## Chainflex® types

<table>
<thead>
<tr>
<th>Chainflex® cable</th>
<th>Jacket</th>
<th>Shield</th>
<th>Bend radius [factor x d]</th>
<th>Temperature, E-Chain® from/to [°F]</th>
<th>Applicable and standards</th>
<th>oil-resistant</th>
<th>torsion resistant</th>
<th>v max. [ft/s], unsupported</th>
<th>v max. [ft/s] gliding</th>
<th>a max. [ft/s²]</th>
<th>Page</th>
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<tbody>
<tr>
<td>CF240</td>
<td>PVC</td>
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<td>10</td>
<td>+41 /+158</td>
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<td>✓</td>
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<td>6.8</td>
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<td>✓</td>
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<td>158</td>
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### Data cables – Stranded in layers

**Exclusive! Chainflex® guarantee – guaranteed lifetime**

*Selection table page 140*

- CF240
- CF240-PUR
- CF211
- CF211-PUR
- CF11
- CF112
- CF12
- CFthermo
- CFkoax

### Data cables – Twisted Pair

- CF240
- CF240-PUR
- CF211
- CF211-PUR
- CF11
- CF112
- CF12
- CFthermo
- CFkoax

### Data cables – Twisted Pair/Pair shield

- CF112
- CF12

### Data cables – Thermo (chapter “special cables” - page 412)

- CFthermo

### Data cables – Coax

- CFkoax
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<th>Chainflex&lt;sup&gt;®&lt;/sup&gt; cable</th>
<th>Temperature, from/to [°F]</th>
<th>Unsupported</th>
<th>Gliding</th>
<th>v max. [ft/s]</th>
<th>a max. [ft/s²]</th>
<th>Travel distance [ft]</th>
<th>Bend radius min. [factor x d]</th>
<th>Bend radius min. [factor x d]</th>
<th>Bend radius min. [factor x d]</th>
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<td>+59 / +140</td>
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<td>10</td>
<td>16</td>
<td>13.5</td>
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<tr>
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<td>+14 / +158</td>
<td>9.843</td>
<td>6.562</td>
<td>65.62</td>
<td>≤ 164</td>
<td>12.5</td>
<td>10</td>
<td>16</td>
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<td>9.843</td>
<td>164</td>
<td>≤ 328.1</td>
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<td>11</td>
<td>10</td>
<td>8.5</td>
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<td>+14 / +158</td>
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<td>164</td>
<td>≤ 328.1</td>
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<td>12.5</td>
<td>13.5</td>
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</table>

**Guaranteed lifetime (1)**

<table>
<thead>
<tr>
<th>Data cables – Twisted Pair</th>
<th>5 million cycles *</th>
<th>7.5 million cycles *</th>
<th>10 million cycles *</th>
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<tbody>
<tr>
<td>CF211</td>
<td>12</td>
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<td>9.5</td>
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<td><strong>Data cables – Stranded in layers</strong></td>
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<td><strong>Data cables – Coax</strong></td>
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<tr>
<td>CFKoax1/3</td>
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</table>

Data cables – Stranded in layers

- Chainflex® guarantee
- Guaranteed lifetime for this series according to the guarantee conditions > page 22-25

*Guaranteed lifetime, higher numbers of cycles possible.

1) Exclusive! Guaranteed lifetime for this series according to the guarantee conditions > page 22-25

**Guaranteed lifetime (1)**

- Data cables – Twisted Pair
- 5 million cycles *
- 7.5 million cycles *
- 10 million cycles *

**Guaranteed lifetime (1)**

1) Exclusive! Guaranteed lifetime for this series according to the guarantee conditions > page 22-25

*Guaranteed lifetime, higher numbers of cycles possible.
PVC Data cable | CF240

- For medium mechanical load requirements
- PVC outer jacket
- Shielded
- Oil-resistant
- Flame-retardant

Dynamic Information

E-Chains®

| Bend radius | flex. | min. 10 x d |
| Temperature | flex. | +41 °F to +158 °F (+5 °C to +70 °C) |
|             | fixed | min. 8 x d |
|            |        | +23 °F to +158 °F (-5 °C to +70 °C) |

Cable structure

Conductors

Conductor consisting of bare copper wires (according to EN 60228).

Conductor insulation

Mechanically high-quality TPE mixture.

Conductor construction

Conductors are cabled in layers with short pitch lengths.

Color code

Color code in accordance with DIN 47100.

Intermediate layer

Polyester tape over external layer.

Overall shield

Extremely bending-resistant tinned copper braid.

Outer jacket

Low-adhesion, oil-resistant mixture on the basis of PVC, adapted to suit the requirements in E-Chains® (following DIN VDE 0281 Part 13). Color: Silver-gray (similar to RAL 7001).

Electrical Information

Nominal voltage

300 V

Test voltage

1500 V

Properties and approvals

- Oil resistance
- Flame resistance
- Silicone-free
- UL/CSA
- NFPA 79
- EAC
- CEI
- Lead-free
- Cleanroom

Guaranteed lifetime according to guarantee conditions (Page 22-25)

Cycles* 5 million 7.5 million 10 million

Temperature, from/to [°F] Travel distance [ft] R min. [factor x d] R min. [factor x d] R min. [factor x d]

+41 / +59 < 32.81 ft 12.5 15 13.5 16

+59 / +140 ≤ 164 10 12.5 11 13.5 12 14.5

+140 / +158 12.5 15 13.5 16

*a Higher number of cycles possible - please ask for your individual calculation.

Typical application areas

- For medium mechanical load requirements
- Light oil influence
- Preferably indoor applications, can be used in outdoor applications with temperatures > 23 °F
- Unsupported travel distances and for gliding applications up to 164 ft (50 m)
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, Handling, indoor cranes

Configurators ► www.igus.com/CF240

1,244 types from stock ... no cutting costs* ... no minimum order quantity ...

36 months guarantee on every chainflex® cable ... up to 10 million cycles guaranteed ...

*(up to 10 cuts of the same part number)
1,244 types from stock ... no cutting costs* ... no minimum order quantity ...
*(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ... up to 10 million cycles guaranteed ...

Order example: CF240-02-03 – In your desired length

CF240 Chainflex® series -02 Code nominal cross section -03 Number of conductors

Online order ▶️ www.chainflex.com/CF240

Delivery time 24hr or today.
Delivery time means time until shipping of goods.

Configurators ▶️ www.igus.com/CF240

Note: The mentioned outer diameters are maximum values.

PVC Data cable | CF240

Class 4.4.2.1

Image exemplary.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>AWG</th>
<th>Number of Conductors and rated cross section [mm²]</th>
<th>Outer diameter max.</th>
<th>Copper index</th>
<th>Weight</th>
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<td></td>
<td></td>
<td></td>
<td>in. mm lbs/ft kg/m lbs/ft kg/m</td>
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</table>
36 months guarantee on every chainflex® cable up to 10 million cycles guaranteed...

1,244 types from stock ... no cutting costs* ...
... no minimum order quantity ...

*(up to 10 cuts of the same part number)
36 months guarantee on every chainflex® cable ... up to 10 million cycles guaranteed ...

1,244 types from stock ... no cutting costs* ...
... no minimum order quantity ...
*(up to 10 cuts of the same part number)

PVC iguPUR PUR TPE

Order example: CF240-PUR-02-03 – In your desired length
CF240-PUR Chainflex® series -02 Code nominal cross section -03 Number of conductors

Online order ► www.chainflex.com/CF240PUR

Delivery time means time until shipping of goods.

Order example: CF240-PUR-02-03 – In your desired length
CF240-PUR Chainflex® series -02 Code nominal cross section -03 Number of conductors

Online order ► www.chainflex.com/CF240PUR

Delivery time means time until shipping of goods.

Configurators ► www.igus.com/CF240PUR

1) Delivery time upon request
Note: The mentioned outer diameters are maximum values.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>AWG</th>
<th>Number of Conductors and rated cross section [mm²]</th>
<th>Outer diameter max.</th>
<th>Copper index</th>
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<td>9.4</td>
</tr>
<tr>
<td>CF240-PUR-01-04</td>
<td>26</td>
<td>4 x 0.14</td>
<td>0.24</td>
<td>6.0</td>
<td>10.8</td>
</tr>
<tr>
<td>CF240-PUR-01-05</td>
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<td>0.24</td>
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<td>0.24</td>
<td>6.0</td>
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</tr>
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<td>CF240-PUR-03-04</td>
<td>22</td>
<td>4 x 0.34</td>
<td>0.26</td>
<td>6.5</td>
<td>20.8</td>
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<tr>
<td>CF240-PUR-03-05</td>
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<tr>
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<td>18 x 0.34</td>
<td>0.41</td>
<td>10.5</td>
<td>65.2</td>
</tr>
</tbody>
</table>

1) Delivery time upon request
Note: The mentioned outer diameters are maximum values.
PVC Data cable | CF211

- For high mechanical load requirements
- PVC outer jacket
- Shielded
- Twisted pair
- Oil-resistant
- Flame-retardant

Dynamic Information

- **Bend radius**
  - E-Chain® flexible: min. 7.5 x d
  - fixed: min. 4 x d
- **Temperature**
  - E-Chain® flexible: +41 °F to +158 °F (+5 °C to +70 °C)
  - fixed: +5 °F to +158 °F (-15 °C to +70 °C)
- **v max.**
  - unsupported: 16.41 ft/s (5 m/s)
  - gliding: 9.84 ft/s (3 m/s)
- **a max.**
  - unsupported: 164.1 ft/s² (50 m/s²)

Cable Structure

- **Conductors**
  - Conductor consisting of bare copper wires (according to EN 60228).
- **Conductor insulation**
  - Mechanically high-quality TPE mixture.
- **Conductor construction**
  - Twisted Pairs cabled together with short pitch lengths.
- **Color code**
  - Color code in accordance with DIN 47100.
- **Intermediate layer**
  - Polyester tape over external layer.
- **Overall shield**
  - Extremely bending-resistant tinned copper braid.
  - 90 % optical coverage
- **Outer jacket**
  - Low-adhesion, oil-resistant mixture on the basis of PVC, adapted to suit the requirements in E-Chains® (following DIN VDE 0281 Part 13).
  - Color: Silver-gray (similar to RAL 7001)

Electrical Information

- **Nominal voltage**
  - 300 V
- **Test voltage**
  - 1500 V

Configurators | www.igus.com/CF211

| Class 5.5.2.1 |
| Properties and approvals |
| Oil resistance | Oil-resistant (following DIN EN 50363-4-1), Class 2 |
| Flame resistance | 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 10493 and 2484, 300 V, 80 °C |
| NFPA 79 | Complies to NFPA 79-2015 chapter 12.9 |
| EAC | Certified according to no. TC RU C-DE.ME77.B.01254 |
| CTP | Certified according to no. C-DE.PB49.B.00416 |
| CEI | Following CEI 20-35 |
| Lead-free | Following 2011/65/EC (RoHS-II) |
| Cleanroom | According to ISO Class 1. Outer jacket material complies with CF240-02-24, tested by IPA according to standard 14644-1 |
| CE | Following 2014/35/EC |

Guaranteed lifetime according to guarantee conditions (Page 22-25)

| Cycles* | 5 million | 7.5 million | 10 million |
| Temperature, from/to [°F] | v max. [ft/s] | a max. [ft/s²] | Travel distance [ft] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| +41 / +59 | 16.4 | 9.843 | 164 | ≤ 328.1 | 10 | 11 | 12 |
| +59 / +140 | 164 | 8.5 | 9.5 |
| +140 / +158 | 10 | 11 | 12 |

* Higher number of cycles possible - please ask for your individual calculation.

Typical application areas

- For high mechanical load requirements
- Light oil influence
- Preferably indoor applications, can be used in outdoor applications with temperatures > 23 °F
- Unsupported travel distances and for gliding applications up to 328 ft (100 m)
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, handling, indoor cranes

Image exemplary.
CF211 PVC 7,5 x d

PVC Data cable | CF211

IGUS® CHAINFLEX® CF211

Image exemplary.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>AWG</th>
<th>Number of Pairs and rated cross section [mm²]</th>
<th>Outer diameter max.</th>
<th>Copper index</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF211-02-01-02</td>
<td>24</td>
<td>1 PR x 0.25</td>
<td>0.20</td>
<td>5.0</td>
<td>11.4</td>
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<tr>
<td>CF211-02-02-02</td>
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<td>2 PR x 0.25</td>
<td>0.24</td>
<td>6.0</td>
<td>16.1</td>
</tr>
<tr>
<td>CF211-02-03-02</td>
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<td>3 PR x 0.25</td>
<td>0.28</td>
<td>7.0</td>
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</tr>
<tr>
<td>CF211-02-04-02</td>
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<td>4 PR x 0.25</td>
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<td>8.0</td>
<td>28.2</td>
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<tr>
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<td>CF211-02-08-02</td>
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<td>8 PR x 0.25</td>
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<td>50.4</td>
</tr>
<tr>
<td>CF211-02-10-02</td>
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<td>10 PR x 0.25</td>
<td>0.47</td>
<td>12.0</td>
<td>63.8</td>
</tr>
<tr>
<td>CF211-02-14-02</td>
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<td>14 PR x 0.25</td>
<td>0.47</td>
<td>12.0</td>
<td>73.3</td>
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<tr>
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<td>3 PR x 0.34</td>
<td>0.31</td>
<td>8.0</td>
<td>31.6</td>
</tr>
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<td>CF211-03-08-02</td>
<td>22</td>
<td>8 PR x 0.34</td>
<td>0.45</td>
<td>11.5</td>
<td>65.2</td>
</tr>
<tr>
<td>CF211-03-10-02</td>
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<td>5.5</td>
<td>16.8</td>
</tr>
<tr>
<td>CF211-05-02-02</td>
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<td>2 PR x 0.5</td>
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<td>7.0</td>
<td>26.2</td>
</tr>
<tr>
<td>CF211-05-03-02</td>
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<td>3 PR x 0.5</td>
<td>0.35</td>
<td>9.0</td>
<td>39.0</td>
</tr>
<tr>
<td>CF211-05-04-02</td>
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<td>4 PR x 0.5</td>
<td>0.37</td>
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<td>47.7</td>
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<tr>
<td>CF211-05-05-02</td>
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<td>5 PR x 0.5</td>
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<td>10.5</td>
<td>58.5</td>
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<tr>
<td>CF211-05-06-02</td>
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<td>6 PR x 0.5</td>
<td>0.45</td>
<td>11.5</td>
<td>64.5</td>
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<tr>
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<td>8 PR x 0.5</td>
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<td>89.4</td>
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<td>CF211-05-10-02</td>
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<td>121.8</td>
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<td>CF211-05-14-02</td>
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<td>14 PR x 0.5</td>
<td>0.61</td>
<td>15.5</td>
<td>134.4</td>
</tr>
</tbody>
</table>

1) Delivery time upon request
2) The chainflex® types marked with are cables designed as a star-quad.

Note: The mentioned outer diameters are maximum values.

Order example: CF211-02-04-02 – In your desired length
CF211 Chainflex® series -02 Code nominal cross section -04 Number of pairs -02 Identification pairs

Online order ➤ www.chainflex.com/CF211

Delivery time 24hr or today.
Delivery time means time until shipping of goods.

Configurators ➤ www.igus.com/CF211

1,244 types from stock ... no cutting costs* ... no minimum order quantity ...
36 months guarantee on every chainflex® cable ... up to 10 million cycles guaranteed ... *(up to 10 cuts of the same part number)
PUR Data cable | CF211-PUR

● For high mechanical load requirements
● PUR outer jacket
● Shielded
● Twisted pair
● Oil-resistant and coolant-resistant
● Notch-resistant
● PVC-free/halogen-free
● Flame-retardant
● Hydrolysis/microbe-resistant

Dynamic Information

**Bend radius**
- E-Chain®: min. 7.5 x d
- flexible: min. 6 x d
- fixed: min. 4 x d

**Temperature**
- E-Chain®: -13 °F to +176 °F (-25 °C to +80 °C)
- flexible: -40 °F to +176 °F (-40 °C to +80 °C)
- fixed: -58 °F to +176 °F (-50 °C to +80 °C)

**v max.**
- unsupported: 16.4 ft/s (5 m/s)
- gliding: 9.84 ft/s (3 m/s)

**a max.**
- 164.1 ft/s² (50 m/s²)

**Travel distance**
Unsupported travel distances and for gliding applications up to 328 ft (100 m), Class 5

**Cable structure**
- Conductors: Conductor consisting of bare copper wires (according to EN 60228).
- Conductor insulation: Mechanically high-quality TPE mixture.
- Conductor construction: Twisted Pairs cabled together with short pitch lengths.
- Color code: Color code in accordance with DIN 47100.
- Intermediate layer: Polyester tape over external layer.
- Overall shield: Extremely bending-resistant tinned copper braid. 90 % optical coverage
- Outer jacket: Low-adhesion, highly abrasion-resistant mixture on the basis of PUR, adapted to suit the requirements in E-Chains® (following DIN VDE 0282 Part 10). Color: Silver-gray (similar to RAL 7001)

Electrical Information

**Nominal voltage**
300 V

**Test voltage**
1500 V

Configurators ► www.igus.com/CF211PUR

---

New!

Class 5.5.3.1

Properties and approvals

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Value</th>
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<tbody>
<tr>
<td>UV resistance</td>
<td>Medium</td>
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<tr>
<td>Oil resistance</td>
<td>Oil-resistant (following DIN EN 50363-10-2), Class 3</td>
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<tr>
<td>Offshore</td>
<td>MUD-resistant following NEK 606 - status 2009</td>
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<tr>
<td>Flame resistance</td>
<td>According to IEC 60332-1-2, CEI 20-35, FT1, VW-1</td>
</tr>
<tr>
<td>Silicone-free</td>
<td>Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)</td>
</tr>
<tr>
<td>Halogen-free</td>
<td>Following DIN EN 60754</td>
</tr>
<tr>
<td>UL/CSA</td>
<td>Style 10493 and 20233, 300 V, 80 °C</td>
</tr>
<tr>
<td>NFPA 79</td>
<td>Complies to NFPA 79-2015 chapter 12.9</td>
</tr>
<tr>
<td>DNV-GL</td>
<td>Certified according to GL type testing – Certificate no.: 13656-14 HH</td>
</tr>
<tr>
<td>EAC</td>
<td>Certified according to no. TC RJ C-DE.ME77.B.01254</td>
</tr>
<tr>
<td>CTP</td>
<td>Certified according to no. C-DE.PB49.B.00416</td>
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<tr>
<td>CEI</td>
<td>Following CEI 20-35</td>
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<tr>
<td>Lead-free</td>
<td>Following 2011/65/EC (RoHS-II)</td>
</tr>
<tr>
<td>Cleanroom</td>
<td>According to ISO Class 1. Outer jacket material complies with CF77-UL-05-12-D, tested by IPA according to standard 14644-1 Following 2014/35/EC</td>
</tr>
<tr>
<td>UL/CSA</td>
<td>Style 10493 and 20233, 300 V, 80 °C</td>
</tr>
<tr>
<td>NFPA 79</td>
<td>Complies to NFPA 79-2015 chapter 12.9</td>
</tr>
<tr>
<td>DNV-GL</td>
<td>Certified according to GL type testing – Certificate no.: 13656-14 HH</td>
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<td>EAC</td>
<td>Certified according to no. TC RJ C-DE.ME77.B.01254</td>
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<td>CTP</td>
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<tr>
<td>CEI</td>
<td>Following CEI 20-35</td>
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<tr>
<td>Lead-free</td>
<td>Following 2011/65/EC (RoHS-II)</td>
</tr>
<tr>
<td>Cleanroom</td>
<td>According to ISO Class 1. Outer jacket material complies with CF77-UL-05-12-D, tested by IPA according to standard 14644-1 Following 2014/35/EC</td>
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Guaranteed lifetime according to guarantee conditions (Page 22-25)

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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<th></th>
<th></th>
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</thead>
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<tr>
<td>-13 / +5</td>
<td>16.4</td>
<td>9.843</td>
<td>164 ≤ 328.1</td>
<td>10</td>
<td>11</td>
<td>12</td>
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<tr>
<td>+5 / +158</td>
<td>7.5</td>
<td>8.5</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>+158 / +176</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Higher number of cycles possible - please ask for your individual calculation.

Typical application areas

● For high mechanical load requirements
● Almost unlimited resistance to oil
● Indoor and outdoor applications with average sun radiation
● Unsupported travel distances and for gliding applications up to 328 ft (100 m)
● Machining units/machine tools, Storage and retrieval units for high-bay warehouses, Packaging industry, quick handling, refrigerating sector

---

1,244 types from stock ... no cutting costs* ... no minimum order quantity ... *(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ... ... up to 10 million cycles guaranteed ...
1,244 types from stock ... no cutting costs*  
... no minimum order quantity ...
*(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ...  
... up to 10 million cycles guaranteed ...
TPE Data cable | CF11

- For very high mechanical load requirements
- TPE outer jacket
- Shielded
- Twisted pair
- Oil-resistant, bio-oil-resistant
- PVC-free/halogen-free
- Hydrolysis/microbe-resistant

**Dynamic Information**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Bend radius</td>
<td>E-Chain®: min. 6.8 x d</td>
</tr>
<tr>
<td></td>
<td>flexible: min. 5 x d</td>
</tr>
<tr>
<td></td>
<td>fixed: min. 4 x d</td>
</tr>
<tr>
<td>Temperature</td>
<td>E-Chain®: -31 °F to +212 °F (-35 °C to +100 °C)</td>
</tr>
<tr>
<td></td>
<td>flexible: -38 °F to +212 °F (-50 °C to +100 °C)</td>
</tr>
<tr>
<td></td>
<td>fixed: -67 °F to +212 °F (-55 °C to +100 °C)</td>
</tr>
<tr>
<td>v max.</td>
<td>unsupported: 32.81 ft/s (10 m/s)</td>
</tr>
<tr>
<td></td>
<td>gliding: 19.69 ft/s (6 m/s)</td>
</tr>
<tr>
<td>a max.</td>
<td>328.1 ft/s² (100 m/s²)</td>
</tr>
<tr>
<td>Travel distance</td>
<td>Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6</td>
</tr>
</tbody>
</table>

**Cable structure**

- **Conductors**: Conductor consisting of bare copper wires (according to EN 60228).
- **Conductor insulation**: Mechanically high-quality TPE mixture.
- **Conductor construction**: Twisted Pairs cabled together with short pitch lengths.
- **Color code**: 26-18 AWG: Color code according to DIN 47100. 17-14 AWG: Black with white numbers.
- **Inner jacket**: TPE mixture adapted to suit the requirements in E-Chains®.
- **Overall shield**: Extremely bending-resistant tinned copper braid, 90 % optical coverage.
- **Outer jacket**: Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in E-Chains®. Color: Dark blue (similar to RAL 5011)

**Electrical Information**

- **Nominal voltage**: 300 V
- **Test voltage**: 1500 V

**Configurators**: [www.igus.com/CF11](http://www.igus.com/CF11)

---

**Class 6.6.4.1**

**Properties and approvals**

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV resistance</td>
<td>High</td>
</tr>
<tr>
<td>Oil resistance</td>
<td>Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4</td>
</tr>
<tr>
<td>Silicone-free</td>
<td>Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)</td>
</tr>
<tr>
<td>Halogen-free</td>
<td>Following DIN EN 60754</td>
</tr>
<tr>
<td>EAC</td>
<td>Certified according to no. TC RIU C-DE.ME77.B.01254</td>
</tr>
<tr>
<td>Cleanroom</td>
<td>According to ISO Class 1. Outer jacket material complies with CF9-15-07, tested by IPA according to standard 14644-1.</td>
</tr>
<tr>
<td>CE</td>
<td>Following 2014/35/EC</td>
</tr>
</tbody>
</table>

**Guaranteed lifetime according to guarantee conditions (Page 22-25)**

<table>
<thead>
<tr>
<th>Cycles*</th>
<th>5 mio.</th>
<th>7.5 mio.</th>
<th>10 mio.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature, from/to [°F]</td>
<td>v max. [ft/s]</td>
<td>a max. [ft/s²]</td>
<td>Travel distance [ft]</td>
</tr>
<tr>
<td>-31 / -13</td>
<td>32.81</td>
<td>19.69</td>
<td>328.1</td>
</tr>
<tr>
<td>-13 / +194</td>
<td>+194 / +212</td>
<td>6.8</td>
<td>7.8</td>
</tr>
</tbody>
</table>

* Higher number of cycles possible - please ask for your individual calculation.

**Typical application areas**

- For maximum mechanical load requirements
- Almost unlimited resistance to oil, also with bio-oleins
- Indoor and outdoor applications, UV-resistant
- Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications

**Delivery program Measuring system cables**

- Page 244, CF211 (PVC)
- Page 254, CF111-D (PUR)
- Page 268, CF111-D (TPE)
1,244 types from stock ... no cutting costs*  
... no minimum order quantity ... *(up to 10 cuts of the same part number)  
36 months guarantee on every chainflex® cable ...  
... up to 10 million cycles guaranteed ...  

**CF11-01-04-02**
- AWG: 26
- Number of Pairs: 4
- Nominal Cross Section: 0.14 mm²
- Copper Index: 0.30
- Weight: 7.5 lbs/mft, 31 kg/km

**CF11-01-18-02**
- AWG: 26
- Number of Pairs: 18
- Nominal Cross Section: 0.14 mm²
- Copper Index: 0.47
- Weight: 12.0 lbs/mft, 107 kg/km

**CF11-02-01-02**
- AWG: 24
- Number of Pairs: 1
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.24
- Weight: 6.0 lbs/mft, 18 kg/km

**CF11-02-02-02**
- AWG: 24
- Number of Pairs: 2
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.26
- Weight: 6.5 lbs/mft, 28 kg/km

**CF11-02-03-02**
- AWG: 24
- Number of Pairs: 3
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.31
- Weight: 8.0 lbs/mft, 37 kg/km

**CF11-02-04-02**
- AWG: 24
- Number of Pairs: 4
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.33
- Weight: 8.5 lbs/mft, 44 kg/km

**CF11-02-05-02**
- AWG: 24
- Number of Pairs: 5
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.35
- Weight: 9.0 lbs/mft, 52 kg/km

**CF11-02-06-02**
- AWG: 24
- Number of Pairs: 6
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.39
- Weight: 10.0 lbs/mft, 73 kg/km

**CF11-02-09-02**
- AWG: 24
- Number of Pairs: 9
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.49
- Weight: 12.5 lbs/mft, 139 kg/km

**CF11-02-10-02**
- AWG: 24
- Number of Pairs: 10
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.51
- Weight: 13.0 lbs/mft, 198 kg/km

**CF11-02-14-02**
- AWG: 24
- Number of Pairs: 14
- Nominal Cross Section: 0.25 mm²
- Copper Index: 0.53
- Weight: 13.5 lbs/mft, 232 kg/km

**CF11-03-08-02**
- AWG: 22
- Number of Pairs: 8
- Nominal Cross Section: 0.34 mm²
- Copper Index: 0.51
- Weight: 13.0 lbs/mft, 113 kg/km

**CF11-05-04-02**
- AWG: 20
- Number of Pairs: 4
- Nominal Cross Section: 0.5 mm²
- Copper Index: 0.37
- Weight: 9.5 lbs/mft, 82 kg/km

**CF11-05-06-02**
- AWG: 20
- Number of Pairs: 6
- Nominal Cross Section: 0.5 mm²
- Copper Index: 0.47
- Weight: 12.0 lbs/mft, 110 kg/km

**CF11-05-08-02**
- AWG: 20
- Number of Pairs: 8
- Nominal Cross Section: 0.5 mm²
- Copper Index: 0.55
- Weight: 14.0 lbs/mft, 145 kg/km

**CF11-07-03-02**
- AWG: 18
- Number of Pairs: 3
- Nominal Cross Section: 0.75 mm²
- Copper Index: 0.39
- Weight: 10.0 lbs/mft, 87 kg/km

**CF11-10-04-02**
- AWG: 17
- Number of Pairs: 4
- Nominal Cross Section: 1.0 mm²
- Copper Index: 0.47
- Weight: 12.0 lbs/mft, 134 kg/km

**CF11-15-06-02**
- AWG: 16
- Number of Pairs: 6
- Nominal Cross Section: 1.5 mm²
- Copper Index: 0.67
- Weight: 17.0 lbs/mft, 263 kg/km

**CF11-25-03-02**
- AWG: 14
- Number of Pairs: 3
- Nominal Cross Section: 2.5 mm²
- Copper Index: 0.61
- Weight: 15.5 lbs/mft, 226 kg/km

Note: The mentioned outer diameters are maximum values.
36 months guarantee on every chainflex® cable ...
... up to 10 million cycles guaranteed ...
1,244 types from stock ... no cutting costs* 
... no minimum order quantity ...
*(up to 10 cuts of the same part number)
1,244 types from stock ... no cutting costs* ... no minimum order quantity ... *(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ... ... up to 10 million cycles guaranteed ...

---

Order example: CF112-05-04-02 – In your desired length
CF112 chainflex® series -05 Code nominal cross section -04 Number of pairs -02 Identification pairs

Online order ▶️ www.chainflex.com/CF112

Delivery time 24hr or today.
Delivery time means time until shipping of goods.

---

**Part No.** | **AWG** | **Number of Pairs and rated cross section [mm²]** | **Outer diameter max.** | **Copper index** | **Weight in. mm lbs/mft kg/km lbs/mft kg/km**
--- | --- | --- | --- | --- | ---
CF112-02-02-02 | 24 | 2 PR x 0.25 | 0.37 9.5 | 39.6 59 | 88.0 131
CF112-02-03-02 | 24 | 3 PR x 0.25 | 0.39 10.0 | 50.4 75 | 101.5 151
CF112-02-04-02 | 24 | 4 PR x 0.25 | 0.43 11.0 | 57.8 86 | 112.2 167
CF112-02-05-02 | 24 | 5 PR x 0.25 | 0.45 11.5 | 70.6 105 | 130.4 194
CF112-02-06-02 | 24 | 6 PR x 0.25 | 0.49 12.5 | 79.3 118 | 148.5 221
CF112-05-02-02 | 20 | 2 PR x 0.5 | 0.45 11.5 | 53.8 80 | 118.3 176
CF112-05-03-02 | 20 | 3 PR x 0.5 | 0.47 12.0 | 70.6 105 | 135.7 202
CF112-05-04-02 | 20 | 4 PR x 0.5 | 0.51 13.0 | 83.3 124 | 156.6 233
CF112-05-05-02 | 20 | 5 PR x 0.5 | 0.53 13.5 | 101.5 151 | 186.1 277
CF112-05-06-02 | 20 | 6 PR x 0.5 | 0.57 14.5 | 114.9 171 | 216.4 322

* Delivery time upon request!

Note: The mentioned outer diameters are maximum values.

---

**Image exemplary.**
TPE Data cable | CF12

- For very high mechanical load requirements
- TPE outer jacket
- Shielded twisted Pairs with an overall shield
- Oil-resistant
- Bio-oil-resistant
- PVC-free/halogen-free
- Hydrolysis/microbe-resistant

Dynamic Information

<table>
<thead>
<tr>
<th>Bend radius</th>
<th>E-Chain®</th>
<th>min. 10 x d</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>flexible</td>
<td>min. 8 x d</td>
</tr>
<tr>
<td></td>
<td>fixed</td>
<td>min. 5 x d</td>
</tr>
<tr>
<td>Temperature</td>
<td>E-Chain®</td>
<td>-31 °F to +212 °F (-35 °C to +100 °C)</td>
</tr>
<tr>
<td></td>
<td>flexible</td>
<td>-58 °F to +212 °F (-50 °C to +100 °C)</td>
</tr>
<tr>
<td></td>
<td>fixed</td>
<td>-67 °F to +212 °F (-55 °C to +100 °C)</td>
</tr>
<tr>
<td>v max.</td>
<td>unsupported</td>
<td>32.81 ft/s (10 m/s)</td>
</tr>
<tr>
<td></td>
<td>gliding</td>
<td>19.69 ft/s (6 m/s)</td>
</tr>
<tr>
<td>a max.</td>
<td></td>
<td>328.1 ft/s² (100 m/s²)</td>
</tr>
</tbody>
</table>

Travel distance

Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6

Cable structure

Conductors
Conductor consisting of bare copper wires (according to EN 60228).

Conductor insulation
Mechanically high-quality TPE mixture.

Conductor construction
Twisted Pairs cabled together with short pitch lengths.

Color code
24 AWG: Color code in accordance with DIN 47100.
20-17 AWG: Black with white numbers.

Element shield
Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70% linear, approx. 90% optical.

Element jacket
TPE mixture on pair shielding adapted to suit the requirements in E-Chains®.

Inner jacket
TPE mixture adapted to suit the requirements in E-Chains®.

Overall shield
Highly flexible shield consisting of galvanized steel wire braid. 90% optical coverage.

Outer jacket
Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in E-Chains®. Color: Dark blue (similar to RAL 5011)

Electrical Information

Nominal voltage
300 V

Test voltage
1500 V

Properties and approvals
UV resistance
High

1,244 types from stock ... no cutting costs*
... no minimum order quantity ...
*(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ...
... up to 10 million cycles guaranteed ...

Class 6.6.4.1

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

Silicone-free
Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)

Halogen-free
Following EN 50267-2-1

EAC
Certified according to no. TC RI C-DE.ME77.B.01254

Lead-free
Following 2011/65/EC (RoHS-II)

Cleanroom
According to ISO Class 1. Outer jacket material complies with CF9-15-07, tested by IPA according to standard 14644-1

CE
Following 2014/35/EC

Guaranteed lifetime according to guarantee conditions (Page 22-25)

Cycles* 5 mio. 7.5 mio. 10 mio.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-31 / -13</td>
<td>32.81</td>
<td>19.69</td>
<td>328.1 ≤ 1,312</td>
<td>12.5</td>
<td>13.5</td>
<td>14.5</td>
</tr>
<tr>
<td>-13 / +194</td>
<td></td>
<td></td>
<td></td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>+194 / +212</td>
<td></td>
<td></td>
<td></td>
<td>12.5</td>
<td>13.5</td>
<td>14.5</td>
</tr>
</tbody>
</table>

* Higher number of cycles possible - please ask for your individual calculation.

Typical application areas

- For maximum mechanical load requirements
- Almost unlimited resistance to oil, also with bio-oils
- Indoor and outdoor applications, UV-resistant
- Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more
- Storage and retrieval units for high-bay warehouses, Machining units/machine tools, quick handling, Clean room, semiconductor insertion, outdoor cranes, low temperature applications
- For especially high EMC safety

Part No.
AWG | Number of Pairs and rated cross section [mm²] | Outer diameter max. [in. mm] | Copper index | Weight |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lbs/mft kg/km lbs/mft kg/km</td>
</tr>
<tr>
<td>CF12-02-03-02</td>
<td>24</td>
<td>3 PR x 0.25</td>
<td>0.43</td>
<td>11.0</td>
</tr>
<tr>
<td>CF12-02-04-02</td>
<td>24</td>
<td>4 PR x 0.25</td>
<td>0.43</td>
<td>11.0</td>
</tr>
<tr>
<td>CF12-02-05-02</td>
<td>24</td>
<td>5 PR x 0.25</td>
<td>0.51</td>
<td>13.0</td>
</tr>
<tr>
<td>CF12-05-03-02</td>
<td>20</td>
<td>3 PR x 0.5</td>
<td>0.53</td>
<td>13.5</td>
</tr>
<tr>
<td>CF12-05-04-02</td>
<td>20</td>
<td>4 PR x 0.5</td>
<td>0.57</td>
<td>14.5</td>
</tr>
<tr>
<td>CF12-05-05-02</td>
<td>20</td>
<td>5 PR x 0.5</td>
<td>0.61</td>
<td>15.5</td>
</tr>
<tr>
<td>CF12-05-06-02</td>
<td>20</td>
<td>6 PR x 0.5</td>
<td>0.67</td>
<td>17.0</td>
</tr>
<tr>
<td>CF12-05-08-02</td>
<td>20</td>
<td>8 PR x 0.5</td>
<td>0.81</td>
<td>20.5</td>
</tr>
<tr>
<td>CF12-10-06-02</td>
<td>17</td>
<td>6 PR x 1.0</td>
<td>0.79</td>
<td>20.0</td>
</tr>
</tbody>
</table>

1) Delivery time upon request

Note: The mentioned outer diameters are maximum values.
**TPE Coax cable | CFKoax**

- For very high mechanical load requirements
- TPE outer jacket
- Oil-resistant
- Bio-oil-resistant
- UV-resistant
- Hydrolysis/microbe-resistant

### Dynamic Information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CFKoax1/3</th>
<th>CFKoax2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bend radius</td>
<td>min. 10 x d</td>
<td>min. 8 x d</td>
</tr>
<tr>
<td>Temperature</td>
<td>-31 °F to +212 °F (-35 °C to +100 °C) (CFKoax1/3)</td>
<td>-31 °F to +158 °F (-35 °C to +70 °C) (CFKoax2)</td>
</tr>
<tr>
<td>v max.</td>
<td>unsupported: 32.81 ft/s (10 m/s)</td>
<td>gliding: 16.41 ft/s (5 m/s)</td>
</tr>
<tr>
<td>a max.</td>
<td>328.1 ft/s² (100 m/s²)</td>
<td></td>
</tr>
</tbody>
</table>

### Cable structure

- **Conductors**
  - CFKoax1: Silvered copper wires.
  - CFKoax2: Tinned copper wires.
  - CFKoax3: Silvered copper wires.
- **Conductor insulation**
  - Special FEP-isolating mixture.
- **Conductor construction**
  - Conduors cabled in one layer with especially short pitch length.
- **Color code**
  - Coaxial elements - See Table
- **Element shield**
  - Extremely bending-resistant braiding made of tinned copper wires. Coverage approx. 70% linear, approx. 90 % optical
- **Element jacket**
  - TPE mixture adapted to suit the requirements in E-Chains®.
- **Outer jacket**
  - Low-adhesion mixture on the basis of TPE, especially abrasion-resistant and highly flexible, adapted to suit the requirements in E-Chains®.
  - Color: See chart

### Electrical Information

- **Nominal voltage**
  - 500 V
- **Test voltage**
  - 1500 V

---

**Image exemplary.**
TPE Coax cable | CFKoax

Image exemplary.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>AWG</th>
<th>Compatible with plug type</th>
<th>Coaxial elements</th>
<th>Outer diameter max.</th>
<th>Copper index</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFKoax1-01</td>
<td>30</td>
<td>RG 179</td>
<td>1</td>
<td>0.18 in. / 4.5 mm</td>
<td>4.7 lbs/mft</td>
<td>7 kg/km</td>
</tr>
<tr>
<td>CFKoax1-05</td>
<td>30</td>
<td>RG 179</td>
<td>5</td>
<td>0.39 in. / 10.0 mm</td>
<td>23.5 lbs/mft</td>
<td>35 kg/km</td>
</tr>
<tr>
<td>CFKoax2-01</td>
<td>20</td>
<td>RG 58</td>
<td>1</td>
<td>0.22 in. / 5.5 mm</td>
<td>13.4 lbs/mft</td>
<td>20 kg/km</td>
</tr>
<tr>
<td>CFKoax3-01</td>
<td>30</td>
<td>RG 178</td>
<td>1</td>
<td>0.14 in. / 3.5 mm</td>
<td>3.4 lbs/mft</td>
<td>5 kg/km</td>
</tr>
</tbody>
</table>

Note: The mentioned outer diameters are maximum values.

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Characteristic wave impedance [Ω]</th>
<th>Conductor Diameter nom.</th>
<th>Conductor Diameter over insulation nom.</th>
<th>Color code</th>
<th>Colour outer jacket (similar to RAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CFKoax1-01</td>
<td>75</td>
<td>0.012 in. / 0.3 mm</td>
<td>0.062 in. / 1.6 mm</td>
<td>red</td>
<td>Steel-blue (comparable RAL 5011)</td>
</tr>
<tr>
<td>CFKoax1-05</td>
<td>75</td>
<td>0.012 in. / 0.3 mm</td>
<td>0.062 in. / 1.6 mm</td>
<td>red, green, blue, white, black</td>
<td>Steel-blue (comparable RAL 5011)</td>
</tr>
<tr>
<td>CFKoax2-01</td>
<td>50</td>
<td>0.035 in. / 0.9 mm</td>
<td>0.116 in. / 2.95 mm</td>
<td>-</td>
<td>Jet black (similar to RAL 9005)</td>
</tr>
<tr>
<td>CFKoax3-01</td>
<td>50</td>
<td>0.012 in. / 0.3 mm</td>
<td>0.033 in. / 0.84 mm</td>
<td>-</td>
<td>Window-gray (comparable RAL 7040)</td>
</tr>
</tbody>
</table>

1,244 types from stock ... no cutting costs* ... no minimum order quantity ... *(up to 10 cuts of the same part number)

36 months guarantee on every chainflex® cable ... ... up to 10 million cycles guaranteed ...