

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-10/0305**  
**of 1 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

EJOT / SORMAT SDF 10V and EJOT /  
SORMAT SDF 10H

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 und 4

This European Technical Assessment  
contains

19 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 December 2020

This version replaces

ETA-10/0305 issued on 6 December 2017

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## Specific part

### 1 Technical description of the product

The EJOT / SORMAT SDF 10V and EJOT / SORMAT SDF 10H 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 2

#### 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 2
Resistance in any load direction without lever arm (base material group b, c, d)	See Annexes C 3 – C 6
Edge distance and spacing (base material group a)	See Annex B 3
Edge distance and spacing (base material group b, c, d)	See Annex B 4 and B 5
Displacements under short-term and long-term loading	See Annex C 2
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.

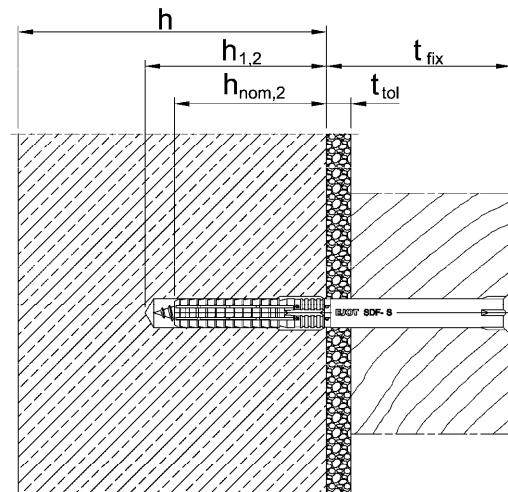
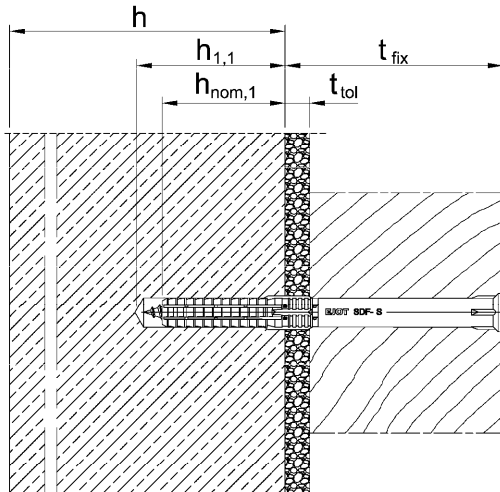
Issued in Berlin on 1 September 2022 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock  
Head of Section

*beglaubigt:*  
Ziegler

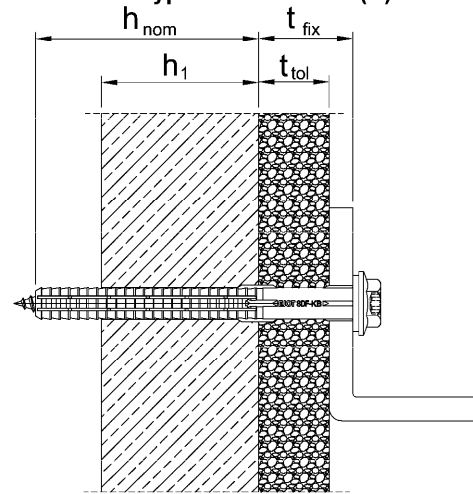
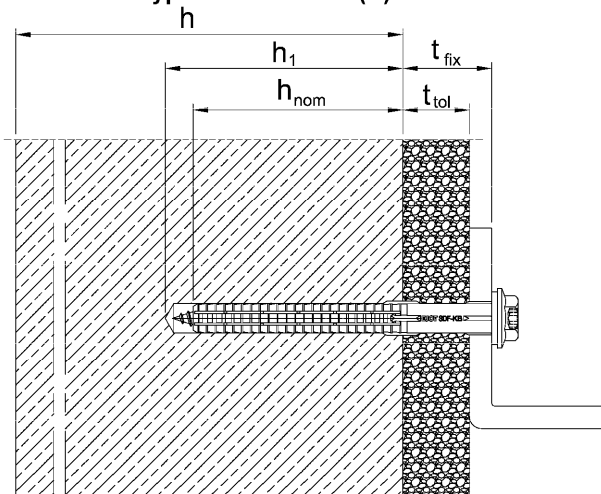
**Intended use**

Anchorage in concrete, solid bricks, hollow or perforated bricks, autoclaved aerated concrete and thin concrete components (weather shell)



**Intended use SDF-10V in concrete ( $h_{nom1}$ )**  
Screw head-type: countersunk (S)

**Intended use SDF-10V in solid block ( $h_{nom2}$ )**  
screw head-type: countersunk (S)



**Intended use SDF-10H in concrete/masonry/  
autoclaved aerated concrete ( $h_{nom}$ )**  
Screw head-type: collar head (KB)

**Intended use SDF-10H in a weather shell ( $h_{nom}$ )**  
Screw head-type: collar head (KB)

**Legend**

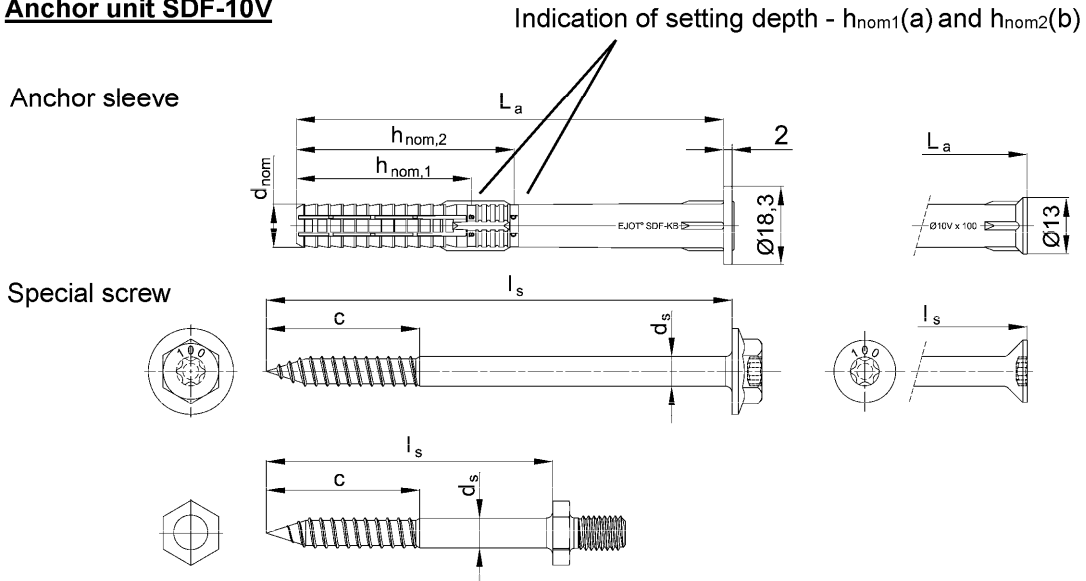
- h = Thickness of member
- $h_{1,1}$  = Depth of drilled hole to deepest point (application in concrete)
- $h_{1,2}$  = Depth of drilled hole to deepest point (application in masonry)
- $h_{nom}$  = Overall plastic anchor embedment depth (setting depth)
- $h_{nom,1}$  = Overall plastic anchor embedment depth (application in concrete)
- $h_{nom,2}$  = Overall plastic anchor embedment depth (application in masonry)
- $t_{tol}$  = Thickness of equalizing layer or non-load bearing coating
- $t_{fix}$  =  $t_{tol}$  + thickness of fixture

**EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H**

**Product description**  
Installed condition

**Annex A 1**

**Anchor unit SDF-10V**



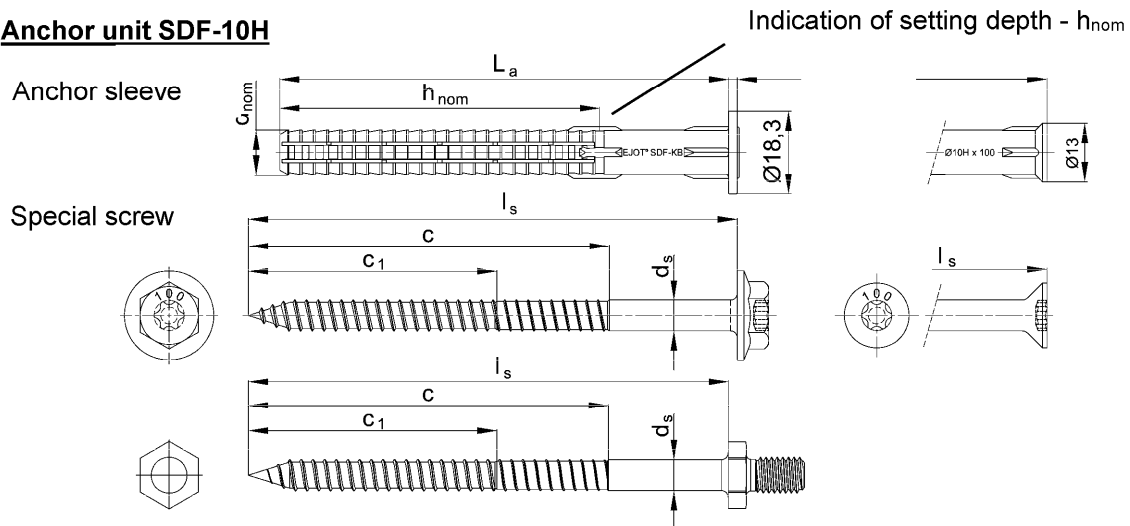
Marking of anchor sleeve:

Manufacturer, anchor type incl. head type  
diameter, length  
Example: EJOT SDF-KB-10V x 100

Marking of special screw:

Anchor length (e.g. 100)

**Anchor unit SDF-10H**



Marking of anchor sleeve:

Manufacturer, anchor type incl. head type  
diameter, length  
Example: EJOT SDF-KB-10H x 100

Marking of special screw:

Anchor length (e.g. 100)

**EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H**

**Product description**

Anchor types, marking of anchor sleeve and special screw

**Annex A 2**

### Product designation key

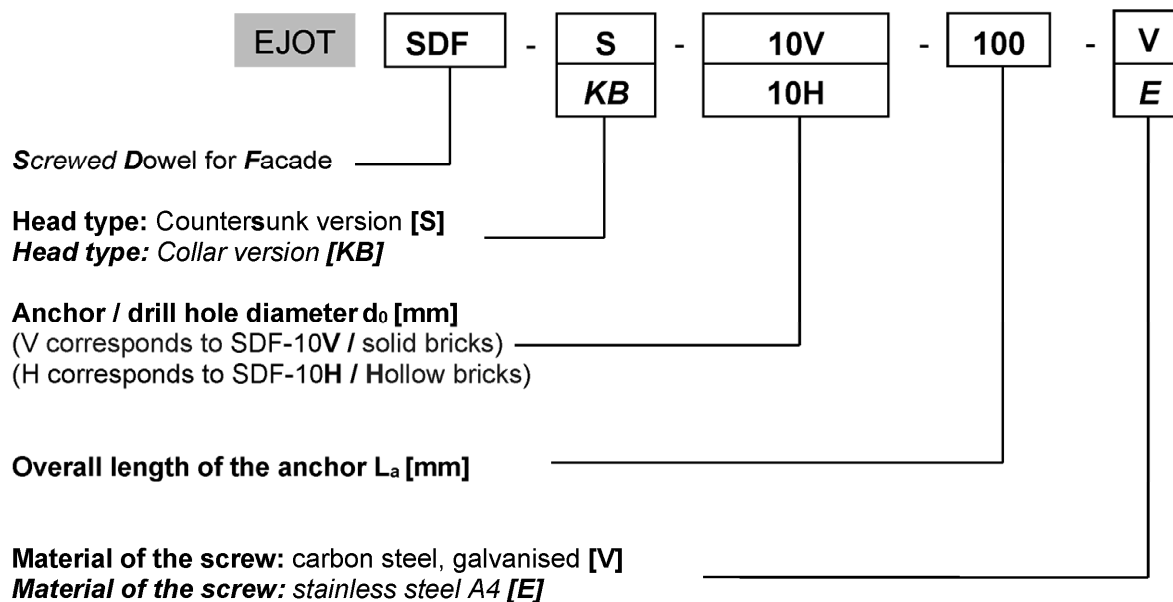


Table A3.1: Dimensions [mm]

Anchor type	Anchor sleeve							Special screw			
	Farbe	$d_{nom}$	$h_{nom1}$	$h_{nom2}$	min $L_{a1}$	min $L_{a2}$	max $L_a$	$L_s$	$d_s$	$c_1$	c
SDF-S-10V	blue	10	40	50	50	60	220	$L_a + 8,0$	7,0	--	35
SDF-KB-10V	blue	10	40	50	50	60	220	$L_a + 8,0$	7,0	--	35
SDF-S-10H	orange	10	70		80		300	$L_a + 8,0$	7,0	55	80
SDF-KB-10H	orange	10	70		80		220	$L_a + 8,0$	7,0	55	80

(Designations see annex A 2)

Table A3.2: Material

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

EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H

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

**Annex A 3**

## Specifications of intended use

### Anchorage is subject to:

- Static and 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
- thin concrete components (weather shell)  $\geq$  50 mm thickness (only SDF-10H)
- Solid brick masonry (base material group b), according to Annex C 3 and C 4.  
Note: The characteristic resistance is also valid for larger brick sizes and larger compressive strength of the masonry unit.
- Hollow brick masonry (base material group c), according to Annex C 5.
- Autoclaved aerated concrete (base material group d), according to Annex C 6.
- Mortar strength class of the masonry  $\geq$  M2,5 at minimum in accordance with EN 998-2:2010.
- For other base materials of the base material group a, b, c and d the characteristic resistance of the anchor may be determined by job site tests in accordance with TR 051:2018-04.

### Temperature Range:

- c:  $-40^{\circ}\text{C}$  to  $50^{\circ}\text{C}$  (max. short term temperature  $+50^{\circ}\text{C}$  and max. long term temperature  $+30^{\circ}\text{C}$ )
- b:  $-40^{\circ}\text{C}$  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 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 064:2018-04 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,b,c and d.
- 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  $-10^{\circ}\text{C}$  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 10V und EJOT / SORMAT SDF 10H

Intended use  
Specifications

Annex B 1



**Table B2.1: Installation parameters**

Anchor type		SDF-10V		SDF-10H
		a	b	a,b,c,d
<b>Base material group<sup>1)</sup></b>				
<b>drill hole diameter</b>	$d_0$ [mm] =	10	10	10
<b>Cutting diameter of drill bit</b>	$d_{cut}$ [mm] ≤	10,45	10,45	10,45
<b>Depth of the drill hole to deepest point</b>	$h_{1,1}$ [mm] ≥	50	----	----
<b>Overall plastic anchor embedment depth</b>	$h_{nom1}$ [mm] ≥	40	----	----
<b>Depth of the drill hole to deepest point</b>	$h_{1,2}$ [mm] ≥	----	60	----
<b>Overall plastic anchor embedment depth</b>	$h_{nom2}$ [mm] ≥	----	50	----
<b>Depth of the drill hole to deepest point</b>	$h_1$ [mm] ≥	----	----	80
<b>Overall plastic anchor embedment depth<sup>2)</sup></b>	$h_{nom}^{2)}$ [mm] =	----	----	70
<b>Diameter of the clearance hole in the fixture</b>	$d_f$ [mm] ≤	10,5	10,5	10,5
<b>Minimum installation temperature</b>	[°C]	-10		
<b>Temperature range (c)</b>	[°C]	30 - 50		
<b>Temperature range (b)</b>	[°C]	50 - 80		

<sup>1)</sup> Base material group: a = concrete, b = solid masonry, c = hollow or perforated masonry, d = autoclaved aerated concrete

<sup>2)</sup> For masonry of hollow or perforated brick the influence  $h_{nom} > 70$  mm has to be determined by job-site tests in accordance with TR 051:2018-04.

EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H

**Intended use**  
Installation parameters base material group a, b, c, d

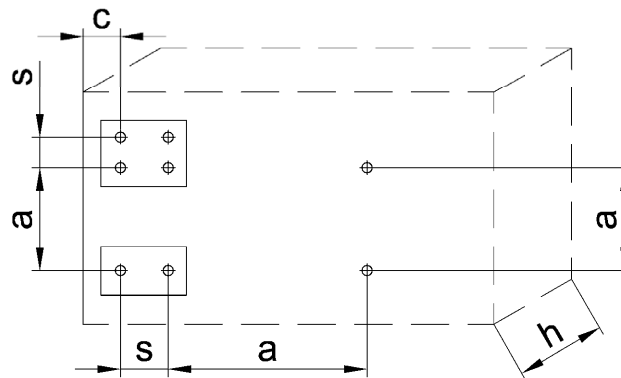
**Annex B 2**

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

Anchor type		Minimum member thickness $h_{min}$ [mm]	Characteristic edge distance $c_{cr,N}$ [mm]	Minimum spacing and edge distances [mm]
SDF-10V	concrete $\geq$ C16/20	100	80	$s_{min} = 60$ for $c_{min} \geq 50$
	concrete C12/15		110	$s_{min} = 85$ for $c_{min} \geq 70$
SDF-10H	concrete $\geq$ C 16/20		80	$s_{min} = 60$ for $c_{min} \geq 50$
	concrete C 12/15		110	$s_{min} = 85$ for $c_{min} \geq 70$
	concrete C20/25 (thin concrete slabs)	50	160	$s_{min} = 80$ for $c_{min} \geq 160$

Fixing points with a spacing  $a \leq s_{cr}$  (with  $s_{cr} = 80$  mm) are considered as a group with a maximum characteristic resistance  $N_{Rk,p}$  according to Table C2.2. For spacing  $a > s_{cr}$  the anchors are considered as single anchors, each with a characteristic resistance  $N_{Rk,p}$  acc. to Table C2.2.

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



- h = member thickness
- c = edge distance
- a = spacing
- $s_{min}$  = spacing within anchor group

EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H

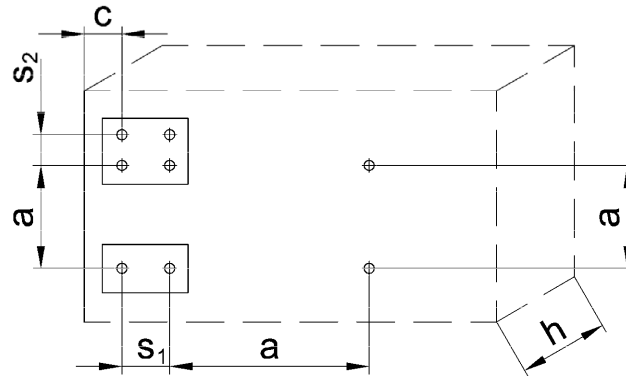
**Intended use**  
Minimum member thickness, spacing and edge distance in concrete

**Annex B 3**

**Table B4.1: Minimum member thickness, spacing and edge distance in masonry  
(base material group b and c)**

Anchor type		SDF-10V	SDF-10H
Minimum member thickness	$h_{\min}$ [mm]	100	100
<b>Single anchor</b>			
Minimum edge distance	$c_{\min}$ [mm]	100	100
Minimum spacing	$a_{\min}$ [mm]	250	250
<b>Anchor group</b>			
Minimum edge distance	$c_{\min}$ [mm]	100	
Minimum spacing perpendicular to free edge	$s_{1,\min}$ [mm]	100	
Minimum spacing parallel to free edge	$s_{2,\min}$ [mm]	100	

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



- $h$  = member thickness
- $a$  = spacing
- $c$  = edge distance
- $s_1$  = 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 10V und EJOT / SORMAT SDF 10H

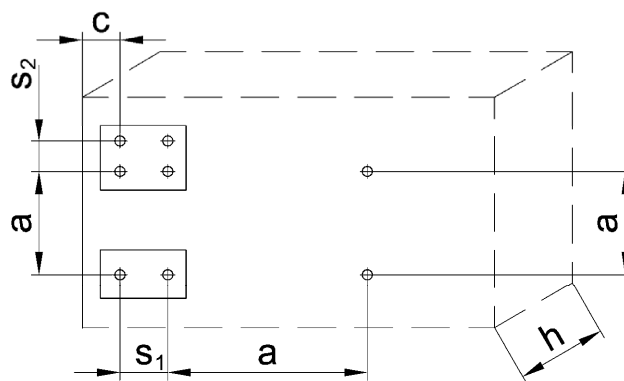
**Intended use**  
Minimum member thickness, spacing and edge distance in masonry

**Annex B 4**

**Table B5.1: Minimum member thickness, spacing and edge distance in autoclaved aerated concrete (base material group d)**

<b>SDF -10H</b>		$f_{ck} \geq 4 \text{ N/mm}^2$	$f_{ck} \geq 6 \text{ N/mm}^2$
		<b>Single anchor</b>	
Minimum member thickness	$h_{\min}$ [mm]	100	140
Minimum edge distance	$c_{\min}$ [mm]	100	
Minimum spacing	$a_{\min}$ [mm]	250	
<b>Anchor group</b>			
Minimum member thickness	$h_{\min}$ [mm]	140	
Minimum edge distance	$c_{1,\min}$ [mm]	100	
Minimum edge distance (perpendicular to $c_{1,\min}$ )	$c_{2,\min}$ [mm]	150	
Minimum spacing perpendicular to free edge	$s_{1,\min}$ [mm]	80	
Minimum spacing parallel to free edge	$s_{2,\min}$ [mm]	80	

**Scheme of spacing and edge distances in autoclaved aerated concrete**



- $h$  = member thickness
- $a$  = spacing
- $c$  = edge distance
- $s_1$  = 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 10V und EJOT / SORMAT SDF 10H**

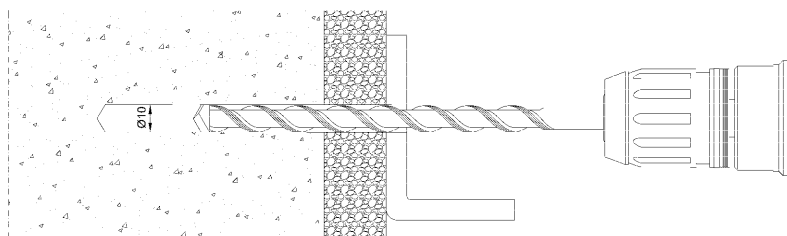
**Intended use**  
Minimum member thickness, spacing and edge distance in autoclaved aerated concrete

**Annex B 5**

### Installation instructions

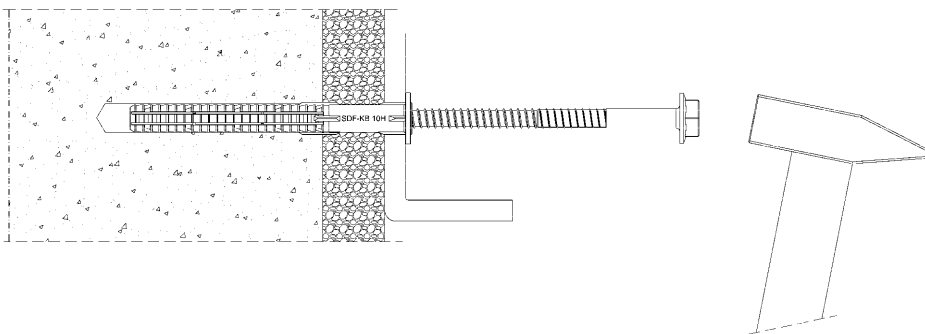
#### (exemplary for the fixing of a pre-drilled metal attachment part)

1. Drill the hole  $\varnothing$  10 mm using the drill method described in Annex C

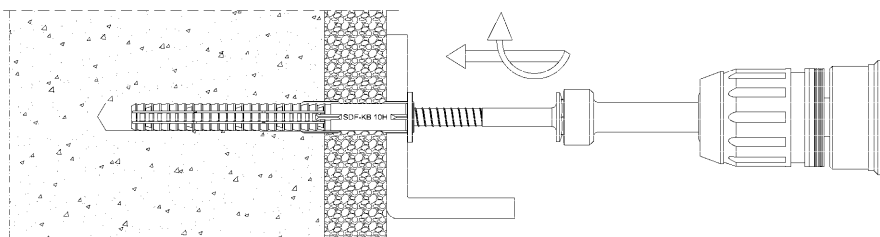


2. Cleaning of the hole

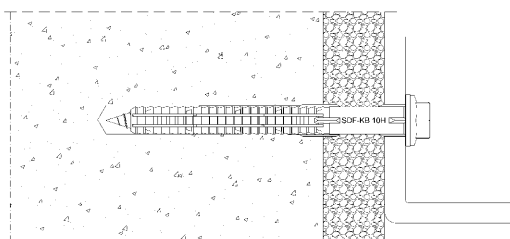
Insert the assembled anchor (screw and sleeve) using a hammer, until the plastic sleeve is flush with surface of fixture



3. Screw in the screw until the head is rested on the plastic sleeve



4. Correctly installed anchor



EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H

Intended use  
Installation instructions

Annex B 6

**Table C1.1: Characteristic bending moment of the screw (base material group a, b, c and d)**

Anchor type	SDF-10V				SDF-10H	
	Steel, galvanized		Stainless steel		Steel, galvanized	Stainless steel
<b>Material</b>	Steel, galvanized		Stainless steel		Steel, galvanized	Stainless steel
<b>Characteristic bending moment <math>M_{Rk,s}</math> [Nm]</b>	13,80 <sup>2)</sup>	23,01 <sup>3)</sup>	16,09 <sup>2)</sup>	26,62 <sup>3)</sup>	17,67	20,62
<i>Partial safety factor <math>\gamma_{Ms}</math> <sup>1)</sup></i>	1,25		1,56		1,25	1,56

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

<sup>2)</sup> at  $h_{nom,1}$

<sup>3)</sup> at  $h_{nom,2}$

**Table C1.2: Characteristic resistance of the screw (base material group a, b, c and d)**

Anchor type	SDF-10V				SDF-10H	
	Steel, galvanized		Stainless steel		Steel, galvanized	Stainless steel
<b>Material</b>	Steel, galvanized		Stainless steel		Steel, galvanized	Stainless steel
<b>Characteristic tension resistance <math>N_{Rk,s}</math> [kN]</b>	15,85		18,49		18,70	21,82
<i>Partial safety factor <math>\gamma_{Ms}</math> <sup>1)</sup></i>	1,5		1,87		1,5	1,87
<b>Characteristic shear resistance <math>V_{Rk,s}</math> [kN]</b>	7,93 <sup>2)</sup>	11,09 <sup>3)</sup>	9,12 <sup>2)</sup>	12,94 <sup>3)</sup>	9,35	10,91
<i>Partial safety factor <math>\gamma_{Ms}</math> <sup>1)</sup></i>	1,25		1,56		1,25	1,56

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

<sup>2)</sup> at  $h_{nom,1}$

<sup>3)</sup> at  $h_{nom,2}$

EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H

**Performance**  
Characteristic resistance of the screw

**Annex C 1**

**Table C2.1: Displacements <sup>1)2)</sup> under tension and shear loads (base material group a, b, c and d)**

Anchor type	Displacements under tension			Displacements under shear			
	F = N [kN]	$\delta_{N0}$ [mm]	$\delta_{N\infty}$ [mm]	F = V [kN]	$\delta_{V0}$ [mm]	$\delta_{V\infty}$ [mm]	
<b>Concrete, solid and hollow or perforated masonry</b>							
SDF-10V	1,8	0,36	0,72	1,8	0,41	0,82	
SDF-10H	1,8	0,37	0,74	1,8	0,41	0,82	
<b>Autoclaved aerated concrete</b>							
SDF-10H	$f_{ck} \geq 4 \text{ N/mm}^2$	0,54	0,17	0,34	0,54	1,08	1,62
	$f_{ck} \geq 6 \text{ N/mm}^2$	0,89	0,41	0,82	0,89	1,78	2,67

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

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

**Table C2.2: Characteristic resistance for pull-out failure, use in concrete**

Pull-out failure	SDF-10V		SDF-10H	
Overall plastic anchor embedment depth $h_{nom,1}$ [mm]	<b>40</b>		<b>70</b>	
Temperature range	30/50 °C	50/80 °C	30/50 °C	50/80 °C
<b>Concrete <math>\geq</math> C12/15 Standard concrete slabs</b>				
Characteristic tension resistance $N_{Rk,p}$ [kN]	<b>4,5</b>	<b>4,0</b>	<b>4,5</b>	<b>4,0</b>
Partial safety factor $\gamma_{Mc}$ <sup>1)</sup>	1,8			
<b>Concrete <math>\geq</math> C12/15 thin concrete slabs (h= 50mm bis 100 mm)</b>				
Overall plastic anchor embedment depth $h_{nom,1}$ [mm]	----		<b>70</b>	
Temperature range			30/50 °C	50/80 °C
Characteristic tension resistance $N_{Rk,p}$ [kN]			<b>3,0</b>	<b>3,0</b>
Partial safety factor $\gamma_{Mc}$ <sup>1)</sup>			1,8	
<b>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 facade systems (Fire resistance class R 90)</b>				
Characteristic tension resistance $F_{Rk,fi,90}$ [kN]	<b><math>\leq 0,8</math></b>		<b><math>\leq 0,8</math></b>	
Partial safety factor $\gamma_{M,fi}$ <sup>1)</sup>	1,0		1,0	

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

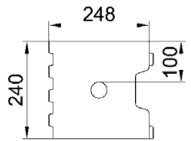
**EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H**

**Performances**

Displacements under tension and shear loads, Characteristic resistance in concrete and thin concrete slabs, values under fire exposure

**Annex C 2**

**Table C3.1: SDF-10V Characteristic resistance  $F_{Rk}^{1)}$  in solid masonry (base material group b)  
with  $h_{nom,2} \geq 50$  mm**

Base material, min DF and min. size (LxWxH) [mm]	Geometry of the brick	Minimum com- pressive strength $f_b$ [N/mm <sup>2</sup> ]	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	$F_{Rk}^{1)}$ [kN]	$F_{Rk}^{1)}$ [kN]
				30°C – 50°C	50°C – 80°C
<b>Solid masonry</b>					
Clay brick Mz EN 771-1:2011+ A1:2015 e.g. Schlagmann, MZ Format: 2 DF (240x115x113)	-	20	$\geq 1,8$	<b>2,5</b>	<b>2,5</b>
		10		<b>2,0</b>	<b>1,5</b>
Sand-lime solid brick, KS EN 771-2:2011+ A1:2015 e.g. Unika Format: NF(240x115x71)	-	36	$\geq 2,0$	<b>4,0</b>	<b>4,0</b>
		20		<b>2,0</b>	<b>2,0</b>
		10		<b>1,5</b>	<b>1,5</b>
Sand-lime solid brick, KS EN 771-2:2011+ A1:2015 e.g. Unika Format: 8DF (248x240x238)		20	$\geq 1,8$	<b>4,5</b>	<b>4,5</b>
		10		<b>3,0</b>	<b>3,0</b>
Lightweight concrete solid brick, V EN 771-3:2011+ A1:2015 e.g. Fa. Nütling, Liapor V6 Format: 2 DF (240x115x113)	-	6	$\geq 1,2$	<b>0,3</b>	<b>0,3</b>
<i>Partial safety factor <math>\gamma_{Mm}^{2)}</math></i>				<b>2,5</b>	

<sup>1)</sup> Characteristic resistance  $F_{Rk}$  for tension, shear or combined tension and shear loading.  
The characteristic resistance is valid for single anchors or for a group of two or four anchors  
with a spacing equal or larger than the minimum spacing  $s_{min}$  according to Table B4.1  
Drilling method = Hammer drilling

<sup>2)</sup> In the absence of other national regulations

**EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H**

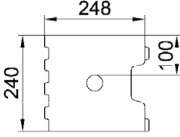
**Performances**

Characteristic resistance in solid masonry (SDF-10V)

**Annex C 3**



**Table C4.1: SDF-10H Characteristic resistance  $F_{Rk}^{(1)}$  in solid masonry (base material group b) with  $h_{nom} \geq 70$  mm**

Base material, min DF and min. size (LxWxH) [mm]	Geometry of the brick	Minimum com- pressive strength $f_b$ [N/mm <sup>2</sup> ]	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	$F_{Rk}^{(1)}$ [kN]	
				30°C – 50°C	50°C – 80°C
<b>Solid masonry</b>					
Clay brick Mz EN 771-1:2011+ A1:2015 e.g. Schlagmann, MZ Format: 2 DF (240x115x113)	-	20	$\geq 1,8$	<b>4,0</b>	<b>4,0</b>
		10		<b>3,0</b>	<b>3,0</b>
Sand-lime solid brick, KS EN 771-2:2011+ A1:2015 e.g. Unika Format: NF (240x115x71)	-	36	$\geq 2,0$	<b>4,5</b>	<b>4,5</b>
		20		<b>2,5</b>	<b>2,5</b>
		10		<b>1,5</b>	<b>1,5</b>
Sand-lime solid brick, KS EN 771-2:2011+ A1:2015 e.g. Unika Format: 8DF (248x240x238)		20	$\geq 1,8$	<b>4,5</b>	<b>4,5</b>
		10		<b>3,5</b>	<b>3,5</b>
Lightweight concrete solid brick, V EN 771-3:2011+ A1:2015 e.g. Fa. Nüdling, Liapor V6 Format: 2 DF (240x115x113)	-	6	$\geq 1,2$	<b>2,0</b>	<b>2,0</b>
		4		<b>1,2</b>	<b>1,2</b>
Lightweight concrete solid block Vbl EN 771-3:2011+ A1:2015 e.g. Fa. Nüdling, FCN Liapor Format:(1200x800x200)	-	4	$\geq 1,0$	<b>2,0</b>	<b>2,0</b>
		2		<b>0,9</b>	<b>0,9</b>
<i>Partial safety factor <math>\gamma_{Mm}^{(2)}</math></i>				<b>2,5</b>	

<sup>1)</sup> Characteristic resistance  $F_{Rk}$  for tension, shear or combined tension and shear loading.  
The characteristic resistance is valid for single anchors or for a group of two or four anchors  
with a spacing equal or larger than the minimum spacing  $s_{min}$  according to Table B4.1  
Drilling method = Hammer drilling

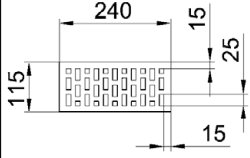
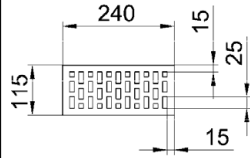
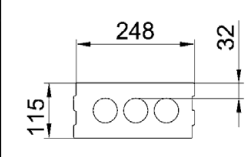
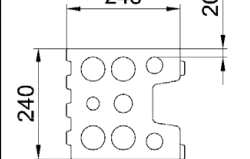
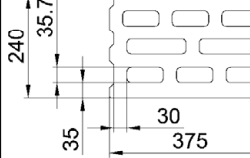
<sup>2)</sup> in the absence of other national regulations

**EJOT / SORMAT SDF 10V und EJOT / SORMAT SDF 10H**

**Performances**  
Characteristic resistance in solid masonry (SDF-10H)

**Annex C 4**

**Table C5.1: SDF-10H characteristic resistance  $F_{Rk}^{1)}$  for masonry of hollow or perforated brick (base material group c) with  $h_{nom} = 70$  mm**  
(The influence of  $h_{nom} > 70$  mm has to be detected by job-site tests)

Base material, DF and size (LxWxH) [mm]	Geometry of the brick	Minimum com- pressive strength $f_b$ [N/mm <sup>2</sup> ]	Bulk density $\rho$ [kg/dm <sup>3</sup> ]	$F_{Rk}^{1)}$ [kN]	$F_{Rk}^{1)}$ [kN]
				30°C – 50°C	50°C – 80°C
<b>Hollow or perforated masonry</b>					
Vertically perforated clay brick, HLz EN 771-1:2011+ A1:2015 e.g. Unipor Format: 2 DF (240x115x113)		20	$\geq 1,2$	1,5	1,5
		12		0,9	0,9
Vertically perforated clay, HLz EN 771-1:2011+ A1:2015 e.g. Unipor Format: NF (240x115x71)		12	$\geq 0,9$	2,0	2,0
		8		1,5	1,5
		6		0,9	0,9
Sand-lime perforated brick, KSL EN 771-2:2011+ A1:2015 e.g. Unika Format: 4DF (248x115x238)		12	$\geq 1,6$	2,5	2,5
		10		2,0	2,0
		8		1,5	1,5
Sand-lime perforated brick, KSL EN 771-2:2011+ A1:2015 e.g. Unika Format: 8DF (248x240x238)		16	$\geq 1,4$	1,5	1,5
		12		1,2	1,2
		8		0,9	0,9
		6		0,6	0,6
Lightweight concrete hollow blocks, Hbl EN 771-3:2011+ A1:2015 e.g. Fa. Nüdling Format: 12DF (375x240x238)		10	$\geq 1,2$	1,2	1,2
		8		0,9	0,9
		6		0,75	0,75
		4		0,5	0,5
<i>Partial safety factor <math>\gamma_{Mm}^{2)}</math></i>				2,5	

1) Characteristic resistance  $F_{Rk}$  for tension, shear or combined tension and shear loading.  
The characteristic resistance is valid for single anchors or for a group of two or four anchors  
with a spacing equal or larger than the minimum spacing  $s_{min}$  according to Table B4.1  
Drilling method = Rotary drilling

2) in the absence of other national regulations

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Performances

Characteristic resistance in hollow or perforated masonry (SDF-10H)

Annex C 5

**Table C6.1: SDF-10H Characteristic resistance  $F_{Rk}^{(1)}$  in autoclaved aerated concrete (base material group d)**

uncracked autoclaved aerated concrete (blocks) in accordance with EN 771-4:2011 +A1:2015	Minimum compressive strength $f_{ck}$ [N/mm <sup>2</sup> ]	Bulk density $\rho$ [kg/m <sup>3</sup> ]	$F_{Rk}^{(1)}$ [kN]	
			30°C – 50°C	50°C – 80°C
	4	≥ 500	1,5	1,5
	5	≥ 500	2,0	2,0
	6	≥ 650	2,5	2,0
	7	≥ 650	2,5 <sup>3)</sup>	2,0 <sup>3)</sup>
<i>Partial safety factor <math>\gamma_{MAAC}^{(2)}</math></i>			2,0	

- 1) Characteristic resistance for tension, shear or combined tension and shear loading.  
Drilling method = rotary drilling
- 2) In the absence of other national regulations
- 3) Values limited by the characteristic resistance in autoclaved aerated concrete with  $f_{ck} = 6$  N/mm<sup>2</sup>

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**Performances**  
Characteristic resistance in autoclaved aerated concrete (SDF-10H)

**Annex C 6**