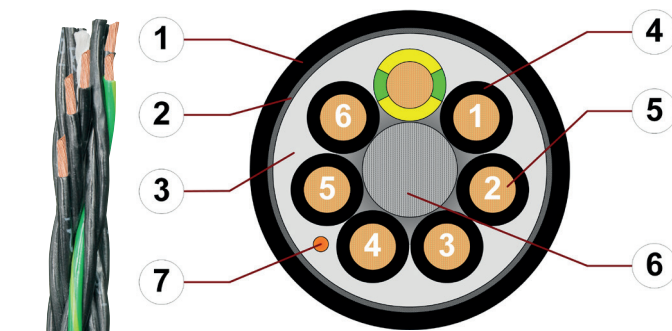


Data sheet

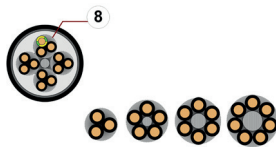
chainflex® CF160.UL



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) • UL-listed



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 m¹⁰⁰⁰ igus chainflex CF160.---.UL ① -----② 300/500V E522881 C (UL) TC-ER 600V

-----③ or WTTC 90°C 1000V or MTW 600V or c(UL) CONTROL C/C/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



Example image






Data sheet

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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	3m/s 2m/s
	a max.		20m/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	
	< 10m	≥ 10m	< 10m	≥ 10m	< 10m	≥ 10m
Temperature. from/to [°C]	R min. [x d]	R min. [x d]	R min. [x d]	R min. [x d]	R min. [x d]	R min. [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

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



Example image

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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)
	PTFE-free	The design of these products does not contain PTFE
	UL-verified	Certificate No. V293650: „igus 4-year 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

Properties and approvals

UL/CSA AWM details

Conductor nominal cross section [mm²]	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

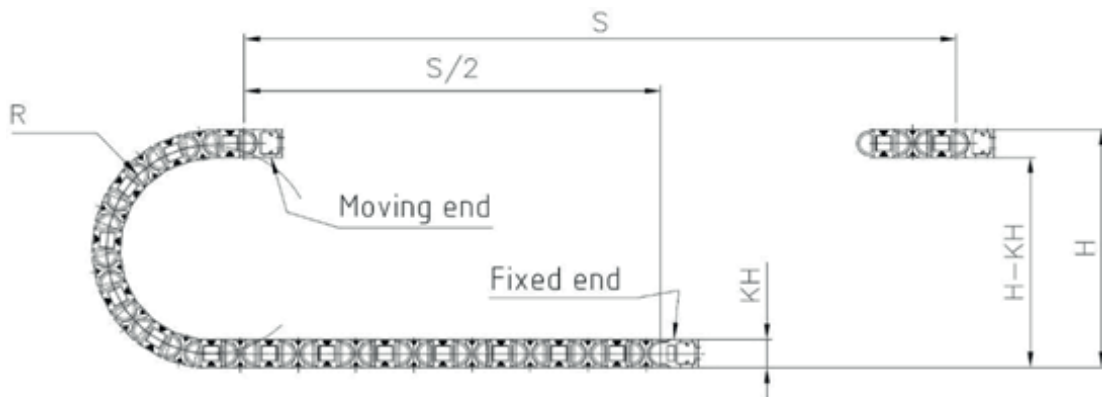
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Typical lab test setup for this cable series

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
- Storage and retrieval units for high-bay warehouses, machining units/packages machines, quick handling, indoor cranes, laying of cables on cable trays

Example image



Data sheet

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Technical tables:

Mechanical information

Part No.	Number of cores and conductor nominal cross section [mm²]	Outer diameter (d) max. [mm]	Copper index [kg/km]	Weight [kg/km]
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 ¹⁷⁾	(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 ¹⁷⁾	(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

¹⁷⁾ When using the cables with „7G1.5mm²“ and „7G2.5mm²“ 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

Electrical information

Conductor nominal cross section [mm²]	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

Data sheet

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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	



Example image

