



## TELJESÍTMÉNYNYILATKOZAT

### DoP 0235

fischer FNA II szeghorgony-hoz (Mechanikus rögzítőelem betonba történő felhasználásra)

HU

1. <u>A terméktípus egyedi azonosító kódja:</u>	<b>DoP 0235</b>		
2. <u>Felhasználás célja(i):</u>	<b>Utólag beépített rögzítőelem redundáns, nem-teherhordó szerkezeti rendszerek betonban történő felhasználásra.</b>		
3. <u>Gyártó:</u>	<b>Id. a Mellékletet, különösen ezt a mellékletet B1- B3 fischerwerke GmbH &amp; Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Németország</b>		
4. <u>A meghatalmazott képviselő:</u>	–		
5. <u>Az AVCP-rendszer(ek):</u>	<b>2+</b>		
6. <u>Az európai értékelési dokumentum:</u>	<b>EAD 330747-00-0601, Edition 06/2018</b>		
Európai műszaki értékelés:	<b>ETA-06/0175; 2021-03-02</b>		
A műszaki értékelést végző szerv:	<b>DIBt- Deutsches Institut für Bautechnik</b>		
Bejelentett szerv(ek):	<b>2873 TU Darmstadt</b>		
7. <u>A nyilatkozatban szereplő teljesítmény(ek):</u>			
<b>Biztonsági használat (BWR 4)</b>			
Karakterisztikus ellenállás húzásra (statikus és kvázi-statisztikus terhelések):	Ellenállás acél szakadás tönkremenetel esetén:	NPD	
	Ellenállás kihúzóadás tönkremenetel esetén:	NPD	
	Ellenállás beton szakadóképzés tönkremenetel esetén:	NPD	
	Ellenállóképesség:	Mellékletet C1	
	Min. perem- és tengelytávolság:	Mellékletet B2, C1	
	Peremtávolság hasadási tönkremenetel megelőzésére:	NPD	
Karakterisztikus ellenállás nyírásra (statikus és kvázi-statisztikus terhelések):	Ellenállás acél szakadás tönkremenetel esetén (nyír)	NPD	
	Ellenállás pry-out tönkremenetel esetén:	NPD	
	Ellenállás beton kitörési tönkremenetel esetén	NPD	
Karakterisztikus ellenállás minden terhelési irányra és tönkremeneteli módokra az egyszerűbb tervezésért:	Karakterisztikus ellenállás:	Mellékletet C1	
Tartósság:	Tartósság:	Mellékletet A2, B1	
<b>Biztonság tűz esetén (BWR 2)</b>			
Tűzzel szembeni viselkedés:	Osztály (A1)		
Tűzállóság:	Tűzállóság acél tönkremenetelnél (húzásra)	NPD	
	Tűzállóság kihúzóadás tönkremenetel esetén	NPD	
	Tűzállóság acél tönkremenetel esetén (nyírásra)	NPD	
Tűzállóság minden terhelési irányra és tönkremeneteli módokra:		Mellékletet C2	



8. Megfelelő műszaki dokumentáció és/vagy egyedi -  
műszaki dokumentáció:

A fent azonosított termék teljesítménye megfelel a bejelentett teljesítmény(ek)nek. A 305/2011/EU rendeletnek megfelelően e teljesítménynyilatkozat kiadásáért kizárólag a fent meghatározott gyártó a felelős

A gyártó nevében és részéről aláíró személy:



Dr. Oliver Geibig, Üzleti egységek és Mérnökségért felelős vezérigazgató  
Tumlingen, 2021-03-16



Jürgen Grün, Vegyi és Minőségért felelős vezérigazgató

Ez a Teljesítmény nyilatkozat különböző nyelveken elkészült. Vitás értelmezés esetén az angol verzió az irányadó.

A melléklet a (nyelvsemleges formában megadott) törvényi előírásokon túl önkéntesen megadott, kiegészítő információkat is tartalmaz angolul.

## Specific Part

### 1 Technical description of the product

The fischer nail anchor FNA II is an anchor made of galvanised (FNA II) or stainless steel (FNA II R) or high corrosion resistant steel (FNA II HCR). The anchor is pushed into a predrilled cylindrical drill hole and expanded by loading.

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 anchor 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 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance to tension and shear load (static and quasi-static loading)	See Annex B 2 and C 1
Durability	See Annex B 1

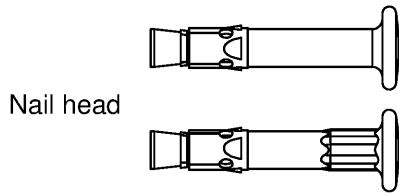
### 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with European Assessment Document EAD No. 330747-00-0601, the applicable European legal act is: [97/161/EC].

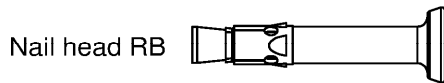
The system to be applied is: 2+

**Only for multiple use for non-structural applications according to  
EAD 330747-00-0601**

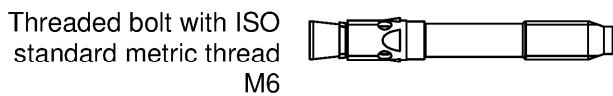
**Design types:**



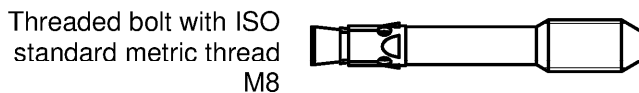
FNA II 6x25/..  
FNA II 6x30/..



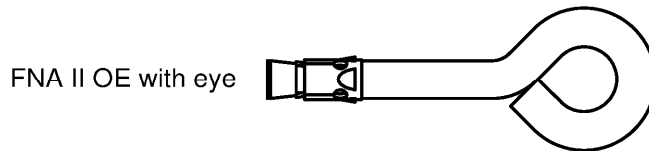
FNA II 6x25/.. RB  
FNA II 6x30/.. RB



FNA II 6x25 M6/..  
FNA II 6x30 M6/..

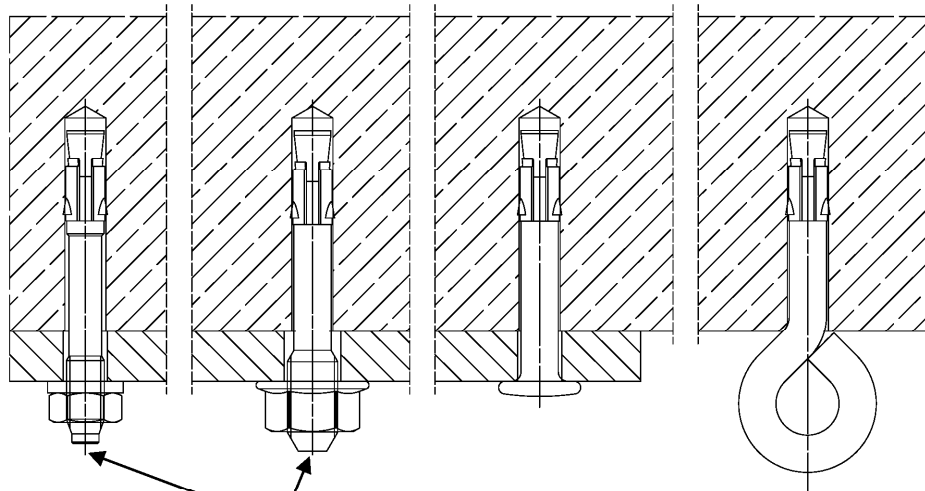


FNA II 6x25 M8/..  
FNA II 6x30 M8/..



FNA II 6x25 OE  
FNA II 6x30 OE

**Intended use:**



Additional marking only galvanised steel for  $h_{ef} = 25$  mm (centring, bar or points)

*(Fig. not to scale)*

**fischer nail anchor FNA II**

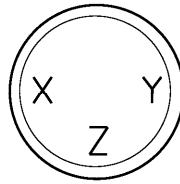
**Product description**  
Product and intended use

**Annex A 1**

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**Marking:**

**Nail head**



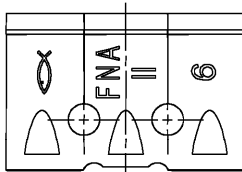
Marking at **X**: "O" for  $h_{ef} = 25$  mm  
and "I" for  $h_{ef} = 30$  mm;

Marking at **Y**:  $t_{fix}$

Marking at **Z**: "R" or "HCR" (stainless steel)

**Expansion sleeve (or bolt)**

e.g.:



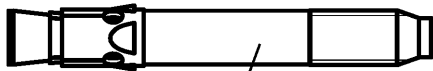
For stainless steel additional marking "R" or "HCR"

**Marking-Codes for Y:**

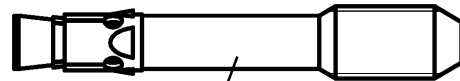
	A	Q	T	N	P	B	L	H	U
$t_{fix}$	5	10	15	20	25	30	35	40	45
	D	V	S	W	X	E	M	Z	K
$t_{fix}$	50	55	60	65	70	75	80	85	90
	(A)	F	(B)	(D)	(E)	G	J		
$t_{fix}$	95	100	105	110	115	120	125		

At  $t_{fix} > 125$  mm the corresponding figure is marked.

**Shaft (threaded bolt)**



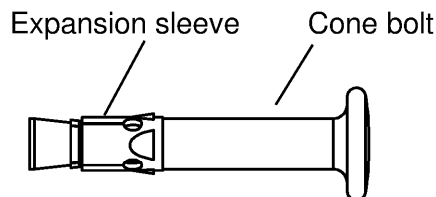
Marking e.g.: 6/10  
thread size/thickness of the fixture



Marking e.g.: 8/10  
thread size /thickness of the fixture  
Exception: 8/5 no marking

**Table A2.1: Materials FNA II**

Part	Designation	Material		
		FNA II	FNA II R	FNA II HCR
	Steel grade	Steel	Stainless steel R	High corrosion resistant steel HCR
		Zinc plated $\geq 5 \mu\text{m}$ , ISO 4042:2018	Acc. to EN 10088:2014 Corrosion resistance class CRC III acc. to EN 1993-1-4:2015	Acc. to EN 10088:2014 Corrosion resistance class CRC V acc. to EN 1993-1-4:2015
1	Expansion sleeve	Cold strip, EN 10139:2016 or stainless steel EN 10088:2014	Stainless steel EN 10088:2014	Stainless steel EN 10088:2014
2	Cone bolt			High corrosion resistant steel EN 10088:2014



(Fig. not to scale)


**fischer nail anchor FNA II**

**Product description**  
Marking and materials

**Annex A 2**

## Specifications of intended use

### Fastenings subject to:

Size	FNA II, FNA II R, FNA II HCR
Hammer drilling with standard drill bit 	All types
Static and quasi-static loads	✓
Cracked and uncracked concrete	
Fire exposure	

### Base materials:

- Compacted reinforced and unreinforced normal weight concrete without fibres (cracked and uncracked) according to EN 206:2013+A1:2016
- Strength classes C12/15 to C50/60 according to EN 206:2013+A1:2016

### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (FNA II, FNA II R, FNA II HCR) with  $h_{ef} \geq 25$  mm
- For all other conditions according to EN 1993-1-4:2006 + A1:2015 corresponding to corrosion resistance class
  - CRC III: for FNA II R with  $h_{ef} \geq 30$  mm
  - CRC V: for FNA II HCR with  $h_{ef} \geq 30$  mm

### Design:

- Fastenings are to be designed under the responsibility of an engineer experienced in fastenings and concrete work
- Verifiable calculation notes and drawings have 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.)
- Simplified design method C according to EN 1992-4:2018 Annex G

### Installation:

- Fastener installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on site
- Use of the fastener only as supplied by the manufacturer without exchanging the components of the fastener
- Checking before placing the fastener to ensure that the strength class of the concrete in which the fastener is to be placed, is in the range given and is not lower than that of the concrete to which the characteristic loads apply
- Check of concrete being well compacted, e.g. without significant voids
- Drill hole created perpendicular  $\pm 5^\circ$  to concrete surface, positioning without damaging the reinforcement
- In case of aborted hole: new drilling at a minimum distance twice the depth of the aborted drill hole or smaller distance if the aborted drill hole is filled with high strength mortar (e.g. FIS HB, FIS SB, FIS EM Plus, FIS V Plus) and if under shear or oblique tension load it is not in the direction of load application

**fischer nail anchor FNA II**

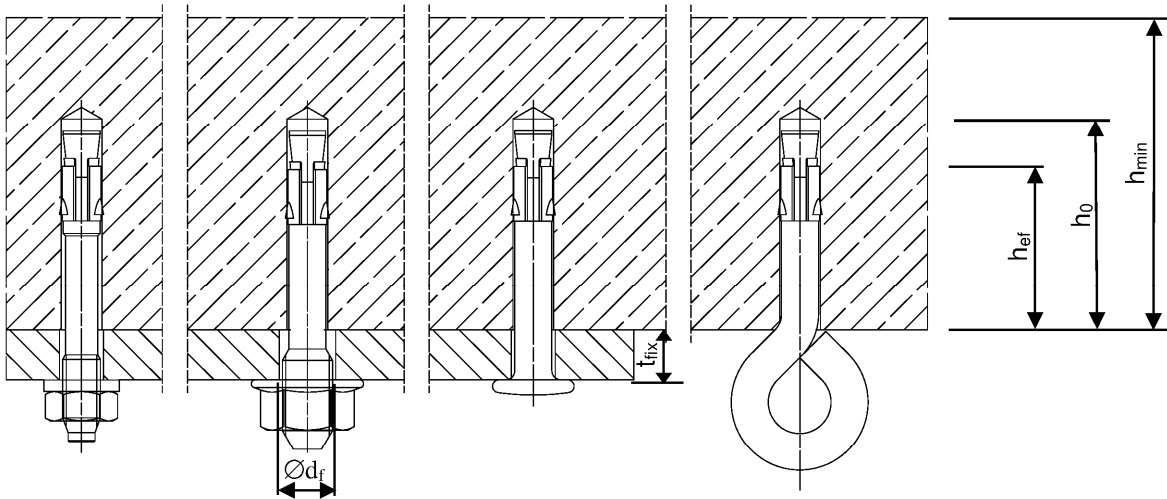
**Intended Use**  
Specifications

**Annex B 1**

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**Table B2.1: Installation parameters**

Effective embedment depth	$h_{ef} \geq$	[mm]	25	30
Nominal drill bit diameter	$d_0 =$		6	
Cutting diameter of drill bit	$d_{cut,max} \leq$		6,4	
Depth of drill hole	$h_0 \geq$		31	36
Diameter of clearance hole in the fixture for all FNA II except for M8 and OE	$d_f \leq$	[Nm]	7	
Diameter of clearance hole in the fixture for M8	$d_f \leq$		9	
Maximum torque moment (only threaded types)	$max. T_{inst} \leq$		4	
Minimum thickness of member	$h_{min}$	[mm]	80	
Maximum thickness of fixture	$max. t_{fix}$		400	



(Fig. not to scale)

**fischer nail anchor FNA II**

**Intended Use**  
Installation parameters

**Annex B 2**

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# Installation instruction:

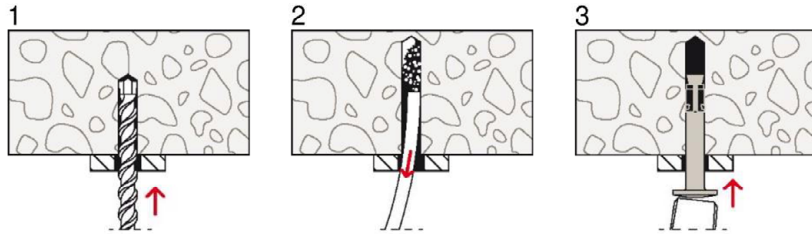
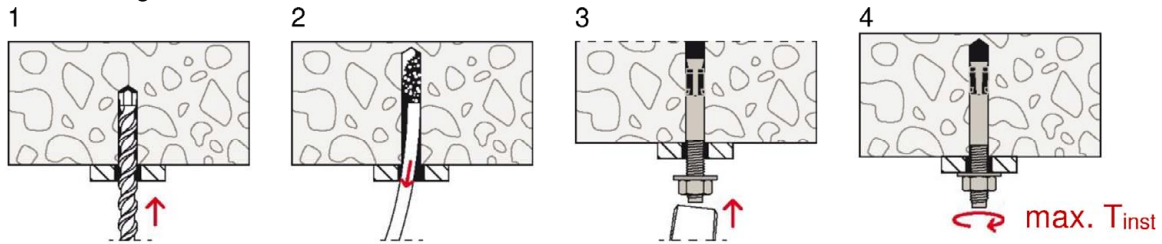
## Drill the hole

## Clean the hole

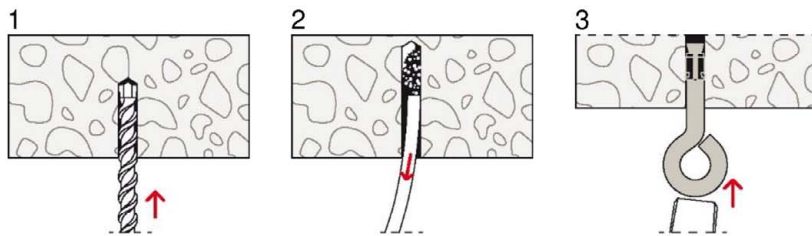
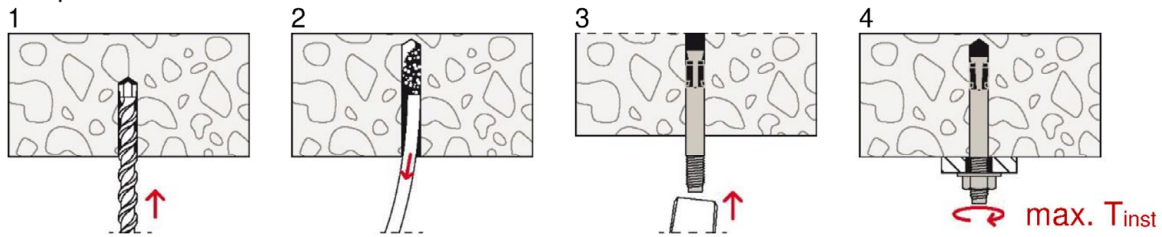
## Set the fastener

## Apply max. $T_{inst}$

### Push through installation



### Pre-positioned installation



(Fig. not to scale)

**fischer nail anchor FNA II**

**Intended Use**  
Installation instruction

**Annex B 3**

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**Table C1.1:** Characteristic resistance of a fixing point<sup>1)</sup> for all load directions

Type of anchor		FNA II 6x25/..		FNA II 6x25 M6/.. FNA II 6x25 M8/..		FNA II 6x25 OE		FNA II 6x30 OE		FNA II 6x30/..		FNA II 6x30 M6/.. FNA II 6x30 M8/..		
		Material		FNA II		FNA II		FNA II, FNA II R, FNA II HCR		FNA II, FNA II R, FNA II HCR		FNA II, FNA II R, FNA II HCR		
Effective anchorage depth	$h_{ef} \geq$ [mm]	25		30										
Installation factor	$\gamma_{inst}$ [-]	1,0												
Characteristic bending moment	$M^0_{Rk,s}$ [Nm]	10,7	9,2		13,2	9,2								
Partial factor	$\gamma_{Ms}$ [-]	1,25												
<b>Maximum load and corresponding spacing - and edge distances</b>														
Characteristic spacing <b>between</b> fixing points <sup>1)</sup>	$a_1 = a_2 \geq$ [mm]	200												
Minimum spacing <b>within</b> a fixing point <sup>1)</sup>	$s_{cr} =$	50												
Characteristic resistance $F_{Rk}$ C20/25 to C50/60 (C12/15)	$c_{cr}^{(2)} \geq 100$ mm	[kN]	3,0 (2,5)	1,5		5,0 (4,0)								
	$c_{cr}^{(2)} \geq 50$ mm	[kN]	2,35 (1,9)			2,35 (1,9)								
Partial factor	$\gamma_M$ [-]	1,5												
<b>Reduced loads for reduced spacing - and corresponding edge distances</b>														
Characteristic spacing <b>between</b> fixing points <sup>1)</sup>	$a_1 = a_2 \geq$ [mm]	100												
Minimum spacing <b>within</b> a fixing point <sup>1)</sup>	$s_{cr} =$	50												
Characteristic resistance $F_{Rk}$ C20/25 to C50/60 (C12/15)	$c_{cr}^{(2)} \geq 200$ mm	[kN]	3,0 (2,5)	1,5		5,0 (4,0)								
	$c_{cr}^{(2)} \geq 50$ mm	[kN]	1,7 (1,2)	1,5 (1,2)		1,7 (1,2)								
Partial factor	$\gamma_M$ [-]	1,5												
<b>Reduced loads for minimum spacing - and edge distance</b>														
Characteristic spacing <b>between</b> fixing points <sup>1)</sup>	$a_1 = a_2 \geq$ [mm]	100												
Minimum spacing <b>within</b> a fixing point <sup>1)</sup>	$s_{cr} =$	40												
Characteristic resistance $F_{Rk}$ C20/25 to C50/60 (C12/15)	$c_{cr} \geq 40$ mm	[kN]	1,30 (0,85)											
Partial factor	$\gamma_M$ [-]	1,5												

<sup>1)</sup> See EN 1992-4:2018, Picture 3.4

<sup>2)</sup> Intermediate values for  $c$  may be calculated by linear interpolation

**fischer nail anchor FNA II**

**Performances**

Characteristic resistance

**Annex C 1**

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**Table C2.1:** Characteristic resistance of a fixing point<sup>2)</sup> under fire exposure in concrete C20/25 to C50/60

**Characteristic resistance under fire exposure for all load directions for  $h_{ef} = 25$  mm**

Type of anchor	Spacing	Edge distance	Effective anchorage depth	Characteristic resistance $F_{Rk,fi}$ [kN]					
				$s_{cr,fi} \geq$ [mm]	$c_{cr,fi} \geq$ [mm]	$h_{ef} \geq$ [mm]	R 30	R 60	R 90
FNA II 6x25/..	100	50	25		0,6	0,3	0,6	0,5	0,3
FNA II 6x25 M6/..							0,35	0,3	
FNA II 6x25 M8/..									
FNA II 6x25 OE							0,3	0,2	

**Characteristic resistance under fire exposure for all load directions for  $h_{ef} = 30$  mm**

Type of anchor	Spacing	Edge distance	Effective anchorage depth	Characteristic resistance $F_{Rk,fi}$ [kN]					
				$s_{cr,fi} \geq$ [mm]	$c_{cr,fi} \geq$ [mm]	$h_{ef} \geq$ [mm]	R 30	R 60	R 90
FNA II 6x30/..	100	50	30		0,6	0,3	0,9	0,8	0,7
FNA II 6x30 M6/..							0,6	0,5	
FNA II 6x30 M8/..									
FNA II 6x30 OE R/HCR							0,3	0,2	

**Characteristic resistance under fire exposure for all load directions for  $h_{ef} = 30 + 5^{1)}$  mm**

Type of anchor	Spacing	Edge distance	Effective anchorage depth	Characteristic resistance $F_{Rk,fi}$ [kN]					
				$s_{cr,fi} \geq$ [mm]	$c_{cr,fi} \geq$ [mm]	$h_{ef} \geq$ [mm]	R 30	R 60	R 90
FNA II 6x30/.. R/HCR	100	50	30+5 <sup>1)</sup>		0,7	0,6	1,3	1,0	0,7
FNA II 6x30 M6/.. R/HCR									

**Characteristic resistance under fire exposure for shear load without level arm**

Type of anchor	Characteristic resistance $M^0_{Rk,s,fi}$ [Nm]			
	R 30	R 60	R 90	R 120
FNA II 6x25 OE/..	0,2	0,1	0,08	0,07
FNA II 6x25..; FNA II 6x25 .. RB; /..	0,9	0,7	0,4	0,3
FNA II 6x25 M6..; FNA II 6x25 M8.. / ..	0,3	0,2	0,2	0,2
FNA II 6x30..; FNA II 6x30 .. RB; /.. R/HCR	4,4	2,0	1,2	0,8
FNA II 6x30 M6..; FNA II 6x30 M8.. /.. R/HCR	2,8	1,3	0,8	0,5

<sup>1)</sup> The effective anchorage depth  $h_{ef} = 30 + 5$  mm is reached by setting the anchor FNA II 6x30/... 5 mm deeper with an anchor that is 5 mm longer than required for the actual thickness of the fixture.

<sup>2)</sup> A fixing point is defined as a single anchor or a group of 2 or 4 anchors

In case of fire attack from more than one side, the edge distance shall be  $c_{fi,min} \geq 300$  mm

**fischer nail anchor FNA II**

**Performances**

Characteristic resistance under fire exposure

**Annex C 2**