Deutsches Institut für Bautechnik

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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-12/0502 of 3 November 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 SDP-S-10G and EJOT / SORMAT SDP-KB-10G
Product family to which the construction product belongs	Plastic anchor for redundant non-structural systems in autoclaved aerated concrete
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	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	EAD 330284-00-0604, Edition 12/2020
This version replaces	ETA-12/0502 issued on 6 December 2017

Deutsches Institut für Bautechnik
Kolonnenstraße 30 B | 10829 Berlin | GERMANY | Phone: +49 30 78730-0 | Fax: +49 30 78730-320 | Email: dibt@dibt.de | www.dibt.de

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Specific Part

1 Technical description of the product

The EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G for use in autoclaved aerated concrete 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 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	No performance assessed

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 in any load direction without lever arm (base material group d)	See Annex C 1
Edge distance and spacing (base material group d)	See Annex B 3
Displacements under short-term and long-term loading	See Annex C 1
Durability	See Annex B 1

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 3 November 2022 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

beglaubigt:
Ziegler

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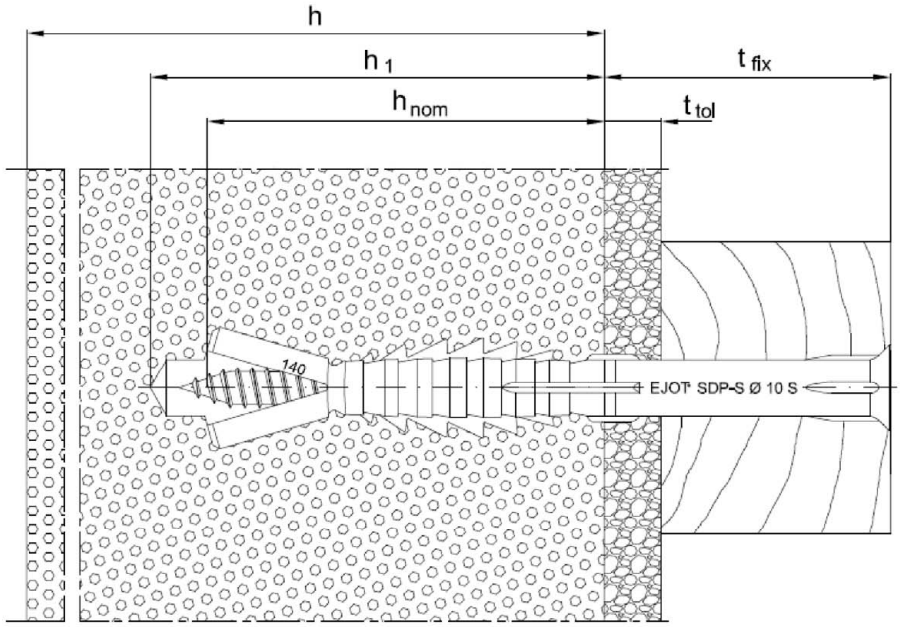
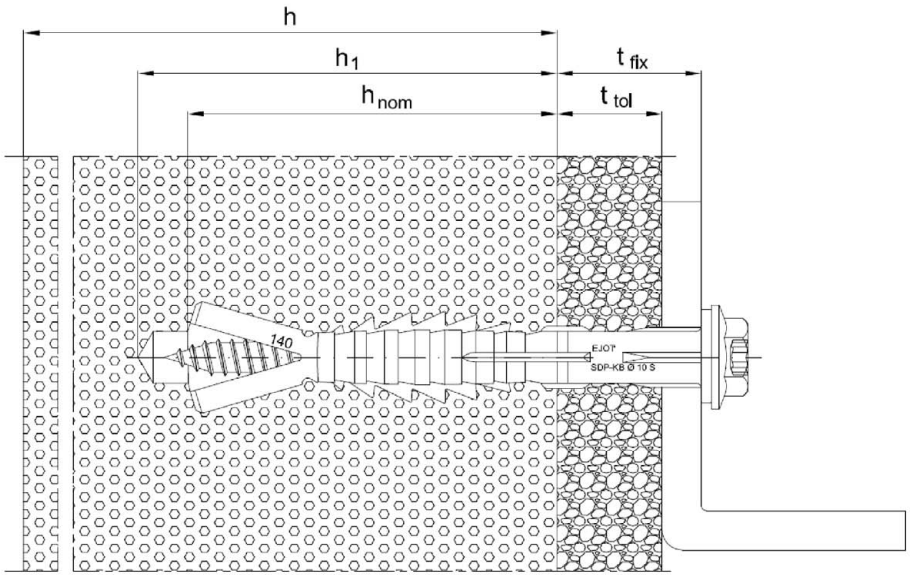
Intended use
Anchorage in autoclaved aerated concrete



Picture 1: Intended use SDP-S-10G
Screw head-type: countersunk (S)



Picture 2: Intended use SDP-KB-10G
Screw head-type: collar head (KB)

Legend

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

EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G

Product description
Installed condition

Annex A 1

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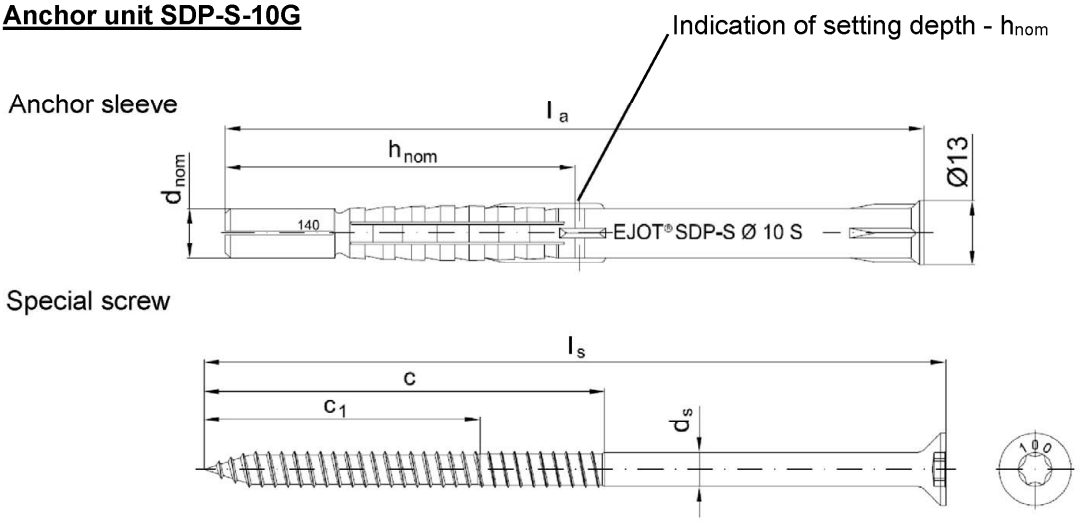
Anchor unit SDP-S-10G

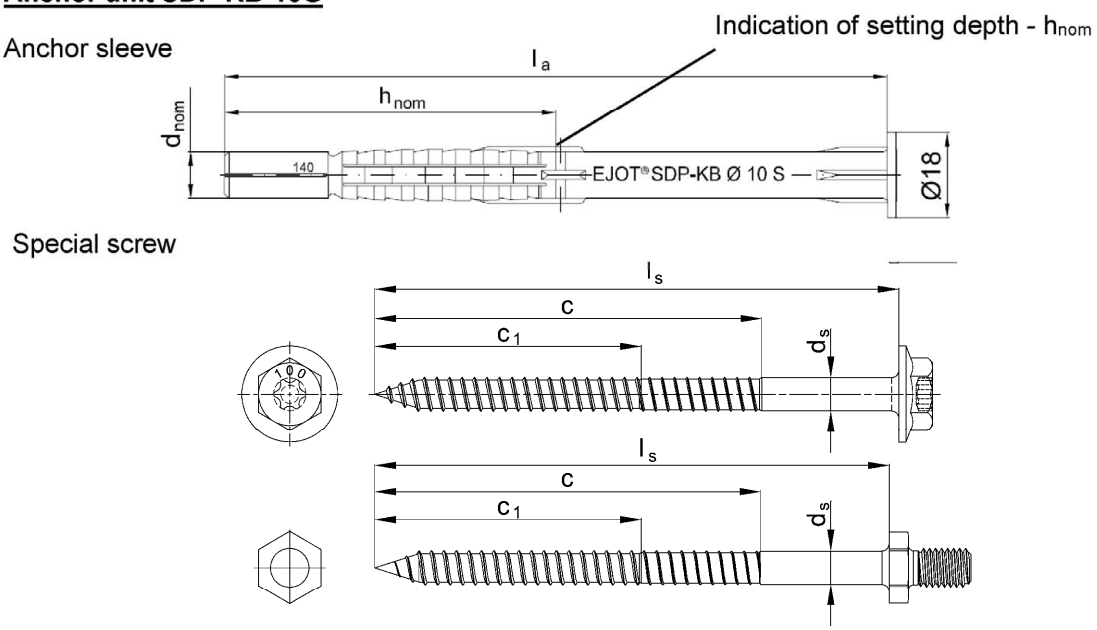


Picture 3: Dowel type countersunk (S)

Marking of anchor sleeve:
Manufacturer, anchor type incl. head type
diameter, length (at the tip of the sleeve)
Example: EJOT SDP-S-10G x 140

Marking of special screw:
Anchor length (e.g. 140)

Anchor unit SDP-KB-10G



Picture 4: Dowel type collar head (KB)

Marking of anchor sleeve:
Manufacturer, anchor type incl. head type
diameter, length (marking at the tip of the sleeve)
Example: EJOT SDP-KB-10G x 140

Marking of special screw:
Anchor length (e.g. 140)

EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G	Annex A 2
Product description Anchor types, marking of anchor sleeve and special screw	

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Product designation key

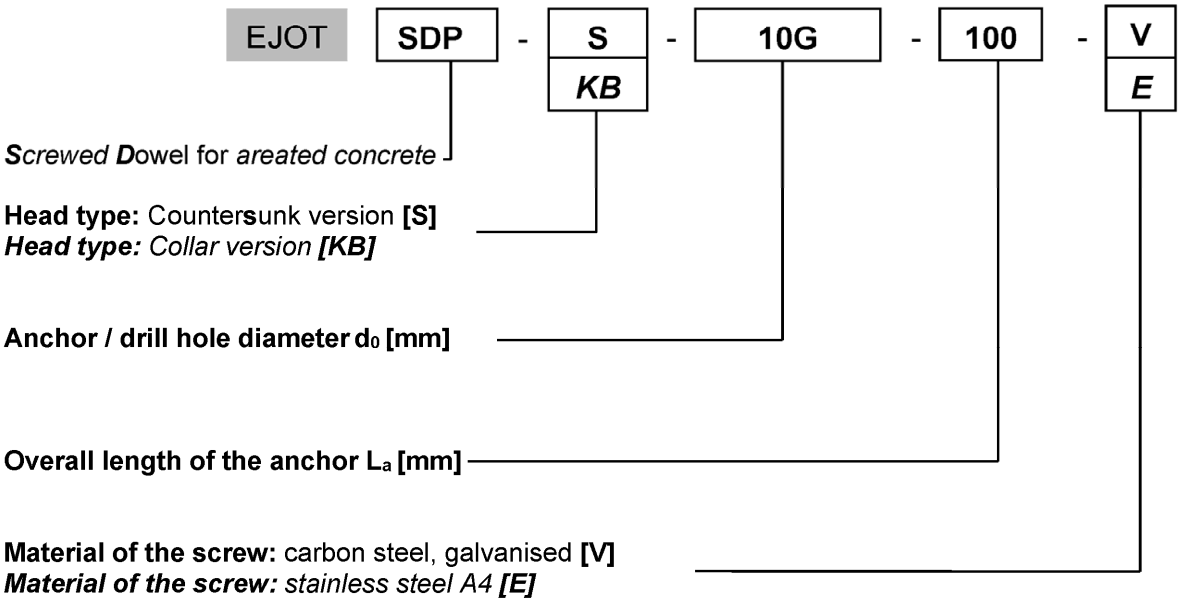

Table 1: Dimensions [mm]

Anchor type	Anchor sleeve							Special screw		
	Farbe	d_{nom}	h_{nom}	min t_{fix}	max t_{fix}	min l_a	max l_a	d_s	c_1	c
SDP-KB-10G	orange	10	70	10	150	80	220	7,0	55	80
SDP-S-10G	orange	10	70	10	150	80	220	7,0	55	80

(Designations: see Annex A 2)

Table 2: Material

Element	Material
Anchor sleeve	Polyamide PA6, colour see Table A3.1
Special screw	Carbon steel, galvanized > 5 µm in accordance with EN ISO 4042:2018
	Carbon steel, galvanized > 5 µm 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 SDP-S-10G and EJOT / SORMAT SDP-KB-10G

Product description
Product designation key, dimensions, material

Annex A 3

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Specifications of intended use

Anchorage is subject to:
- Static and quasi-static loads
- Redundant non-structural systems

Base materials:
- Autoclaved aerated concrete blocks as per EN 771-4:2011+ A1:2015 (base material group d)
- For other base materials of the base material group d the characteristic resistance of the anchor may be determined by job site tests in accordance with TR 051:2018-04.

Temperature Range:
- 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 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. Therefor 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 the 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 rotary drilling for base material group 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°C to +40°C
- Exposure to UV due to solar radiation of anchor not protected ≤ 6 weeks
- No ingress of water in the borehole at temperatures < 0 °C.

EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G	Annex B 1
Intended use Specifications	

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Table 3: Installation parameters

Anchor type			**SDP-KB-10G SDP-S-10G**
Base material group[1)]			d
Drill hole diameter	d_0 [mm]	=	10
Cutting diameter of drill bit	d_{cut} [mm]	≤	10,45
Depth of the drill hole to deepest point	h_1 [mm]	≥	80
Overall plastic anchor embedment depth	h_{nom} [mm]	≥	70
Diameter of the clearance hole in the fixture	d_f [mm]	≤	10,5
Minimum installation temperature	[°C]		-10
Temperature range (b)	[°C]		+50 till +80

[1)] Base material group: a = concrete, b = solid masonry, c = hollow or perforated masonry, d = autoclaved aerated concrete

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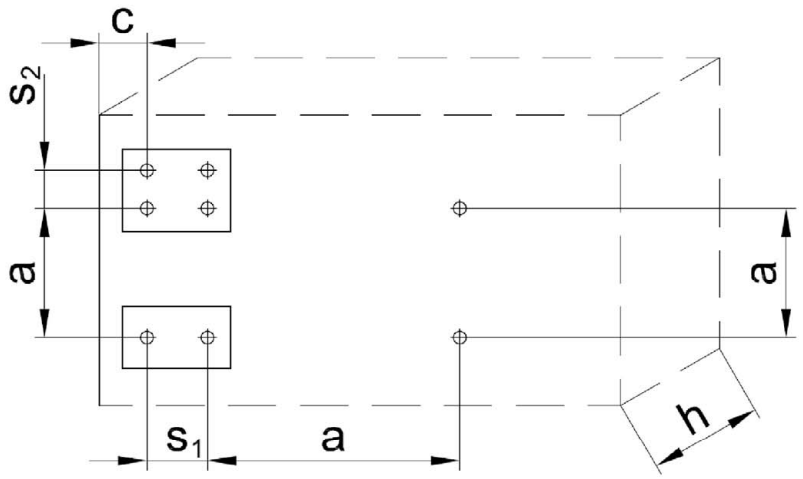
Table 4: Minimum member thickness, spacing and edge distance in autoclaved aerated concrete (base material group d)

SDP-10G		$f_{ck} \geq 2$ N/mm²	$f_{ck} \geq 6$ N/mm²
Single anchor			
Overall plastic anchor embedment depth	h_{nom} [mm]	70	
Minimum member thickness	h_{min} [mm]	115	175
Minimum edge distance	c_{min} [mm]	100	120
Minimum spacing	a_{min} [mm]	250	
Anchor group			
Minimum member thickness	h_{min} [mm]	115	175
Minimum edge distance	$c_{1,min}$ [mm]	100	120
Minimum edge distance (perpendicular to $c_{1,min}$)	$c_{2,min}$ [mm]	100	130
Minimum spacing perpendicular to free edge	$s_{1,min}$ [mm]	80	95
Minimum spacing parallel to free edge	$s_{2,min}$ [mm]	80	95

Scheme of spacing and edge distances in autoclaved aerated concrete



h = member thickness
c = edge distance
a = spacing between anchor groups
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 SDP-S-10G and EJOT / SORMAT SDP-KB-10G	**Annex B 3**
Intended use Minimum member thickness, spacing and edge distance in autoclaved aerated concrete	

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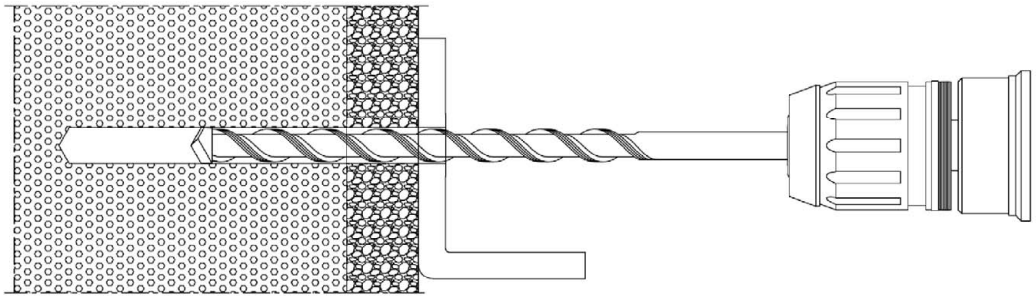
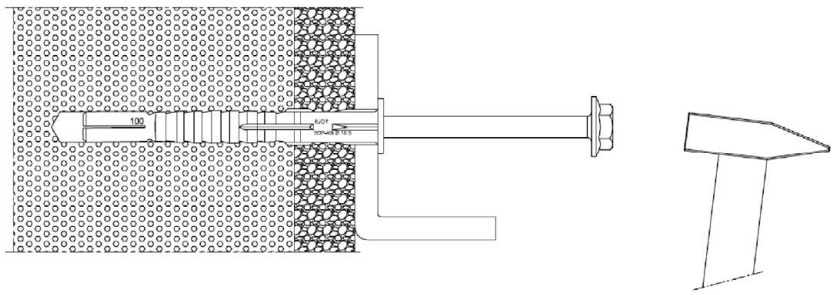
Installation instructions
(exemplary for the fixing of a pre-drilled metal attachment part)

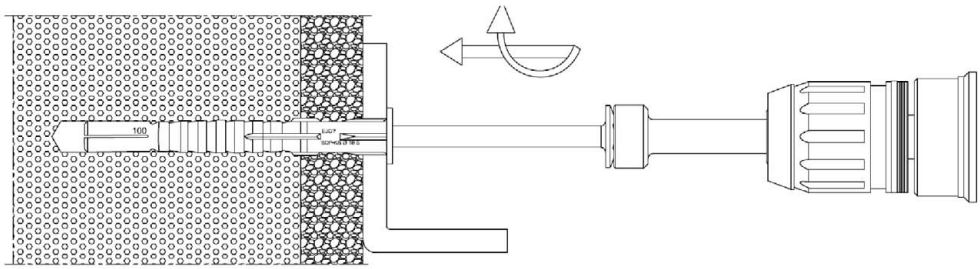
1. Drill the hole ø 10 mm using the drill method described in Annex C



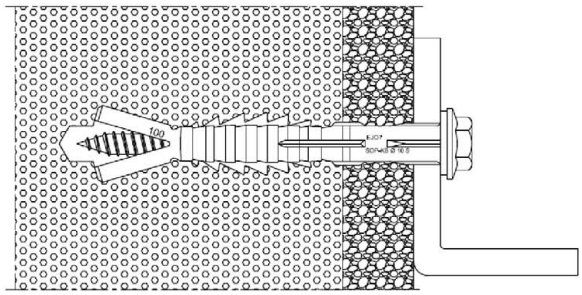
2. Cleaning of the hole
   Insert the assembled anchor (screw and sleeve) using a hammer, until the plastic sleeve is flush with surface of fixture



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



4. Correctly installed anchor



EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G	Annex B 4
Intended use Installation instructions	

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Table 5: Characteristic resistance of the screw (base material group d)

Anchor type	**SDP-10G**	
Material	Steel, galvanized	Stainless steel A4
Characteristic tension resistance $N_{Rk,s}$ [kN]	18,7	21,8
Partial safety factor γ_{Ms} 1)	*1,5*	*1,87*
Characteristic shear resistance $V_{Rk,s}$ [kN]	9,4	10,9
Characteristic bending moment $M_{Rk,s}$ [Nm]	17,7	20,6
Partial safety factor γ_{Ms} 1)	*1,5*	*1,87*

Table 6: Characteristic resistance F_{Rk} 2) use in autoclaved aerated concrete

Anchor type	**SDP-10G**	
Compressive strength for autoclaved aerated concrete as per EN 771-4:2011+ A1:2015	$f_{ck} \geq 2$ N/mm²	$f_{ck} \geq 6$ N/mm²
Characteristic resistance F_{Rk} 3) [kN]	0,75	3,0
Partial safety factor γ_{MAAC} 1)	*2,0*	*2,0*

1) In the absence of other national regulations
2) Drilling method = Rotary drilling
3) Characteristic load-bearing capacity 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 4.

Table 7: Displacements 1) under tension and shear loads (base material group d)

Anchor type	**Displacements under tension**			**Displacements under shear**		
	F = N [kN]	**δ_{N0} [mm]**	**$\delta_{N\infty}$ [mm]**	**F = V [kN]**	**δ_{V0} [mm]**	**$\delta_{V\infty}$ [mm]**
SDP-10G	0,27	0,18	0,36	0,27	0,54	0,81

1) Intermediate values can be interpolated

EJOT / SORMAT SDP-S-10G and EJOT / SORMAT SDP-KB-10G

Performance
Characteristic resistance, displacements under tension and shear loads

Annex C 1