chainflex® cables ... tested and works ...
...for use in energy chain systems®

plastics for longer life® ... igus®

www.chainflex.eu
chainflex® works ...

The tricks and ingenious features of the chainflex® design ...

... and why we have felt so confident about this product for the last 25 years

chainflex® is unique

From the customer’s point of view, a flexible energy supply system only needs to function properly. However, this demand presupposes the perfect operation of all components, including the cables being used in this system. And this is exactly where problems came up in the early 1980s. In extreme cases, failures caused by “corkscrews” and core ruptures brought the entire production process to a standstill and resulted in high costs.

igus® was the first company to develop complete e-chains® systems. chainflex® cables and e-chains® are tested and optimised in conjunction. Based on the increasing know-how gained since 1989 and on the very sophisticated series of tests that have been conducted since then, design principles were and are still being created that help prevent machine downtimes in factories throughout the world today.

chainflex® are the special cables for energy chain systems®

In complex applications with high cycle rates, speeds and rates of acceleration, as well as adverse ambient conditions, cables used to supply energy must always be reliable. A high degree of EMC reliability and adherence to standards and directives such as UL, CSA or VDE are essential.

A reliable function of bus properties in the area of Profibus, Profinet or Ethernet are required. Ultimately, our customers expect a consistent response to different forms of movement, because they require the same electrical characteristics in both long linear chains and small torsional movements.

It is our mission to guarantee this worldwide and non-stop.

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... in moving applications

7 basic rules for a good cable for use in e-chains®

In over 2 billion test cycles per year in the igus® chainflex® laboratory (2,750 m²), we have gained a unique knowledge of cables in the area of e-chains®. The rules for extremely durable cables are based on this.

1. strain-relieving centre element
2. optimised strand wire
3. high-quality core insulation
4. braiding in bundles in short pitches
5. gusset-filled extruded inner jacket
6. shielding with optimised shield braiding angle
7. abrasion resistant outer jacket, pressure extruded
1,040 chainflex® cables types ... 

igus® cable range for all movements and electrical requirements ... cost down, life up!

Control cables
- Bend radii up to 4 x d
- Shielded or unshielded
- Jacket materials: PVC, PUR, TPE

Data cables
- For travels of up to 400 m
- Optimised shields with high coverage
- Jacket materials: PVC, PUR, TPE

Bus cables
- Profibus, Profinet, CAN-Bus, Ethernet, CAT7, USB...
- Jacket materials: PVC, PUR, TPE
- UL and NFPA79 approval

Measuring system cables
- For very frequent flexible movements
- For 22 drive manufacturers
- Jacket materials: PVC, PUR, TPE

Fibre optic cables
- Bend radii up to 5 x d
- Plastic and glass fibre
- Jacket materials: PVC, PUR, TPE

Servo and hybrid cables
- Abrasion-optimised
- 7 quality levels
- Jacket materials: PVC, PUR

Motor cables
- Shielded and unshielded
- For extremely demanding applications
- Jacket materials: PVC, PUR, TPE

Special cables
- Cables with high tensile strength
- Approved for use in railway installations
- With special conductor materials

Guarantee
- 36 months or up to 10 million double strokes (5 million for cables of the chainflex® M family); whichever is first

More than 75% of all cables available from stock with UL

Twistable cables
- ± 180° at 5 million/m
- With UL and CSA
- Jacket materials: PUR, TPE
- 88 catalogue product from stock

igus® delivery service

Ordered today, delivered tomorrow
The igus® delivery service: from 24h or today
The goods leave igus® within 24 hrs. On request we can deliver via express or special delivery.
- from stock
- No minimum order value
- No minimum order quantity
- No costs for cutting cables
- Delivery and consultation daily from 7 am to 8 pm, Saturday from 8 am to 12 pm
- Order tracking in the Internet
- Invoices and confirmations by post, fax, or email
- Emergency-Service "around-the-clock"
- DIN EN ISO 9001:2008

More than 75% of all cables available from stock with UL
Your chainflex® cable ...

To your ideal cable solution in 3 simple steps

1. Which type of cable is suitable for your application?
   Select the type of cable, enter the parameters of the application and find suitable chainflex® cables to match your application.

2. Select the cable with the necessary configuration.
   Go to the products page, open the product overview and find the necessary article by entering the number of cores and the required cross section.

3. Reliability: Check the service life.
   Open our service life calculator on the products page.

... search and calculate online

chainflex® online shop - fail-safe cables for e-chains®

25 years experience – Worldwide No. 1 in terms of choice, testing and guarantee

Cables in energy chains® or connected to robots need special characteristics if they are to function reliably over a long period of time in spite of a large number of cycles, high speeds, high rates of acceleration and challenging ambient conditions. The igus® chainflex® product range includes everything from control cables, servo cables, motor cables and robot cables to bus cables, data cables, encoder cables and fibre optic cables.

► www.chainflex.eu

You can find detailed information and test results from our test laboratory online at
► www.igus.eu/chainflex-tests

Cable finder
Selection programme to easily and quickly find the right chainflex® cable.
► www.igus.eu/chainflex-finder

Bus cables
Large selection of Ethernet, Profibus, Profinet, Canbus and many other bus types for e-chains®.
► www.igus.eu/chainflex-ethernet

Tested!
More than 1.4 million electric measurements with moving cables are a guarantee of reliability.
► www.igus.eu/chainflex-tests

25 years cables
Safety and reliability due to 25 years of know-how & the largest test laboratory in the industry.
► www.igus.eu/chainflex-25years

36 months guarantee
chainflex® guarantee: 36 months planning guarantee for our customers.
► www.igus.eu/chainflex-guarantee

Data sheets
All information on our cables as a PDF download.
► www.igus.eu/chainflex-data
2,750 m² lab ... more than 700 cables under test ... 2 billion test cycles ... reliability through experience ...

**Media test:** test of the durability in adverse chemical effects in motion

**Test for combined motions:** simulation of complex motions in robot applications

**Cold tests on cables and energy chains® at -40°C**

**Quality assurance:** on-going lot testing to ensure the quality level

**Special designs for special solutions**

**Rotating motion tests:** demanding chain applications with small radii
igus® lab and development ...

Linear movements in short and long travels

Test of servo cables
- Continuous batch inspections
- Direct comparison with competitors
- Long-term tests
- Travel distances of up to 12.6 m indoors and up to 120 m outdoors
- Variable speed and acceleration
- Continuous monitoring

Torsional motion

Torsion cables in standardised tests
- Uniform test setup for objective assessment
- ± 180°/m
- 10 test setups at the same time
- Up to 50 test cables
- Shield testing and optimisation

CFLG.2LB.50/125 tested with 70.4 million strokes at 4.35 x d

CF9.03.04.INI
4 cables with > 1.2 million cycles with 3,000°

CF98.05.04 in a radius of 18 mm
138.6 million strokes

Serial test of twisterband solutions
Reliability in your application

Special chain setups
- Service life statements for special chain movements
- Reliability for the series
- Fault analysis of existing designs
- Optimisation of cable guidance

Torsional motion without chain guide
- Torsion in machine bushings
- Complicated movements
- Combination of various media
- Reliability due to optimisation with plain bearing guides

Automatic measuring
- Continuous measuring
- Automatic
- Reliable

High-speed application for millions of cycles
- Abrasion tests
- Optimisation of braiding structure
- Service life guarantees
- Planning of maintenance intervals

Precise and detailed analysis of the cable parts
- All components of a cable are individually taken apart and assessed
- Documentation as photo
- Measuring of elements
- Analysis of fault patterns
- Assessment up to wire strength

Test certificate for each test
Rolling test stand with variable loads
Tensile test up to 5,000 N
Cable assembly ...

More than 500,000 assembled cables a year ...
... over 60,000 test programmes ... 1,800 test adapters ...

readycable® – in 24-48h or today
igus® provides more than 4,000 harnessed cables for drive technology according to 24 different manufacturer standards and more than 400 different Ethernet cables. Professionally produced, 100% tested.
- Servo, motor, signal/encoder and hybrid cables
- No cutting costs, no surcharges for small quantities and packaging
- Cable length accurate to the centimetre per customer specifications
- Smallest bend radius from 7.5 x d
- Reduce storage costs and increase cash flow

► www.readycable.eu

Ready-to-install assembled e-chainsystems®, connectors and cables from igus® - everything from a single source

readychain® – fully harnessed systems in 3-10 days
1,600 systems produced per week in 12 readychain® factories around the world – assembly time optimised to increase your cash-flow
- Reduce your storage costs
- Cut turnaround times by half
- Flexibility when orders vary
- Utilise igus® manufacturing capacities and our know-how in cable assembly
- Reduce the number of suppliers (one order, one invoice, one delivery)
- One partner for minimal machine downtimes
- All readychain® components are subjected to extensive quality checks and functional tests

► www.readychain.eu

... search and calculate online

readycable® online shop - custom-made cables

Worldwide leader – 36 months guarantee – 24 manufacturer standards

Find your assembled cable quickly and easily. Choose from more than 4,000 assembled motor cables, servo cables, signal cables and encoder cables in accordance with 24 manufacturers’ standards.
► www.readycable.eu

Cable finder
Find assembled drive cables online quickly and easily. Delivery time from 24 hrs.
► www.igus.eu/readycable-finder

Injection-moulded plugs
Extended range of cables in proven quality for use in energy supply systems.
► www.igus.eu/readycableM

QuickPin 2.0 connector-cable configurator
Select your individual solution from more than 1,040 cables and 3,500 connectors components.
► www.igus.eu/quickpin

QuickFluid hose cable configurator
Your customised hose cable configured and ordered in just a few minutes.
► www.igus.eu/quickfluid

readychain® e-chainsystems®, connectors and cables, assembled from a single source.
► www.igus.eu/readychain

36 months guarantee
chainflex® guarantee - What you can expect from us.
► www.igus.eu/chainflex-guarantee

Custom-made
Nothing found? We pre-assemble the cable according to your specifications!
► www.igus.eu/harnessing

Downloads
Download catalogues and brochures.
► www.igus.eu/downloads
Orders can be placed until 8:00 pm local time. Ordering and deliveries weekdays from 7.00 am to 8.00 pm, Saturday from 8.00 am to 12.00 pm. No minimum order quantities, no surcharges. Quick delivery.

www.igus.eu    Tel. +49-2203 9649-800   Fax +49-2203-9649-222

igus® is certified in accordance with ISO 9001:2008 and ISO/TS 16949:2009 in the field of energy supply systems, cables and harnessing, as well as plastic bearings.

Also ask about fully harnessed and preassembled readychains® and quickly increase your cash-flow and profits. www.readychain.eu

Free of charge! Discover more about the latest trends and innovations from the world of igus® motion plastics®. Register here: www.igus.eu/newsletter

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