Deutsches Institut für Bautechnik

Approval body for construction products and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and Laender Governments

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European Technical Assessment ETA-17/0078 of 27 February 2020

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	Baumit S and Baumit N
Product family to which the construction product belongs	Screwed-in plastic anchor and nailed-in plastic anchor for the fixing of external thermal insulation composite systems with rendering in concrete and masonry
Manufacturer	Baumit Beteiligungen GmbH Wopfing 156 2754 WALDEGG ÖSTERREICH
Manufacturing plant	Baumit 1, 2, 3, 4
This European Technical Assessment contains	23 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-17/0078 issued on 4 January 2018

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Specific Part

1 Technical description of the product

The screwed-in anchor Baumit S consists of an anchor sleeve with an enlarged shaft, spreading zone subsequently, an insulation plate made of virgin polyamide and an accompanying specific screw of galvanised steel or stainless steel. The serrated expanding part of the anchor sleeve is slotted.

The nailed-in anchor Baumit N consists of an anchor sleeve with an enlarged shaft, spreading zone subsequently, an insulation plate made of virgin polyamide or virgin polyethylene and an accompanying specific nail of galvanised steel with an overmoulding of polyamide. The serrated expanding part of the anchor sleeve is slotted.

The anchors Baumit S and Baumit N may in addition be combined with the anchor plates SBL 140 plus and VT 90. The anchor Baumit S may in addition be combined with the anchor plate VT 2G.

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 2
Displacements	See Annex C 2

3.2 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Point thermal transmittance	See Annex C 2

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.

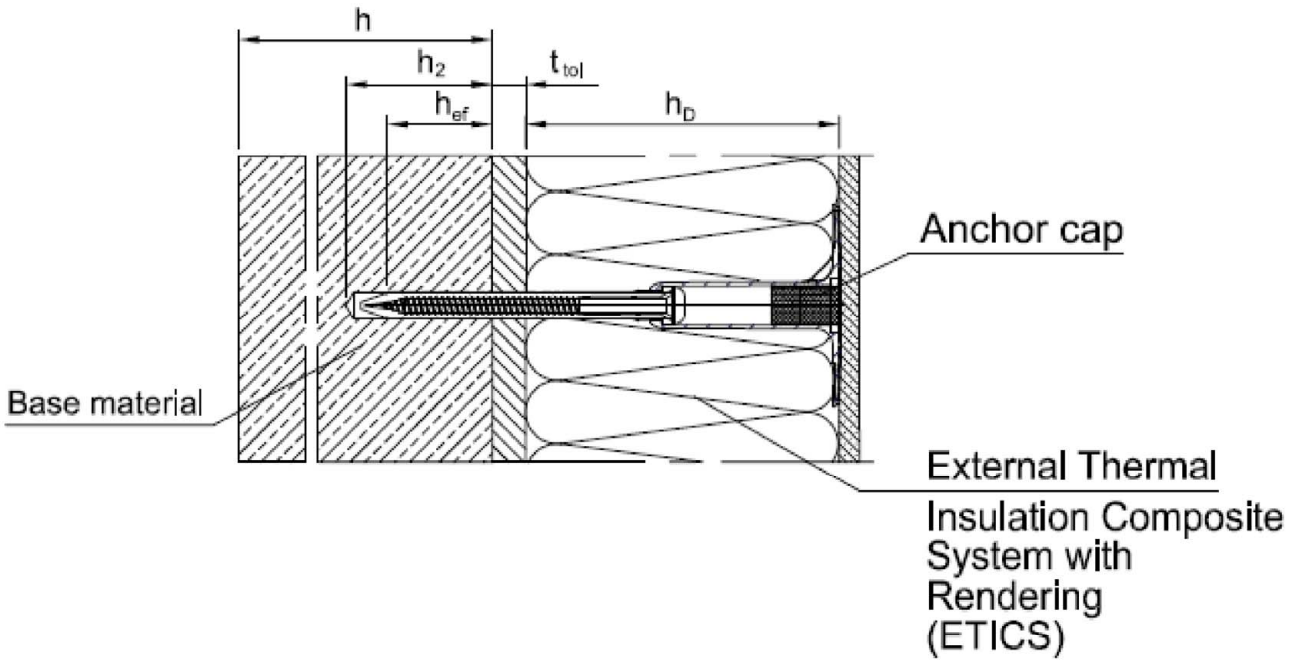
Issued in Berlin on 27 February 2020 by Deutsches Institut für Bautechnik

BD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Ziegler

Deutsches Institut für Bautechnik DIBt

Baumit S, mounting flushed at the surface



Intended use

- Anchorage of ETICS in concrete and masonry
- Anchorage of ETICS in autoclaved aerated concrete and lightweight aggregate concrete

Legend:
h_D = thickness of insulation material
h_{ef} = effective anchorage depth
h = thickness of member (wall)
h_2 = depth of drilled hole to deepest point
t_{tol} = thickness of equalizing layer or non-load-bearing coating

Baumit S and Baumit N	**Annex A 1**
Product description Installed condition Baumit S, flushed at the surface	

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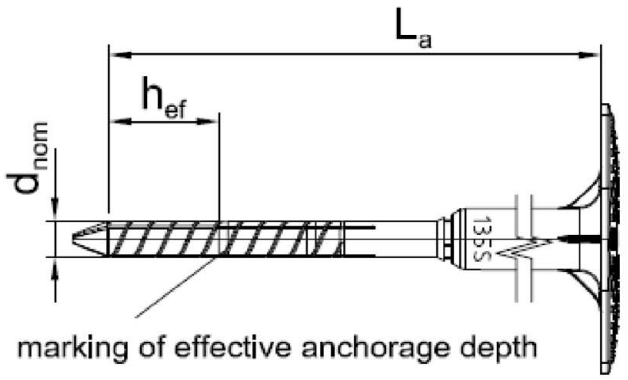
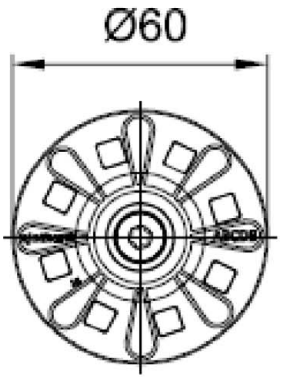
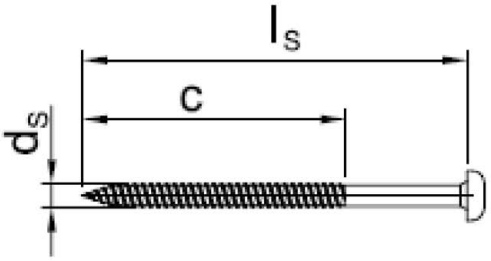
Baumit S / use category A,B,C,D, / mounting flushed at the surface

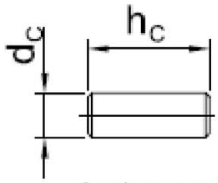




Marking:
Anchor type (e.g. Baumit S)
Length of anchor (e.g. 135)
Base material group (A,B,C,D,E)



Specific screw



Anchor cap

Tabelle A 1: Dimensions

Anchor type	Anchor sleeve			Specific screw			Anchor cap	
	d_{nom}	h_{ef}	min L_a max L_a	d_s	c	min l_s max l_s	d_c	h_c
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
Baumit S	8	25	115 295	5,5	60	88 188	12,5	23

Determination of maximum thickness of insulation h_D [mm] Baumit S:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 25$

$h_{Dmax} = 180$

Baumit S and Baumit N	**Annex A 2**
Product description Baumit S - Marking and dimensions, base material group: A,B,C,D mounting flushed at the surface	

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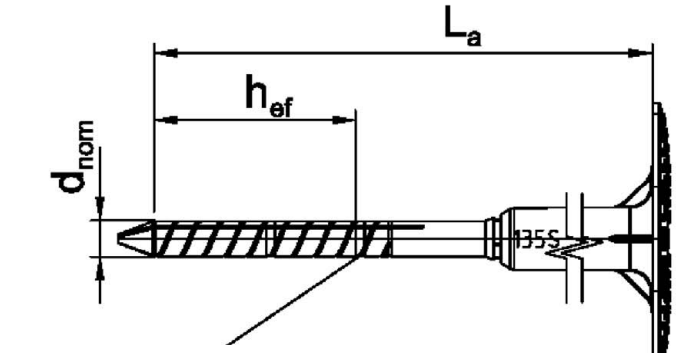
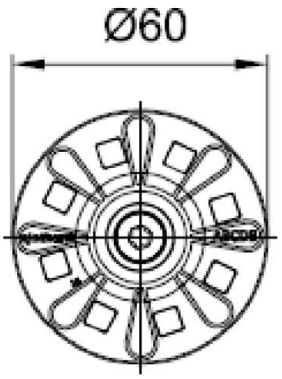
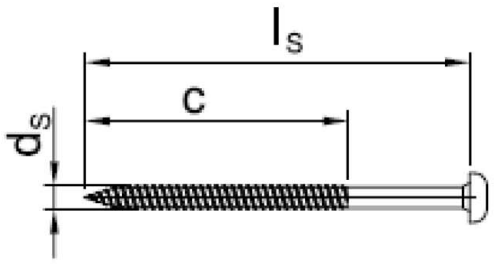
Baumit S / use category E / mounting flushed at the surface



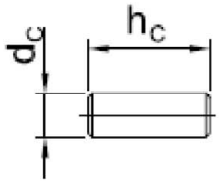
marking of effective anchorage depth



Marking:
Anchor type (e.g. Baumit S)
Length of anchor (e.g. 135)
Base material group (A,B,C,D,E)



Specific screw



Anchor Cap

Tabelle A 1: Dimensions

Anchor type	Anchor sleeve			Specific screw			Anchor cap	
	d_{nom} [mm]	h_{ef} [mm]	min L_a max L_a [mm]	d_s [mm]	c [mm]	min l_s max l_s [mm]	d_c [mm]	h_c [mm]
Baumit S	8	45	115 295	5,5	60	88 188	12,5	23

Determination of maximum thickness of insulation h_D [mm] Baumit S:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 45$

$h_{Dmax} = 160$

Baumit S and Baumit N	**Annex A 3**
Product description Baumit S - Marking and dimensions, base material group: E mounting flushed at the surface	

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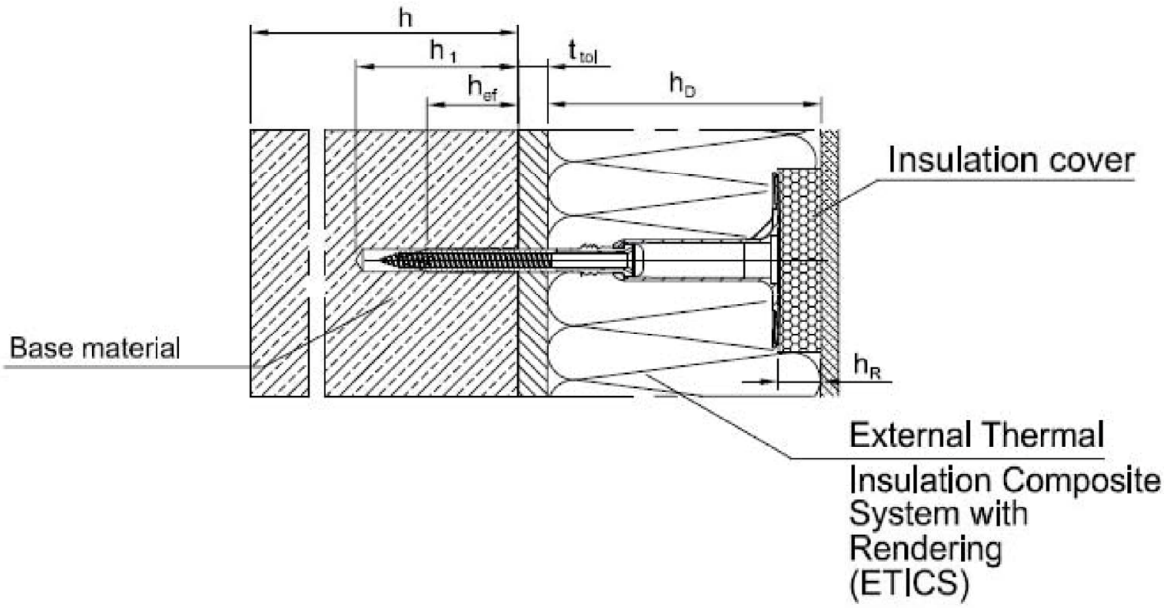
Baumit S, countersunk into insulation



Intended use

- Anchorage of ETICS in concrete and masonry
- Anchorage of ETICS in autoclaved aerated concrete and lightweight aggregate concrete

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

Baumit S and Baumit N	**Annex A 4**
Product description Installed condition Baumit S, countersunk into insulation	

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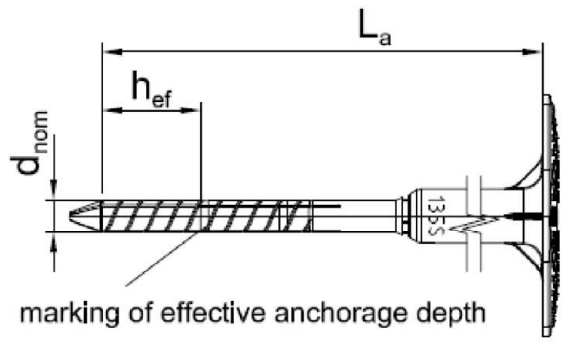
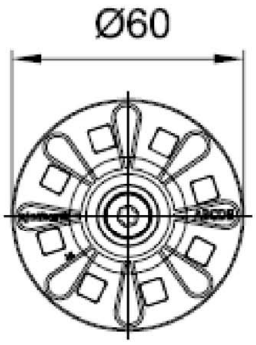
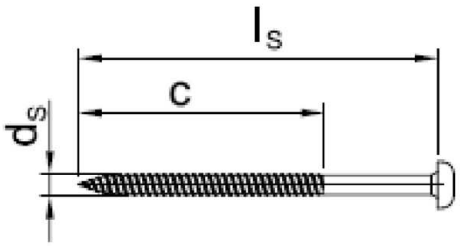
Baumit S / use category A, B, C, D / countersunk into insulation



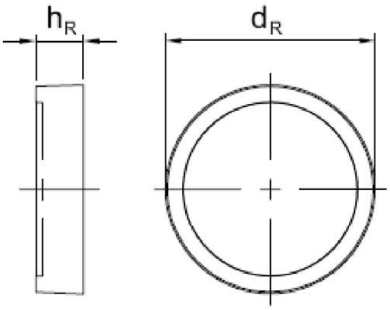


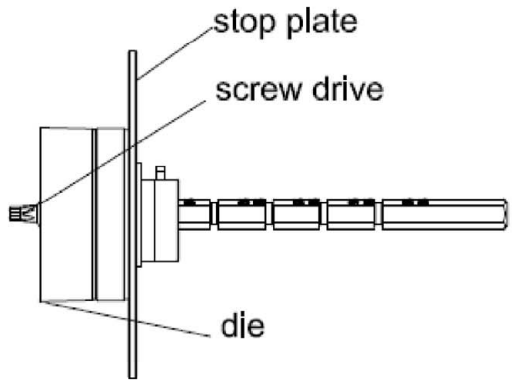
Marking:
Anchor type (Baumit S)
Anchor length (e.g. 135)
Base material group (A,B,C,D,E)



Specific screw

Insulation cover





Mounting tool

Table A 3: Dimensions

Anchor type	Anchor sleeve			Specific screw			Insulation cover	
	d_{nom} [mm]	h_{ef} [mm]	min L_a max L_a [mm]	d_s [mm]	c [mm]	min l_s max l_s [mm]	h_R	d_R
Baumit S	8	25	115 - 295	5,5	60	88 - 188	15	65

Determination of maximum thickness of insulation h_D [mm] Baumit S:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 25$

$h_{Dmax} = 180$

Baumit S und Baumit N	**Annex A 5**
Product description Baumit S - Marking and dimensions, mounting tool, base material group: A,B,C,D, countersunk into insulation	

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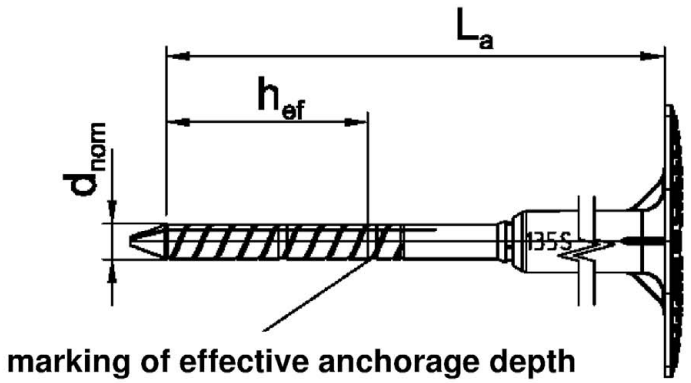
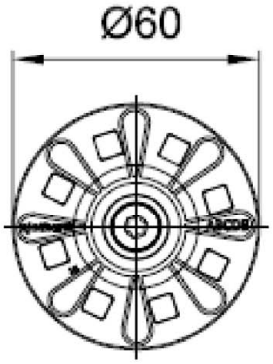
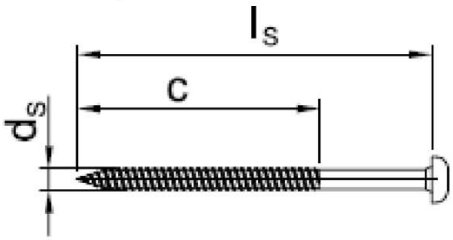
Baumit S / use category E / countersunk into insulation

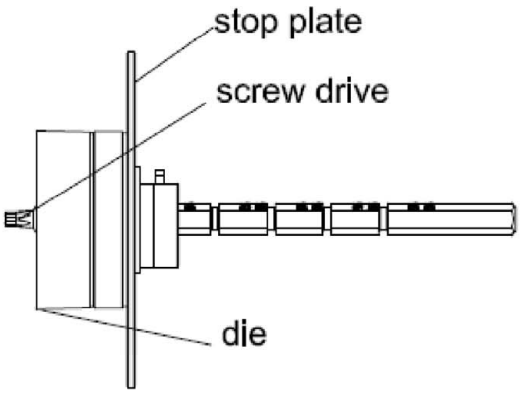




Marking:
Anchor type (Baumit S)
Anchor length (e.g. 135)
Base material group (A,B,C,D,E)



Specific screw



Mounting tool

Insulation cover

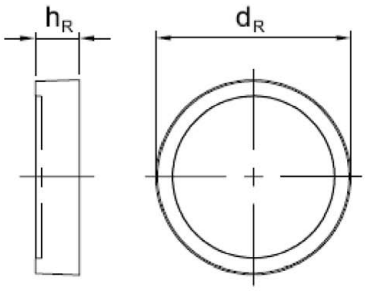


Table A 3: Dimensions

Anchor type	Anchor sleeve			Specific screw			Insulation cover	
	d_{nom} [mm]	h_{ef} [mm]	min L_a max L_a [mm]	d_s [mm]	c [mm]	min l_s max l_s [mm]	h_R	d_R
Baumit S	8	45	115 - 295	5,5	60	88 - 188	15	65

Determination of maximum thickness of insulation h_D [mm] Baumit S:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 45$

$h_{Dmax} = 160$

Baumit S und Baumit N	**Annex A 6**
Product description Baumit S - Marking and dimensions, mounting tool, base material group: E, countersunk into insulation	

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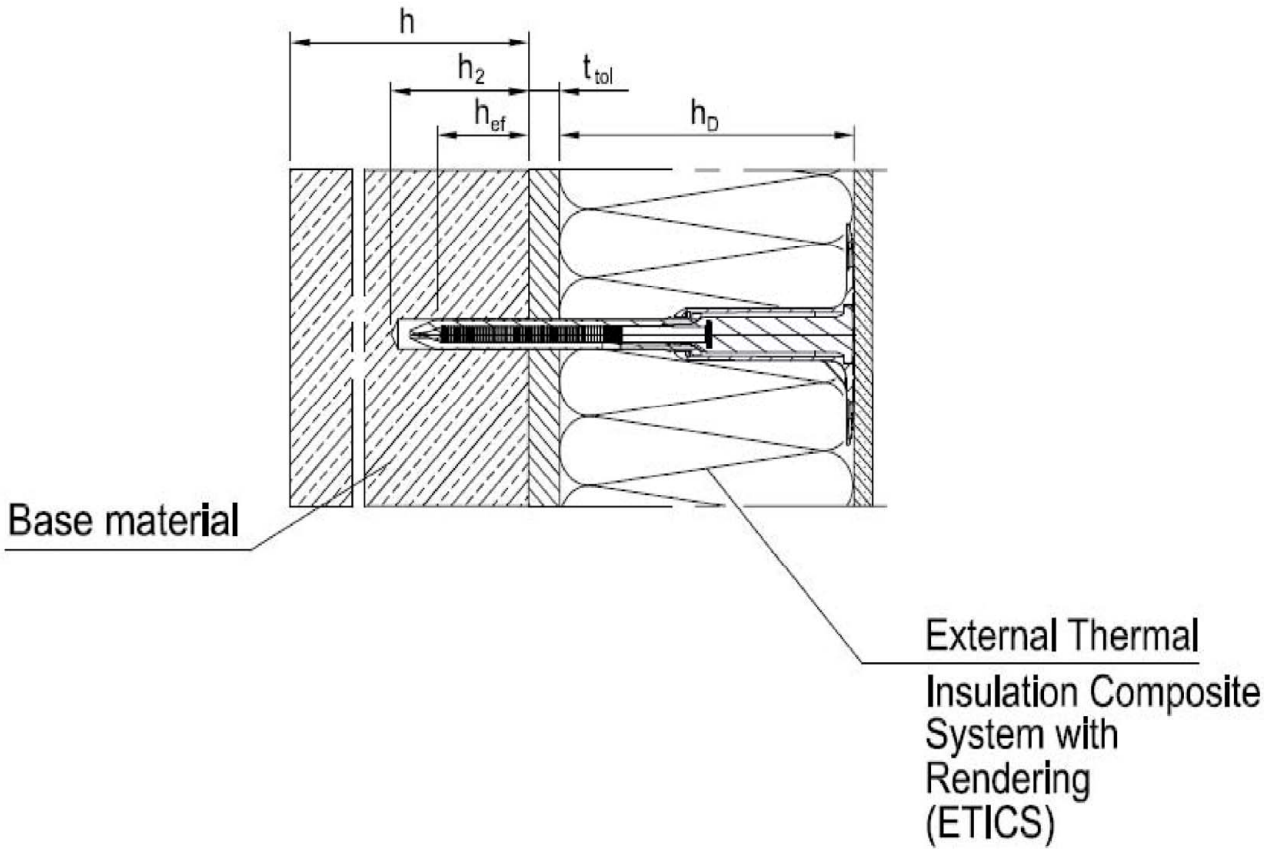
Baumit N, flushed at the surface



Intended use

- Anchorage of ETICS in concrete and masonry
- Anchorage of ETICS in autoclaved aerated concrete and lightweight aggregate concrete

Legend:
h_D = thickness of insulation material
h_{ef} = effective anchorage depth
h = thickness of member (wall)
h_2 = depth of drilled hole to deepest point
t_{tol} = thickness of equalizing layer or non-load-bearing coating

Baumit S and Baumit N	**Annex A 7**
Product description Installed condition Baumit N, flushed at the surface	

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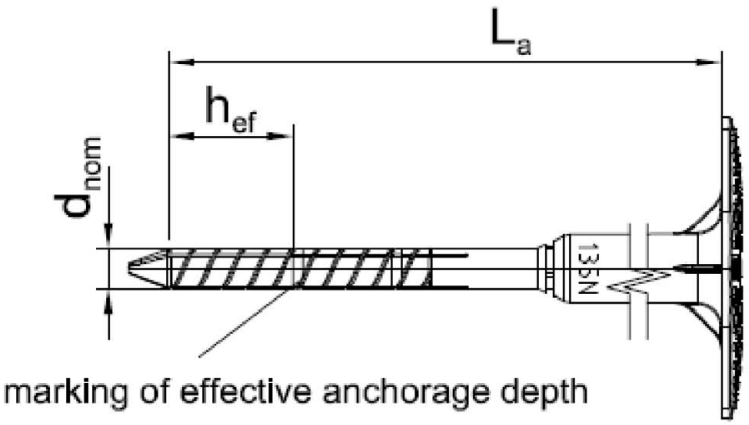
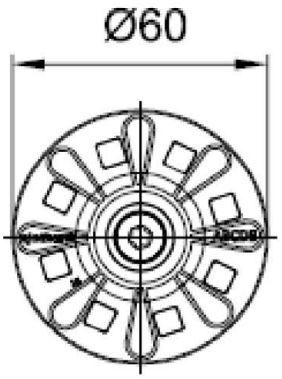
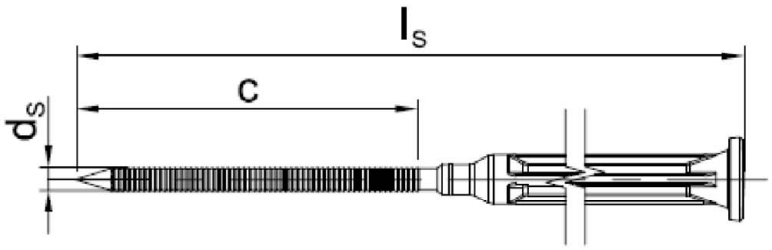
Baumit N / use category A,B,C,D / mounting flushed at the surface





Marking:
Anchor type (Baumit N)
Anchor length (e.g. 135)
Base material group (A,B,C,D,E)



Specific nail

Table A 5: Dimensions

Anchor Type	Anchor Sleeve			Specific nail		
	d_{nom} [mm]	h_{ef} [mm]	min L_a max L_a [mm]	d_n [mm]	c [mm]	min l_n max l_n [mm]
Baumit N	8	25	95 -295	4,13	60	95 295

Determination of maximum thickness of insulation h_D [mm] Baumit N:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 25$

$h_{Dmax} = 180$

Baumit S and Baumit N	**Annex A 8**
Product description Baumit N - Marking and dimensions, base material group: A,B,C,D Mounting flushed at the surface	

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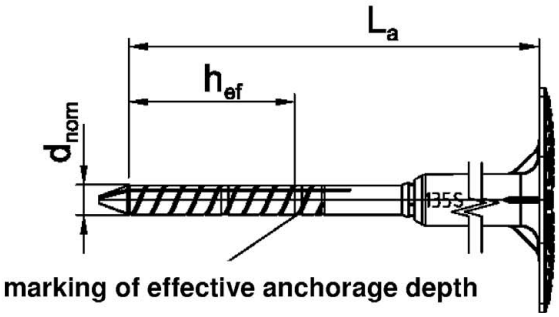
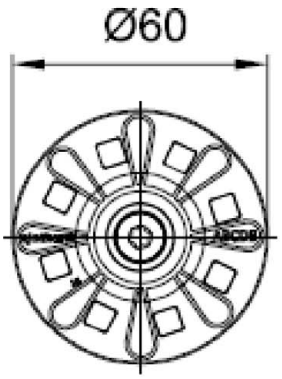
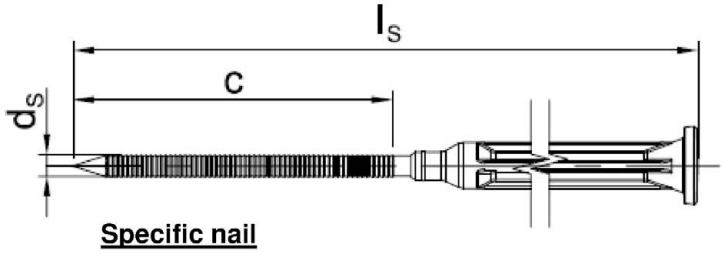
Baumit N / use category E / mounting flushed at the surface





Marking:
Anchor type (Baumit N)
Anchor length (e.g. 135)
Base material group (A,B,C,D,E)



Specific nail

Table A 5: Dimensions

Anchor Type	Anchor Sleeve			Specific nail		
	d_{nom} [mm]	h_{ef} [mm]	min L_a max L_a [mm]	d_n [mm]	c [mm]	min l_n max l_n [mm]
Baumit N	8	45	95 295	4,13	60	95 295

Determination of maximum thickness of insulation h_D [mm] for Baumit N:

$h_D = L_a - t_{tol} - h_{ef}$ (L_a = e.g. 215; t_{tol} = 10)

e.g. $h_D = 215 - 10 - 45$

$h_{Dmax} = 160$

Baumit S and Baumit N	**Annex A 9**
Product description Baumit N - marking and dimensions, base material group: E mounting flushed at the surface	

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Table A7: Materials Baumit S + N	
Anchor sleeve	virgin Polyethylene PE-HD, colour: grey
Anchor plate Baumit S	virgin Polyamide PA GF 50, colour: red
Anchor plate Baumit N	virgin Polyamide PA GF 50, colour: red virgin Polyethylene PE, colour: red
Plastic moulding of the nail	Polyamide PA GF 50, colour: black
Insulation cover	Polystyrene EPS 20
	Mineralwool HD
Anchor cap	Polystyrene EPS 20
Specific screw for Baumit S	Steel 5.8, electro galvanized ≥ 5 µm according to EN ISO 4042:2018, blue passivated
	Stainless steel, according to EN ISO 3506-1:2009 material number 1.4401 or 1.4571 material number 1.4301 or 1.4567
Specific nail for Baumit N	Steel, electro galvanized ≥ 5 µm according to EN ISO 4042:2018, blue passivated, f_{yk} ≥ 670 N/mm²

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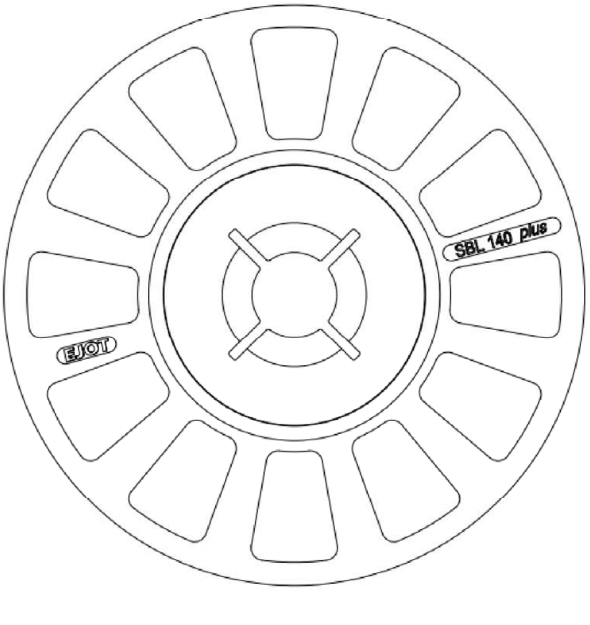
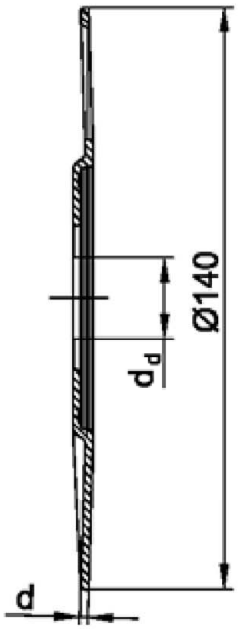
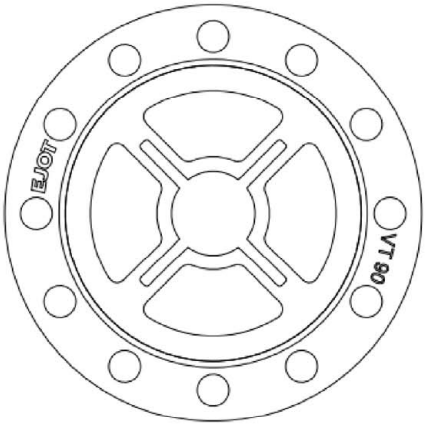
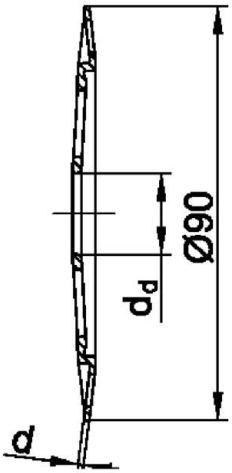
Baumit S + N





SBL 140 plus	
colour	nature
d_d [mm]	20,0
d [mm]	2,0
Material	1) 2)





VT 90	
colour	nature
d_d [mm]	17,5
d [mm]	1,2
Material	1) 2)

1) Polyamide, PA 6
2) Polyamide, PA GF 50

Baumit S and Baumit N	**Annex A 11**
Product description Slip on plates with Baumit S and Baumit N	

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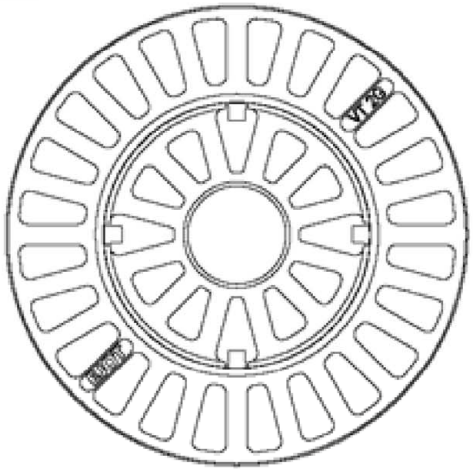
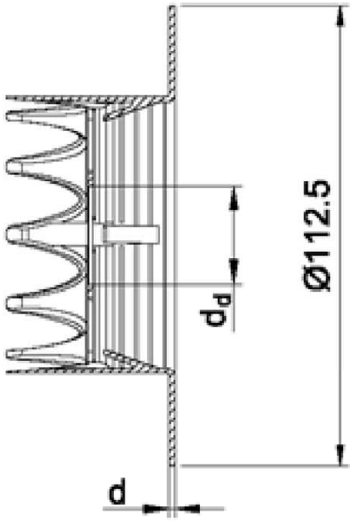
Baumit S

VT 2G





VT 2G	
colour	nature
d_d [mm]	29,0
d [mm]	1,5
Material	[1]

[1] Polyamide, PA GF 50

Baumit S and Baumit N	**Annex A 12**
Product description Slip on plates with Baumit S	

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Specifications of intended use

Anchorages subject to:

- The anchor may only be used for transmission of wind suction loads and shall not be used for the transmission of dead loads of the thermal insulation composite system.

Base materials:

- Normal weight concrete (base material group A) according to Annex C1.
- Solid masonry (base material group B), according to Annex C1.
- Hollow or perforated masonry (base material group C), according to Annex C1.
- Lightweight aggregate concrete (base material group D), according to Annex C1.
- autoclaved aerated concrete (base material group E), according to Annex C1.
- For other base materials of the base material groups A, B, C, D or E the characteristic resistance of the anchor may be determined by job site tests according to EOTA Technical Report TR 051 edition December 2016.

Temperature Range:

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

Design:

- The anchorages 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 are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings.
- Fasteners are only to be used for multiple fixings of thermal insulation composite systems.

Installation:

- Hole drilling by the drill modes according to Annex C1.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation temperature from 0°C to +40°C
- Exposure to UV due to solar radiation of the anchor not protected by rendering ≤ 6 weeks

Baumit S and Baumit N	**Annex B 1**
Intended use Specifications	

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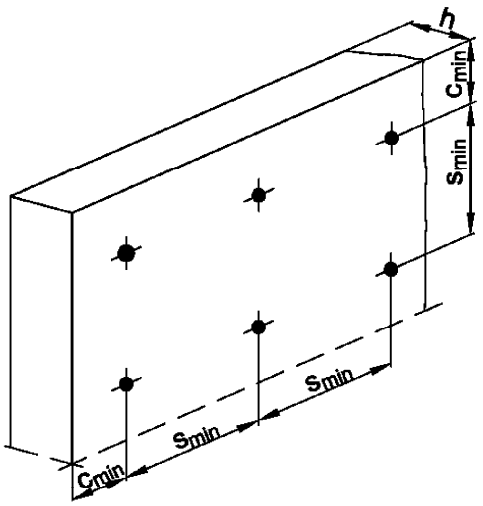
Table B1: Installation parameters					
Anchor type		Baumit N		Baumit S	
		A B C D	E	A B C D	E
Drill hole diameter	d_0 [mm] =	8	8	8	8
Cutting diameter of drill bit	d_{cut} [mm] ≤	8,45	8,45	8,45	8,45
Depth of drill hole to deepest point					
- deep mounting	h_1 [mm] ≥			50	70
- mounting on the surface	h_1 [mm] ≥	35	55	35	55
Effective anchorage depth	h_{ef} [mm] ≥	25	45	25	45

Table B2: Anchor distances and dimensions of members		
Anchor type		Baumit S / Baumit N
Minimum allowable spacing	s_{min} ≥ [mm]	100
Minimum allowable edge distance	c_{min} ≥ [mm]	100
Minimum thickness of member		
- deep mounting	h ≥ [mm]	100
		40 (only skins of concrete)
- mounting on the surface	h ≥ [mm]	100
		40 (only skins of concrete)

Scheme of distance and spacing



Baumit S and Baumit N

Intended use
Installations parameters,
Edge distances and spacing

Annex B 2

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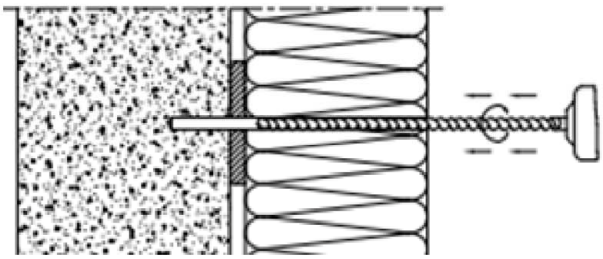
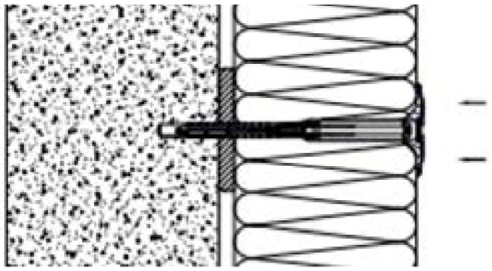
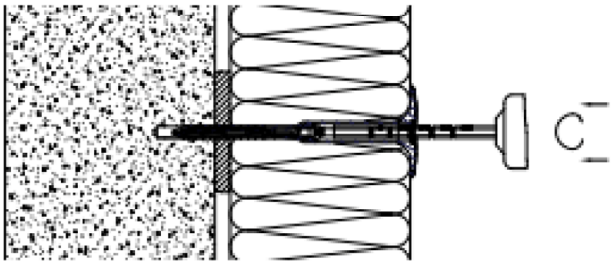
Installation instructions: Baumit S / flushed at the surface



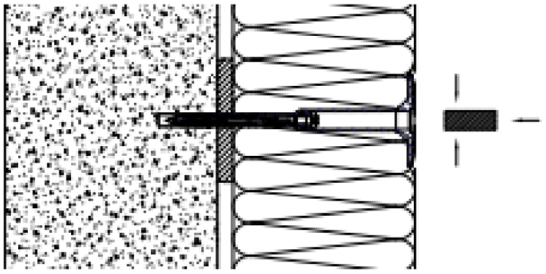
Drill the hole perpendicular to the substrate surface.
Clean the drill hole 3x.



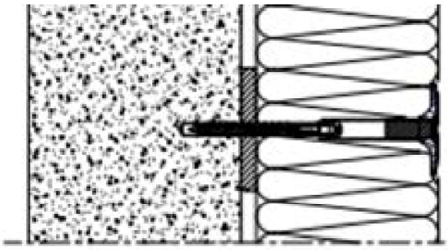
Place the anchor into the drill hole. The bottom side of the plate must be flush with the ETICS.



Drill the specific screw into the anchor.



Put the EPS-cap into the anchor



Installed condition of Baumit S.

Baumit S and Baumit N	**Annex B 3**
Intended use Installation instructions Baumit S, flushed at the surface	

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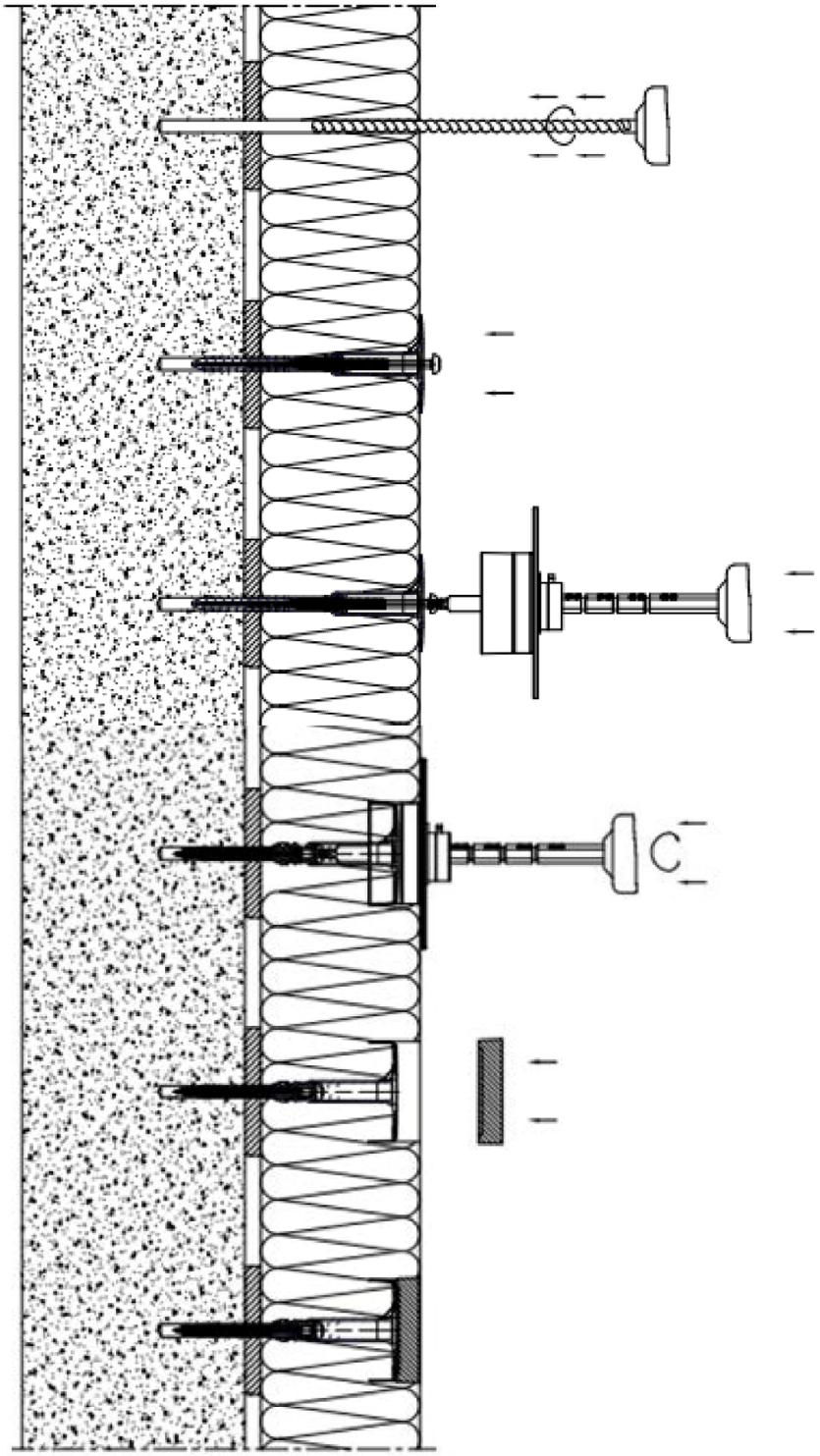
Installation instructions: Baumit S / countersunk into insulation



Drill the hole perpendicular to the substrate surface.
Clean the drill hole 3x.

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

Put the mounting tool into the drive unit.

Drill the specific screw with the mounting tool into the anchor.

Put the insulation cover into the hole from the insulation

Installed condition of Baumit S.

Baumit S and Baumit N	**Annex B 4**
Intended use Installation instructions Baumit S, countersunk into insulation	

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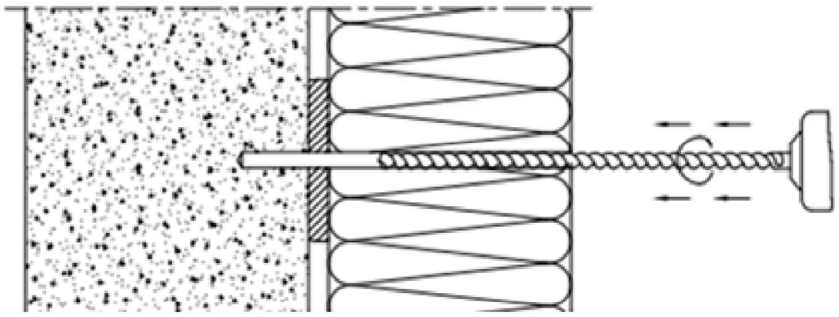
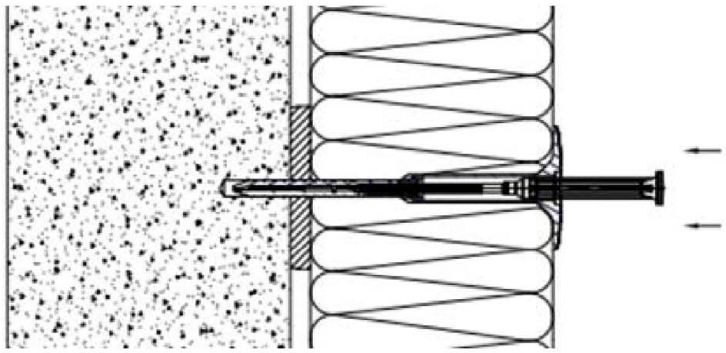
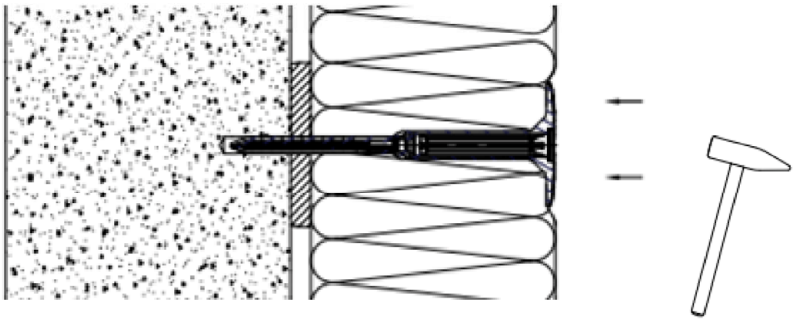
Installation instructions: Baumit N / mounting flushed at the surface



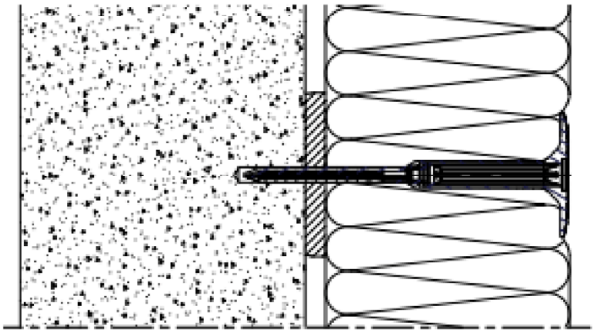
Drill the hole perpendicular to the substrate surface.
Clean the drill hole 3x.



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



Drive in the specific nail with the hammer into the sleeve



Installed condition of Baumit N.

Baumit S and Baumit N	**Annex B 5**
Intended use Installation instructions Baumit N, flushed at the surface	

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Table C1: Characteristic resistance to tension loads N_{Rk} in concrete an masonry for a single anchor in kN

Anchor type					Baumit N	Baumit S
Base materials	Bulk density ρ [kg/dm³]	minimum compressive strength f_b [N/mm²]	General remarks	Drill method	N_{Rk} [kN]	N_{Rk} [kN]
Concrete C12/15 EN 206-1:2000				hammer	0,75	0,9
Concrete C20/25 – C50/60 EN 206-1:2000				hammer	1,2	1,5
Concrete C20/25 – C50/60 Thin members EN 206-1:2000 (thin members)			Thickness of the skin 100 mm > h ≥ 40 mm	hammer	1,2	1,5
Clay bricks, Mz e.g. according to EN 771-1:2011	≥ 1,8	36	Vertically perforation up to 15 %.	hammer	1,5	1,5
Sand-lime solid bricks, KS e.g. according to EN 771-2:2011	≥ 1,8	16	Vertically perforation up to 15 %.	hammer	1,5	1,5
Vertically perforated clay bricks, HLz e.g. according to EN 771-1:2011	≥ 1,4	16	Vertically perforation ≥ 15 % and ≤ 50 %. Outer web thickness ≥ 14 mm	rotary	0,9 [1)]	1,5 [1)]
Sand-lime perforated bricks, KSL e.g. according to EN 771-2:2011	≥ 1,4	12	Vertically perforation ≥ 15 %. Outer web thickness ≥ 20 mm	rotary	0,9 [2)]	1,5 [2)]
Lightweight concrete hollow blocks; Hbl e.g. according to EN 771-3:2011	≥ 0,9	4	Vertically perforation ≥ 15 %. Outer web thickness ≥ 30 mm	rotary	0,6 [3)]	1,2 [3)]
Lightweight aggregate concrete LAC 8 – LAC 25 e.g. according to EN 771-3:2011-07	≥ 1,2	8		hammer	0,6	0,75
Autoclaved aerated concrete AAC4 – AAC 7 e.g. according to EN 771-4:2011	≥ 0,55	4		rotary	0,75	0,75

1) The value applies only for outer web thickness ≥ 14 mm; otherwise the characteristic resistance shall be determined by job site pull-out tests.
2) The value applies only for outer web thickness ≥ 20 mm; otherwise the characteristic resistance shall be determined by job site pull-out tests.
3) The value applies only for outer web thickness ≥ 30 mm; otherwise the characteristic resistance shall be determined by job site pull-out tests.

Baumit S and Baumit N

Performances
Characteristic resistance

Annex C 1

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Table C2: Point thermal transmittance according EOTA Technical Report TR 025:2016-05		
anchor type	insulation thickness h_D [mm]	point thermal transmittance χ [W/K]
Baumit N,	60 – 260	0,001
Baumit S, countersunk	80 – 260	0,001
Baumit S, flushed	80 – 260	0,002

Table C3: Plate stiffness according EOTA Technical Report TR 026:2016-05			
anchor type	diameter of the anchor plate [mm]	load resistance of the anchor plate [kN]	plate stiffness [kN/mm]
Baumit S+N (PA GF 50)	60	2,7	0,8
Baumit N (PE)	60	2,2	0,8

Table C4: Displacements					
Base materials	Bulk density ρ [kg/dm³]	Min. compressive strength f_b [N/mm²]	Tension Load N [kN] Baumit N / S	Displacements $\Delta\delta_N$ [mm]	
				Baumit N	Baumit S
Concrete C20/25 – C50/60 (EN 206-1:2000)			0,4 / 0,5	0,4	0,4
Clay bricks, Mz (EN 771-1:2011)	≥ 1,8	36	0,5 / 0,5	0,3	0,3
Sand-lime solid bricks, KS (EN 771-2:2011)	≥ 1,8	16	0,5 / 0,5	0,4	0,4
Vertically perforated clay bricks, HLz (EN 771-1:2011)	≥ 1,4	16	0,3 / 0,5	0,2	0,4
Sand-lime perforated bricks, KSL (EN 771-2:2011)	≥ 1,4	12	0,3 / 0,5	0,3	0,3
Lightweight concrete hollow blocks, Hbl (EN 771-3:2011)	≥ 0,9	4	0,2 / 0,4	0,2	0,2
Lightweight aggregate concrete, LAC 8 – LAC 25 (EN 771-3:2011)	≥ 1,2	8	0,2 / 0,25	0,2	0,2
Autoclaved aerated concrete, AAC 4 – AAC 7 (EN 771-4:2011)	≥ 0,55	4	0,25 / 0,25	0,3	0,3

Baumit S und Baumit N	**Annex C 2**
Performances Point thermal transmittance, plate stiffness and displacements	