Deutsches Institut für Bautechnik

DIBt

Member of EOTA

www.eota.eu

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-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	

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction has to be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission according to Article 25 Paragraph 3 of Regulation (EU) No 305/2011.

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-P∅8/90 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 ∅60/50 and TE ∅60/110 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

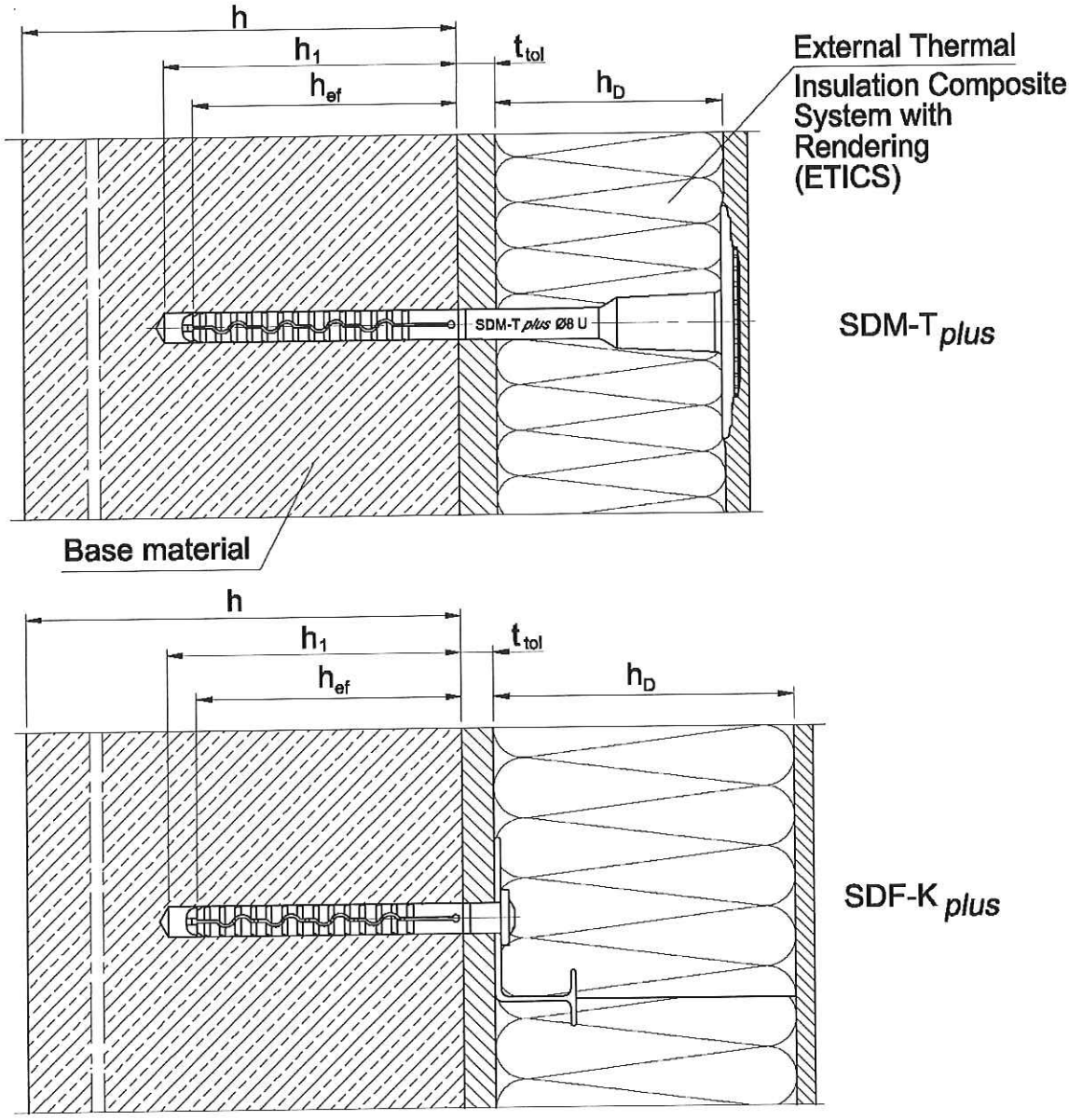
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Deutsches Institut für Bautechnik.

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

Uwe Bender
Head of Department

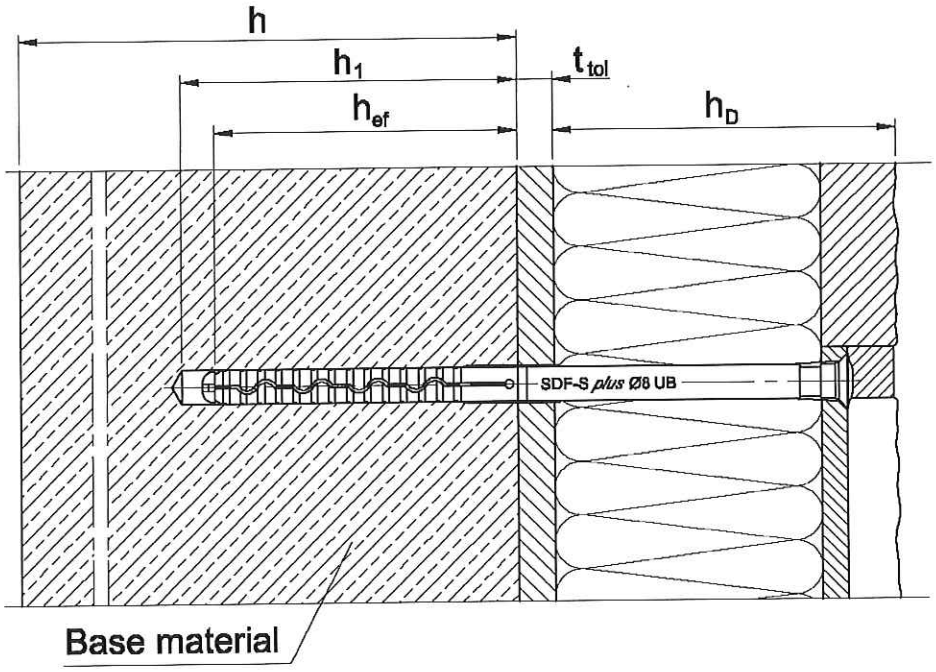
beglaubigt:
Ziegler

Deutsches Institut für Bautechnik DIBt



EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex A 1
Product description Installed condition	

Deutsches Institut für Bautechnik DIBt



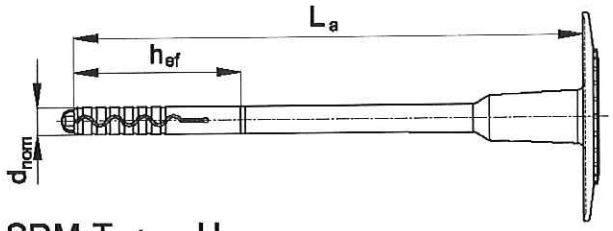
SDF-S *plus*

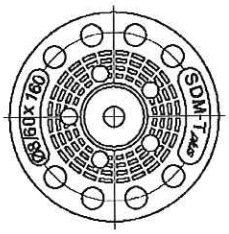
Legend:
- h_D = thickness of insulation material
- h_{ef} = effective anchorage depth
- h = thickness of member (wall)
- h_1 = depth of drilled hole to deepest point
- t_{tol} = thickness of equalizing layer or non-load-bearing coating

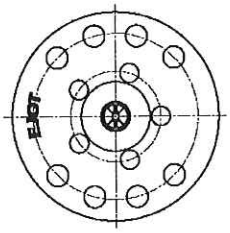
EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex A 2
Product description Installed condition	

Deutsches Institut für Bautechnik DIBt

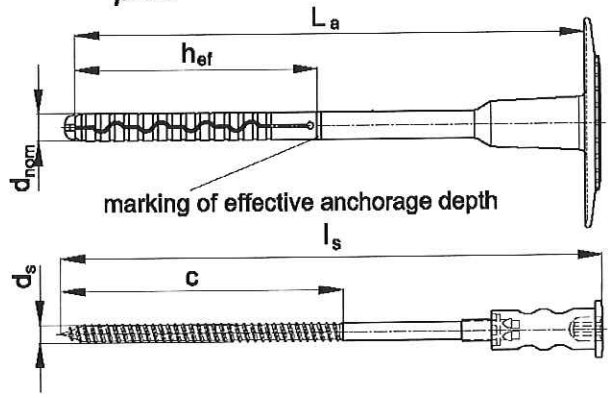
SDM-T *plus*







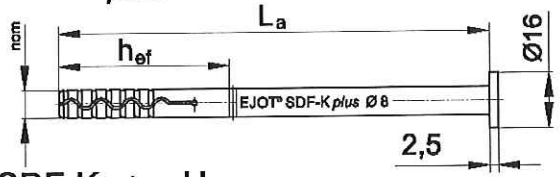
SDM-T *plus* U



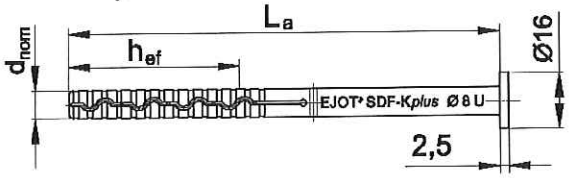
Marking:
Identifying mark (EJOT)
Anchor type (e.g. SDM-T*plus*)
Diameters of anchor (Ø8/60)
Length of anchor (e.g. 160)

Screw with an additional coating of the screw head

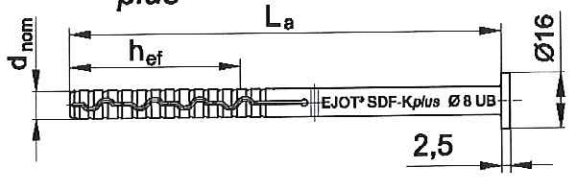
SDF-K *plus*

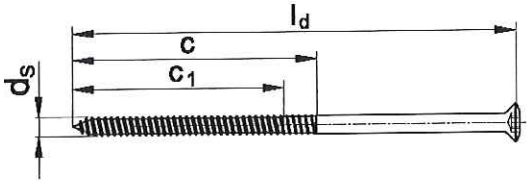


SDF-K *plus* U

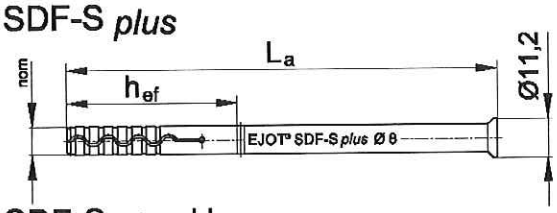


SDF-K *plus* UB

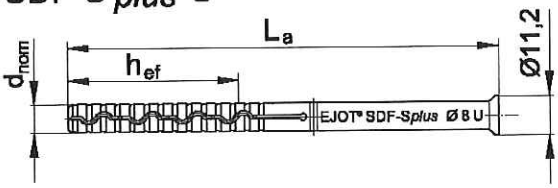




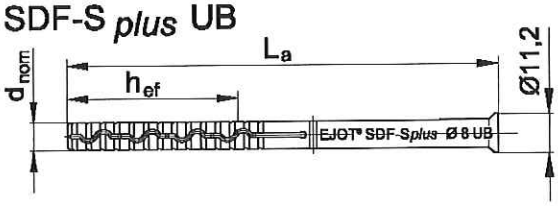
SDF-S *plus*



SDF-S *plus* U



SDF-S *plus* UB



Marking:
Identifying mark (EJOT)
Anchor type name (e.g. SDF-K*plus*)
Diameters of anchor (e.g. Ø8)
Length of anchor (e.g. 80)

EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex A 3
Product description Marking and dimension of the anchor sleeve Expansion element	

Deutsches Institut für Bautechnik DIBt

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 Ø 8:

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

e.g. $h_D = 140 - 10 - 50$

$h_{Dmax.} = 80$

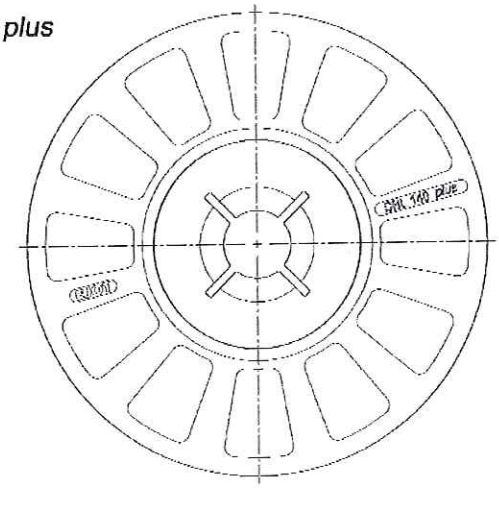
Table A2: Materials

Name	Materials
Anchor sleeve	Polyamide
Specific screw	Steel, electrogalvanized ≥ 5 µm 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	Annex A 4
Product description Dimensions of the anchor sleeve, specific screw Materials	

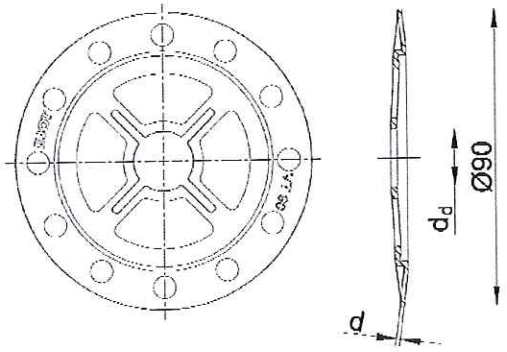
Deutsches Institut für Bautechnik DIBt

SBL 140 *plus*



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

VT 90

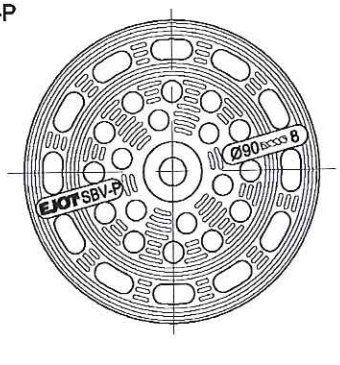


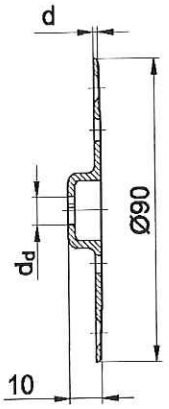
VT 90	
colour	nature
d_d [mm]	17,5
d [mm]	1,2
Material	Polyamide

EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex A 5
Product description Slip on plates combined with SDM-T *plus* und SDM-T *plus* U	

Deutsches Institut für Bautechnik DIBt

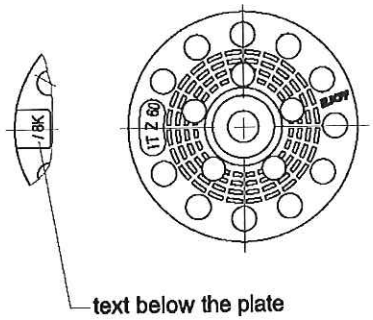
SBV-P

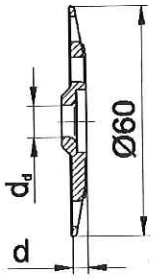




SBV-P Ø8/90	
colour	nature
d_d [mm]	8,5
d [mm]	1,4
Material	Polyamide

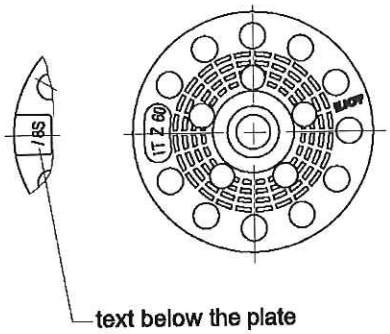
IT Z 60

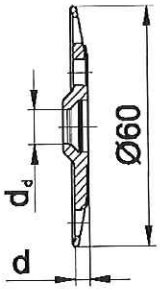




IT Z 60/8 K	
colour	blue
d_d [mm]	8,2
d [mm]	3,7
Material	Polyamide

IT Z 60





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

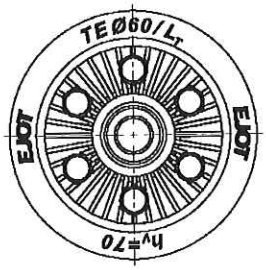
EJOT SDM-T plus, SDF-K plus and SDF-S plus

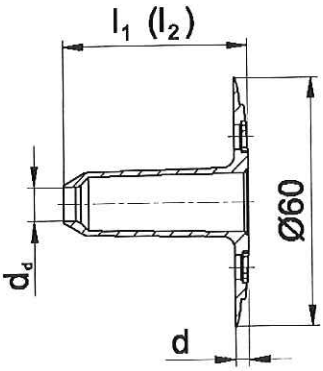
Annex A 6

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)

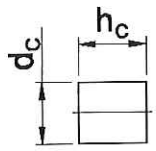
Deutsches Institut für Bautechnik DIBt

TE 60

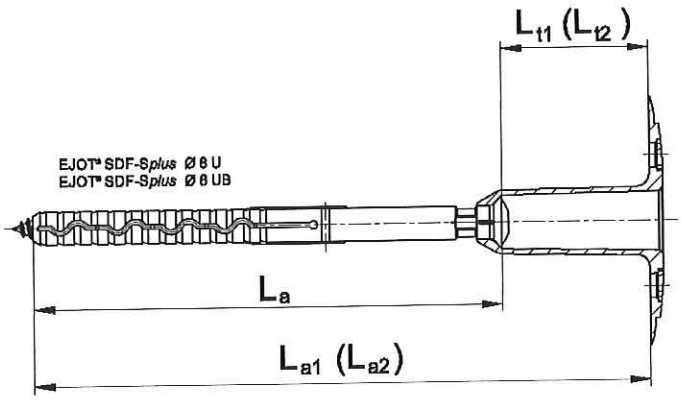




TE Ø60/l_T		
colour		nature
d_d	[mm]	8,2
D	[mm]	3,3
$L_{T\,min}$	[mm]	50
l_1	[mm]	45
$L_{T\,max}$	[mm]	110
l_2	[mm]	105
d_c	[mm]	15
h_c	[mm]	16,5
Material		Polyamide



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



L_{t1}	[mm]	40
L_{t2}	[mm]	100

Determining the combined length of anchor L_{a1}:

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

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

$L_{a1} = 180$

Determining the combined length of anchor L_{a2}:

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

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

$L_{a1} = 320$

EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex A 7
Product description Plate element TE 60 combined with SDF-S *plus* U and SDF-S *plus* UB	

Deutsches Institut für Bautechnik DIBt

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 (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

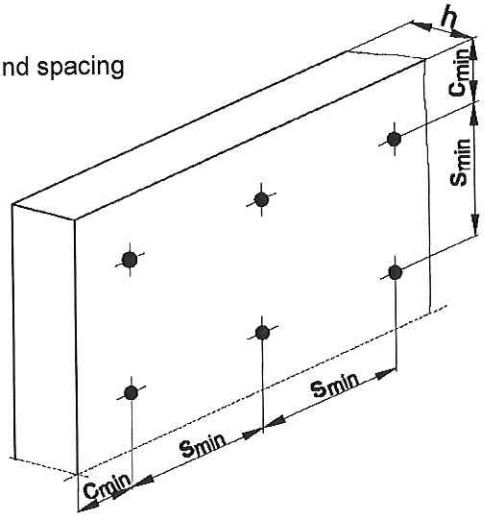
EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex B 1
Intended use Specifications	

Deutsches Institut für Bautechnik DIBt

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

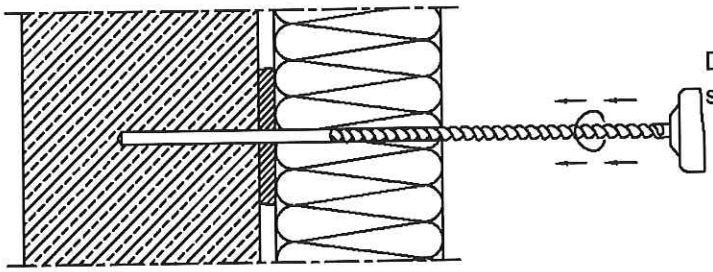
Scheme of distances and spacing



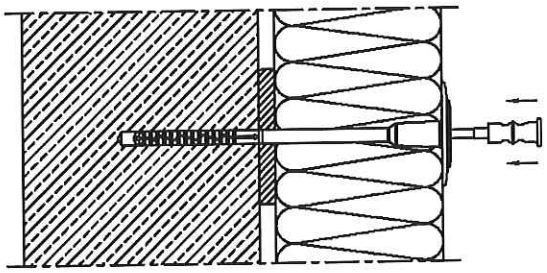
EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex B 2
Intended use Installation parameters, Anchor distances and dimensions of members	

Deutsches Institut für Bautechnik DIBt

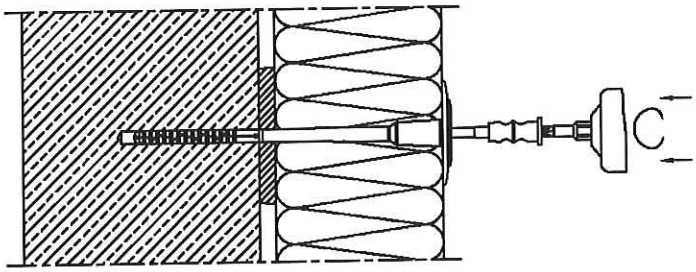
Installation instructions EJOT SDM-T plus



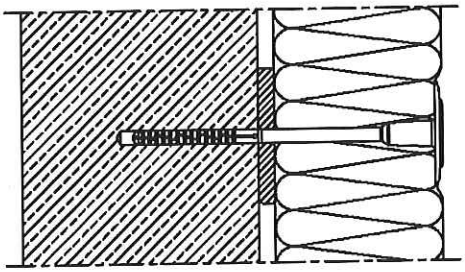
Drill the hole perpendicular to the substrate surface. Clean the drill hole 3x.



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.

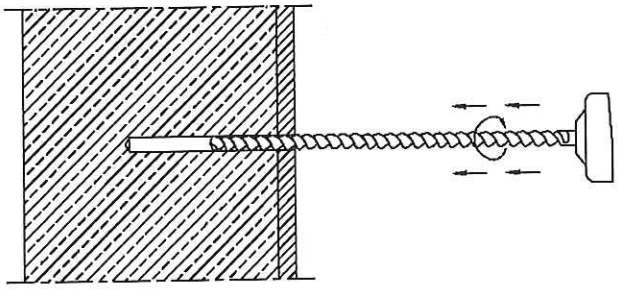


Installed condition of EJOT SDM-T plus.

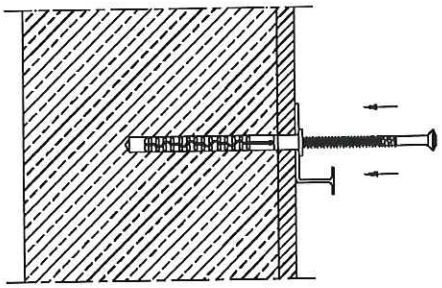
EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex B 3
Intended use Installation instructions	

Deutsches Institut für Bautechnik DIBt

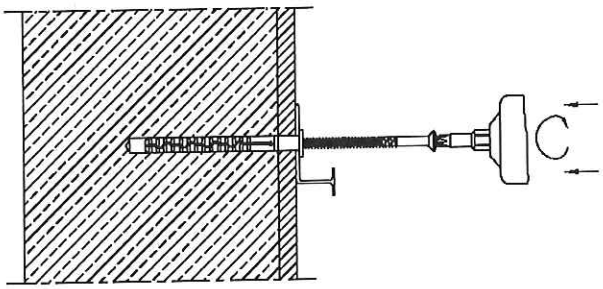
Installation instructions EJOT SDF-K plus



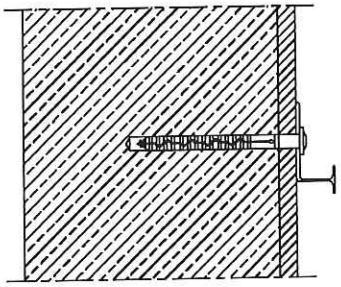
Drill the hole perpendicular to the substrate surface. Clean the drill hole 3x.



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.

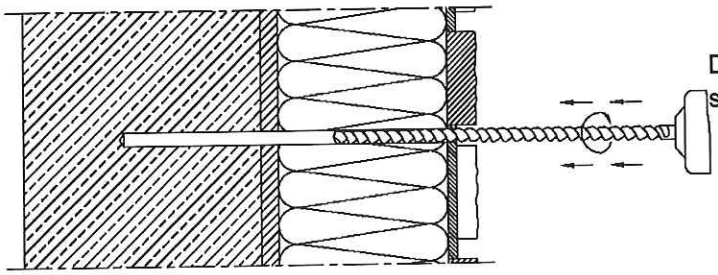


Installed condition of EJOT SDF-K plus.

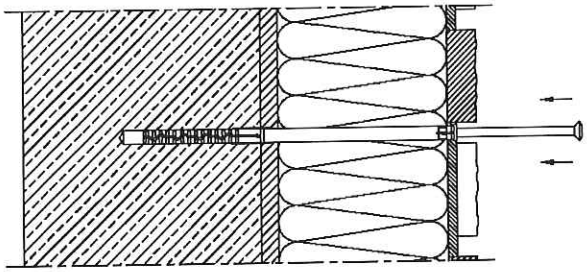
EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex B 4
Intended use Installation instructions	

Deutsches Institut für Bautechnik DIBt

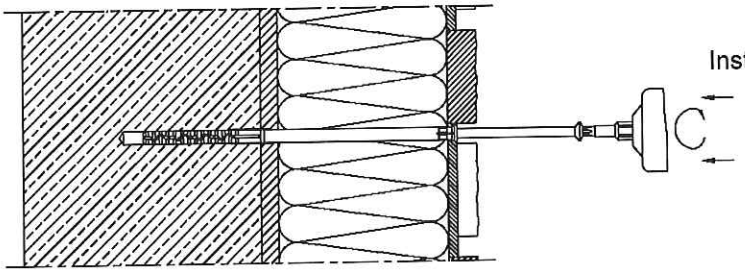
Installation instructions EJOT SDF-S plus



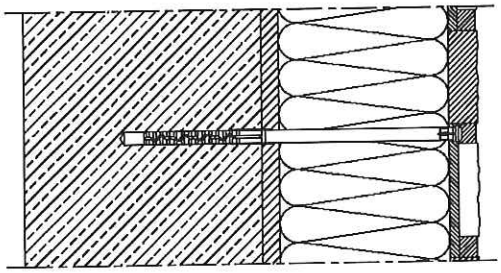
Drill the hole perpendicular to the substrate surface. Clean the drill hole 3x.



Place the anchor into the drill hole.



Install the anchor.



Installed condition of EJOT SDF-S plus.

EJOT SDM-T plus, SDF-K plus and SDF-S plus	Annex B 5
Intended use Installation instructions	

Deutsches Institut für Bautechnik DIBt

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/dm³]	minimum compressive strength f_b [N/mm²]	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	≥ 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	≥ 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	≥ 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	≥ 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	≥ 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	≥ 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	≥ 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

Deutsches Institut für Bautechnik DIBt

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 *plus* 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 *plus* with TE ∅60/50	60 - 180	0,002
SDF-S *plus* with TE ∅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 *plus* U	60	2,67	0,6
SDF-S *plus* with TE ∅60/50	60	2,24	0,7
SDF-S *plus* with TE ∅60/110	60	2,24	0,7

Deutsches Institut für Bautechnik DIBt

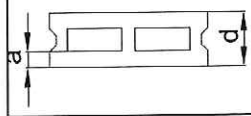
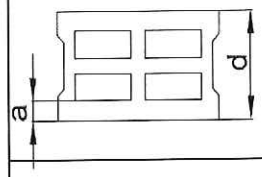
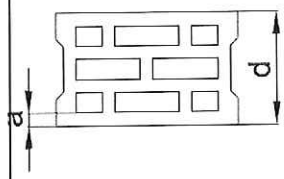
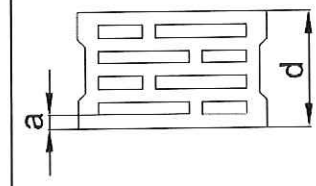
Table C4: Displacements

Base material	Bulk density class ρ [kg/dm³]	Minimum compressive strength f_b [N/mm²]	Tension load N [kN]	displacements $\delta_m(N)$ [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	Annex C 3
Performances Displacements	

Deutsches Institut für Bautechnik DIBt

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
	240 300 175	50 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	Annex C 4
Performances Assignment type of anchor for lightweight concrete hollow blocks	