cables

Special cables

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The following chapter of special cables offers solutions for moving applications going beyond standard energy supply.

The constantly growing program of 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 to 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.

We look forward to hearing about your requirements!

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.de

Guarantee igus chainflex 36 up to 36 months guarantee

igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year

Thermocouple cable | PUR | chainflex® CFTHERMO

Example image

- 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**	minimum 12.5 x d
	flexible	minimum 10 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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
	gliding	1m/s
a max.		20m/s²
Travel distance		Unsupported travels and up to 50m for gliding applications, Class 4

Cable structure

Conductor	Conductor consisting of a flexible special alloy. ▶ Product range table
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. ▶ Product range table
Intermediate layer	Fleece taping over the external layer.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. 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) Colour: According to thermo specification ▶ Product range table

Electrical information

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

Class 5.4.3.1

Basic requirements	low	1	2	3	4	**5**	6	7 highest
Travel distance	unsupported	1	2	3	**4**	5	6	≥ 400m
Oil resistance	none	1	2	**3**	4	highest		
Torsion	none	**1**	2	3	4	±360°		

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
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
EAC	Certificate No. RU C-DE.ME77.B.00300/19
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
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

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

* 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
PUR
12.5 x d

Single core flat cable | TPE | chainflex® CFFLAT

Example image

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

Dynamic information

Bend radius	**e-chain® linear**	minimum 5 x d
	flexible	minimum 4 x d
	fixed	minimum 3 x d
Temperature	**e-chain® linear**	-35°C up to +90°C
	flexible	-50°C up to +90°C (following DIN EN 60811-504)
	fixed	-55°C up to +90°C (following DIN EN 50305)
v max.	**unsupported**	10m/s
	gliding	6m/s
a max.		100m/s²
Travel distance		Unsupported travels and up to 100m for gliding applications, Class 5

Cable structure

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

Electrical information

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

Class 7.5.4.1

Basic requirements	low	1	2	3	4	5	6	**7**	highest
Travel distance	unsupported	1	2	3	4	**5**	6	≥ 400m	
Oil resistance	none	1	2	3	**4**	highest			
Torsion	none	**1**	2	3	4	±360°			

Properties and approvals

UV resistance	High
Oil resistance	Oil-resistant (following DIN EN 60811-404), bio-oil-resistant (following VDMA 24568 with Plantocut 8 S-MB tested by DEA), Class 4
Silicone-free	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
Halogen-free	Following DIN EN 60754
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
EAC	Certificate No. RU C-DE.ME77.B.00863/20
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 CF9.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
CE	Following 2014/35/EU
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

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 [mm²]	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

CFFLAT
TPE
5 x d

Bus cable for hanging applications | PUR

chainflex® CFSPECIAL.182

Example image

- For increased tensile load
- 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**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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
	gliding	6m/s
a max.		100m/s²
Travel distance		For hanging applications up to 50 m

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core structure	According to bus specification.
Core identification	According to bus specification.
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
Outer jacket	**1. Outer jacket:** PUR mixture adapted to suit the requirements in e-chains®. **Reinforcement:** High tensile strength aramid braid embedded in the outer jacket. **2. Outer jacket:** 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). Colour: jet black (similar to RAL 9005)

Electrical information

Nominal voltage	50V 300V (following UL)
Testing voltage	500V

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 2009
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
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
UL/CSA AWM	See data sheet for details ▶ www.igus.eu/CFSPECIAK182
NFPA	Following NFPA 79-2018, chapter 12.9
EAC	Certificate No. RU C-DE.ME77.B.00295/19
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
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

Typical application areas

- For increased tensile load
- 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]
CFSPECIAL.182.045	(4x(2x0.15))C	9.5	42	136
CFSPECIAL.182.060 [13]	(4x0.38)C	8.5	37	125

[13] 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
Ethernet/CAT5e/PoE			
CFSPECIAL.182.045	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown
Profinet			
CFSPECIAL.182.060	100	(4x0.38)C	white, orange, blue, yellow (star-quad)

EPLAN download, configurators ▶ www.igus.eu/CFSPECIAL182

CFSP.182
PUR
10 x d

CFSP.414
7.5 x d

Control cable for rail vehicles

chainflex® CFSPECIAL.414

- For heaviest duty applications in rail vehicles
- Special outer jacket
- PVC and halogen-free
- Oil-resistant
- Flame-retardant
- Self-extinguishing
- Low toxicity
- Low gas density

Especially for rail vehicles

Dynamic information

Bend radius	**e-chain® linear**	minimum 7.5 x d
	flexible	minimum 6 x d
	fixed	minimum 4 x d
Temperature	**e-chain® linear**	-20°C up to +80°C
	flexible	-25°C up to +80°C (following DIN EN 60811-504)
	fixed	-30°C up to +80°C (following DIN EN 50305)
v max.	**unsupported**	10m/s
a max.		20m/s²
Travel distance		For unsupported travel lengths up to 100m

Cable structure

Conductor	Fine-wire stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	Mechanically high-quality special mixture.
Core identification	Black cores with white numbers.
Outer jacket	Special mixture adapted to suit the requirements in e-chains® (following DIN EN 50264-1 EM 104). Colour: jet black (similar to RAL 9005)

Electrical information

Nominal voltage	300/500V
Testing voltage	2,000V

Properties and approvals

UV resistance	High
Oil resistance	Oil-resistant (following DIN EN 60811-2-1)
Flame-retardant	Following DIN EN 45545-2 Fire safety class 3 (HL3)
Halogen-free	Following DIN EN 60754
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
EAC	Certificate No. RU C-DE.ME77.B.00300/19
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
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)
Toxicity	Low toxicity according to EN 50305-9.2
Smoke gas density	Low smoke gas density according to EN 61034-2

Typical application areas

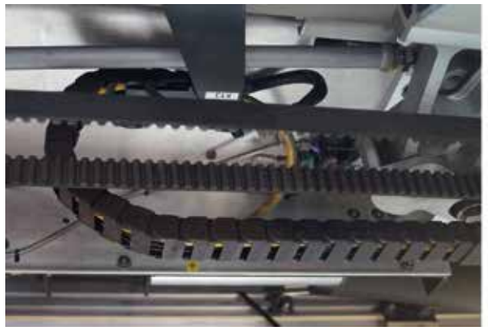
- Rail vehicles, automatic doors, buses, adjusting equipment

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFSPECIAL.414.03.04 [11)]	4x0.34	5.0	15	36
CFSPECIAL.414.03.06 [11)]	6x0.34	6.0	23	51

[11)] Phase-out model

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
CFSPECIAL.414.03.04	4x0.34	black with white numbers 1-4
CFSPECIAL.414.03.06	6x0.34	black with white numbers 1-6



chainflex® CFSPECIAL.414 in automatic door systems for underground railway vehicles of VAG Verkehrs-Aktiengesellschaft Nürnberg, each approx. 70,000 opening and closing cycles per year. e-chain®: E2 micro series.

Example image

igus® chainflex® CFSPECIAL 414

EPLAN download, configurators ▶ www.igus.eu/CFSPECIAL.414

CFSP.484
12.5 x d

Bus cable for rail vehicles

chainflex® CFSPECIAL.484

Example image

- For heaviest duty applications in rail vehicles
- Special outer jacket
- PVC and halogen-free
- Oil-resistant
- Flame-retardant
- Self-extinguishing
- Low toxicity
- Low gas density

Especially for rail vehicles

Dynamic information

Bend radius	**e-chain® linear**	minimum 12.5 x d
	flexible	minimum 10 x d
	fixed	minimum 7 x d
Temperature	**e-chain® linear**	-20°C up to +80°C
	flexible	-25°C up to +80°C (following DIN EN 60811-504)
	fixed	-30°C up to +80°C (following DIN EN 50305)
v max.	**unsupported**	10m/s
a max.		20m/s²
Travel distance		For unsupported travel lengths up to 100m

Cable structure

Conductor	Fine-wire stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	According to bus specification.
Core structure	According to bus specification.
Core identification	According to bus specification.
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
Outer jacket	Special mixture adapted to suit the requirements in e-chains® (following DIN EN 50264-1 EM 104). Colour: jet black (similar to RAL 9005)

Electrical information

Nominal voltage	50V
Testing voltage	500V

Properties and approvals

UV resistance	High
Oil resistance	Oil-resistant (following DIN EN 60811-2-1)
Flame-retardant	Following DIN EN 45545-2 Fire safety class 3 (HL3)
Halogen-free	Following DIN EN 60754
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
EAC	Certificate No. RU C-DE.ME77.B.00295/19
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
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)
Toxicity	Low toxicity according to EN 50305-9.2
Smoke gas density	Low smoke gas density according to EN 61034-2

Typical application areas

- Rail vehicles, automatic doors, buses, adjusting equipment

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
Ethernet/CAT6				
CFSPECIAL.484.049 [11)]	(4x(2x0.15))C	8.5	42	86

11) Phase-out model

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.	Core group	Colour code
Ethernet/CAT6			
CFSPECIAL.484.049	100	(4x(2x0.15))C	white-blue/blue, white-orange/orange, white-green/green, white-brown/brown

PVC | iguPUR | **PUR** | TPE

New

Data cable for top drive applications| PUR

chainflex® CFSPECIAL.532

- 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

For top drive hanging applications up to 50m

Example image

Dynamic information

Bend radius	**e-chain® linear**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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
	sliding	2m/s
a max.		50m/s²
Travel distance		For top drive hanging applications up to 50m

Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	Mechanically high-quality, especially low-capacitance XLPE mixture.
Core structure	Cores twisted in pairs with a short pitch length, core pairs then wound with short pitch lengths.
Core identification	Black cores with white numbers.
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
Outer jacket	**1. Outer jacket:** PUR mixture adapted to suit the requirements in e-chains®. **Reinforcement:** High tensile strength aramid braid embedded in the outer jacket. **2. Outer jacket:** 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). 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 2009
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
UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	See data sheet for details ▶ www.igus.eu/CFSPECIAL532
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)
CE	Following 2014/35/EU
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

Typical application areas

- For high tensile loads
- 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

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

PVC | iguPUR | **PUR** | TPE

New

Motor cable for top drive applications | PUR

chainflex® CFSPECIAL.562.PE

- 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

For top drive hanging applications up to 50m

Example image

Dynamic information

Bend radius	**e-chain® linear**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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
	sliding	2m/s
a max.		50m/s²
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
Overall shield	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
Outer jacket	**1. Outer jacket:** PUR mixture adapted to suit the requirements in e-chains®. **Reinforcement:** High tensile strength aramid braid embedded in the outer jacket. **2. Outer jacket:** 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). 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 2009
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
UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	See data sheet for details ▶ www.igus.eu/CFSPECIAL.562.PE
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)
CE	Following 2014/35/EU
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

Typical application areas

- For high tensile loads
- 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

CFSP.562.
PE
PUR
10 x d

PVC | iguPUR | **PUR** | TPE

New

Motor cable for top drive applications | PUR

chainflex® CFSPECIAL.572

- 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

For top drive hanging applications up to 50m

Dynamic information

Bend radius	**e-chain® linear**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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
	sliding	2m/s
a max.		50m/s²
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.

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

Outer jacket
1. Outer jacket: PUR mixture adapted to suit the requirements in e-chains®.
Reinforcement: High tensile strength aramid braid embedded in the outer jacket.
2. Outer jacket: 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).
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)

Example image

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 2009
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
UL verified	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
UL/CSA AWM	See data sheet for details ▶ www.igus.eu/CFSPECIAL572
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)
CE	Following 2014/35/EU
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

Typical application areas

- For high tensile loads
- 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.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

CFSP.572
PUR
10 x d

PVC | iguPUR | **PUR** | TPE

Cable for axis 7 on robots | PUR | CFSPECIAL.792

Example image

- 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**	minimum 10 x d
	flexible	minimum 8 x d
	fixed	minimum 5 x d
Temperature	**e-chain® linear**	-25°C up to +80°C
	flexible	-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**	3m/s
	gliding	2m/s
a max.		20m/s²
Travel distance		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 identification	▶ Product range table
Inner jacket	TPE mixture adapted to suit the requirements in e-chains®.
Overall shield	Bending-resistant braiding made of tinned copper wires. 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) Colour: jet black (similar to RAL 9005)

Electrical information

Nominal voltage	600/1,000V (following DIN VDE 0298-3) 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 2009
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
UL verified	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
UL/CSA AWM	See data sheet for details ▶ www.igus.eu/CFSPECIAL792
NFPA	Following NFPA 79-2018, chapter 12.9
EAC	Certificate No. RU C-DE.ME77.B.00302/19
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
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

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)

Cable for axis 7 on robots | PUR | CFSPECIAL.792

Example image

Part No.	Number of cores and Conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]	Part No.	Core group	Colour code
ABB							
CFSPECIAL.792.012	(18G2.5)C	25.5	545	882	**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	36.5	999	1747	**CFSPECIAL.792.015**	(7x(6x2.0))C	Black cores with white numbers 1-29 Blue cores with white numbers 1-4 Yellow cores with black numbers 1-9
CFSPECIAL.792.016	(5x(4x0.25)+10x(3x0.75))C	26.5	422	877	**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)	Brown cores with white numbers 1, 7, 24 & 30 Black cores with white numbers 16-21 Blue cores with white numbers 2, 8 & 25 Green cores with black numbers 3, 9 & 26 Yellow cores with black numbers 5, 22 & 28 Red cores with white numbers 11-15 Violet cores with white numbers 4, 10 & 27 Grey cores with black numbers 6, 23 & 29
Kuka							
CFSPECIAL.792.011	(5x(2x6.0+2x2.5)+2x(6x1.0)C)C	35.5	1250	2033	**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+3x(3x4)+1G6)C	28.0	679	1220	**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+3x(3x10)+1G10)C	35.5	1340	2122	**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

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

CFSP.792
PUR
10 x d