

## Test Intention:

In test 3105 we want to investigate the lifespan of the new chainflex® LWL cable for torsion applications.

## Client:

Name: Rainer Rössel      Team: chainflex®      Date: 24.09.2008

## Order-Info:

Customer/ No.: igus® GmbH, Spicher Str.1a, 51147 Köln

Series / No: CFROBOT5.501

Installation type: ±180°

Customer test:      Yes  No

Development test:      Yes  No

## Technical data

## Target & Examination

e-chain® type: TRC.100.145.0

Cable length [m]: 50,0

e-chain® radius [mm]: 145

Target [cycles]: **Lifespan**

Cycle [°/m]: ±180

Optical check:

Acceleration a [°/s]: 60

Function check:

Velocity v [m/s]: 0,5

Standard measuring:

Ambient temperature [°C]: approx. 25°C

AutΩMeS:

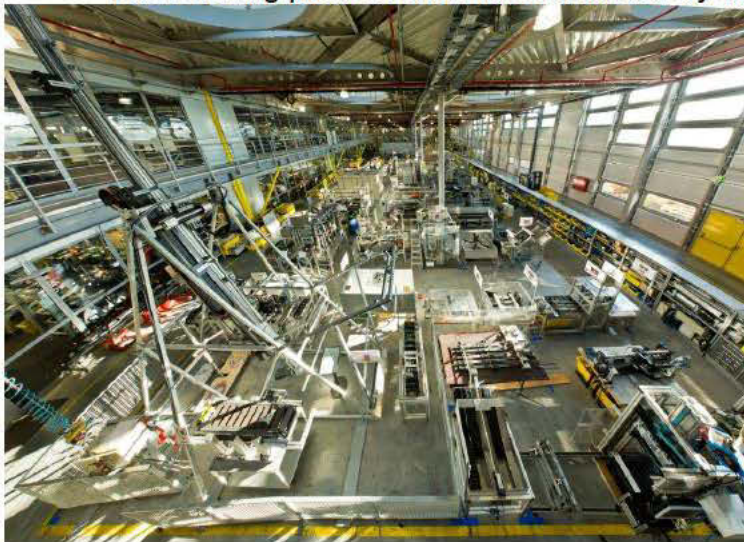
## Experimental setup (Sketch, Photo ...)

### Checklist for the experimental preparations

- additional inscription/label at all wires
- strain reliefs at both ends of the chain
- correct electrical connection of all wires
- radius was marked at the cables and the energy chain

## 1. Construction:

The following pictures show the test laboratory and test machine, the „10fach-Torsion“.



QM-2-201-F/  
Ch. Mittelstedt/Versuch/11.10.2011

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use only**

The managing data show the results of the accomplished examinations. With all data it still acts neither around one or more warranties of certain characteristics around one or more warranties regarding the suitability of a product for a certain targeted application, since the examinations on laboratory conditions took place. The warranty of certain characteristics of the products and/or their suitability for a certain application requires writing in the confirmation of order. Finally we recommend user-specific measurements under genuine operating conditions.

Original → CF D&T  
Copy 1 → Test Lab  
Copy 2 → Client

## 2. Cable and hose packages:

No. 1: **2x CFROBOT5.501** with the cable marking  
*igum CHAINFLEX CFROBOT5.501 2x50/125 CE RoHS conform www.igum.de*

## 3. Description of the cable construction:

Standard igum chainflex® catalogue cable. Construction details see catalogue 11/2011 page 246 and follow.

## 4. Remarks:

The following chart gives an overview regarding the test parameters:

Cable no.	Cable type	E-chain radius [mm]	Outer diameter [mm]	Torsion [°/m]
1.1	CFROBOT5.501	145	8,2	±180
1.2	CFROBOT5.501	145	8,2	±180

Cable no.	Cable type	Counter reading		Effectively tested cycles	Cable okay after ... cycles
		... mounting	... demounting		
1.1	CFROBOT5.501	4.422.361	31.964.575	27.542.214	27.542.214
1.2	CFROBOT5.501	4.422.361	31.964.575	27.542.214	27.542.214

Test-order was checked by ... [Rainer Rössel or Martin Göllner and further employee]

Date: **26.10.2009** Name: Name: **Frank Schorn**

## Result

### Start Report 27.10.2008:

At the 27.10.2008 we started the test 3105 at counter reading 4.422.361, we will make a function check regularly.

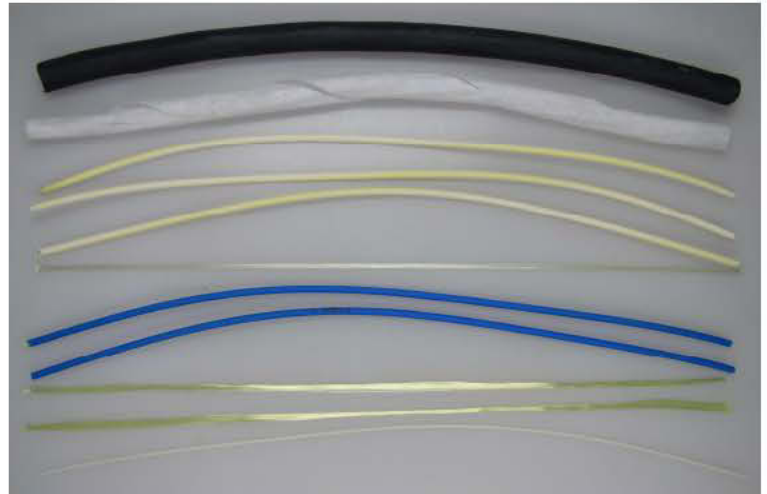
### Interim Report 09.02.2012:

At the 09.02.2012 we demounted the cables after 27.542.214 cycles to finalize the test.

## Evaluation

The following pictures show the dissected cable samples

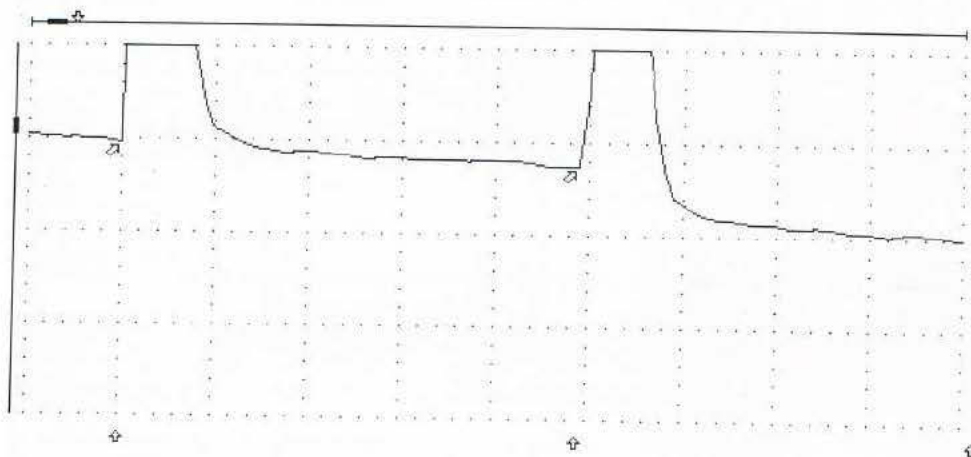
### The condition of the cable no. 1.1 (CFROBOT5.501) after 27.542.214 cycles



The following occurrence diagram shows exemplarily one direction of fibre no. 1:

H-Skala:10m/div

V-Skala:0.5dB/div

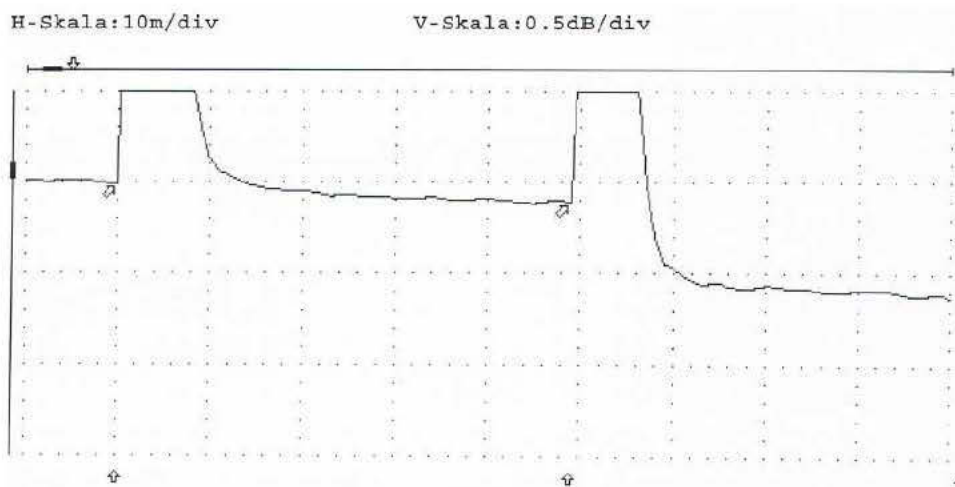


Measuring results after 27.542.214cycles		Total loss [dB]
CFROBOT5.501	Fibre 1	0,34
CFROBOT5.501	Fibre 2	0,37

## The condition of the cable no. 1.2 (CFROBOT5.501) after 27.542.214 cycles



The following occurrence diagram shows exemplarily one direction of fibre no. 1:



Measuring results after 27.542.214cycles		Total loss [dB]
CFROBOT5.501	Fibre 1	0,31
CFROBOT5.501	Fibre 2	0,42

Name: **Ch. Mittelstedt**

Date: **10.08.2012**

QM-2-201-F/  
Ch. Mittelstedt/Versuch/11.10.2011  
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