

# Control cables













chainflex® Cable	Jacket	Shield	Bend radius, e-chain® [factor x d]	Temperature e-chain® from/to [°C]	Approvals and standards	Oil-resistant	Torsion-resistant v max. [m/s] unsupported	v max. [m/s] gliding	a max.	Seite	
<b>Control cables</b>											
CF880	PVC		12.5	+5/+70			3	20	56		
CF881	PVC	✓	12.5	+5/+70			3	20	60		
CF130.UL	PVC		7.5	+5/+70			✓	3	2	20	64
CF140.UL	PVC	✓	7.5	+5/+70				3	2	20	68
CF150.UL	PVC		7.5	+5/+70		✓	✓	3	2	20	72 <b>New</b>
CF160.UL	PVC	✓	7.5	+5/+70		✓		3	2	20	76 <b>New</b>
CF5	PVC		6.8	+5/+70		✓	✓	10	5	80	80
CF6	PVC	✓	6.8	+5/+70		✓		10	5	80	84 <b>New</b>
CFSOFT1	PVC		5	+5/+70		✓		10	5	80	88
CFSOFT2	PVC	✓	5	+5/+70		✓		10	5	80	90
CF890	iguPUR		12.5	-20/+80		✓		3	20	92	
CF891	iguPUR	✓	12.5	-20/+80		✓		3	20	96	
CF77.UL.D	PUR		6.8	-25/+80		✓	✓	10	5	80	100
CF78.UL	PUR	✓	6.8	-25/+80		✓		10	5	80	104
CF2	PUR	✓	5	-20/+80		✓		10	5	80	108
CF9	TPE		5	-35/+100		✓	✓	10	6	100	112 <b>New</b>
CF10	TPE	✓	5	-35/+100		✓		10	6	100	116 <b>New</b>
CF9.UL	TPE		5	-35/+100		✓	✓	10	6	100	120
CF10.UL	TPE	✓	5	-35/+100		✓		10	6	100	124
CF98	TPE		4	-35/+90		✓	✓	10	6	100	128
CF99	TPE	✓	4	-35/+90		✓		10	6	100	130
<b>Twistable control cables (twistable cables chapter ▶ Page 370 )</b>											
CF77.UL.D	PUR		6.8	+25/+80		✓	✓			376	
CFROBOT2	PUR	✓	10	+25/+80		✓	✓			380	

**36-month chainflex® guarantee**  
 Guaranteed service life for predictable reliability  
 ▶ Selection table from page 52

[www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

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



chainflex® cables	Temperature, from/to [°C]	v max. [m/s]		a max. [m/s²]	Travel distance [m]	Minimum bend radius [factor x d] for travel distance		Minimum bend radius [factor x d] for travel distance		Minimum bend radius [factor x d] for travel distance		Page
		unsupported	gliding			< 10m	≥ 10 m	< 10m	≥ 10 m	< 10m	≥ 10 m	
<b>Control cables</b>												
 CF880	+5 / +15 +15 / +60 +60 / +70	3	-	20	≤ 10	15 12.5 15	- - -	16 13.5 16	- - -	17 14.5 17	- - -	56
 CF881	+5 / +15 +15 / +60 +70 / +70	3	-	20	≤ 10	15 12.5 15	- - -	16 13.5 16	- - -	17 14.5 17	- - -	60
 CF130.UL	+5 / +15 +15 / +60 +60 / +70	3	2	20	≤ 50	10 7.5 10	12.5 10 12.5	11 8.5 11	13.5 11 13.5	12 9.5 12	14.5 12 14.5	64
 CF140.UL	+5 / +15 +15 / +60 +60 / +70	3	2	20	≤ 50	10 7.5 10	12.5 10 12.5	11 8.5 11	13.5 11 13.5	12 9.5 12	14.5 12 14.5	68
 CF150.UL <b>New!</b>	+5 / +15 +15 / +60 +60 / +70	3	2	20	≤ 50	10 7.5 10	12.5 10 12.5	11 8.5 11	13.5 11 13.5	12 9.5 12	14.5 12 14.5	72
 CF160.UL <b>New!</b>	+5 / +15 +15 / +60 +60 / +70	3	2	20	≤ 50	10 7.5 10	12.5 10 12.5	11 8.5 11	13.5 11 13.5	12 9.5 12	14.5 12 14.5	76
 CF5	+5 / +15 +15 / +60 +60 / +70	10	5	80	≤ 100	7.5 6.8 7.5	10 7.5 10	8.5 7.8 8.5	11 8.5 11	9.5 8.8 9.5	12 9.5 12	80
 CF6 <b>New!</b>	+5 / +15 +15 / +60 +60 / +70	10	5	80	≤ 100	7.5 6.8 7.5	10 7.5 10	8.5 7.8 8.5	11 8.5 11	9.5 8.8 9.5	12 9.5 12	84
						10 million		15 million		20 million		
 CFSOFT1	+5 / +15 +15 / +60 +60 / +70	10	5	80	≤ 5	6.8 5 6.8	- - -	7.5 6 7.5	- - -	8.5 7 8.5	- - -	88
 CFSOFT2	+5 / +15 +15 / +60 +60 / +70	10	5	80	≤ 5	6.8 5 6.8	- - -	7.5 6 7.5	- - -	8.5 7 8.5	- - -	90

<sup>(1)</sup> Guaranteed service life for these series (details ► see page 28-29)












\* Higher number of double strokes? Calculate service life online: ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)  
Values in brackets apply to the CF880 and CF881 series



# chainflex® guarantee



# Guaranteed service life <sup>(1)</sup>

chainflex® cables	Temperature, from/to [°C]	v max. [m/s]		a max. [m/s²]	Travel distance [m]	Minimum bend radius [factor x d] for travel distance		Minimum bend radius [factor x d] for travel distance		Minimum bend radius [factor x d] for travel distance		Seite
		unsupported	gliding			< 10m	≥ 10 m	< 10m	≥ 10 m	< 10m	≥ 10 m	
<b>Control cables</b>												
 CF890	-20 / -10 -10 / +70 +70 / +80	3	-	20	≤ 10	15 12.5 15	- - -	16 13.5 16	- - -	17 14.5 17	- - -	92
 CF891	-20 / -10 -10 / +70 +70 / +80	3	-	20	≤ 10	15 12.5 15	- - -	16 13.5 16	- - -	17 14.5 17	- - -	96
 CF77.UL.D	-25 / -15 -15 / +70 +70 / +80	10	5	80	≤ 100	8.5 6.8 7.5	10 7.5 10	9.5 7.5 9.5	11 8.5 11	10.5 8.5 10.5	12 9.5 12	100
 CF78.UL	-25 / -15 -15 / +70 +70 / +80	10	5	80	≤ 100	8.5 6.8 7.5	10 7.5 10	9.5 7.5 9.5	11 8.5 11	10.5 8.5 10.5	12 9.5 12	104
 CF2	-20 / -10 -10 / +70 +70 / +80	10	5	80	≤ 100	6.8 5 6.8	- - -	7.5 6.8 7.5	- - -	8.5 7.5 8.5	- - -	108
						5 million		7.5 million		12.5 million		
 CF9 <b>New!</b>	-35 / -25 -25 / +90 +90 / +100	10	6	100	> 400	6.8 5 6.8	- - -	7.5 6 7.5	- - -	8.5 7 8.5	- - -	112
 CF10 <b>New!</b>	-35 / -25 -25 / +90 +90 / +100	10	6	100	> 400	6.8 5 6.8	- - -	7.5 6 7.5	- - -	8.5 7 8.5	- - -	116
						5 million		7.5 million		10 million		
 CF9.UL	-35 / -25 -25 / +90 +90 / +100	10	6	100	> 400	6.8 5 6.8	- - -	7.5 6 7.5	- - -	10 7 10	- - -	120
 CF10.UL	-35 / -25 -25 / +90 +90 / +100	10	6	100	> 400	6.8 5 6.8	- - -	7.5 6 7.5	- - -	8.5 7 8.5	- - -	124
						20 million		30 million		40 million		
 CF98	-35 / -25 -25 / +80 +80 / +90	10	6	100	≤ 100	5 4 5	- - -	6 5 6	- - -	7 6 7	- - -	128
 CF99	-35 / -25 -25 / +80 +80 / +90	10	6	100	≤ 100	5 4 5	- - -	6 5 6	- - -	7 6 7	- - -	130

<sup>(1)</sup> Guaranteed service life for these series (details ► see page 28-29)

\* Higher number of double strokes? Calculate service life online: ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)  
Values in brackets apply to the CF890 and CF891 series



# Control cable | PVC | chainflex® CF880

- 36** 5 million Double strokes guaranteed
- 12.5 x d** Bend radius, e-chain®
- 10m** Travel distance, e-chain®

- For flexing applications
- PVC outer jacket
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear</b>	minimum 12.5 x d
	<b>flexible</b>	minimum 10 x d
	<b>fixed</b>	minimum 7 x d
<b>Temperature</b>	<b>e-chain® linear</b>	+5°C up to +70°C
	<b>flexible</b>	-5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	3m/s
<b>a max.</b>		20m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels up to 10 m, Class 1

## Cable structure

<b>Conductor</b>	Conductor consisting of bare copper wires (according to DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound with an optimised pitch length.
<b>Core identification</b>	Black cores with white numbers, one green-yellow core.
<b>Outer jacket</b>	Low-adhesion PVC mixture, adapted to suit the requirements in e-chains®. Colour: jet black (similar to RAL 9005)

## Electrical information

<b>Nominal voltage</b>	300/500V 300V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 3.1.1.1

### Properties and approvals

<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See datasheet for details ► <a href="http://www.igus.eu/CF880">www.igus.eu/CF880</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

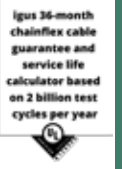
### Guaranteed service life (details see page 28-29)

Double strokes*	1 million	3 million	5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	15	16	17
+15/+60	12.5	13.5	14.5
+60/+70	15	16	17

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- Without influence of oil, Class 1
- No torsion, Class 1
- Preferably indoor applications
- Wood/stone processing, packaging industry, feeding, handling, adjusting devices



Example image

EPLAN download, configurators ► [www.igus.eu/CF880](http://www.igus.eu/CF880)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



EU2022

EU2022



UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)

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



igus® chainflex® CF880

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]
CF880.05.02	2x0.5	5.0	11	32
CF880.05.03	3G0.5	5.5	16	37
CF880.05.04	4G0.5	6.0	21	46
CF880.05.05	5G0.5	6.5	26	55
CF880.05.07	7G0.5	7.5	37	73
CF880.05.12	12G0.5	8.5	63	108
CF880.05.18	18G0.5	10.0	94	158
CF880.05.25	25G0.5	12.0	128	227
CF880.07.02	2x0.75	5.5	16	40
CF880.07.03	3G0.75	6.0	24	49
CF880.07.04	4G0.75	6.5	32	61
CF880.07.05	5G0.75	7.0	40	73
CF880.07.07	7G0.75	8.0	56	99
CF880.07.12	12G0.75	10.0	94	152
CF880.07.18	18G0.75	11.5	140	167
CF880.07.25	25G0.75	13.5	194	284
CF880.10.02	2x1.0	6.0	21	48
CF880.10.03	3G1.0	6.5	32	58
CF880.10.04	4G1.0	7.0	42	62
CF880.10.05	5G1.0	7.5	52	86
CF880.10.07	7G1.0	8.5	73	116
CF880.10.12	12G1.0	10.5	124	182
CF880.10.18	18G1.0	12.5	186	278
CF880.10.25	25G1.0	15.0	258	393
CF880.15.02	2x1.5	6.5	32	64
CF880.15.03	3G1.5	7.0	47	82
CF880.15.04	4G1.5	7.5	63	104
CF880.15.05	5G1.5	8.5	78	120
CF880.15.07	7G1.5	10.0	109	167
CF880.15.12	12G1.5	12.0	186	260
CF880.15.18	18G1.5	14.5	279	370
CF880.15.25	25G1.5	17.5	387	514

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

Class 3.1.1.1

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF880.25.03	3G2.5	8.5	78	120
CF880.25.04	4G2.5	9.0	103	150
CF880.25.05	5G2.5	10.0	129	184
CF880.25.07	7G2.5	12.0	181	256
CF880.25.12	12G2.5	15.0	327	414

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



Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



chainflex® CF880 in a short travel application



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



# Control cable | PVC | chainflex® CF881

- 36** 5 million Double strokes guaranteed
- 12.5 x d** Bend radius, e-chain®
- 10m** Travel distance, e-chain®

- For flexing applications
- PVC outer jacket
- Shielded
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 12.5 x d
	<b>fixed</b>	minimum 10 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C
	<b>fixed</b>	-5°C up to +70°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	3m/s
<b>a max.</b>		20m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels up to 10 m, Class 1

## Cable structure

<b>Conductor</b>	Conductor consisting of bare copper wires (according to DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound with an optimised pitch length.
<b>Core identification</b>	Black cores with white numbers, one green-yellow core.
<b>Overall shield</b>	Braiding made of tinned copper wires. Coverage approx. 60% optical
<b>Outer jacket</b>	Low-adhesion PVC mixture, adapted to suit the requirements in e-chains®. Colour: jet black (similar to RAL 9005)

## Electrical information

<b>Nominal voltage</b>	300/500V 300V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 3.1.1.1

### Properties and approvals

<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF881">www.igus.eu/CF881</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

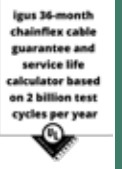
### Guaranteed service life (details see page 28-29)

Double strokes*	1 million	3 million	5 million
Temperature, from/to [°C]	R min.[factor x d]	R min.[factor x d]	R min. [factor x d]
+5/+15	15	16	17
+15/+60	12.5	13.5	14.5
+60/+70	15	16	17

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- Without influence of oil, Class 1
- No torsion, Class 1
- Preferably indoor applications
- Wood/stone processing, packaging industry, feeding, handling, adjusting devices





igus® chainflex® CF881

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]
CF881.05.03	(3G0.5)C	6.0	28	47
CF881.05.04	(4G0.5)C	6.5	35	54
CF881.05.05	(5G0.5)C	7.0	41	65
CF881.05.07	(7G0.5)C	8.0	59	75
CF881.05.12	(12G0.5)C	9.0	91	125
CF881.05.18	(18G0.5)C	11.0	136	177
CF881.05.25	(25G0.5)C	13.0	210	243
CF881.07.02	(2x0.75)C	6.5	30	50
CF881.07.03	(3G0.75)C	7.0	37	66
CF881.07.04	(4G0.75)C	7.5	46	72
CF881.07.05	(5G0.75)C	8.0	61	87
CF881.07.07	(7G0.75)C	9.0	83	112
CF881.07.12	(12G0.75)C	10.5	124	170
CF881.07.18	(18G0.75)C	12.0	183	238
CF881.07.25	(25G0.75)C	14.5	222	309
CF881.10.02	(2x1.0)C	6.5	30	52
CF881.10.03	(3G1.0)C	7.0	46	73
CF881.10.04	(4G1.0)C	7.5	63	102
CF881.10.05	(5G1.0)C	8.0	76	110
CF881.10.07	(7G1.0)C	9.5	100	130
CF881.10.12	(12G1.0)C	11.5	167	229
CF881.10.18	(18G1.0)C	13.0	213	281
CF881.10.25	(25G1.0)C	16.0	291	390
CF881.15.02	(2x1.5)C	7.5	60	71
CF881.15.03	(3G1.5)C	7.5	63	87
CF881.15.04	(4G1.5)C	8.5	90	111
CF881.15.05	(5G1.5)C	9.0	94	131
CF881.15.07	(7G1.5)C	11.0	153	183
CF881.15.12	(12G1.5)C	13.0	212	282
CF881.15.18	(18G1.5)C	15.0	399	458
CF881.15.25	(25G1.5)C	18.5	425	573
CF881.25.04	(4G2.5)C	10.0	141	163
CF881.25.05	(5G2.5)C	11.0	149	195
CF881.25.07	(7G2.5)C	13.0	204	262
CF881.25.12	(12G2.5)C	16.0	342	428

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

Order example: **CF881.25.25** - to your desired length (0.5m steps)  
CF881 chainflex® series .25 Code nominal cross section .25 Number of cores

Order online ► [www.igus.eu/CF881](http://www.igus.eu/CF881)

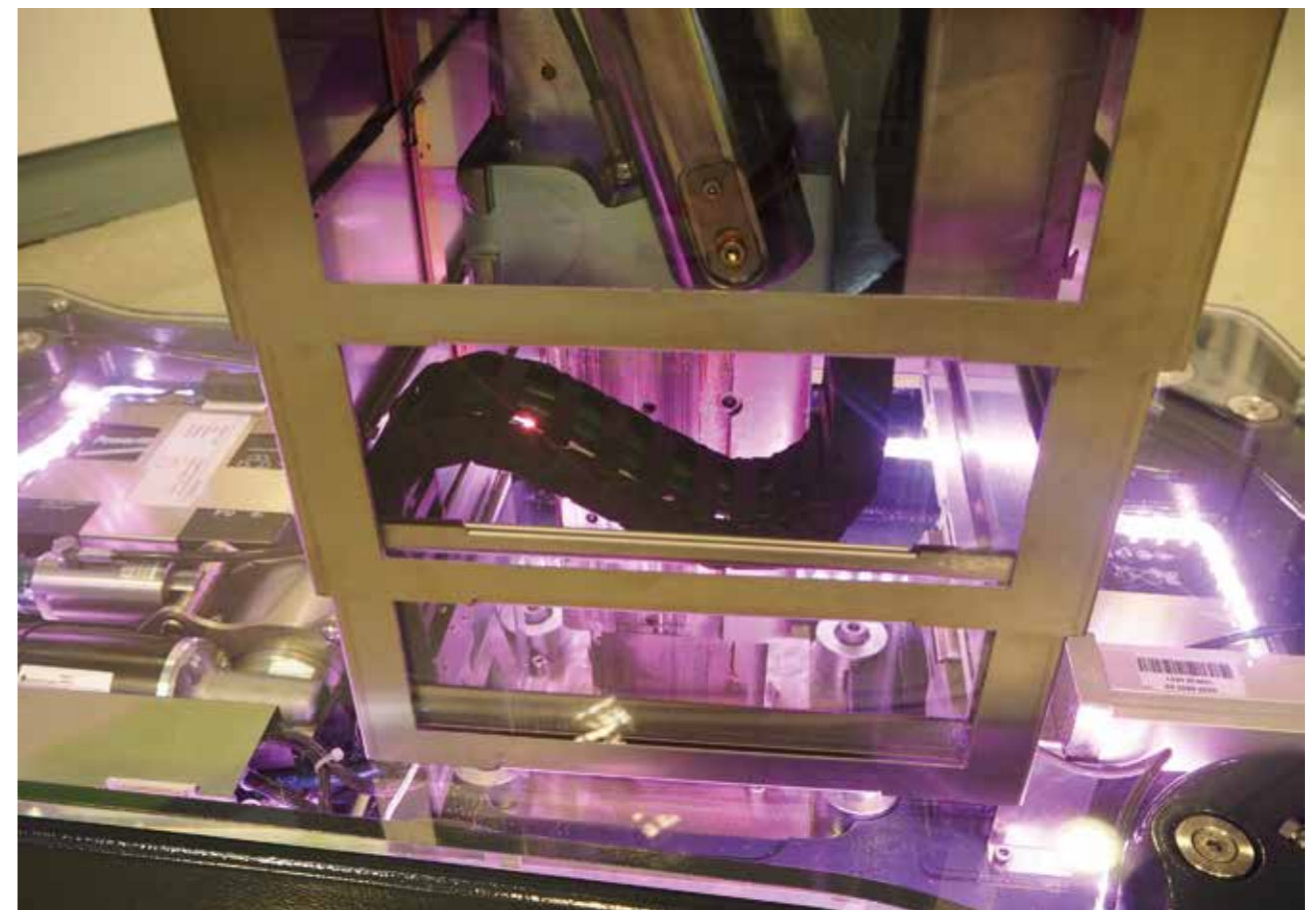
Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



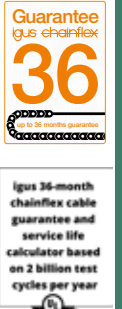
**Cables available in the chainflex® CASE**

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



chainflex® CF881 in a mobile surgical table



# Control cable | PVC | chainflex® CF130.UL

- 36** 10 million Double strokes guaranteed
- 7.5 x d** Bend radius, e-chain®
- 50m** Travel distance, e-chain®

- For medium duty applications
- PVC outer jacket
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 7.5 x d minimum 6 x d
	<b>fixed</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C -5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	3m/s
	<b>gliding</b>	2m/s
<b>a max.</b>		20m/s²
<b>Travel distance</b>		Unsupported travels and up to 50m for gliding applications, Class 4
<b>Torsion</b>		Torsion ±90°, with 1m cable length, Class 2

## Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.5mm²:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.5mm²:</b> Black cores with white numbers, one green-yellow core.
<b>Outer jacket</b>	Low-adhesion PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Silver-grey (similar to RAL 7001)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the outer jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

## Electrical information

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

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 4.4.1.2

### Properties and approvals

<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year" See data sheet for details ► <a href="http://www.igus.eu/CF130.UL">www.igus.eu/CF130.UL</a>
<b>UL/CSA AWM</b>	
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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, material/cable tested by IPA according to DIN EN ISO standard 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10 m	< 10m	≥ 10 m	< 10m	≥ 10 m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	10	12.5	11	13.5	12	14.5
+15/+60	7.5	10	8.5	11	9.5	12
+60/+70	10	12.5	11	13.5	12	14.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For medium duty applications, Class 4
- Unsupported travels and up to 50m for gliding applications, Class 4
- Without influence of oil, Class 1
- Torsion ±90°, with 1m cable length, Class 2
- Preferably indoor applications
- Wood/stone processing, packaging industry, feeding, handling, adjusting devices



chainflex® CF130.UL for woodworking application. e-chain®: E4/light

**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

**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

**CFRIP**

**UL LISTED**

**UL**

**RoHS**

**NFPA**

**CE**

**UKCA**

**EAC**

**REACH**

**RoHS**

**Cleanroom**

**UL**

**CE**

**UKCA**

igus® chainflex® CF130.UL

Example image

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36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



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UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)





# Control cable | PVC | chainflex® CF130.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF130.UL

Example image

## Class 4.4.1.2

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF130.02.03.UL	3x0.25	5.0	9	26
CF130.02.04.UL	4x0.25	5.5	11	35
CF130.02.06.UL	6x0.25	6.0	16	48
CF130.02.07.UL	7x0.25	6.5	19	56
CF130.02.12.UL	12x0.25	8.5	33	96
CF130.02.18.UL	18x0.25	10.0	46	123
CF130.02.20.UL	20x0.25	10.5	51	145
CF130.02.25.UL	25x0.25	11.5	66	164
CF130.02.30.UL	30x0.25	12.5	75	188
CF130.03.02.UL	2x0.34	5.0	8	27
CF130.03.05.UL	5x0.34	6.0	18	42
CF130.05.02.UL	2x0.5	5.5	11	38
CF130.05.03.UL	3G0.5	5.5	16	40
CF130.05.04.UL	4G0.5	6.0	21	47
CF130.05.05.UL	5G0.5	6.5	26	56
CF130.05.07.UL	7G0.5	7.5	37	76
CF130.05.12.UL	12G0.5	10.0	63	140
CF130.05.18.UL	18G0.5	12.0	94	192
CF130.05.25.UL	25G0.5	13.5	129	259
CF130.07.02.UL	2x0.75	6.0	16	48
CF130.07.03.UL	3G0.75	6.0	23	50
CF130.07.04.UL	4G0.75	6.5	31	60
CF130.07.05.UL	5G0.75	7.0	38	70
CF130.07.07.UL	7G0.75	8.0	54	96
CF130.07.12.UL	12G0.75	11.0	91	175
CF130.07.18.UL	18G0.75	13.5	134	248
CF130.07.25.UL	25G0.75	16.0	186	346
CF130.07.36.UL	36G0.75	19.0	293	531
CF130.07.42.UL	42G0.75	21.0	341	608
CF130.10.02.UL	2x1.0	6.0	21	55
CF130.10.03.UL	3G1.0	6.5	31	61
CF130.10.04.UL	4G1.0	7.0	41	74
CF130.10.05.UL	5G1.0	7.5	50	87
CF130.10.07.UL	7G1.0	9.0	71	118
CF130.10.12.UL	12G1.0	12.5	120	228
CF130.10.18.UL	18G1.0	15.0	179	308
CF130.10.25.UL	25G1.0	17.5	248	410

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.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF130.15.02.UL	2x1.5	6.5	31	71
CF130.15.03.UL	3G1.5	7.0	46	76
CF130.15.04.UL	4G1.5	8.0	61	93
CF130.15.05.UL	5G1.5	8.5	75	111
CF130.15.07.UL <sup>17)</sup>	7G1.5	10.5	105	166
CF130.15.12.UL	12G1.5	13.0	179	288
CF130.15.18.UL	18G1.5	17.0	268	438
CF130.15.25.UL	25G1.5	19.5	371	563
CF130.15.36.UL	36G1.5	23.0	579	887
CF130.25.03.UL	3G2.5	8.5	75	118
CF130.25.04.UL	4G2.5	9.5	100	149
CF130.25.07.UL <sup>17)</sup>	7G2.5	12.0	174	250
CF130.25.12.UL	12G2.5	16.5	297	445
CF130.40.03.UL	3G4.0	10.0	119	209
CF130.40.05.UL	5G4.0	12.0	198	294
CF130.60.04.UL	4G6.0	13.0	237	392
CF130.60.05.UL	5G6.0	14.0	299	471

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



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



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

# Control cable | PVC | chainflex® CF140.UL

- 36** 10 million Double strokes guaranteed
- 7.5 x d** Bend radius, e-chain®
- 50m** Travel distance, e-chain®

- For medium duty applications
- PVC outer jacket
- Shielded
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 7.5 x d minimum 6 x d
	<b>fixed</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C -5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	3m/s
	<b>gliding</b>	2m/s
<b>a max.</b>		20m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 50m for gliding applications, Class 4

## Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.5mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.5mm<sup>2</sup>:</b> Black cores with white numbers, one green-yellow core.
<b>Inner jacket</b>	PVC mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55%, optical approx. 80%
<b>Outer jacket</b>	Low-adhesion PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Silver-grey (similar to RAL 7001)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

## Electrical information

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

EPLAN download, configurators ► [www.igus.eu/CF140.UL](http://www.igus.eu/CF140.UL)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 4.4.1.1

### Properties and approvals

<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF140.UL">www.igus.eu/CF140.UL</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 CF130.15.07 - tested by IPA according to standard DIN EN ISO 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

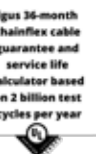
### Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	10	12.5	11	13.5	12	14.5
+15/+60	7.5	10	8.5	11	9.5	12
+60/+70	10	12.5	11	13.5	12	14.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For medium duty applications, Class 4
- Unsupported travels and up to 50m for gliding applications, Class 4
- Without influence of oil, Class 1
- No torsion, Class 1
- Preferably indoor applications
- Wood/stone processing, packaging industry, feeding, handling, adjusting devices



UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)

# Control cable | PVC | chainflex® CF140.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF140.UL

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]
CF140.02.12.UL	(12x0.25)C	10.5	72	133
CF140.03.05.UL	(5x0.34)C	7.5	36	72
CF140.05.03.UL	(3G0.5)C	7.0	33	72
CF140.05.05.UL	(5G0.5)C	8.0	45	91
CF140.05.18.UL	(18G0.5)C	14.5	147	258
CF140.05.36.UL	(36G0.5)C	18.5	258	468
CF140.07.03.UL	(3G0.75)C	8.0	42	85
CF140.07.04.UL	(4G0.75)C	8.5	51	102
CF140.07.05.UL	(5G0.75)C	9.0	61	115
CF140.07.07.UL	(7G0.75)C	10.0	83	152
CF140.07.12.UL	(12G0.75)C	13.0	136	263
CF140.07.18.UL	(18G0.75)C	15.5	194	359
CF140.07.25.UL	(25G0.75)C	18.0	261	479
CF140.10.02.UL	(2x1.0)C	8.0	35	86
CF140.10.03.UL	(3G1.0)C	8.5	51	105
CF140.10.04.UL	(4G1.0)C	9.0	62	118
CF140.10.05.UL	(5G1.0)C	9.5	74	136
CF140.10.07.UL	(7G1.0)C	10.5	104	176
CF140.10.12.UL	(12G1.0)C	14.0	166	300
CF140.10.18.UL	(18G1.0)C	16.5	240	413
CF140.10.25.UL	(25G1.0)C	19.5	325	562
CF140.15.03.UL	(3G1.5)C	9.0	68	126
CF140.15.04.UL	(4G1.5)C	9.5	86	146
CF140.15.05.UL	(5G1.5)C	9.5	108	168
CF140.15.07.UL <sup>17)</sup>	(7G1.5)C	11.5	144	226
CF140.15.12.UL	(12G1.5)C	16.0	233	387
CF140.15.18.UL	(18G1.5)C	19.0	346	463
CF140.15.25.UL	(25G1.5)C	22.5	464	737
CF140.15.36.UL	(36G1.5)C	26.5	663	1150
CF140.25.03.UL	(3G2.5)C	10.5	106	202
CF140.25.04.UL	(4G2.5)C	11.5	140	210

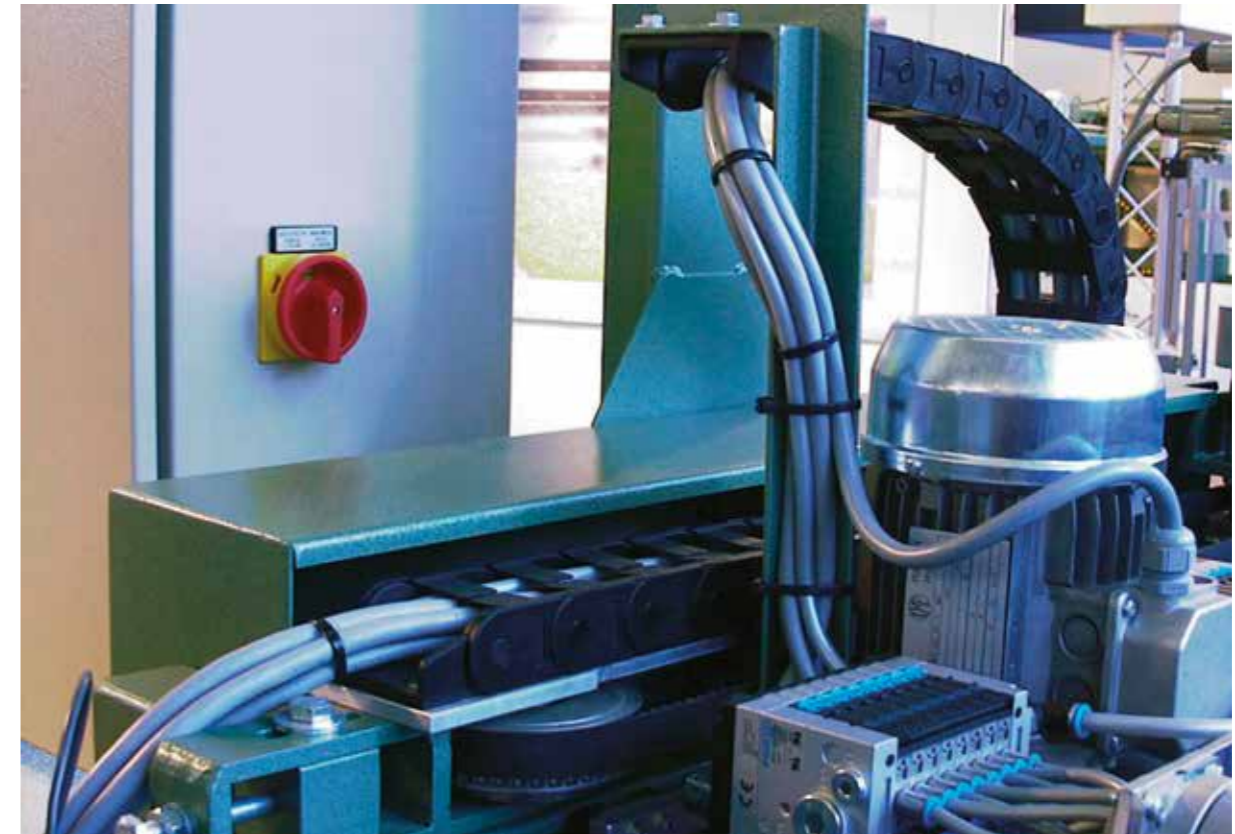
<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

**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

## Class 4.4.1.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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



chainflex® CF140.UL in a feeder application. e-chain®: easychain®



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



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



# Control cable | PVC | chainflex® CF150.UL

- 36** 10 million Double strokes guaranteed
- 7.5 x d** Bend radius, e-chain®
- 50m** Travel distance

- For medium duty applications
- PVC outer jacket
- Flame-retardant
- TC-ER (Power and Control Tray Cable)

<b>UL</b> TC-ER UL 1277 MTW UL 1063 WTTC UL 2277 DP-1 UL 1690 AWM 2587	<b>CSA:</b> C(UL) CIC/TC  <b>Specifications:</b> OIL RES I / SUN RES 75°C wet ≥2.5mm <sup>2</sup> 90°C dry DIR BUR ≥2.5 mm <sup>2</sup>
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### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 7.5 x d
	<b>fixed</b>	minimum 6 x d
	<b>e-chain® linear flexible</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C
	<b>fixed</b>	-5°C up to +70°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	3m/s
	<b>gliding</b>	2m/s
<b>a max.</b>		20m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 50m for gliding applications, Class 4
<b>Torsion</b>		Torsion ±90°, with 1m cable length, Class 2

### Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality PVC/PA mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	Black cores with white numbers, one green-yellow core.
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1) Colour: jet black (similar to RAL 9005)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the outer jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

### Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) 600V TC-ER, 1000V WTTC, 600V MTW, 600V AWM
<b>Testing voltage</b>	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 4.4.2.2

### Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil resistant (according to DIN EN 50363-4-1), UL Oil Res I, Class 3
<b>Flame-retardant</b>	According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame, FT4
<b>Silicone-free</b>	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
<b>UL verified</b>	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
<b>UL listed</b>	TC-ER UL 1277, WTTC UL 2277, MTW UL W63
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF150.UL">www.igus.eu/CF150.UL</a>
<b>NEC</b>	In accordance with Article 501 Part II 501.10(B) Class I Division 2 and Article 502 Part II 502.10(B), TC-ER cables may be used in Class I and Class II, Division 2 hazardous areas.
<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)
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10 m	< 10m	≥ 10 m	< 10m	≥ 10 m
Temperature, from/to [°C]	R min.[factor x d]	R min.[factor x d]	R min.[factor x d]	R min.[factor x d]	R min.[factor x d]	R min.[factor x d]
+5/+15	10	12.5	11	13.5	12	14.5
+15/+60	7.5	10	8.5	11	9.5	12
+60/+70	10	12.5	11	13.5	12	14.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For medium duty applications, Class 4
- Unsupported travels and up to 50m for gliding applications, Class 4
- Light oil influence, Class 2
- Torsion ±90°, with 1m cable length, Class 2
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Unsupported travels and up to 50m for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, quick handling, indoor cranes, laying of cables on cable racks



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



# Control cable | PVC | chainflex® CF150.UL

Strip cables 50% faster with CFRIP® tear strip

## Class 4.4.2.2

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

igus® chainflex® CF150.UL

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]
New CF150.UL.10.03	3G1.0	8.0	30	78
New CF150.UL.10.04	4G1.0	8.5	40	94
New CF150.UL.10.05	5G1.0	9.0	50	112
New CF150.UL.10.07	7G1.0	10.5	70	155
New CF150.UL.10.12	12G1.0	15.0	119	281
New CF150.UL.10.18	18G1.0	19.0	178	425
New CF150.UL.15.03	3G1.5	8.5	45	98
New CF150.UL.15.04	4G1.5	9.0	60	122
New CF150.UL.15.05	5G1.5	10.0	75	148
New CF150.UL.15.07 <sup>17)</sup>	7G1.5	12.0	104	205
New CF150.UL.15.12	12G1.5	16.5	178	365
New CF150.UL.15.18	18G1.5	21.0	267	529
New CF150.UL.25.03	3G2.5	9.5	75	133
New CF150.UL.25.04	4G2.5	10.0	100	164
New CF150.UL.25.05	5G2.5	11.0	124	200
New CF150.UL.25.07 <sup>17)</sup>	7G2.5	12.0	173	268
New CF150.UL.25.12	12G2.5	18.5	297	502
New CF150.UL.25.18	18G2.5	24.5	445	808

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



Order example: **CF150.UL.10.03** - to your desired length (0.5m steps)  
CF150.UL chainflex® series .10 Code nominal cross section .03 Number of cores



Order online ► [www.igus.eu/CF150.UL](http://www.igus.eu/CF150.UL)



Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



## The only MTW/TC-ER cable for e-chain® AND cable tray

- UL**  
TC-ER UL 1277  
MTW UL 1063  
WTTC UL 2277  
DP-1 UL 1690  
AWM 2587

**CSA:**  
C(UL) CIC/TC

**Specifications:**  
OIL RES I / SUN RES  
75°C wet ≥2.5mm²  
90°C dry  
DIR BUR ≥2.5 mm²

\* with guaranteed service life for use in e-chains® according to the guarantee conditions



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

Guarantee igus chainflex  
**36**  
up to 36 months guarantee

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

CFRIP

UL LISTED

UL US

nec

NFPA

CUPA

ETL

REACH

RoHS

clean-room

CE

UK CA

# Control cable | PVC | chainflex® CF160.UL

- 36** 10 million Double strokes guaranteed
- 7.5 x d** Bend radius, e-chain®
- 50m** Travel distance

- For medium duty applications
- PVC outer jacket
- Shielded
- Flame-retardant
- TC-ER (Power and Control Tray Cable)

<b>UL</b> TC-ER UL 1277 MTW UL 1063 WTTTC UL 2277 DP-1 UL 1690 AWM 2587	<b>CSA:</b> C(UL) CIC/TC  <b>Specifications:</b> OIL RES I / SUN RES 75°C wet ≥ 2.5mm <sup>2</sup> 90°C dry DIR BUR ≥ 2.5mm <sup>2</sup>
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### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 7.5 x d minimum 6 x d
	<b>fixed</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C -5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	3m/s
	<b>gliding</b>	2m/s
<b>a max.</b>		20m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 50m for gliding applications, Class 4

### Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality PVC/PA mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	Black cores with white numbers, one green-yellow core.
<b>Inner jacket</b>	PVC mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55%, optical approx. 80%
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1) Colour: jet black (similar to RAL 9005)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

### Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) 600V TC-ER, 1000V WTTTC, 600V MTW, 600V AWM
<b>Testing voltage</b>	2000V (following DIN EN 50395)

EPLAN download, configurators ► [www.igus.eu/CF160.UL](http://www.igus.eu/CF160.UL)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



EU2022

## Class 4.4.2.1

### Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil resistant (according to DIN EN 50363-4-1), UL Oil Res I, Class 3
<b>Flame-retardant</b>	According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame, FT4
<b>Silicone-free</b>	Free from silicone which can affect paint adhesion (following PV 3.10.7 – status 1992)
<b>UL verified</b>	Certificate No. B129699: „igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year“
<b>UL listed</b>	TC-ER UL 1277, WTTTC UL 2277, MTW UL W63
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF160.UL">www.igus.eu/CF160.UL</a>
<b>NEC</b>	In accordance with Article 501 Part II 501.10(B) Class I Division 2 and Article 502 Part II 502.10(B), TC-ER cables may be used in Class I and Class II, Division 2 hazardous areas.
<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)
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	10	12.5	11	13.5	12	14.5
+15/+60	7.5	10	8.5	11	9.5	12
+60/+70	10	12.5	11	13.5	12	14.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For medium duty applications, Class 4
- Unsupported travels and up to 50m for gliding applications, Class 4
- Light oil influence, Class 2
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Unsupported travels and up to 50m for gliding applications
- Storage and retrieval units for high-bay warehouses, machining units/packaging machines, quick handling, indoor cranes, laying of cables on cable racks



Basic requirements  
Travel distance  
Oil resistance  
Torsion

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



# Control cable | PVC | chainflex® CF160.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF160.UL

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]
New CF160.UL.10.03	(3G1.0)C	9.5	53	121
New CF160.UL.10.04	(4G1.0)C	10.0	66	143
New CF160.UL.10.05	(5G1.0)C	11.0	77	164
New CF160.UL.10.07	(7G1.0)C	12.5	107	220
New CF160.UL.10.12	(12G1.0)C	18.5	177	389
New CF160.UL.10.18	(18G1.0)C	23.5	280	648
New CF160.UL.15.03	(3G1.5)C	10.0	72	149
New CF160.UL.15.04	(4G1.5)C	11.0	89	175
New CF160.UL.15.05	(5G1.5)C	12.0	105	204
New CF160.UL.15.07 <sup>17)</sup>	(7G1.5)C	13.5	140	271
New CF160.UL.15.12	(12G1.5)C	20.0	243	478
New CF160.UL.15.18	(18G1.5)C	25.5	373	762
New CF160.UL.25.03	(3G2.5)C	11.0	103	185
New CF160.UL.25.04	(4G2.5)C	12.0	129	219
New CF160.UL.25.05	(5G2.5)C	13.0	159	264
New CF160.UL.25.07 <sup>17)</sup>	(7G2.5)C	14.5	223	361
New CF160.UL.25.12	(12G2.5)C	23.5	389	688
New CF160.UL.25.18	(18G2.5)C	29.5	573	1092

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

**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

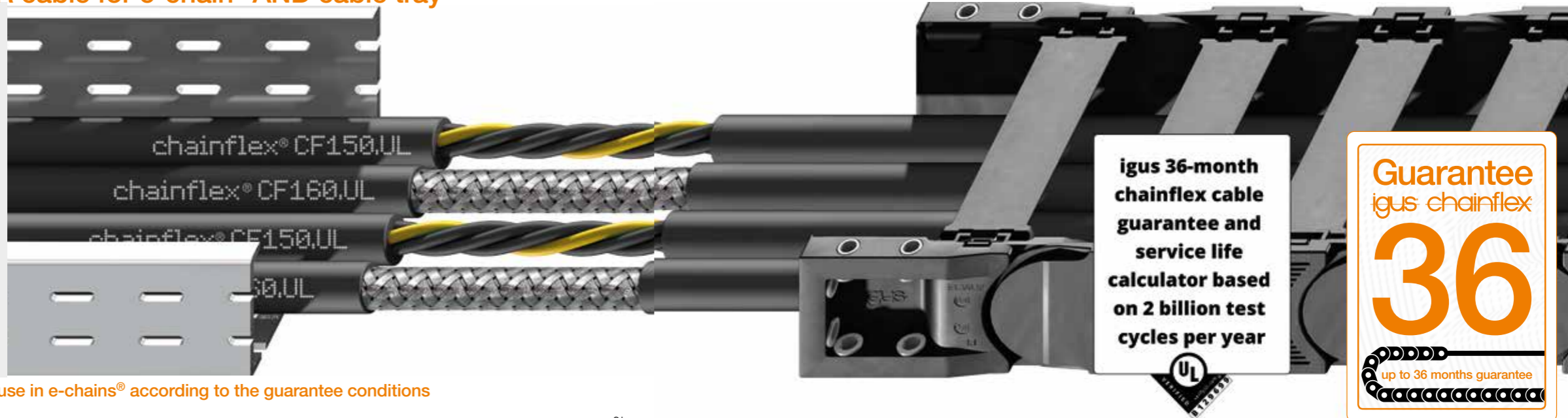
## The only MTW/TC-ER cable for e-chain® AND cable tray

- UL**  
TC-ER UL 1277  
MTW UL 1063  
WTTC UL 2277  
DP-1 UL 1690  
AWM 2587

**CSA:**  
C(UL) CIC/TC

**Specifications:**  
OIL RES I / SUN RES  
75°C wet ≥2.5mm²  
90°C dry  
DIR BUR ≥2.5 mm²

\* with guaranteed service life for use in e-chains® according to the guarantee conditions



## Class 4.4.2.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

Order example: **CF160.UL.10.03** - to your desired length (0.5m steps)  
CF160.UL chainflex® series .10 Code nominal cross section .03 Number of cores

Order online ► [www.igus.eu/CF160.UL](http://www.igus.eu/CF160.UL)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.

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

CFRIP  
if  
design  
present  
in  
the  
drawing

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UL  
US

nec  
NFPA

NFPA

CUPA

DNV

ERC

REACH

RoHS

clean-room

UL

CE

UK  
CA

# Control cable | PVC | chainflex® CF5

- 36** 10 million Double strokes guaranteed
- 6.8 x d** Bend radius, e-chain®
- 100m** Travel distance, e-chain®

- For heavy duty applications
- PVC outer jacket
- Oil-resistant
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 6.8 x d minimum 5 x d
	<b>fixed</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C
	<b>fixed</b>	-5°C up to +70°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	10m/s
	<b>gliding</b>	5m/s
<b>a max.</b>		80m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 100m for gliding applications, Class 5
<b>Torsion</b>		Torsion ±90°, with 1m cable length, Class 2

## Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	<b>Cores ≤ 0.5mm<sup>2</sup></b> : mechanically high-quality TPE mixture. <b>Cores ≥ 0.75mm<sup>2</sup></b> : mechanically high-quality PVC mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12</b> : Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12</b> : Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.5mm<sup>2</sup></b> : Colour code in accordance with DIN 47100. <b>Cores ≥ 0.5mm<sup>2</sup></b> : Black cores with white numbers, one green-yellow core.
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Moss green (similar to RAL 6005)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the outer jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

## Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) 600V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

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°			

# Class 5.5.2.2

## Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-4-1), Class 2
<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF5">www.igus.eu/CF5</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 2, material/cable tested by IPA according to ISO standard 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

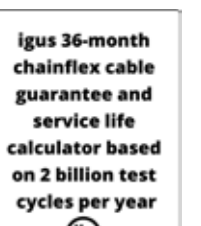
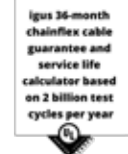
## Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	7.5	10	8.5	11	9.5	12
+15/+60	6.8	7.5	7.8	8.5	8.8	9.5
+60/+70	7.5	10	8.5	11	9.5	12

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

## Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 100m for gliding applications, Class 5
- Light oil influence, Class 2
- Torsion ±90°, with 1m cable length, Class 2
- Preferably indoor applications, but also outdoor ones at temperatures > 5 °C
- Storage and retrieval units, machining units/packaging machines, quick handling, indoor cranes





# Control cable | PVC | chainflex® CF5

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF5

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]
CF5.02.36	36x0.25	15.0	99	209
CF5.03.15	15x0.34	11.0	55	113
CF5.03.18	18x0.34	12.0	67	143
CF5.03.25	25x0.34	14.0	92	194
CF5.05.02	2x0.5	6.0	11	38
CF5.05.03	3G0.5	6.0	16	41
CF5.05.04	4G0.5	6.5	21	47
CF5.05.05	5G0.5	7.0	25	59
CF5.05.07	7G0.5	8.0	36	78
CF5.05.12	12G0.5	11.0	61	131
CF5.05.18	18G0.5	13.0	91	190
CF5.05.25	25G0.5	16.0	124	281
CF5.05.30	30G0.5	18.0	149	325
CF5.07.03	3G0.75	6.5	23	54
CF5.07.04	4G0.75	7.0	32	67
CF5.07.05	5G0.75	7.5	39	82
CF5.07.07	7G0.75	9.0	56	115
CF5.07.12	12G0.75	12.5	91	189
CF5.07.18	18G0.75	15.0	134	269
CF5.07.25	25G0.75	17.5	190	384
CF5.07.36	36G0.75	22.0	267	587
CF5.07.42	42G0.75	23.5	313	745
CF5.10.03	3G1.0	6.5	31	56
CF5.10.04	4G1.0	7.0	41	78
CF5.10.05	5G1.0	8.0	50	94
CF5.10.07	7G1.0	9.5	74	130
CF5.10.12	12G1.0	13.0	119	227
CF5.10.18	18G1.0	16.5	179	306
CF5.10.25	25G1.0	19.5	248	487
CF5.15.03	3G1.5	7.5	46	74
CF5.15.04	4G1.5	8.0	61	105
CF5.15.05	5G1.5	9.0	75	127
CF5.15.07 <sup>17)</sup>	7G1.5	10.5	105	180
CF5.15.12	12G1.5	15.0	179	264
CF5.15.18	18G1.5	19.5	267	478
CF5.15.25	25G1.5	21.5	371	645
CF5.15.36	36G1.5	26.5	529	960

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

EPLAN download, configurators ► [www.igus.eu/CF5](http://www.igus.eu/CF5)

## Class 5.5.2.2

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

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

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF5.25.04	4G2.5	10.0	96	170
CF5.25.05	5G2.5	11.0	120	200
CF5.25.07 <sup>17)</sup>	7G2.5	13.0	169	279
CF5.25.12	12G2.5	18.5	284	480
CF5.25.18	18G2.5	23.5	427	765
CF5.25.25	25G2.5	27.5	591	1054

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



chainflex® CF5/CF6 for storage retrieval unit: Long travel in longitudinal axis.  
e-chain®: Series E4/00 with igus® guide trough made of steel

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



# Control cable | PVC | chainflex® CF6

- 36** 10 million Double strokes guaranteed
- 6.8 x d** Bend radius, e-chain®
- 100m** Travel distance, e-chain®

- For heavy duty applications
- PVC outer jacket
- Shielded
- Oil-resistant
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 6.8 x d
	<b>fixed</b>	minimum 5 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C
	<b>fixed</b>	-5°C up to +70°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	10m/s
	<b>gliding</b>	5m/s
<b>a max.</b>		80m/s²
<b>Travel distance</b>		Unsupported travels and up to 100m for gliding applications, Class 5

## Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	<b>Cores ≤ 0.5mm²:</b> mechanically high-quality TPE mixture. <b>Cores ≥ 0.75mm²:</b> mechanically high-quality PVC mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.5mm²:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.5mm²:</b> Black cores with white numbers, one green-yellow core.
<b>Inner jacket</b>	PVC mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: Moss green (similar to RAL 6005)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

## Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) 600V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

EPLAN download, configurators ► [www.igus.eu/CF6](http://www.igus.eu/CF6)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



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Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 5.5.2.1

### Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-4-1), Class 2
<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF">www.igus.eu/CF</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 2. The outer jacket material of this series complies with CF5.10.07 - tested by IPA according to standard DIN EN ISO 14644-1 Following 2014/35/EU
<b>CE</b>	
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million		7.5 million		10 million	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]	R min [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	7.5	10	8.5	11	9.5	12
+15/+60	6.8	7.5	7.8	8.5	8.8	9.5
+60/+70	7.5	10	8.5	11	9.5	12

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 100m 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, machining units/packages machines, quick handling, indoor cranes



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



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



# Control cable | PVC | chainflex® CF6

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF6

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]
CF6.02.04	(4x0.25)C	7.0	29	61
CF6.02.25	(25x0.25)C	14.5	111	260
CF6.03.05	(5x0.34)C	7.5	37	90
CF6.05.02	(2x0.5)C	7.0	30	77
CF6.05.05	(5G0.5)C	8.5	49	106
CF6.05.07	(7G0.5)C	10.0	64	127
CF6.05.09	(9G0.5)C	12.0	80	154
CF6.05.12	(12G0.5)C	13.0	98	232
CF6.05.18	(18G0.5)C	15.0	145	286
CF6.05.25	(25G0.5)C	17.5	192	399
CF6.07.03	(3G0.75)C	8.0	46	98
CF6.07.04	(4G0.75)C	8.5	56	113
CF6.07.05	(5G0.75)C	9.0	67	128
CF6.07.07	(7G0.75)C	10.5	87	152
CF6.07.12	(12G0.75)C	14.0	128	266
CF6.07.18	(18G0.75)C	17.5	196	400
CF6.07.25	(25G0.75)C	19.5	265	536
CF6.10.03	(3G1.0)C	8.0	54	107
CF6.10.04	(4G1.0)C	9.0	65	116
CF6.10.05	(5G1.0)C	9.5	77	136
CF6.10.07	(7G1.0)C	12.0	103	205
CF6.10.12	(12G1.0)C	15.0	161	319
CF6.10.18	(18G1.0)C	19.0	245	482
CF6.10.25	(25G1.0)C	21.0	322	595
CF6.15.03	(3G1.5)C	9.0	72	122
CF6.15.04	(4G1.5)C	9.5	88	155
CF6.15.05	(5G1.5)C	10.5	105	177
CF6.15.07 <sup>17)</sup>	(7G1.5)C	12.5	146	258
CF6.15.12	(12G1.5)C	17.0	225	375
CF6.15.18	(18G1.5)C	21.0	345	581
CF6.15.25	(25G1.5)C	24.0	462	865
New CF6.25.03	(3G2.5)C	10.5	107	180
CF6.25.04	(4G2.5)C	11.5	131	222

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

## Class 5.5.2.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

Order example: CF6.02.04 - to your desired length (0.5m steps)  
CF6 chainflex® series .02 Code nominal cross section .04 Number of cores

Order online ► [www.igus.eu/CF6](http://www.igus.eu/CF6)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



chainflex® CF5 and CF6 control cables (green) as well as CF211 measuring system cables (grey) in a screwing station of a car factory. e-chain®: E4/00 system with chainfix clip strain relief devices.



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



EPLAN download, configurators ► [www.igus.eu/CF6](http://www.igus.eu/CF6)



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



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



# Control cable | PVC | chainflex® CFSOFT1

**36** 20 million Double strokes guaranteed **5 x d** Bend radius, e-chain® **5m** Travel distance, e-chain®

- For heaviest duty applications and especially small radii down to 5 x d
- Highly flexible, soft design
- PVC outer jacket
- Oil-resistant
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 5 x d minimum 4 x d
	<b>fixed</b>	minimum 3 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C -5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	10m/s
<b>a max.</b>	<b>gliding</b>	5m/s
<b>Travel distance</b>	Short, very fast applications with small radii and restricted installation space, Class 1	

## Cable structure

<b>Conductor</b>	Very finely stranded special conductors with especially soft and bending resistant design, made of bare copper wires.
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound in a layer with especially short pitch length.
<b>Core identification</b>	Colour code in accordance with DIN 47100.
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: jet black (similar to RAL 9005)

## Electrical information

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

## Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-4-1), Class 2
<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)

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36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



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Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 7.1.2.1

- UL verified
- UL/CSA AWM
- NFPA
- EAC
- REACH
- Lead-free
- Cleanroom
- CE
- UKCA

Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"  
See data sheet for details ► [www.igus.eu/CFSOFT1](http://www.igus.eu/CFSOFT1)

Following NFPA 79-2018, chapter 12.9

Certificate No. RU C-DE.ME77.B.00300/19

In accordance with regulation (EC) No. 1907/2006 (REACH)

Following 2011/65/EC (RoHS-II/RoHS-III)

According to ISO Class 2. The outer jacket material of this series complies with CF5.10.07 - tested by IPA according to standard DIN EN ISO 14644-1  
Following 2014/35/EU

In accordance with the valid regulations of the United Kingdom (as at 08/2021)

## Guaranteed service life (details see page 28-29)

Double strokes*	10 million	15 million	20 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	6.8	7.5	8.5
+15/+60	5	6	7
+60/+70	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

## Typical application areas

- For heaviest duty applications and especially small radii down to 5 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 1
- Light oil influence, Class 2
- No torsion, Class 1
- Especially soft cable design, for reduced forces
- Pick and place machines, automatic doors, cleanroom, very quick handling

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFSOFT1.02.03	3x0.25	5.5	9	28
CFSOFT1.02.08	8x0.25	7.0	21	62
CFSOFT1.03.04	4x0.34	6.0	15	39
CFSOFT1.05.04	4x0.5	7.0	21	52

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



## Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



Example image



igus® chainflex® CFSOFT1

# Control cable | PVC | chainflex® CFSOFT2

**36** 20 million Double strokes guaranteed **5 x d** Bend radius, e-chain® **5m** Travel distance, e-chain®

- For heaviest duty applications and especially small radii down to 5 x d
- Highly flexible, soft design
- PVC outer jacket
- Shielded
- Oil-resistant
- Flame-retardant

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 5 x d minimum 4 x d
	<b>fixed</b>	minimum 3 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	+5°C up to +70°C -5°C up to +70°C (following DIN EN 60811-504)
	<b>fixed</b>	-15°C up to +70°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	10m/s
	<b>gliding</b>	5m/s
<b>a max.</b>		80m/s <sup>2</sup>
<b>Travel distance</b>		Short, very fast applications with small radii and restricted installation space, Class 1

## Cable structure

<b>Conductor</b>	Very finely stranded special conductors with especially soft and bending resistant design, made of bare copper wires.
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound in a layer with especially short pitch length.
<b>Core identification</b>	<b>Cores &lt; 0.75mm<sup>2</sup></b> : Colour code in accordance with DIN 47100. <b>Cores ≥ 0.75mm<sup>2</sup></b> : Black cores with white numbers, one green-yellow core.
<b>Intermediate layer</b>	Foil taping over the outer layer.
<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	Low-adhesion, oil-resistant PVC mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-4-1). Colour: jet black (similar to RAL 9005)

## Electrical information

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

## Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-4-1), Class 2

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36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



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## Class 7.1.2.1

<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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year" See data sheet for details ► <a href="http://www.igus.eu/CFSOFT2">www.igus.eu/CFSOFT2</a>
<b>UL/CSA AWM</b>	
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 2. The outer jacket material of this series complies with CF5.10.07 - tested by IPA according to standard DIN EN ISO 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

## Guaranteed service life (details see page 28-29)

Double strokes*	10 million	15 million	20 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
+5/+15	6.8	7.5	8.5
+15/+60	5	6	7
+60/+70	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

## Typical application areas

- For heaviest duty applications and especially small radii down to 5 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 1
- Light oil influence, Class 2
- No torsion, Class 1
- Especially soft cable design, for reduced forces
- Pick and place machines, automatic doors, cleanroom, very quick handling

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CFSOFT2.02.03	(3x0.25)C	6.0	17	41
CFSOFT2.02.08	(8x0.25)C	7.5	38	86
CFSOFT2.03.04	(4x0.34)C	6.5	24	50
CFSOFT2.05.04	(4x0.5)C	7.5	36	80
CFSOFT2.07.04 <sup>1)</sup>	(4G0.75)C	8.0	47	97

<sup>1)</sup> 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



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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	highest			
none	1	2	3	4	±360°			



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



Example image



igus® chainflex® CFSOFT2

# Control cable | iguPUR | chainflex® CF890






**36** 5 million  
Double strokes guaranteed

**12.5 x d**  
Bend radius, e-chain®






**10m**  
Travel distance, e-chain®

- For flexing applications
- iguPUR outer jacket
- Oil-resistant
- Flame-retardant



## Dynamic information

 <b>Bend radius</b>	<b>e-chain® linear</b>	minimum 12.5 x d
	<b>flexible</b>	minimum 10 x d
	<b>fixed</b>	minimum 7 x d
 <b>Temperature</b>	<b>e-chain® linear</b>	-20°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>	3m/s
 <b>a max.</b>		20m/s²
 <b>Travel distance</b>		Unsupported travels up to 10 m, Class 1

## Cable structure

 <b>Conductor</b>	Conductor consisting of bare copper wires (according to DIN EN 60228).
 <b>Core insulation</b>	Mechanically high-quality TPE mixture.
 <b>Core structure</b>	Cores wound with an optimised pitch length.
 <b>Core identification</b>	Black cores with white numbers, one green-yellow core.
 <b>Outer jacket</b>	Low-adhesion iguPUR mixture, adapted to suit the requirements in e-chains®. Colour: jet black (similar to RAL 9005)

## Electrical information












 <b>Nominal voltage</b>	300/500V 600V (following UL)
 <b>Testing voltage</b>	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 3.1.3.1

### Properties and approvals

 <b>UV resistance</b>	Medium
 <b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
 <b>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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
 <b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF890">www.igus.eu/CF890</a>
 <b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
 <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
 <b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	1 million	3 million	5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-20/-10	15	16	17
-10/+70	12.5	13.5	14.5
+70/+80	15	16	17

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- With influence of oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications without direct sun radiation
- Machining units/machine tools, low temperature applications



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



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





igus® chainflex® CF890

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]
CF890.05.02	2x0.5	5.0	11	30
CF890.05.03	3G0.5	5.5	16	34
CF890.05.04	4G0.5	6.0	21	44
CF890.05.05	5G0.5	6.5	26	53
CF890.05.07	7G0.5	7.5	37	70
CF890.05.12	12G0.5	8.5	63	105
CF890.05.18	18G0.5	10.0	94	155
CF890.05.25	25G0.5	12.0	128	222
CF890.07.02	2x0.75	5.5	16	38
CF890.07.03	3G0.75	6.0	24	46
CF890.07.04	4G0.75	6.5	32	58
CF890.07.05	5G0.75	7.0	40	71
CF890.07.07	7G0.75	8.0	56	96
CF890.07.12	12G0.75	10.0	94	146
CF890.07.18	18G0.75	11.5	140	162
CF890.07.25	25G0.75	13.5	194	278
CF890.10.02	2x1.0	6.0	21	46
CF890.10.03	3G1.0	6.5	32	56
CF890.10.04	4G1.0	7.0	42	58
CF890.10.05	5G1.0	7.5	52	89
CF890.10.07	7G1.0	8.5	73	117
CF890.10.12	12G1.0	10.5	124	178
CF890.10.18	18G1.0	12.5	186	273
CF890.10.25	25G1.0	15.0	258	375
CF890.15.02	2x1.5	6.5	32	62
CF890.15.03	3G1.5	7.0	47	76
CF890.15.04	4G1.5	7.5	63	97
CF890.15.05	5G1.5	8.5	78	117
CF890.15.07	7G1.5	10.0	109	163
CF890.15.12	12G1.5	12.0	186	256
CF890.15.18	18G1.5	14.5	279	362
CF890.15.25	25G1.5	17.5	387	502
CF890.25.03	3G2.5	8.5	118	136
CF890.25.04	4G2.5	9.0	103	145
CF890.25.05	5G2.5	10.0	129	175
CF890.25.07	7G2.5	12.0	181	246
CF890.25.12	12G2.5	15.0	327	408
CF890.25.25	25G2.5	21.5	638	786

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

EPLAN download, configurators ► [www.igus.eu/CF890](http://www.igus.eu/CF890)

Order example: **CF890.05.02** - to your desired length (0.5m steps)  
CF890 chainflex® series .05 Code nominal cross section .02 Number of cores

Order online ► [www.igus.eu/CF890](http://www.igus.eu/CF890)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.

**Cables available in the chainflex® CASE**

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More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)

**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

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**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

# Control cable | iguPUR | chainflex® CF891

- 36** 5 million Double strokes guaranteed
- 12.5 x d** Bend radius, e-chain®
- 10m** Travel distance, e-chain®

- For flexing applications
- iguPUR outer jacket
- Oil-resistant
- Shielded
- Flame-retardant

### Dynamic information

Bend radius	<b>e-chain® linear flexible</b>	minimum 12.5 x d minimum 10 x d
	<b>fixed</b>	minimum 7 x d
Temperature	<b>e-chain® linear flexible</b>	-20°C up to +80°C -40°C up to +80°C (following DIN EN 60811-504)
	<b>fixed</b>	-50°C up to +80°C (following DIN EN 50305)
v max.	<b>unsupported</b>	3m/s
a max.		20m/s²
Travel distance		Unsupported travels up to 10 m, Class 1

### Cable structure

Conductor	Conductor consisting of bare copper wires (according to DIN EN 60228).
Core insulation	Mechanically high-quality TPE mixture.
Core structure	Cores wound with an optimised pitch length.
Core identification	Black cores with white numbers, one green-yellow core.
Overall shield	Braiding made of tinned copper wires. Coverage approx. 60% optical
Outer jacket	Low-adhesion iguPUR mixture, adapted to suit the requirements in e-chains®. Colour: jet black (similar to RAL 9005)

### Electrical information

Nominal voltage	300/500V 600V (following UL)
Testing voltage	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 3.1.3.1

### Properties and approvals

UV resistance	Medium
Oil resistance	Oil-resistant (following DIN EN 50363-10-2), Class 3
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)
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 ► <a href="http://www.igus.eu/CF891">www.igus.eu/CF891</a>
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
UK CA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	1 million	3 million	5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-20/-10	15	16	17
-10/+70	12.5	13.5	14.5
+70/+80	15	16	17

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For flexing applications, Class 3
- Especially for unsupported travels, Class 1
- With influence of oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications without direct sun radiation
- Machining units/machine tools, low temperature applications



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



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







igu® chainflex® CF891

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]
CF891.05.02	(2x0.5)C	6.0	18	37
CF891.05.03	(3G0.5)C	6.0	28	45
CF891.05.05	(5G0.5)C	7.0	41	62
CF891.05.12	(12G0.5)C	9.0	91	122
CF891.05.18	(18G0.5)C	11.0	136	174
CF891.05.25	(25G0.5)C	13.0	210	234
CF891.07.02	(2x0.75)C	6.5	30	48
CF891.07.03	(3G0.75)C	7.0	37	63
CF891.07.04	(4G0.75)C	7.5	46	68
CF891.07.05	(5G0.75)C	8.0	61	85
CF891.07.07	(7G0.75)C	9.0	83	109
CF891.07.12	(12G0.75)C	10.5	124	166
CF891.07.18	(18G0.75)C	12.0	183	232
CF891.07.25 <sup>11)</sup>	(25G0.75)C	14.5	222	299
CF891.10.02	(2x1.0)C	6.5	30	50
CF891.10.03	(3G1.0)C	7.0	46	71
CF891.10.04	(4G1.0)C	7.5	63	98
CF891.10.05	(5G1.0)C	8.0	76	105
CF891.10.07	(7G1.0)C	9.5	100	126
CF891.10.12	(12G1.0)C	11.5	167	224
CF891.10.18	(18G1.0)C	13.0	213	276
CF891.10.25 <sup>11)</sup>	(25G1.0)C	16.0	291	382
CF891.15.02	(2x1.5)C	7.5	60	69
CF891.15.03	(3G1.5)C	7.5	63	85
CF891.15.04	(4G1.5)C	8.5	90	108
CF891.15.05	(5G1.5)C	9.0	94	129
CF891.15.07	(7G1.5)C	11.0	153	177
CF891.15.12	(12G1.5)C	13.0	212	276
CF891.15.25	(25G1.5)C	18.5	425	560
CF891.25.04	(4G2.5)C	10.0	141	157
CF891.25.05	(5G2.5)C	11.0	149	192
CF891.25.07	(7G2.5)C	13.0	204	255

<sup>11)</sup> 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

### Class 3.1.3.1

Order example: **CF891.05.02** - to your desired length (0.5m steps)  
CF891 chainflex® series .05 Code nominal cross section .02 Number of cores

Order online ► [www.igus.eu/CF891](http://www.igus.eu/CF891)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



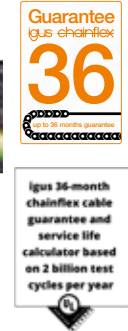
#### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



chainflex® CF891 in an adjustment device for a process crane



# Control cable | PUR | chainflex® CF77.UL.D

**36** 10 million Double strokes guaranteed **6.8 x d** Bend radius, e-chain® **100m** Travel distance, e-chain®

- For heavy duty applications
- PUR outer jacket
- 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 flexible</b>	minimum 6.8 x d minimum 5 x d
	<b>fixed</b>	minimum 4 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	-25°C up to +80°C -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>	5m/s
<b>a max.</b>		80m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 100m for gliding applications, Class 5
<b>Torsion</b>		Torsion ±180°, with 1m cable length, Class 3 (except for 5-core types ≥ 4.0mm <sup>2</sup> ► <a href="#">Product range table</a> )

### Cable structure

<b>Conductor</b>	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.5mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.5mm<sup>2</sup>:</b> Black cores with white numbers, one green-yellow core. <b>CF77.UL.02.03.INI:</b> brown, blue, black <b>CF77.UL.03.04.INI:</b> brown, blue, black, white <b>CF77.UL.03.05.INI:</b> brown, blue, black, white, green-yellow
<b>Outer jacket</b>	Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2) Colour: Window-grey (similar to RAL 7040) Variants ► <a href="#">Product range table</a>

### Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) <b>Number of cores &lt; 12:</b> <b>Cores &lt; 0.5mm<sup>2</sup>:</b> 300V (following UL) <b>Cores ≥ 0.5mm<sup>2</sup>:</b> 1000V (following UL) <b>Number of cores ≥ 12:</b> 1000V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 5.5.2.1

### Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
<b>Offshore</b>	MUD-resistant following NEK 606 - status 2009
<b>Flame-retardant</b>	According to IEC 60332-1-2, 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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF77.UL.D">www.igus.eu/CF77.UL.D</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>DNV</b>	Type Approval Certificate TAE00003X1
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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, material/cable tested by IPA according to DIN EN ISO standard 14644-1
<b>DESINA</b>	According to VDW, DESINA standardisation
<b>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

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

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 100m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- Torsion ±180°, with 1m cable length, Class 3
- 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



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



Example image

igus® chainflex® CF77.UL.D

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



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]
CF77.UL.02.03.INI <sup>12)</sup>	3x0.25	5.0	9	29
CF77.UL.02.04.D	4x0.25	5.5	11	35
CF77.UL.02.05.D	5x0.25	6.0	13	39
CF77.UL.02.07.D	7x0.25	6.5	18	51
CF77.UL.02.12.D	12x0.25	9.0	32	78
CF77.UL.02.18.D	18x0.25	10.5	47	127
CF77.UL.02.25.D	25x0.25	11.5	63	155
CF77.UL.03.04.INI <sup>12)</sup>	4x0.34	6.0	14	37
CF77.UL.03.05.INI <sup>12)</sup>	5x0.34	6.0	18	36
CF77.UL.03.05.INI.D	5x0.34	6.0	18	36
CF77.UL.05.04.D	4G0.5	6.0	21	46
CF77.UL.05.05.D	5G0.5	6.5	26	53
CF77.UL.05.07.D	7G0.5	7.5	39	78
CF77.UL.05.12.D	12G0.5	10.0	63	130
CF77.UL.05.18.D	18G0.5	12.0	94	184
CF77.UL.05.25.D	25G0.5	14.0	129	243
CF77.UL.05.30.D	30G0.5	15.0	155	315
CF77.UL.07.03.D	3G0.75	6.5	23	52
CF77.UL.07.04.D	4G0.75	7.0	31	59
CF77.UL.07.05.D	5G0.75	7.5	38	71
CF77.UL.07.07.D	7G0.75	8.5	54	100
CF77.UL.07.12.D	12G0.75	12.0	91	180
CF77.UL.07.18.D	18G0.75	13.5	134	239
CF77.UL.07.20.D	20G0.75	14.5	149	269
CF77.UL.07.25.D	25G0.75	16.0	186	336
CF77.UL.07.36.D	36G0.75	19.0	279	506
CF77.UL.07.42.D	42G0.75	21.0	341	580
CF77.UL.10.02.D	2x1.0	6.5	21	51
CF77.UL.10.03.D	3G1.0	6.5	31	58
CF77.UL.10.04.D	4G1.0	7.0	41	73
CF77.UL.10.05.D	5G1.0	8.0	50	90
CF77.UL.10.07.D	7G1.0	9.0	71	120
CF77.UL.10.12.D	12G1.0	12.5	120	220
CF77.UL.10.18.D	18G1.0	15.0	179	314
CF77.UL.10.25.D	25G1.0	17.5	248	431
CF77.UL.10.42.D	42G1.0	22.5	433	699

<sup>12)</sup> Colour outer jacket: Colza yellow (similar to RAL 1021)

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

Class 5.5.2.1

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF77.UL.15.03.D	3G1.5	7.0	46	71
CF77.UL.15.04.D	4G1.5	7.5	61	88
CF77.UL.15.05.D	5G1.5	8.0	75	105
CF77.UL.15.07.D <sup>17)</sup>	7G1.5	9.5	105	152
CF77.UL.15.12.D	12G1.5	13.0	179	297
CF77.UL.15.18.D	18G1.5	17.0	268	405
CF77.UL.15.25.D	25G1.5	19.5	297	564
CF77.UL.15.36.D	36G1.5	23.5	551	848
CF77.UL.25.03.D	3G2.5	8.5	75	132
CF77.UL.25.04.D	4G2.5	9.5	95	167
CF77.UL.25.05.D	5G2.5	10.0	124	196
CF77.UL.25.07.D <sup>17)</sup>	7G2.5	12.0	174	270
CF77.UL.25.12.D	12G2.5	17.0	297	479
CF77.UL.40.04.D <sup>90)</sup>	4G4.0	11.5	165	245
CF77.UL.40.05.D <sup>90)</sup>	5G4.0	12.0	198	284
CF77.UL.60.05.D <sup>90)</sup>	5G6.0	13.5	297	412

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.  
<sup>90)</sup> Torsion ± 90°

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



Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



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



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



# Control cable | PUR | chainflex® CF78.UL

- 36** 10 million Double strokes guaranteed
- 6.8 x d** Bend radius, e-chain®
- 100m** Travel distance, e-chain®

- For heavy duty applications
- 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 flexible</b>	minimum 6.8 x d
	<b>fixed</b>	minimum 5 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	-25°C up to +80°C
	<b>fixed</b>	-40°C up to +80°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	10m/s
<b>a max.</b>	<b>gliding</b>	5m/s
<b>Travel distance</b>	Unsupported travels and up to 100m for gliding applications, Class 5	

## Cable structure

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

## Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) <b>Number of cores &lt; 12:</b> <b>Cores &lt; 0.5mm²:</b> 300V (following UL) <b>Cores ≥ 0.5mm²:</b> 1000V (following UL) <b>Number of cores ≥ 12:</b> 1000V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

Example image

igus® chainflex® CF78.UL

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 5.5.3.1

### Properties and approvals

<b>UV resistance</b>	Medium
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
<b>Offshore</b>	MUD-resistant following NEK 606 - status 2009
<b>Flame-retardant</b>	According to IEC 60332-1-2, 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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF78.UL">www.igus.eu/CF78.UL</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>DNV</b>	Type Approval Certificate TAE00003X1
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 CF77.UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UK CA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

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

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 5
- Unsupported travels and up to 100m for gliding applications, Class 5
- 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



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



# Control cable | PUR | chainflex® CF78.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF78.UL

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]
CF78.UL.05.04	(4G0.5)C	8.0	38	77
CF78.UL.05.05	(5G0.5)C	8.0	45	91
CF78.UL.05.07	(7G0.5)C	9.5	59	115
CF78.UL.05.09	(9G0.5)C	11.0	77	143
CF78.UL.05.12	(12G0.5)C	12.5	92	202
CF78.UL.05.18	(18G0.5)C	14.5	146	248
CF78.UL.05.25	(25G0.5)C	16.0	168	354
CF78.UL.07.03	(3G0.75)C	8.0	42	79
CF78.UL.07.04	(4G0.75)C	8.5	49	96
CF78.UL.07.05	(5G0.75)C	9.5	61	112
CF78.UL.07.07	(7G0.75)C	10.5	83	151
CF78.UL.07.12	(12G0.75)C	13.5	136	249
CF78.UL.07.18	(18G0.75)C	15.5	194	354
CF78.UL.07.36	(36G0.75)C	22.0	390	702
CF78.UL.10.03	(3G1.0)C	8.5	50	96
CF78.UL.10.04	(4G1.0)C	9.0	62	112
CF78.UL.10.05	(5G1.0)C	9.5	74	129
CF78.UL.10.07	(7G1.0)C	11.0	104	176
CF78.UL.10.12	(12G1.0)C	14.5	166	300
CF78.UL.10.18	(18G1.0)C	17.0	240	407
CF78.UL.10.25	(25G1.0)C	20.0	325	545
CF78.UL.15.03	(3G1.5)C	9.5	68	122
CF78.UL.15.04	(4G1.5)C	10.0	86	145
CF78.UL.15.05	(5G1.5)C	9.5	108	159
CF78.UL.15.07 <sup>17)</sup>	(7G1.5)C	11.5	144	217
CF78.UL.15.12	(12G1.5)C	16.0	233	387
CF78.UL.15.18	(18G1.5)C	19.0	346	541
CF78.UL.15.25	(25G1.5)C	22.5	464	724
CF78.UL.15.36	(36G1.5)C	26.5	663	1095
CF78.UL.15.42	(42G1.5)C	29.5	820	1296
CF78.UL.25.03	(3G2.5)C	10.0	106	174
CF78.UL.25.04	(4G2.5)C	11.5	140	203
CF78.UL.25.05	(5G2.5)C	12.0	166	235
CF78.UL.25.07 <sup>17)</sup>	(7G2.5)C	14.5	230	334
CF78.UL.25.12	(12G2.5)C	19.0	382	585
CF78.UL.40.04	(4G4.0)C	13.0	203	328

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

EPLAN download, configurators ► [www.igus.eu/CF78.UL](http://www.igus.eu/CF78.UL)

## Class 5.5.3.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

Order example: **CF78.UL.05.04** - to your desired length (0.5m steps)  
CF78.UL chainflex® series .05 Code nominal cross section .04 Number of cores

Order online ► [www.igus.eu/CF78.UL](http://www.igus.eu/CF78.UL)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



### cost down...



...life up

### Reduce cost, improve technology, now!

Do the chainflex® price check ...  
[www.igus.eu/cf-price-check](http://www.igus.eu/cf-price-check)

... for example: reduce cost with CF6 ...



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



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

# Control cable | PUR | chainflex® CF2

**36** 10 million Double strokes guaranteed **5 x d** Bend radius, e-chain® **100m** Travel distance, e-chain®

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

## Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 5 x d
	<b>fixed</b>	minimum 4 x d
	<b>e-chain® linear flexible</b>	minimum 3 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	-20°C up to +80°C
	<b>fixed</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>	5m/s
<b>a max.</b>		80m/s <sup>2</sup>
<b>Travel distance</b>		Unsupported travels and up to 100m for gliding applications, Class 5

## 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 TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	Colour code in accordance with DIN 47100.
<b>Inner jacket</b>	PVC mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	Low-adhesion, halogen-free, highly abrasion resistant PUR mixture, adapted to suit the requirements in e-chains® (following DIN EN 50363-10-2) Colour: Anthracite grey (similar to RAL 7016)

## Electrical information

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

Example image

EPLAN download, configurators ► [www.igus.eu/CF2](http://www.igus.eu/CF2)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



EU2022

EU2022



Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 6.5.3.1

### Properties and approvals

<b>UV resistance</b>	High
<b>Oil resistance</b>	Oil-resistant (following DIN EN 50363-10-2), Class 3
<b>Offshore</b>	MUD-resistant following NEK 606 - status 2009
<b>Flame-retardant</b>	According to IEC 60332-1-2, 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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF2">www.igus.eu/CF2</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 CF77.UL.05.12.D - tested by IPA according to standard DIN EN ISO 14644-1
<b>CE</b>	Following 2014/35/EU
<b>UK UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

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]
-20/-10	6.8	7.5	8.5
-10/+70	5	6.8	7.5
+70/+80	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 100m for gliding applications, Class 5
- Almost unlimited resistance to oil, Class 3
- No torsion, Class 1
- Indoor and outdoor applications
- Storage and retrieval units, machining units/packaging machines, quick handling, indoor cranes, refrigeration sector



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



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



UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)



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]
CF2.01.04	(4x0.14)C	6.5	18	49
CF2.01.08	(8x0.14)C	7.5	31	66
CF2.01.12	(12x0.14)C	9.5	51	102
CF2.01.18	(18x0.14)C	10,5	56	135
CF2.01.24 <sup>3)</sup>	(24x0.14)C	11.5	68	162
CF2.01.36	(36x0.14)C	14.5	92	240
CF2.02.04	(4x0.25)C	7.0	25	59
CF2.02.08	(8x0.25)C	8.0	43	84
CF2.02.18	(18x0.25)C	12.0	100	173
CF2.02.24 <sup>3) 11)</sup>	(24x0.25)C	13.5	124	305
CF2.02.48	(48x0.25)C	17.5	191	387

The chainflex® types marked with a <sup>3)</sup> refer to cables that are based on a bundling of 4 cores each. Due to their excellent electrical properties (starquad with especially minimum crosstalk), these cables can virtually be used in all cases in which otherwise twisted-pair cables are required.  
<sup>11)</sup> 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

**Order example: CF2.01.04 - to your desired length (0.5m steps)**  
CF2 chainflex® series .01 Code nominal cross section .04 Number of cores

Order online ► [www.igus.eu/CF2](http://www.igus.eu/CF2)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



**Cables available in the chainflex® CASE**

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



chainflex® CF2 cables are resistant to oil and coolants. e-chain®: E4/00 system.

**cost down...**



...life up

**Reduce cost, improve technology, now!**

Do the chainflex® price check ...

[www.igus.eu/cf-price-check](http://www.igus.eu/cf-price-check)

... for example: reduce cost with CF240.PUR ...



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



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

# Control cable | TPE | chainflex® CF9



**12.5 million**  
Double strokes guaranteed



**5 x d**  
Bend radius, e-chain®



**400m**  
Travel distance, e-chain®

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

Now available  
with UL approval  
& 25% longer  
service life

## 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 +100°C
	flexible	-50°C up to +100°C (following DIN EN 60811-504)
	fixed	-55°C up to +100°C (following DIN EN 50305)
v max.	unsupported	10m/s
	gliding	6m/s
a max.		100m/s <sup>2</sup>
Travel distance		Unsupported travels and up to 400m for gliding applications, Class 6
Torsion		Torsion ±90°, with 1m cable length, Class 2

## Cable structure

Conductor	Stranded conductor in especially bending-resistant version consisting of bare copper wires (following DIN EN 60228).
Core insulation	Mechanically high-quality TPE mixture.
Core structure	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
Core identification	<b>Cores &lt; 0.75mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.75mm<sup>2</sup>:</b> Black cores with white numbers, one green-yellow core. <b>CF9.02.03.INI:</b> brown, blue, black <b>CF9.03.04.INI:</b> brown, blue, black, white <b>CF9.03.05.INI:</b> brown, blue, black, white, green-yellow <b>CF9.03.16.07.03.INI:</b> <b>0.34mm<sup>2</sup>:</b> violet/red/grey/red-blue, green/grey-pink/white-green/white-yellow, white-grey/black/yellow-brown/brown-green, white/yellow/pink/grey-brown <b>0.75mm<sup>2</sup>:</b> blue/green-yellow/brown
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)
CFRIP®	Strip cables faster: a tear strip is moulded into the outer jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

EPLAN download, configurators ► [www.igus.eu/CF9](http://www.igus.eu/CF9)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



EU2022

EU2022



Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 7.6.4.2

### Electrical information

Nominal voltage	300/500V (following DIN VDE 0298-3) <b>Cores &lt; 0.5mm<sup>2</sup>:</b> 300V (following UL) <b>Cores ≥ 0.5mm<sup>2</sup>:</b> 1000V (following UL)
Testing voltage	2000V (following DIN EN 50395)

### 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"
UL AWM	See data sheet for details ► <a href="http://www.igus.eu/CF9">www.igus.eu/CF9</a> (from production date 01/2022)
EAC	Certificate No. RU C-DE.ME77.B.00300/19
REACH	In accordance with regulation (EC) No. 1907/2006 (REACH)
RoHS	Following 2011/65/EC (RoHS-II/RoHS-III)
Cleanroom	According to ISO Class 1, material/cable tested by IPA according to DIN EN ISO standard 14644-1 Following 2014/35/EU
CE	
UKCA	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million	7.5 million	12.5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	6.8	7.5	8.5
-25/+90	5	6	7
+90/+100	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

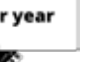
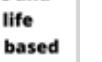
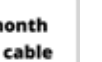
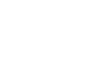
- For heavy-duty applications, Class 7
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ±90°, with 1m cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, outdoor cranes, low-temperature applications



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



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





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

# Control cable | TPE | chainflex® CF9

Strip cables 50% faster with CFRIP® tear strip

## Class 7.6.4.2



Example image

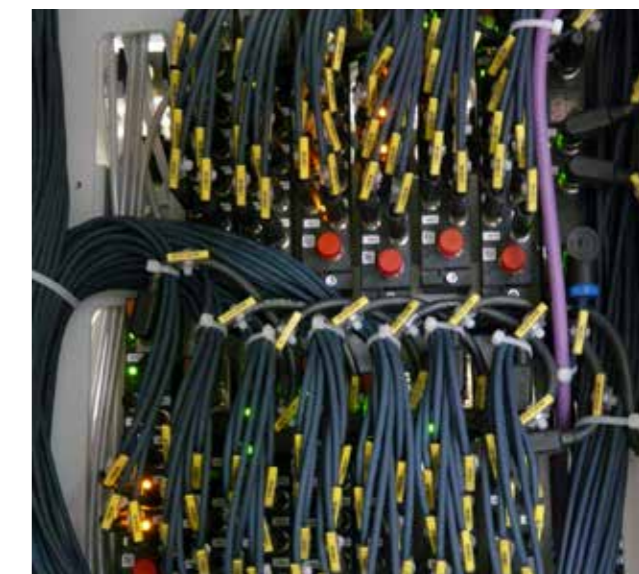
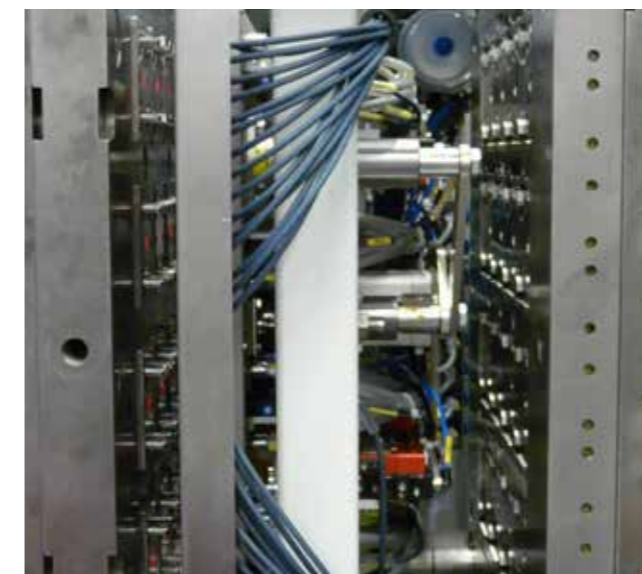
Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
New CF9.02.02	2x0.25	4.5	6	18
New CF9.02.03.INI	3x0.25	4.5	9	22
New CF9.02.06	6x0.25	5.5	16	36
New CF9.02.07	7x0.25	6.5	18	42
New CF9.02.08	8x0.25	6.5	21	48
New CF9.02.12	12x0.25	8.0	31	71
New CF9.02.18	18x0.25	9.0	46	100
New CF9.02.20	20x0.25	9.5	50	108
New CF9.02.25	25x0.25	10,5	63	137
New CF9.03.04.INI	4x0.34	5.0	15	31
New CF9.03.05.INI	5x0.34	5.5	18	37
New CF9.03.06	6x0.34	6.0	21	42
New CF9.03.08	8x0.34	7.0	29	56
New CF9.03.16.07.03.INI	16x0.34+3x0.75	11.0	77	152
New CF9.05.02	2x0.5	5.0	11	26
New CF9.05.03	3x0.5	5.0	16	32
New CF9.05.04	4x0.5	5.5	21	39
New CF9.05.05	5x0.5	6.0	25	47
New CF9.05.07	7x0.5	7.0	36	65
New CF9.05.12	12x0.5	10.0	61	115
New CF9.05.18	18x0.5	11.5	91	169
New CF9.05.25	25x0.5	13.0	124	223
New CF9.05.36	36x0.5	15.5	179	316
New CF9.07.04	4G0.75	6.0	31	55
New CF9.07.05	5G0.75	6.5	38	65
New CF9.07.07	7G0.75	8.0	54	90
New CF9.07.12	12G0.75	10.5	91	162
New CF9.07.20	20G0.75	13.0	149	253
New CF9.07.25	25G0.75	14.5	186	315
New CF9.10.03	3G1.0	6.0	31	52
New CF9.10.04	4G1.0	6.5	41	67
New CF9.10.05	5G1.0	7.5	50	81
New CF9.10.12	12G1.0	11.5	120	203
New CF9.10.18	18G1.0	14.0	179	297
New CF9.10.25	25G1.0	16.5	248	420

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
New CF9.15.02	2x1.5	6.5	31	56
New CF9.15.04	4G1.5	7.5	61	92
New CF9.15.05	5G1.5	8.0	76	110
New CF9.15.07 <sup>17)</sup>	7G1.5	9.5	107	157
New CF9.15.12	12G1.5	13.5	179	284
New CF9.15.18	18G1.5	16.5	268	422
New CF9.15.25	25G1.5	20.0	371	600
New CF9.15.36	36G1.5	23.5	530	847
New CF9.25.04	4G2.5	8.5	100	151
New CF9.25.05	5G2.5	10.0	124	186
New CF9.25.07 <sup>17)</sup>	7G2.5	12.0	176	269
New CF9.25.12	12G2.5	17.5	297	492
New CF9.25.16	16G2.5	19.5	396	654
New CF9.25.18 <sup>7)</sup>	18G2.5	22.5	445	766
New CF9.25.25	25G2.5	23.5	612	980
New CF9.40.04	4G4.0	10,5	159	227
New CF9.60.04	4G6.0	12.5	238	317
New CF9.60.05	5G6.0	13.5	297	389
New CF9.100.04	4G10	16.5	396	549
New CF9.160.04	4G16	20.5	628	873

<sup>7)</sup> Nominal voltage 600/1000V

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



chainflex® CF9 INI cables in a high-performance system for plastics processing with cycle times in seconds. e-chain® E6 series. (Source: Hekuma)

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

CFRIP  
if

CE LISTED

RU

nec

NFPA

CULFA

DNV

EAC

REACH

RoHS

clean-room

UL

CE

UK CA

# Control cable | TPE | chainflex® CF10



**12.5 million**  
Double strokes guaranteed



**5 x d**  
Bend radius, e-chain®



**400m**  
Travel distance, e-chain®

- For heaviest duty applications
- TPE outer jacket
- Shielded
- Oil and bio-oil-resistant
- PVC and halogen-free
- Low-temperature-flexible
- Hydrolysis and microbe-resistant

Now available  
with UL approval  
& 25% longer  
service life

### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	minimum 5 x d
	<b>fixed</b>	minimum 4 x d
	<b>e-chain® linear flexible</b>	minimum 3 x d
<b>Temperature</b>	<b>e-chain® linear flexible</b>	-35°C up to +100°C
	<b>fixed</b>	-50°C up to +100°C (following DIN EN 60811-504)
	<b>fixed</b>	-55°C up to +100°C (following DIN EN 50305)
<b>v max.</b>	<b>unsupported</b>	10m/s
<b>a max.</b>	<b>gliding</b>	6m/s
<b>Travel distance</b>	Unsupported travels and up to 400m for gliding applications, Class 6	

### 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 TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.75mm²:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.75mm²:</b> Black cores with white numbers, one green-yellow core. <b>CF9.03.05.INI:</b> brown, blue, black, white, green-yellow
<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	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)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 7.6.4.1

### Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) <b>Cores &lt; 0.5mm²:</b> 300V (following UL) <b>Cores ≥ 0.5mm²:</b> 1000V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

### 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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF10">www.igus.eu/CF10</a> (from production date 01/2022)
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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>CE</b>	Following 2014/35/EU
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	5 million	7.5 million	12.5 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	6.8	7.5	8.5
-25/+90	5	6	7
+90/+100	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

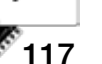
- For heavy-duty applications, Class 7
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, ship to shore, outdoor cranes, low-temperature applications



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



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



# Control cable | TPE | chainflex® CF10

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF10

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]
New CF10.01.12	(12x0.14)C	8.0	38	78
New CF10.01.18	(18x0.14)C	9.5	64	121
New CF10.02.04	(4x0.25)C	6.5	24	49
New CF10.02.08	(8x0.25)C	8.0	40	78
New CF10.02.12	(12x0.25)C	9.5	66	122
New CF10.02.25	(25x0.25)C	12.5	112	212
New CF10.03.05.INI	(5x0.34)C	7.0	34	63
New CF10.05.04	(4x0.5)C	7.0	37	67
New CF10.05.05	(5x0.5)C	7.5	43	76
New CF10.05.07	(7x0.5)C	8.5	57	99
New CF10.05.12	(12x0.5)C	11.5	106	185
New CF10.05.18	(18x0.5)C	13.5	144	251
New CF10.05.25	(25x0.5)C	15.0	186	318
New CF10.07.04	(4G0.75)C	7.5	48	83
New CF10.07.05	(5G0.75)C	8.0	58	95
New CF10.07.07	(7G0.75)C	9.5	89	140
New CF10.07.12	(12G0.75)C	12.0	136	230
New CF10.07.20	(20G0.75)C	15.0	212	345
New CF10.07.25	(25G0.75)C	16.0	253	420
New CF10.10.02	(2x1.0)C	7.5	37	70
New CF10.10.03	(3G1.0)C	7.5	48	80
New CF10.10.04	(4G1.0)C	8.0	61	99
New CF10.10.05	(5G1.0)C	8.5	70	116
New CF10.10.07	(7G1.0)C	10.0	109	170
New CF10.10.12	(12G1.0)C	13.5	175	286
New CF10.10.18	(18G1.0)C	15.5	246	391
New CF10.10.25	(25G1.0)C	18.0	322	520
New CF10.15.04	(4G1.5)C	9.0	94	142
New CF10.15.05	(5G1.5)C	10.0	112	166
New CF10.15.07 <sup>17)</sup>	(7G1.5)C	11.5	149	231
New CF10.15.12	(12G1.5)C	15.5	243	383
New CF10.15.18	(18G1.5)C	19.0	372	579
New CF10.25.04	(4G2.5)C	11.0	140	220
New CF10.25.07 <sup>17)</sup>	(7G2.5)C	13.5	228	347
New CF10.25.12	(12G2.5)C	19.5	375	619
New CF10.40.04	(4G4.0)C	12.5	208	305
New CF10.40.05	(5G4.0)C	13.5	254	370

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

EPLAN download, configurators ► [www.igus.eu/CF10](http://www.igus.eu/CF10)

Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 7.6.4.1

Order example: CF10.01.12 - to your desired length (0.5m steps)  
CF10 chainflex® series .01 Code nominal cross section .12 Number of cores

Order online ► [www.igus.eu/CF10](http://www.igus.eu/CF10)

Delivery time 24hrs or today.  
Delivery time means time until goods are shipped.



chainflex CF10 control cable in storage and retrieval units e-chain®: E2 system



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



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



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



# Control cable | TPE | chainflex® CF9.UL

**36** 10 million  
Double strokes guaranteed







**5 x d**  
Bend radius, e-chain®

**400m**  
Travel distance, e-chain®







- For extremely heavy duty applications
- TPE outer jacket
- Oil and bio-oil-resistant
- Flame-retardant
- PVC-free
- Low-temperature-flexible
- Hydrolysis and microbe-resistant

**Up to 18%  
smaller outside  
diameter**

### Dynamic information

 <b>Bend radius</b>	<b>e-chain® linear</b>	minimum 5 x d
	<b>flexible</b>	minimum 4 x d
	<b>fixed</b>	minimum 3 x d
 <b>Temperature</b>	<b>e-chain® linear</b>	-35°C up to +100°C
	<b>flexible</b>	-45°C up to +100°C (following DIN EN 60811-504)
	<b>fixed</b>	-50°C up to +100°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 400m for gliding applications, Class 6
 <b>Torsion</b>		Torsion ±90°, with 1m cable length, Class 2

### 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 TPE mixture.
 <b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
 <b>Core identification</b>	<b>Cores &lt; 0.75mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.75mm<sup>2</sup>:</b> Black cores with white numbers, one green-yellow core. <b>CF9.UL.02.03.INI:</b> brown, blue, black <b>CF9.UL.03.04.INI:</b> brown, blue, black, white <b>CF9.UL.03.05.INI:</b> braun, blau, schwarz, weiß, grüngelb
 <b>Outer jacket</b>	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Slate grey (similar to RAL 7015)
 <b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the outer jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

EPLAN download, configurators ► [www.igus.eu/CF9.UL](http://www.igus.eu/CF9.UL)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges





EU2022

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	highest			
none	1	2	3	4	±360°			

## Class 6.6.4.2

### Electrical information

 <b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) <b>Cores &lt; 0.5mm<sup>2</sup>:</b> 300V (following UL) <b>Cores ≥ 0.5mm<sup>2</sup>:</b> 1000V (following UL)
 <b>Testing voltage</b>	2000V (following DIN EN 50395)

### 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>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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
 <b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF9.UL">www.igus.eu/CF9.UL</a>
 <b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
 <b>DNV</b>	Type Approval Certificate TAE00003X2
 <b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
 <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 CF34.UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1
 <b>CE</b>	Following 2014/35/EU
 <b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

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]
-35/-25	6.8	7.5	8.5
-25/+90	5	6	7
+90/+100	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ±90°, with 1m cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- Storage and retrieval units for high-bay warehouses, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, ship to shore, outdoor cranes, low-temperature applications



EU2022

UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)



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



# Control cable | TPE | chainflex® CF9.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF9.UL

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]
CF9.UL.02.02	2x0.25	5.0	5	24
CF9.UL.02.03.INI	3x0.25	5.0	8	28
CF9.UL.02.04	4x0.25	5.5	10	33
CF9.UL.02.06	6x0.25	6.0	15	42
CF9.UL.02.08	8x0.25	7.0	20	58
CF9.UL.02.12	12x0.25	7.5	30	82
CF9.UL.03.04.INI	4x0.34	5.5	14	38
CF9.UL.03.05.INI	5x0.34	6.0	17	44
CF9.UL.03.06	6x0.34	6.5	21	52
CF9.UL.03.08	8x0.34	7.5	27	67
CF9.UL.05.02	2x0.5	5.5	10	35
CF9.UL.05.03	3x0.5	6.0	15	41
CF9.UL.05.04	4x0.5	6.0	20	50
CF9.UL.05.05	5x0.5	6.5	25	56
CF9.UL.05.07	7x0.5	7.5	35	78
CF9.UL.05.12	12x0.5	9.5	60	136
CF9.UL.05.18	18x0.5	12.0	90	200
CF9.UL.07.05	5G0.75	7.0	38	78
CF9.UL.07.07	7G0.75	8.5	53	104
CF9.UL.07.12	12G0.75	11.0	90	191
CF9.UL.07.25	25G0.75	15.0	186	366
CF9.UL.10.03	3G1.0	6.5	30	62
CF9.UL.10.04	4G1.0	7.0	40	79
CF9.UL.10.12	12G1.0	11.5	119	229
CF9.UL.10.18	18G1.0	14.5	178	332
CF9.UL.10.25	25G1.0	16.0	248	439
CF9.UL.15.04	4G1.5	8.0	60	102
CF9.UL.15.05	5G1.5	8.5	75	123
CF9.UL.15.07 <sup>17)</sup>	7G1.5	10.0	104	167
CF9.UL.15.12	12G1.5	13.0	178	307
CF9.UL.15.18	18G1.5	16.0	267	448
CF9.UL.15.25	25G1.5	19.0	371	652

<sup>17)</sup> When using the cables with "7G1.5mm<sup>2</sup>" and "5G2.5mm<sup>2</sup>" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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

## Class 6.6.4.2

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°

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF9.UL.25.04	4G2.5	9.0	100	165
CF9.UL.25.05	5G2.5	10.0	125	202
CF9.UL.25.07 <sup>17)</sup>	7G2.5	12.0	174	282
CF9.UL.25.12	12G2.5	16.0	297	521
CF9.UL.25.18	18G2.5	20.0	445	769
CF9.UL.25.25	25G2.5	23.5	612	1045
CF9.UL.40.04	4G4.0	10,5	159	222

<sup>17)</sup> When using the cables with "7G1.5mm<sup>2</sup>" and "5G2.5mm<sup>2</sup>" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

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



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



igus® chainflex® cables in a drilling application.



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



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

EPLAN download, configurators ► [www.igus.eu/CF9.UL](http://www.igus.eu/CF9.UL)

# Control cable | TPE | chainflex® CF10.UL

**36** 10 million  
Double strokes guaranteed

**5 x d**  
Bend radius, e-chain®

**400m**  
Travel distance, e-chain®

- For extremely heavy duty applications
- TPE outer jacket
- Shielded
- Oil and bio-oil-resistant
- Flame-retardant
- PVC-free
- Low-temperature-flexible
- Hydrolysis and microbe-resistant

**Up to 18%  
smaller outside  
diameter**

### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear</b>	minimum 5 x d
	<b>flexible</b>	minimum 4 x d
	<b>fixed</b>	minimum 3 x d
<b>Temperature</b>	<b>e-chain® linear</b>	-35°C up to +100°C
	<b>flexible</b>	-45°C up to +100°C (following DIN EN 60811-504)
	<b>fixed</b>	-50°C up to +100°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 400m for gliding applications, Class 6

### 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 TPE mixture.
<b>Core structure</b>	<b>Number of cores &lt; 12:</b> Cores wound in a layer with short pitch length. <b>Number of cores ≥ 12:</b> Cores wound in bundles which are then wound around a high tensile strength centre element, all with optimised short pitch lengths and directions. Especially low-torsion structure.
<b>Core identification</b>	<b>Cores &lt; 0.75mm<sup>2</sup>:</b> Colour code in accordance with DIN 47100. <b>Cores ≥ 0.75mm<sup>2</sup>:</b> Black cores with white numbers, one green-yellow core.
<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Extremely bending-resistant braiding made of tinned copper wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	Low-adhesion, extremely abrasion-resistant and highly flexible TPE mixture, adapted to suit the requirements in e-chains®. Colour: Slate grey (similar to RAL 7015)
<b>CFRIP®</b>	Strip cables faster: a tear strip is moulded into the inner jacket Video ► <a href="http://www.igus.eu/CFRIP">www.igus.eu/CFRIP</a>

EPLAN download, configurators ► [www.igus.eu/CF10.UL](http://www.igus.eu/CF10.UL)

36-month guarantee ... more than 1,350 cable types from stock ... no cutting charges



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Basic requirements  
Travel distance  
Oil resistance  
Torsion

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

## Class 6.6.4.1

### Electrical information

<b>Nominal voltage</b>	300/500V (following DIN VDE 0298-3) <b>Cores &lt; 0.5mm<sup>2</sup>:</b> 300V (following UL) <b>Cores ≥ 0.5mm<sup>2</sup>:</b> 1000V (following UL)
<b>Testing voltage</b>	2000V (following DIN EN 50395)

### 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>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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"
<b>UL/CSA AWM</b>	See data sheet for details ► <a href="http://www.igus.eu/CF10.UL">www.igus.eu/CF10.UL</a>
<b>NFPA</b>	Following NFPA 79-2018, chapter 12.9
<b>DNV</b>	Type Approval Certificate TAE00003X2
<b>EAC</b>	Certificate No. RU C-DE.ME77.B.00300/19
<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 CF34.UL.25.04.D - tested by IPA according to standard DIN EN ISO 14644-1 Following 2014/35/EU
<b>CE</b>	
<b>UKCA</b>	In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

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]
-35/-25	6.8	7.5	8.5
-25/+90	5	6	7
+90/+100	6.8	7.5	8.5

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heavy-duty applications, Class 6
- Unsupported travels and up to 400m and more for gliding applications, Class 6
- 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, machining units/machine tools, quick handling, cleanroom, semiconductor insertion, ship to shore, outdoor cranes, low-temperature applications



EU2022

UL-verified chainflex® guarantee ... [www.igus.eu/ul-verified](http://www.igus.eu/ul-verified)



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



# Control cable | TPE | chainflex® CF10.UL

Strip cables 50% faster with CFRIP® tear strip

igus® chainflex® CF10.UL

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]
CF10.UL.02.04	(4x0.25)C	6.5	24	61
CF10.UL.02.08	(8x0.25)C	8.5	40	94
CF10.UL.02.12	(12x0.25)C	9.5	64	138
CF10.UL.02.25	(25x0.25)C	12.5	109	239
CF10.UL.05.04	(4x0.5)C	7.5	37	84
CF10.UL.05.05	(5x0.5)C	8.0	44	96
CF10.UL.05.12	(12x0.5)C	11.5	103	211
CF10.UL.05.25 <sup>11)</sup>	(25x0.5)C	15.5	186	377
CF10.UL.07.04	(4G0.75)C	8.0	49	102
CF10.UL.07.05	(5G0.75)C	8.5	58	119
CF10.UL.07.07	(7G0.75)C	10.0	89	172
CF10.UL.07.12	(12G0.75)C	12.5	135	274
CF10.UL.07.20 <sup>11)</sup>	(20G0.75)C	15.5	210	395
CF10.UL.07.25 <sup>11)</sup>	(25G0.75)C	17.0	255	492
CF10.UL.10.02	(2x1.0)C	7.5	38	88
CF10.UL.10.03	(3G1.0)C	8.0	48	99
CF10.UL.10.04	(4G1.0)C	8.5	61	118
CF10.UL.10.05	(5G1.0)C	9.0	72	137
CF10.UL.10.07	(7G1.0)C	11.0	110	204
CF10.UL.10.25 <sup>11)</sup>	(25G1.0)C	18.5	348	608
CF10.UL.15.04	(4G1.5)C	9.0	83	144
CF10.UL.15.05	(5G1.5)C	10.0	111	182
CF10.UL.15.07 <sup>17)</sup>	(7G1.5)C	12.0	148	246
CF10.UL.15.12	(12G1.5)C	14.5	236	408
CF10.UL.15.18	(18G1.5)C	18.5	363	608
CF10.UL.25.04	(4G2.5)C	11.0	140	237
CF10.UL.25.07 <sup>17)</sup>	(7G2.5)C	14.0	226	381
CF10.UL.25.12	(12G2.5)C	18.5	395	684
CF10.UL.40.04	(4G4.0)C	12.5	205	315

<sup>11)</sup> Phase-out model

<sup>17)</sup> When using the cables with "7G1.5mm²" and "5G2.5mm²" minimum bend radius must be 17.5xd with gliding travel distance ≥ 5m.

**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

## Class 6.6.4.1

Basic requirements  
Travel distance  
Oil resistance  
Torsion

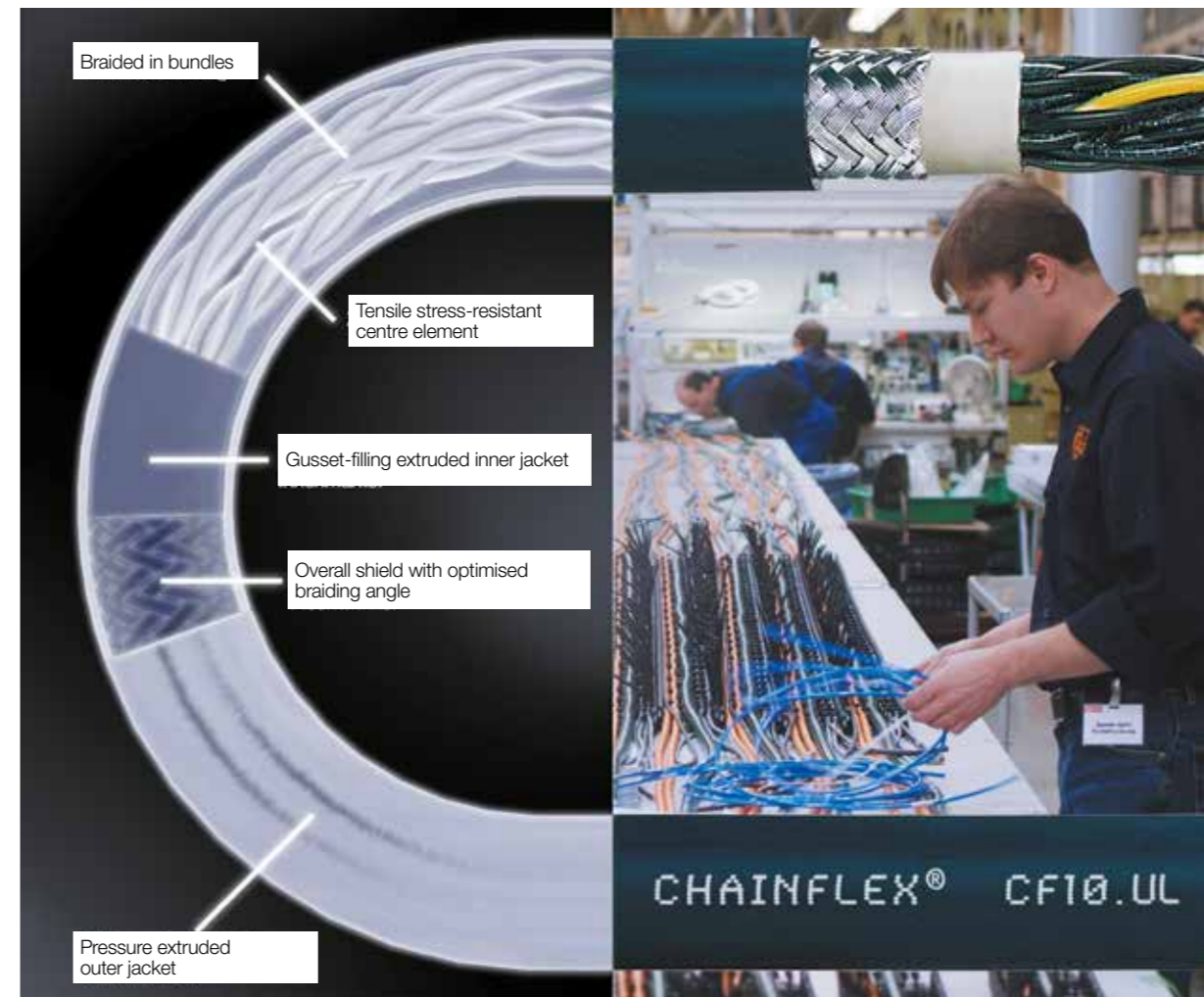
low	1	2	3	4	5	6	7	highest
unsupported	1	2	3	4	5	6	≥ 400m	
none	1	2	3	4	highest			
none	1	2	3	4	±360°			



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



The special cable structure of chainflex® CF10.UL guarantees quality – offered by igus® fully harnessed.



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



# Control cable | TPE | chainflex® CF98

**36** 40 million Double strokes guaranteed **4 x d** Bend radius, e-chain® **100m** Travel distance, e-chain®

- For heaviest duty applications and especially small radii down to 4 x d
- TPE outer jacket
- Oil and bio-oil-resistant
- PVC and halogen-free
- Low-temperature-flexible
- Hydrolysis and microbe-resistant

### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	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
	<b>fixed</b>	-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>		Short, very fast applications with small radii and restricted installation space, Class 5
<b>Torsion</b>		Torsion ±90°, with 1m cable length, Class 2

### Cable structure

<b>Conductor</b>	Conductor consisting of a highly flexible special alloy.
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound in a layer with especially short pitch length.
<b>Core identification</b>	Colour code in accordance with DIN 47100. <b>CF98.02.03.INI:</b> brown, blue, black <b>CF98.03.04.INI:</b> brown, blue, black, white
<b>Outer jacket</b>	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

<b>Nominal voltage</b>	300/300V
<b>Testing voltage</b>	1500V

### 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>UL verified</b>	Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"

## Class 7.5.4.2

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°			



Certificate No. RU C-DE.ME77.B.00300/19

In accordance with regulation (EC) No. 1907/2006 (REACH)

Following 2011/65/EC (RoHS-II/RoHS-III)

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  
Following 2014/35/EU

In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	20 million	30 million	40 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	5	6	7
-25/+80	4	5	6
+80/+90	5	6	7

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

### Typical application areas

- For heaviest duty applications and especially small radii down to 4 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 5
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- Torsion ±90°, with 1m cable length, Class 2
- Indoor and outdoor applications, UV-resistant
- Pick and place machines, automatic doors, cleanroom, very quick handling

Part No.	Number of cores and conductor nominal cross section [mm <sup>2</sup> ]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF98.01.02	2x0.14	4.5	5	18
CF98.01.03	3x0.14	4.5	6	20
CF98.01.04	4x0.14	5.0	8	25
CF98.01.08	8x0.14	6.5	15	43
CF98.02.03.INI	3x0.25	5.0	11	29
CF98.02.04	4x0.25	5.5	15	36
CF98.02.08 <sup>1)</sup>	8x0.25	7.5	30	67
CF98.03.04.INI	4x0.34	6.0	15	39
CF98.05.04	4x0.5	6.0	33	53

<sup>1)</sup> Phase-out model

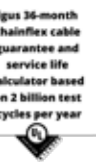
**Note:** The given outer diameters are maximum values and may tend toward lower tolerance limits.  
G = with green-yellow earth core x = without earth core



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)





# Control cable | TPE | chainflex® CF99

**36** 40 million Double strokes guaranteed **4 x d** Bend radius, e-chain® **100m** Travel distance, e-chain®

- For heaviest duty applications and especially small radii down to 4 x d
- TPE outer jacket
- Shielded
- Oil and bio-oil-resistant
- PVC and halogen-free
- Low-temperature-flexible
- Hydrolysis and microbe-resistant

### Dynamic information

<b>Bend radius</b>	<b>e-chain® linear flexible</b>	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
	<b>fixed</b>	-50°C up to +90°C (following DIN EN 60811-504)
<b>v max.</b>	<b>unsupported</b>	10m/s
<b>a max.</b>	<b>gliding</b>	6m/s
<b>Travel distance</b>	Short, very fast applications with small radii and restricted installation space, Class 5	

### Cable structure

<b>Conductor</b>	Conductor consisting of a highly flexible special alloy.
<b>Core insulation</b>	Mechanically high-quality TPE mixture.
<b>Core structure</b>	Cores wound in a layer with especially short pitch length.
<b>Core identification</b>	Colour code in accordance with DIN 47100.
<b>Inner jacket</b>	TPE mixture adapted to suit the requirements in e-chains®.
<b>Overall shield</b>	Extremely bending resistant braiding made of alloy wires. Coverage linear approx. 70%, optical approx. 90%
<b>Outer jacket</b>	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

<b>Nominal voltage</b>	300/300V
<b>Testing voltage</b>	1500V

### 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)

## Class 7.5.4.1

Halogen-free  
 UL verified  
 EAC  
 REACH  
 Lead-free  
 Cleanroom  
 CE  
 UKCA

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°			

Following DIN EN 60754

Certificate No. B129699: "igus 36-month chainflex cable guarantee and service life calculator based on 2 billion test cycles per year"  
 Certificate No. RU C-DE.ME77.B.00300/19

In accordance with regulation (EC) No. 1907/2006 (REACH)

Following 2011/65/EC (RoHS-II/RoHS-III)

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

Following 2014/35/EU

In accordance with the valid regulations of the United Kingdom (as at 08/2021)

### Guaranteed service life (details see page 28-29)

Double strokes*	20 million	30 million	40 million
Temperature, from/to [°C]	R min. [factor x d]	R min. [factor x d]	R min. [factor x d]
-35/-25	5	6	7
-25/+80	4	5	6
+80/+90	5	6	7

\* Higher number of double strokes? Service life calculation online ► [www.igus.eu/chainflexlife](http://www.igus.eu/chainflexlife)

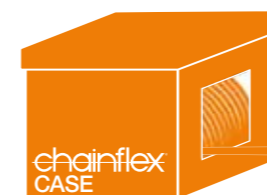
### Typical application areas

- For heaviest duty applications and especially small radii down to 4 x d, Class 7
- Especially for short, very fast applications with small radii and restricted installation space, Class 5
- Almost unlimited resistance to oil, also with bio-oils, Class 4
- No torsion, Class 1
- Indoor and outdoor applications, UV-resistant
- Pick and place machines, automatic doors, cleanroom, very quick handling

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF99.01.02	(2x0.14)C	6.0	12	37
CF99.01.04	(4x0.14)C	6.5	17	47
CF99.01.08 <sup>1)</sup>	(8x0.14)C	8.0	29	76
CF99.02.04	(4x0.25)C	7.0	24	60
CF99.03.08	(8x0.34)C	9.5	45	108

<sup>1)</sup> 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



### Cables available in the chainflex® CASE

Simple savings on delivery, storage space and re-ordering with the chainflex® CASE - ship'n store by igus®.

More on this on page 24/25 and online: [www.igus.eu/cfcase](http://www.igus.eu/cfcase)



Example image

igus® chainflex® CF99