

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-21/0895
of 19 September 2022

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

ejotherm STR-P

Product family
to which the construction product belongs

Plastic anchor for fixing of external thermal insulation
composite systems with rendering

Manufacturer

EJOT SE & Co. KG
Astenbergstraße 21
57319 Bad Berleburg
DEUTSCHLAND

Manufacturing plant

manufacturing plant EJOT 1, 2, 3 and 4

This European Technical Assessment
contains

16 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, edition 10/2017

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Specific Part

1 Technical description of the product

The screwed-in anchor ejotherm STR-P short consists of an anchor sleeve made of polyethylene (virgin material), an anchor plate made of polyethylene (virgin material) and an accompanying specific screw made of polyamide (virgin material).

The product description is 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 verifications 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 load bearing capacity	
- Characteristic resistance under tension load	See Annex C 1
- Minimum edge distance and spacing	See Annex B 2
Displacements	See Annex C 2
Plate stiffness	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 European Assessment Document

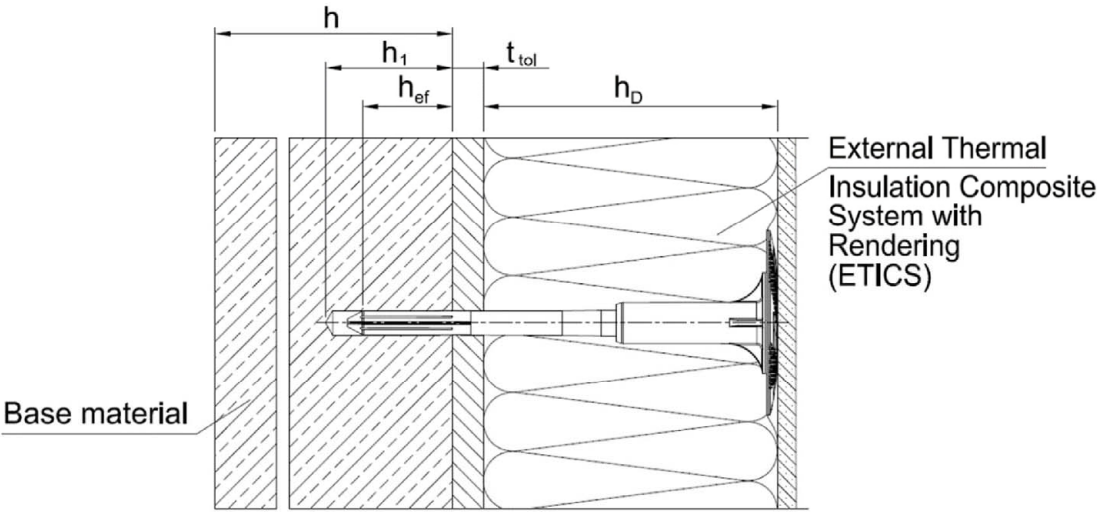
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 19 September 2022 by Deutsches Institut für Bautechnik

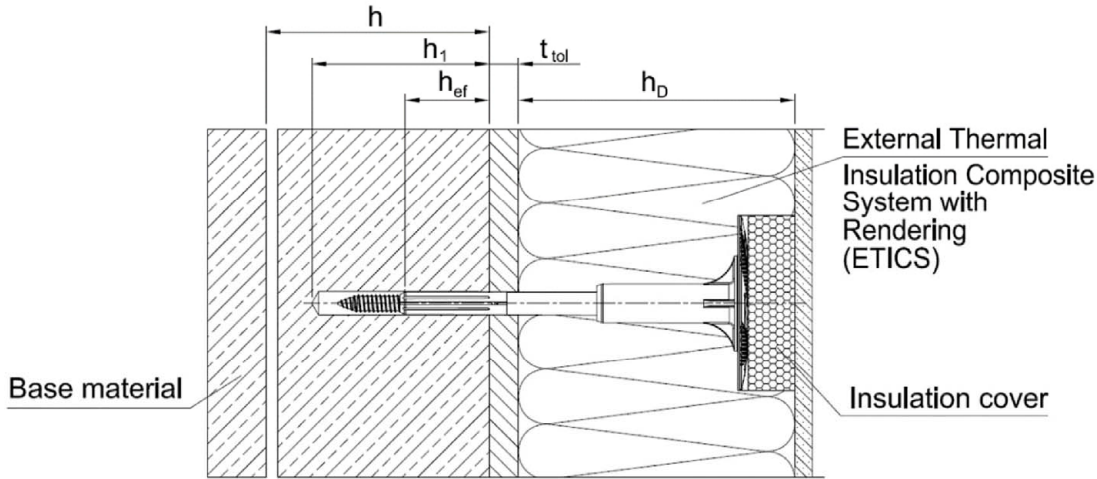
Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler

ejotherm STR-P, flush mounted installation



ejotherm STR-P, countersunk mounted installation



Intended use

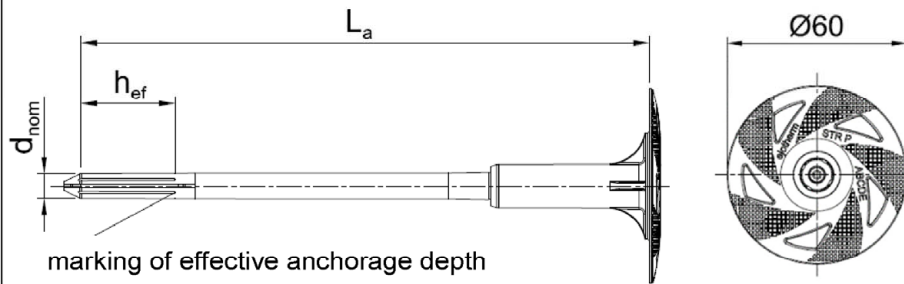
- Anchorage of ETICS in concrete and masonry
- Anchorage of ETICS in autoclaved aerated concrete and lightweight aggregate concrete

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
- t_{tol} = thickness of equalizing layer or non-load-bearing coating

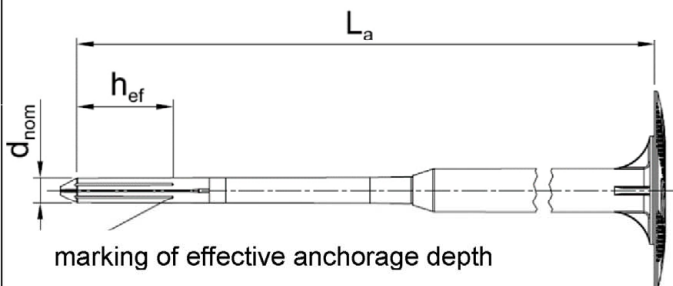
ejotherm STR-P	Annex A 1
Product description Installed condition	

ejotherm STR-P in base material group A, B, C, D - one and two-part anchor sleeve, flush mounted installation

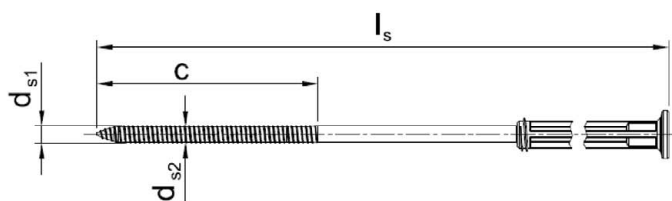


Marking of the anchor sleeve:
Identifying mark (ejotherm)
Anchor type (STR-P)
Base material group (A, B, C, D, E)
Length of anchor (e.g. 200)

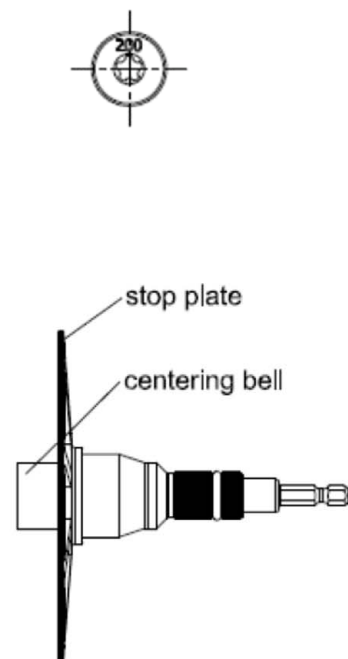
ejotherm STR-P: one-part anchor sleeve



ejotherm STR-P: two-part anchor sleeve



ejotherm STR-P: plastic screw



**ejotherm STR-P: mounting tool,
flush mounted installation**

Table A1: Dimensions

Anchor Type	Anchor sleeve			Plastic screw			
	d _{nom}	h _{ef}	min L _a max L _a	d _{s1}	d _{s2}	c	min l _s max l _s
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
ejotherm STR-P (one-part anchor sleeve)	8	30	100 300	5,7	5,0	70	100 300
ejotherm STR-P (two-part anchor sleeve)	8	30	100 300	5,7	5,0	70	100 300

Determination of maximum thickness of insulation h_D [mm] ejotherm STR-P (one and two-part anchor sleeve):

$$h_D = L_a - t_{tol} - h_{ef}$$

e.g. $h_D = 200 - 10 - 30$

$$h_{Dmax} = 160$$

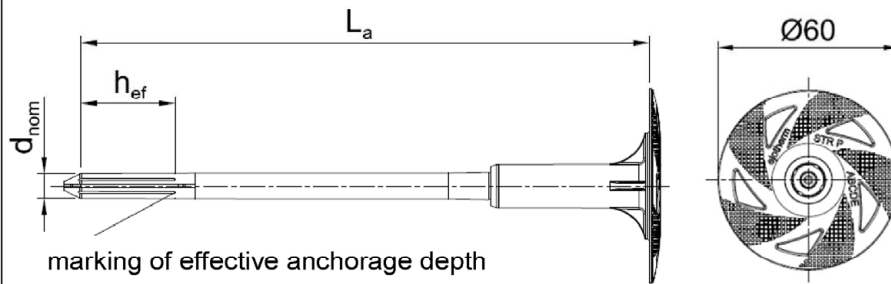
ejotherm STR-P

Product description

Marking and dimension of the one-part and two-part anchor sleeve from ejotherm STR-P base material group: A, B, C, D; plastic screw, flush mounted installation

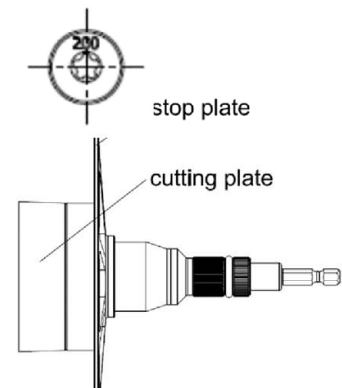
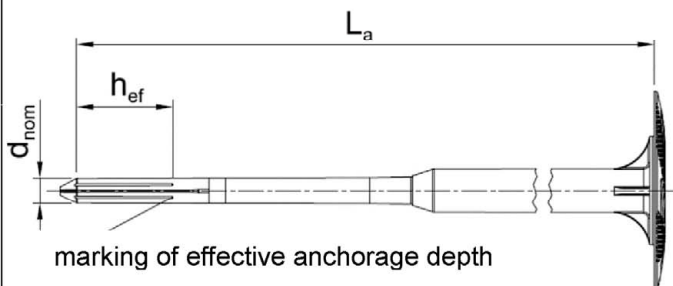
Annex A 2

ejotherm STR-P in base material group A, B, C, D - one and two-part anchor sleeve, countersunk installation



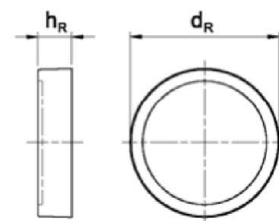
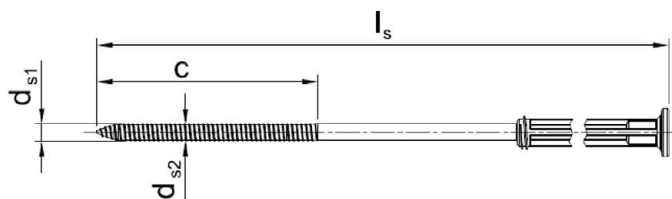
Marking of the anchor sleeve:
Identifying mark (ejotherm)
Anchor type (STR-P)
Base material group (A, B, C, D, E)
Length of anchor (e.g. 200)

ejotherm STR-P: one-part anchor sleeve



ejotherm STR-P: mounting tool, countersunk installation

ejotherm STR-P: two-part anchor sleeve



ejotherm STR-P: insulation cover

ejotherm STR-P: plastic screw

Table A2: Dimensions

Anchor Type	Anchor sleeve			Plastic screw				Insulation cover	
	d _{nom} [mm]	h _{ef} [mm]	min L _a max L _a [mm]	d _{s1} [mm]	d _{s2} [mm]	c [mm]	min l _s max l _s [mm]	h _R [mm]	d _R [mm]
ejotherm STR-P (one-part anchor sleeve)	8	30	100 300	5,7	5,0	70	100 300	15	66
ejotherm STR-P (two-part anchor sleeve)	8	30	100 300	5,7	5,0	70	100 300	15	66

Determination of maximum thickness of insulation h_D [mm] ejotherm STR-P (one and two-part anchor sleeve):

$$h_D = L_a - t_{tol} - h_{ef}$$

e.g. $h_D = 200 - 10 - 30$

$$h_{Dmax} = 160$$

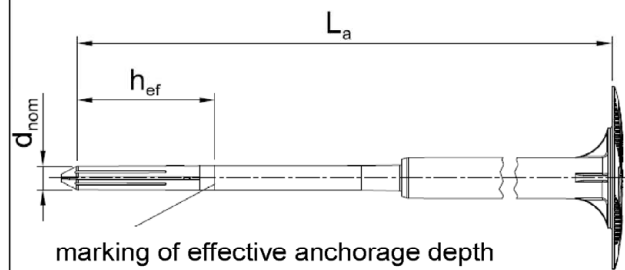
ejotherm STR-P

Product description

Marking and dimension of the one-part and two-part anchor sleeve from ejotherm STR-P base material group: A, B, C, D; plastic screw, countersunk installation

Annex A 3

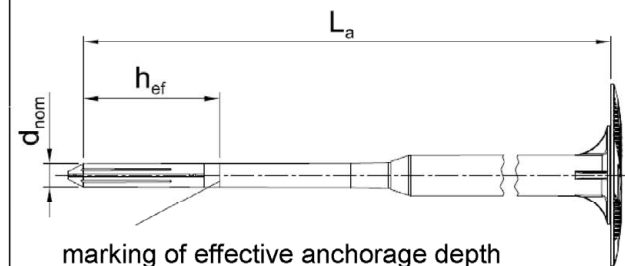
ejotherm STR-P in base material group E - one and two-part anchor sleeve, flush mounted installation



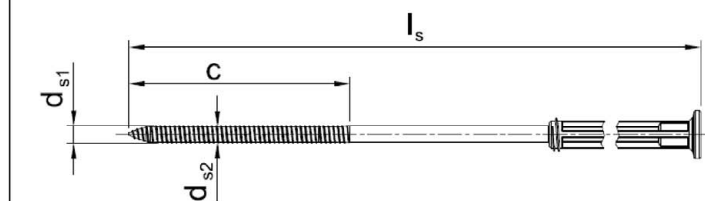
Marking of the anchor sleeve:
Identifying mark (ejotherm)
Anchor type (STR-P)
Base material group (A, B, C, D, E)
Length of anchor (e.g. 200)



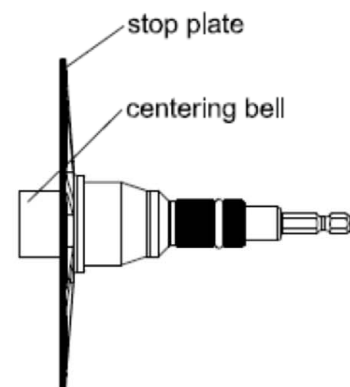
ejotherm STR-P: one-part anchor sleeve



ejotherm STR-P: two-part anchor sleeve



ejotherm STR-P: plastic screw



ejotherm STR-P: mounting tool, flush mounted installation

Table A3: Dimensions

Anchor Type	Anchor sleeve			Plastic screw			
	d _{nom}	h _{ef}	min L _a max L _a	d _{s1}	d _{s2}	c	min l _s max l _s
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
ejotherm STR-P (one-part anchor sleeve)	8	50	100 300	5,7	5,0	70	100 300
ejotherm STR-P (two-part anchor sleeve)	8	50	100 300	5,7	5,0	70	100 300

Determination of maximum thickness of insulation h_D [mm] ejotherm STR-P (one and two-part anchor sleeve):

$$h_D = L_a - t_{tol} - h_{ef}$$

e.g. $h_D = 200 - 10 - 50$

$$h_{Dmax} = 140$$

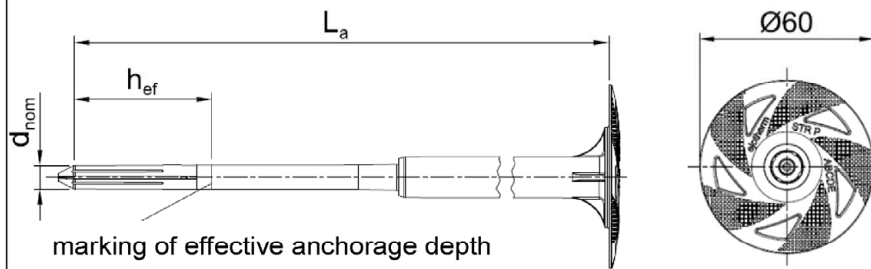
ejotherm STR-P

Product description

Marking and dimension of the one-part and two-part anchor sleeve from ejotherm STR-P base material group: E; plastic screw, flush mounted installation

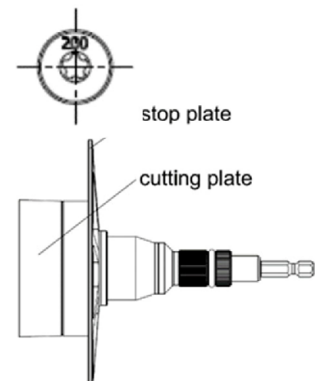
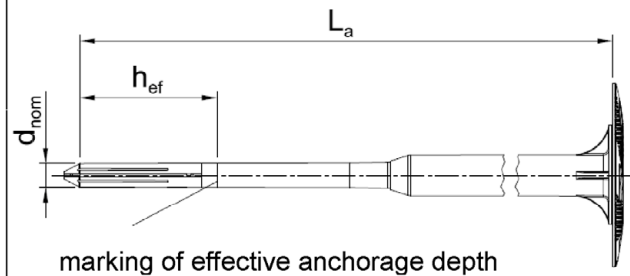
Annex A 4

ejotherm STR-P in base material group E - one and two-part anchor sleeve, countersunk installation



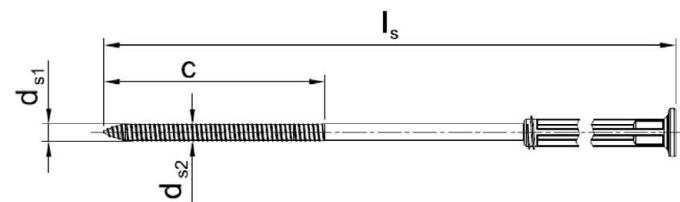
Marking of the anchor sleeve:
Identifying mark (ejotherm)
Anchor type (STR-P)
Base material group (A, B, C, D, E)
Length of anchor (e.g. 200)

ejotherm STR-P: one-part anchor sleeve

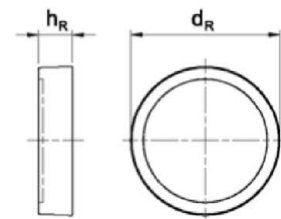


ejotherm STR-P: mounting tool, countersunk installation

ejotherm STR-P: two-part anchor sleeve



ejotherm STR-P: plastic screw



ejotherm STR-P: insulation cover

Table A4: Dimensions

Anchor Type	Anchor sleeve			Plastic screw				Insulation cover	
	d _{nom} [mm]	h _{ef} [mm]	min L _a max L _a [mm]	d _{s1} [mm]	d _{s2} [mm]	c [mm]	min l _s max l _s [mm]	h _R [mm]	d _R [mm]
ejotherm STR-P (one-part anchor sleeve)	8	50	100 300	5,7	5,0	70	100 300	15	66
ejotherm STR-P (two-part anchor sleeve)	8	50	100 300	5,7	5,0	70	100 300	15	66

Determination of maximum thickness of insulation h_D [mm] ejotherm STR-P (one and two-part anchor sleeve):

$$\begin{aligned}
 h_D &= L_a - t_{tol} - h_{ef} \\
 \text{e.g. } h_D &= 200 - 10 - 50 \\
 h_{Dmax} &= 140
 \end{aligned}$$

ejotherm STR-P

Product description

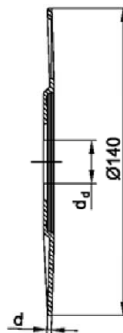
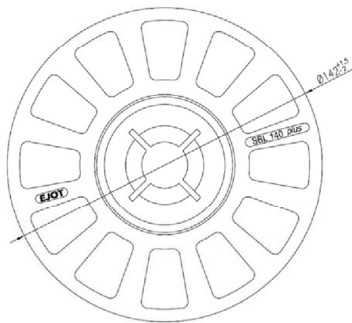
Marking and dimension of the one-part and two-part anchor sleeve from ejotherm STR-P base material group: E; plastic screw, countersunk installation

Annex A 5

Table A5: Materials ejotherm STR-P

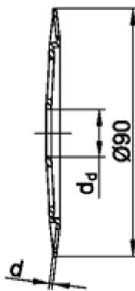
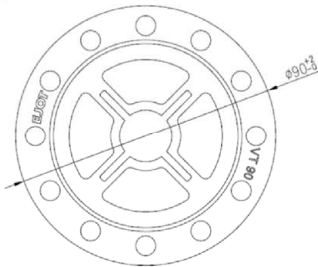
Anchor plate (two-part anchor)	Polyethylene (virgin material) PE-HD colour: nature, yellow, orange, red, blue, grey, white, green, anthracite
Anchor sleeve (two-part anchor)	Polyethylene (virgin material) PE-HD colour: nature, yellow, orange, red, blue, grey, white, green, anthracite
Anchor (one-part)	Polyethylene (virgin material) PE-HD colour: nature, yellow, orange, red, blue, grey, white, green, anthracite
Plastic screw	Polyamide (virgin material) PA 6 GF 50 colour: nature, black, anthracite
Slip-on plate	Polyamide (virgin material) PA 6 or PA 6 GF 50 colour: nature

SBL 140 plus



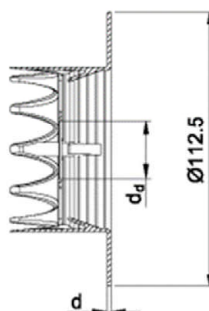
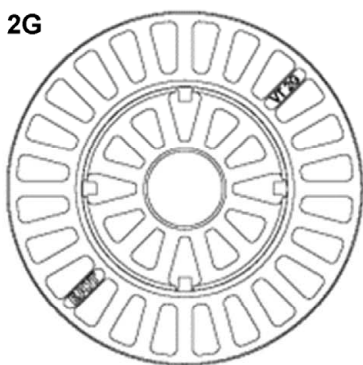
SBL 140 plus	
d _d [mm]	21,0
d [mm]	2,0

VT 90



VT 90	
d _d [mm]	18,5
d [mm]	1,2

VT 2G



VT 2G	
d _d [mm]	29,0
d [mm]	1,5

ejotherm STR-P

Product description
Materials and slip on plates

Annex A 6

Specifications of intended use

Anchorage 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:

- Compacted normal weight concrete without fibres (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.
- Prefabricated reinforced components of lightweight aggregate concrete (LAC) (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 base material groups A, B, C, D or E the characteristic resistance of the anchor may be determined by job site tests in accordance with EOTA Technical Report TR 51 edition April 2018.

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 accordance and masonry work with the partial safety factors $\gamma_m = 2,0$ and $\gamma_F = 1,5$ if there are no other 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 C 1.
- 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

ejotherm STR-P

Intended use
Specifications

Annex B 1

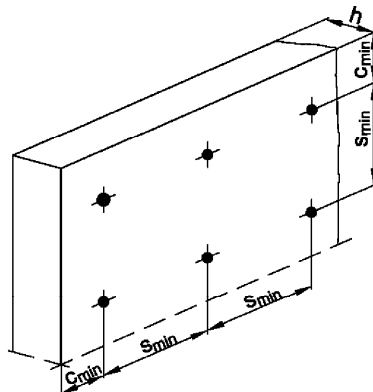
Table B1: Installation parameters

Anchor type		ejotherm STR-P	
		Base material group	
		A, B, C, D	E
Drill hole diameter	d_0 [mm] =	8	8
Cutting diameter of drill bit	d_{cut} [mm] ≤	8,45	8,45
Depth of drilled hole to deepest point			
- countersunk mounted	h_1 [mm] ≥	60	80
- flushed surface mounted	h_2 [mm] ≥	40	60
Effective anchorage depth	h_{ef} [mm] ≥	30	50

Table B2: Anchor distances and dimensions of members

Anchor type		ejotherm STR-P	
Use category		A B C D	E
Minimum spacing	$s_{min} \geq$ [mm]	100	100
Minimum edge distance	$c_{min} \geq$ [mm]	100	100
Minimum thickness of member			
- countersunk mounting	$h \geq$ [mm]	100	120
		40 (only skins of concrete)	
- mounting on the surface	$h \geq$ [mm]	100	120
		40 (only skins of concrete)	

Scheme of distance and spacing

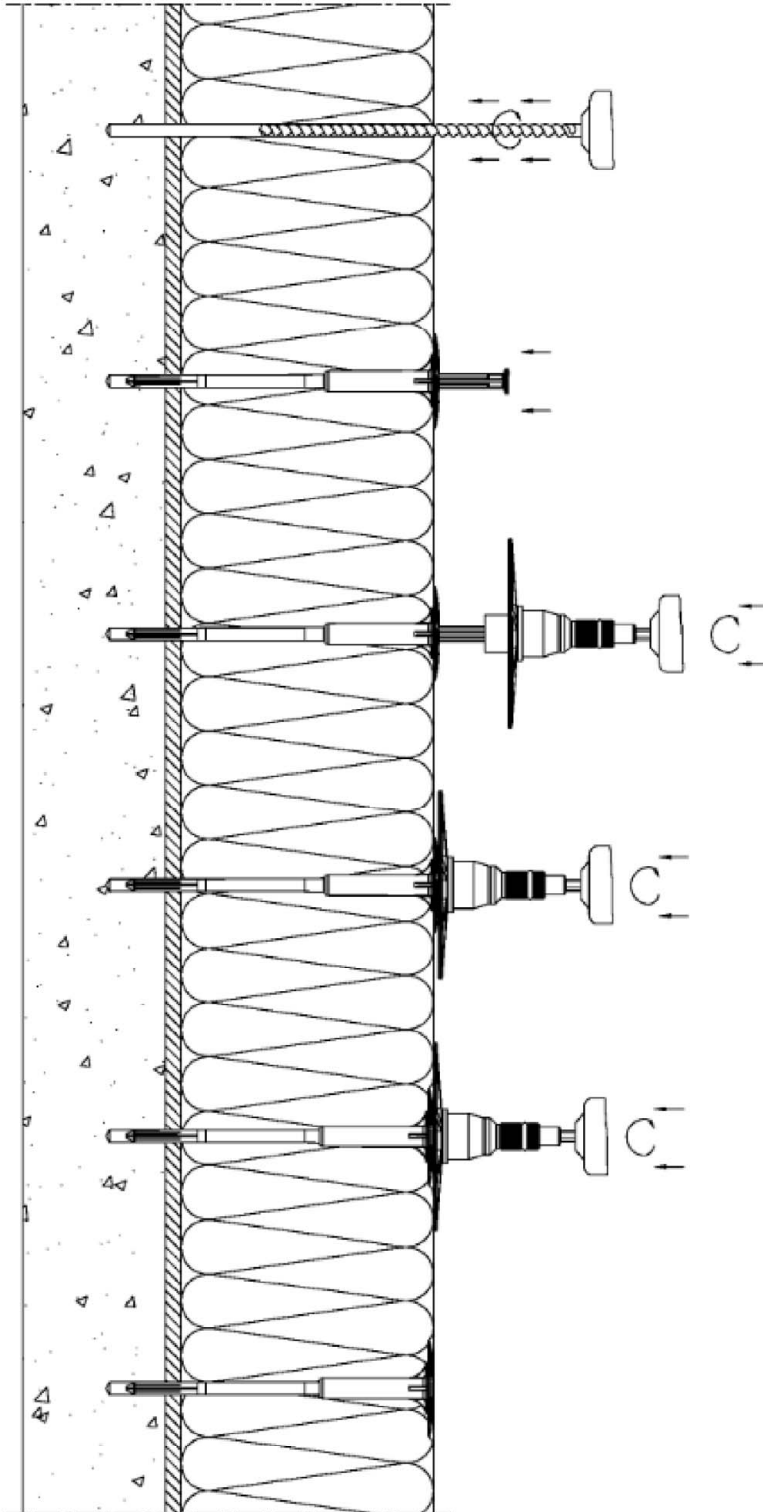


ejotherm STR-P

Intended use
Installations parameters,
Edge distances and spacing

Annex B 2

Installation instructions: ejotherm STR-P, flush mounted installation



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 insulation.

Placing the mounting tool for flush mounted installation (see Annex A2) on the dowel screw

Mounting the screw

Top side of the anchor plate mounted flush with the insulation board surface. Assembly tool decoupled.

Installed conditions ejotherm STR-P.

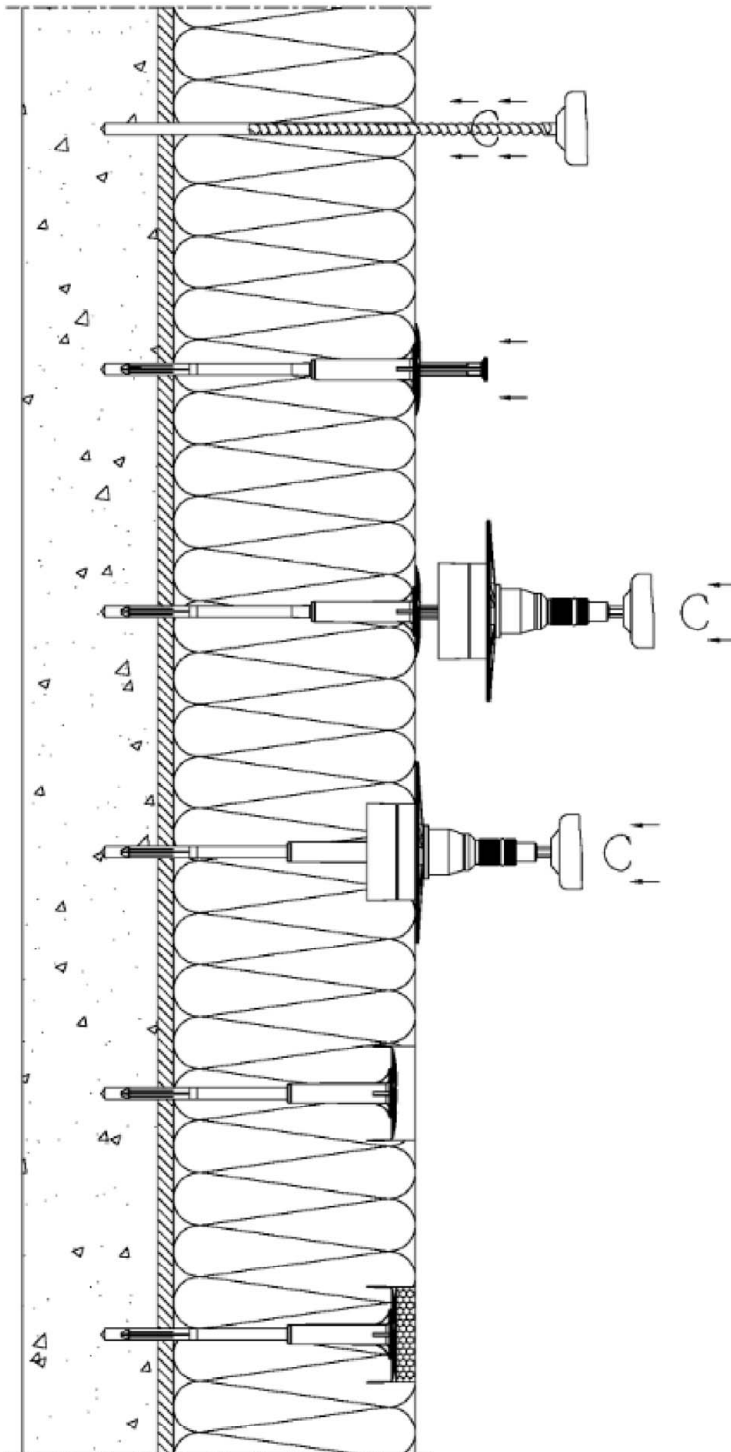
ejotherm STR-P

Intended use

Installation instructions ejotherm STR-P, flush mounted installation

Annex B 3

Installation instructions: ejotherm STR-P, countersunk installation



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 insulation.

Placing the mounting tool for countersunk installation (see Annex A3) on the dowel screw

Mounting the screw, the stop plate of the mounting tool must be flush with the insulation material

Top side of the anchor plate countersunk mounted into insulation material, until the installation-tool decoupled.

Installed conditions ejotherm STR-P, countersunk version.
Insert the insulation cover with the help of a float.

ejotherm STR-P

Intended use

Installation instructions ejotherm STR-P, countersunk installation

Annex B 4

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

Anchor type					ejotharm STR-P
Base materials	Bulk density ρ [kg/dm ³]	Minimum compressive strength f_b [N/mm ²]	General remarks	Drill method	N_{Rk} [kN]
Concrete C12/15 – C50/60 as per EN 206:2013+A1:2016			Compacted normal weight concrete without fibres	hammer	1,5
Thin concrete members (e.g. weather resistant skin) Concrete C16/20 – C50/60 as per EN 206:2013+A1:2016			Compacted normal weight concrete without fibres Thickness of the thin skin: 100 mm > h ≥ 40 mm	hammer	1,4
Clay bricks, Mz as per EN 771-1:2011+A1:2015	≥ 1,8	12	Vertically perforation ⁴⁾ up to 15 %.	hammer	1,5
Sand-lime solid bricks, KS as per EN 771-2:2011+A1:2015	≥ 1,8	12	Vertically perforation ⁴⁾ up to 15 %.	hammer	1,5
Vertically perforated clay bricks, HLz as per EN 771-1:2011+A1:2015	≥ 1,6	20	Vertically perforation ⁴⁾ > 15 % and ≤ 50 %.	hammer / rotary	1,5 ¹⁾
Sand-lime perforated bricks, KSL as per EN 771-2:2011+A1:2015	≥ 1,6	12	Vertically perforation ⁴⁾ > 15 % and ≤ 50 %.	hammer / rotary	1,5 ²⁾
Lightweight concrete hollow blocks, Hbl as per EN 771-3:2011+A1:2015	≥ 1,2	6		hammer / rotary	0,9 ³⁾
lightweight aggregate concrete, LAC as per EN 1520:2011, EN 771-3:2011+A1:2015	≥ 0,7	4		rotary	0,9
Autoclaved aerated concrete as per EN 771-4:2011 +A1:2015	≥ 0,55	4		rotary	0,75

¹⁾ The value applies only for outer web thickness ≥ 25 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 ≥ 40 mm; otherwise the characteristic resistance shall be determined by job site pull-out tests.

⁴⁾ Cross section reduced by perforation vertically to the resting area

ejotharm STR-P	Annex C 1
Performances Characteristic resistance	

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]
ejothem STR-P	60	0,001
ejothem STR-P, flush mounted installation	80 – 260	0,000
ejothem STR-P, countersunk installation		

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]
ejothem STR-P	60	1,5	0,7

Table C4: Displacements ejotherm STR-P

Base materials	Bulk density ρ [kg/dm ³]	minimum compressive strength f_b [N/mm ²]	Tension load N [kN]	Displacements $\Delta\delta_N$ [mm]
				$L_a =$ 60 – 300 mm
Concrete C12/15 – C50/60 (EN 206:2013+A1:2016)			0,5	0,6
Thin concrete members Concrete C16/20 – C50/60 (EN 206:2013+A1:2016)			0,45	0,6
Clay bricks, Mz (EN 771-1:2011+A1:2015)	$\geq 1,8$	12	0,5	0,6
Sand-lime solid bricks, KS (EN 771-2:2011+A1:2015)	$\geq 1,8$	12	0,5	0,6
Vertically perforated clay bricks, HLz (EN 771-1:2011+A1:2015)	$\geq 1,6$	20	0,5	0,6
Sand-lime perforated bricks, KSL (EN 771-2:2011+A1:2015)	$\geq 1,6$	12	0,5	0,6
Lightweight concrete hollow blocks, Hbl (EN 771-3:2011+A1:2015)	$\geq 1,2$	6	0,3	0,4
Lightweight aggregate concrete, LAC (EN 1520:2011 / EN 771-3:2011+A1:2015)	$\geq 0,7$	4	0,3	0,4
Autoclaved aerated concrete (EN 771-4:2011+A1:2015)	$\geq 0,55$	4	0,25	0,3

ejothem STR-P

Performances

Point thermal transmittance, plate stiffness, displacements

Annex C 2