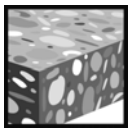
# HKD-D Push-in anchor | Single anchor application

| Anchor version | Benefits |
|---|---|
|  HKD-D Carbon steel | - simple and well proven<br>- tested and confirmed by everyday jobsite experience<br>- reliable setting thanks to simple visual check<br>- versatile<br>- for medium-duty fastening with bolts or threaded rods |


Concrete

## Basic loading data (for a single anchor)

**All data in this section applies to**
- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Concrete as specified in the table
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cube}$ = 25 N/mm²
- screw or rod with steel grade 5.8 (carbon steel)

### Mean Ultimate Resistance

| Anchor size | | M12x50 |
|---|---|---|
| Tensile $N_{Ru,m}$ | kN | 23,8 |
| Shear $V_{Ru,m}$ | kN | 23,2 |

### Characteristic Resistance

| Anchor size | | M12x50 |
|---|---|---|
| Tensile $N_{Rk}$ | kN | 17,8 |
| Shear $V_{Rk}$ | kN | 21,1 |

### Design Resistance

| Anchor size | | M12x50 |
|---|---|---|
| Tensile $N_{Rd}$ | kN | 11,9 |
| Shear $V_{Rd}$ | kN | 16,9 |

### Recommended loads [a)]

| Anchor size | | M12x50 |
|---|---|---|
| Tensile $N_{rec}$ | kN | 8,5 |
| Shear $V_{rec}$ | kN | 12,0 |

a) With overall partial safety factor for action $\gamma$ = 1,4. The partial safety factors for action depend on the type of loading and shall be taken from national regulations. According ETAG 001, annex C, the partial safety factor is $\gamma_G$ = 1,35 for permanent actions and $\gamma_Q$ = 1,5 for variable actions.

## Materials

### Mechanical properties of HKD-D

| Anchor size | | M12x50 |
|---|---|---|
| Nominal tensile strength $f_{uk}$ | [N/mm²] | 570 |
| Yield strength $f_{yk}$ | [N/mm²] | 460 |
| Stressed cross-section $A_s$ | [mm²] | 84,2 |
| Moment of resistance W | [mm³] | 262,5 |
| Char. bending resistance $M^0_{Rk,s}$ with 5.8 Steel Grade | [Nm] | 65,5 |

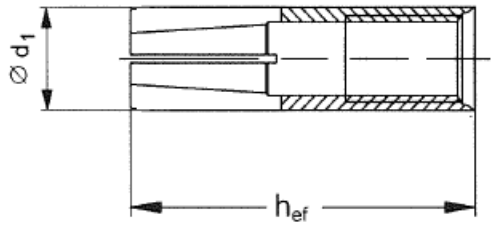
## Material quality

| Part | Material |
|---|---|
| Anchor Body | Steel Fe/Zn5 galvanised to min. 5 µm |
| expansion plug | Steel Fe/Zn5 galvanised to min. 5 µm |

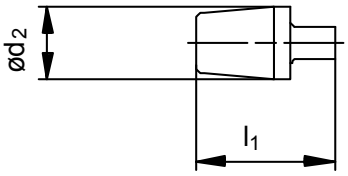
## Anchor dimensions

| Thread size | $h_{ef}$ [mm] | $d_1$ [mm] | $d_2$ [mm] | $l_1$ [mm] |
|---|---|---|---|---|
| M12x50 | 50 | 15,8 | 10,2 | 20 |

## Anchor body




## Expansions plugs




## Setting

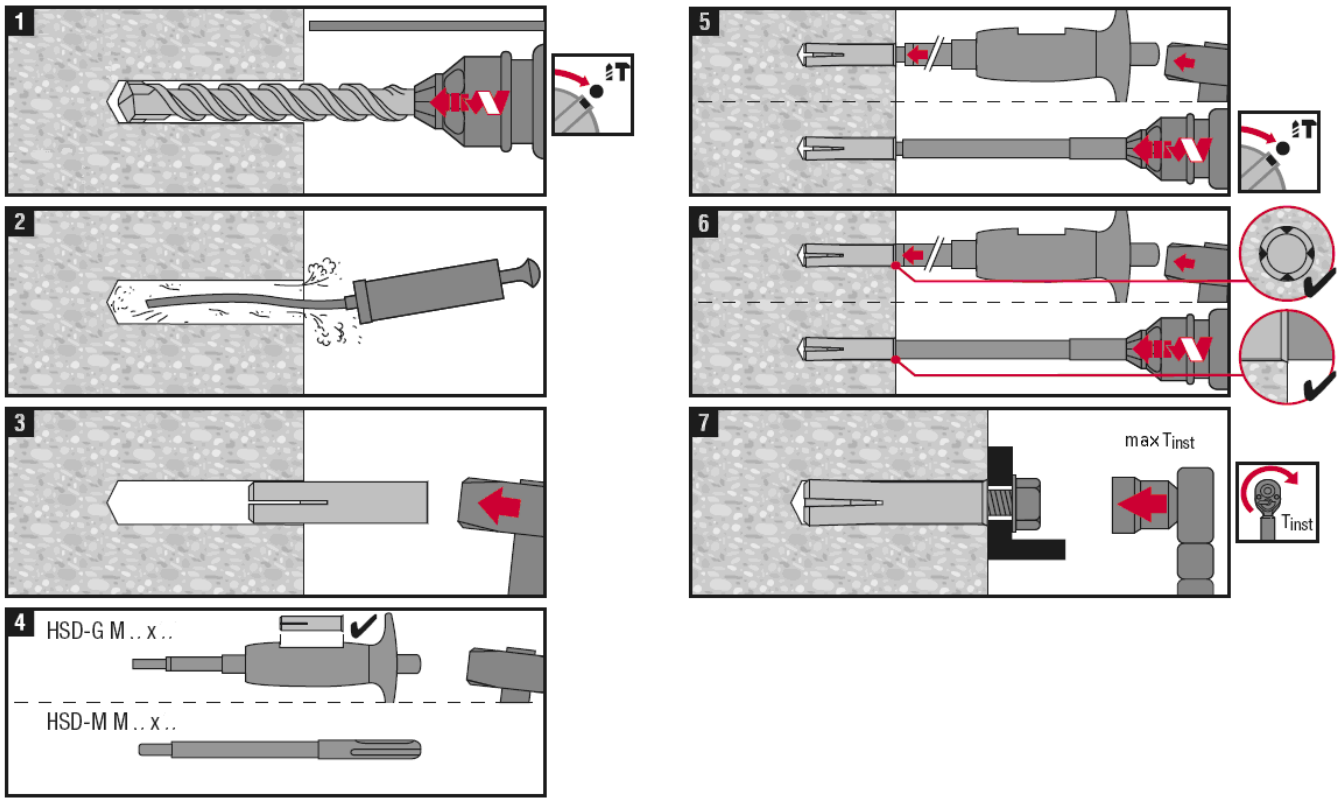
### Installation equipment

| Anchor size | | M12x50 |
|---|---|---|
| Rotary hammer | | TE 7 – TE 40 |
| Machine setting tool | HSD-M | M12x50 |
| Hand Setting tool | HSD-G | |
| Other tools | | hammer, torque wrench, blow out pump |

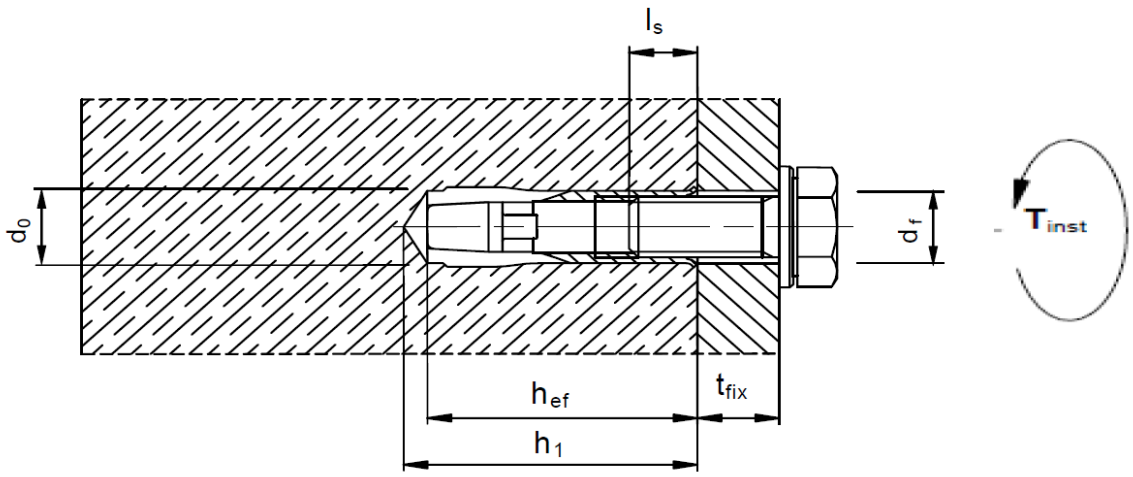
### Setting instruction

For detailed information on installation see instruction for use given with the package of the product.

For technical data for anchors in diamond drilled holes please contact the Hilti Technical advisory service.



## Setting details: depth of drill hole $h_1$ and effective anchorage depth $h_{ef}$




## Setting details

| Anchor size | | | M12x50 |
|---|---|---|---|
| Nominal diameter of drill bit | $d_o$ | [mm] | 16 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | [mm] | 16,5 |
| Depth of drill hole | $h_1 \geq$ | [mm] | 54 |
| Screwing depth | $l_{s,min}$ | [mm] | 14 |
| | $l_{s,max}$ | [mm] | 24 |
| Diameter of clearance hole in the fixture | $d_f \leq$ | [mm] | 14 |
| Effective anchorage depth | $h_{ef}$ | [mm] | 50 |
| Max. torque moment | $T_{inst}$ | [Nm] | 80 |

## Base material thickness, anchor spacing and edge distances

| Anchor size | | | M12x50 |
|---|---|---|---|
| Minimum base material thickness | $h_{min}$ | [mm] | 100 |
| Minimum spacing and minimum edge distance | $s_{min}$ | [mm] | 150 |
| | $c_{min}$ | [mm] | 175 |