

IZJAVA O SVOJSTVIMA

DoP 0371

za fischer vijak za beton ULTRACUT FBS II R (Mehaničko sidro za uporabu u betonu)

HR

- | | |
|---|---|
| 1. <u>Jedinstveni identifikator tipa proizvoda:</u> | DoP 0371 |
| 2. <u>Namjena korištenja:</u> | Postinstalirano sidro za korištenje u betonu za redundantne nekonstrukcijske sustave, vidi dodatak, posebno priloge B1-B4. |
| 3. <u>Proizvođač:</u> | fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Njemačka |
| 4. <u>Ovlašteni zastupnik:</u> | – |
| 5. <u>Sistem/i od AVCP:</u> | 2+ |

- | | |
|--|--|
| 6. <u>Europski dokument za ocjenjivanje:</u> | EAD 330747-00-0601 |
| Europska tehnička ocjena: | ETA-24/0973; 2025-01-08 |
| Tijelo za tehničko ocjenjivanje: | DIBt- Deutsches Institut für Bautechnik |
| Prijavljeno tijelo/prijavljena tijela: | 2873 TU Darmstadt |

7. Objavljena svojstva:

Sigurnost u uporabi (BWR 4)

Karakteristični otpor na opterećenje (statičko i kvazi-statičko opterećenje):

- Otpornost na lom čelika: vidi dodatak, posebno prilog C1 $E_s = 210\,000\text{ MPa}$
Otpornost na čupanje: vidi dodatak, posebno prilog C1
Otpornost na lom betona: vidi dodatak, posebno prilog C1
Robusnost: vidi dodatak, posebno prilog C1
Minimalna udaljenost od ruba i razmak: vidi dodatak, posebno prilog C2
Udaljenost ruba kako bi se spriječilo cijepanje pod opterećenjem: vidi dodatak, posebno prilog C1

Karakteristični otpor na smicanje (statičko i kvazi-statičko opterećenje):

- Otpornost na lom čelika (posmično opterećenje): vidi dodatak, posebno prilog C1
Otpornost na otkazivanje: vidi dodatak, posebno prilog C1
Otpornost na lom ruba betona: vidi dodatak, posebno prilog C1

Karakteristična otpornost za sve smjerove opterećenja i načine sloma za pojednostavljeni dizajn:

Karakteristični otpor: NPD

Trajnost:

Trajnost: vidi dodatak, posebno priloge A2, B1

Sigurnost u slučaju požara (BWR 2)

Reakcija na vatru: Klasa (A1)

Otpornost na vatru:

- Vatrootpornost na lom čelika (vlačna sila): vidi dodatak, posebno prilog C2
Vatrootpornost na čupanje (vlačna sila): vidi dodatak, posebno prilog C2
Vatrootpornost na lom čelika (posmik): vidi dodatak, posebno prilog C2

8. Odgovarajuća tehnička dokumentacija i/ili specifična tehnička dokumentacija: **–**

Svojstva gore navedenog proizvoda su u skladu sa skupom izjava o svojstvima. Ova izjava o svojstvima se izdaje, u skladu sa Europskom regulativom (EU) Br. 305/2011, pod punom odgovornošću gore navedenog proizvođača.

Za proizvođača i u njegovo ime potpisao:



Dr. Ronald Mihala, Voditelj razvoja i upravljanja proizvodima
Tumlingen, 2025-01-22



Dieter Pfaff, Voditelj Međunarodne federacije za proizvodnju i upravljanje kvalitetom

Ovaj DoP je pripremljen u različitim jezicima. U slučaju da postoji spor u tumačenju, engleska verzija će uvijek prevladati.

U aneksu se nalaze dodatni podaci na engleskom jeziku, koji ne podliježu zakonskoj regulativi.

Translation guidance Essential Characteristics and Performance Parameters for Annexes

Smjernice za prijevod. Bitne karakteristike i parametri izvedbe za dodatke

Safety in case of fire (BWR 2)		
Sigurnost u slučaju požara (BWR 2)		
1	Reaction to fire: Reakcija na vatru:	Class Klasa (A1)
Resistance to fire: Otpornost na vatru:		
2	Fire resistance to steel failure (tension load): Vatrootpornost na lom čelika (vlačna sila):	$N_{RK,s,fi}$ [kN]
3	Fire resistance to pull-out failure (tension load): Vatrootpornost na čupanje (vlačna sila):	$N_{RK,p,fi}$ [kN]
4	Fire resistance to steel failure (shear load): Vatrootpornost na lom čelika (posmik):	$V_{RK,s,fi}$ [kN], $M^0_{RK,s,fi}$ [Nm]
Safety and accessibility in use (BWR 4)		
Sigurnost u uporabi (BWR 4)		
Characteristic resistance to tension load (static and quasi-static loading): Karakteristični otpor na opterećenje (statičko i kvazi-statičko opterećenje):		
6	Resistance to steel failure: Otpornost na lom čelika:	$N_{RK,s}$ [kN], E_s [N/mm ²]
7	Resistance to pull- out failure: Otpornost na čupanje:	$N_{RK,p}$ [kN], ψ_c , $T_{RK,p}$ [N/mm ²]
8	Resistance to concrete cone failure: Otpornost na lom betona:	$k_{cr,N}$, $k_{ucr,N}$ [-], h_{ef} , $c_{cr,N}$ [mm]
9	Robustness: Robusnost:	γ_{inst} [-]
10	Minimum edge distance and spacing: Minimalna udaljenost od ruba i razmak:	c_{min} , s_{min} , h_{min} [mm]
11	Edge distance to prevent splitting under load: Udaljenost ruba kako bi se spriječilo cijepanje pod opterećenjem:	$N^0_{RK,sp}$ [kN], $c_{cr,sp}$ [mm]
Characteristic resistance to shear load (static and quasi-static loading): Karakteristični otpor na smicanje (statičko i kvazi-statičko opterećenje):		
12	Resistance to steel failure (shear load): Otpornost na lom čelika (posmično opterećenje):	$V_{RK,s}$ [kN], $M^0_{RK,s}$ [Nm], k_7 [-]
13	Resistance to pry-out failure: Otpornost na otkazivanje:	k_8 [-]
14	Resistance to concrete edge failure: Otpornost na lom ruba betona:	d_{nom} , l_f [mm]
Characteristic resistance for all load directions and modes of failure for simplified design: Karakteristična otpornost za sve smjerove opterećenja i načine sloma za pojednostavljeni dizajn:		
15	Characteristic resistance: Karakteristični otpor:	F^0_{RK} [kN], s_{cr} , c_{cr} [mm]
Durability: Trajnost:		
16	Durability: Trajnost:	Description

II SPECIFIC PART OF THE EUROPEAN TECHNICAL ASSESSMENT

1 Technical description of product and intended use

Technical description of the product

fischer concrete screw UltraCut FBS II R is a concrete screw made of stainless steel. The anchor is installed in a drilled hole and anchored by mechanical interlock.

An illustration of the product is given in Annex A.

The characteristic material values, dimensions and tolerances of the anchors not indicated in Annexes shall correspond to the respective values laid down in the technical documentation of this European Technical Assessment.

The anchors are intended to be used with embedment depth given in Annex B, Table B2.1. The intended use specifications of the product are detailed in the Annex B1.

2 Specification of the intended use in accordance with the applicable European Assessment Document (hereinafter EAD)

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 provisions made in this European Technical Assessment are based on an assumed intended working life of the anchor of 50 years.

The indications given on the working life cannot be interpreted as a guarantee given by the producer or Assessment Body, 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 Characteristics of product

Safety in case of fire (BWR 2):

The essential characteristics are detailed in the Annex C2.

Hygiene, health and the environment (BWR3)

No performance assessed

Safety and accessibility in use (BWR4)

The essential characteristics are detailed in the Annex C1 and C2.

Durability:

See annex B1.

3.2 Methods of assessment

The assessment of fitness of the anchor for the intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Works Requirement 2, 3 and 4 has been made in accordance with EAD 330747-00-0601 - Fasteners for use in concrete in redundant for non-structural systems.

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

4.1 AVCP system

According to the decision 97/161/EC of the European Commission, the system(s) of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No. 305/2011) is 2+.

Product in the installed condition

Installed condition in normal weight concrete

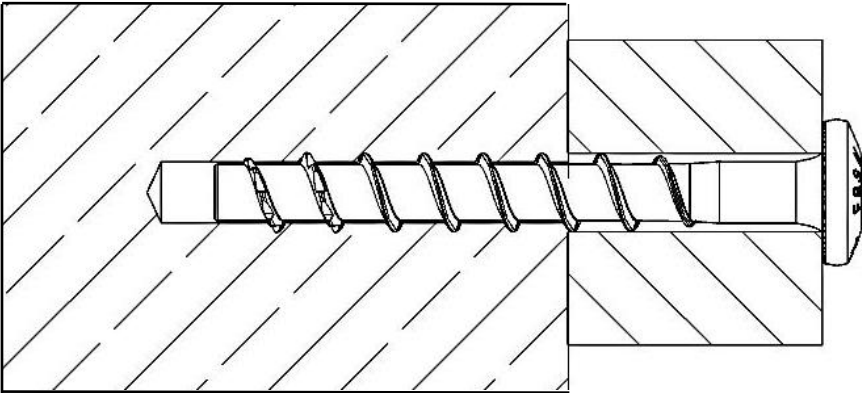


Table A1.1: Screw types FBS II 6 R

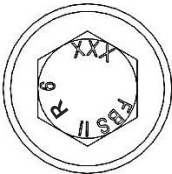
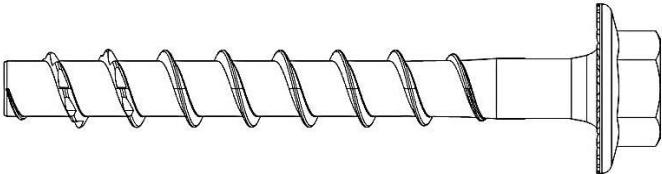
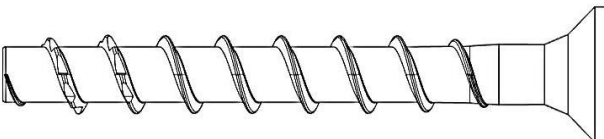
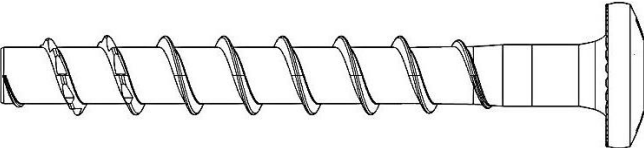
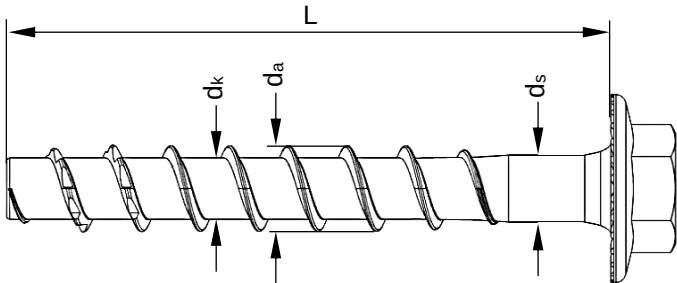
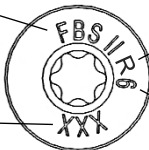
FBS II 6 R		
Hexagon head with formed washer (US)		
Countersunk head (SK)		
Pan head (P)		
(Figure not to scale)		
fischer concrete screw UltraCut FBS II 6 R		Annex A 1 Appendix 4 / 11
Product description Product in the installed condition and screw types FBS II 6 R		

Table A2.1: Geometry and material

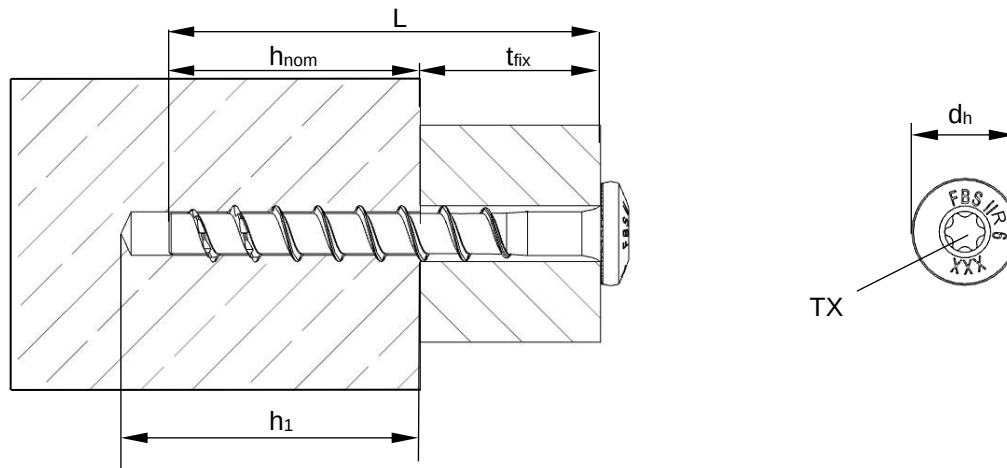
FBS II 6 R		All head shapes	
Thread outer diameter	d_a	[mm]	7,8
Core diameter	d_k		5,6
Shaft diameter	d_s		6,0
Material	[-]	Tip: hardened steel; Shaft and head: stainless steel EN 10088-1:2023	
Coating		Tip: red colour	
 Head marking (example) at US, SK, P FBS II: Product short name XXX: Screw length L  R: Material type 6: Screw size			
(Figure not to scale)			
fischer concrete screw UltraCut FBS II 6 R		Annex A 2 Appendix 5 / 11	
Product description Geometry and material			

Specification of intended use:	
Size	FBS II 6 R
Hammer drilling 	✓
Static and quasi-static loads	
Cracked and uncracked concrete	
Fire exposure	
Base materials: • Compacted reinforced and unreinforced normal weight concrete without fibres (cracked or uncracked) according to EN 206:2013+A2:2021 • Strength classes C20/25 to C50/60 according to EN 206:2013+A2:2021 Use conditions (Environmental conditions): • Structures subjected to dry internal conditions (FBS II 6 R) • For all other conditions according to EN 1993-1-4:2006 +A1:2015 corresponding to corrosion resistance class ◦ CRC III: for FBS II 6 R Design: • The structural design according to EN 1992-4:2018 are conducted under responsibility of a designer experienced in the field of anchorages and concrete works. • Verifiable calculation notes and drawings are to be prepared taking account of the loads to be anchored. The position of the fastener is indicated on the design drawings (e.g. position of the fastener relative to reinforcement or to supports, etc.) • Design of fastenings according to EN 1992-4: 2018 and EOTA Technical Report TR 055:2018	
fischer concrete screw UltraCut FBS II 6 R	
Intended use Specification of intended use	Annex B 1 Appendix 6 / 11

Table B2.1: Installation parameters – drilling bore hole and setting tools				
FBS II 6 R			All head shapes	
Nominal embedment depth	h_{nom}	[mm]	45	60
Nominal drill hole diameter	$d_0 =$		6	
Cutting diameter of drill bits	$d_{cut} \leq$		6,4	
Diameter of clearance hole in the fixture	$d_f \leq$		8	
Drill hole depth	$h_1 \geq$		55	70
Drill hole depth (with adjustable setting)			65	80
Torque impact screw driver	$T_{imp,max}$	[Nm]	240	

Table B2.2: Installation parameters – drive and fixture

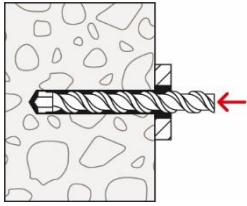
FBS II 6 R			US	SK	P
Wrench size	SW	[mm]	10 / 13	-	
TX size	TX	[-]	-	30	
Head diameter	d_h	[mm]	15 / 17	13,3	14,4
Thickness of fixture	$t_{fix} \leq$		$L - h_{nom}$		
Length of screw	$L_{min} =$		50		
	$L_{max} =$		400		



(Figure not to scale)

fischer concrete screw UltraCut FBS II 6 R	Annex B 2 Appendix 7 / 11
Intended use Installation parameters	

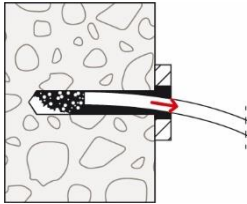
Installation instruction part 1



Step 1: Drilling of the drill hole:

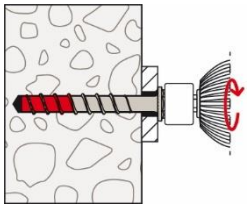
Drill the hole using hammer drill

Drill hole diameter d_0 and
drill hole depth h_1 according to table B2.1



Step 2: Cleaning of the drill hole:

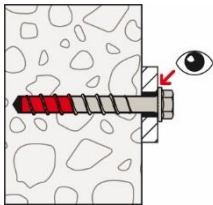
Clean the drill hole.



Step 3: Installation:

Turn in until the head is in contact with the fixture.

Installation with any torque impact screw driver up to
the maximum mentioned torque moment ($T_{imp,max}$
according to table B2.1).



Step 4: Checking of the correct installation:

After installation a further turning of the screw must not
be possible. The head of the screw must be in contact
with the fixture and is not damaged

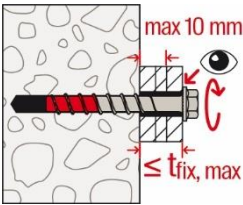
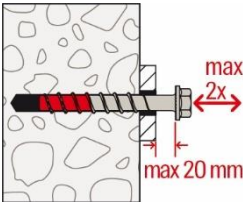
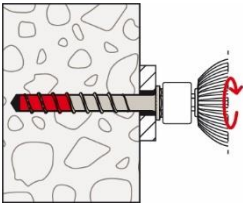
fischer concrete screw UltraCut FBS II 6 R

Intended use
Installation instruction

Annex B 3

Appendix 8 / 11

Installation instruction part 2



Adjustment

Optional:
It is permissible to adjust the screw twice.
Therefore, the screw may be untightened to a maximum of $L_{adj} = 20\text{ mm}$ off the surface of the initial fixture. The total permissible thickness of shims added during the adjustment process is $t_{adj} = 10\text{ mm}$.
The required nominal anchoring depth h_{nom} must be kept after the adjustment process. (see also annex B 3)

fischer concrete screw UltraCut FBS II 6 R

Intended use
Installation instruction

Annex B 4

Appendix 9 / 11

Table C1.1: Characteristic values for static and quasi-static action					
FBS II 6 R					
Nominal embedment depth		h_{nom}	[mm]	45	60
Steel failure for tension load and shear load					
Characteristic resistance		$N_{Rk,s}$	[kN]	19,3	
Partial factor		$\gamma_{Ms,N}^{2)}$	[-]	1,5	
Characteristic resistance		$V^0_{Rk,s}$	[kN]	5,2	12,6
Partial factor		$\gamma_{Ms,V}^{2)}$	[-]	1,5	
Factor for ductility		k_7		0,75	
Characteristic bending resistance		$M^0_{Rk,s}$	[Nm]	16,1	
Pullout failure					
Characteristic resistance in concrete C20/25	uncracked	$N_{Rk,p}$	[kN]	5,0	10,0
	cracked			2,5	6,0
Increasing factors concrete	C25/30	ψ_c	[-]	1,07	
	C30/37			1,13	
	C35/45			1,18	
	C40/50			1,23	
	C45/55			1,28	
	C50/60			1,32	
Installation sensitivity factor		γ_{inst}		1,4	
Concrete cone failure and splitting failure; concrete pryout failure					
Effective embedment depth		h_{ef}	[mm]	24	37
Factor for uncracked concrete		$k_{ucr,N}$	[-]	11,0	
Factor for cracked concrete		$k_{cr,N}$		7,7	
Characteristic edge distance		$C_{cr,N}$	[mm]	$1,5 \cdot h_{ef}$	
Characteristic spacing		$S_{cr,N}$		$3 \cdot h_{ef}$	
Characteristic resistance for splitting		$N^0_{Rk,sp}$	[kN]	$\min(N^0_{Rk,c}{}^1); N_{Rk,p}$	
Characteristic edge distance for splitting		$C_{cr,sp}$	[mm]	66	42
Characteristic spacing for splitting		$S_{cr,sp}$		$2 \cdot C_{cr,sp}$	$2 \cdot C_{cr,sp}$
Factor for pryout failure		k_8	[-]	2,1	2,6
Installation factor		γ_{inst}		1,4 ³⁾	
Concrete edge failure					
Effective length in concrete		l_f	[mm]	31	46
Nominal diameter of screw		d_{nom}		6	
Adjustment					
Maximum thickness of shims		t_{adj}	[mm]	10	
Max. number of adjustments		n_a	[-]	2	
¹⁾ $N^0_{Rk,c}$ according EN 1992-4:2018					
²⁾ In absence of other national regulations					
³⁾ Only for concrete cone failure and splitting failure; concrete pryout failure according to EN 1992-4:2018,Table 4.1					
fischer concrete screw UltraCut FBS II 6 R					Annex C 1 Appendix 10 / 11
Performances Characteristic values for static and quasi-static action					

Table C2.1: Minimum thickness of concrete members, minimum spacing and edge distance						
FBS II 6 R						
Minimum thickness of concrete member	h_{min}	[mm]	100			
Minimum spacing	s_{min}		35			
Minimum edge distance	c_{min}					
1) Drill hole depth according to table B2.1						
Table C2.2: Characteristic values for resistance to fire						
FBS II 6 R						
Nominal embedment depth	h_{nom}	[mm]	45	60		
Steel failure for tension load and shear load						
Characteristic resistance for the head shapes	US $\geq$ SW13	$F_{Rk,s,fi}$	R30	[kN]	-1)	2,1
			R60		-1)	1,7
			R90		-1)	1,2
			R120		-1)	1,0
	SK/P US SW10	$F_{Rk,s,fi}$	R30	[kN]	-1)	1,8
			R60		-1)	1,4
			R90		-1)	1,1
			R120		-1)	0,9
Characteristic bending resistance for the head shapes	US $\geq$ SW13	$M^0_{Rk,s,fi}$	R30	[Nm]	-1)	1,7
			R60		-1)	1,4
			R90		-1)	1,0
			R120		-1)	0,8
	SK/P US SW10	$M^0_{Rk,s,fi}$	R30	[Nm]	-1)	1,5
			R60		-1)	1,2
			R90		-1)	0,9
			R120		-1)	0,7
Pullout failure						
Characteristic resistance	$N_{Rk,p,fi}$	R30	[kN]	-1)	1,0	
		R60				
		R90				
		R120		-1)	0,8	
Concrete cone failure failure						
Characteristic resistance	$N_{Rk,c,fi}$	R30	[kN]	-1)	1,4	
		R60				
		R90				
		R120		-1)	1,1	
Edge distance						
R30 to R120	$C_{cr,fi}$	[mm]	$2 \cdot h_{ef}$			
In case of fire attack from more than one side, the minimum edge distance shall be ≥ 300 mm						
Spacing						
R30 to R120	$S_{cr,fi}$	[mm]	$2 \cdot C_{cr,fi}$			
1) No performance assessed						
fischer concrete screw UltraCut FBS II 6 R					Annex C 2	
Performances Minimum thickness of concrete members, minimum spacing and edge distance; Characteristic values for resistance to fire						
					Appendix 11 / 11	