## GENERAL INFORMATION

# SNAKE-PRO

*Internal Threaded Self Tapping Screw Anchor*

### PRODUCT DESCRIPTION

The Snake-Pro anchor is an internally threaded, self-tapping screw anchor designed for consistent performance in uncracked and cracked concrete. This together with its easy installation by a power tool makes the Snake-Pro anchor the first choice for overhead applications otherwise carried out by drop-in anchors. After installation any kind of steel element can be threaded in. The Snake-Pro anchor is fully removable.

### GENERAL APPLICATIONS AND USES

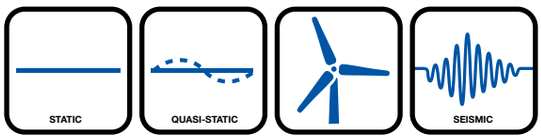
### FEATURES AND BENEFITS

- Internal threaded sleeve concrete screw
- Easy installation with impact torque wrench, perfect for overhead applications
- Anchor can be removed after installation
- Perfect replacement for drop-in anchors particularly for cracked concrete applications
- Delivered with special drill bit and setting tool

### APPROVALS AND LISTINGS

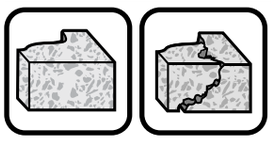

* Please refer to ETA-13/0054 for load capacities under fire

### LOADING CONDITIONS




* Please refer to ETA-13/0054 for seismic performance load data

### SUITABLE BASE MATERIALS



## VERSIONS

Internal Threaded

Carbon Steel, Zinc Plated

## APPROVALS

- ETA-13/0054



DDA
DEWALT DESIGN ASSIST

Real-Time Anchor Design Software

anchors.dewalt.com/anchors/tech-support-software/dewalt_design_assist.php

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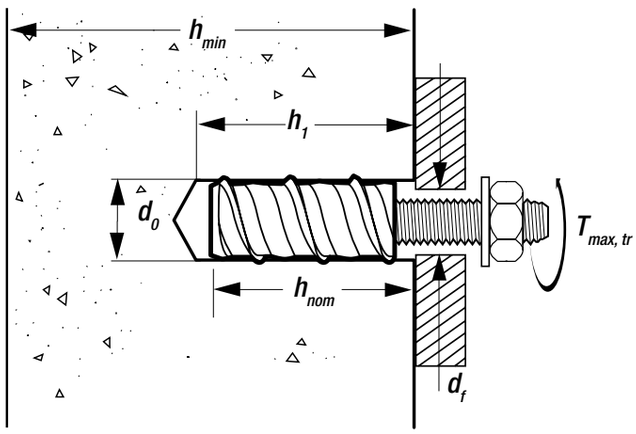
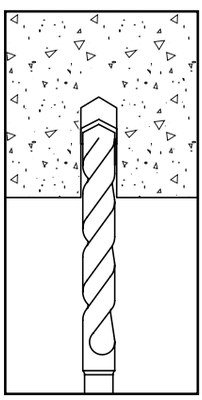
# INSTALLATION INFORMATION

## INSTALLATION DATA

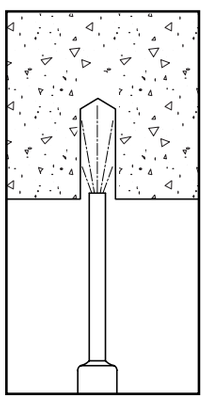
| | Notation | Unit | M10 |
|---|---|---|---|
| Anchor diameter | d | [mm] | 12.7 |
| Nominal drill bit diameter | $d_0$ | [mm] | 12.7 (1/2") |
| Diameter of hole clearance in fixture | $d_f$ | [mm] | 12 |
| Nominal embedment depth | $h_{nom}$ | [mm] | 41 |
| Effective embedment depth | $h_{ef}$ | [mm] | 28 |
| Drill hole depth | $h_1$ | [mm] | 50 |
| Minimum member thickness | $h_{min}$ | [mm] | 100 |
| Minimum spacing | $s_{min}$ | [mm] | 80 |
| Minimum edge distance | $c_{min}$ | [mm] | 80 |
| Maximum torque threaded rod | $T_{max,tr}$ | [Nm] | 10 |
| Maximum torque impact wrench | $T_{max,iw}$ | [Nm] | 488 |



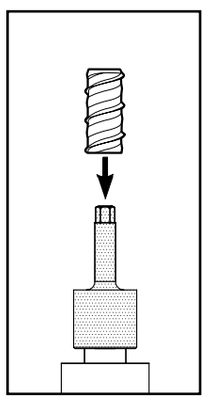

## INSTALLATION INSTRUCTIONS



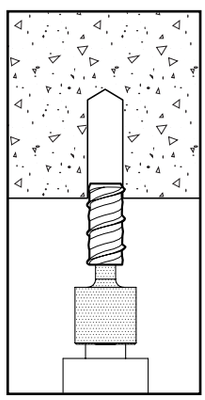
1.) *Using the proper drill bit size, drill a hole into the base material to the required depth.*



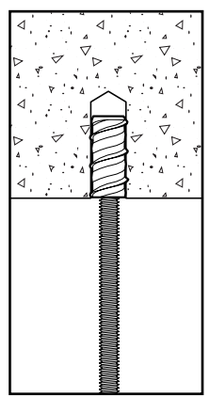
2.) *Remove dust and debris from the hole using a hand pump or compressed air.*



3.) *Attach the Snake-Pro setting tool to an impact wrench, mount the anchor onto the setting tool.*



4.) *Drive the anchor until the tool comes into contact with the surface of the base material.*



5.) *Insert threaded rod or bolt.*

For complete installation instructions, see technical approval.

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## DESIGN INFORMATION

### TENSION LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

**According to EN 1992-4 (and AS 5216).**

| | Notation | Unit | M10 |
|---|---|---|---|
| **Steel failure** | | | |
| Characteristic resistance | $N_{Rk,s}$ | [kN] | 24.4 |
| Partial safety factor | $\gamma_{Ms}$ 1) | [-] | |
| **Pullout failure** | | | |
| **Cracked concrete** | | | |
| Characteristic resistance C20/25 | $N_{Rk,p}$ | [kN] | 3.0 |
| Partial safety factor | $\gamma_{Mp}$ 1) | [-] | |
| **Uncracked concrete** | | | |
| Characteristic resistance C20/25 | $N_{Rk,p}$ | [kN] | 5.0 |
| Partial safety factor | $\gamma_{Mp}$ 1) | [-] | |
| **Increasing factor for concrete strength** | | | |
| C30/37 | $\psi_c$ | [-] | |
| C40/50 | $\psi_c$ | [-] | |
| C50/60 | $\psi_c$ | [-] | |
| **Concrete failure** | | | |
| **Concrete cone failure** | | | |
| Characteristic spacing | $s_{cr,N}$ | [mm] | 84 |
| Characteristic edge distance | $c_{cr,N}$ | [mm] | 42 |
| Partial safety factor for cracked concrete | $\gamma_{Mc}$ 1) | [-] | |
| Partial safety factor for uncracked concrete | $\gamma_{Mc}$ 1) | [-] | |
| **Splitting failure** | | | |
| Characteristic spacing | $s_{cr,sp}$ | [mm] | 160 |
| Characteristic edge distance | $c_{cr,sp}$ | [mm] | 80 |
| Partial safety factor for cracked concrete | $\gamma_{Msp}$ 1) | [-] | |
| Partial safety factor for uncracked concrete | $\gamma_{Msp}$ 1) | [-] | |
| **Increasing factor for concrete strength** | | | |
| C30/37 | $\psi_c$ | [-] | |
| C40/50 | $\psi_c$ | [-] | |
| C50/60 | $\psi_c$ | [-] | |

1) In absence of other national regulations
2) Partial safety factor of $\gamma_2 = 1.2$ is included

DDA DEWALT DESIGN ASSIST The DEWALT Design Assist is a powerful anchor design software which helps you to design simple and complex anchorages. The design data of all DEWALT anchor products is readily available. To download this software for free, go to anchors.DEWALT.com/anchors/tech-support-software/DEWALT_design_assist.php

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## SHEAR LOAD CAPACITIES - PARAMETERS FOR CALCULATION OF DESIGN STRENGTH

**According to EN 1992-4 (and AS 5216).**

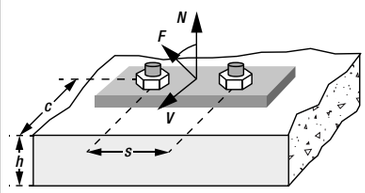
| | Notation | Unit | M10 |
|---|---|---|---|
| **Steel failure** | | | |
| **Steel failure without lever arm** | | | |
| Characteristic resistance | $V_{Rk,s}$ | [kN] | 12.2 |
| Partial safety factor | $\gamma_{Ms}$ 1) | [-] | |
| **Steel failure with lever arm (bending)** | | | |
| Characteristic resistance | $M^0_{Rk,s}$ | [Nm] | 31.0 |
| Partial safety factor | $\gamma_{Ms}$ 1) | [-] | |
| **Concrete failure** | | | |
| **Pry-out failure** | | | |
| Factor in equation (5.6) of ETAG 001 Annex C | k | [-] | 1 |
| Partial safety factor | $\gamma_{Mc}$ 1) | [-] | |
| **Edge failure** | | | |
| Effective length of anchor | $l_f$ | [mm] | 31.8 |
| Outside diameter of anchor | $d_{nom}$ | [mm] | 12.7 |
| Partial safety factor | $\gamma_{Mc}$ 1) | [-] | |

1) In absence of other national regulations
2) Partial safety factor of $\gamma_2 = 1.0$ is included

## PRECALCULATED TENSION AND SHEAR CAPACITIES

**According to EN 1992-4 (and AS 5216).**

- The following tables are meant to give the designer aid in the preliminary design process. No responsibility is taken for the correctness of these data.
- The given values are valid for normal concrete C20/25 ($f'_c$ = 20 MPa) and static/quasi-static loads with the exact dimensional information given. For any other conditions, the use of DDA is recommended.
- The values in the table below are design level loads. This assumes a safety factor is included both on the loading and the resistance.
- For cracked concrete, splitting failure is not considered assuming that a reinforcement is present which limits the crack width to 0.3 mm.
- For further details and background information please see the introduction of this manual.




| M10 | C20/25 | Anchoring located far from any edge | | | | | Anchoring located close to an edge | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Embedment depth | $h_{ef}$ [mm] | 28.0 | | | | | | | | | |
| Member thickness | h [mm] | 100 | | | | | | | | | |
| Edge distance | c [mm] | - | - | - | - | - | 80 | 80 | 80 | 80 | 80 |
| Anchor spacing | s [mm] | - | 80 | 84 | 80 | 84 | - | 80 | 84 | 80 | 84 |
| | $N_{Rd}$ [kN] | 1.7 | 3.3 | 3.3 | 6.7 | 6.7 | 1.7 | 3.3 | 3.3 | 6.7 | 6.7 |
| | $F_{Rd}^{45°}$ [kN] | 1.9 | 3.8 | 3.9 | 7.6 | 7.7 | 1.9 | 3.8 | 3.9 | 5.9 | 6.0 |
| | $V_{Rd}$ [kN] | 3.6 | 6.9 | 7.1 | 13.6 | 14.2 | 3.6 | 6.9 | 7.1 | 7.4 | 7.5 |
| | $N_{Rd}$ [kN] | 2.8 | 5.6 | 5.6 | 11.1 | 11.1 | 2.8 | 5.6 | 5.6 | 11.1 | 11.1 |
| | $F_{Rd}^{45°}$ [kN] | 3.0 | 6.0 | 6.1 | 11.9 | 12.1 | 3.0 | 6.0 | 6.1 | 9.1 | 9.2 |
| | $V_{Rd}$ [kN] | 5.0 | 9.7 | 10.0 | 19.0 | 19.9 | 5.0 | 9.7 | 10.0 | 10.4 | 10.5 |

■ - Steel strengths controls ■ - Concrete strength controls ■ - Anchor pullout strength controls

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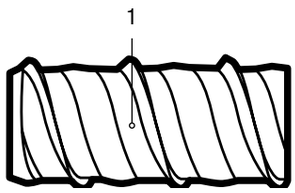
## MATERIAL INFORMATION

### MATERIAL SPECIFICATION




| Part no. | Designation | Material | Protection |
|---|---|---|---|
| 1 | Internal threaded screw | C-steel, special hardened | Zinc plated 5 µm |

## ORDERING INFORMATION

### Anchor

| Art. no. | Type | Thread Size | Length [mm] | Box qty. | Carton qty. |
|---|---|---|---|---|---|
| **Snake-Pro - zinc plated** | | | | | |
| SM10PRO-PWR | M10 Snake-Pro internal threaded anchor | M10 | 31 | 50 | 500 |
| SM10KIT-PWR | M10 Snake-Pro internal threaded anchor Kit* | M10 | 31 | 500 | - |
| * Includes 2 SDS Stop Drill bits and 1 setting tool | | | | | |

SNAKE-PRO

### Setting Tool

| Art. no. | Type | Box qty. |
|---|---|---|
| SSTM10-POW | M10 Snake-Pro Setting tool | 1 |
| SB12.7x50-PWR | Snake-Pro ACCU-bit SDS Plus stop drill bit | 1 |

SNAKE-PRO SETTING TOOL

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CONTACT INFORMATION

## TECHNICAL SUPPORT CONTACT INFORMATION


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The recommendations, information and data contained in this manual are put together with the greatest care and accuracy possible. It is based on principles, equations and safety factors set out in the technical documentation of Stanley Black & Decker that are believed to be correct and current as of October 2019. The information and data is subject to change after such date as Stanley Black & Decker reserves the right to change the designs, materials and specifications of the products in this manual without notice.

It is the responsibility of the design professional to ensure that a suitable product is selected, properly designed and used in the intended application. This includes that the selected product and its use is compliant with the applicable building codes and other legal requirements and will satisfy durability and performance criteria and margins of safety which they determine are applicable. The products must be used, handled, applied and installed strictly in accordance with all current instructions for use published by Stanley Black & Decker.

The performance data given in this manual are the result of the evaluation of tests conducted under laboratory conditions. It is the responsibility of the designer and installer in charge to consider the conditions on site and to ensure the performance data given in the manual is applicable to the actual conditions. In particular the base material and environmental conditions have to be checked prior to installation. In case of doubt, contact the technical support of Stanley Black & Decker.

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