

IZJAVA O LASTNOSTIH

DoP 0302

za fischer hollow ceiling anchor FHV (Mehansko sidro za uporabo v betonu)

SL

1. Enotna identifikacijska oznaka tipa proizvoda: DoP 0302
2. Predvidena uporaba: Naknadno nameščen pritrdilni element za uporabo v betonu za nestrukturne sisteme, glej dodatek, zlasti priloge B1-B4.
3. Proizvajalec: fischerwerke GmbH & Co. KG, Klaus-Fischer-Str. 1, 72178 Waldachtal, Nemčija
4. Pooblaščen zastopnik: -
5. Sistemi ocenjevanja in preverjanja nespremenljivosti lastnosti: 2+
6. Evropski ocenjevalni dokument: EAD 330747-00-0601
Evropska tehnična ocena: ETA-21/0857; 2022-08-30
Organ za tehnično ocenjevanje: TZÜS - Technical and Test Institute for Construction Prague
Priglašeni organi: 2873 TU Darmstadt
7. Navedene lastnosti:
Varnost pri uporabi (BWR 4)
Karakteristična odpornost na napetostno obremenitev (statična in kvazistatična obremenitev):
Odpornost pri odpovedi jekla: NPD
Odpornost na izvlek: NPD
Odpornost na odpoved v betonski coni: NPD
Robusnost: Priloge C1
Najmanjša razdalja do roba betona in razmik: Prilogah B2, B3
Razdalja od roba betona za preprečevanje loma pod obremenitvijo: NPD

Karakteristična odpornost proti strižni obremenitvi (statična in kvazistatična obremenitev):
Odpornost na odpoved jekla (strižna obremenitev): Priloge C1
Odpornost na neuspešno odstranitev: NPD
Odpornost na odpoved od roba betona: NPD

Karakteristična odpornost za vse smeri obremenitve in načine odpovedi na poenostavljeno zasnovano:
Karakteristična odpornost: Priloge C1

Trajnost:
Trajnost: Prilogah A2, B1

Varnost v primeru požara (BWR 2)
Odzivnost na ogenj: Razred (A1)
Odpornost proti ognju:
Požarna odpornost pri odpovedi jekla (napetostna obremenitev): NPD
Požarna odpornost pri izvleku (napetostna obremenitev): NPD
Požarna odpornost pri odpovedi jekla (strižna obremenitev): NPD
Požarna odpornost za vse smeri obremenitve in načine okvare: Prilogah C2, C3
8. Ustrezna tehnična dokumentacija in/ali specifična tehnična dokumentacija: -

Lastnosti proizvoda, navedenega zgoraj, so v skladu z navedenimi lastnostmi. Za izdajo te izjave o lastnostih je v skladu z Uredbo (EU) št. 305/2011 odgovoren izključno proizvajalec, naveden zgoraj.

Podpisal za in v imenu proizvajalca:



Dr.-Ing. Oliver Geibig, Generalni direktor poslovne enote in inženiringa
Tumlingen, 2023-01-17



Jürgen Grün, Generalni direktor za kemijo in kvaliteto

Ta izjava o lastnostih je bila pripravljena v različnih jezikih. V primeru nerazumevanja, se vedno upošteva angleška različica.

Priloga vsebuje informacije v angleškem jeziku, ki presegajo zakonske zahteve.

1. Technical description of the product

The fischer hollow ceiling anchor FH Y is a torque-controlled expansion anchor made of galvanised or stainless steel. It consists of an expansion sleeve and a cone with an internal thread and is anchored by torque-controlled expansion with a hexagon head bolt or threaded rod with nut and washer.

By tightening the screw/nut, the cone is pulled into the expansion sleeve and expanding it. The product description is given in Annex 1.

2. Specification of the intended use in accordance with the applicable 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 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, but are to be regarded only as a means for choosing the 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)

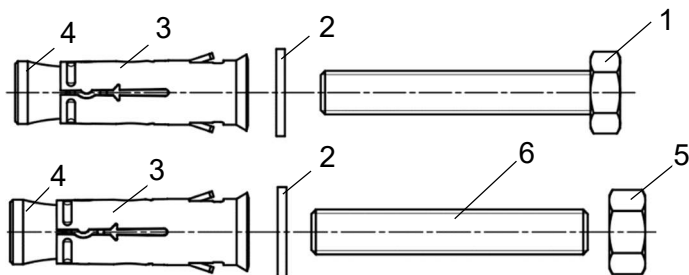
Essential characteristic	Performance
Reaction to fire	Class A1 according to EN 13501-1
Resistance to fire	See Annex C 2 and Annex C 3

3.2 Safety and accessibility in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance for all load directions and modes of failure for simplified design	See Annex C 1
Durability	See Annex B 1

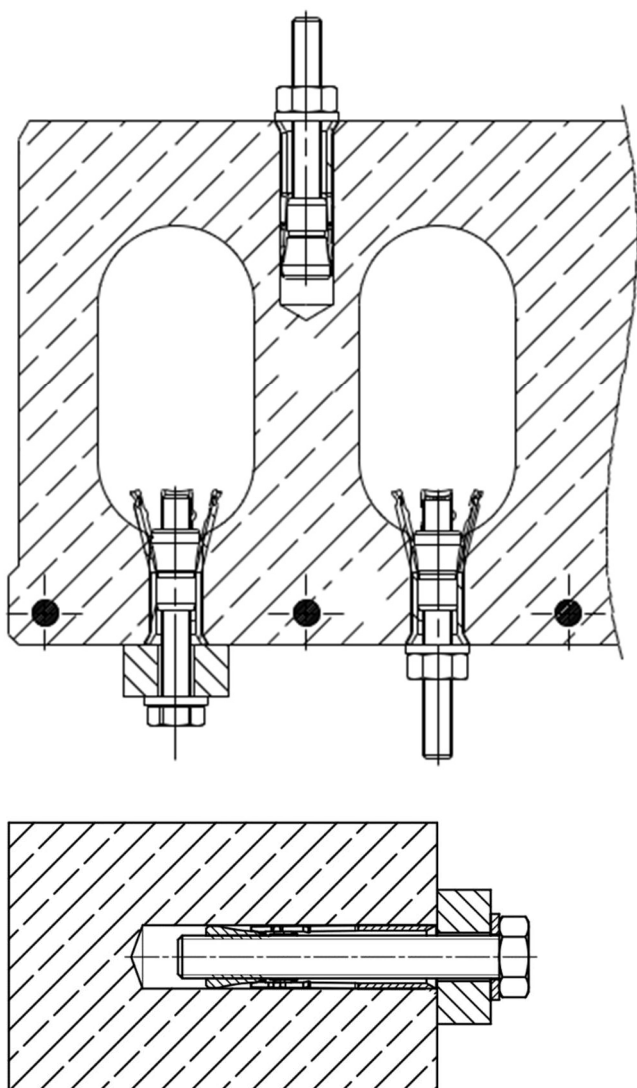
4. Assessment and verification of constancy of performance (AVCP) system applied with reference to its legal base

According to the Decision 97/463/EC of the European Commission¹, the system 2+ of assessment verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) apply.



- 1 Hexagon screw
- 2 Washer
- 3 Expansion sleeve
- 4 Cone nut
- 5 Hexagon nut
- 6 Threaded rod

Installed Condition:



(Fig. not to scale)

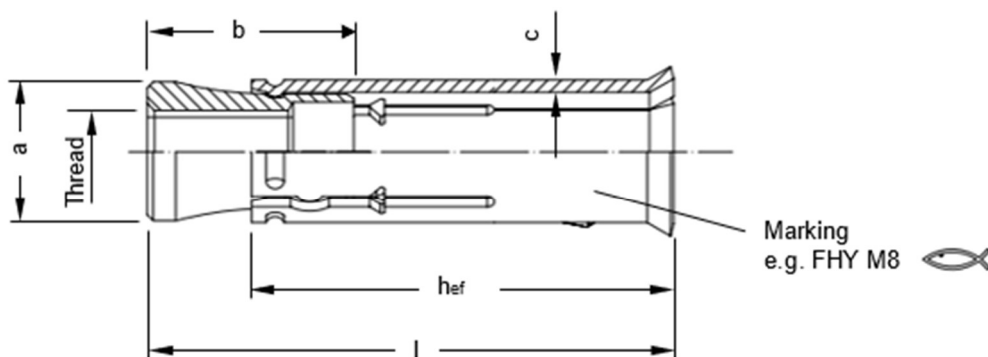
fischer hollow ceiling anchor FH

Product description
Installed conditions

Annex A 1

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Product marking and dimensions:



FHY: Carbon steel, galvanised

FHY R: Stainless steel

Table A2.1: Dimensions [mm]

Typ	h_{ef}	Thread	$\varnothing a$	b	c	l
FHY M6	30	M6	9,6	16,0	1,0	37
FHY M8	35	M8	11,5	17,0	1,0	43
FHY M10	40	M10	15,0	23,5	1,5	52
FHY M12	40	M12	17,0	26,5	1,5	55

Table A2.2: Materials FHY

Part	Designation	Material	
		FHY	FHY R
	Type of steel	Steel	Stainless steel R
		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
1	Hexagon screw ¹⁾	Steel, DIN EN ISO 898-1:2013 property class 8.8 (M6); property class 4.6, 5.8 or 8.8 (M8, M10 and M12)	DIN EN ISO 3506-1:2020; property class ≥ 70
2	Washer ¹⁾	Cold strip, EN 10139:2016+A1:2020	Stainless steel EN 10088:2014
3	Expansion sleeve	Cold strip, EN 10139:2016+A1:2020	
4	Cone nut	Steel DIN EN 10277: 2018	
5	Hexagon nut ¹⁾	Steel DIN EN ISO 898-2:2012; property class 8 (M6) and 4 or 5 or 8 (M8 -M12)	Stainless steel DIN EN ISO 3506-2:2020; property class ≥ 70
6	Threaded rod ¹⁾	Steel DIN EN ISO 898-1:2013, property class 8.8 (M6) and 4.8, 5.8 or 8.8 (M8) 4.6, 5.8 or 8.8 (M10 -M12)	Stainless steel DIN EN ISO 3506-1:2020; property class ≥ 70

¹⁾ Commercial threaded rods, washers, hexagon nuts and hexagon screws may also be used if the requirements in Table A2.2 are fulfilled.

(Fig. not to scale)

fischer hollow ceiling anchor FHY

Product description
Product label and dimensions

Annex A 2

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Specifications of intended use

Fastenings subject to:

Size	FHY, FHY R			
	M6	M8	M10	M12
Hammer drilling with standard drill bit 			✓	
Hammer drilling with hollow drill bit with automatic cleaning 			✓	
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 206-1:2013+A1:2016
- Strength classes $\geq$ C20/25 according to EN 206-1:2013+A1:2016
- Prestressed hollow core slabs, where the cavity width does not exceed 4,2 times the web width ($b_H \leq 4,2 \times b_{SI}$) with strength classes $\geq$ C45/55

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (FHY, FHY R)
- For all other conditions according to EN 1993-1-4:2006 + A1:2015 corresponding to corrosion resistance class
 - CRC III: FHY R

Design:

- Fastenings are to be designed under the responsibility of an engineer experienced in fastenings and concrete work
- 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 under static or quasi-static actions shall be performed in accordance with EN 1992-4:2018, design method B

fischer hollow ceiling anchor FHY

Intended use
Specifications

Annex B 1
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Table B2.1: Installation parameters

Size		FHY, FHY R			
		M6	M8	M10	M12
Nominal drill hole diameter	$d_0 =$	10	12	16	18
Effective embedment depth	$h_{ef} \geq$	30	35	40	40
Depth of drill hole to deepest point	$h_1 \geq$	50	60	65	70
Diameter of clearance hole in the fixture	$d_f \leq$	7	9	12	14
Length of screw ¹⁾	$l_s \geq$	$37 + t_{washer} + t_{fix}$	$43 + t_{washer} + t_{fix}$	$52 + t_{washer} + t_{fix}$	$55 + t_{washer} + t_{fix}$
Length of the threaded bolt	$l_b \geq$	$42 + t_{washer} + t_{fix}$	$50 + t_{washer} + t_{fix}$	$60 + t_{washer} + t_{fix}$	$65 + t_{washer} + t_{fix}$
Required setting torque $\frac{FHY}{FHY R}$	$T_{inst} =$	8	10	20	30
		15	20	40	50

¹⁾ For screws with shaft according to EN ISO 4017:2014 the shaft length must be $\leq t_{fix}$

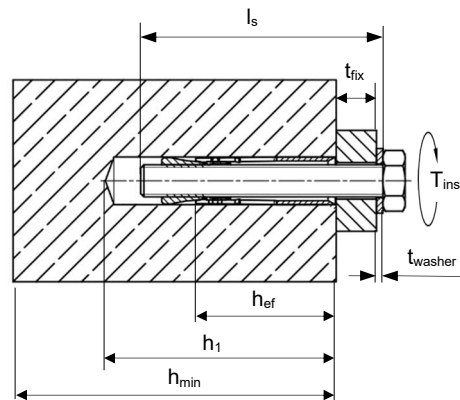
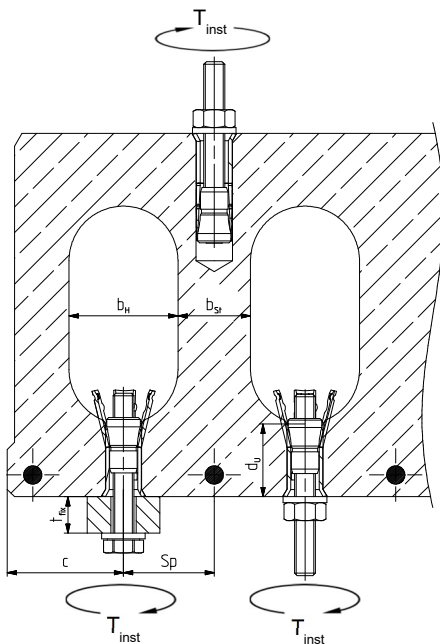
Pre-stressed hollow core slab $\geq$ C45/55 web thickness $\geq$ 25mm

Minimum spacing	$s_{min} \geq$	70	70	80	80
Minimum edge distance	$c_{min} \geq$	100	100	100	150

Solid concrete $\geq$ C20/25

Minimum spacing	$s_{min} \geq$	70	70	80	80
Minimum edge distance	$c_{min} \geq$	100			
Minimum thickness of concrete member	$h_{min} \geq$	100			

Anchoring in precast pre-stressed concrete hollow concrete slabs and in area of solid material



s_p = Distance to the tensioning strands
 t_{fix} = Thickness of the fixture
 d_u = Thickness of the slab web
 c = Edge distance

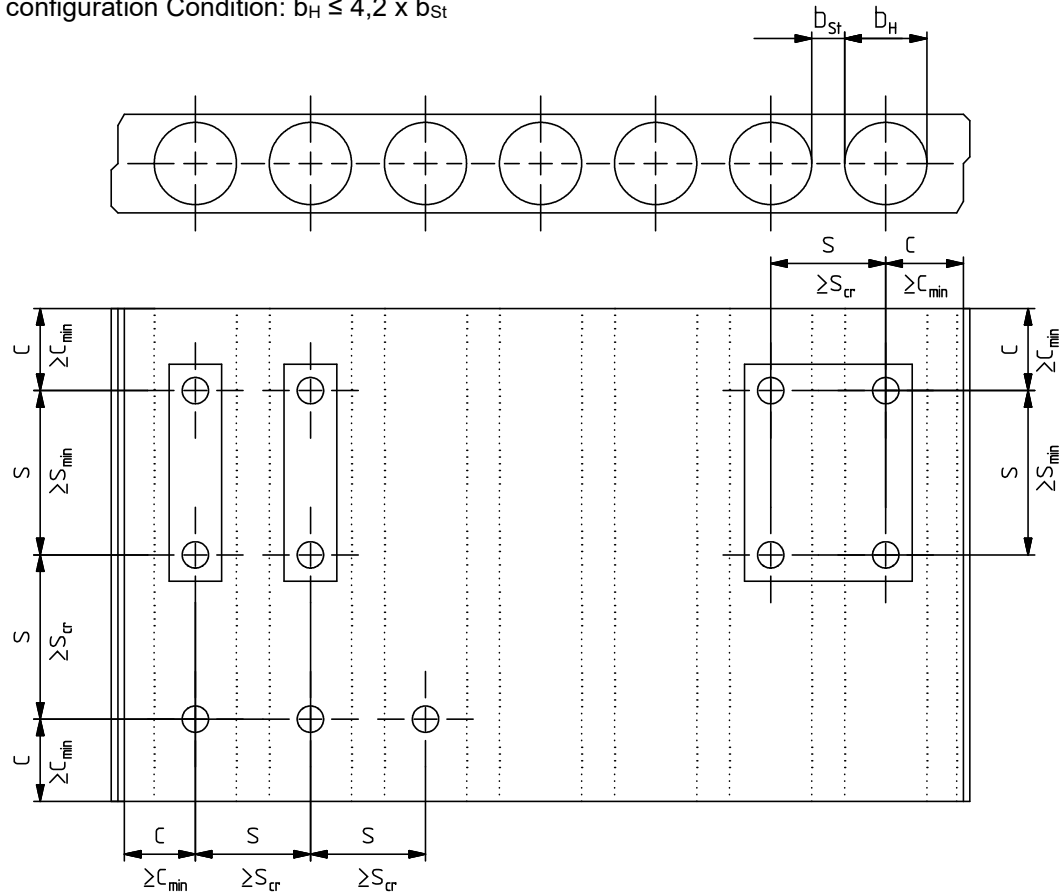
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fischer hollow ceiling anchor FHY

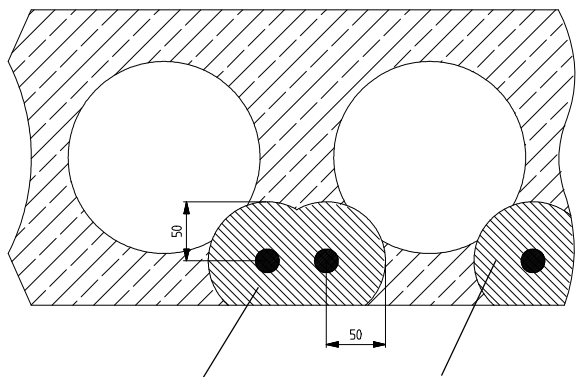
Intended use
Installation parameters

Annex B 2
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Anchor configuration Condition: $b_H \leq 4,2 \times b_{St}$



s_{min} and c_{min} see Annex B 2. s_{cr} see Annex C 1



Area where no anchoring is allowed

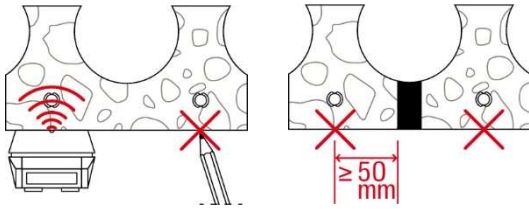
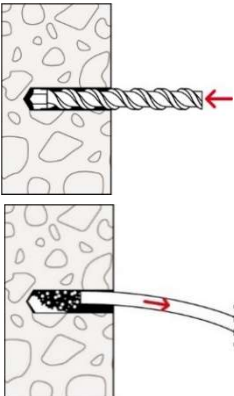
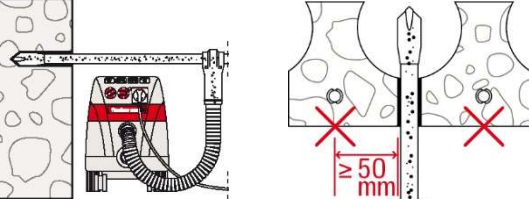
The anchoring must have a distance from the anchor axis to the tensioning strands of at least 50 mm

(Fig. not to scale)

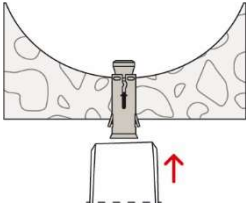
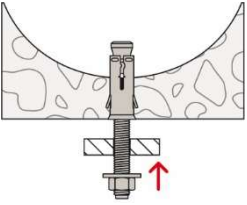
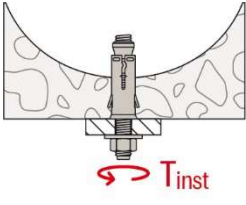
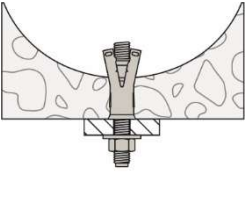
fischer hollow ceiling anchor FHY	Annex B 3 Appendix 6 / 10
Intended use Installation parameters	

Installation instructions:

- Fastener installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on the site
- Hammer or hollow drilling
- Drill hole created perpendicular +/- 5° to concrete surface, positioning without damaging the reinforcement
- In case of aborted hole in solid material: 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 and if under shear or oblique tension load it is not in the direction of load application
- In Precast pre-stressed hollow core slabs the anchor FHY may be installed from all directions, if the web thicknesses is $\geq 25\text{mm}$ and the spacing to the tensioning strands of $\geq 50\text{mm}$ is observed (also in the area of solid material)

1a) Hammer drill (e.g. fischer Quattric II)		 Prestressed hollow core slabs: Determine and mark the position of the tensioning strands, e.g. with a suitable scanner.	 Solid material/solid areas of hollow core slabs
1b) Hollow drill (e.g. fischer FHD)		 Drill the hole with automatic cleaning (e.g. fischer FVC)	-

Installation of the fastener (exemplary in a pre-stressed hollow core slabs)

			
Set the fastener	Fixation of fixture	Apply T_{inst}	Installed fastener

fischer hollow ceiling anchor FHY

Intended use
Installation instructions

Annex B 4
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Table C1.1: Characteristic resistance for all load directions

Size				FHY, FHY R					
				M6	M8	M10	M12		
Concrete solid material									
Characteristic resistance in C20/25				F ⁰ _{Rk}	[kN]	3,0	6,5	8,5	8,5
Partial factor				γ _{Mc}	[-]	1,5	1,5	1,5	1,5
Characteristic spacing				S _{cr}	[mm]	200	200	200	200
Charakteristic edge distance				C _{cr}		100	105	120	120
Pre-stressed hollow core slab ≥ C45/55									
Characteristic resistance		d _u ≥ 25 mm < 30 mm		F ⁰ _{Rk}	[kN]	5,0	7,0	8,0	9,0
		d _u ≥ 30 mm < 40 mm				5,0	7,0	10,0	9,0
		d _u ≥ 40 mm				5,0	7,0	10,0	10,0
Partial factor				γ _{Mc}	[-]	1,5	1,5	1,5	1,5
Characteristic spacing		d _u ≥ 25 mm < 30 mm		S _{cr}	[mm]	200	200	200	200
		d _u ≥ 30 mm < 40 mm				200	200	200	200
		d _u ≥ 40 mm				200	200	200	200
Characteristic edge distance		d _u ≥ 25 mm < 30 mm		C _{cr}	[mm]	100	100	100	150
		d _u ≥ 30 mm < 40 mm				100	100	100	150
		d _u ≥ 40 mm				100	105	120	150
Characteristic bending moment									
FHY	Property class of the screw/ threaded rod	4.6 / 4.8		M ⁰ _{Rk,s}	[Nm]	..2)	15,0	29,9	52,4
		5.8				..2)	18,7	37,4	65,5
		8.8				12,2	30,0	62,3	109,2
FHY R		≥ A4-70				10,7	26,4	52,3	91,7
FHY	Partial factor above property class	4.6		γ _{Ms} ¹⁾	[-]	..2)	1,67	1,67	1,67
		4.8 / 5.8				..2)	1,25	1,25	1,25
		8.8				1,25	1,25	1,25	1,25
FHY R		≥ A4-70				1,56	1,56	1,56	1,56
1) In absence of other national regulations 2) No Performance assessed									
fischer hollow ceiling anchor FHY							Annex C 1 Appendix 8 / 10		
Performances Characteristic resistance for all load directions									

Table C2.1: Characteristic resistance under **fire exposure** for concrete solid material
for all load directions

Size				FHY			
				M6	M8	M10	M12
Characteristic resistance for all load directions Concrete solid material	$F_{Rk,fi}$	R30	[kN]	0,75	1,25	1,74	1,74
		R60		0,58	1,25	1,74	1,74
		R90		0,38	0,8	1,3	1,74
		R120		0,28	0,57	0,96	1,39
Characteristic resistance for shear load with lever arm Concrete solid material	$M^0_{Rk,fi}$	R30	[Nm]	0,6	1,8	3,4	6,0
		R60		0,4	1,3	2,5	4,5
		R90		0,3	0,8	1,7	2,9
		R120		0,2	0,6	1,2	2,2

Size				FHY R			
				M6	M8	M10	M12
Characteristic resistance for all load directions Concrete solid material	$F_{Rk,fi}$	R30	[kN]	0,75	1,25	1,74	1,74
		R60		0,75	1,25	1,74	1,74
		R90		0,75	0,96	1,06	1,54
		R120		0,6	0,48	0,69	1,00
Characteristic resistance for shear load with lever arm Concrete solid material	$M^0_{Rk,fi}$	R30	[Nm]	1,9	2,9	3,3	5,7
		R60		1,3	2,0	2,3	4,1
		R90		0,8	1,0	1,4	2,4
		R120		0,5	0,5	0,9	1,6

Concrete pryout failure according to EN 1992-4:2018

fischer hollow ceiling anchor FHY

Performances

Characteristic values of resistance under fire exposure
for concrete solid material

Annex C 2

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Table C3.1: Characteristic resistance under **fire exposure** for pre-stressed hollow core slabs for all load directions

Size				FHY				
				M6	M8	M10	M12	
Characteristic resistance for all load directions Pre-stressed hollow core slabs	d _u ≥ 25 mm < 30 mm	F _{RK,fi}	R30	[kN]	0,78	1,15	1,15	1,15
			R60	0,58	1,15	1,15	1,15	
			R90	0,38	0,80	1,15	1,15	
			R120	0,28	0,57	0,92	0,92	
	d _u ≥ 30 mm < 40 mm	F _{RK,fi}	R30	[kN]	0,78	1,52	1,52	1,52
			R60	0,58	1,26	1,52	1,52	
			R90	0,38	0,80	1,30	1,52	
			R120	0,28	0,57	0,96	1,21	
	d _u ≥ 40 mm	F _{RK,fi}	R30	[kN]	0,78	1,71	2,33	2,33
			R60	0,58	1,26	1,98	2,33	
			R90	0,38	0,80	1,30	1,89	
			R120	0,28	0,57	0,96	1,39	
Characteristic resistance for shear load with lever arm Pre-stressed hollow core slabs d _u ≥ 25 mm	M ⁰ _{RK,fi}	R30	[Nm]	0,6	1,8	3,4	6,0	
		R60	0,4	1,3	2,5	4,5		
		R90	0,3	0,8	1,7	2,9		
		R120	0,2	0,6	1,2	2,2		
Size				FHY-R				
				M6	M8	M10	M12	
Characteristic resistance for all load directions Pre-stressed hollow core slabs	d _u ≥ 25 mm < 30 mm	F _{RK,fi}	R30	[kN]	1,15	1,15	1,15	1,15
			R60	1,15	1,15	1,15	1,15	
			R90	1,04	0,96	1,06	1,15	
			R120	0,68	0,48	0,69	0,92	
	d _u ≥ 30 mm < 40 mm	F _{RK,fi}	R30	[kN]	1,52	1,52	1,52	1,52
			R60	1,52	1,52	1,52	1,52	
			R90	1,04	0,96	1,06	1,52	
			R120	0,68	0,48	0,69	1,00	
	d _u ≥ 40 mm	F _{RK,fi}	R30	[kN]	1,52	1,91	2,33	2,33
			R60	1,52	1,91	1,80	2,33	
			R90	1,04	0,96	1,06	1,54	
			R120	0,68	0,48	0,69	1,00	
Characteristic resistance for shear load with lever arm Pre-stressed hollow core slabs d _u ≥ 25 mm	M ⁰ _{RK,fi}	R30	[Nm]	1,9	2,9	3,3	5,7	
		R60	1,3	2,0	2,3	4,1		
		R90	0,8	1,0	1,4	2,4		
		R120	0,5	0,5	0,9	1,6		

Concrete pryout failure according to EN 1992-4:2018

fischer hollow ceiling anchor FHY

Performances

Performance

Characteristic values of resistance under fire exposure for pre-stressed hollow core slabs

Annex C 3

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