

Project:	Watertightness test with “MIS25 set in watertight concrete or PMBC coated test specimen”
Producer:	Hauff-Technik Hermaringen
Date of order:	1 Sep. 2023
Examination of:	Watertightness test at $\geq 1,0$ bar for 30 days Watertightness test at $\geq 1,5$ bar for 1 day
Description:	Membrane injection systems MIS25 installed in a sand-lime brick with a 25 mm borehole and an exterior waterproofing polymer modified bituminous coating (PMBC) according to DIN EN 15814 (waterproofing class W1.1/2.1E) according to DIN 18533-1) and in watertight concrete class 1+2
Number of samples/ specimen:	2
Sampling by:	By client
Sampling receipt:	6 Sep. 2023
Test period:	September - October 2023
Remark:	Translation of Test Report A23420151-01 (eng), 22 November 2023

Gersthofen, 22 November 2023

i. V. Dr.-Ing. Massimo Sosoro  
- Technical manager -

i. A. M. Eng. Johannes Thienel  
- Team leader -

The test results relate only on the items tested. Without the written approval of the testing laboratory, a duplication in extracts of the test report is not permitted. In case of doubt and disagreements, the original version of the Test Report is valid.

<sup>a)</sup> Information provided by the client <sup>b)</sup> Modification.

Managing director: Prof. Dr. Roland Hüttl, Dr. Gero Schönwaßer  
District court of Hamburg, HRB 130568, St.Nr.: 46/736/03268



## Content

	Seite
<b>1. General.....</b>	<b>3</b>
<b>2. Reference.....</b>	<b>4</b>
<b>3. Watertightness test.....</b>	<b>4</b>
3.1 Test preparation (Hauff-Technik GmbH & Co. KG) .....	4
3.2 Testing (Kiwa GmbH).....	7
<b>4. Test results.....</b>	<b>8</b>
<b>5. Summary.....</b>	<b>8</b>
<b>6. Calibration certificate .....</b>	<b>9</b>

## 1. General

Kiwa GmbH was contracted by Hauff-Technik GmbH & Co. KG to test the water tightness of the Membrane injection system MIS25 set in sand-lime brick and an exterior waterproofing polymer modified bituminous coating and set in a watertight concrete test specimen.

Therefore Hauff-Technik GmbH & Co. KG delivered the final test setup with mounted polymer flange to our laboratory in Gersthofen (see Figure 1).



Figure 1. Test setup – PMBC coated test specimen.



Figure 2. Test setup – watertight concrete

## 2. Reference

- [1] Hauff-Technik GmbH & Co. KG - „Installation instruction – MIS25 Membrane injection system wall thickness 150 mm and more“, Rev.: 01/2023-08-14.
- [2] WIK A Polska sp. z o.o. sp. k. - “Abnahmeprüfzeugnis nach EN 10204 - 3.1. Zeugnis-Nr. WC025517. Ausgabedatum: 09.09.2022.

## 3. Watertightness test

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

According to the manufacturer, the test setup was assembled by Hauff-Technik GmbH & Co. KG as described below. A hole with a diameter of 25 mm was drilled in the middle of a sand-lime brick test specimen measuring 300 mm x 300 mm x 300 mm. As an external seal, a two-layer coating of PMBC PCI Pecimor 2K in accordance with DIN EN 15814 was applied to the sand-lime brick surface facing the pressure (corresponding to the outer wall of the building). Before the MIS 25 is inserted into the hole, the protective film on the adhesive sleeve must be removed. Optionally, the adhesive surface can be pretreated with a primer. Then the fiberglass pipe is pushed through the MIS25 after the area where it sits in the MIS has been roughened with emery cloth. The 2-component resin is then injected into the filling opening. After 5-7 minutes the resin has hardened, the mixing nozzle is removed and further assembly can take place.

<sup>a)</sup> Information provided by the client <sup>b)</sup> Modification.

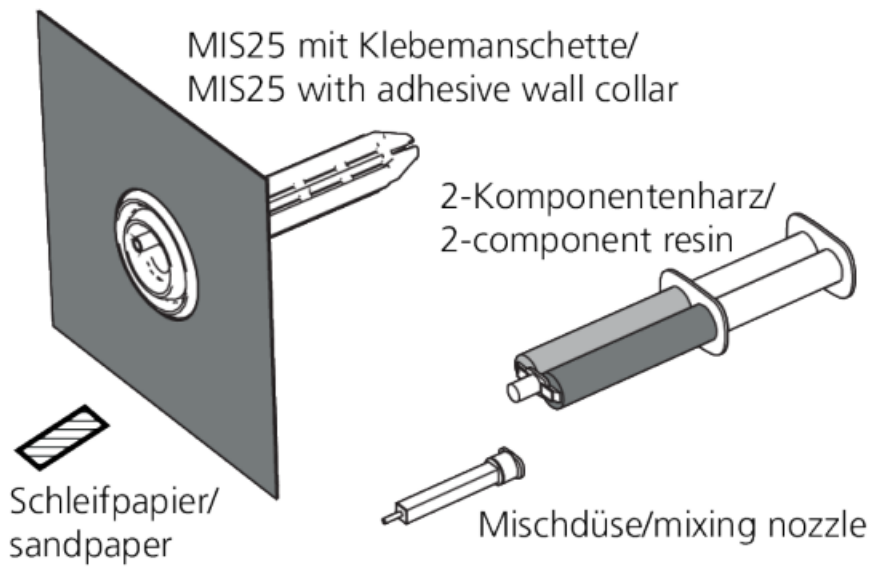


Figure 3. Setting materials.

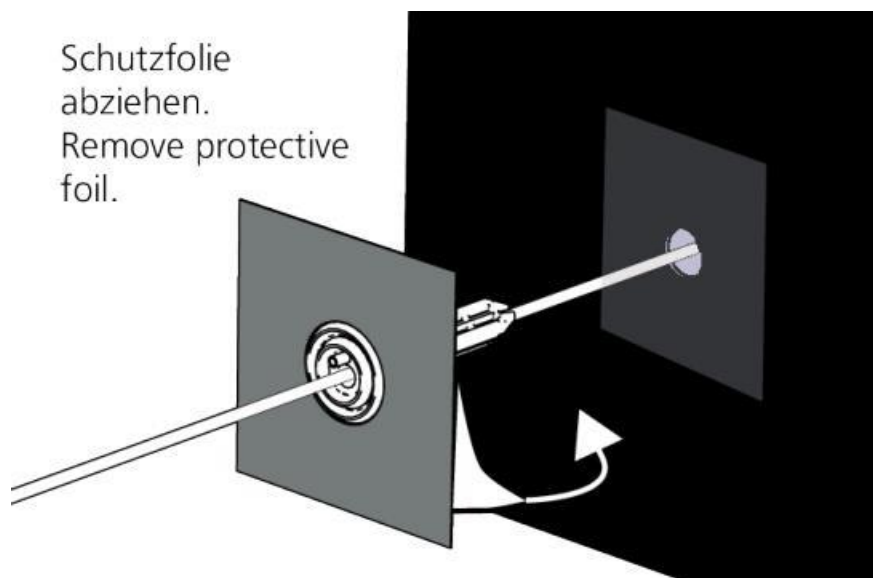


Figure 4. Remove protective foil.

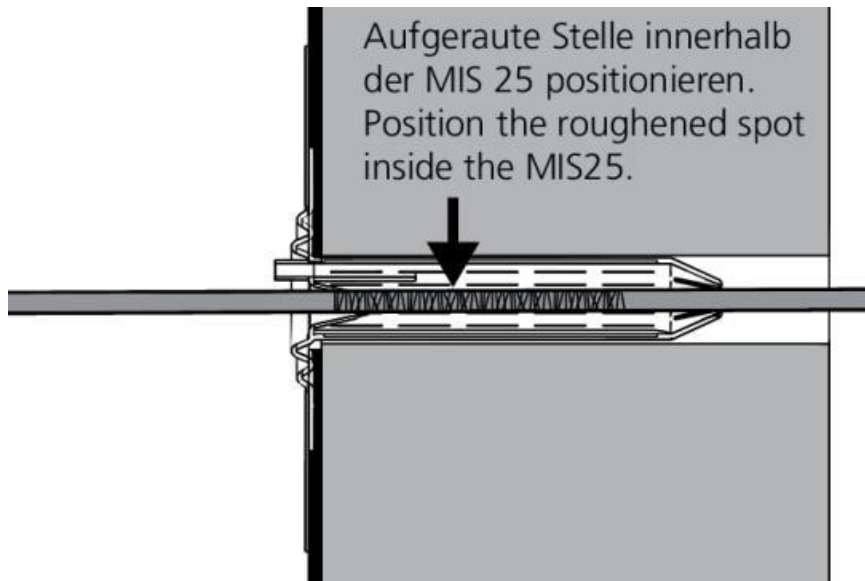


Figure 5. Insert of fiberglass pipe.

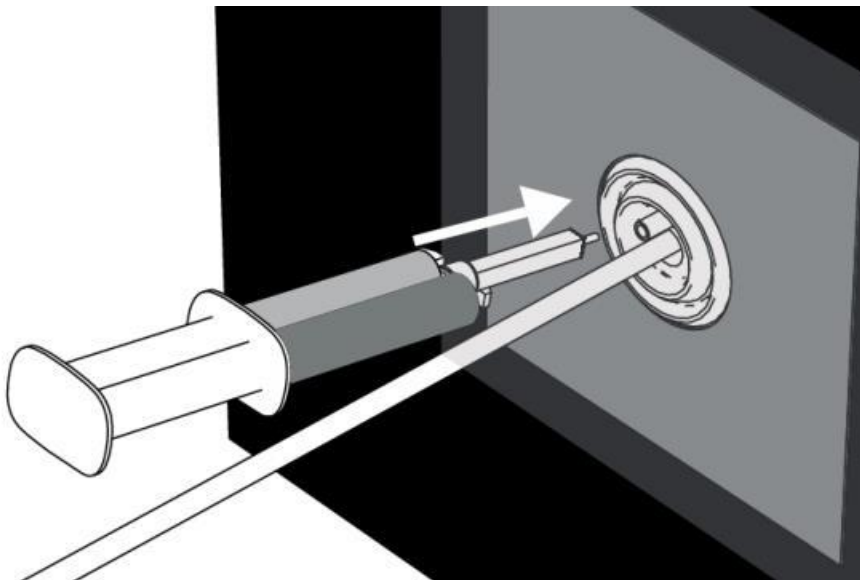


Figure 6. Injection of 2-component resin.

### 3.2 Testing (Kiwa GmbH)

The test specimen delivered by Hauff-Technik GmbH & Co. KG is a test setup assembled by the manufacturer with a pre-assembled manometer.

A calibration of the assembled manometer (serial no. 54056QA2 [2]) was performed by WIKAI Polska sp. z o.o. sp. k. (see Section 6).

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 30 days. After that the test was performed with  $\geq 1.5$  bar for 1 day (see Figure 7).



Figure 7. Water pressure  $\geq 1.5$  bar.

#### 4. Test results

During the watertightness tests no leakages were detected.

Table 1. Results of the watertightness test.

Test specimen	Water pressure at the beginning of testing [bar]	Water pressure at the end of testing [bar]	Testing period [d]	Remark
Membrane injection system MIS25 set in watertight concrete	≥ 1,0 bar	≥ 1,0 bar	30	no leakages were detected
waterproofing class W1.1/2.1E	≥ 1,5 bar	≥ 1,5 bar	1	no leakages were detected
Membrane injection system MIS25 set in PMBC coated test specimen	≥ 1,0 bar	≥ 1,0 bar	30	no leakages were detected
watertight concrete class 1+2	≥ 1,5 bar	≥ 1,5 bar	1	no leakages were detected

#### 5. Summary

*During the watertightness test with the membrane injection system MIS25 set in watertight concrete or PMBC coated test specimen, no leaks in the systems were found at a water pressure of ≥ 1.0 bar over a period of 30 days and a water pressure of ≥ 1.5 bar over a period of 1 day.*



## 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*



Page  
Seite 1 / 2

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

Certificate No.  
Zeugnis-Nr. **WC025517**

Date  
Datum **09.09.2022**

Customer Order No. Kundenbestellnummer	<b>MC11004024041</b>	Customer Part No. Kunden Artikel-Nr.	Order Date Bestelldatum	<b>20.09.2022</b>
Order No. / Item Auftrags-Nr. / Pos.	<b>24241562/3</b> <b>33378739</b>	Part No. Artikel-Nr.	<b>14225186</b>	
Model Typ	<b>111.10.063</b>	Serial number Seriennummer	<b>54056QA2</b>	Scale range Anzeigebereich <b>0 ... 2,5 bar rel.</b>
Class Klasse	<b>2,50 %</b>	Tag No. Messstellen-Nr.		
Reference Referenzgerät	<b>CPG2500 0,01% -1 ... 2,7 bar rel.</b>	Calibration No. Kalibriernummer	<b>SW-23-22 WPL 23-03</b>	
Article text Artikeltext	<b>Bourdon tube pressure gauges,model 111</b>			

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

Inspection certificate according to EN 10204 – 3.1  
Abnahmeprüfzeugnis nach EN 10204 – 3.1



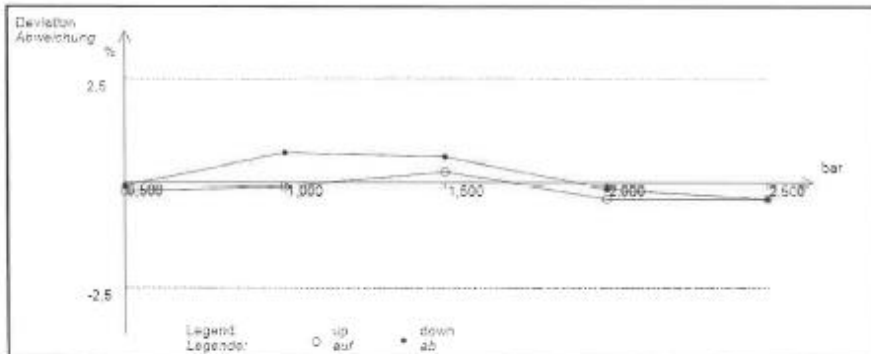
Page 2 / 2  
Seite

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

Certificate No.  
Zeugnis-Nr. **WC025517**  
  
Date  
Datum **09.09.2022**

Result Ergebnis Temperature Temperatur **20°C +/- 5 K**

Test Item Prüfung bar	Standard Nennwert bar	Measured Mittelwert bar	rel. Deviation rel. Abweichung %	Deviation Abweichung %	Hysteresis Hysterese %
0,500	0,505	0,502	-0,003	-0,13	-0,13
1,000	1,002	0,992	0,008	0,31	-0,60
1,500	1,493	1,486	0,011	0,45	-0,16
2,000	2,000	2,006	-0,007	-0,26	-0,24
2,500	2,510	2,510	-0,010	-0,38	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 (CA) Examiner  
Abnahmebeauftragter **Pawel Golasiński** Prüfer **S. Piekarski**

This document was created automatically and needs no signature.  
Dieses Dokument wurde automatisch erstellt und gilt ohne Unterschrift

Wika Polska sp. z o.o. sp. k. ul. Legska 29/35 87-800 Wodzisław Polska  
Tel. +48 54 23-01-100 Fax +48 54 23-01-101 info@wikapolska.pl www.wikapolska.pl

QMF P.A. 101\_b\_R.3\_16:12.2020

Gersthofen, 22 November 2023

<sup>a)</sup> Information provided by the client <sup>b)</sup> Modification.