Test-Report chainflex®

Test No.: **3479**

Test Intention:
In test 3479 we want to investigate the life span of the CF11.002.D cable on the short way.

Client:		
Name: Sascha Voshaar	Team: chainflex®	Date: 10.09.2009

Order-Info:	
Customer / No.: igus® GmbH, Spicher Str.1a, 51147 Köln	
Series / No: CF11.002.D	Installation type: horizontal, short way
Customer test: Yes ☐ No ☒	Development test: Yes ☒ No ☐

Technical data		**Target & Examination**	
e-chain® type:	255.07.075.0	Cable length [m]:	5,0
e-chain® radius [mm]:	75	Target [double strokes]:	**Lifespan**
Stroke [m]:	1,2	Optical check:	☒
Acceleration **a** [m/sec²]:	7,5	Function check:	☐
Velocity **v** [m/s]:	2,0	Standard measuring:	☒
Ambient temperature [°C]:	approx. 25°C	AutΩMeS:	☐

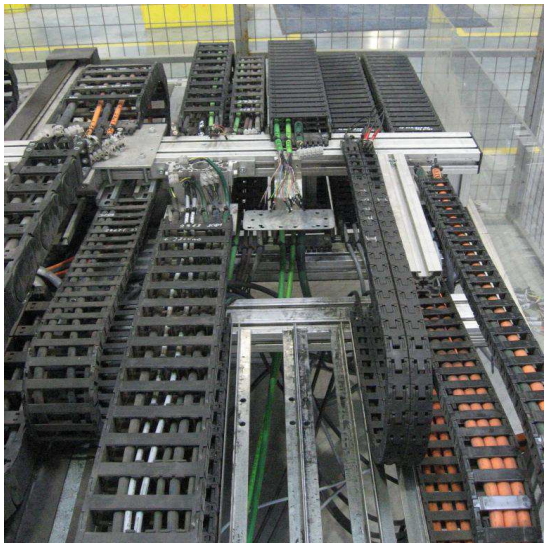
Experimental setup

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 „2m Bahr“. The following picture shows the test structure:



2. Cable and hose packages:

No. 1: **1x CF11.002.D** with the cable marking
01670m igus CHAINFLEX CF11.002.D 3x(2x0,14)/D+2x0,5/D)C CE DESINA RoHS conform www.igus.de

No. 2: **1x CF11.002.D** with the cable marking
01023m igus CHAINFLEX CF11.002.D (3x(2x0,14)C+2x(0,5))C CE DESINA RoHS conform www.igus.de

3. Description of the cable construction:

Standard igus chainflex® catalogue cable. Construction details see catalogue 04/2009 page 140 and follow.

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 [xd]
1.1	CF11.002.D	75	10,5	7,1	10,0
2.1	CF11.002.D	75	10,5	7,1	10,0

Cable no.	Cable type	Counter reading		Effectively tested DS	Cable okay after … DS
		… mounting	**… demounting**		
1.1	CF11.002.D	85.447.900	19.000.825	32.772.254	32.772.254
2.1	CF11.002.D	85.447.900	19.000.825	32.772.254	32.772.254

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

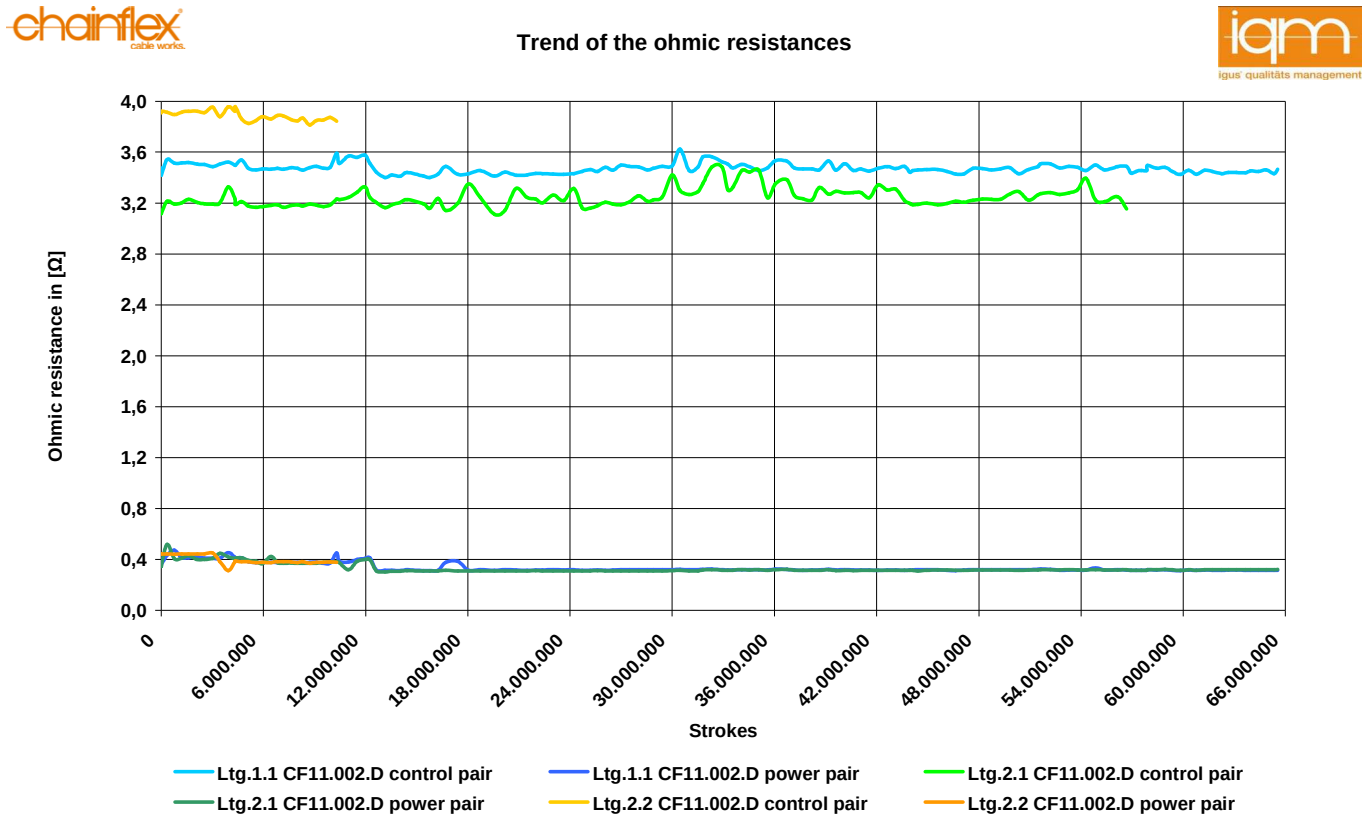
Date:	11.09.2009	Name:		Name:	Ch. Mittelstedt

Result

Start Report 11.09.2009:
At the 11.09.2009 we started the test 3479 at counter reading 84.447.900, we will measure the ohmic resistance regularly.

Interim Report 03.12.2012:
At the 03.12.2012 we demounted the test after 65.544.508 strokes to finalize the test.

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



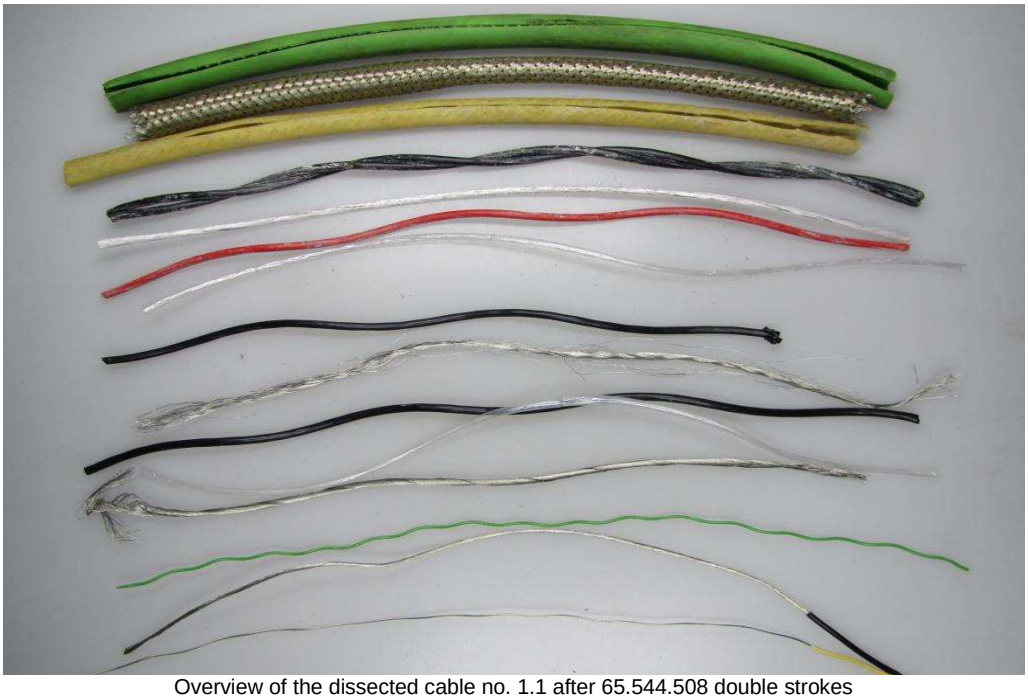
Cable no.	Cable type	Counter reading		Effectively tested Strokes	Cable okay after … Strokes
		… mounting	… demounting		
1.1	CF11.002.D	85.447.900	50.992.408	65.544.508	65.544.508
2.1	CF11.002.D	85.447.900	50.992.408	65.544.508	65.544.508

Evaluation

Dissection report:

The following pictures show the dissected elements of the cables

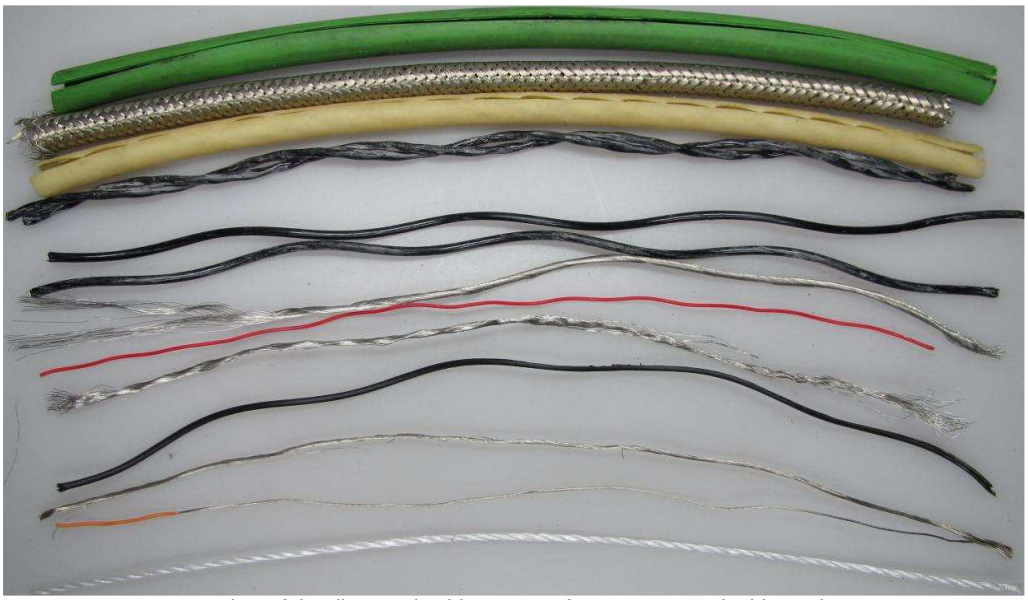
The condition of the cable no.1.1 (CF11.002.D) after 65.544.508 strokes



Overview of the dissected cable no. 1.1 after 65.544.508 double strokes

Double strokes [DS]	65.544.508
Condition outer jacket	Ok
Condition overall shielding	Ok
Condition inner jacket	Ok
Condition centre element	Ok
3x(2x0,14mm²)	
Condition element jacket	Ok
Condition element shielding	Ok
Condition core insulation	Ok
2x0,5mm²	
Condition core insulation	Ok
Condition conductor	Ok

The condition of the cable no. 2.1 (CF11.002.D) after 65.544.508 double strokes



Overview of the dissected cable no. 2.1 after 65.544.508 double strokes

Double strokes [DS]	65.544.508
Condition outer jacket	Ok
Condition overall shielding	Ok
Condition inner jacket	Ok
Condition centre element	Ok
3x(2x0,14mm²)	
Condition element jacket	Ok
Condition element shielding	Ok
Condition core insulation	Ok
2x0,5mm²	
Condition core insulation	Ok
Condition conductor	Ok

Name:	Ch. Mittelstedt	Date:	03.12.2012