



**INSTITUTO DE CIENCIAS  
DE LA CONSTRUCCIÓN  
EDUARDO TORROJA**

C/ Serrano Galvache n. 4 28033 Madrid (Spain)  
Tel.: (+34) 91 302 04 40 Fax: (+34) 91 302 07 00  
[direccion.ietcc@csic.es](mailto:direccion.ietcc@csic.es) [www.ietcc.csic.es](http://www.ietcc.csic.es)

## European Technical Assessment

## ETA 16/0667 of 27/06/2018

English translation prepared by IETcc. Original version in Spanish language

### General Part

**Technical Assessment Body issuing the ETA designated according to Art. 29 of Regulation (EU) 305/2011:**

Instituto de Ciencias de la Construcción Eduardo Torroja (IETcc)

**Trade name of the construction product**

**UIP Hollow ceiling anchor FHD-VII-SZ**

**Product family to which the construction product belongs:**

Torque controlled expansion anchor made of zinc plated steel in the sizes M6, M8 and M10 for use in precast prestressed hollow core slabs for multiple use in non-structural applications.

**Manufacturer:**

**UIP Verbindungstechnik GmbH**  
Kapellenstraße 47  
65830 Kriftel.  
Germany  
website: [www.Uip-systems.com](http://www.Uip-systems.com)

**Manufacturing plant:**

**UIP Verbindungstechnik GmbH plant 2**

**This European Technical Assessment contains:**

8 pages including 4 annexes which form an integral part of this assessment. **Annex E contains confidential information and is not included in the European Technical Assessment when that assessment is publicly available.**

**This European Technical Assessment is issued in accordance with regulation (EU) No 305/2011, on the basis of:**

Guideline for European Technical Approval ETAG 001 "Metal anchors for use in concrete", ed. April 2013, Parts 1 and 6 used as European Assessment Document (EAD)

**This ETA is a corrigendum of:**

ETA 16/0667 issued on 11/11/2016

*English translation prepared by IETcc*

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission according to article 25 paragraph 3 of Regulation (EU) n. 305/2011.

## **SPECIFIC PART**

### **1. Technical description of the product**

The UIP hollow ceiling anchors FHD-VII-SZ are made of a metal sleeve and a metal expansion cone. By screwing in a metal normal metric screw with necessary length, not delivered with the product, the expansion cone is pulled into the sleeve. The top section of the sleeve subsequently expands in the hollow area of the hollow prestressed concrete slab. To ensure that the anchor is expanded properly and the expansion cone is pulled into the sleeve, sufficient torque moment must be applied on the anchor.

The UIP hollow ceiling anchors FHD-VII-SZ in the range from M6 to M10 correspond to the pictures and provisions given in annexes A and B. The characteristic material values, dimensions and tolerances of the anchors not indicated in annexes A and B shall correspond to the respective values laid down in the technical documentations <sup>(1)</sup> of this European Technical Assessment.

For the installation process, see figure given in annex C; for the installed anchor, see figure given in annex D.

Each sleeve is marked with the identifying mark of the producer, the trade name, the anchor diameter and the metric of the required bolt.

The performance of the anchors, including installation data, characteristic anchor values and fire resistance for the design of anchorages is given in chapter 3.

The anchors shall only be packaged and supplied as complete units.

### **2. Specification of the intended use in accordance with the applicable EAD.**

#### **2.1 Intended use**

The anchors are intended to be used for anchorages for which requirements for mechanical resistance and stability, safety in case of fire and safety and accessibility in use in the sense of the basic requirements 1, 2 and 4 of Construction Product Regulation no 305/21011 shall be fulfilled and failure of anchorages made with these products would compromise the stability of the works, cause risk to human life and/or lead to considerable economic consequences.

The anchors are to be used only for anchorages subject to static or quasi-static loading in precast prestressed hollow core slabs for multiple use in non-structural applications in concrete of strength class  $\geq$  C40/50, according to EN 206.

The anchors may only be used in concrete subject to dry internal conditions.

The anchors may be used for anchorages with requirements related to resistance to fire.

Design under static and quasi-static load shall be performed in accordance with ETAG 001 annex C or CEN/TS 1992-4-4, design method B. For applications with the requirement of fire resistance, the anchorages are designed in accordance with the method given in TR020 "Evaluation of anchorage in concrete concerning resistance to fire". Anchorages shall be designed under the responsibility of an engineer experienced in anchorages and concrete work.

---

(1) The quality plan has been deposited at Instituto de Ciencias de la Construcción Eduardo Torroja and is only made available to the notified bodies involved in the AVCP procedure.

English translation prepared by IETcc

Verifiable calculations and drawings shall be prepared taking into account the load to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 50 years. The assumed working life is the foreseen period of time throughout which the construction product, as installed into the construction work, will maintain its performances, allowing the construction work, behaving under predictable actions and with normal maintenance, to meet the basic requirements for construction works.

### 3. Performance of the product and references to the methods used for its assessment

The identification tests and the assessment for the intended use of this anchor according to the basic work requirements (BWR) were carried out in compliance with the ETAG 001. The characteristics of the components shall correspond to the respective values laid down in the technical documentation of this ETA, checked by IETcc.

#### 3.1 Mechanical resistance and stability (BWR 1)

Mechanical resistance and stability has been assessed according to ETAG 001 "Metal anchors for use in concrete", parts 1 and 6.

Installation parameters			Performances		
			M6	M8	M10
$d_o$	Nominal diameter of drill bit:	[mm]	10	12	16
$D$	Thread diameter:	[mm]	M6	M8	M10
$d_f$	Fixture clearance hole diameter:	[mm]	7	9	12
$T_{inst}$	Installation torque:	[Nm]	10	20	30
$h_1$	Depth of drilled hole $\geq$	[mm]	45	50	60
$h_{nom}$	Overall anchor embedment depth in the base material:	[mm]	38	44	53
$l_c$	Core distance $\geq$	[mm]	100	100	100
$l_p$	Prestressing steel distance $\geq$	[mm]	100	100	100
$a_p$	Distance between anchor position and prestressing reinforcement steel $\geq$	[mm]	50	50	50
$l_s$	Minimum length of bolt:	[mm]	$t_{fix}+40$	$t_{fix}+46$	$t_{fix}+55$
	Minimum steel class of bolt:		6.8 ISO 898-1		
$s_{min}$	Minimum spacing:	[mm]	100	100	100
$c_{min}$	Minimum edge distance:	[mm]	60	70	80

Characteristic values of resistance to loads of design method B				Performances		
				M6	M8	M10
<b>All load directions</b>						
$F_{Rk}^0$	Characteristic resistance in $\geq$ C40/50 prestressed hollow core slab:	$d_b \geq 25; < 30$ mm	[kN]	3,5	5,0	8,0
		$d_b \geq 30; < 40$ mm	[kN]	7,0	10,0	10,0
		$d_b \geq 40$ mm	[kN]	8,5	11,5	14,0
$\gamma_M$	Partial safety factor: <sup>1)</sup>		[-]	1,8	1,5	1,8
$s_{cr}$	Characteristic spacing:		[mm]	200	200	200
$c_{cr}$	Characteristic edge distance:		[mm]	100	100	100
<b>Shear load with lever arm</b>						
$M_{Rk,s}^0$	Characteristic bending moment, steel class 6.8:		[Nm]	9,1	22,5	44,9
$\gamma_{Ms}$	Partial safety factor: <sup>1)</sup>		[-]	1,25	1,25	1,25
$M_{Rk,s}^0$	Characteristic bending moment, steel class 8.8:		[Nm]	12,2	30,0	59,9
$\gamma_{Ms}$	Partial safety factor: <sup>1)</sup>		[-]	1,25	1,25	1,25

1) In absence of other national regulations

### 3.2 Safety in case of fire (BWR 2)

Reaction to fire has been assessed according to Commission Decision 96/603/EC, amended by 2000/605/EC. See class in table below:

Reaction to fire	M6	M8	M10
Reaction to fire: [-]	Class A1		

Resistance to fire has been assessed according to Technical Report 020: "Evaluation of anchorages in concrete concerning resistance to fire"

Characteristic resistance under fire exposure in $\geq$ C40/50 prestressed hollow core slabs for use in non structural applications in concrete			Performances		
			M6	M8	M10
$d_b$	Minimum slab bottom thickness for fire resistance:	[mm]	30	30	40
<b>Any load direction</b>					
R30	Characteristic resistance $F^0_{Rk,fi30}$ <sup>1)</sup> :	[kN]	0,20	0,37	0,87
R60	Characteristic resistance $F^0_{Rk,fi60}$ <sup>1)</sup> :	[kN]	0,18	0,33	0,75
R90	Characteristic resistance $F^0_{Rk,fi90}$ <sup>1)</sup> :	[kN]	0,14	0,26	0,58
R120	Characteristic resistance $F^0_{Rk,fi120}$ <sup>1)</sup> :	[kN]	0,10	0,18	0,46
R30 to R120	Spacing $S_{cr,fi}$ :	[mm]	160	160	160
R30 to R120	Edge distance $C_{cr,fi}$ :	[mm]	80	80	80
<b>Shear load with lever arm</b>					
R30	Characteristic bending moment $M^0_{Rk,s,fi30}$ :	[Nm]	0,15	0,38	1,12
R60	Characteristic bending moment $M^0_{Rk,s,fi60}$ :	[Nm]	0,14	0,34	0,97
R90	Characteristic bending moment $M^0_{Rk,s,fi90}$ :	[Nm]	0,11	0,26	0,75
R120	Characteristic bending moment $M^0_{Rk,s,fi120}$ :	[Nm]	0,08	0,19	0,60

- 1) In absence of other national regulations, the partial safety factor for resistance under fire exposure  $\gamma_{M,fi} = 1,0$  is recommended. Design under fire exposure is according to the design method given in TR020. The design equations are given in TR020, section 2.2.1.  
TR020 covers the design for fire exposure from one side. If fire attacks from more than one side, the design method may be taken if edge distance of the anchor is  $c \geq 300$  mm.

### 3.3 Hygiene, health and the environment (BWR 3)

This requirement is not relevant for the anchors.

### 3.4 Safety in use (BWR 4)

Requirements with respect to the safety in use are not included in this Essential Requirement but are treated under the Essential Requirement Mechanical Resistance and Stability (see section 3.1).

### 3.5 Protection against noise (BWR 5)

This requirement is not relevant for the anchors.

### 3.6 Energy economy and heat retention (BWR 6)

This requirement is not relevant for the anchors.

### 3.7 Sustainable use of natural resources (BWR 7)

No performance assessed.

#### 4. System of assessment and verification of constancy of performance

According to the decision 97/161/EC of the European Commission <sup>(2)</sup> the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table applies:

Product	Intended use	Level or class	System
Metal anchors for use in concrete (light-duty type).	For use in redundant systems for fixing and/or supporting to concrete elements such as lightweight suspended ceilings, as well as installation.	--	2+

#### 5. Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the quality plan deposited at Instituto de Ciencias de la Construcción Eduardo Torroja.



Instituto de Ciencias de la Construcción Eduardo Torroja  
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

C/ Serrano Galvache n.º 4. 28033 Madrid.  
Tel: (+34) 91 302 04 40 Fax: (+34) 91 302 07 00  
www.ietcc.csic.es



On behalf of the Instituto de Ciencias de la Construcción Eduardo Torroja  
Madrid, 27<sup>th</sup> of June 2018

Marta Mª Castellote Armero  
Director

English translation prepared by IETcc

**INDEX OF ANNEXES:**

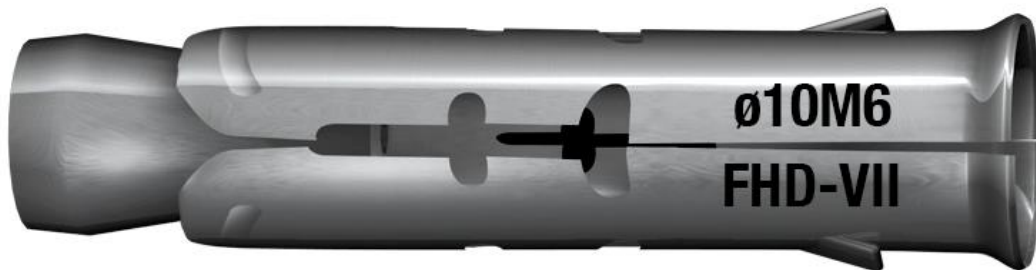
**Annex A: Assembled UIP Hollow ceiling anchor FHD-VII-SZ**

**Annex B. Materials UIP Hollow ceiling anchor FHD-VII-SZ**

**Annex C. Installation instruction for the UIP Hollow ceiling anchor FHD-VII-SZ**

**Annex D. Schema of the UIP Hollow ceiling anchor FHD-VII-SZ in use**

**Annex A: Assembled UIP Hollow ceiling anchor FHD-VII-SZ**



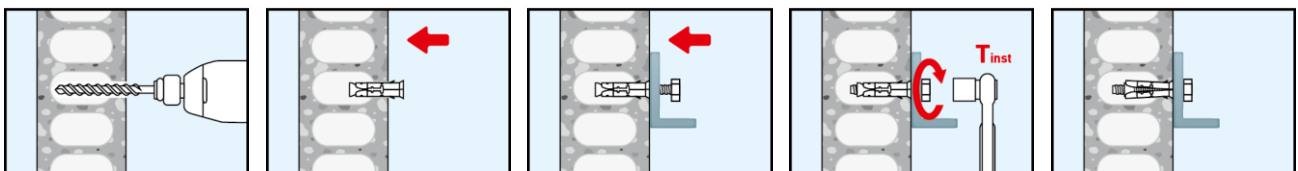
Identification on anchor:

- Expansion sleeve:
  - Outer diameter, metric
  - Anchor trade name. e.g. "FHD-VII"
  - Company logo

**Annex B. Materials UIP Hollow ceiling anchor FHD-VII-SZ**

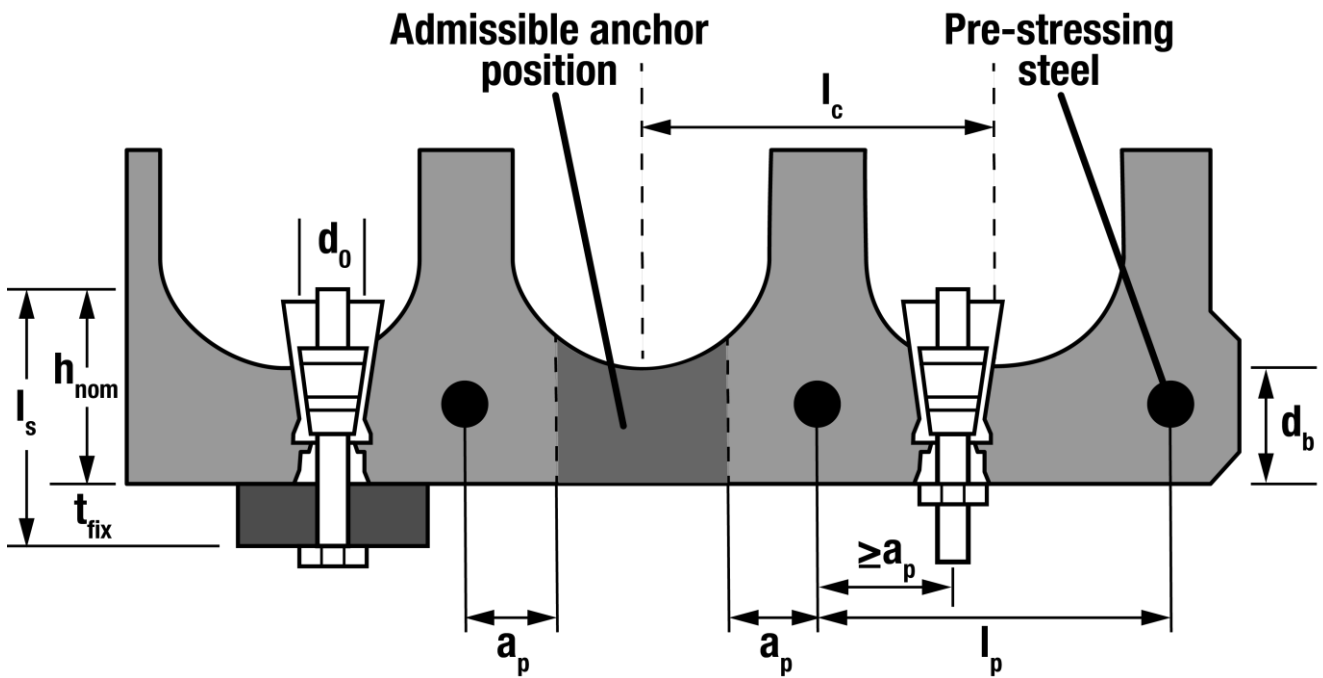
Item	FHD-VII-SZ anchor
Expansion sleeve	Carbon steel strip, electro zinc plated $\geq 5 \mu\text{m}$ ISO 4042 A2
Cone	Carbon steel wire rod, electro zinc plated $\geq 5 \mu\text{m}$ ISO 4042 A2

**Annex C. Installation instruction for the UIP Hollow ceiling anchor FHD-VII-SZ**



English translation prepared by IETcc

### Annex D. Schema of the UIP Hollow ceiling anchor FHD-VII-SZ in use



- $h_{nom}$ : Overall anchor embedment depth in the base material
- $d_o$ : Nominal diameter of drill bit
- $d_b$ : Minimum thickness of prestressed hollow core concrete slab
- $t_{fix}$ : Thickness of fixture
- $l_s$ : Overall length of bolt
- $l_c$ : Core distance
- $l_p$ : Pre-stressing steel distance
- $a_p$ : Distance between anchor position and pre-stressing steel