ZAG

ZAVOD ZA GRADBENIŠTVO SLOVENIJE
SLOVENIAN NATIONAL BUILDING AND CIVIL ENGINEERING INSTITUTE

Designated according to Article 29 of Regulation (EU) No 305/2011

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European Technical Assessment

ETA-17/0320
of 18/06/2019

English version prepared by ZAG

General Part

Organ za tehnično ocenjevanje, ki je izdal ETA *Technical Assessment Body issuing the ETA*	**ZAG Ljubljana**
Komercialno ime gradbenega proizvoda *Trade name of the construction product*	**IsoFux EASY**
Družina proizvoda, ki ji gradbeni proizvod pripada *Product family to which the construction product belongs*	**33: Plastično sidro za pritrjevanje toplotno izolacijskih sistemov z ometi na podlagi iz betona in zidakov** *33: Plastic anchor for fixing of external thermal insulation composite systems with rendering on concrete and masonry*
Proizvajalec *Manufacturer*	**RANIT Befestigungssysteme GmbH** **Lennestraße 5** **45701 Herten** **Germany** www.ranit.de
Proizvodni obrat *Manufacturing plant*	**RANIT Befestigungssysteme GmbH** **Lennestraße 5** **45701 Herten** **Germany**
Ta Evropska tehnična ocena vsebuje *This European Technical Assessment contains*	19 strani vključno s 16 prilogami, ki so sestavni del te ocene *19 pages including 16 annexes, which form an integral part of the document*
Ta Evropska tehnična ocena je izdana na podlagi Uredbe (EU) št. 305/2011 na osnovi *This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of*	EAD 330196-01-0604, izdaja julij 2017 *EAD 330196-01-0604, Edition July 2017*

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Specific parts

1 Technical description of the product

The IsoFux EASY is anchor made in two versions (G2 and G3) which can be used as screwed -in or nailed -in. It consists of a plastic sleeve made of virgin polyethylene, plastic plate made of virgin polypropylene (G2) or virgin polyamide (G3) and plastic expansion element made of virgin polyamide. Additionally 3 types of additional plates can be used – T90 made of virgin polypropylene and T110 and T140 made of polyamide. Version IsoFux EASY G3 consists also of insulation cover made of Polystyrol or Mineral wool for the case of deep mounting.

The anchor is installed in drilled hole by a special installation toll on a hand driller. The expansion of the anchor and consequent anchorage is applied by screwing -in or nailing -in the expansion element into the sleeve.

Product description is given in Annex A.

2 Specification of the intended use(s) in accordance with the applicable European Assessment Document (hereinafter EAD)

The performances given in Chapter 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the manufacturer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Not relevant.

3.2 Safety in case of fire (BWR 2)

Not assessed based EAD 330196-01-0604.[1]

3.3 Hygiene, health and environment (BWR 3)

Regarding dangerous substances contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transported European legislation and national laws, regulations and administrative provisions). In order to meet provisions of the regulation (EU) No 305/2011, these requirements need also to be complied with, when they apply.

3.4 Safety in use (BWR 4)

Essential characteristic		Performance
Characteristic load bearing capacity		
Characteristic resistance under tension load	N_{Rk} [kN]	See Tables C1 and C2, Annex C1
Minimum edge distance	c_{min} [mm]	See Table B2, Annex B2
Minimum spacing	s_{min} [mm]	
Displacement		
Tension load with partial factor γ_M, γ_F	N [kN]	See Tables C5 and C6, Annex C2
Displacement	$\Delta\delta_N$ (N) [mm]	
Plate stiffness		
Diameter of the anchor plate	[mm]	See Table C4, Annex C2
Load resistance of the anchor plate	[kN]	
Plate stiffness	[kN/mm]	

[1] Requirements with respect to safety in case of fire are given in ETAG 004 and ETAG 017.

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3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Essential characteristic		Performance
Thermal transmittance		
Point thermal transmittance of an anchor	χ [W/K]	See Table C3, Annex C2
Insulation layer thickness of the ETICS	h_D [mm]	

3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.8 General aspects relating to fitness for use

Durability and serviceability are only ensured if specifications of intended use according to Annex B are kept.

4 Assessment and verification of constancy of performance (hereinafter AVCP) system applied, with reference to its legal base

According to the decision 97/463/EC of the European Commission[2] the system of assessment and verification of constancy of performance (see Annex V to regulation (EU) No 305/2011) **2+** apply.

5 Technical details necessary for the implementation of the AVCP system, as provided for on the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in chapter 3 of EAD 330196-01-0604.

Issued in Ljubljana on 18.06.2019

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Signed by:

Franc Capuder, M.Sc.

Head of Service of TAB

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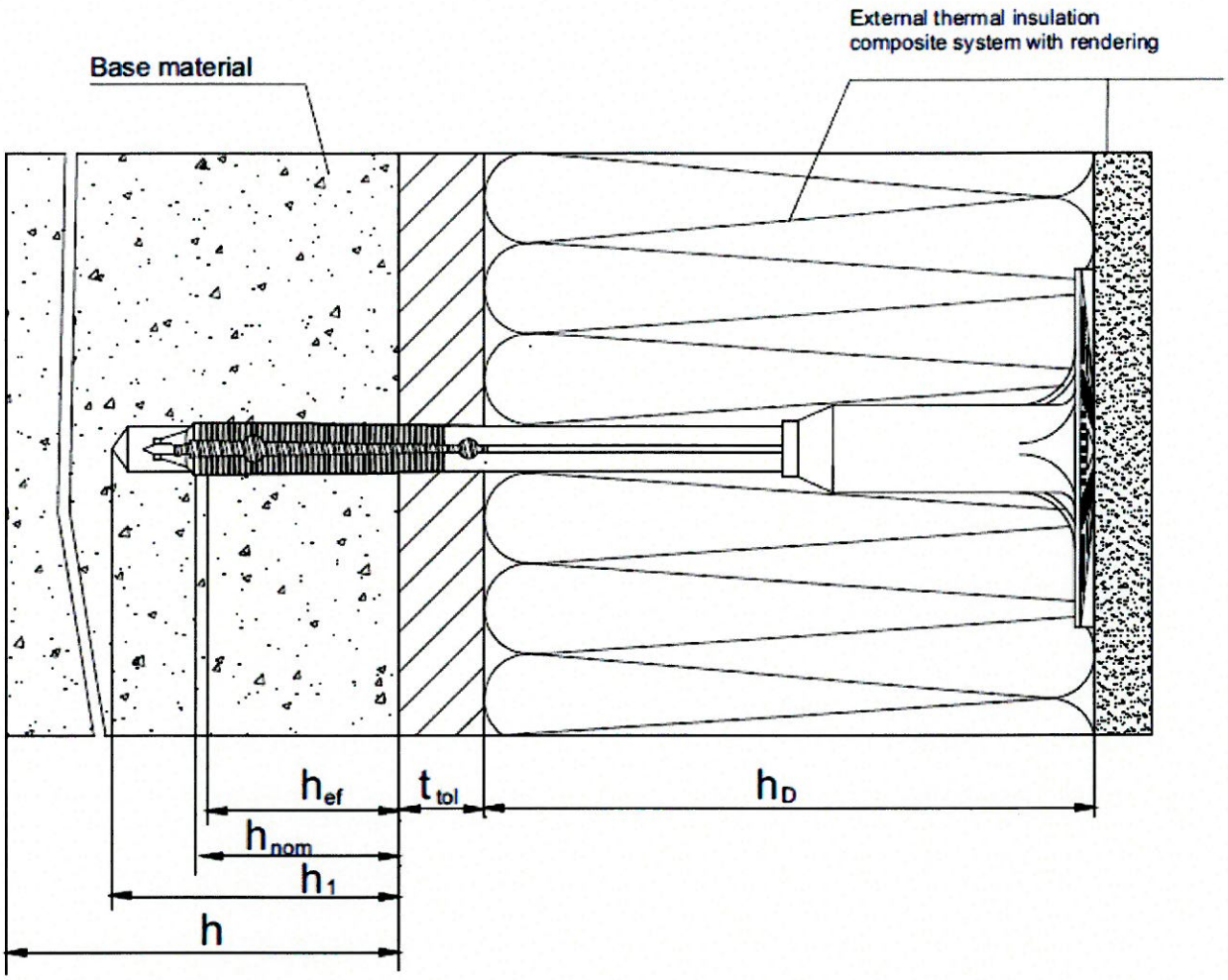
2 Official Journal of the European Communities L 254 of 8.10.1996



Legend:

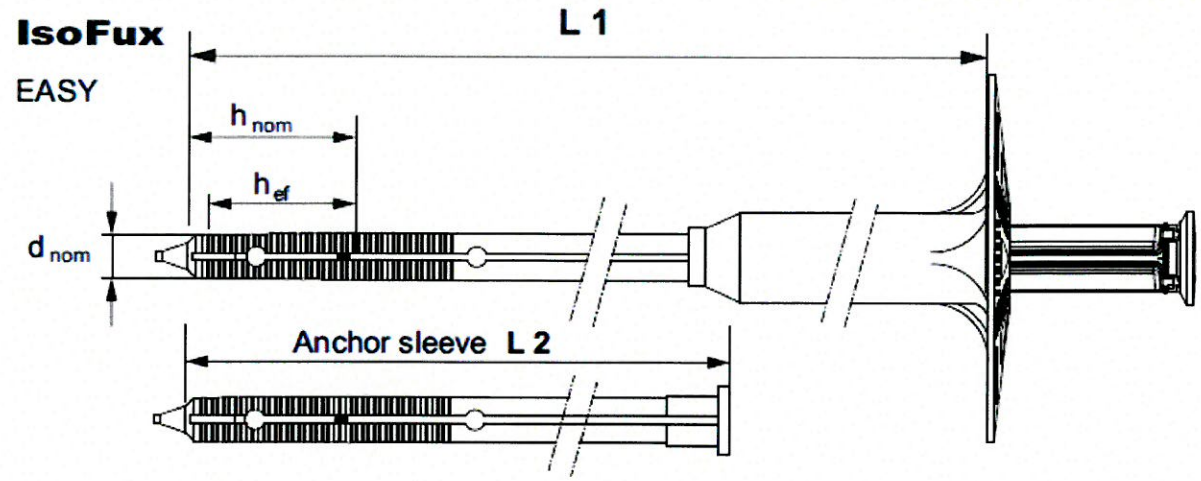
h	=	thickness of base material
h_1	=	depth of drilled hole to deepest point
h_{ef}	=	effective anchorage depth
h_{nom}	=	overall plastic anchor embedment depth in the base material
h_D	=	thickness of insulation material
t_{tol}	=	thickness of equalizing layer or non-load bearing coating

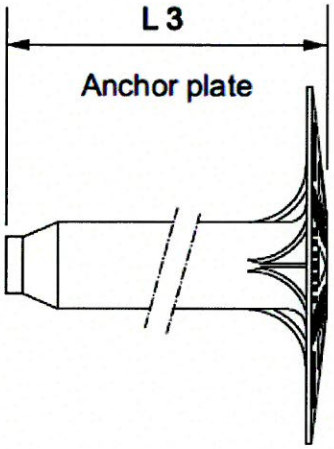
IsoFux EASY

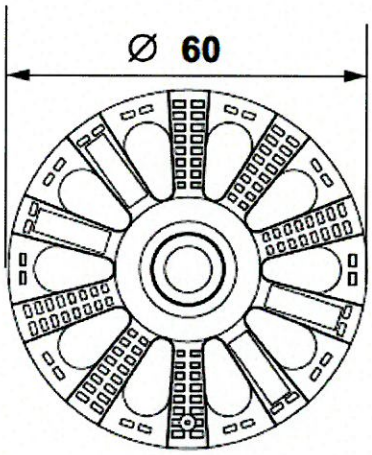
Product description

Installed condition – Isofux EASY G2

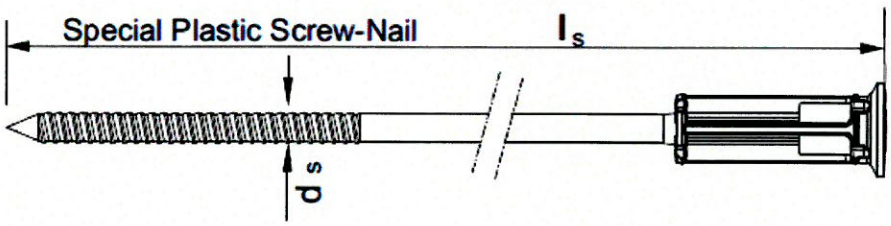
Annex A1







Marking:
Anchor type: EASY
Producer: RANIT
Base material cattegories : A, B, C
Bottom side:
Nominal embedment depth:
h_{nom} = 30 mm for base material categories A, B, C



Marking
Anchor L1 (e.g. 120)

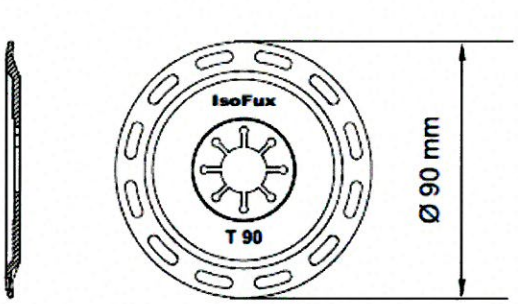
Table A1: Dimensions – IsoFux EASY G2

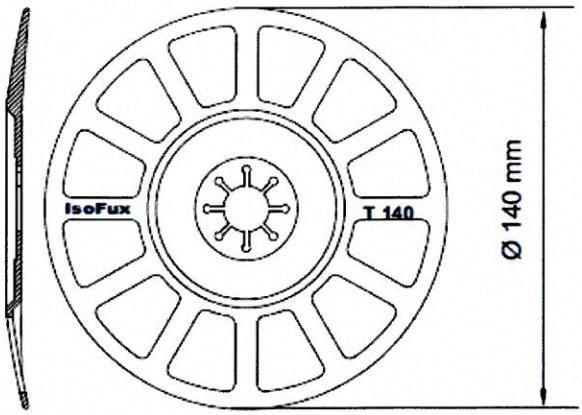
Anchor type	Anchor			Anchor L_1		Anchor sleeve L_2		Anchor plate L_3	
	d_{nom}	h_{ef}	h_{nom}	min L_1	max L_1	min L_2	max L_2	min L_3	max L_3
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
IsoFux EASY G2	8	25	30	80	240	55	160	35	101,5

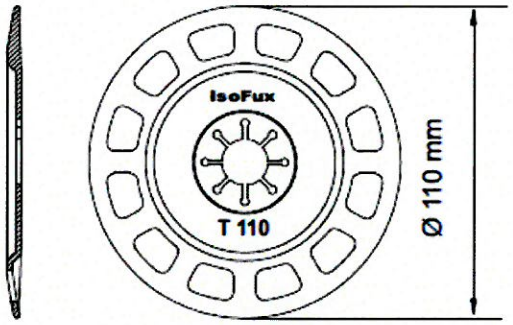
Evaluation of thickness of the insulation h_D of IsoFux EASY

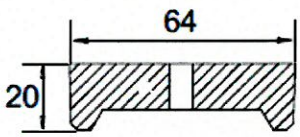
$h_d = L_1 - t_{tol} - h_{nom}$ (e.g. L_1 = 140 mm; t_{tol} = 10 mm)
h_d = 140 – 10 – 30 = 100 mm

IsoFux EASY	
Product description Dimensions - components for IsoFux EASY G2	**Annex A4**









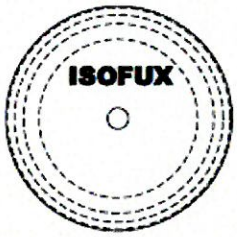


Table A3: Materials

Item	Material
Anchor sleeve	Polyethylene, black
Anchor plate – G2	Polypropylene
Anchor plate – G3	Polyamide
Expansion element	Polyamide
Additional plate T110, T140	Polyamide
Additional plate T90	Polypropylene
Insulation cover	Polystyrol, Mineral wool

IsoFux EASY

Product description

Insulation cover and additional plates

Annex A7

Specifications of intended use

Anchorages subject to:

- The anchor shall only be used for the transmission of wind suction loads and shall not be used for the transmission of dead loads of thermal insulation composite system. The dead loads have to be transmitted by the bonding of the thermal insulation composite system.

Base materials:

- Normal weight concrete C16/20 to C50/60 (use category A) according to Annex C1;
- Solid masonry (use category B), according to Annex C1;
- Hollow brick (use category C) according to Annex C1;
- For other base materials of the use categories A, B and C the characteristic resistance of the anchor may be determined by job site tests according to EOTA TR 051, edition December 2016.

Application temperature range:

- 0°C to +40°C (maximum short term temperature +40°C and maximum long term temperature +24°C)

Design:

- If there is no other national regulations, partial safety factors γ_M = 2,0 and γ_F = 1,50 shall be considered.
- The anchors are designed under responsibility of an engineer experienced in anchorages in concrete and masonry.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored. The position of the anchor shall be indicated on the design drawings.
- Fasteners are only to be used for multiple non-structural application according to EAD 330196-01-0604, edition July 2017.

Installation:

- Drilling method shall comply to Annex C1.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site.
- Ambient temperature during the installation of the anchor 0ºC to 40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks.

IsoFux EASY	
Intended use Specifications	**Annex B1**

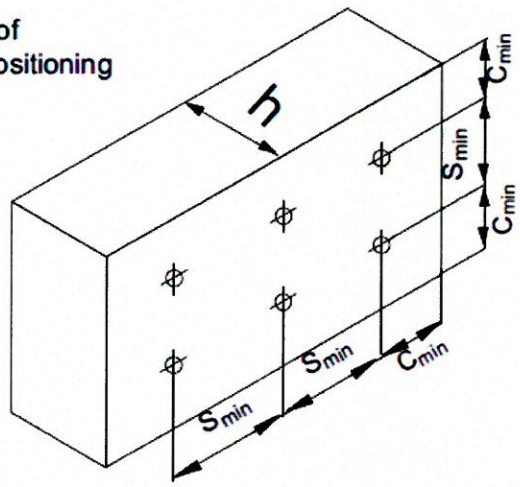
Table B1: Installation parameters

				IsoFux EASY
Nominal drill bit diameter	d_0	=	[mm]	8
Drill bit cutting diameter	d_{cut}	≤	[mm]	8,45
Depth of drilled hole to deepest point	h_1	≥	[mm]	40
Embedment depth	h_{nom}	≥	[mm]	30
Effective embedment depth	h_{ef}	≥	[mm]	25

Table B2: Minimum thickness of base material, edge distance and anchor spacing

				IsoFux EASY
Minimum thickness of base material	h	≥	[mm]	100
Minimum spacing	s_{min}	=	[mm]	100
Minimum edge distance	c_{min}	=	[mm]	100

Scheme of anchor positioning

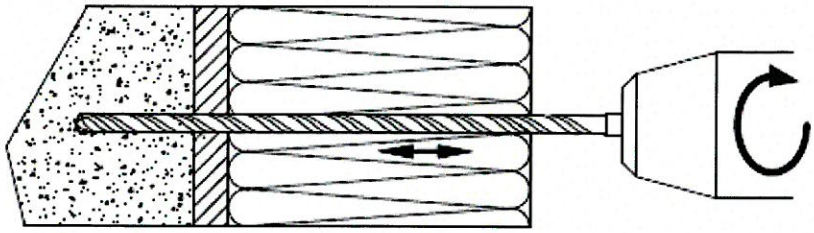


IsoFux EASY

Intended use

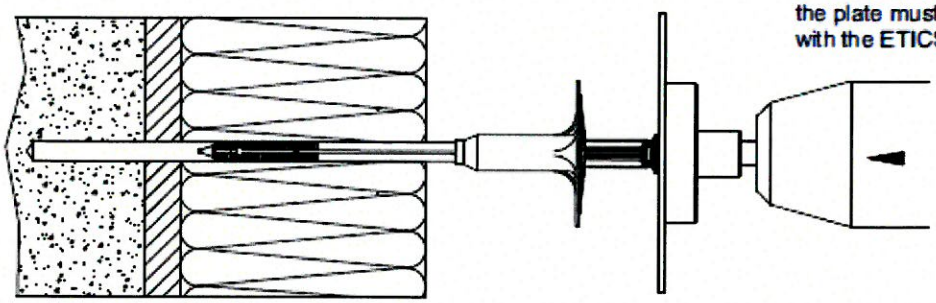
Installation parameters, minimum thickness, edge distance and spacing

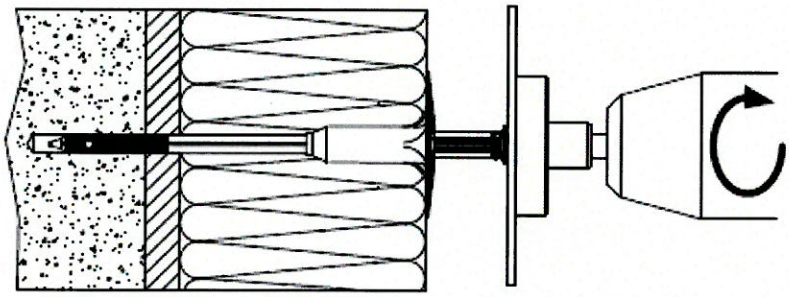
Annex B2



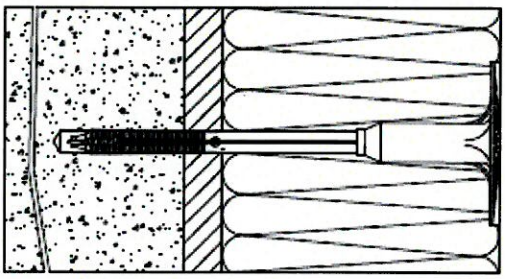
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.

2) Place the anchor into the drill hole. The bottom side of the plate must be flush with the ETICS.





Anchor with the screw drill mounting. The bottom side of the plate must be flush with the ETICS.



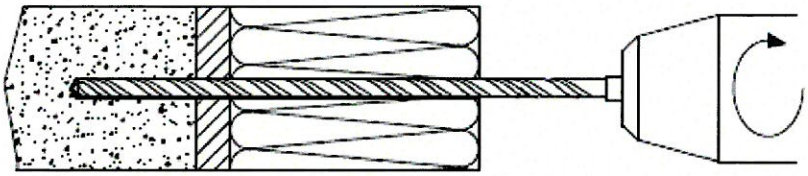
4) Installed condition.

IsoFux EASY

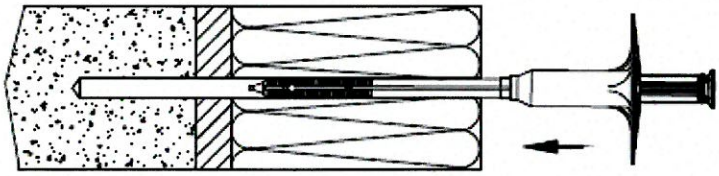
Intended use

Installation procedure – IsoFux EASY G2 – installation with installation tool

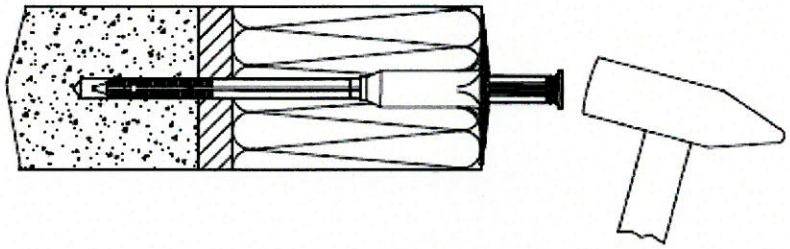
Annex B3



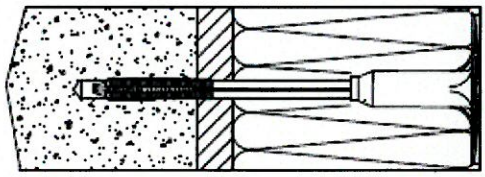
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.



2) Place the anchor into the drill hole. The bottom side of the plate must be flush with the ETICS.



3) Drive in the specific nail with the hammer



4) Installed condition.

IsoFux EASY

Intended use

Installation procedure – IsoFux EASY G2 – installation with hammer

Annex B4

Table C1: Characteristic resistance to tension loads N_{Rk} for IsoFux EASY G2

IsoFux EASY G2					Nailed-in	Screwed-in
Base material	**Bulk density [kg/dm³]**	**Minimum compressive strength [N/mm²]**	**Remarks**	**Drilling method**	**N_{Rk} [kN]**	**N_{Rk} [kN]**
Concrete **C16/20 - C50/60** acc. EN 206-1				hammer	**0,90**	**1,00**
Solid clay brick **Wienerberger Mauerziegel NF voll**	1,54	35,0	cross section vertically to resting area reduced by perforation up to 15%	hammer	**0,90**	**1,10**
Solid limestone brick **KS-R P**	2,00	20,0		hammer	**1,10**	**1,30**
Hollow clay brick **Porotherm 25 SSZ HD**	1,42	22,8	cross section vertically to resting area reduced by perforation more than 15% and less than 50%	rotating	**0,80**	**0,90**
Hollow sand-lime brick **KS L-R P**	1,40	12,0		rotating	**0,50**	**0,90**

Table C2: Characteristic resistance to tension loads N_{Rk} for IsoFux EASY G3

IsoFux EASY G3					Nailed-in	Screwed-in
Base material	**Bulk density [kg/dm³]**	**Minimum compressive strength [N/mm²]**	**Remarks**	**Drilling method**	**N_{Rk} [kN]**	**N_{Rk} [kN]**
Concrete **C16/20 - C50/60** acc. EN 206-1				hammer	**0,80**	**0,90**
Solid clay brick **Wienerberger Mauerziegel NF voll**	1,54	35,0	cross section vertically to resting area reduced by perforation up to 15%	hammer	**0,85**	**0,90**
Solid limestone brick **KS-R P**	2,00	20,0		hammer	**1,00**	**1,10**
Hollow clay brick **Porotherm 25 SSZ HD**	1,42	22,8	cross section vertically to resting area reduced by perforation more than 15% and less than 50%	rotating	**0,75**	**0,90**
Hollow sand-lime brick **KS L-R P**	1,40	12,0		rotating	**0,70**	**0,75**

IsoFux EASY

Performance

Characteristic resistance

Annex C1

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Table C3: Point thermal transmittance acc. to EOTA TR 025

Anchor type	Insulation thickness h_D [mm]	Point thermal transmittance [W/K]
IsoFux EASY	60 - 440	0,000

Table C4: Plate stiffness acc. EOTA TR 026

Anchor type	Capacity of plate [kN]	Plate stiffness [kN/mm]
IsoFux EASY G2	1,9	0,6
IsoFux EASY G3	1,7	0,6

Table C5: Displacements for IsoFux EASY G2

IsoFux EASY			Nailed-in		Screwed-in	
Base material	Bulk density [kg/dm³]	Minimum compressive strength [N/mm²]	Tension load N [kN]	Displacement δ_m (N) [mm]	Tension load N [kN]	Displacement δ_m (N) [mm]
Concrete **C16/20 - C50/60** acc. EN 206-1			0,30	0,681	0,33	0,152
Solid clay brick **Wienerberger Mauerziegel NF voll**	1,54	35,0	0,30	0,681	0,37	0,116
Solid limestone brick **KS-R P**	2,00	20,0	0,27	1,019	0,43	0,143
Hollow clay brick **Porotherm 25 SSZ HD**	1,42	22,8	0,27	0,519	0,30	0,139
Hollow sand-lime brick **KS L-R P**	1,40	12,0	0,17	0,545	0,30	0,079

Table C6: Displacements for IsoFux EASY G3

IsoFux EASY			Nailed-in		Screwed-in	
Base material	Bulk density [kg/dm³]	Minimum compressive strength [N/mm²]	Tension load N [kN]	Displacement δ_m (N) [mm]	Tension load N [kN]	Displacement δ_m (N) [mm]
Concrete **C16/20 - C50/60** acc. EN 206-1			0,27	1,503	0,30	0,035
Solid clay brick **Wienerberger Mauerziegel NF voll**	1,54	35,0	0,28	1,535	0,30	0,095
Solid limestone brick **KS-R P**	2,00	20,0	0,33	1,638	0,37	0,127
Hollow clay brick **Porotherm 25 SSZ HD**	1,42	22,8	0,25	0,770	0,30	0,010
Hollow sand-lime brick **KS L-R P**	1,40	12,0	0,23	2,849	0,25	0,005

IsoFux EASY

Intended use

Point thermal transmittance, plate stiffness and displacements

Annex C2