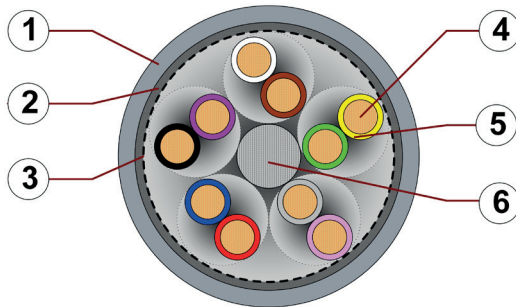


# Data sheet

## chainflex® CF211



Data cable (Class 5.5.2.1) • For heavy duty applications • PVC outer jacket • Shielded  
• Twisted pair • Oil-resistant • Flame retardant



1. Outer jacket: Pressure extruded, oil-resistant PVC mixture
2. Overall shield: Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires.
3. Banding: Plastic foil
4. Conductor: Very finely stranded special cores of particularly high-flex design made of bare copper wires
5. Core insulation: Mechanically high-quality TPE mixture
6. Strain relief: Tensile stress-resistant centre element

**Example image**  
For detailed overview please see design table

### Cable structure

|  |                            |                                                                                                                                                                                      |
|--|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Conductor</b>           | Very finely stranded special conductors of particularly bending resistant design made of bare copper wires.                                                                          |
|  | <b>Core insulation</b>     | Mechanically high-quality TPE 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> | Colour code in accordance with DIN 47100                                                                                                                                             |
|  | <b>Intermediate layer</b>  | Foil taping over the outer layer.                                                                                                                                                    |
|  | <b>Overall shield</b>      | Aluminum/Polyester tape and extremely bending-resistant braiding made of tinned copper wires.<br>Coverage approx. 70 % linear, approx. 90 % optical                                  |
|  | <b>Outer jacket</b>        | Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1).<br>Colour: Silver-grey (similar to RAL 7001)<br>Printing: black |

„00000 m“\* igus chainflex CF211.---.02① -----② E310776 cRUus

AWM Style 2464 VW-1 AWM I/II A/B 80°C 300V FT1 EAC/CTP CE

RoHS-II conform [www.igus.de](http://www.igus.de) +++ chainflex cable works +++

\* **Length printing:** Not calibrated. Only intended as an orientation aid.  
① / ② Cable identification according to Part No. (see technical table).  
Example: ... chainflex ... CF211.02.04.02 ... (4x(2x0.25))C ... E310776 ...



# Data sheet

## chainflex® CF211



Data cable (Class 5.5.2.1) • For heavy duty applications • PVC outer jacket • Shielded  
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### Dynamic information

|                                                                                   |                        |                                                           |                                                                                                                       |
|-----------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
|  | <b>Bend radius</b>     | <b>e-chain® linear</b><br><b>flexible</b><br><b>fixed</b> | minimum 7.5 x d<br>minimum 6 x d<br>minimum 4 x d                                                                     |
|  | <b>Temperature</b>     | <b>e-chain® linear</b><br><b>flexible</b><br><b>fixed</b> | +5 °C up to +70 °C<br>-5 °C up to +70 °C (following DIN EN 60811-504)<br>-15 °C up to +70 °C (following DIN EN 50305) |
|  | <b>v max.</b>          | <b>unsupported</b><br><b>gliding</b>                      | 5 m/s<br>3 m/s                                                                                                        |
|  | <b>a max.</b>          |                                                           | 50 m/s <sup>2</sup>                                                                                                   |
|  | <b>Travel distance</b> |                                                           | Unsupported travels and up to 100 m for gliding applications, Class 5                                                 |

These values are based on specific applications or tests. They do not represent the limit of what is technically feasible.

### Guaranteed service life according to guarantee conditions

| Double strokes            | 5 million           | 7.5 million         | 10 million          |
|---------------------------|---------------------|---------------------|---------------------|
| Temperature, from/to [°C] | R min. [factor x d] | R min. [factor x d] | R min. [factor x d] |
| +5/+15                    | 10                  | 11                  | 12                  |
| +15/+60                   | 7.5                 | 8.5                 | 9.5                 |
| +60/+70                   | 10                  | 11                  | 12                  |

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

### Electrical information

|                                                                                     |                        |                                      |
|-------------------------------------------------------------------------------------|------------------------|--------------------------------------|
|  | <b>Nominal voltage</b> | 300/300 V (following DIN VDE 0298-3) |
|  | <b>Testing voltage</b> | 1500 V (following DIN EN 50395)      |

Example image

igus® chainflex® CF211 DATA



# Data sheet

## chainflex® CF211



Data cable (Class 5.5.2.1) • For heavy duty applications • PVC outer jacket • Shielded  
• Twisted pair • Oil-resistant • Flame retardant

### Properties and approvals

|                                                                                     |                        |                                                                                                                                                       |
|-------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <b>Oil resistance</b>  | Oil-resistant (following DIN EN 50363-4-1), Class 2                                                                                                   |
|    | <b>Flame retardant</b> | According to IEC 60332-1-2, CEI 20-35, FT1, VW-1                                                                                                      |
|    | <b>Silicone-free</b>   | Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)                                                                |
|    | <b>UL/CSA</b>          | Style 10493 and 2464, 300 V, 80 °C                                                                                                                    |
|    | <b>NFPA</b>            | Following NFPA 79-2018, chapter 12.9                                                                                                                  |
|    | <b>EAC</b>             | Certificate No. RU C-DE.ME77.B.01254 (TR ZU)                                                                                                          |
|   | <b>CTP</b>             | Certificate No. C-DE.PB49.B.00416 (Fire protection)                                                                                                   |
|  | <b>CEI</b>             | Following CEI 20-35                                                                                                                                   |
|  | <b>Lead-free</b>       | Following 2011/65/EC (RoHS-II)                                                                                                                        |
|  | <b>Clean room</b>      | According to ISO Class 1. The outer jacket material of this series complies with CF240.02.24 - tested by IPA according to standard DIN EN ISO 14644-1 |
|  | <b>CE</b>              | Following 2014/35/EU                                                                                                                                  |



# Data sheet

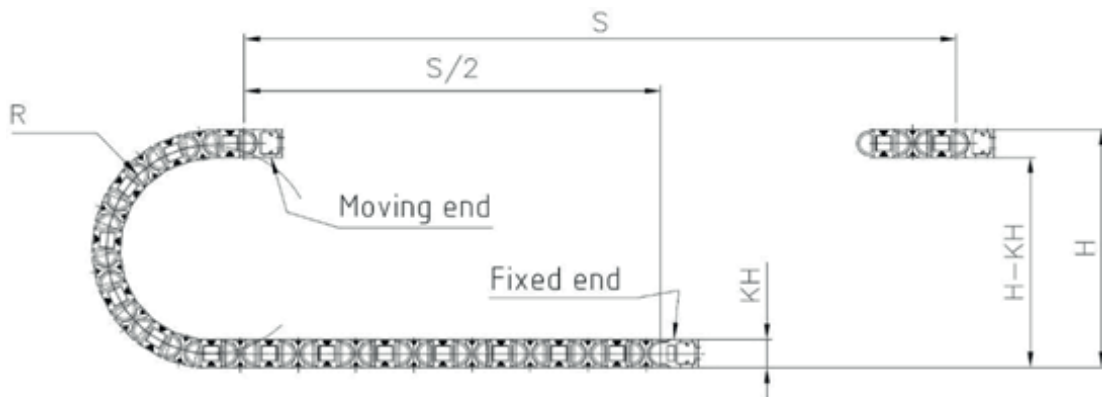
## chainflex® CF211



Data cable (Class 5.5.2.1) ● For heavy duty applications ● PVC outer jacket ● Shielded  
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### Typical lab test setup for this cable series

|                    |                                      |
|--------------------|--------------------------------------|
| Test bend radius R | approx. 35 - 75 mm                   |
| Test travel S      | approx. 1 - 15 m                     |
| Test duration      | minimum 2 - 4 million double strokes |
| Test speed         | approx. 0.5 - 2 m / s                |
| Test acceleration  | approx. 0.5 - 1.5 m / s <sup>2</sup> |



### Typical application areas

- For heavy duty applications, Class 5
- Unsupported travel distances and up to 100 m for gliding applications, Class 5
- Light oil influence, Class 2
- No torsion, Class 1
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Storage and retrieval units for high-bay warehouses, machining units/package machines, Handling, indoor cranes



Example image



# Data sheet

## chainflex® CF211



Data cable (Class 5.5.2.1) • For heavy duty applications • PVC outer jacket • Shielded  
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### Technical tables:

#### Mechanical information

| Part No.                     | Number of cores and conductor nominal cross section [mm²] | Outer diameter (d) max. [mm] | Copper index [kg/km] | Weight [kg/km] |
|------------------------------|-----------------------------------------------------------|------------------------------|----------------------|----------------|
| CF211.02.01.02               | (2x0.25)C                                                 | 5.0                          | 16                   | 31             |
| CF211.02.02.02 <sup>2)</sup> | (2x(2x0.25))C                                             | 6.0                          | 23                   | 41             |
| CF211.02.03.02               | (3x(2x0.25))C                                             | 7.0                          | 32                   | 67             |
| CF211.02.04.02               | (4x(2x0.25))C                                             | 8.0                          | 40                   | 72             |
| CF211.02.05.02               | (5x(2x0.25))C                                             | 8.5                          | 48                   | 87             |
| CF211.02.06.02               | (6x(2x0.25))C                                             | 9.0                          | 56                   | 103            |
| CF211.02.08.02               | (8x(2x0.25))C                                             | 10.5                         | 70                   | 138            |
| CF211.02.10.02               | (10x(2x0.25))C                                            | 12.0                         | 90                   | 169            |
| CF211.02.14.02               | (14x(2x0.25))C                                            | 12.0                         | 108                  | 189            |
| CF211.03.03.02               | (3x(2x0.34))C                                             | 8.0                          | 44                   | 81             |
| CF211.03.08.02               | (8x(2x0.34))C                                             | 11.5                         | 91                   | 169            |
| CF211.05.01.02               | (2x0.5)C                                                  | 5.5                          | 24                   | 41             |
| CF211.05.02.02 <sup>2)</sup> | (2x(2x0.5))C                                              | 7.0                          | 37                   | 62             |
| CF211.05.03.02               | (3x(2x0.5))C                                              | 9.0                          | 55                   | 103            |
| CF211.05.04.02               | (4x(2x0.5))C                                              | 9.5                          | 67                   | 128            |
| CF211.05.05.02               | (5x(2x0.5))C                                              | 10.5                         | 83                   | 149            |
| CF211.05.06.02               | (6x(2x0.5))C                                              | 11.5                         | 91                   | 174            |
| CF211.05.08.02               | (8x(2x0.5))C                                              | 13.0                         | 125                  | 224            |
| CF211.05.10.02               | (10x(2x0.5))C                                             | 15.5                         | 170                  | 283            |
| CF211.05.14.02               | (14x(2x0.5))C                                             | 15.5                         | 187                  | 288            |

<sup>2)</sup> The chainflex® types marked with 2) are cables designed as a star-quad.

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

#### Electrical information

| Conductor nominal cross section [mm²] | Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km] | Maximum current rating at 30 °C (following DIN VDE 0298-4) [A] |
|---------------------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------|
| 0.25                                  | 79.0                                                                      | 5                                                              |
| 0.34                                  | 57.0                                                                      | 7                                                              |
| 0.5                                   | 39.0                                                                      | 10                                                             |

The final maximum current rating depends among other things on the ambient conditions, the type of the installation and the number of loaded cores.

Example image



# Data sheet

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### Design table

| Part No.       | Number of cores | Core design | Part No.       | Number of cores | Core design |
|----------------|-----------------|-------------|----------------|-----------------|-------------|
| CF211.XX.01.02 | 2               |             | CF211.XX.06.02 | 6x2             |             |
| CF211.XX.02.02 | 4               |             | CF211.XX.08.02 | 8x2             |             |
| CF211.XX.03.02 | 3x2             |             | CF211.XX.10.02 | 10x2            |             |
| CF211.XX.04.02 | 4x2             |             | CF211.XX.14.02 | 14x2            |             |
| CF211.XX.05.02 | 5x2             |             |                |                 |             |



# Data sheet

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### Colour code in accordance with DIN 47100

| Conductor no. | Colours according to DIN ISO 47100 | Conductor no. | Colours according to DIN ISO 47100 | Conductor no. | Colours according to DIN ISO 47100 |
|---------------|------------------------------------|---------------|------------------------------------|---------------|------------------------------------|
| 1             | white                              | 22            | brown-blue                         | 43            | blue-black                         |
| 2             | brown                              | 23            | white-red                          | 44            | red-black                          |
| 3             | green                              | 24            | brown-red                          | 45            | white-brown-black                  |
| 4             | yellow                             | 25            | white-black                        | 46            | yellow-green-black                 |
| 5             | grey                               | 26            | brown-black                        | 47            | grey-pink-black                    |
| 6             | pink                               | 27            | grey-green                         | 48            | red-blue-black                     |
| 7             | blue                               | 28            | yellow-grey                        | 49            | white-green-black                  |
| 8             | red                                | 29            | pink-green                         | 50            | brown-green-black                  |
| 9             | black                              | 30            | yellow-pink                        | 51            | white-yellow-black                 |
| 10            | violet                             | 31            | green-blue                         | 52            | yellow-brown-black                 |
| 11            | grey-pink                          | 32            | yellow-blue                        | 53            | white-grey-black                   |
| 12            | red-blue                           | 33            | green-red                          | 54            | grey-brown-black                   |
| 13            | white-green                        | 34            | yellow-red                         | 55            | white-pink-black                   |
| 14            | brown-green                        | 35            | green-black                        | 56            | pink-brown-black                   |
| 15            | white-yellow                       | 36            | yellow-black                       | 57            | white-blue-black                   |
| 16            | brown-yellow                       | 37            | grey-blue                          | 58            | brown-blue-black                   |
| 17            | white-grey                         | 38            | pink-blue                          | 59            | white-red-black                    |
| 18            | brown-grey                         | 39            | grey-red                           | 60            | brown-red-black                    |
| 19            | white-pink                         | 40            | pink-red                           | 61            | black-white                        |
| 20            | white-brown                        | 41            | grey-black                         |               |                                    |
| 21            | white-blue                         | 42            | pink-black                         |               |                                    |

