

Test Intention:

In this test we want to investigate the lifespan of our CFROBOT7 in $\pm 180^\circ/\text{m}$ chain application.

Client:

Name: M. Göllner Team: chainflex® Date: 11.01.2010

Order-Info:

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

Series / No: CFROBOT7

Installation type: vertical

Customer test: Yes No

Development test: Yes No

Technical data

Target & Examination

e-chain® type: TRC.70.110.0

Target [strokes/cycles]: **Lifespan**

Torsion [°]: ± 180

Optical check:

Stroke [m]: 1,0

Fluke DTX-ELT:

Cable length [m]: 5,0

Standard measuring:

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

AutΩMeS:

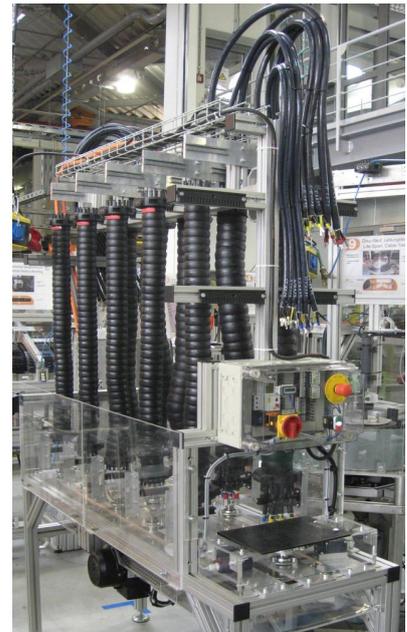
Experimental setup

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:

This test is built up on the „10fach Torsion“. The following picture shows the test structure:



2. Cable and hose packages:

No. 1: **1x CFROBOT7.25.04.C** with the cable marking
*Igus CHAINFLEX CFROBOT7.25.04.C (4G2,5)C 600/1000V E310776 cRUus AWM Style 21223
 AWM I/II A/B 80°C 1000V FT1 CE N L/DJ RoHS conform www.igus.de*

3. Description of the cable construction:

Standard igus chainflex® catalogue cable

4. Remarks:

To detect broken conductor or shielding wires we will measure the ohmic resistance of these cable elements. The cores of the samples are connected in series and one core is connected with the shielding to measure the ohmic resistances.

The following chart gives an overview regarding the test parameters:

Cable no.	Cable type	External diameter [mm]	Torsion [°/m]
1.X	CFROBOT7.25.04	10,4	± 180

Cable no.	Cable type	Counter reading		Effectively tested cycles	Cable okay after ... cycles
		... mounting	... demounting		
1.1	CFROBOT7.25.04	901.826	13.652.161	12.750.335	12.750.335

Test-order was checked by ... [Martin Göllner or Christian Mittelstedt and further employee]

Date:	06.05.2010	Name:		Name:	R. Thof
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Result

Start report 05.06.2010:

At the 05.06.2010 we started the test 3698 at a counter reading of 901.826, we will measure the ohmic resistance regularly.

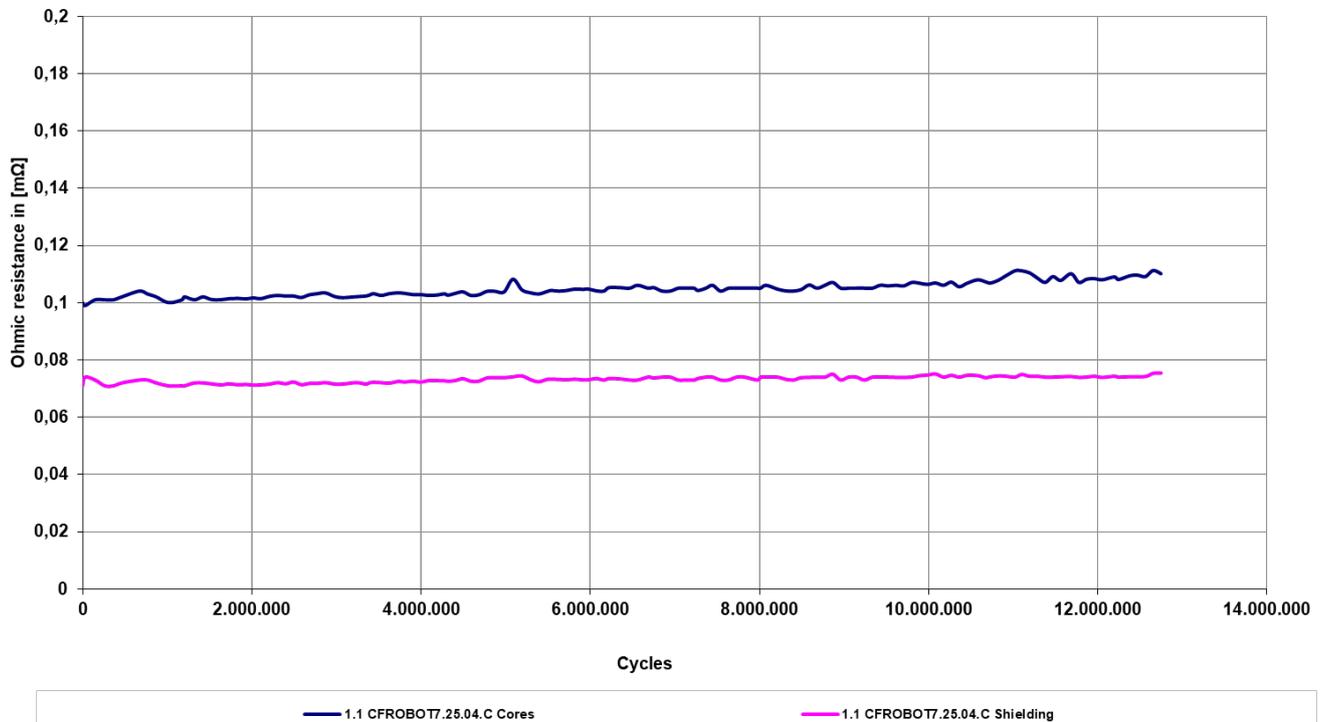
Interim report 08.07.2013:

At the 08.07.2013 we demounted the cable 1.1 after 12.750.335 cycles, to check the condition of the cable elements.

The following diagram shows the trend of the ohmic resistances during the test:



Trend of the ohmic resistances

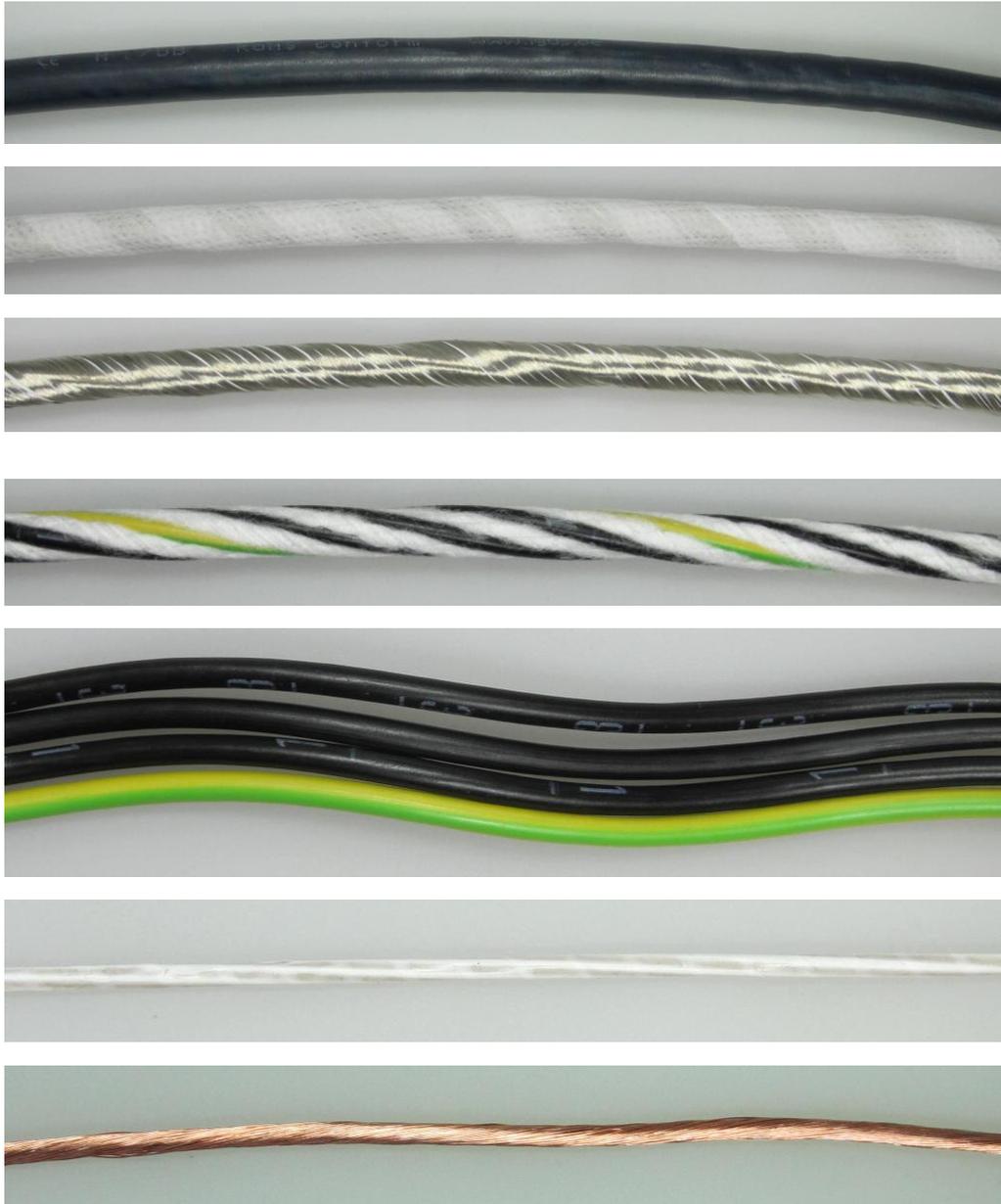


Evaluation

Dissection report:

The following pictures show the dissected elements of the cables

The condition of the cable no. 1.1 (CFROBOT7.25.04.C) after 12.750.335 cycles





Cycles	12.750.335
Condition outer jacket	O.K.
Condition overall shielding	O.K.
Condition banding	O.K.
Condition filler	O.K.
Condition center element	O.K.
Condition core insulation	O.K.
Condition conductor	O.K.

Name: **C. Mittelstedt**

Date: **15.07.2013**