

# FLEXMOV® Data cables

## FLEXMOV® 数据电缆

### FMD913 数据电缆 Data cables



- PUR 外护套
  - 用于机器人与扭转应用
  - 带屏蔽
  - 耐油
  - 抗UV
  - 抗水解和微生物
- PUR outer jacket
  - For robot and torsion applications
  - Shielded
  - Oil-resistant
  - UV-resistance
  - Resistant to hydrolysis and microbes

### 移动参数 Dynamic Information

|                                                                                     |                         |                                                        |                |
|-------------------------------------------------------------------------------------|-------------------------|--------------------------------------------------------|----------------|
|    | 弯曲半径                    | 三维拖链内扭转 Flexible twisted                               | 10 x d         |
|                                                                                     | Bending radius          | 固定铺设 Fixed installation                                | 5x d           |
|    | 使用温度范围                  | 三维拖链内扭转 Flexible twisted                               | -25°C至to +80°C |
|                                                                                     | Temperature             | 固定铺设 Fixed installation                                | -50°C至to +80°C |
|  | 最大速度<br>v max.          | 三维拖链内扭转 Flexible twisted                               | 180°/s         |
|  | 最大加速度<br>a max.         | 三维拖链内扭转 Flexible twisted                               | 60°/s          |
|  | 行程距离<br>Travel distance | 适用于机器人和三维运动<br>Robots and multi-axis movements         |                |
|  | 扭转<br>Torsion           | 每1米电缆长度可扭转±180°<br>Torsion ±180°, with 1m cable length |                |

### 电缆结构 Cable structure

|                                                                                     |                                |                                                                                                                                          |
|-------------------------------------------------------------------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
|  | 导体<br>Conductor                | 高抗弯强度的精细裸铜多股线（符合EN 60228 标准）<br>Conductor consisting of bare copper wires (according to EN 60228).                                       |
|  | 绝缘材料<br>Conductor insulation   | 高机械性能的TPE混合物<br>Mechanically high-quality TPE mixture.                                                                                   |
|  | 芯线结构<br>Conductor construction | 每两根芯线以短节距对绞，再将所有对线以短节距围绕高强度中芯线绞合在一起<br>Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths. |
|  | 芯线识别<br>Color code             | 颜色代码符合 Color code in accordance with DIN 47100                                                                                           |
|  | 总屏蔽<br>Overall shield          | 高抗扭强度的镀锡铜丝缠绕屏蔽，光学覆盖率85%<br>High torsion strength tinned copper wire braided shield, Cover approx. 85% optical                            |
|  | 外护套<br>Outer jacket            | 低粘性，不含卤素 PUR 基混合物，特别耐磨适用于拖链。<br>颜色：深蓝色 Color: Steel blue RAL 5011                                                                        |

## 电气参数 Electrical Information

|                                                                                   |                         |                                             |
|-----------------------------------------------------------------------------------|-------------------------|---------------------------------------------|
|  | 额定电压<br>Nominal voltage | $U_0/U$ : 300/500 V (符合following VDE0298-3) |
|  | 测试电压<br>Test voltage    | 2000 V (符合following EN50395)                |

## 特性和认证 Properties and approvals

|                                                                                     |                              |                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | 抗紫外线<br>UV-resistance        | 高 High                                                                                                                                                                                      |
|    | 耐水解<br>Hydrolysis-resistance | 高 High                                                                                                                                                                                      |
|    | 耐低温<br>Cold-resistant        | -50°C                                                                                                                                                                                       |
|    | 耐油性<br>Oil resistance        | 耐油 (符合 IEC60811-404 标准, 经SGS检测), 耐生物油 (符合VDMA24568 标准, 经SGS检测)<br>Oil-resistant (following IEC60811-404, tested by SGS), bio-oil-resistant (following VDMA24568, tested by SGS)             |
|    | 阻燃<br>Flame resistance       | 符合According to IEC 60332-1-2、VW-1、FT1                                                                                                                                                       |
|   | 无卤素<br>Halogen-free          | 符合Following IEC60754                                                                                                                                                                        |
|  | 不含PFAS<br>PFAS-free          | 使用不含PFAS的材料, 符合REACH指令及其对化学物质生产和加工的相关规定<br>Use PFAS-free materials that comply with the REACH regulation and its provisions regarding the production and processing of chemical substances. |
|  | REACH                        | 符合 Accordding to the regulation (EC) No. 1907/2006 (REACH)                                                                                                                                  |
|  | EAC                          | 经认证Certificate No. KG 417/043.CN.02.00249                                                                                                                                                   |
|  | 无铅<br>Lead-free              | 符合Following 2015/863/EU (RoHS-II 经SGS检测 Tested by SGS)                                                                                                                                      |
|  | 无尘室<br>Cleanroom             | 符合Following ISO 14644-1                                                                                                                                                                     |
|  | CE                           | 符合Following 2014/35/EU                                                                                                                                                                      |
|  | UL                           | 符合Following UL21002, 105°C, 300V                                                                                                                                                            |

## 质保使用寿命 Guaranteed service life

| 双循环次数<br>Cycles                        | 500万次<br>5 million times        | 750万次<br>7.5 million times      | 1000万次<br>10 million times      |
|----------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 适用温度范围<br>Temperature,<br>from/to [°C] | 最大扭转角度<br>Torsion max.<br>[°/m] | 最大扭转角度<br>Torsion max.<br>[°/m] | 最大扭转角度<br>Torsion max.<br>[°/m] |
| -25/-15                                | ±150                            | ±90                             | ±30                             |
| -15/+70                                | ±180                            | ±120                            | ±60                             |
| +70/+80                                | ±150                            | ±90                             | ±30                             |

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| 产品编码<br>Part No. | 芯数及截面积<br>Number of cores and<br>conductor nominal cross-section<br>[mm] | 外径<br>Outer diameter<br>[mm] | 铜含量<br>Copper index<br>[kg/km] | 重量<br>Weight<br>[kg/km] |
|------------------|--------------------------------------------------------------------------|------------------------------|--------------------------------|-------------------------|
| FMD913.02.03.02  | (3x(2x0.25))C                                                            | 9                            | 32                             | 84                      |
| FMD913.02.04.02  | (4x(2x0.25))C                                                            | 10.5                         | 38                             | 103                     |
| FMD913.02.06.02  | (6x(2x0.25))C                                                            | 11.5                         | 52                             | 127                     |
| FMD913.05.05.02  | (5x(2x0.5))C                                                             | 12.5                         | 75                             | 170                     |

注Note: 外径是指参考值 The outer diameters are reference values.  
G: 带黄-绿接地线 With green-yellow earth core  
x: 不带接地线 Without earth core