

Internal Report No. 16-3214/DanaLim OuterCore

Client: Hanno Werk GmbH & Co. KG
Hanno-Ring 3-5
30880 Laatzen

Test Request: Is the pre-wall System from DanaLim – OuterCore air tight

Products: Hannoband®-BG1 / Hanno®-Flashing Tape DUO Easy

Results: The Window-Frame-System OuterCore in principle is air tight, some minor local leakages were eliminated.
Hannoband®-BG1 30/10-18 is air tight according DIN 18542 Class BG-R ($\alpha < 0,1 \text{ m}^3/\text{h dPa m}$) for the joint between The Window-Frame-System OuterCore and the wall.
Hanno®-DUO Easy is air tight according DIN 18542 Class BG-R ($\alpha < 0,1 \text{ m}^3/\text{h dPa m}$) for the joint between The Window-Frame-System OuterCore and the wall. The air tightness with respect to Hannoband®-BG1 is enhanced

Consisting of 8 pages.

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1 Test Request

The aim was to show the air tightness of the System DanaLim OuterCore together with Hannoband®-BG1 and Hanno®-Flashing Tape DUO Easy

2 Test Object

Product name: **Hannoband®-BG1 30/10-18 & Hanno®-Flashing Tape DUO Easy**

Type: joint sealing tape/ flashing tape

Producer: Hanno-Werk GmbH Co. KG/ Dana Lim

Description: Pre wall mounting System from OuterCore.

3 Testing

3.1 Specimens

The specimen was made of

1. Steel frame
2. Concrete wall with window opening
3. OuterCore Profiles mounted in front of the opening (details see. Fig.4)
4. Installation of a Window into the OuterCore mounting frame (details see. Fig.1)

The Joints of the OuterCore Frame and the wall was sealed with

- a. Hannoband®-BG1 30/10-18 (Fig. 4)
- b. Hanno®-Flashing Tape DUO Easy (Fig. 3)

The Joints of the Window were sealed with

- a. Hannoband®-BG1 30/10-18 – 3 sides
- b. Hanno®-Flashing Tape DUO Easy – bottom.

3.2 Test Equipment

Test bench to determine airtightness and rain tightness (K.S: Schulten)

The test bench consists of a pressurized case with an opening. In front of this opening the specimen is installed. (s. Fig. 1).

The regulation and display of the air pressure difference between the chamber interior and the external environment, as well as the display of the amount of air supplied and their data recording is computerized.

The test chamber has a water spraying device (3 jets) according Test Method 1A (DIN EN 1027: 2000 09). The examination of the existence of a continuous film of water on the entire test area is possible by means of curtains a transparent film instead of the specimen.

The window test rig was built and is being checked by K.S. Schulten.

3.3 Air Tightness

The tests were performed according EN 1026

3.3.1 Leakage

To determine the leakage of the test bench, following Joints were sealed (see Fig.1 & Fig 2):

1. Outside: Window / Window frame
2. Outside. Window-Joint – OuterCore
3. Inside: Joint – OuterCore – Wall
4. Inside: Window Fittings

3.3.2 Air Tightness Fitting: OuterCore Frame – Wall with Hannoband®-BG1 30/10-18

The Inner Joint OuterCore-Wall was opened and it was measured again

Dimensions Opening: 1,26 m x 1,51 m

Joint Length: 1,30 m x 1,55 m

Specimen Pressure [Pa]	leakage [m³/h]	sum [m³/h]	joint [m³/h m]
ID1			
50	0,7	1,6	0,16
100	1,4	3,2	0,32
150	2	4,7	0,47
200	2,7	6,1	0,60
250	3,2	7,5	0,75
300	3,8	9	0,91
450	5,5	12,8	1,28
600	7,5	17,1	1,68
750	9,4	20,9	2,02
900	11,1	24,4	2,33
1050	13,1	27,9	2,60

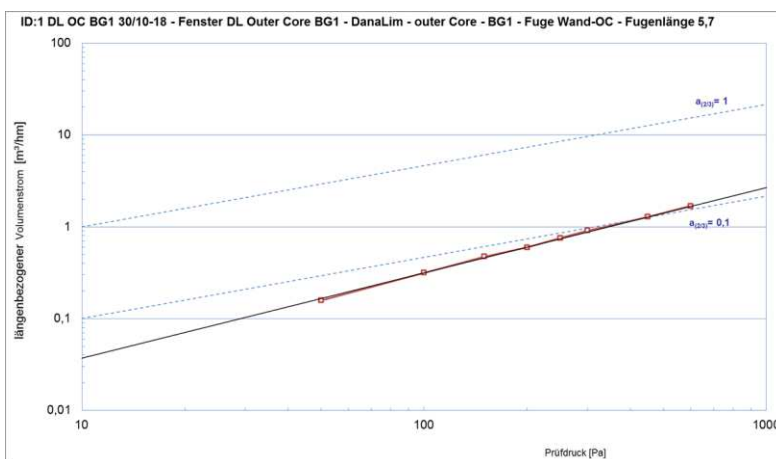


Table 2 Air tightness acc. DIN EN 12114 of Hannoband®-BG1 30/10-18 – OuterCore-Wall

Chart 2 Air tightness acc. DIN EN 12114 of Hannoband®-BG1 30/10-18 – OuterCore-Wall and classification acc. DIN 18542:2009 (a-value)

Lokal Leakages were detected in the edges of the Window and at two positions of the OuterCore System.

3.3.3 Air Tightness Fitting: OuterCore Frame – Wall with Hannoband®-BG1 30/10-18

The Leakages were sealed again and the leakage of the test stand was determined again, some local leakages eliminated.

The outside joint OuterCore - Wall was sealed with Hanno®-Flashing Tape DUO Easy.

Dimensions Opening: 1,26 m x 1,51 m

Joint Length: 1,26 m x 1,51 m

Specimen Pressure [Pa]	leakage [m³/h]	sum [m³/h]	joint [m³/h m]
ID4			
50	0,7	0,9	0,04
100	1,4	1,6	0,04
150	1,9	2,2	0,05
200	2,3	2,7	0,07
250	2,8	3,1	0,05
300	3,2	3,6	0,07
450	4,3	4,9	0,11
600	5,8	6,6	0,14
750	6,9	7,8	0,16
900	7,8	8,9	0,19
1050	9	10,1	0,19

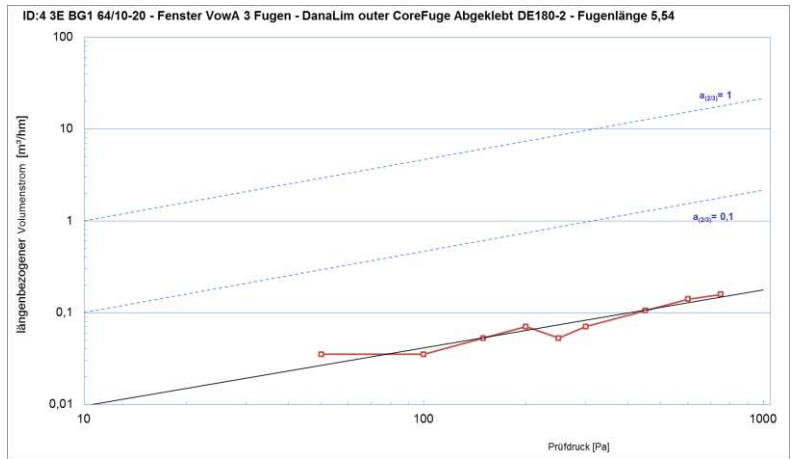


Table 3 Air tightness acc. DIN EN 12114 of Hannoband®-BG1 30/10-18 – OuterCore-Wall

Chart 3 Air tightness acc. DIN EN 12114 of DUO Easy – OuterCore-Wall and classification acc. DIN 18542:2009 (a-value)

3.4 Driving Rain Tightness

The tests were not performed the Window-Frame-System OuterCore was too large for the test stand, the spraying system was not able to reach the joints.

4 Conclusion

The Window-Frame-System OuterCore in principle is air tight, some minor local leakages were eliminated Hannoband®-BG1 30/10-18 is air tight according DIN 18542 Class BG-R ($a < 0,1 \text{ m}^3/\text{h dPa m}$) for the joint between The Window-Frame-System OuterCore and the wall.

Hanno®-DUO Easy is air tight according DIN 18542 Class BG-R ($a < 0,1 \text{ m}^3/\text{h dPa m}$) for the joint between The Window-Frame-System OuterCore and the wall. The air tightness with respect to Hannoband®-BG1 is enhanced.

Laatzen, 29.02.2016

Manager R&D

Dr. Andreas Hohlfeld

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Attachment:



Fig 1: Test Bench



Fig. 2: Sealing of Window and window joints.outside



Fig 3: Left: Sealing the OuterCore – Wall joint with Hanno®-Folienband DUO Easy

Right: Testing without sealing the inside joint OuterCore – Wall.



Fig. 4: Left: Installed OuterCore Frame.

Right: installation of Hannoband@-BG1 30/10-18 as joint sealing tape between OuterCore frame and wall