

Project / Plant: Water tightness test of single wall insert Hauff HSI90-K/140

Order date: 11 June 2019

Product description: Single wall insert Hauff HSI90-K/140 in a waterproof concrete test block

Order: Water tightness test  $\geq 2,0$  bar for 28 days and  $\geq 2,5$  bar for additional 28 days

Number of samples / tests: 2 tests

Sampling: on: - / by: Applicant

Date of delivery: 12 June 2019

Testing period: 17 June - 14 August 2019

Contact: B. Eng. David Röck  
Tel. +49 821 72024-14

Remark: Translation of Test Report A1942032-02,  
19 August 2019

Gersthofen, 19 August 2019  
dö/rö

p. p.



B. Eng. David Röck  
- Project manager -



p. p.



M. Sc. Laura Frank  
- Project manager -



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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 single wall insert Hauff HSI90-K/140 [1] embedded in a waterproof concrete test block.

Therefore a concrete test block with embedded single wall insert Hauff HSI90-K/140 as well as the necessary components for the test was delivered by Hauff-Technik GmbH & Co. KG to our test laboratory in Gersthofen, Germany. The concrete test block was produced by RAU-Betonfertigteile GmbH & Co. KG. The assembly of the test setup was performed by an employee of Hauff-Technik GmbH & Co. KG (see Figure 1).

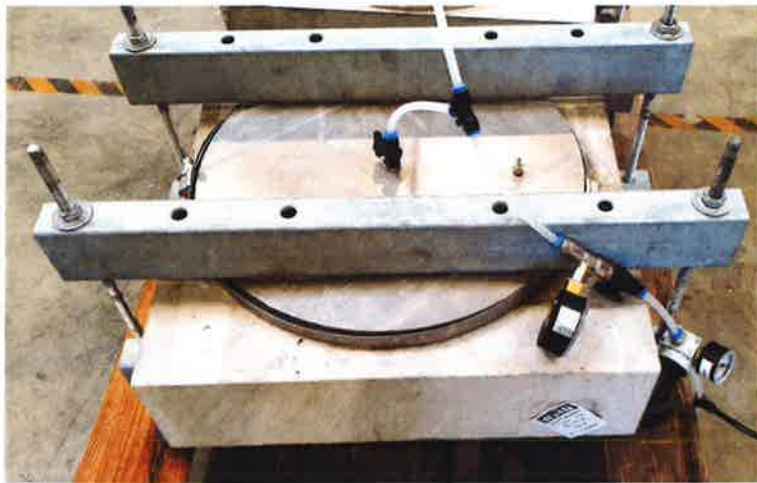


Figure 1. Test setup – complete system.

## 2. References

- [1] Hauff-Technik GmbH & Co. KG - „Installation Instruction HSI 90/HSI 150“, ma\_HSI 90\_150 so\_wird\_einbetoniert\_151202“.
- [2] WIKA Polska sp. z o.o. sp. k. - “Inspection certificate according to EN 10204 - 3.1. Order No. 22666960/2.

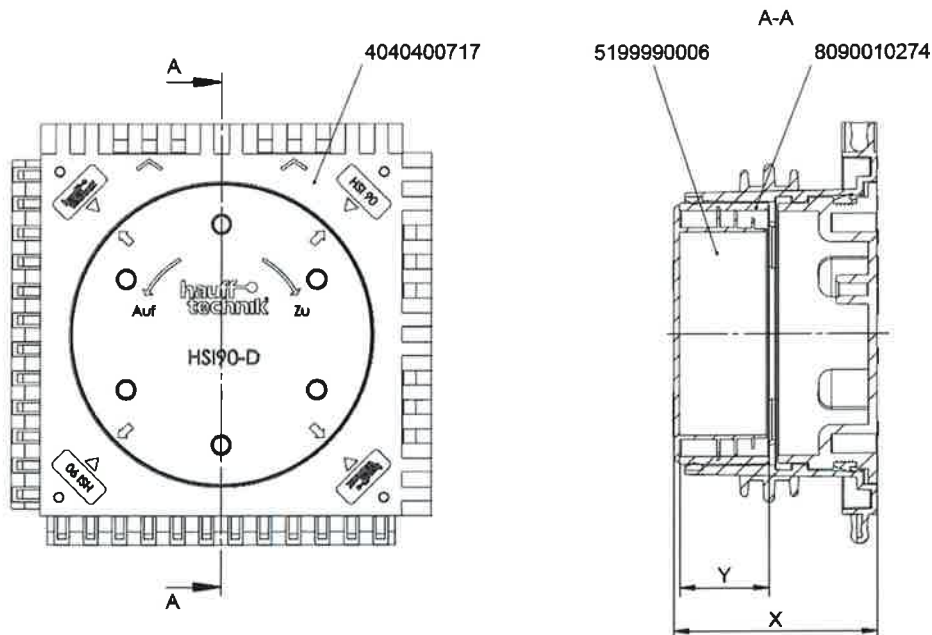
## 3. Test procedure

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

According to information given by the manufacturer the test setup was assembled by Hauff-Technik GmbH & Co. KG as follows:

The single wall insert Hauff HSI90-K/140 (see Figure 2) was positioned and fixed by the assembly frame using the nail holes on the timber formwork of the concrete test block. After closing the formwork, the single wall insert was cast in layers and the concrete was compacted. The waterproof concrete test block was cured under water for 28 days.

Finally, a steel plate with pressure reducer and calibrated manometer (see Chapter 6) was positioned over the flange of the single wall insert and fixed with tension rods. The sealing of the steel plate was performed with help of an EPDM sealing and clamping pressure.



Pos.	Designation
5199990006	Lamella plug 88,9-82, black
8090010274	PVC pipe Ø90x2.7
4040400717	BG sealing

Figure 2. Single wall insert Hauff HSI90-D/140 - manufacturer's drawing.

### 3.2 Water tightness test (Kiwa GmbH)

The test setup assembled by Hauff-Technik GmbH & Co. KG was built up in accordance to Chapter 3.1 with one manometer (see Figure 3).

A calibration of the assembled manometer (serial no. 5400TD8M [2]) was performed by WIK A Polska sp. z o.o. sp. k. (see Chapter 6).

After prior consultation with the manufacturer the test of the water tightness with permanently attached water pressure was performed as follows:

- ≥ 2,0 bar for 28 days
- ≥ 2,5 bar for 28 days.

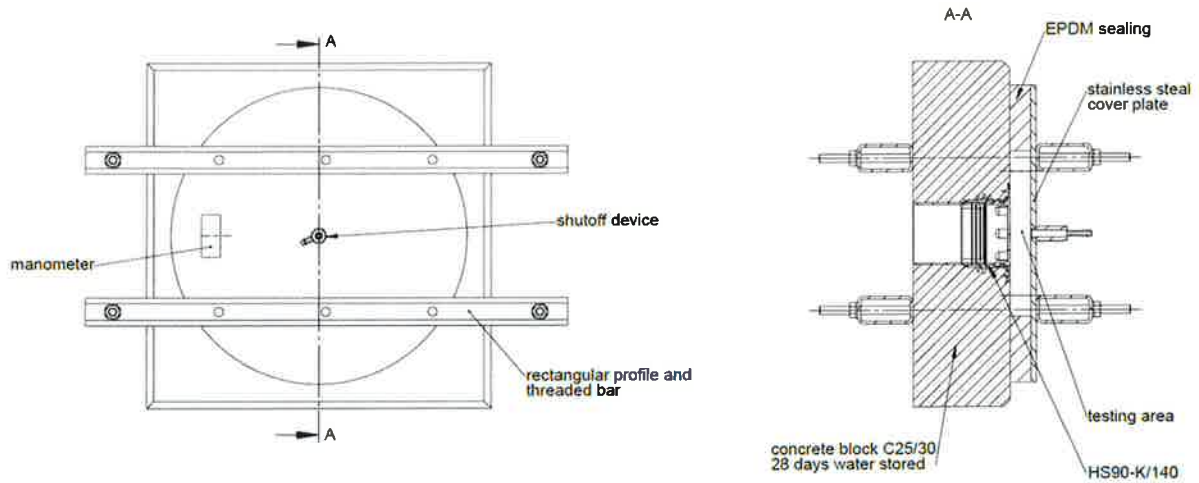


Figure 3. Details of the test setup - manufacturer's drawing.

#### 4. Test results

During the water tightness tests no leakages were detected at the system (see Table 1).

Table 1. Results of the water tightness tests.

Test specimen	Water pressure at the beginning of testing [bar]	Water pressure at the end of testing [bar]	Testing period [d]	Remark
Single wall insert Hauff HSI90-K/140	≥ 2,0	≥ 2,0	28	No leakages were detected at the system
	≥ 2,5	≥ 2,5	28	

#### 5. Summary

*During the water tightness test of the single wall insert Hauff HSI90-K/140, embedded in a water-proofed concrete test block, no leakages of the system were detected at ≥ 2,0 bar for 28 days and ≥ 2,5 bar for additional 28 days.*

## 6. Calibration certificate

Wika Polska sp. z o.o. sp. k.

Inspection certificate according to EN 10204 - 3 1  
Abnahmeprüfzeugnis nach EN 10204 - 3 1



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Customer  
Kunde  
Haufl-Technik GmbH & Co. KG  
Robert-Bosch-Straße 9  
Hermaringen  
89568  
DE

Certificate No  
Zeugnis-Nr  
WC006849

Date  
Datum  
19.03.2018

Customer Order No  
Kundenbestellnummer  
175211375

Customer Part No  
Kunden Artikel-Nr

Order Date  
Bestelldatum

Order No / Item  
Auftrags Nr / Pos  
22666960/2  
32210713

Part No  
Artikel Nr  
14225186

Model  
Typ  
111 10 063

Serial number  
Seriennummer  
5400TD8M

Scale range  
Anzeigebereich  
0 2.5 bar rel

Class  
Klasse  
2.50 %

Tag No  
Messstellen-Nr

Reference  
Referenzgerät  
CPG2500 0.01% -1 2.7 bar rel

Calibration No  
Kalibriernummer  
SW-102-1-17 WPl 17-04

Article text  
Artikeltext  
Bourdon tube pressure gauges model 111

Wika Polska sp. z o.o. sp. k.  
 Inspection certificate according to EN 10204 - 3.1  
 Abnahmeprüfzeugnis nach EN 10204 - 3.1



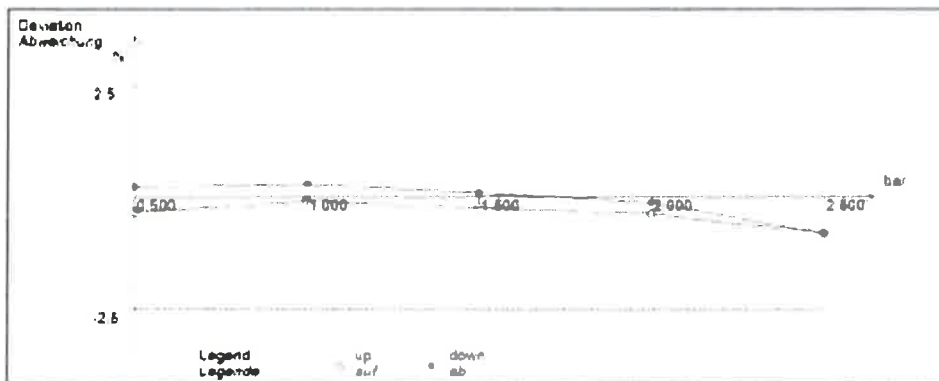
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Customer: Hauff Technik GmbH & Co. KG  
 Kunde: Robert Bosch-Straße 9  
 Hermingen  
 89568  
 DE

Certificate No: WC006949  
 Zeugnis Nr.  
 Date: 19.03.2018  
 Datum

Result: Temperature 20.0 ± 0.5 K  
 Ergebnis: Temperatur

Test Item Prüfung	Standard Referenz bar	Measured Werte bar	Deviation at Abweichung bar	Deviation Abweichung %	Hysteresis hysteresis %
0.500	0.500	0.494	0.502	0.002	-0.58
1.000	1.000	0.993	0.997	0.003	-0.38
1.500	1.500	1.498	1.502	-0.002	-0.34
2.000	2.000	2.003	2.006	0.006	-0.26
2.500	2.500	2.520	2.520	-0.020	0.00



Object keeps the specification  
 Der Kalibriergegenstand hält die Fehlergrenzen nach Herstellerangaben ein

Calibration was carried out according to the following norm  
 Die Kalibrierung erfolgte auf der Grundlage der folgenden Norm: DIN EN 837-1

Remarks / Bemerkung

Inspection Representative (i.N.): Daniel Kotlewski  
 Abnahmebeauftragter  
 Examiner: S. Piekarski  
 Prüfer

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