

# ROUND LOW VOLTAGE CABLES FOR FESTOON OPERATION

|                | <b>RONDOFLEX</b>                                                                | <b>RONDOFLEX(C)<br/>-FC</b>                      | <b>FESTOONFLEX<br/>PUR HF</b>                      | <b>FESTOONFLEX<br/>C PUR HF</b>                                                                        |
|----------------|---------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Designation    | (N)GRDGOEU<br>Rubber                                                            | (N)GRDGGGOEU<br>Rubber                           | D12Y11Y                                            | D12YC11Y                                                                                               |
| Dimension      | Optimized on<br>DIN VDE 0250<br>part 814                                        | Optimized on<br>DIN VDE 0250<br>part 814         | Optimized                                          | Optimized                                                                                              |
| Cores          | Power:<br>1C, 3C+3G, 4C, 5C<br>Control:<br>multicores (also<br>with BUS of TSP) | Power:<br>3C+3G, 4C<br>with overall<br>CU screen | Power:<br>1C, 3C, 4C, 5C<br>Control:<br>multicores | Power:<br>1C, 3C, 4C, 5C<br>Control:<br>multicores with overall<br>CU screen (also with<br>BUS of TSP) |
| Outer Sheath   | Rubber                                                                          | Rubber                                           | PUR                                                | PUR                                                                                                    |
| Approvals      | VDE, GOST-R                                                                     | VDE, GOST-R                                      |                                                    |                                                                                                        |
| Tensile Load   | 15 N/mm <sup>2</sup>                                                            | 15 N/mm <sup>2</sup>                             | 15 N/mm <sup>2</sup>                               | 15 Nmm <sup>2</sup>                                                                                    |
| Speed          | 240 m/min                                                                       | 240 m/min                                        | 210m/min                                           | 210 m/min                                                                                              |
| Temp. (moving) | -35°C/+80°C                                                                     | -35°C/+80°C                                      | -40°C/+80°C                                        | -40°C/+80°C                                                                                            |

## RONDOFLEX (N)GRDG0EU

Low voltage round cable for festoon application



### Application

Flexible low voltage power and control cable, for use on festoon systems and for connecting movable parts of machine tools, material handling equipment, etc. Suitable for application under high mechanical stresses and frequent bending during operation.

### Global data

|                            |                           |
|----------------------------|---------------------------|
| Brand                      | RONDOFLEX                 |
| Type designation           | (N)GRDG0EU-J/-O           |
| Standard                   | Based on DIN VDE 0250-814 |
| Certifications / Approvals | VDE Reg. Nr. 7841; GOST-R |

### Design features

|                     |                                                                                                                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conductor           | Bare electrolytic copper, finely stranded, class 5                                                                                                                                              |
| Insulation          | PROTOLON MS<br>High grade special compound based on high-quality EPR (at least GI3); improved mechanical and electrical characteristics                                                         |
| Core identification | Best identification as a result of light colored insulation with numbers printed in black for power and control cables, earth conductor green/ yellow (acc. to DIN VDE 0293)                    |
| Individual screen   | Braid screen made of tinned copper wires, transfer impedance optimized at 30 MHz.<br>Surface covered: at least 60% for individually shielded cores; at least 80% for twisted and shielded pairs |
| Core arrangement    | Laid-up in a maximum of 3 layers                                                                                                                                                                |
| Inner sheath        | Basic material EPR, Rubber compound GM1b<br>Colour: black                                                                                                                                       |
| Outer sheath        | High grade special compound (at least 5GM3), based on PCP;<br>Color: black                                                                                                                      |
| Marking             | RONDOFLEX (N)GRDG0EU-J/-O VDE-Reg.-No.                                                                                                                                                          |

### Electrical parameters

|                                       |                                                                                               |
|---------------------------------------|-----------------------------------------------------------------------------------------------|
| Rated voltage                         | 0.6/1 kV (600/1000V)                                                                          |
| Max. permissible operating voltage AC | 0.7/1.2 kV                                                                                    |
| Max. permissible operating voltage DC | 0.9/1.8 kV                                                                                    |
| AC Test Voltage                       | 3.5 kV (5 Min.)                                                                               |
| Current Carrying Capacity description | Acc. to DIN VDE 0298-4:<br>- single core, table 15-column 2<br>- multicore, table 15-column 4 |

### Chemical parameters

|                    |                                                                            |
|--------------------|----------------------------------------------------------------------------|
| Resistance to oil  | Acc. to DIN EN 60811-404 and DIN VDE 0473-811-404, paragraph 10            |
| Weather resistance | Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture |

### Thermal parameters

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Max. permissible temperature at conductor       | 90 °C                   |
| Max. short circuit temperature of the conductor | 250 °C                  |
| Ambient temperature for fixed installation      | min -50 °C ; max +80 °C |
| Ambient temperature in fully flexible operation | min -35 °C ; max +80 °C |

### Mechanical parameters

|                                               |                                                                                                                                                            |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. tensile load on the conductor            | 15 N/mm <sup>2</sup>                                                                                                                                       |
| Torsional stress                              | ± 25 °/m                                                                                                                                                   |
| Min. bending radius                           | Acc. to DIN VDE 0298 part 3                                                                                                                                |
| Min. distance with S-type directional changes | 20 x D                                                                                                                                                     |
| Travel speed                                  | - Trolley (festoon system): up to 240 m/min (it is recommended to consult the manufacturer for speeds beyond 240 m/min);<br>- Reeling operation: 60 m/min. |
| Additional tests                              | Bending test                                                                                                                                               |

| Number of cores x cross section                                                     | Part number | MLFB Number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|-------------------------------------------------------------------------------------|-------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| (N)GRDG0EU-O power cables, single-core design                                       |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 1x25                                                                                | 20003532    | 5DG6610     | 6.7                        | 11.4                   | 12.6                   | 63                                 | 330                | 370                              | 0.78                                   | 138                                                      | 3.58                                 |
| 1x35                                                                                | 20003533    | 5DG6611     | 8                          | 12.3                   | 13.9                   | 70                                 | 430                | 520                              | 0.55                                   | 170                                                      | 5.01                                 |
| 1x50                                                                                | 20003534    | 5DG6612     | 9.5                        | 15                     | 16.6                   | 83                                 | 620                | 750                              | 0.39                                   | 212                                                      | 7.15                                 |
| 1x70                                                                                | 20003535    | 5DG6613     | 11                         | 16.3                   | 18.3                   | 92                                 | 830                | 1050                             | 0.27                                   | 263                                                      | 10.01                                |
| 1x95                                                                                | 20003536    | 5DG6614     | 12.8                       | 18.5                   | 20.5                   | 103                                | 1070               | 1420                             | 0.21                                   | 316                                                      | 13.59                                |
| 1x120                                                                               | 20003537    | 5DG6615     | 14.4                       | 20.3                   | 22.3                   | 112                                | 1330               | 1800                             | 0.16                                   | 370                                                      | 17.16                                |
| 1x150                                                                               | 20003538    | 5DG6616     | 16.4                       | 22.7                   | 24.7                   | 124                                | 1640               | 2250                             | 0.13                                   | 424                                                      | 21.45                                |
| 1x185                                                                               | 20003539    | 5DG6617     | 17.8                       | 24.6                   | 27.6                   | 138                                | 2010               | 2770                             | 0.11                                   | 484                                                      | 26.46                                |
| 1x240                                                                               | 20003540    | 5DG6618     | 20.9                       | 28.9                   | 31.9                   | 160                                | 2650               | 3600                             | 0.08                                   | 567                                                      | 34.32                                |
| (N)GRDG0EU-J power cables, 3-core design, earth conductor splitted into three parts |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 3x35+3x16/3                                                                         | 20003544    | 5DG6631     | 8                          | 27.3                   | 30.3                   | 152                                | 1780               | 1570                             | 0.55                                   | 170                                                      | 5.01                                 |
| 3x50+3x25/3                                                                         | 20003545    | 5DG6632     | 9.5                        | 33                     | 36                     | 180                                | 2570               | 2250                             | 0.39                                   | 212                                                      | 7.15                                 |
| 3x70+3x35/3                                                                         | 20003546    | 5DG6633     | 11                         | 38.9                   | 41.9                   | 210                                | 3570               | 3150                             | 0.27                                   | 263                                                      | 10.01                                |
| (N)GRDG0EU-J power cables, 4-core design                                            |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 4x4                                                                                 | 20003550    | 5DG6642     | 2.5                        | 13.6                   | 15.2                   | 76                                 | 350                | 240                              | 4.95                                   | 43                                                       | 0.57                                 |
| 4x6                                                                                 | 20003551    | 5DG6643     | 3                          | 15.9                   | 17.9                   | 90                                 | 480                | 360                              | 3.3                                    | 56                                                       | 0.86                                 |
| 4x10                                                                                | 20003552    | 5DG6644     | 4                          | 18                     | 20                     | 100                                | 680                | 600                              | 1.91                                   | 78                                                       | 1.43                                 |
| 4x16                                                                                | 20003553    | 5DG6645     | 5.7                        | 23.3                   | 25.3                   | 127                                | 1110               | 960                              | 1.21                                   | 104                                                      | 2.29                                 |
| 4x25                                                                                | 20003554    | 5DG6646     | 6.8                        | 26.9                   | 29.9                   | 150                                | 1610               | 1500                             | 0.78                                   | 138                                                      | 3.58                                 |
| 4x35                                                                                | 20003555    | 5DG6647     | 8.1                        | 30.1                   | 33.1                   | 166                                | 2100               | 2100                             | 0.55                                   | 170                                                      | 5.01                                 |
| 4x50                                                                                | 20003556    | 5DG6648     | 9.6                        | 36.1                   | 39.1                   | 196                                | 3010               | 3000                             | 0.39                                   | 212                                                      | 7.15                                 |
| (N)GRDG0EU-J power cables, 5-core design                                            |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 5x4                                                                                 | 20003559    | 5DG6652     | 2.5                        | 15.7                   | 17.7                   | 89                                 | 450                | 300                              | 4.95                                   | 43                                                       | 0.57                                 |
| 5x6                                                                                 | 20003560    | 5DG6653     | 3                          | 17.5                   | 19.5                   | 98                                 | 580                | 450                              | 3.3                                    | 56                                                       | 0.86                                 |
| 5x10                                                                                | 20003561    | 5DG6654     | 4                          | 20.2                   | 22.2                   | 111                                | 860                | 750                              | 1.91                                   | 78                                                       | 1.43                                 |
| 5x16                                                                                | 20003562    | 5DG6655     | 5.7                        | 24.5                   | 27.5                   | 138                                | 1340               | 1200                             | 1.21                                   | 104                                                      | 2.29                                 |
| 5x25                                                                                | 20003563    | 5DG6656     | 6.8                        | 29.9                   | 32.9                   | 165                                | 1990               | 1870                             | 0.78                                   | 138                                                      | 3.58                                 |
| 5x35                                                                                | 20003564    | 5DG6657     | 8.1                        | 34.7                   | 37.7                   | 189                                | 2700               | 2620                             | 0.55                                   | 170                                                      | 5.01                                 |
| (N)GRDG0EU-J control cables                                                         |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 12x1,5                                                                              | 20003568    | 5DG6662     | 1.6                        | 16.2                   | 18.2                   | 91                                 | 460                | 270                              | 13.3                                   | 24                                                       | 0.21                                 |
| 18x1,5                                                                              | 20003569    | 5DG6663     | 1.6                        | 18.7                   | 20.7                   | 104                                | 630                | 400                              | 13.3                                   | 24                                                       | 0.21                                 |
| 24x1,5                                                                              | 20003570    | 5DG6664     | 1.6                        | 22.1                   | 24.1                   | 121                                | 840                | 540                              | 13.3                                   | 24                                                       | 0.21                                 |
| 30x1,5                                                                              | 20003571    | 5DG6665     | 1.6                        | 23.3                   | 25.3                   | 127                                | 950                | 670                              | 13.3                                   | 24                                                       | 0.21                                 |
| 36x1,5                                                                              |             | 5DG6666     | 1.6                        | 24.6                   | 27.6                   | 138                                | 1090               | 810                              | 13.3                                   | 24                                                       | 0.21                                 |
| 4x2,5                                                                               | 20003549    | 5DG6641     | 2                          | 11.8                   | 13.4                   | 67                                 | 250                | 150                              | 7.98                                   | 32                                                       | 0.36                                 |
| 7x2,5                                                                               | 20003574    | 5DG6671     | 2                          | 15.3                   | 17.4                   | 87                                 | 430                | 260                              | 7.98                                   | 32                                                       | 0.36                                 |
| 12x2,5                                                                              | 20003575    | 5DG6672     | 2                          | 18                     | 20                     | 100                                | 600                | 450                              | 7.98                                   | 32                                                       | 0.36                                 |
| 18x2,5                                                                              | 20003576    | 5DG6673     | 2                          | 21.5                   | 23.5                   | 118                                | 870                | 670                              | 7.98                                   | 32                                                       | 0.36                                 |
| 24x2,5                                                                              | 20003577    | 5DG6674     | 2                          | 24                     | 27                     | 135                                | 1140               | 900                              | 7.98                                   | 32                                                       | 0.36                                 |

| Number of cores x cross section | Part number | MLFB Number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|---------------------------------|-------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| 30x2,5                          | 20003578    | 5DG6675     | 2                          | 26.4                   | 29.4                   | 147                                | 1360               | 1120                             | 7.98                                   | 32                                                       | 0.36                                 |
| 36x2,5                          | 20003579    | 5DG6676     | 2                          | 28.7                   | 31.7                   | 159                                | 1550               | 1350                             | 7.98                                   | 32                                                       | 0.36                                 |
| 24x3,5                          |             | 5DG6912     | 2.4                        | 34.6                   | 37.6                   | 188                                | 2160               | 1260                             | 5.55                                   | 41                                                       | 0.5                                  |
| 30x3,5                          |             | 5DG6911     | 2.4                        | 36.4                   | 39.4                   | 197                                | 2450               | 1570                             | 5.55                                   | 41                                                       | 0.5                                  |
| (N)GRDG0EU-O bus cables         |             |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 3x(2x1)C                        | 20003590    | 5DG6689     | 1.3                        | 20.8                   | 22.8                   | 114                                | 690                | 90                               | 19.5                                   | 19                                                       | 0.14                                 |
| 6x(2x0,5)C                      | 20003593    | 5DG6693     | 0.9                        | 21.6                   | 24.6                   | 123                                | 800                | 90                               | 39                                     | 11                                                       | 0.07                                 |
| 6x(2x1)C                        | 20003594    | 5DG6694     | 1.3                        | 27                     | 30.2                   | 151                                | 1230               | 180                              | 19.5                                   | 19                                                       | 0.14                                 |
| 9x(2x0,5)C                      |             | 5DG6691     | 0.9                        | 28.3                   | 31.3                   | 157                                | 1340               | 130                              | 39                                     | 11                                                       | 0.07                                 |
| 9x(2x1)C                        | 20003592    | 5DG6692     | 1.3                        | 35.3                   | 38.3                   | 192                                | 1930               | 270                              | 19.5                                   | 19                                                       | 0.14                                 |
| 12x(2x0,5)C                     |             | 5DG6521     | 0.9                        | 29.8                   | 32.8                   | 164                                | 1540               | 180                              | 39                                     | 11                                                       | 0.07                                 |
| 12x(2x1)C                       | 20038334    | 5DG6696     | 1.3                        | 36.3                   | 39.3                   | 197                                | 2020               | 360                              | 19.5                                   | 19                                                       | 0.14                                 |
| 12x1(C)                         | 20003582    | 5DG6681     | 1.3                        | 17.6                   | 19.6                   | 98                                 | 540                | 180                              | 19.5                                   | 19                                                       | 0.14                                 |

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical annexes).



## RONDOFLEX(C)-FC (N)GRDGCGOEU

Low voltage screened round cable for festoon application



### Application

For use on festoon systems, e.g. on gantry cranes, hall gantry cranes, rack material handling equipment, transportation systems or machine tools. Especially suitable where power cables are expected to cause interference and disruption on data cables or where the maximum emission values according to EN 55011/55022 must be achieved.

The cables are used under high mechanical stresses and frequent bending. Also suitable for use as flexible motor power supply cable.

### Global data

|                            |                           |
|----------------------------|---------------------------|
| Brand                      | RONDOFLEX(C)-FC           |
| Type designation           | (N)GRDGCGOEU-J            |
| Standard                   | Based on DIN VDE 0250-814 |
| Certifications / Approvals | VDE Reg. Nr. 7841; GOST-R |

### Notes on installation

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Notes on installation | Due to external damages a short circuit current can occur between phase conductor and the screen or between a phase conductor and a protective conductor. In these cases only the cross-section of the screen or the cross-section of the protective conductor is available to carry the fault current. The effective resistance of the screen or protective conductor is given by the distance between the point of the fault and the ground connection. |
| Notes on installation | Especially for festoon application it is not recommended the use of cross-sections beyond 3x50mm <sup>2</sup> .                                                                                                                                                                                                                                                                                                                                           |

### Design features

|                          |                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conductor                | Bare electrolytic copper conductor, finely stranded, class 5. Earth conductor made of tinned, extremely finely stranded copper, class FS (better than class 5).         |
| Insulation               | PROTOLON MS<br>high grade special compound based on high-quality EPR (at least GI3); improved mechanical and electrical characteristics                                 |
| Core identification      | Light colored insulation with numbers printed in black for power and control cables, earth conductor green/ yellow                                                      |
| Core arrangement         | Up to 10mm <sup>2</sup> : 4-core design;<br>from 16mm <sup>2</sup> on: three main conductors, earth conductor splitted into three parts and placed into the interstices |
| Inner sheath             | Basic material EPR, compound type GM1b, color: black                                                                                                                    |
| Screen over inner sheath | Braid screen made of tinned copper wires, surface covered: >80%, transfer impedance <100mΩ/m at <= 30MHz                                                                |
| Outer sheath             | Basic material PCP, rubber compound 5GM3, colour: black                                                                                                                 |
| Marking                  | RONDOFLEX (C)-FC (N)GRDGCGÖU-J (nr. of cores)x(cross section) 0,6/1 kV VDE-Reg.-Nr. 7841                                                                                |

### Electrical parameters

|                                                       |                                                     |
|-------------------------------------------------------|-----------------------------------------------------|
| Rated voltage                                         | 0.6/1 kV (600/1000V)                                |
| Max. permissible operating voltage AC                 | 0.7/1.2 kV                                          |
| Max. permissible operating voltage DC                 | 0.9/1.8 kV                                          |
| AC Test Voltage                                       | 5 kV (5 Min.)                                       |
| Peak voltage                                          | 2400 V                                              |
| Max. AC voltage for connection on frequency converter | 690 V                                               |
| EMC                                                   | Main application thanks to the special cable design |
| Current Carrying Capacity description                 | Acc. to DIN VDE 0298-4                              |

### Chemical parameters

|                    |                                                                            |
|--------------------|----------------------------------------------------------------------------|
| Resistance to oil  | Acc. to DIN EN 60811-404 and DIN VDE 0473-811-404, paragraph 10            |
| Weather resistance | Unrestricted use outdoors and indoors, resistant to ozone, UV and moisture |

### Thermal parameters

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Max. permissible temperature at conductor       | 90 °C                   |
| Max. short circuit temperature of the conductor | 250 °C                  |
| Ambient temperature for fixed installation      | min -50 °C ; max +80 °C |
| Ambient temperature in fully flexible operation | min -35 °C ; max +80 °C |

### Mechanical parameters

|                                    |                                                                                                                                                                                                                                                                                       |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. tensile load on the conductor | 15 N/mm <sup>2</sup>                                                                                                                                                                                                                                                                  |
| Torsional stress                   | Not allowed                                                                                                                                                                                                                                                                           |
| Min. bending radius                | Acc. to DIN VDE 0298 part 3                                                                                                                                                                                                                                                           |
| Travel speed                       | - Trolley (festoon system): up to 240m/min<br>Note: the trouble free operation is influenced by a number of factors (e.g. space, cable weight, loop length, number of motor driven carriers). It is recommended to consult the cable manufacturer for travel speeds beyond 240 m/min. |
| Additional tests                   | Bending test                                                                                                                                                                                                                                                                          |

| Number of cores x cross section      | Part number | MLFB Number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Nom. operating capacitance µF/km | Inductance nom. mH/km | Current carrying capacity for install. free in air (2) A | Transfer impedance at 1 MHz mΩ/m | Transfer impedance at 10 MHz mΩ/m | Transfer impedance at 30 MHz mΩ/m |
|--------------------------------------|-------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|-----------------------|----------------------------------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
| (N)GRDGCGOEU-J screened power cables |             |             |                            |                        |                        |                                    |                    |                                  |                       |                                                          |                                  |                                   |                                   |
| 4x2,5                                | 20007109    | 5DG6651     | 2                          | 13                     | 15                     | 75                                 | 340                | 0.17                             | 0.58                  | 32                                                       |                                  |                                   |                                   |
| 4x4                                  | 20003583    | 5DG6682     | 2.5                        | 14.8                   | 17.8                   | 89                                 | 480                | 0.18                             | 0.55                  | 43                                                       |                                  |                                   |                                   |
| 4x6                                  | 20003584    | 5DG6683     | 3                          | 16.2                   | 19.2                   | 96                                 | 640                | 0.19                             | 0.53                  | 56                                                       |                                  |                                   |                                   |
| 4x10                                 | 20003585    | 5DG6684     | 4                          | 19.6                   | 22.6                   | 113                                | 890                | 0.23                             | 0.51                  | 78                                                       | 0.4                              | 1.3                               | 3.5                               |
| 3x16+3x2,5                           | 20003586    | 5DG6685     | 5.7                        | 22.4                   | 25.4                   | 127                                | 1150               | 0.225                            | 0.48                  | 104                                                      | 0.2                              | 0.6                               | 1.5                               |
| 3x25+3x4                             | 20003587    | 5DG6686     | 6.8                        | 25.4                   | 28.4                   | 142                                | 1590               | 0.275                            | 0.45                  | 138                                                      | 0.2                              | 0.4                               | 1.3                               |
| 3x35+3x6                             | 20003588    | 5DG6687     | 8.1                        | 29.3                   | 32.3                   | 162                                | 2160               | 0.325                            | 0.43                  | 170                                                      | 0.1                              | 0.4                               | 0.9                               |
| 3x50+3x10                            | 20003589    | 5DG6688     | 9.6                        | 35.4                   | 38.4                   | 192                                | 3060               | 0.4                              | 0.41                  | 212                                                      | 0.1                              | 0.2                               | 0.7                               |
| 3x70+3x10                            | 20003591    | 5DG6690     | 11.5                       | 40.8                   | 43.8                   | 219                                | 3960               | 0.475                            | 0.39                  | 263                                                      | 0.1                              | 0.2                               | 0.5                               |
| 3x95+3x16                            | 20003580    | 5DG6679     | 12.9                       | 43.4                   | 46.4                   | 232                                | 4840               | 0.6                              | 0.375                 | 316                                                      | 0.1                              | 0.2                               | 0.4                               |
| 3x120+3x16                           | 20003581    | 5DG6680     | 14.6                       | 47.8                   | 50.8                   | 254                                | 5910               | 0.7                              | 0.36                  | 370                                                      | 0.1                              | 0.1                               | 0.3                               |
| 3x150+3x25                           | 20003558    | 5DG6650     | 16.5                       | 54.6                   | 57.6                   | 288                                | 7540               |                                  |                       | 424                                                      |                                  |                                   |                                   |

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical appendixes). Especially for festoon application it is not recommended the use of cross-sections beyond 3x50mm<sup>2</sup>!

## FESTOONFLEX PUR-HF D12Y11Y

Low voltage round cable PUR sheathed for festoon application



### Application

For use as energy and control cable in festoon systems under severe conditions, incl. frequent bending. Also for drag lines, machine tools or materials handling systems.

In addition, suitable as drum reeling cable under moderate mechanical stress.

### Global data

|                  |                    |
|------------------|--------------------|
| Brand            | FESTOONFLEX PUR-HF |
| Type designation | D12Y11Y-J/O        |

### Design features

|                     |                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------|
| Conductor           | Plain copper, flexible class 5 acc. to DIN EN 60228 / DIN VDE 0295                                    |
| Insulation          | Halogen free compound, based on polyester                                                             |
| Core identification | Up to 5 cores: colored in accordance with DIN VDE 0293-308;<br>From 6 cores: white with black numbers |
| Core arrangement    | Cores twisted with short length of lay around central element                                         |
| Outer sheath        | Polyurethane, halogen free, flame retardant;<br>Colour: black (opaque)                                |
| Marking             | White imprint:<br>FESTOONFLEX PUR-HF -J/-O (number of cores) x (cross-section) (year/week)            |

### Electrical parameters

|                                       |                        |
|---------------------------------------|------------------------|
| Rated voltage                         | 0.6/1 kV (600/1000V)   |
| Max. permissible operating voltage AC | 0.7/1.2 kV             |
| Max. permissible operating voltage DC | 0.9/1.8 kV             |
| AC Test Voltage                       | 4 kV (5 Min.)          |
| Current Carrying Capacity description | Acc. to DIN VDE 0298-4 |

### Chemical parameters

|                    |                                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------|
| Resistance to fire | Similar to IEC 60332-1                                                                              |
| Water resistance   | The cables are suitable for permanent use in water (no drinking water) up to 50 meter diving depth. |

### Thermal parameters

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Max. permissible temperature at conductor       | 90 °C                   |
| Max. short circuit temperature of the conductor | 250 °C                  |
| Ambient temperature for fixed installation      | min -50 °C ; max +80 °C |
| Ambient temperature in fully flexible operation | min -40 °C ; max +80 °C |

### Mechanical parameters

|                                    |                                                                                                                                                                                                                                                                                      |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. tensile load on the conductor | 15 N/mm <sup>2</sup>                                                                                                                                                                                                                                                                 |
| Torsional stress                   | ± 25 °/m                                                                                                                                                                                                                                                                             |
| Min. bending radius                | 6 x D (Proved by flexing tests acc. to HD 22.2 part 3.1)                                                                                                                                                                                                                             |
| Travel speed                       | - In festoon systems: up to 210 m/min;<br>- For reeling operation: up to 60 m/min;<br>- In chain systems: up to 210 m/min (note: trouble free operation is influenced by several factors, among all the chain length. For long chain system we recommend to operate at lower speed). |



| Number of cores x cross section     | Part number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|-------------------------------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| D12Y11Y-O power cables, single core |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 1x16                                | 20165443    | 5                          | 8.5                    | 9.5                    | 57                                 | 170                | 240                              | 1.21                                   | 104                                                      | 2.29                                 |
| 1x25                                | 20156874    | 6.2                        | 9.9                    | 11.1                   | 67                                 | 270                | 370                              | 0.78                                   | 138                                                      | 3.58                                 |
| 1x35                                | 20154575    | 7.8                        | 11.7                   | 12.9                   | 77                                 | 380                | 520                              | 0.55                                   | 170                                                      | 5.01                                 |
| 1x50                                | 20154574    | 8.9                        | 13.9                   | 15.1                   | 91                                 | 530                | 750                              | 0.39                                   | 212                                                      | 7.15                                 |
| 1x70                                | 20154573    | 11.1                       | 16.2                   | 17.4                   | 104                                | 740                | 1050                             | 0.27                                   | 263                                                      | 10.01                                |
| 1x95                                | 20166593    | 12.6                       | 17.9                   | 19.1                   | 115                                | 940                | 1420                             | 0.21                                   | 316                                                      | 13.59                                |
| 1x120                               | 20156873    | 14.8                       | 20.2                   | 21.5                   | 130                                | 1200               | 1800                             | 0.16                                   | 370                                                      | 17.16                                |
| 1x150                               |             | 16                         | 21.8                   | 23.2                   | 139                                | 1490               | 2250                             | 0.13                                   | 424                                                      | 21.45                                |
| 1x185                               |             | 17.7                       | 24.3                   | 25.7                   | 154                                | 1830               | 2770                             | 0.11                                   | 484                                                      | 26.46                                |
| 1x240                               |             | 20.2                       | 27.7                   | 29.3                   | 176                                | 2300               | 3600                             | 0.08                                   | 567                                                      | 34.32                                |
| 1x300                               |             | 22.7                       | 30                     | 32                     | 192                                | 3200               | 4500                             | 0.06                                   | 651                                                      | 42.9                                 |
| D12Y11Y-O power cables, three core  |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 3x1,5                               |             | 1.5                        | 6.5                    | 7.5                    | 45                                 | 115                | 60                               | 13.3                                   | 24                                                       | 0.21                                 |
| 3x2,5                               | 20156877    | 2                          | 8.5                    | 9.5                    | 57                                 | 130                | 110                              | 7.98                                   | 32                                                       | 0.36                                 |
| D12Y11Y-J power cables, four core   |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 4x1,5                               |             | 1.5                        | 8.1                    | 9.1                    | 55                                 | 120                | 90                               | 13.3                                   | 24                                                       | 0.21                                 |
| 4x2,5                               | 20156878    | 2                          | 9.2                    | 10.2                   | 61                                 | 160                | 150                              | 7.98                                   | 32                                                       | 0.36                                 |
| 4x4                                 | 20160347    | 2.6                        | 10.3                   | 11.5                   | 69                                 | 230                | 240                              | 4.95                                   | 43                                                       | 0.57                                 |
| 4x6                                 |             | 3.2                        | 12.1                   | 13.2                   | 80                                 | 320                | 360                              | 3.3                                    | 56                                                       | 0.86                                 |
| 4x10                                | 20154577    | 4                          | 15                     | 16.2                   | 97                                 | 520                | 600                              | 1.91                                   | 78                                                       | 1.43                                 |
| 4x16                                | 20156879    | 5                          | 17.7                   | 18.9                   | 113                                | 750                | 960                              | 1.21                                   | 104                                                      | 2.29                                 |
| 4x25                                | 20160348    | 6.2                        | 21.1                   | 22.5                   | 135                                | 1160               | 1500                             | 0.78                                   | 138                                                      | 3.58                                 |
| 4x35                                |             | 7.8                        | 25.8                   | 27.4                   | 164                                | 1650               | 2100                             | 0.55                                   | 170                                                      | 5.01                                 |
| 4x50                                |             | 9.6                        | 31                     | 33                     | 198                                | 2410               | 3000                             | 0.39                                   | 212                                                      | 7.15                                 |
| 4x70                                |             | 11.1                       | 38.1                   | 40.6                   | 244                                | 3070               | 4200                             | 0.27                                   | 263                                                      | 10.01                                |
| 4x95                                |             | 12.6                       | 42.0                   | 44.5                   | 267                                | 4150               | 5700                             | 0.21                                   | 316                                                      | 13.59                                |
| D12Y11Y-J power cables, five core   |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 5x1,5                               |             | 1.5                        | 8                      | 9                      | 54                                 | 150                | 110                              | 13.3                                   | 24                                                       | 0.21                                 |
| 5x2,5                               |             | 2                          | 9.8                    | 11                     | 66                                 | 180                | 180                              | 7.98                                   | 32                                                       | 0.36                                 |
| 5x4                                 | 20154579    | 2.6                        | 11.6                   | 12.7                   | 77                                 | 290                | 300                              | 4.95                                   | 43                                                       | 0.57                                 |
| 5x6                                 | 20154578    | 3.2                        | 14                     | 15.2                   | 91                                 | 420                | 450                              | 3.3                                    | 56                                                       | 0.86                                 |
| 5x10                                |             | 4                          | 16.2                   | 17.5                   | 105                                | 630                | 750                              | 1.91                                   | 78                                                       | 1.43                                 |
| 5x16                                | 20166492    | 5                          | 19.4                   | 20.6                   | 124                                | 920                | 1200                             | 1.21                                   | 104                                                      | 2.29                                 |
| 5x25                                |             | 6.2                        | 23.2                   | 24.5                   | 148                                | 1380               | 1870                             | 0.78                                   | 138                                                      | 3.58                                 |
| D12Y11Y-J Control cables            |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 7x1,5                               |             | 1.5                        | 9                      | 10                     | 60                                 | 220                | 150                              | 13.3                                   | 24                                                       | 0.21                                 |
| 12x1,5                              |             | 1.5                        | 14.3                   | 15.5                   | 93                                 | 320                | 270                              | 13.3                                   | 24                                                       | 0.21                                 |
| 18x1,5                              | 20154580    | 1.5                        | 14.5                   | 15.7                   | 94                                 | 380                | 400                              | 13.3                                   | 24                                                       | 0.21                                 |
| 24x1,5                              | 20157942    | 1.5                        | 16.5                   | 17.8                   | 107                                | 500                | 540                              | 13.3                                   | 24                                                       | 0.21                                 |
| 30x1,5                              |             | 1.5                        | 19.6                   | 21                     | 126                                | 680                | 670                              | 13.3                                   | 24                                                       | 0.21                                 |
| 36x1,5                              |             | 1.5                        | 21.1                   | 22.5                   | 135                                | 770                | 810                              | 13.3                                   | 24                                                       | 0.21                                 |
| 7x2,5                               | 20166594    | 2                          | 11.5                   | 12.7                   | 76                                 | 250                | 260                              | 7.98                                   | 32                                                       | 0.36                                 |
| 12x2,5                              | 20160349    | 2                          | 16.5                   | 17.7                   | 106                                | 460                | 450                              | 7.98                                   | 32                                                       | 0.36                                 |

| Number of cores x cross section | Part number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|---------------------------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| 18x2,5                          | 20149380    | 2                          | 16.7                   | 17.9                   | 107                                | 580                | 670                              | 7.98                                   | 32                                                       | 0.36                                 |
| 24x2,5                          | 20149192    | 2                          | 19.2                   | 20.4                   | 122                                | 760                | 900                              | 7.98                                   | 32                                                       | 0.36                                 |
| 30x2,5                          |             | 2                          | 24.9                   | 26.5                   | 159                                | 1080               | 1120                             | 7.98                                   | 32                                                       | 0.36                                 |
| 36x2,5                          |             | 2                          | 25.9                   | 27.5                   | 165                                | 1300               | 1350                             | 7.98                                   | 32                                                       | 0.36                                 |

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical annexes). For articles without part number the values shown are approximate, and need to be confirmed in case of order.

**NOTES**

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## FESTOONFLEX C-PUR-HF D12YC11Y

Low voltage screened round cable PUR sheathed for festoon application



### Application

For use as energy and control cable in festoon systems under severe conditions, incl. frequent bending. Also for drag lines, machine tools or materials handling systems.

### Global data

|                  |                      |
|------------------|----------------------|
| Brand            | FESTOONFLEX C PUR-HF |
| Type designation | D12YC11Y-J/O         |

### Design features

|                          |                                                                                                              |
|--------------------------|--------------------------------------------------------------------------------------------------------------|
| Conductor                | Plain copper, flexible class 5 acc. to DIN EN 60228 / DIN VDE 0295                                           |
| Insulation               | Halogen free compound, based on polyester                                                                    |
| Core identification      | Up to 5 cores: colored in accordance with DIN VDE 0293-308<br>From 6 cores: natural color with black numbers |
| Core arrangement         | Cores/Pairs twisted with short length of lay around central element                                          |
| Inner sheath             | Due to technical reasons some of the cross section are produced with an additional polyurethane inner sheath |
| Screen over inner sheath | Braid of tinned copper wires                                                                                 |
| Outer sheath             | Polyurethane, halogen free, flame retardant;<br>Colour: black (opaque).                                      |
| Marking                  | White imprint:<br>FESTOONFLEX C-PUR-HF -J/-O (number of cores) x (cross-section) (year/week)                 |

### Electrical parameters

|                                       |                        |
|---------------------------------------|------------------------|
| Rated voltage                         | 0.6/1 kV (600/1000V)   |
| Max. permissible operating voltage AC | 0.7/1.2 kV             |
| Max. permissible operating voltage DC | 0.9/1.8 kV             |
| AC Test Voltage                       | 4 kV (5 Min.)          |
| Current Carrying Capacity description | Acc. to DIN VDE 0298-4 |

### Chemical parameters

|                    |                                                                                                     |
|--------------------|-----------------------------------------------------------------------------------------------------|
| Resistance to fire | Similar to IEC 60332-1                                                                              |
| Water resistance   | The cables are suitable for permanent use in water (no drinking water) up to 50 meter diving depth. |

### Thermal parameters

|                                                 |                         |
|-------------------------------------------------|-------------------------|
| Max. permissible temperature at conductor       | 90 °C                   |
| Max. short circuit temperature of the conductor | 250 °C                  |
| Ambient temperature for fixed installation      | min -50 °C ; max +80 °C |
| Ambient temperature in fully flexible operation | min -40 °C ; max +80 °C |

### Mechanical parameters

|                                    |                                                                                                                                                                                                                                          |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. tensile load on the conductor | 15 N/mm <sup>2</sup>                                                                                                                                                                                                                     |
| Torsional stress                   | Not allowed                                                                                                                                                                                                                              |
| Min. bending radius                | 6 x D (Proved by flexing tests acc. to HD 22.2 part 3.1)                                                                                                                                                                                 |
| Travel speed                       | - In festoon systems: up to 210 m/min;<br>- In chain systems: up to 210 m/min (note: trouble free operation is influenced by several factors, among all the chain length. For long chain system we recommend to operate at lower speed). |

| Number of cores x cross section               | Part number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|-----------------------------------------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| D12YC11Y-O screened power cables, single core |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 1x25                                          |             | 6.2                        | 10.3                   | 11.5                   | 69                                 | 330                | 370                              | 0.78                                   | 138                                                      | 3.58                                 |
| 1x35                                          | 20161370    | 7.8                        | 12.3                   | 13.5                   | 81                                 | 430                | 520                              | 0.55                                   | 170                                                      | 5.01                                 |
| 1x50                                          |             | 8.9                        | 15.4                   | 16.6                   | 100                                | 610                | 750                              | 0.39                                   | 212                                                      | 7.15                                 |
| 1x70                                          | 20157795    | 11.1                       | 17.0                   | 18.3                   | 110                                | 810                | 1050                             | 0.27                                   | 263                                                      | 10.01                                |
| 1x95                                          |             | 12.6                       | 18.9                   | 20.1                   | 121                                | 1030               | 1420                             | 0.21                                   | 316                                                      | 13.59                                |
| 1x120                                         | 20156875    | 14.8                       | 21.4                   | 22.8                   | 137                                | 1320               | 1800                             | 0.16                                   | 370                                                      | 17.16                                |
| 1x150                                         |             | 16                         | 23.1                   | 24.5                   | 147                                | 1650               | 2250                             | 0.13                                   | 424                                                      | 21.45                                |
| 1x185                                         |             | 17.7                       | 25.5                   | 27.2                   | 163                                | 2000               | 2770                             | 0.11                                   | 484                                                      | 26.46                                |
| 1x240                                         |             | 20.2                       | 28.5                   | 30.1                   | 181                                | 2490               | 3600                             | 0.08                                   | 567                                                      | 34.32                                |
| D12YC11Y-J screened power cables, four core   |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 4x1,5                                         |             | 1.5                        | 10.8                   | 12                     | 72                                 | 240                | 90                               | 13.3                                   | 24                                                       | 0.21                                 |
| 4x2,5                                         | 20166386    | 2                          | 12.1                   | 13.2                   | 80                                 | 250                | 150                              | 7.98                                   | 32                                                       | 0.36                                 |
| 4x4                                           |             | 2.6                        | 13.6                   | 14.7                   | 89                                 | 330                | 240                              | 4.95                                   | 43                                                       | 0.57                                 |
| 4x6                                           | 20161501    | 3.2                        | 15.1                   | 16.3                   | 98                                 | 420                | 360                              | 3.3                                    | 56                                                       | 0.86                                 |
| 4x10                                          |             | 4                          | 18.4                   | 19.6                   | 118                                | 640                | 600                              | 1.91                                   | 78                                                       | 1.43                                 |
| 4x16                                          | 20166385    | 5                          | 21.2                   | 22.5                   | 136                                | 940                | 960                              | 1.21                                   | 104                                                      | 2.29                                 |
| 4x25                                          |             | 6.2                        | 24.5                   | 26.2                   | 157                                | 1360               | 1500                             | 0.78                                   | 138                                                      | 3.58                                 |
| 4x35                                          | 20168451    | 7.8                        | 29.6                   | 31.6                   | 190                                | 1870               | 2100                             | 0.55                                   | 170                                                      | 5.01                                 |
| 4x50                                          |             | 9.6                        | 35.1                   | 37.6                   | 226                                | 2560               | 3000                             | 0.39                                   | 212                                                      | 7.15                                 |
| D12YC11Y-J screened power cables, five core   |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 5x1,5                                         |             | 1.5                        | 10.9                   | 12.1                   | 73                                 | 250                | 110                              | 13.3                                   | 24                                                       | 0.21                                 |
| 5x2,5                                         |             | 2                          | 12.8                   | 14                     | 84                                 | 280                | 180                              | 7.98                                   | 32                                                       | 0.36                                 |
| 5x4                                           |             | 2.6                        | 13.8                   | 15                     | 90                                 | 345                | 300                              | 4.95                                   | 43                                                       | 0.57                                 |
| D12YC11Y-J screened control cables            |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 7x1,5                                         | 20166387    | 1.5                        | 10.9                   | 12.1                   | 73                                 | 220                | 150                              | 13.3                                   | 24                                                       | 0.21                                 |
| 12x1,5                                        | 20156247    | 1.5                        | 15                     | 16.2                   | 97                                 | 360                | 270                              | 13.3                                   | 24                                                       | 0.21                                 |
| 18x1,5                                        | 20157796    | 1.5                        | 15                     | 16.2                   | 97                                 | 420                | 400                              | 13.3                                   | 24                                                       | 0.21                                 |
| 12x2,5                                        |             | 2                          | 17.4                   | 18.6                   | 112                                | 530                | 450                              | 7.98                                   | 32                                                       | 0.36                                 |
| 18x2,5                                        |             | 2                          | 17.5                   | 18.8                   | 113                                | 650                | 670                              | 7.98                                   | 32                                                       | 0.36                                 |
| D12YC11Y-O overall screened control pairs     |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 3x(2x1,5)                                     |             | 1.5                        | 16.5                   | 17.8                   | 107                                | 350                | 130                              | 13.3                                   | 24                                                       | 0.21                                 |
| 4x(2x1)                                       |             | 1.3                        | 15.3                   | 16.5                   | 99                                 | 310                | 120                              | 19.5                                   | 19                                                       | 0.14                                 |
| 4x(2x1,5)                                     |             | 1.5                        | 17.2                   | 18.5                   | 111                                | 385                | 180                              | 13.3                                   | 24                                                       | 0.21                                 |
| D12Y11Y-O individually screened control pairs |             |                            |                        |                        |                                    |                    |                                  |                                        |                                                          |                                      |
| 4x(2x1)C                                      | 20161461    | 1.3                        | 15.9                   | 17.1                   | 103                                | 350                | 120                              | 19.5                                   | 19                                                       | 0.14                                 |
| 6x(2x1)C                                      | 20160120    | 1.3                        | 19.0                   | 20.3                   | 122                                | 480                | 180                              | 19.5                                   | 19                                                       | 0.14                                 |
| 9x(2x1)C                                      |             | 1.3                        | 23.6                   | 25                     | 150                                | 721                | 270                              | 19.5                                   | 19                                                       | 0.14                                 |
| 2x(2x1,5)C                                    |             | 1.5                        | 15.2                   | 16.4                   | 98                                 | 280                | 90                               | 13.3                                   | 24                                                       | 0.21                                 |

| Number of cores x cross section | Part number | Conductor diameter max. mm | Outer diameter min. mm | Outer diameter max. mm | Bending radius free moving min. mm | Weight (ca.) kg/km | Permissible tensile force max. N | Conductor resistance at 20°C max. Ω/km | Current carrying capacity for install. free in air (2) A | Short Circuit Current (conductor) kA |
|---------------------------------|-------------|----------------------------|------------------------|------------------------|------------------------------------|--------------------|----------------------------------|----------------------------------------|----------------------------------------------------------|--------------------------------------|
| 2x(2x2,5)C                      |             | 2                          | 17.2                   | 18.5                   | 111                                | 340                | 150                              | 7.98                                   | 32                                                       | 0.36                                 |
| 3x(2x1,5)C                      | 20156880    | 1.5                        | 17.2                   | 18.5                   | 111                                | 350                | 130                              | 13.3                                   | 24                                                       | 0.21                                 |
| 3x(2x2,5)C                      |             | 2                          | 17.5                   | 18.8                   | 113                                | 390                | 220                              | 7.98                                   | 32                                                       | 0.36                                 |

(2) Nominal current carrying capacity for rubber cables installed free in air, at 30°C ambient temperature (see also technical annexes). For articles without part number the values shown are approximate, and need to be confirmed in case of order.

## NOTES

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