

## DROP-IN TDA – INTERNALLY THREADED SLEEVE ANCHOR

### Features:

- Deformation controlled fixing
- Approved for use in non-cracked concrete
- Approved for structural applications in non-cracked concrete
- Lipped and smooth versions

### Benefits:

- Quick and simple installation
- One anchor for concrete from C20/25 to C50/60
- Suitable for bolts and threaded rod
- Adjustable fixture thickness
- Bolt and stud can be removed for temporary structures



### Base material:

Non-cracked concrete from C20/25 to C50/60



ETA 22/0153 for M12 + M16 only

| TDA anchor designation |                    |               |                |
|------------------------|--------------------|---------------|----------------|
| Trutek Drop-in Anchor  | Thread size d [mm] | Short version | Lipped version |
| <b>TDA</b>             | <b>08</b>          | <b>LS</b>     | <b>L</b>       |

### Product Range

|              |         | Thread Diameter | Outside Diameter | Anchor Length | Internal Thread Length | Drill Hole Diameter | Drill Hole Depth | Fixture Clearance Hole | Installation Torque (Max) | Setting Punch |
|--------------|---------|-----------------|------------------|---------------|------------------------|---------------------|------------------|------------------------|---------------------------|---------------|
| Product Code |         | d               | D                | L             | L <sub>th</sub>        | d <sub>o</sub>      | h <sub>nom</sub> | d <sub>r</sub>         | T <sub>inst</sub>         | Reference     |
| Smooth       | Lipped  | mm              | mm               | mm            | mm                     | mm                  | mm               | mm                     | Nm                        |               |
| TDA08        | TDA08L  | 8               | 10               | 30            | 13                     | 10                  | 33               | 9                      | 8                         | TDST08        |
| TDA10        | TDA10L  | 10              | 12               | 40            | 17                     | 12                  | 43               | 12                     | 15                        | TDST10        |
| TDA12        | TDA12L  | 12              | 15               | 50            | 21                     | 15                  | 54               | 14                     | 35                        | TDST12        |
| TDAD12       | TDAD12L | 12              | 16               | 50            | 21                     | 16                  | 54               | 14                     | 35                        | TDST12        |
| TDA16        | TDA16L  | 16              | 20               | 65            | 30                     | 20                  | 70               | 18                     | 60                        | TDST16        |
| TDA20        | TDA20L  | 20              | 25               | 80            | 30                     | 25                  | 85               | 22                     | 120                       | TDST20        |

### Installation Data

| Thread Diameter              |                            | M08 | M10 | M12 | M12D | M16 | M20 |
|------------------------------|----------------------------|-----|-----|-----|------|-----|-----|
| <b>Non-cracked concrete</b>  |                            |     |     |     |      |     |     |
| Effective Anchorage Depth    | h <sub>ef</sub> [mm]       | 30  | 40  | 50  | 50   | 65  | 80  |
| Minimum Concrete Thickness   | h <sub>min</sub> [mm]      | 100 | 100 | 100 | 100  | 120 | 160 |
| Characteristic Spacing       | S <sub>cr,N,ucr</sub> [mm] | 210 | 280 | 350 | 350  | 455 | 560 |
| Characteristic Edge Distance | C <sub>cr,V,ucr</sub> [mm] | 105 | 140 | 175 | 175  | 227 | 280 |
| Minimum Spacing              | S <sub>min</sub> [mm]      | 41  | 54  | 68  | 68   | 88  | 108 |
| Minimum Edge Distance        | C <sub>min</sub> [mm]      | 41  | 54  | 68  | 68   | 88  | 108 |

**\*\*All Data Values are based on correct installation using Setting tools provided by Trutek**

## Steel Limits

### Characteristic Tensile Steel limits

| Thread Diameter       |            |      | M08  | M10  | M12  | M12D | M16   | M20   |
|-----------------------|------------|------|------|------|------|------|-------|-------|
| Grade 4.8             | $N_{Rk,s}$ | [kN] | 14.6 | 23.2 | 33.7 | 33.7 | 62.8  | 98.0  |
| Partial Safety Factor | $M_{sN}$   | [-]  | 1.5  |      |      |      |       |       |
| Grade 5.8             | $N_{Rk,s}$ | [kN] | 18.3 | 29.0 | 42.2 | 42.2 | 78.5  | 122.5 |
| Partial Safety Factor | $M_{sN}$   | [-]  | 1.5  |      |      |      |       |       |
| Grade 8.8             | $N_{Rk,s}$ | [kN] | 29.3 | 46.4 | 67.4 | 67.4 | 125.6 | 196   |
| Partial Safety Factor | $M_{sN}$   | [-]  | 1.5  |      |      |      |       |       |

### Characteristic Shear Steel limits

| Shear - without lever arm |            |      |      |      |      |      |      |      |
|---------------------------|------------|------|------|------|------|------|------|------|
| Grade 4.8                 | $V_{Rk,s}$ | [kN] | 7.3  | 11.6 | 16.9 | 16.9 | 31.4 | 49.0 |
| Grade 5.8                 | $V_{Rk,s}$ | [kN] | 9.2  | 14.5 | 21.1 | 21.1 | 39.3 | 61.3 |
| Grade 8.8                 | $V_{Rk,s}$ | [kN] | 14.6 | 23.2 | 33.7 | 33.7 | 62.8 | 98   |
| Factor of Ductility       | $k_7$      | [-]  | 0.8  |      |      |      |      |      |

### Shear - with lever arm

|                       |              |      |      |      |       |       |       |       |
|-----------------------|--------------|------|------|------|-------|-------|-------|-------|
| Grade 4.8             | $M_{Rk,s}^0$ | [Nm] | 15.0 | 29.9 | 52.4  | 52.4  | 133.3 | 259.8 |
| Grade 5.8             | $M_{Rk,s}^0$ | [Nm] | 18.8 | 37.4 | 65.6  | 65.6  | 166.6 | 324.8 |
| Grade 8.8             | $M_{Rk,s}^0$ | [Nm] | 30.0 | 59.9 | 104.9 | 104.9 | 266.6 | 519.7 |
| Partial Safety Factor | $M_{sV}$     | [-]  | 1.25 |      |       |       |       |       |

**\*\*All Data Values are based on correct installation using Setting tools provided by Trutek**

## Fire Loads

### Characteristic Tensile Resistance for Fire Loads

| Thread Diameter   |      |      | M08 | M10 | M12 | M12D | M16  | M20 |
|-------------------|------|------|-----|-----|-----|------|------|-----|
| $N_{Rk,s,fi,30}$  | R30  | [kN] | -   | -   | 1.7 | 1.7  | 3.1  | -   |
| $N_{Rk,s,fi,60}$  | R60  | [kN] | -   | -   | 1.3 | 1.3  | 2.40 | -   |
| $N_{Rk,s,fi,90}$  | R90  | [kN] | -   | -   | 1.1 | 1.0  | 2.0  | -   |
| $N_{Rk,s,fi,120}$ | R120 | [kN] | -   | -   | 0.8 | 0.8  | 1.6  | -   |

### Characteristic Shear Resistance without lever arm for Fire Loads

| Thread Diameter   |      |      | M08 | M10 | M12 | M12D | M16 | M20 |
|-------------------|------|------|-----|-----|-----|------|-----|-----|
| $V_{Rk,s,fi,30}$  | R30  | [kN] | -   | -   | 1.7 | 1.7  | 3.1 | -   |
| $V_{Rk,s,fi,60}$  | R60  | [kN] | -   | -   | 1.3 | 1.3  | 2.4 | -   |
| $V_{Rk,s,fi,90}$  | R90  | [kN] | -   | -   | 1.1 | 1.1  | 2.0 | -   |
| $V_{Rk,s,fi,120}$ | R120 | [kN] | -   | -   | 0.8 | 0.8  | 1.6 | -   |

### Characteristic Shear Resistance with lever arm for Fire Loads

| Thread Diameter     |      |      | M08 | M10 | M12 | M12D | M16 | M20 |
|---------------------|------|------|-----|-----|-----|------|-----|-----|
| $M_{Rk,s,fi,30}^0$  | R30  | [Nm] | -   | -   | 3.9 | 3.9  | 9.3 | -   |
| $M_{Rk,s,fi,60}^0$  | R60  | [Nm] | -   | -   | 2.9 | 2.9  | 7.0 | -   |
| $M_{Rk,s,fi,90}^0$  | R90  | [Nm] | -   | -   | 2.5 | 2.5  | 6.0 | -   |
| $M_{Rk,s,fi,120}^0$ | R120 | [Nm] | -   | -   | 1.9 | 1.9  | 4.6 | -   |

**In the absence of other national regulations the partial safety for resistance under fire exposure = 1.0**

## Load Data

### Non-Cracked Concrete

#### Characteristic Resistance

| Thread Diameter |                    |      | M08 | M10  | M12  | M12D | M16  | M20  |
|-----------------|--------------------|------|-----|------|------|------|------|------|
| $N_{Rk}$        | Tensile Resistance | [kN] | 8.3 | 12.8 | 17.9 | 17.9 | 26.5 | 30.0 |

#### Design Resistance

| Thread Diameter |                    |      | M08 | M10 | M12  | M12D | M16  | M20  |
|-----------------|--------------------|------|-----|-----|------|------|------|------|
| $N_{Rd}$        | Tensile Resistance | [kN] | 4.6 | 7.1 | 11.9 | 11.9 | 14.7 | 16.7 |

#### Recommended Resistance

| Thread Diameter |                    |      | M08 | M10 | M12 | M12D | M16  | M20  |
|-----------------|--------------------|------|-----|-----|-----|------|------|------|
| $N_{rec}$       | Tensile Resistance | [kN] | 3.3 | 5.1 | 8.5 | 8.5  | 10.5 | 11.9 |

Includes Partial Safety Factor  $\gamma = 1.4$  in the absence of national regulations and type of loading Data is for Static and Quasi Static Loads for a single anchor

## Increasing Factors

| Thread Diameter |     |  | M08  | M10 | M12 | M12D | M16 | M20 |
|-----------------|-----|--|------|-----|-----|------|-----|-----|
| C30/3           | [-] |  | 1.22 |     |     |      |     |     |
| C 0/50          | [-] |  | 1.41 |     |     |      |     |     |
| C50/60          | [-] |  | 1.55 |     |     |      |     |     |

When using increasing factors care must be taken not to exceed steel limits

## Spacing & Edge Distances

|               |      |               |   |   |     |     |     |   |
|---------------|------|---------------|---|---|-----|-----|-----|---|
| Spacing       | [mm] | $S_{cr,N,fi}$ | - | - | 200 | 200 | 260 | - |
| Edge Distance | [mm] | $C_{cr,N,fi}$ | - | - | 100 | 100 | 130 | - |

The design method covers anchors with a fire attack from one side only. In the case of a fire attack from more than one side the edge distance shall be  $\geq 300\text{mm}$

## TDA anchor installation

### Must be set using Trutek Setting tools

