

## TECHNICAL DATASHEET

### 4tec<sup>x</sup> Doorsteekanker Verzinkt ETA 1

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

4050001100, 4050001101, 4050001108, 4050001116, 4050001124, 4050001132, 4050001140, 4050001148, 4050001156, 4050001164



MTP



MTP-G



MTP- X (Doorsteekanker Verzinkt ETA 1)

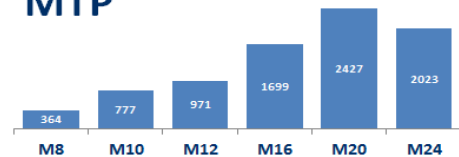


#### CHARACTERISTICS

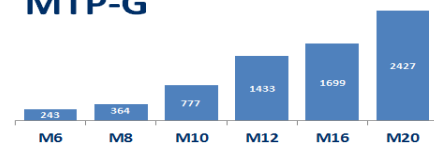
- Functioning by roughness; installation by controlled torque.
- Use for medium loads.
- Easy installation.
- Use in cracked and uncracked concrete.
- Use for seismic loads.
- Use for static or quasi-static loads.
- Approved for fire resistance R30 to R120.
- Versions in galvanized carbon steel and sherardized.

#### RECOMMENDED TENSION RESISTANCES IN UNCRACKED CONCRETE [kg]

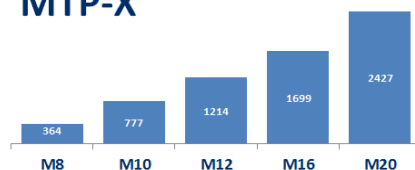
##### MTP



##### MTP-G



##### MTP-X



#### BASE MATERIALS



#### DRILL CONDITIONS



#### APPLICATION EXAMPLES

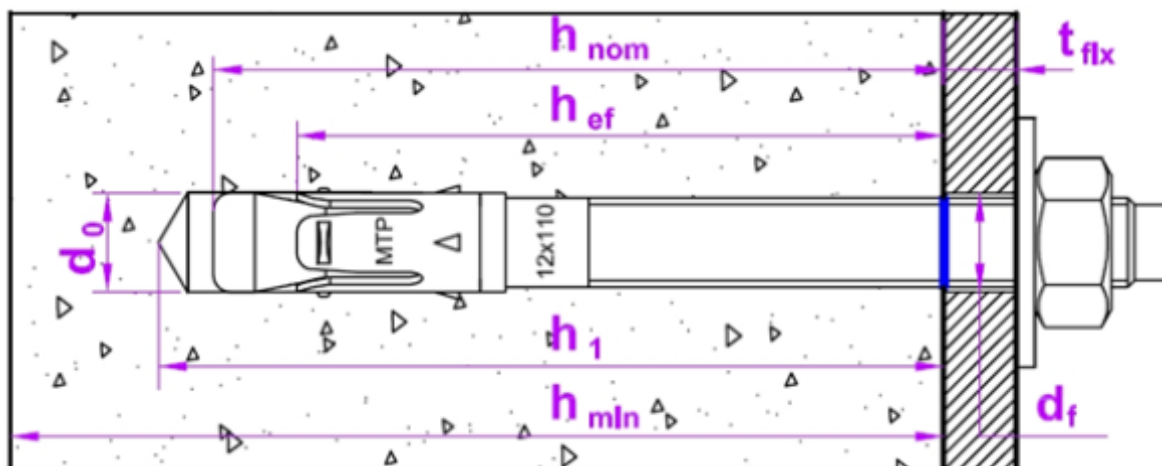


## 1. RANGE

| ITEM | CODE                                      | SIZES    | PICTURES                                                                          | COMPONENT                          | MATERIAL                                                                                                                                                                                            |
|------|-------------------------------------------|----------|-----------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | MTP                                       | M8 a M24 |  | Wedgebolt<br>Clip<br>Nut<br>Washer | Carbon steel, galvanized $\geq 5 \mu\text{m}$<br>A4 stainless steel<br>DIN 934, galvanized $\geq 5 \mu\text{m}$<br>DIN 125 o DIN 9021, cincada $\geq 5 \mu\text{m}$                                 |
| 2    | MTP-G                                     | M6 a M20 |  | Wedgebolt<br>Clip<br>Nut<br>Washer | Carbon steel, sherardized $\geq 40 \mu\text{m}$<br>A4 stainless steel<br>DIN 934, sherardized $\geq 40 \mu\text{m}$<br>DIN 125 o DIN 9021, sherardized $\geq 40 \mu\text{m}$                        |
| 3    | MTP-X<br>Doorsteekanker<br>Verzinkt ETA 1 | M6 a M20 |  | Wedgebolt<br>Clip<br>Nut<br>Washer | Carbon steel, galvanized $\geq 5 \mu\text{m}$<br>Carbon steel, sherardized $\geq 15 \mu\text{m}$<br>DIN 934, galvanized $\geq 5 \mu\text{m}$<br>DIN 125 o DIN 9021, galvanized $\geq 5 \mu\text{m}$ |

## 2. ACCESORIES

| ITEM | CODE  | PICTURE                                                                            | DESCRIPTION                                              |
|------|-------|------------------------------------------------------------------------------------|----------------------------------------------------------|
| 1    | DOMTA |  | Tool for anchor fixing using percussion drilling machine |



### 3. INSTALLATION DATA

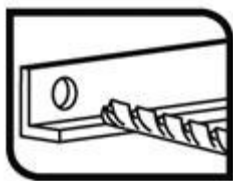
| INSTALLATION PARAMETERS |         |         | Assessed | Nominal drill bit | Installation torque | Minimum concrete thickness | Drill hole depth | Embedment depth  | Effective depth | Maximum fixture thickness | Critical spacing | Critical edge distances | Minimum spacing  | Minimum edge distance |
|-------------------------|---------|---------|----------|-------------------|---------------------|----------------------------|------------------|------------------|-----------------|---------------------------|------------------|-------------------------|------------------|-----------------------|
| Family                  | Code    | Size    | ETA      | d <sub>0</sub>    | T <sub>inst</sub>   | h <sub>min</sub>           | h <sub>1</sub>   | h <sub>nom</sub> | h <sub>ef</sub> | t <sub>fix</sub>          | S <sub>cr</sub>  | C <sub>cr</sub>         | S <sub>min</sub> | C <sub>min</sub>      |
|                         |         |         |          | [mm]              | [Nm]                | [mm]                       | [mm]             | [mm]             | [mm]            | [mm]                      | [mm]             | [mm]                    | [mm]             | [mm]                  |
| MTP                     | AP08050 | M8x50   |          | 8                 | 20                  | 100                        | 40               | 37               | 30              | 2                         | 144              | 72                      | 50               | 50                    |
|                         | AP08075 | M8x75   | ✓        |                   |                     |                            | 60               | 55               | 48              | 9                         |                  |                         |                  |                       |
|                         | AP08095 | M8x95   | ✓        |                   |                     |                            |                  |                  |                 | 29                        |                  |                         |                  |                       |
|                         | AP08115 | M8x115  | ✓        |                   |                     |                            |                  |                  |                 | 49                        |                  |                         |                  |                       |
|                         | AP10090 | M10x90  | ✓        | 10                | 40                  | 120                        | 75               | 68               | 60              | 10                        | 180              | 90                      | 60               | 60                    |
|                         | AP10105 | M10x105 | ✓        |                   |                     |                            |                  |                  |                 | 25                        |                  |                         |                  |                       |
|                         | AP10115 | M10x115 | ✓        |                   |                     |                            |                  |                  |                 | 35                        |                  |                         |                  |                       |
|                         | AP10135 | M10x135 | ✓        |                   |                     |                            |                  |                  |                 | 55                        |                  |                         |                  |                       |
|                         | AP10165 | M10x165 | ✓        |                   |                     |                            |                  |                  |                 | 85                        |                  |                         |                  |                       |
|                         | AP10185 | M10x185 | ✓        |                   |                     |                            |                  |                  |                 | 105                       |                  |                         |                  |                       |
|                         | AP12080 | M12x80  |          | 12                | 60                  | 100                        | 65               | 60               | 50              | 4                         | 210              | 105                     | 70               | 70                    |
|                         | AP12100 | M12x100 | ✓        |                   |                     | 140                        | 85               | 80               | 70              | 4                         |                  |                         |                  |                       |
|                         | AP12110 | M12x110 | ✓        |                   |                     |                            |                  |                  |                 | 14                        |                  |                         |                  |                       |
|                         | AP12120 | M12x120 | ✓        |                   |                     |                            |                  |                  |                 | 24                        |                  |                         |                  |                       |
|                         | AP12130 | M12x130 | ✓        |                   |                     |                            |                  |                  |                 | 34                        |                  |                         |                  |                       |
|                         | AP12150 | M12x150 | ✓        |                   |                     |                            |                  |                  |                 | 54                        |                  |                         |                  |                       |
|                         | AP12180 | M12x180 | ✓        |                   |                     |                            |                  |                  |                 | 84                        |                  |                         |                  |                       |
|                         | AP12200 | M12x200 | ✓        |                   |                     |                            |                  |                  |                 | 104                       |                  |                         |                  |                       |
|                         | AP16145 | M16x145 | ✓        | 16                | 100                 | 170                        | 105              | 97               | 85              | 28                        | 255              | 128                     | 85               | 85                    |

| INSTALLATION PARAMETERS |          |         | Assessed | Nominal drill bit | Installation torque | Minimum concrete thickness | Drill hole depth | Embedment depth  | Effective depth | Maximum fixture thickness | Critical spacing | Critical edge distances | Minimum spacing  | Minimum edge distance |
|-------------------------|----------|---------|----------|-------------------|---------------------|----------------------------|------------------|------------------|-----------------|---------------------------|------------------|-------------------------|------------------|-----------------------|
| Family                  | Code     | Size    | ETA      | d <sub>0</sub>    | T <sub>inst</sub>   | h <sub>min</sub>           | h <sub>1</sub>   | h <sub>nom</sub> | h <sub>ef</sub> | t <sub>fix</sub>          | S <sub>cr</sub>  | C <sub>cr</sub>         | S <sub>min</sub> | C <sub>min</sub>      |
|                         |          |         |          | [mm]              | [Nm]                | [mm]                       | [mm]             | [mm]             | [mm]            | [mm]                      | [mm]             | [mm]                    | [mm]             | [mm]                  |
| MTP                     | AP16175  | M16x175 | ✓        | 16                | 100                 | 170                        | 105              | 97               | 85              | 58                        | 255              | 128                     | 85               | 85                    |
|                         | AP16220  | M16x220 | ✓        |                   |                     |                            |                  |                  |                 | 103                       |                  |                         |                  |                       |
|                         | AP16250  | M16x250 | ✓        |                   |                     |                            |                  |                  |                 | 133                       |                  |                         |                  |                       |
|                         | AP20170  | M20x170 | ✓        | 20                | 200                 | 200                        | 125              | 114              | 100             | 32                        | 300              | 150                     | 100              | 100                   |
|                         | AP20200  | M20x200 | ✓        |                   |                     |                            |                  |                  |                 | 62                        |                  |                         |                  |                       |
|                         | AP24205  | M24x205 | ✓        | 24                | 250                 | 250                        | 155              | 143              | 125             | 35                        | 375              | 188                     | 125              | 125                   |
|                         | AP24235  | M24x235 | ✓        |                   |                     |                            |                  |                  |                 | 65                        |                  |                         |                  |                       |
| MTP-G                   | APG06060 | M6x60   |          | 6                 | 7                   | 100                        | 50               | 46               | 40              | 10                        | 120              | 60                      | 40               | 40                    |
|                         | APG06070 | M6x70   |          |                   |                     |                            |                  |                  |                 | 20                        |                  |                         |                  |                       |
|                         | APG06100 | M6x100  |          |                   |                     |                            |                  |                  |                 | 50                        |                  |                         |                  |                       |
|                         | APG08050 | M8x50   |          | 8                 | 15                  | 100                        | 40               | 37               | 30              | 2                         | 144              | 72                      | 50               | 50                    |
|                         | APG08060 | M8x60   |          |                   |                     |                            | 60               | 55               | 48              | 12                        |                  |                         |                  |                       |
|                         | APG08075 | M8x75   | ✓        |                   |                     |                            |                  |                  |                 | 9                         |                  |                         |                  |                       |
|                         | APG08095 | M8x95   | ✓        |                   |                     |                            |                  |                  |                 | 29                        |                  |                         |                  |                       |
|                         | APG08115 | M8x115  | ✓        |                   |                     |                            |                  |                  |                 | 49                        |                  |                         |                  |                       |
|                         | APG10070 | M10x70  |          | 10                | 40                  | 100                        | 60               | 53               | 45              | 5                         | 180              | 90                      | 60               | 60                    |
|                         | APG10090 | M10x90  | ✓        |                   |                     | 120                        | 75               | 68               | 60              | 10                        |                  |                         |                  |                       |
|                         | APG10105 | M10x105 | ✓        |                   |                     |                            |                  |                  |                 | 25                        |                  |                         |                  |                       |
|                         | APG10115 | M10x115 | ✓        |                   |                     |                            |                  |                  |                 | 35                        |                  |                         |                  |                       |
|                         |          |         |          |                   |                     |                            |                  |                  |                 |                           |                  |                         |                  |                       |

| INSTALLATION PARAMETERS                        |            |         | Assessed | Nominal drill bit | Installation torque | Minimum concrete thickness | Drill hole depth | Embedment depth  | Effective depth | Maximum fixture thickness | Critical spacing | Critical edge distances | Minimum spacing  | Minimum edge distance |      |  |  |
|------------------------------------------------|------------|---------|----------|-------------------|---------------------|----------------------------|------------------|------------------|-----------------|---------------------------|------------------|-------------------------|------------------|-----------------------|------|--|--|
| Family                                         | Code       | Size    | ETA      | d <sub>0</sub>    | T <sub>inst</sub>   | h <sub>min</sub>           | h <sub>1</sub>   | h <sub>nom</sub> | h <sub>ef</sub> | t <sub>fix</sub>          | S <sub>cr</sub>  | C <sub>cr</sub>         | S <sub>min</sub> | C <sub>min</sub>      |      |  |  |
|                                                |            |         |          | [mm]              | [Nm]                | [mm]                       | [mm]             | [mm]             | [mm]            | [mm]                      | [mm]             | [mm]                    | [mm]             | [mm]                  | [mm] |  |  |
| MTP-G                                          | APG10135   | M10x135 | ✓        | 10                | 40                  | 120                        | 75               | 68               | 60              | 55                        | 180              | 90                      | 60               | 60                    |      |  |  |
|                                                | APG10165   | M10x165 | ✓        |                   |                     |                            |                  |                  |                 | 85                        |                  |                         |                  |                       |      |  |  |
|                                                | APG10185   | M10x185 | ✓        |                   |                     |                            |                  |                  |                 | 105                       |                  |                         |                  |                       |      |  |  |
|                                                | APG12080   | M12x80  |          | 12                | 60                  | 100                        | 65               | 60               | 50              | 4                         | 210              | 105                     | 70               | 70                    |      |  |  |
|                                                | APG12110   | M12x110 | ✓        |                   |                     | 140                        |                  |                  |                 | 14                        |                  |                         |                  |                       |      |  |  |
|                                                | APG12130   | M12x130 | ✓        |                   |                     |                            |                  |                  |                 | 34                        |                  |                         |                  |                       |      |  |  |
|                                                | APG12150   | M12x150 | ✓        |                   |                     |                            |                  |                  |                 | 54                        |                  |                         |                  |                       |      |  |  |
|                                                | APG12180   | M12x180 | ✓        |                   |                     |                            |                  |                  |                 | 84                        |                  |                         |                  |                       |      |  |  |
|                                                | APG12200   | M12x200 | ✓        |                   |                     |                            |                  |                  |                 | 104                       |                  |                         |                  |                       |      |  |  |
|                                                | APG16125   | M16x125 | ✓        | 16                | 100                 | 170                        | 105              | 97               | 85              | 8                         | 255              | 128                     | 128              | 128                   |      |  |  |
|                                                | APG16145   | M16x145 | ✓        |                   |                     |                            |                  |                  |                 | 28                        |                  |                         |                  |                       |      |  |  |
|                                                | APG16175   | M16x175 | ✓        |                   |                     |                            |                  |                  |                 | 58                        |                  |                         |                  |                       |      |  |  |
|                                                | APG16220   | M16x220 | ✓        |                   |                     |                            |                  |                  |                 | 103                       |                  |                         |                  |                       |      |  |  |
|                                                | APG20170   | M20x170 | ✓        | 20                | 200                 | 200                        | 125              | 114              | 100             | 32                        | 300              | 150                     | 150              | 150                   |      |  |  |
|                                                | APG20200   | M20x200 | ✓        |                   |                     |                            |                  |                  |                 | 62                        |                  |                         |                  |                       |      |  |  |
| MTP-X<br>Door-Steek-anker<br>Verzinkt<br>ETA 1 | APX08050   | M8x50   |          | 8                 | 15                  | 100                        | 40               | 37               | 30              | 2                         | 144              | 72                      | 50               | 50                    |      |  |  |
|                                                | 4050001100 | M8x75   | ✓        |                   |                     |                            | 60               |                  |                 | 9                         |                  |                         |                  |                       |      |  |  |
|                                                | 4050001101 | M8x80   | ✓        |                   |                     |                            |                  |                  |                 | 14                        |                  |                         |                  |                       |      |  |  |
|                                                | APX08095   | M8x95   | ✓        |                   |                     |                            |                  |                  |                 | 29                        |                  |                         |                  |                       |      |  |  |
|                                                | 4050001108 | M8x115  | ✓        |                   |                     |                            |                  |                  |                 | 49                        |                  |                         |                  |                       |      |  |  |

| INSTALLATION PARAMETERS                        |            |         | Assessed | Nominal drill bit | Installation torque | Minimum concrete thickness | Drill hole depth | Embedment depth  | Effective depth | Maximum fixture thickness | Critical spacing | Critical edge distances | Minimum spacing  | Minimum edge distance |
|------------------------------------------------|------------|---------|----------|-------------------|---------------------|----------------------------|------------------|------------------|-----------------|---------------------------|------------------|-------------------------|------------------|-----------------------|
| Family                                         | Code       | Size    | ETA      | d <sub>0</sub>    | T <sub>inst</sub>   | h <sub>min</sub>           | h <sub>1</sub>   | h <sub>nom</sub> | h <sub>ef</sub> | t <sub>fix</sub>          | S <sub>cr</sub>  | C <sub>cr</sub>         | S <sub>min</sub> | C <sub>min</sub>      |
|                                                |            |         |          | [mm]              | [Nm]                | [mm]                       | [mm]             | [mm]             | [mm]            | [mm]                      | [mm]             | [mm]                    | [mm]             | [mm]                  |
| MTP-X<br>Door-Steek-anker<br>Verzinkt<br>ETA 1 | 4050001116 | M10x90  |          | 10                | 40                  | 100                        | 60               | 53               | 45              | 5                         | 180              | 90                      | 60               | 60                    |
|                                                | 4050001124 | M10x105 | ✓        |                   |                     | 120                        | 75               | 68               | 60              | 25                        |                  |                         |                  |                       |
|                                                | 4050001132 | M10x115 | ✓        |                   |                     |                            |                  |                  |                 | 35                        |                  |                         |                  |                       |
|                                                | APX10135   | M10x135 | ✓        |                   |                     |                            |                  |                  |                 | 55                        |                  |                         |                  |                       |
|                                                | APX10165   | M10x165 | ✓        |                   |                     |                            |                  |                  |                 | 85                        |                  |                         |                  |                       |
|                                                | APX10185   | M10x185 | ✓        |                   |                     |                            |                  |                  |                 | 105                       |                  |                         |                  |                       |
|                                                | APX12080   | M12x80  |          | 12                | 60                  | 100                        | 65               | 60               | 50              | 4                         | 210              | 105                     | 70               | 70                    |
|                                                | APX12100   | M12x100 | ✓        |                   |                     | 140                        | 85               | 80               | 70              | 4                         |                  |                         |                  |                       |
|                                                | 4050001140 | M12x110 | ✓        |                   |                     |                            |                  |                  |                 | 14                        |                  |                         |                  |                       |
|                                                | 4050001148 | M12x120 | ✓        |                   |                     |                            |                  |                  |                 | 24                        |                  |                         |                  |                       |
|                                                | 4050001156 | M12x130 | ✓        |                   |                     |                            |                  |                  |                 | 34                        |                  |                         |                  |                       |
|                                                | APX12150   | M12x150 | ✓        |                   |                     |                            |                  |                  |                 | 54                        |                  |                         |                  |                       |
|                                                | APX12180   | M12x180 | ✓        |                   |                     |                            |                  |                  |                 | 84                        |                  |                         |                  |                       |
|                                                | APX12200   | M12x200 | ✓        |                   |                     |                            |                  |                  |                 | 104                       |                  |                         |                  |                       |
|                                                | APX12220   | M12x220 | ✓        |                   |                     |                            |                  |                  |                 | 124                       |                  |                         |                  |                       |
|                                                | APX12255   | M12x250 | ✓        |                   |                     |                            |                  |                  |                 | 159                       |                  |                         |                  |                       |
|                                                | APX16145   | M16x145 | ✓        | 16                | 100                 | 170                        | 105              | 97               | 85              | 28                        | 255              | 128                     | 128              | 128                   |
|                                                | 4050001164 | M16x175 | ✓        |                   |                     |                            |                  |                  |                 | 58                        |                  |                         |                  |                       |
|                                                | APX16220   | M16x220 | ✓        |                   |                     |                            |                  |                  |                 | 103                       |                  |                         |                  |                       |
|                                                | APX16250   | M16x250 | ✓        |                   |                     |                            |                  |                  |                 | 133                       |                  |                         |                  |                       |
|                                                | APX20170   | M20x170 | ✓        | 20                | 200                 | 200                        | 125              | 114              | 100             | 32                        | 300              | 150                     | 150              | 150                   |
|                                                | APX20200   | M20x200 | ✓        |                   |                     |                            |                  |                  |                 | 62                        |                  |                         |                  |                       |

## 4. PRODUCT INSTALLATION

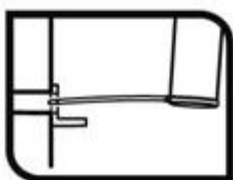


### 1. DRILLING

Check the concrete base is compact and porosity is insignificant.  
Suitable for wet, dry or flooded drill holes.

Use drill in hammer mode.

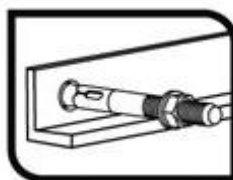
Drill to the specified diameter and depth values.



### 2. BLOW AND CLEAN

Clear the drill holes completely of dust and fragments.

Use air pump and brush.

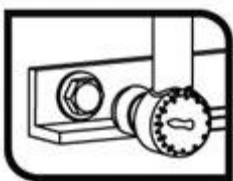


### 3. INSTALL

Insert the anchor in the hole until the red ring mark is flat with concrete surface.

Use hammer in case of need; DOMTA tool could be used alternatively.

The installation could be done through the fixture baseplate.



### 4. APPLY TORQUE

Apply nominal installation torque using a torque wrench.

Once installed it can be verified the total length of the anchor through the letter on bolt tip.

## 5. RESISTANCES

| Family | Code    | Size    | ETA assessed | Letter on head tip | Tension resistance in C20/25 concrete |                      | Coefficient for higher concrete resistances |        |        | Tension partial safety coefficient | Shear resistance     |                      | Shear partial safety coefficient |                    |      |      |
|--------|---------|---------|--------------|--------------------|---------------------------------------|----------------------|---------------------------------------------|--------|--------|------------------------------------|----------------------|----------------------|----------------------------------|--------------------|------|------|
|        |         |         |              |                    | Uncracked                             | Cracked              | C30/37                                      | C40/45 | C50/60 |                                    | Uncracked            | Cracked              | Uncracked                        | Cracked            |      |      |
|        |         |         |              |                    | N <sub>Rk</sub> [kN]                  | N <sub>Rk</sub> [kN] | Ψ [-]                                       | Ψ [-]  | Ψ [-]  | γ <sub>M</sub> [-]                 | V <sub>Rk</sub> [kN] | V <sub>Rk</sub> [kN] | γ <sub>M</sub> [-]               | γ <sub>M</sub> [-] |      |      |
| MTP    | AP08050 | M8x50   |              | A                  | 4,5                                   | 3,2                  | 1,22                                        | 1,41   | 1,55   | 1,8                                | 8,3                  | 5,9                  | 1,5                              | 1,5                |      |      |
|        | AP08075 | M8x75   | ✓            | C                  | 9,0                                   | 5,0                  |                                             |        |        |                                    | 11,0                 | 12,0                 | 1,25                             |                    |      |      |
|        | AP08095 | M8x95   | ✓            | E                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP08115 | M8x115  | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP10090 | M10x90  | ✓            | E                  | 16,0                                  | 9,0                  | 1,16                                        | 1,31   | 1,41   | 1,5                                | 17,4                 | 17,4                 | 1,25                             | 1,25               |      |      |
|        | AP10105 | M10x105 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP10115 | M10x115 | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP10135 | M10x135 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP10165 | M10x165 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP10185 | M10x185 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12080 | M12x80  |              | D                  | 12,0                                  | 8,0                  | 1,22                                        | 1,41   | 1,55   | 1,5                                | 25,3                 | 25,4                 | 1,25                             | 1,5                |      |      |
|        | AP12100 | M12x100 | ✓            | E                  | 20,0                                  | 12,0                 |                                             |        |        |                                    |                      | 25,3                 |                                  | 25,3               | 1,25 | 1,25 |
|        | AP12110 | M12x110 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12120 | M12x120 | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12130 | M12x130 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12150 | M12x150 | ✓            | I                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12180 | M12x180 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP12200 | M12x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP16145 | M16x145 | ✓            | I                  | 35,0                                  | 25,0                 | 1,22                                        | 1,41   | 1,55   | 1,5                                | 47,1                 | 56,4                 | 1,25                             | 1,5                |      |      |
|        | AP16175 | M16x175 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP16220 | M16x220 | ✓            | O                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP16250 | M16x250 | ✓            | Q                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |

| Family | Code     | Size    | ETA assessed | Letter on head tip | Tension resistance in C20/25 concrete |                      | Coefficient for higher concrete resistances |        |        | Tension partial safety coefficient | Shear resistance     |                      | Shear partial safety coefficient |                    |      |      |
|--------|----------|---------|--------------|--------------------|---------------------------------------|----------------------|---------------------------------------------|--------|--------|------------------------------------|----------------------|----------------------|----------------------------------|--------------------|------|------|
|        |          |         |              |                    | Uncracked                             | Cracked              | C30/37                                      | C40/45 | C50/60 |                                    | Uncracked            | Cracked              | Uncracked                        | Cracked            |      |      |
|        |          |         |              |                    | N <sub>Rk</sub> [kN]                  | N <sub>Rk</sub> [kN] | Ψ [-]                                       | Ψ [-]  | Ψ [-]  | γ <sub>M</sub> [-]                 | V <sub>Rk</sub> [kN] | V <sub>Rk</sub> [kN] | γ <sub>M</sub> [-]               | γ <sub>M</sub> [-] |      |      |
| MTP    | AP20170  | M20x170 | ✓            | K                  | 50,0                                  | 30,0                 | 1,16                                        | 1,31   | 1,41   | 1,5                                | 73,1                 | 72,0                 | 1,25                             | 1,5                |      |      |
|        | AP20200  | M20x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | AP24205  | M24x205 | ✓            | N                  | 50,0                                  | 30,0                 |                                             |        |        | 1,8                                | 84,7                 | 100,6                | 1,25                             | 1,5                |      |      |
|        | AP24235  | M24x235 | ✓            | P                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
| MTP-G  | APG06060 | M6X60   |              | B                  | 6,0                                   | --                   | 1,22                                        | 1,41   | 1,55   | 1,8                                | 6,0                  | --                   | 1,25                             | --                 |      |      |
|        | APG06070 | M6X70   |              | C                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG06100 | M6X100  |              | E                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG08050 | M8x50   |              | A                  | 4,5                                   | 3,2                  |                                             |        |        | 1,8                                | 8,3                  | 5,9                  | 1,5                              | 1,5                |      |      |
|        | APG08060 | M8X60   |              | B                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG08075 | M8x75   | ✓            | C                  | 9,0                                   | 6,0                  | 1,22                                        | 1,41   | 1,55   | 1,8                                | 11,0                 | 12,0                 | 1,25                             | 1,5                |      |      |
|        | APG08095 | M8x95   | ✓            | E                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG08115 | M8x115  | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10070 | M10x70  |              | C                  | 6,7                                   | 4,8                  | 1,16                                        | 1,31   | 1,41   | 1,5                                | 17,4                 | 17,4                 | 1,25                             | 1,25               |      |      |
|        | APG10090 | M10x90  | ✓            | E                  | 16,0                                  | 9,0                  |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10105 | M10x105 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10115 | M10x115 | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10135 | M10x135 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10165 | M10x165 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG10185 | M10x185 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG12080 | M12x80  |              | D                  | 12,0                                  | 8,0                  | 1,22                                        | 1,41   | 1,55   | 1,5                                | 25,3                 | 25,4                 | 1,25                             | 1,5                |      |      |
|        | APG12100 | M12x100 | ✓            | E                  | 30,0                                  | 16,0                 |                                             |        |        |                                    |                      | 25,3                 |                                  | 25,3               | 1,25 | 1,25 |
|        | APG12110 | M12x110 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |
|        | APG12130 | M12x130 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |      |

| Family                                       | Code       | Size    | ETA assessed | Letter on head tip | Tension resistance in C20/25 concrete |                      | Coefficient for higher concrete resistances |        |        | Tension partial safety coefficient | Shear resistance     |                      | Shear partial safety coefficient |                    |
|----------------------------------------------|------------|---------|--------------|--------------------|---------------------------------------|----------------------|---------------------------------------------|--------|--------|------------------------------------|----------------------|----------------------|----------------------------------|--------------------|
|                                              |            |         |              |                    | Uncracked                             | Cracked              | C30/37                                      | C40/45 | C50/60 |                                    | Uncracked            | Cracked              | Uncracked                        | Cracked            |
|                                              |            |         |              |                    | N <sub>Rk</sub> [kN]                  | N <sub>Rk</sub> [kN] | Ψ [-]                                       | Ψ [-]  | Ψ [-]  | γ <sub>M</sub> [-]                 | V <sub>Rk</sub> [kN] | V <sub>Rk</sub> [kN] | γ <sub>M</sub> [-]               | γ <sub>M</sub> [-] |
| MTP-G                                        | APG12150   | M12x150 | ✓            | I                  | 30,0                                  | 16,0                 | 1,22                                        | 1,41   | 1,55   | 1,5                                | 25,3                 | 25,3                 | 1,25                             | 1,25               |
|                                              | APG12180   | M12x180 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APG12200   | M12x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APG16125   | M16X125 | ✓            | G                  | 35,0                                  | 25,0                 | 1,22                                        | 1,41   | 1,55   | 1,5                                | 47,1                 | 56,4                 | 1,25                             | 1,5                |
|                                              | APG16145   | M16x145 | ✓            | I                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APG16175   | M16x175 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APG16220   | M16x220 | ✓            | O                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APG20170   | M20x170 | ✓            | K                  | 50,0                                  | 30,0                 | 1,16                                        | 1,31   | 1,41   | 1,5                                | 73,1                 | 72,0                 | 1,25                             | 1,5                |
|                                              | APG20200   | M20x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
| MTP-X<br><br>Door-Steek-Anker Verzinkt ETA 1 | APX08050   | M8x50   |              | A                  | 4,5                                   | 3,2                  | 1,22                                        | 1,41   | 1,55   | 1,8                                | 8,3                  | 5,9                  | 1,5                              | 1,5                |
|                                              | 4050001100 | M8x75   | ✓            | C                  | 9,0                                   | 6,0                  |                                             |        |        |                                    | 11,0                 | 12,0                 | 1,25                             |                    |
|                                              | 4050001101 | M8x80   | ✓            | D                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APX08095   | M8x95   | ✓            | E                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | 4050001108 | M8x115  | ✓            | G                  | 16,0                                  | 9,0                  | 1,16                                        | 1,31   | 1,41   | 1,5                                | 17,4                 | 17,4                 | 1,25                             | 1,25               |
|                                              | 4050001116 | M10x90  | ✓            | E                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | 4050001124 | M10x105 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | 4050001132 | M10x115 | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APX10135   | M10x135 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APX10165   | M10x165 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |
|                                              | APX10185   | M10x185 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |

| Family                                             |            | Size    | ETA assessed | Letter on head tip | Tension resistance in C20/25 concrete |                      | Coefficient for higher concrete resistances |        |        | Tension partial safety coefficient | Shear resistance     |                      | Shear partial safety coefficient |                    |      |
|----------------------------------------------------|------------|---------|--------------|--------------------|---------------------------------------|----------------------|---------------------------------------------|--------|--------|------------------------------------|----------------------|----------------------|----------------------------------|--------------------|------|
|                                                    |            |         |              |                    | Uncracked                             | Cracked              | C30/37                                      | C40/45 | C50/60 |                                    | Uncracked            | Cracked              | Uncracked                        | Cracked            |      |
|                                                    |            |         |              |                    | N <sub>Rk</sub> [kN]                  | N <sub>Rk</sub> [kN] | Ψ [-]                                       | Ψ [-]  | Ψ [-]  | γ <sub>M</sub> [-]                 | V <sub>Rk</sub> [kN] | V <sub>Rk</sub> [kN] | γ <sub>M</sub> [-]               | γ <sub>M</sub> [-] |      |
| MTP-X<br><br>Door-Steek-anker<br>Verzinkt<br>ETA 1 | APX12080   | M12x80  | ✓            | D                  | 12,0                                  | 8,0                  | 1,22                                        | 1,41   | 1,55   | 1,5                                | 25,3                 | 25,4                 | 1,25                             | 1,5                |      |
|                                                    | APX12100   | M12x100 | ✓            | E                  | 25,0                                  | 16                   |                                             |        |        |                                    |                      | 25,3                 |                                  | 1,25               | 1,25 |
|                                                    | 4050001140 | M12x110 | ✓            | F                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | 4050001148 | M12x120 | ✓            | G                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | 4050001156 | M12x130 | ✓            | H                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX12150   | M12x150 | ✓            | I                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX12180   | M12x180 | ✓            | L                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX12200   | M12x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX12220   | M12x220 | ✓            | O                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX12255   | M12x255 | ✓            | R                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX16145   | M16x145 | ✓            | I                  | 35,0                                  | 25,0                 | 1,22                                        | 1,41   | 1,55   | 1,5                                | 47,1                 | 56,4                 | 1,25                             | 1,5                |      |
|                                                    | 4050001164 | M16x175 | ✓            | K                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX16220   | M16x220 | ✓            | O                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX16250   | M16x250 | ✓            | Q                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |
|                                                    | APX20170   | M20x170 | ✓            | K                  | 50,0                                  | 30,0                 | 1,16                                        | 1,31   | 1,41   | 1,5                                | 73,1                 | 72,0                 | 1,25                             | 1,5                |      |
|                                                    | APX20200   | M20x200 | ✓            | M                  |                                       |                      |                                             |        |        |                                    |                      |                      |                                  |                    |      |

Characteristic resistances for seismic performance C1 and C2 for C20/25 concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects), assuming there is no gap between anchor and baseplate.

| Family | Code    | Size    | Letter on head tip | Tension resistance in C20/25 concrete |               | Coefficient for higher concrete resistances |            |            | Tension partial safety coefficient |                | Shear resistance |               | Shear partial safety coefficient |
|--------|---------|---------|--------------------|---------------------------------------|---------------|---------------------------------------------|------------|------------|------------------------------------|----------------|------------------|---------------|----------------------------------|
|        |         |         |                    | C1                                    | C2            | C30/37                                      | C40/45     | C50/60     | C1                                 | C2             | C1               | C2            | C1 / C2                          |
|        |         |         |                    | $N_{Rk,P,seis}$ [kN]                  | $N_{Rk}$ [kN] | $\Psi$ [-]                                  | $\Psi$ [-] | $\Psi$ [-] | $\gamma_M$ [-]                     | $\gamma_M$ [-] | $V_{Rk}$ [kN]    | $V_{Rk}$ [kN] | $\gamma_M$ [-]                   |
| MTP    | AP10090 | M10x90  | E                  | 5,3                                   | -             | 1,16                                        | 1,31       | 1,41       | 1,5                                | -              | 12,2             | -             | 1,25                             |
|        | AP10105 | M10x105 | F                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP10115 | M10x115 | G                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP10135 | M10x135 | H                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP10165 | M10x165 | K                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP10185 | M10x185 | L                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12100 | M12x100 | E                  | 8,4                                   | 5,2           | 1,22                                        | 1,41       | 1,55       | 1,5                                | 1,5            | 17,8             | 17,8          | 1,25                             |
|        | AP12110 | M12x110 | F                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12120 | M12x120 | G                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12130 | M12x130 | H                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12150 | M12x150 | I                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12180 | M12x180 | L                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP12200 | M12x200 | M                  | 17,5                                  | 8,9           | 1,22                                        | 1,41       | 1,55       | 1,5                                | 1,5            | 33,0             | 33,0          | 1,25                             |
|        | AP16145 | M16x145 | I                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP16175 | M16x175 | K                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP16220 | M16x220 | O                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|        | AP16250 | M16x250 | Q                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |

| Family                                | Code       | Size    | Letter on head tip | Tension resistance in C20/25 concrete |               | Coefficient for higher concrete resistances |            |            | Tension partial safety coefficient |                | Shear resistance |               | Shear partial safety coefficient |
|---------------------------------------|------------|---------|--------------------|---------------------------------------|---------------|---------------------------------------------|------------|------------|------------------------------------|----------------|------------------|---------------|----------------------------------|
|                                       |            |         |                    | C1                                    | C2            | C30/37                                      | C40/45     | C50/60     | C1                                 | C2             | C1               | C2            | C1 / C2                          |
|                                       |            |         |                    | $N_{Rk,P,seis}$ [kN]                  | $N_{Rk}$ [kN] | $\Psi$ [-]                                  | $\Psi$ [-] | $\Psi$ [-] | $\gamma_M$ [-]                     | $\gamma_M$ [-] | $V_{Rk}$ [kN]    | $V_{Rk}$ [kN] | $\gamma_M$ [-]                   |
| Door-Steek-anker<br>Verzinkt<br>ETA 1 | APX08050   | M8x50   | A                  | 5,9                                   | -             | 1,16                                        | 1,31       | 1,41       | 1,8                                | -              | 7,7              | -             | 1,25                             |
|                                       | 4050001100 | M8x75   | C                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001101 | M8x80   | D                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX08095   | M8x95   | E                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001108 | M8x115  | G                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001116 | M10x90  | E                  | 8,9                                   | 3,9           | 1,16                                        | 1,31       | 1,41       | 1,5                                | -              | 12,2             | -             | 1,25                             |
|                                       | 4050001124 | M10x105 | F                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001132 | M10x115 | G                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX10135   | M10x135 | H                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX10165   | M10x165 | K                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX10185   | M10x185 | L                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12080   | M12x80  | D                  | 16,0                                  | 9,1           | 1,22                                        | 1,41       | 1,55       | 1,5                                | 1,5            | 17,8             | 17,8          | 1,25                             |
|                                       | APX12100   | M12x100 | E                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001140 | M12x110 | F                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001148 | M12x120 | G                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | 4050001156 | M12x130 | H                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12150   | M12x150 | I                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12180   | M12x180 | L                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12200   | M12x200 | M                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12220   | M12x220 | O                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX12255   | M12x255 | R                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |

| Family                                | Code       | Size    | Letter on head tip | Tension resistance in C20/25 concrete |               | Coefficient for higher concrete resistances |            |            | Tension partial safety coefficient |                | Shear resistance |               | Shear partial safety coefficient |
|---------------------------------------|------------|---------|--------------------|---------------------------------------|---------------|---------------------------------------------|------------|------------|------------------------------------|----------------|------------------|---------------|----------------------------------|
|                                       |            |         |                    | C1                                    | C2            | C30/37                                      | C40/45     | C50/60     | C1                                 | C2             | C1               | C2            | C1 / C2                          |
|                                       |            |         |                    | $N_{Rk,P,seis}$ [kN]                  | $N_{Rk}$ [kN] | $\Psi$ [-]                                  | $\Psi$ [-] | $\Psi$ [-] | $\gamma_M$ [-]                     | $\gamma_M$ [-] | $V_{Rk}$ [kN]    | $V_{Rk}$ [kN] | $\gamma_M$ [-]                   |
| Door-Steek-anker<br>Verzinkt<br>ETA 1 | APX16145   | M16x145 | I                  | 25,0                                  | -             | 1,22                                        | 1,41       | 1,55       | 1,5                                | 1,5            | 33,0             | 0             | 1,25                             |
|                                       | 4050001164 | M16x175 | K                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX16220   | M16x220 | O                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX16250   | M16x250 | Q                  | 30,0                                  | 21,0          | 1,16                                        | 1,31       | 1,41       | 1,5                                | 1,5            | 58,5             | 58,5          | 1,25                             |
|                                       | APX20170   | M20x170 | K                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |
|                                       | APX20200   | M20x200 | M                  |                                       |               |                                             |            |            |                                    |                |                  |               |                                  |

1 kN  $\approx$  100 kg

A load safety factor of  $\gamma_F = 1,4$  is recommended

## 6. OFFICIAL DOCUMENTATION

The following documents are available through our Sales Department or on our official website: [www.4tecX.com](http://www.4tecX.com)

- European Technical Assessment ETA-12/0397 for use in concrete, according to ETAG 001 guideline, option 1, from M8 to M24.
- Certificate of constancy of performances 1219-CPR-0053.
- Declaration of Performances DoP MTP-en.
- Declaration of Performances DoP MTP-G-en.
- Declaration of Performances DoP MTP-X-en.