# DECLARACIÓN DE PRESTACIONES

## DoP 0371

para el tornillo para hormigón fischer ULTRACUT FBS II R (anclaje mecánico para uso en hormigón) ES

1. Código de identificación única del producto tipo: **DoP 0371**
2. Usos previstos: **Fijación a posteriori en hormigón para sistemas no portantes redundantes, véase el apéndice, especialmente los anexos B1-B4.**
3. Fabricante: **fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Alemania**
4. Representante autorizado: **–**
5. Sistemas de evaluación y verificación de la constancia de las prestaciones (EVCP): **2+**
6. Documento de evaluación europeo: **EAD 330747-00-0601**
   Evaluación técnica europea: **ETA-24/0973; 2025-01-08**
   Organismo de evaluación técnica: **DIBt- Deutsches Institut für Bautechnik**
   Organismos notificados: **2873 TU Darmstadt**
7. Prestaciones declaradas:

**Seguridad en uso (BWR 4)**

**Resistencia característica a tracción (carga estática y cuasi-estática):**

Resistencia de rotura del acero: véase el apéndice, especialmente anexo C1 $E_S$= 210 000 MPa
Résistance à la rupture par extraction glissement: véase el apéndice, especialmente anexo C1
Resistencia de rotura por cono de hormigón: véase el apéndice, especialmente anexo C1
Robustez: véase el apéndice, especialmente anexo C1
Distancia mínima entre el borde y el centro: véase el apéndice, especialmente anexo C2
Distancia al borde para evitar la rotura del acero sometido a carga: véase el apéndice, especialmente anexo C1

**Resistencia característica a cortante (carga estática y cuasi-estática):**

Resistencia de rotura del acero (esfuerzo cortante): véase el apéndice, especialmente anexo C1
Resistencia falla por arrancamiento lateral: véase el apéndice, especialmente anexo C1
Resistencia de rotura del hormigón al borde: véase el apéndice, especialmente anexo C1

**Resistencia característica para todas las direcciones de carga y modos de falla para un diseño simplificado:**

Resistencia característica: NPD

**Durabilidad:**

Durabilidad: véase el apéndice, especialmente los anexos A2, B1

**Seguridad en caso de incendio (BWR 2)**

Reacción al fuego: Clase (A1)

**Resistencia al fuego:**

Resistencia al fuego, rotura del acero (carga de tracción): véase el apéndice, especialmente anexo C2
Resistencia al fuego, a la extracción (carga de tracción): véase el apéndice, especialmente anexo C2
Resistencia al fuego, rotura del acero (esfuerzo cortante): véase el apéndice, especialmente anexo C2

8. Documentación técnica adecuada o documentación técnica específica: **–**

Las prestaciones del producto identificado anteriormente son conformes con el conjunto de prestaciones declaradas. La presente declaración de prestaciones se emite, de conformidad con el Reglamento (UE) no 305/2011, bajo la sola responsabilidad del fabricante arriba identificado.

Firmado por y en nombre del fabricante por:

Dr. Ronald Mihala, Jefe de Desarrollo y Gestión de la Producción

Dieter Pfaff, Jefe de la Federación Internacional de Producción y Gestión de Calidad

Tumlingen, 2025-01-22

Esta DdR se ha preparado en distintos idiomas. En caso de que haya alguna controversia sobre la interpretación prevalecerá siempre la versión inglesa.

El Apéndice incluye información voluntaria y complementaria en idioma inglés que excede los requisitos legales (de idioma neutral).

Translation guidance Essential Characteristics and Performance Parameters for Annexes

**Glosario de parámetros esenciales, característicos y de prestaciones para los anexos**

| | | |
|---|---|---|
| Safety in case of fire (BWR 2)<br>**Seguridad en caso de incendio (BWR 2)** | | |
| 1 | Reaction to fire:<br>**Reacción al fuego:** | Class<br>Clase (A1) |
| Resistance to fire:<br>**Resistencia al fuego:** | | |
| 2 | Fire resistance to steel failure (tension load):<br>**Resistencia al fuego, rotura del acero (carga de tracción):** | $N_{Rk,s,fi}$ [kN] |
| 3 | Fire resistance to pull-out failure (tension load):<br>**Resistencia al fuego, a la extracción (carga de tracción):** | $N_{Rk,p,fi}$ [kN] |
| 4 | Fire resistance to steel failure (shear load):<br>**Resistencia al fuego, rotura del acero (esfuerzo cortante):** | $V_{Rk,s,fi}$ [kN], $M^0_{Rk,s,fi}$ [Nm] |
| Safety and accessibility in use (BWR 4)<br>**Seguridad en uso (BWR 4)** | | |
| Characteristic resistance to tension load (static and quasi-static loading):<br>**Resistencia característica a tracción (carga estática y cuasi-estática):** | | |
| 6 | Resistance to steel failure:<br>**Resistencia de rotura del acero:** | $N_{Rk,s}$ [kN], $E_s$ [N/mm$^2$] |
| 7 | Resistance to pull- out failure:<br>**Résistance à la rupture par extraction glissement:** | $N_{Rk,p}$ [kN], $\psi_c$, $\tau_{Rk,p}$ [N/mm$^2$] |
| 8 | Resistance to concrete cone failure:<br>**Resistencia de rotura por cono de hormigón:** | $k_{cr,N}$, $k_{ucr,N}$ [-], $h_{ef}$, $c_{cr,N}$ [mm] |
| 9 | Robustness:<br>**Robustez:** | $\gamma_{inst}$ [-] |
| 10 | Minimum edge distance and spacing:<br>**Distancia mínima entre el borde y el centro:** | $c_{min}$, $s_{min}$, $h_{min}$ [mm] |
| 11 | Edge distance to prevent splitting under load:<br>**Distancia al borde para evitar la rotura del acero sometido a carga:** | $N^0_{Rk,sp}$ [kN], $c_{cr,sp}$ [mm] |
| Characteristic resistance to shear load (static and quasi-static loading):<br>**Resistencia característica a cortante (carga estática y cuasi-estática):** | | |
| 12 | Resistance to steel failure (shear load):<br>**Resistencia de rotura del acero (esfuerzo cortante):** | $V_{Rk,s}$ [kN], $M^0_{Rk,s}$ [Nm], $k_7$ [-] |
| 13 | Resistance to pry-out failure:<br>**Resistencia falla por arrancamiento lateral:** | $k_8$ [-] |
| 14 | Resistance to concrete edge failure:<br>**Resistencia de rotura del hormigón al borde:** | $d_{nom}$, $l_f$ [mm] |
| Characteristic resistance for all load directions and modes of failure for simplified design:<br>**Resistencia característica para todas las direcciones de carga y modos de falla para un diseño simplificado:** | | |
| 15 | Characteristic resistance:<br>**Resistencia característica:** | $F^0_{Rk}$ [kN], $s_{cr}$, $c_{cr}$ [mm] |
| Durability:<br>**Durabilidad:** | | |
| 16 | Durability:<br>**Durabilidad:** | 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

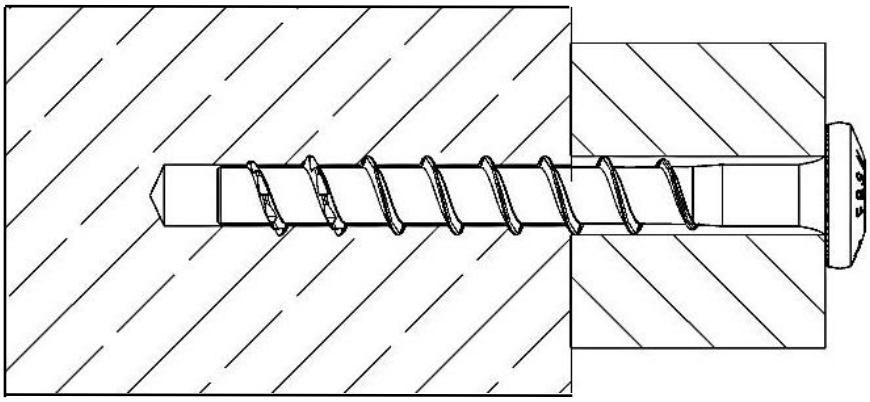
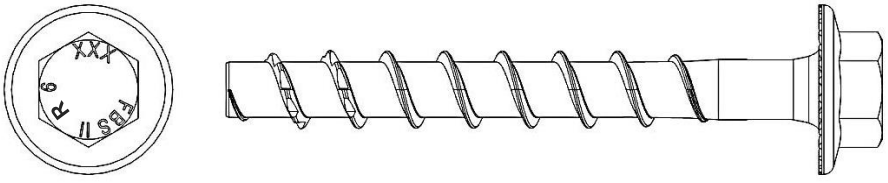
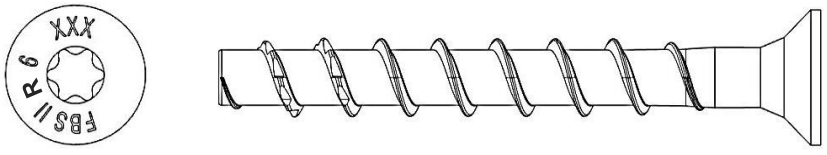
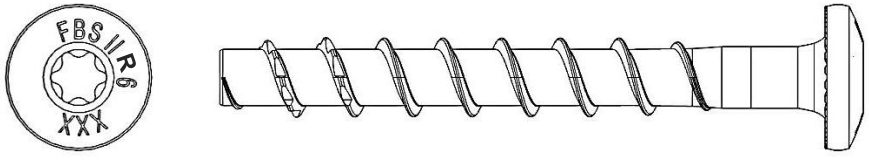


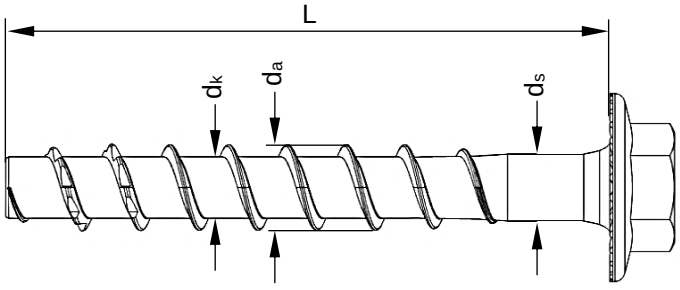
**Table A1.1:** Screw types FBS II 6 R

| **FBS II 6 R** | |
|---|---|
| Hexagon head with formed washer (**US**) |   |
| Countersunk head (**SK**) |   |
| Pan head (**P**) |   |

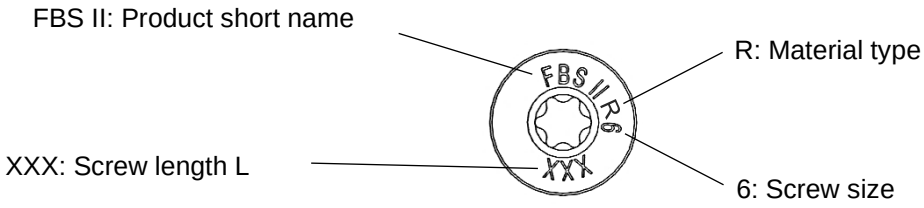
*(Figure not to scale)*

**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;<br>Shaft and head: stainless steel EN 10088-1:2023 |
| Coating | | | Tip: red colour |




**Head marking (example) at US, SK, P**




*(Figure not to scale)*

## 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:**

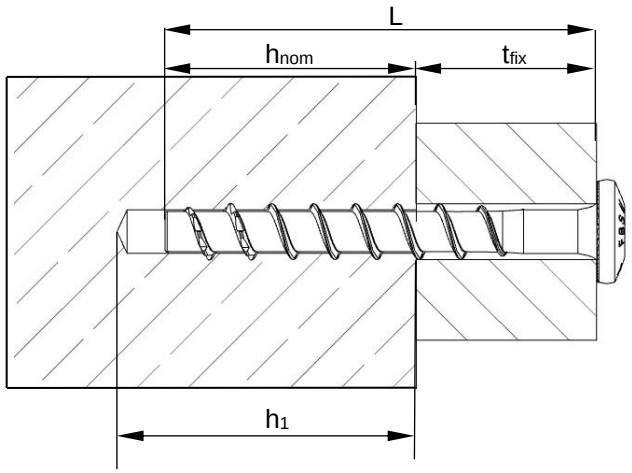
- The structural design according to EN 1992-4:2018 are conducted under responsibility of a designer experienced in the field of anchorages and concrete works.
- Verifiable calculation notes and drawings are to be prepared taking account of the loads to be anchored. The position of the fastener is indicated 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

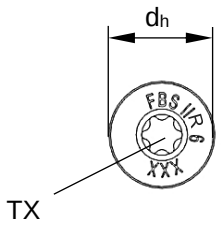
**Table B2.1:** Installation parameters – drilling bore hole and setting tools

| **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 | $d_{cut}$ ≤ | | 6,4 | |
| Diameter of clearance hole in the fixture | $d_f$ ≤ | | 8 | |
| Drill hole depth | $h_1$ ≥ | | 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 | $t_{fix}$ ≤ | | $L - h_{nom}$ | | |
| Length of screw | $L_{min}$ = | | 50 | | |
| | $L_{max}$ = | | 400 | | |




*(Figure not to scale)*

fischer concrete screw UltraCut FBS II 6 R

**Intended use**
Installation parameters

**Annex B 2**

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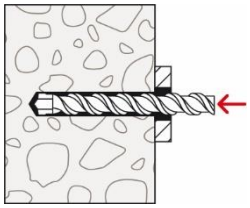
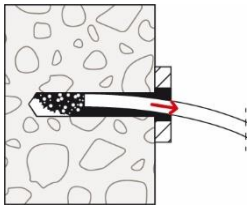
## Installation instruction part 1



**Step 1: Drilling of the drill hole:**

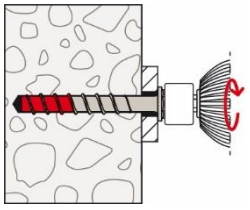
Drill the hole using hammer drill

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



**Step 2: Cleaning of the drill hole:**

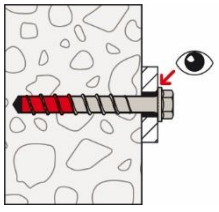
Clean the drill hole.



**Step 3: Installation:**

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

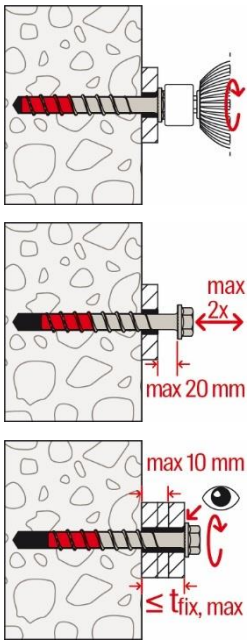
Installation with any torque impact screw driver up to the maximum mentioned torque moment ($T_{imp,max}$ according to table B2.1).



**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

## 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 mm off the surface of the initial fixture. The total permissible thickness of shims added during the adjustment process is $t_{adj}$ = 10 mm.
The required nominal anchoring depth $h_{nom}$ must be kept after the adjustment process. (see also annex B 3)

**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 | $\psi_c$ | [-] | 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 | | $\gamma_{inst}$ | | 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 | | $\gamma_{inst}$ | | 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

**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 ≥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 ≥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

**Performances**
Minimum thickness of concrete members, minimum spacing and edge distance;
Characteristic values for resistance to fire

**Annex C 2**