

**ESDEC**

INNOVATIVE MOUNTING SYSTEMS



**MOUNTING SYSTEM  
CORRUGATED ROOF**  
System test summary

**CLICKFIT** EVO

CORRUGATED ROOF

# Summary testing Esdec ClickFit EVO corrugated bracket

Herewith you will find a summary of (mechanical) tests done for the Esdec ClickFit EVO corrugated bracket. This product has been developed as a mounting system for PV panels on roofs with fiber cement corrugated sheets.

Before market launch the product has been extensively tested according to international standards and requirements for fiber cement corrugated roofs and building aspects for solar energy systems on roofs.

Following aspects have been tested:

- Heat-rain test
- Screw pull test of fibre cement sheet fastener
- Shear test
- Lift test
- Pressure test
- Dynamic watertightness test
- Static watertightness test

Tests were initiated by Esdec and Eternit, testplan drafted by Esdec – Eternit – Kiwa, carried out at Etex/Eternit laboratories and witnessed by Kiwa BDA.

All tests have been achieved. No shortcomings have been reported. In general the conclusion is that the product can be used in many countries in Europe and installed under normal conditions. The Esdec calculator has the right parameters for that. In extreme or exceptional conditions, Esdec has the knowledge and expertise to support and to calculate. In that situation Esdec has to be consulted.

In this document you will find brief information about these tests. Details about testplan and tests will only be shared with experts and are on special request available.

At the end you will find information about this testing and the recommendation from Eternit about the Esdec ClickFit Evo bracket for fiber cement corrugated sheets on roofs.

In case of further questions do not hesitate to contact your contact person in Esdec. Or visit [www.esdec.com](http://www.esdec.com) our website with updated (product) information.

0426-L-20/7

23 October 2020

# Witness report

Heat-rain test on ClickFit corrugated mounting bracket in combination with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the heat-rain test of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

The test has been performed from 13 May until 28 May 2020 in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).  
The test has been witnessed by Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. (remote-witnessing).

According to the information that was revealed by the principal the products used for the determination of the heat-rain test are as follows.

## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.



0426-L-20/6

23 October 2020

# Witness report

Screw pull test on a fibre cement fastener  
in combination with a pine wood substructure



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the screw pull test of a **fibre cement sheet fastener** in combination with a **pine wood substructure**.

On 2 June 2020 the test has been performed in the test laboratory of Esdec B.V., Londenstraat 16 in Deventer (NL).

The test has been witnessed by Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. (remote-witnessing).

According to the information that was revealed by the principal the products used for the determination of the screw pull test are as follows.

## Description fibre cement sheet fastener

- Product : 403CT2130BAZ fibre cement sheet fastener
- Manufacturer : Northern Engineering Services B.V.
- Dimensions : 6,5 mm × 130 mm
- Production date/code : 06-09-2019

## Description substructure

- Product : pine wood category 2
- Manufacturer : not revealed
- Dimensions : 63 mm × 75 mm
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.



0426-L-20/5

23 October 2020

# Witness report

Shear test on ClickFit corrugated mounting bracket in combination with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the shear test of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

On 3 and 5 June 2020, Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. has witnessed the test. The test has been performed in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).

According to the information that was revealed by the principal the products used for the determination of the shear test are as follows.

## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.





0426-L-20/4

23 October 2020

# Witness report

Lift test on ClickFit corrugated mounting bracket in combination with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the lift test of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

On 3 and 5 June 2020, Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. has witnessed the test. The test has been performed in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).

According to the information that was revealed by the principal the products used for the determination of the lift test are as follows.

## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.



0426-L-20/3

23 October 2020

# Witness report

Pressure test on ClickFit corrugated mounting bracket in combination with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the pressure test of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

On 3 and 5 June 2020, Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. has witnessed the test. The test has been performed in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).

According to the information that was revealed by the principal the products used for the determination of the pressure test are as follows.

## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.



0426-L-20/2

23 October 2020

# Witness report

Dynamic watertightness on ClickFit  
corrugated mounting bracket in combination  
with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the dynamic watertightness of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

On 5 June 2020, Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. has witnessed the test. The test has been performed in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).

According to the information that was revealed by the principal the products used for the determination of the dynamic watertightness are as follows.

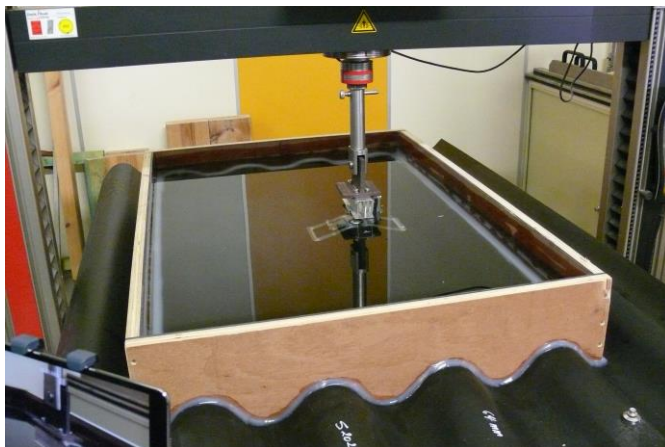
## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.



0426-L-20/1

23 October 2020

# Witness report

Static watertightness of ClickFit corrugated mounting bracket in combination with Eternit Ecolor corrugated sheet



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# 1 Introduction

By order of Esdec B.V., Kiwa BDA Testing B.V. has witnessed the determination of the static watertightness of the **ClickFit EVO corrugated mounting bracket** in combination with **Eternit Ecolor corrugated sheets**.

On 3, 4 and 5 June 2020, Mrs Y. Sari BSc of Kiwa BDA Expert Centre on behalf of Kiwa BDA Testing B.V. has witnessed the test. The test has been performed in the test laboratory of Eternit NV, Kuiermanstraat 1 in Kapelle-op-den-Bos (BE).

According to the information that was revealed by the principal the products used for the determination of the static watertightness are as follows.

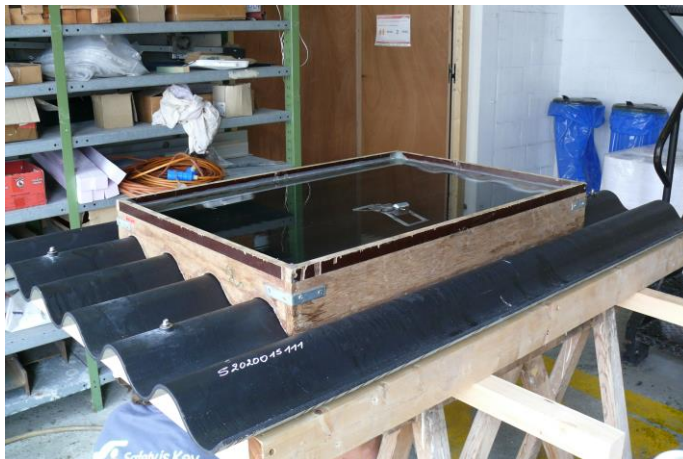
## Description mounting bracket

- Product : ClickFit corrugated mounting bracket
- Manufacturer : Esdec B.V.
- Production date/code : not revealed

## Description corrugated sheet

- Product : corrugated sheet Ecolor
- Manufacturer : Eternit NV
- Production date/code : not revealed

See annex I for photos of the buildup of the test specimens and photos of used products.





# ESDEC'S MOUNTING SYSTEM FOR CORRUGATED ROOF APPROVED BY ETERNIT

21/09/2020



*The successful completion of the test program, witnessed by KIWA BDA, allowed Esdec to earn approval from corrugated roof manufacturer Eternit.*

Esdec's recently launched mounting system "ClickFit EVO" for corrugated roofs, has successfully performed a series of tests that were organized by a special collaboration between test institution KIWA BDA and corrugated roof producer Eternit. With this, Esdec has proven that PV-Installations on fiber cement corrugated roofs can be installed in a safe and reliable manner.

The potential for solar panels on corrugated roofs is high, however, there are also the necessary technical challenges. Extensive testing is of great importance to guarantee reliable PV installations on corrugated fiber cement roofs. In collaboration with KIWA BDA – one of the top 20 worldwide in the field of testing, inspection and certification – and Eternit, Esdec has developed a thorough program to test how the mounting system and the Eternit corrugated roofs behave. In this test plan, Dutch standards and knowledge of fiber cement corrugated roofs (EN494), of PV systems (NEN 7250) and the Eurocodes for wind and snow loads are bundled. Heavy requirements are derived from this. Various pressure, lift, slide and pull-out tests have been carried out under the supervision of test institute KIWA BDA. This tests the thermal effect and water tightness under extreme conditions. The combination of Eternit fiber cement board and Esdec's corrugated iron bracket has achieved excellent values.

### **Waterproof**

For example, to test the water tightness, static and dynamic water tightness tests were performed. The dynamic test is considered one of the toughest possible tests. The mounting bracket on a corrugated roof was tested under water pressure and exposed to mechanical tensile forces (lift). This way, the practical situation is simulated as much as possible.

The test not only shows that the mounting bracket of the Click Fit EVO system closes the roof properly, but also that the bracket does not cause micro-cracks in the corrugated sheet. The heat rain test tests the construction for water tightness with running water at the same time as an endurance test for compressive forces and with heat radiation. Both tests have shown that here too the mounting bracket performs beyond the set standard and does not lead to damage or impact anywhere.

### **Unique collaboration**

The collaboration between Esdec, Eternit and KIWA BDA is the first to test, validate and approve a quality claim in such a way. The results of the tests were extensively analyzed and approved by Eternit. This means that Eternit roof owners can use the Click Fit EVO mounting bracket, when mounted correctly, without any problems for PV installations in the Benelux. The corrugated roof is protected, remains watertight and retains its service life.

"Esdec always wants to supply the most reliable mounting systems for rooftop solar projects. We can only achieve this if we extensively test our products and systems and continue to develop them", says Erik Valks, CEO Esdec Europe. "We are happy to share these test results with our customers."

"There is increasing interest in solar panels on corrugated roofs in the agricultural sector. Every day we receive questions about the correct mounting of solar panels on our Eternit Ecolor corrugated sheets. Thanks to the extensive testing carried out by the Etex laboratory, under the supervision of KIWA BDA, there is now a suitable mounting combination for solar panels on Eternit corrugated sheets. We are therefore very pleased with Esdec as a partner

who will support us in the market”, says Bjorn de Voijs, Sales Manager Netherlands of Etex, the parent organization of the Eternit brand

The director of KIWA BDA, Chris van der Meijden stated “Esdec’s mounting system for PV-installations on corrugated roofs is a wonderful development in the PV-industry. The test program, to which the corrugated sheets and mounting brackets are subjected, has been drawn up in good cooperation with Esdec and Eternit”.

### **Mounting bracket for corrugated roofs**

Esdec’s mounting system for corrugated roofs works with a unique mounting bracket: this allows the mounting rails to be mounted in a simple and secure way, on both existing roofs and new roofs, and it ensures a watertight seal. Because the mounting bracket fits exactly to the wave of the roof, down to the bottom, the pressure is distributed uniformly, point load is minimized and the thermal effect of the roof is not limited. This contributes to a solid and safe construction of the system and the lifetime of the roof. More information: <https://www.esdec.com/en/clickfit-evo-corrugated-roof/>