Deutsches Institut für Bautechnik

DIBt

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Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

Designated according to Article 29 of Regulation (EU) No 305/2011 and member of EOTA (European Organisation for Technical Assessment)

European Technical Assessment

ETA-12/0093 of 16 October 2019

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 GERMANY
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	EAD 330196-01-0604
This version replaces	ETA-12/0093 issued on 28 August 2018

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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 (virgin material), a plastic shaft with a plate and a cover cap made of polyamide (virgin material) 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 Safety and accessibility in use (BWR 4)

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

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. 330196-01-0604, the applicable European legal act is: [97/463/EC].

The system to be applied is: 2+

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

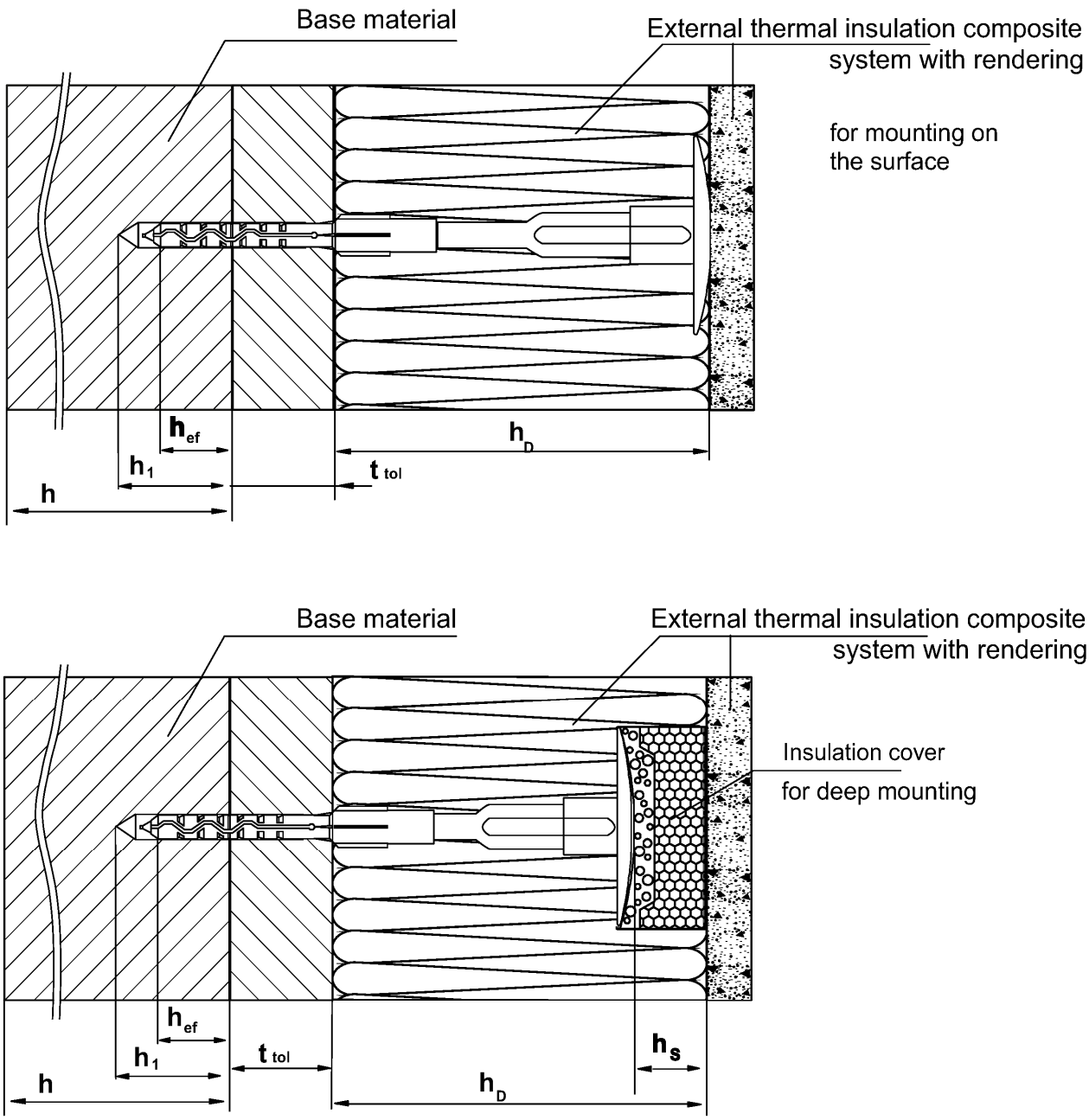
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 16 October 2019 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Ziegler

Deutsches Institut für Bautechnik DIBt



Legend:

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

IsoFux Rocket

Product description
installed condition - surface mount, deep mounting: IsoFux Rocket

Annex A 1

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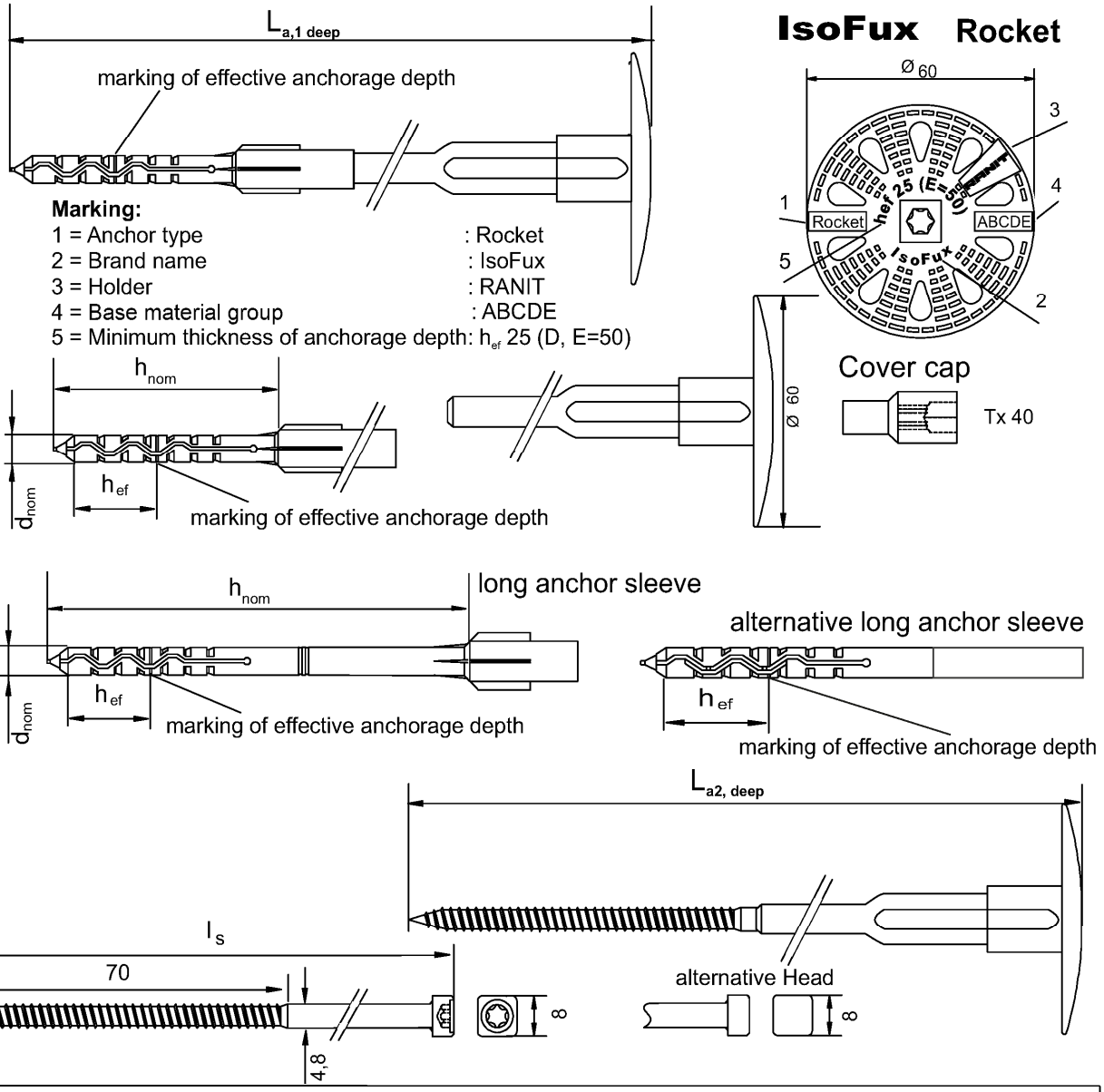

Table A1: Dimensions								**Sizes in mm**
Anchor type	Anchor sleeve				L_{a1}		L_{a2}	
Rocket	d_{nom}	h_{ef}	h_{nom}	$t_{tol\ max}$	min $L_{a1,\ deep}$	max L_{a1}	min $L_{a2,\ deep}$	max L_{a2}
short anchor sleeve	**8**	**25**	**65**	**35**	**155**	**480**	**102**	**427**
long anchor sleeve	**8**	**25**	**125**	**95**	**235**	**480**	**182**	**427**

Evaluation of thickness of the insulation $\mathbf{h_{Dmax}}$ 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 $\mathbf{h_{Dmax}}$ 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

Annex A 2

Product description
Base material group A, B, C - IsoFux Rocket
Components of mounting on the surface, dimensions

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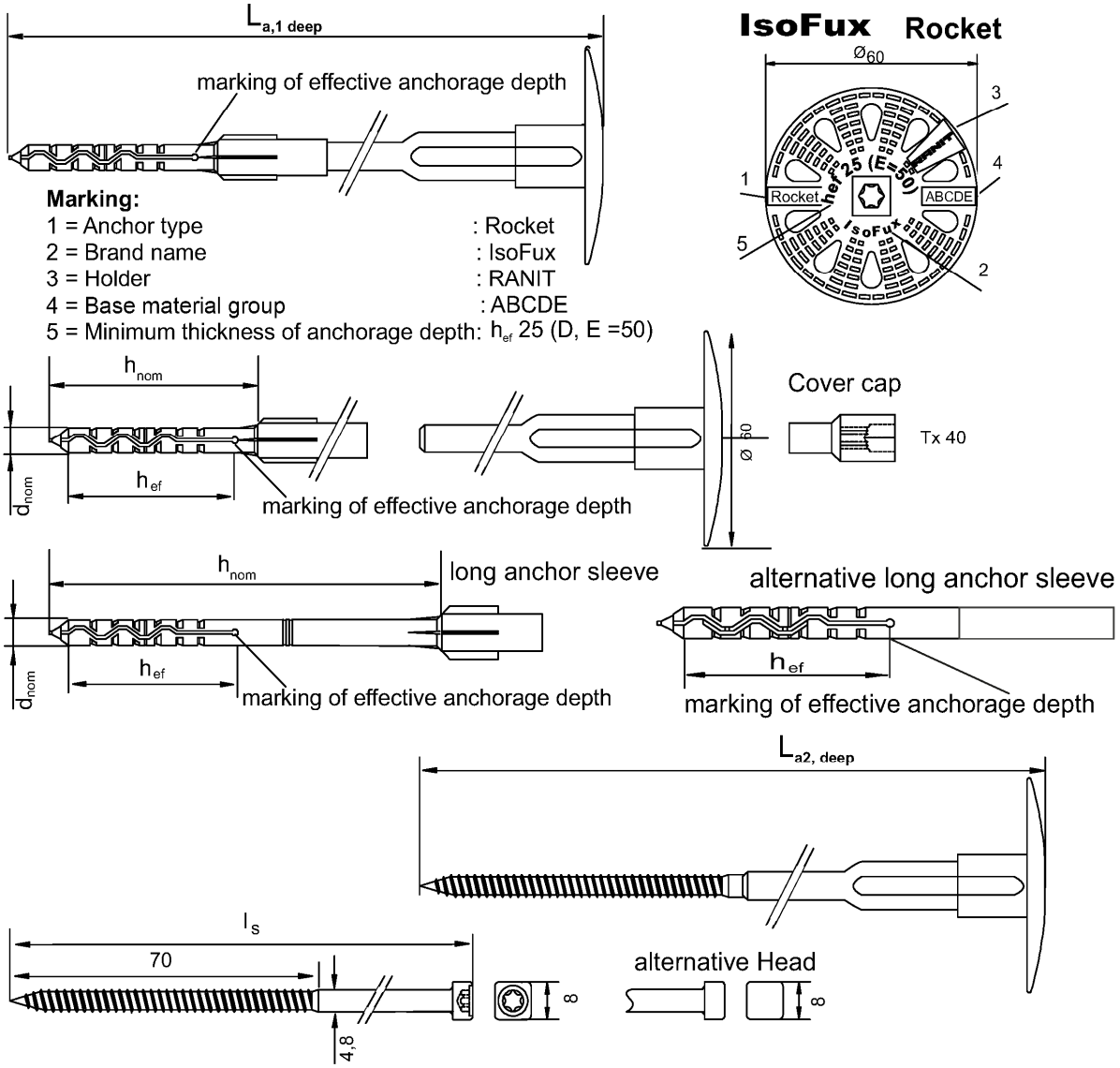

Table A2: Dimensions								**Sizes in mm**
Anchor type	Anchor sleeve				L_{a1}		L_{a2}	
Rocket	d_{nom}	h_{ef}	h_{nom}	$t_{tol\ max}$	min $L_{a1,\ deep}$	max L_{a1}	min $L_{a2,\ deep}$	max L_{a2}
short anchor sleeve	**8**	**50**	**65**	**10**	**155**	**480**	**102**	**427**
long anchor sleeve	**8**	**50**	**125**	**70**	**235**	**480**	**182**	**427**

Evaluation of thickness of the insulation $\mathbf{h_{Dmax}}$ 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 $\mathbf{h_{Dmax}}$ 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
Base material group D, E - IsoFux Rocket
Components of mounting on the surface, dimensions

Annex A 3

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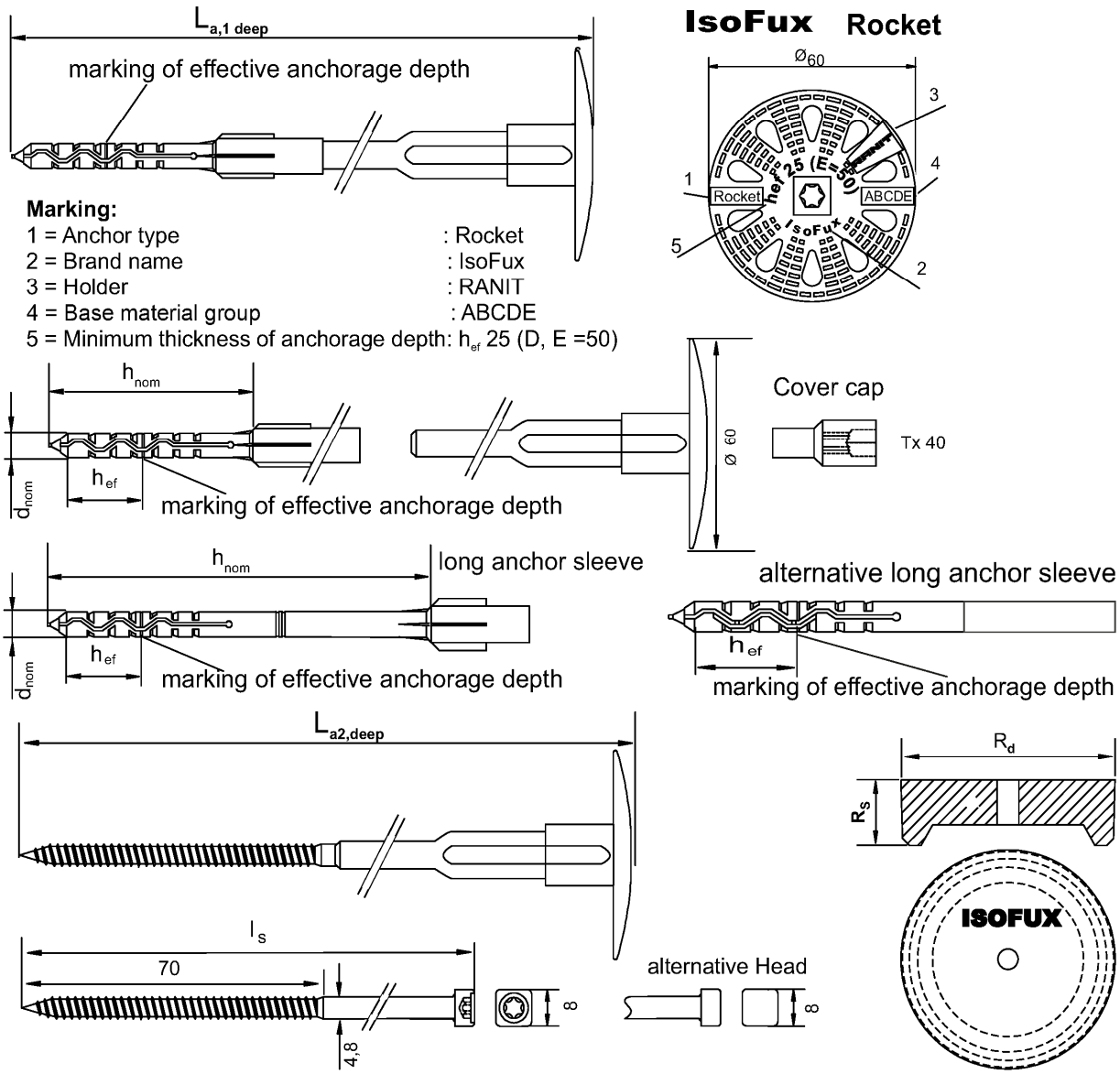

Table A3: Dimensions									**Sizes in mm**	
Anchor type	Anchor sleeve				L_{a1}		L_{a2}		cover	
Rocket	d_{nom}	h_{ef}	h_{nom}	$t_{tol\ max}$	min $L_{a1,\ deep}$	max L_{a1}	min $L_{a2,\ deep}$	max L_{a2}	R_s	R_d
short anchor sleeve	**8**	**25**	**65**	**35**	**155**	**480**	**102**	**427**	**20**	**64**
long anchor sleeve	**8**	**25**	**125**	**95**	**235**	**480**	**182**	**427**	**20**	**64**

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

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

IsoFux Rocket

Product description
Base material group A, B, C - IsoFux Rocket
Components for deep mounting, dimensions

Annex A 4

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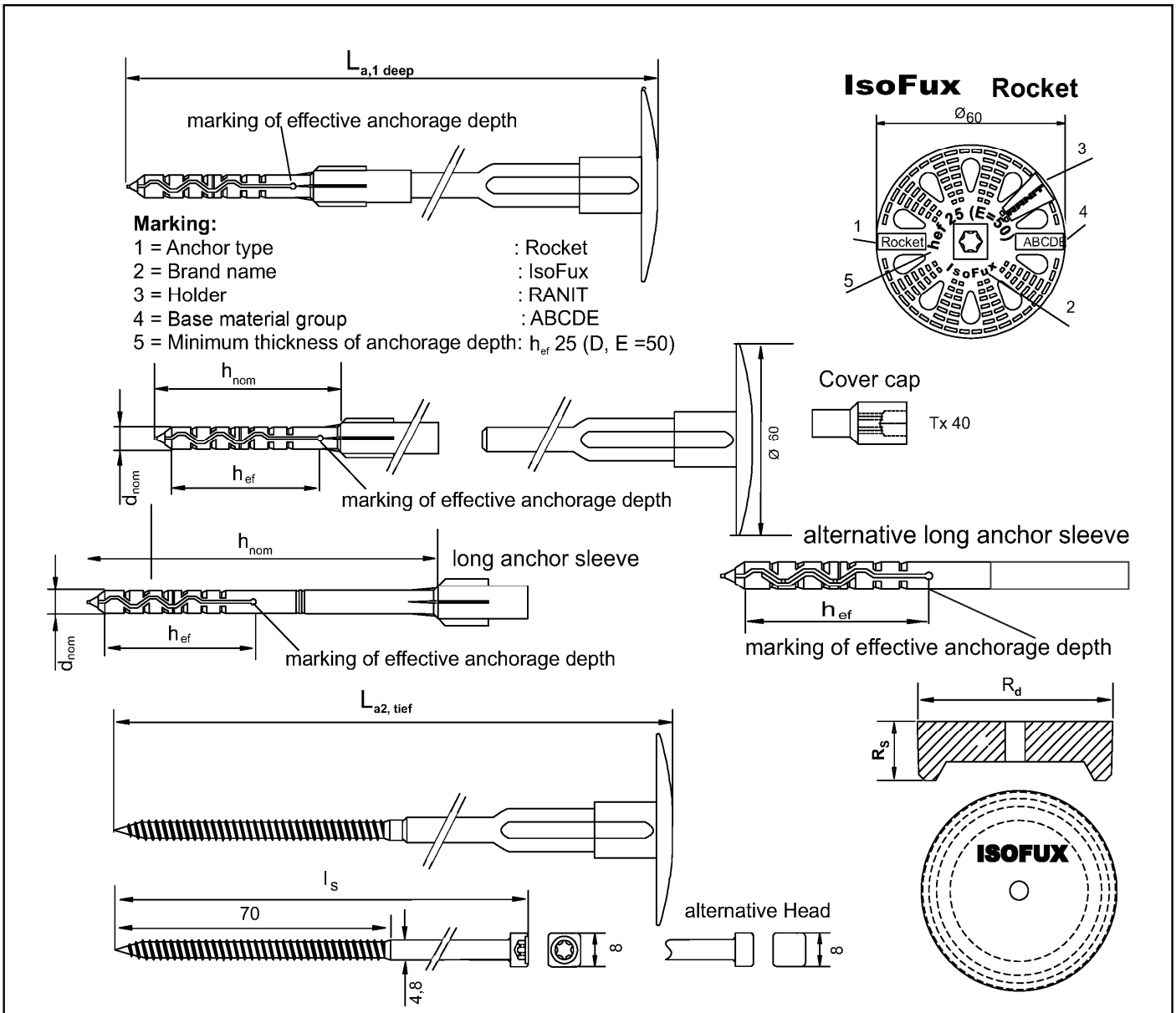

Table A4: Dimensions									Sizes in mm	
Anchor type	Anchor sleeve				L_{a1}		L_{a2}		cover	
Rocket	d_{nom}	h_{ef}	h_{nom}	$t_{tol\ max}$	min $L_{a1,\ deep}$	max L_{a1}	min $L_{a2,\ deep}$	max L_{a2}	R_s	R_d
short anchor sleeve	**8**	**50**	**65**	**10**	**155**	**480**	**102**	**427**	**20**	**64**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

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

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

IsoFux Rocket

Product description
Base material group D, E - IsoFux Rocket
Components for deep mounting, dimensions

Annex A 5

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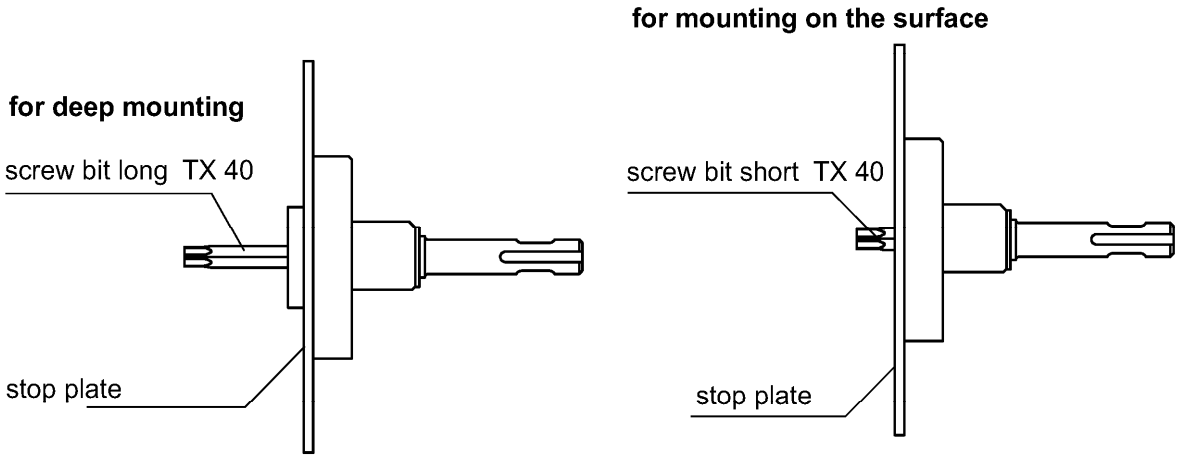
Table A5: Maximum insulation thickness for mounting on the surface and deep mounting, classification of the lengths L_{a1} ,colour coding of the cover caps

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

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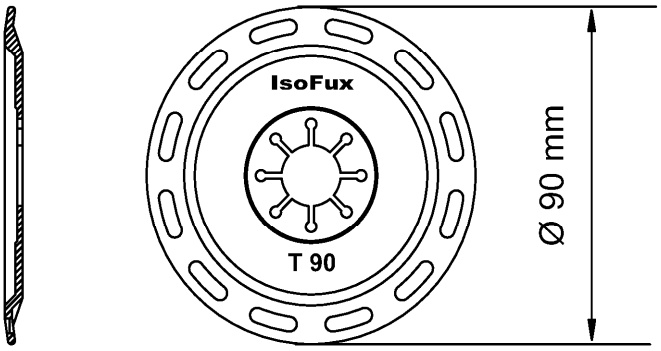
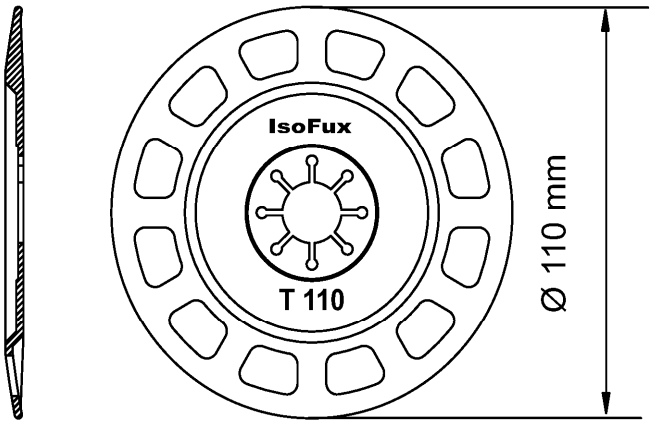
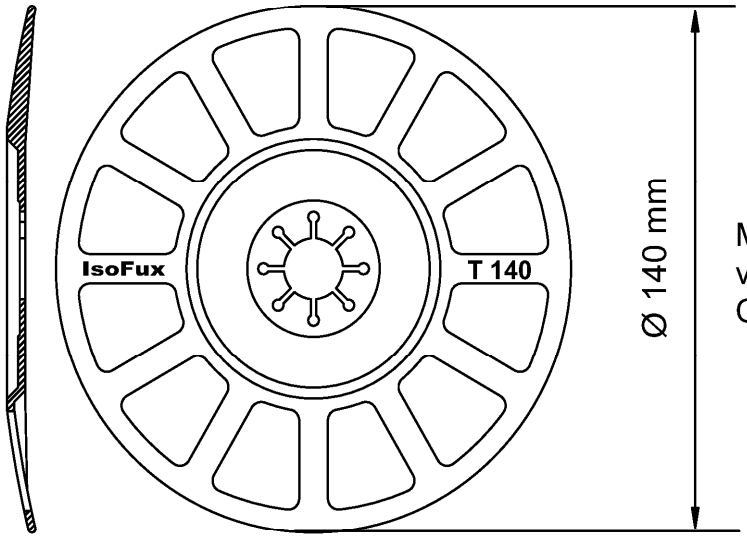


Material:
virgin Polypropylene (PP)
Colour: grey, orange, red

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





Material:
virgin 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**

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Table A6 : Materials

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

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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.

Base materials:

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

Application temperature range:

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

Design:

- The anchors are designed under the responsibility of an engineer experienced in anchorages and masonry work with the partial safety factors γ_M = 2,0 and γ_F = 1,5, if there are no other national regulations.

- 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 appropiately 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	Annex B 1
Intended use Specification	

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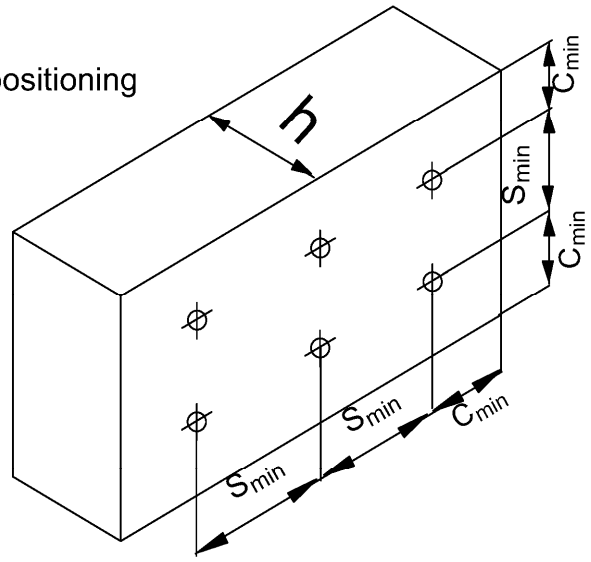
Table B1: Installation parameters

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 Base material group : A B C	h_1 (mm) ≥	35
Base material group : D E	h_1 (mm) ≥	60
Effective anchorage depth Base material group : A B C	h_{ef} (mm) ≥	25
Base material group : D E	h_{ef} (mm) ≥	50

Table B2: Anchor distances and dimensions of members

Anchor type		Rocket
Minimum spacing	s_{min} = [mm]	100
Minimum edge distance	c_{min} = [mm]	100
Minimum thickness of concrete member	**h** = [mm]	100

Scheme of anchor positioning



IsoFux Rocket

Intended use

Installation parameters, minimum thickness, edge distance and spacing

Annex B 2

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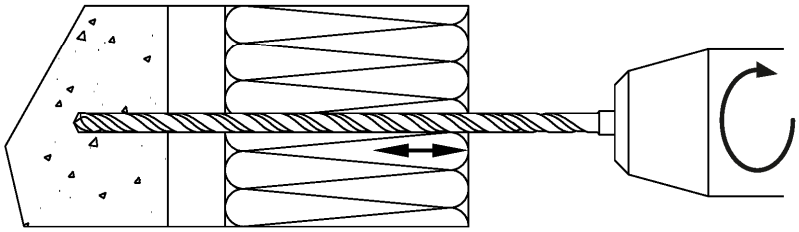
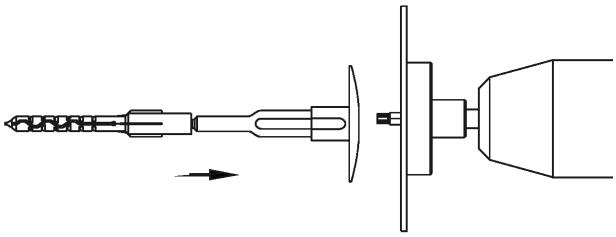
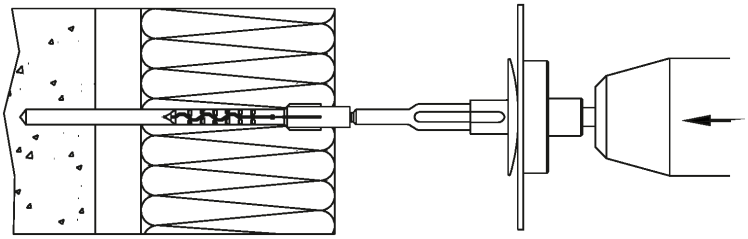


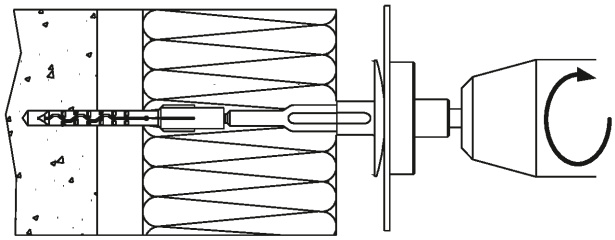
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.



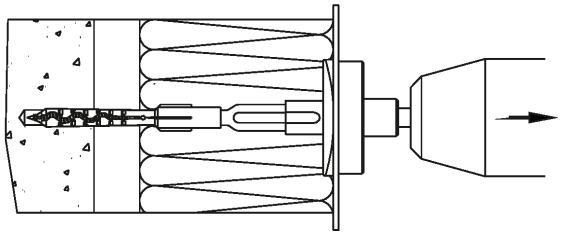
2) Put the anchor on the mounting tool.



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.

IsoFux Rocket

Intended use

Installation instructions IsoFux Rocket surface mount

Annex B 3

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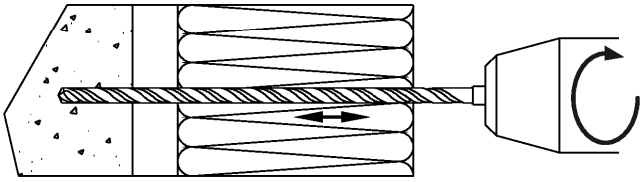
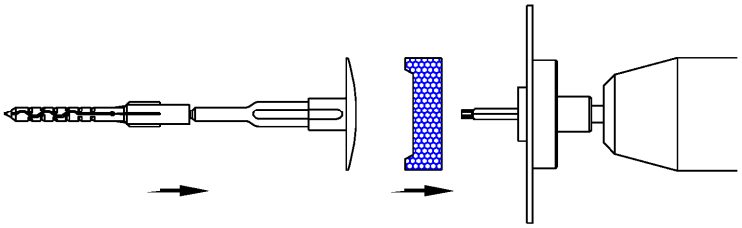
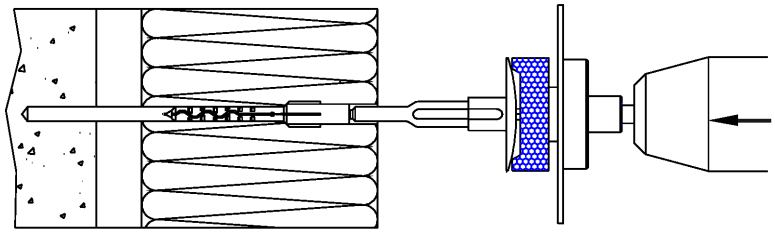


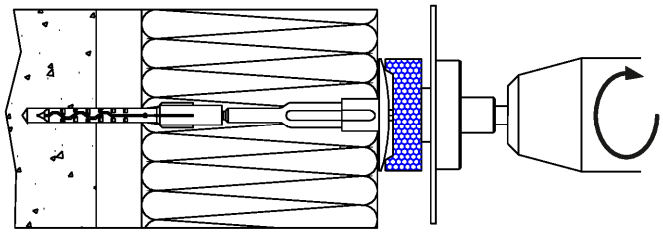
1) Drill the hole perpendicular to the substrate surface. Clean the drill hole.



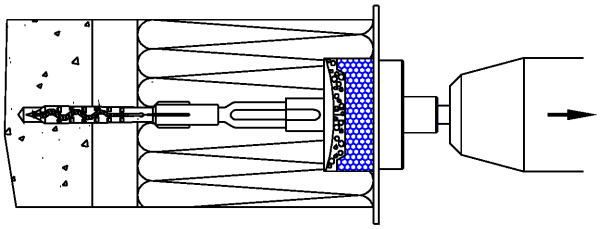
2) Put the anchor and the insulation cover on the mounting tool.



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 IsoFux Rocket immerged mount

Annex B 4

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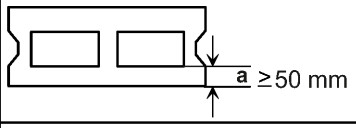
Table C1: Characteristic resistance N_{Rk} in [kN] to tension loads in concrete and masonry for a single anchor and minimum distances and dimensions

Anchor type			**IsoFux Rocket**		
Baustoff	Bulk density class ρ [kg/dm³]	Minimum compressive strength f_b [N/mm²]	Remarks	Drill method	N_{Rk} [kN]
Concrete C12/15 - C20/25 EN 206-1:2000				Hammer	**1,5**
Concrete C50/60 EN 206-1:2000				Hammer	**1,5**
Clay bricks Mz EN 771-1 : 2011	≥ 1,8	20	Cross-section reduced by vertical perforation up to 15%	Hammer	**1,5**
Sand-lime solid bricks KS EN 771-2 : 2011	≥ 1,8	12	Cross-section reduced by vertical perforation up to 15%	Hammer	**1,5**
Sand-lime perforated bricks KSL EN 771-2 : 2011	≥ 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	≥ 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	≥ 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 EN 771-3 : 2011	≥ 1,2	6		Rotary drilling	**0,6**
Autoclaved aerated concrete EN 771-4 : 2011	≥ 0,65	4	PP/PPE	Rotary drilling	**1,2**
Lightweight aggregate concrete LAC 6 acc. DIN EN 1520:2011/ EN 771-3:2011	≥ 0,90	6		Hammer	**0,9**

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.

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Table C2: Displacements

Base material	Bulk density class [kg/dm³]	Minimum compressive strength [N/mm²]	Tension load N [kN]	Displacements $\Delta\delta_N$ [mm]
Concrete C12/15 - C50/60 (EN 206- 1:2000)	≥ 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 (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
Lightweight aggregate concrete LAC 6 (DIN EN 1520 / EN 771-3:2011)	≥ 0,90	6	0,30	0,4

IsoFux Rocket

Performance
Displacements

Annex C 2

Deutsches Institut für Bautechnik DIBt

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

Table C4: 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

Plate stiffness and point thermal transmittance

Annex C 3