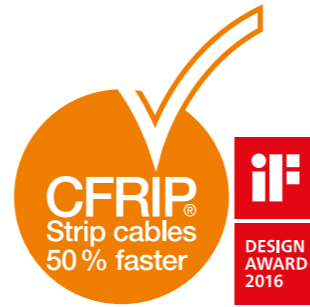


| | | | | | | | | | |
|-----------------|-------------|---|---|---|-------|---------|---|------------|---------|
| Requirements | low | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| Travel distance | unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 1,312 ft + | |
| Oil-resistance | none | 1 | 2 | 3 | 4 | highest | | | |
| Torsion | none | 1 | 2 | 3 | ±180° | | | | |

TPE Control cable | CF9

- For maximum mechanical load requirements
- TPE outer jacket
- Oil-resistant
- Bio-oil-resistant
- PVC-free/halogen-free
- Low-temperature-flexibility
- Hydrolysis/microbe-resistant



Dynamic Information

| | | | |
|--|------------------------|---|---------------------------------------|
| | Bend radius | E-Chain® | min. 5 x d |
| | flexible | | min. 4 x d |
| | fixed | | min. 3 x d |
| | Temperature | E-Chain® | -31 °F to +212 °F (-35 °C to +100 °C) |
| | | flexible | -58 °F to +212 °F (-50 °C to +100 °C) |
| | | fixed | -67 °F to +212 °F (-55 °C to +100 °C) |
| | v max. | unsupported | 32.81 ft/s (10 m/s) |
| | | gliding | 19.69 ft/s (6 m/s) |
| | a max. | | 328.1 ft/s² (100 m/s²) |
| | Travel distance | Unsupported travel distances and for gliding applications up to 1312 ft (400 m) and more, Class 6 | |
| | Torsion | ± 90°, with 3.281 ft (1 m) cable length | |

Cable structure

| | | |
|--|-------------------------------|---|
| | Conductor | Conductor consisting of bare copper wires (according to EN 60228). |
| | Conductor insulation | Mechanically high-quality TPE mixture. |
| | Conductor construction | No. of conductors < 12: Conductors cabled in a layer with short pitch length. No. of conductors ≥ 12: Conductors combined in bundles and cabled together around a high-tensile strength core, using short pitch lengths and specific pitch directions for a low-torsion cable structure. |
| | Color code | 24-20 AWG: Color code in accordance with DIN 47100. 18-2 AWG: Black with white numbers, one conductor green-yellow. CF9-02-03-INI: brown, blue, black CF9-03-04-INI: brown, blue, black, white CF9-02-05-INI: brown, blue, black, white, green-yellow CF9-03-16-07-03-INI: (22 AWG): violet/red/gray/red-blue, green/gray-pink/white-green/white-yellow, white-gray/black/yellow-brown/brown-green, white/yellow/pink/gray-brown (18 AWG): blue/green-yellow/brown |
| | 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 (RAL 5011) |
| | CFRIP® | Strip cables 50% faster: The tear strip is in the outer jacket Video ► www.igus.com/CFRIP |

Class 7.6.4.2

Electrical Information

| | | |
|---------------------------------|------------------------|---|
| | Nominal voltage | 300 V |
| | Testing voltage | 2000 V (following DIN EN 50396) |
| 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 |
| | Silicon-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 RU C-DE.ME77.B.01254 |
| | Lead-free | Following 2011/65/EC (RoHS-II) |
| | Cleanroom | According to ISO Class 1, material/cable tested by IPA according to ISO standard 14644-1 |
| | CE | Following 2014/35/EG |

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

| Cycles* | Temperature, from/to [°F] | v max. [ft/s] | | Travel distance [ft] | 5 million | 7.5 million | 10 million |
|-------------|---------------------------|---------------|---------|----------------------|---------------------|---------------------|---------------------|
| | | unsupported | gliding | | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| -31 / -13 | | | | > 1312 | 6.8 | 7.5 | 8.5 |
| -13 / +194 | | 32.81 | 19.69 | | 5 | 6 | 7 |
| +194 / +212 | | | | | 6.8 | 7.5 | 8.5 |

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

Typical application areas

- For maximum mechanical load requirements
- 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, Ship to shore, outdoor cranes, low temperature applications



Test data ► Page 58

TPE Control cable | CF9

Strip cables 50 % faster

IGUS® CHAINFLEX® CF9

Image exemplary.

Class 7.6.4.2

Requirements
Travel distance
Oil-resistance
Torsion


| | | | | | | | | |
|-------------|---|---|---|-------|---------|---|------------|---------|
| low | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 1,312 ft + | |
| none | 1 | 2 | 3 | 4 | highest | | | |
| none | 1 | 2 | 3 | ±180° | | | | |

| Part No. | AWG | Number of conductors and rated cross section [mm²] | Outer diameter max. | | Copper index | | Weight | |
|-------------------------|-----|--|---------------------|------|--------------|-------|---------|-------|
| | | | in. | mm | lbs/mft | kg/km | lbs/mft | kg/km |
| CF9-02-02 | 24 | 2 x 0.25 | 0.18 | 4.5 | 4.0 | 6 | 12.1 | 18 |
| CF9-02-03-INI | 24 | 3 x 0.25 | 0.18 | 4.5 | 5.4 | 8 | 14.8 | 22 |
| CF9-02-06 | 24 | 6 x 0.25 | 0.22 | 5.5 | 10.8 | 16 | 24.9 | 37 |
| CF9-02-07 | 24 | 7 x 0.25 | 0.26 | 6.5 | 12.8 | 19 | 29.6 | 44 |
| CF9-02-08 | 24 | 8 x 0.25 | 0.26 | 6.5 | 14.8 | 22 | 33.6 | 50 |
| CF9-02-12 | 24 | 12 x 0.25 | 0.31 | 8.0 | 21.5 | 32 | 49.1 | 73 |
| CF9-02-18 ¹⁾ | 24 | 18 x 0.25 | 0.37 | 9.5 | 32.3 | 48 | 70.6 | 105 |
| CF9-02-20 | 24 | 20 x 0.25 | 0.37 | 9.5 | 35.6 | 53 | 74.6 | 111 |
| CF9-03-04-INI | 22 | 4 x 0.34 | 0.20 | 5.0 | 10.1 | 15 | 21.5 | 32 |
| CF9-03-05-INI | 22 | 5 x 0.34 | 0.22 | 5.5 | 12.1 | 18 | 25.5 | 38 |
| CF9-03-06 | 22 | 6 x 0.34 | 0.24 | 6.0 | 14.8 | 22 | 30.2 | 45 |
| CF9-03-08 | 22 | 8 x 0.34 | 0.28 | 7.0 | 19.5 | 29 | 39.6 | 59 |
| CF9-03-16-07-03-INI | 22 | 16 x 0.34 | 0.43 | 11.0 | 55.1 | 82 | 106.8 | 159 |
| | 18 | 3 x 0.75 | | | | | | |
| CF9-05-02 | 20 | 2 x 0.5 | 0.20 | 5.0 | 7.4 | 11 | 17.5 | 26 |
| CF9-05-03 | 20 | 3 x 0.5 | 0.20 | 5.0 | 10.8 | 16 | 21.5 | 32 |
| CF9-05-04 | 20 | 4 x 0.5 | 0.22 | 5.5 | 14.8 | 22 | 26.9 | 40 |
| CF9-05-05 | 20 | 5 x 0.5 | 0.24 | 6.0 | 18.1 | 27 | 32.3 | 48 |
| CF9-05-07 | 20 | 7 x 0.5 | 0.28 | 7.0 | 24.9 | 37 | 44.3 | 66 |
| CF9-05-12 | 20 | 12 x 0.5 | 0.39 | 10.0 | 43.0 | 64 | 80.6 | 120 |
| CF9-05-18 | 20 | 18 x 0.5 | 0.45 | 11.5 | 64.5 | 96 | 118.9 | 177 |
| CF9-05-25 | 20 | 25 x 0.5 | 0.51 | 13.0 | 88.7 | 132 | 158.6 | 236 |
| CF9-05-36 | 20 | 36 x 0.5 | 0.61 | 15.5 | 128.3 | 191 | 224.4 | 334 |
| CF9-07-04 ¹⁾ | 18 | 4 G 0.75 | 0.24 | 6.0 | 21.5 | 32 | 37.0 | 55 |
| CF9-07-05 | 18 | 5 G 0.75 | 0.26 | 6.5 | 26.9 | 40 | 45.7 | 68 |
| CF9-07-07 | 18 | 7 G 0.75 | 0.31 | 8.0 | 37.6 | 56 | 63.2 | 94 |
| CF9-07-12 | 18 | 12 G 0.75 | 0.43 | 11.0 | 64.5 | 96 | 114.2 | 170 |
| CF9-07-20 | 18 | 20 G 0.75 | 0.53 | 13.5 | 106.8 | 159 | 179.4 | 267 |
| CF9-07-25 | 18 | 25 G 0.75 | 0.57 | 14.5 | 133.0 | 198 | 221.1 | 329 |
| CF9-10-03 | 17 | 3 G 1.0 | 0.24 | 6.0 | 21.5 | 32 | 36.3 | 54 |
| CF9-10-04 | 17 | 4 G 1.0 | 0.26 | 6.5 | 28.9 | 43 | 46.4 | 69 |
| CF9-10-05 | 17 | 5 G 1.0 | 0.30 | 7.5 | 35.6 | 53 | 56.4 | 84 |
| CF9-10-12 | 17 | 12 G 1.0 | 0.47 | 12.0 | 85.3 | 127 | 143.8 | 214 |
| CF9-10-18 | 17 | 18 G 1.0 | 0.57 | 14.5 | 128.3 | 191 | 211.0 | 314 |
| CF9-10-25 | 17 | 25 G 1.0 | 0.67 | 17.0 | 177.4 | 264 | 302.4 | 450 |


¹⁾ Delivery time upon request
Note: The mentioned outer diameters are maximum values.
G = with green-yellow earth core x = without earth core

| Part No. | AWG | Number of conductors and rated cross section [mm²] | Outer diameter max. | | Copper index | | Weight | |
|--------------------------|-----|--|---------------------|------|--------------|-------|---------|-------|
| | | | in. | mm | lbs/mft | kg/km | lbs/mft | kg/km |
| CF9-15-02 | 16 | 2 x 1.5 | 0.26 | 6.5 | 21.5 | 32 | 40.3 | 60 |
| CF9-15-04 | 16 | 4 G 1.5 | 0.30 | 7.5 | 43.0 | 64 | 60.5 | 90 |
| CF9-15-05 | 16 | 5 G 1.5 | 0.31 | 8.0 | 54.4 | 81 | 73.9 | 110 |
| CF9-15-07 ¹⁷⁾ | 16 | 7 G 1.5 | 0.37 | 9.5 | 76.6 | 114 | 101.5 | 151 |
| CF9-15-12 | 16 | 12 G 1.5 | 0.53 | 13.5 | 128.3 | 191 | 194.9 | 290 |
| CF9-15-18 | 16 | 18 G 1.5 | 0.65 | 16.5 | 192.2 | 286 | 277.5 | 413 |
| CF9-15-25 | 16 | 25 G 1.5 | 0.79 | 20.0 | 266.1 | 396 | 424.7 | 632 |
| CF9-15-36 | 16 | 36 G 1.5 | 0.93 | 23.5 | 383.7 | 571 | 563.8 | 839 |
| CF9-25-04 | 14 | 4 G 2.5 | 0.35 | 9.0 | 71.2 | 106 | 102.1 | 152 |
| CF9-25-05 | 14 | 5 G 2.5 | 0.39 | 10.0 | 88.7 | 132 | 132.4 | 197 |
| CF9-25-07 ¹⁷⁾ | 14 | 7 G 2.5 | 0.47 | 12.0 | 125.7 | 187 | 164.6 | 245 |
| CF9-25-12 | 14 | 12 G 2.5 | 0.69 | 17.5 | 213.0 | 317 | 346.1 | 515 |
| CF9-25-16 | 14 | 16 G 2.5 | 0.77 | 19.5 | 284.2 | 423 | 461.6 | 687 |
| CF9-25-18 ⁷⁾ | 14 | 18 G 2.5 | 0.91 | 23.0 | 319.9 | 476 | 557.7 | 830 |
| CF9-25-25 | 14 | 25 G 2.5 | 0.96 | 24.5 | 443.5 | 660 | 711.6 | 1059 |
| CF9-40-04 | 12 | 4 G 4.0 | 0.41 | 10.5 | 114.2 | 170 | 153.9 | 229 |
| CF9-60-04 | 10 | 4 G 6.0 | 0.49 | 12.5 | 170.7 | 254 | 223.1 | 332 |
| CF9-60-05 | 10 | 5 G 6.0 | 0.53 | 13.5 | 213.0 | 317 | 275.5 | 410 |
| CF9-100-04 | 8 | 4 G 10.0 | 0.65 | 16.5 | 284.2 | 423 | 389.7 | 580 |
| CF9-160-04 | 6 | 4 G 16.0 | 0.71 | 18.0 | 354.8 | 528 | 483.1 | 719 |
| CF9-350-04 | 2 | 4 G 35.0 | 1.10 | 28.0 | 993.8 | 1479 | 1188.7 | 1769 |

⁷⁾ Nominal voltage 600/1000 V ⁹⁾ Nominal voltage 450/750 V
¹⁷⁾ Using the cables with "7 G 1.5 mm²" and "7 G 2.5 mm²" it is essential: bending radius 17 x d with travel distance ≥ 5 m.
When the travel distance is not less than 5 m, a bending radius not less than 17 x d has to be used.
Note: The mentioned outer diameters are maximum values.
G = with green-yellow earth core x = without earth core

 Order example: **CF9-25-04** – In your desired length
CF9 Chainflex® series **-25** Code nominal cross section **-04** Number of conductors

 Online order: www.chainflex.com/CF9

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

 Configurators ► www.igus.com/CF9

