Data sheet
chainflex® CF35.UL

Motor cable (Class 6.6.4.1) • For extremely heavy duty applications • TPE outer jacket • Shielded • Oil and bio-oil resistant • Flame retardant • UV-resistant • Hydrolysis and microbe-resistant

Example image
For detailed overview please see design table

Cable structure
Conductor
- Cores < 10 mm²: Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
- Cores ≥ 10 mm²: Conductor cable consisting of pre-leads (following DIN EN 60228).

Core insulation
Mechanically high-quality, especially low-capacitance TPE mixture.

Core structure
Cores wound with a short pitch length around a high tensile strength centre element.

Core identification
Black cores with white numbers, one green-yellow core.
1. Core: U / L1 / C / L+ 2. Core: V / L2

Inner jacket
TPE mixture adapted to suit the requirements in e-chains®.

Overall shield
Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires.
Coverage approx. 70 % linear, approx. 90 % optical

Outer jacket
Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®.
Colour: Signal black (similar to RAL 9004)
Printing: white

CFRIP®
Strip cables faster: a tear strip is moulded into the inner jacket
Video ▶ www.igus.eu/CFRIP

Example image
For detailed overview please see design table

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**Guarantee**

month guarantee

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**Data sheet**

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**Dynamic information**

- **Bend radius**
  - e-chain® linear: minimum 7.5 x d
  - flexible: minimum 6 x d
  - fixed: minimum 4 x d

- **Temperature**
  - e-chain® linear
    - flexible: -35 °C up to +90 °C
    - fixed: -50 °C up to +90 °C (following DIN EN 50305)
  - flexible: -45 °C up to +90 °C (following DIN EN 60811-504)

- **v max.**
  - unsupported: 10 m/s
  - gliding: 6 m/s

- **a max.**
  - 80 m/s²

- **Travel distance**
  - Unsupported travel distances and up to 400 m for gliding applications, Class 6

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**Guaranteed service life according to guarantee conditions**

<table>
<thead>
<tr>
<th>Temperature, from/to [°C]</th>
<th>5 million</th>
<th>7.5 million</th>
<th>10 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>-35/-25</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>-25/+80</td>
<td>7.5</td>
<td>8.5</td>
<td>9.5</td>
</tr>
<tr>
<td>+80/+90</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

Minimum guaranteed service life of the cable under the specified conditions. The installation of the cable is recommended within the middle temperature range.

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**Electrical information**

- **Nominal voltage**
  - 600/1000 V (following DIN VDE 0298-3)

- **Testing voltage**
  - 4000 V (following DIN EN 50395)
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Properties and approvals

- UV resistance: High
- Oil resistance: Oil resistant (following DIN EN 60811-404), bio-oil resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
- Flame retardant: According to IEC 60332-1-2, CEI 20-35, FT1, VW-1
- Silicone-free: Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
- UL/CSA: Style 10492 and 21184, 1000 V, 80 °C
- NFPA: Following NFPA 79-2012, chapter 12.9
- DNV-GL: Type approval certificate No. 61 938-14 HH
- EAC: Certificate No. RU C-DE.ME77.B.02324 (TR ZU)
- CTP: Certificate No. C-DE.PB49.B.00420 (Fire protection)
- CEI: Following CEI 20-35
- Lead-free: Following 2011/65/EC (RoHS-II)
- Clean room: According to ISO Class 1. The outer jacket material of this series complies with CF34. UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1
  Following 2014/35/EU

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Typical lab test setup for this cable series

Test bend radius $R$ approx. 55 - 250 mm
Test travel $S$ approx. 1 - 15 m
Test duration minimum 2 - 4 million double strokes
Test speed approx. 0.5 - 2 m/s
Test acceleration approx. 0.5 - 1.5 m/s²

Typical application areas
● For extremely heavy duty applications, Class 6
● Unsupported travel distances and up to 400 m and more for gliding applications, Class 6
● Almost unlimited resistance to oil, also with bio-oils, Class 4
● No torsion, Class 1
● Indoor and outdoor applications, UV-resistant
● Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications

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Technical tables:
Mechanical information

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Number of cores and conductor nominal cross section [mm²]</th>
<th>Outer diameter (d) max. [mm]</th>
<th>Copper index [kg/km]</th>
<th>Weight [kg/km]</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF35.UL.05.04</td>
<td>(4G0.5)C</td>
<td>8.0</td>
<td>42</td>
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<td>CF35.UL.25.04</td>
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<tr>
<td>CF35.UL.40.04</td>
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<td>209</td>
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<td>CF35.UL.60.04</td>
<td>(4G6.0)C</td>
<td>16.0</td>
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<td>CF35.UL.100.04</td>
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<td>CF35.UL.160.04</td>
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<td>CF35.UL.250.04</td>
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<td>28.0</td>
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<td>(3x50)C</td>
<td>33.5</td>
<td>1714</td>
<td>2234</td>
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</tbody>
</table>

11) Phase-out model

Note: The given outer diameters are maximum values and may tend toward lower tolerance limits. G = with green-yellow earth core x = without earth core

Electrical information

<table>
<thead>
<tr>
<th>Conductor nominal cross section [mm²]</th>
<th>Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]</th>
<th>Maximum current rating at 30 °C (following DIN VDE 0298-4) [A]</th>
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<tbody>
<tr>
<td>0.5</td>
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</tr>
<tr>
<td>50</td>
<td>0.39</td>
<td>202</td>
</tr>
</tbody>
</table>

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.
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<table>
<thead>
<tr>
<th>Part No.</th>
<th>Number of cores</th>
<th>Core design</th>
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<tbody>
<tr>
<td>CF35.UL.XX.03.O.PE</td>
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