0131-L-18/3
2 August 2018

Test report

Clickfit EVO fastening system

Trust
Quality
Progress

BDA TESTING

Testing institute for the building envelope

expertise in façades and roofs

0131-L-18/3
2 August 2018

Test report

Clickfit EVO fastening system

Kiwa BDA Testing B.V.
Avelingen West 35-37
P.O. Box 389
4200 AJ Gorinchem
The Netherlands

Tel. +31 183 669 690
testing@bda.nl
www.kiwabda.nl

Commercial register Registered by Chamber of Commerce
Midden Nederland 23059445

Details

Principal	Kiwa BDA Expert Centre Building Envelope P.O. Box 389 NL-4200 AJ GORINCHEM
Contact person	Y. Sari
Email	y.sari@bda.nl
Date of order	3 May 2018
Project number	0131-L-18/3
Author	A.R. Hameete
Subject	determination of mechanical resistance (compressive strength)

Contents

1 Introduction

By order of Kiwa BDA Expert Centre Building Envelope, Kiwa BDA Testing B.V. has determined the mechanical resistance (compressive strength) of the **ClickFit EVO** fastening system in combination with **Sneldek tiles**, **OVH tiles** and **VH-V tiles**.

The suppliers and the date of delivery of the products used are mentioned below.

Table 1 – Specifications of the products used

Product	**Supplier**		**Date of delivery**
	company	**person**	
Fastening system ClickFit EVO	Esdec B.V.	-	2018.05.28
Tiles (new) Sneldek Novo+	Monier B.V.	-	2018.05.14
Tiles (new) OVH 206	Monier B.V.	-	2018.05.18
Tiles (used) Sneldek RBB	Luijtgaarden Handelsonderneming B.V.	Y. Sari	2018.05.11
Tiles (used) OVH	Luijtgaarden Handelsonderneming B.V.	Y. Sari	2018.05.25
Tiles used VH-V	Luijtgaarden Handelsonderneming B.V.	Y. Sari	2018.05.11

On the samples the following data were found.

Fastening system
- Product : ClickFit EVO
- Producer : Esdec B.V.
- Dimensions : see annex II
- Production code : Z97102

Tiles Sneldek (new)
- Product : Sneldek Novo+
- Producer : Monier B.V.
- Dimensions : 420 mm × 332 mm
- Production code : not revealed

Tiles OVH 206 (new)
- Product : OVH 206
- Producer : Monier B.V.
- Dimensions : 372 mm × 268 mm
- Production code : not revealed

Tiles Sneldek (used)
- Product : Sneldek RBB
- Producer : RBB
- Supplier : Luijtgaarden Handelsonderneming B.V.
- Dimensions : 420 mm × 332 mm
- Production code : not revealed
- Sampled : 2018.06.08 by Mrs Y. Sari of Kiwa BDA Expert Centre Building Envelope

Tiles OVH (used)
- Product : OVH
- Producer : V.D. Boel Thorn
- Supplier : Luijtgaarden Handelsonderneming B.V.
- Dimensions : 380 mm × 265 mm
- Production code : not revealed
- Sampled : 2018.06.22 by Mrs Y. Sari of Kiwa BDA Expert Centre Building Envelope

Tiles VH-V (used)
- Product : VH-Variabel (waalkleipan)
- Producer : Depafa
- Supplier : Luijtgaarden Handelsonderneming B.V.
- Dimensions : 340 mm × 250 mm
- Production code : not revealed
- Sampled : 2018.06.08 by Mrs Y. Sari of Kiwa BDA Expert Centre Building Envelope

See annex II for photos and drawings of the products and further package data.

2 Construction of the test specimen

2.1 General

On 12, 20 and 27 June 2018 the test specimens have been built up by Mr A.R. Hameete of Kiwa BDA Testing B.V. in the presence of Mr J. Weller of Esdec B.V.

The specimens have been built up according to the prescription of Mr J. Weller of Esdec B.V. from the bottom up.

2.2 Test 131/3 A1 (ClickFit EVO and Sneldek Novo+ (new)) left valley

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 345 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type Sneldek Novo+ have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the left valley.

2.3 Test 131/3 A2 (ClickFit EVO and Sneldek Novo+ (new)) right valley

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 345 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type Sneldek Novo+ have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the right valley.

2.4 Test 131/3 B (ClickFit EVO and OVH 206 (new))

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 315 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type OVH 206 have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the valley.

2.5 Test 131/3 C1 (ClickFit EVO and Sneldek RBB (used)) left valley

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 345 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type Sneldek RBB have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the left valley.
-

2.6 Test 131/3 C2 (ClickFit EVO and Sneldek RBB (used)) right valley

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 345 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type Sneldek RBB have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the right valley.

2.7 Test 131/3 D (ClickFit EVO and OVH (used))

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 315 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type OVH have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the valley.

2.8 Test 131/3 D (ClickFit EVO and VH-V (used))

- Substructure : The tile battens, dimensions 25 mm × 38 mm have been placed with a centre to centre spacing of 280 mm and have been fastened to the wooden substructure.
- Tiles : on top of the battens two tiles type VH-V have been placed.
- Roof hook : on the upper tile one ClickFit EVO roof hook universal have been positioned in the valley.

3 Investigation

The determination of the mechanical resistance (compressive strength) has been performed in accordance with the principle as mentioned in EN 491:2011 – Concrete tiles and fittings for roof covering and cladding – test methods

The determination of the mechanical resistance (compressive strength) has been performed on a system containing a ClickFit EVO roof hook in combination with different type of tiles. The test has been performed in tenfold.

At the request of the principal the test has been performed by applying a force on top of the roof hook until breakage of the tile occurs. The rate of applying the load has been set at 4000 $N.min^{-1}$.

In annex I a photo report of the test and the test results is given.

4 Results

Table 2 – ClickFit EVO in combination with Sneldek Novo+ (new) and OVH 206 (new)

Test specimen	Axial load [N]		
	Sneldek Novo+		OVH 206
	left valley	right valley	
1	1038	1424	1509
2	1019	1336	1211
3	1082	1316	1176
4	1115	1405	1360
5	1014	1375	1311
6	1030	1389	1464
7	1069	1448	1316
8	939	1519	1427
9	1061	1409	1302
10	1022	1563	1156
Mean value (*m*)	**1039**	**1418**	**1323**

Table 3 – ClickFit EVO in combination with Sneldek RBB (used), OVH (used) and VH-V (used)

Test specimen	Axial load [N]			
	Sneldek RBB		OVH	VH-V
	left valley	right valley		
1	1509	2088	1528	2141
2	1493	2081	1711	1735
3	2101	2139	1318	2018
4	1729	2463	1522	2141
5	1618	1938	1280	1403
6	1752	1981	1634	1537
7	1528	1881	1556	1678
8	1716	2006	1336	1926
9	1703	1882	1414	1231
10	1533	2171	1326	1628
Mean value (*m*)	**1668**	**2063**	**1462**	**1744**

Remarks:

The results are only related to the investigated samples, products and/or systems. Kiwa BDA Testing B.V. is not liable for interpretations or conclusions that are made in consequence of the results obtained.

The uncertainty of measurement can be retrieved at Kiwa BDA Testing B.V.

If sampling was not performed by Kiwa BDA Testing B.V., no judgement can be given with regard to the origin and representativeness of the samples.

Gorinchem, 2 August 2018
The laboratory

A.R. Hameete
operational manager

Kiwa BDA Testing B.V.

C.W. van der Meijden MSc
technical director

I Photo report of the test and test results

Photo 1
Overview of the test on Sneldek Novo+ (new), left valley.

Photo 2
detail of the collapse image.

Photo 3
Overview of the collapse images.

Photo 4
Overview of the test on Sneldek Novo+ (new), right valley.

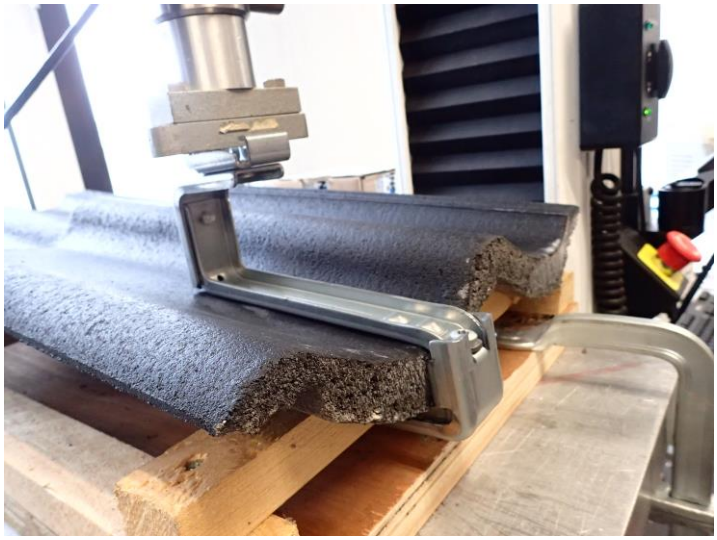


Photo 5
Detail of the collapse image.

Photo 6
Overview of the collapse images.

Photo 7
Overview of the test on OVH 206 (new).

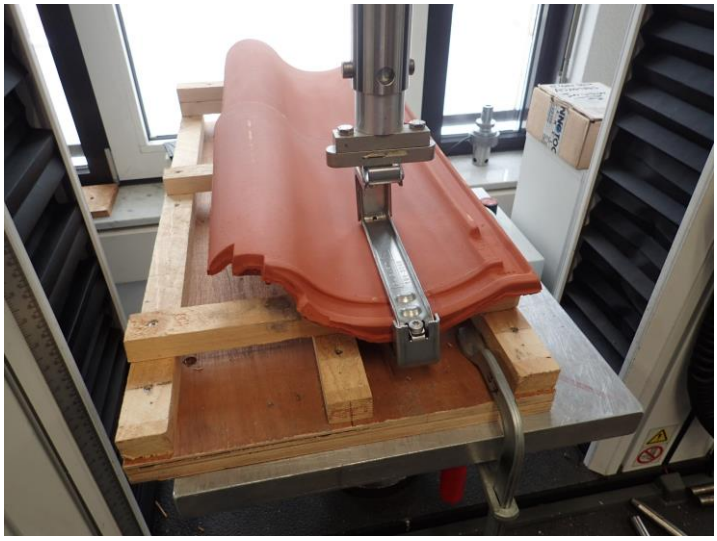


Photo 8
Detail of the collapse image.

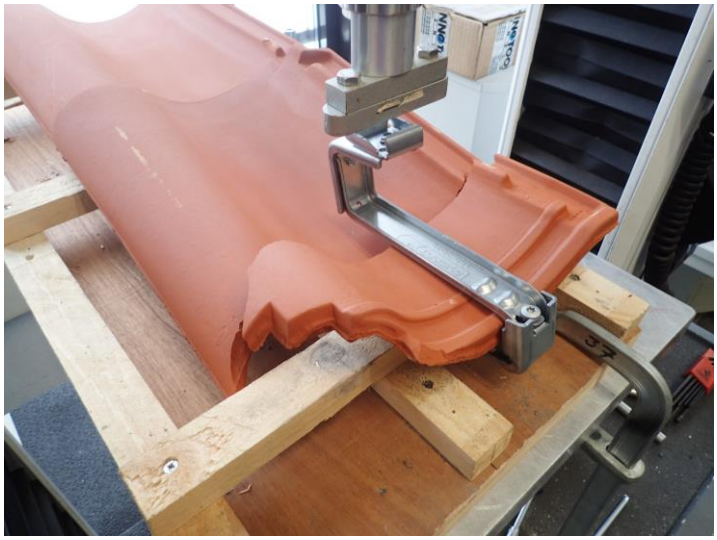


Photo 9
Overview of the collapse images.

Photo 10
Overview of the test on Sneldek RBB (used), left valley.

Photo 11
Detail of the collapse image.

Photo 12
Overview of the collapse images.

Photo 13
Overview of the test on Sneldek RBB (used), right valley.

Photo 14
Detail of the collapse image.

Photo 15
Overview of the collapse images.

Photo 16
Overview of the test on OVH (used).

Photo 17
Detail of the collapse image.

Photo 18
Overview of the collapse images.

Photo 19
Overview of the test on VH-V (used).

Photo 20
Detail of the collapse image.

Photo 21
Overview of the collapse images.

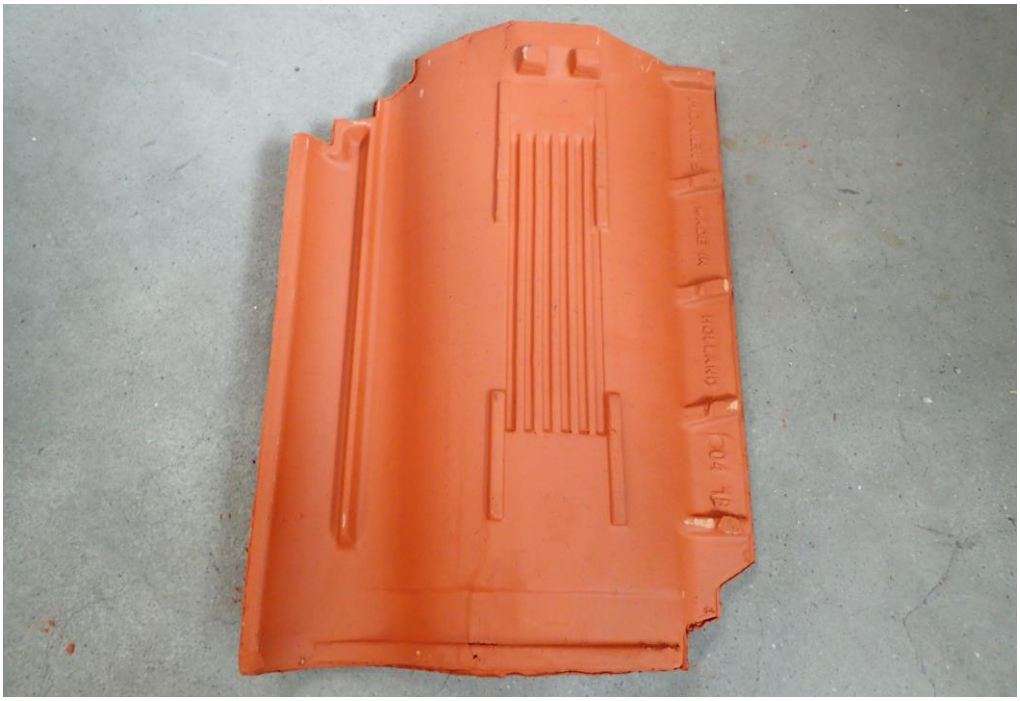
II Photos and drawings of the products and further package data

Tiles used VH-V

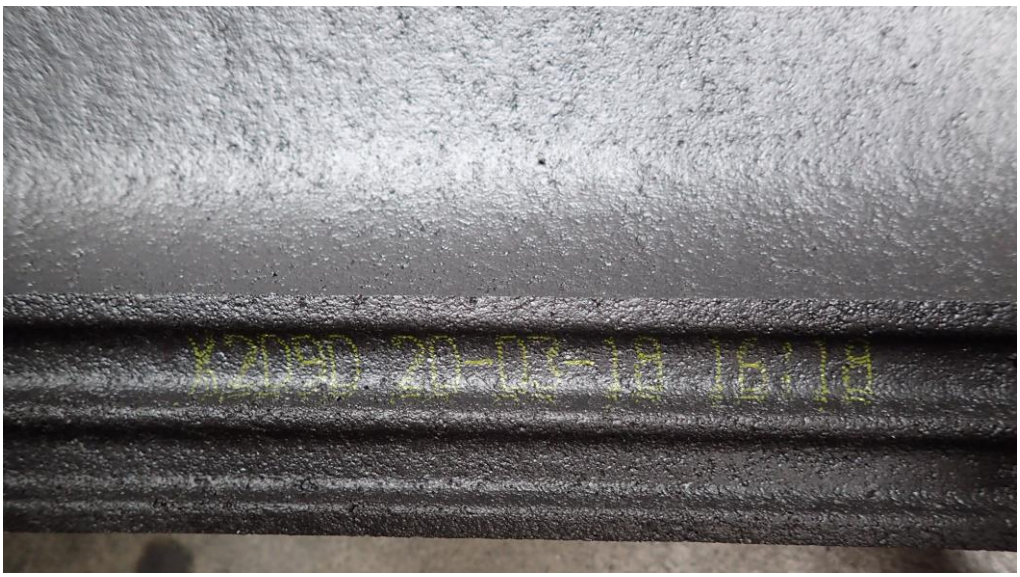
Tiles (used) OVH

Tiles (used) Sneldek RBB

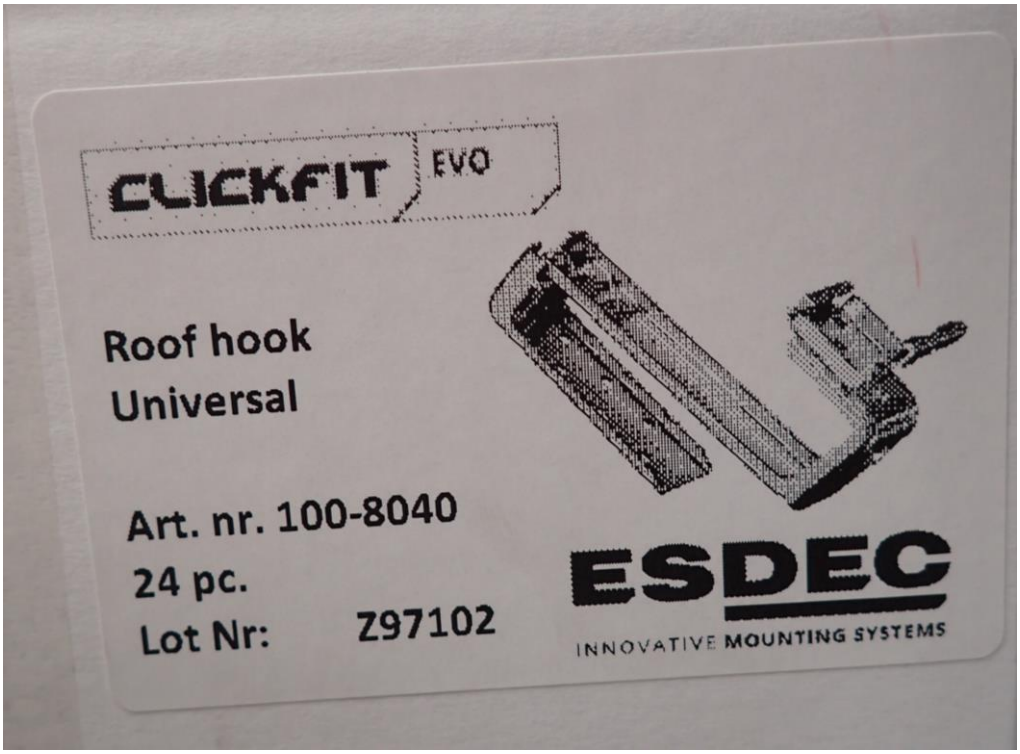
Tiles (new) OVH 206

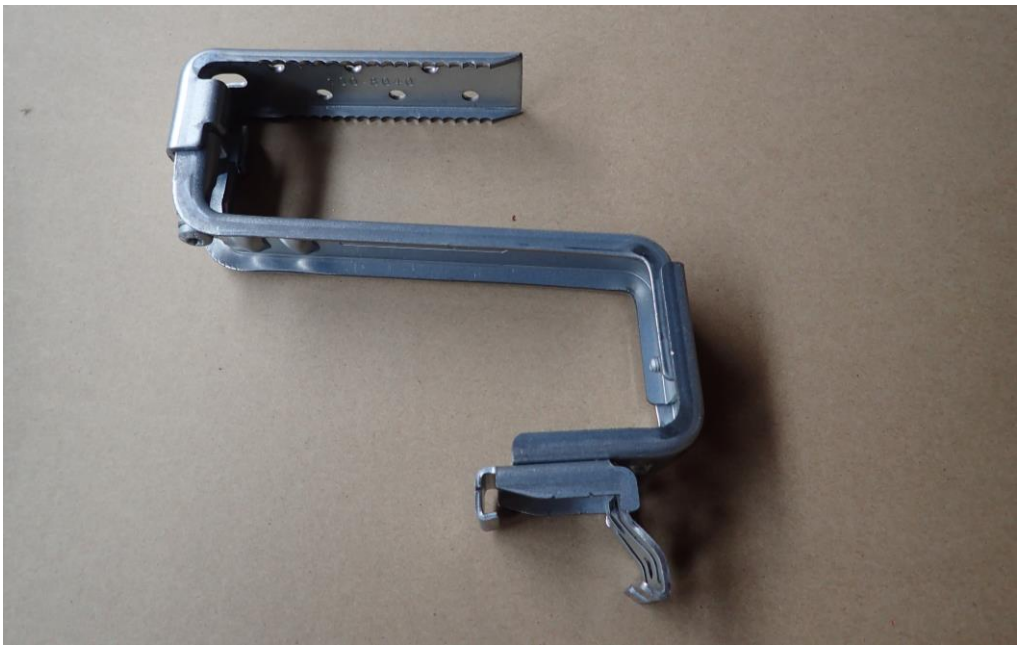


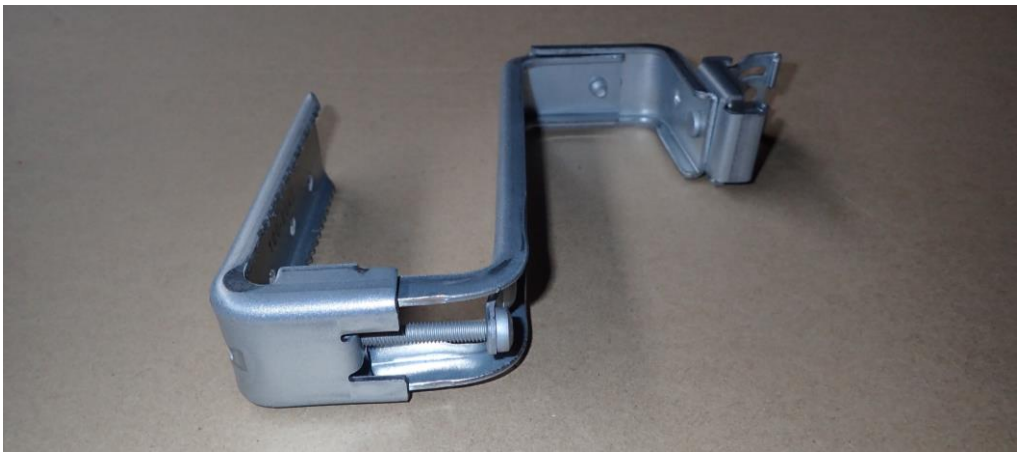
Tiles (new) Sneldek Novo+

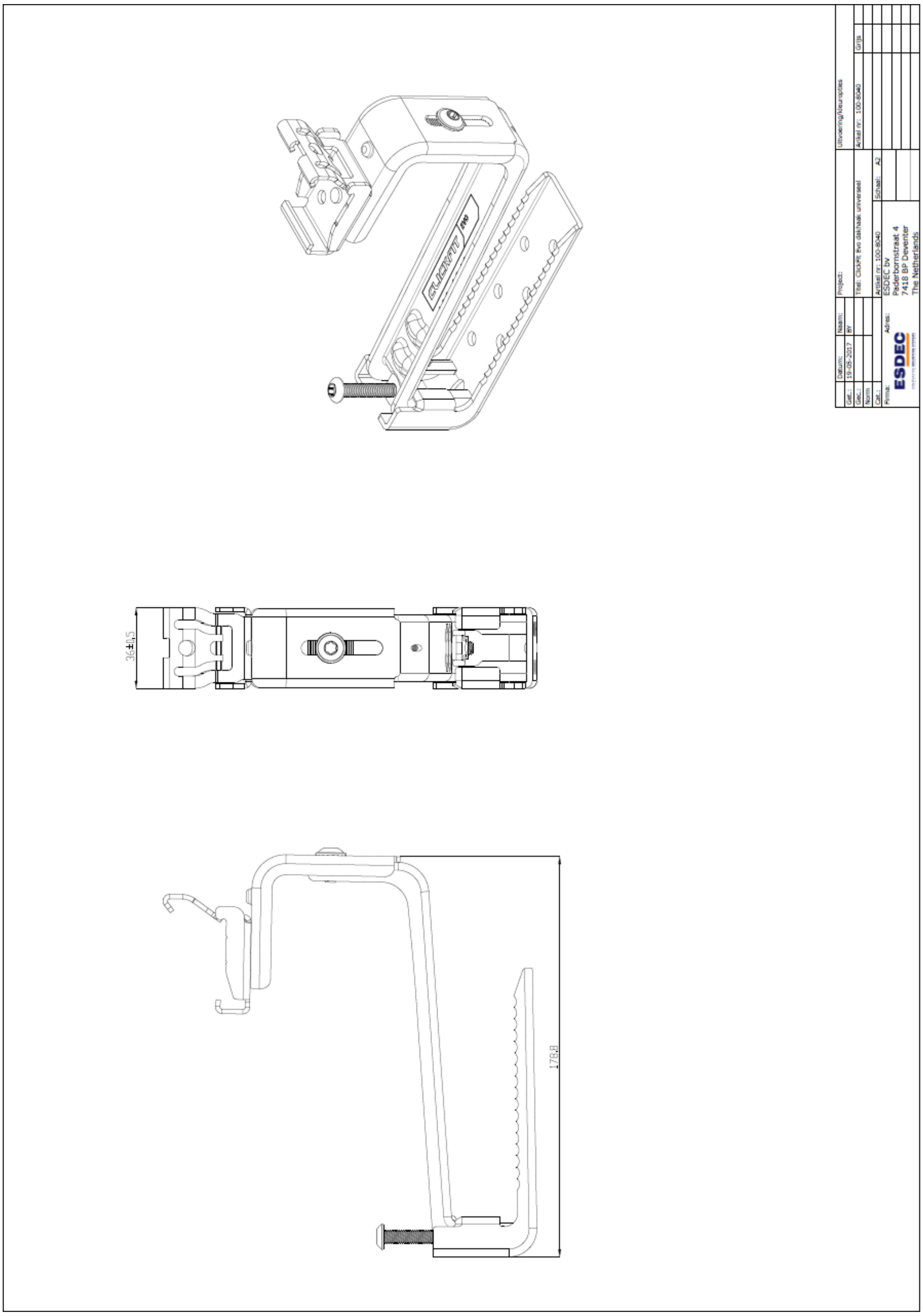


Fastening system ClickFit EVO








Datum:
Naam:
Project:
Uitvoering/kleuropties
Get.:
19-05-2017
BY
Titel: ClickFit Evo dakhaak universeel
Artikel nr.: 100-8040
Grijs
Gec.:
Norm
Cat.:
Artikel nr.: 100-8040
Schaal: A2
Firma:
Adres:
ESDEC bv
Paderbornstraat 4
7418 BP Deventer
The Netherlands
36±1,5
178,8