



CPC BELGELENDİRME MUAYENE  
VE DENEY HİZMETLERİ TİC. LTD.  
ŞTİ.

Çamlıca Mah. (Timko Eti) Anadolu Blv.  
No:20-R Blok No:4 Yenimahalle/Ankara

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## European Technical Assessment

**ETA- 25/0188**  
**of 15/04/2025**

### Technical Assessment Body issuing the European Technical Assessment

CPC Belgelendirme Muayene ve Deney Hizmetleri Tic. Ltd. Şti.

### Trade name of the construction product

datka fix® Chemical Anchor EASF, EASF-A, EASF-E

### Product family to which the construction product belongs

Product Area Code: 33  
Bonded fastener for use in concrete

### Manufacturer

DATKA PLASTİK SANAYİ LİMİTED ŞİRKETİ

Kültür Mah. Mithatpaşa Cad. No:45/1, Çankaya  
6420, Ankara, Türkiye

### Manufacturing plant

Plant 1

### This European Technical Assessment contains

26 pages including 23 Annexes which forms an integral part of  
this assessment

Annex may contain confidential information and is/are not  
included in the European Technical Assessment when that  
assessment is publicly disseminated

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

EAD 330499-02-0601 Bonded Fasteners for Use In Concrete

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

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## 1. Technical description of the product

DATKA PLASTİK SANAYİ LİMİTED ŞİRKETİ has formally submitted a request for a Technical Assessment pertaining to bonded anchors, specifically those designed for non-cracked and cracked concrete, denoted as datka fix® Chemical Anchor EASF, EASF-A, EASF-E. The comprehensive evaluation was conducted in adherence to the specifications outlined in EAD 330499-00-0601 [1].

The bonded anchor system comprises a cartridge housing injection mortar, datka fix® Chemical Anchor EASF, EASF-A, EASF-E, in conjunction with a steel element. The steel component is composed of a commercially available threaded rod, complete with a washer and hexagon nut, falling within the specified range of M8 to M30 or rebars from Ø8 to Ø32.

datka fix® Chemical Anchor EASF-A is the winter grade version of datka fix® Chemical Anchor EASF.

datka fix® Chemical Anchor EASF-E is the tropical grade version of datka fix® Chemical Anchor EASF.

The installation process involves inserting the steel element into a pre-drilled aperture that has been filled with injection mortar. The structural integrity is achieved through the synergistic bond formed among the metal component, injection mortar, and the surrounding concrete medium.

For a comprehensive visual representation and detailed product description, please consult Annex A.

## 2. Specification of the intended use(s) 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 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. Mechanical resistance and stability (BWR 1)

| Essential characteristic                                     | Performance                      |
|--------------------------------------------------------------|----------------------------------|
| Characteristic resistance for tension loads                  | See Annex C1, Annex C2, Annex C6 |
| Characteristic resistance for shear loads                    | See Annex C3, Annex C4, Annex C7 |
| Displacement                                                 | See Annex C5, Annex C8           |
| Characteristic resistance for tension loads, seismic actions | See Annex C9, Annex C10          |

### 3.2. Hygiene, health and environment (BWR 3)

No performance determined.

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

For basic requirement safety in use the same criteria are valid as for Basic Requirement Mechanical resistance and stability.

### 3.4. Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources, no performance was determined for this product.

### 3.5. General aspects relating to fitness for use

Durability and serviceability are only ensured if the specifications of intended use according to Annex B 1 are kept.

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

According to the Decision 96/582/EC of the European Commission<sup>1</sup> the system of assessment verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

| Product                           | Intended use                                                                                                                   | Level or class | System |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------|--------|
| Metal anchors for use in concrete | For fixing and/or supporting to concrete, structural elements (which contributes to the stability of the works) or heavy units | -              | 1      |

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

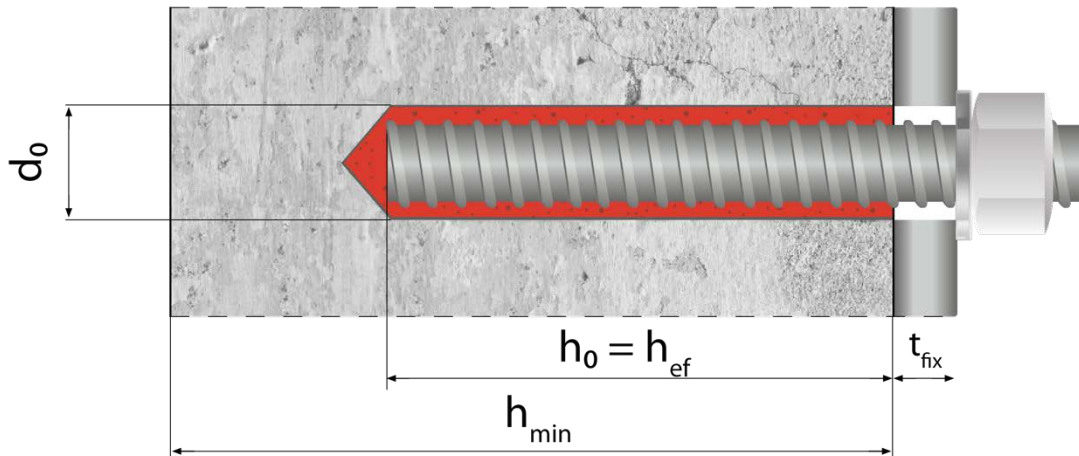
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited by the Technical Assessment Body. The notified product certification body shall visit the factory at least once a year for surveillance of the manufacturer.

Issued in Ankara on 15.04.2025

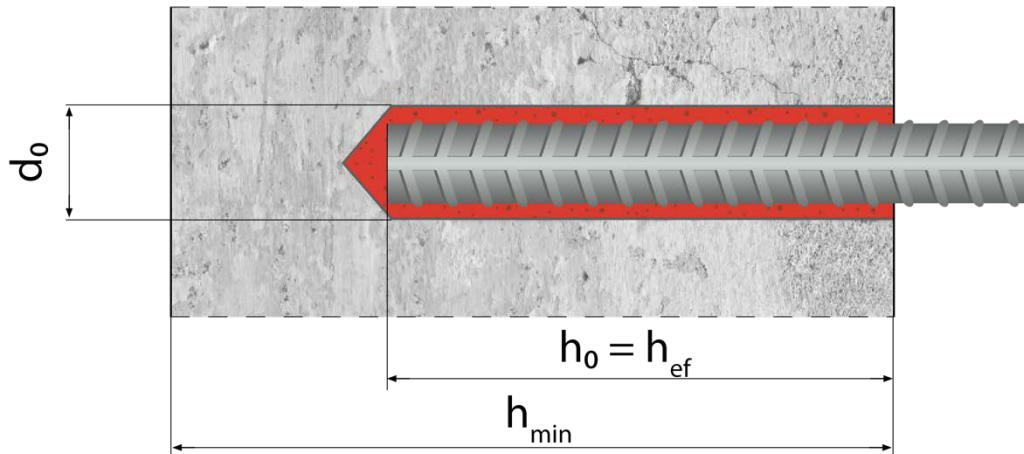
By  
UĞUR GEDİK

## Installed condition

### Installation threaded rod



### Installation reinforcing bar



- $d_0$  : diameter of drill bit  
 $t_{fix}$  : thickness of fixture  
 $h_{ef}$  : effective anchorage depth  
 $h_0$  : depth of drill hole  
 $h_{min}$  : minimum thickness of member

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

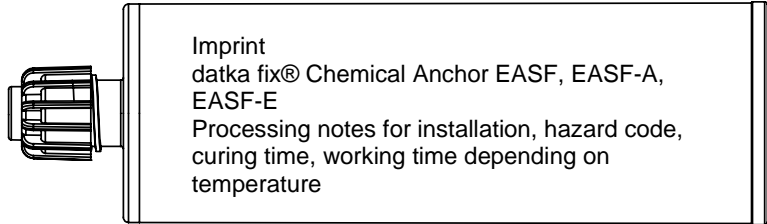
**Product description**  
Installed condition

**Annex A1**  
of European Technical  
Assessment  
ETA-25/0188

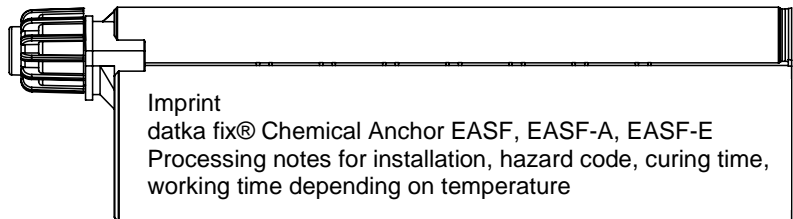
## Injection system

**Cartridge: datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

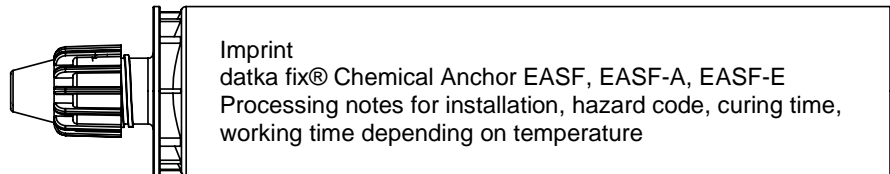
**Type: Coaxial, 410ml cartridge, up to 420ml**



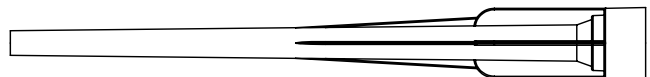
**Type: Side-by-side, 345ml up to 360ml**



**Type: Foil tube, 165ml and 300ml cartridge**



## Static mixer



**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

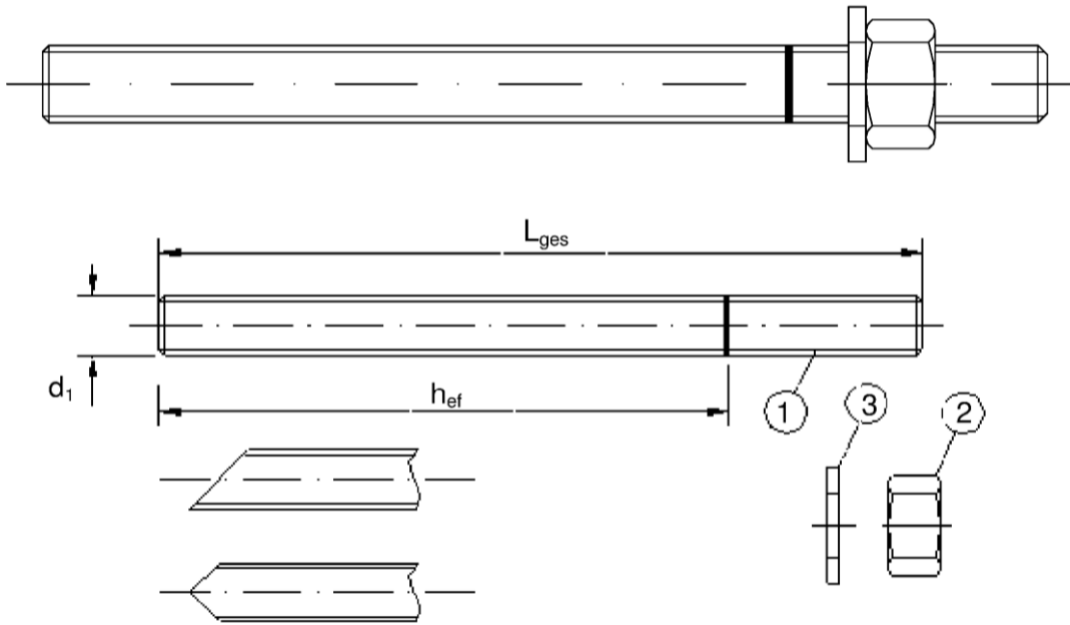
### Product description

Injection system

**Annex A2**  
of European Technical  
Assessment  
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## Threaded rod

### Threaded rod M8, M10, M12, M16, M20, M24, M27, M30 with washer and hexagon nut



Commercial standard threaded rod with:

- Materials, dimensions, and mechanical properties according to Table A1
- Inspection certificate 3.1 according to EN 10204:2004
- Marking of embedment depth

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Product description**  
Threaded rod

**Annex A3**  
of European Technical  
Assessment  
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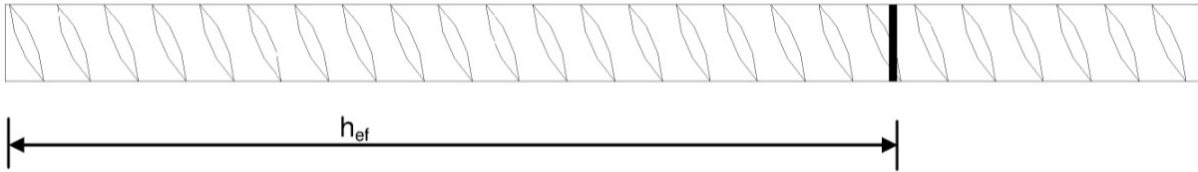
## Threaded rod (continuation)

**Table A1: Materials – threaded bar**

| Part                                                                                                                                                                                                                                                                                                                                                                                                                  | Designation                       | Material                                                                                                                                                                                                                                                                                                                |                                        |                                     |                     |                                                                       |               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------------------------------------|---------------------|-----------------------------------------------------------------------|---------------|
| <b>Steel, zinc plated</b> (Steel acc. to EN ISO 683-4:2018 or EN 10263:2017) <ul style="list-style-type: none"> <li>- electroplated <math>\geq 5 \mu\text{m}</math> acc. to EN ISO 4042:2022 or</li> <li>- hot-dip galvanized <math>\geq 40 \mu\text{m}</math> acc. to EN ISO 1461:2022 and EN ISO 10684:2004+AC:2009 or</li> <li>- sherardized <math>\geq 45 \mu\text{m}</math> acc. to EN ISO 17668:2016</li> </ul> |                                   |                                                                                                                                                                                                                                                                                                                         |                                        |                                     |                     |                                                                       |               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                     | Threaded rod                      | Property Class                                                                                                                                                                                                                                                                                                          | Characteristic steel ultimate strength | Characteristic steel yield strength | Fracture elongation | EN ISO 898-1                                                          |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 4.8                                                                                                                                                                                                                                                                                                                     | $f_{uk} \geq 400 \text{ N/mm}^2$       | $f_{yk} \geq 320 \text{ N/mm}^2$    | $A_5 > 8\%$         |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 5.8                                                                                                                                                                                                                                                                                                                     | $f_{uk} \geq 500 \text{ N/mm}^2$       | $f_{yk} \geq 400 \text{ N/mm}^2$    | $A_5 > 8\%$         |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 6.8                                                                                                                                                                                                                                                                                                                     | $f_{uk} \geq 600 \text{ N/mm}^2$       | $f_{yk} \geq 480 \text{ N/mm}^2$    | $A_5 > 8\%$         |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 8.8                                                                                                                                                                                                                                                                                                                     | $f_{uk} \geq 800 \text{ N/mm}^2$       | $f_{yk} \geq 640 \text{ N/mm}^2$    | $A_5 \geq 12\%$     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 9.8                                                                                                                                                                                                                                                                                                                     | $f_{uk} \geq 900 \text{ N/mm}^2$       | $f_{yk} \geq 720 \text{ N/mm}^2$    | $A_5 \geq 10\%$     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 10.9                                                                                                                                                                                                                                                                                                                    | $f_{uk} \geq 1000 \text{ N/mm}^2$      | $f_{yk} \geq 900 \text{ N/mm}^2$    | $A_5 > 9\%$         |                                                                       |               |
| 12.9                                                                                                                                                                                                                                                                                                                                                                                                                  | $f_{uk} \geq 1200 \text{ N/mm}^2$ | $f_{yk} \geq 1080 \text{ N/mm}^2$                                                                                                                                                                                                                                                                                       | $A_5 > 8\%$                            |                                     |                     |                                                                       |               |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                     | Hexagon nut                       | 4                                                                                                                                                                                                                                                                                                                       | for classes 4.8 rods                   |                                     |                     |                                                                       | EN ISO 898-2  |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 5                                                                                                                                                                                                                                                                                                                       | for classes 5.8 rods                   |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 6                                                                                                                                                                                                                                                                                                                       | for classes 6.8 rods                   |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 8                                                                                                                                                                                                                                                                                                                       | for classes 8.8 rods                   |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 9                                                                                                                                                                                                                                                                                                                       | for classes 9.8 rods                   |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 10                                                                                                                                                                                                                                                                                                                      | for classes 10.9 rods                  |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 12                                                                                                                                                                                                                                                                                                                      | for classes 12.9 rods                  |                                     |                     |                                                                       |               |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                     | Washer                            | Steel, zinc-plated, hot-dip galvanised or sherardized<br>(e.g.: EN ISO 887:2006, EN ISO 7089:2000, EN ISO 7093:2000 or EN ISO 7094:2000)                                                                                                                                                                                |                                        |                                     |                     |                                                                       |               |
| <b>Stainless steel A2</b> (Materials 1.4301 / 1.4307 / 1.4311 / 1.4567 or 1.4541, acc. to EN 10088-1:2014)<br><b>Stainless steel A4</b> (Materials 1.4401 / 1.4404 / 1.4571 / 1.4362 or 1.4578, acc. to EN 10088-1:2014)<br><b>High corrosion resistance steel -HCR-</b> (Materials 1.4529 or 1.4565, acc. to EN 10088-1:2014)                                                                                        |                                   |                                                                                                                                                                                                                                                                                                                         |                                        |                                     |                     |                                                                       |               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                     | Threaded rod                      | Property Class                                                                                                                                                                                                                                                                                                          | Characteristic steel ultimate strength | Characteristic steel yield strength | Fracture elongation | EN ISO 3506-1                                                         |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 50                                                                                                                                                                                                                                                                                                                      | $f_{uk} \geq 500 \text{ N/mm}^2$       | $f_{yk} \geq 210 \text{ N/mm}^2$    | $A_5 \geq 8\%$      |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 70                                                                                                                                                                                                                                                                                                                      | $f_{uk} \geq 700 \text{ N/mm}^2$       | $f_{yk} \geq 450 \text{ N/mm}^2$    | $A_5 \geq 12\%$     |                                                                       |               |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                     | Hexagon nut                       | 50                                                                                                                                                                                                                                                                                                                      | for classes 50 rods                    |                                     |                     |                                                                       | EN ISO 3506-1 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 70                                                                                                                                                                                                                                                                                                                      | for classes 70 rods                    |                                     |                     |                                                                       |               |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | 80                                                                                                                                                                                                                                                                                                                      | for classes 80 rods                    |                                     |                     |                                                                       |               |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                     | Washer                            | A2: Materials 1.4301 / 1.4307 / 1.4311 / 1.4567 or 1.4541, acc. to EN 10088-1:2014<br>A4: Materials 1.4401 / 1.4404 / 1.4571 / 1.4362 or 1.4578, acc. to EN 10088-1:2014<br>HCR: Materials 1.4529 or 1.4565, acc. to EN 10088-1:2014<br>(e.g.: EN ISO 887:2006, EN ISO 7089:2000, EN ISO 7093:2000 or EN ISO 7094:2000) |                                        |                                     |                     |                                                                       |               |
| <ul style="list-style-type: none"> <li>- For anchorages under seismic actions which are designed in accordance with EN 1992-4:2018, Section 9.2 (3), option b): <math>A_5 \geq 12\%</math> and <math>f_{uk} \leq 800 \text{ N/mm}^2</math>.</li> <li>- Property class 80 only for stainless steel A4 and HCR.</li> </ul>                                                                                              |                                   |                                                                                                                                                                                                                                                                                                                         |                                        |                                     |                     |                                                                       |               |
| <b>datka fix® Chemical Anchor EASF, EASF-A, EASF-E</b>                                                                                                                                                                                                                                                                                                                                                                |                                   |                                                                                                                                                                                                                                                                                                                         |                                        |                                     |                     | <b>Annex A4</b><br>of European Technical<br>Assessment<br>ETA-25/0188 |               |
| <b>Product description</b><br>Threaded rod (continuation)                                                                                                                                                                                                                                                                                                                                                             |                                   |                                                                                                                                                                                                                                                                                                                         |                                        |                                     |                     |                                                                       |               |

## Reinforcing bar

Reinforcing bar Ø8, Ø10, Ø12, Ø14, Ø16, Ø20, Ø25, Ø28, Ø32



- Minimum value of related rid area  $f_{R,min}$  according to EN 1992-1-1:2004+AC:2010
- Rib height of the bar shall be in the range  $0,05*d \leq h \leq 0,07*d$   
(d: Nominal diameter of the bar, h: Rib height of the bar)

**Table A2: Materials – reinforcing bar**

### Reinforcing bars

|   |                                            |                                                                                                                                           |
|---|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Rebar<br>EN 1992-1-1:2004+AC:2010, Annex C | Bars and de-coiled rods class B or C<br>$f_{yk}$ and $k$ according to NDP or NCL of EN 1992-1-1/NA:2013<br>$f_{uk} = f_{tk} = k * f_{yk}$ |
|---|--------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Product description**  
Reinforcing bar

**Annex A5**  
of European Technical  
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## Specifications of intended use

### Anchorage subject to:

- Static and quasi-static loads: M8 to M30 and Ø8 to Ø32
- Seismic load (C1): M8 to M30 and Ø8 to Ø32

### Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2000.
- Strength classes C20/25 to C50/60 according to EN 206-1:2000.
- Cracked and Non-cracked concrete: M8 to M30 and Ø8 to Ø32

### Temperature range:

- I: -40°C to +40°C (max long-term temperature + 24 °C max short-term temperature + 40 °C)
- II: -40°C to +80°C (max long-term temperature + 50 °C max short-term temperature + 80 °C)

### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (all materials)
- For the other environmental conditions according to EN 1993-1-2:2006+A1 2015 corresponding corrosion resistance classes:
  - Stainless steel A2 according to Annex A 4, Table A1: CRC II
  - Stainless steel A4 according to Annex A 4, Table A1: CRC III
  - High corrosion resistance steel HCR according to Annex A 4, Table A1: CRC V

### Design:

- 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 are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Anchorages under static or quasi-static actions are designed in accordance with:
  - EOTA Technical Report TR 029 "Design of bonded anchors", Edition September 2010 or
  - CEN/TS 1992-4:2009

### Installation:

- Dry, wet and flooded holes (not sea water).
- Hole drilling by hammer or compressed air drill mode.
- Overhead installation allowed.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation temperature -10°C to +45°C depending on the variant.

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

### Intended use

Threaded rod and reinforcing bar

**Annex A5**  
of European Technical  
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## Installation parameters

**Table B1A: Installation parameters for threaded rod**

| Anchor size                                   |                     |    | M8                           | M10 | M12 | M16                                | M20 | M24 | M27 | M30 |
|-----------------------------------------------|---------------------|----|------------------------------|-----|-----|------------------------------------|-----|-----|-----|-----|
| Diameter of anchor bolt or thread diameter    | d                   | mm | 8                            | 10  | 12  | 16                                 | 20  | 24  | 27  | 30  |
| Nominal diameter of drill bit                 | d <sub>0</sub>      | mm | 10                           | 12  | 14  | 18                                 | 24  | 28  | 32  | 35  |
| Diameter of clearance hole in the fixture (≤) | d <sub>f</sub>      | mm | 9                            | 12  | 14  | 18                                 | 22  | 26  | 30  | 33  |
| Diameter of steel brush (≥)                   | d <sub>b</sub>      | mm | 12                           | 14  | 16  | 20                                 | 26  | 30  | 34  | 37  |
| Minimum effective anchorage depth             | h <sub>ef,min</sub> | mm | 60                           | 60  | 70  | 80                                 | 90  | 96  | 108 | 120 |
| Maximum effective anchorage depth             | h <sub>ef,max</sub> | mm | 160                          | 200 | 240 | 320                                | 400 | 480 | 540 | 600 |
| Minimum thickness of the concrete member      | h <sub>min</sub>    | mm | h <sub>ef</sub> +30mm ≥100mm |     |     | h <sub>ef</sub> + 2*d <sub>0</sub> |     |     |     |     |
| Nominal torque moment                         | T <sub>inst</sub>   | Nm | 10                           | 20  | 40  | 80                                 | 120 | 160 | 180 | 200 |
| Thickness of the fixture                      | t <sub>fix</sub>    | mm | 0 < t <sub>fix</sub> < 1500  |     |     |                                    |     |     |     |     |
| Minimum spacing                               | s <sub>min</sub>    | mm | 40                           | 50  | 60  | 80                                 | 100 | 120 | 135 | 150 |
| Minimum edge distance                         | c <sub>min</sub>    | mm | 40                           | 50  | 60  | 80                                 | 100 | 120 | 135 | 150 |

**Table B1B: Installation parameters for reinforcing bar**

| Anchor size                              |                     |    | Ø8                           | Ø10 | Ø12                                | Ø14 | Ø16 | Ø20 | Ø25 | Ø28 | Ø32 |
|------------------------------------------|---------------------|----|------------------------------|-----|------------------------------------|-----|-----|-----|-----|-----|-----|
| Diameter of anchor                       | d                   | mm | 8                            | 10  | 12                                 | 14  | 16  | 20  | 25  | 28  | 32  |
| Nominal diameter of drill bit            | d <sub>0</sub>      | mm | 12                           | 14  | 16                                 | 18  | 20  | 24  | 32  | 35  | 40  |
| Diameter of steel brush (≥)              | d <sub>b</sub>      | mm | 14                           | 16  | 18                                 | 20  | 22  | 26  | 34  | 37  | 41  |
| Minimum effective anchorage depth        | h <sub>ef,min</sub> | mm | 60                           | 60  | 70                                 | 75  | 80  | 90  | 100 | 112 | 128 |
| Maximum effective anchorage depth        | h <sub>ef,max</sub> | mm | 160                          | 200 | 240                                | 280 | 320 | 400 | 500 | 560 | 640 |
| Minimum thickness of the concrete member | h <sub>min</sub>    | mm | h <sub>ef</sub> +30mm ≥100mm |     | h <sub>ef</sub> + 2*d <sub>0</sub> |     |     |     |     |     |     |
| Minimum spacing                          | s <sub>min</sub>    | mm | 40                           | 50  | 60                                 | 70  | 80  | 100 | 125 | 140 | 160 |
| Minimum edge distance                    | c <sub>min</sub>    | mm | 40                           | 50  | 60                                 | 70  | 80  | 100 | 125 | 140 | 160 |

datka fix® Chemical Anchor EASF, EASF-A, EASF-E

**Intended use**  
Installation parameters

**Annex B1**  
of European Technical  
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## Cleaning and setting tools

### Cleaning brush (steel brush with steel bristles)



Table B2: Cleaning and setting parameters

| Threaded Rod | $d_0$ | $d_b$ | $d_{b,min}$ | Injection Plug                  |
|--------------|-------|-------|-------------|---------------------------------|
| mm           | mm    | mm    | mm          | mm                              |
| M8           | 10    | 12    | 10,5        | Not required to use piston plug |
| M10          | 12    | 14    | 12,5        |                                 |
| M12          | 14    | 16    | 14,5        |                                 |
| M16          | 18    | 20    | 18,5        |                                 |
| M20          | 24    | 26    | 24,5        | 24                              |
| M24          | 28    | 30    | 28,5        | 28                              |
| M27          | 32    | 34    | 32,5        | 32                              |
| M30          | 35    | 37    | 35,5        | 35                              |

| Rebar | $d_0$ | $d_b$ | $d_{b,min}$ | Injection Plug                  |
|-------|-------|-------|-------------|---------------------------------|
| mm    | mm    | mm    | mm          | mm                              |
| 8     | 12    | 14    | 12,5        | Not required to use piston plug |
| 10    | 14    | 16    | 14,5        |                                 |
| 12    | 16    | 18    | 16,5        |                                 |
| 14    | 18    | 20    | 18,5        |                                 |
| 16    | 20    | 22    | 20,5        | 24                              |
| 20    | 24    | 26    | 24,5        | 32                              |
| 25    | 32    | 34    | 32,5        | 35                              |
| 28    | 35    | 37    | 35,5        | 38                              |
| 32    | 40    | 41    | 40,5        |                                 |



#### Compressed air tool

$d_0$  between 10mm to 40mm



#### Hand operated blowing pump

$d_0$  between 10mm to 20mm



#### Injection plug for overhead and horizontal installation

$d_0$  between 24mm to 40mm

datka fix® Chemical Anchor EASF, EASF-A, EASF-E

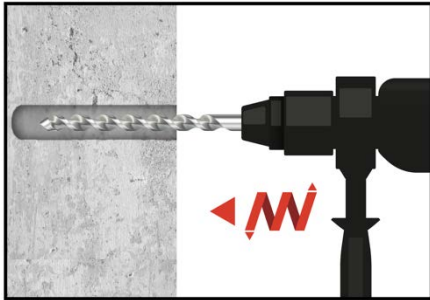
#### Intended use

Cleaning and setting tools

**Annex B2**  
of European Technical  
Assessment  
ETA-25/0188

## Installation instructions

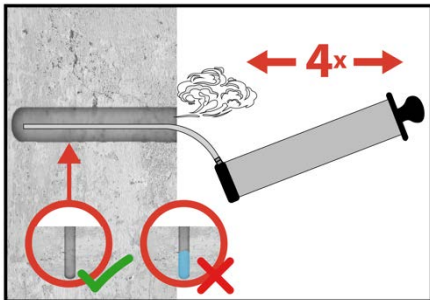
### Drilling of the hole (HD, HDB, CD)



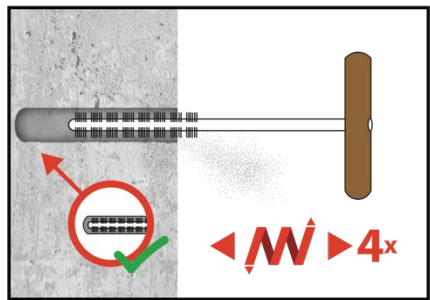
1. **Hammer drilling (HD) / Compressed air drilling (CD)**  
Drill with hammer drill a hole into the base material to the size and embedment depth required by the selected anchor according to Table B1A or B1B. Aborted drill holes shall be filled with mortar.  
Proceed with Step 2.

### Hand blowing pump cleaning (HPC):

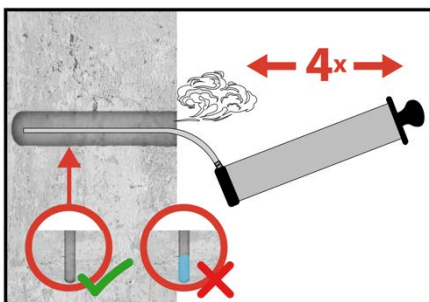
covers up to 20mm drill bit diameter in cracked and non-cracked concrete



- 2a. **Attention! Standing water in the bore hole must be removed before cleaning.**  
Starting from the drill hole bottom blow the hole at least 4 times using the hand pump, until return air stream is free of noticeable dust. If necessary, nozzle extension can be attached to the top of air blow to reach bottom of the hole.



- 2b. Using the specified brush in Annex B2, mechanically brush out the hole at least 4 times over the entire embedment depth in a twisting motion. (If necessary, use brush extension to reach bottom of the hole)



- 2c. Finally, starting from the drill hole bottom, blow at least 4 times with the hand pump. until return air stream is free of noticeable dust. If necessary, nozzle extension can be attached to the top of air blow to reach bottom of the hole.  
The hand-pump can only be used for anchor sizes in non-cracked concrete up to bore hole diameter 20mm or embedment depth up to 240mm.  
After cleaning, the bore hole has to be protected against re-contamination in an appropriate way, until dispensing the mortar in the bore hole. If necessary, the cleaning repeated has to be directly before dispensing the mortar. In-flowing water must not contaminate the bore hole again.

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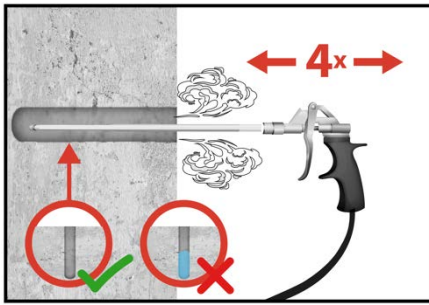
Installation instructions

**Annex B3**  
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## Installation instructions (continuation)

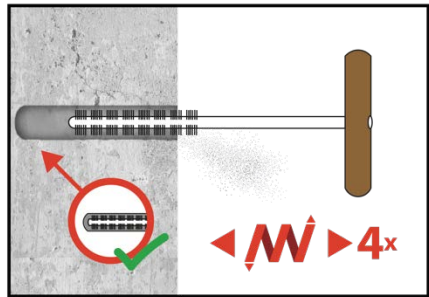
### Compressed air cleaning (CAC):

covers all diameter in cracked and non-cracked concrete

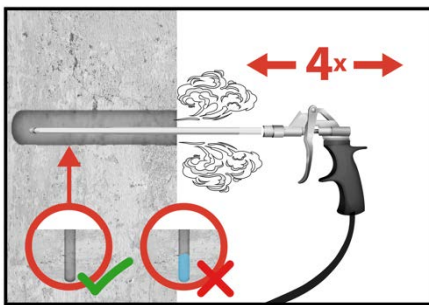


- 2a. **Attention! Standing water in the bore hole must be removed before cleaning.**

Starting from the drill hole bottom blow the hole at least 4 times using the compressed air (min. 6 bar, oil-free, specified in Annex B2) until return air stream is free of noticeable dust. If necessary, nozzle extension can be attached to the top of air blow to reach bottom of the hole.

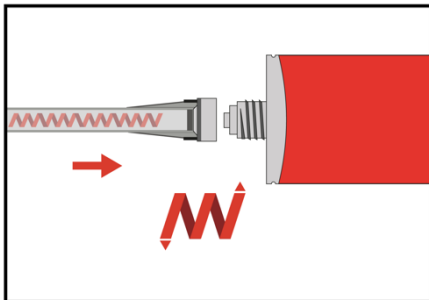


- 2b. Using the specified brush in Annex B2, mechanically brush out the hole at least 4 times over the entire embedment depth in a twisting motion. (If necessary, use brush extension to reach bottom of the hole)



- 2c. Finally, blow the hole at least 4 times using the compressed air (min. 6 bar, oil-free, specified in Annex B2) until return air stream is free of noticeable dust. If necessary, nozzle extension can be attached to the top of air blow to reach bottom of the hole.

After cleaning, the bore hole has to be protected against re-contamination in an appropriate way, until dispensing the mortar in the bore hole. If necessary, the cleaning repeated has to be directly before dispensing the mortar. In-flowing water must not contaminate the bore hole again.



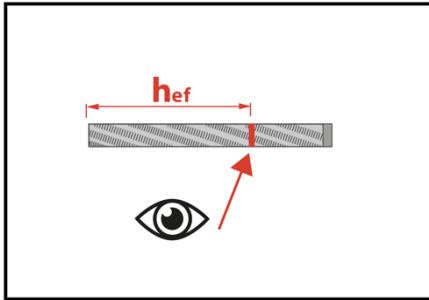
3. Attach supplied static-mixing nozzle to the cartridge and load the cartridge into the correct dispensing tool.  
For every working interruption longer than the maximum working time (Annex B4) as well as for new cartridges, a new static mixer shall be used.

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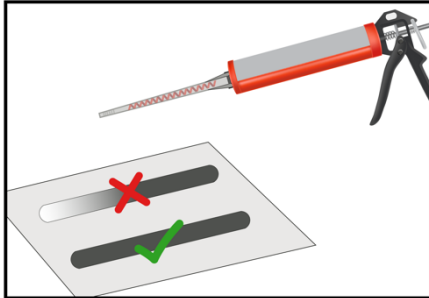
Installation instructions

**Annex B4**  
of European Technical  
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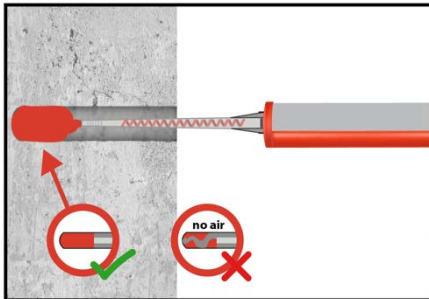
## Installation instructions (continuation)



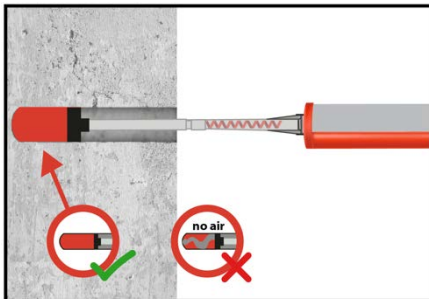
4. Mark embedment depth on the anchor rod, such as threaded rod and rebar.  
The anchor rod should be free of dirt, grease, oil or other foreign material.



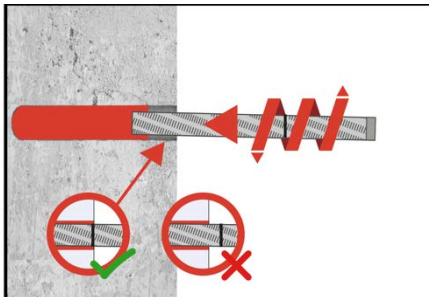
5. Dispense to waste until even colour is obtained (at least 3 full strokes). Discard the uneven coloured first strokes.



- 6a. **Injecting mortar without using injection plug**  
Starting from the bottom or back of the cleaned anchor hole fill the hole up to approximately two-thirds with adhesive. Slowly withdraw the static mixing nozzle as the hole fills to avoid creating air pockets. Observe the gel-/ working times given in Table B3.



- 6b. **Injecting mortar with using injection plug**  
Starting from the bottom or back of the cleaned anchor hole fill the hole up to approximately two-thirds with adhesive. During injection the injection plug is pushed out of the hole by the back pressure of the injected mortar. Observe the gel-/ working times given in Table B3.



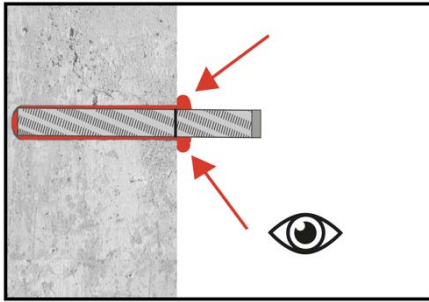
7. Push the threaded rod or reinforcing bar into the anchor hole while turning slightly to ensure positive distribution of the adhesive until the embedment depth is reached.

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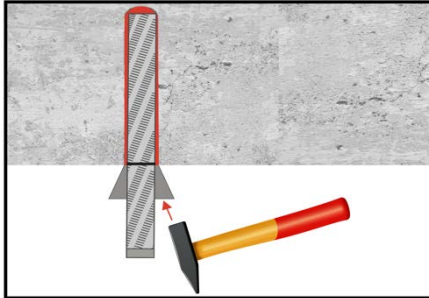
Installation instructions

**Annex B5**  
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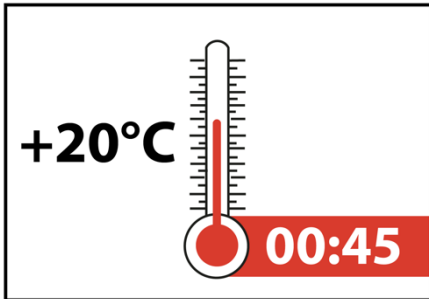
## Installation instructions (continuation)



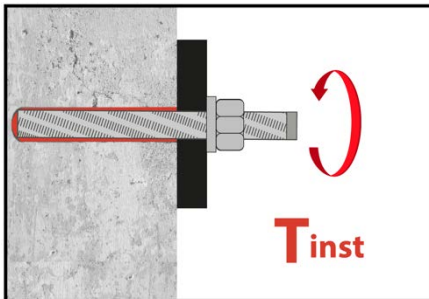
8. Annular gap between anchor rod and base material must be completely filled with mortar. Otherwise, the installation must be repeated starting from step 6 before the maximum working time reached.



9. For overhead application the anchor rod should be fixed (e.g. wedges).



10. Allow the adhesive to cure to the specified time prior to applying any load or torque. Do not move or load the anchor until it is fully cured. (attend Table B3)



11. After full curing, the add-on part can be installed with the max. torque (Table B1A) by using a calibrated torque wrench. In case of static requirements (e.g. seismic), fill the annular gap in the fixture with mortar.

datka fix® Chemical Anchor EASF, EASF-A, EASF-E

Installation instructions

**Annex B6**  
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## Curing time

**Table B3A: Maximum working time and minimum curing time(min) of DATKA Chemical Anchor EASF**

| Temperature of base material | Temperature of cartridge | Maximum working time<br>$t_{work}$ | Minimum curing time <sup>1)</sup><br>$t_{load}$ OR $t_{cure}$ |
|------------------------------|--------------------------|------------------------------------|---------------------------------------------------------------|
| +5°C to +9°C                 | +5°C to +9°C             | 10                                 | 150                                                           |
| +10°C to +19°C               | +10°C to +19°C           | 6                                  | 80                                                            |
| +20°C to +24°C               | +20°C to +24°C           | 5                                  | 45                                                            |
| +25°C to +29°C               | +25°C to +29°C           | 3                                  | 35                                                            |

**Table B3B: Maximum working time and minimum curing time(min) of DATKA Chemical Anchor EASF-A**

| Temperature of base material | Temperature of cartridge | Maximum working time<br>$t_{work}$ | Minimum curing time <sup>1)</sup><br>$t_{load}$ OR $t_{cure}$ |
|------------------------------|--------------------------|------------------------------------|---------------------------------------------------------------|
| -20°C to -11°C               | -20°C to -11°C           | 45                                 | 960                                                           |
| -10°C to -1°C                | -10°C to -1°C            | 20                                 | 360                                                           |
| 0°C to +4°C                  | 0°C to +4°C              | 6                                  | 240                                                           |
| +5°C to +9°C                 | +5°C to +9°C             | 3                                  | 75                                                            |
| +10°C to +19°C               | +10°C to +19°C           | 1,5                                | 45                                                            |
| +20°C to +24°C               | +20°C to +24°C           | 1                                  | 30                                                            |

**Table B3C: Maximum working time and minimum curing time(min) of DATKA Chemical Anchor EASF-E**

| Temperature of base material | Temperature of cartridge | Maximum working time<br>$t_{work}$ | Minimum curing time <sup>1)</sup><br>$t_{load}$ OR $t_{cure}$ |
|------------------------------|--------------------------|------------------------------------|---------------------------------------------------------------|
| +10°C to +19°C               | +10°C to +19°C           | 15                                 | 300                                                           |
| +20°C to +24°C               | +20°C to +24°C           | 10                                 | 150                                                           |
| +25°C to +29°C               | +25°C to +29°C           | 7,5                                | 85                                                            |
| +30°C to +34°C               | +30°C to +34°C           | 5                                  | 50                                                            |
| +35°C to +39°C               | +35°C to +39°C           | 3,5                                | 40                                                            |
| +40°C to +45°C               | +40°C to +45°C           | 2,5                                | 35                                                            |

<sup>1)</sup> In wet or water filled holes the curing times must be doubled.

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Intended use**  
Curing time

**Annex B7**  
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**Table C1: Characteristic values of tension loads under – static and quasi-static action**

| Size                                                                                        |                    |                      | M8   | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|---------------------------------------------------------------------------------------------|--------------------|----------------------|------|-----|-----|-----|-----|-----|-----|-----|
| <b>Steel failure<sup>(1)</sup></b>                                                          |                    |                      |      |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 5.8</b>                                   |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 18   | 29  | 42  | 78  | 122 | 176 | 228 | 280 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 8.8</b>                                   |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 29   | 46  | 67  | 126 | 196 | 282 | 367 | 449 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 10.9</b>                                  |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 37   | 58  | 84  | 157 | 245 | 353 | 459 | 561 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,40 |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 12.9</b>                                  |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 44   | 70  | 101 | 188 | 294 | 424 | 551 | 673 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,40 |     |     |     |     |     |     |     |
| <b>Steel failure with standard stainless steel threaded rod A4-70</b>                       |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 26   | 41  | 59  | 110 | 172 | 247 | 321 | 393 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,87 |     |     |     |     |     |     |     |
| <b>Steel failure with standard stainless steel threaded rod A4-80</b>                       |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 29   | 46  | 67  | 126 | 196 | 282 | 367 | 449 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,60 |     |     |     |     |     |     |     |
| <b>Steel failure with standard high corrosion threaded rod grade 70</b>                     |                    |                      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 26   | 41  | 59  | 110 | 172 | 247 | 321 | 393 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,87 |     |     |     |     |     |     |     |
| <b>Combined pull-out and concrete cone failure (working life 50)</b>                        |                    |                      |      |     |     |     |     |     |     |     |
| <b>Characteristic bond resistance in non-cracked concrete C20/25, working life 50 years</b> |                    |                      |      |     |     |     |     |     |     |     |
| Temperature range I: 40°C/24°C                                                              | $\tau_{Rk,ucr,50}$ | [N/mm <sup>2</sup> ] | 15   | 13  | 12  | 12  | 11  | 10  | 9,5 | 8,5 |
| Temperature range II: 80°C/50°C                                                             | $\tau_{Rk,ucr,50}$ | [N/mm <sup>2</sup> ] | 12   | 10  | 10  | 10  | 9,0 | 7,5 | 6,5 | 6,5 |
| <b>Characteristic bond resistance in cracked concrete C20/25, working life 50 years</b>     |                    |                      |      |     |     |     |     |     |     |     |
| Temperature range I: 40°C/24°C                                                              | $\tau_{Rk,cr,50}$  | [N/mm <sup>2</sup> ] | 10   | 9,0 | 8,5 | 8,5 | 7,5 | 7,0 | 6,5 | 6,0 |
| Temperature range II: 80°C/50°C                                                             | $\tau_{Rk,cr,50}$  | [N/mm <sup>2</sup> ] | 8,0  | 7,0 | 7,0 | 7,0 | 6,0 | 5,5 | 5,0 | 5,0 |
| <b>Factors for cracked and non-cracked concrete C20/25</b>                                  |                    |                      |      |     |     |     |     |     |     |     |
| Reduction factor for concrete                                                               | $\psi_{sus,50}^0$  | 40°C/24°C            | 0,77 |     |     |     |     |     |     |     |
|                                                                                             |                    | 80°C/50°C            | 0,70 |     |     |     |     |     |     |     |
| Increasing factor for concrete                                                              | $\psi_c$           | C30/37               | 1,04 |     |     |     |     |     |     |     |
|                                                                                             |                    | C40/50               | 1,07 |     |     |     |     |     |     |     |
|                                                                                             |                    | C50/60               | 1,09 |     |     |     |     |     |     |     |

<sup>1)</sup> in the absence of national regulations

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance under tension loads in non-cracked concrete (Threaded rod)

**Annex C1**  
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**Table C2: Characteristic values of tension loads under – static and quasi-static action**

| <b>Concrete cone failure</b>                                                                                       |                                           |      |                       |                    |                                                                       |
|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------|-----------------------|--------------------|-----------------------------------------------------------------------|
| Factor for non-cracked concrete                                                                                    | $k_{ucr,N}$                               | [-]  | 11,0                  |                    |                                                                       |
| Factor for cracked concrete                                                                                        | $k_{cr,N}$                                | [-]  | 7,7                   |                    |                                                                       |
| Edge distance                                                                                                      | $c_{cr,N}$                                | [mm] | $1,5 \cdot h_{ef}$    |                    |                                                                       |
| Spacing                                                                                                            | $s_{cr,N}$                                | [mm] | $3,0 \cdot h_{ef}$    |                    |                                                                       |
| <b>Splitting failure</b>                                                                                           |                                           |      |                       |                    |                                                                       |
| Edge distance                                                                                                      | $c_{cr,sp}$ for $h_{min}$                 | [mm] | $2,5 \cdot h_{ef}$    | $2,0 \cdot h_{ef}$ | $1,5 \cdot h_{ef}$                                                    |
|                                                                                                                    | $c_{cr,sp}$ for $h^2 \geq 2 \cdot h_{ef}$ | [mm] | $c_{cr,Np}$           |                    |                                                                       |
| Spacing                                                                                                            | $s_{cr,sp}$                               | [mm] | $2,0 \cdot c_{cr,sp}$ |                    |                                                                       |
| <b>Installation safety factors for combined pull-out, concrete cone and splitting failure</b>                      |                                           |      |                       |                    |                                                                       |
| Installation safety factors for dry and wet concrete                                                               | $\gamma_{inst}$                           | [-]  | 1,2                   |                    |                                                                       |
| Installation safety factors for flooded bore hole                                                                  | $\gamma_{inst}$                           | [-]  | 1,4                   |                    |                                                                       |
| <sup>1)</sup> in the absence of national regulations <sup>2)</sup> h – concrete member thickness                   |                                           |      |                       |                    |                                                                       |
| <b>datka fix® Chemical Anchor EASF, EASF-A, EASF-E</b>                                                             |                                           |      |                       |                    | <b>Annex C2</b><br>of European Technical<br>Assessment<br>ETA-25/0188 |
| <b>Performances</b><br>Characteristic resistance under tension loads in non-cracked concrete -(Threaded Rod-Rebar) |                                           |      |                       |                    |                                                                       |

**Table C3: Characteristic resistance under shear load in non-cracked concrete – steel failure without leverarm**

| Size                                                                           |               |      | M8   | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|--------------------------------------------------------------------------------|---------------|------|------|-----|-----|-----|-----|-----|-----|-----|
| <b>Steel failure with standard threaded rod grade 5.8</b>                      |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 7    | 11  | 15  | 28  | 43  | 62  | 80  | 99  |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,25 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 8.8</b>                      |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 10   | 16  | 24  | 44  | 69  | 99  | 129 | 157 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,25 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 10.9</b>                     |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 13   | 20  | 30  | 55  | 86  | 124 | 161 | 196 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,50 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with standard threaded rod grade 12.9</b>                     |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 15   | 24  | 35  | 66  | 103 | 148 | 193 | 236 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,50 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with standard stainless steel threaded rod A4-70</b>          |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 9    | 14  | 21  | 39  | 60  | 87  | 113 | 137 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,56 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with standard stainless steel threaded rod A4-80</b>          |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 10   | 16  | 224 | 44  | 69  | 99  | 129 | 157 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,33 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |
| <b>Steel failure with high corrosion stainless steel threaded rod grade 70</b> |               |      |      |     |     |     |     |     |     |     |
| Characteristic resistance                                                      | $V_{Rk,s}^0$  | [kN] | 9    | 14  | 21  | 39  | 60  | 87  | 113 | 137 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,56 |     |     |     |     |     |     |     |
| Ductility factor                                                               | $k_7$         | [-]  | 0,8  |     |     |     |     |     |     |     |

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance under shear loads in non-cracked concrete (Threaded Rod)

**Annex C3**  
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**Table C4: Characteristic values for shear load in non-cracked concrete – steel failure with lever arm**

| Size                                                                           |               |      | M8   | M10 | M12 | M16 | M20 | M24  | M27   | M30  |
|--------------------------------------------------------------------------------|---------------|------|------|-----|-----|-----|-----|------|-------|------|
| <b>Steel failure with standard threaded rod grade 5.8</b>                      |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 19   | 38  | 66  | 166 | 325 | 561  | 832   | 1125 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,25 |     |     |     |     |      |       |      |
| <b>Steel failure with standard threaded rod grade 8.8</b>                      |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 30   | 60  | 105 | 266 | 519 | 898  | 1331  | 1799 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,25 |     |     |     |     |      |       |      |
| <b>Steel failure with standard threaded rod grade 10.9</b>                     |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 37   | 75  | 131 | 333 | 649 | 1123 | 1665  | 2249 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,50 |     |     |     |     |      |       |      |
| <b>Steel failure with standard threaded rod grade 12.9</b>                     |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 45   | 90  | 157 | 400 | 779 | 1347 | 1998  | 2699 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,50 |     |     |     |     |      |       |      |
| <b>Steel failure with standard stainless steel threaded rod A4-70</b>          |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 26   | 52  | 92  | 233 | 455 | 786  | 11165 | 1574 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,56 |     |     |     |     |      |       |      |
| <b>Steel failure with standard stainless steel threaded rod A4-80</b>          |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 30   | 60  | 105 | 266 | 519 | 898  | 1332  | 1799 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,33 |     |     |     |     |      |       |      |
| <b>Steel failure with high corrosion stainless steel threaded rod grade 70</b> |               |      |      |     |     |     |     |      |       |      |
| Characteristic resistance                                                      | $M_{Rk,s}^0$  | [Nm] | 26   | 52  | 92  | 233 | 454 | 786  | 1165  | 1574 |
| Partial safety factor                                                          | $\gamma_{Ms}$ | [-]  | 1,56 |     |     |     |     |      |       |      |

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance under shear loads in non-cracked concrete (ThreadedRod)

**Annex C4**  
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**Table C5: Concrete edge failure**

| Size                                     |           |      | M8                             | M10 | M12 | M16 | M20 | M24 | M27 | M30 |
|------------------------------------------|-----------|------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|
| <b>Concrete edge failure</b>             |           |      |                                |     |     |     |     |     |     |     |
| Outside diameter of anchor               | $d_{nom}$ | [mm] | 8                              | 10  | 12  | 16  | 20  | 24  | 27  | 30  |
| Effective length of anchor shear loading | $l_f$     | [mm] | min ( $h_{ef}$ ; $12d_{nom}$ ) |     |     |     |     |     |     |     |
| Installation Factor                      | $y_{ins}$ | -    | 1                              |     |     |     |     |     |     |     |

**Table C6: Concrete pry-out failure**

|                     |           |   |   |  |  |  |  |  |  |  |
|---------------------|-----------|---|---|--|--|--|--|--|--|--|
| Factor              | $k_8$     | - | 2 |  |  |  |  |  |  |  |
| Installation Factor | $y_{ins}$ | - | 1 |  |  |  |  |  |  |  |

**Table C7: Displacement under tension load**

| Size                                                                        |                      |                           | M8   | M10  | M12  | M16  | M20  | M24  | M27  | M30  |
|-----------------------------------------------------------------------------|----------------------|---------------------------|------|------|------|------|------|------|------|------|
| <b>Characteristic displacement in non-cracked C20/25 to C50/60 concrete</b> |                      |                           |      |      |      |      |      |      |      |      |
| Temperature Range I : 40°C/24°C                                             | $\delta_{N0-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,02 | 0,03 | 0,04 | 0,04 | 0,04 | 0,05 | 0,06 | 0,06 |
|                                                                             | $\delta_{Nz-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,03 | 0,05 | 0,05 | 0,05 | 0,06 | 0,06 | 0,07 | 0,07 |
| Temperature Range II: 80°C/50°C                                             | $\delta_{N0-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,05 | 0,05 | 0,06 | 0,06 | 0,07 | 0,07 | 0,08 | 0,12 |
|                                                                             | $\delta_{Nz-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,07 | 0,07 | 0,08 | 0,08 | 0,09 | 0,11 | 0,12 | 0,14 |
| <b>Characteristic displacement in cracked C20/25 to C50/60 concrete</b>     |                      |                           |      |      |      |      |      |      |      |      |
| Temperature Range I : 40°C/24°C                                             | $\delta_{N0-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,09 | 0,09 | 0,06 | 0,06 | 0,06 | 0,06 | 0,06 | 0,06 |
|                                                                             | $\delta_{Nz-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,10 | 0,10 | 0,16 | 0,16 | 0,16 | 0,16 | 0,16 | 0,16 |
| Temperature range II: 80°C/50°C                                             | $\delta_{N0-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,22 | 0,22 | 0,18 | 0,18 | 0,18 | 0,18 | 0,18 | 0,18 |
|                                                                             | $\delta_{Nz-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,28 | 0,28 | 0,26 | 0,26 | 0,26 | 0,26 | 0,26 | 0,26 |

Calculation of displacement:  $\delta_{N0} = \delta_{N0-factor} \cdot r$ ;  $\delta_N = \delta_{Nz-factor} \cdot r$ ; ( $r$  – action bond stress for tension )

**Table C8: Displacement under shear loads load**

| Size                                                                        |                      |           | M8   | M10  | M12  | M16  | M20  | M24  | M27  | M30  |
|-----------------------------------------------------------------------------|----------------------|-----------|------|------|------|------|------|------|------|------|
| <b>Characteristic displacement in non-cracked C20/25 to C50/60 concrete</b> |                      |           |      |      |      |      |      |      |      |      |
| Displacement (All temperature ranges)                                       | $\delta_{V0-factor}$ | [mm/(kN)] | 0,07 | 0,07 | 0,06 | 0,05 | 0,04 | 0,04 | 0,03 | 0,03 |
|                                                                             | $\delta_{Vz-factor}$ | [mm/(kN)] | 0,08 | 0,08 | 0,08 | 0,07 | 0,06 | 0,05 | 0,04 | 0,04 |
| <b>Characteristic displacement in cracked C20/25 to C50/60 concrete</b>     |                      |           |      |      |      |      |      |      |      |      |
| Displacement (All temperature ranges)                                       | $\delta_{V0-factor}$ | [mm/(kN)] | 0,14 | 0,13 | 0,12 | 0,12 | 0,10 | 0,09 | 0,07 | 0,07 |
|                                                                             | $\delta_{Vz-factor}$ | [mm/(kN)] | 0,20 | 0,19 | 0,16 | 0,15 | 0,11 | 0,10 | 0,09 | 0,09 |

Calculation of the displacement:  $\delta_{N0} = \delta_{N0-factor} \cdot V$ ;  $\delta_N = \delta_{Nz-factor} \cdot V$ ; ( $V$  – applied shear load)

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Displacement (threaded rod)

**Annex C5**  
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**Table C9: Characteristic values of tension loads under – static and quasi-static action**

| Size                                                                                        |                    |                      | Ø8   | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø25 | Ø28 | Ø32 |
|---------------------------------------------------------------------------------------------|--------------------|----------------------|------|-----|-----|-----|-----|-----|-----|-----|-----|
| <b>Steel failure <sup>(1)</sup></b>                                                         |                    |                      |      |     |     |     |     |     |     |     |     |
| <b>Steel failure with reinforcing bar BSt 420</b>                                           |                    |                      |      |     |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 21   | 33  | 48  | 65  | 85  | 132 | 206 | 258 | 338 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |     |
| <b>Steel failure with reinforcing bar BSt 430</b>                                           |                    |                      |      |     |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 22   | 34  | 49  | 66  | 87  | 135 | 211 | 265 | 346 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |     |
| <b>Steel failure with reinforcing bar BSt 480</b>                                           |                    |                      |      |     |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 24   | 38  | 54  | 74  | 96  | 151 | 236 | 298 | 386 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |     |
| <b>Steel failure with reinforcing bar BSt 500</b>                                           |                    |                      |      |     |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 25   | 39  | 57  | 77  | 101 | 157 | 246 | 308 | 402 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |     |
| <b>Steel failure with reinforcing bar BSt 550</b>                                           |                    |                      |      |     |     |     |     |     |     |     |     |
| Characteristic resistance                                                                   | $N_{Rk,s}$         | [kN]                 | 28   | 43  | 62  | 85  | 111 | 173 | 270 | 339 | 442 |
| Partial safety factor                                                                       | $\gamma_{Ms}$      | [-]                  | 1,50 |     |     |     |     |     |     |     |     |
| <b>Combined pull-out and concrete cone failure (working life 50)</b>                        |                    |                      |      |     |     |     |     |     |     |     |     |
| <b>Characteristic bond resistance in non-cracked concrete C20/25, working life 50 years</b> |                    |                      |      |     |     |     |     |     |     |     |     |
| Temperature range I: 40°C/24°C                                                              | $\tau_{Rk,ucr,50}$ | [N/mm <sup>2</sup> ] | 15   | 13  | 12  | 12  | 12  | 11  | 11  | 9,5 | 8,0 |
| Temperature range II: 80°C/50°C                                                             | $\tau_{Rk,ucr,50}$ | [N/mm <sup>2</sup> ] | 12   | 10  | 10  | 10  | 10  | 9,0 | 7,0 | 6,5 | 6,0 |
| <b>Characteristic bond resistance in cracked concrete C20/25, working life 50 years</b>     |                    |                      |      |     |     |     |     |     |     |     |     |
| Temperature range I: 40°C/24°C                                                              | $\tau_{Rk,cr,50}$  | [N/mm <sup>2</sup> ] | 10   | 9,0 | 8,5 | 8,5 | 8,5 | 7,5 | 7,0 | 6,0 | 5,5 |
| Temperature range II: 80°C/50°C                                                             | $\tau_{Rk,cr,50}$  | [N/mm <sup>2</sup> ] | 8,0  | 7,0 | 7,0 | 7,0 | 7,0 | 6,0 | 5,5 | 5,0 | 4,5 |
| <b>Factors for cracked and non-cracked concrete C20/25</b>                                  |                    |                      |      |     |     |     |     |     |     |     |     |
| Reduction factor for concrete                                                               | $\psi_{sus,50}^0$  | 40°C/24°C            | 0,77 |     |     |     |     |     |     |     |     |
|                                                                                             |                    | 80°C/50°C            | 0,70 |     |     |     |     |     |     |     |     |
| Increasing factor for concrete                                                              | $\psi_c$           | C30/37               | 1,04 |     |     |     |     |     |     |     |     |
|                                                                                             |                    | C40/50               | 1,07 |     |     |     |     |     |     |     |     |
|                                                                                             |                    | C50/60               | 1,09 |     |     |     |     |     |     |     |     |

<sup>1)</sup> in the absence of national regulations

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance under tension loads in non-cracked concrete (Rebar)

**Annex C6**  
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**Table C10: Characteristic values of under shear load under static and quasi-static action**

| Size                                   |                 |                    | Ø8                                | Ø10 | Ø12 | Ø14 | Ø16 | Ø20 | Ø25  | Ø28  | Ø32  |
|----------------------------------------|-----------------|--------------------|-----------------------------------|-----|-----|-----|-----|-----|------|------|------|
| <b>Steel failure without lever arm</b> |                 |                    |                                   |     |     |     |     |     |      |      |      |
| Characteristic resistance              | $V_{Rk,s}^0$    | [kN]               | $0,5 \times A_s \times f_{uk}^1$  |     |     |     |     |     |      |      |      |
| Crosssection Area                      | $A_s$           | [mm <sup>2</sup> ] | 50                                | 79  | 113 | 154 | 201 | 314 | 491  | 616  | 804  |
| Partial safety factor                  | $\gamma_{Ms}$   | [-]                | 1,5 <sup>2)</sup>                 |     |     |     |     |     |      |      |      |
| Ductility factor                       | $k_7$           | [-]                | 1,0                               |     |     |     |     |     |      |      |      |
| <b>Steel failure with lever arm</b>    |                 |                    |                                   |     |     |     |     |     |      |      |      |
| Characteristic bending moment          | $M_{Rk,s}^0$    | [Nm]               | $1,2 \times W_{el} \times f_{uk}$ |     |     |     |     |     |      |      |      |
| Crosssection Area                      | $A_s$           | [mm <sup>3</sup> ] | 50                                | 98  | 170 | 269 | 402 | 785 | 1534 | 2155 | 3217 |
| Partial safety factor                  | $\gamma_{Ms,v}$ | [-]                | 1,5 <sup>2)</sup>                 |     |     |     |     |     |      |      |      |

**Table C11: Concrete edge failure**

| Size                                     |           |      | Ø8                                | Ø10 | Ø12 | Ø14 | Ø16 | Ø20                          | Ø25 | Ø28 | Ø32 |  |
|------------------------------------------|-----------|------|-----------------------------------|-----|-----|-----|-----|------------------------------|-----|-----|-----|--|
| <b>Concrete edge failure</b>             |           |      |                                   |     |     |     |     |                              |     |     |     |  |
| Outside diameter of anchor               | $d_{nom}$ | [mm] | 8                                 | 10  | 12  | 16  | 20  | 24                           | 27  | 30  | 32  |  |
| Effective length of anchor shear loading | $l_f$     |      | min ( $h_{ef}$ ; 12 x $d_{nom}$ ) |     |     |     |     | min ( $h_{ef}$ ; 12 x 300mm) |     |     |     |  |
| Installation Factor                      | $y_{ins}$ | [-]  | 1                                 |     |     |     |     |                              |     |     |     |  |

**Table C12: Concrete pry-out failure**

|                     |                 |   |   |  |  |  |  |  |  |  |  |
|---------------------|-----------------|---|---|--|--|--|--|--|--|--|--|
| Factor              | $k_8$           | - | 2 |  |  |  |  |  |  |  |  |
| Installation Factor | $\gamma_{inst}$ | - | 1 |  |  |  |  |  |  |  |  |

<sup>1)</sup>  $f_{uk}$  shall be taken from the specification of rebar.

<sup>2)</sup> in the absence of national regulations

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic values of under shear load under static and quasi-static action(Rebar)

**Annex C7**  
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**Table C13: Displacement under tension load**

| Size                                                                        |                       | φ8                        | φ10  | φ12  | φ14  | φ16  | φ20  | φ25  | φ28  | φ32  |      |
|-----------------------------------------------------------------------------|-----------------------|---------------------------|------|------|------|------|------|------|------|------|------|
| <b>Characteristic displacement in non-cracked C20/25 to C50/60 concrete</b> |                       |                           |      |      |      |      |      |      |      |      |      |
| Temperature Range I :<br>40°C/24°C                                          | $\delta_{N0-factor}$  | [mm/(N/mm <sup>2</sup> )] | 0,02 | 0,03 | 0,03 | 0,03 | 0,04 | 0,05 | 0,05 | 0,05 | 0,06 |
|                                                                             | $\delta_{Nsc-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,04 | 0,04 | 0,05 | 0,05 | 0,05 | 0,06 | 0,06 | 0,06 | 0,06 |
| Temperature range II :<br>80°C/50°C                                         | $\delta_{N0-factor}$  | [mm/(N/mm <sup>2</sup> )] | 0,04 | 0,05 | 0,07 | 0,08 | 0,08 | 0,09 | 0,11 | 0,12 | 0,13 |
|                                                                             | $\delta_{Nsc-factor}$ | [mm/(N/mm <sup>2</sup> )] | 0,07 | 0,07 | 0,09 | 0,11 | 0,13 | 0,15 | 0,17 | 0,17 | 0,18 |

Calculation of the displacement:  $\delta_{N0} = \delta_{N0-factor} \cdot r$ ;  $\delta_{N} = \delta_{Nsc-factor} \cdot r$ ; ( $r$  – action bond stress for tension)

**Table C14: Displacement under shear loads load**

| Size                                                                        |                       | φ8        | φ10  | φ12  | φ14  | φ16  | φ20  | φ25  | φ28  | φ32  |      |
|-----------------------------------------------------------------------------|-----------------------|-----------|------|------|------|------|------|------|------|------|------|
| <b>Characteristic displacement in non-cracked C20/25 to C50/60 concrete</b> |                       |           |      |      |      |      |      |      |      |      |      |
| Displacement (All temperature ranges)                                       | $\delta_{V0-factor}$  | [mm/(kN)] | 0,07 | 0,06 | 0,60 | 0,05 | 0,04 | 0,04 | 0,03 | 0,03 | 0,02 |
|                                                                             | $\delta_{Vsc-factor}$ | [mm/(kN)] | 0,09 | 0,09 | 0,08 | 0,07 | 0,07 | 0,07 | 0,06 | 0,05 | 0,04 |
| <b>Characteristic displacement in cracked C20/25 to C50/60 concrete</b>     |                       |           |      |      |      |      |      |      |      |      |      |
| Displacement (All temperature ranges)                                       | $\delta_{V0-factor}$  | [mm/(kN)] | 0,11 | 0,11 | 0,09 | 0,09 | 0,08 | 0,08 | 0,07 | 0,06 | 0,06 |
|                                                                             | $\delta_{Vsc-factor}$ | [mm/(kN)] | 0,17 | 0,17 | 0,02 | 0,15 | 0,13 | 0,13 | 0,11 | 0,11 | 0,09 |

Calculation of the displacement:  $\delta_{N0} = \delta_{N0-factor} \cdot V$ ;  $\delta_{N} = \delta_{Nsc-factor} \cdot V$ ; ( $V$  – applied shear load)

|                                                        |                                                                       |
|--------------------------------------------------------|-----------------------------------------------------------------------|
| <b>datka fix® Chemical Anchor EASF, EASF-A, EASF-E</b> | <b>Annex C8</b><br>of European Technical<br>Assessment<br>ETA-25/0188 |
| <b>Performances</b><br>Displacement (Rebar)            |                                                                       |

**Table C15: Characteristic resistance for tension loads under – seismic action (C1)**

| Size                                                                             |                   |                      | M8   | M10  | M12  | M16  | M20  | M24  | M27  | M30  |
|----------------------------------------------------------------------------------|-------------------|----------------------|------|------|------|------|------|------|------|------|
| <b>Steel failure <sup>(1)</sup></b>                                              |                   |                      |      |      |      |      |      |      |      |      |
| <b>Steel failure with standard threaded rod grade 5.8</b>                        |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 18   | 29   | 42   | 78   | 122  | 176  | 228  | 280  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,50 |      |      |      |      |      |      |      |
| <b>Steel failure with standard threaded rod grade 8.8</b>                        |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 29   | 46   | 67   | 126  | 196  | 282  | 367  | 449  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,50 |      |      |      |      |      |      |      |
| <b>Steel failure with standard threaded rod grade 10.9</b>                       |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 37   | 58   | 84   | 157  | 245  | 353  | 459  | 561  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,40 |      |      |      |      |      |      |      |
| <b>Steel failure with standard threaded rod grade 12.9</b>                       |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 44   | 70   | 101  | 188  | 294  | 424  | 551  | 673  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,40 |      |      |      |      |      |      |      |
| <b>Steel failure with standard stainless steel threaded rod A4-70</b>            |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 26   | 41   | 59   | 110  | 172  | 247  | 321  | 393  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,87 |      |      |      |      |      |      |      |
| <b>Steel failure with standard stainless steel threaded rod A4-80</b>            |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 29   | 46   | 67   | 126  | 196  | 282  | 367  | 449  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,60 |      |      |      |      |      |      |      |
| <b>Steel failure with standard high corrosion threaded rod grade 70</b>          |                   |                      |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s}$        | [kN]                 | 26   | 41   | 59   | 110  | 172  | 247  | 321  | 393  |
| Partial safety factor                                                            | $\gamma_{Ms}$     | [-]                  | 1,87 |      |      |      |      |      |      |      |
| <b>Combined pull-out and concrete cone failure</b>                               |                   |                      |      |      |      |      |      |      |      |      |
| <b>Characteristic bond resistance in non-cracked and cracked concrete C20/25</b> |                   |                      |      |      |      |      |      |      |      |      |
| Temperature range I: 40°C/24°C                                                   | $\tau_{Rk,eq,C1}$ | [N/mm <sup>2</sup> ] | 4,24 | 4,85 | 4,19 | 3,97 | 3,47 | 3,55 | 2,87 | 3,12 |
| Temperature range II: 80°C/50°C                                                  | $\tau_{Rk,eq,C1}$ | [N/mm <sup>2</sup> ] | 3,39 | 3,83 | 3,49 | 3,08 | 2,72 | 2,79 | 2,40 | 2,60 |
| Installation factor dry and wet condition                                        | $\psi_{ins}$      | [-]                  | 1,2  |      |      |      |      |      |      |      |
| Installation factor flooded hole condition                                       |                   |                      | 1,4  |      |      |      |      |      |      |      |
| Increasing factor for concrete                                                   | $\psi_c$          | C30/37               | 1,04 |      |      |      |      |      |      |      |
|                                                                                  |                   | C40/50               | 1,07 |      |      |      |      |      |      |      |
|                                                                                  |                   | C50/60               | 1,09 |      |      |      |      |      |      |      |

**Table C17: Characteristic resistance for shear loads under – seismic action (C1)**

|                                                      |                  |      |                         |  |  |  |  |  |  |  |
|------------------------------------------------------|------------------|------|-------------------------|--|--|--|--|--|--|--|
| <b>Steel failure</b>                                 |                  |      |                         |  |  |  |  |  |  |  |
| Characteristic Shear Resistance                      | $V_{Rk,s,eq,C1}$ | [kN] | $0,7 \times V^0_{Rk,s}$ |  |  |  |  |  |  |  |
| Partial factor <sup>1)</sup>                         | $\gamma_{Ms}$    | [-]  | See Annex C3 - Table C3 |  |  |  |  |  |  |  |
| <sup>1)</sup> in the absence of national regulations |                  |      |                         |  |  |  |  |  |  |  |
| Factor for annular gap                               | $a_{gap}$        | [-]  | 0,5 (1,0) <sup>2)</sup> |  |  |  |  |  |  |  |

<sup>2)</sup> Value in brackets valid for filled annular gap between anchor and clearance in the fixture.

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance for tension and shear loads under seismic action C1 (Threaded Rod)

**Annex C9**  
of European Technical  
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**Table C18: Characteristic resistance for tension loads under – seismic action (C1)**

| Size                                                                             |                   |                      | ϕ8                                  | ϕ10  | ϕ12  | ϕ14  | ϕ16  | ϕ20  | ϕ25  | ϕ28  | ϕ32  |
|----------------------------------------------------------------------------------|-------------------|----------------------|-------------------------------------|------|------|------|------|------|------|------|------|
| <b>Steel failure <sup>(1)</sup></b>                                              |                   |                      |                                     |      |      |      |      |      |      |      |      |
| <b>Steel failure</b>                                                             |                   |                      |                                     |      |      |      |      |      |      |      |      |
| Characteristic resistance                                                        | $N_{Rk,s,eq,C1}$  | [-]                  | $0,5 \times A_s \times f_{uk}^{1)}$ |      |      |      |      |      |      |      |      |
| Cross section area                                                               | $A_s$             | [mm <sup>2</sup> ]   | 50                                  | 79   | 113  | 154  | 201  | 314  | 491  | 616  | 804  |
| Partial safety factor                                                            | $\gamma_{Ms, N}$  | [-]                  | 1,5 <sup>2)</sup>                   |      |      |      |      |      |      |      |      |
| <b>Combined pull-out and concrete cone failure</b>                               |                   |                      |                                     |      |      |      |      |      |      |      |      |
| <b>Characteristic bond resistance in non-cracked and cracked concrete C20/25</b> |                   |                      |                                     |      |      |      |      |      |      |      |      |
| Temperature range I: 40°C/24°C                                                   | $\tau_{Rk,eq,C1}$ | [N/mm <sup>2</sup> ] | 4,24                                | 4,11 | 3,96 | 3,53 | 3,96 | 3,81 | 3,35 | 3,12 | 3,12 |
| Temperature range II: 80°C/50°C                                                  | $\tau_{Rk,eq,C1}$ | [N/mm <sup>2</sup> ] | 3,39                                | 3,20 | 3,03 | 2,86 | 3,22 | 2,79 | 2,63 | 2,60 | 2,34 |
| Installation factor dry and wet condition                                        | $\psi_{ins}$      | [-]                  | 1,2                                 |      |      |      |      |      |      |      |      |
| Installation factor flooded hole condition                                       |                   |                      | 1,4                                 |      |      |      |      |      |      |      |      |
| Increasing factor for concrete                                                   | $\psi_c$          | C30/37               | 1,04                                |      |      |      |      |      |      |      |      |
|                                                                                  |                   | C40/50               | 1,07                                |      |      |      |      |      |      |      |      |
|                                                                                  |                   | C50/60               | 1,09                                |      |      |      |      |      |      |      |      |

**Table C19: Characteristic resistance for shear loads under – seismic action (C1)**

|                                 |                  |                    |                                      |    |     |     |     |     |     |     |     |
|---------------------------------|------------------|--------------------|--------------------------------------|----|-----|-----|-----|-----|-----|-----|-----|
| <b>Steel failure</b>            |                  |                    |                                      |    |     |     |     |     |     |     |     |
| Characteristic Shear Resistance | $V_{Rk,s,eq,C1}$ | [kN]               | $0,35 \times A_s \times f_{uk}^{1)}$ |    |     |     |     |     |     |     |     |
| Cross section area              | $A_s$            | [mm <sup>2</sup> ] | 50                                   | 79 | 113 | 154 | 201 | 314 | 491 | 616 | 804 |
| Partial factor                  | $\gamma_{Ms}$    | [-]                | 1,5 <sup>2)</sup>                    |    |     |     |     |     |     |     |     |
| Factor for annular gap          | $a_{gap}$        | [-]                | 0,5 (1,0) <sup>3)</sup>              |    |     |     |     |     |     |     |     |

<sup>1)</sup>  $f_{uk}$  shall be taken from specification of rebar

<sup>2)</sup> in the absence of national regulations

<sup>3)</sup> Value in brackets valid for filled annular gap between anchor and clearance in the fixture.

**datka fix® Chemical Anchor EASF, EASF-A, EASF-E**

**Performances**

Characteristic resistance for tension and shear loads under seismic action C1(Rebar)

**Annex C10**  
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