

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-04/0064
of 29 August 2014

General Part

Technical Assessment Body issuing the
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

EJOT SDM-T plus, SDF-K plus and SDF-S plus

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

EJOT Baubefestigungen GmbH
In der Stockwiese 35
57334 Bad Laasphe

Manufacturing plant

EJOT 1, EJOT 2, EJOT 3 und EJOT 4

This European Technical Assessment
contains

21 pages including 16 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

Guideline for European technical approval of "Plastic
anchors for fixing of external thermal insulation composite
systems with rendering", ETAG 014, Edition February
2011,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

This version replaces

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Specific Part

1 Technical description of the product

The EJOT screwed-in anchor type SDM-T *plus* with a plate and the anchor types SDF-K *plus* and SDF-S *plus* with a collar consists of an anchor sleeve made of polyamide with an enlarged shaft spreading zone subsequently and an accompanying specific screw of stainless steel or galvanised steel. The head of the screw of the anchor type SDM-T *plus* has an additional coating.

The anchor type SDM-T *plus* may in addition be combined with the anchor plates SBL 140 *plus* and VT 90 made from polyamide.

The anchor type SDF-K *plus* may in addition be combined with the anchor plates SBV-PØ8/90 and IT Z 60/8 K made from polyamide.

The anchor type SDF-S *plus* may in addition be combined with the anchor plates IT Z 60/8 S, TE Ø60/50 and TE Ø60/110 made from polyamide.

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 anchors 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)

The essential characteristics regarding mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

3.2 Safety in case of fire (BWR 2)

Not applicable.

3.3 Hygiene, health and the environment (BWR 3)

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

3.4 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance	See Annex C 1
Anchor distances and dimensions of members	See Annex B 2
Point thermal transmittance	See Annex C 2
Plate stiffness	See Annex C 2
Displacements	See Annex C 3

3.5 Protection against noise (BWR 5)

Not applicable.

3.6 Energy economy and heat retention (BWR 6)

Not applicable.

3.7 Sustainable use of natural resources (BWR 7)

The sustainable use of natural resources was not investigated.

3.8 General aspects

The verification of durability is part of testing the essential characteristics. Durability is only ensured if the specifications of intended use according to Annex B are taken into account.

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

According to Decision 97/463/EC of the Commission of 27 June 1997 (Official Journal of the European Communities L 198 of 25.07.1997, p. 31–32) the system of assessment and verification of constancy of performance (AVCP) (see Annex V and Article 65 Paragraph 2 to Regulation (EU) No 305/2011) given in the following table applies.

Product	Intended use	Level or class	System
Plastic anchors for use in concrete and masonry	For use in systems, such as façade systems, for fixing or supporting elements which contribute to the stability of the systems	—	2+

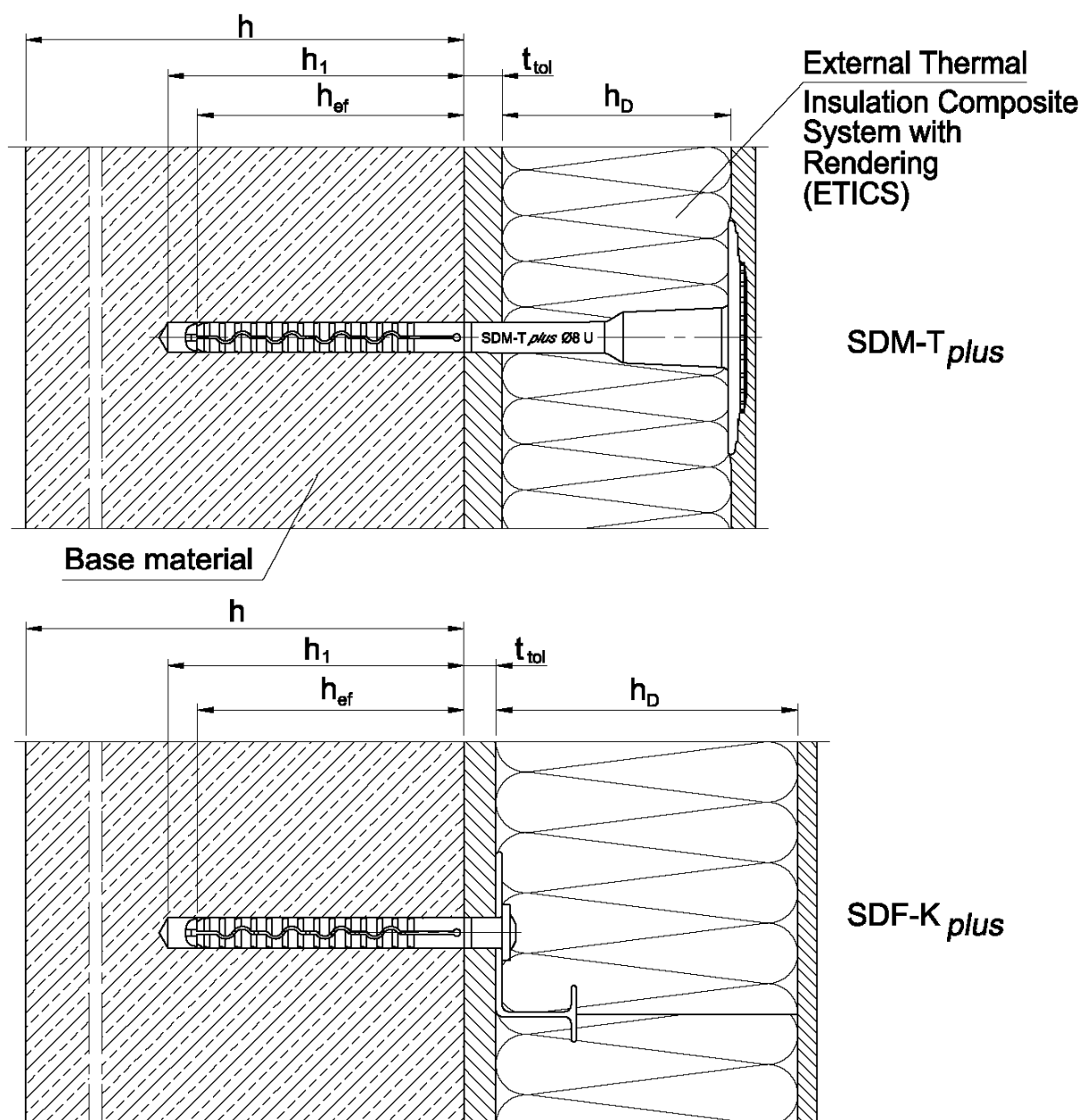
5 Technical details necessary for the implementation of the AVCP system, as provided in the applicable European Assessment Document

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

Issued in Berlin on 2 September 2014 by Deutsches Institut für Bautechnik

Uwe Bender
Head of Department

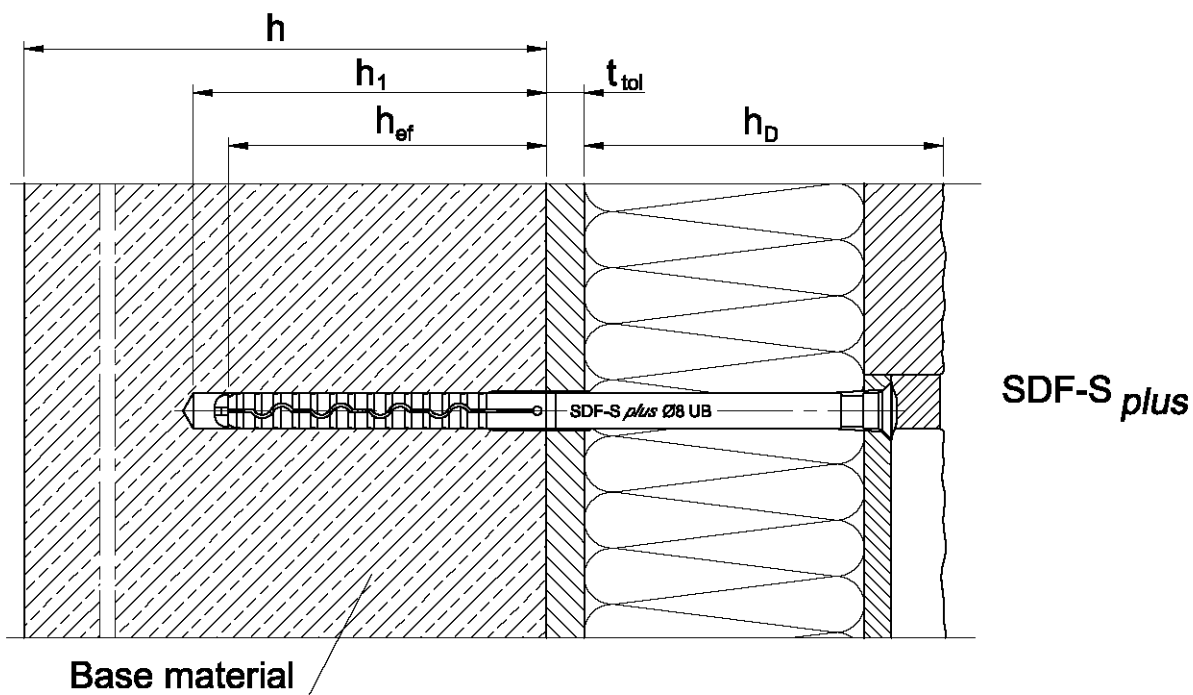
beglaubigt:
Ziegler



EJOT SDM-T plus, SDF-K plus and SDF-S plus

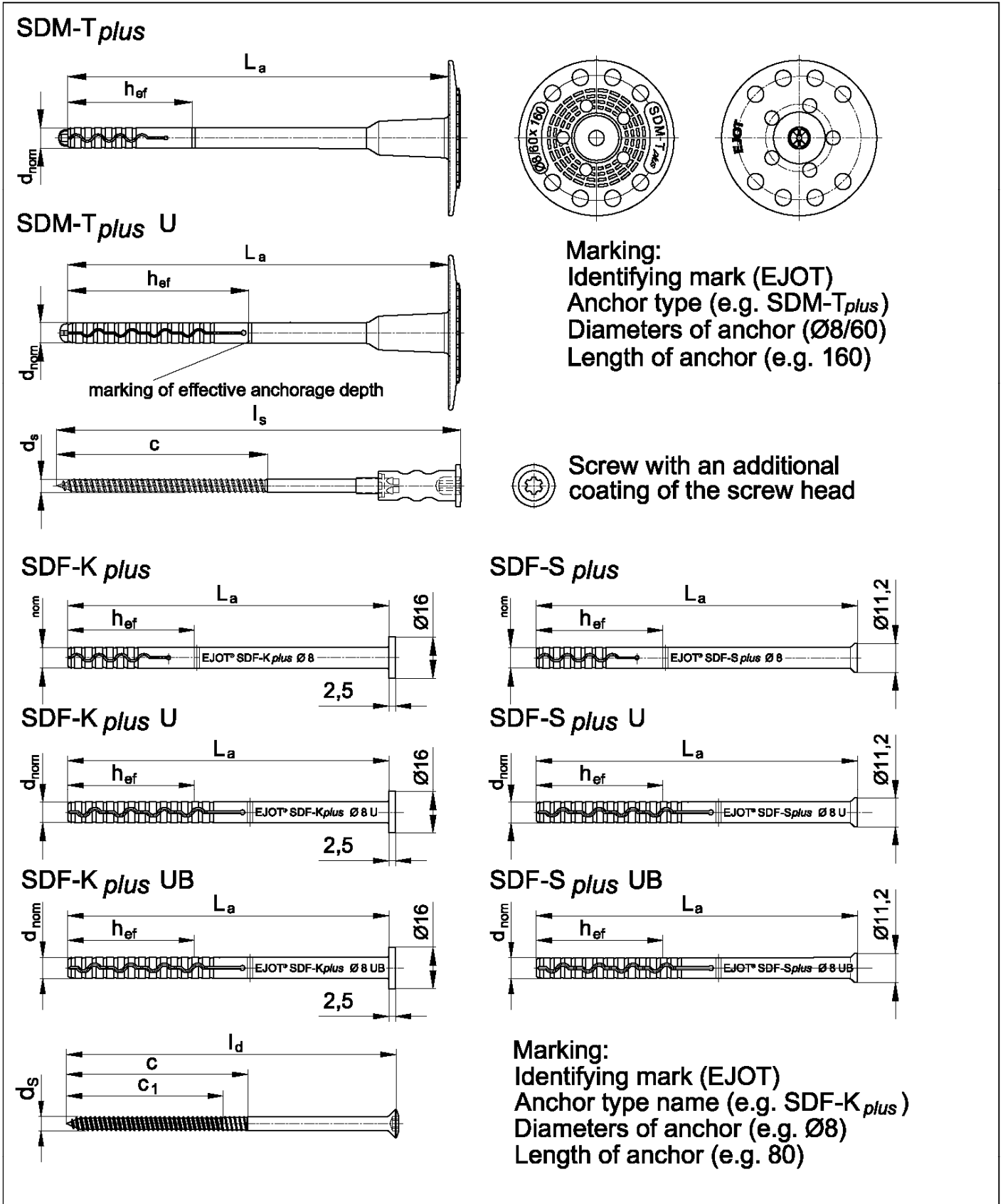
Product description
Installed condition

Annex A 1



- 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

English translation prepared by DIBt



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EJOT SDM-T plus, SDF-K plus and SDF-S plus

Product description
Marking and dimension of the anchor sleeve
Expansion element

Annex A 3

Table A1: Dimensions

Anchor Type	Colour	Anchor sleeve				Accompanying specific screw		
		d_{nom} [mm]	h_{ef} [mm]	min L_a [mm]	max L_a [mm]	d_s [mm]	c_1 [mm]	c [mm]
SDM-T plus	nature	8	50	100	420	5,2	-	65
SDM-T plus U	green	8	70	120	420	5,2	-	65
SDF-K / -S plus ¹⁾	nature	8	50	60	220	5,5	-	65
SDF-K / -S plus U ¹⁾	green	8	70	80	220	5,5	-	65
SDF-K / -S plus UB	green	8	70	80	300	5,5	60	70

¹⁾ For this anchor type it is allowed to use the screw with $c_1 = 60 / c = 70$.

Determination of maximum thickness of insulation h_D for EJOT SDM-T plus $\varnothing 8$:

$$h_D = L_a - t_{tol} - h_{ef} \quad (L_a = \text{e.g. } 140; t_{tol} = 10)$$

e.g. $h_D = 140 - 10 - 50$
 $h_{Dmax.} = 80$

Table A2: Materials

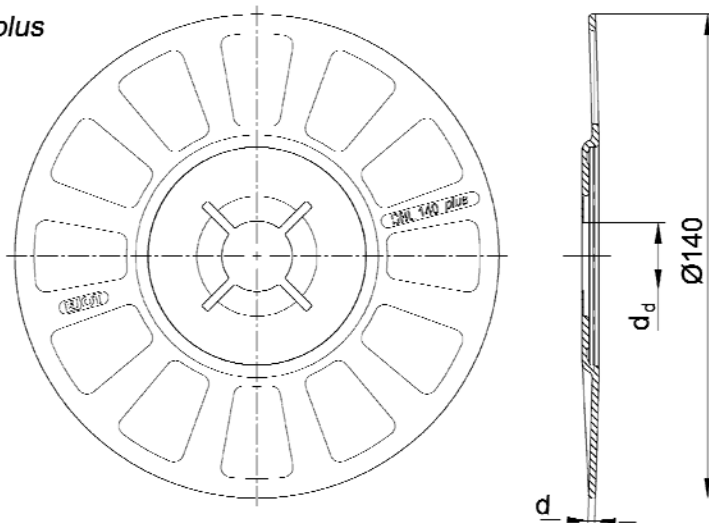
Name	Materials
Anchor sleeve	Polyamide
Specific screw	Steel, electrogalvanized $\geq 5 \mu\text{m}$ according to EN ISO4042:2001-01
	stainless steel, material number 1.4401 or 1.4571 material number 1.4301 or 1.4567 according to ISO 3506:2010-04

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Product description
Dimensions of the anchor sleeve, specific screw
Materials

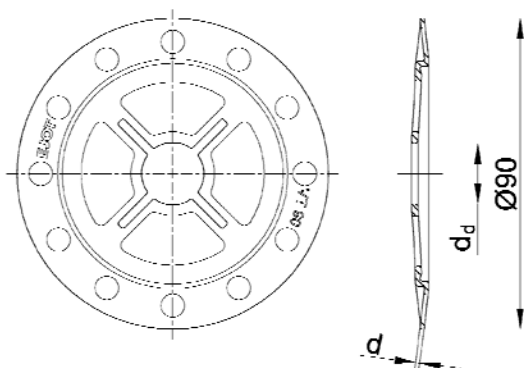
Annex A 4

SBL 140 plus



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

VT 90



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

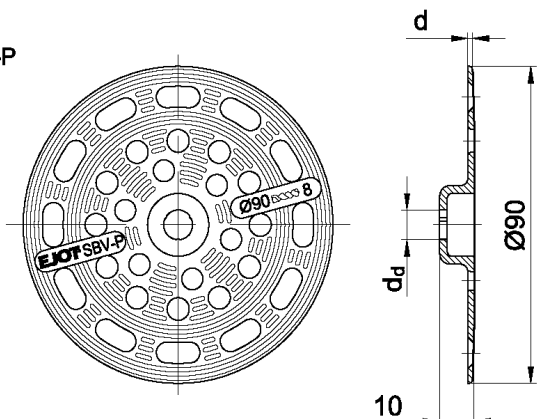
EJOT SDM-T plus, SDF-K plus and SDF-S plus

Product description

Slip on plates combined with SDM-T plus und SDM-T plus U

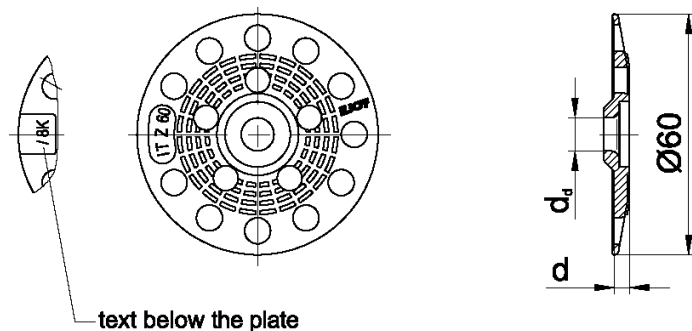
Annex A 5

SBV-P



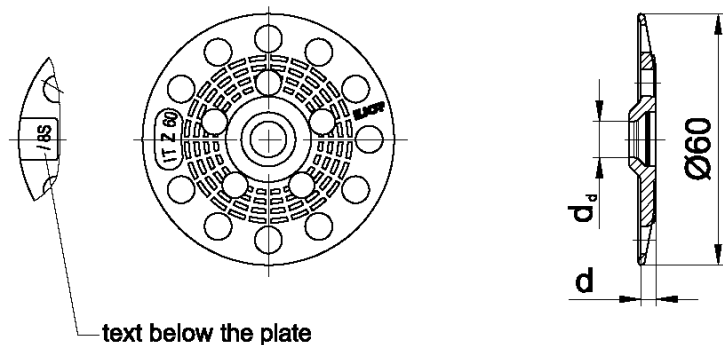
SBV-P Ø8/90	
colour	nature
d _d [mm]	8,5
d [mm]	1,4
Material	Polyamide

IT Z 60



IT Z 60/8 K	
colour	blue
d _d [mm]	8,2
d [mm]	3,7
Material	Polyamide

IT Z 60



IT Z 60/8 S	
colour	blue
d _d [mm]	8,2
d [mm]	3,7
Material	Polyamide

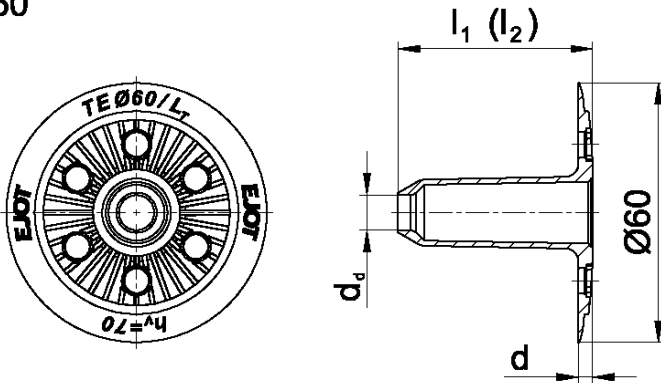
EJOT SDM-T plus, SDF-K plus and SDF-S plus

Product description

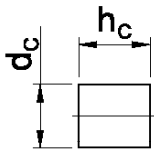
Slip on plates SBV-P and IT Z 60/8 K combined with SDF-K (*plus / plus U / plus UB*) and slip on plate IT Z 60/8 S combined with SDF-S (*plus / plus U / plus UB*)

Annex A 6

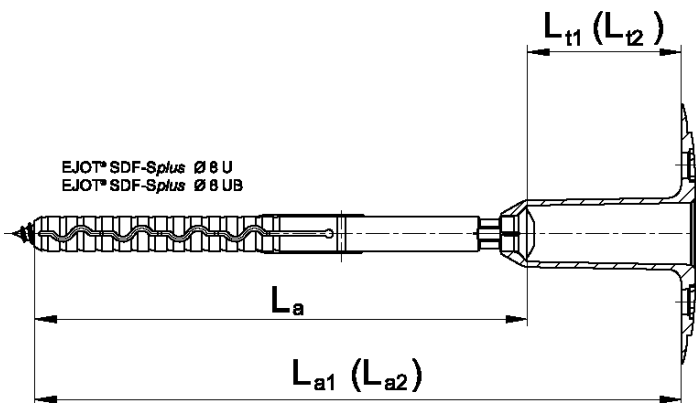
TE 60



TE Ø60/l _T	
colour	nature
d _d [mm]	8,2
D [mm]	3,3
L _{T min} [mm]	50
l ₁ [mm]	45
L _{T max} [mm]	110
l ₂ [mm]	105
d _c [mm]	15
h _c [mm]	16,5
Material	Polyamide



Plug (to close the plate)
colour: white
material: EPS 30



L ₁₁ [mm]	40
L ₁₂ [mm]	100

Determining the combined length of anchor L_{a1}:

$$L_{a1} = L_a + L_{t1} \quad (L_a = \text{e.g. } 140; L_{t1} = 40)$$

e.g. $L_{a1} = 140 + 40$

$$L_{a1} = 180$$

Determining the combined length of anchor L_{a2}:

$$L_{a2} = L_a + L_{t2} \quad (L_a = \text{e.g. } 220; L_{t2} = 100)$$

e.g. $L_{a2} = 220 + 100$

$$L_{a2} = 320$$

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Product description

Plate element TE 60 combined with SDF-S plus U and SDF-S plus UB

Annex A 7

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:

- Normal weight concrete (use category A) according to Annex C 1.
- Solid masonry (use category B), according to Annex C 1.
- Hollow or perforated masonry (use category C), according to Annex C 1.
- Autoclaved aerated concrete (use category E), according to Annex C 1.
- For other base materials of the use categories A, B, C or E the characteristic resistance of the anchor may be determined by job site tests according to ETAG 014 Edition February 2011, Annex D.

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 in accordance with the ETAG 014 Edition February 2011 under the responsibility of an engineer experienced in anchorages and masonry work.
- 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 for non-structural application of ETICS (according to ETAG 004) and of Vetures (according to ETAG 017).

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

EJOT SDM-T plus, SDF-K plus and SDF-S plus

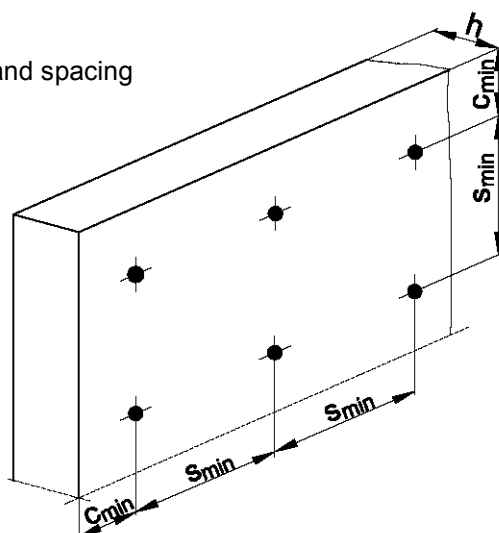
Intended use
Specifications

Annex B 1

Table B1: Installation parameters			
Anchor type		SDM-T plus SDF-K plus SDF-S plus	SDM-T plus U SDF-K plus U SDF-S plus U SDF-K plus UB SDF-S plus UB
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	h_1 [mm] ≥	60	80
Effective anchorage depth	h_{ef} [mm] ≥	50	70

Table B2: Anchor distances and dimensions of members			
Anchor type		SDM-T plus SDF-K plus SDF-S plus	SDM-T plus U SDF-K plus U SDF-S plus U SDF-K plus UB SDF-S plus UB
Minimum allowable spacing	$s_{min} ≥$ [mm]	100	100
Minimum allowable edge distance	$c_{min} ≥$ [mm]	100	100
Minimum thickness of member	$h ≥$ [mm]	100	100

Scheme of distances and spacing

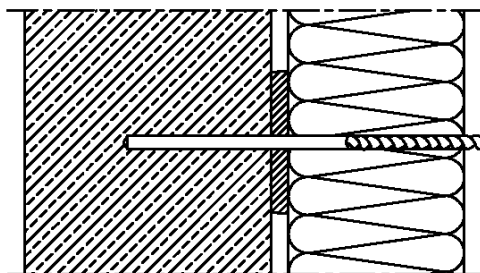


EJOT SDM-T plus, SDF-K plus and SDF-S plus

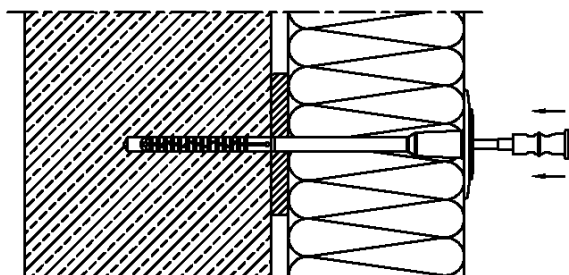
Intended use
Installation parameters,
Anchor distances and dimensions of members

Annex B 2

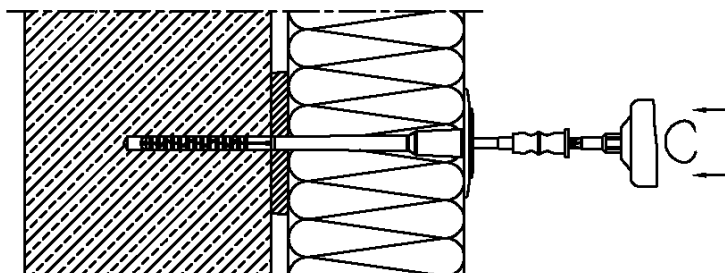
Installation instructions EJOT SDM-T plus



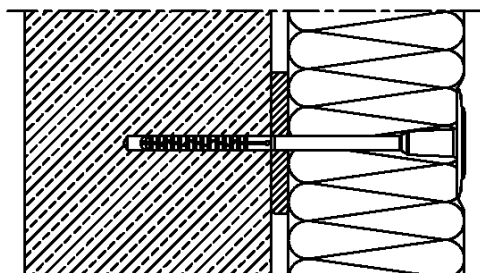
Drill the hole perpendicular to the substrate surface. Clean the drill hole 3x.



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



Surface fixed installation with a standard bit.



Installed condition of EJOT SDM-T plus.

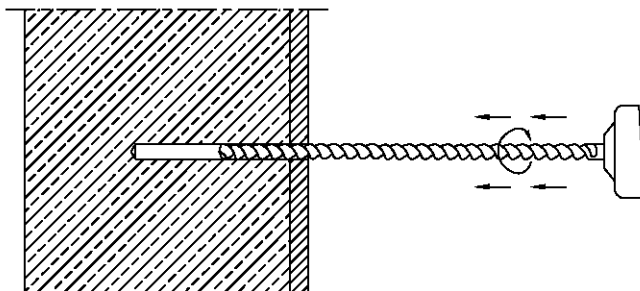
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EJOT SDM-T plus, SDF-K plus and SDF-S plus

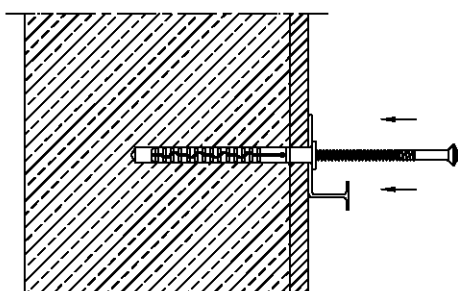
Intended use
Installation instructions

Annex B 3

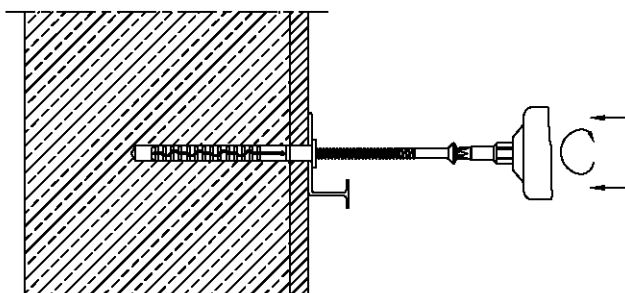
Installation instructions EJOT SDF-K plus



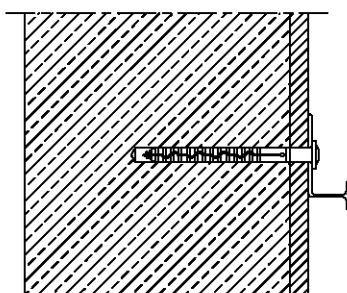
Drill the hole perpendicular to the substrate surface. Clean the drill hole 3x.



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

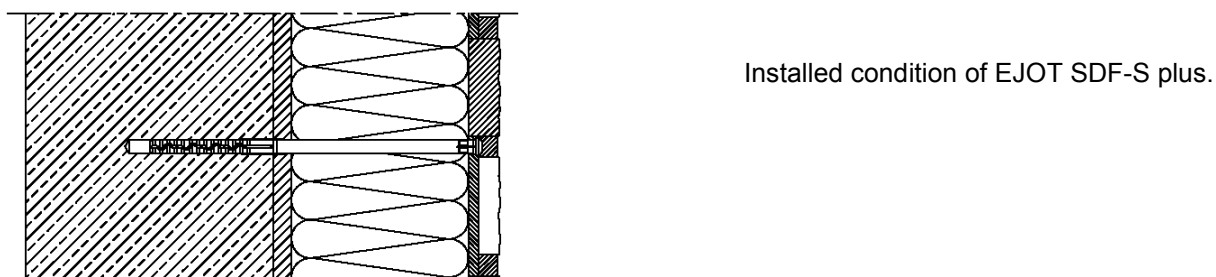
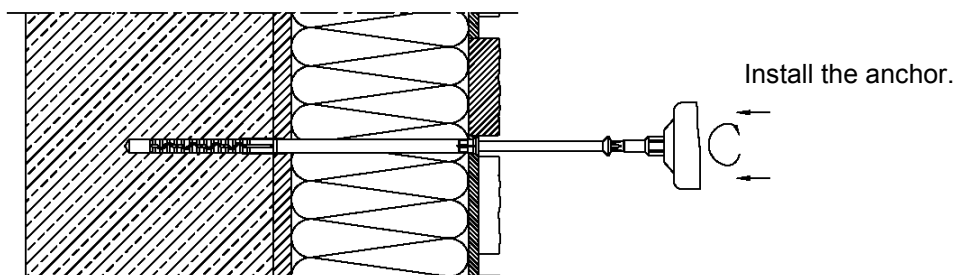
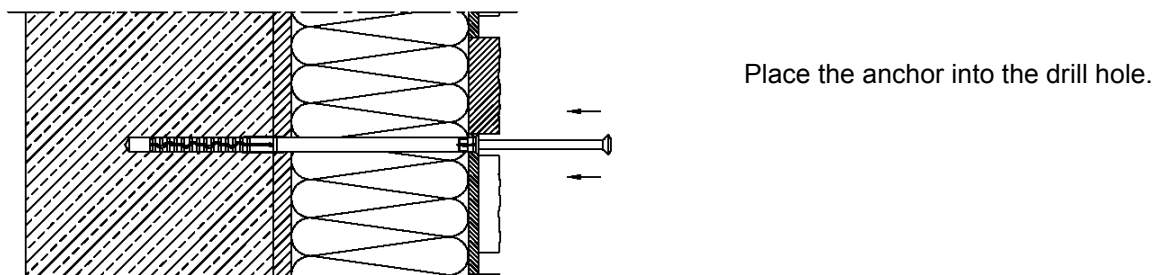
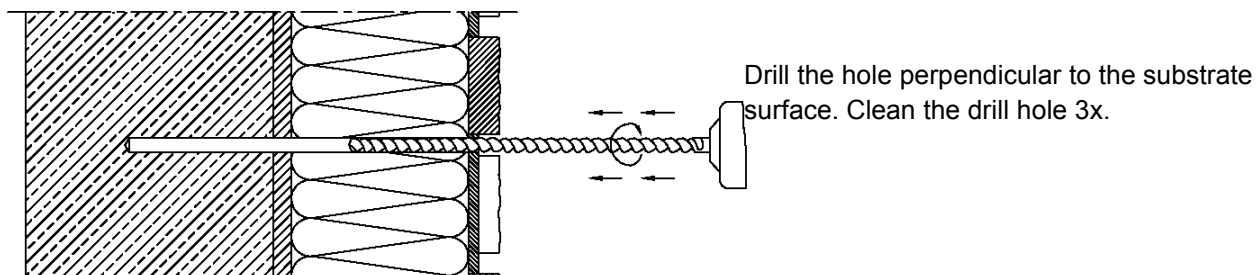


Install the screw into the anchor.



Installed condition of EJOT SDF-K plus.

Installation instructions EJOT SDF-S plus



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EJOT SDM-T plus, SDF-K plus and SDF-S plus

Intended use
Installation instructions

Annex B 5

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

Anchor type					SDM-T plus SDF-K plus SDF-S plus	SDM-T plus U SDF-K plus U SDF-S plus U SDF-K plus UB SDF-S plus UB
Base materials	Bulk density class ρ [kg/dm ³]	minimum compressive strength f_b [N/mm ²]	General remarks	Drill method ¹⁾		N_{Rk} [kN]
Concrete C12/15			EN 206-1	H	1,5	1,5
Concrete C16/20 – C50/60			EN 206-1	H	1,5	1,5
Clay bricks Mz e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	$\geq 1,8$	12	Vertically perforation up to 15 %.	H	1,5	1,5
Sand-lime solid bricks KS e.g. according to DIN V 106:2005-10 / EN 771-2:2011	$\geq 1,8$	12	Vertically perforation up to 15 %.	H	1,5	1,5
Lightweight concrete solid blocks V e.g. according to DIN V 18152-100:2005-10 / EN 771-3:2011	$\geq 0,5$	4	Proportion of hole up to 10% maximum extension of hole: length = 110mm; wide = 45mm	D	0,9	0,9
Vertically perforated clay bricks HLZ e.g. according to DIN 105-100:2012-01 / EN 771-1:2011	$\geq 0,9$	12	Vertically perforation more than 15% and less than 50 %.	D	-	1,2
Sand-lime perforated bricks KSL e.g. according to DIN V 106:2005-10 / EN 771-2:2011	$\geq 1,6$	12	Vertically perforation up to 15 %.	D	-	1,5
Lightweight concrete hollow blocks Hbl e.g. according to DIN V 18151-100:2005-10 / EN 771-3:2011	$\geq 0,5$	2	see Annex C 4	D	-	0,75
Autoclaved aerated concrete AAC 4 e.g. according to DIN V 4165, part 100:2005-10 / EN 771-4:2011	$\geq 0,5$	4		D	-	0,6

¹⁾ H = hammer drilling / D = rotary drilling

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Performances
Characteristic resistance

Annex C 1

Table C2: Point thermal transmittance according EOTA Technical Report TR 025:2007-06

Anchor type	insulation thickness h_D [mm]	point thermal transmittance χ [W/K]
SDM-T <i>plus</i> U	60 - 80	0,002
	> 80 - 360	0,003

Anchor type	insulation thickness h_D [mm]	point thermal transmittance $\chi_{B,C}$ [W/K]
SDF-S <i>plus</i> with TE $\varnothing 60/50$	60 - 180	0,002
SDF-S <i>plus</i> with TE $\varnothing 60/110$	120 - 150	0,000
	150 - 240	0,001

Table C3: Plate stiffness according EOTA Technical Report TR 026:2007-06

Anchor type	diameter of the anchor plate [mm]	load resistance of the anchor plate [kN]	plate stiffness [kN/mm]
SDM-T <i>plus</i> U	60	2,67	0,6
SDF-S <i>plus</i> with TE $\varnothing 60/50$	60	2,24	0,7
SDF-S <i>plus</i> with TE $\varnothing 60/110$	60	2,24	0,7

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Performances
Point thermal transmittance
Plate stiffness

Annex C 2

Table C4: Displacements

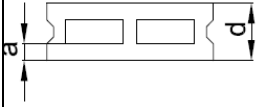
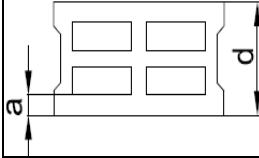
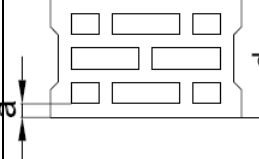
Base material	Bulk density class ρ [kg/dm ³]	Minimum compressive strength f_b [N/mm ²]	Tension load N [kN]	displacements $\delta_m(\mathbf{N})$ [mm]
Concrete C12/15 – C50/60 (EN 206-1:2000-12)			0,5	0,7
Clay bricks, Mz (DIN 105-100:2012-01/ EN 771-1:2011)	≥ 1,8	12	0,5	0,5
Sand-lime solid bricks, KS (DIN V 106:2005-10 / EN 771-2:2011)	≥ 1,8	12	0,5	0,5
Lightweight concrete solid blocks, V (DIN V 18152-100:2005-10 / EN 771-3:2011)	≥ 0,5	4	0,3	0,6
Vertically perforated clay bricks, HLz (DIN 105-100:2012-01/ EN 771-1:2011)	≥ 0,9	12	0,4	0,3
Sand-lime perforated bricks, KSL (DIN V 106:2005-10 / EN 771-2:2011)	≥ 1,6	12	0,5	0,3
Lightweight concrete hollow blocks, Hbl (DIN V 18151-100:2005-10 / EN 771-3:2011)	≥ 0,5	2	0,25	0,2
Autoclaved aerated concrete AAC 4 (DIN V 4165, part 100:2011 / EN 771-4:2011)	≥ 0,5	4	0,2	<0,1

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Performances
Displacements

Annex C 3

Table C5: Assignment type of anchor and geometry of bricks for lightweight-concrete hollow blocks according to DIN V 18151-100:2005-10

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

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

EJOT SDM-T plus, SDF-K plus and SDF-S plus

Performances
Assignment type of anchor for lightweight concrete hollow blocks

Annex C 4