

Test Report

Applicant

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Order no.

A 9085 (eng) / 2016

Product : Plastic flange Hauff HSI150-DFK for retrofit
dowelling

Project : Testing of the water tightness of the plastic
flange Hauff HSI150-DFK for retrofit dowelling
onto a concrete specimen with polymer-
enhanced bituminous thick-coat system

Order entry date : November 7th, 2016

Sample delivery by : Hauff-Technik GmbH & Co. KG

Testing period : November 7th - December 5th, 2016

Tested by : Kiwa GmbH, Bautest Augsburg
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Remark : Translation of Test Report A 9085 / 2016
January 31st, 2017

Augsburg, January 31st, 2017
rö/cl

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This Test Report consists of 7 pages and 1 annex.
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In case of doubt and disagreement, the original version of the Test Report is valid.

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1 General

Kiwa GmbH, Bautest Augsburg, was contracted by Hauff-Technik GmbH & Co. KG to test the water tightness of the plastic flange Hauff HSI150-DFK for retrofit dowelling on existing core drills or screwing onto housing. The plastic flange is used for connecting system seals for cables and cable ducts.

Therefore an assembled test setup with a dowelled plastic flange Hauff HSI150-DFK was delivered by Hauff-Technik GmbH & Co. KG to our test laboratory in Augsburg, Germany (see Figure 1).

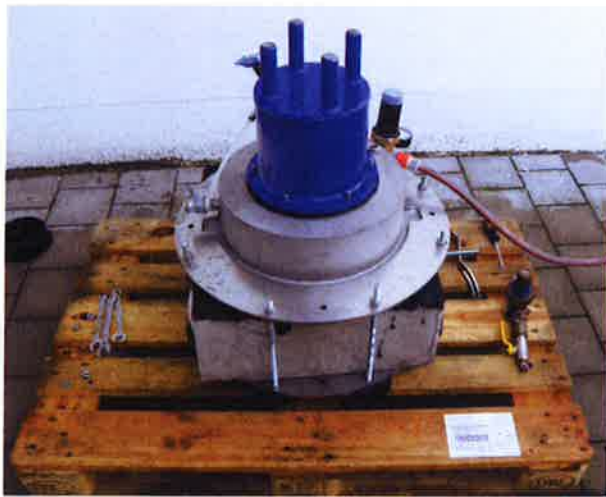


Figure 1. Delivered test setup.

2 Reference

- [1] Hauff-Technik GmbH & Co. KG - „Assembly instructions - HSI150-DFK plastic flange“, ma_hsi150_dfk_160921.

3 Test procedure

3.1 Test preparation (Hauff-Technik GmbH & Co. KG)

The installation of the test setup was performed by Hauff-Technik GmbH & Co. KG, the manufacturer of the plastic flange.

According to information given by the manufacturer the test setup was assembled as follows.

A core drill $\varnothing 150$ mm was placed through the middle of a concrete specimen with the dimensions (l x w x h) 500 x 500 x 200 mm.

The uncast surface of the concrete specimen was leveled (see Figure 2 - left) and cleaned before a polymer-enhanced bituminous thick-coat system consisting of two layers and a layer of reinforcement fabric between was applied (see Figure 2 - right).

After curing of the polymer-enhanced bituminous thick-coat system the plastic flange was placed over the core drill and aligned horizontally for drilling (see Figure 3 - left) the dowel holes (\varnothing 10 mm, 80 mm deep). The dowel holes were cleaned according to Figure 3 - right.

A Sikaflex-11C coating was applied in the preformed seal recesses at the rear of the plastic flange before it was placed over the core drill. Then the pre-installed screws were used to insert the fastening dowels (Fischer SX 10x80 expansion plugs) and sealing rings until the dowel shaft was inside the flange base and was flush with the surface of the polymer-enhanced bituminous thick-coat system.

After curing of the Sikaflex-11C coating the opening of the plastic flange Hauff HSI150-DFK was closed with the system cover with thermal sleeves HSI150 D3/58 and three blind plugs Hauff VS 58&60.

Afterwards Hauff Technik GmbH & Co. KG attached a pressure bell with pressure reducer and manometer above the sealing system. The sealing of the pressure bell was performed with the help of a EPDM sealing and clamping pressure.



Figure 2. Leveling of the uncast concrete surface (left) and applying of the polymer-enhanced bituminous thick-coat system (right).



Figure 3. Drilling (left) und cleaning (right) of the dowel holes.

3.2 Water tightness test (Kiwa GmbH)

The test setup which was assembled by Hauff-Technik GmbH & Co. KG was built up in accordance to Section 2.1 with one manometer (see Figure 4 to Figure 6).

A calibration of the manometer which were delivered by Hauff-Technik GmbH & Co. KG did not take place at Kiwa GmbH.

After prior consultation with the manufacturer the test of the water tightness with permanently attached water pressure was performed with $\geq 1,0$ bar for 28 days.

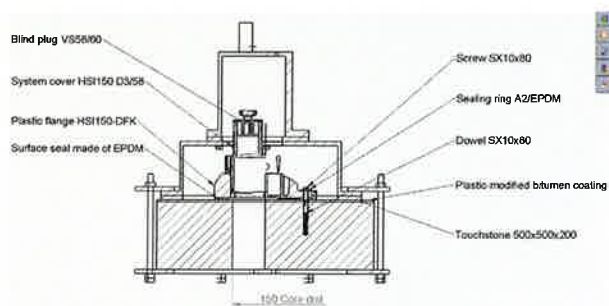


Figure 4. Detail of the test setup - manufacturer`s drawing.

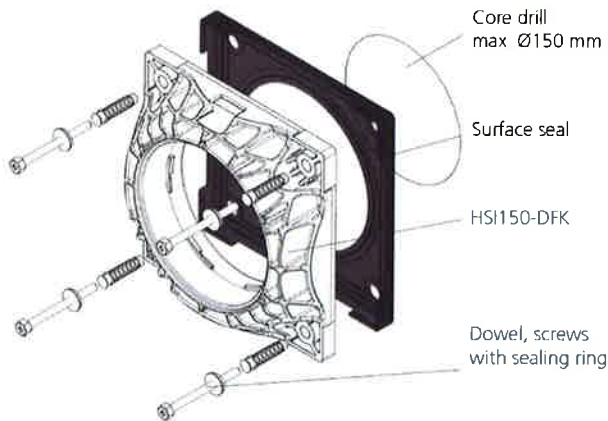


Figure 5. Detail of the plastic flange Hauff HSI150-DFK.

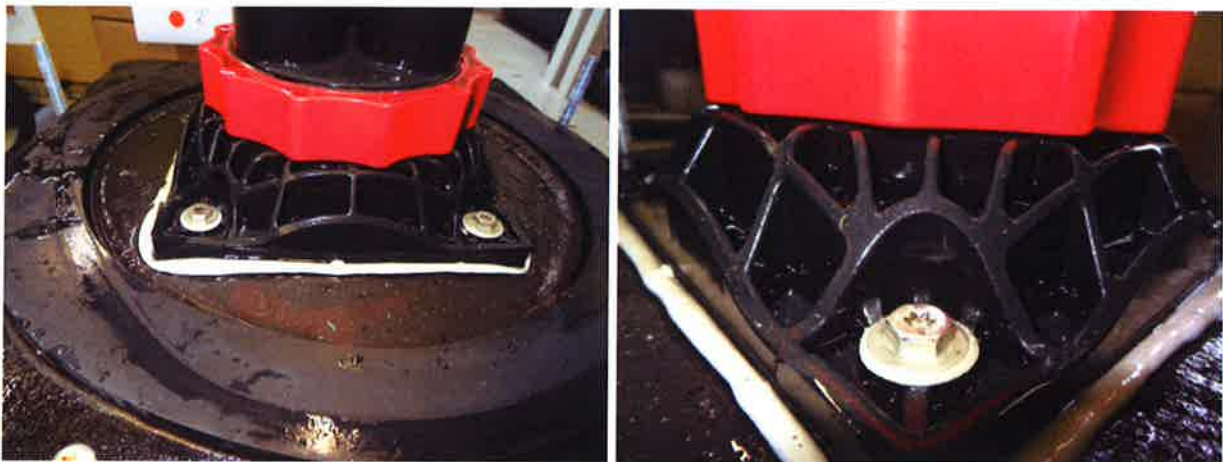


Figure 6. Plastic flange Hauff HSI150-DFK after removing the pressure bell.

4 Test results

During the water tightness test no leakages were detected (see Table 1). The water pressure depending on the testing period can be seen at Figure A1 to Figure A2 attached in the annex.

Table 1. Results of the water tightness test in dependency of the testing period.

Water pressure at the beginning of testing [bar]	Water pressure at the end of testing [bar]	Testing period [d]	Remark
≥ 1,0	≥ 1,0	28	no leakages

5 Summary

During the water tightness test of the plastic flange Hauff HSI150-DFK for retrofit dowelling on existing core drills or for screwing onto housing together with the polymer-enhanced bituminous thick-coat system chosen by Hauff-Technik GmbH & Co. KG no leakages were detected during the testing period of 28 days with $\geq 1,0$ bar permanently attached water pressure.

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Figure A1. Water tightness test with the $\geq 1,0$ bar water filled pressure bell (manometer at the beginning of testing on November 7th, 2016 at 9:38 am).



Figure A2. Water tightness test with the $\geq 1,0$ bar water filled pressure bell (manometer after 28 days on December 5th, 2016 at 10:11 am).