# Vorpa **TOP**

Heavy duty anchor with European Technical Assesment for non cracked concrete

concrete | natural stone | solid brick



## products group

**TOP [*]**
*** TOP INOX A2**
*** TOP INOX A4 [*]**
**no accessories**

**TOP BU [*]**
*** TOP INOX A2 BU**
*** TOP INOX A4 BU [*]**
**with hexagonal head screw**

**TOP BP [*]**
**with 8.8 hexagonal head screw and spacer**

**TOP TS**
**with 10.9 countersunk head screw**

**TOP BD**
*** TOP INOX A2 BD**
*** TOP INOX A4 BD**
**with stud and nut**

**TOP OS**
*** TOP INOX A2 OS**
**with eyebolt**

**TOP OP**
**with eyebolt and spacer**

**TOP GS**
*** TOP INOX A2 GS**
**with hook bolt**

[*]

**ETAG 001-02**
**for non cracked concrete**

### ETA version approved for

- non-cracked concrete C20/25 - C50/60 - M6-M12

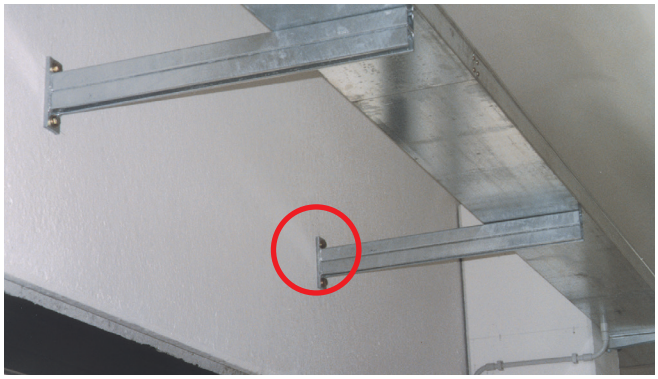
### All versions suitable for

- non-cracked concrete
- natural stone
- solid brick

### To fix

- steel structures
- windows and door frames
- railings and balustrades
- gates
- façades
- machineries
- iron bars

**Examples of applications**



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## product information

### Characteristics

- torque controlled expansion anchor made of galvanized steel or stainless steel composed of anti-rotation cold formed body, expansion conical nut and accessory with European Technical Assesment for non cracked concrete
- wide range of accessories
- anti-rotation during the installation procedure
- fixing can be casily driven in, therefore less installation effort
- surface-flush fixing allows the mounted item to be removed and refitted several times
- anchor version with internal thread for high flexibility by using threaded rods or screws of different lengths and type

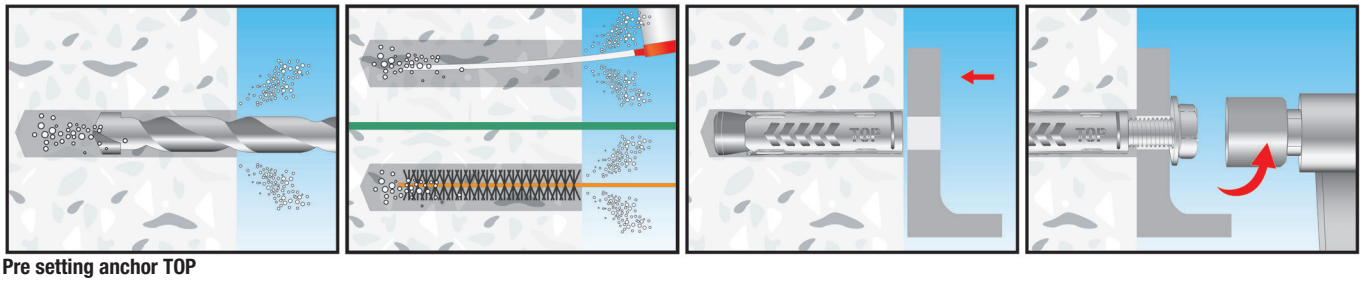
### Installation

- pre-setting anchor
- through-setting only in the version TOP TS and TOP BP

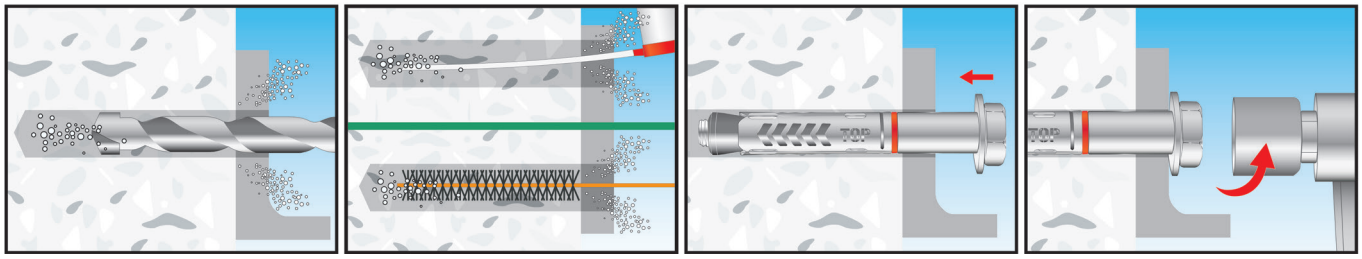
### Suggestion for use

- choose the right size of the anchor according to the load
- always check load bearing capacity values in the table
- respect the installation data
- **clean the hole before the installation**

## installation sequence



**Pre setting anchor TOP**



**Through setting anchor TOP BP**

## product code and technical data

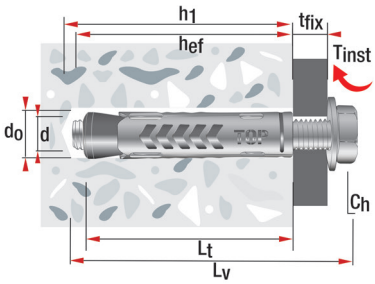
**TOP [*]**
**no accessories**

| Code | Description | $L_t$ mm | For screws mm | $d_0$ mm | $h_1$ mm |
|---|---|---|---|---|---|
| **710** | TOP 6 | 45 | M6 | 10 | 55 |
| **711** | TOP 8 | 51 | M8 | 12 | 60 |
| **712** | TOP 10 | 60 | M10 | 14 | 70 |
| **713** | TOP 12 | 75 | M12 | 18 | 85 |

A2 INOX 304 — **TOP INOX A2**
**no accessories**

A4 INOX 316 — **TOP INOX A4 [*]**
**no accessories**

| Code | Description | $L_t$ mm | For screws mm | $d_0$ mm | $h_1$ mm |
|---|---|---|---|---|---|
| **714** | TOP INOX A2 6 | 45 | M6 | 10 | 55 |
| **715** | TOP INOX A2 8 | 51 | M8 | 12 | 60 |
| **716** | TOP INOX A2 10 | 60 | M10 | 14 | 75 |
| **725** | TOP INOX A2 12 | 75 | M12 | 18 | 85 |
| **3714** | TOP INOX A4 6 | 45 | M6 | 10 | 55 |
| **3715** | TOP INOX A4 8 | 51 | M8 | 12 | 60 |
| **3716** | TOP INOX A4 10 | 60 | M10 | 14 | 75 |
| **3737** | TOP INOX A4 12 | 75 | M12 | 18 | 85 |




Screw length calculation: $L_v = L_t + t_{fix}$

$h_1$ = Min. hole depth
$L_t$ = Anchor length
$L_v$ = Screw length
$d_0$ = Hole diameter
$d$ = Screw diameter
$t_{fix}$ = Fixture thickness
$t_{inst}$ = Torque
Ch = Spanner

ETA CE [*]

**ETAG 001-02**
**for non cracked concrete**

# Vorpa **TOP**

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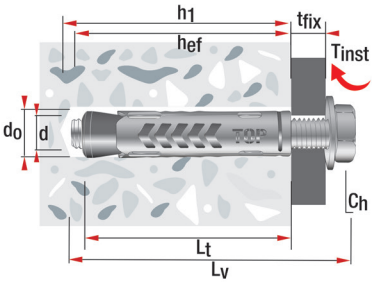
concrete · natural stone · solid brick



## product code and technical data

**TOP BU [*]**
**with 8.8 hexagonal head screw**

| Code | Description | $L_t$ mm | Screw d x $L_v$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **720** | TOP 6 BU | 45 | M6x55 | 10 | 55 | 10 | 10 | 10 |
| **721** | TOP 8 BU | 51 | M8x65 | 12 | 60 | 14 | 25 | 13 |
| **722** | TOP 10 BU | 60 | M10x80 | 14 | 70 | 20 | 40 | 17 |
| **723** | TOP 12 BU | 75 | M12x100 | 18 | 85 | 25 | 75 | 19 |




$h_1$ = Min. hole depth
$L_t$ = Anchor length
$L_v$ = Screw length
$d_o$ = Hole diameter
d = Screw diameter
$t_{fix}$ = Fixture thickness
$t_{inst}$ = Torque
Ch = Spanner

A2 INOX 304 — **TOP INOX A2 BU**
**with A2 SS hexagonal head screw**

A4 INOX 316 — **TOP INOX A4 BU [*]**
**with A4 SS hexagonal head screw**

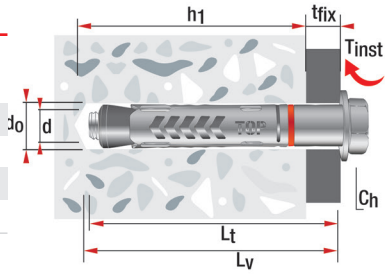
| Code | Description | $L_t$ mm | Screw d x $L_v$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **717** | TOP INOX A2 6 BU | 45 | M6x55 | 10 | 55 | 10 | 10 | 10 |
| **718** | TOP INOX A2 8 BU | 51 | M8x65 | 12 | 60 | 14 | 25 | 13 |
| **719** | TOP INOX A2 10 BU | 60 | M10x80 | 14 | 70 | 20 | 40 | 17 |
| **727** | TOP INOX A2 12 BU | 75 | M12x100 | 18 | 85 | 25 | 75 | 19 |
| **3717** | TOP INOX A4 6 BU | 45 | M6x55 | 10 | 55 | 10 | 10 | 10 |
| **3718** | TOP INOX A4 8 BU | 51 | M8x65 | 12 | 60 | 14 | 25 | 13 |
| **3719** | TOP INOX A4 10 BU | 60 | M10x80 | 14 | 70 | 20 | 40 | 17 |
| **3720** | TOP INOX A4 12 BU | 75 | M12x100 | 18 | 85 | 25 | 75 | 19 |

ETA CE [*]

**ETAG 001-02**
**for non cracked concrete**

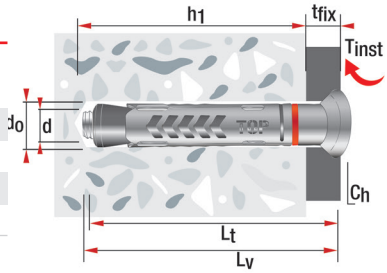
**TOP BP [*]**
**with 8.8 hexagonal head screw and spacer**

| Code | Description | $L_t$ mm | Screw d x $L_v$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **2720** | TOP BP 10/30-80 | 45 | M6x80 | 10 | 55 | 30 | 10 | 10 |
| **2721** | TOP BP 12/35-91 | 51 | M8x90 | 12 | 60 | 35 | 25 | 13 |
| **2722** | TOP BP 14/38-100 | 60 | M10x100 | 14 | 70 | 38 | 40 | 17 |
| **2723** | TOP BP 18/43-120 | 75 | M12x120 | 18 | 85 | 43 | 75 | 19 |



**TOP TS**
**with 10.9 countersunk head screw**

| Code | Description | $L_t$ mm | Screw d x $L_v$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **11864** | TOP TS 10/32-80 | 45 | M6x80 | 10 | 55 | 32 | 10 | 4 |
| **11866** | TOP TS 12/40-90 | 51 | M8x90 | 12 | 60 | 40 | 25 | 5 |
| **11868** | TOP TS 14/40-100 | 60 | M10x100 | 14 | 75 | 40 | 40 | 6 |
| **11870** | TOP TS 18/46-120 | 75 | M12x120 | 18 | 85 | 46 | 75 | 8 |



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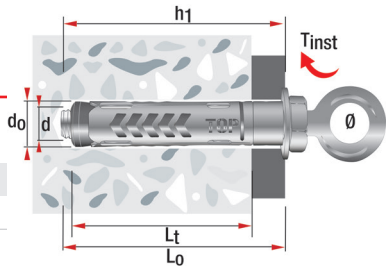
## product code and technical data

**TOP OP**
**with eyebolt and spacer**

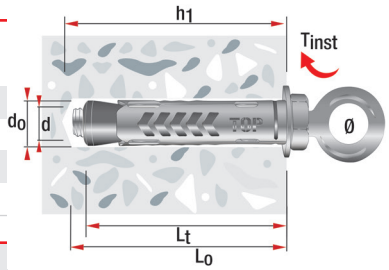



| Code | Description | $L_t$ mm | Eyebolt d x $L_0$ mm | $d_0$ mm | $h_1$ mm | $T_{inst}$ Nm | Ø |
|---|---|---|---|---|---|---|---|
| **2572** | TOP 10 OP Ø14 | 60 | M10x100 | 14 | 95 | 20 | 14,5±0,5 |
| **2573** | TOP 10 OP Ø23 | 60 | M10x100 | 14 | 95 | 20 | 23±0,5 |

**TOP OS**
**with eyebolt**

**TOP INOX A2 OS**
**with A2 SS eyebolt**

A2 INOX 304

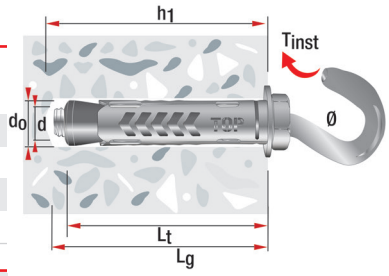



| Code | Description | $L_t$ mm | Eyebolt d x $L_0$ mm | $d_0$ mm | $h_1$ mm | $T_{inst}$ Nm | Ø |
|---|---|---|---|---|---|---|---|
| **795** | TOP 6 OS | 45 | M6x55 | 10 | 55 | 5 | 10±0,5 |
| **796** | TOP 8 OS | 51 | M8x60 | 12 | 60 | 12 | 11,8±0,5 |
| **797** | TOP 10 OS | 60 | M10x73 | 14 | 70 | 20 | 14,5±0,5 |
| **798** | TOP 12 OS | 75 | M12x90 | 18 | 85 | 35 | 17±0,5 |
| **3795** | TOP INOX A2 6 OS | 45 | M6x55 | 10 | 55 | 6 | 10±0,5 |
| **3796** | TOP INOX A2 8 OS | 51 | M8x60 | 12 | 60 | 15 | 11,8±0,5 |
| **3797** | TOP INOX A2 10 OS | 60 | M10x73 | 14 | 70 | 30 | 14,5±0,5 |
| **3798** | TOP INOX A2 12 OS | 75 | M12x90 | 18 | 85 | 50 | 17±0,5 |

**TOP GS**
**with hook bolt**

**TOP INOX A2 GS**
**with A2 SS hook bolt**

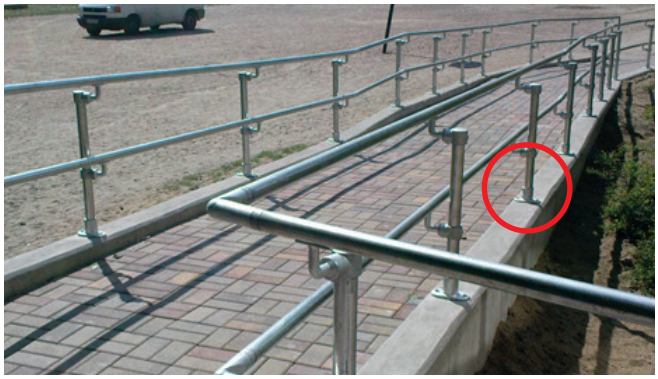
A2 INOX 304




| Code | Description | $L_t$ mm | Hook d x $L_g$ mm | $d_0$ mm | $h_1$ mm | $T_{inst}$ Nm | P |
|---|---|---|---|---|---|---|---|
| **775** | TOP 6 GS | 45 | M6x55 | 10 | 55 | 5 | 8±0,5 |
| **776** | TOP 8 GS | 51 | M8x60 | 12 | 60 | 12 | 10±0,5 |
| **777** | TOP 10 GS | 60 | M10x73 | 14 | 70 | 20 | 12,5±0,5 |
| **778** | TOP 12 GS | 75 | M12x90 | 18 | 85 | 35 | 16±0,5 |
| **3775** | TOP INOX A2 6 GS | 45 | M6x55 | 10 | 55 | 6 | 8±0,5 |
| **3776** | TOP INOX A2 8 GS | 51 | M8x60 | 12 | 60 | 15 | 10±0,5 |
| **3777** | TOP INOX A2 10 GS | 60 | M10x73 | 14 | 70 | 30 | 12,5±0,5 |
| **3778** | TOP INOX A2 12 GS | 75 | M12x90 | 18 | 85 | 50 | 16±0,5 |

**$h_1$** = Min. hole depth
**$L_t$** = Anchor length
**$d_0$** = Hole diameter
**d** = Screw diameter
**$t_{fix}$** = Fixture thickness
**$t_{inst}$** = Torque
**Ch** = Spanner
**$L_0$** = Eyebolt length
**$L_g$** = Hook-bolt length

**Examples of applications**



# pre-setting heavy duty anchors

# Vorpa **TOP**

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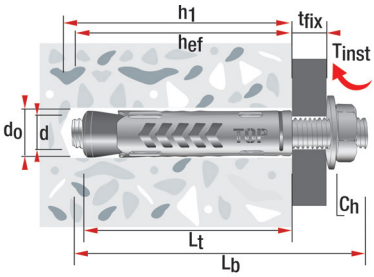
concrete | natural stone | solid brick

## product code and technical data

**TOP BD**
**with stud and nut**

| Code | Description | $L_t$ mm | For screws d x $L_b$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **705** | TOP 6 BD 57 | 45 | M6x57 | 10 | 55 | 10 | 6 | 10 |
| **706** | TOP 8 BD 75 | 51 | M8x75 | 12 | 60 | 10 | 15 | 13 |
| **707** | TOP 10 BD 90 | 60 | M10x90 | 14 | 70 | 20 | 30 | 17 |
| **708** | TOP 12 BD 110 | 75 | M12x110 | 18 | 85 | 25 | 50 | 19 |



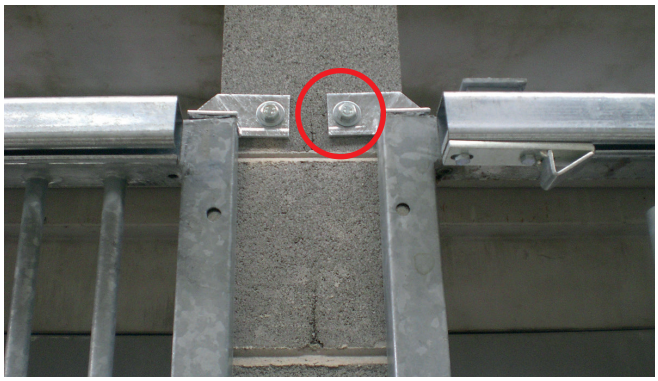
**TOP INOX A2 BD**
**with A2 SS stud and nut**

**TOP INOX A4 BD**
**with A4 SS stud and nut**

| Code | Description | $L_t$ mm | For screws d x $L_b$ mm | $d_o$ mm | $h_1$ mm | $T_{fix}$ max mm | $T_{inst}$ Nm | Ch |
|---|---|---|---|---|---|---|---|---|
| **25705** | TOP 6 BD A2 57 | 45 | M6x55 | 10 | 55 | 10 | 10 | 10 |
| **25706** | TOP 8 BD A2 75 | 51 | M8x75 | 12 | 60 | 10 | 25 | 13 |
| **25707** | TOP 10 BD A2 90 | 60 | M10x90 | 14 | 70 | 20 | 40 | 17 |
| **5705** | TOP 6 BD A4 57 | 45 | M6x55 | 10 | 55 | 10 | 10 | 10 |
| **5706** | TOP 8 BD A4 75 | 51 | M8x75 | 12 | 60 | 10 | 25 | 13 |
| **5707** | TOP 10 BD A4 90 | 60 | M10x90 | 14 | 70 | 20 | 40 | 17 |

$h_1$ = Min. hole depth
$L_t$ = Anchor length
$L_v$ = Screw length
$d_o$ = Hole diameter
d = Screw diameter
$t_{fix}$ = Fixture thickness
$t_{inst}$ = Torque
Ch = Spanner
$L_b$ = Stud length

**Examples of applications**



## TOP anchor not certified

| | | | M6 | M8 | M10 | M12 |
|---|---|---|---|---|---|---|
| Critical axial spacing | $S_{cr}$ | mm | 120 | 135 | 155 | 190 |
| Critical edge distance | $C_{cr}$ | mm | 60 | 75 | 90 | 120 |
| Minimum axial spacing | $S_{min}$ | mm | 65 | 90 | 135 | 165 |
| Minimum edge distance | $C_{min}$ | mm | 45 | 70 | 85 | 115 |
| Minimum structural thickness | $h_{min}$ | mm | 135 | 135 | 140 | 160 |
| **Permissible loads - applications in concrete C20/25** | | | | | | **1 daN≅1 kg** |
| TOP TS | | daN | 370 | 490 | 600 | 720 |
| TOP BD-TOP BD A2-TOP BD A4 | | daN | 250 | 400 | 500 | 650 |
| TOP OS-TOP OS A2-TOP OP | | daN | 140 | 240 | 360 | 600 |
| TOP GS-TOP GS A2 | | daN | 35 | 75 | 105 | 160 |
| TOP A2 | | daN | 200 | 350 | 470 | 630 |

- **Always respect the installation parameters**
- **In case of axial spacings or edge distances are inferior than the critical ones, it is recommended to reduce the application load**
- **The table shows the permissible loads for tension, shear and combined tension and shear loads**

# Vorpa **TOP**

Heavy duty anchor with European Technical Assesment for non cracked concrete

concrete natural stone solid brick



## technical data TOP CE

| | | | M6 | M8 | M10 | M12 |
|---|---|---|---|---|---|---|
| **Installation data TOP –TOP A4 –TOP BU – TOP BU A4** | | | | | | |
| Anchor diameter | d | mm | 10 | 12 | 14 | 18 |
| Anchor length | L | mm | 45 | 51 | 60 | 75 |
| Effective anchorage depth | $h_{ef}$ | mm | 39,5 | 44,5 | 51,5 | 63 |
| Fixture thickness | $T_{fix}$ | mm | 10 | 14 | 20 | 25 |
| Drill hole diameter | $d_o$ | mm | 10 | 12 | 14 | 18 |
| Drill hole depth | $h_1$ | mm | 55 | 60 | 70 | 85 |
| Hole diameter in the fixture | $d_f$ | mm | 7 | 9 | 12 | 14 |
| Torque moment | $T_{inst}$ | Nm | 10 | 25 | 40 | 75 |
| | | | | | | |
| Critical axial spacing | $S_{cr,N}$ | mm | 120 | 135 | 155 | 190 |
| Critical edge distance | $C_{cr,N}$ | mm | 60 | 75 | 90 | 120 |
| Minimum axial spacing | $S_{min}$ | mm | 65 | 90 | 135 | 165 |
| Minimum edge distance | $C_{min}$ | mm | 45 | 70 | 85 | 115 |
| Minimum thickness member | $h_{min}$ | mm | 135 | 135 | 140 | 160 |
| **Installation data TOP BP** | | | | | | |
| Anchor diameter | d | mm | 10 | 12 | 14 | 18 |
| Anchor length | L | mm | 80 | 90 | 100 | 120 |
| Effective anchorage depth | $h_{ef}$ | mm | 40,5 | 45,5 | 48,5 | 57 |
| Fixture thickness | $T_{fix}$ | mm | 30 | 35 | 38 | 43 |
| Drill hole diameter | $d_o$ | mm | 10 | 12 | 14 | 18 |
| Drill hole depth | $h_1$ | mm | 55 | 60 | 70 | 85 |
| Hole diameter in the fixture | $d_f$ | mm | 12 | 14 | 18 | 20 |
| Torque moment | $T_{inst}$ | Nm | 10 | 25 | 40 | 75 |
| | | | | | | |
| Critical axial spacing | $S_{cr,N}$ | mm | 120 | 135 | 155 | 190 |
| Critical edge distance | $C_{cr,N}$ | mm | 60 | 75 | 90 | 120 |
| Minimum axial spacing | $S_{min}$ | mm | 65 | 90 | 135 | 165 |
| Minimum edge distance | $C_{min}$ | mm | 45 | 70 | 85 | 115 |
| Minimum thickness member | $h_{min}$ | mm | 5 | 135 | 140 | 160 |
| **Characteristic values TOP – TOP BU – TOP BP** | | | | | | |
| Pull out failure | $N_{rk,P}$ C20/25 | KN | 9 | 12 | 16 | 20 |
| ψc C30/37 | | | 1,17 | | | 1,22 |
| ψc C40/50 | | | 1,33 | | | 1,41 |
| ψc C50/60 | | | 1,5 | | | 1,55 |
| | | | | | | |
| Shear failure | $V_{Rk,S}$ C20/25 | KN | 8 | 14,6 | 23,2 | 33,7 |
| Bending moment | $M_{RK,S}$ | Nm | 12,2 | 30 | 59,8 | 104,8 |
| **Characteristic values TOP A4 – TOP BU A4** | | | | | | |
| Pull out failure | $N_{rk,P}$ C20/25 | KN | 7,5 | 9 | 12 | 16 |
| ψc C30/37 | | | 1,17 | | | 1,22 |
| ψc C40/50 | | | 1,33 | | | 1,41 |
| ψc C50/60 | | | 1,5 | | | 1,55 |
| | | | | | | |
| Shear failure | $V_{Rk,S}$ C20/25 | KN | 7 | 12,8 | 20,3 | 29,5 |
| Bending moment | $M_{RK,S}$ | Nm | 10,7 | 26,2 | 52,3 | 91,7 |
| **Values where the reduction factor is included TOP A4 – TOP BU A4 (Design loads)** | | | | | | |
| Pull out failure | $N_{rk,P}$ | KN | 5 | 5 | 6,6 | 8,8 |
| Shear failure | $V_{Rk,S}$ | KN | 4,5 | 8,2 | 13 | 18,9 |
| Bending moment | $M_{RK,S}$ | Nm | 6,8 | 16,8 | 33,3 | 58,8 |
| **Values where the reduction factor is included TOP BU – TOP BP (Design loads)** | | | | | | |
| Pull out failure | $N_{rk,P}$ | KN | 5 | 5,7 | 7,6 | 13,3 |
| Shear failure | $V_{Rk,S}$ | KN | 6,4 | 11,6 | 18,5 | 26,9 |
| Bending moment | $M_{RK,S}$ | Nm | 9,7 | 24 | 47,8 | 83,8 |
| **Recommended loads TOP A4 - TOP BU A4** | | | | | | |
| Pull out failure | N | KN | 3,5 | 3,5 | 4,7 | 6,3 |
| Shear failure | T | KN | 3,2 | 5,8 | 9,3 | 13,5 |
| Bending moment | M | Nm | 4,9 | 12 | 23,8 | 42 |
| **Recommended loads TOP - TOP BU - BP** | | | | | | |
| Pull out failure | | KN | 3,5 | 4 | 5,4 | 9,5 |
| Shear failure | | KN | 4,5 | 8,3 | 13,2 | 19,2 |
| Bending moment | | Nm | 6,9 | 17,1 | 34,1 | 59,8 |