

## TECHNICAL DATASHEET

### 4tec<sup>x</sup> (Betonschroef SR-anti cor ETA 1 & Betonschroef SR-anti Cor ETA 1 TX30)

4tec<sup>x</sup> article numbers:

4050001508, 4050001516, 4050001524, 4050001532, 4050001540, 4050001548, 4050001556, 4050001564, 4050001572, 4050001580, 4050001588, 4050001596, 4050001600, 4050001608, 4050001616, 4050001624



Betonschroef SR-anti cor ETA 1



Betonschroef SR-anti Cor ETA 1 TX30



TFF



TFE



THT



TFM



TFN



THP



TFS

#### CHARACTERISTICS

- Pilot hole in concrete needed, thread is created by the anchor during the Installation process.
- Use for high loads.
- Assessed for 2 installation depths and 3 for Ø10.
- Use in cracked and non-cracked concrete.
- Suitable when reduced edge distances or spacing required.
- Qualified for static and quasi-static.
- Easy installation.
- Installation through the fixture.
- Reusable
- Removable, leaving concrete surface flat.
- Variety of lengths and sizes, assembly flexibility.

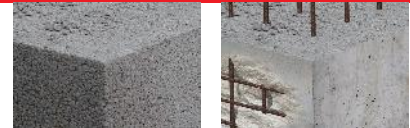
#### APPLICATION

- Structural fixings in cracked and uncracked concrete subject to dry internal conditions.
- Glazing, windows and storefronts
- Racking and shelving
- Attaching railings handrails and ledgers
- Fixings wood structures in concrete.

#### ASSESSMENT



#### BASE MATERIAL



#### SIZE RANGE

Ø5 - Ø18

#### DRILL CONDITION



DRY

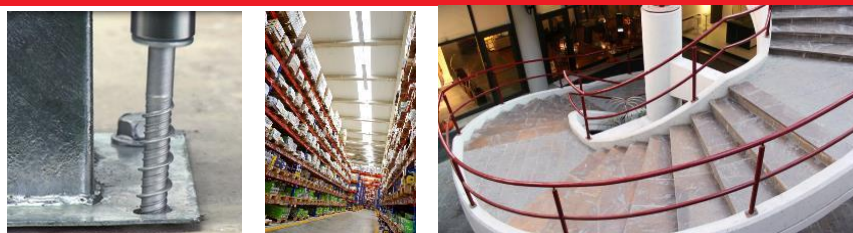
WET

FLOODED

#### MAXIMUM LOADS RECOMMENDED FOR CRACKED AND UNCRACKED CONCRETE [kg]



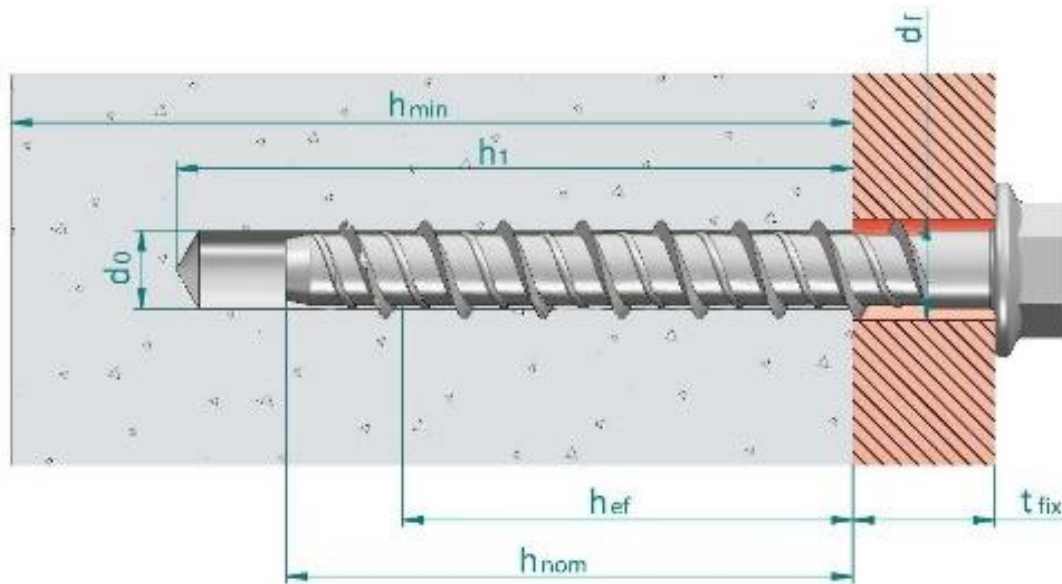
#### APPLICATION EXAMPLES



| 1. RANGE |                                                  |          |                                                                                     |                                                                        |                                              |
|----------|--------------------------------------------------|----------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------|----------------------------------------------|
| ITEM     | CODE                                             | SIZES    | PHOTO                                                                               | DESCRIPTION                                                            | MATERIAL                                     |
| 1        | THE<br>Betonschroef<br>SR-anti cor<br>ETA 1      | Ø5 - Ø18 |    | Hexagonal head with flange<br>screw anchor                             | Carbon steel,<br>ATLANTIS coating            |
| 2        | TFE                                              | Ø5 - Ø18 |    | Hexagonal head with flange<br>screw anchor                             | Carbon steel ,<br>zinc plated coating ≥ 5 µm |
| 3        | TFN                                              | Ø14      |    | Hexagonal head screw anchor                                            | Carbon steel ,<br>zinc plated coating ≥ 5 µm |
| 4        | THA<br>Betonschroef<br>SR-anti Cor<br>ETA 1 TX30 | Ø5 - Ø10 |    | Countersunk screw anchor                                               | Carbon steel,<br>ATLANTIS coating            |
| 5        | THT                                              | Ø6       |    | Truss head screw anchor                                                | Carbon steel,<br>ATLANTIS coating            |
| 6        | THP                                              | Ø5 - Ø8  |   | Pan head screw anchor                                                  | Carbon steel,<br>ATLANTIS coating            |
| 7        | TFF                                              | Ø6       |  | Rod hanger internal thread screw<br>anchor                             | Carbon steel ,<br>zinc plated coating ≥ 5 µm |
| 8        | TFM                                              | Ø6       |  | Hexagonal head with flange<br>and with external thread<br>screw anchor | Carbon steel ,<br>zinc plated coating ≥ 5 µm |
| 9        | TFS                                              | Ø6 - Ø10 |  | Stud head screw anchor                                                 | Carbon steel ,<br>zinc plated coating ≥ 5 µm |

## 2. INSTALLATION DATA

### 2.1. INSTALLATION DRAWING



- $d_0$ : Nominal diameter of drill bit
- $d_f$ : Fixture clearance hole diameter
- $h_{ef}$ : Effective anchorage depth
- $h_1$ : Depth of drilled hole
- $h_{nom}$ : Overall fastener embedment depth in the concrete
- $h_{min}$ : Minimum thickness of concrete member
- $t_{fix}$ : Fixture thickness

### 3. INSTALLATION PARAMETERS

| General Installation parameters |            |           |          |                        |                        |               |                           |                           |                                 | Standard Installation depth (h <sub>ef, std</sub> ) |                        |                          |                           |                          |                                  |                               |                              | Reduced Installation depth (h <sub>ef, red</sub> ) |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|---------------------------------|------------|-----------|----------|------------------------|------------------------|---------------|---------------------------|---------------------------|---------------------------------|-----------------------------------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|----------------------------------------------------|----------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|
| Family                          | Code       | Size      | Assessed | Drill bit diameter     | Fixture clearance hole | Spanner       | Maximum torque            | Minimum allowable spacing | Minimum allowable edge distance | Minimum concrete thickness                          | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting)                 | Minimum concrete thickness | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |
| [--]                            | [--]       | [--]      | ETA      | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm] | SW/Tx<br>[--] | T <sub>inst</sub><br>[Nm] | S <sub>min</sub><br>[mm]  | C <sub>min</sub><br>[mm]        | h <sub>min</sub><br>[mm]                            | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]                         | h <sub>min</sub><br>[mm]   | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         |
| Betonschroef SR-anti cor ETA 1  | 4050001508 | Ø5 x 40   | --       | 5                      | 7                      | SW 8          | 8                         | 35                        | 35                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 100                        | 40                     | 35                       | 25,0                      | 5                        | 75                               | 38                            | 90                           | 45                                 |
|                                 | THE05050   | Ø5 x 50   | --       |                        |                        | SW 8          |                           |                           |                                 | 5                                                   | 15                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001516 | Ø5 x 60   | --       |                        |                        | SW 8          |                           |                           |                                 | 15                                                  | 25                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE05080   | Ø5 x 80   | --       |                        |                        | SW 8          |                           |                           |                                 | 35                                                  | 45                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE05100   | Ø5 x 100  | --       |                        |                        | SW 8          |                           |                           |                                 | 55                                                  | 65                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001524 | Ø6 x 40   | ✓        | 6                      | 9                      | SW 10         | 10                        | 35                        | 35                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 100                        | 45                     | 35                       | 26,0                      | 5                        | 78                               | 39                            | 90                           | 45                                 |
|                                 | THE06050   | Ø6 x 50   | ✓        |                        |                        | SW 10         |                           |                           |                                 | --                                                  | 15                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001532 | Ø6 x 60   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 5                                                   | 25                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE06070   | Ø6 x 70   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 15                                                  | 35                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001540 | Ø6 x 80   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 25                                                  | 45                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001548 | Ø6 x 100  | ✓        | 8                      | 12                     | SW 10         | 20                        | 35                        | 35                              | 100                                                 | 65                     | 55                       | 43,0                      | 45                       | 129                              | 65                            | 170                          | 85                                                 | 100                        | 60                     | 50                       | 37,5                      | 65                       | 113                              | 57                            | 130                          | 65                                 |
|                                 | THE06120   | Ø6 x 120  | ✓        |                        |                        | SW 10         |                           |                           |                                 |                                                     |                        |                          |                           | 65                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 85                       |                                  |                               |                              |                                    |
|                                 | 4050001556 | Ø8 x 55   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | --                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 5                        |                                  |                               |                              |                                    |
|                                 | 4050001564 | Ø8 x 60   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | --                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 10                       |                                  |                               |                              |                                    |
|                                 | 4050001572 | Ø8 x 70   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 5                        |                                  |                               |                              |                                                    |                            |                        |                          |                           | 20                       |                                  |                               |                              |                                    |
|                                 | THE08080   | Ø8 x 80   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 15                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 30                       |                                  |                               |                              |                                    |
|                                 | 4050001580 | Ø8 x 90   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 25                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 40                       |                                  |                               |                              |                                    |
|                                 | THE08100   | Ø8 x 100  | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 35                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 50                       |                                  |                               |                              |                                    |
|                                 | THE08110   | Ø8 x 110  | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 45                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 60                       |                                  |                               |                              |                                    |
|                                 | THE08120   | Ø8 x 120  | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 55                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 70                       |                                  |                               |                              |                                    |
|                                 | THE08140   | Ø8 x 140  | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 75                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 90                       |                                  |                               |                              |                                    |
|                                 | THE10060   | Ø10 x 60  | ✓        | 10                     | 14                     | SW 15         | 30                        | 50                        | 40                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 100                        | 65                     | 55                       | 41,5                      | 5                        | 125                              | 63                            | 140                          | 70                                 |
|                                 | 4050001588 | Ø10 x 70  | ✓        |                        |                        | SW 15         |                           |                           |                                 | --                                                  | 15                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE10080   | Ø10 x 80  | ✓        |                        |                        | SW 15         |                           |                           |                                 | --                                                  | 25                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE10090   | Ø10 x 90  | ✓        |                        |                        | SW 15         |                           |                           |                                 | 5                                                   | 35                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | 4050001596 | Ø10 x 100 | ✓        |                        |                        | SW 15         |                           |                           |                                 | 15                                                  | 45                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE10120   | Ø10 x 120 | ✓        |                        |                        | SW 15         |                           |                           |                                 | 35                                                  | 65                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                 | THE10140   | Ø10 x 140 | ✓        |                        |                        | SW 15         |                           |                           |                                 | 55                                                  | 85                     |                          |                           |                          |                                  |                               |                              |                                                    |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |

| General Installation parameters |          |           |          |                    |                        |         |                   |                           |                                 | Standard Installation depth (h <sub>ef, std</sub> ) |                     |                    |                           |                      |                                  |                               |                              | Reduced Installation depth (h <sub>ef, red</sub> ) |                            |                     |                    |                           |                      |                                  |                               |                              |                                    |
|---------------------------------|----------|-----------|----------|--------------------|------------------------|---------|-------------------|---------------------------|---------------------------------|-----------------------------------------------------|---------------------|--------------------|---------------------------|----------------------|----------------------------------|-------------------------------|------------------------------|----------------------------------------------------|----------------------------|---------------------|--------------------|---------------------------|----------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|
| Family                          | Code     | Size      | Assessed | Drill bit diameter | Fixture clearance hole | Spanner | Maximum torque    | Minimum allowable spacing | Minimum allowable edge distance | Minimum concrete thickness                          | Depth of drill hole | Installation depth | Effective anchorage depth | Thickness of fixture | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting)                 | Minimum concrete thickness | Depth of drill hole | Installation depth | Effective anchorage depth | Thickness of fixture | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |
| [--]                            | [--]     | [--]      | ETA      | d <sub>0</sub>     | d <sub>f</sub>         | SW/Tx   | T <sub>inst</sub> | S <sub>min</sub>          | C <sub>min</sub>                | h <sub>min</sub>                                    | h <sub>1</sub>      | h <sub>nom</sub>   | h <sub>ef</sub>           | t <sub>fix</sub>     | S <sub>cr,N</sub>                | C <sub>cr,N</sub>             | S <sub>cr,sp</sub>           | C <sub>cr,sp</sub>                                 | h <sub>min</sub>           | h <sub>1</sub>      | h <sub>nom</sub>   | h <sub>ef</sub>           | t <sub>fix</sub>     | S <sub>cr,N</sub>                | C <sub>cr,N</sub>             | S <sub>cr,sp</sub>           | C <sub>cr,sp</sub>                 |
|                                 |          |           |          | [mm]               | [mm]                   | --      | [Nm]              | [mm]                      | [mm]                            | [mm]                                                | [mm]                | [mm]               | [mm]                      | [mm]                 | [mm]                             | [mm]                          | [mm]                         | [mm]                                               | [mm]                       | [mm]                | [mm]               | [mm]                      | [mm]                 | [mm]                             | [mm]                          | [mm]                         | [mm]                               |
| Betonschroef SR-anti cor ETA 1  | THE12080 | Ø12 x 80  | ✓        | 12                 | 16                     | SW 18   | 50                | 75                        | 45                              | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                                 | 120                        | 90                  | 75                 | 58,0                      | 5                    | 174                              | 87                            | 190                          | 95                                 |
|                                 | THE12090 | Ø12 x 90  | ✓        |                    |                        | SW 18   |                   |                           |                                 | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            |                              |                                                    |                            |                     |                    |                           |                      |                                  |                               |                              |                                    |
|                                 | THE12110 | Ø12 x 110 | ✓        |                    |                        | SW 18   |                   |                           |                                 | 170                                                 | 120                 | 105                | 83,5                      | 5                    | 251                              | 126                           | 220                          | 110                                                |                            |                     |                    |                           | 35                   |                                  |                               |                              |                                    |
|                                 | THE12130 | Ø12 x 130 | ✓        |                    |                        | SW 18   |                   |                           |                                 |                                                     |                     |                    |                           | 25                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 55                   |                                  |                               |                              |                                    |
|                                 | THE12150 | Ø12 x 150 | ✓        |                    |                        | SW 18   |                   |                           |                                 |                                                     |                     |                    |                           | 45                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 75                   |                                  |                               |                              |                                    |
|                                 | THE14080 | Ø14 x 80  | ✓        | 14                 | 18                     | SW 21   | 70                | 80                        | 50                              | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                                 | 120                        | 90                  | 75                 | 58,0                      | 5                    | 174                              | 87                            | 190                          | 95                                 |
|                                 | THE14100 | Ø14 x 100 | ✓        |                    |                        | SW 21   |                   |                           |                                 | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            | --                           |                                                    |                            |                     |                    |                           |                      |                                  |                               |                              |                                    |
|                                 | THE14120 | Ø14 x 120 | ✓        |                    |                        | SW 21   |                   |                           |                                 | 185                                                 | 130                 | 115                | 92,0                      | 5                    | 276                              | 138                           | 230                          | 115                                                |                            |                     |                    |                           | 45                   |                                  |                               |                              |                                    |
|                                 | THE14130 | Ø14 x 130 | ✓        |                    |                        | SW 21   |                   |                           |                                 |                                                     |                     |                    |                           | 15                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 55                   |                                  |                               |                              |                                    |
|                                 | THE14140 | Ø14 x 140 | ✓        |                    |                        | SW 21   |                   |                           |                                 |                                                     |                     |                    |                           | 25                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 65                   |                                  |                               |                              |                                    |
|                                 | THE14160 | Ø14 x 160 | ✓        | SW 21              | 45                     | 85      |                   |                           |                                 |                                                     |                     |                    |                           |                      |                                  |                               |                              |                                                    |                            |                     |                    |                           |                      |                                  |                               |                              |                                    |
|                                 | THE18100 | Ø18 x 100 | ✓        | 18                 | 22                     | SW 24   | 90                | 90                        | 55                              | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                                 | 140                        | 110                 | 90                 | 69,5                      | 10                   | 209                              | 105                           | 230                          | 115                                |
|                                 | THE18130 | Ø18 x 130 | ✓        |                    |                        | SW 24   |                   |                           |                                 | --                                                  | --                  | --                 | --                        | --                   | --                               | --                            | --                           |                                                    |                            |                     |                    |                           |                      |                                  |                               |                              |                                    |
|                                 | THE18160 | Ø18 x 160 | ✓        |                    |                        | SW 24   |                   |                           |                                 | 225                                                 | 160                 | 140                | 112,0                     | 20                   | 336                              | 168                           | 350                          | 175                                                |                            |                     |                    |                           | 70                   |                                  |                               |                              |                                    |
|                                 | THE18180 | Ø18 x 180 | ✓        |                    |                        | SW 24   |                   |                           |                                 |                                                     |                     |                    |                           | 40                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 90                   |                                  |                               |                              |                                    |
|                                 | THE18200 | Ø18 x 200 | ✓        |                    |                        | SW 24   |                   |                           |                                 |                                                     |                     |                    |                           | 60                   |                                  |                               |                              |                                                    |                            |                     |                    |                           | 110                  |                                  |                               |                              |                                    |

| General Installation parameters |          |           |          |                        |                        |               |                           |                           |                                 | Standard Installation depth (h <sub>ef, std</sub> ) |                        |                          |                           |                          |                                  |                               |                              |                                    | Reduced Installation depth (h <sub>ef, red</sub> ) |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|---------------------------------|----------|-----------|----------|------------------------|------------------------|---------------|---------------------------|---------------------------|---------------------------------|-----------------------------------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|----------------------------------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|----|------|----|----|----|----|----|-----|----|----|------|---|
| Family                          | Code     | Size      | Assessed | Drill bit diameter     | Fixture clearance hole | Spanner       | Maximum torque            | Minimum allowable spacing | Minimum allowable edge distance | Minimum concrete thickness                          | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) | Minimum concrete thickness                         | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |    |      |    |    |    |    |    |     |    |    |      |   |
| [--]                            | [--]     | [--]      | ETA      | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm] | SW/Tx<br>[--] | T <sub>inst</sub><br>[Nm] | S <sub>min</sub><br>[mm]  | C <sub>min</sub><br>[mm]        | h <sub>min</sub><br>[mm]                            | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         | h <sub>min</sub><br>[mm]                           | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         |    |      |    |    |    |    |    |     |    |    |      |   |
| TFE                             | TFE05040 | Ø5 x 40   | --       | 5                      | 7                      | SW 8          | 8                         | 35                        | 35                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                 | 100                                                | 40                     | 35                       | 25,0                      | 5                        | 75                               | 38                            | 90                           | 45                                 |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE05050 | Ø5 x 50   | --       |                        |                        | SW 8          |                           |                           |                                 | 5                                                   | 15                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE05060 | Ø5 x 60   | --       |                        |                        | SW 8          |                           |                           |                                 | 15                                                  | 25                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE05080 | Ø5 x 80   | --       |                        |                        | SW 8          |                           |                           |                                 | 35                                                  | 45                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE05100 | Ø5 x 100  | --       |                        |                        | SW 8          |                           |                           |                                 | 55                                                  | 65                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06040 | Ø6 x 40   | ✓        | 6                      | 9                      | SW 10         | 10                        | 35                        | 35                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                 | 100                                                | 45                     | 35                       | 26,0                      | 5                        | 78                               | 39                            | 90                           | 45                                 |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06050 | Ø6 x 50   | ✓        |                        |                        | SW 10         |                           |                           |                                 | --                                                  | 15                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06060 | Ø6 x 60   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 5                                                   | 25                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06070 | Ø6 x 70   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 15                                                  | 35                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06080 | Ø6 x 80   | ✓        |                        |                        | SW 10         |                           |                           |                                 | 25                                                  | 45                     |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06100 | Ø6 x 100  | ✓        | 8                      | 12                     | SW 10         | 20                        | 35                        | 35                              | 100                                                 | 65                     | 55                       | 43,0                      | 45                       | 129                              | 65                            | 170                          | 85                                 | 100                                                | 60                     | 50                       | 37,5                      | 65                       | 113                              | 57                            | 130                          | 65                                 |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE06120 | Ø6 x 120  | ✓        |                        |                        | SW 10         |                           |                           |                                 |                                                     |                        |                          |                           | 65                       |                                  |                               |                              |                                    |                                                    |                        |                          |                           | 85                       |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08055 | Ø8 x 55   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | --                       |                                  |                               |                              |                                    |                                                    |                        |                          |                           | --                       |                                  |                               |                              |                                    | -- | --   | -- | -- | -- | -- | -- | 100 | 75 | 65 | 50,5 | 5 |
|                                 | TFE08060 | Ø8 x 60   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | --                       |                                  |                               |                              |                                    |                                                    |                        |                          |                           | --                       |                                  |                               |                              |                                    | -- | --   | -- | -- | -- | -- | 15 |     |    |    |      |   |
|                                 | TFE08070 | Ø8 x 70   | ✓        |                        |                        | SW 13         |                           |                           |                                 |                                                     |                        |                          |                           | 100                      |                                  |                               |                              |                                    |                                                    |                        |                          |                           | 75                       |                                  |                               |                              |                                    | 65 | 50,5 | 25 |    |    |    |    |     |    |    |      |   |
|                                 | TFE08080 | Ø8 x 80   | ✓        |                        |                        | SW 13         |                           |                           |                                 | 35                                                  |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08090 | Ø8 x 90   | ✓        |                        |                        | SW 13         |                           |                           |                                 | 45                                                  |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08100 | Ø8 x 100  | ✓        |                        |                        | SW 13         |                           |                           |                                 | 55                                                  |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08110 | Ø8 x 110  | ✓        |                        |                        | SW 13         |                           |                           |                                 | 75                                                  |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08120 | Ø8 x 120  | ✓        |                        |                        | SW 13         |                           |                           |                                 | 90                                                  |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE08140 | Ø8 x 140  | ✓        | SW 13                  | 100                    | 65            | 55                        | 41,5                      | 5                               |                                                     |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10060 | Ø10 x 60  | ✓        | SW 15                  |                        |               |                           |                           | --                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | 15                           |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10070 | Ø10 x 70  | ✓        | SW 15                  |                        |               |                           |                           | --                              | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | 25                           |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10080 | Ø10 x 80  | ✓        | SW 15                  |                        |               |                           |                           | 135                             | 95                                                  | 85                     | 67,0                     | 5                         | 201                      | 101                              | 210                           | 105                          | 35                                 |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10090 | Ø10 x 90  | ✓        | SW 15                  |                        |               |                           |                           |                                 |                                                     |                        |                          | 45                        |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10100 | Ø10 x 100 | ✓        | SW 15                  |                        |               |                           |                           |                                 |                                                     |                        |                          | 65                        |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10120 | Ø10 x 120 | ✓        | SW 15                  |                        |               |                           |                           |                                 |                                                     |                        |                          | 85                        |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |
|                                 | TFE10140 | Ø10 x 140 | ✓        | SW 15                  | 55                     |               |                           |                           |                                 |                                                     |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |    |      |    |    |    |    |    |     |    |    |      |   |

| General Installation parameters |          |           |          | Standard Installation depth (h <sub>ef, std</sub> ) |                        |               |                           |                           |                                 |                            |                        |                          |                           |                          |                                  |                               |                              | Reduced Installation depth (h <sub>ef, red</sub> ) |                            |                        |                          |                           |                          |                                  |                               |                              |                                    |    |
|---------------------------------|----------|-----------|----------|-----------------------------------------------------|------------------------|---------------|---------------------------|---------------------------|---------------------------------|----------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|----------------------------------------------------|----------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|----|
| Family                          | Code     | Size      | Assessed | Drill bit diameter                                  | Fixture clearance hole | Spanner       | Maximum torque            | Minimum allowable spacing | Minimum allowable edge distance | Minimum concrete thickness | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting)                 | Minimum concrete thickness | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |    |
| [--]                            | [--]     | [--]      | ETA      | d <sub>0</sub><br>[mm]                              | d <sub>f</sub><br>[mm] | SW/Tx<br>[--] | T <sub>inst</sub><br>[Nm] | S <sub>min</sub><br>[mm]  | C <sub>min</sub><br>[mm]        | h <sub>min</sub><br>[mm]   | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]                         | h <sub>min</sub><br>[mm]   | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         |    |
| TFE                             | TFE12080 | Ø12 x 80  | ✓        | 12                                                  | 16                     | SW 18         | 50                        | 75                        | 45                              | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | --                         | 120                    | 90                       | 75                        | 58,0                     | 5                                | 174                           | 87                           | 190                                | 95 |
|                                 | TFE12090 | Ø12 x 90  | ✓        |                                                     |                        | SW 18         |                           |                           |                                 | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 15                         |                        |                          |                           |                          |                                  |                               |                              |                                    |    |
|                                 | TFE12110 | Ø12 x 110 | ✓        |                                                     |                        | SW 18         |                           |                           |                                 | 170                        | 120                    | 105                      | 83,5                      | 5                        | 251                              | 126                           | 220                          | 110                                                | 35                         |                        |                          |                           |                          |                                  |                               |                              |                                    |    |
|                                 | TFE12130 | Ø12 x 130 | ✓        |                                                     |                        | SW 18         |                           |                           |                                 |                            |                        |                          |                           | 25                       |                                  |                               |                              |                                                    | 55                         |                        |                          |                           |                          |                                  |                               |                              |                                    |    |
|                                 | TFE12150 | Ø12 x 150 | ✓        |                                                     |                        | SW 18         |                           |                           |                                 |                            |                        |                          |                           | 45                       |                                  |                               |                              |                                                    | 75                         |                        |                          |                           |                          |                                  |                               |                              |                                    |    |
|                                 | TFE14080 | Ø14 x 80  | ✓        | 14                                                  | 18                     | SW 21         | 70                        | 80                        | 50                              | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 120                        | 90                     | 75                       | 58,0                      | 5                        | 174                              | 87                            | 190                          | 95                                 |    |
|                                 | TFE14100 | Ø14 x 100 | ✓        |                                                     |                        | SW 21         |                           |                           |                                 | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 |                            |                        |                          |                           | 25                       |                                  |                               |                              |                                    |    |
|                                 | TFE14120 | Ø14 x 120 | ✓        |                                                     |                        | SW 21         |                           |                           |                                 | 185                        | 130                    | 115                      | 92,0                      | 5                        | 276                              | 138                           | 230                          | 115                                                |                            |                        |                          |                           | 45                       |                                  |                               |                              |                                    |    |
|                                 | TFE14130 | Ø14 x 130 | ✓        |                                                     |                        | SW 21         |                           |                           |                                 |                            |                        |                          |                           | 15                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 55                       |                                  |                               |                              |                                    |    |
|                                 | TFE14140 | Ø14 x 140 | ✓        |                                                     |                        | SW 21         |                           |                           |                                 |                            |                        |                          |                           | 25                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 65                       |                                  |                               |                              |                                    |    |
|                                 | TFE14160 | Ø14 x 160 | ✓        |                                                     |                        | SW 21         |                           |                           |                                 |                            |                        |                          |                           | 45                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 85                       |                                  |                               |                              |                                    |    |
|                                 | TFE18100 | Ø18 x 100 | ✓        | 18                                                  | 22                     | SW 24         | 90                        | 90                        | 55                              | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 140                        | 110                    | 90                       | 69,5                      | 10                       | 209                              | 105                           | 230                          | 115                                |    |
|                                 | TFE18130 | Ø18 x 130 | ✓        |                                                     |                        | SW 24         |                           |                           |                                 | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 |                            |                        |                          |                           | 40                       |                                  |                               |                              |                                    |    |
|                                 | TFE18160 | Ø18 x 160 | ✓        |                                                     |                        | SW 24         |                           |                           |                                 | 225                        | 160                    | 140                      | 112,0                     | 20                       | 336                              | 168                           | 350                          | 175                                                |                            |                        |                          |                           | 70                       |                                  |                               |                              |                                    |    |
|                                 | TFE18180 | Ø18 x 180 | ✓        |                                                     |                        | SW 24         |                           |                           |                                 |                            |                        |                          |                           | 40                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 90                       |                                  |                               |                              |                                    |    |
|                                 | TFE18200 | Ø18 x 200 | ✓        |                                                     |                        | SW 24         |                           |                           |                                 |                            |                        |                          |                           | 60                       |                                  |                               |                              |                                                    |                            |                        |                          |                           | 110                      |                                  |                               |                              |                                    |    |
| TFN                             | TFN14080 | Ø14 x 80  | ✓        | 14                                                  | 18                     | SW 24         | 70                        | 80                        | 50                              | --                         | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                                 | 120                        | 90                     | 75                       | 58,0                      | 5                        | 174                              | 87                            | 190                          | 95                                 |    |



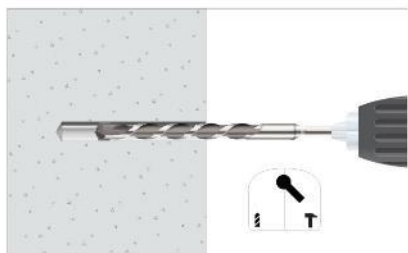
| General Installation parameters      |            |           |          |                        |                        |               |                           |                           |                          | Standard Installation depth (h <sub>ef, std</sub> ) |                        |                          |                           |                          |                                  |                               |                              |                                    | Reduced Installation depth (h <sub>ef, red</sub> ) |                        |                          |                           |                          |                                  |                               |                              |                                    |
|--------------------------------------|------------|-----------|----------|------------------------|------------------------|---------------|---------------------------|---------------------------|--------------------------|-----------------------------------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|----------------------------------------------------|------------------------|--------------------------|---------------------------|--------------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|
| Family                               | Code       | Size      | Assessed | Drill bit diameter     | Fixture clearance hole | Spanner       | Maximum torque            | Minimum allowable spacing | Minimum allowable edge   | Minimum concrete thickness                          | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) | Minimum concrete thickness                         | Depth of drill hole    | Installation depth       | Effective anchorage depth | Thickness of fixture     | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |
| [--]                                 | [--]       | [--]      | ETA      | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm] | SW/Tx<br>[--] | T <sub>inst</sub><br>[Nm] | S <sub>min</sub><br>[mm]  | C <sub>min</sub><br>[mm] | h <sub>min</sub><br>[mm]                            | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         | h <sub>min</sub><br>[mm]                           | h <sub>1</sub><br>[mm] | h <sub>nom</sub><br>[mm] | h <sub>ef</sub><br>[mm]   | t <sub>fix</sub><br>[mm] | S <sub>cr,N</sub><br>[mm]        | C <sub>cr,N</sub><br>[mm]     | S <sub>cr,sp</sub><br>[mm]   | C <sub>cr,sp</sub><br>[mm]         |
| Beton Schroef SR-anti Cor ETA 1 TX30 | THA05040   | Ø5 x 40   | --       | 5                      | 7                      | TX25          | 8                         | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                 | 100                                                | 40                     | 35                       | 25,0                      | 5                        | 75                               | 38                            | 90                           | 45                                 |
|                                      | THA05060   | Ø5 x 60   | --       |                        |                        | TX25          |                           |                           |                          | 15                                                  | 105                    | 53                       | 170                       | 85                       | 25                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA05080   | Ø5 x 80   | --       |                        |                        | TX25          |                           |                           |                          | 35                                                  |                        |                          |                           |                          | 45                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA05100   | Ø5 x 100  | --       |                        |                        | TX25          |                           |                           |                          | 55                                                  |                        |                          |                           |                          | 65                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA06045   | Ø6 x 45   | ✓        | 6                      | 9                      | TX30          | 10                        | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | 100                                | 45                                                 | 35                     | 26,0                     | 10                        | 78                       | 39                               | 90                            | 45                           |                                    |
|                                      | THA06050   | Ø6 x 50   | ✓        |                        |                        | TX30          |                           |                           |                          | --                                                  | --                     | --                       | --                        | --                       | 15                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | 4050001600 | Ø6 x 60   | ✓        |                        |                        | TX30          |                           |                           |                          | 5                                                   | 129                    | 65                       | 170                       | 85                       | 25                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | 4050001608 | Ø6 x 80   | ✓        |                        |                        | TX30          |                           |                           |                          | 25                                                  |                        |                          |                           |                          | 45                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | 4050001616 | Ø6 x 120  | ✓        |                        |                        | TX30          |                           |                           |                          | 65                                                  |                        |                          |                           |                          | 85                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | 4050001624 | Ø6 x 140  | ✓        |                        |                        | TX30          |                           |                           |                          | 85                                                  |                        |                          |                           |                          | 105                              |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA08060   | Ø8 x 60   | ✓        | 8                      | 12                     | TX45          | 20                        | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | 100                                | 60                                                 | 50                     | 37,5                     | 10                        | 113                      | 57                               | 130                           | 65                           |                                    |
|                                      | THA08080   | Ø8 x 80   | ✓        |                        |                        | TX45          |                           |                           |                          | 15                                                  | 152                    | 76                       | 200                       | 100                      | 30                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA08100   | Ø8 x 100  | ✓        |                        |                        | TX45          |                           |                           |                          | 35                                                  |                        |                          |                           |                          | 50                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA08120   | Ø8 x 120  | ✓        |                        |                        | TX45          |                           |                           |                          | 55                                                  |                        |                          |                           |                          | 70                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THA10100   | Ø10 x 100 | ✓        | 10                     | 14                     | TX50          | 30                        | 50                        | 40                       | 135                                                 | 95                     | 85                       | 67,0                      | 15                       | 201                              | 101                           | 210                          | 105                                | 100                                                | 65                     | 55                       | 41,5                      | 45                       | 125                              | 63                            | 140                          | 70                                 |
|                                      | THA10120   | Ø10 x 120 | ✓        |                        |                        | TX50          |                           |                           |                          |                                                     |                        |                          |                           | 35                       |                                  |                               |                              |                                    |                                                    |                        |                          |                           | 65                       |                                  |                               |                              |                                    |
| THT                                  | THT06040   | Ø6 x 40   | ✓        | 6                      | 9                      | TX30          | 10                        | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                 | 100                                                | 45                     | 35                       | 26,0                      | 5                        | 78                               | 39                            | 90                           | 45                                 |
|                                      | THT06050   | Ø6 x 50   | ✓        |                        |                        | TX30          |                           |                           |                          | --                                                  | --                     | --                       | --                        | --                       | 15                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THT06060   | Ø6 x 60   | ✓        |                        |                        | TX30          |                           |                           |                          | 100                                                 | 65                     | 55                       | 43,0                      | 5                        | 129                              | 65                            | 170                          | 85                                 |                                                    |                        |                          |                           | 25                       |                                  |                               |                              |                                    |
| THP                                  | THP05040   | Ø5 x 40   | --       | 5                      | 7                      | TX30          | 8                         | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | --                                 | 100                                                | 40                     | 35                       | 25,0                      | 5                        | 75                               | 38                            | 90                           | 45                                 |
|                                      | THP05060   | Ø5 x 60   | --       |                        |                        | TX30          |                           |                           |                          | 100                                                 | 50                     | 45                       | 35,0                      | 15                       | 105                              | 53                            | 170                          | 85                                 |                                                    |                        |                          |                           | 25                       |                                  |                               |                              |                                    |
|                                      | THP06040   | Ø6 x 40   | ✓        | 6                      | 9                      | TX40          | 10                        | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | 100                                | 45                                                 | 35                     | 26,0                     | 5                         | 78                       | 39                               | 90                            | 45                           |                                    |
|                                      | THP06050   | Ø6 x 50   | ✓        |                        |                        | TX40          |                           |                           |                          | --                                                  | --                     | --                       | --                        | --                       | 15                               |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |
|                                      | THP06060   | Ø6 x 60   | ✓        |                        |                        | TX40          |                           |                           |                          | 100                                                 | 65                     | 55                       | 43,0                      | 25                       | 129                              | 65                            | 170                          |                                    |                                                    |                        |                          | 85                        |                          |                                  |                               |                              | 45                                 |
|                                      | THP06080   | Ø6 x 80   | ✓        |                        |                        | TX40          |                           |                           |                          |                                                     |                        |                          |                           | 45                       |                                  |                               |                              |                                    |                                                    |                        | 65                       |                           |                          |                                  |                               |                              |                                    |
|                                      | THP06100   | Ø6 x 100  | ✓        | 8                      | 12                     | TX45          | 20                        | 35                        | 35                       | --                                                  | --                     | --                       | --                        | --                       | --                               | --                            | --                           | 100                                | 60                                                 | 50                     | 37,5                     | 10                        | 113                      | 57                               | 130                           | 65                           |                                    |
|                                      | THP08060   | Ø8 x 60   | ✓        |                        |                        |               |                           |                           |                          | TX45                                                | 100                    | 75                       | 65                        | 50,5                     | 15                               | 152                           | 76                           |                                    |                                                    |                        |                          | 200                       |                          |                                  |                               |                              | 100                                |
| THP08080                             | Ø8 x 80    | ✓         | TX45     |                        |                        |               |                           |                           |                          |                                                     |                        |                          |                           |                          |                                  |                               |                              |                                    |                                                    |                        |                          |                           |                          |                                  |                               |                              |                                    |



| General Installation parameters |          |                     |          |                    |                        |               |                    |                           |                                 | Standard Installation depth ( $h_{ef, std}$ ) |                     |                    |                           |                      |                                  |                               |                              |                                    | Reduced Installation depth ( $h_{ef, red}$ ) |                     |                    |                           |                      |                                  |                               |                              |                                    |
|---------------------------------|----------|---------------------|----------|--------------------|------------------------|---------------|--------------------|---------------------------|---------------------------------|-----------------------------------------------|---------------------|--------------------|---------------------------|----------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|----------------------------------------------|---------------------|--------------------|---------------------------|----------------------|----------------------------------|-------------------------------|------------------------------|------------------------------------|
| Family                          | Code     | Size                | Assessed | Drill bit diameter | Fixture clearance hole | Spanner       | Maximum torque     | Minimum allowable spacing | Minimum allowable edge distance | Minimum concrete thickness                    | Depth of drill hole | Installation depth | Effective anchorage depth | Thickness of fixture | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) | Minimum concrete thickness                   | Depth of drill hole | Installation depth | Effective anchorage depth | Thickness of fixture | Critical spacing (concrete cone) | Critical edge distance (cone) | Critical spacing (splitting) | Critical edge distance (splitting) |
| [--]                            | [--]     | [--]                | ETA      | $d_0$<br>[mm]      | $d_f$<br>[mm]          | SW/Tx<br>[--] | $T_{inst}$<br>[Nm] | $S_{min}$<br>[mm]         | $C_{min}$<br>[mm]               | $h_{min}$<br>[mm]                             | $h_1$<br>[mm]       | $h_{nom}$<br>[mm]  | $h_{ef}$<br>[mm]          | $t_{fix}$<br>[mm]    | $S_{cr,N}$<br>[mm]               | $C_{cr,N}$<br>[mm]            | $S_{cr,sp}$<br>[mm]          | $C_{cr,sp}$<br>[mm]                | $h_{min}$<br>[mm]                            | $h_1$<br>[mm]       | $h_{nom}$<br>[mm]  | $h_{ef}$<br>[mm]          | $t_{fix}$<br>[mm]    | $S_{cr,N}$<br>[mm]               | $C_{cr,N}$<br>[mm]            | $S_{cr,sp}$<br>[mm]          | $C_{cr,sp}$<br>[mm]                |
| TFF                             | TFF06035 | Ø6 x 35<br>(M8-M10) | ✓        | 6                  | --                     | SW 13         | 10                 | 35                        | 35                              | --                                            | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                 | 100                                          | 45                  | 35                 | 26,0                      | --                   | 78                               | 39                            | 90                           | 45                                 |
|                                 | TFF06055 | Ø6 x 55<br>(M8-M10) | ✓        |                    |                        | SW 13         |                    |                           |                                 | 100                                           | 65                  | 55                 | 43,0                      | --                   | 129                              | 65                            | 170                          | 85                                 | --                                           | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                 |
| TFM                             | TFM06035 | Ø6 x 35<br>(M8)     | ✓        | 6                  | --                     | SW 13         | 10                 | 35                        | 35                              | --                                            | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                 | 100                                          | 65                  | 55                 | 26,0                      | --                   | 78                               | 39                            | 90                           | 45                                 |
|                                 | TFM06055 | Ø6 x 55<br>(M10)    | ✓        |                    |                        | SW 13         |                    |                           |                                 | 100                                           | 65                  | 55                 | 43,0                      | --                   | 129                              | 65                            | 170                          | 85                                 | --                                           | --                  | --                 | --                        | --                   | --                               | --                            | --                           | --                                 |
| TFS                             | TFS06100 | Ø6 x 100<br>(M8)    | ✓        | 6                  | 9                      | SW 5          | 10                 | 35                        | 35                              | 100                                           | 65                  | 55                 | 43,0                      | 31                   | 129                              | 65                            | 170                          | 85                                 | 100                                          | 45                  | 35                 | 26,0                      | 51                   | 78                               | 39                            | 90                           | 45                                 |
|                                 | TFS06120 | Ø6 x 120<br>(M8)    | ✓        |                    |                        | SW 5          |                    |                           |                                 |                                               |                     |                    |                           | 51                   |                                  |                               |                              |                                    |                                              |                     |                    |                           | 71                   |                                  |                               |                              |                                    |
|                                 | TFS08110 | Ø8 x 110<br>(M10)   | ✓        | 8                  | 12                     | SW 7          | 20                 | 35                        | 35                              | 100                                           | 75                  | 65                 | 50,5                      | 29                   | 152                              | 76                            | 200                          | 100                                | 100                                          | 60                  | 50                 | 37,5                      | 44                   | 113                              | 57                            | 130                          | 65                                 |
|                                 | TFS08130 | Ø8 x 130<br>(M10)   | ✓        |                    |                        | SW 7          |                    |                           |                                 |                                               |                     |                    |                           | 44                   |                                  |                               |                              |                                    |                                              |                     |                    |                           | 64                   |                                  |                               |                              |                                    |
|                                 | TFS10120 | Ø10 x 120<br>(M12)  | ✓        | 10                 | 14                     | SW 8          | 30                 | 50                        | 40                              | 120                                           | 85                  | 75                 | 58,5                      | 26                   | 176                              | 88                            | 190                          | 95                                 | 100                                          | 65                  | 55                 | 41,5                      | 46                   | 125                              | 63                            | 140                          | 70                                 |
|                                 | TFS10140 | Ø10 x 140<br>(M12)  | ✓        |                    |                        | SW 8          |                    |                           |                                 |                                               |                     |                    |                           | 46                   |                                  |                               |                              |                                    |                                              |                     |                    |                           | 66                   |                                  |                               |                              |                                    |

## 4. INSTALLATION PROCEDURE

### 4.1. CONCRETE INSTALLATION



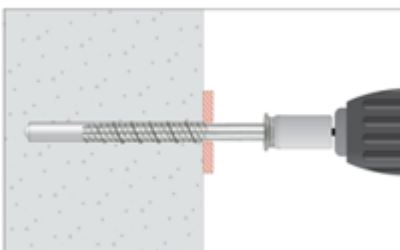
#### 1. DRILLING

Check the concrete is well compacted and without significant porosity. Suitable for dry, wet and flooded holes.  
Use drill in hammer mode.  
Drill according to specified depths in previous tables.



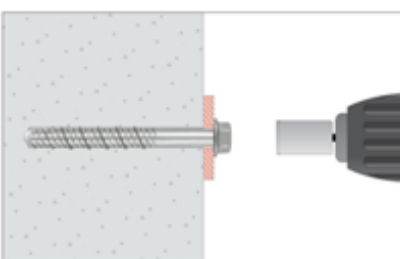
#### 2. BLOW AND CLEAN

Clean the hole from dust and concrete remains.  
Use blow pump and brush.



#### 3. INSTALL

Select a powered impact wrench or a torque wrench that does not exceed the maximum torque indicated in previous tables.  
Attach an appropriate size hex socket to the wrench.  
Mount the screw anchor head in the socket.



#### 4. APPLY THE TORQUE

Drive the anchor with an impact driver or a torque wrench through the fixture and into the hole until the anchor head washer comes in contact with the fixture. The anchor must be snug after installation. Do not spin the hex socket off the anchor to disengage.

## 5. RESISTANCES

Resistances in concrete class C20/25 for an isolated anchor without spacing or concrete edge distance effects are indicated in the following table:

Values underlined and in italics show Steel failure, bold values concrete failure and other indicate pull out failure.

1 kN ≈ 100 kg

### 5.1 CHARACTERISTIC RESISTANCE (STRUCTURAL APPLICATION) [kN]

| General Parameter              |            |           |                 | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|--------------------------------|------------|-----------|-----------------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family                         | Code       | Size      | ETA<br>Assessed | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                                |            |           |                 | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| Betonschroef SR-anti cor ETA 1 | 4050001508 | Ø5 x 40   | --              | --                    | <b>6,88</b>       | --                  | <b>6,88</b>       | --                    | <b>4,91</b>       | --                  | <b>4,91</b>       |
|                                | THE05050   | Ø5 x 50   | --              | <b>10,44</b>          | <b>6,88</b>       | <u>8,19</u>         | <b>6,88</b>       | <b>7,45</b>           | <b>4,91</b>       | <b>7,45</b>         | <b>4,91</b>       |
|                                | 4050001516 | Ø5 x 60   | --              |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05080   | Ø5 x 80   | --              |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05100   | Ø5 x 100  | --              | <b>14,21</b>          | <b>5,00</b>       | <u>12,53</u>        | <b>6,68</b>       | <b>10,15</b>          | <b>4,77</b>       | <b>10,15</b>        | <b>4,77</b>       |
|                                | 4050001524 | Ø6 x 40   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE06050   | Ø6 x 50   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001532 | Ø6 x 60   | ✓               | <b>18,09</b>          | <b>11,57</b>      | <u>18,09</u>        | <b>11,57</b>      | <b>12,92</b>          | <b>8,27</b>       | <b>12,92</b>        | <b>8,27</b>       |
|                                | THE06070   | Ø6 x 70   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001540 | Ø6 x 80   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001548 | Ø6 x 100  | ✓               | <b>27,64</b>          | <b>13,47</b>      | <u>27,40</u>        | <b>13,47</b>      | <b>19,74</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       |
|                                | THE06120   | Ø6 x 120  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001556 | Ø8 x 55   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001564 | Ø8 x 60   | ✓               | <b>38,46</b>          | <b>22,26</b>      | <u>37,24</u>        | <b>22,26</b>      | <b>27,47</b>          | <b>15,90</b>      | <u>37,24</u>        | <b>15,90</b>      |
|                                | 4050001572 | Ø8 x 70   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08080   | Ø8 x 80   | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001580 | Ø8 x 90   | ✓               | <b>44,47</b>          | <b>22,26</b>      | <u>52,72</u>        | <b>22,26</b>      | <b>31,77</b>          | <b>15,90</b>      | <u>52,72</u>        | <b>15,90</b>      |
|                                | THE08100   | Ø8 x 100  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08110   | Ø8 x 110  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08120   | Ø8 x 120  | ✓               | <b>59,74</b>          | <b>29,20</b>      | <u>80,78</u>        | <b>58,40</b>      | <b>42,67</b>          | <b>20,86</b>      | <u>80,78</u>        | <b>41,72</b>      |
|                                | THE08140   | Ø8 x 140  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10060   | Ø10 x 60  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001588 | Ø10 x 70  | ✓               | <b>29,20</b>          | <b>18,09</b>      | <u>27,40</u>        | <b>18,09</b>      | <b>12,92</b>          | <b>8,27</b>       | <b>12,92</b>        | <b>8,27</b>       |
|                                | THE10080   | Ø10 x 80  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10090   | Ø10 x 90  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001596 | Ø10 x 100 | ✓               | <b>22,26</b>          | <b>15,90</b>      | <u>27,40</u>        | <b>15,90</b>      | <b>10,15</b>          | <b>4,77</b>       | <b>10,15</b>        | <b>4,77</b>       |
|                                | THE10120   | Ø10 x 120 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10140   | Ø10 x 140 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12080   | Ø12 x 80  | ✓               | <b>15,90</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       | <b>6,68</b>           | <b>4,77</b>       | <b>6,68</b>         | <b>4,77</b>       |
|                                | THE12090   | Ø12 x 90  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12110   | Ø12 x 110 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12130   | Ø12 x 130 | ✓               | <b>15,90</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       | <b>6,68</b>           | <b>4,77</b>       | <b>6,68</b>         | <b>4,77</b>       |
|                                | THE12150   | Ø12 x 150 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14080   | Ø14 x 80  | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14100   | Ø14 x 100 | ✓               | <b>15,90</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       | <b>6,68</b>           | <b>4,77</b>       | <b>6,68</b>         | <b>4,77</b>       |
|                                | THE14120   | Ø14 x 120 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14130   | Ø14 x 130 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14140   | Ø14 x 140 | ✓               | <b>15,90</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       | <b>6,68</b>           | <b>4,77</b>       | <b>6,68</b>         | <b>4,77</b>       |
|                                | THE14160   | Ø14 x 160 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18100   | Ø18 x 100 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18130   | Ø18 x 130 | ✓               | <b>15,90</b>          | <b>9,62</b>       | <u>27,40</u>        | <b>9,62</b>       | <b>6,68</b>           | <b>4,77</b>       | <b>6,68</b>         | <b>4,77</b>       |
|                                | THE18160   | Ø18 x 160 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18180   | Ø18 x 180 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18200   | Ø18 x 200 | ✓               |                       |                   |                     |                   |                       |                   |                     |                   |

| General Parameter                   |            |           |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |    |       |    |       |
|-------------------------------------|------------|-----------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|----|-------|----|-------|
| Family                              | Code       | Size      | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |    |       |    |       |
|                                     |            |           | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |    |       |    |       |
| TFE                                 | TFE05040   | Ø5 x 40   | --       | --                    | 6,88              | --                  | 6,88              | --                    | 4,91              | --                  | 4,91              |    |       |    |       |
|                                     | TFE05050   | Ø5 x 50   | --       | 10,44                 | 6,88              | <u>8,19</u>         | 6,88              | 7,45                  | 4,91              | 7,45                | 4,91              |    |       |    |       |
|                                     | TFE05060   | Ø5 x 60   | --       |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE06040   | Ø6 x 40   | ✓        | --                    | 5,00              | --                  | 6,68              | --                    | 4,77              | --                  | 4,77              |    |       |    |       |
|                                     | TFE06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |    |       |    |       |
|                                     | TFE06060   | Ø6 x 60   | ✓        | 14,21                 | 5,00              | <u>12,53</u>        | 6,68              | 10,15                 | 4,77              | 10,15               | 4,77              |    |       |    |       |
|                                     | TFE06070   | Ø6 x 70   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE06080   | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE06100   | Ø6 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE06120   | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08055   | Ø8 x 55   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | 11,57 | -- | 11,57 |
|                                     | TFE08060   | Ø8 x 60   | ✓        | --                    | --                | --                  | --                |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08070   | Ø8 x 70   | ✓        | 18,09                 | 11,57             | 18,09               | 11,57             | 12,92                 | 8,27              | 12,92               | 8,27              |    |       |    |       |
|                                     | TFE08080   | Ø8 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08090   | Ø8 x 90   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08110   | Ø8 x 110  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE08140   | Ø8 x 140  | ✓        | 27,64                 | 13,47             | <u>27,40</u>        | 13,47             | 19,74                 | 9,62              | <u>27,40</u>        | 9,62              |    |       |    |       |
|                                     | TFE10060   | Ø10 x 60  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | --    | -- | --    |
|                                     | TFE10070   | Ø10 x 70  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | --    | -- | --    |
|                                     | TFE10080   | Ø10 x 80  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | --    | -- | --    |
|                                     | TFE10090   | Ø10 x 90  | ✓        | 27,64                 | 13,47             | <u>27,40</u>        | 13,47             | 19,74                 | 9,62              | <u>27,40</u>        | 9,62              |    |       |    |       |
|                                     | TFE10100   | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE10140   | Ø10 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE12080   | Ø12 x 80  | ✓        | --                    | 22,26             | --                  | 22,26             | --                    | 15,90             | --                  | 15,90             |    |       |    |       |
|                                     | TFE12090   | Ø12 x 90  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |    |       |    |       |
|                                     | TFE12110   | Ø12 x 110 | ✓        | 38,46                 | 22,26             | <u>37,24</u>        | 22,26             | 27,47                 | 15,90             | <u>37,24</u>        | 15,90             |    |       |    |       |
|                                     | TFE12130   | Ø12 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE12150   | Ø12 x 150 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | TFE14080   | Ø14 x 80  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | 22,26 | -- | 22,26 |
| TFE14100                            | Ø14 x 100  | ✓         | --       | --                    | --                | --                  |                   |                       |                   |                     |                   |    |       |    |       |
| TFE14120                            | Ø14 x 120  | ✓         | 44,47    | 22,26                 | <u>52,72</u>      | 22,26               | 31,77             | 15,90                 | <u>52,72</u>      | 15,90               |                   |    |       |    |       |
| TFE14130                            | Ø14 x 130  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
| TFE14140                            | Ø14 x 140  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
| TFE14160                            | Ø14 x 160  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
| TFE18100                            | Ø18 x 100  | ✓         | --       | 29,20                 | --                | 58,40               | --                | 20,86                 | --                | 41,72               |                   |    |       |    |       |
| TFE18130                            | Ø18 x 130  | ✓         | --       |                       | --                |                     | --                |                       | --                |                     |                   |    |       |    |       |
| TFE18160                            | Ø18 x 160  | ✓         | 59,74    | 29,20                 | <u>80,78</u>      | 58,40               | 42,67             | 20,86                 | <u>80,78</u>      | 41,72               |                   |    |       |    |       |
| TFE18180                            | Ø18 x 180  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
| TFE18200                            | Ø18 x 200  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
| TFN                                 | TFN14080   | Ø14 x 80  |          |                       |                   |                     |                   |                       |                   |                     | ✓                 | -- | 22,26 | -- | 22,26 |
| Betonschroef SR-anti Cor ETA 1 TX30 | THA05040   | Ø5 x 40   | --       | --                    | 6,88              | --                  | 6,88              | --                    | 4,91              | --                  | 4,91              |    |       |    |       |
|                                     | THA05060   | Ø5 x 60   | --       | 10,44                 | 6,88              | <u>8,19</u>         | 6,88              | 7,45                  | 4,91              | 7,45                | 4,91              |    |       |    |       |
|                                     | THA05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA06045   | Ø6 x 45   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   | -- | 5,00  | -- | 6,68  |
|                                     | THA06050   | Ø6 x 50   | ✓        | --                    | --                | --                  | --                |                       |                   |                     |                   |    |       |    |       |
|                                     | 4050001600 | Ø6 x 60   | ✓        | 14,21                 | 5,00              | <u>12,53</u>        | 6,68              | 10,15                 | 4,77              | 10,15               | 4,77              |    |       |    |       |
|                                     | 4050001608 | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | 4050001616 | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | 4050001624 | Ø6 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA08060   | Ø8 x 60   | ✓        | --                    | 11,57             | --                  | 11,57             | --                    | 8,27              | --                  | 8,27              |    |       |    |       |
|                                     | THA08080   | Ø8 x 80   | ✓        | 18,09                 | 11,57             | 18,09               | 11,57             | 12,92                 | 8,27              | 12,92               | 8,27              |    |       |    |       |
|                                     | THA08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA10100   | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |    |       |    |       |
|                                     | THA10120   | Ø10 x 120 | ✓        | 27,64                 | 13,47             | <u>27,40</u>        | 13,47             | 19,74                 | 9,62              | <u>27,40</u>        | 9,62              |    |       |    |       |

| General Parameter |          |                  |              | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|-------------------|----------|------------------|--------------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family            | Code     | Size             | ETA Assessed | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                   |          |                  |              | ( $h_{ef, sta}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, sta}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, sta}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, sta}$ )   | ( $h_{ef, red}$ ) |
| THT               | THT06040 | Ø6 x 40          | ✓            | --                    | 5,00              | --                  | 6,68              | --                    | 4,77              | --                  | 4,77              |
|                   | THT06050 | Ø6 x 50          | ✓            | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                   | THT06060 | Ø6 x 60          | ✓            | 14,21                 | 5,00              | <u>12,53</u>        | 6,68              | 10,15                 | 4,77              | 10,15               | 4,77              |
| THP               | THP05040 | Ø5 x 40          | --           | --                    | 6,88              | --                  | 6,88              | --                    | 4,91              | --                  | 4,91              |
|                   | THP05060 | Ø5 x 60          | --           | 10,44                 | 6,88              | <u>8,19</u>         | 6,88              | 7,45                  | 4,91              | 7,45                | 4,91              |
|                   | THP06040 | Ø6 x 40          | ✓            | --                    | 5,00              | --                  | 6,68              | 10,15                 | 4,77              | --                  | 4,77              |
|                   | THP06050 | Ø6 x 50          | ✓            | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                   | THP06060 | Ø6 x 60          | ✓            | 14,21                 | 5,00              | <u>12,53</u>        | 6,68              | 10,15                 | 4,77              | 10,15               | 4,77              |
|                   | THP06080 | Ø6 x 80          | ✓            |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | THP06100 | Ø6 x 100         | ✓            |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | THP08060 | Ø8 x 60          | ✓            | --                    | 11,57             | --                  | 11,57             | --                    | 8,27              | --                  | 8,27              |
|                   | THP08080 | Ø8 x 80          | ✓            | 18,09                 | 11,57             | 18,09               | 11,57             | 12,92                 | 8,27              | 12,92               | 8,27              |
| TFF               | TFF06035 | Ø6 x 35 (M8-M10) | ✓            | --                    | 5,00              | --                  | --                | --                    | 4,77              | --                  | --                |
|                   | TFF06055 | Ø6 x 55 (M8-M10) | ✓            | 14,21                 | --                | --                  | --                | 10,15                 | --                | --                  | --                |
| TFM               | TFM06035 | Ø6 x 35 (M8)     | ✓            | --                    | 5,00              | --                  | --                | --                    | 4,77              | --                  | --                |
|                   | TFM06055 | Ø6 x 55 (M10)    | ✓            | 14,21                 | --                | --                  | --                | 10,15                 | --                | --                  | --                |
| TFS               | TFS06100 | Ø6 x 100 (M8)    | ✓            | 14,21                 | 5,00              | <u>12,53</u>        | 6,68              | 10,15                 | 4,77              | 10,15               | 4,77              |
|                   | TFS06120 | Ø6 x 120 (M8)    | ✓            |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | TFS08110 | Ø8 x 110 (M10)   | ✓            | 18,09                 | 11,57             | 18,09               | 11,57             | 12,92                 | 8,27              | 12,92               | 8,27              |
|                   | TFS08130 | Ø8 x 130 (M10)   | ✓            |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | TFS10120 | Ø10 x 120 (M12)  | ✓            | 22,55                 | 13,47             | 22,55               | 13,47             | 16,11                 | 9,62              | 16,11               | 9,62              |
|                   | TFS10140 | Ø10 x 140 (M12)  | ✓            |                       |                   |                     |                   |                       |                   |                     |                   |

## 5.2 DESIGN RESISTANCE (STRUCTURAL APPLICATION) [kN]

| General Parameter              |            |           |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|--------------------------------|------------|-----------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family                         | Code       | Size      | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                                |            |           | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| Betonschroef SR-anti cor ETA 1 | 4050001508 | Ø5 x 40   | --       | --                    | 4,58              | --                  | 4,58              | --                    | 3,27              | --                  | 3,27              |
|                                | THE05050   | Ø5 x 50   | --       | 6,96                  | 4,58              | 5,46                | 4,58              | 4,97                  | 3,27              | 4,97                | 3,27              |
|                                | 4050001516 | Ø5 x 60   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001524 | Ø6 x 40   | ✓        | --                    | 2,78              | --                  | 4,45              | --                    | 2,65              | --                  | 3,18              |
|                                | THE06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | 4050001532 | Ø6 x 60   | ✓        | 9,47                  | 2,78              | 8,35                | 4,45              | 6,77                  | 2,65              | 6,77                | 3,18              |
|                                | THE06070   | Ø6 x 70   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001540 | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001548 | Ø6 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE06120   | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001556 | Ø8 x 55   | ✓        | --                    | 6,43              | --                  | 7,72              | --                    | 4,59              | --                  | 5,51              |
|                                | 4050001564 | Ø8 x 60   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | 4050001572 | Ø8 x 70   | ✓        | 12,06                 | 6,43              | 12,06               | 7,72              | 8,61                  | 4,59              | 8,61                | 5,51              |
|                                | THE08080   | Ø8 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001580 | Ø8 x 90   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08110   | Ø8 x 110  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08140   | Ø8 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10060   | Ø10 x 60  | ✓        | --                    | 8,98              | --                  | 8,98              | --                    | 6,42              | --                  | 6,42              |
|                                | 4050001588 | Ø10 x 70  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE10080   | Ø10 x 80  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE10090   | Ø10 x 90  | ✓        | 18,43                 | 8,98              | 18,27               | 8,98              | 13,16                 | 6,42              | 18,27               | 6,42              |
|                                | 4050001596 | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10140   | Ø10 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12080   | Ø12 x 80  | ✓        | --                    | 14,84             | --                  | 14,84             | --                    | 10,60             | --                  | 10,60             |
|                                | THE12090   | Ø12 x 90  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE12110   | Ø12 x 110 | ✓        | 25,64                 | 14,84             | 24,83               | 14,84             | 18,31                 | 10,60             | 24,83               | 10,60             |
|                                | THE12130   | Ø12 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12150   | Ø12 x 150 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14080   | Ø14 x 80  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14100   | Ø14 x 100 | ✓        | --                    | --                | --                  | --                |                       |                   |                     |                   |
|                                | THE14120   | Ø14 x 120 | ✓        | 29,65                 | 14,84             | 35,15               | 14,84             | 21,18                 | 10,60             | 35,15               | 10,60             |
|                                | THE14130   | Ø14 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14140   | Ø14 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14160   | Ø14 x 160 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18100   | Ø18 x 100 | ✓        | --                    | 19,47             | --                  | 38,94             | --                    | 13,91             | --                  | 27,81             |
|                                | THE18130   | Ø18 x 130 | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE18160   | Ø18 x 160 | ✓        | 39,83                 | 19,47             | 53,85               | 38,94             | 28,45                 | 13,91             | 53,85               | 27,81             |
|                                | THE18180   | Ø18 x 180 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18200   | Ø18 x 200 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |

| General Parameter                   |            |           |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|-------------------------------------|------------|-----------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family                              | Code       | Size      | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                                     |            |           | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| TFE                                 | TFE05040   | Ø5 x 40   | --       | --                    | 4,58              | --                  | 4,58              | --                    | 3,27              | --                  | 3,27              |
|                                     | TFE05050   | Ø5 x 50   | --       | 6,96                  | 4,58              | <u>5,46</u>         | 4,58              | 4,97                  | 3,27              | 4,97                | 3,27              |
|                                     | TFE05060   | Ø5 x 60   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06040   | Ø6 x 40   | ✓        | --                    | 2,78              | --                  | 4,45              | --                    | 2,65              | --                  | 3,18              |
|                                     | TFE06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE06060   | Ø6 x 60   | ✓        | 9,47                  | 2,78              | <u>8,35</u>         | 4,45              | 6,77                  | 2,65              | 6,77                | 3,18              |
|                                     | TFE06070   | Ø6 x 70   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06080   | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06100   | Ø6 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06120   | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08055   | Ø8 x 55   | ✓        | --                    | 6,43              | --                  | 7,72              | --                    | 4,59              | --                  | 5,51              |
|                                     | TFE08060   | Ø8 x 60   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE08070   | Ø8 x 70   | ✓        | 12,06                 | 6,43              | 12,06               | 7,72              | 8,61                  | 4,59              | 8,61                | 5,51              |
|                                     | TFE08080   | Ø8 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08090   | Ø8 x 90   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08110   | Ø8 x 110  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08140   | Ø8 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10060   | Ø10 x 60  | ✓        | --                    | 8,98              | --                  | 8,98              | --                    | 6,42              | --                  | 6,42              |
|                                     | TFE10070   | Ø10 x 70  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE10080   | Ø10 x 80  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE10090   | Ø10 x 90  | ✓        | 18,43                 | 8,98              | <u>18,27</u>        | 8,98              | 13,16                 | 6,42              | <u>18,27</u>        | 6,42              |
|                                     | TFE10100   | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10140   | Ø10 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE12080   | Ø12 x 80  | ✓        | --                    | 14,84             | --                  | 14,84             | --                    | 10,60             | --                  | 10,60             |
|                                     | TFE12090   | Ø12 x 90  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE12110   | Ø12 x 110 | ✓        | 25,64                 | 14,84             | <u>24,83</u>        | 14,84             | 18,31                 | 10,60             | <u>24,83</u>        | 10,60             |
|                                     | TFE12130   | Ø12 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE12150   | Ø12 x 150 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE14080   | Ø14 x 80  | ✓        | --                    | 14,84             | --                  | 14,84             | --                    | 10,60             | --                  | 10,60             |
|                                     | TFE14100   | Ø14 x 100 | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE14120   | Ø14 x 120 | ✓        | 29,65                 | 14,84             | <u>35,15</u>        | 14,84             | 21,18                 | 10,60             | <u>35,15</u>        | 10,60             |
|                                     | TFE14130   | Ø14 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE14140   | Ø14 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE14160   | Ø14 x 160 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE18100   | Ø18 x 100 | ✓        | --                    | 19,47             | --                  | 38,94             | --                    | 13,91             | --                  | 27,81             |
|                                     | TFE18130   | Ø18 x 130 | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE18160   | Ø18 x 160 | ✓        | 39,83                 | 19,47             | <u>53,85</u>        | 38,94             | 28,45                 | 13,91             | <u>53,85</u>        | 27,81             |
|                                     | TFE18180   | Ø18 x 180 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE18200   | Ø18 x 200 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
| TFN                                 | TFN14080   | Ø14 x 80  | ✓        | --                    | 14,84             | --                  | 14,84             | --                    | 10,60             | --                  | 10,60             |
| Betonschroef SR-anti Cor ETA 1 TX30 | THA05040   | Ø5 x 40   | --       | --                    | 4,58              | --                  | 4,58              | --                    | 3,27              | --                  | 3,27              |
|                                     | THA05060   | Ø5 x 60   | --       | 6,96                  | 4,58              | <u>5,46</u>         | 4,58              | 4,97                  | 3,27              | 4,97                | 3,27              |
|                                     | THA05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA06045   | Ø6 x 45   | ✓        | --                    | 2,78              | --                  | 4,45              | --                    | 2,65              | --                  | 3,18              |
|                                     | THA06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | 4050001600 | Ø6 x 60   | ✓        | 9,47                  | 2,78              | <u>8,35</u>         | 4,45              | 6,77                  | 2,65              | 6,77                | 3,18              |
|                                     | 4050001608 | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | 4050001616 | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | 4050001624 | Ø6 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA08060   | Ø8 x 60   | ✓        | --                    | 6,43              | --                  | 7,72              | --                    | 4,59              | --                  | 5,51              |
|                                     | THA08080   | Ø8 x 80   | ✓        | 12,06                 | 6,43              | 12,06               | 7,72              | 8,61                  | 4,59              | 8,61                | 5,51              |
|                                     | THA08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA10100   | Ø10 x 100 | ✓        | 18,43                 | 8,98              | <u>18,27</u>        | 8,98              | 13,16                 | 6,42              | <u>18,27</u>        | 6,42              |
|                                     | THA10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |



| General Parameter |          |                  |                 | Non-cracked concrete  |      |                     |      | Cracked concrete      |      |                     |      |
|-------------------|----------|------------------|-----------------|-----------------------|------|---------------------|------|-----------------------|------|---------------------|------|
| Family            | Code     | Size             | ETA<br>Assessed | Tension $N_{Rk, ucr}$ |      | Shear $V_{Rk, ucr}$ |      | Tension $N_{Rk, ucr}$ |      | Shear $V_{Rk, ucr}$ |      |
| THT               | THT06040 | Ø6 x 40          | ✓               | --                    | 2,78 | --                  | 4,45 | --                    | 2,65 | --                  | 3,18 |
|                   | THT06050 | Ø6 x 50          | ✓               | --                    | --   | --                  | --   | --                    | --   | --                  | --   |
|                   | THT06060 | Ø6 x 60          | ✓               | 9,47                  | 2,78 | 8,35                | 4,45 | 6,77                  | 2,65 | 6,77                | 3,18 |
| THP               | THP05040 | Ø5 x 40          | --              | --                    | 4,58 | --                  | 4,58 | --                    | 3,27 | --                  | 3,27 |
|                   | THP05060 | Ø5 x 60          | --              | 6,96                  | 4,58 | 5,46                | 4,58 | 4,97                  | 3,27 | 4,97                | 3,27 |
|                   | THP06040 | Ø6 x 40          | ✓               | --                    | 2,78 | --                  | 4,45 | --                    | 2,65 | --                  | 3,18 |
|                   | THP06050 | Ø6 x 50          | ✓               | --                    | --   | --                  | --   | --                    | --   | --                  | --   |
|                   | THP06060 | Ø6 x 60          | ✓               | 9,47                  | 2,78 | 8,35                | 4,45 | 6,77                  | 2,65 | 6,77                | 3,18 |
|                   | THP06080 | Ø6 x 80          | ✓               |                       |      |                     |      |                       |      |                     |      |
|                   | THP06100 | Ø6 x 100         | ✓               |                       |      |                     |      |                       |      |                     |      |
|                   | THP08060 | Ø8 x 60          | ✓               | --                    | 6,43 | --                  | 7,72 | --                    | 4,59 | --                  | 5,51 |
| TFF               | TFF06035 | Ø6 x 35 (M8-M10) | ✓               | --                    | 2,78 | --                  | --   | --                    | 2,65 | --                  | --   |
|                   | TFF06055 | Ø6 x 55 (M8-M10) | ✓               | 9,47                  | --   | --                  | --   | 6,77                  | --   | --                  | --   |
| TFM               | TFM06035 | Ø6 x 35 (M8)     | ✓               | --                    | 2,78 | --                  | --   | --                    | 2,65 | --                  | --   |
|                   | TFM06055 | Ø6 x 55 (M10)    | ✓               | 9,47                  | --   | --                  | --   | 6,77                  | --   | --                  | --   |
| TFS               | TFS06100 | Ø6 x 100 (M8)    | ✓               | 9,47                  | 2,78 | 8,35                | 4,45 | 6,77                  | 2,65 | 6,77                | 3,18 |
|                   | TFS06120 | Ø6 x 120 (M8)    | ✓               |                       |      |                     |      |                       |      |                     |      |
|                   | TFS08110 | Ø8 x 110 (M10)   | ✓               | 12,06                 | 6,43 | 12,06               | 7,72 | 8,61                  | 4,59 | 8,61                | 5,51 |
|                   | TFS08130 | Ø8 x 130 (M10)   | ✓               |                       |      |                     |      |                       |      |                     |      |
|                   | TFS10120 | Ø10 x 120 (M12)  | ✓               | 15,03                 | 8,98 | 15,03               | 8,98 | 10,74                 | 6,42 | 10,74               | 6,42 |
|                   | TFS10140 | Ø10 x 140 (M12)  | ✓               |                       |      |                     |      |                       |      |                     |      |

## 5.3 MAXIMUM LOADS RECOMMENDED (STRUCTURAL APPLICATION) [kN] (with $\gamma_F = 1.4$ )

| General Parameter              |            |           |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|--------------------------------|------------|-----------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family                         | Code       | Size      | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                                |            |           | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| Betonschroef SR-anti cor ETA 1 | 4050001508 | Ø5 x 40   | --       | --                    | 3,27              | --                  | 3,27              | --                    | 2,34              | --                  | 2,34              |
|                                | THE05050   | Ø5 x 50   | --       | 4,97                  | 3,27              | <u>3,90</u>         | 3,27              | 3,55                  | 2,34              | 3,55                | 2,34              |
|                                | 4050001516 | Ø5 x 60   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001524 | Ø6 x 40   | ✓        | --                    | 1,98              | --                  | 3,18              | --                    | 1,89              | --                  | 2,27              |
|                                | THE06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | 4050001532 | Ø6 x 60   | ✓        | 6,77                  | 1,98              | <u>5,97</u>         | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
|                                | THE06070   | Ø6 x 70   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001540 | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001548 | Ø6 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE06120   | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001556 | Ø8 x 55   | ✓        | --                    | 4,59              | --                  | 5,51              | --                    | 3,28              | --                  | 3,94              |
|                                | 4050001564 | Ø8 x 60   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | 4050001572 | Ø8 x 70   | ✓        | 8,61                  | 4,59              | 8,61                | 5,51              | 6,15                  | 3,28              | 6,15                | 3,94              |
|                                | THE08080   | Ø8 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | 4050001580 | Ø8 x 90   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08110   | Ø8 x 110  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE08140   | Ø8 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10060   | Ø10 x 60  | ✓        | --                    | 6,42              | --                  | 6,42              | --                    | 4,58              | --                  | 4,58              |
|                                | 4050001588 | Ø10 x 70  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE10080   | Ø10 x 80  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE10090   | Ø10 x 90  | ✓        | 13,16                 | 6,42              | <u>13,05</u>        | 6,42              | 9,40                  | 4,58              | <u>13,05</u>        | 4,58              |
|                                | 4050001596 | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE10140   | Ø10 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12080   | Ø12 x 80  | ✓        | --                    | 10,60             | --                  | 10,60             | --                    | 7,57              | --                  | 7,57              |
|                                | THE12090   | Ø12 x 90  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE12110   | Ø12 x 110 | ✓        | 18,31                 | 10,60             | <u>17,73</u>        | 10,60             | 13,08                 | 7,57              | <u>17,73</u>        | 7,57              |
|                                | THE12130   | Ø12 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE12150   | Ø12 x 150 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14080   | Ø14 x 80  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14100   | Ø14 x 100 | ✓        | --                    | 10,60             | --                  | 10,60             | --                    | 7,57              | --                  | 7,57              |
|                                | THE14120   | Ø14 x 120 | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                | THE14130   | Ø14 x 130 | ✓        | 21,18                 | 10,60             | <u>25,10</u>        | 10,60             | 15,13                 | 7,57              | <u>25,10</u>        | 7,57              |
|                                | THE14140   | Ø14 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE14160   | Ø14 x 160 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18100   | Ø18 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                | THE18130   | Ø18 x 130 | ✓        | --                    | --                | --                  | --                |                       |                   |                     |                   |
|                                | THE18160   | Ø18 x 160 | ✓        | 28,45                 | 13,91             | <u>38,47</u>        | 27,81             | 20,32                 | 9,93              | <u>38,47</u>        | 19,87             |
|                                | THE18180   | Ø18 x 180 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
| THE18200                       | Ø18 x 200  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |

| General Parameter                   |            |           |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|-------------------------------------|------------|-----------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family                              | Code       | Size      | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                                     |            |           | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| TFE                                 | TFE05040   | Ø5 x 40   | --       | --                    | 3,27              | --                  | 3,27              | --                    | 2,34              | --                  | 2,34              |
|                                     | TFE05050   | Ø5 x 50   | --       | 4,97                  | 3,27              | <u>3,90</u>         | 3,27              | 3,55                  | 2,34              | 3,55                | 2,34              |
|                                     | TFE05060   | Ø5 x 60   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06040   | Ø6 x 40   | ✓        | --                    | 1,98              | --                  | 3,18              | --                    | 1,89              | --                  | 2,27              |
|                                     | TFE06050   | Ø6 x 50   | ✓        | --                    |                   | --                  |                   | --                    |                   |                     |                   |
|                                     | TFE06060   | Ø6 x 60   | ✓        | 6,77                  | 1,98              | <u>5,97</u>         | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
|                                     | TFE06070   | Ø6 x 70   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06080   | Ø6 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06100   | Ø6 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE06120   | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08055   | Ø8 x 55   | ✓        | --                    | 4,59              | --                  | 5,51              | --                    | 3,28              | --                  | 3,94              |
|                                     | TFE08060   | Ø8 x 60   | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE08070   | Ø8 x 70   | ✓        | 8,61                  | 4,59              | 8,61                | 5,51              | 6,15                  | 3,28              | 6,15                | 3,94              |
|                                     | TFE08080   | Ø8 x 80   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08090   | Ø8 x 90   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08110   | Ø8 x 110  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE08140   | Ø8 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10060   | Ø10 x 60  | ✓        | --                    | 6,42              | --                  | 6,42              | --                    | 4,58              | --                  | 4,58              |
|                                     | TFE10070   | Ø10 x 70  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE10080   | Ø10 x 80  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE10090   | Ø10 x 90  | ✓        | 13,16                 | 6,42              | <u>13,05</u>        | 6,42              | 9,40                  | 4,58              | <u>13,05</u>        | 4,58              |
|                                     | TFE10100   | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10120   | Ø10 x 120 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE10140   | Ø10 x 140 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE12080   | Ø12 x 80  | ✓        | --                    | 10,60             | --                  | 10,60             | --                    | 7,57              | --                  | 7,57              |
|                                     | TFE12090   | Ø12 x 90  | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE12110   | Ø12 x 110 | ✓        | 18,31                 | 10,60             | <u>17,73</u>        | 10,60             | 13,08                 | 7,57              | <u>17,73</u>        | 7,57              |
|                                     | TFE12130   | Ø12 x 130 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE12150   | Ø12 x 150 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | TFE14080   | Ø14 x 80  | ✓        | --                    | 10,60             | --                  | 10,60             | --                    | 7,57              | --                  | 7,57              |
|                                     | TFE14100   | Ø14 x 100 | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                                     | TFE14120   | Ø14 x 120 | ✓        | 21,18                 | 10,60             | <u>25,10</u>        | 10,60             | 15,13                 | 7,57              | <u>25,10</u>        | 7,57              |
| TFE14130                            | Ø14 x 130  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |
| TFE14140                            | Ø14 x 140  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |
| TFE14160                            | Ø14 x 160  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |
| TFE18100                            | Ø18 x 100  | ✓         | --       | 13,91                 | --                | 27,81               | --                | 9,93                  | --                | 19,87               |                   |
| TFE18130                            | Ø18 x 130  | ✓         | --       |                       | --                |                     | --                |                       | --                |                     |                   |
| TFE18160                            | Ø18 x 160  | ✓         | 28,45    | 13,91                 | <u>38,47</u>      | 27,81               | 20,32             | 9,93                  | <u>38,47</u>      | 19,87               |                   |
| TFE18180                            | Ø18 x 180  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |
| TFE18200                            | Ø18 x 200  | ✓         |          |                       |                   |                     |                   |                       |                   |                     |                   |
| TFN                                 | TFN14080   | Ø14 x 80  | ✓        | --                    | 10,60             | --                  | 10,60             | --                    | 7,57              | --                  | 7,57              |
| Betonschroef SR-anti Cor ETA 1 TX30 | THA05040   | Ø5 x 40   | --       | --                    | 3,27              | --                  | 3,27              | --                    | 2,34              | --                  | 2,34              |
|                                     | THA05060   | Ø5 x 60   | --       | 4,97                  | 3,27              | <u>3,90</u>         | 3,27              | 3,55                  | 2,34              | 3,55                | 2,34              |
|                                     | THA05080   | Ø5 x 80   | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA05100   | Ø5 x 100  | --       |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA06045   | Ø6 x 45   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA06050   | Ø6 x 50   | ✓        | --                    | 1,98              | --                  | 3,18              | --                    | 1,89              | --                  | 2,27              |
|                                     | 4050001600 | Ø6 x 60   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | 4050001608 | Ø6 x 80   | ✓        | 6,77                  | 1,98              | <u>5,97</u>         | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
|                                     | 4050001616 | Ø6 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | 4050001624 | Ø6 x 140  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA08060   | Ø8 x 60   | ✓        | --                    | 4,59              | --                  | 5,51              | --                    | 3,28              | --                  | 3,94              |
|                                     | THA08080   | Ø8 x 80   | ✓        | 8,61                  | 4,59              | 8,61                | 5,51              | 6,15                  | 3,28              | 6,15                | 3,94              |
|                                     | THA08100   | Ø8 x 100  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA08120   | Ø8 x 120  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA10100   | Ø10 x 100 | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                                     | THA10120   | Ø10 x 120 | ✓        | 13,16                 | 6,42              | <u>13,05</u>        | 6,42              | 9,40                  | 4,58              | <u>13,05</u>        | 4,58              |

| General Parameter |          |                  |          | Non-cracked concrete  |                   |                     |                   | Cracked concrete      |                   |                     |                   |
|-------------------|----------|------------------|----------|-----------------------|-------------------|---------------------|-------------------|-----------------------|-------------------|---------------------|-------------------|
| Family            | Code     | Size             | ETA      | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   | Tension $N_{Rk, ucr}$ |                   | Shear $V_{Rk, ucr}$ |                   |
|                   |          |                  | Assessed | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )     | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ )   | ( $h_{ef, red}$ ) |
| THT               | THT06040 | Ø6 x 40          | ✓        | --                    | 1,98              | --                  | 3,18              | --                    | 1,89              | --                  | 2,27              |
|                   | THT06050 | Ø6 x 50          | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                   | THT06060 | Ø6 x 60          | ✓        | 6,77                  | 1,98              | 5,97                | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
| THP               | THP05040 | Ø5 x 40          | --       | --                    | 3,27              | --                  | 3,27              | --                    | 2,34              | --                  | 2,34              |
|                   | THP05060 | Ø5 x 60          | --       | 4,97                  | 3,27              | 3,90                | 3,27              | 3,55                  | 2,34              | 3,55                | 2,34              |
|                   | THP06040 | Ø6 x 40          | ✓        | --                    | 1,98              | --                  | 3,18              | --                    | 1,89              | --                  | 2,27              |
|                   | THP06050 | Ø6 x 50          | ✓        | --                    |                   | --                  |                   | --                    |                   | --                  |                   |
|                   | THP06060 | Ø6 x 60          | ✓        | 6,77                  | 1,98              | 5,97                | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
|                   | THP06080 | Ø6 x 80          | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | THP06100 | Ø6 x 100         | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | THP08060 | Ø8 x 60          | ✓        | --                    | 4,59              | --                  | 5,51              | --                    | 3,28              | --                  | 3,94              |
| TFF               | THP08080 | Ø8 x 80          | ✓        | 8,61                  | 4,59              | 8,61                | 5,51              | 6,15                  | 3,28              | 6,15                | 3,94              |
|                   | TFF06035 | Ø6 x 35 (M8-M10) | ✓        | --                    | 1,98              | --                  | --                | --                    | 1,89              | --                  | --                |
| TFM               | TFF06055 | Ø6 x 55 (M8-M10) | ✓        | 6,77                  | --                | --                  | --                | 4,83                  | --                | --                  | --                |
|                   | TFM06035 | Ø6 x 35 (M8)     | ✓        | --                    | 1,98              | --                  | --                | --                    | 1,89              | --                  | --                |
| TFS               | TFM06055 | Ø6 x 55 (M10)    | ✓        | 6,77                  | --                | --                  | --                | 4,83                  | --                | --                  | --                |
|                   | TFS06100 | Ø6 x 100 (M8)    | ✓        | 6,77                  | 1,98              | 5,97                | 3,18              | 4,83                  | 1,89              | 4,83                | 2,27              |
|                   | TFS06120 | Ø6 x 120 (M8)    | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | TFS08110 | Ø8 x 110 (M10)   | ✓        | 8,61                  | 4,59              | 8,61                | 5,51              | 6,15                  | 3,28              | 6,15                | 3,94              |
|                   | TFS08130 | Ø8 x 130 (M10)   | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |
|                   | TFS10120 | Ø10 x 120 (M12)  | ✓        | 10,74                 | 6,42              | 10,74               | 6,42              | 7,67                  | 4,58              | 7,67                | 4,58              |
|                   | TFS10140 | Ø10 x 140 (M12)  | ✓        |                       |                   |                     |                   |                       |                   |                     |                   |

| PULL OUT INCREASING FACTOR FOR TENSION LOADS IN HIGH RESISTANCE CONCRETE $\psi_c$ |                   |                   |                   |                   |                   |                   |                 |                 |                 |                   |                   |                   |                   |                   |                   |
|-----------------------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|-----------------|-----------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Diameter                                                                          | Ø5                |                   | Ø6                |                   | Ø8                |                   | Ø10             |                 |                 | Ø12               |                   | Ø14               |                   | Ø18               |                   |
| Installation depth                                                                | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) | ( $h_{ef, 1}$ ) | ( $h_{ef, 2}$ ) | ( $h_{ef, 3}$ ) | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) | ( $h_{ef, red}$ ) | ( $h_{ef, std}$ ) |
| C30/37                                                                            | 1,00              | 1,00              | 1,16              | 1,22              | 1,21              | 1,22              | 1,22            | 1,17            | 1,22            | 1,16              | 1,22              | 1,21              | 1,20              | 1,22              | 1,17              |
| C40/50                                                                            | 1,00              | 1,00              | 1,28              | 1,41              | 1,39              | 1,41              | 1,41            | 1,30            | 1,41            | 1,29              | 1,41              | 1,39              | 1,37              | 1,40              | 1,32              |
| C50/60                                                                            | 1,00              | 1,00              | 1,39              | 1,58              | 1,54              | 1,58              | 1,58            | 1,42            | 1,58            | 1,40              | 1,58              | 1,55              | 1,51              | 1,57              | 1,42              |

## 6. OFFICIAL DOCUMENTATION

The following documents are available on our official website [www.4tecex.com](http://www.4tecex.com):

- European assessment ETA 20/0046 for Installation in cracked and non-cracked concrete according to guideline EAD 330232-00-0601, option 1, from Ø6 to Ø18.
- AVCP certificate 1219-CPR-0254 for use in concrete.
- Declaration of performance DoP THE.