

Test Intention:

In test 4876 we want to compare the lifespan of our TPE cable CF9.15.18 and a PUR competitor cable. The CF9 is declared for use at -35°C in e-chain application and the competitor for flexing at -40°C.

Client:

Name: Christian Mittelstedt Team: chainflex® Date: 24.02.2014

Order-Info:

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

Series / No: CF9, competitor cable Installation type: horizontal, conditioned

Customer test: Yes No Development test: Yes No

Technical data

Target & Examination

e-chain® type: E4.28.50.100.0

Target [double strokes]: **Lifespan**

e-chain® radius [mm]: 100

Optical check:

Stroke [m]: 4,5

Function check:

Ambient temperature [°C]: approx.-40°C

Standard measuring:

Cable length [m]: 4,30

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 „Klimakammer“. The following picture shows the test structure:



2. Cable and hose packages:

No. 1: **1x CF9.15.18** with the cable marking
01637m igus chainflex CF9.15.18 1G1,5 300/500V CE C P/DC RoHS-II conform www.igus.de

No. 2: **1x Competitor cable**

3. Description of the cable construction:

Standard igus chainflex® catalogue cable

Competitor cables without further information

4. Remarks:

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	CF9.15.18	100	15,4	6,5	6,8
2.X	Competitor	100	15,6	6,4	5,0

Samples tested at -40°C

Cable no.	Cable type	Counter reading		Effectively tested DS	Cable okay after ... DS
		... mounting	... demounting		
1.1	CF9.15.18	0	526.775	526.775	526.775
2.1	Competitor	0	40.533	40.533	<40.533

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

Date:	24.02.2014	Name:		Name:	Christian Mittelstedt
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Result

Start report 24.02.2014:

We started the test 4876 at approx. -40°C at counter reading 0, we will make an optical check regularly.

Interim report 04.03.2014:

We demounted the cable no. 2.1 after 40.533 double strokes, because we noticed several breakages on the outer jacket.

Interim report 19.03.2014:

The daily optical check showed no damages at the outer jacket of the cable no. 1.1, after 137.960 double strokes.

Interim report 15.04.2014:

The daily optical check showed no damages at the outer jacket of the cable no. 1.1, after 386.432 double strokes.

Interim report 01.07.2014:

At the 01.07.2014, after 526.775 double strokes we demounted the cable to finish the test. Cable no. 1.1 showed no damages, the outer jacket is still in a good condition

Evaluation

The following pictures show the condition of the cables after the test:

The condition of the cable no.1.1 (CF9.15.18) after 526.775 double strokes



The condition of the cable no.2.1 (Competitor) after 40.533 double strokes



... after less than 41.000 double strokes at -40°C with approx. 6,4xd!

Name: 15.07.2015

Date: Christian Mittelstedt