Test-Report chainflex®

Test No.: 5191

Test Intention:
In this Test 5191 we investigate the lifespan of the chainflex PVC motor cable CF30 in an e-chain application with a 48mm radius.

Client:		
Name: Christian Mittelstedt	Team: chainflex®	Date: 08.03.2017

Order-Info:	
Customer / No.: igus® GmbH, Spicher Str.1a, 51147 Köln	
Series / No: CF30	Installation type: horizontal
Customer test: Yes ☐ No ☒	Development test: Yes ☒ No ☐

Technical data		Target & Examination	
e-chain® type:	1400.100.48	Target [double strokes]:	Lifespan
e-chain® radius [mm]:	48	Optical check:	☒
Stroke [m]:	1,2	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 „2m Bahr“. The following picture shows the test structure:

2. Cable and hose packages:

No. 1: **1x CF30.15.04** with the cable marking
0m igus chainflex CF30.15.04 4G1,5 cULus AWM VW-1 AWM I/II A/B 80°C 1000V FT-1 EAC / CTP CE 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 to measure the ohmic resistances.

The following chart gives an overview regarding the test parameters:

Cable no.	Cable type	e-chain radius [mm]	External diameter [mm]	Bending factor [xd]	Bending factor catalogue [xd]
1.X	CF30.15.04	48	7,9	6,1	7,5

Cable no.	Cable type	Counter reading		Effectively tested strokes	Cable okay after … strokes
		… mounting	… demounting		
1.1	CF30.15.04	64.392.680	89.824.478	25.431.798	25.431.798

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

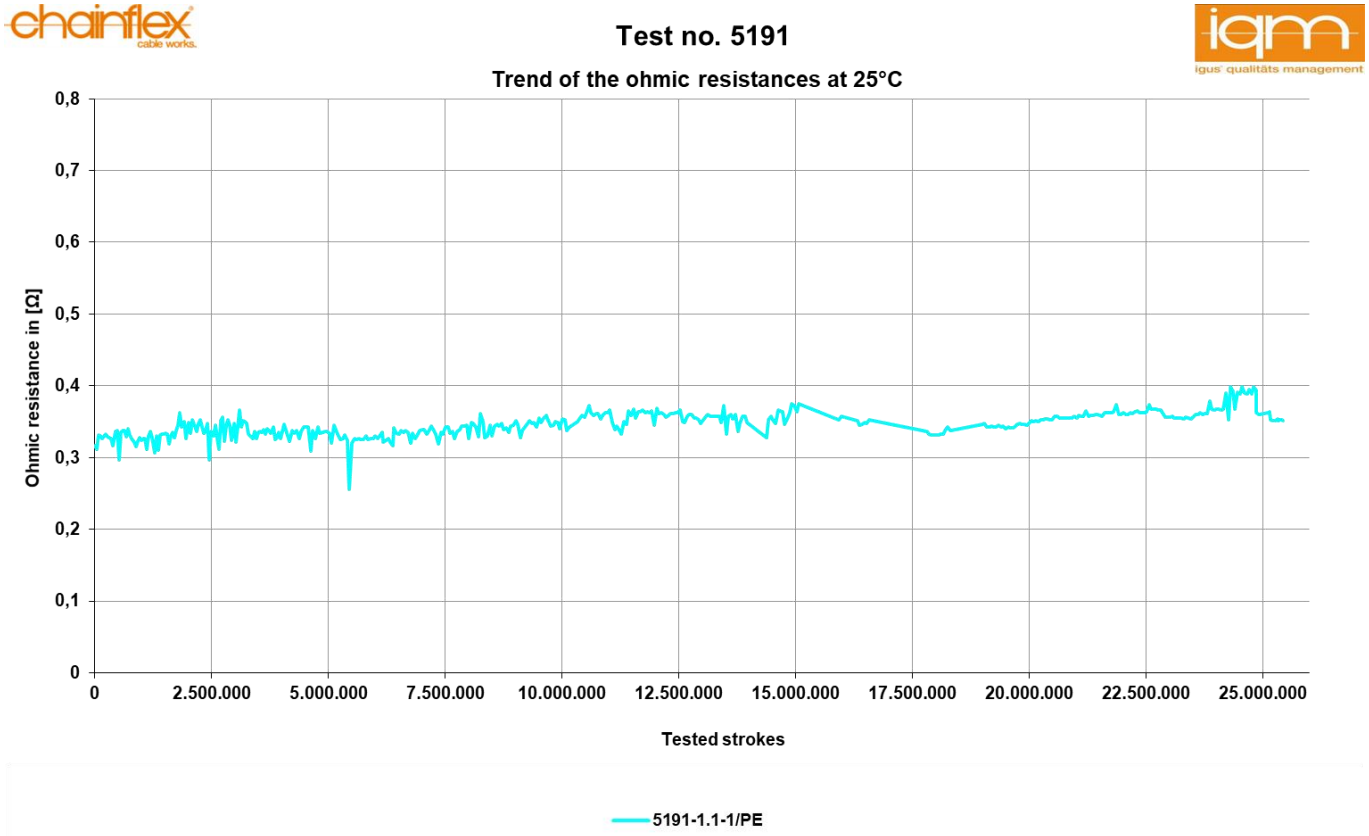
Date:	10.03.2017	Name:		Name:	Tobias Schaller

Result

Start report 10.03.2017:
At the 10.03.2017 we started the test 5191 at a counter reading of 64.392.680, we will measure the ohmic resistance through AutΩMeS.

Interim report 24.09.2018:
At the 24.09.2018 we demounted the cable no. 1.1 after 25.431.798 strokes, because we wanted to check the condition of the cable`s inner elements after approx. 25 million strokes.

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

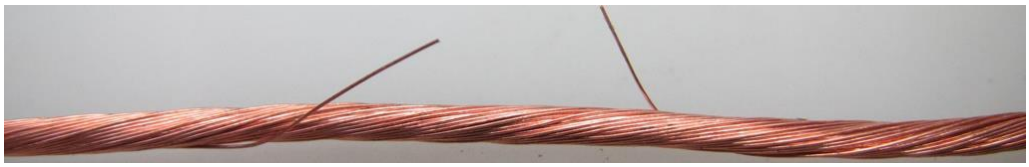


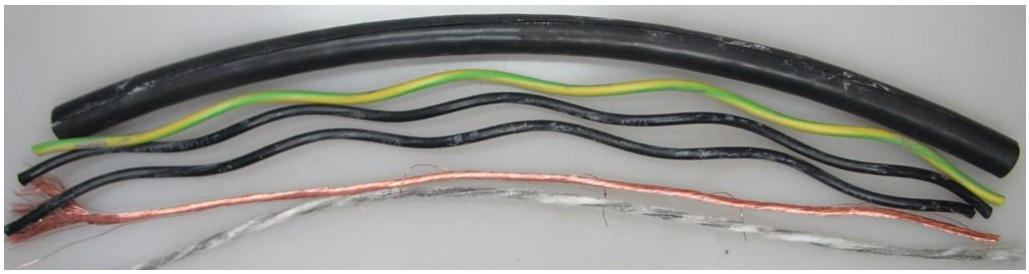
Evaluation

Dissection report:

The following pictures show the dissected elements of the cables

The condition of the cable no. 1.1 (CF30.15.04) after 25.431.798 tested strokes





Tested strokes	25.431.798
Condition outer jacket	O.K.
Pitch length total stranding	O.K.
Condition core insulation	O.K.
Condition conductor	Single broken wire
Condition centre element	O.K.
Pitch length stranded wire	O.K.

Name:	R. Thoß	Date:	04.01.2019