



## TECHNICAL DATA SHEETS

**Shipbuilding**

**Power Cables**

**FOR**



|                   |            |  |  |  |  |  |  |
|-------------------|------------|--|--|--|--|--|--|
| Issue             | <b>ED1</b> |  |  |  |  |  |  |
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| checked by        | VL         |  |  |  |  |  |  |



## INDEX

## CONTENTS

|                                                                                |          |
|--------------------------------------------------------------------------------|----------|
| <b>MPRXCX<sup>®</sup> EMC und MPRXCX<sup>®</sup> FLEXISHIP<sup>®</sup> EMC</b> | <b>3</b> |
| <b>MPRX<sup>®</sup> (extruded bedding)</b>                                     | <b>6</b> |

## REVISION

|                           |                                                                                                                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| Edition 1 :<br>12/04/2018 | TECHNICAL DATA SHEET<br>MPRXCX <sup>®</sup> EMC / MPRXCX <sup>®</sup> FLEXISHIP <sup>®</sup> EMC, MPRX (extruded embedding) |
|                           |                                                                                                                             |

# MPRXCX® EMC / MPRXCX® FLEXISHIP® EMC 0.6/1 kV 1.2 kV

## CABLES FOR VARIABLE FREQUENCY DRIVE

Max. conductor temperature : 90°C

Motor supply cable for frequency converters controls low voltage AC drives on ships, called VFD applications. MPRXCX® EMC or 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 1.8/3(3.6) kV cable to fulfil periodic peak voltage up to 3 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 2 or Class 5

#### 2 Insulation

XLPE  
(Cross-linked Polyethylene)

#### 3 Inner covering

Lapped or extruded

#### 4 Screen/Armouring

Copper/polyester tape  
Bare copper braid  
Total coverage : 100%

#### 5 Outer sheath

Halogen-free compound SHF1  
Colour : black



### Marking

I NEXANS I MPRXCX EMC or  
MPRXCX FLEXISHIP EMC 0,6/1kV  
"N x S" mm² 90C IEC 60092-353  
IEC 60332-3-22 Cat. A  
"week year" \*CE\* batch-no.  
+ metric marking

### Core Identification

3xS: black-grey-brown  
Earth cores:green/yellow

### Standards

IEC 60228  
IEC 60092-350  
IEC 60092-352  
IEC 60092-353  
IEC 60092-360

### Tests performance

IEC 60332-1  
IEC 60332-3-22  
IEC 60754-1/-2  
IEC 61034



**Fire retardant**  
IEC 60332-3-22



**Flame retardant**  
IEC 60332-1



**Low smoke**  
IEC 61034



**Halogen free**  
IEC 60754-1



**Low toxicity**



**Low corrosivity**  
IEC 60754-2



**Low  
electromagnetic  
interference**



**Ambient  
temperature**  
-30 +80°C

**CABLES FOR VARIABLE FREQUENCY DRIVE****Max. conductor temperature : 90°C****Dimensions**

| Nexans<br>Reference | Cross<br>section<br>area | Conductor<br>class | Inner<br>covering | Outer sheath |      | Total<br>weight | Bending<br>radius |
|---------------------|--------------------------|--------------------|-------------------|--------------|------|-----------------|-------------------|
|                     |                          |                    |                   | min          | max  | approx.         | min               |
|                     |                          |                    |                   | mm           | mm   | kg/km           | mm                |
| 25493980            | 3x6+3G1,5                | 5                  | lapped            | 16,5         | 19,0 | 500             | 95                |
| 25493981            | 3x10+3G1,5               | 5                  | lapped            | 17,0         | 19,5 | 600             | 98                |
| 25493982            | 3x16+3G2,5               | 5                  | lapped            | 19,0         | 21,5 | 830             | 108               |
| 25493983            | 3x25+3G4                 | 5                  | lapped            | 22,0         | 25,5 | 1160            | 128               |
| 25491812            | 3x35+3G6                 | 5                  | extruded          | 28,0         | 31,0 | 1890            | 155               |
| 25491813            | 3x50+3G10                | 5                  | extruded          | 29,5         | 33,0 | 2500            | 165               |
| 25491811            | 3x70+3G10                | 5                  | extruded          | 35,0         | 39,0 | 3350            | 195               |
| 25491815            | 3x95+3G16                | 5                  | extruded          | 40,0         | 44,0 | 4450            | 220               |
| 25491817            | 3x120+3G16               | 5                  | extruded          | 44,5         | 49,0 | 5450            | 245               |
| 25491818            | 3x150+3G25               | 5                  | extruded          | 50,0         | 54,5 | 6800            | 273               |
| 25491820            | 3x240+3G50               | 5                  | extruded          | 62,0         | 65,0 | 10800           | 325               |
| 25493973            | 4G1,5                    | 2                  | lapped            | 9,5          | 11,5 | 170             | 69                |
| 25493974            | 4G2,5                    | 2                  | lapped            | 11,0         | 13,0 | 230             | 78                |
| 25493976            | 4G6                      | 2                  | lapped            | 15,0         | 17,5 | 470             | 105               |

**CABLES FOR VARIABLE FREQUENCY DRIVE****Max. conductor temperature : 90°C****Electrical characteristics**

| Cross<br>section<br>area | Maximum<br>electrical resistance |        | Inductance<br><br><b>trefoil</b> | Reactance<br>AT 60Hz | Capacitance<br>cond/cond | Continuous<br>current rating<br>T°Core= 90°C<br>T°Air= 45°C | Short-circuit<br>AT 1sec |
|--------------------------|----------------------------------|--------|----------------------------------|----------------------|--------------------------|-------------------------------------------------------------|--------------------------|
|                          | AT20°C - DC                      | AT90°C |                                  |                      |                          |                                                             |                          |
|                          | DC                               | 60Hz   |                                  |                      |                          |                                                             |                          |
|                          | Ohm/km                           | Ohm/km |                                  |                      |                          |                                                             |                          |
| 3x6+3G1,5                | 3,3                              | 4,21   | 0,34                             | 0,13                 | 63                       | 36                                                          | 0,86                     |
| 3x10+3G1,5               | 1,91                             | 2,44   | 0,29                             | 0,11                 | 84                       | 50                                                          | 1,43                     |
| 3x16+3G2,5               | 1,21                             | 1,54   | 0,26                             | 0,10                 | 100                      | 67                                                          | 2,29                     |
| 3x25+3G4                 | 0,78                             | 0,996  | 0,25                             | 0,09                 | 112                      | 89                                                          | 3,58                     |
| 3x35+3G6                 | 0,554                            | 0,708  | 0,24                             | 0,09                 | 103                      | 110                                                         | 5,01                     |
| 3x50+3G10                | 0,386                            | 0,49   | 0,24                             | 0,09                 | 112                      | 137                                                         | 7,15                     |
| 3x70+3G10                | 0,272                            | 0,35   | 0,23                             | 0,09                 | 116                      | 169                                                         | 10,02                    |
| 3x95+3G16                | 0,206                            | 0,27   | 0,23                             | 0,09                 | 124                      | 205                                                         | 13,59                    |
| 3x120+3G16               | 0,161                            | 0,21   | 0,23                             | 0,09                 | 125                      | 237                                                         | 17,17                    |
| 3x150+3G25               | 0,129                            | 0,17   | 0,23                             | 0,09                 | 124                      | 273                                                         | 21,46                    |
| 3x240+3G50               | 0,0801                           | 0,111  | 0,22                             | 0,08                 | 131                      | 366                                                         | 34,34                    |
| 4G1,5                    | 12,1                             | 15,43  | 0,32                             | 0,12                 | 63                       | 15                                                          | 0,21                     |
| 4G2,5                    | 7,41                             | 9,45   | 0,30                             | 0,11                 | 71                       | 21                                                          | 0,36                     |
| 4G6                      | 3,08                             | 3,92   | 0,28                             | 0,11                 | 78                       | 36                                                          | 0,86                     |

**POWER CABLES****Max. conductor temperature : 90°C**

MPRX® 0.6/1 kV power cables are used for wiring fixed installations not subject to mechanical risks.

**Design****1 Conductor**

Stranded bare copper  
Class 2

**3 Inner covering**

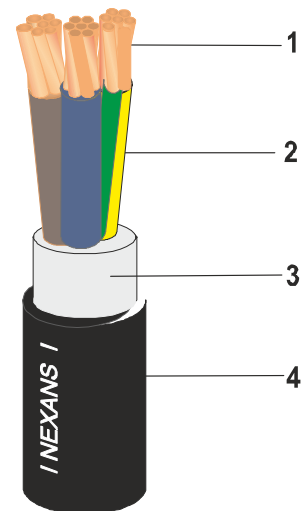
Extruded inner covering

**2 Insulation**

XLPE  
(crosslinked polyethylene)

**4 Outer sheath**

Halogen-free compound SHF1  
Colour : black

**Marking**

I NEXANS I MPRX  
3G1,5 mm² 0,6/1kV 90°C  
IEC 60092-353  
IEC 60332-3-22 Cat. A  
"week year" \*CE\* batch-no.  
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**Core identification**

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**Fire retardant**  
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**Flame retardant**  
IEC 60332-1



**Low smoke**  
IEC 61034



**Halogen free**  
IEC 60754-1



**Low toxicity**



**Low corrosivity**  
IEC 60754-2



**Ambient temperature**  
-30 +80°C

**POWER CABLES****Max. conductor temperature : 90°C****Dimensions**

| Nexans<br>Reference | Cables          | Outer Sheath<br>Diameter |      | Total<br>weight | Bending<br>radius |
|---------------------|-----------------|--------------------------|------|-----------------|-------------------|
|                     |                 | mini                     | maxi | approx          | mini              |
|                     | mm <sup>2</sup> | mm                       | mm   | kg/km           | mm                |
| 25411162            | 3G1,5           | 9,0                      | 11,0 | 140             | 44                |

**Electrical characteristics**

| Cables          | Maximum<br>electrical resistance |        | Inductance       | Reactance<br>AT 60Hz | Capacitance<br>cond/cond | Continuous<br>current rating<br>T°Cond= 90°C<br>T°Air= 45°C | Short-circuit<br>AT 1sec |
|-----------------|----------------------------------|--------|------------------|----------------------|--------------------------|-------------------------------------------------------------|--------------------------|
|                 | AT20°C - DC                      | AT90°C |                  |                      |                          |                                                             |                          |
|                 | DC                               | 60Hz   |                  |                      |                          |                                                             |                          |
| mm <sup>2</sup> | Ohm/km                           | Ohm/km | approx.<br>mH/km | approx.<br>Ohm/km    | approx.<br>nF/km         | maxi<br>A                                                   | maxi<br>kA               |
| 3G1,5           | 12,10                            | 15,43  | 0,32             | 0,12                 | 62                       | 16                                                          | 0,21                     |



For more information, please consult: [www.nexans.com/shipbuilding](http://www.nexans.com/shipbuilding)