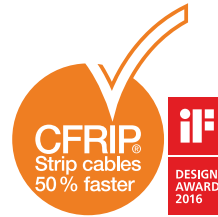


## Control cable | PUR | chainflex® CF78.UL

- For heavy duty applications
- PUR outer jacket
- Shielded
- Oil and coolant-resistant
- Flame retardant
- PVC and halogen-free
- Notch-resistant
- Hydrolysis and microbe-resistant



## Dynamic information

|  |                        |                    |                                                                                |
|--|------------------------|--------------------|--------------------------------------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain®</b>    | minimum 6.8 x d                                                                |
|  |                        | <b>flexible</b>    | minimum 5 x d                                                                  |
|  |                        | <b>fixed</b>       | minimum 4 x d                                                                  |
|  | <b>Temperature</b>     | <b>e-chain®</b>    | -25 °C to +80 °C                                                               |
|  |                        | <b>flexible</b>    | -40 °C to +80 °C (following DIN EN 60811-504)                                  |
|  |                        | <b>fixed</b>       | -50 °C to +80 °C (following DIN EN 50305)                                      |
|  | <b>v max.</b>          | <b>unsupported</b> | 10 m/s                                                                         |
|  |                        | <b>gliding</b>     | 5 m/s                                                                          |
|  | <b>a max.</b>          |                    | 80 m/s²                                                                        |
|  | <b>Travel distance</b> |                    | Unsupported travel distances and up to 100 m for gliding applications, Class 5 |

## Cable structure

|  |                            |                                                                                                                                                                                                                                                                     |
|--|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Conductor</b>           | Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).                                                                                                                                                                                 |
|  | <b>Core insulation</b>     | Mechanically high-quality TPE mixture.                                                                                                                                                                                                                              |
|  | <b>Core structure</b>      | <b>Number of cores &lt; 12:</b> Cores wound in a layer with a short pitch length.<br><b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. |
|  | <b>Core identification</b> | Black cores with white numerals, one core green-yellow.                                                                                                                                                                                                             |
|  | <b>Inner jacket</b>        | TPE mixture, adapted to suit the requirements in e-chains®.                                                                                                                                                                                                         |
|  | <b>Overall shield</b>      | Bending-resistant braiding made of tinned copper wires.<br>Coverage approx. 55 % linear, approx. 80 % optical                                                                                                                                                       |
|  | <b>Outer jacket</b>        | Low-adhesion, highly abrasion-resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2).<br>Colour: Window-grey (similar to RAL 7040)                                                                                      |
|  | <b>CFRIP®</b>              | Strip cables faster: a tear strip is moulded into the inner jacket<br>Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>                                                                                                                              |

## Electrical information

|  |                        |                                      |
|--|------------------------|--------------------------------------|
|  | <b>Nominal voltage</b> | 300/500 V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 2000 V (following DIN EN 50395)      |

## Class 5.5.3.1

## Properties and approvals

|  |                        |                                                                                                                             |
|--|------------------------|-----------------------------------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>   | Medium.                                                                                                                     |
|  | <b>Oil resistance</b>  | Oil-resistant (following DIN EN 50363-10-2), Class 3.                                                                       |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2009.                                                                              |
|  | <b>Flame retardant</b> | According to IEC 60332-1-2, CEI 20-35, FT1, VW-1                                                                            |
|  | <b>Silicone-free</b>   | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992).                                     |
|  | <b>Halogen-free</b>    | Following DIN EN 60754.                                                                                                     |
|  | <b>UL/CSA</b>          | Style 11323 and 21223, 1000 V, 80 °C                                                                                        |
|  | <b>NFPA</b>            | Following NFPA 79-2012 chapter 12.9.                                                                                        |
|  | <b>DNV-GL</b>          | Certified according to GL type testing – Certificate no.: 61 935-14 HH                                                      |
|  | <b>EAC</b>             | Certificate no. RU C-DE.ME77.B.01254 (TR ZU)                                                                                |
|  | <b>CTP</b>             | Certificate no. C-DE.PB49.B.00416 (Fire safety)                                                                             |
|  | <b>CEI</b>             | Following CEI 20-35.                                                                                                        |
|  | <b>Lead-free</b>       | Following 2011/65/EU (RoHS-II).                                                                                             |
|  | <b>Cleanroom</b>       | According to ISO Class 1. Outer jacket material complies with CF77.UL.05.12.D, tested by IPA according to standard 14644-1. |
|  | <b>CE</b>              | Following 2014/35/EU.                                                                                                       |

## Guaranteed lifetime according to guarantee conditions (Page 22-23)

| Double strokes*           | 5 million              |                        | 7.5 million            |                        | 10 million             |                        |
|---------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                           | < 10 m                 | ≥ 10 m                 | < 10 m                 | ≥ 10 m                 | < 10 m                 | ≥ 10 m                 |
| Temperature, from/to [°C] | R min.<br>[factor x d] | R min.<br>[factor x d] | R min.<br>[factor x d] | R min.<br>[factor x d] | R min.<br>[factor x d] | R min.<br>[factor x d] |
| -25/-15                   | 8.5                    | 10                     | 9.5                    | 11                     | 10.5                   | 12                     |
| -15/+70                   | 6.8                    | 7.5                    | 7.5                    | 8.5                    | 8.5                    | 9.5                    |
| +70/+80                   | 8.5                    | 10                     | 9.5                    | 11                     | 10.5                   | 12                     |

\* Higher number of double strokes? Online lifetime calculation: [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

## Typical mechanical application areas

- For heavy duty applications
- Almost unlimited resistance to oil
- Indoor and outdoor applications with average sun radiation
- Unsupported travel distances and up to 100 m for gliding applications
- Machining units/machine tools, Storage and retrieval units for high-bay warehouses, Packaging industry, quick handling equipment, refrigerating sector

|                    |             |   |   |   |   |   |   |   |         |
|--------------------|-------------|---|---|---|---|---|---|---|---------|
| Basic requirements | low         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| Travel distance    | unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ≥ 400 m |
| Oil resistance     | none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| Torsion            | none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ±180°   |



## Control cable | PUR | chainflex® CF78.UL

Strip cables 50% faster

igus® chainflex® CF78.UL

Example image

## Class 5.5.3.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

|             |   |   |   |   |   |   |   |         |
|-------------|---|---|---|---|---|---|---|---------|
| low         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ≥ 400 m |
| none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ±180°   |

| Part No.                     | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. mm | Copper index kg/km | Weight kg/km |
|------------------------------|-----------------------------------------------------------|----------------------------|--------------------|--------------|
| CF78.UL.05.04                | (4G0.5)C                                                  | 8.0                        | 40                 | 79           |
| CF78.UL.05.05                | (5G0.5)C                                                  | 8.0                        | 48                 | 94           |
| CF78.UL.05.07                | (7G0.5)C                                                  | 9.5                        | 62                 | 123          |
| CF78.UL.05.09                | (9G0.5)C                                                  | 11.0                       | 81                 | 148          |
| CF78.UL.05.12                | (12G0.5)C                                                 | 12.5                       | 97                 | 207          |
| CF78.UL.05.18                | (18G0.5)C                                                 | 14.5                       | 156                | 257          |
| CF78.UL.05.25                | (25G0.5)C                                                 | 16.0                       | 180                | 366          |
| CF78.UL.07.03                | (3G0.75)C                                                 | 8.0                        | 44                 | 79           |
| CF78.UL.07.04                | (4G0.75)C                                                 | 8.5                        | 52                 | 99           |
| CF78.UL.07.05                | (5G0.75)C                                                 | 9.5                        | 64                 | 108          |
| CF78.UL.07.07                | (7G0.75)C                                                 | 10.5                       | 87                 | 146          |
| CF78.UL.07.12                | (12G0.75)C                                                | 13.5                       | 145                | 252          |
| CF78.UL.07.18                | (18G0.75)C                                                | 15.5                       | 207                | 367          |
| CF78.UL.07.36                | (36G0.75)C                                                | 22.0                       | 416                | 728          |
| CF78.UL.07.42                | (42G0.75)C                                                | 24.5                       | 489                | 800          |
| CF78.UL.10.03                | (3G1.0)C                                                  | 8.5                        | 53                 | 90           |
| CF78.UL.10.04                | (4G1.0)C                                                  | 9.0                        | 65                 | 107          |
| CF78.UL.10.05                | (5G1.0)C                                                  | 9.5                        | 78                 | 124          |
| CF78.UL.10.07                | (7G1.0)C                                                  | 11.0                       | 110                | 170          |
| CF78.UL.10.12                | (12G1.0)C                                                 | 14.5                       | 178                | 307          |
| CF78.UL.10.18                | (18G1.0)C                                                 | 17.0                       | 256                | 424          |
| CF78.UL.10.25                | (25G1.0)C                                                 | 20.0                       | 347                | 567          |
| CF78.UL.15.03                | (3G1.5)C                                                  | 9.5                        | 72                 | 133          |
| CF78.UL.15.04                | (4G1.5)C                                                  | 10.0                       | 90                 | 139          |
| CF78.UL.15.05                | (5G1.5)C                                                  | 10.5                       | 115                | 166          |
| CF78.UL.15.07 <sup>17)</sup> | (7G1.5)C                                                  | 12.5                       | 153                | 226          |
| CF78.UL.15.12                | (12G1.5)C                                                 | 16.0                       | 249                | 403          |
| CF78.UL.15.18                | (18G1.5)C                                                 | 19.0                       | 368                | 564          |
| CF78.UL.15.25                | (25G1.5)C                                                 | 22.5                       | 495                | 755          |
| CF78.UL.15.36                | (36G1.5)C                                                 | 26.5                       | 715                | 1147         |
| CF78.UL.15.42                | (42G1.5)C                                                 | 29.5                       | 884                | 1360         |
| CF78.UL.25.04                | (4G2.5)C                                                  | 11.5                       | 148                | 212          |
| CF78.UL.25.05                | (5G2.5)C                                                  | 12.5                       | 177                | 247          |
| CF78.UL.25.07 <sup>17)</sup> | (7G2.5)C                                                  | 14.5                       | 245                | 350          |
| CF78.UL.25.12                | (12G2.5)C                                                 | 19.0                       | 407                | 610          |
| CF78.UL.40.04                | (4G4.0)C                                                  | 14.0                       | 217                | 342          |

<sup>17)</sup> When using the cables with „7 G 1.5 mm²“ and „7 G 2.5 mm²“ minimum bend radius must be 17.5 x d with gliding travel distance ≥ 5 m.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**Order example: CF78.UL.05.04 – to your desired length (0.5 m steps)**  
CF78.UL chainflex® series .05 Code nominal cross section .04 Code Number of coresOnline order ► [www.chainflex.eu/CF78.UL](http://www.chainflex.eu/CF78.UL)Delivery time 24h or today.  
Delivery time means time until shipping of goods.