

Allgemeine Bauartgenehmigung

Eine vom Bund und den Ländern gemeinsam
getragene Anstalt des öffentlichen Rechts

**Zulassungs- und Genehmigungsstelle
für Bauprodukte und Bauarten**

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vom: **10 July 2025**

bis: **10 July 2030**

Antragsteller:

EJOT SE & Co KG

Market Unit Construction

In der Stockwiese 35

57334 Bad Laasphe

Gegenstand dieses Bescheides:

EJOT SDF-10V and EJOT SDF-10H for use as single fixing in concrete

The above-mentioned subject of regulation is hereby approved by the building authorities. This decision comprises six pages and nine annexes.
The product was first approved on 9 July 2020.

DIBt

I GENERAL PROVISIONS

- 1 The general type approval verifies the applicability of the subject matter of the regulation within the meaning of the state building regulations.
- 2 This decision does not replace the authorisations, approvals and certificates required by law for the implementation of building projects.
- 3 This decision is issued without prejudice to the rights of third parties, in particular private property rights.
- 4 Notwithstanding any further provisions in the "Special Provisions", the user of the subject matter of the regulation must be provided with copies of this notice. In addition, the user of the subject matter of the regulation must be informed that this notice must be available at the point of application. Copies must also be made available to the authorities involved on request.
- 5 This notice may only be reproduced in full. Publication of extracts requires the approval of Deutsches Institut für Bautechnik. Texts and drawings of promotional literature may not contradict this notice; translations must contain the note "Translation of the original German version not approved by Deutsches Institut für Bautechnik".
- 6 This notice is issued on a revocable basis. The provisions may be supplemented and amended at a later date, in particular if new technical findings make this necessary.
- 7 This decision refers to the information and documents submitted by the applicant in the approval procedure regarding the subject matter of the regulation. Any changes to these authorisation bases are not covered by this decision and must be disclosed to Deutsches Institut für Bautechnik without delay.

II SPECIAL PROVISIONS

1 Subject matter and scope of application

This general construction technique approval regulates the planning, design and execution of anchorages with EJOT SDF-10V with a total length of the plastic anchor in the base material $h_{\text{nom},2} = 50$ mm and EJOT SDF-10H with a total length of the plastic anchor in the base material $h_{\text{nom}} = 70$ mm according to ETA-10/0305 as single anchorage in concrete.

Annex 1 shows the anchor in installed condition.

The anchorages may be used under static and quasi-static loading in reinforced and unreinforced normal weight concrete of strength class C20/25 minimum and C50/60 maximum according to DIN EN 206-1.

They may be used in cracked and non-cracked concrete. They may be used for the following temperature ranges:

Temperature range (a): with a maximum short-term temperature of +50 °C and a maximum long-term temperature of +30 °C, e.g. in the interior of residential buildings.

Temperature range (b): with a maximum short-term temperature of +80 °C and a maximum long-term temperature of +50 °C, e.g. outdoors.

Anchorages with special screws made of galvanised steel:

The anchorages may be used in components under dry indoor conditions.

The anchors may also be used outdoors if, after careful installation of the fixing unit, the area of the screw head is protected against moisture and driving rain in such a way that moisture cannot penetrate the anchor shaft. For this purpose, a façade cladding or a ventilated façade must be attached in front of the screw head and the screw head itself must be coated with a soft plastic, permanently elastic bitumen-oil combination coating (e.g. automotive underbody or cavity protection).

Anchorages with special screws made of stainless steel (1.4401, 1.4571, 1.4578 or 1.4362):

The anchorages may be used in accordance with the corrosion resistance class CRC III of the special screw in accordance with DIN EN 1993-1-4 in conjunction with DIN EN 1993-1-4/NA.

2 Provisions for planning, dimensioning and execution

2.1 Planning

The anchorages must be planned by an engineer. Verifiable calculations and design drawings must be prepared, taking into account the loads to be anchored, the component dimensions and tolerances.

2.2 Dimensioning

The anchorages must be designed in accordance with DIN EN 1992-4, unless otherwise specified below.

The characteristic anchor values for the verification according to design method A are summarised in the tables in Annexes 6 to 8. For combined tension and shear loads, the interaction condition according to DIN EN 1992-4, equation (7.56) shall be applied.

The characteristic anchor values for the verification according to design method B are summarised in Annex 9. For anchor groups under shear loading at the edge, only the most unfavourable anchor or the two most unfavourably located anchors at the edge or corner of the component may be considered.

For the diameter of the through hole in the fixture, Annex 3, Table 3 of this decision is decisive.

If the specified through hole in the component to be connected cannot be maintained, special measures must be taken due to the risk of pull-through (e.g. reinforced washer). The through hole must not exceed 12 mm.

Proof of the direct local force transmission into the concrete is provided by the design in accordance with DIN EN 1992-4. The transfer of the loads to be anchored in the component must be verified.

Additional loads that may occur in the anchor, in the component to be connected or in the component in which the anchor is anchored due to impeded deformation (e.g. due to temperature changes) shall be taken into account.

The expected displacements are given in Annex 6, 7 and 8, Table 6, 8 and 10. They apply to the associated loads specified in the tables.

2.3 Execution

2.3.1 General information

To confirm that the design complies with the general design approval, the contractor must submit a declaration of conformity in accordance with §§ 16a Para. 5 in conjunction with 21 Para. 2 MBO.

The anchor to be anchored must be installed in accordance with the construction drawings prepared in accordance with Section 2.1 and the installation instructions in accordance with Annex 4. Before the anchor is installed, the concrete strength class must be determined on the basis of the construction documents or by means of strength tests. The concrete strength class must not be lower than C20/25 and must not exceed C50/60.

2.3.2 Drill hole production

In the case of reinforced concrete walls, the position of the drill hole must be coordinated with the reinforcement in such a way that damage to the reinforcement is avoided.

The drill hole must be drilled at right angles to the surface of the anchoring base using a carbide hammer drill.

The nominal drill core diameter and the cutting diameter must comply with the specifications in Annex 3, Table 3.

The masonry drill bits made of carbide must comply with the specifications of the information sheet of the German Institute for Construction Technology and the German Tool Industry Association on the "Characteristic values, requirements and tests of masonry drill bits with carbide cutting bodies used to drill holes for anchor anchors", version January 2002. Compliance with the drill parameters must be verified in accordance with section 5 of the data sheet.

The drilling dust must be removed from the drill hole.

If a hole is drilled incorrectly, a new hole must be drilled at a distance of at least 2 x the depth of the incorrect hole. When placing the anchor closer than 2 x the depth of the faulty hole, the faulty hole must be filled with a high-strength, low-shrinkage mortar and must not lie in the direction of the force.

2.3.3 Setting the anchor

Tolerances of the anchoring base must be equalised in such a way that no unwanted stresses occur when the anchor is installed. The equalisation must be carried out in such a way that the compressive forces can be transferred from the fixture to the base material.

If shims are required to compensate for dimensional inaccuracies in the base material, the anchoring depth of the anchor sleeve must also be observed and the screw-in length of the screw must be ensured.

When screwing in the screw, the temperature of the anchoring base must not be below -10 °C.

It must be possible to insert the pre-assembled anchor into the drill hole with a hand hammer, tapping only lightly, until the edge of the anchor rests against the object to be installed. The screw must be screwed in all the way to the edge of the anchor sleeve so that the tip of the screw penetrates the anchor sleeve.

The anchor is correctly anchored if, after the screw has been fully screwed in, the anchor sleeve neither turns nor can the screw be turned slightly further.

The anchor may only be installed once.

2.3.4 Checking the workmanship

When anchors are being installed, the contractor responsible for installing the anchors or the site manager appointed by him or a competent representative of the site manager must be present on the construction site. He must ensure that the work is carried out properly.

During the installation of the anchors, the site manager or his representative must keep records of the verification of the existing concrete strength class and the proper installation of the anchors. The records must be available on the construction site during the construction period and must be presented to the person in charge of the inspection upon request. Like the delivery notes, they must be kept by the company for at least 5 years after completion of the work.

The following standards, ETA and references are referred to in this general type approval:

- ETA-10/0305 dated 01. 09. 2022 EJOT / SORMAT SDF 10V and EJOT / SORMAT SDF 10H
- DIN EN 206-1:2000 Concrete; Properties, Manufacture, processing and quality certification
- DIN EN 1993-1-4:2015-10 Eurocode 3 - Design and Construction of steel structures
Steel structures - Part 1-4: General design rules and supplementary rules for the application of stainless steels; German version: EN 1993-1-4:2006 + A1:2015
- DIN EN 1993-1-4/NA:2020-11 National Annex - National specified parameters - Eurocode 3 - Design of steel structures - Part 1-4: General design rules and supplementary rules for the application of stainless steels
- DIN EN 1992-4:2019-04 Eurocode 2 - Design of reinforced and prestressed concrete structures
prestressed concrete structures -Part 4: Design of anchorages for fastenings in concrete
- DIN EN ISO 4042:2022-11 Fasteners - Galvanically applied plating systems

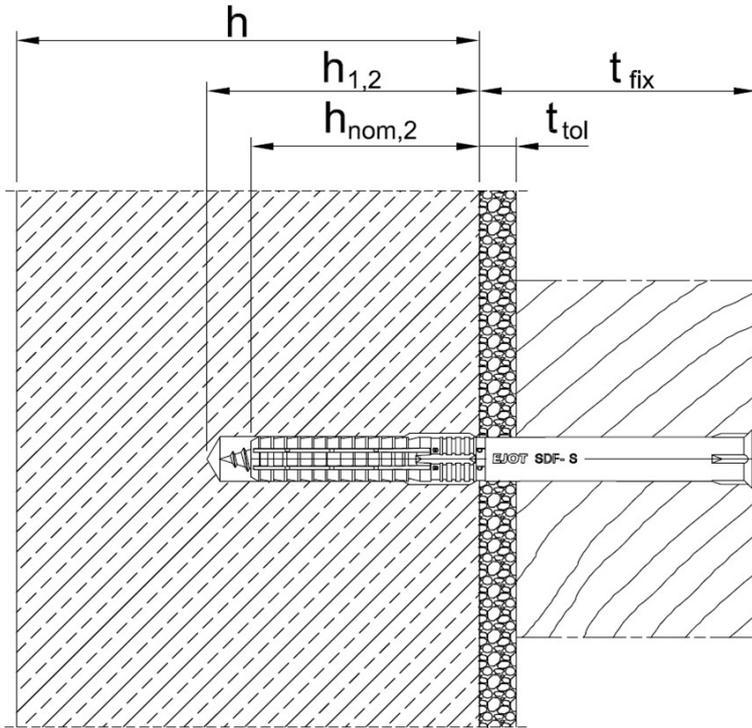
- DIN EN 10088-3:2024-04

Stainless steels - Part 3: Technical delivery conditions for
Semi-finished products, bars, rods, wire rod, drawn wire,
sections and bright products of corrosion resisting steels for
general purposes

Dipl.-Ing. Beatrix Wittstock
Head of Division

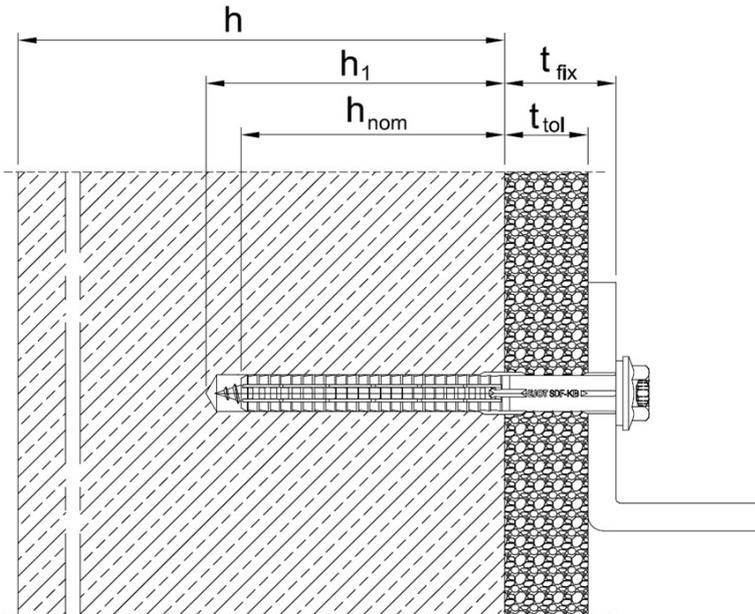
Certified
Aksünger

SDF-10V in installed condition



Legend:
 $h_{nom,2}$: nominal anchorage depth SDF-10V
 h_{nom} : nominal anchoring depth SDF-10H
 $h_{1,2}$: Hole depth SDF-10V h_1 : Hole depth SDF-10H
 h : Component thickness
 t_{fix} : Fastening thickness
 t_{tol} : Tolerance range / non-load-bearing layer

SDF-10H in installed condition

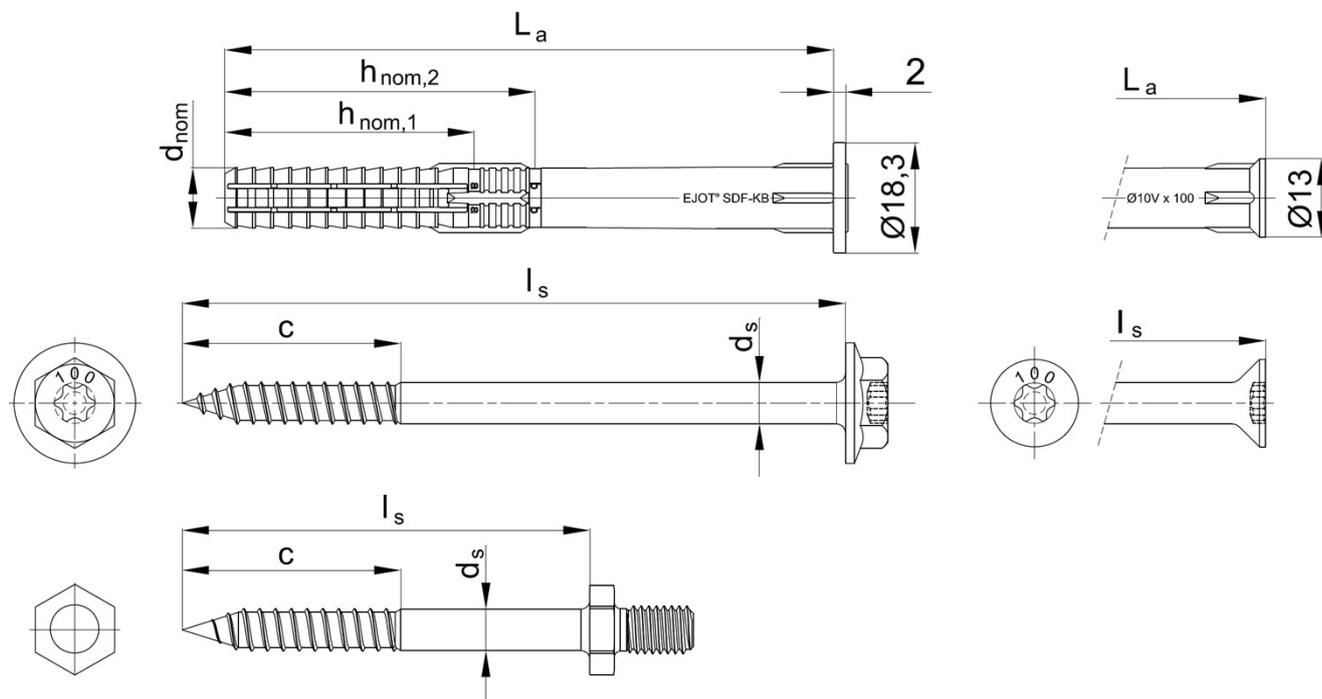


EJOT SDF-10V and EJOT SDF-10H for use as single fixing in concrete

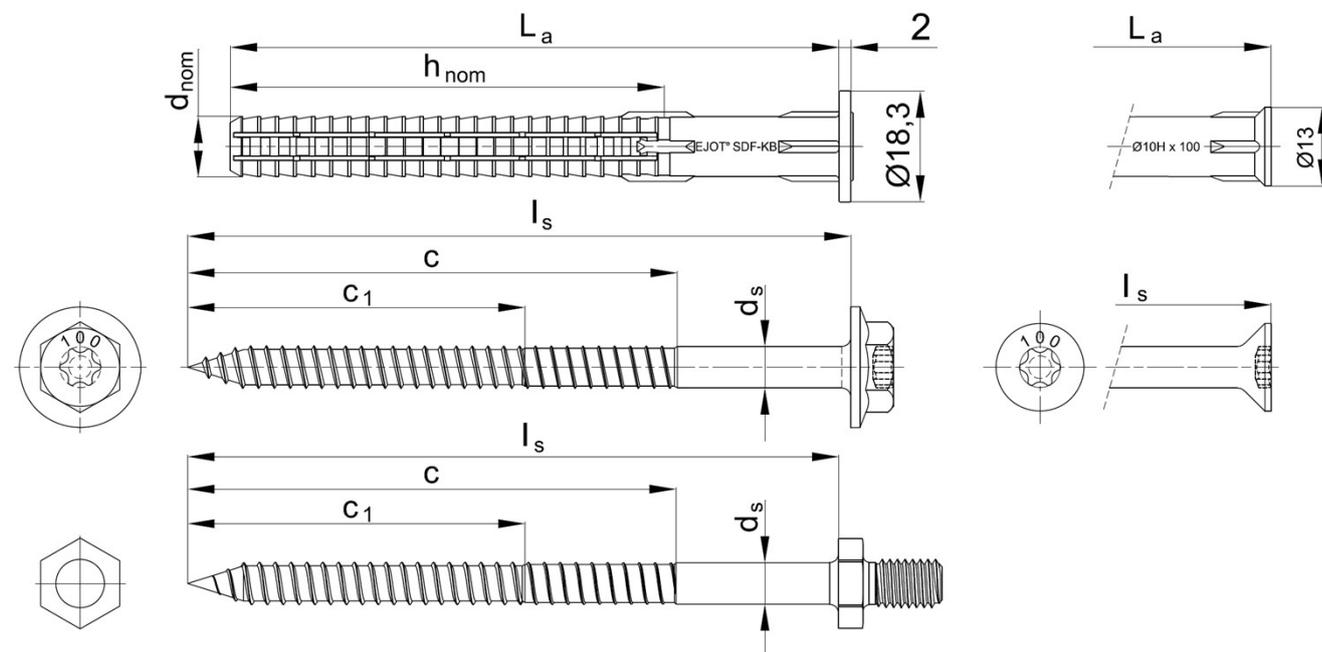
Anchor in installed condition

Annex 1

Dowel sleeves and screws SDF-10V



SDF-10H anchor sleeves and screws



EJOT SDF-10V and EJOT SDF-10H for use as single fixing in concrete

Anchor types and special screw

Appendix 2

Table 1: Anchor dimensions [mm]

Anchor type	Dowel sleeve						Special screw			
	Colour	d _{nom}	h _{nom}	min L _{a1}	min L _{a2}	max L _a	L _s	d _s	C ₁	C
SDF-10V	blue	10	50	50	60	220	L _a + 8.0	7,0	–	35
SDF-10H	orange	10	70	80		220	L _a + 8.0	7,0	55	80

Table 2: Materials

Element	Material
Dowel sleeve	Polyamide PA6
Special screw	Galvanised steel > 5 µm in accordance with DIN EN ISO 4042
	Stainless steel in accordance with DIN EN 10088-3, e.g. 1.4401 / 1.4571 / 1.4578 / 1.4362, strength class ≥ A4-70

Table 3: Installation parameters

Dowel type		SDF-10V	SDF-10H
Nominal drill core diameter	d ₍₀₎ [mm] =	10	10
Cutting diameter of the drill	d _(cut) [mm] ≤	10,45	10,45
Depth of the borehole to the deepest point	h _(1,2) [mm] ≥	60	-
	h ₍₁₎ [mm] ≥	-	80
Total length of the anchor in the anchoring base	h _(nom,2) [mm] ≥	50	-
	h _(nom) [mm] ≥	-	70
Diameter of the through hole in the component to be connected	d _(f) [mm] ≤	10, ⁵¹⁾	10, ⁵¹⁾
Minimum temperature when setting the anchor	[°C]	-10	
Temperature range (c)	[°C]	30 - 50	
Temperature range (b)	[°C]	50 - 80	

¹⁾ d_f ≤ 12 mm if special measures are taken to prevent the anchor from pulling through.

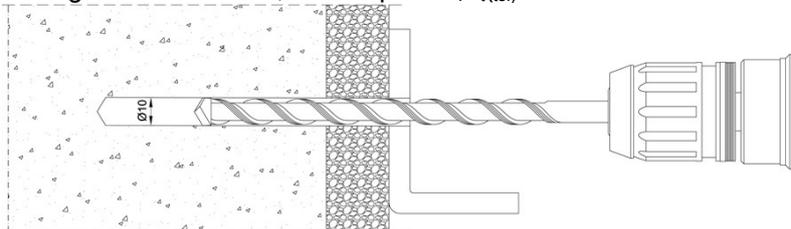
EJOT SDF-10V and EJOT SDF-10H for use as single fixing in concrete

Anchor dimensions, materials and installation parameters

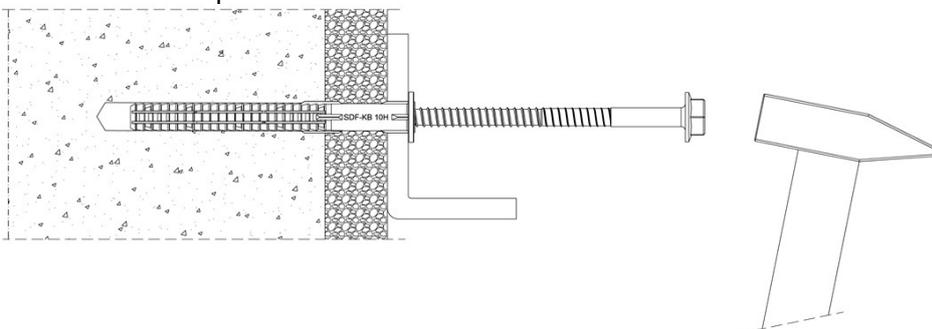
Appendix 3

Installation instructions

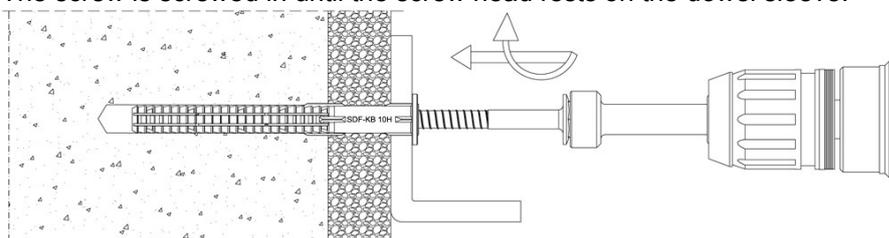
1. Drilling a hole $\varnothing 10$ mm, hole depth = $h_1 + t_{(tol)}$



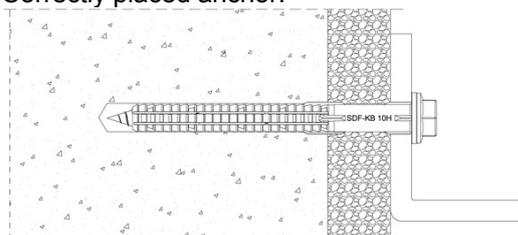
2. Cleaning the drill hole
Drive in the fastening unit (screw and dowel sleeve) with a hammer until the dowel sleeve is flush with the surface of the part to be fastened.



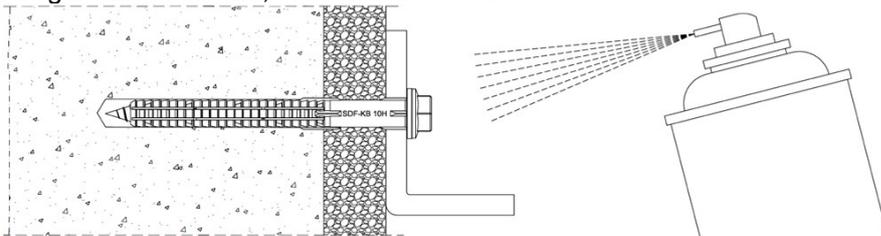
3. The screw is screwed in until the screw head rests on the dowel sleeve.



4. Correctly placed anchor.



5. For galvanised screws, coat the screw head



EJOT SDF-10V and EJOT SDF-10H for use as single fixings in concrete

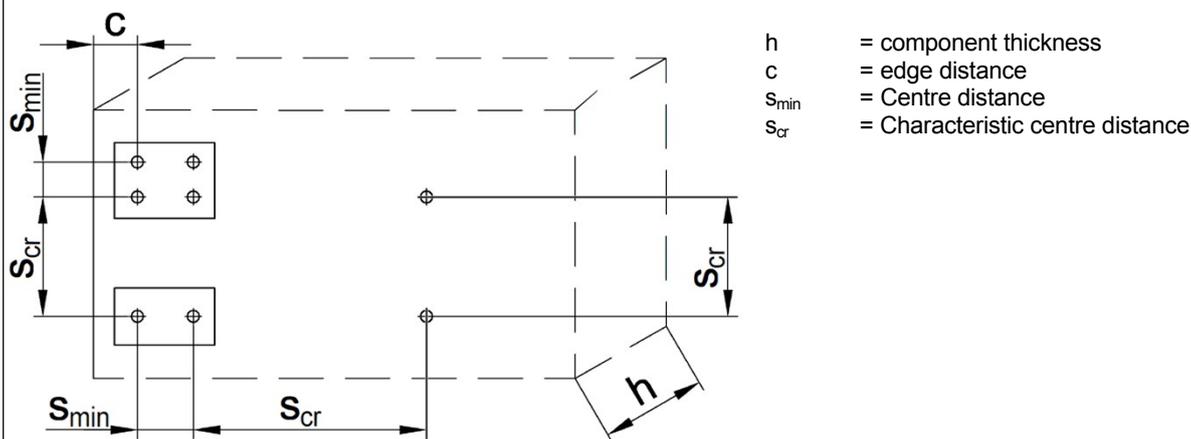
Installation instructions

Appendix 4

Table 4: Minimum component thickness, minimum centre and edge distances for cracked and non-cracked concrete

Anchor type		Minimum component thickness h_{min} [mm]	Minimum edge distance c_{min} [mm]	Minimum centre distance s_{min} [mm]
SDF-10V	Concrete C20/25 up to C50/60	100	50	60
SDF-10H			50	60

Diagram of centre and edge distances in concrete



EJOT SDF-10V and EJOT SDF-10H for use as single fastening in concrete

Minimum component thickness, minimum centre and edge distance

Appendix 5

Characteristic values for design method A

The anchor anchorage shall be designed in accordance with DIN EN 1992-4.

Table 5: Characteristic values of the tensile load-bearing capacity

Anchor type		SDF-10V	
		Steel, galvanised	Stainless steel
Material of the special screw		Steel, galvanised	Stainless steel
Steel failure			
Characteristic tensile load capacity	$N_{(Rk,s)}$ [kN]	22,2	25,9
Partial safety factor	γ_{Ms} [-]	1,5	1,87
Pull out			
Characteristic load-bearing capacity in cracked concrete C20/25 - C50/60			
Temperature range I: 30°C/50°C $N_{(Rk,p)}$ [kN]		3,00	
Temperature range II: 50°C/80°C $N_{(Rk,p)}$ [kN]		2,50	
Characteristic load-bearing capacity in non-cracked concrete C20/25 - C50/60			
Temperature range I: 30°C/50°C $N_{(Rk,p)}$ [kN]		3,50	
Temperature range II: 50°C/80°C $N_{(Rk,p)}$ [kN]		3,00	
Partial safety factor	γ_{Mp} [-]	2,16	
Concrete excavation			
Effective anchoring depth	in cracked concrete	h_{ef} [mm]	(30) 1)
	in non-cracked concrete	h_{ef} [mm]	(30) 1)
Characteristic centre distance	$s_{(cr,N)}$ [mm]	3 x h_{ef}	
Characteristic edge distance	$c_{(cr,N)}$ [mm]	1.5 x h_{ef}	
Partial safety factor	γ_{Mc} [-]	2,16	
Columns			
Effective anchoring depth	in cracked concrete	h_{ef} [mm]	(30) 1)
	in non-cracked concrete	h_{ef} [mm]	(30) 1)
Characteristic centre distance [mm]	$s_{(cr,sp)}$	160	
		80	
Characteristic edge distance [mm]	$c_{(cr,sp)}$	2,16	
Partial safety factor	$\gamma_{(Msp)}$ [-]		

1) Calculated value from $N_{Rk,p}$

Table 6: Displacements under tensile load

Dowel type		SDF-10V		
		N [kN]	δ_{NO} [mm]	$\delta_{n\infty}$ [mm]
In cracked concrete	Temperature range I: 30°C/50°C	1,14	0,15	0,37
	Temperature range II: 50°C/80°C	0,93	0,14	0,37
In non-cracked concrete	Temperature range I: 30°C/50°C	1,50	0,15	0,37
	Temperature range II: 50°C/80°C	1,29	0,15	0,37

EJOT SDF-10V and EJOT SDF-10H for use as single fastening in concrete

Design method A

Characteristic values of tensile load capacity, displacements under load for the SDF-10V

Appendix 6

Characteristic values for design method A

Design of the anchor anchorage shall be carried out according to DIN EN 1992-4.

Table 7: Characteristic values of the tension resistance

Anchor type		SDF-10H	
Material of the special screw		Steel, galvanised	Stainless steel
Steel failure			
Characteristic tensile strength	$N_{(Rk,s)}$ [kN]	18,7	21,8
Partial safety factor	γ_{Ms} [-]	1,5	1,87
Pull out			
Characteristic load-bearing capacity in cracked concrete C20/25 - C50/60			
Temperature range I: 30°C/50°C $N_{(Rk,p)}$ [kN]		3,50	
Temperature range II: 50°C/80°C $N_{(Rk,p)}$ [kN]		3,00	
Characteristic load-bearing capacity in non-cracked concrete C20/25 - C50/60			
Temperature range I: 30°C/50°C $N_{(Rk,p)}$ [kN]		3,50	
Temperature range II: 50°C/80°C $N_{(Rk,p)}$ [kN]		3,50	
Partial safety factor	γ_{Mp} [-]	2,52	
Concrete excavation			
Effective anchoring depth	in cracked concrete	h_{ef} [mm]	(40) ¹⁾
	in non-cracked concrete	h_{ef} [mm]	(40) ¹⁾
Characteristic centre distance	$s_{(cr,N)}$ [mm]	3 x h_{ef}	
Characteristic edge distance	$c_{(cr,N)}$ [mm]	1.5 x h_{ef}	
Partial safety factor	γ_{Mc} [-]	2,52	
Columns			
Effective anchoring depth	in cracked concrete	h_{ef} [mm]	(40) ¹⁾
	in non-cracked concrete	h_{ef} [mm]	(40) ¹⁾
Characteristic centre distance [mm]	$s_{(cr,sp)}$	160	
		80	
Characteristic edge distance [mm]	$c_{(cr,sp)}$	2,52	
Partial safety factor	$\gamma_{(Msp)}$ [-]		

²⁾ Calculated value from $N_{Rk,p}$

Table 8: Displacements under tensile load

Dowel type		SDF-10H		
Load and associated short-term and long-term displacement		N [kN]	δ_{NO} [mm]	$\delta_{n\infty}$ [mm]
In cracked concrete	Temperature range I: 30°C/50°C	1,38	0,19	0,44
	Temperature range II: 50°C/80°C	1,33	0,19	0,44
In non-cracked concrete	Temperature range I: 30°C/50°C	1,39	0,15	0,44
	Temperature range II: 50°C/80°C	1,36	0,15	0,44

EJOT SDF-10V and EJOT SDF-10H for use as single fastening in concrete

Design method A

Characteristic values of tensile load capacity, displacements under load for the SDF-10H

Appendix 7

Table 9: Characteristic values of the transverse load-bearing capacity

Dowel type		SDF-10V		SDF-10H	
		Galvanised steel	Stainless steel	Galvanised steel	Stainless steel
Material of the anchor screw					
Steel failure					
Shear load without lever arm					
Characteristic shear load capacity	$V_{Rk,s}$ [kN]	11,1	12,9	9,4	10,9
Partial safety factor	γ_{Ms} [-]	1,25	1,56	1,25	1,56
Shear load with lever arm					
Characteristic bending moment	$M^0_{Rk,s}$ [Nm]	22,8	26,6	17,7	20,6
Partial safety factor	γ_{Ms} [-]	1,25	1,56	1,25	1,56
Concrete break-out on the side facing away from the load					
Factor according to DIN EN 1992-4, section 7.2.2.4	k_B [-]	1,0	1,0	2,0	2,0
Partial safety factor	γ_{Mc} [-]	2,16	2,16	2,52	2,52
Concrete edge breakage					
Effective dowel length with shear load	l_f [mm]	50	50	70	70
Characteristic outside diameter	d_{nom} [mm]	10	10	10	10
Partial safety factor	γ_{Mc} [-]	2,16	2,16	2,52	2,52

Table 10: Displacement under shear load

Dowel type			SDF-10V			SDF-10H		
			V [kN]	δ_{vo} [mm]	$\delta_{v\infty}$ [mm]	V [kN]	δ_{vo} [mm]	$\delta_{v\infty}$ [mm]
Load and associated short-term and long-term displacement								
In cracked concrete	Temperature range I: 30°C/50°C		1,19	2,84	4,26	3,95	4,38 ¹⁾	6,57
	Temperature range II: 50°C/80°C		1,19	2,84	4,26	3,95	4,38 ¹⁾	6,57
In non-cracked concrete	Temperature range I: 30°C/50°C		1,69	0,41	0,62	5,00	1, ¹⁴²⁾	1,71
	Temperature range II: 50°C/80°C		1,69	0,41	0,62	5,00	1, ¹⁴²⁾	1,71

¹⁾ Transverse tensile test with diameter of the through hole in the attachment $d_f = 12.0$ mm

²⁾ Transverse tensile test with diameter of the through hole in the attachment $d_f = 10.5$ mm, for $10.5 \text{ mm} < d_f \leq 12.0$ mm, the deformations in cracked concrete must be assumed

EJOT SDF-10V and EJOT SDF-10H for use as single fastening in concrete

Design method A
Characteristic values of shear resistance, displacement under shear load

Appendix 8

Anchor characteristic values for design method B

The anchor anchorage must be designed in accordance with DIN EN 1992-4.

Table 11: Design values for design method B

Anchor type		SDF-10V	SDF-10H
Material of the anchor screw		Steel, galvanised and stainless steel	Galvanised steel and stainless steel
Rated value of the load-bearing capacity of an anchor for centric tension, shear load and diagonal tension at any angle in cracked and non-cracked concrete with strength class C20/25 - C50/60			
Temperature range I: 30°C/50°C	F_{Rd}^0 [kN]	1,4	1,4
Temperature range II: 50°C/80°C	F_{Rd}^0 [kN]	1,2	1,2
Centre distance	s_{cr} [mm]	160	160
Edge distance	c_{cr} [mm]	80	80
Minimum component thickness	h_{min} [mm]	100	100
Minimum centre distance	s_{min} [mm]	60	60
Minimum edge distance	c_{min} [mm]	50	50

EJOT SDF-10V and EJOT SDF-10H for use as single fixing in concrete

Design method B
Anchor parameters

Appendix 9