

Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-15/0387
of 27 August 2015

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

EJOT SDF 8V

Product family
to which the construction product belongs

Plastic anchor for multiple use in concrete and masonry
for non-structural applications

Manufacturer

EJOT Baubefestigungen GmbH
In der Stockwiese 35
57334 Bad Laasphe
DEUTSCHLAND

Manufacturing plant

EJOT Herstellwerk 1, 2, 3 und 4
EJOT manufacturing plant 1, 2, 3 and 4

This European Technical Assessment
contains

12 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

Guideline for European technical approval of "Plastic
anchors for multiple use in concrete and masonry for non-
structural applications", ETAG 020, Edition March 2012,
used as European Assessment Document (EAD)
according to Article 66 Paragraph 3 of Regulation (EU)
No 305/2011.

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Specific part

1 Technical description of the product

The EJOT SDF 8V is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel or of stainless steel.

The plastic sleeve is expanded by screwing in the specific screw which presses the sleeve against the wall of the drilled hole.

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 50 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)

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A 1
Resistance to fire	No performance assessed

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 and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annex C 1
Characteristic resistance for bending moments	See Annex C 1
Displacements under shear and tension loads	See Annex C 1
Anchor distances and dimensions of members	See Annex B 2, B 3

3.5 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was determined for this product.

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

In accordance with guideline for European technical approval ETAG 020, March 2012 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 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

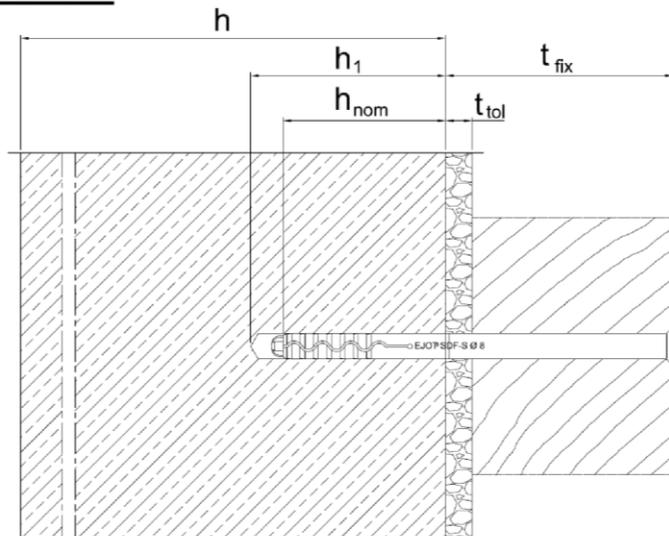
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 27 August 2015 by Deutsches Institut für Bautechnik

Uwe Bender
Head of Department

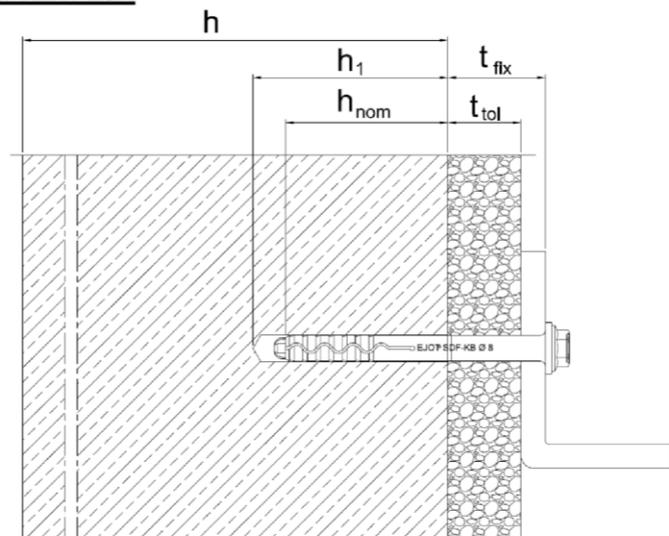
beglaubigt:
Aksünger

EJOT SDF-S-8V



Intended use - screw head type: countersunk (S)

EJOT SDF-KB-8V



Intended use - screw head type: hexagon head with collar (KB)

Legend

- h = Thickness of member
- h_1 = Depth of drilled hole to deepest point
- h_{nom} = Overall plastic anchor embedment depth in base material
- t_{tol} = Thickness of equalizing layer or non-load bearing coating
- t_{fix} = t_{tol} + thickness of fixture

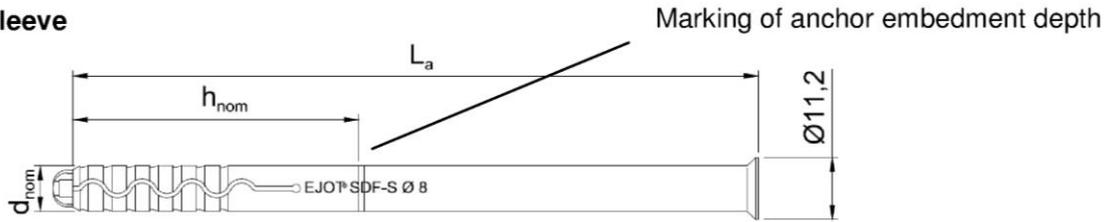
EJOT SDF 8V

Product description
Installed condition

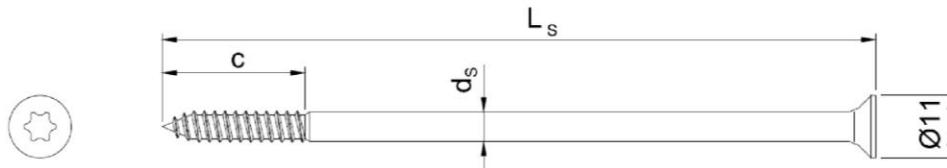
Annex A 1

Type of anchor: countersunk (S): EJOT SDF-S-8V

Anchor sleeve



Special screw



Anchor marking:

Manufacturer, anchor type incl. head type, diameter, length (at the anchor tip)

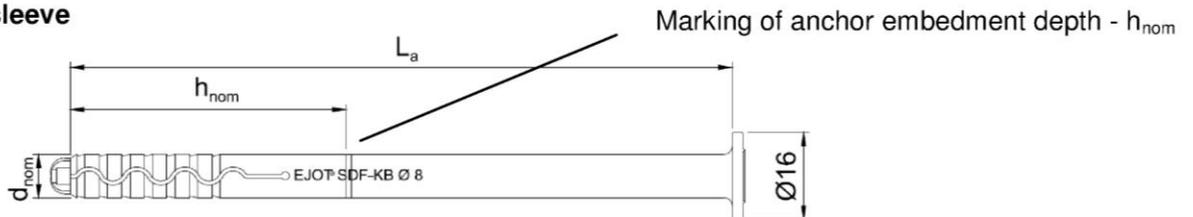
Example: EJOT SDF-S-8 x 100

Screw marking:

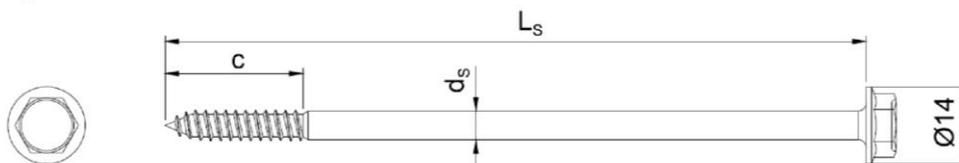
Length of anchor (e.g. 100)

Type of anchor: collar with flange (KB): EJOT SDF-KB-8V

Anchor sleeve



Special screw



Anchor marking:

Manufacturer, anchor type incl. head type, diameter, length (at the anchor tip)

Example: EJOT SDF-KB-8 x 100

Screw marking:

Length of anchor (e.g. 100)

EJOT SDF 8V

Product description
Anchor types
Marking of the anchor sleeve, specific screw

Annex A 2

Example of product identification

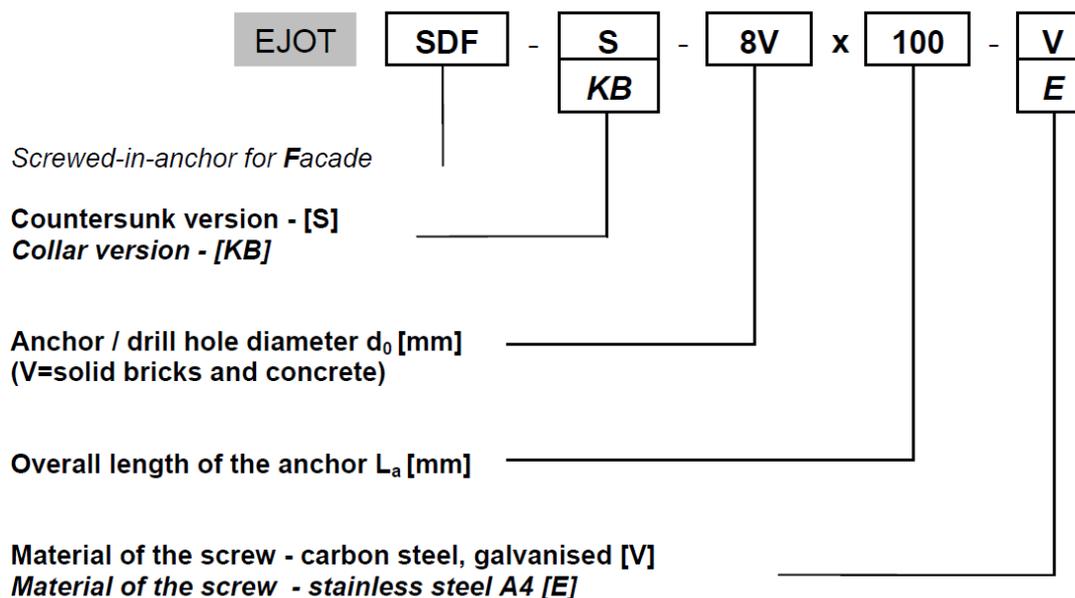


Table A1: Dimensions [mm]

Anchor type	Anchor sleeve					Specific screw		
	colour	d_{nom}	h_{nom}	min L_a	max L_a	L_s	d_s	c
SDF – S – 8V	red	8	50	60	220	$L_a + 8,0$	5,2	25
SDF – KB – 8V	red	8	50	60	220	$L_a + 8,0$	5,2	25

Designations: see Annex A 2

Table A2: Materials

Element	Material
Anchor sleeve	Polyamid PA6, colour red
Special screw	Steel, galvanized zinc plated > 5 μm acc. EN ISO 4042:2001 strength class 5.8
	Stainless steel acc. EN 10088-3:2014, e.g. 1.4401 / 1.4571 Strength class \geq A4-50

EJOT SDF 8V

Product description
Product identification
Dimensions, materials

Annex A 3

Specifications of intended use

Anchorage subject to:

- Static and quasi-static loads
- Multiple fixing of non-structural applications

Base materials:

- Reinforced or unreinforced normal weight concrete with strength classes \geq C12/15 (use category a), according to EN 206:2013, Annex C 1
- Solid brick masonry (use category b), according to Annex C 1
Note: The characteristic resistance is also valid for larger brick sizes and larger compressive strength of the masonry unit.
- Mortar strength class of the masonry \geq M2,5 according to EN 998-2:2010
- For other base materials of the use categories a and b the characteristic resistance of the anchor may be determined by job site tests according to ETAG 020, Annex B Edition March 2012.

Temperature Range:

- c: -40°C to 50°C (max. short term temperature + 50°C and max long term temperature +30°C)
- b: -40°C to 80°C (max. short term temperature + 80°C and max long term temperature +50°C)

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (zinc coated steel, stainless steel)
- The specific screw made of galvanized steel may also be used in structures to external atmospheric exposure, if the area of the head of the screw is protected against moisture and driving rain after mounting of the fixing unit in this way, that intrusion of moisture into the anchor shaft is prevented. Therefore there shall be an external cladding or a ventilated rainscreen mounted in front of the head of the screw and the head of the screw itself shall be coated with a soft plastic, permanently elastic bitumen-oil-combination coating (e. g. undercoating or body cavity protection for cars).
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel)
- Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Design:

- The anchorages are designed in accordance with the ETAG 020, Annex C Edition March 2012 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be 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 use for non-structural application, according to ETAG 020 Edition March 2012.

Installation:

- Hole drilling by the drill modes according to Annex C 1 for use category a and b
- 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 -5°C to +80°C
- Exposure to UV due to solar radiation of the anchor not protected \leq 6 weeks

EJOT SDF 8V

**Intended use
Specifications**

Annex B 1

Table B1: Installation Parameters

Anchor type		SDF-S-8V SDF-KB-8V
Use categorie		a,b
Drill hole diameter	d_0 [mm] =	8
Cutting diameter of drill bit	d_{cut} [mm] ≤	8,45
Depth of the drill hole to deepest point	h_1 [mm] ≥	60
Embedment depth of the anchor in the base material ¹⁾	h_{nom} [mm] ≥	50
Diameter of the clearance hole in the fixture	d_f [mm] ≤	8,5
Thickness of fixture	t_{fix} [mm] ≥	10
Minimum temperature during installation process	[°C]	-5
Temperature range (c)	[°C]	+ 30 / + 50
Temperature range (b)	[°C]	+ 50 / + 80

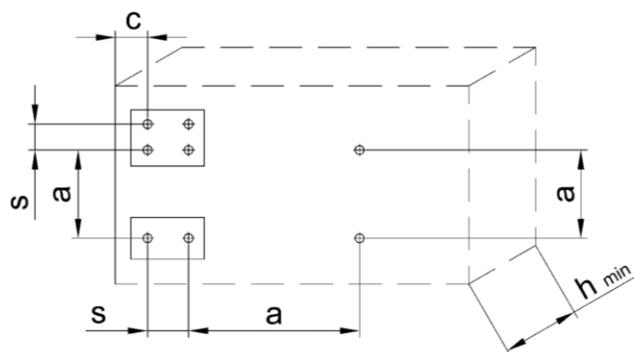
Table B2: Minimum thickness of member, edge distance and spacing in concrete

Compressive strength	h_{min} [mm]	$c_{cr,N}$ [mm]	$s_{cr,N}$ [mm]	c_{min} [mm]	s_{min} [mm]
Concrete ≥ C16/20	100	100	100	50	50
Concrete ≥ C12/15	100	140	115	70	70

Fixing points with a spacing $a \leq s_{cr,N}$ are considered as a group with max. characteristic resistance $N_{Rk,p}$ acc. to Table C3. For a spacing $a > s_{cr,N}$ the anchors are always considered as single anchors, each with a characteristic resistance $N_{Rk,p}$ according to Table C3.

- h_{min} = Minimum thickness of member
- $c_{cr,N}$ = Characteristic edge distance
- $s_{cr,N}$ = Characteristic spacing
- c_{min} = minimum edge distance
- s_{min} = minimum spacing

Scheme of distance and spacing in concrete



EJOT SDF 8V

Intended use
Installation parameters,
Distance and spacing for use in concrete

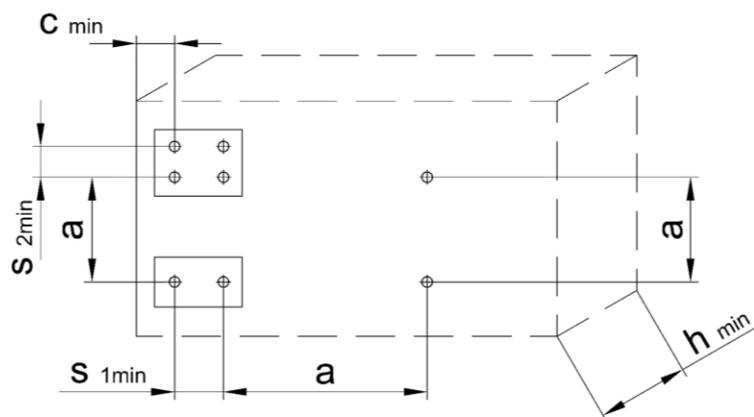
Annex B 2

Table B3: Minimum thickness of member, edge distance and spacing in masonry

Base material	h_{min} [mm]	c_{min} [mm]	a [mm]	$s_{1,min}$ [mm]	$s_{2,min}$ [mm]
Clay brick, Mz (DIN 105-100:2012-01 / EN 771-1:2011)	115	100	250	80	80
Calcium silicate solid brick, KS (DIN V 106:2005-10 / EN 771-2:2011)	115	100	250	80	80

- h_{min} = Minimum thickness of member
 a = Characteristic spacing
 c_{min} = minimum edge distance
 $s_{1,min}$ = minimum spacing (perpendicular to free edge)
 $s_{2,min}$ = minimum spacing (parallel to free edge)

Scheme of distance and spacing in masonry



EJOT SDF 8V

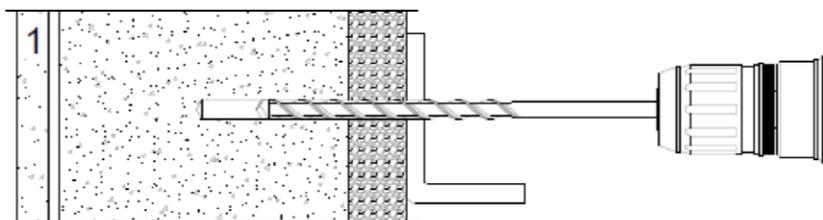
Intended use
Installation parameters,
Distance and spacing for use in masonry

Annex B 3

Installation instructions

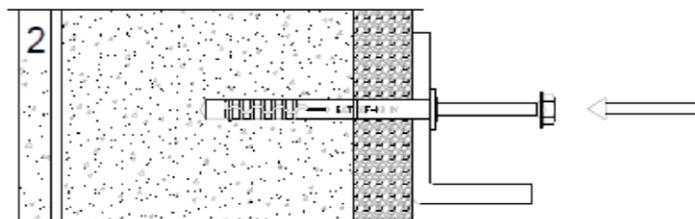
(exemplary: fixing through metall growing part)

Drill the bore hole \varnothing 8 mm using the drill method described in the corresponding Annex C

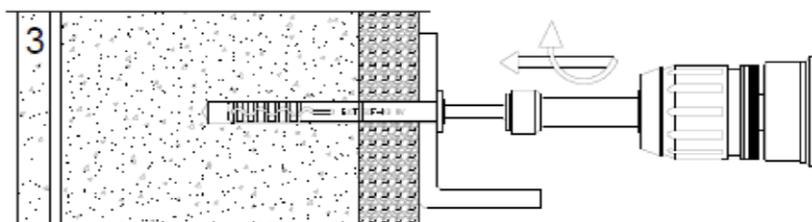


Clean the bore hole.

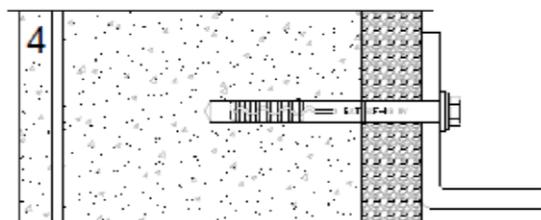
Insert assembly group of anchor (screw and sleeve) using a hammer, until the plastic sleeve is flush with surface of fixture



The screw is screwed -in until the head of the screw touches the plastic sleeve



Correctly installed anchor



EJOT SDF 8V

Intended use
Installation instructions

Annex B 4

Table C1: Characteristic resistance of the screw

Type of anchor		SDF-S-8V SDF-KB-8V	
		Galvanized steel	Stainless steel
Characteristic tension resistance	$N_{Rk,s}$ [kN]	10,62	10,62
Characteristic shear resistance	$V_{Rk,s}$ [kN]	5,3	5,3
Characteristic bending resistance	$M_{Rk,s}$ [Nm]	8,2	8,2

Table C2: Displacements¹⁾²⁾ under tension and shear loading in concrete and solid masonry

Type of anchor	Tension or shear load	Displacements under tension load		Displacements under shear load	
		δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
SDF-S-8V SDF-KB-8V	F [kN]				
	2,6	0,4	0,8	1,8	2,8

¹⁾ Valid for all ranges of temperatures

²⁾ Intermediate values by linear interpolation

Table C3: Characteristic resistance for use in concrete¹⁾

Pull-out failure			Characteristic resistance
Characteristic resistance	$N_{Rk,p}$ ²⁾ [kN]	< C16/20	4,5
Characteristic resistance	$N_{Rk,p}$ ²⁾ [kN]	≥ C16/20	6,5

¹⁾ Hammer drilling

²⁾ Valid for all ranges of temperatures

Table C4: Characteristic resistance F_{Rk} in masonry

Base Material	Size of stone [LxWxH] (min. Format)	density-class ρ [kg/dm ³]	min. compressive strength f_b [N/mm ²]	Drilling method	F_{Rk} ²⁾ [kN]
Clay brick, Mz e.g. DIN 105-100:2012-01 / EN 771-1:2011	NF (240x115x71)	≥ 1,8	28	H ¹⁾	2,5
			20		2,0
			10		1,5
Calcium silicate brick, KS e.g. DIN V 106:2005-10 / EN 771-2:2011	NF (240x115x71)	≥ 2,0	20	H ¹⁾	2,5
			10		1,5

¹⁾ H = Hammerdrilling

²⁾ Valid for all ranges of temperatures

EJOT SDF 8V

Performances

Characteristic resistance of the screw, displacements
Characteristic resistance for use in concrete and masonry

Annex C 1