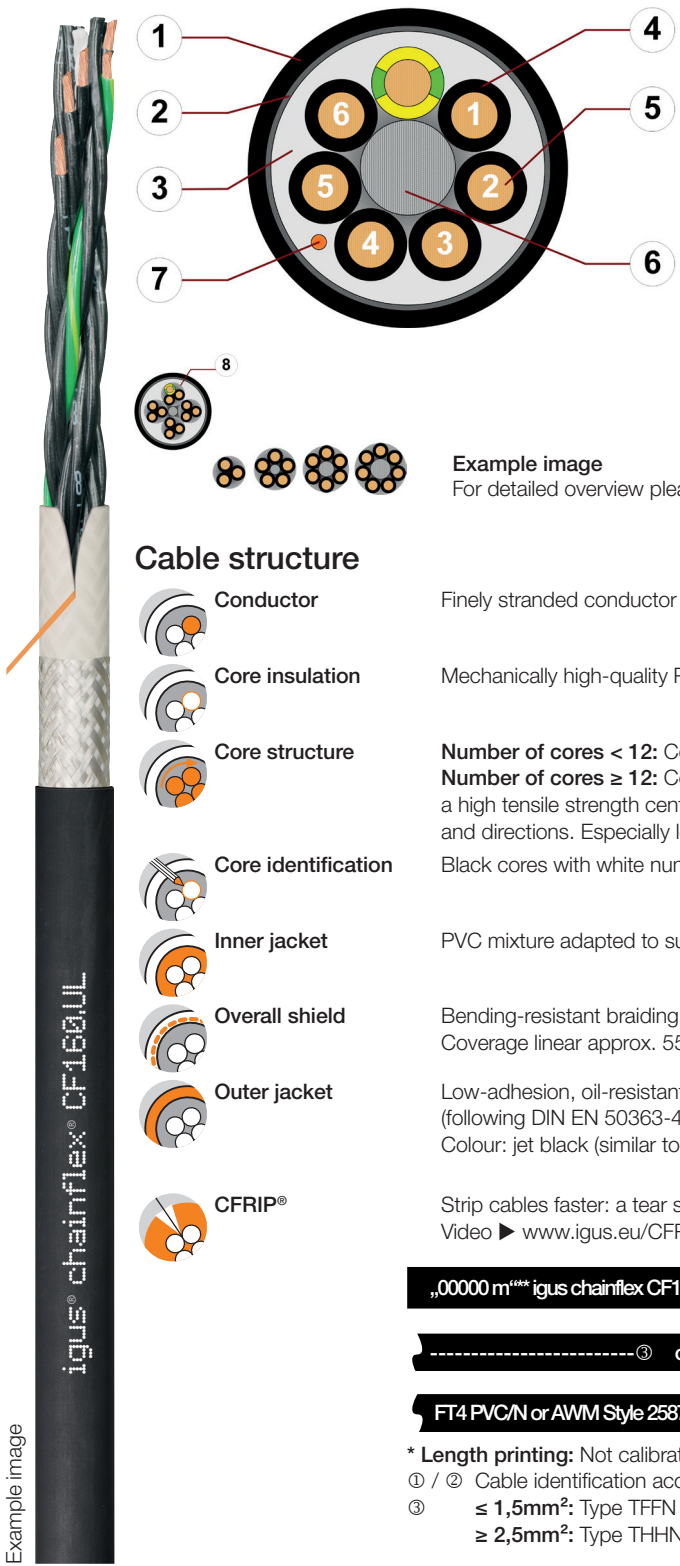


Data sheet

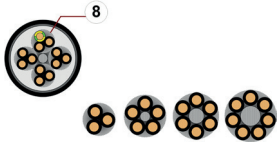
chainflex® CF160.UL



Control cable (Class 4.4.2.1) • For medium duty applications • PVC outer jacket • Shielded
 • Oil-resistant • Flame-retardant • TC-ER (Power and Control Tray Cable)



1. Outer jacket: Pressure extruded, gusset-filling, oil-resistant PVC mixture
2. Overall shield: Bending-resistant braiding made of tinned copper wires
3. Inner jacket: Pressure extruded, gusset-filling PVC mixture
4. Core insulation: Mechanically high-quality PVC/PA mixture
5. Conductor: Finely stranded conductor consisting of bare copper wires
6. Strain relief: Tensile stress-resistant centre element
7. CFRIP: Tear strip for faster cable stripping
8. 12 cores or more: Bundles with optimised pitch length and pitch direction



Example image
 For detailed overview please see design table

Cable structure

	Conductor	Finely stranded conductor consisting of bare copper wires (following DIN EN 60228).
	Core insulation	Mechanically high-quality PVC/PA mixture.
	Core structure	Number of cores < 12: Cores wound in a layer with short pitch length. Number of cores ≥ 12: 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	Black cores with white numbers, one green-yellow core.
	Inner jacket	PVC mixture adapted to suit the requirements in e-chains®.
	Overall shield	Bending-resistant braiding made of tinned copper wires. Coverage linear approx. 55%, optical approx. 80%
	Outer jacket	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)
	CFRIP®	Strip cables faster: a tear strip is moulded into the inner jacket Video ▶ www.igus.eu/CFRIP

„00000 m^{100%} igus chainflex CF160.---.UL① -----② 300/500 V E522881 C (UL) TC-ER 600V
 -----③ or WTTC 90°C 1000V or MTW 600V or c(UL) CONTROL CIC/TC
 FT4 PVC/N or AWM Style 2587 90°C 600V - CE www.igus.eu +++ chainflex cable works +++

* **Length printing:** Not calibrated. Only intended as an orientation aid.
 ① / ② Cable identification according to Part No. (see technical table).
 ③ ≤ 1,5mm²: Type TFFN 90°C DRY OIL RES I
 ≥ 2,5mm²: Type THHN/THWN 90°C DRY 75° WET DIR BUR OIL RES I

Example: chainflex CF160.10.03.UL (3G1,0)C 300/500 V E522881 C (UL) TC-ER 600V TFFN 90°C DRY OIL RES I or WTTC



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



Example image






Data sheet

chainflex® CF160.UL



Control cable (Class 4.4.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
 ● Oil-resistant ● Flame-retardant ● TC-ER (Power and Control Tray Cable)

Dynamic information

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





Guaranteed service life according to guarantee conditions

Double strokes	5 million		7.5 million		10 million	
	< 10 m	≥ 10 m	< 10 m	≥ 10 m	< 10 m	≥ 10 m
	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]
Temperature. from/to [°C]						
+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

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

Electrical information

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

Example image
















Data sheet

chainflex® CF160.UL



Control cable (Class 4.4.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded ● Oil-resistant ● Flame-retardant ● TC-ER (Power and Control Tray Cable)

Properties and approvals

-  **UV resistance** Medium
-  **Oil resistance** Oil resistant (according to DIN EN 50363-4-1), UL Oil Res I, Class 2
-  **Flame-retardant** According to IEC 60332-1-2, Cable Flame, VW-1, FT1, FT2 / Horizontal Flame, FT4
-  **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 listed** TC-ER UL 1277, WTTC UL 2277, MTW UL W63
-  **UL/CSA AWM** Details see table UL/CSA AWM
-  **NEC** 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
-  **NFPA** Following NFPA 79-2018, chapter 12.9
-  **REACH** In accordance with regulation (EC) No. 1907/2006 (REACH)
-  **Lead-free** Following 2011/65/EC (RoHS-II)
-  **CE** Following 2014/35/EU
-  **UKCA** In accordance with the valid regulations of the United Kingdom (as at 08/2021)



Properties and approvals

UL/CSA AWM details

Conductor nominal cross section [mm ²]	Number of cores	UL style core insulation	UL style outer jacket	UL Voltage Rating [V]	UL Temperature Rating [°C]
1	3-18	10493	2587	600	90
1.5	3-18	10493	2587	600	90
2.5	3-18	10493	2587	600	90

Example image

Data sheet

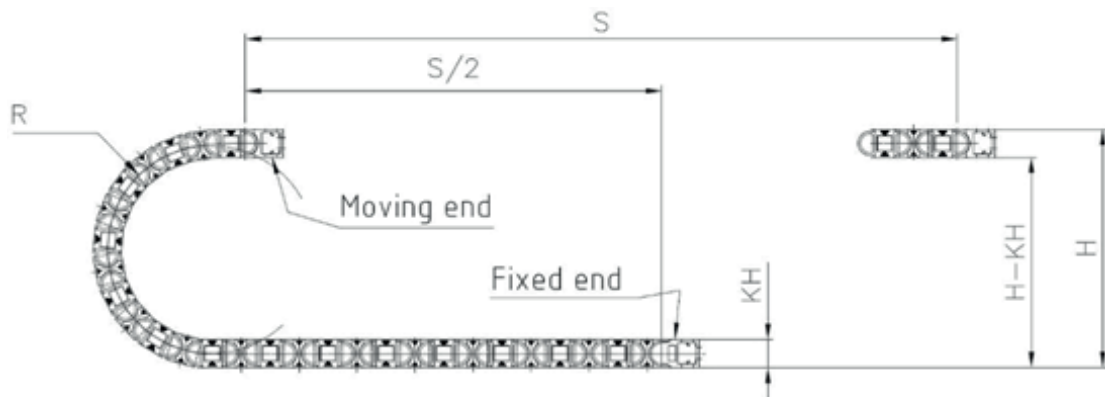
chainflex® CF160.UL



Control cable (Class 4.4.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded ● Oil-resistant ● Flame-retardant ● TC-ER (Power and Control Tray Cable)

Typical lab test setup for this cable series

Test bend radius R	approx. 38 - 200 mm
Test travel S/S ₂	approx. 1 - 15 m
Test duration	minimum 2 - 4 million double strokes
Test speed	approx. 0.5 - 2 m / s
Test acceleration	approx. 0.5 - 1.5 m / s ²



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



Example image



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Data sheet

chainflex® CF160.UL



Control cable (Class 4.4.2.1) ● For medium duty applications ● PVC outer jacket ● Shielded
● Oil-resistant ● Flame-retardant ● TC-ER (Power and Control Tray Cable)

Technical tables:

Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm ²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
CF160.UL.10.03	(3G1.0)C	9.5	53	121
CF160.UL.10.04	(4G1.0)C	10.0	66	143
CF160.UL.10.05	(5G1.0)C	11.0	77	164
CF160.UL.10.07	(7G1.0)C	12.5	107	220
CF160.UL.10.12	(12G1.0)C	18.5	177	389
CF160.UL.10.18	(18G1.0)C	23.5	280	648
CF160.UL.15.03	(3G1.5)C	10.0	72	149
CF160.UL.15.04	(4G1.5)C	11.0	89	175
CF160.UL.15.05	(5G1.5)C	12.0	105	204
CF160.UL.15.07	(7G1.5)C	13.5	140	271
CF160.UL.15.12	(12G1.5)C	20.0	243	478
CF160.UL.15.18	(18G1.5)C	25.5	373	762
CF160.UL.25.03	(3G2.5)C	11.0	103	185
CF160.UL.25.04	(4G2.5)C	12.0	129	219
CF160.UL.25.05	(5G2.5)C	13.0	159	264
CF160.UL.25.07	(7G2.5)C	14.5	223	361
CF160.UL.25.12	(12G2.5)C	23.5	389	688
CF160.UL.25.18	(18G2.5)C	29.5	573	1092

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

Electrical information

Conductor nominal cross section [mm ²]	Maximum conductor resistance at 20 °C (following DIN EN 50289-1-2) [Ω/km]	Max. current rating at 30 °C [A]
1	19.5	15
1.5	13.3	18
2.5	8	26

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



Example image



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Design table

Part No.	Number of cores	Core design
CF160.UL.XX.03	3	
CF160.UL.XX.04	4	
CF160.UL.XX.05	5	
CF160.UL.XX.07	7	
CF160.UL.XX.12	4x3	
CF160.UL.XX.18	6x3	



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