

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-12/0188**  
**of 7 October 2016**

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

Powers Trak-It® XH and HD nails for gas actuated tools  
C4 and C5

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 1 and Plant 2

This European Technical Assessment  
contains

10 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

European Assessment Document (EAD)  
330083-01-0601

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## Specific Part

### 1 Technical description of the product

The Powers Trak-It® XH and HD nails are power-actuated fasteners which are placed into the concrete without previous drill by use of a gas actuated tool C4 or C5. 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.

The characteristic material values, dimensions and tolerances of the fastener not given in Annex A correspond to the respective values laid down in the technical documentation<sup>1</sup> of this ETA.

### 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

<sup>1</sup> The technical documentation of this ETA is deposited at the Deutsches Institut für Bautechnik and, as far as relevant for the tasks of the notified bodies involved in the attestation of conformity procedure, is handed over to the notified bodies.

English translation prepared by DIBt

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

In accordance with EAD No. 330087-01-0601, 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 EAD**

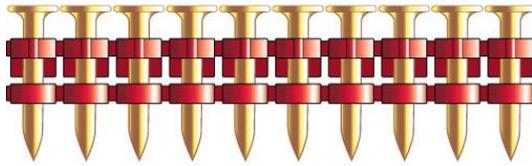
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 7 October 2016 by Deutsches Institut für Bautechnik

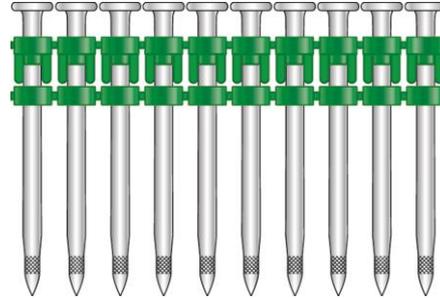
Uwe Bender  
Head of Department

*beglaubigt:*  
Wittstock

**Nail Types**

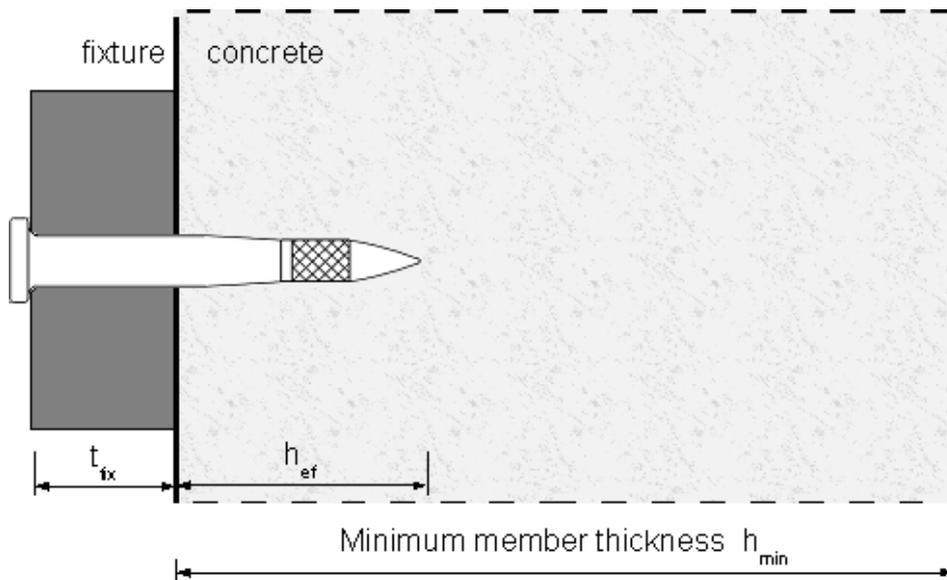


Trak-It® XH Nails



Trak-It® HD Nails

**Installed condition**

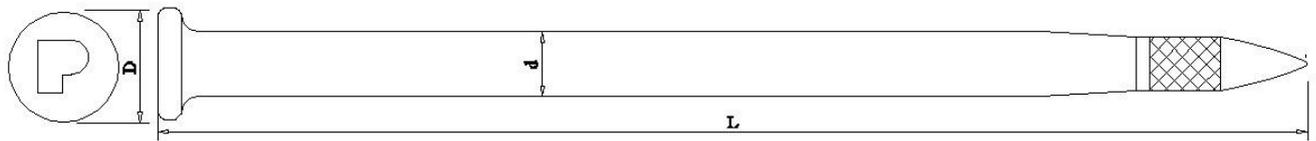


**Powers Trak-It® XH and HD Nails for gas actuated tools C4 und C5**

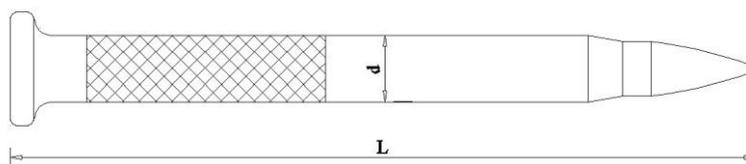
Product

**Annex A1**

### Trak-It® HD Nails



### Trak-It® XH Nails



**Table 1: Dimensions and materials**

Powers Trak-It®		HD nails	XH nails	XH nails
For use with gas tool	[-]	C4	C4	C5
Length of nails L	[mm]	22-65	22-38	22-38
Shaft diameter d	[mm]	3,7	3,0	3,0
Head diameter D	[mm]	6,3	6,3	6,3
Material nail	[-]	Hardened C-steel		
Material plastic collation	[-]	Polyethylene (red/green/yellow)		
Zinc plating	[-]	Mech. galvanized min. 8 µm	El. galvanized min. 5 µm	El. galvanized min. 5 µm

**Powers Trak-It® XH and HD Nails for gas actuated tools C4 und C5**

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.
- 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.
- For cracked and non-cracked concrete.
- Anchorage in two-dimensional load-bearing structures (slabs and walls).

### 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 ETAG 001, Annex C, Design Method C, August 2010 or in accordance with CEN/TS 1992-4-4:2009, Design Method C.
- The anchorages under fire exposure are designed in accordance with EOTA TR 020, May 2004 or in accordance with CEN/TS 1992-4:2009, Annex D. It must be ensured that local spalling of the concrete cover does not occur.
- The fastener 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 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.

**Powers Trak-It® XH and HD Nails for gas actuated tools C4 und C5**

Intended use

**Annex B1**

**Table 2: Installation parameters (no previous drilling needed)**

Powers Trak-It®			HD nails	XH nails	XH nails
For use with gas tool		[-]	C4	C4	C5
Maximum concrete strength class		[-]	C50/60	C50/60	C40/50
Effective anchorage depth	$h_{ef}$	[mm]	≥ 18	≥ 18	≥ 18
Average anchorage depth when used in maximum concrete strength class	$h_{ef,m}$	[mm]	22	25	22
Diameter of clearance hole in the fixture	$d_f$	[mm]	4,0	3,5	3,5
Max. Thickness of fixture	$t_{fix}$	[mm]	L - 21 mm	L - 21 mm	L - 21 mm
<b>Member thickness, edge distances and spacing</b>					
Minimum member thickness	$h_{min}$	[mm]	80	80	80
Minimum spacing	$s_{min}$	[mm]	200	200	200
Minimum edge distance	$c_{min}$	[mm]	150	150	150

### 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 of 18 mm. If the embedment depth is smaller than the minimum effective anchorage depth the nail must be assumed as a setting defect and it must 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. The setting tool shall be complied with EN 792-13:2009.

**Powers Trak-It® XH and HD Nails for gas actuated tools C4 und C5**

Installation parameters, installation instructions

**Annex B2**

**Gas actuated tool and gas can**

Trak-It® C4  
150 Joule gas actuated tool



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



**Powers Trak-It® XH and HD Nails for gas actuated tools C4 und C5**

Gas tools C4 and C5 and corresponding gas can

**Annex B3**

**Table 3: Characteristic values, Design method C**

Powers Trak-It <sup>®</sup>			HD and XH nails
Characteristic resistance for all load directions	$F_{Rk}$	[N]	44
Partial safety factor	$\gamma_M$ <sup>1)</sup>	[-]	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]	≤ 0,1

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

**Table 4: Characteristic values under fire exposure**

Fire resistance class	Powers Trak-It <sup>®</sup>		HD and XH nails	
R 30	Characteristic resistance for all load directions	$F_{Rk,fi}$	[N]	11
	Partial safety factor	$\gamma_{M,fi}$ <sup>1)</sup>	[-]	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.

**Powers Trak-It<sup>®</sup> XH and HD Nails for gas actuated tools C4 und C5**

Characteristic values

**Annex C1**