Test-Order chainflex®

Test No.: 4404

Test Intention:
In test 4404 we will investigate the lifespan of CF270.UL.D in an E6.52.075.125.0 echain.

Client:			
Name: Christian Mittelstedt	Team: chainflex®	Date: 06.03.2012	Result:
Order-Info:			
Customer/ No.: igus GmbH			
Series / No: CF270.UL.D		Installation type: horizontal, short way	
Customer test: Yes ☒ No ☐		Development test: Yes ☐ No ☐	

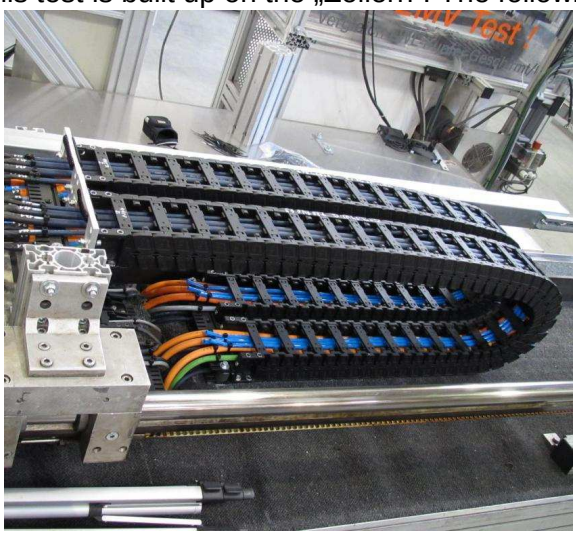
Technical data		Target & Examination	
E-Chain type:	E6.52.075.125.0	Cable length [m]:	6,0
E-Chain Radius [mm]:	125	Target [strokes]:	**Lifespan**
Stroke [m]:	1,6	Optical check:	☒
a acceleration [m/sec^2]:	-/-	Abrasion jacket:	☒
v velocity [m/s]:	-/-	Resistance:	☒
Ambient temperature [°C]:	approx. 25°C	Function check:	☐

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:

This test is built up on the „Zollern“. The following pictures show the test structure:



2. Cable and hose packages:

No. 1 **2x CF270.UL.10.07.02.02.D** with the cable marking
01111 igus CHAINFLEX CF270.UL.10.07.02.02.D (4G1,0+2x(2x0,75)C)C 600/1000V E310776 CSAus AWM Style 21223 VW1 AWM I/II A/B 80°C 1000V FT1 CE T O/AE DESINA RoHS conform www.igus.de

No. 2 **1x CF270.UL.15.15.02.01.D** with the cable marking
03469 igus CHAINFLEX CF270.UL.15.15.02.01.D (4G1,5+(2x1,5)C)C 600/1000V E310776 CSAus AWM Style 21223 VW1 AWM I/II A/B 80°C 1000V FT1 CE T O/AE DESINA 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	E-chain radius [mm]	Outer diameter [mm]	Bending factor [xd]	Bending factor catalogue
1.1	CF270.UL.10.07.02.02.D	125	13,5	9,3	10,0
1.2	CF270.UL.10.07.02.02.D	125	13,5	9,3	10,0
2.1	CF270.UL.15.15.02.01.D	125	12,0	10,4	10,0

Cable no.	Cable type	Counter reading		Effectively tested strokes	Cable okay after … strokes
		… mounting	**… demounting**		
1.1	CF270.UL.10.07.02.02.D	78.874.692	5.402.880	26.528.188	26.528.188
1.2	CF270.UL.10.07.02.02.D	78.874.692	5.402.880	26.528.188	26.528.188
2.1	CF270.UL.15.15.02.01.D	78.874.692	5.402.880	26.528.188	26.528.188

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

Date:	06.03.2012	Name:		Name:	Ch. Mittelstedt

Result

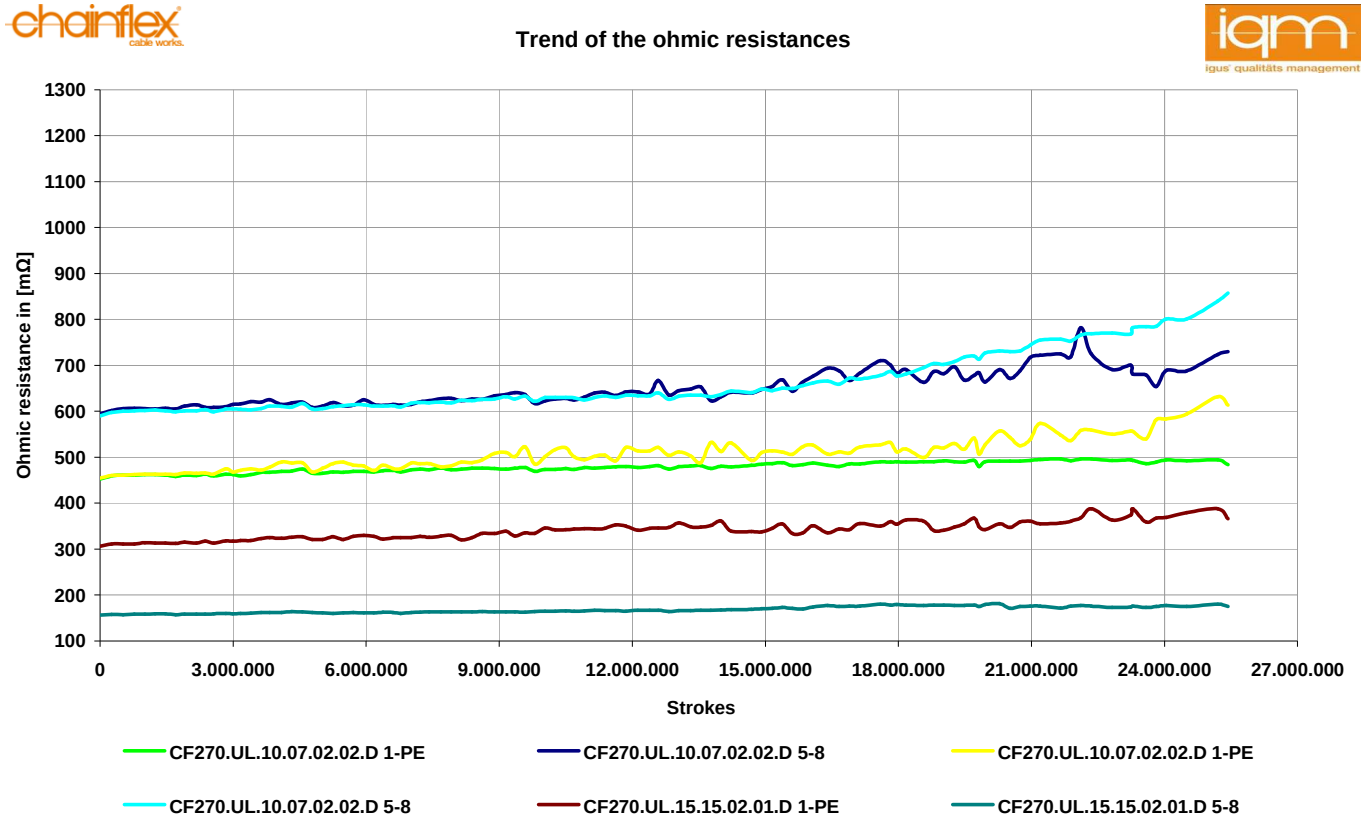
Start Report 19.03.2012:

At the 19.03.2012 we started the test 4404 with a counter reading 78.874.692; we will measure the ohmic resistance regularly.

Interim Report 05.08.2014:

At the 01.08.2014 we stopped the test after 26.528.188 strokes, because we want to finalize the test.

The following diagrams show the trend of the ohmic resistances during the test:



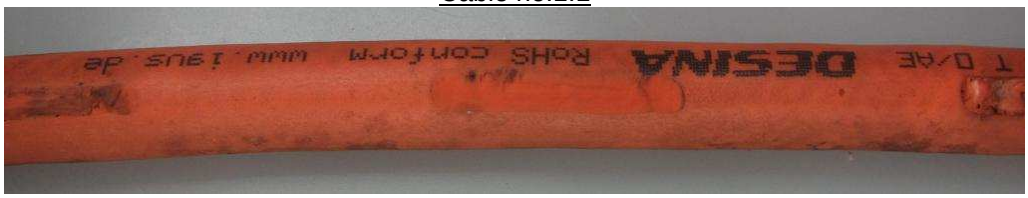
Evaluation

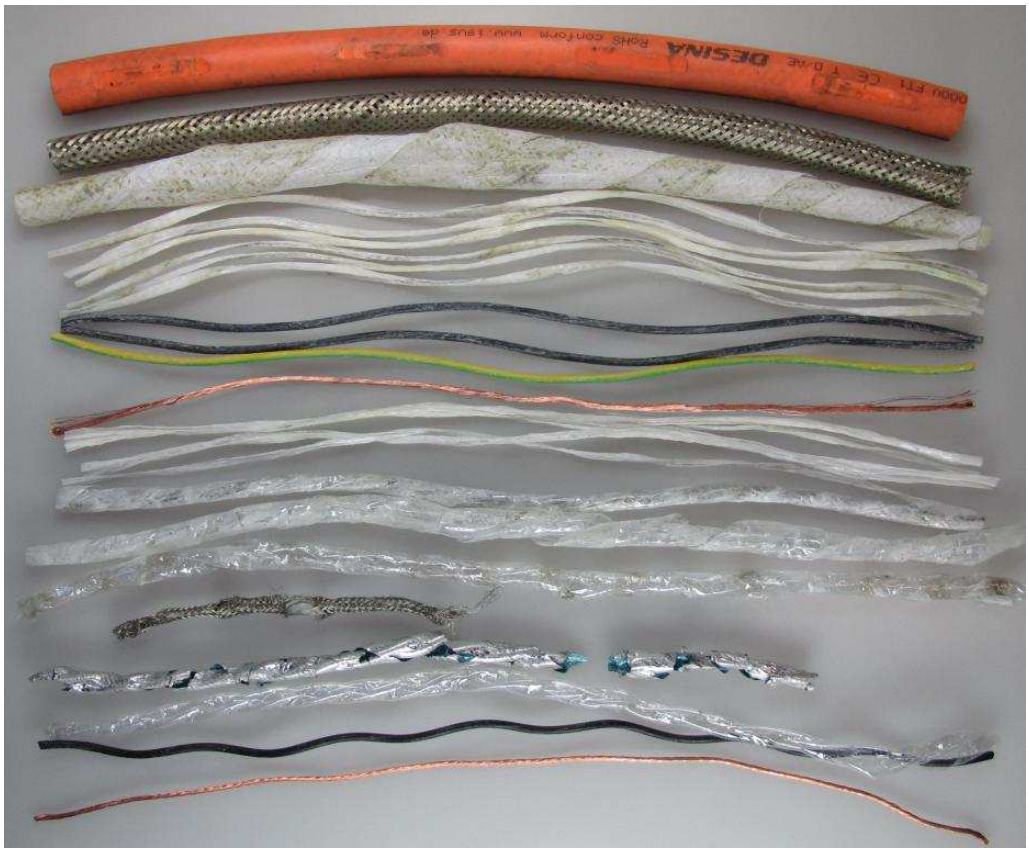
Dissection Report:

The following pictures show the dissected pieces of the cables

The condition of the cable no.1.1 & 1.2 (CF27.15.07.02.02.D) after 26.528.188 strokes

Cable no.1.1





Cable no.1.2

Cable no.	1.1	1.2
Strokes	26.528.188	
Condition outer jacket	o.k.	o.k.
Condition overall shielding	ruptured	o.k.
Condition fleece tape	o.k. (discoloured)	o.k. (discoloured)
Condition core insulation	o.k.	o.k.
Condition conductor	o.k.	Broken single wires
Condition centre element	o.k.	o.k.
Element cores		
Condition core insulation	o.k.	o.k.
Condition conductor	o.k.	Broken single wires

The condition of the cable no.2.1 (CF27.15.10.02.01.D) after 26.528.188 double strokes

Strokes	26.528.188
Condition outer jacket	o.k.
Condition overall shielding	ruptured
Condition fleece tape	o.k. (discoloured)
Condition core insulation	o.k.
Condition conductor	o.k.
Condition centre element	o.k.
Element cores	
Condition core insulation	o.k.
Condition conductor	o.k.

Name:	R. Thoß	Date:	11.08.2014