

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 30 June 2023

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 / SORMAT SDF 8V

Product family  
to which the construction product belongs

Plastic anchor for redundant non-structural systems in  
concrete and masonry

Manufacturer

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

Manufacturing plant

EJOT manufacturing plant 1, 2, 3 and 4

This European Technical Assessment  
contains

13 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 330284-00-0604 edition 12/2020

This version replaces

ETA-15/0387 issued on 27 August 2015

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## Specific part

### 1 Technical description of the product

The frame fixing EJOT / SORMAT SDF 8V is a plastic anchor consisting of a plastic sleeve made of polyamide and an accompanying specific screw of galvanised steel, of galvanised steel with additional organic coating 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 anchors 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 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 1

#### 3.2 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Resistance to steel failure under tension loading	See Annex C 1
Resistance to steel failure under shear loading	See Annex C 1
Resistance to pull-out or concrete failure under tension loading (base material group a)	See Annex C 1
Resistance in any load direction without lever arm (base material group b)	See Annexes C 2
Edge distance and spacing (base material group a)	See Annex B 2
Edge distance and spacing (base material group b)	See Annex B 3
Displacements under short-term and long-term loading	See Annex C 1
Durability	See Annex B 1

English translation prepared by DIBt

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

In accordance with European Assessment Document EAD 330284-00-0604 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 30 June 2023 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock  
Head of Section

*beglaubigt:*  
Ziegler

**Intended use**

Anchorage in concrete and solid bricks

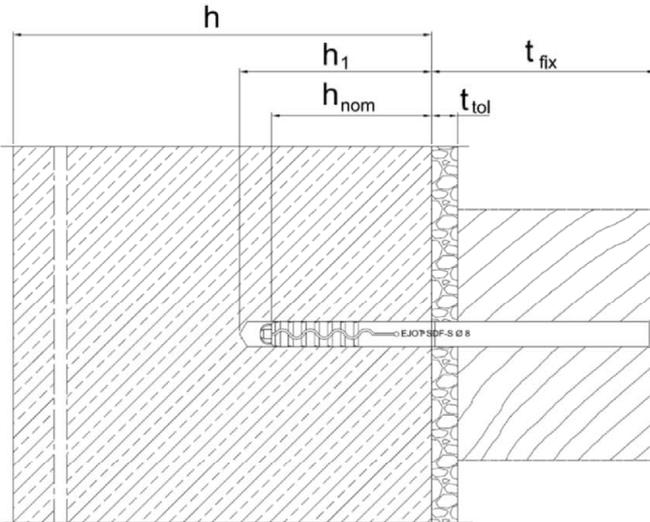


Figure 1: Intended use: screw head type: countersunk (S)

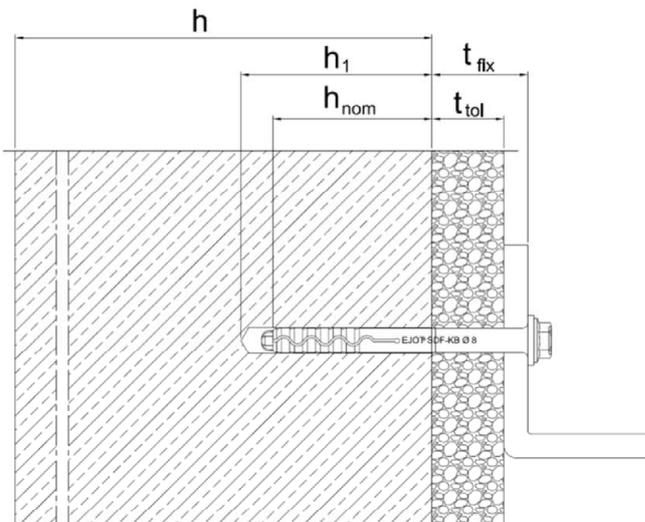


Figure 2: Intended use: screw head type: hexagon head with collar (KB)

**Legend**

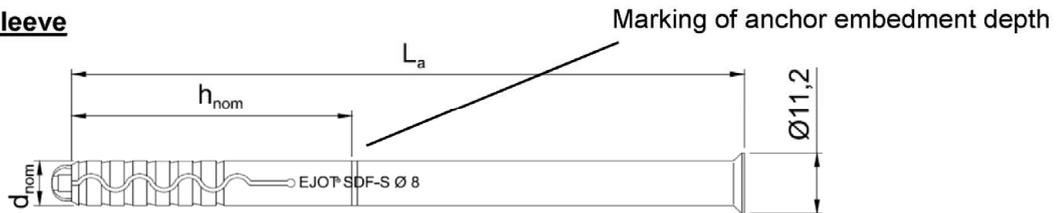
- $h$  = Thickness of member
- $h_1$  = Depth of drilled hole to deepest point
- $h_{nom}$  = Overall plastic anchor embedment depth in base material (setting depth)
- $t_{tol}$  = Thickness of equalizing layer or non-load bearing coating
- $t_{fix}$  =  $t_{tol}$  + thickness of fixture

EJOT / SORMAT SDF 8V

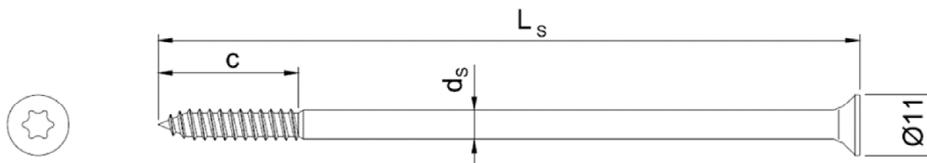
**Product description**  
Installed condition

**Annex A 1**

**Anchor sleeve**



**Special screw**



**Figure 1: Type of anchor: countersunk (S)**

Anchor marking:

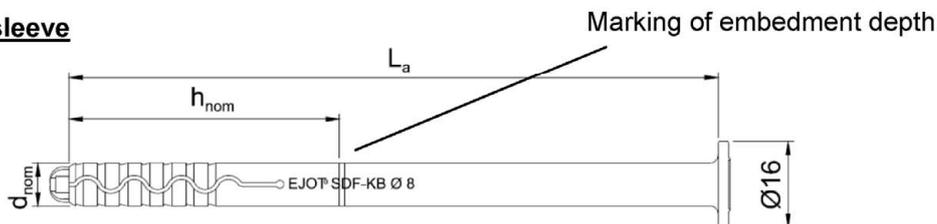
Manufacturer, anchor type incl. head type, diameter, length

Example: EJOT SDF-S-8 x 100

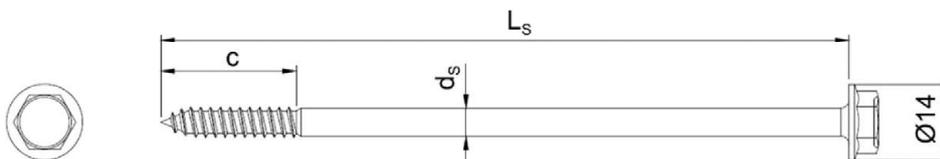
Screw marking:

Length of anchor (e.g. 100)

**Anchor sleeve**



**Special screw**



**Figure 2: Type of anchor: collar with flange (KB)**

Anchor marking:

Manufacturer, anchor type incl. head type, diameter, length

Example: EJOT SDF-KB-8 x 100

Screw marking:

Length of anchor (e.g. 100)

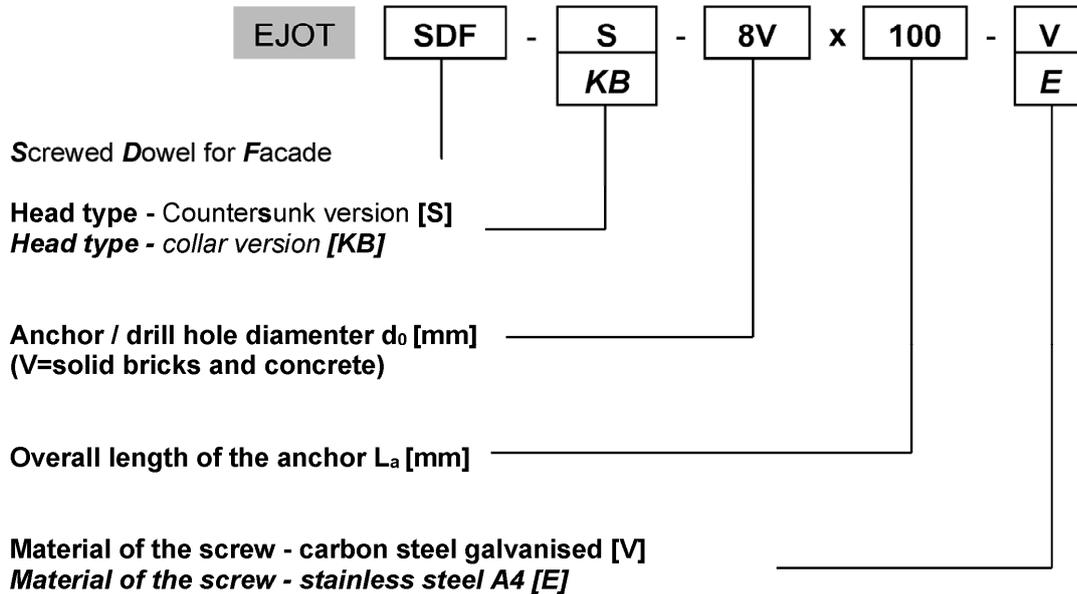
**EJOT / SORMAT SDF 8V**

**Product description**

Anchor types, marking of the anchor sleeve and special screw

**Annex A 2**

**Product designation key**



**Table A3.1: Dimensions [mm]**

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

Designations: see Annex A 2

**Table A3.2: Materials**

Element	Material
<b>Anchor sleeve</b>	Polyamid PA6, colour see Table A3.1
<b>Special screw</b>	Steel, galvanized zinc plated > 5 $\mu\text{m}$ acc. EN ISO 4042:2018
	Steel, galvanized zinc plated > 5 $\mu\text{m}$ acc. EN ISO 4042:2018 with additional organic coating (C1000)
	Stainless steel of corrosion resistance class CRC III in accordance EN 1993-1-4:2006 + A1:2015

**EJOT / SORMAT SDF 8V**

**Product description**  
Product designation key, dimensions and material

**Annex A 3**

## Specifications of intended use

### Anchorage is subject to:

- static or quasi-static loads
- Redundant non-structural systems

### Base materials:

- Reinforced or unreinforced compacted normal weight concrete without fibres with strength classes  $\geq$  C12/15 (base material group a), in accordance with EN 206:2013+A1:2016, Annex C 2
- Solid brick masonry (base material group b) according to Annex C 3.  
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 in accordance with EN 998-2:2010.
- For other base materials of the base material groups a and b the characteristic resistance of the anchor may be determined by job site tests in accordance with TR 051:2018-04.

### Temperature Range:

- c:  $-5^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  (max. short term temperature  $+50^{\circ}\text{C}$  and max. long term temperature  $+30^{\circ}\text{C}$ )
- b:  $-5^{\circ}\text{C}$  to  $80^{\circ}\text{C}$  (max. short term temperature  $+80^{\circ}\text{C}$  and max. long term temperature  $+50^{\circ}\text{C}$ )

### 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 subject 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 TR 064:2018-05 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 nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.

### Installation:

- Hole drilling by the drill modes acc. to Annex C for base material group a and b.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on site.
- Installation temperature from  $-5^{\circ}\text{C}$  to  $+40^{\circ}\text{C}$
- Exposure to UV due to solar radiation of anchor not protected  $\leq$  6 weeks
- No ingress of water in the borehole at temperatures  $< 0^{\circ}\text{C}$ .

EJOT / SORMAT SDF 8V

Intended use  
Specifications

Annex B 1

**Table B2.1: Installation parameters**

Anchor type			SDF-KB-8V SDF-S-8V
Base material group <sup>1)</sup>			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
Overall embedment depth of the anchor in the base material <sup>1)</sup>	$h_{nom}$ [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

<sup>1)</sup> Base material group a = concrete, b = solid masonry

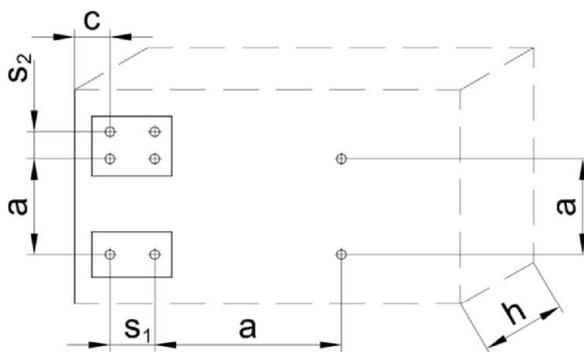
**Table B2.2: Minimum member thickness, edge distance and spacing in concrete (base material group a)**

Compressive strength	Minimum member thickness $h_{min}$ [mm]	Characteristic edge distance $c_{cr,N}$ [mm]	Characteristic spacing $a$ [mm]	Minimum edge distance $c_{min}$ [mm]	Minimum spacing $s_{min}$ [mm]
≥ C16/20	100	100	100	50	80
≥ C12/15	100	140	115	70	110

Fixing point with a spacing  $\leq a$  are considered as a group with max. characteristic resistance  $N_{Rk,p}$  according to Table C1.3.

For a spacing  $> a$  the anchors are always considered as single anchors, each with a characteristic resistance  $N_{Rk,p}$  according to Table C1.3.

**Scheme of distance and spacing in concrete**



- h = member thickness
- c = edge distance
- a = spacing
- s = spacing within an anchor group

**EJOT / SORMAT SDF 8V**

**Intended use**

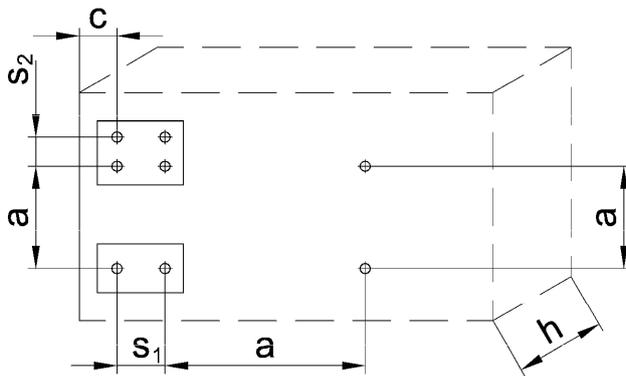
Installation parameters, minimum member thickness, spacing and edge distance in concrete

**Annex B 2**

**Table B3.1: Minimum member thickness, spacing and edge distance in solid bricks  
(base material group b)**

Base material	Minimum member thickness $h_{min}$ [mm]	Single anchor		Anchor group		
		Minimum edge distance $c_{min}$ [mm]	Minimum spacing $s_{min}$ [mm]	Minimum edge distance $c_{min}$ [mm]	Minimum spacing $s_{1,min}$ [mm]	Minimum spacing $s_{2,min}$ [mm]
771 1-007 Mz	70	100	250	100	80	80
771 2-008 KS	70	100	250	100	80	80

**Scheme of spacing and edge distances in masonry**



- $h$  = member thickness
- $c$  = edge distance
- $a$  = spacing
- $s_1$  = spacing (perpendicular to the free edge) within an anchor group
- $s_2$  = spacing (parallel to the free edge) within an anchor group

EJOT / SORMAT SDF 8V

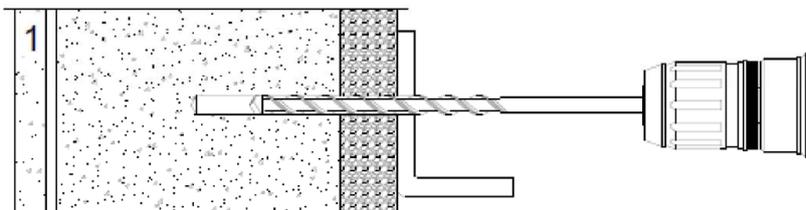
**Intended use**  
Minimum member thickness, spacing and edge distance in solid bricks

**Annex B 3**

### Installation instructions

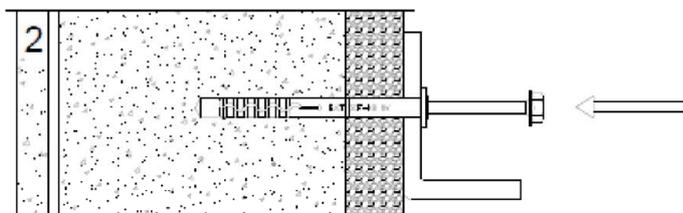
(exemplary for the fixing of a pre-drilled metal attachment part)

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

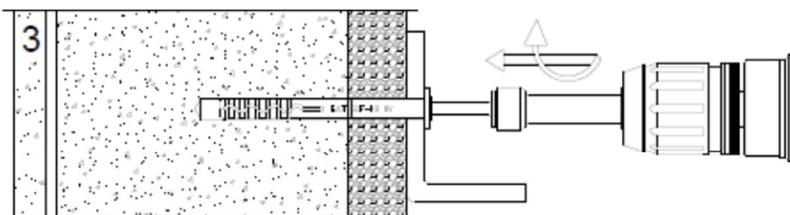


Cleaning of the hole

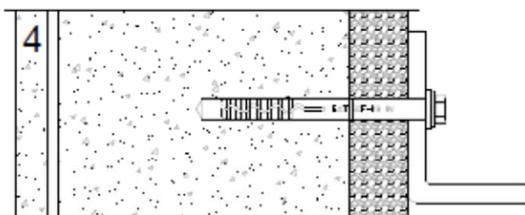
Insert the assembled anchor (screw and sleeve) using a hammer, until the plastic sleeve is flush with the surface of fixture



Screw in the screw, until the head of the screw touches the plastic sleeve



Correctly installed anchor



EJOT / SORMAT SDF 8V

Intended use  
Installation instructions

Annex B 4

**Table C1.1: Characteristic resistance of the screw**

Steel failure of the special screw		SDF-8V	
Material		Galvanized steel	Stainless steel
Characteristic tension resistance	$N_{Rk,s}$ [kN]	10,62	14,87
<i>Partial safety factor <math>\gamma_{Ms}</math></i> <sup>1)</sup>		1,4	1,4
Characteristic shear resistance	$V_{Rk,s}$ [kN]	5,3	7,4
Characteristic bending moment	$M_{Rk,s}$ [Nm]	8,2	11,6
<i>Partial safety factor <math>\gamma_{Ms}</math></i> <sup>1)</sup>		1,25	1,56

<sup>1)</sup> in absence of other national regulations

**Table C1.2: Displacements<sup>1)2)</sup> under tension and shear loading in concrete and solid masonry**

Anchor type	Tension or shear load	Displacements under tension		Displacements under shear	
		$\delta_{N0}$ [mm]	$\delta_{N\infty}$ [mm]	$\delta_{V0}$ [mm]	$\delta_{V\infty}$ [mm]
SDF-8V	<b>F = N = V</b> [kN]				
	2,6	0,75	1,5	1,83	2,75

<sup>1)</sup> Valid for all temperature ranges

<sup>2)</sup> Intermediate values by linear interpolation

**Table C1.3: Characteristic resistance in concrete**

Pull-out failure	Characteristic resistance	
Characteristic tension resistance $N_{Rk,p}$ <sup>2)</sup> [kN]	< C20/25	4,5
Characteristic tension resistance $N_{Rk,p}$ <sup>2)</sup> [kN]	$\geq$ C20/25	6,5
<i>Partial safety factor <math>\gamma_{Mc}</math></i> <sup>1)</sup>		1,8

<sup>1)</sup> in absence of other national regulations

<sup>2)</sup> valid in temperature ranges c and b

**Table C1.4: Values under fire exposure in concrete C20/25 to C50/60 in any load direction, no permanent centric tension load and without lever arm, fastening of façade systems (Fire resistance class R 90)**

Characteristic tension resistance $F_{Rk,fi,90}$ [kN]	$\leq 0,8$
<i>Partial safety factor <math>\gamma_{M,fi}</math></i> <sup>1)</sup>	1,0

<sup>1)</sup> in absence of other national regulations

**EJOT / SORMAT SDF 8V**

**Performances**

Characteristic resistance of the screw, characteristic resistance in concrete, displacements under tension and shear loads, values under fire exposure

**Annex C 1**

**Table C2.1: Characteristic resistance  $F_{Rk}$  in solid masonry**

Base material	Minimum stone format (LxWxH) [mm]	Drilling method	Minimum compressive strength $f_b$ [N/mm <sup>2</sup> ]	$c_{min}$ [mm]	$F_{Rk}^{3)}$ [kN]
<b>Vollsteinmauerwerk</b>					
Clay brick Mz NF 28-1.8 (EN 771-1:2011+A1:2015) <b>771 1-007 Mz</b>	240x115x71	H <sup>1)</sup>	28	100	2,0
			20		2,0
			10		1,2
Sand-lime solid brick KS NF 12-2.0 (EN 771-2:2011+A1:2015) <b>771 2-008 KS</b>	240x115x71	H <sup>1)</sup>	20	250	2,5
			10		1,5
<i>Partial safety factor <math>\gamma_{Mc}^{2)}</math></i>					2,5

1) H = Hammerdrilling

2) In absence of other national regulations

3) Temperature range b and c

**EJOT / SORMAT SDF 8V**

**Performances**  
Characteristic resistance in solid masonry

**Annex C 2**