

## DECLARACIÓN DE PRESTACIONES

### DoP 0265

para Upat Drop-in Anchor USA (anclaje mecánico para uso en hormigón)

ES

1. Código de identificación única del producto tipo: DoP 0265
2. Usos previstos: Fijación a posteriori en hormigón para sistemas no portantes redundantes, véase el apéndice, especialmente los anexos B1 - B3.
3. Fabricante: Upat Vertriebs GmbH, Bebelstraße 11, 79108 Freiburg im Breisgau, Alemania
4. Representante autorizado: -
5. Sistemas de evaluación y verificación de la constancia de las prestaciones (EVCP): 2+
6. Documento de evaluación europeo: ETAG 001, Part 6, January 2011, considerada como EAD  
Evaluación técnica europea: ETA-10/0168; 2017-05-11  
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: NPD  
Résistance à la rupture par extraction glissement: NPD  
Resistencia de rotura por cono de hormigón: NPD  
Robustez: Anexo C1  
Distancia mínima entre el borde y el centro: Anexos B2, B3  
Distancia al borde para evitar la rotura del acero sometido a carga: NPD  
**Resistencia característica a cortante (carga estática y cuasi-estática):**  
Resistencia de rotura del acero (esfuerzo cortante): Anexos C1, C2  $V_{Rk,s}=NPD; k_f=NPD$   
Resistencia falla por arrancamiento lateral: NPD  
Resistencia de rotura del hormigón al borde: NPD  
**Resistencia característica para todas las direcciones de carga y modos de falla para un diseño simplificado:**  
Resistencia característica: Anexos C1, C2  
**Durabilidad:**  
Durabilidad: Anexos A3, 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): NPD  
Resistencia al fuego, a la extracción (carga de tracción): NPD  
Resistencia al fuego, rotura del acero (esfuerzo cortante): NPD  
Resistencia al fuego para todas las direcciones de carga y modos de fallo: Anexo C3
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.-Ing. Oliver Geibig, Director General Unidades de Negocio e Ingeniería  
Tumlingen, 2021-01-12



Jürgen Grün, Director General de Química y Calidad

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).

## Specific Part

### 1 Technical description of the product

The Upat Drop-in Anchor USA is an anchor made of galvanized or stainless steel which is placed into a drilled hole and anchored by deformation-controlled expansion.

The fixture shall be anchored with a fastening screw or threaded rod.

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 Mechanical resistance and stability (BWR 1)

The essential characteristics regarding Mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

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

| Essential characteristic | Performance                                 |
|--------------------------|---------------------------------------------|
| Reaction to fire         | Anchorage satisfy requirements for Class A1 |
| Resistance to fire       | See Annex C 3                               |

#### 3.3 Safety in use (BWR 4)

| Essential characteristic                                                     | Performance          |
|------------------------------------------------------------------------------|----------------------|
| Characteristic resistance for static and quasi-static loading, displacements | See Annex C 1 to C 2 |

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

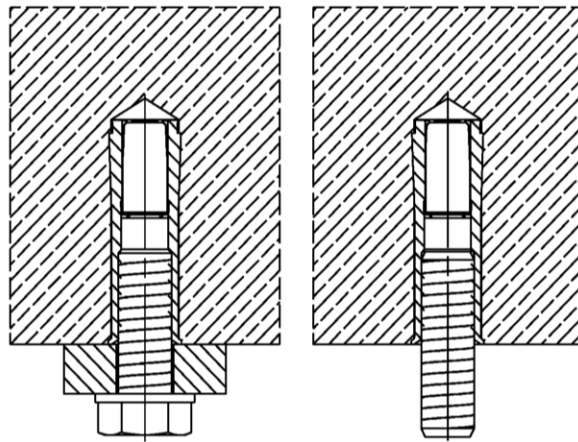
In accordance with guideline for European technical approval ETAG 001, January 2011 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 the applicable European legal act is: [97/161/EC].

The system to be applied is: 2+

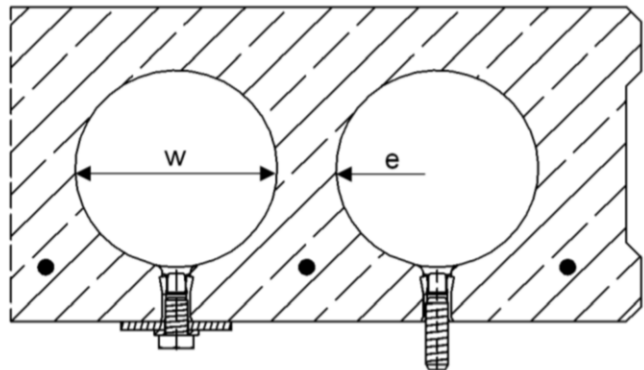
## Multiple use for non-structural applications only



### Intended use in concrete



Intended use in precast pre-stressed hollow concrete slabs ( $w/e \leq 4,2$ ) with a flange thickness  $\geq 35$  (or 30 mm  $\rightarrow$  see Annex C2) and only for  $h_{ef} = 25$  mm

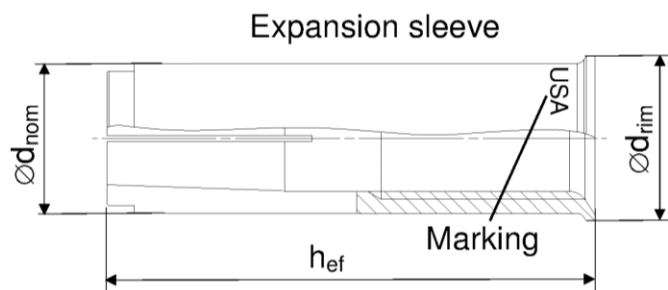


## Upat Drop-in Anchor USA

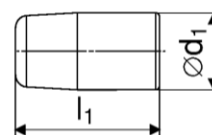
### Product description

Installed condition  
Anchor types

## Annex A 1



Expansion pin



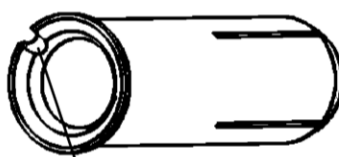
| Anchor size<br>USA         | M6x25 | M6x30 | M8x25 | M8x30 | M8x40 | M10x25 | M10x30 | M10x40 | M12x25 | M12x50 | M12 D |
|----------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|-------|
| $h_{ef}$ [mm]              | 25    | 30    | 25    | 30    | 40    | 25     | 30     | 40     | 25     | 50     | 50    |
| $\varnothing d_{nom}$ [mm] | 8     |       | 10    |       |       | 12     |        |        | 15     |        | 16    |
| $\varnothing d_{rim}$ [mm] | 9,5   |       | 11,5  |       |       | 13,5   |        |        | 16,5   |        | 17,5  |
| $\varnothing d_1$ [mm]     | 5     |       | 6,5   |       |       | 8,5    | 8      |        | 10     |        |       |
| $l_1$ [mm]                 | 9     | 14    | 8     | 13,5  |       | 9      | 13,5   | 18,5   | 10,5   | 18,5   |       |

### Distinctive feature



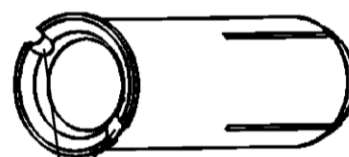
0× groove for:

- USA M6x30..
- USA M8x30..
- USA M10x40..
- USA M12x50..



1× groove for:

- USA M6x25..
- USA M8x25..
- USA M10x25..
- USA M12x25..



2× groove for:

- USA M8x40..
- USA M10x30..

### Marking on anchor body

| galvanized steel (gvz) |                | stainless steel (A4) |                   |
|------------------------|----------------|----------------------|-------------------|
| with rim               | rimless        | with rim             | rimless           |
| USA M6x25              | USA M6x25 RL   | USA M6x30 A4         | USA M6x30 RL A4   |
| USA M6x30              | USA M6x30 RL   | USA M8x30 A4         | USA M8x30 RL A4   |
| USA M8x25              | USA M8x25 RL   | USA M8x40 A4         | USA M8x40 RL A4   |
| USA M8x30              | USA M8x30 RL   | USA M10x30 A4        | USA M10x30 RL A4  |
| USA M8x40              | USA M8x40 RL   | USA M10x40 A4        | USA M10x40 RL A4  |
| USA M10x25             | USA M10x25 RL  | USA M12x50 A4        | USA M12x50 RL A4  |
| USA M10x30             | USA M10x30 RL  | USA M12x50 DA4       | USA M12x50 RL DA4 |
| USA M10x40             | USA M10x40 RL  |                      |                   |
| USA M12x25             | USA M12x25 RL  |                      |                   |
| USA M12x50             | USA M12x50 RL  |                      |                   |
| USA M12x50 D           | USA M12x50 RLD |                      |                   |

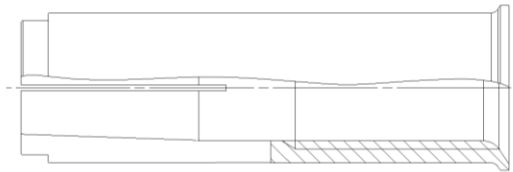
Upat Drop-in Anchor USA

**Product description**  
Anchor types

**Annex A 2**

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Expansion sleeve



Expansion pin



**Table A1: Materials**

|                                    | Material                                                                                                 |                                                           |
|------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| Designation                        | galvanised steel ( $\geq 5 \mu\text{m}$ )                                                                | stainless steel                                           |
| Expansion sleeve                   | EN 10277:2008 or EN 10084:2008 or<br>EN 10111:2008 or EN 10263:2001 or<br>EN 10087:1998 or ASTM A29/A29M | EN 10088:2005                                             |
| Expansion pin                      |                                                                                                          |                                                           |
| Fastening screw or<br>threaded rod | steel, property class 4.6, 5.6, 5.8 or<br>8.8 according to EN ISO 898-1:2012                             | property class 50, 70 or 80<br>according EN ISO 3506:2009 |

Upat Drop-in Anchor USA

**Product description**  
Material

**Annex A 3**

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## Specifications of intended use

### Anchorage subject to:

- Static and quasi-static loads
- Only to be used for multiple use for non-structural application
- Fire exposure: only in concrete C12/15 to C50/60, not prestressed hollow concrete slabs

### Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2000
- Strength classes C12/15 to C50/60 according to EN 206-1:2000
- Precast prestressed hollow concrete slabs with  $w/e \leq 4,2$  and strength classes C30/37 to C50/60: M6x25, M8x25, M10x25 and M12x25
- Cracked concrete and non-cracked concrete: all sizes

### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (zinc coated steel or stainless steel)
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel)

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used)

### Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work
- Verifiable calculation notes and drawings are prepared taking account of the loads 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.)
- Anchorages under static or quasi-static actions are to be designed in accordance with:
  - ETAG 001, Annex C, design method B and C, Edition August 2010 or
  - CEN/TS 1992-4:2009, design method B
- Fasteners are only to be used for multiple use for non-structural application, according to: ETAG 001 Part 6, Edition August 2010
- Anchorages under fire exposure are designed in accordance with:
  - EOTA Technical Report TR 020, Edition May 2004
  - CEN/TS 1992-4:2009
  - It must be ensured that local spalling of the concrete cover does not occur

### Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site
- Create drill hole with hammer drill or with hollow drill and vacuum cleaner
- The anchor may only be used once
- Anchor expansion by impact using the setting tools given in Annex B 4. The anchor is properly set if the stop of the setting tool reaches the expansion sleeve. The manual setting tool with installation control leaves a visible mark on the sleeve, as illustrated in Annex B4 and B 5

Upat Drop-in Anchor USA

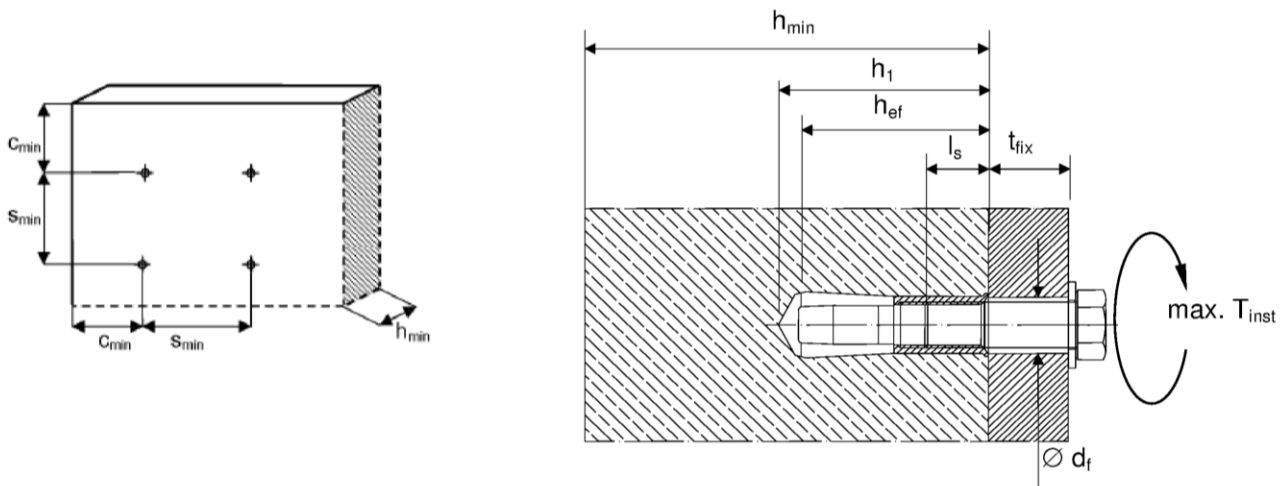
Intended Use  
Specifications

**Annex B 1**

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**Table B1: Installation parameters for concrete C12/15 to C50/60**

| Anchor size                 |                        |      | M6 |     | M8  |     |     | M10 |     |     | M12 |     | M12D |
|-----------------------------|------------------------|------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Nominal drill hole diameter | d <sub>0</sub>         | [mm] | 8  |     | 10  |     |     | 12  |     |     | 15  |     | 16   |
| Effective anchorage depth   | h <sub>ef</sub>        | [mm] | 25 | 30  | 25  | 30  | 40  | 25  | 30  | 40  | 25  | 50  | 50   |
| Maximum installation torque | max. T <sub>inst</sub> | [Nm] | 4  |     | 8   |     |     | 15  |     |     | 35  |     |      |
| Minimum drill hole depth    | h <sub>1</sub>         | [mm] | 27 | 32  | 27  | 33  | 43  | 27  | 33  | 43  | 27  | 54  | 54   |
| Minimum screw-in depth      | l <sub>s,min</sub>     | [mm] | 6  |     | 8   |     |     | 10  |     |     | 12  |     |      |
| Maximum screw-in depth      | l <sub>s,max</sub>     | [mm] | 14 |     | 14  |     |     | 14  |     | 17  | 14  | 22  |      |
| Clearance hole diameter     | ∅ d <sub>f</sub> ≤     | [mm] | 7  |     | 9   |     |     | 12  |     |     | 14  |     |      |
| h <sub>min</sub> = 80 mm    |                        |      |    |     |     |     |     |     |     |     |     |     |      |
| Minimum spacing             | s <sub>min</sub>       | [mm] | 30 | 70  | 70  | 110 | 200 | 80  | 200 |     | 100 | -   | -    |
| Minimum edge distance       | c <sub>min</sub>       | [mm] | 60 | 150 | 100 | 150 |     | 120 | 150 |     | 130 | -   | -    |
| h <sub>min</sub> = 100 mm   |                        |      |    |     |     |     |     |     |     |     |     |     |      |
| Minimum spacing             | s <sub>min</sub>       | [mm] | 30 | 65  | 50  | 70  |     | 60  | 90  | 150 | 100 | 200 |      |
| Minimum edge distance       | c <sub>min</sub>       | [mm] | 60 | 115 | 100 | 115 |     | 100 | 160 | 180 | 110 |     |      |
| h <sub>min</sub> = 120 mm   |                        |      |    |     |     |     |     |     |     |     |     |     |      |
| Minimum spacing             | s <sub>min</sub>       | [mm] | 30 | 65  | 50  | 70  |     | 60  | 85  | 95  | 100 | 145 |      |
| Minimum edge distance       | c <sub>min</sub>       | [mm] | 60 | 115 | 100 | 115 |     | 100 | 140 | 150 | 110 | 200 |      |



Fastening screw or threaded rod:

- Minimum property class and materials according to table A1
- The length of the fastening screw or threaded rod shall be determined depending on thickness of fixture  $t_{fix}$ , admissible tolerances and maximum screw length  $l_{s,max}$  as well as minimum screw-in depth  $l_{s,min}$ .

Upat Drop-in Anchor USA

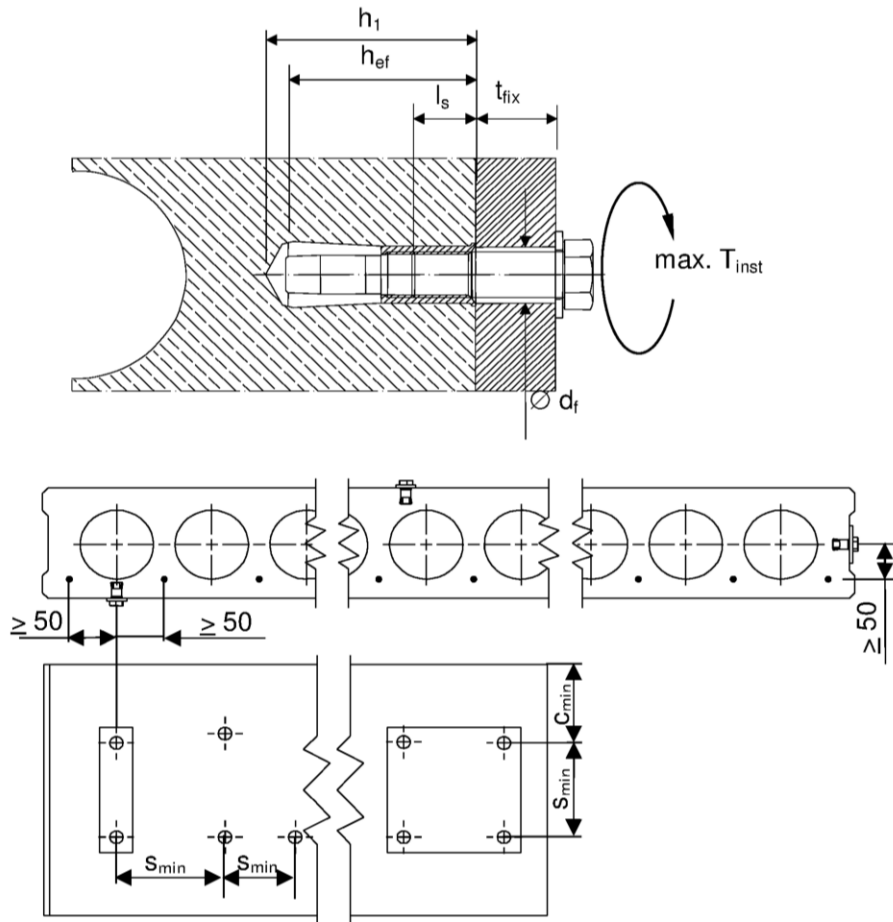
**Intended Use**  
Installation parameters

**Annex B 2**

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**Table B2: Installation parameters for precast pre-stressed hollow concrete slabs**

| Anchor size                 |                    |      | M6  | M8 | M10 | M12 |
|-----------------------------|--------------------|------|-----|----|-----|-----|
| Nominal drill hole diameter | $d_0$              | [mm] | 8   | 10 | 12  | 15  |
| Effective anchorage depth   | $h_{ef}$           | [mm] | 25  |    |     |     |
| Maximum installation torque | max. $T_{inst}$    | [Nm] | 4   | 8  | 15  | 35  |
| Minimum drill hole depth    | $h_1$              | [mm] | 27  |    |     |     |
| Minimum screw-in depth      | $l_{s,min}$        | [mm] | 6   | 8  | 10  | 12  |
| Maximum screw-in depth      | $l_{s,max}$        | [mm] | 14  |    |     |     |
| Clearance hole diameter     | $\varnothing d_f$  | [mm] | 7   | 9  | 12  | 14  |
| Minimum spacing             | $s_{min} = s_{cr}$ | [mm] | 200 |    |     |     |
| Minimum edge distance       | $c_{min} = c_{cr}$ | [mm] | 150 |    |     |     |



Fastening screw or threaded rod:

- Minimum property class and materials according to table A1
- The length of the fastening screw or threaded rod shall be determined depending on thickness of fixture  $t_{fix}$ , admissible tolerances and maximum screw length  $l_{s,max}$  as well as minimum screw-in depth  $l_{s,min}$ .

Upat Drop-in Anchor USA

**Intended Use**

Installation parameters

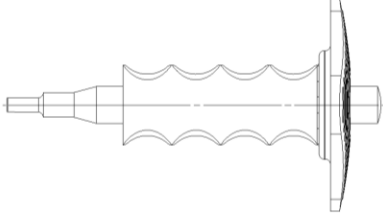
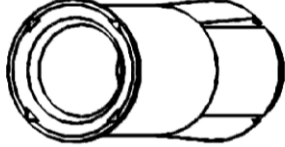
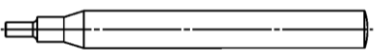
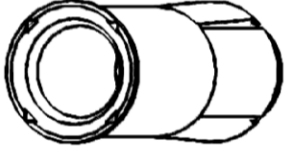
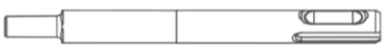
**Annex B 3**

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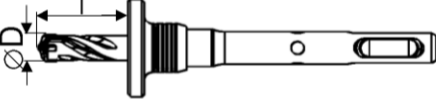


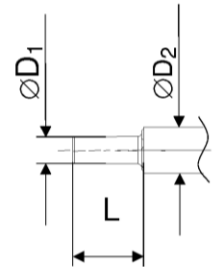
## Setting & drilling tools

### Setting tools

| Setting tools                                                                    | Marking                          | Description                         | Marking on USA with rim and rimless                                                 |
|----------------------------------------------------------------------------------|----------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|
|  | EHS Plus<br>M..x h <sub>ef</sub> | Manual setting tool with hand guard |  |
|  | EHS<br>M..x h <sub>ef</sub>      | Manual setting tool basic format    |  |
|  | EMS<br>M..x h <sub>ef</sub>      | Machine setting tool with SDS Plus  | No marking                                                                          |

### Drilling tools

|                                                                                  |               |            |
|----------------------------------------------------------------------------------|---------------|------------|
|  | EBB<br>ØD x l | Stop drill |
| Or other usual drillers                                                          |               |            |



**Table B3: Parameters of setting tools**

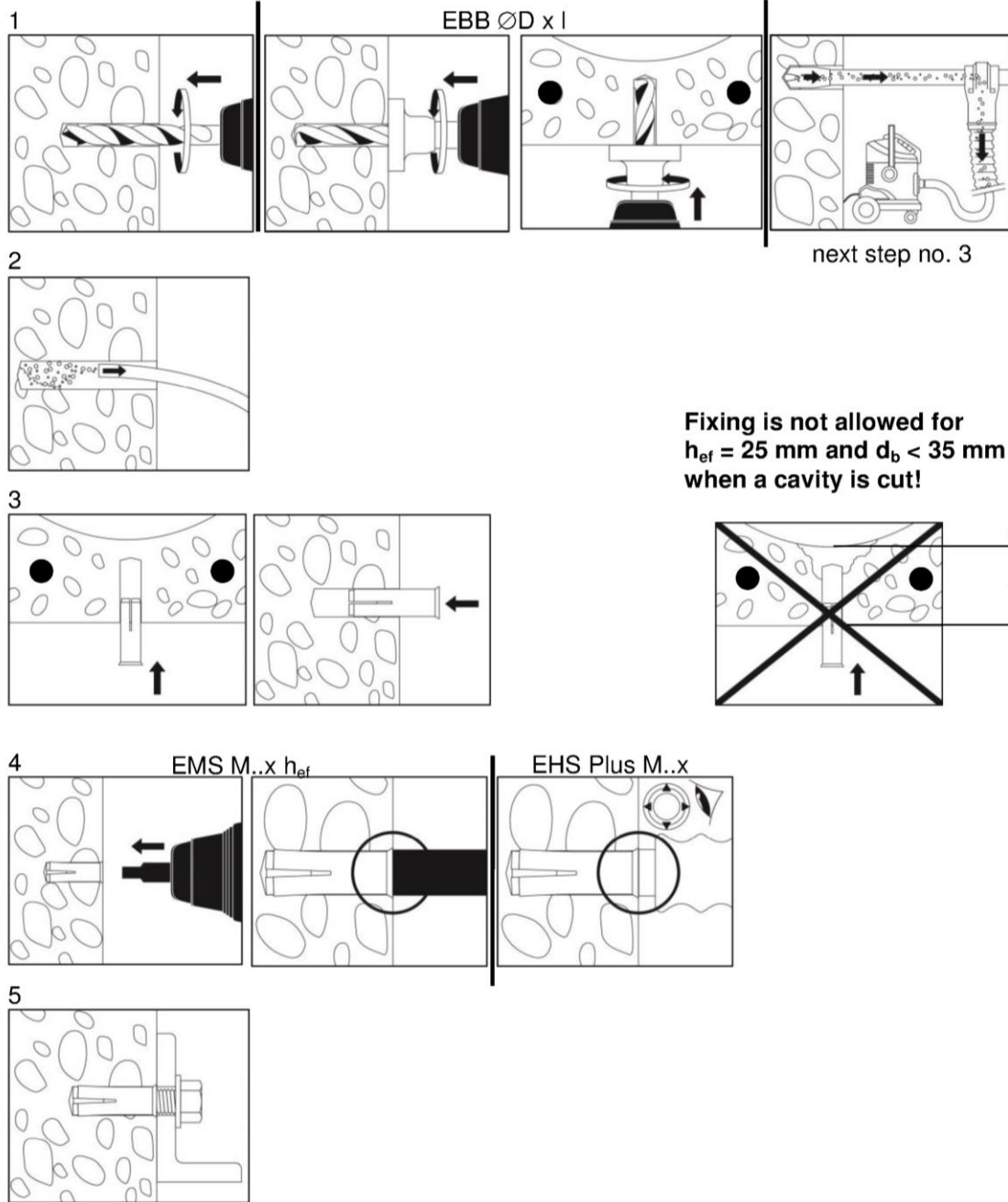
| Manual setting tool | Machine setting tool | Stop drill             | For anchor size          | Ø D1 | Ø D2 | L    |
|---------------------|----------------------|------------------------|--------------------------|------|------|------|
| EHS M6x25/30        | EMS M6x25/30         | EBB 8x25<br>EBB 8x30   | USA M6x25<br>USA M6x30   | 4,8  | 9,0  | 17,0 |
| EHS M8x25/30        | EMS M8x25/30         | EBB 10x25<br>EBB 10x30 | USA M8x25<br>USA M8x30   | 6,4  | 11,0 | 18,0 |
| EHS M8x40           | EMS M8x40            | EBB 10x40              | USA M8x40                |      |      | 28,0 |
| EHS M10x25/30       | EMS M10x25/30        | EBB 12x25<br>EBB 12x30 | USA M10x25<br>USA M10x30 | 7,9  | 13,0 | 18,0 |
| EHS M10x40          | EMS M10x40           | EBB 12x40              | USA M10x40               |      |      | 24,0 |
| EHS M12x25          | EMS M12x25           | EBB 15x25              | USA M12x25               | 10,2 | 16,5 | 15,2 |
| EHS M12x50          | EMS M12x50           | EBB 15x50              | USA M12x50               | 10,2 | 16,5 | 30,0 |
| EHS M12x50          | EMS M12x50           | EBB 16x50              | USA M12x50 D             |      |      |      |

## Upat Drop-in Anchor USA

**Intended Use**  
Setting & Drilling tools

## Annex B 4

## Installation instructions



| No. | Description                                                                          |
|-----|--------------------------------------------------------------------------------------|
| 1   | Create drill hole with hammer drill or with hollow drill and vacuum cleaner          |
| 2   | Clean from drill-dust                                                                |
| 3   | Set anchor till anchor is flush with surface of concrete                             |
| 4   | Expand the sleeve by driving the pin into the sleeve and control the correct setting |
| 5   | Fixation of fixture. Maximum installation torque max. $T_{inst}$ must not be crossed |

Upat Drop-in Anchor USA

**Intended Use**  
Installation instructions

**Annex B 5**

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**Table C1: Characteristic values due to design method B according to ETAG 001, Annex C or design method B according to CEN/TS 1992-4: 2009**

| Anchor size                                |                            | Property class screw / rod | M6   |     | M8  |     |     | M10 |     |     | M12/ M12D |     |
|--------------------------------------------|----------------------------|----------------------------|------|-----|-----|-----|-----|-----|-----|-----|-----------|-----|
| Effective anchorage depth                  | $h_{ef}$ [mm]              |                            | 25   | 30  | 25  | 30  | 40  | 25  | 30  | 40  | 25        | 50  |
| All load directions                        |                            |                            |      |     |     |     |     |     |     |     |           |     |
| Characteristic resistance C12/15           | $F_{RK}^{0,1)}$ [kN]       | $\geq$ A4-50               | -    | 2   | -   | 3   | -   | 3   | 5   | -   | 6         |     |
|                                            |                            | $\geq$ 4.6                 | 1,5  |     | 2   |     | 3   |     |     | 3   |           |     |
| Characteristic resistance C20/25 to C50/60 | $F_{RK}^{0,1)}$ [kN]       | $\geq$ A4-50               | -    | 3   | -   | 5   | -   | 5   | 7,5 | -   | 9         |     |
|                                            |                            | $\geq$ 4.6                 | 2    |     | 3   |     | 4   |     |     | 4   |           |     |
| Installation safety factor                 | $\gamma_2 = \gamma_{inst}$ |                            | 1,0  | 1,2 | 1,0 | 1,2 | 1,0 | 1,2 | 1,0 | 1,2 | 1,0       |     |
| Characteristic spacing                     | $s_{cr}$ [mm]              |                            | 75   | 90  | 75  | 90  | 120 | 75  | 90  | 200 | 75        | 300 |
| Characteristic edge distance               | $c_{cr}$ [mm]              |                            | 38   | 45  | 38  | 45  | 60  | 38  | 45  | 100 | 38        | 150 |
| Steel failure with lever arm               |                            |                            |      |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | A4-50                      | -    | 8   | -   | 19  | -   | 37  | -   | 66  |           |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 2,38 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | A4-70                      | -    | 11  | -   | 26  | -   | 52  | -   | 92  |           |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,56 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | A4-80                      | -    | 12  | -   | 30  | -   | 60  | -   | 105 |           |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,33 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | 4.6                        | 6,1  |     | 15  |     |     | 30  |     |     | 52        |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,67 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | 5.6                        | 7,6  |     | 19  |     |     | 37  |     |     | 66        |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,67 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | 5.8                        | 7,6  |     | 19  |     |     | 37  |     |     | 66        |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,25 |     |     |     |     |     |     |     |           |     |
| Characteristic resistance                  | $M_{RK,s}^{0,2)}$ [Nm]     | 8.8                        | 12   |     | 30  |     |     | 60  |     |     | 105       |     |
| Partial safety factor                      | $\gamma_{Ms}$              |                            | 1,25 |     |     |     |     |     |     |     |           |     |

<sup>1)</sup> The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the Member States is given in the informative Annex 1 of ETAG 001 Part 6 (see: [www.eota.eu](http://www.eota.eu))

<sup>2)</sup> Characteristic bending moment  $M_{RK,S}^{0,2)}$  for the equation (5.5) in ETAG 001, Annex C respectively Characteristic bending moment  $M_{RK,S}^{0,2)}$  for the equation (D.5) in CEN/TS 1992-4-1

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#### Performances

Characteristic values for tension loads in concrete according to design method B

**Annex C 1**

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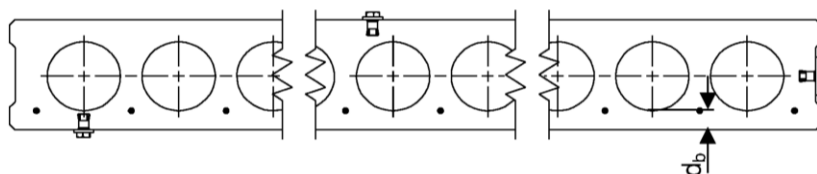
**Table C2: Characteristic values for  $h_{ef} = 25$  mm in precast pre-stressed hollow concrete slabs according to design method C with C30/37 to C50/60**

| Anchor size                                                      |  | Property class<br>screw /<br>rod | M6  | M8 | M10 | M12 |
|------------------------------------------------------------------|--|----------------------------------|-----|----|-----|-----|
| Effective anchorage depth $h_{ef}$ [mm]                          |  |                                  | 25  |    |     |     |
| All Load directions                                              |  | galvanised steel; with rim       |     |    |     |     |
| Flange thickness $d_b$ [mm]                                      |  | $\geq 35$ (or $30^{3)}$          |     |    |     |     |
| Characteristic resistance<br>C30/37 to C50/60 $F_{RK}^{1)}$ [kN] |  | 2                                | 3   | 4  |     |     |
| Installation safety factor $\gamma_2$                            |  | 1,0                              |     |    |     |     |
| Characteristic spacing $s_{cr} = s_{min}$ [mm]                   |  | 200                              |     |    |     |     |
| Characteristic edge distance $c_{cr} = c_{min}$ [mm]             |  | 150                              |     |    |     |     |
| Steel failure with lever arm                                     |  |                                  |     |    |     |     |
| Characteristic resistance $M^0_{RK,s}^{2)}$ [Nm]                 |  | 4.6                              | 6,1 | 15 | 30  | 52  |
| Partial safety factor $\gamma_{Ms}$                              |  | 1,67                             |     |    |     |     |
| Characteristic resistance $M^0_{RK,s}^{2)}$ [Nm]                 |  | 5.6                              | 7,6 | 19 | 37  | 66  |
| Partial safety factor $\gamma_{Ms}$                              |  | 1,67                             |     |    |     |     |
| Characteristic resistance $M^0_{RK,s}^{2)}$ [Nm]                 |  | 5.8                              | 7,6 | 19 | 37  | 66  |
| Partial safety factor $\gamma_{Ms}$                              |  | 1,25                             |     |    |     |     |
| Characteristic resistance $M^0_{RK,s}^{2)}$ [Nm]                 |  | 8.8                              | 12  | 30 | 60  | 105 |
| Partial safety factor $\gamma_{Ms}$                              |  | 1,25                             |     |    |     |     |

<sup>1)</sup> The anchor is to be used only for multiple use for non-structural applications, the definition of multiple use according to the Member States is given in the informative Annex 1 of ETAG 001 Part 6 (see: [www.eota.eu](http://www.eota.eu))

<sup>2)</sup> Characteristic bending moment  $M_{RK,s}^{0}$  for the equation (5.5) in ETAG 001, Annex C

<sup>3)</sup> The anchor may be used in a flange thickness of 30 mm with the same characteristic resistance, but the drill hole is not allowed to cut a cavity (see Annex B5 Point 3).  
The use of the fischer stop drill EBB is recommended



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#### Performances

Characteristic values for tension loads in hollow core slabs according to design method C

**Annex C 2**

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**Table C3: Characteristic resistance under fire exposure<sup>3)</sup> in concrete C20/25 to C50/60 according to design method B, ETAG 001 Annex C or CEN/TS 1992-4: 2009**

| fire resistance class | USA                                                     | property class                                | M6x25 | M6x30 | M8x25 | M8x30 | M8x40 | M10x25 | M10x30 | M10x40 | M12x25 | M12x50/<br>M12x50D |
|-----------------------|---------------------------------------------------------|-----------------------------------------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------------------|
| All load directions   |                                                         |                                               |       |       |       |       |       |        |        |        |        |                    |
| R 30                  | Characteristic resistance<br>C20/25 to C50/60           | steel<br>≥ 4.6<br>or<br>≥ A4-50 <sup>2)</sup> | 0,5   | 0,6   | 0,9   | 1,3   | 0,6   | 0,9    | 1,8    | 0,6    | 2,3    |                    |
| R 60                  |                                                         |                                               | 0,5   | 0,6   | 0,9   | 1,5   |       |        |        |        |        |                    |
| R 90                  |                                                         |                                               | 0,4   | 0,6   |       | 0,9   |       | 0,5    | 1,3    |        |        |                    |
| R 120                 |                                                         |                                               | 0,3   | 0,5   |       | 0,6   |       |        |        |        |        |                    |
| R 30 – R 120          | Characteristic spacing<br>s <sub>cr,fi</sub> [mm]       |                                               | 100   | 120   | 100   | 120   | 160   | 100    | 120    | 160    | 100    | 200                |
|                       | Characteristic edge distance<br>c <sub>cr,fi</sub> [mm] |                                               | 50    | 115   | 50    | 140   | 140   | 50     | 140    | 160    | 50     |                    |

<sup>1)</sup> In absence of other national regulations, a partial safety factor for the resistance of  $\gamma_{m,fi}=1,0$  under fire stress is recommended

<sup>2)</sup> Not for M..x25

<sup>3)</sup> Not valid for precast pre-stressed hollow core slabs

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#### Performances

Characteristic loads for fire resistances

**Annex C 3**

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