

**IZJAVA O LASTNOSTIH**

DoP Št.: MKT-1.1-400\_sl

- ◇ **Enotna identifikacijska oznaka tipa proizvoda:** Sidro z veliko obremenitvijo SZ
- ◇ **Predvidena uporaba:** Mehanski mozniak za uporabo v betonu, glej Priloga/Annex B
- ◇ **Proizvajalec:** MKT Metall-Kunststoff-Technik GmbH & Co.KG  
Auf dem Immel 2  
67685 Weilerbach
- ◇ **Sistem ali sistemi ocenjevanja in preverjanja nespremenljivosti lastnosti:** 1
- ◇ **Evropski ocenjevalni dokument:** EAD 330232-00-0601  
Evropska tehnična ocena: ETA-02/0030, 13.09.2019  
Organ za tehnično ocenjevanje: DIBt, Berlin  
Priglašeni organi: NB 2873 – Technische Universität Darmstadt

◇ **Navedene lastnosti:**

| Bistvene značilnosti   | Lastnosti                 |
|--|---------------------------|
| <b>Mehanska odpornost in stabilnost (BWR 1)</b>                                    |                           |
| Karakteristični upori pod natezno obremenitvijo (statični in kvazistatični učinki) | Priloga / Annex C1 – C4   |
| Karakteristični upori pod prečnim stresom (statični in kvazistatični učinki)       | Priloga / Annex C5 – C6   |
| Karakteristične upornosti za kategorije potresne učinkovitosti C1 + C2             | Priloga / Annex C7 – C8   |
| Premiki  | Priloga / Annex C10 – C11 |
| Trajnost   | Priloga / Annex B1        |
| <b>Varnost pri požaru (BWR 2)</b>  |                           |
| Ogenj vedenje  | Razred A1                 |
| Požarna odpornost  | Priloga / Annex C9        |

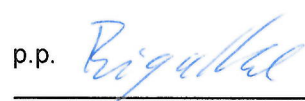
Učinkovitost zgornjega izdelka je deklarirana zmožljivost / zmožljivost. Zgornji proizvajalec je izključno odgovoren za sestavo izjave o lastnostih v skladu z Uredbo (EU) št. 305/2011.

Podpisal za in v imenu proizvajalca:



**Stefan Weustenhagen**  
(Generalni direktor)  
Weilerbach, 01.01.2021

p.p.



**Dipl.-Ing. Detlef Bigalke**  
(Vodja razvoja izdelkov)



Izvirnik te izjave o uspešnosti je bil napisan v nemščini. Za odstopanja v prevodu velja nemška različica.

## Specification of intended use

| Highload Anchor SZ,<br>steel zinc plated  | 10/M6          | 12/M8   | 15/M10 | 18/M12 | 24/M16 | 24/<br>M16L | 28/M20 | 32/M24 |
|---|----------------|---------|--------|--------|--------|-------------|--------|--------|
| Static or quasi-static action             | ✓              |         |        |        |        |             |        |        |
| Seismic action (SZ-B and SZ-S)            | -              | C1 + C2 |        |        |        |             |        |        |
| Seismic action (SZ-SK)                    | -              | C1 + C2 |        |        |        | -           |        |        |
| Fire exposure                             | R 30 ... R 120 |         |        |        |        |             |        |        |
| Highload Anchor SZ,<br>stainless steel A4 | 12/M8          | 15/M10  | 18/M12 | 24/M16 |        |             |        |        |
| Static or quasi-static action             | ✓              |         |        |        |        |             |        |        |
| Seismic action (SZ-B and SZ-S)            | C1 + C2        |         |        |        |        |             |        |        |
| Seismic action (SZ-SK)                    | C1 + C2        |         |        | -      |        |             |        |        |
| Fire exposure                             | R30 ... R120   |         |        |        |        |             |        |        |

### Base materials:

- Cracked and uncracked concrete
- Compacted, reinforced or unreinforced normal weight concrete (without fibers) according to EN 206:2013 + A1:2016
- Strength classes C20/25 to C50/60 according to EN 206:2013 + A1:2016

### Use conditions (Environmental conditions):

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

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

### Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the fastener is indicated on the design drawings (e.g. position of the fastener relative to reinforcement or to supports, etc.).
- Design according to EN 1992-4:2018 and Technical Report TR055

### Installation:

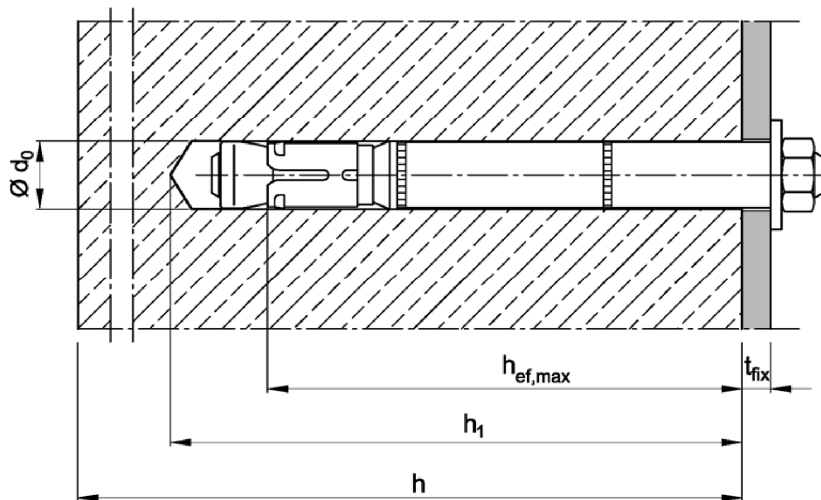
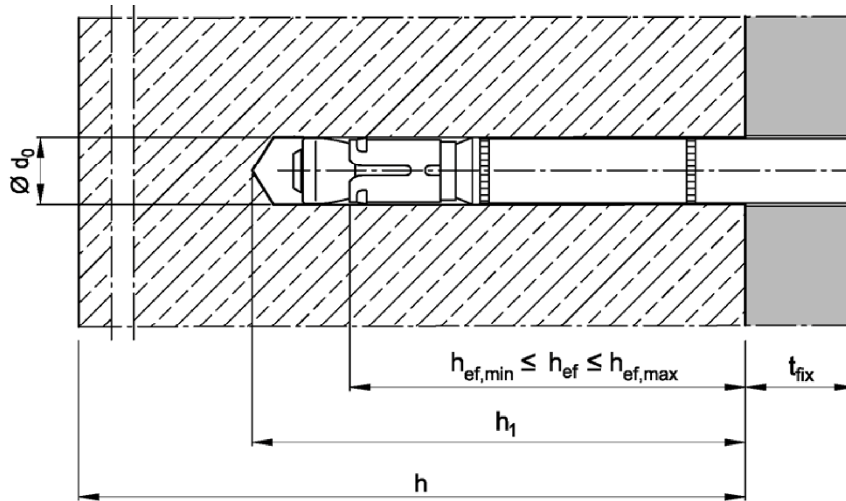
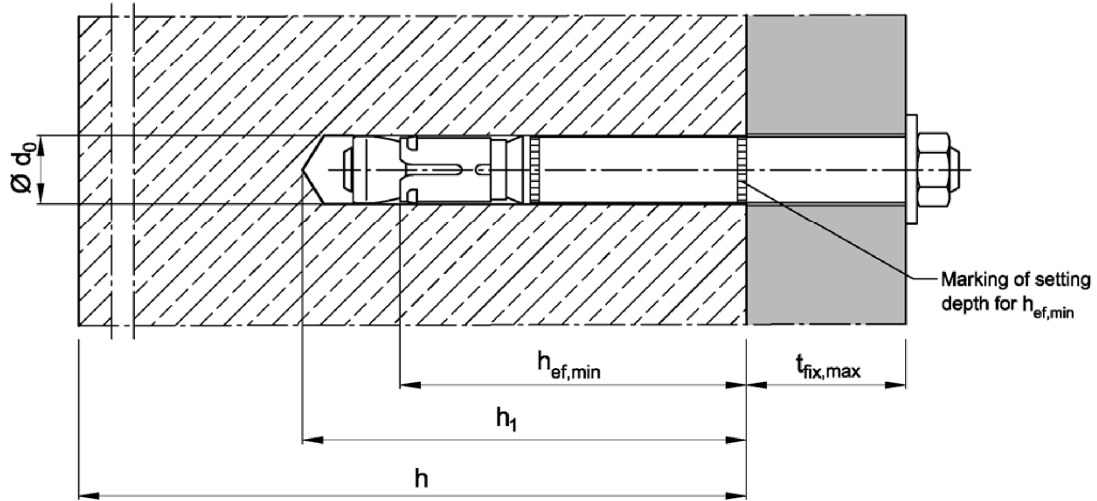
- Fastener installation carried out by appropriately qualified personnel and under the obligation of the person responsible for technical matters on site.
- Compliance with the effective anchorage depth. For fastenings with anchorage depths  $h_{ef} > h_{ef,min}$  the usable thickness of fixture is reduced by  $h_{ef} - h_{ef,min}$ .
- Use as supplied by the manufacturer without replacing individual parts.
- Drilling of hole only by hammer drilling (use of vacuum drill bits is admissible)

## Highload Anchor SZ

Intended use  
Specification of intended use

**Annex B1**

# Installation situation



## Highload Anchor SZ

Intended use  
Installation situation

Annex B2

**Table B1: Installation parameters, steel zinc plated**

| Fastener size  |                         |      | 10/M6         | 12/M8         | 15/M10        | 18/M12        | 24/M16         | 24/<br>M16L    | 28/M20         | 32/M24         |
|--|-------------------------|------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|
| Size of thread   |                         | [-]  | M6            | M8            | M10           | M12           | M16            | M16            | M20            | M24            |
| Minimum effective anchorage depth                            | $h_{ef,min}$            | [mm] | 50            | 60            | 71            | 80            | 100            | 115            | 125            | 150            |
| Maximum effective anchorage depth                            | $h_{ef,max}$            | [mm] | 76            | 100           | 110           | 130           | 114            | 150            | 185            | 210            |
| Nominal diameter of drill bit                                | $d_0 =$                 | [mm] | 10            | 12            | 15            | 18            | 24             | 24             | 28             | 32             |
| Cutting diameter of drill bit                                | $d_{cut} \leq$          | [mm] | 10,45         | 12,5          | 15,5          | 18,5          | 24,55          | 24,55          | 28,55          | 32,7           |
| Depth of drill hole  | $h_1 \geq$              | [mm] | $h_{ef} + 15$ | $h_{ef} + 20$ | $h_{ef} + 24$ | $h_{ef} + 25$ | $h_{ef} + 30$  | $h_{ef} + 30$  | $h_{ef} + 35$  | $h_{ef} + 30$  |
| Diameter of clearance hole in the fixture                    | $d_f \leq$              | [mm] | 12            | 14            | 17            | 20            | 26             | 26             | 31             | 35             |
| Thickness of countersunk washer SZ-SK                        | $t_{sk}$                | [mm] | 4             | 5             | 6             | 7             | -              | -              | -              | -              |
| Minimum thickness of fixture SZ-SK                           | $t_{fix\ min}^{2)}$     | [mm] | 8             | 10            | 14            | 18            | -              | -              | -              | -              |
| Installation torque  | $T_{inst}$ (SZ-B, SZ-S) | [Nm] | 15            | 30            | 50            | 80            | 160            | 160            | 280            | 280            |
|  | $T_{inst}$ (SZ-SK)      | [Nm] | 10            | 25            | 55            | 70            | -              | -              | -              | -              |
| Minimum thickness of member                                  | $h_{min}$               | [mm] | $h_{ef} + 50$ | $h_{ef} + 60$ | $h_{ef} + 69$ | $h_{ef} + 80$ | $h_{ef} + 100$ | $h_{ef} + 115$ | $h_{ef} + 125$ | $h_{ef} + 150$ |
| Minimum spacing <sup>1) 3)</sup><br>cracked concrete         | $s_{min}$               | [mm] | 50            | 50            | 60            | 70            | 100            | 100            | 125            | 150            |
|  | for $c \geq$            | [mm] | 50            | 80            | 120           | 140           | 180            | 180            | 300            | 300            |
| Minimum edge distance <sup>1) 3)</sup><br>cracked concrete   | $c_{min}$               | [mm] | 50            | 55            | 60            | 70            | 100            | 100            | 200            | 150            |
|  | for $s \geq$            | [mm] | 50            | 100           | 120           | 160           | 220            | 220            | 350            | 300            |
| Minimum spacing <sup>1) 3)</sup><br>uncracked concrete       | $s_{min}$               | [mm] | 50            | 60            | 60            | 70            | 100            | 100            | 125            | 150            |
|  | for $c \geq$            | [mm] | 80            | 100           | 120           | 140           | 180            | 180            | 300            | 300            |
| Minimum edge distance <sup>1) 3)</sup><br>uncracked concrete | $c_{min}$               | [mm] | 50            | 60            | 60            | 70            | 100            | 100            | 200            | 150            |
|  | for $s \geq$            | [mm] | 100           | 120           | 120           | 160           | 220            | 220            | 350            | 300            |

<sup>1)</sup> Intermediate values by linear interpolation

<sup>2)</sup> Depending on the existing shear load, the thickness of the fixture may be reduced to the thickness of the countersunk washer  $t_{sk}$  (see Annex A2). It must be verified that the present shear load can be transferred completely into the distance sleeve (bearing of hole).

<sup>3)</sup> For fire exposure from more than one side  $c \geq 300$  mm or  $c_{min} \geq 300$  mm applies.

**Highload Anchor SZ**

**Intended use**  
Installation parameters, steel zinc plated

**Annex B3**

**Table B2: Installation parameters, stainless steel A4**

| Fastener size  |                    |      | 12/M8         | 15/M10        | 18/M12        | 24/M16         |
|--|--------------------|------|---------------|---------------|---------------|----------------|
| Size of thread   |                    | [-]  | M8            | M10           | M12           | M16            |
| Minimum effective anchorage depth                            | $h_{ef,min}$       | [mm] | 60            | 71            | 80            | 100            |
| Maximum effective anchorage depth                            | $h_{ef,max}$       | [mm] | 100           | 110           | 130           | 150            |
| Nominal diameter of drill bit                                | $d_0 =$            | [mm] | 12            | 15            | 18            | 24             |
| Cutting diameter of drill bit                                | $d_{cut} \leq$     | [mm] | 12,5          | 15,5          | 18,5          | 24,55          |
| Depth of drill hole  | $h_1 \geq$         | [mm] | $h_{ef} + 20$ | $h_{ef} + 24$ | $h_{ef} + 25$ | $h_{ef} + 30$  |
| Diameter of clearance hole in the fixture                    | $d_f \leq$         | [mm] | 14            | 17            | 20            | 26             |
| Thickness of countersunk washer SZ-SK                        | $t_{sk}$           | [mm] | 5             | 6             | 7             | -              |
| Minimum thickness of fixture SZ-SK                           | $t_{fix min}^{2)}$ | [mm] | 10            | 14            | 18            | -              |
| Installation torque  | $T_{inst}$ (SZ-B)  | [Nm] | 35            | 55            | 90            | 170            |
|  | $T_{inst}$ (SZ-S)  | [Nm] | 30            | 50            | 80            | 170            |
|  | $T_{inst}$ (SZ-SK) | [Nm] | 17,5          | 42,5          | 50            | -              |
| Minimum thickness of member                                  | $h_{min}$          | [mm] | $h_{ef} + 60$ | $h_{ef} + 69$ | $h_{ef} + 80$ | $h_{ef} + 100$ |
| Minimum spacing <sup>1) 3)</sup><br>cracked concrete         | $s_{min}$          | [mm] | 50            | 60            | 70            | 80             |
|  | for $c \geq$       | [mm] | 80            | 120           | 140           | 180            |
| Minimum edge distance <sup>1) 3)</sup><br>cracked concrete   | $c_{min}$          | [mm] | 50            | 60            | 70            | 80             |
|  | for $s \geq$       | [mm] | 80            | 120           | 160           | 200            |
| Minimum spacing <sup>1) 3)</sup><br>uncracked concrete       | $s_{min}$          | [mm] | 50            | 60            | 70            | 80             |
|  | for $c \geq$       | [mm] | 80            | 120           | 140           | 180            |
| Minimum edge distance <sup>1) 3)</sup><br>uncracked concrete | $c_{min}$          | [mm] | 50            | 85            | 70            | 180            |
|  | for $s \geq$       | [mm] | 80            | 185           | 160           | 80             |

<sup>1)</sup> Intermediate values by linear interpolation

<sup>2)</sup> Depending on the existing shear load, the thickness of the fixture may be reduced to the thickness of the countersunk washer  $t_{sk}$  (see Annex A2). It must be verified that the present shear load can be transferred completely into the distance sleeve (bearing of hole).

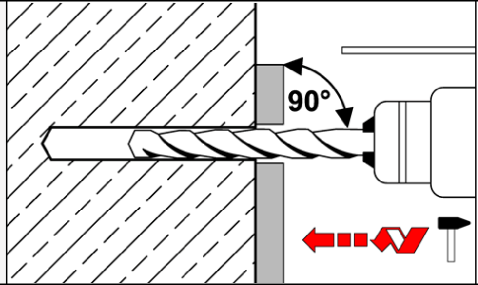
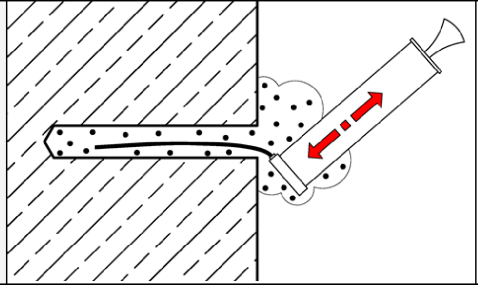
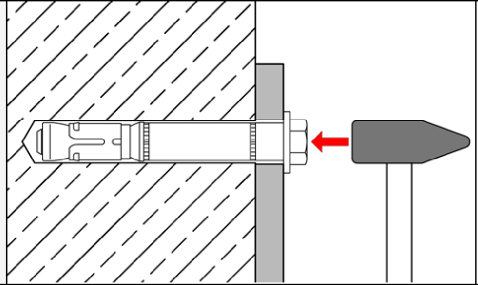
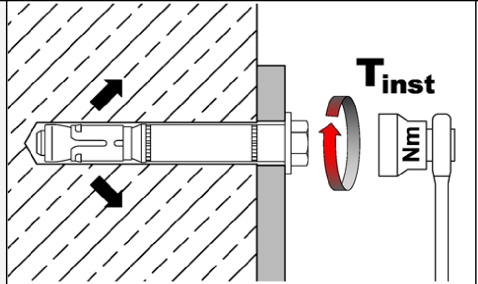
<sup>3)</sup> For fire exposure from more than one side  $c \geq 300$  mm or  $c_{min} \geq 300$  mm applies.

**Highload Anchor SZ**

**Intended use**  
Installation parameters, stainless steel A4

**Annex B4**

## Installation instructions

|   |  |   |
|---|--|---|
| 1 |   | Drill hole perpendicular to concrete surface. If using a vacuum drill bit, proceed with step 3. |
| 2 |   | Blow out dust. Alternatively vacuum clean down to the bottom of the hole.                       |
| 3 |   | Drive in fastener.  |
| 4 |  | Apply installation torque $T_{inst}$ .  |

### Highload Anchor SZ

Intended use  
Installation instructions

Annex B5

**Table C1: Characteristic values for tension load, cracked concrete, static or quasi-static action, steel zinc plated**

| Fastener size  |                  |      | 10/M6                                  | 12/M8 | 15/M10 | 18/M12 | 24/M16 | 24/<br>M16L | 28/M20 | 32/M24 |
|--|------------------|------|--|-------|--------|--------|--------|-------------|--------|--------|
| Installation factor                                  | $\gamma_{inst}$  | [-]  | 1,0                                    |       |        |        |        |             |        |        |
| <b>Steel failure</b>                                 |                  |      |  |       |        |        |        |             |        |        |
| Characteristic resistance                            | $N_{Rk,s}$       | [kN] | 16                                     | 29    | 46     | 67     | 126    | 126         | 196    | 282    |
| Partial factor                                       | $\gamma_{Ms}$    | [-]  | 1,5                                    |       |        |        |        |             |        |        |
| <b>Pull-out failure</b>                              |                  |      |  |       |        |        |        |             |        |        |
| Characteristic resistance in cracked concrete C20/25 | $N_{Rk,p}$       | [kN] | 5                                      | 12    | 16     | 25     | 36     | 44          | 50     | 65     |
| Increasing factor for $N_{Rk,p}$                     | $\psi_C$         | [-]  | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |       |        |        |        |             |        |        |
| <b>Concrete cone failure</b>                         |                  |      |  |       |        |        |        |             |        |        |
| Minimum effective anchorage depth                    | $h_{ef,min}$     | [mm] | 50                                     | 60    | 71     | 80     | 100    | 115         | 125    | 150    |
| Maximum effective anchorage depth                    | $h_{ef,max}$     | [mm] | 76                                     | 100   | 110    | 130    | 114    | 150         | 185    | 210    |
| Factor for cracked concrete                          | $k_1 = k_{cr,N}$ | [-]  | 7,7                                    |       |        |        |        |             |        |        |

**Highload Anchor SZ**

**Performance**

Characteristic values for **tension load, cracked concrete**, static or quasi-static action, **steel zinc plated**

**Annex C1**

**Table C2: Characteristic values for tension load, cracked concrete, static or quasi-static action, stainless steel A4**

| Fastener size  |                  |      | 12/M8                                  | 15/M10 | 18/M12 | 24/M16 |
|--|------------------|------|--|--------|--------|--------|
| Installation factor                                  | $\gamma_{inst}$  | [-]  | 1,0                                    |        |        |        |
| <b>Steel failure</b>                                 |                  |      |  |        |        |        |
| <b>SZ-B</b>  |                  |      |  |        |        |        |
| Characteristic resistance                            | $N_{Rk,s}$       | [kN] | 26                                     | 41     | 60     | 110    |
| Partial factor                                       | $\gamma_{Ms}$    | [-]  | 1,5                                    |        |        |        |
| <b>SZ-S and SZ-SK</b>                                |                  |      |  |        |        |        |
| Characteristic resistance                            | $N_{Rk,s}$       | [kN] | 26                                     | 41     | 60     | 110    |
| Partial factor                                       | $\gamma_{Ms}$    | [-]  | 1,87                                   |        |        |        |
| <b>Pull-out failure</b>                              |                  |      |  |        |        |        |
| Characteristic resistance in cracked concrete C20/25 | $N_{Rk,p}$       | [kN] | 9                                      | 16     | 25     | 36     |
| Increasing factor for $N_{Rk,p}$                     | $\psi_C$         | [-]  | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |        |        |        |
| <b>Concrete cone failure</b>                         |                  |      |  |        |        |        |
| Minimum effective anchorage depth                    | $h_{ef,min}$     | [mm] | 60                                     | 71     | 80     | 100    |
| Maximum effective anchorage depth                    | $h_{ef,max}$     | [mm] | 100                                    | 110    | 130    | 150    |
| Factor for cracked concrete                          | $k_1 = k_{cr,N}$ | [-]  | 7,7                                    |        |        |        |

**Highload Anchor SZ**

**Performance**

Characteristic values for **tension load, cracked concrete**, static or quasi-static action, **stainless steel A4**

**Annex C2**



**Table C3: Characteristic values for tension load, uncracked concrete, static or quasi-static action, steel zinc plated**

| Fastener size  |                   |      | 10/M6                                  | 12/M8 | 15/M10 | 18/M12 | 24/M16 | 24/<br>M16L  | 28/M20                                 | 32/M24     |   |
|--|-------------------|------|--|-------|--------|--------|--------|--------------|--|------------|---|
| Installation factor  | $\gamma_{inst}$   | [-]  | 1,0                                    |       |        |        |        |              |  |            |   |
| <b>Steel failure</b>   |                   |      |  |       |        |        |        |              |  |            |   |
| Characteristic resistance  | $N_{Rk,s}$        | [kN] | 16                                     | 29    | 46     | 67     | 126    | 126          | 196                                    | 282        |   |
| Partial factor   | $\gamma_{Ms}$     | [-]  | 1,5                                    |       |        |        |        |              |  |            |   |
| <b>Pull-out failure</b>  |                   |      |  |       |        |        |        |              |  |            |   |
| Characteristic resistance in uncracked concrete C20/25                               | $N_{Rk,p}$        | [kN] | 17                                     | 20    | 30     | 36     | 50     | 1)           | 70                                     | 1)         |   |
| Increasing factor for $N_{Rk,p}$   | $\psi_C$          | [-]  | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |       |        |        |        | -            | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |            | - |
| <b>Splitting failure</b> (The higher resistance of case 1 and case 2 may be applied) |                   |      |  |       |        |        |        |              |  |            |   |
| Case 1   |                   |      |  |       |        |        |        |              |  |            |   |
| Characteristic resistance in uncracked concrete C20/25                               | $N^0_{Rk,sp}$     | [kN] | 12                                     | 16    | 25     | 30     | 40     | 70           | 50                                     | 70         |   |
| Edge distance  | $c_{cr,sp}$       | [mm] | 1,5 $h_{ef}$                           |       |        |        |        |              |  |            |   |
| Increasing factor for $N^0_{Rk,sp}$  | $\psi_C$          | [-]  | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |       |        |        |        |              |  |            |   |
| Case 2   |                   |      |  |       |        |        |        |              |  |            |   |
| Characteristic resistance in uncracked concrete                                      | $N^0_{Rk,sp}$     | [kN] | $\min(N_{Rk,p}; N^0_{Rk,c})$           |       |        |        |        |              |  |            |   |
| Edge distance  | $c_{cr,sp}$       | [mm] | 2,5 $h_{ef}$                           |       |        |        |        | 1,5 $h_{ef}$ | 2,5 $h_{ef}$                           | 2 $h_{ef}$ |   |
| <b>Concrete cone failure</b>   |                   |      |  |       |        |        |        |              |  |            |   |
| Minimum effective anchorage depth  | $h_{ef,min}$      | [mm] | 50                                     | 60    | 71     | 80     | 100    | 115          | 125                                    | 150        |   |
| Maximum effective anchorage depth  | $h_{ef,max}$      | [mm] | 76                                     | 100   | 110    | 130    | 114    | 150          | 185                                    | 210        |   |
| Edge distance  | $c_{cr,N}$        | [mm] | 1,5 $h_{ef}$                           |       |        |        |        |              |  |            |   |
| Factor for uncracked concrete  | $k_1 = k_{ucr,N}$ | [-]  | 11,0                                   |       |        |        |        |              |  |            |   |

1)  $N_{Rk,p} = N^0_{Rk,c}$  calculated with  $h_{ef,min}$

### Highload Anchor SZ

#### Performance

Characteristic values for tension load, uncracked concrete, static or quasi-static action, steel zinc plated

**Annex C3**

**Table C4:** Characteristic values for **tension load, uncracked concrete, static or quasi-static action, stainless steel A4**

| Fastener size  |                   |      | 12/M8                                  | 15/M10 | 18/M12 | 24/M16 |
|--|-------------------|------|--|--------|--------|--------|
| Installation factor                                    | $\gamma_{inst}$   | [-]  | 1,0                                    |        |        |        |
| <b>Steel failure</b>                                   |                   |      |  |        |        |        |
| <b>SZ-B</b>  |                   |      |  |        |        |        |
| Characteristic resistance                              | $N_{Rk,s}$        | [kN] | 26                                     | 41     | 60     | 110    |
| Partial factor   | $\gamma_{Ms}$     | [-]  | 1,5                                    |        |        |        |
| <b>SZ-S and SZ-SK</b>                                  |                   |      |  |        |        |        |
| Characteristic resistance                              | $N_{Rk,s}$        | [kN] | 26                                     | 41     | 60     | 110    |
| Partial factor   | $\gamma_{Ms}$     | [-]  | 1,87                                   |        |        |        |
| <b>Pull-out failure</b>                                |                   |      |  |        |        |        |
| Characteristic resistance in uncracked concrete C20/25 | $N_{Rk,p}$        | [kN] | 16                                     | 25     | 35     | 50     |
| Increasing factor for $N_{Rk,p}$                       | $\psi_C$          | [-]  | $\left(\frac{f_{ck}}{20}\right)^{0,5}$ |        |        |        |
| <b>Splitting failure</b>                               |                   |      |  |        |        |        |
| Edge distance  | $c_{cr,sp}$       | [mm] | 180                                    | 235    | 265    | 300    |
| <b>Concrete cone failure</b>                           |                   |      |  |        |        |        |
| Minimum effective anchorage depth                      | $h_{ef,min}$      | [mm] | 60                                     | 71     | 80     | 100    |
| Maximum effective anchorage depth                      | $h_{ef,max}$      | [mm] | 100                                    | 110    | 130    | 150    |
| Edge distance  | $c_{cr,N}$        | [mm] | $1,5 h_{ef}$                           |        |        |        |
| Factor for uncracked concrete                          | $k_1 = k_{ucr,N}$ | [-]  | 11,0                                   |        |        |        |

**Highload Anchor SZ**

**Performance**  
 Characteristic values for **tension loads, uncracked concrete, static or quasi-static action, stainless steel A4**

**Annex C4**

**Table C5: Characteristic values of shear load, static or quasi-static action, steel zinc plated**

| Fastener size                                 |                   |      | 10/M6             | 12/M8 | 15/M10 | 18/M12 | 24/M16 | 24/<br>M16L | 28/M20 | 32/M24 |
|---|-------------------|------|-------------------|-------|--------|--------|--------|-------------|--------|--------|
| <b>Steel failure without lever arm</b>        |                   |      |                   |       |        |        |        |             |        |        |
| <b>SZ-B</b>                                   |                   |      |                   |       |        |        |        |             |        |        |
| Characteristic resistance                     | $V_{Rk,s}^0$      | [kN] | 16                | 25    | 36     | 63     | 91     | 91          | 122    | 200    |
| Ductility factor                              | $k_7$             | [-]  | 1,0               |       |        |        |        |             |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25              |       |        |        |        |             |        |        |
| <b>SZ-S and SZ-SK</b>                         |                   |      |                   |       |        |        |        |             |        |        |
| Characteristic resistance                     | $V_{Rk,s}^0$      | [kN] | 18                | 30    | 48     | 73     | 126    | 126         | 150    | 200    |
| Ductility factor                              | $k_7$             | [-]  | 1,0               |       |        |        |        |             |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25              |       |        |        |        |             |        |        |
| <b>Steel failure with lever arm</b>           |                   |      |                   |       |        |        |        |             |        |        |
| <b>SZ-B, SZ-S und SZ-SK</b>                   |                   |      |                   |       |        |        |        |             |        |        |
| Anchorage depth                               | $h_{ef,min} \geq$ | [mm] | 50                | 60    | 71     | 80     | 100    | 115         | 125    | 150    |
| Characteristic bending resistance             | $M_{Rk,s}^0$      | [Nm] | 12                | 30    | 60     | 105    | 266    | 266         | 519    | 898    |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25              |       |        |        |        |             |        |        |
| Anchorage depth                               | $h_{ef} \geq$     | [mm] | 64                | 73    | 90     | 106    | 138    | 138         | 158    | 188    |
| Characteristic bending resistance             | $M_{Rk,s}^0$      | [Nm] | 40                | 58    | 119    | 234    | 529    | 529         | 847    | 1343   |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25              |       |        |        |        |             |        |        |
| <b>Concrete pry-out failure</b>               |                   |      |                   |       |        |        |        |             |        |        |
| Pry-out factor                                | $k_8$             | [-]  | 1,8 <sup>1)</sup> | 2,0   |        |        |        |             |        |        |
| <b>Concrete edge failure</b>                  |                   |      |                   |       |        |        |        |             |        |        |
| Effective length of fastener in shear loading | $l_f$             | [mm] | $h_{ef}$          |       |        |        |        |             |        |        |
| Outside diameter of fastener                  | $d_{nom}$         | [mm] | 10                | 12    | 15     | 18     | 24     | 24          | 28     | 32     |

<sup>1)</sup>  $k_8 = 2,0$  for  $h_{ef} \geq 60$  mm

**Highload Anchor SZ**

**Performance**  
Characteristic values for **shear load**, static or quasi-static action,  
**steel zinc plated**

**Annex C5**

**Table C6:** Characteristic values for **shear load**, static or quasi-static action, **stainless steel A4**

| Fastener size                                 |                   |      | 12/M8    | 15/M10 | 18/M12 | 24/M16 |
|---|-------------------|------|----------|--------|--------|--------|
| <b>Steel failure without lever arm</b>        |                   |      |          |        |        |        |
| Characteristic resistance                     | $V_{Rk,s}^0$      | [kN] | 24       | 37     | 62     | 92     |
| <b>SZ-B</b>                                   |                   |      |          |        |        |        |
| Ductility factor                              | $k_7$             | [-]  | 1,0      |        |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25     |        |        |        |
| <b>SZ-S</b>                                   |                   |      |          |        |        |        |
| Ductility factor                              | $k_7$             | [-]  | 1,0      |        |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,36     |        |        |        |
| <b>SZ-SK</b>                                  |                   |      |          |        |        |        |
| Ductility factor                              | $k_7$             | [-]  | 0,8      |        |        | -      |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,36     |        |        | -      |
| <b>Steel failure with lever arm</b>           |                   |      |          |        |        |        |
| Anchorage depth                               | $h_{ef,min} \geq$ | [mm] | 60       | 71     | 80     | 100    |
| Characteristic bending resistance             | $M_{Rk,s}^0$      | [Nm] | 26       | 52     | 92     | 232    |
| <b>SZ-B</b>                                   |                   |      |          |        |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25     |        |        |        |
| <b>SZ-S and SZ-SK</b>                         |                   |      |          |        |        |        |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,56     |        |        |        |
| <b>SZ-B, SZ-S and SZ-SK</b>                   |                   |      |          |        |        |        |
| Anchorage depth                               | $h_{ef} \geq$     | [mm] | 73       | 90     | 106    | 138    |
| Characteristic bending resistance             | $M_{Rk,s}^0$      | [Nm] | 103      | 211    | 374    | 847    |
| Partial factor                                | $\gamma_{Ms}$     | [-]  | 1,25     |        |        |        |
| <b>Concrete pry-out failure</b>               |                   |      |          |        |        |        |
| Pry-out factor                                | $k_8$             | [-]  | 2,0      |        |        |        |
| <b>Concrete edge failure</b>                  |                   |      |          |        |        |        |
| Effective length of fastener in shear loading | $l_f$             | [mm] | $h_{ef}$ |        |        |        |
| Outside diameter of fastener                  | $d_{nom}$         | [mm] | 12       | 15     | 18     | 24     |

**Highload Anchor SZ**

**Performance**  
 Characteristic values for **shear load**, static or quasi-static action,  
**stainless steel A4**

**Annex C6**

**Table C7: Characteristic values for seismic action, Category C1 and C2, steel zinc plated**

| Fastener size                          |                  |      | 12/M8 | 15/M10 | 18/M12 | 24/M16 | 24/M16L | 28/M20 | 32/M24 |
|--|------------------|------|-------|--------|--------|--------|---------|--------|--------|
| Tension load                           |                  |      |       |        |        |        |         |        |        |
| Installation factor                    | $\gamma_{inst}$  | [-]  | 1,0   |        |        |        |         |        |        |
| <b>Steel failure</b>                   |                  |      |       |        |        |        |         |        |        |
| Characteristic resistance category C1  | $N_{Rk,s,eq,C1}$ | [kN] | 29    | 46     | 67     | 126    | 126     | 196    | 282    |
| Characteristic resistance category C2  | $N_{Rk,s,eq,C2}$ | [kN] | 29    | 46     | 67     | 126    | 126     | 196    | 282    |
| Partial factor                         | $\gamma_{Ms}$    | [-]  | 1,5   |        |        |        |         |        |        |
| <b>Pull-out failure</b>                |                  |      |       |        |        |        |         |        |        |
| Characteristic resistance category C1  | $N_{Rk,p,eq,C1}$ | [kN] | 12    | 16     | 25     | 36     | 44,4    | 50,3   | 63,3   |
| Characteristic resistance category C2  | $N_{Rk,p,eq,C2}$ | [kN] | 5,4   | 16,4   | 22,6   | 29,0   | 41,2    | 43,6   | 63,3   |
| <b>Shear load</b>                      |                  |      |       |        |        |        |         |        |        |
| <b>Steel failure without lever arm</b> |                  |      |       |        |        |        |         |        |        |
| <b>SZ-B</b>                            |                  |      |       |        |        |        |         |        |        |
| Characteristic resistance category C1  | $V_{Rk,s,eq,C1}$ | [kN] | 18,0  | 27,1   | 43,4   | 51,9   | 51,9    | 96,4   | 160,1  |
| Characteristic resistance category C2  | $V_{Rk,s,eq,C2}$ | [kN] | 12,7  | 20,5   | 31,5   | 50,1   | 50,1    | 67,1   | 108,1  |
| <b>SZ-S</b>                            |                  |      |       |        |        |        |         |        |        |
| Characteristic resistance category C1  | $V_{Rk,s,eq,C1}$ | [kN] | 18,0  | 27,1   | 43,4   | 51,9   | 51,9    | 96,4   | 160,1  |
| Characteristic resistance category C2  | $V_{Rk,s,eq,C2}$ | [kN] | 12,7  | 20,5   | 31,5   | 69,3   | 69,3    | 67,1   | 108,1  |
| <b>SZ-SK</b>                           |                  |      |       |        |        |        |         |        |        |
| Characteristic resistance category C1  | $V_{Rk,s,eq,C1}$ | [kN] | 25,2  | 36,5   | 50,4   | -      | -       | -      | -      |
| Characteristic resistance category C2  | $V_{Rk,s,eq,C2}$ | [kN] | 19,2  | 29,3   | 39,4   | -      | -       | -      | -      |
| Factor for annular gap                 | $\alpha_{gap}$   | [-]  | 0,5   |        |        |        |         |        |        |
| Partial factor                         | $\gamma_{Ms}$    | [-]  | 1,25  |        |        |        |         |        |        |

**Highload Anchor SZ**

**Performance**  
Characteristic values for seismic action, steel zinc plated

**Annex C7**

**Table C8: Characteristic values for seismic action, Category C1 and C2, stainless steel A4**

| Fastener size                          |                  |      | 12/M8 | 15/M10 | 18/M12 | 24/M16 |
|--|------------------|------|-------|--------|--------|--------|
| <b>Tension load</b>                    |                  |      |       |        |        |        |
| Installation factor                    | $\gamma_{inst}$  | [-]  | 1,0   |        |        |        |
| <b>Steel failure</b>                   |                  |      |       |        |        |        |
| Characteristic resistance, category C1 | $N_{Rk,s,eq,C1}$ | [kN] | 26    | 41     | 60     | 110    |
| Characteristic resistance, category C2 | $N_{Rk,s,eq,C2}$ | [kN] | 26    | 41     | 60     | 110    |
| Partial factor SZ-B                    | $\gamma_{Ms}$    | [-]  | 1,5   |        |        |        |
| Partial factor SZ-S and SZ-SK          | $\gamma_{Ms}$    | [-]  | 1,87  |        |        |        |
| <b>Pull-out failure</b>                |                  |      |       |        |        |        |
| Characteristic resistance, category C1 | $N_{Rk,p,eq,C1}$ | [kN] | 9     | 16     | 26     | 36     |
| Characteristic resistance, category C2 | $N_{Rk,p,eq,C2}$ | [kN] | 4,8   | 16,5   | 24,8   | 44,5   |
| <b>Shear load</b>                      |                  |      |       |        |        |        |
| <b>Steel failure without lever arm</b> |                  |      |       |        |        |        |
| <b>SZ-B</b>                            |                  |      |       |        |        |        |
| Characteristic resistance, category C1 | $V_{Rk,s,eq,C1}$ | [kN] | 9,6   | 13,3   | 25,4   | 75,4   |
| Characteristic resistance, category C2 | $V_{Rk,s,eq,C2}$ | [kN] | 9,7   | 14,0   | 18,0   | 32,2   |
| Partial factor                         | $\gamma_{Ms}$    | [-]  | 1,25  |        |        |        |
| <b>SZ-S</b>                            |                  |      |       |        |        |        |
| Characteristic resistance, category C1 | $V_{Rk,s,eq,C1}$ | [kN] | 9,6   | 13,3   | 25,4   | 75,4   |
| Characteristic resistance, category C2 | $V_{Rk,s,eq,C2}$ | [kN] | 9,7   | 14,0   | 18,0   | 32,2   |
| Partial factor                         | $\gamma_{Ms}$    | [-]  | 1,36  |        |        |        |
| <b>SZ-SK</b>                           |                  |      |       |        |        |        |
| Characteristic resistance, category C1 | $V_{Rk,s,eq,C1}$ | [kN] | 11,5  | 23,3   | 31,6   | -      |
| Characteristic resistance, category C2 | $V_{Rk,s,eq,C2}$ | [kN] | 10,8  | 17,4   | 15,4   | -      |
| Partial factor                         | $\gamma_{Ms}$    | [-]  | 1,36  |        |        |        |
| Factor for annular gap                 | $\alpha_{gap}$   | [-]  | 0,5   |        |        |        |

**Highload Anchor SZ**

**Performance**  
Characteristic values for seismic action, stainless steel A4

**Annex C8**

**Table C9:** Characteristic values under **fire exposure** in cracked and uncracked concrete C20/25 to C50/60

| Fastener size                          |      | 10/M6                | 12/M8 | 15/M10 | 18/M12 | 24/M16 | 24/<br>M16L | 28/M20 | 32/M24 |   |
|--|------|----------------------|-------|--------|--------|--------|-------------|--------|--------|---|
| <b>Tension load</b>                    |      |                      |       |        |        |        |             |        |        |   |
| <b>Steel failure</b>                   |      |                      |       |        |        |        |             |        |        |   |
| <b>Steel zinc plated</b>               |      |                      |       |        |        |        |             |        |        |   |
| Characteristic resistance              | R30  | $N_{Rk,s,fi}$ [kN]   | 1,0   | 1,9    | 4,3    | 6,3    | 11,6        | 18,3   | 26,3   |   |
|  | R60  |                      | 0,8   | 1,5    | 3,2    | 4,6    | 8,6         | 13,5   | 19,5   |   |
|  | R90  |                      | 0,6   | 1,0    | 2,1    | 3,0    | 5,0         | 7,7    | 12,6   |   |
|  | R120 |                      | 0,4   | 0,8    | 1,5    | 2,0    | 3,1         | 4,9    | 9,2    |   |
| <b>Stainless steel A4</b>              |      |                      |       |        |        |        |             |        |        |   |
| Characteristic resistance              | R30  | $N_{Rk,s,fi}$ [kN]   | -     | 6,1    | 10,2   | 15,7   | 29,2        | -      | -      | - |
|  | R60  |                      | -     | 4,4    | 7,3    | 11,1   | 20,6        | -      | -      | - |
|  | R90  |                      | -     | 2,6    | 4,3    | 6,4    | 12,0        | -      | -      | - |
|  | R120 |                      | -     | 1,8    | 2,8    | 4,1    | 7,7         | -      | -      | - |
| <b>Shear load</b>                      |      |                      |       |        |        |        |             |        |        |   |
| <b>Steel failure without lever arm</b> |      |                      |       |        |        |        |             |        |        |   |
| <b>Steel zinc plated</b>               |      |                      |       |        |        |        |             |        |        |   |
| Characteristic resistance              | R30  | $V_{Rk,s,fi}$ [kN]   | 1,0   | 1,9    | 4,3    | 6,3    | 11,6        | 18,3   | 26,3   |   |
|  | R60  |                      | 0,8   | 1,5    | 3,2    | 4,6    | 8,6         | 13,5   | 19,5   |   |
|  | R90  |                      | 0,6   | 1,0    | 2,1    | 3,0    | 5,0         | 7,7    | 12,6   |   |
|  | R120 |                      | 0,4   | 0,8    | 1,5    | 2,0    | 3,1         | 4,9    | 9,2    |   |
| <b>Stainless steel A4</b>              |      |                      |       |        |        |        |             |        |        |   |
| Characteristic resistance              | R30  | $V_{Rk,s,fi}$ [kN]   | -     | 14,3   | 22,7   | 32,8   | 61,0        | -      | -      | - |
|  | R60  |                      | -     | 11,1   | 17,6   | 25,5   | 47,5        | -      | -      | - |
|  | R90  |                      | -     | 7,9    | 12,6   | 18,3   | 34,0        | -      | -      | - |
|  | R120 |                      | -     | 6,3    | 10,0   | 14,6   | 27,2        | -      | -      | - |
| <b>Steel failure with lever arm</b>    |      |                      |       |        |        |        |             |        |        |   |
| <b>Steel zinc plated</b>               |      |                      |       |        |        |        |             |        |        |   |
| Characteristic bending resistance      | R30  | $M^0_{Rk,s,fi}$ [Nm] | 0,8   | 2,0    | 5,6    | 9,7    | 24,8        | 42,4   | 83,6   |   |
|  | R60  |                      | 0,6   | 1,5    | 4,1    | 7,2    | 18,3        | 29,8   | 61,9   |   |
|  | R90  |                      | 0,4   | 1,0    | 2,7    | 4,7    | 11,9        | 17,1   | 40,1   |   |
|  | R120 |                      | 0,3   | 0,8    | 1,9    | 3,1    | 6,6         | 10,7   | 29,2   |   |
| <b>Stainless steel A4</b>              |      |                      |       |        |        |        |             |        |        |   |
| Characteristic bending resistance      | R30  | $M^0_{Rk,s,fi}$ [Nm] | -     | 6,2    | 13,2   | 24,4   | 61,8        | -      | -      | - |
|  | R60  |                      | -     | 4,5    | 9,4    | 17,2   | 43,6        | -      | -      | - |
|  | R90  |                      | -     | 2,7    | 5,6    | 10,0   | 25,3        | -      | -      | - |
|  | R120 |                      | -     | 1,8    | 3,6    | 6,4    | 16,2        | -      | -      | - |

**Highload Anchor SZ**

**Performance**  
Characteristic values under **fire exposure**

**Annex C9**

**Table C10: Displacements under tension and shear load, steel zinc plated**

| Fastener size                                |                      |      | 10/<br>M6 | 12/<br>M8 | 15/<br>M10 | 18/<br>M12 | 24/<br>M16 | 24<br>/M16L | 28/<br>M20 | 32/<br>M24 |
|--|----------------------|------|-----------|-----------|------------|------------|------------|-------------|------------|------------|
| <b>Tension load</b>                          |                      |      |           |           |            |            |            |             |            |            |
| Tension load in cracked concrete             | N                    | [kN] | 2,4       | 5,7       | 7,6        | 12,3       | 17,1       | 21,1        | 24         | 26,2       |
| Displacement                                 | $\delta_{N0}$        | [mm] | 0,5       | 0,5       | 0,5        | 0,7        | 0,8        | 0,7         | 0,9        | 1,4        |
|  | $\delta_{N\infty}$   | [mm] | 2,0       | 2,0       | 1,3        | 1,3        | 1,3        | 1,3         | 1,4        | 1,9        |
| Tension load in uncracked concrete           | N                    | [kN] | 8,5       | 9,5       | 14,3       | 17,2       | 24         | 29,6        | 34         | 43         |
| Displacement                                 | $\delta_{N0}$        | [mm] | 0,8       | 1,0       | 1,1        |            | 1,3        | 0,3         | 0,7        |            |
|  | $\delta_{N\infty}$   | [mm] | 3,4       |           | 1,7        |            | 2,3        | 1,4         | 0,7        |            |
| <b>Seismic action C2</b>                     |                      |      |           |           |            |            |            |             |            |            |
| Displacement for DLS                         | $\delta_{N,eq(DLS)}$ | [mm] | -         | 3,3       | 3,0        | 5,0        | 3,0        | 3,0         | 4,0        | 5,3        |
| Displacement for ULS                         | $\delta_{N,eq(ULS)}$ | [mm] | -         | 12,2      | 11,3       | 16,0       | 9,2        | 9,2         | 13,8       | 12,4       |
| <b>Shear load</b>                            |                      |      |           |           |            |            |            |             |            |            |
| <b>SZ-B</b>                                  |                      |      |           |           |            |            |            |             |            |            |
| Shear load in cracked and uncracked concrete | V                    | [kN] | 9,1       | 14        | 20,7       | 35,1       | 52,1       | 52,1        | 77         | 86,6       |
| Displacement                                 | $\delta_{V0}$        | [mm] | 2,5       | 2,1       | 2,7        | 3,0        | 5,1        | 5,1         | 4,3        | 10,5       |
|  | $\delta_{V\infty}$   | [mm] | 3,8       | 3,1       | 4,1        | 4,5        | 7,6        | 7,6         | 6,5        | 15,8       |
| <b>Seismic action C2</b>                     |                      |      |           |           |            |            |            |             |            |            |
| Displacement for DLS                         | $\delta_{V,eq(DLS)}$ | [mm] | -         | 2,3       | 3,1        | 3,0        | 2,6        | 2,6         | 1,6        | 6,1        |
| Displacement for ULS                         | $\delta_{V,eq(ULS)}$ | [mm] | -         | 4,8       | 6,4        | 6,1        | 6,6        | 6,6         | 4,8        | 9,5        |
| <b>SZ-S</b>                                  |                      |      |           |           |            |            |            |             |            |            |
| Shear load in cracked and uncracked concrete | V                    | [kN] | 10,1      | 17,1      | 27,5       | 41,5       | 72         | 72          | 77         | 86,6       |
| Displacement                                 | $\delta_{V0}$        | [mm] | 2,9       | 2,5       | 3,6        | 3,5        | 7,0        | 7,0         | 4,3        | 10,5       |
|  | $\delta_{V\infty}$   | [mm] | 4,4       | 3,8       | 5,4        | 5,3        | 10,5       | 10,5        | 6,5        | 15,8       |
| <b>Seismic action C2</b>                     |                      |      |           |           |            |            |            |             |            |            |
| Displacement for DLS                         | $\delta_{V,eq(DLS)}$ | [mm] | -         | 2,3       | 3,1        | 3,0        | 3,3        | 3,3         | 1,6        | 6,1        |
| Displacement for ULS                         | $\delta_{V,eq(ULS)}$ | [mm] | -         | 4,8       | 6,4        | 6,1        | 8,2        | 8,2         | 4,8        | 9,5        |
| <b>SZ-SK</b>                                 |                      |      |           |           |            |            |            |             |            |            |
| Shear load in cracked and uncracked concrete | V                    | [kN] | 10,1      | 17,1      | 27,5       | 41,5       | -          | -           | -          | -          |
| Displacement                                 | $\delta_{V0}$        | [mm] | 2,9       | 2,5       | 3,6        | 3,5        | -          | -           | -          | -          |
|  | $\delta_{V\infty}$   | [mm] | 4,4       | 3,8       | 5,4        | 5,3        | -          | -           | -          | -          |
| <b>Seismic action C2</b>                     |                      |      |           |           |            |            |            |             |            |            |
| Displacement for DLS                         | $\delta_{V,eq(DLS)}$ | [mm] | -         | 3,1       | 3,9        | 3,9        | -          | -           | -          | -          |
| Displacement for ULS                         | $\delta_{V,eq(ULS)}$ | [mm] | -         | 10,2      | 11,8       | 13,0       | -          | -           | -          | -          |

**Highload Anchor SZ**
**Performance**  
 Displacements under tension and shear load, steel zinc plated

**Annex C10**



**Table C11: Displacements under tension and shear load, stainless steel A4**

| Fastener size                      |                       | 12/M8 | 15/M10 | 18/M12 | 24/M16 |      |
|------------------------------------|-----------------------|-------|--------|--------|--------|------|
| <b>Tension load</b>                |                       |       |        |        |        |      |
| Tension load in cracked concrete   | N                     | [kN]  | 4,3    | 7,6    | 12,1   | 17,0 |
| Displacement                       | $\delta_{N0}$         | [mm]  | 0,5    | 0,5    | 1,3    | 0,5  |
|                                    | $\delta_{N\infty}$    | [mm]  | 1,2    | 1,6    | 1,8    | 1,6  |
| Tension load in uncracked concrete | N                     | [kN]  | 7,6    | 11,9   | 16,7   | 24,1 |
| Displacement                       | $\delta_{N0}$         | [mm]  | 0,2    | 0,3    | 1,2    | 1,5  |
|                                    | $\delta_{N\infty}$    | [mm]  | 1,1    | 1,1    | 1,1    | 1,1  |
| Seismic action C2                  |                       |       |        |        |        |      |
| Displacement for DLS               | $\delta_{N,eq (DLS)}$ | [mm]  | 4,7    | 4,5    | 4,3    | 4,9  |
| Displacement for ULS               | $\delta_{N,eq (ULS)}$ | [mm]  | 13,3   | 12,7   | 9,7    | 10,1 |
| <b>Shear load</b>                  |                       |       |        |        |        |      |
| Shear load in cracked concrete     | V                     | [kN]  | 13,9   | 21,1   | 34,7   | 50,8 |
| Displacement                       | $\delta_{V0}$         | [mm]  | 3,4    | 4,9    | 4,8    | 6,7  |
|                                    | $\delta_{V\infty}$    | [mm]  | 5,1    | 7,4    | 7,1    | 10,1 |
| Seismic action C2                  |                       |       |        |        |        |      |
| <b>SZ-B and SZ-S</b>               |                       |       |        |        |        |      |
| Displacement for DLS               | $\delta_{V,eq (DLS)}$ | [mm]  | 2,8    | 3,1    | 2,6    | 3,3  |
| Displacement for ULS               | $\delta_{V,eq (ULS)}$ | [mm]  | 5,6    | 5,8    | 5,0    | 6,9  |
| <b>SZ-SK</b>                       |                       |       |        |        |        |      |
| Displacement for DLS               | $\delta_{V,eq (DLS)}$ | [mm]  | 2,5    | 2,8    | 2,9    | -    |
| Displacement for ULS               | $\delta_{V,eq (ULS)}$ | [mm]  | 5,8    | 5,9    | 6,9    | -    |

**Highload Anchor SZ**

**Performance**  
Displacements under tension and shear load, **stainless steel A4**

**Annex C11**