

# Special cables



## Cables for special applications

igus® developed the CFSPECIAL cable group for use in special applications. For special moving applications, only special cables can be used as they go beyond normal energy supply. However, this always means a minimum production quantity, which is usually unrealistic, especially for maintenance customers or very small applications. What is special about the CFSPECIAL family is that it is available as standard catalogue cables and can therefore be supplied quickly. This product range is slightly narrower, but we can expand it quickly if required. So, if you have trouble finding the right cable for your specific application, we would be pleased to hear from you directly.

- ▲ Cables for special applications, developed from our extensive cable expertise
- ▼ Tailored to specific challenges
- Experience from over two billion test cycles in the igus® test laboratory
- Sustainability thanks to a longer service life is practical resource protection, enhancing economic efficiency and protecting the environment

## Background

### The best cable for every challenge

The constantly growing program of chainflex® special cables is in response to our customer requirements.

At the same time this can be an inspiration for users. igus® can make cables for special applications using many different materials and production processes. Depending on the construction this is already possible from a length of 500m.

Use our comprehensive knowledge about cables plus the experience of 2 billion test cycles that are annually achieved in the company's chainflex® laboratory.

The technical and material details of the CFSPECIAL families are documented in data sheets and are available on the internet. The respective web links can be recalled on the summary pages of the CFSPECIAL cables.



**Thermal compensation cable**

A thermal compensation cable is the connection between a thermocouple and a measuring instrument.

The thermal compensation cable must have the same materials as the thermocouple. The measurement would otherwise be distorted due to unwanted additional thermoelectric voltages.

**OFFLAT**

This cable has been specially developed for small installation spaces where large core cross sections are required. We use a flat cable design with a braided conductor in the core.

**Cable for high-tensile-strength applications**

Article Number CFSPECIAL.182 features our high-tensile-strength cable. The aramid braid built into the outer jacket allows this cable to withstand tensile forces of up to 15,000% higher than the norm.

**Cable for axis 7 on robots**

A cable for supplying the entire robot when it is mounted on a so-called seventh axis. This axis allows a robot to move along with the workpiece. The structure of the cable complies with the electrical specifications of the robot manufacturer.

**Cables for top drive systems**

Service loops for top drive systems must withstand dynamic loads caused by vibrations and environmental influences.

The specially developed and tested chainflex® CFSPECIAL.5xx-series is the perfect solution for vertical applications with high tensile forces.

With DNV approval, this series also offers tested safety for these applications.



| chainflex® cables |                                         | Page |
|-------------------|-----------------------------------------|------|
| CFTHERMO New      | Thermocouple cable                      | 392  |
| OFFLAT            | Single core flat cable                  | 394  |
| CFSPECIAL.182     | Bus cable for hanging applications      | 396  |
| CFSPECIAL.192     | Hybrid cable for hanging applications   | 398  |
| CFSPECIAL.532     | Data cable for top drive applications   | 400  |
| CFSPECIAL.562.PE  | Motor cable for top drive applications  | 402  |
| CFSPECIAL.572     | Motor cable for top drive applications  | 404  |
| CFSPECIAL.592     | Hybrid cable for top drive applications | 406  |
| CFSPECIAL.792     | Cable for axis 7 on robots              | 408  |

**Mechanical parameters**

| chainflex® cables | Jacket | Shield | Bend radius e-chain® min. [xd] | Temperature e-chain® from/to [°C] | v max. [m/s] |         | a max. [m/s²] | Travel distance [m] | Page |
|-------------------|--------|--------|--------------------------------|-----------------------------------|--------------|---------|---------------|---------------------|------|
|                   |        |        |                                |                                   | unsupported  | gliding |               |                     |      |
| CFTHERMO New      | PUR    | ●      | 12.5                           | -25/+80                           | 2            | 1       | 20            | ≤ 50                | 392  |
| OFFLAT            | TPE    |        | 5                              | -35/+90                           | 10           | 6       | 100           | ≤ 100               | 394  |
| CFSPECIAL.182     | PUR    | ●      | 10                             | -25/+80                           | 10           | 6       | 100           | ≤ 50                | 396  |
| CFSPECIAL.192     | PUR    | ●      | 10                             | -25/+80                           | 10           | 2       | 50            | ≤ 50                | 398  |
| CFSPECIAL.532     | PUR    | ●      | 10                             | -25/+80                           | 10           | 2       | 50            | ≤ 50                | 400  |
| CFSPECIAL.562.PE  | PUR    |        | 10                             | -25/+80                           | 10           | 2       | 50            | ≤ 50                | 402  |
| CFSPECIAL.572     | PUR    | ●      | 10                             | -25/+80                           | 10           | 2       | 50            | ≤ 50                | 404  |
| CFSPECIAL.592     | PUR    | ●      | 10                             | -25/+80                           | 10           | 2       | 50            | ≤ 50                | 406  |
| CFSPECIAL.792     | PUR    | ●      | 10                             | -25/+80                           | 3            | 2       | 20            | ≤ 100               | 408  |

**Approvals/resistance**

| chainflex® cables | Approvals and standards |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | Page |
|-------------------|-------------------------|---|------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|
|                   | oil                     | ☺ | PTFE | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED | UL LISTED |      |
| CFTHERMO New      | ●                       |   | ●    |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 392  |
| OFFLAT            | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 394  |
| CFSPECIAL.182     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 396  |
| CFSPECIAL.192     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 398  |
| CFSPECIAL.532     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 400  |
| CFSPECIAL.562.PE  | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 402  |
| CFSPECIAL.572     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 404  |
| CFSPECIAL.592     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 406  |
| CFSPECIAL.792     | ●                       |   |      |           |           |           |           |           |           |           |           |           |           |           |           |           |           | 408  |

**chainflex® guarantee**

As these are special cables for special applications, we ask you to contact us for information on the guaranteed lifetime:

Phone +49-2203 9649-0, info@igus.sk



Image exemplary

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

## Dynamic information

|  |                 |                          |                                                                     |
|--|-----------------|--------------------------|---------------------------------------------------------------------|
|  | Bend radius     | e-chain® linear flexible | minimum 12.5 x d<br>minimum 10 x d                                  |
|  |                 | fixed                    | minimum 5 x d                                                       |
|  | Temperature     | e-chain® linear flexible | -25°C up to +80°C<br>-40°C up to +80°C (following DIN EN 60811-504) |
|  |                 | fixed                    | -50°C up to +80°C (following DIN EN 50305)                          |
|  | v max.          | unsupported              | 2m/s                                                                |
|  | a max.          | gliding                  | 1m/s                                                                |
|  | Travel distance |                          | Unsupported travels and up to 50m for gliding applications, Class 4 |

## Cable structure

|  |                     |                                                                                                                                                                                                                                   |
|--|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Conductor           | Conductor consisting of a flexible special alloy.<br>► <a href="#">Product range table</a>                                                                                                                                        |
|  | Core insulation     | Mechanically high-quality TPE mixture.                                                                                                                                                                                            |
|  | Core structure      | The individual cores are wound in layers with a short pitch length.                                                                                                                                                               |
|  | Core identification | According to thermo specification.<br>► <a href="#">Product range table</a>                                                                                                                                                       |
|  | Intermediate layer  | Fleece taping over the external layer.                                                                                                                                                                                            |
|  | Element shield      | Bending-resistant braiding made of tinned copper wires.                                                                                                                                                                           |
|  | Overall shield      | Extremely bending-resistant braiding made of tinned copper wires.<br>Coverage linear approx. 70%, optical approx. 90%                                                                                                             |
|  | Outer jacket        | Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2)<br>Colour: According to thermo specification ► <a href="#">Product range table</a> |

## Electrical information

|  |                 |                                     |
|--|-----------------|-------------------------------------|
|  | Nominal voltage | 300/300V (following DIN VDE 0298-3) |
|  | Testing voltage | 1,500V                              |

## Class 5.4.3.1

## Properties and approvals

|  |                |                                                                                                                                                           |
|--|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | UV resistance  | Medium                                                                                                                                                    |
|  | Oil resistance | Oil-resistant (following DIN EN 50363-10-2), Class 3                                                                                                      |
|  | Silicone-free  | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)                                                                    |
|  | Halogen-free   | Following DIN EN 60754                                                                                                                                    |
|  | PTFE-free      | The design of these products does not contain PTFE                                                                                                        |
|  | REACH          | In accordance with regulation (EC) No. 1907/2006 (REACH)                                                                                                  |
|  | Lead-free      | Following 2011/65/EC (RoHS-II/RoHS-III)                                                                                                                   |
|  | Cleanroom      | According to ISO Class 1. The outer jacket material of this series complies with CF77.UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1 |
|  | CE             | Following 2014/35/EU                                                                                                                                      |

## Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 50m for gliding applications, Class 4
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications with average sun radiation
- Machining units/machine tools, storage and retrieval units for high-bay warehouses, packaging industry, quick handling, refrigerating sector

| Part No.           | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|
| CFTHERMO.J.001     | (2x0.23)C                                                 | 5.5                          | 9                    | 36             |
| CFTHERMO.K.001     | (2x0.23)C                                                 | 5.5                          | 9                    | 37             |
| CFTHERMO.K.002 *   | (2x0.23)C+3G0.5                                           | 7.5                          | 24                   | 67             |
| New CFTHERMO.N.001 | (2x0.23)C                                                 | 5.5                          | 14                   | 39             |

\* The cross-section of the copper conductor is equivalent to the electrically effective cross-section.

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

| Part No.         | Jacket colour | Thermo materials | Core group | Colour code               |
|------------------|---------------|------------------|------------|---------------------------|
| CFTHERMO.J.001 * | black         | Fe-CuNi          | (2x0.23)C  | + black, - white          |
| CFTHERMO.K.001   | green         | NiCr-Ni          | (2x0.23)C  | + green, - white          |
| CFTHERMO.K.002   | green         | NiCr-Ni          | (2x0.23)C  | + green, - white          |
|                  |               | Cu               | 3G0.5      | brown, blue, yellow-green |
| CFTHERMO.N.001   | pink          | NiCrSi-NiSi      | (2x0.23)C  | + pink, - white           |

Basic requirements  
Travel distance  
Oil resistance  
Torsion

|             |   |   |   |   |   |   |   |         |
|-------------|---|---|---|---|---|---|---|---------|
| low         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| unsupported | 1 | 2 | 3 | 4 | 5 | 6 | 7 | ≥ 400m  |
| none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | highest |
| none        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | +360°   |

- For heaviest duty applications
- TPE outer jacket
- Oil and bio-oil-resistant
- PVC and halogen-free
- UV-resistant
- Hydrolysis and microbe-resistant

## Dynamic information

|                                                                                   |                        |                                 |                                                                      |
|-----------------------------------------------------------------------------------|------------------------|---------------------------------|----------------------------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear flexible</b> | minimum 5 x d<br>minimum 4 x d                                       |
|                                                                                   |                        | <b>fixed</b>                    | minimum 3 x d                                                        |
|  | <b>Temperature</b>     | <b>e-chain® linear flexible</b> | -35°C up to +90°C<br>-50°C up to +90°C (following DIN EN 60811-504)  |
|                                                                                   |                        | <b>fixed</b>                    | -55°C up to +90°C (following DIN EN 50305)                           |
|  | <b>v max.</b>          | <b>unsupported</b>              | 10m/s                                                                |
|                                                                                   |                        | <b>gliding</b>                  | 6m/s                                                                 |
|  | <b>a max.</b>          |                                 | 100m/s <sup>2</sup>                                                  |
|  | <b>Travel distance</b> |                                 | Unsupported travels and up to 100m for gliding applications, Class 5 |

## Cable structure

|                                                                                   |                        |                                                                                                                                                                        |
|-----------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Conductor</b>       | Highly flexible braided special conductor.                                                                                                                             |
|  | <b>Core insulation</b> | Mechanically high-quality TPE mixture.                                                                                                                                 |
|  | <b>Outer jacket</b>    | Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®.<br>Colour: Steel blue (similar to RAL 5011) |

## Electrical information

|                                                                                     |                        |                                       |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------------|
|   | <b>Nominal voltage</b> | 600/1,000V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 4,000V (following DIN EN 50395)       |

## Class 7.5.4.1

## Properties and approvals

|                                                                                     |                       |                                                                                                                                                     |
|-------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>  | High                                                                                                                                                |
|  | <b>Oil resistance</b> | Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4                   |
|  | <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>PTFE-free</b>      | The design of these products does not contain PTFE                                                                                                  |
|  | <b>REACH</b>          | In accordance with regulation (EC) No. 1907/2006 (REACH)                                                                                            |
|  | <b>Lead-free</b>      | Following 2011/65/EC (RoHS-II/RoHS-III)                                                                                                             |
|  | <b>Cleanroom</b>      | According to ISO Class 1. The outer jacket material of this series complies with CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1 |
|  | <b>Dry cleanroom</b>  | Tested in "dry cleanroom" according to DIN EN ISO 14644-1                                                                                           |
|  | <b>CE</b>             | Following 2014/35/EU                                                                                                                                |

## Typical application areas

- For heavy-duty applications, Class 7
- Unsupported travels and up to 100m for gliding applications, Class 5
- 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, for small installation spaces and bend radii, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, low-temperature applications

| Part No.     | Number of cores and conductor nominal cross section [mm <sup>2</sup> ] | Outer dimensions [mm] | Copper index [kg/km] | Weight [kg/km] |
|--------------|------------------------------------------------------------------------|-----------------------|----------------------|----------------|
| CFFLAT.40.01 | 1x4.0                                                                  | 14.0x5.5              | 48                   | 117            |

**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

Shop and  
prices online



www.igus.sk/  
CFFLAT

- For high tensile strain
- PUR outer jacket
- Shielded
- Oil-resistant and coolant-resistant
- Flame-retardant
- PVC and halogen-free
- Notch-resistant
- Hydrolysis and microbe-resistant

#### Dynamic information

|                                                                                   |                        |                        |                                                |
|-----------------------------------------------------------------------------------|------------------------|------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b> | minimum 10 x d                                 |
|                                                                                   |                        | <b>flexible</b>        | minimum 8 x d                                  |
|                                                                                   |                        | <b>fixed</b>           | minimum 5 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b> | -25°C up to +80°C                              |
|                                                                                   |                        | <b>flexible</b>        | -40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>           | -50°C up to +80°C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>     | 10m/s                                          |
|                                                                                   |                        | <b>gliding</b>         | 6m/s                                           |
|  | <b>a max.</b>          |                        | 100m/s²                                        |
|  | <b>Travel distance</b> |                        | For hanging applications up to 50 m            |

#### Cable structure

|                                                                                     |                            |                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Conductor</b>           | Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).                                                                                                                                                                                                                                                                                                      |
|    | <b>Core insulation</b>     | According to bus specification.                                                                                                                                                                                                                                                                                                                                                                                           |
|    | <b>Core structure</b>      | According to bus specification.                                                                                                                                                                                                                                                                                                                                                                                           |
|   | <b>Core identification</b> | According to bus specification.                                                                                                                                                                                                                                                                                                                                                                                           |
|  | <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 linear approx. 70%, optical approx. 90%                                                                                                                                                                                                                                                                                                               |
|  | <b>Outer jacket</b>        | <b>1. Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.<br><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.<br><b>2. Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in hanging applications (following DIN EN 50363-10-2).<br>Colour: jet black (similar to RAL 9005) |

#### Electrical information

|                                                                                     |                        |                            |
|-------------------------------------------------------------------------------------|------------------------|----------------------------|
|  | <b>Nominal voltage</b> | 50V<br>300V (following UL) |
|  | <b>Testing voltage</b> | 500V                       |

#### Properties and approvals

|                                                                                     |                        |                                                                                                     |
|-------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>   | High                                                                                                |
|  | <b>Oil resistance</b>  | Oil-resistant (in accordance with DIN EN 50363-10-2)                                                |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | <b>Flame-retardant</b> | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | <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>PTFE-free</b>       | The design of these products does not contain PTFE                                                  |
|  | <b>UL/CSA AWM</b>      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAK182">www.igus.sk/CFSPECIAK182</a> |
|  | <b>NFFA</b>            | Following NFPA 79-2018, chapter 12.9                                                                |
|  | <b>REACH</b>           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II/RoHS-III)                                                             |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                |

#### Typical application areas

- For high tensile strain
- For hanging applications up to 50 m
- Almost unlimited resistance to oil
- Storage and retrieval units, hanging control units, lifts

| Part No.                         | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] | Shop and prices online                                                                |
|----------------------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|---------------------------------------------------------------------------------------|
| CFSPECIAL.182.045                | (4x(2x0.15))C                                             | 9.5                          | 42                   | 136            |  |
| CFSPECIAL.182.060 <sup>13)</sup> | (4x0.38)C                                                 | 8.5                          | 37                   | 125            |                                                                                       |

<sup>13)</sup> Colour outer jacket: Yellow-green (RAL 6018)

**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

| Part No.                  | Characteristic wave impedance approx. [Ω] | Core group    | Colour code                                                                |
|---------------------------|-------------------------------------------|---------------|----------------------------------------------------------------------------|
| <b>Ethernet/CAT5e/PoE</b> |                                           |               |                                                                            |
| CFSPECIAL.182.045         | 100                                       | (4x(2x0.15))C | white-blue/blue, white-orange/orange, white-green/green, white-brown/brown |
| <b>Profinet</b>           |                                           |               |                                                                            |
| CFSPECIAL.182.060         | 100                                       | (4x0.38)C     | white, orange, blue, yellow (star-quadr)                                   |

- For high tensile strain
- PUR outer jacket
- Shielded
- Oil-resistant and coolant-resistant
- Flame-retardant
- PVC and halogen-free
- Notch-resistant
- Hydrolysis and microbe-resistant

**Especially for  
MOVILINK® DDI  
technology  
from SEW-  
EURODRIVE**

## Dynamic information

|                                                                                   |                        |                        |                                                |
|-----------------------------------------------------------------------------------|------------------------|------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b> | minimum 10 x d                                 |
|                                                                                   |                        | <b>flexible</b>        | minimum 8 x d                                  |
|                                                                                   |                        | <b>fixed</b>           | minimum 5 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b> | -25°C up to +80°C                              |
|                                                                                   |                        | <b>flexible</b>        | -40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>           | -50°C up to +80°C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>     | 10m/s                                          |
|  | <b>a max.</b>          | <b>gliding</b>         | 2m/s                                           |
|  | <b>Travel distance</b> |                        | For hanging applications up to 50 m            |

## Cable structure

|                                                                                     |                            |                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Conductor</b>           | Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).                                                                                                                                                                                                                                                                                                          |
|    | <b>Core insulation</b>     | Mechanically high-quality, especially low-capacitance XLPE mixture.<br><b>HF50-0.9/2.95:</b> Special PE mixture.                                                                                                                                                                                                                                                                                                              |
|   | <b>Core structure</b>      | Power cores and control pair elements wound with a short pitch length around a high tensile strength centre element.                                                                                                                                                                                                                                                                                                          |
|  | <b>Core identification</b> | According to Servo-Hybrid specification.<br>Current data sheet ► <a href="http://www.igus.sk/CFSPECIAL192">www.igus.sk/CFSPECIAL192</a>                                                                                                                                                                                                                                                                                       |
|  | <b>Element shield</b>      | Bending-resistant braiding made of tinned copper wires.                                                                                                                                                                                                                                                                                                                                                                       |
|  | <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 linear approx. 70%, optical approx. 90%                                                                                                                                                                                                                                                                                                                   |
|  | <b>Outer jacket</b>        | <b>1. Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.<br><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.<br><b>2. Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in hanging applications (following DIN EN 50363-10-2).<br>Colour: Pastel orange (similar to RAL 2003) |

## Electrical information

|                                                                                     |                        |                                                                |
|-------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------|
|  | <b>Nominal voltage</b> | 600/1,000V (following DIN VDE 0298-3)<br>1,000V (following UL) |
|  | <b>Testing voltage</b> | 4,000V (following DIN EN 50395)                                |

## Properties and approvals

|                                                                                     |                        |                                                                                                     |
|-------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
|  | <b>Oil resistance</b>  | Oil-resistant (following DIN EN 50363-10-2), Class 3                                                |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | <b>Flame-retardant</b> | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | <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>PTFE-free</b>       | The design of these products does not contain PTFE                                                  |
|  | <b>UL/CSA AWM</b>      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL192">www.igus.sk/CFSPECIAL192</a> |
|  | <b>NFPA</b>            | Following NFPA 79-2018, chapter 12.9                                                                |
|  | <b>REACH</b>           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II/RoHS-III)                                                             |
|  | <b>DESINA</b>          | According to VDW, DESINA standardisation                                                            |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                |

## Typical application areas

- For high tensile strain
- For hanging applications up to 50 m
- Almost unlimited resistance to oil
- Storage and retrieval units, hanging control units, lifts

| Part No.       | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] | Shop and prices online                                                                |
|----------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|---------------------------------------------------------------------------------------|
| CFSPECIAL.192. | (4G1.5+2x(2x1.0)C                                         |                              |                      |                |                                                                                       |
| H207.15.04.D   | +HF50-0.9/2.95)C                                          | 17.0                         | 199                  | 377            |  |

**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

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

**Now with DNV approval for top drive hanging applications up to 50m**

## Dynamic information

|                                                                                   |                        |                                              |                                                |
|-----------------------------------------------------------------------------------|------------------------|----------------------------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b>                       | minimum 10 x d                                 |
|                                                                                   |                        | <b>flexible</b>                              | minimum 8 x d                                  |
|                                                                                   |                        | <b>fixed</b>                                 | minimum 5 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b>                       | -25°C up to +80°C                              |
|                                                                                   |                        | <b>flexible</b>                              | -40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>                                 | -50°C up to +80°C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>                           | 10m/s                                          |
|  | <b>a max.</b>          | <b>gliding</b>                               | 2m/s                                           |
|  | <b>Travel distance</b> | For top drive hanging applications up to 50m |                                                |

## Cable structure

|                                                                                     |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|-------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|    | <b>Conductor</b>           | Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).                                                                                                                                                                                                                                                                                                                |  |
|    | <b>Core insulation</b>     | Mechanically high-quality, especially low-capacitance XLPE mixture.                                                                                                                                                                                                                                                                                                                                                                 |  |
|   | <b>Core structure</b>      | Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths.                                                                                                                                                                                                                                                                                                                                   |  |
|  | <b>Core identification</b> | Black cores with white numbers.                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|  | <b>Inner jacket</b>        | Mechanically high-quality TPE mixture.                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  | <b>Element shield</b>      | Bending-resistant braiding made of tinned copper wires.                                                                                                                                                                                                                                                                                                                                                                             |  |
|  | <b>Overall shield</b>      | Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%                                                                                                                                                                                                                                                                                                                  |  |
|  | <b>Outer jacket</b>        | <b>1. Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.<br><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.<br><b>2. Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in top drive hanging applications (following DIN EN 50363-10-2).<br>Colour: jet black (similar to RAL 9005) |  |

## Electrical information

|                                                                                     |                        |                                       |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------------|
|  | <b>Nominal voltage</b> | 600/1,000V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 4,000V (following DIN EN 50395)       |

## Properties and approvals

|                                                                                     |                        |                                                                                                     |
|-------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>   | High                                                                                                |
|  | <b>Oil resistance</b>  | Oil-resistant (in accordance with DIN EN 50363-10-2)                                                |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | <b>Flame-retardant</b> | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | <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>PTFE-free</b>       | The design of these products does not contain PTFE                                                  |
|  | <b>UL/CSA AWM</b>      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL532">www.igus.sk/CFSPECIAL532</a> |
|  | <b>NFFPA</b>           | Following NFPA 79-2018, chapter 12.9                                                                |
|  | <b>DNV</b>             | Type Approval Certificate TAE00004G4                                                                |
|  | <b>REACH</b>           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II)                                                                      |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                |

## Typical application areas

- For high tensile strain
- Almost unlimited resistance to oil
- For top drive hanging applications up to 50m

| Part No.               | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|
| CFSPECIAL.532.15.08.02 | (8x(2x1.5)C)C                                             | 30.0                         | 513                  | 1014           |
| CFSPECIAL.532.15.16.02 | (16x(2x1.5)C)C                                            | 36.5                         | 972                  | 1669           |
| CFSPECIAL.532.15.18.02 | (18x(2x1.5)C)C                                            | 40.0                         | 1122                 | 1972           |

**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

Shop and prices online



[www.igus.sk/CFSPECIAL532](http://www.igus.sk/CFSPECIAL532)



- For top drive applications
- For heavy duty applications
- PUR outer jacket
- Oil-resistant and coolant-resistant
- Flame-retardant
- PVC and halogen-free
- UV-resistant
- Hydrolysis and microbe-resistant

Now with DNV approval for top drive hanging applications up to 50m

#### Dynamic information

|                                                                                   |                 |                          |                                                                     |
|-----------------------------------------------------------------------------------|-----------------|--------------------------|---------------------------------------------------------------------|
|  | Bend radius     | e-chain® linear flexible | minimum 10 x d<br>minimum 8 x d                                     |
|                                                                                   |                 | fixed                    | minimum 5 x d                                                       |
|  | Temperature     | e-chain® linear flexible | -25°C up to +80°C<br>-40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                 | fixed                    | -50°C up to +80°C (following DIN EN 50305)                          |
|  | v max.          | unsupported              | 10m/s                                                               |
|  | a max.          | gliding                  | 2m/s                                                                |
|  | Travel distance |                          | For top drive hanging applications up to 50m                        |

#### Cable structure

|                                                                                     |                     |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Conductor           | Conductor cable consisting of pre-leads (following DIN EN 60228).                                                                                                                                                                                                                                                                                                                                                                   |
|    | Core insulation     | Mechanically high-quality TPE mixture.                                                                                                                                                                                                                                                                                                                                                                                              |
|   | Core identification | Green-yellow                                                                                                                                                                                                                                                                                                                                                                                                                        |
|  | Outer jacket        | 1. <b>Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.<br><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.<br>2. <b>Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in top drive hanging applications (following DIN EN 50363-10-2).<br>Colour: jet black (similar to RAL 9005) |

#### Electrical information

|                                                                                     |                 |                                       |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------|
|  | Nominal voltage | 600/1,000V (following DIN VDE 0298-3) |
|  | Testing voltage | 4,000V (following DIN EN 50395)       |

#### Properties and approvals

|                                                                                     |                 |                                                                                                         |
|-------------------------------------------------------------------------------------|-----------------|---------------------------------------------------------------------------------------------------------|
|  | UV resistance   | High                                                                                                    |
|  | Oil resistance  | Oil-resistant (in accordance with DIN EN 50363-10-2)                                                    |
|  | Offshore        | MUD-resistant following NEK 606 - status 2016                                                           |
|  | Flame-retardant | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                              |
|  | Silicone-free   | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)                  |
|  | Halogen-free    | Following DIN EN 60754                                                                                  |
|  | PTFE-free       | The design of these products does not contain PTFE                                                      |
|  | UL/CSA AWM      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL562PE">www.igus.sk/CFSPECIAL562PE</a> |
|  | NFFPA           | Following NFPA 79-2018, chapter 12.9                                                                    |
|  | DNV             | Type Approval Certificate TAE00004G3                                                                    |
|  | REACH           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                                |
|  | Lead-free       | Following 2011/65/EC (RoHS-II)                                                                          |
|  | CE              | Following 2014/35/EU                                                                                    |

#### Typical application areas

- For high tensile strain
- Almost unlimited resistance to oil
- For top drive hanging applications up to 50m

| Part No.                | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|-------------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|
| CFSPECIAL.562.PE.700.01 | 1G70                                                      | 19.5                         | 713                  | 867            |

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

Shop and prices online



[www.igus.sk/CFSPECIAL562PE](http://www.igus.sk/CFSPECIAL562PE)



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

**Now with DNV  
approval for  
top drive hanging  
applications  
up to 50m**

## Dynamic information

|                                                                                   |                        |                        |                                                |
|-----------------------------------------------------------------------------------|------------------------|------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b> | minimum 10 x d                                 |
|                                                                                   |                        | <b>flexible</b>        | minimum 8 x d                                  |
|                                                                                   |                        | <b>fixed</b>           | minimum 5 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b> | -25°C up to +80°C                              |
|                                                                                   |                        | <b>flexible</b>        | -40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>           | -50°C up to +80°C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>     | 10m/s                                          |
|  | <b>a max.</b>          | <b>gliding</b>         | 2m/s                                           |
|  | <b>Travel distance</b> |                        | For top drive hanging applications up to 50m   |

## Cable structure

|                                                                                     |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Conductor</b>       | Conductor cable consisting of pre-leads (following DIN EN 60228).                                                                                                                                                                                                                                                                                                                                                                                      |
|    | <b>Core insulation</b> | Mechanically high-quality TPE mixture.                                                                                                                                                                                                                                                                                                                                                                                                                 |
|   | <b>Overall shield</b>  | Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%                                                                                                                                                                                                                                                                                                                                     |
|  | <b>Outer jacket</b>    | <p><b>1. Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.</p> <p><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.</p> <p><b>2. Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in top drive hanging applications (following DIN EN 50363-10-2).</p> <p>Colour: jet black (similar to RAL 9005)</p> |

## Electrical information

|                                                                                     |                        |                                       |
|-------------------------------------------------------------------------------------|------------------------|---------------------------------------|
|  | <b>Nominal voltage</b> | 600/1,000V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 4,000V (following DIN EN 50395)       |

## Properties and approvals

|                                                                                     |                        |                                                                                                     |
|-------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>   | High                                                                                                |
|  | <b>Oil resistance</b>  | Oil-resistant (in accordance with DIN EN 50363-10-2)                                                |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | <b>Flame-retardant</b> | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | <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>PTFE-free</b>       | The design of these products does not contain PTFE                                                  |
|  | <b>UL/CSA AWM</b>      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL572">www.igus.sk/CFSPECIAL572</a> |
|  | <b>NFFPA</b>           | Following NFPA 79-2018, chapter 12.9                                                                |
|  | <b>DNV</b>             | Type Approval Certificate TAE00004G3                                                                |
|  | <b>REACH</b>           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II)                                                                      |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                |

## Typical application areas

- For high tensile strain
- Almost unlimited resistance to oil
- For top drive hanging applications up to 50m

| Part No.                    | Number of cores<br>and conductor<br>nominal cross section<br>[mm²] | Outer<br>diameter<br>(d) max.<br>[mm] | Copper<br>index<br>[kg/km] | Weight<br>[kg/km] | Shop and<br>prices online                                                             |
|-----------------------------|--------------------------------------------------------------------|---------------------------------------|----------------------------|-------------------|---------------------------------------------------------------------------------------|
| Multi core Motor cables     |                                                                    |                                       |                            |                   |  |
| CFSPECIAL.572.25.37         | (37x2.5)C                                                          | 39.5                                  | 1086                       | 1901              |                                                                                       |
| CFSPECIAL.572.40.07         | (7G4.0)C                                                           | 19.5                                  | 350                        | 540               |                                                                                       |
| Spindle cables/Single cores |                                                                    |                                       |                            |                   | <a href="http://www.igus.sk/CFSPECIAL572">www.igus.sk/<br/>CFSPECIAL572</a>           |
| CFSPECIAL.572.2400.01       | (1x240)C                                                           | 34.5                                  | 2581                       | 3081              |                                                                                       |
| CFSPECIAL.572.3000.01       | (1x300)C                                                           | 37.5                                  | 3189                       | 3799              |                                                                                       |
| CFSPECIAL.572.4000.01       | (1x400)C                                                           | 42.0                                  | 4269                       | 5007              |                                                                                       |

**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

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

**Now with DNV  
approval for  
top drive hanging  
applications  
up to 50m**

## Dynamic information

|                                                                                   |                        |                        |                                                |
|-----------------------------------------------------------------------------------|------------------------|------------------------|------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b> | minimum 10 x d                                 |
|                                                                                   |                        | <b>flexible</b>        | minimum 8 x d                                  |
|                                                                                   |                        | <b>fixed</b>           | minimum 5 x d                                  |
|  | <b>Temperature</b>     | <b>e-chain® linear</b> | -25°C up to +80°C                              |
|                                                                                   |                        | <b>flexible</b>        | -40°C up to +80°C (following DIN EN 60811-504) |
|                                                                                   |                        | <b>fixed</b>           | -50°C up to +80°C (following DIN EN 50305)     |
|  | <b>v max.</b>          | <b>unsupported</b>     | 10m/s                                          |
|                                                                                   |                        | <b>gliding</b>         | 2m/s                                           |
|  | <b>a max.</b>          |                        | 50m/s²                                         |
|  | <b>Travel distance</b> |                        | For top drive hanging applications up to 50m   |

## Cable structure

|                                                                                     |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Conductor</b>           | Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).                                                                                                                                                                                                                                                                                                                |
|    | <b>Core insulation</b>     | Mechanically high-quality, especially low-capacitance XLPE mixture.                                                                                                                                                                                                                                                                                                                                                                 |
|   | <b>Core structure</b>      | According to CFSPECIAL-specification.<br>► <b>Product range table</b>                                                                                                                                                                                                                                                                                                                                                               |
|  | <b>Core identification</b> | Black cores with white numbers, one green-yellow core                                                                                                                                                                                                                                                                                                                                                                               |
|  | <b>Inner jacket</b>        | Mechanically high-quality TPE mixture.                                                                                                                                                                                                                                                                                                                                                                                              |
|  | <b>Element shield</b>      | Bending-resistant braiding made of tinned copper wires.                                                                                                                                                                                                                                                                                                                                                                             |
|  | <b>Overall shield</b>      | Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%                                                                                                                                                                                                                                                                                                                  |
|  | <b>Outer jacket</b>        | <b>1. Outer jacket:</b> PUR mixture adapted to suit the requirements in e-chains®.<br><b>Reinforcement:</b> High tensile strength aramid braid embedded in the outer jacket.<br><b>2. Outer jacket:</b> Low-adhesion, halogen-free PUR mixture, highly abrasion and bending-resistant, adapted to suit the requirements in top drive hanging applications (following DIN EN 50363-10-2).<br>Colour: jet black (similar to RAL 9005) |

Image exemplary

## Electrical information

|                                                                                     |                        |                                                                |
|-------------------------------------------------------------------------------------|------------------------|----------------------------------------------------------------|
|  | <b>Nominal voltage</b> | 600/1,000V (following DIN VDE 0298-3)<br>1,000V (following UL) |
|  | <b>Testing voltage</b> | 4,000V (following DIN EN 50395)                                |

## Properties and approvals

|                                                                                     |                        |                                                                                                     |
|-------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------------------------------------|
|  | <b>UV resistance</b>   | High                                                                                                |
|  | <b>Oil resistance</b>  | Oil-resistant (in accordance with DIN EN 50363-10-2)                                                |
|  | <b>Offshore</b>        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | <b>Flame-retardant</b> | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | <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>PTFE-free</b>       | The design of these products does not contain PTFE                                                  |
|  | <b>UL/CSA AWM</b>      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL592">www.igus.sk/CFSPECIAL592</a> |
|  | <b>NFPA</b>            | Following NFPA 79-2018, chapter 12.9                                                                |
|  | <b>DNV</b>             | Type Approval Certificate TAE00004KR                                                                |
|  | <b>REACH</b>           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II)                                                                      |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                |

## Typical application areas

- For high tensile strain
- Almost unlimited resistance to oil
- For top drive hanging applications up to 50m

| Part No.          | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|-------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|
| CFSPECIAL.592.001 | (30G4.0+4x(2x2.5)C)C                                      | 44.0                         | 1,750                | 2630           |

**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

Shop and prices online



[www.igus.sk/CFSPECIAL592](http://www.igus.sk/CFSPECIAL592)

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

## Dynamic information

|                                                                                   |                 |                          |                                                                      |
|-----------------------------------------------------------------------------------|-----------------|--------------------------|----------------------------------------------------------------------|
|  | Bend radius     | e-chain® linear flexible | minimum 10 x d<br>minimum 8 x d                                      |
|  | Temperature     | e-chain® linear flexible | -25°C up to +80°C<br>-40°C up to +80°C (following DIN EN 60811-504)  |
|  | v max.          | fixed                    | -50°C up to +80°C (following DIN EN 50305)                           |
|  | a max.          | unsupported              | 3m/s                                                                 |
|  | Travel distance | gliding                  | 2m/s                                                                 |
|                                                                                   |                 |                          | Unsupported travels and up to 100m for gliding applications, Class 5 |

## Cable structure

|                                                                                     |                     |                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Conductor           | Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).                                                                                                       |
|    | Core insulation     | Mechanically high-quality TPE mixture.                                                                                                                                                    |
|    | Core structure      | According to CFSPECIAL-specification.<br>► <a href="#">Product range table</a>                                                                                                            |
|    | Core identification | ► <a href="#">Product range table</a>                                                                                                                                                     |
|   | Inner jacket        | TPE mixture adapted to suit the requirements in e-chains®.                                                                                                                                |
|  | Element shield      | Bending-resistant braiding made of tinned copper wires.                                                                                                                                   |
|  | Overall shield      | Bending-resistant braiding made of tinned copper wires.<br>Coverage linear approx. 50%, optical approx. 80%                                                                               |
|  | Outer jacket        | Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2)<br>Colour: jet black (similar to RAL 9005) |

## Electrical information

|                                                                                     |                 |                                                                |
|-------------------------------------------------------------------------------------|-----------------|----------------------------------------------------------------|
|  | Nominal voltage | 600/1,000V (following DIN VDE 0298-3)<br>1,000V (following UL) |
|  | Testing voltage | 4,000V (following DIN EN 50395)                                |

## Properties and approvals

|                                                                                     |                 |                                                                                                     |
|-------------------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------------|
|  | UV resistance   | High                                                                                                |
|  | Oil resistance  | Oil-resistant (following DIN EN 50363-10-2), Class 3                                                |
|  | Offshore        | MUD-resistant following NEK 606 - status 2016                                                       |
|  | Flame-retardant | According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame                          |
|  | Silicone-free   | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)              |
|  | Halogen-free    | Following DIN EN 60754                                                                              |
|  | PTFE-free       | The design of these products does not contain PTFE                                                  |
|  | UL/CSA AWM      | See data sheet for details ► <a href="http://www.igus.sk/CFSPECIAL792">www.igus.sk/CFSPECIAL792</a> |
|  | NFPA            | Following NFPA 79-2018, chapter 12.9                                                                |
|  | REACH           | In accordance with regulation (EC) No. 1907/2006 (REACH)                                            |
|  | Lead-free       | Following 2011/65/EC (RoHS-II/RoHS-III)                                                             |
|  | CE              | Following 2014/35/EU                                                                                |

## Typical application areas

- Reliable e-chain® cable for the seventh robot axis
- Electrical properties in line with Kuka (.011/.013/.014), ABB (.012) and Fanuc (.015/.016)

igus® chainflex® CFSPECIAL.792

Image exemplary

| Part No.          | Number of cores and<br>conductor nominal cross section<br>[mm <sup>2</sup> ] | Outer diameter<br>(d) max.<br>[mm] | Copper<br>index<br>[kg/km] | Weight<br>[kg/km] | Shop and<br>prices online                                                                                                                                         |  |
|-------------------|------------------------------------------------------------------------------|------------------------------------|----------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| ABB               |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.012 | (18G2.5)C                                                                    | 25.5                               | 545                        | 882               | <br><a href="http://www.igus.sk/CFSPECIAL792">www.igus.sk/<br/>CFSPECIAL792</a> |  |
| Fanuc             |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.015 | (7x(6x2.0))C                                                                 | 36.5                               | 999                        | 1747              |                                                                                                                                                                   |  |
|                   |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.016 | (5x(4x0.25)+10x(3x0.75))C                                                    | 26.5                               | 422                        | 877               |                                                                                                                                                                   |  |
|                   |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| KUKA              |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.011 | (5x(2x6.0+2x2.5)+2x(6x1.0))C)C                                               | 35.5                               | 1250                       | 2033              |                                                                                                                                                                   |  |
|                   |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.013 | ((6x1.5)C+3x(3x4)+1G6)C                                                      | 28.0                               | 679                        | 1220              |                                                                                                                                                                   |  |
|                   |                                                                              |                                    |                            |                   |                                                                                                                                                                   |  |
| CFSPECIAL.792.014 | (2x(3x1.5)C+3x(3x10)+1G10)C                                                  | 35.5                               | 1340                       | 2122              |                                                                                                                                                                   |  |

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

| Part No.          | Core group   | Colour code                                                                                                                                                                                                                                                                                                                                       |
|-------------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ABB               |              |                                                                                                                                                                                                                                                                                                                                                   |
| CFSPECIAL.792.012 | (18G2.5)C    | Black cores with white numbers 1-17, one green-yellow core                                                                                                                                                                                                                                                                                        |
| Fanuc             |              |                                                                                                                                                                                                                                                                                                                                                   |
| CFSPECIAL.792.015 | (7x(6x2.0))C | Cores black with white digits 1-29<br>Cores blue with white digits 1-4<br>Cores yellow with black digits 1-9                                                                                                                                                                                                                                      |
| CFSPECIAL.792.016 | 5x(4x0.25)   | (blue/violet/brown/green), (grey/violet/yellow/brown), (grey/blue/brown/green), (grey/blue/green/yellow), (green/violet/brown/yellow)                                                                                                                                                                                                             |
|                   | 10x(3x0.75)  | Cores brown with white digits 1, 7, 24 & 30<br>Cores black with white digits 16-21<br>Cores blue with white digits 2, 8 & 25<br>Cores green with black digits 3, 9 & 26<br>Cores yellow with black digits 5, 22 & 28<br>Cores red with white digits 11-15<br>Cores violet with white digits 4, 10 & 27<br>Cores grey with black digits 6, 23 & 29 |
| KUKA              |              |                                                                                                                                                                                                                                                                                                                                                   |
| CFSPECIAL.792.011 | 10x6.0       | Black cores with white numbers 1-9, one green-yellow core                                                                                                                                                                                                                                                                                         |
|                   | 10x2.5       | Black cores with white numbers 10-18, one green-yellow core                                                                                                                                                                                                                                                                                       |
|                   | 2x(6x1.0)C   | Black cores with white numbers 19-30                                                                                                                                                                                                                                                                                                              |
| CFSPECIAL.792.013 | (6x1.5)C     | Black cores with white numbers 10-15                                                                                                                                                                                                                                                                                                              |
|                   | 3x(3x4)      | Black cores with white numbers 1-9                                                                                                                                                                                                                                                                                                                |
|                   | 1G6          | Green-yellow core                                                                                                                                                                                                                                                                                                                                 |
| CFSPECIAL.792.014 | 2x(3x1.5)C   | Black cores with white numbers 10-15                                                                                                                                                                                                                                                                                                              |
|                   | 3x(3x10)     | Black cores with white numbers 1-9                                                                                                                                                                                                                                                                                                                |
|                   | 1G10         | Green-yellow core                                                                                                                                                                                                                                                                                                                                 |

