



**MTH**



**MTH-A2**



**MTH-A4**



## MERKMALE

- Funktion nach dem Prinzip des Reibschlusses; kraftkontrollierter Einbau
- Für schwere Lasten
- Zugelassen für zwei Einbautiefen
- Einfache Montage
- Geeignet für ungerissenen Beton
- Vorinstallation oder mit der Bohrung des Anbauteils
- Einsatz für statische oder quasistatische Lasten
- Version aus verzinktem Stahl und aus rostfreiem Stahl, Stufe A2 und A4
- Verschiedene Längen und Größen, flexibler Einbau
- DIN 440 für Befestigungen von Holzbauten an Beton
- Verfügbar in INDEXcal

## BAUSTOFFE



## VERFÜGBARE GRÖSSEN

**M6 - M20**

## BOHRLOCHBEDINGUNGEN



**TROCKEN**



**FEUCHT**



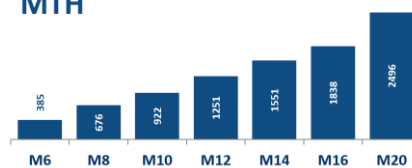
**MIT WASSER  
GEFÜLLT**

## ANWENDUNGEN

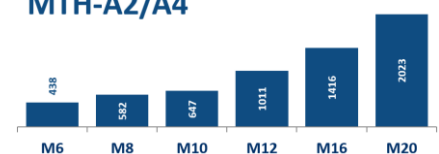
- Befestigung von tragenden Anwendungen in ungerissenen Beton
- Sicherheitsbarrieren
- Befestigung von Tafeln, Maschinen, Kesseln, Schildern, Werbeflächen usw.
- Befestigungen von Holzbauten an Beton

## MAX. EMPFOHLENE ZUGTRAGFÄHIGKEIT IN UNGERISSENEM BETON [kg]

**MTH**



**MTH-A2/A4**



## ANWENDUNGSBEISPIELE



## 1. SORTIMENT

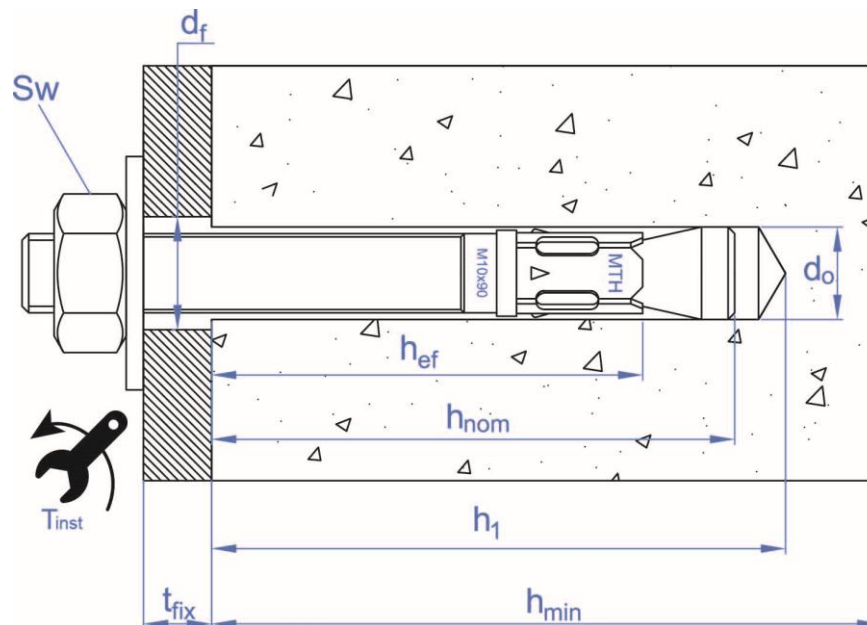
| POS. | ART.-NR. | GRÖSSE     | FOTO                                                                              | KOMPONENTE                               | MATERIAL                                                                                                                                                                                                                                       |
|------|----------|------------|-----------------------------------------------------------------------------------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | AH       | M6 bis M20 |  | Ankerstange<br>Clip<br>Mutter<br>Scheibe | Kaltgewalzter Kohlenstoffstahl, verzinkt $\geq 5 \mu\text{m}$<br>Kohlenstoffstahl, verzinkt $\geq 5 \mu\text{m}$<br>DIN 934 Klasse 6 ISO 898-1, verzinkt $\geq 5 \mu\text{m}$<br>DIN 125, DIN 9021 oder DIN 440, verzinkt $\geq 5 \mu\text{m}$ |
| 2    | MI       | M6 bis M20 |  | Ankerstange<br>Clip<br>Mutter<br>Scheibe | rostfreier Stahl, Stufe A2<br>rostfreier Stahl, Stufe A2<br>DIN 934, rostfreier Stahl, Stufe A2<br>DIN 125, DIN 9021 oder DIN 440, rostfreier Stahl, Stufe A2                                                                                  |
| 3    | MIA4     | M6 bis M20 |  | Ankerstange<br>Clip<br>Mutter<br>Scheibe | rostfreier Stahl, Stufe A4<br>rostfreier Stahl, Stufe A4<br>DIN 934, rostfreier Stahl, Stufe A4<br>DIN 125, DIN 9021 oder DIN 440, rostfreier Stahl, Stufe A4                                                                                  |

## 2. ZUBEHÖR

| POS. | ART.-NR. | FOTO                                                                              | BESCHREIBUNG                                               |
|------|----------|-----------------------------------------------------------------------------------|------------------------------------------------------------|
| 1    | DOMTA    |  | Werkzeug zum Einbau von Verankerungen mit Hartmetallbohrer |

## 3. EINBAUHINWEISE

### 3.1. EINBAUPLAN



### 3.2. EINBAUKENNWERTE

| Allgemeine Einbaukennwerte |            |                   |           |                        |                                                   |                           |                          |                            | Standard-Einbautiefe     |                        |                          |                         |                          |                                   |                                        |                                  | Reduzierte Einbautiefe                |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |
|----------------------------|------------|-------------------|-----------|------------------------|---------------------------------------------------|---------------------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|
| Familie                    | Artikelnr. | Größe / Buchstabe | Zulassung | Bohrungsdurchmesser    | Bohrlochdurchmesser der zu befestigenden Bauteile | Einbaudrehmoment          | Minimaler Achsabstand    | Minimaler Abstand zum Rand | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) |
| [--]                       | [--]       | [--]              | ETA       | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm]                            | 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]            |
| MTH                        | AH06060    | M6 x 60 (B)       | ✓         | 6                      | 7                                                 | 7                         | 35                       | 35                         | 100                      | 55                     | 49,5                     | 40                      | 2                        | 120                               | 60                                     | 160                              | 80                                    | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    |
|                            | AH06070    | M6 x 70 (C)       | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 12                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06080    | M6 x 80 (D)       | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 22                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06090    | M6 x 90 (E)       | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 32                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06100    | M6 x 100 (E)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 42                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06110    | M6 x 110 (F)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 52                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06120    | M6 x 120 (G)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 62                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06130    | M6 x 130 (H)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 72                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06140    | M6 x 140 (I)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 82                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06150    | M6 x 150 (I)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 92                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06160    | M6 x 160 (J)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 102                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06170    | M6 x 170 (K)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 112                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH06180    | M6 x 180 (L)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 122                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | AH08060    | M8 x 60 (B)       | ✓         | 8                      | 9                                                 | 20                        | 40                       | 40                         | 100                      | 65                     | 59,5                     | 48                      | --                       | 144                               | 72                                     | 192                              | 96                                    | 100                      | 50                     | 46,5                     | 35                      | 3                        | 105                               | 53                                     | 140                              | 70                                    |
|                            | AH08075    | M8 x 75 (C)       | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 5                        |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 18                       |                                   |                                        |                                  |                                       |
|                            | AH08090    | M8 x 90 (E)       | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 20                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 33                       |                                   |                                        |                                  |                                       |
|                            | AH08100    | M8 x 100 (E)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 30                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 43                       |                                   |                                        |                                  |                                       |
|                            | AH08115    | M8 x 115 (G)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 45                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 58                       |                                   |                                        |                                  |                                       |
|                            | AH08120    | M8 x 120 (G)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 50                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 63                       |                                   |                                        |                                  |                                       |
|                            | AH08130    | M8 x 130 (H)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 60                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 73                       |                                   |                                        |                                  |                                       |
|                            | AH08155    | M8 x 155 (J)      | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 85                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 98                       |                                   |                                        |                                  |                                       |
|                            | AH10070    | M10 x 70 (C)      | ✓         | 10                     | 12                                                | 35                        | 50                       | 50                         | --                       | --                     | --                       | --                      | --                       | 165                               | 83                                     | 220                              | 110                                   | 100                      | 60                     | 53,5                     | 42                      | 3                        | 126                               | 63                                     | 168                              | 84                                    |
|                            | AH10080    | M10 x 80 (D)      | ✓         |                        |                                                   |                           |                          |                            | --                       | --                     | --                       | --                      | --                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 13                       |                                   |                                        |                                  |                                       |
|                            | AH10090    | M10 x 90 (E)      | ✓         |                        |                                                   |                           |                          |                            | 110                      | 75                     | 66,5                     | 55                      | 10                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 23                       |                                   |                                        |                                  |                                       |
|                            | AH10100    | M10 x 100 (E)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 20                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 33                       |                                   |                                        |                                  |                                       |
|                            | AH10120    | M10 x 120 (G)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 40                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 53                       |                                   |                                        |                                  |                                       |

## 3.2. EINBAUKENNWERTE

| Allgemeine Einbaukennwerte |               |                   |           |                        |                                                   |                           |                          |                            | Standard-Einbautiefe     |                        |                          |                         |                          |                                   |                                        |                                  | Reduzierte Einbautiefe                |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|----------------------------|---------------|-------------------|-----------|------------------------|---------------------------------------------------|---------------------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|
| Familie                    | Artikelnr.    | Größe / Buchstabe | Zulassung | Bohrungsdurchmesser    | Bohrlochdurchmesser der zu befestigenden Bauteile | Einbaudrehmoment          | Minimaler Achsabstand    | Minimaler Abstand zum Rand | Minimale Betondecke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) | Minimale Betondecke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) |     |     |     |     |    |    |    |    |    |    |    |    |    |
| [--]                       | [--]          | [--]              | ETA       | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm]                            | 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]            |     |     |     |     |    |    |    |    |    |    |    |    |    |
| MTH                        | AH10140       | M10 x 140 (I)     | ✓         | 10                     | 12                                                | 35                        | 50                       | 50                         | 110                      | 75                     | 66,5                     | 55                      | 60                       | 165                               | 83                                     | 220                              | 110                                   | 100                      | 60                     | 53,5                     | 42                      | 73                       | 126                               | 63                                     | 168                              | 84                                    |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH10150       | M10 x 150 (I)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 70                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH10160       | M10 x 160 (J)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 80                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH10170       | M10 x 170 (K)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 90                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH10210       | M10 x 210 (N)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 130                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH10230       | M10 x 230 (P)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         | 150                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12090       | M12 x 90 (E)      | ✓         | 12                     | 14                                                | 60                        | 70                       | 70                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | 100                                   | 70                       | 62                     | 50                       | 13                      | 150                      | 75                                | 200                                    | 100                              |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12100       | M12 x 100 (E)     | ✓         |                        |                                                   |                           |                          |                            | 8                        | 23                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12110       | M12 x 110 (F)     | ✓         |                        |                                                   |                           |                          |                            | 18                       | 33                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12120       | M12 x 120 (G)     | ✓         |                        |                                                   |                           |                          |                            | 28                       | 43                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12130       | M12 x 130 (H)     | ✓         |                        |                                                   |                           |                          |                            | 38                       | 53                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12140       | M12 x 140 (I)     | ✓         |                        |                                                   |                           |                          |                            | 48                       | 63                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12160       | M12 x 160 (J)     | ✓         |                        |                                                   |                           |                          |                            | 68                       | 83                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12180       | M12 x 180 (L)     | ✓         |                        |                                                   |                           |                          |                            | 88                       | 103                    |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12200       | M12 x 200 (M)     | ✓         |                        |                                                   |                           |                          |                            | 108                      | 123                    |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12220       | M12 x 220 (O)     | ✓         |                        |                                                   |                           |                          |                            | 128                      | 143                    |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH12250       | M12 x 250 (Q)     | ✓         |                        |                                                   |                           |                          |                            | 158                      | 173                    |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
|                            | AH14120       | M14 x 120 (G)     | ✓         |                        |                                                   |                           |                          |                            | 14                       | 16                     | 90                       | 80                      | 80                       | 150                               | 100                                    | 91                               |                                       |                          |                        |                          | 75                      |                          |                                   |                                        |                                  | 12                                    | 225 | 113 | 300 | 150 | -- | -- | -- | -- | -- | -- | -- | -- | -- |
|                            | AH14145       | M14 x 145 (I)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  | 37                                    |     |     |     |     |    |    |    |    | -- |    |    |    |    |
|                            | AH14170       | M14 x 170 (K)     | ✓         |                        |                                                   |                           |                          |                            |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  | 62                                    |     |     |     |     |    |    |    |    | -- |    |    |    |    |
| AH14220                    | M14 x 220 (O) | ✓                 | 112       | --                     |                                                   |                           |                          |                            |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |
| AH14250                    | M14 x 250 (Q) | ✓                 | 142       | --                     |                                                   |                           |                          |                            |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |     |     |     |    |    |    |    |    |    |    |    |    |

## 3.2. EINBAUKENNWERTE

| Allgemeine Einbaukennwerte |               |                   |           |                        |                                          |                           |                          |                            | Standard-Einbautiefe     |                        |                          |                         |                          |                                   |                                        |                                  | Reduzierte Einbautiefe                |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |
|----------------------------|---------------|-------------------|-----------|------------------------|------------------------------------------|---------------------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|
| Familie                    | Artikelnr.    | Größe / Buchstabe | Zulassung | Bohrungsdurchmesser    | Bohrlochdurchmesser der zu befestigenden | Einbaudrehmoment          | Minimaler Achsabstand    | Minimaler Abstand zum Rand | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) |
| [--]                       | [--]          | [--]              | ETA       | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm]                   | 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]            |
| MTH                        | AH16125       | M16 x 125 (G)     | ✓         | 16                     | 18                                       | 120                       | 90                       | 90                         | 168                      | 110                    | 103,5                    | 84                      | 3                        | 252                               | 126                                    | 280                              | 140                                   | 130                      | 90                     | 84,5                     | 65                      | 22                       | 195                               | 98                                     | 260                              | 130                                   |
|                            | AH16145       | M16 x 145 (I)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 23                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 42                       |                                   |                                        |                                  |                                       |
|                            | AH16170       | M16 x 170 (K)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 48                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 67                       |                                   |                                        |                                  |                                       |
|                            | AH16220       | M16 x 220 (O)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 98                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 117                      |                                   |                                        |                                  |                                       |
|                            | AH16250       | M16 x 250 (Q)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 128                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 147                      |                                   |                                        |                                  |                                       |
|                            | AH16280       | M16 x 280 (S)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 158                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 177                      |                                   |                                        |                                  |                                       |
|                            | AH20170       | M20 x 170 (K)     | ✓         | 20                     | 22                                       | 240                       | 135                      | 135                        | 206                      | 135                    | 125                      | 103                     | 23                       | 309                               | 155                                    | 360                              | 180                                   | 150                      | 107                    | 97                       | 75                      | 49                       | 225                               | 113                                    | 300                              | 150                                   |
|                            | AH20220       | M20 x 220 (O)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 73                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 99                       |                                   |                                        |                                  |                                       |
| AH20270                    | M20 x 270 (S) | ✓                 | 123       |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 149                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |
| MTH-A2                     | MI06045       | M6 x 45 (A)       | ✗         | 6                      | 7                                        | 7                         | 50                       | 50                         | 100                      | 55                     | 49,5                     | 40                      | --                       | 120                               | 60                                     | 160                              | 80                                    | 100                      | 40                     | 35                       | 25                      | 1                        | 75                                | 38                                     | 160                              | 80                                    |
|                            | MI06060       | M6 x 60 (B)       | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 2                        |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06080       | M6 x 80 (D)       | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 22                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06120       | M6 x 120 (G)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 62                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06140       | M6 x 140 (I)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 82                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06160       | M6 x 160 (J)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 102                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06170       | M6 x 170 (K)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 112                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI06180       | M6 x 180 (L)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 122                      |                                   |                                        |                                  |                                       |                          |                        |                          |                         | --                       |                                   |                                        |                                  |                                       |
|                            | MI08050       | M8 x 50 (A)       | ✗         | 8                      | 9                                        | 20                        | 65                       | 65                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 40                     | 35                       | 23                      | 4                        | 69                                | 35                                     | 140                              | 70                                    |
|                            | MI08075       | M8 x 75 (C)       | ✓         |                        |                                          |                           |                          |                            | 100                      | 65                     | 59,5                     | 48                      | 5                        | 144                               | 72                                     | 192                              | 96                                    | 100                      | 50                     | 46,5                     | 35                      | 18                       | 105                               | 53                                     | 140                              | 70                                    |
|                            | MI08090       | M8 x 90 (E)       | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 20                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 33                       |                                   |                                        |                                  |                                       |
|                            | MI08115       | M8 x 115 (G)      | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 45                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 58                       |                                   |                                        |                                  |                                       |
|                            | MI10070       | M10 x 70 (C)      | ✓         | 10                     | 12                                       | 35                        | 70                       | 70                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 60                     | 53,5                     | 42                      | 3                        | 126                               | 63                                     | 168                              | 84                                    |
|                            | MI10090       | M10 x 90 (E)      | ✓         |                        |                                          |                           |                          |                            | 110                      | 75                     | 66,5                     | 55                      | 10                       | 165                               | 83                                     | 220                              | 110                                   |                          |                        |                          |                         | 23                       |                                   |                                        |                                  |                                       |
|                            | MI10120       | M10 x 120 (G)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 40                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 53                       |                                   |                                        |                                  |                                       |
|                            | MI10150       | M10 x 150 (I)     | ✓         |                        |                                          |                           |                          |                            |                          |                        |                          |                         | 70                       |                                   |                                        |                                  |                                       |                          |                        |                          |                         | 83                       |                                   |                                        |                                  |                                       |

## 3.2. EINBAUKENNWERTE

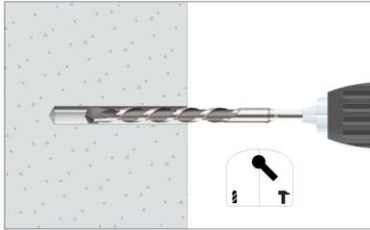
| Allgemeine Einbaukennwerte |               |                   |           |                        |                                          |                           |                          |                            | Standard-Einbautiefe     |                        |                          |                         |                          |                                   |                                        |                                  |                                       | Reduzierte Einbautiefe   |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|----------------------------|---------------|-------------------|-----------|------------------------|------------------------------------------|---------------------------|--------------------------|----------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|-----------------------------------|----------------------------------------|----------------------------------|---------------------------------------|-----|
| Familie                    | Artikelnr.    | Größe / Buchstabe | Zulassung | Bohrungsdurchmesser    | Bohrlochdurchmesser der zu befestigenden | Einbaudrehmoment          | Minimaler Achsabstand    | Minimaler Abstand zum Rand | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand (Ausbruch) | Kritischer Abstand zum Rand (Ausbruch) | Kritischer Achsabstand (Spalten) | Kritischer Abstand zum Rand (Spalten) |     |
| [--]                       | [--]          | [--]              | ETA       | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm]                   | 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]            |     |
| MTH-A2                     | MI12075       | M12 x 75 (C)      | [X]       | 12                     | 14                                       | 60                        | 85                       | 85                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 60                     | 55                       | 43                      | 5                        | 129                               | 65                                     | 200                              | 100                                   |     |
|                            | MI12090       | M12 x 90 (D)      | ✓         |                        |                                          |                           |                          |                            | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --                       | 100                    | 70                       | 62                      | 50                       | 13                                | 150                                    | 75                               | 200                                   | 100 |
|                            | MI12110       | M12 x 110 (F)     | ✓         |                        |                                          |                           |                          |                            | --                       | --                     | --                       | --                      | 18                       | 195                               | 98                                     | 260                              | 130                                   | 33                       |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MI12140       | M12 x 140 (I)     | ✓         |                        |                                          |                           |                          |                            | --                       | --                     | --                       | --                      | 48                       |                                   |                                        |                                  |                                       | 63                       |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MI16090       | M16 x 90 (D)      | [X]       | 16                     | 18                                       | 120                       | 110                      | 110                        | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | 100                                   | 75                       | 69                     | 49                       | 4                       | 147                      | 74                                | 280                                    | 140                              |                                       |     |
|                            | MI16145       | M16 x 145 (I)     | ✓         |                        |                                          |                           |                          |                            | 168                      | 110                    | 103,5                    | 84                      | 23                       | 252                               | 126                                    | 336                              | 168                                   | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --  |
|                            | MI16170       | M16 x 170 (K)     | ✓         |                        |                                          |                           |                          |                            | 48                       | --                     | --                       | --                      | --                       |                                   |                                        |                                  |                                       | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --  |
|                            | MI20120       | M20 x 120 (G)     | [X]       | 20                     | 22                                       | 240                       | 135                      | 135                        | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 145                      | 105                    | 93                       | 71                      | 5                        | 213                               | 107                                    | 360                              | 180                                   |     |
|                            | MI20170       | M20 x 170 (K)     | ✓         |                        |                                          |                           |                          |                            | 206                      | 135                    | 125                      | 103                     | 23                       | 309                               | 155                                    | 412                              | 200                                   | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --  |
| MI20220                    | M20 x 220 (O) | ✓                 | 73        |                        |                                          |                           |                          |                            | --                       | --                     | --                       | --                      | --                       |                                   |                                        |                                  |                                       | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --  |
| MTH-A4                     | MIA406045     | M6 x 45 (A)       | [X]       | 6                      | 7                                        | 7                         | 50                       | 50                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 40                     | 35                       | 25                      | 1                        | 75                                | 38                                     | 160                              | 80                                    |     |
|                            | MIA406060     | M6 x 60 (B)       | ✓         |                        |                                          |                           |                          |                            | 100                      | 55                     | 49,5                     | 40                      | 2                        | 120                               | 60                                     | 160                              | 80                                    | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    |     |
|                            | MIA406080     | M6 x 80 (D)       | ✓         |                        |                                          |                           |                          |                            | 22                       | --                     | --                       | --                      | --                       |                                   |                                        |                                  |                                       | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --  |
|                            | MIA408050     | M8 x 50 (A)       | [X]       | 8                      | 9                                        | 20                        | 65                       | 65                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 40                     | 35                       | 23                      | 4                        | 69                                | 35                                     | 140                              | 70                                    |     |
|                            | MIA408075     | M8 x 75 (C)       | ✓         |                        |                                          |                           |                          |                            | 100                      | 65                     | 59,5                     | 48                      | 5                        | 144                               | 72                                     | 192                              | 96                                    | 8                        | 105                    | 53                       | 140                     | 70                       |                                   |                                        |                                  |                                       |     |
|                            | MIA408090     | M8 x 90 (E)       | ✓         |                        |                                          |                           |                          |                            | 20                       | 23                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA408115     | M8 x 115 (G)      | ✓         |                        |                                          |                           |                          |                            | 45                       | 58                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA410070     | M10 x 70 (C)      | ✓         | 10                     | 12                                       | 35                        | 70                       | 70                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 60                     | 53,5                     | 42                      | 3                        | 126                               | 63                                     | 168                              | 84                                    |     |
|                            | MIA410090     | M10 x 90 (E)      | ✓         |                        |                                          |                           |                          |                            | 10                       | 23                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA410120     | M10 x 120 (G)     | ✓         |                        |                                          |                           |                          |                            | 40                       | 53                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA410150     | M10 x 150 (I)     | ✓         |                        |                                          |                           |                          |                            | 70                       | 83                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA412075     | M12 x 75 (C)      | [X]       | 12                     | 14                                       | 60                        | 85                       | 85                         | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | 100                      | 60                     | 55                       | 43                      | 5                        | 129                               | 65                                     | 200                              | 100                                   |     |
|                            | MIA412090     | M12 x 90 (D)      | ✓         |                        |                                          |                           |                          |                            | --                       | --                     | --                       | --                      | --                       | --                                | --                                     | --                               | --                                    | --                       | --                     | --                       | --                      | 13                       | 150                               | 75                                     | 200                              | 100                                   |     |
|                            | MIA412110     | M12 x 110 (F)     | ✓         |                        |                                          |                           |                          |                            | 18                       | 33                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |
|                            | MIA412140     | M12 x 140 (I)     | ✓         |                        |                                          |                           |                          |                            | 48                       | 63                     |                          |                         |                          |                                   |                                        |                                  |                                       |                          |                        |                          |                         |                          |                                   |                                        |                                  |                                       |     |

## 3.2. EINBAUKENNWERTE

| Allgemeine Einbaukennwerte |            |                   |           |                        |                                                         |                           |                          |                               | Standard-Einbautiefe     |                        |                          |                         |                          |                                      |                                           |                                     | Reduzierte Einbautiefe                   |                          |                        |                          |                         |                          |                                      |                                           |                                     |                                          |
|----------------------------|------------|-------------------|-----------|------------------------|---------------------------------------------------------|---------------------------|--------------------------|-------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|--------------------------------------|-------------------------------------------|-------------------------------------|------------------------------------------|--------------------------|------------------------|--------------------------|-------------------------|--------------------------|--------------------------------------|-------------------------------------------|-------------------------------------|------------------------------------------|
| Familie                    | Artikelnr. | Größe / Buchstabe | Zulassung | Bohrungsdurchmesser    | Bohrlochdurchmesser<br>der zu befestigenden<br>Bauteile | Einbaudrehmoment          | Minimaler Achsabstand    | Minimaler Abstand zum<br>Rand | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand<br>(Ausbruch) | Kritischer Abstand zum<br>Rand (Ausbruch) | Kritischer Achsabstand<br>(Spalten) | Kritischer Abstand zum<br>Rand (Spalten) | Minimale Betondicke      | Bohrlochtiefe          | Einbautiefe              | Effektive Tiefe         | Zu befestigende Dicke    | Kritischer Achsabstand<br>(Ausbruch) | Kritischer Abstand zum<br>Rand (Ausbruch) | Kritischer Achsabstand<br>(Spalten) | Kritischer Abstand zum<br>Rand (Spalten) |
| [--]                       | [--]       | [--]              | ETA       | d <sub>0</sub><br>[mm] | d <sub>f</sub><br>[mm]                                  | 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]               |
| MTH-A4                     | MIA416090  | M16 x 90 (D)      | ✗         | 16                     | 18                                                      | 120                       | 110                      | 110                           | --                       | --                     | --                       | --                      | --                       | --                                   | --                                        | --                                  | --                                       | 100                      | 75                     | 69                       | 49                      | 4                        | 147                                  | 74                                        | 280                                 | 140                                      |
|                            | MIA416145  | M16 x 145 (I)     | ✓         |                        |                                                         |                           |                          |                               | 168                      | 110                    | 103,5                    | 84                      | 23                       | 252                                  | 126                                       | 336                                 | 168                                      | --                       | --                     | --                       | --                      | --                       | --                                   |                                           |                                     |                                          |
|                            | MIA416170  | M16 x 170 (K)     | ✓         |                        |                                                         |                           |                          |                               | --                       | --                     | --                       | --                      | 48                       | --                                   | --                                        | --                                  | --                                       | 145                      | 105                    | 93                       | 71                      | 5                        | 213                                  | 107                                       | 360                                 | 180                                      |
|                            | MIA420120  | M20 x 120 (G)     | ✗         | 20                     | 22                                                      | 240                       | 135                      | 135                           | --                       | --                     | --                       | --                      | --                       | --                                   | --                                        | --                                  | --                                       | 145                      | 105                    | 93                       | 71                      | 5                        | 213                                  | 107                                       | 360                                 | 180                                      |
|                            | MIA420170  | M20 x 170 (K)     | ✓         |                        |                                                         |                           |                          |                               | 206                      | 135                    | 125                      | 103                     | 23                       | 309                                  | 155                                       | 412                                 | 206                                      | --                       | --                     | --                       | --                      | --                       | --                                   | --                                        | --                                  |                                          |
|                            | MIA420220  | M20 x 220 (O)     | ✓         |                        |                                                         |                           |                          |                               | 206                      | 135                    | 125                      | 103                     | 73                       | 309                                  | 155                                       | 412                                 | 206                                      | --                       | --                     | --                       | --                      | --                       | --                                   | --                                        | --                                  | --                                       |

## 4. EINBAUVERFAHREN

### 4.1 EINBAU IN BETON



#### 1. BOHRLOCH ERSTELLEN

Sicherstellen, dass der Beton ausreichend verdichtet ist und keine bedeutende Porenbildung aufweist.

Verwendbar mit trockenen, feuchten oder mit Wasser gefüllten Bohrlöchern.

Bohrlocherstellung mittels Schlag- oder Hammerbohren.

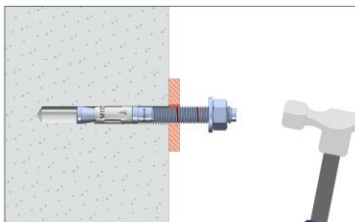
Das Bohrloch mit dem spezifizierten Durchmesser und der spezifizierten Tiefe erstellen.



#### 2. AUSBLASEN UND REINIGEN

Das Bohrloch von Staubresten und Bohrungsrückständen reinigen (siehe Grafik).

Hierzu eine Luftpumpe und eine Bürste verwenden.

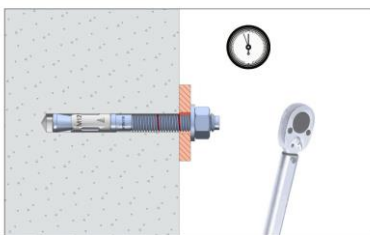


#### 3. EINBAUEN

Die Verankerung einbringen, bis Tiefenmarkierung bündig mit der Oberfläche des Baustoffs abschließt.

Bei Bedarf einen Hammer verwenden. Alternativ kann auch das Setzwerkzeug DOMTA verwendet werden.

Der Einbau kann entweder über das zu befestigende Material oder vor dem Setzen des Materials erfolgen.



#### 4. FESTZIEHEN

Mit dem in der Tabelle der Einbaudaten angegebenen Nenn-Anzugsdrehmoment festziehen.

Einen Drehmomentschlüssel verwenden, um einen korrekten Einbau zu gewährleisten.

## 5. TRAGFÄHIGKEIT

Die Tragfähigkeitswerte in Beton C20/25 für eine einzelne Verankerung ohne Einwirkung von Rand- oder Achsabstand-Effekten werden in der nachfolgenden Tabelle angegeben:

### 5.1 CHARAKTERISTISCHE FESTIGKEIT [kN]

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                 | Reduzierte Einbautiefe |                 |
|----------------------|------------|-----------|-----------|----------------------|-----------------|------------------------|-----------------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast        | Zuglast                | Querlast        |
|                      |            |           |           | N <sub>Rk</sub>      | V <sub>Rk</sub> | N <sub>Rk</sub>        | V <sub>Rk</sub> |
| MTH                  | AH06060    | M6 x 60   | ✓         | <u>7,40</u>          | <u>5,10</u>     | --                     | --              |
|                      | AH06070    | M6 x 70   | ✓         |                      |                 |                        |                 |
|                      | AH06080    | M6 x 80   | ✓         |                      |                 |                        |                 |
|                      | AH06090    | M6 x 90   | ✓         |                      |                 |                        |                 |
|                      | AH06100    | M6 x 100  | ✓         |                      |                 |                        |                 |
|                      | AH06110    | M6 x 110  | ✓         |                      |                 |                        |                 |
|                      | AH06120    | M6 x 120  | ✓         |                      |                 |                        |                 |
|                      | AH06130    | M6 x 130  | ✓         |                      |                 |                        |                 |
|                      | AH06140    | M6 x 140  | ✓         |                      |                 |                        |                 |
|                      | AH06150    | M6 x 150  | ✓         |                      |                 |                        |                 |
|                      | AH06160    | M6 x 160  | ✓         |                      |                 |                        |                 |
|                      | AH06170    | M6 x 170  | ✓         |                      |                 |                        |                 |
|                      | AH06180    | M6 x 180  | ✓         |                      |                 |                        |                 |
|                      | AH08060    | M8 x 60   | ✓         | --                   | --              | 10,00                  | 10,19           |
|                      | AH08075    | M8 x 75   | ✓         | <u>13,00</u>         | <u>9,30</u>     | 10,00                  | 10,19           |
|                      | AH08090    | M8 x 90   | ✓         |                      |                 |                        |                 |
|                      | AH08100    | M8 x 100  | ✓         |                      |                 |                        |                 |
|                      | AH08115    | M8 x 115  | ✓         |                      |                 |                        |                 |
|                      | AH08120    | M8 x 120  | ✓         |                      |                 |                        |                 |
|                      | AH08130    | M8 x 130  | ✓         |                      |                 |                        |                 |
|                      | AH08155    | M8 x 155  | ✓         |                      |                 |                        |                 |
|                      | AH10070    | M10 x 70  | ✓         | --                   | --              | 13,39                  | 13,39           |
|                      | AH10080    | M10 x 80  | ✓         |                      |                 |                        |                 |
|                      | AH10090    | M10 x 90  | ✓         | 19,00                | <u>14,70</u>    | 13,39                  | 13,39           |
|                      | AH10100    | M10 x 100 | ✓         |                      |                 |                        |                 |
|                      | AH10120    | M10 x 120 | ✓         |                      |                 |                        |                 |
|                      | AH10140    | M10 x 140 | ✓         |                      |                 |                        |                 |
|                      | AH10150    | M10 x 150 | ✓         |                      |                 |                        |                 |
|                      | AH10160    | M10 x 160 | ✓         |                      |                 |                        |                 |
|                      | AH10170    | M10 x 170 | ✓         |                      |                 |                        |                 |
|                      | AH10210    | M10 x 210 | ✓         |                      |                 |                        |                 |
|                      | AH10230    | M10 x 230 | ✓         |                      |                 |                        |                 |
|                      | AH12090    | M12 x 90  | ✓         | --                   | --              | 17,39                  | 17,39           |
|                      | AH12100    | M12 x 100 | ✓         | 25,78                | <u>20,60</u>    | 17,39                  | 17,39           |
|                      | AH12110    | M12 x 110 | ✓         |                      |                 |                        |                 |
|                      | AH12120    | M12 x 120 | ✓         |                      |                 |                        |                 |
|                      | AH12130    | M12 x 130 | ✓         |                      |                 |                        |                 |
|                      | AH12140    | M12 x 140 | ✓         |                      |                 |                        |                 |
|                      | AH12160    | M12 x 160 | ✓         |                      |                 |                        |                 |
|                      | AH12180    | M12 x 180 | ✓         |                      |                 |                        |                 |
|                      | AH12200    | M12 x 200 | ✓         |                      |                 |                        |                 |
|                      | AH12220    | M12 x 220 | ✓         |                      |                 |                        |                 |
|                      | AH12250    | M12 x 250 | ✓         |                      |                 |                        |                 |
|                      | AH14120    | M14 x 120 | ✓         | 31,95                | <u>28,10</u>    | --                     | --              |
|                      | AH14145    | M14 x 145 | ✓         |                      |                 |                        |                 |
|                      | AH14170    | M14 x 170 | ✓         |                      |                 |                        |                 |
|                      | AH14220    | M14 x 220 | ✓         |                      |                 |                        |                 |
|                      | AH14250    | M14 x 250 | ✓         |                      |                 |                        |                 |

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                 | Reduzierte Einbautiefe |                 |
|----------------------|------------|-----------|-----------|----------------------|-----------------|------------------------|-----------------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast        | Zuglast                | Querlast        |
|                      |            |           |           | N <sub>Rk</sub>      | V <sub>Rk</sub> | N <sub>Rk</sub>        | V <sub>Rk</sub> |
| MTH                  | AH16125    | M16 x 125 | ✓         | 38,87                | 38,40           | 25,78                  | 38,40           |
|                      | AH16145    | M16 x 145 | ✓         |                      |                 |                        |                 |
|                      | AH16170    | M16 x 170 | ✓         |                      |                 |                        |                 |
|                      | AH16220    | M16 x 220 | ✓         |                      |                 |                        |                 |
|                      | AH16250    | M16 x 250 | ✓         |                      |                 |                        |                 |
|                      | AH16280    | M16 x 280 | ✓         |                      |                 |                        |                 |
|                      | AH20170    | M20 x 170 | ✓         | 51,42                | 56,30           | 31,95                  | 63,90           |
|                      | AH20220    | M20 x 220 | ✓         |                      |                 |                        |                 |
| AH20270              | M20 x 270  | ✓         |           |                      |                 |                        |                 |
| MTH-A2               | MI06045    | M6 x 45   | [x]       | --                   | --              | 6,15                   | 6,00            |
|                      | MI06060    | M6 x 60   | ✓         | 10,10                | 6,00            | --                     | --              |
|                      | MI06080    | M6 x 80   | ✓         |                      |                 |                        |                 |
|                      | MI06120    | M6 x 120  | ✓         |                      |                 |                        |                 |
|                      | MI06140    | M6 x 140  | ✓         |                      |                 |                        |                 |
|                      | MI06160    | M6 x 160  | ✓         |                      |                 |                        |                 |
|                      | MI06170    | M6 x 170  | ✓         |                      |                 |                        |                 |
|                      | MI06180    | M6 x 180  | ✓         |                      |                 |                        |                 |
|                      | MI08050    | M8 x 50   | [x]       | --                   | --              | 5,43                   | 5,43            |
|                      | MI08075    | M8 x 75   | ✓         | 12,00                | 10,90           | 9,00                   | 10,19           |
|                      | MI08090    | M8 x 90   | ✓         |                      |                 |                        |                 |
|                      | MI08115    | M8 x 115  | ✓         |                      |                 |                        |                 |
|                      | MI10070    | M10 x 70  | ✓         | --                   | --              | 12,00                  | 13,39           |
|                      | MI10090    | M10 x 90  | ✓         | 16,00                | 17,40           |                        |                 |
|                      | MI10120    | M10 x 120 | ✓         |                      |                 |                        |                 |
|                      | MI10150    | M10 x 150 | ✓         |                      |                 |                        |                 |
|                      | MI12075    | M12 x 75  | [x]       | --                   | --              | 13,87                  | 13,87           |
|                      | MI12090    | M12 x 90  | ✓         | --                   | --              | 16,00                  | 17,39           |
|                      | MI12110    | M12 x 110 | ✓         | 25,00                | 25,20           |                        |                 |
|                      | MI12140    | M12 x 140 | ✓         |                      |                 |                        |                 |
|                      | MI16090    | M16 x 90  | [x]       | --                   | --              | 16,87                  | 16,87           |
|                      | MI16145    | M16 x 145 | ✓         | 35,00                | 47,10           | --                     | --              |
|                      | MI16170    | M16 x 170 | ✓         |                      |                 |                        |                 |
|                      | MI20120    | M20 x 120 | [x]       | --                   | --              | 29,43                  | 45,82           |
|                      | MI20170    | M20 x 170 | ✓         | 50,00                | 73,50           | --                     | --              |
|                      | MI20220    | M20 x 220 | ✓         |                      |                 |                        |                 |
| MTH-A4               | MIA406045  | M6 x 45   | [x]       | --                   | --              | 6,15                   | 6,00            |
|                      | MIA406060  | M6 x 60   | ✓         | 10,10                | 6,00            | --                     | --              |
|                      | MIA406080  | M6 x 80   | ✓         |                      |                 |                        |                 |
|                      | MIA408050  | M8 x 50   | [x]       | --                   | --              | 5,43                   | 5,43            |
|                      | MIA408075  | M8 x 75   | ✓         | 12,00                | 10,90           | 9,00                   | 10,19           |
|                      | MIA408090  | M8 x 90   | ✓         |                      |                 |                        |                 |
|                      | MIA408115  | M8 x 115  | ✓         |                      |                 |                        |                 |
|                      | MIA410070  | M10 x 70  | ✓         | --                   | --              | 12,00                  | 13,39           |
|                      | MIA410090  | M10 x 90  | ✓         | 16,00                | 17,40           |                        |                 |
|                      | MIA410120  | M10 x 120 | ✓         |                      |                 |                        |                 |
|                      | MIA410150  | M10 x 150 | ✓         |                      |                 |                        |                 |
|                      | MIA412075  | M12 x 75  | [x]       | --                   | --              | 13,87                  | 13,87           |
|                      | MIA412090  | M12 x 90  | ✓         | --                   | --              | 16,00                  | 17,39           |
|                      | MIA412110  | M12 x 110 | ✓         | 25,00                | 25,20           |                        |                 |
|                      | MIA412140  | M12 x 140 | ✓         |                      |                 |                        |                 |
|                      | MIA416090  | M16 x 90  | [x]       | --                   | --              | 16,87                  | 16,87           |
|                      | MIA416145  | M16 x 145 | ✓         | 35,00                | 47,10           | --                     | --              |
|                      | MIA416170  | M16 x 170 | ✓         |                      |                 |                        |                 |
|                      | MIA420120  | M20 x 120 | [x]       | --                   | --              | 29,43                  | 58,86           |
|                      | MIA420170  | M20 x 170 | ✓         | 50,00                | 73,50           | --                     | --              |
|                      | MIA420220  | M20 x 220 | ✓         |                      |                 |                        |                 |

1 kN ≈ 100 kg

Unterstrichene und kursiv gedruckte Werte geben das Stahlversagen an; die **fett** gedruckten Werte geben das Versagen durch Betonausbruch und die restlichen das Versagen durch Herausziehen an.

## 5.2 BEMESSUNGSWERTE DER FESTIGKEIT [kN]

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                 | Reduzierte Einbautiefe |                 |
|----------------------|------------|-----------|-----------|----------------------|-----------------|------------------------|-----------------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast        | Zuglast                | Querlast        |
|                      |            |           |           | N <sub>Rd</sub>      | V <sub>Rd</sub> | N <sub>Rd</sub>        | V <sub>Rd</sub> |
| MTH                  | AH06060    | M6 x 60   | ✓         | <u>5,29</u>          | <u>4,08</u>     | --                     | --              |
|                      | AH06070    | M6 x 70   | ✓         |                      |                 |                        |                 |
|                      | AH06080    | M6 x 80   | ✓         |                      |                 |                        |                 |
|                      | AH06090    | M6 x 90   | ✓         |                      |                 |                        |                 |
|                      | AH06100    | M6 x 100  | ✓         |                      |                 |                        |                 |
|                      | AH06110    | M6 x 110  | ✓         |                      |                 |                        |                 |
|                      | AH06120    | M6 x 120  | ✓         |                      |                 |                        |                 |
|                      | AH06130    | M6 x 130  | ✓         |                      |                 |                        |                 |
|                      | AH06140    | M6 x 140  | ✓         |                      |                 |                        |                 |
|                      | AH06150    | M6 x 150  | ✓         |                      |                 |                        |                 |
|                      | AH06160    | M6 x 160  | ✓         |                      |                 |                        |                 |
|                      | AH06170    | M6 x 170  | ✓         |                      |                 |                        |                 |
|                      | AH06180    | M6 x 180  | ✓         |                      |                 |                        |                 |
|                      | AH08060    | M8 x 60   | ✓         | --                   | --              | 6,67                   | 6,79            |
|                      | AH08075    | M8 x 75   | ✓         | <u>9,29</u>          | <u>7,44</u>     | 6,67                   | 6,79            |
|                      | AH08090    | M8 x 90   | ✓         |                      |                 |                        |                 |
|                      | AH08100    | M8 x 100  | ✓         |                      |                 |                        |                 |
|                      | AH08115    | M8 x 115  | ✓         |                      |                 |                        |                 |
|                      | AH08120    | M8 x 120  | ✓         |                      |                 |                        |                 |
|                      | AH08130    | M8 x 130  | ✓         |                      |                 |                        |                 |
|                      | AH08155    | M8 x 155  | ✓         |                      |                 |                        |                 |
|                      | AH10070    | M10 x 70  | ✓         | --                   | --              | 8,93                   | 8,93            |
|                      | AH10080    | M10 x 80  | ✓         | 12,67                | <u>11,76</u>    | 8,93                   | 8,93            |
|                      | AH10090    | M10 x 90  | ✓         |                      |                 |                        |                 |
|                      | AH10100    | M10 x 100 | ✓         |                      |                 |                        |                 |
|                      | AH10120    | M10 x 120 | ✓         |                      |                 |                        |                 |
|                      | AH10140    | M10 x 140 | ✓         |                      |                 |                        |                 |
|                      | AH10150    | M10 x 150 | ✓         |                      |                 |                        |                 |
|                      | AH10160    | M10 x 160 | ✓         |                      |                 |                        |                 |
|                      | AH10170    | M10 x 170 | ✓         |                      |                 |                        |                 |
|                      | AH10210    | M10 x 210 | ✓         |                      |                 |                        |                 |
|                      | AH10230    | M10 x 230 | ✓         |                      |                 |                        |                 |
|                      | AH12090    | M12 x 90  | ✓         | --                   | --              | 11,60                  | 11,60           |
|                      | AH12100    | M12 x 100 | ✓         | 17,19                | <u>16,48</u>    | 11,60                  | 11,60           |
|                      | AH12110    | M12 x 110 | ✓         |                      |                 |                        |                 |
|                      | AH12120    | M12 x 120 | ✓         |                      |                 |                        |                 |
|                      | AH12130    | M12 x 130 | ✓         |                      |                 |                        |                 |
|                      | AH12140    | M12 x 140 | ✓         |                      |                 |                        |                 |
|                      | AH12160    | M12 x 160 | ✓         |                      |                 |                        |                 |
|                      | AH12180    | M12 x 180 | ✓         |                      |                 |                        |                 |
|                      | AH12200    | M12 x 200 | ✓         |                      |                 |                        |                 |
|                      | AH12220    | M12 x 220 | ✓         |                      |                 |                        |                 |
|                      | AH12250    | M12 x 250 | ✓         |                      |                 |                        |                 |
|                      | AH14120    | M14 x 120 | ✓         | 21,30                | <u>22,48</u>    | --                     | --              |
|                      | AH14145    | M14 x 145 | ✓         |                      |                 |                        |                 |
|                      | AH14170    | M14 x 170 | ✓         |                      |                 |                        |                 |
|                      | AH14220    | M14 x 220 | ✓         |                      |                 |                        |                 |
|                      | AH14250    | M14 x 250 | ✓         |                      |                 |                        |                 |

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                 | Reduzierte Einbautiefe |                 |      |      |
|----------------------|------------|-----------|-----------|----------------------|-----------------|------------------------|-----------------|------|------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast        | Zuglast                | Querlast        |      |      |
|                      |            |           |           | N <sub>Rd</sub>      | V <sub>Rd</sub> | N <sub>Rd</sub>        | V <sub>Rd</sub> |      |      |
| MTH                  | AH16125    | M16 x 125 | ✓         | 25,25                | 30,72           | 17,19                  | 30,72           |      |      |
|                      | AH16145    | M16 x 145 | ✓         |                      |                 |                        |                 |      |      |
|                      | AH16170    | M16 x 170 | ✓         |                      |                 |                        |                 |      |      |
|                      | AH16220    | M16 x 220 | ✓         |                      |                 |                        |                 |      |      |
|                      | AH16250    | M16 x 250 | ✓         |                      |                 |                        |                 |      |      |
|                      | AH16280    | M16 x 280 | ✓         |                      |                 |                        |                 |      |      |
|                      | AH20170    | M20 x 170 | ✓         | 34,28                | 45,04           | 21,30                  | 42,60           |      |      |
|                      | AH20220    | M20 x 220 | ✓         |                      |                 |                        |                 |      |      |
| AH20270              | M20 x 270  | ✓         |           |                      |                 |                        |                 |      |      |
| MTH-A2               | MI06045    | M6 x 45   | [x]       | --                   | --              | 4,10                   | 3,95            |      |      |
|                      | MI06060    | M6 x 60   | ✓         | 6,01                 | 3,95            | --                     | --              |      |      |
|                      | MI06080    | M6 x 80   | ✓         |                      |                 |                        |                 |      |      |
|                      | MI06120    | M6 x 120  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI06140    | M6 x 140  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI06160    | M6 x 160  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI06170    | M6 x 170  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI06180    | M6 x 180  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI08050    | M8 x 50   | [x]       | --                   | --              | 3,01                   | 3,62            |      |      |
|                      | MI08075    | M8 x 75   | ✓         | 8,00                 | 7,15            | 5,00                   | 6,79            |      |      |
|                      | MI08090    | M8 x 90   | ✓         |                      |                 |                        |                 |      |      |
|                      | MI08115    | M8 x 115  | ✓         |                      |                 |                        |                 |      |      |
|                      | MI10070    | M10 x 70  | ✓         | --                   | --              | 6,67                   | 8,93            |      |      |
|                      | MI10090    | M10 x 90  | ✓         | 8,89                 | 11,45           |                        |                 |      |      |
|                      | MI10120    | M10 x 120 | ✓         |                      |                 |                        |                 |      |      |
|                      | MI10150    | M10 x 150 | ✓         |                      |                 |                        |                 |      |      |
|                      | MI12075    | M12 x 75  | [x]       | --                   | --              | 7,71                   | 9,25            |      |      |
|                      | MI12090    | M12 x 90  | ✓         | --                   | --              | 8,89                   | 11,60           |      |      |
|                      | MI12110    | M12 x 110 | ✓         | 13,89                | 16,58           |                        |                 |      |      |
|                      | MI12140    | M12 x 140 | ✓         |                      |                 |                        |                 |      |      |
|                      | MI16090    | M16 x 90  | [x]       | --                   | --              | 9,37                   | 11,25           |      |      |
|                      | MI16145    | M16 x 145 | ✓         | 19,44                | 30,99           | --                     | --              |      |      |
|                      | MI16170    | M16 x 170 | ✓         |                      |                 |                        |                 |      |      |
|                      | MI20120    | M20 x 120 | [x]       | --                   | --              | 16,35                  | 39,24           |      |      |
|                      | MI20170    | M20 x 170 | ✓         | 27,78                | 48,36           | --                     | --              |      |      |
|                      | MI20220    | M20 x 220 | ✓         |                      |                 |                        |                 |      |      |
|                      | MTH-A4     | MIA406045 | M6 x 45   | [x]                  | --              | --                     | 4,10            | 3,95 |      |
| MIA406060            |            | M6 x 60   | ✓         | 6,01                 | 3,95            | --                     | --              |      |      |
| MIA406080            |            | M6 x 80   | ✓         |                      |                 |                        |                 |      |      |
| MIA408050            |            | M8 x 50   | [x]       | --                   | --              | 3,01                   | 3,62            |      |      |
| MIA408075            |            | M8 x 75   | ✓         | 8,00                 | 7,17            | 5,00                   | 6,79            |      |      |
| MIA408090            |            | M8 x 90   | ✓         |                      |                 |                        |                 |      |      |
| MIA408115            |            | M8 x 115  | ✓         |                      |                 |                        |                 |      |      |
| MIA410070            |            | M10 x 70  | ✓         | --                   | --              |                        |                 | 6,67 | 8,93 |
| MIA410090            |            | M10 x 90  | ✓         | 8,89                 | 11,45           |                        |                 |      |      |
| MIA410120            |            | M10 x 120 | ✓         |                      |                 |                        |                 |      |      |
| MIA410150            |            | M10 x 150 | ✓         |                      |                 |                        |                 |      |      |
| MIA412075            |            | M12 x 75  | [x]       | --                   | --              | 7,71                   | 9,25            |      |      |
| MIA412090            |            | M12 x 90  | ✓         | --                   | --              | 8,89                   | 11,60           |      |      |
| MIA412110            |            | M12 x 110 | ✓         | 13,89                | 16,58           |                        |                 |      |      |
| MIA412140            |            | M12 x 140 | ✓         |                      |                 |                        |                 |      |      |
| MIA416090            |            | M16 x 90  | [x]       | --                   | --              | 9,37                   | 11,25           |      |      |
| MIA416145            |            | M16 x 145 | ✓         | 19,44                | 30,99           | --                     | --              |      |      |
| MIA416170            |            | M16 x 170 | ✓         |                      |                 |                        |                 |      |      |
| MIA420120            |            | M20 x 120 | [x]       | --                   | --              | 16,35                  | 39,24           |      |      |
| MIA420170            |            | M20 x 170 | ✓         | 27,78                | 48,36           | --                     | --              |      |      |
| MIA420220            |            | M20 x 220 | ✓         |                      |                 |                        |                 |      |      |

1 kN ≈ 100 kg

Unterstrichene und kursiv gedruckte Werte geben das Stahlversagen an; die **fett** gedruckten Werte geben das Versagen durch Betonausbruch und die restlichen das Versagen durch Herausziehen an.

**5.3 MAX. EMPFOHLENE ZUGFESTIGKEIT [kN] (bei  $\gamma_F = 1.4$ )**

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                  | Reduzierte Einbautiefe |                  |
|----------------------|------------|-----------|-----------|----------------------|------------------|------------------------|------------------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast         | Zuglast                | Querlast         |
|                      |            |           |           | N <sub>rec</sub>     | V <sub>rec</sub> | N <sub>rec</sub>       | V <sub>rec</sub> |
| MTH                  | AH06060    | M6 x 60   | ✓         | <u>3,78</u>          | <u>2,91</u>      | --                     | --               |
|                      | AH06070    | M6 x 70   | ✓         |                      |                  |                        |                  |
|                      | AH06080    | M6 x 80   | ✓         |                      |                  |                        |                  |
|                      | AH06090    | M6 x 90   | ✓         |                      |                  |                        |                  |
|                      | AH06100    | M6 x 100  | ✓         |                      |                  |                        |                  |
|                      | AH06110    | M6 x 110  | ✓         |                      |                  |                        |                  |
|                      | AH06120    | M6 x 120  | ✓         |                      |                  |                        |                  |
|                      | AH06130    | M6 x 130  | ✓         |                      |                  |                        |                  |
|                      | AH06140    | M6 x 140  | ✓         |                      |                  |                        |                  |
|                      | AH06150    | M6 x 150  | ✓         |                      |                  |                        |                  |
|                      | AH06160    | M6 x 160  | ✓         |                      |                  |                        |                  |
|                      | AH06170    | M6 x 170  | ✓         |                      |                  |                        |                  |
|                      | AH06180    | M6 x 180  | ✓         |                      |                  |                        |                  |
|                      | AH08060    | M8 x 60   | ✓         | --                   | --               | 4,76                   | 4,85             |
|                      | AH08075    | M8 x 75   | ✓         | <u>6,63</u>          | <u>5,31</u>      | 4,76                   | 4,85             |
|                      | AH08090    | M8 x 90   | ✓         |                      |                  |                        |                  |
|                      | AH08100    | M8 x 100  | ✓         |                      |                  |                        |                  |
|                      | AH08115    | M8 x 115  | ✓         |                      |                  |                        |                  |
|                      | AH08120    | M8 x 120  | ✓         |                      |                  |                        |                  |
|                      | AH08130    | M8 x 130  | ✓         |                      |                  |                        |                  |
|                      | AH08155    | M8 x 155  | ✓         |                      |                  |                        |                  |
|                      | AH10070    | M10 x 70  | ✓         | --                   | --               | 6,38                   | 6,38             |
|                      | AH10080    | M10 x 80  | ✓         | 9,05                 | <u>8,40</u>      | 6,38                   | 6,38             |
|                      | AH10090    | M10 x 90  | ✓         |                      |                  |                        |                  |
|                      | AH10100    | M10 x 100 | ✓         |                      |                  |                        |                  |
|                      | AH10120    | M10 x 120 | ✓         |                      |                  |                        |                  |
|                      | AH10140    | M10 x 140 | ✓         |                      |                  |                        |                  |
|                      | AH10150    | M10 x 150 | ✓         |                      |                  |                        |                  |
|                      | AH10160    | M10 x 160 | ✓         |                      |                  |                        |                  |
|                      | AH10170    | M10 x 170 | ✓         |                      |                  |                        |                  |
|                      | AH10210    | M10 x 210 | ✓         |                      |                  |                        |                  |
|                      | AH10230    | M10 x 230 | ✓         |                      |                  |                        |                  |
|                      | AH12090    | M12 x 90  | ✓         | --                   | --               | 8,28                   | 8,28             |
|                      | AH12100    | M12 x 100 | ✓         | 12,28                | <u>11,77</u>     | 8,28                   | 8,28             |
|                      | AH12110    | M12 x 110 | ✓         |                      |                  |                        |                  |
|                      | AH12120    | M12 x 120 | ✓         |                      |                  |                        |                  |
|                      | AH12130    | M12 x 130 | ✓         |                      |                  |                        |                  |
|                      | AH12140    | M12 x 140 | ✓         |                      |                  |                        |                  |
|                      | AH12160    | M12 x 160 | ✓         |                      |                  |                        |                  |
|                      | AH12180    | M12 x 180 | ✓         |                      |                  |                        |                  |
|                      | AH12200    | M12 x 200 | ✓         |                      |                  |                        |                  |
|                      | AH12220    | M12 x 220 | ✓         |                      |                  |                        |                  |
|                      | AH12250    | M12 x 250 | ✓         |                      |                  |                        |                  |
|                      | AH14120    | M14 x 120 | ✓         | 15,22                | <u>16,06</u>     | --                     | --               |
|                      | AH14145    | M14 x 145 | ✓         |                      |                  |                        |                  |
|                      | AH14170    | M14 x 170 | ✓         |                      |                  |                        |                  |
|                      | AH14220    | M14 x 220 | ✓         |                      |                  |                        |                  |
|                      | AH14250    | M14 x 250 | ✓         |                      |                  |                        |                  |

| Allgemeine Parameter |            |           |           | Standard-Einbautiefe |                  | Reduzierte Einbautiefe |                  |
|----------------------|------------|-----------|-----------|----------------------|------------------|------------------------|------------------|
| Familie              | Artikelnr. | Größe     | Zulassung | Zuglast              | Querlast         | Zuglast                | Querlast         |
|                      |            |           |           | N <sub>rec</sub>     | V <sub>rec</sub> | N <sub>rec</sub>       | V <sub>rec</sub> |
| MTH                  | AH16125    | M16 x 125 | ✓         | 18,03                | 21,94            | 12,28                  | 21,94            |
|                      | AH16145    | M16 x 145 | ✓         |                      |                  |                        |                  |
|                      | AH16170    | M16 x 170 | ✓         |                      |                  |                        |                  |
|                      | AH16220    | M16 x 220 | ✓         |                      |                  |                        |                  |
|                      | AH16250    | M16 x 250 | ✓         |                      |                  |                        |                  |
|                      | AH16280    | M16 x 280 | ✓         |                      |                  |                        |                  |
|                      | AH20170    | M20 x 170 | ✓         | 24,49                | 32,17            | 15,22                  | 30,43            |
|                      | AH20220    | M20 x 220 | ✓         |                      |                  |                        |                  |
| AH20270              | M20 x 270  | ✓         |           |                      |                  |                        |                  |
| MTH-A2               | MI06045    | M6 x 45   | [x]       | --                   | --               | 2,93                   | 2,82             |
|                      | MI06060    | M6 x 60   | ✓         | 4,29                 | 2,82             | --                     | --               |
|                      | MI06080    | M6 x 80   | ✓         |                      |                  |                        |                  |
|                      | MI06120    | M6 x 120  | ✓         |                      |                  |                        |                  |
|                      | MI06140    | M6 x 140  | ✓         |                      |                  |                        |                  |
|                      | MI06160    | M6 x 160  | ✓         |                      |                  |                        |                  |
|                      | MI06170    | M6 x 170  | ✓         |                      |                  |                        |                  |
|                      | MI06180    | M6 x 180  | ✓         |                      |                  |                        |                  |
|                      | MI08050    | M8 x 50   | [x]       | --                   | --               | 2,15                   | 2,58             |
|                      | MI08075    | M8 x 75   | ✓         | 5,71                 | 5,12             | 3,57                   | 4,85             |
|                      | MI08090    | M8 x 90   | ✓         |                      |                  |                        |                  |
|                      | MI08115    | M8 x 115  | ✓         |                      |                  |                        |                  |
|                      | MI10070    | M10 x 70  | ✓         | --                   | --               | 4,76                   | 6,38             |
|                      | MI10090    | M10 x 90  | ✓         | 6,35                 | 8,18             |                        |                  |
|                      | MI10120    | M10 x 120 | ✓         |                      |                  |                        |                  |
|                      | MI10150    | M10 x 150 | ✓         |                      |                  |                        |                  |
|                      | MI12075    | M12 x 75  | [x]       | --                   | --               | 5,50                   | 6,61             |
|                      | MI12090    | M12 x 90  | ✓         | --                   | --               | 6,35                   | 8,28             |
|                      | MI12110    | M12 x 110 | ✓         | 9,92                 | 11,84            |                        |                  |
|                      | MI12140    | M12 x 140 | ✓         |                      |                  |                        |                  |
|                      | MI16090    | M16 x 90  | [x]       | --                   | --               | 6,70                   | 8,03             |
|                      | MI16145    | M16 x 145 | ✓         | 13,89                | 22,13            | --                     | --               |
|                      | MI16170    | M16 x 170 | ✓         |                      |                  |                        |                  |
|                      | MI20120    | M20 x 120 | [x]       | --                   | --               | 11,68                  | 28,03            |
|                      | MI20170    | M20 x 170 | ✓         | 19,84                | 34,54            | --                     | --               |
|                      | MI20220    | M20 x 220 | ✓         |                      |                  |                        |                  |
|                      | MTH-A4     | MIA406045 | M6 x 45   | [x]                  | --               | --                     | 2,93             |
| MIA406060            |            | M6 x 60   | ✓         | 4,29                 | 2,82             | --                     | --               |
| MIA406080            |            | M6 x 80   | ✓         |                      |                  |                        |                  |
| MIA408050            |            | M8 x 50   | [x]       | --                   | --               | 2,15                   | 2,58             |
| MIA408075            |            | M8 x 75   | ✓         | 5,71                 | 5,12             | 3,57                   | 4,85             |
| MIA408090            |            | M8 x 90   | ✓         |                      |                  |                        |                  |
| MIA408115            |            | M8 x 115  | ✓         |                      |                  |                        |                  |
| MIA410070            |            | M10 x 70  | ✓         | --                   | --               | 4,76                   | 6,38             |
| MIA410090            |            | M10 x 90  | ✓         | 6,35                 | 8,18             |                        |                  |
| MIA410120            |            | M10 x 120 | ✓         |                      |                  |                        |                  |
| MIA410150            |            | M10 x 150 | ✓         |                      |                  |                        |                  |
| MIA412075            |            | M12 x 75  | [x]       | --                   | --               | 5,50                   | 6,38             |
| MIA412090            |            | M12 x 90  | ✓         | --                   | --               | 6,35                   | 8,28             |
| MIA412110            |            | M12 x 110 | ✓         | 9,92                 | 11,84            |                        |                  |
| MIA412140            |            | M12 x 140 | ✓         |                      |                  |                        |                  |
| MIA416090            |            | M16 x 90  | [x]       | --                   | --               | 6,70                   | 8,03             |
| MIA416145            |            | M16 x 145 | ✓         | 13,89                | 22,13            | --                     | --               |
| MIA416170            |            | M16 x 170 | ✓         |                      |                  |                        |                  |
| MIA420120            |            | M20 x 120 | [x]       | --                   | --               | 11,68                  | 28,03            |
| MIA420170            |            | M20 x 170 | ✓         | 19,84                | 34,54            | --                     | --               |
| MIA420220            |            | M20 x 220 | ✓         |                      |                  |                        |                  |

1 kN ≈ 100 kg

Unterstrichene und kursiv gedruckte Werte geben das Stahlversagen an; die **fett** gedruckten Werte geben das Versagen durch Betonausbruch und die restlichen das Versagen durch Herausziehen an.

| VERGRÖßERUNGSFAKTOREN FÜR HERAUSZIEHEN<br>UNTER ZUGBEANSPRUCHUNG FÜR HOCHFESTEN BETON |        |        |        |
|---------------------------------------------------------------------------------------|--------|--------|--------|
| BETONFAKTOR                                                                           | C30/37 | C40/50 | C50/60 |
| $\Psi_c$ (ungerissen)                                                                 | 1,22   | 1,41   | 1,55   |

## 7. OFFIZIELLE DOKUMENTE

Bei unserer Vertriebsabteilung oder über unsere Website [www.indexfix.com](http://www.indexfix.com) können Sie folgende Dokument erhalten:

- EU-Zulassung ETA 05/0242 für den Einbau in ungerissenem Beton gemäß EAD 330232-00-0601, Option 7, von M6 bis M20.
- Leistungserklärung DoP MTH.
- Leistungserklärung DoP MTH-A2.
- Leistungserklärung DoP MTH-A4.
- Erhältlich für das Berechnungsprogramm für Verankerungen INDEXcal.