

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-12/0093
of 17 April 2017

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

IsoFux Rocket

Product family
to which the construction product belongs

Screwed-in plastic anchor for fixing of external thermal
insulation composite systems with rendering in concrete
and masonry

Manufacturer

RANIT-Befestigungssysteme GmbH
Lennestraße 3-5
45701 Herten
DEUTSCHLAND

Manufacturing plant

RANIT-Befestigungssysteme GmbH
Lennestraße 3-5
45701 Herten
DEUTSCHLAND

This European Technical Assessment
contains

19 pages including 3 annexes which form an integral part
of this assessment

This European Technical Assessment is
issued in accordance with Regulation (EU)
No 305/2011, on the basis of

European Assessment Document (EAD)
330335-00-0604

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Specific Part

1 Technical description of the product

The RANIT screwed-in anchor type IsoFux Rocket consists of a plastic sleeve made of polypropylene, a plastic shaft with a plate and a cover cap made of polyamide and an accompanying specific screw of galvanised steel. For deep mounting of the anchor in the insulating material this anchor type consists in addition of an accompanying insulation cover made of Polystyrol or mineral wool.

For mounting on the surface the anchor may in addition be combined with the anchor plates T90, T110 and T140.

An illustration and the description of the product are given in Annex A.

2 Specification of the intended use in accordance with the applicable European Assessment Document

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

The verification and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the anchor of at least 25 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, 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)

Essential characteristic	Performance
Characteristic tension resistance	See Annex C 1
Edge distances and spacing	See Annex B 2
Plate stiffness	See Annex C 2
Displacements	See Annex C 3

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 3

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

In accordance with EAD No. 330335-00-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

English translation prepared by DIBt

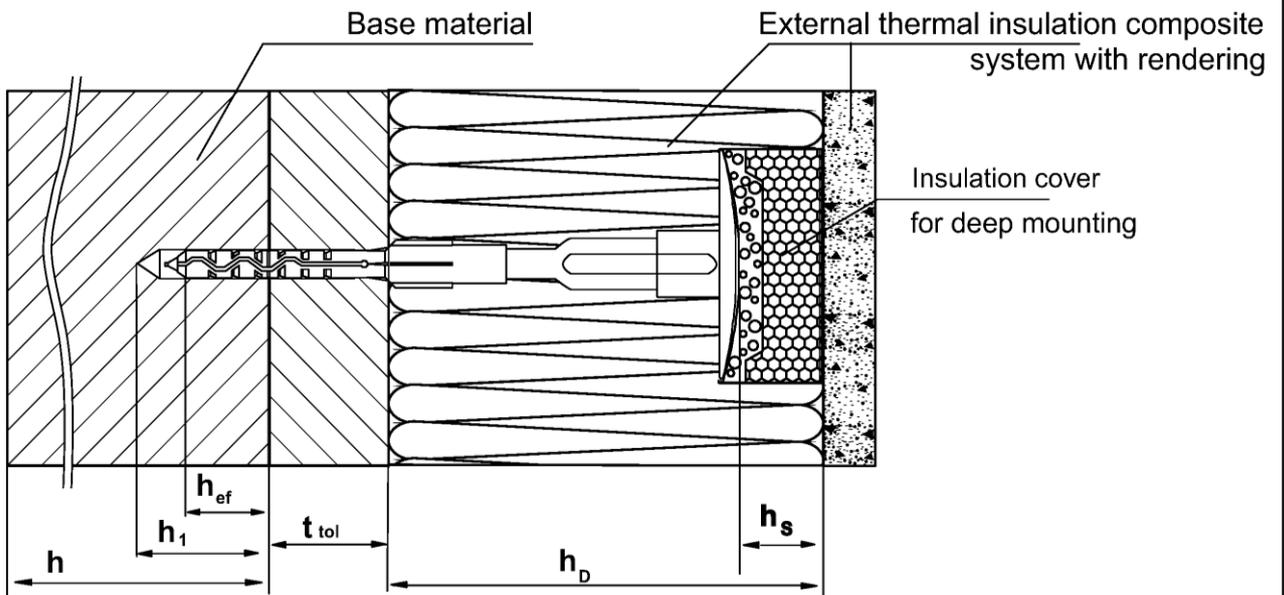
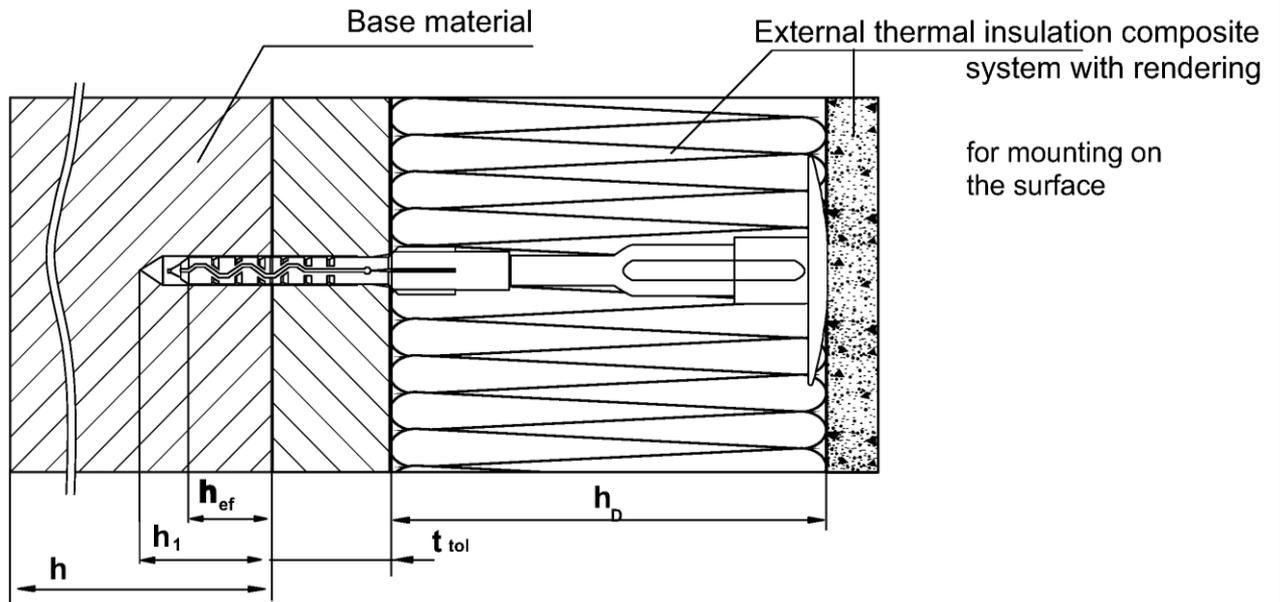
5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 17 April 2017 by Deutsches Institut für Bautechnik

Andreas Kummerow
p. p. Head of Department

beglaubigt:
Aksünger



- Legend:**
- h = thickness of member (wall)
 - h_1 = depth of drilled hole to deepest point
 - h_{ef} = effective anchorage depth
 - t_{tol} = thickness of equalizing layer or non-load-bearing coating
 - h_D = thickness of insulation material
 - h_s = depth of countersink

IsoFux Rocket

Product description

installed condition - surface mount, deep mounting

Annex A 1

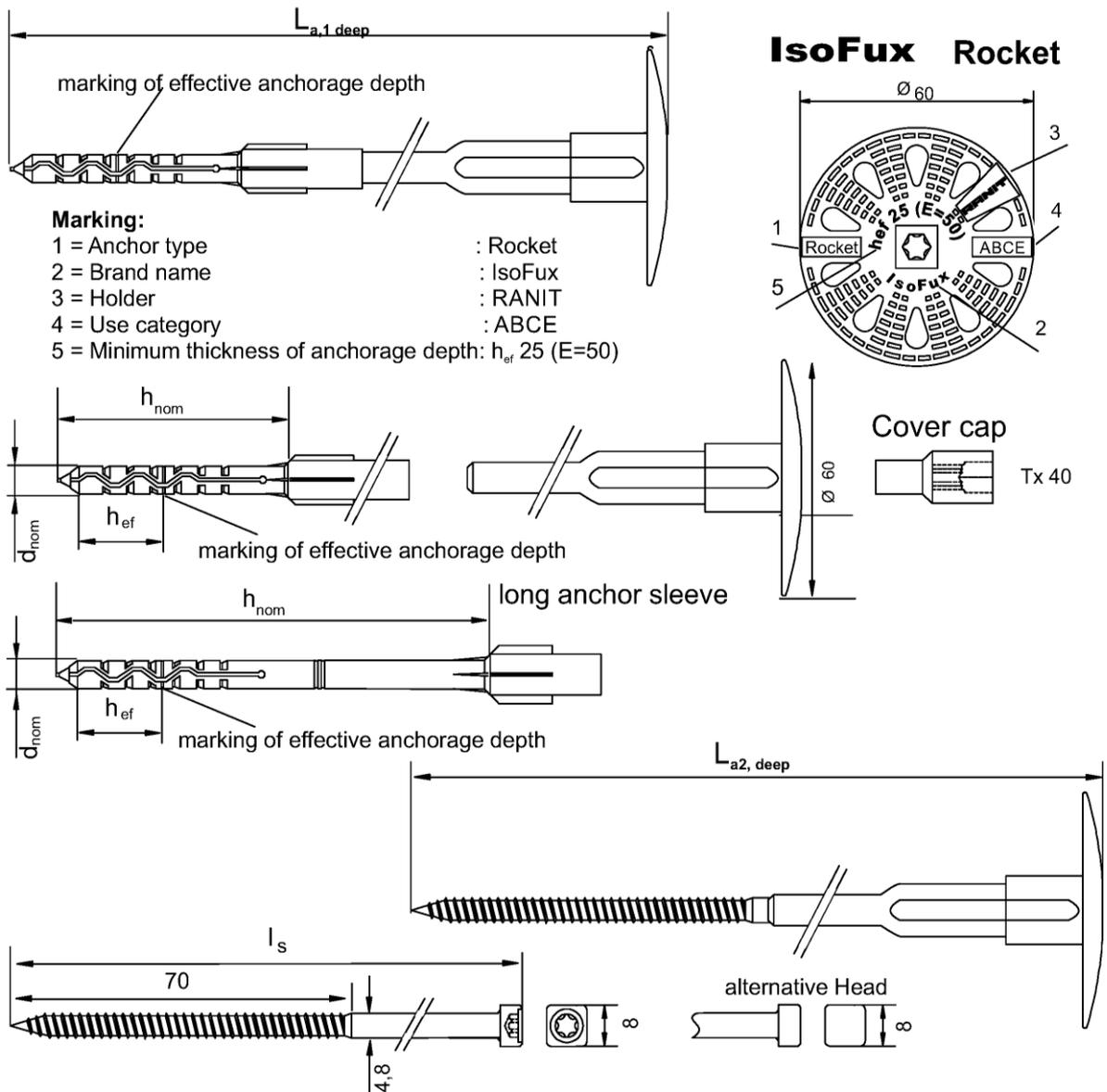


Table A1: Dimensions

Sizes in mm

Anchor type	Anchor sleeve				L_{a1}		L_{a2}	
	d_{nom}	h_{ef}	h_{nom}	$t_{tol max}$	min $L_{a1, deep}$	max L_{a1}	min $L_{a2, deep}$	max L_{a2}
short anchor sleeve	8	25	65	35	155	480	102	427
long anchor sleeve	8	25	125	95	235	480	182	427

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with short anchor sleeve
 $\min L_{a1, deep} - h_{nom} - 30 = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 155$) $155 - 65 - 30 = 60$ (h_{Dmax})

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with long anchor sleeve
 $\min L_{a1, deep} - h_{nom} + 30 = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 235$) $235 - 125 + 30 = 140$ (h_{Dmax})

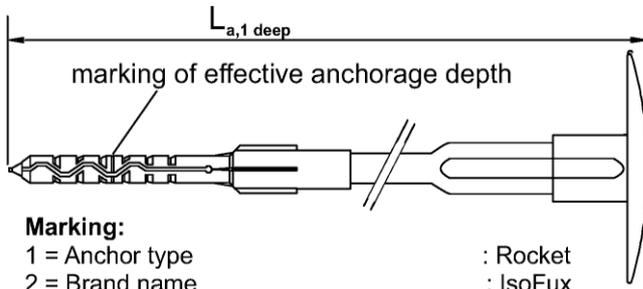
IsoFux Rocket

Product description

Use category A, B, C

Components of mounting on the surface Dimensions

Annex A 2



Marking:

- 1 = Anchor type : Rocket
- 2 = Brand name : IsoFux
- 3 = Holder : RANIT
- 4 = Use category : ABCE
- 5 = Minimum thickness of anchorage depth: $h_{ef} 25$ (E=50)

IsoFux Rocket

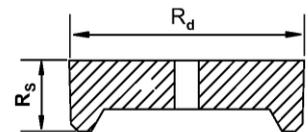
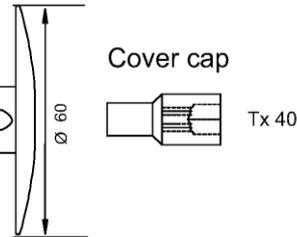
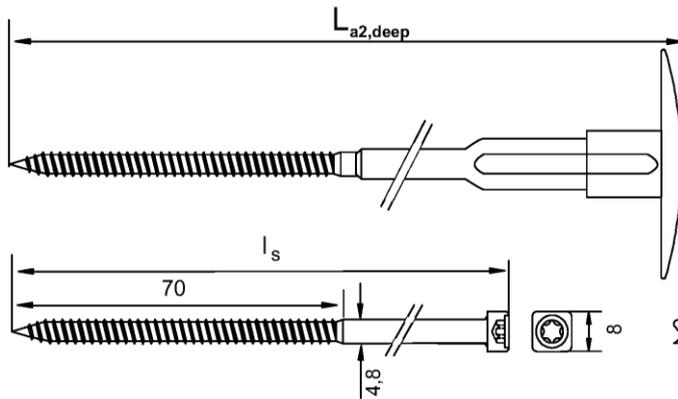
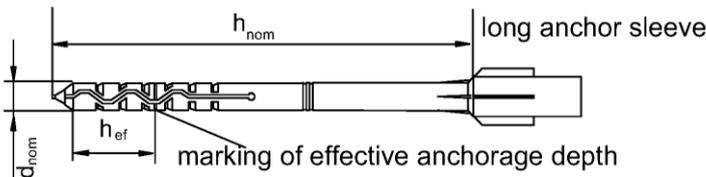
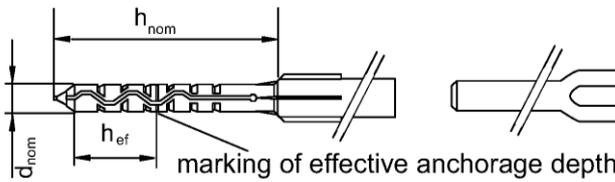
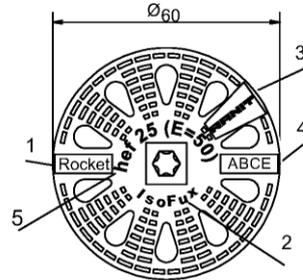


Table A2: Dimensions

Sizes in mm

Anchor type	Anchor sleeve				L_{a1}		L_{a2}		cover	
	d_{nom}	h_{ef}	h_{nom}	$t_{tol max}$	min $L_{a1, deep}$	max L_{a1}	min $L_{a2, deep}$	max L_{a2}	R_s	R_d
Rocket										
short anchor sleeve	8	25	65	35	155	480	102	427	20	64
long anchor sleeve	8	25	125	95	235	480	182	427	20	64

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with short anchor sleeve
 $\min L_{a1, deep} - h_{nom} - 30 + R_s = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 155$) $155 - 65 - 30 + 20 = 80$ (h_{Dmax})

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with long anchor sleeve
 $\min L_{a1, deep} - h_{nom} + 30 + R_s = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 235$) $235 - 125 + 30 + 20 = 160$ (h_{Dmax})

IsoFux Rocket

Product description

Use category A, B, C
Components for deep mounting Dimensions

Annex A 3

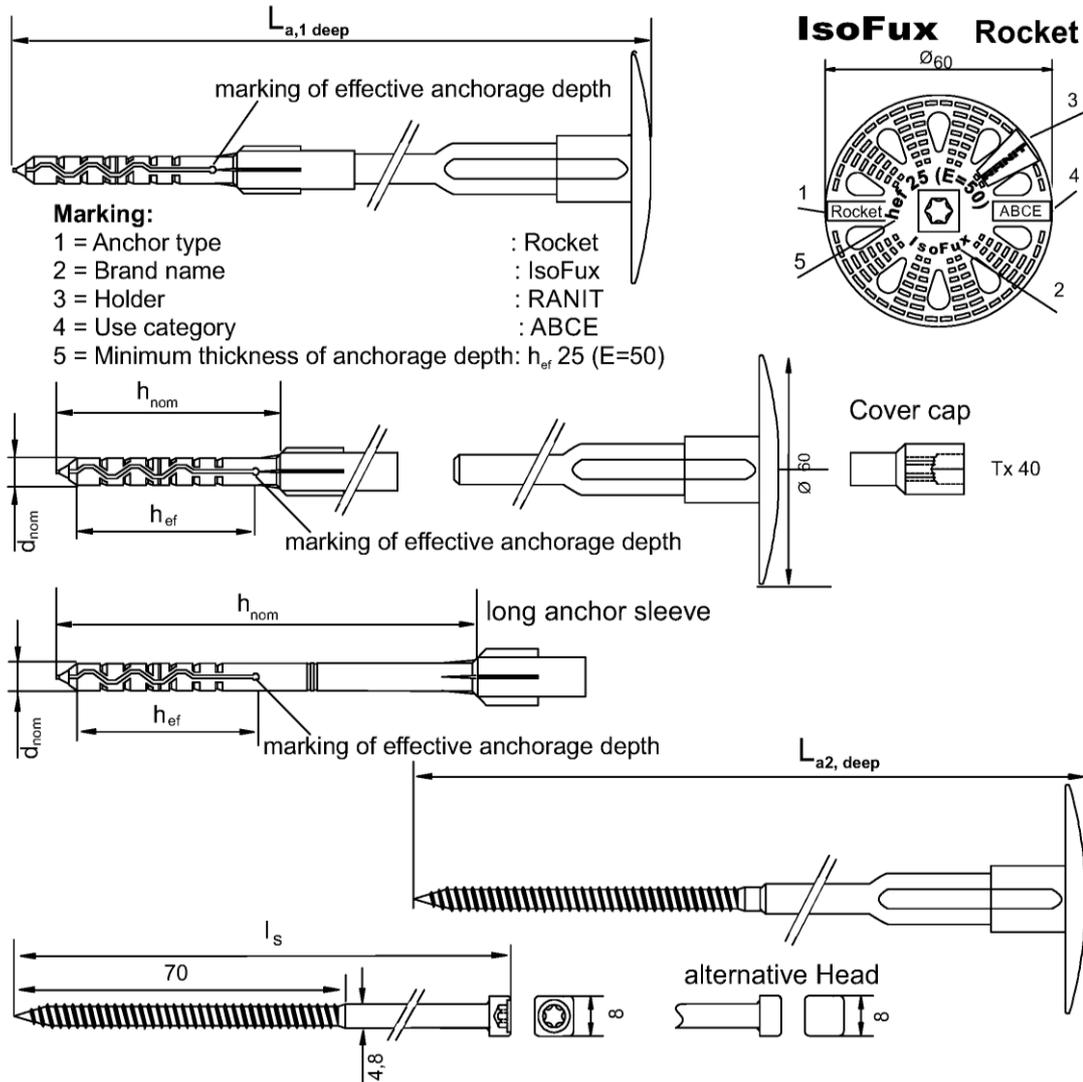


Table A3: Dimensions					Sizes in mm			
Anchor type	Anchor sleeve				L_{a1}		L_{a2}	
	d_{nom}	h_{ef}	h_{nom}	$t_{tol\ max}$	min $L_{a1, deep}$	max L_{a1}	min $L_{a2, deep}$	max L_{a2}
Rocket								
short anchor sleeve	8	50	65	10	155	480	102	427
long anchor sleeve	8	50	125	70	235	480	182	427

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with short anchor sleeve
 $\min L_{a1, deep} - h_{nom} - 30 = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 155$) $155 - 65 - 30 = 60$ (h_{Dmax})

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with long anchor sleeve
 $\min L_{a1, deep} - h_{nom} + 30 = h_{Dmax}$; e.g.: ($\min L_{a1, deep} = 235$) $235 - 125 + 30 = 140$ (h_{Dmax})

IsoFux Rocket

Product description

Use category E (Autoclaved aerated concrete)
Components of mounting on the surface Dimensions

Annex A 4

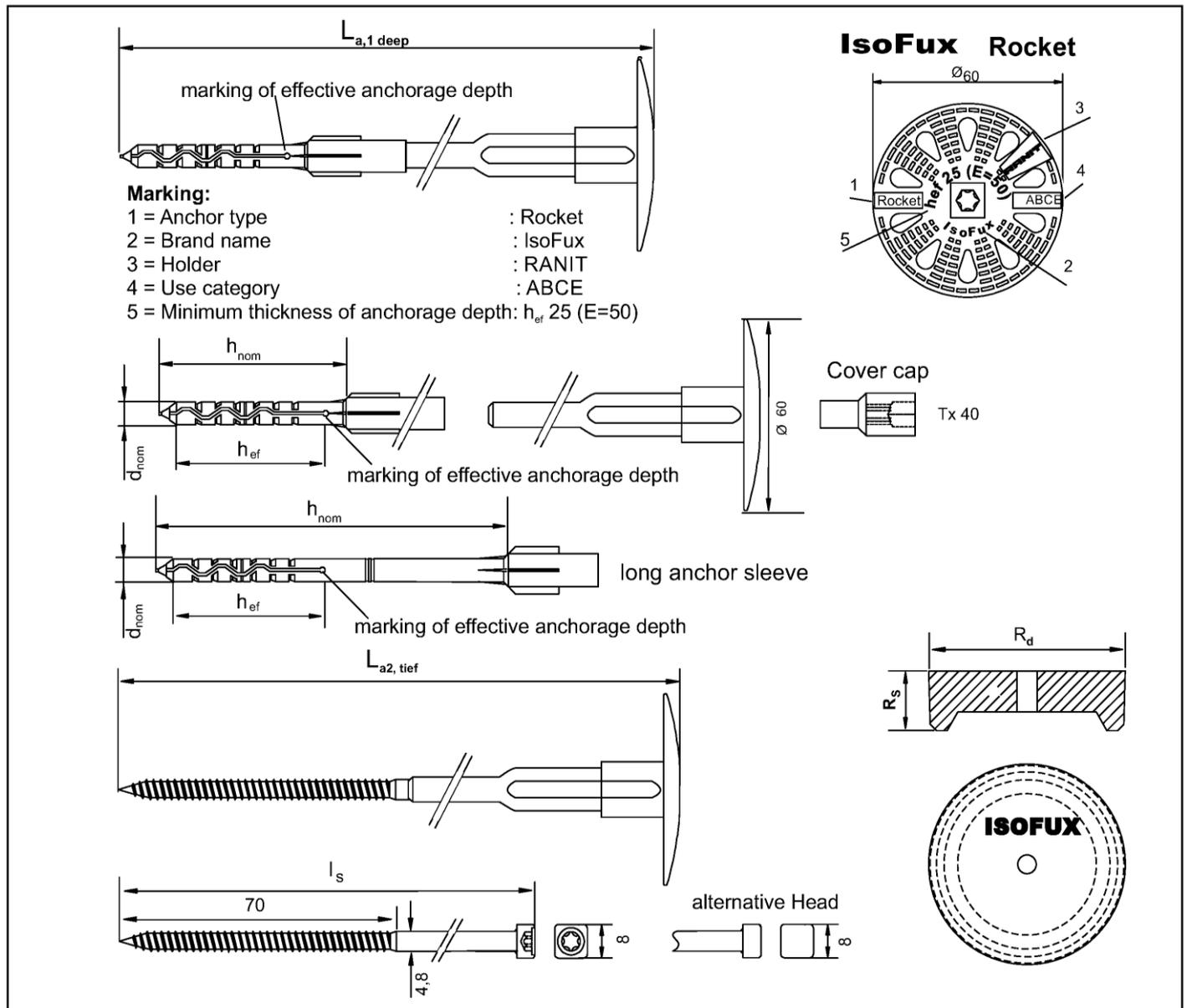


Table A4: Dimensions					Sizes in mm					
Anchor type	Anchor sleeve				L_{a1}		L_{a2}		cover	
	d_{nom}	h_{ef}	h_{nom}	$t_{tol max}$	min $L_{a1, deep}$	max L_{a1}	min $L_{a2, deep}$	max L_{a2}	R_s	R_d
Rocket	8	50	65	10	155	480	102	427	20	64
short anchor sleeve	8	50	65	10	155	480	102	427	20	64
long anchor sleeve	8	50	125	70	235	480	182	427	20	64

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with short anchor sleeve
 $\min L_{a1, deep} - h_{nom} - 30 + R_s = h_{Dmax}$; e.g.: (min $L_{a1, deep} = 155$) $155 - 65 - 30 + 20 = 80$ (h_{Dmax})

Evaluation of thickness of the insulation h_{Dmax} IsoFux Rocket with long anchor sleeve
 $\min L_{a1, deep} - h_{nom} + 30 + R_s = h_{Dmax}$; e.g.: (min $L_{a1, deep} = 235$) $235 - 125 + 30 + 20 = 160$ (h_{Dmax})

IsoFux Rocket

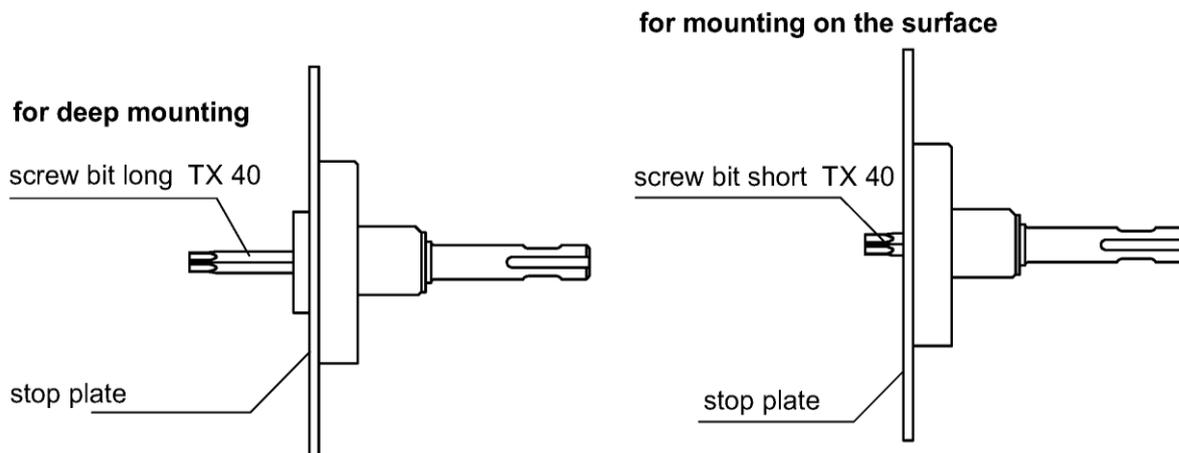
Product description
 Use category E (Autoclaved aerated concrete)
 Components for deep mounting Dimensions

Annex A 5

Table A5: Maximum insulation thickness for mounting on the surface and deep mounting, classification of the lengths L_{a1} , colour coding of the cover caps

mounting on the surface h_d max	deep mounting h_d max	min L_{a1} deep	max L_{a1}	Cover cap Colour
60	80	155	180	beige
80	100	175	200	yellow
100	120	195	220	green
120	140	215	240	white
140	160	235	260	orange
160	180	255	280	brown
180	200	275	300	blue
200	220	295	320	red
220	240	315	340	light grey
240	260	335	360	black
260	280	355	380	violet
280	300	375	400	dark grey
320	340	415	440	dark green
360	380	455	480	natural

Screw-in tool for IsoFux Rocket

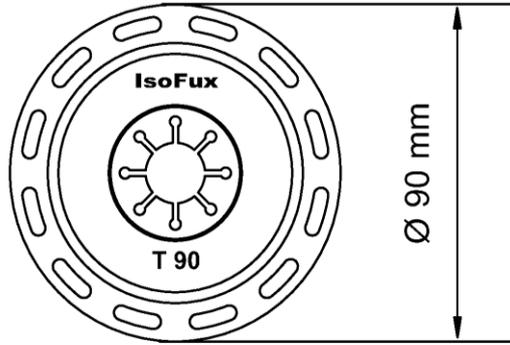


IsoFux Rocket

Product description

Classification of the anchor length L_{a1} for the insulation thickness h_d and colour coding of the cover caps Screw-in tool for IsoFux Rocket

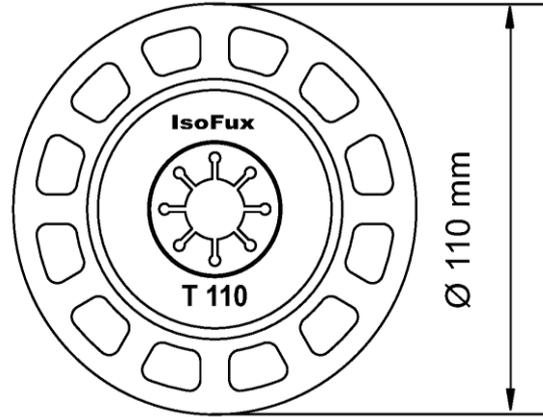
Annex A 6



Ø 90 mm

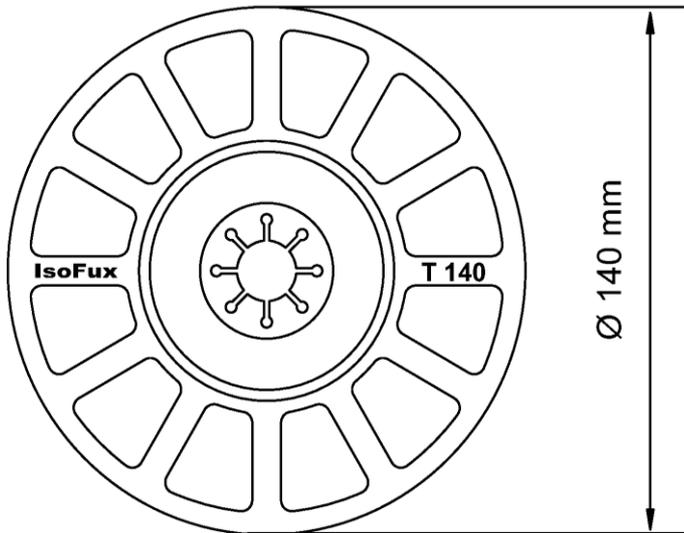
Material:
Polypropylene (PP)
Colour: grey, orange, red

Material:
Polyamide 6.6 (PA)
Colour: grey, orange, red



Ø 110 mm

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Ø 140 mm

Material:
Polyamide 6.6 (PA)
Colour: grey, orange, red

IsoFux Rocket

Product description

Plates T90, T110 and T140
in combination with IsoFux Rocket (for mounting on the surface)

Annex A 7

Table A6: Materials

Designation	Material
Anchor sleeve Colour: grey	Polypropylene (PP)
Shaft with plate Colour: grey or red	Polyamid (PA)
Cover cap	Polyamid 6.0 GF
Additional plate T110, T140 Additional plate T 90 Colour: grey, orange or red	Polyamid 6.6 Polypropylene (PP)
Spezial screw	Steel, electrogalvanized 5 µm
Insulation cover	Polystyrol PS20 Mineral wool Type HD

IsoFux Rocket	Annex A 8
Product description Materials	

Specifications of intended use

Anchorage 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.

Base materials:

- Normal weight concrete (use category A) according to Annex C 1
- Solid masonry (use category B) according Annex C 1 and C 2
- Hollow or perforated masonry (use category C) according to Annex C 1 and C 2
- Autoclaved aerated concrete (use category E) according to Annex C 1
- For other base materials of the use categories A, B, C and E, the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR051, Edition Dezember 2016.

Application temperature range:

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

Design:

- The anchors are designed in accordance with EAD 330335-00-604 under the responsibility of an engineer experienced in anchorages and masonry work.
- 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 fixing of thermal insulation composite system.

Installation:

- Drilling method shall comply to Annex C 1
- 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 0°C to +40°C
- Exposure to UV due to solar radiation of the anchor not protected by rendering < 6 weeks.

IsoFux Rocket

Intended use
Specification

Annex B 1

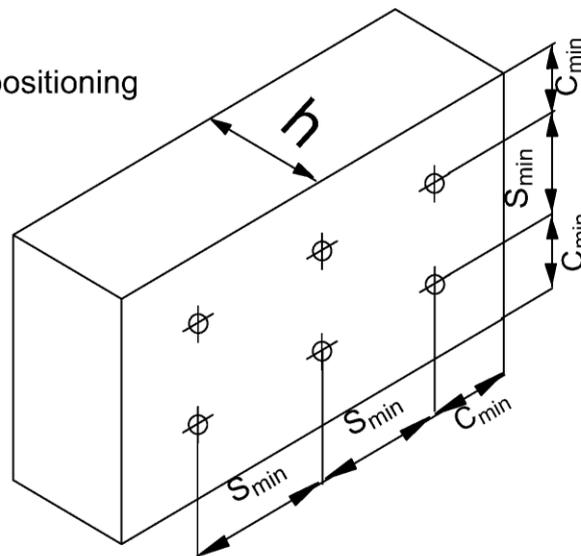
Table B1: Installation parameters

Anchor type	IsoFux	Rocket
Drill hole diameter	d_0 (mm) =	8
Cutting diameter of drill bit	d_{cut} (mm) ≤	8,45
Depth of drill hole to deepest point		
Use category : A B C	h_1 (mm) ≥	35
Use category : E	h_1 (mm) ≥	60
Effective anchorage depth		
Use category : A B C	h_{ef} (mm) ≥	25
Use category : E	h_{ef} (mm) ≥	50

Table B2: Anchor distances and dimensions of members

Anchor type		Rocket
Minimum allowable spacing	$S_{min} = [\text{mm}]$	100
Minimum allowable edge distance	$C_{min} = [\text{mm}]$	100
Minimum thickness of concrete member	$h = [\text{mm}]$	100

Scheme of anchor positioning

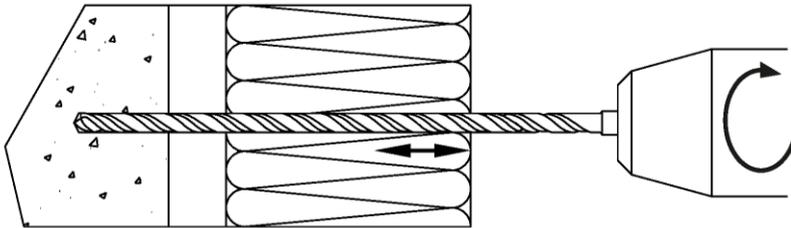


IsoFux Rocket

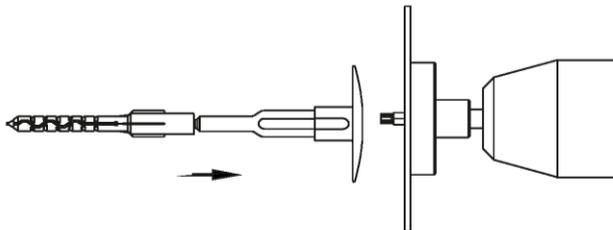
Intended use

Installation parameters. Minimum thickness, edge distance and spacing

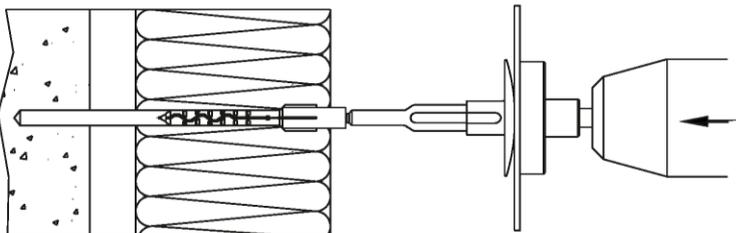
Annex B 2



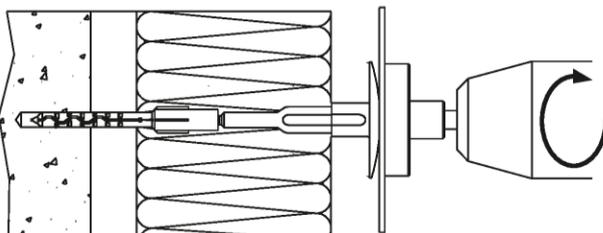
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.



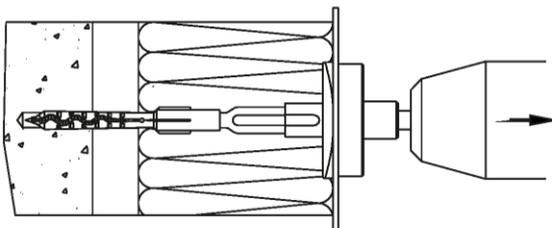
2) Put the anchor on the mounting tool.



3) Place the anchor into the drill hole.



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



5) Installed condition. remove the mounting tool.

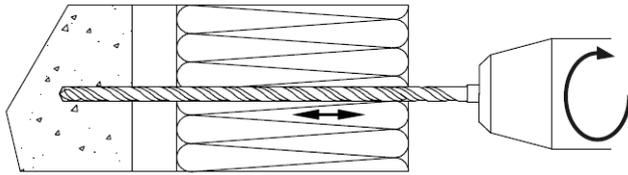
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IsoFux Rocket

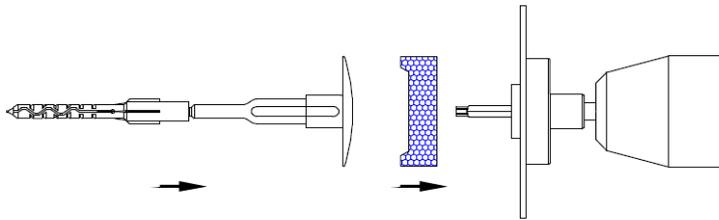
Intended use

Installation instructions surface mount

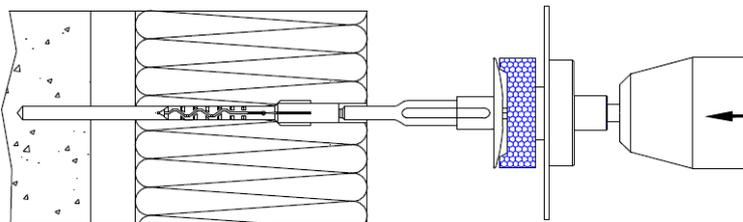
Annex B 3



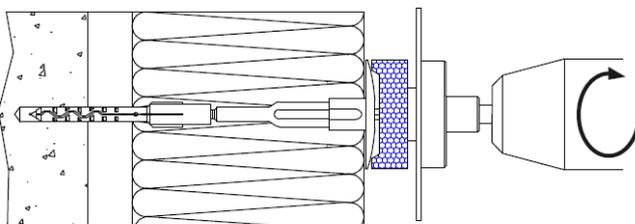
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.



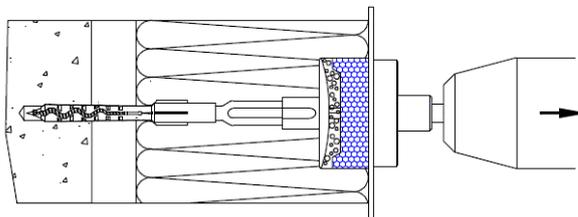
2) Put the anchor and the insulation cover on the mounting tool.



3) Place the anchor into the drill hole.



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



5) Installed condition. remove the mounting tool.

IsoFux Rocket

Intended use

Installation instructions immersed mount

Annex B 4

Table C1: Characteristic resistance N_{Rk} in [kN] to tension loads in concrete and masonry for a single anchor and minimum distances and dimensions

Anchor type		IsoFux	Rocket		
Baustoff	Bulk density class ρ [kg/dm ³]	Minimum compressive strength f_b [N/mm ²]	Remarks	Drill method	N_{Rk} [kN]
Concrete C12/15 - C20/25 EN 206 :2013				Hammer	1,5
Concrete C50/60 EN 206 : 2013				Hammer	1,5
Clay bricks Mz EN 771-1 : 2011	$\geq 1,8$	20	Cross-section reduced by vertical perforation up to 15%	Hammer	1,5
Sand-lime solid bricks KS EN 771-2 : 2011	$\geq 1,8$	12	Cross-section reduced by vertical perforation up to 15%	Hammer	1,5
Sand-lime perforated bricks KSL EN 771-2 : 2011	$\geq 1,4$	12	Cross-section reduced by vertical perforation more than 15%	Rotary drilling	1,2 ¹⁾
Vertically perforated clay bricks HLZ EN 771-1 : 2011	$\geq 1,0$	12	Cross-section reduced by vertical perforation for more than 15% and less than 50%	Rotary drilling	0,75 ²⁾
Lightweight concrete solid bricks EN 771-3 : 2011	$\geq 1,2$	6	Proportion of hole up to 10% maximum extension of hole: length= 110mm; wide= 45 mm	Rotary drilling	0,4
Lightweight concrete hollow blocks Hbl DIN V18151-100 :2001-10/ EN 771-3 : 2011	$\geq 1,2$	6	see Annex C2	Rotary drilling	0,6
Autoclaved aerated concrete EN 771-4 : 2011	$\geq 0,65$	4	PP/PPE	Rotary drilling	1,2
Partial safety factor				γ_M	2,0 ³⁾

1) The value applies only for outer web thicknesses ≥ 20 mm; otherwise the characteristic resistance shall be determined by job-site pull-out tests.

2) The value applies only for outer web thickness ≥ 14 mm; otherwise the characteristic resistance shall be determined by job-site pull-out tests.

3) In absence of other national regulations.

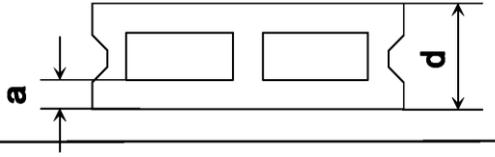
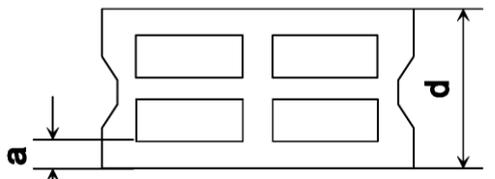
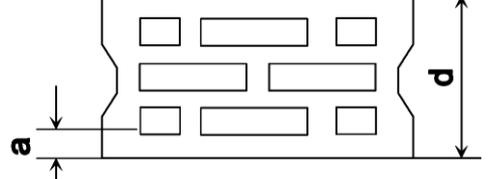
IsoFux Rocket

Performance

Characteristic resistance

Annex C 1

Table C2: Assignment type of anchor for lightweight concrete hollow blocks according to DIN V 18151-100:2005-10 (EN 771-3:2011)

Geometry	Thickness d [mm]	Outer web in longitudinal direction a [mm]
	175	50
	240 300	50
	175	35
	240 300 365	35
	240 300 365	30

Anchor shall be placed in the brick in such way, that the spreading part of the expansion sleeve is located in the outer web.

Table C3: Plate stiffness according EOTA Technical Report TR 026: May 2016

Anchor type	Diameter of the anchor plate [mm]	Load resistance of the anchor plate [kN]	Plate stiffness [kN/mm]
RANIT Isofux Rocket	60	2,5	1,1

IsoFux Rocket

Performance

Assignment type of anchor for hollow blocks of lightweight concrete, plate stiffness

Annex C 2

Table C4: Displacements

Base material	Bulk density class	Minimum compressive strength	Tension load	Displacements
	[kg/dm ³]	[N/mm ²]	N [kN]	$\delta_m(N)$ [mm]
Concrete C12/15 - C50/60 (EN 206:2013)	≥ 1,8	20	0,50	0,3
Clay brick, Mz (EN 771-1:2011)	≥ 1,8	20	0,50	0,3
Sand-lime solid brick, KS (EN 771-2:2011)	≥ 1,8	12	0,50	0,3
Vertically perforated sand-lime brick, KSL (EN 771-2:2011)	≥ 1,4	12	0,40	0,3
Vertically perforated clay brick, HLZ (EN 771-1:2011)	≥ 1,0	12	0,25	0,3
Lightweight concrete solid bricks, V (EN 771-3:2011)	≥ 1,2	6	0,15	0,3
Lightweight concrete hollow blocks, Hbl (DIN V 18151-100:2005-10) (EN 771-3:2011)	≥ 1,2	6	0,20	0,3
Autoclaved aerated concrete, AAC (EN 771-4:2011)	≥ 0,65	4	0,40	0,3

Table C5: Point thermal transmittance according EOTA Technical Report TR 025: May 2016

Anchor type	Insulation thickness h_D [mm]	point thermal transmittance χ [W/K]
RANIT IsoFux Rocket deep mounted	80 - 380	0,001
RANIT IsoFux Rocket flush mounted	60 - 360	0,002

IsoFux Rocket

Performance

Displacements, point thermal transmittance

Annex C 3