²]	Min. outer diam. [mm]	Nom. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]	Construction type
10284798	3	6	3	1.5	15.3	-	17.5	455.83	-
10284864	3	10	3	1.5	16.9	-	19.5	618	-
10280408	3	16	3	2.5	20.1	21.6	23.1	878.18	-
10280409	3	25	3	4	24.1	25.9	27.7	1243.94	-
10282483	3	35	3	6	26.5	28.5	30.5	1694	-
10280410	3	50	3	10	30.2	32.5	34.8	2321.4	3x50+3G10
10280523	3	70	3	10	36.0	38.7	41.4	3170.86	-
10281396	3	70	3	16	36.6	39.4	42.2	3317.08	-



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



Operating temp.
-30 ... 80 °C

Reference	Nb. of cores	Cross section [mm ²]	Nb aux. cond.	Earth cond. sect. [mm ²]	Min. outer diam. [mm]	Nom. outer diam. [mm]	Max. outer diam. [mm]	Approx. weight [kg/km]	Construction type
10280522	3	95	3	16	40.6	43.7	46.8	4012.33	3x95+3G16
10281395	3	120	3	25	44.5	47.9	51.3	4998.29	
10280407	4	6	-	6	14.9	16.0	17.1	422.85	



Halogen free
IEC 60754-1



Rated Voltage U_o/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



Operating temp.
-30 ... 80 °C

OTHER CHARACTERISTICS

Test Voltage

AC between cores..... 5 kV AC

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