

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-13/0407  
of 11 March 2019**

English translation prepared by DIBt - Original version in German language

### General Part

Technical Assessment Body issuing the  
European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH  
Nails

Product family  
to which the construction product belongs

Power-actuated fastener for multiple use in concrete  
for non-structural applications

Manufacturer

Stanley Black & Decker Deutschland GmbH  
Richard-Klinger-Straße 11  
65510 Idstein  
DEUTSCHLAND

Manufacturing plant

Manufacturing Plant 4, Plant 9 and Plant 15

This European Technical Assessment  
contains

12 pages including 3 annexes which form an integral part  
of this assessment

This European Technical Assessment is  
issued in accordance with Regulation (EU)  
No 305/2011, on the basis of

EAD 330083-02-0601

This version replaces

ETA-13/0407 issued on 9 February 2018

**European Technical Assessment**

**ETA-13/0407**

English translation prepared by DIBt

**Page 2 of 12 | 11 March 2019**

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**Specific Part****1 Technical description of the product**

The C4 & C5 TRAK-IT® XH, HD Nails and DCN890 XH Nails are power-actuated fasteners which are placed into the concrete without previous drill by use of a gas actuated tool TRAK-IT® C4, C5 or C5-ST or an cordless concrete nailer DCN 890. They are anchored in the concrete by sintering and mechanical interlock.

The fastener (nail) is made of galvanised steel. The nails are arranged and connected with each other by special plastic strips that guides the nails in the gas actuated tool magazine.

The product description is given in Annex A.

**2 Specification of the intended use in accordance with the applicable European Assessment Document**

The performances given in Section 3 are only valid if the fastener is used in compliance with the specifications and conditions given in Annex B.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the fastener of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

**3 Performance of the product and references to the methods used for its assessment****3.1 Mechanical resistance and stability (BWR 1)**

Essential characteristic	Performance
Characteristic values of resistance and displacements	See Annex C1
Durability	Durability is ensured if the specifications of intended use according to Annex B are taken into account.

**3.2 Safety in case of fire (BWR 2)**

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C1

**4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base**

In accordance with EAD No. 330083-02-0601, the applicable European legal act is: 1997/463/EC (EU).

The system to be applied is: 2+

**5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document**

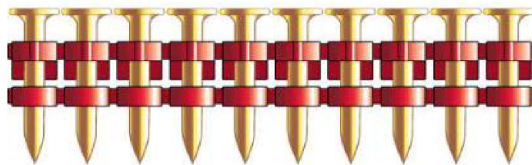
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 11 March 2019 by Deutsches Institut für Bautechnik

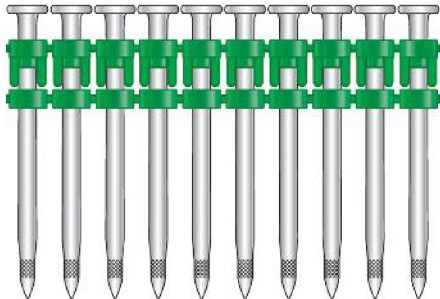
BD Dipl.-Ing. Andreas Kummerow  
Head of Department

*beglaubigt:*  
Baderschneider

**Nail Types**



TRAK-IT® XH Extra Hard Nails

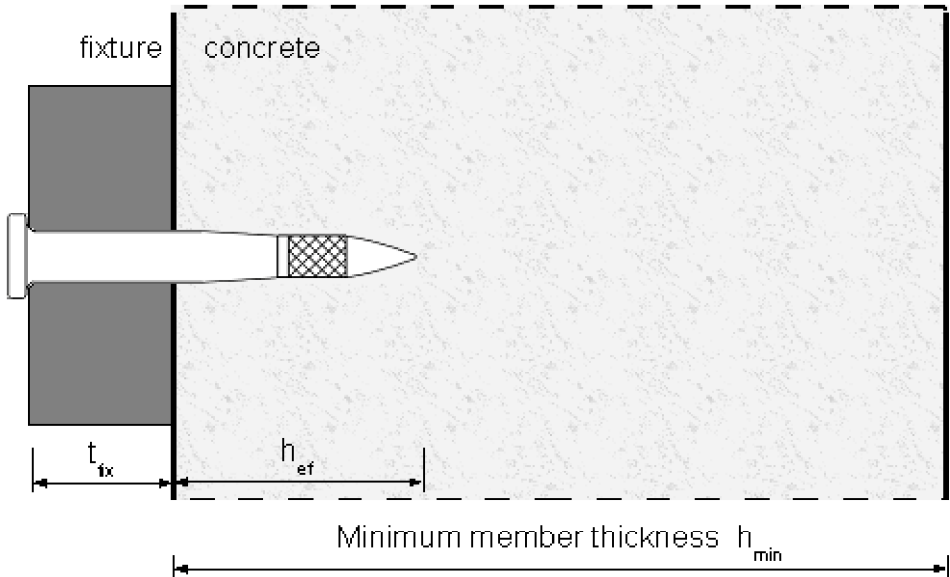


TRAK-IT® HD Nails



DCN890 XH Extra Hard Nails

**Installed condition**

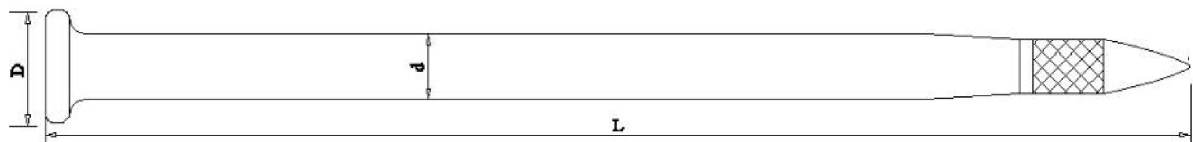


C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails

Product

Annex A1

TRAK-IT® HD Nails



TRAK-IT® XH Extra Hard Nails and DCN890 XH Extra Hard Nails

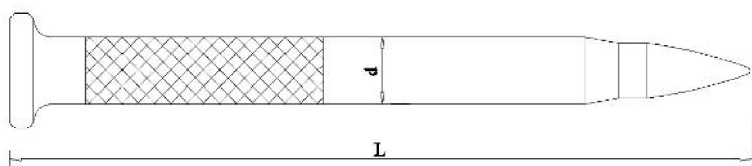


Table A1: Dimensions and materials

		HD nails	XH nails	XH nails	XH nails
For use with tool	[-]	C4	C4	C5	DCN890
Length of nails L	[mm]	22-65	22-38	22-38	19-57
Shaft diameter d	[mm]	3,7	3,0	3,0	3,0
Head diameter D	[mm]	6,3	6,3	6,3	6,3
Material nail	[-]	Hardened C-steel			
Material plastic collation	[-]	Polyethylene			
Zinc plating	[-]	Mechanical galvanized min. 8 µm	Mechanical or Electro galvanized min. 5 µm	Mechanical or Electro galvanized min. 5 µm	Mechanical or Electro galvanized min. 5 µm

C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails

Material and Dimensions

Annex A2

## Specification of intended use

### Anchorage subject to:

- Static and quasi-static loads.

### Base materials:

- Reinforced or unreinforced normal weight concrete according to EN 206-1:2000.
- For cracked and non-cracked concrete.
- Anchorages in two-dimensional load-bearing structures (slabs & walls).
- Strength classes C20/25 to C50/60 according to EN 206-1:2000 for use of setting tool C4.
- Strength classes C20/25 to C40/50 according to EN 206-1:2000 for use of setting tool C5.
- Strength classes C20/25 to C50/60 according to EN 206-1:2000 for use of setting tool DCN890.

### Use conditions (Environmental conditions):

- Structures subject to dry conditions.

### Design:

- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored. The position of the anchor is indicated on the drawings (e.g. position of the fastener relative to reinforcement or to supports etc.).
- The anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- The anchorages are designed in accordance with EN 1992-4:2018, Design Method C.
- Under fire exposure it must be ensured that local spalling of the concrete cover does not occur.
- The fastener with setting tool C4 and C5 is to be used only for multiple use for non-structural applications with following definition:  
 Number of fixing points  $n_1 \geq 4$ ,  
 Number of fasteners per fixing point  $n_2 = 1$ ,  
 Design value of actions  $F_{sd}$  per fixing point  $n_3 \leq 0,6$  kN.
- The fastener with setting tool DCN890 is to be used only for multiple use for non-structural applications with following definition:  
 Number of fixing points  $n_1 \geq 6$ ,  
 Number of fasteners per fixing point  $n_2 = 1$ ,  
 Design value of actions  $F_{sd}$  per fixing point  $n_3 \leq 0,3$  kN.
- The design of the fixture is such that in the case of excessive slip or failure of one fastener the load can be transmitted to neighboring fasteners without significantly violating the requirements on the fixture in the serviceability and ultimate limit state.

### Installation:

- Fastener installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

**C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails**

Intended use

**Annex B1**

**Table B1: Installation parameters (no previous drilling needed)**

		HD nails	XH nails	XH nails	XH nails
For use with tool	[-]	C4	C4	C5	DCN890
Maximum concrete strength class	[-]	C50/60	C50/60	C40/50	C50/60
Effective anchorage depth	$h_{ef}$ [mm]	$\geq 18$	$\geq 18$	$\geq 18$	$\geq 15$
Average anchorage depth when used in maximum concrete strength class	$h_{ef,m}$ [mm]	22	25	22	19
Diameter of clearance hole in the fixture	$d_f$ [mm]	4,0	3,5	3,5	3,5
Max. Thickness of fixture	$t_{fix}$ [mm]	L - 21 mm	L - 21 mm	L - 21 mm	L - 23 mm
<b>Member thickness, edge distances and spacing</b>					
Minimum member thickness	$h_{min}$ [mm]	80	80	80	80
Minimum spacing	$s_{min}$ [mm]	200	200	200	200
Minimum edge distance	$c_{min}$ [mm]	100	100	100	100

### Installation instructions

- Fastener installation in accordance with the manufacturer's specifications and drawings and using the specified installation device.
- Fasteners to be installed perpendicular to the surface of the base material.
- When setting, pay attention to setting defects. A setting defect is present if the nail can be pull out of the concrete by hand.
- Fasteners to be installed ensuring not less than the minimum effective anchorage depth according to Table 2. If the embedment depth is smaller than the minimum effective anchorage depth the nail must be assumed as a setting defect and may not be loaded.
- Damages on the concrete surface, caused by setting defects, have to be repaired according to EN 1504. A new fastener is set at a minimum distance away of 100 mm of the edge of the damaged surface.
- Use of setting tools according to Annex B3, B4 and B5. The setting tools TRAK-IT® C4 & C5 shall comply with EN 792-13:2009 and the setting tool DCN 890 shall comply with EN 60745-2-16:2010.

**C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails**

Installation parameters, installation instructions

**Annex B2**



**Powers Gas actuated tool and gas can**

TRAK-IT® C4  
as 150 Joule gas actuated tool



TRAK-IT® C5 (long track version) and  
TRAK-IT® C5-ST (short track version) 105 Joule gas actuated tool



**C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails**

Powers Gas tools C4 and C5 TRAK-IT® and corresponding gas can

**Annex B3**

**DEWALT Gas actuated tool and gas can**

TRAK-IT<sup>®</sup> C5 (long track version) and  
TRAK-IT<sup>®</sup> C5-ST (short track version) 105 Joule gas actuated tool



**C4 & C5 TRAK-IT<sup>®</sup> XH and HD Nails and DCN890 XH Nails**

**DEWALT Gas tools C5 TRAK-IT<sup>®</sup> and corresponding gas can**

**Annex B4**

**DEWALT DCN 890 Cordless Concrete Nailer 18V XR**



C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails

DEWALT DCN 890 Cordless Concrete Nailer

**Annex B5**

**Table C1: Characteristic values, Design method C**

			HD and XH nails	XH nails
For use with tool			<b>C4 and C5</b>	<b>DCN 890</b>
Characteristic resistance for all load directions	$F_{Rk}$	[N]	44	40
Partial safety factor	$\gamma_M^{1)}$	[-]	1,5	
Characteristic spacing	$s_{cr}$	[mm]	200	
Characteristic edge distance	$c_{cr}$	[mm]	150	
Displacements for all load directions	$\delta_0, \delta_\infty$	[mm]	$\leq 0,1$	

<sup>1)</sup> In absence of other national regulations

**Table C2: Characteristic values under fire exposure**

Fire resistance class			HD and XH nails	XH nails
R 30	For use with tool		<b>C4 and C5</b>	<b>DCN 890</b>
	Characteristic resistance for all load directions	$F_{Rk,fi}$ [N]	11	10
	Partial safety factor	$\gamma_{M,fi}^{1)}$ [-]	1,0	
	Characteristic spacing	$s_{cr}$ [mm]	200	
	Characteristic edge distance	$c_{cr}$ [mm]	150 <sup>2)</sup>	

<sup>1)</sup> In absence of other national regulations

<sup>2)</sup> If the fire attack is from more than one side, the edge distance shall be  $c \geq 300$  mm.

**C4 & C5 TRAK-IT® XH and HD Nails and DCN890 XH Nails**

Characteristic values

**Annex C1**