

## Test Intention:

In test 4853 we want to investigate the lifespan of a CF270.UL.100.01.D in an e-chain with a 55mm radius.

## Client:

Name: Martin Göllner      Team: chainflex®      Date: 08.07.2013

## Order-Info:

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

Series / No: CF270.UL.D      Installation type: horizontal, short way

Customer test:      Yes  No       Development test:      Yes  No

## Technical data

## Target & Examination

e-chain® type: 255.05.055.0

Cable length [m]: 4,0

e-chain® radius [mm]: 55

Target [strokes]: **Lifespan**

Stroke [m]: 0,8

Optical check:

Acceleration **a** [m/sec<sup>2</sup>]: 3,0

Function check:

Velocity **v** [m/s]: 1,5

Standard measuring:

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

AutΩMeS:

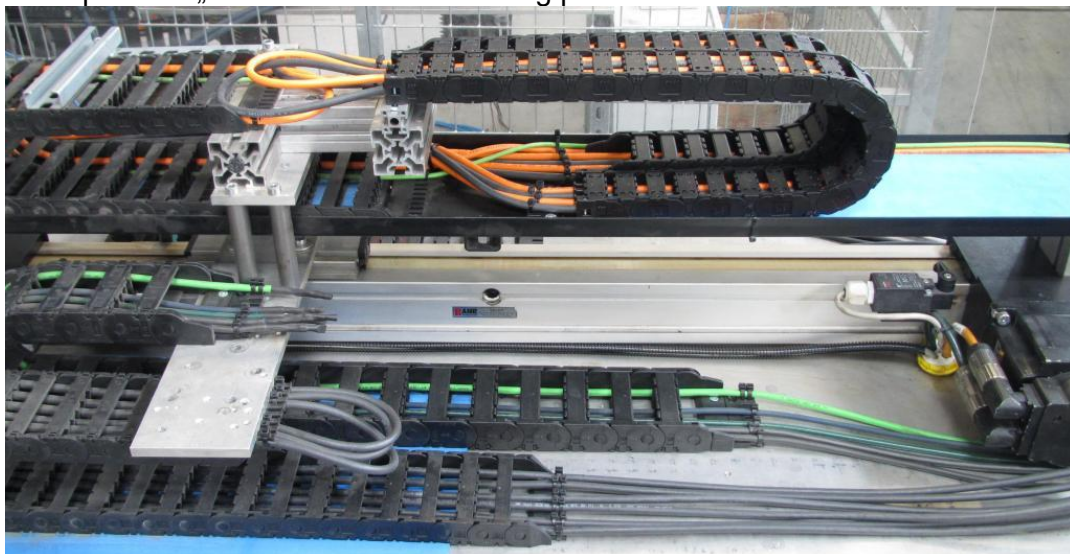
## Experimental setup

### 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 „kleine Bahr“. The following picture shows the test structure:



## 2. Cable and hose packages:

No. 1 : **2x CF270.UL.100.01.D** with the cable marking

*02052m igus chainflex CF270.UL.100.01 (1x10)C E310776 N cRJus AWM Style 10973 VW-1 AWM I/II A/B 80°C 1000V FT-1 CE N P/BE RoHS-II 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 each cable element separate by laying it in a loop.

The following chart gives an overview regarding the test parameters:

Cable no.	Cable type	E-chain radius [mm]	Outer diameter [mm]	Bending factor [xd]	Bending factor catalogue [xd]
1.X	CF270.UL.100.01.D	55	7,9	7,0	10,0

Cable no.	Cable type	Counter reading		Effectively tested strokes	Cable okay after ... strokes
		... mounting	... demounting		
1.1	CF270.UL.100.01.D	81.327.197	102.992.949	21.665.752	19.670.936
1.2	CF270.UL.100.01.D	81.327.197	102.992.949	21.665.752	19.670.936

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

Date:	<b>08.07.2013</b>	Name:		Name:	<b>Ch. Mittelstedt</b>
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## Result

### Start report 12.07.2013:

At the 12.07.2013 we started test 4853 at counter reading 81.327.197, we will measure the ohmic resistance regularly.

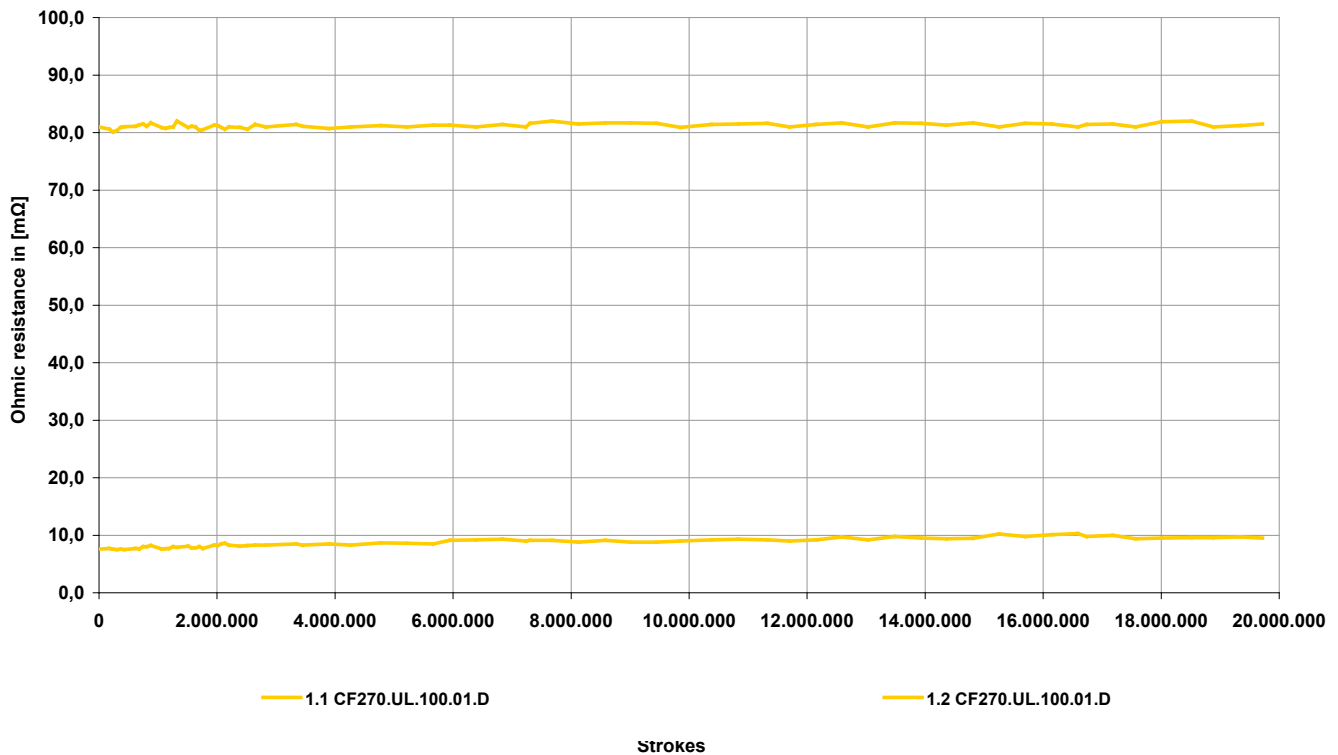
### Interim report 14.01.2014:

At the 14.01.2014 we demounted the cable no. 1.1 and 1.2 after 21.665.752 strokes, because we want to finalize the test.

The following diagrams show 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 cable

### The condition of the cable no.1.X (CF270.UL.100.01.D) after 21.665.752 strokes

Cable no. 1.1:



Cable no. 1.2:



Cable no.:	1.1	1.2
Strokes	21.665.752	21.665.752
Condition outer jacket	O.K.	O.K.
Condition overall shielding	O.K.	O.K.
Condition inner jacket	O.K.	O.K.
Condition conductor	Broken wires	Broken wires

Name: **Christian Mittelstedt**

Date: **25.11.2013**