

Approval body for construction products  
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and  
Laender Governments



## European Technical Assessment

**ETA-16/0673**  
**of 24 January 2017**

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

Schnabl MDSN

Product family  
to which the construction product belongs

Deformation-controlled expansion anchor for multiple use  
for non-structural applications in concrete

Manufacturer

Schnabl Stecktechnik GmbH  
Bahnhofplatz 1  
3100 SANKT PÖLTEN  
ÖSTERREICH

Manufacturing plant

Herstellwerk 1  
manufacturing plant 1

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

Guideline for European technical approval of "Metal  
anchors for use in concrete", ETAG 001 Part 6: "Anchors  
for multiple use for non-structural applications",  
August 2010,  
used as European Assessment Document (EAD)  
according to Article 66 Paragraph 3 of Regulation (EU)  
No 305/2011.

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**Specific part**

**1 Technical description of the product**

The metal put-in anchor Schnabl MDSN is an anchor made of stainless steel which is placed into a drilled hole by through-hole mounting and anchored by deformation-controlled expansion. The description of the product 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 anchor 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 anchor 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)**

The essential characteristics regarding Mechanical resistance and stability are included under the Basic Works Requirement Safety in use.

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

Essential characteristic	Performance
Reaction to fire	Anchorage satisfy requirements for Class A1
Resistance to fire	See Annex C 1

**3.3 Safety in use (BWR 4)**

Essential characteristic	Performance
Characteristic resistance for tension and shear loads	See Annex C 1
Edge distances and spacing	See Annex B 2

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

In accordance with guideline for European technical approval ETAG 001, April 2013 used as European Assessment Document (EAD) according to Article 66 Paragraph 3 of Regulation (EU) No 305/2011 the applicable European legal act is: 96/195/EC.

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**

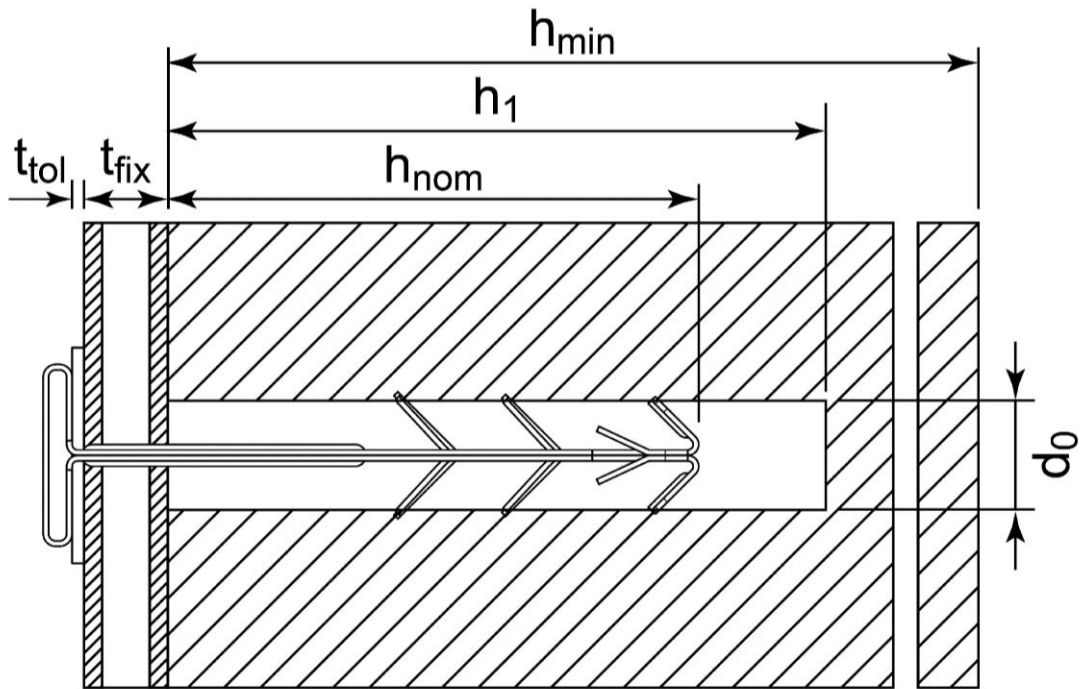
Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 24 January 2017 by Deutsches Institut für Bautechnik

Andreas Kummerow  
p. p. Head of Department

*beglaubigt:*  
Ziegler

### Installed anchor



### Legend

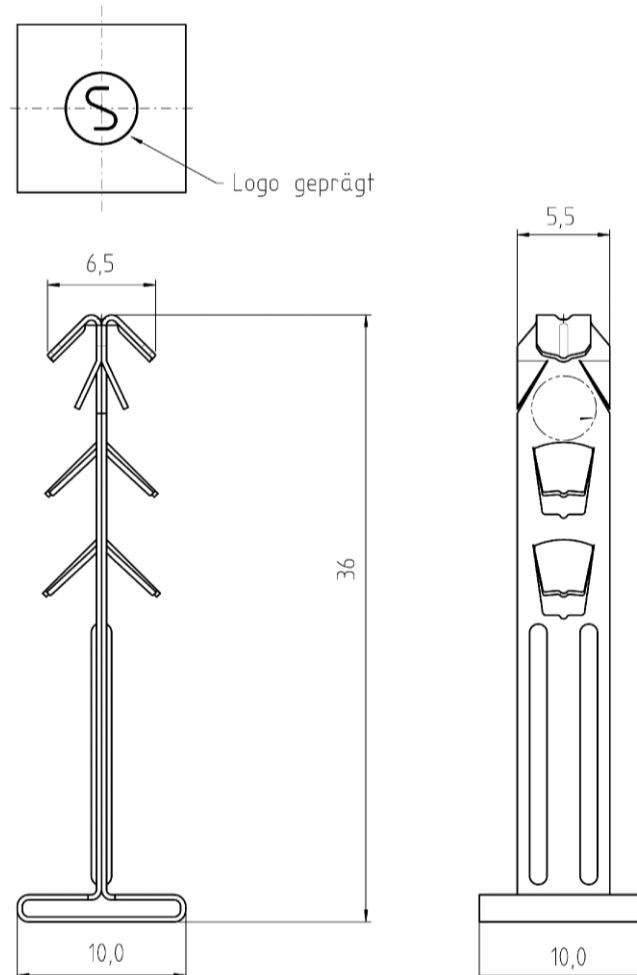
- $h_{min}$  = minimum thickness of member
- $h_{nom}$  = overall anchor embedment depth in the base material
- $h_1$  = depth of drilled hole to the deepest point
- $t_{tol}$  = thickness of equalizing layer or non-load-bearing coating
- $t_{fix}$  = thickness of fixture
- $d_0$  = drill hole diameter

Schnabl MDSN

Product description  
Installed condition

Annex A 1

## Schnabl MDSN



**Table A1: Dimensions and materials**

Metal nail		MDSN	
Length	L	mm	36
Width	$d_s$	mm	5,5
Area of nail head	$A_k$	mm x mm	10 x 10
Thickness of the shaft	$d_t$	mm	1,2
Material			stainless steel 1.4310

**Schnabl MDSN**

**Product description**  
Marking, dimensions and materials

**Annex A 2**

## Specifications of intended use

### Anchorage subject to:

- Static and quasi-static loads
- Multiple fixing of non-structural applications (The definition of multiple use is given in ETAG 001, Part 6)
- Fire exposure

### 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
- Cracked and non-cracked concrete

### Use conditions (Environmental conditions):

- Structures subject to dry internal conditions
- Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist

### Design:

- The anchorages are designed in accordance with the ETAG 001 Part 6, Edition August 2010 under the responsibility of an engineer experienced in anchorages and concrete.
- Verifiable calculation notes and drawings shall be prepared taking account of the loads to be anchored, the nature and strength of the base materials and the dimensions of the anchorage members as well as of the relevant tolerances. The position of the anchor is indicated on the design drawings.
- Anchorages under static or quasi-static actions are designed in accordance with ETAG 001, Annex C, design method C, Edition August 2010.
- Anchorages under fire exposure are designed in accordance with ETAG 001, Annex C, design method C, Edition August 2010 and EOTA Technical Report TR 020, Edition May 2004. It must be ensured that local spalling of the concrete cover does not occur.
- Fasteners are only to be used for multiple use for non-structural application, according to ETAG 001 Part 6, Edition August 2010.
- Shear loads with leverarm are to be excluded. Shear loads acting on anchors may be assumed to act without lever arm if both of the following conditions are fulfilled:
  - a) The fixture shall be made of metal and in the area of the anchorage be fixed directly to the concrete either without an intermediate layer or with a levelling layer of mortar (compression strength  $\geq 30 \text{ N/mm}^2$ ) with a thickness  $\leq d/2$ .
  - b) The fixture shall be in contact with the anchor over its entire thickness.

### Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Hole drilling by hammer drilling only.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of the aborted hole or smaller distance if the aborted drill hole is filled with high strength mortar and if under shear or oblique tension load it is not in the direction of load application.
- The anchor may only be set once.

<b>Schnabl MDSN</b>	<b>Annex B 1</b>
<b>Intended use</b> Specifications	

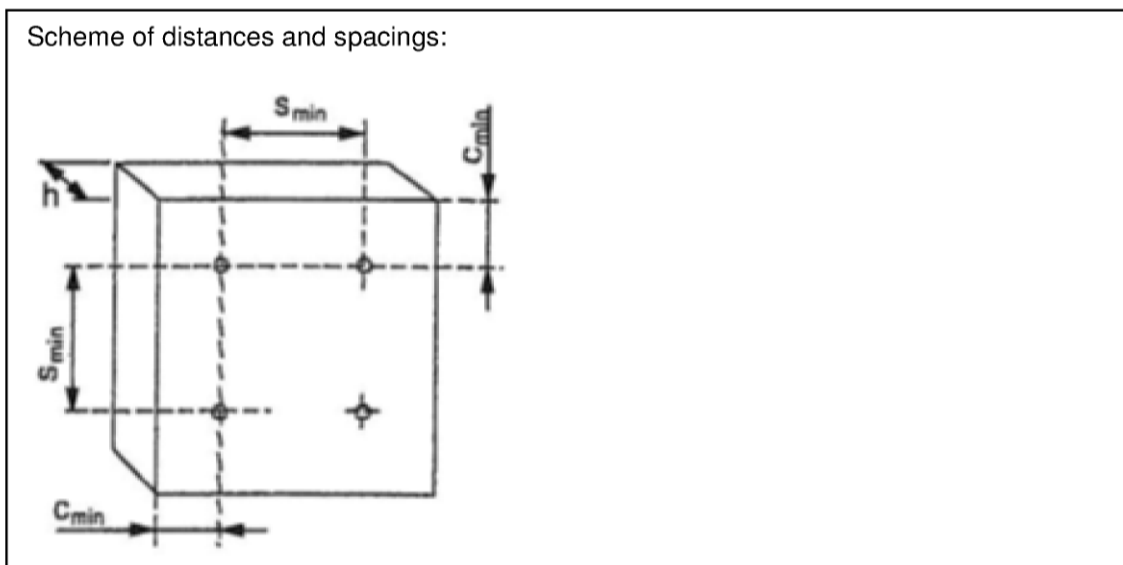
**Table B1: Installation parameters**

Metal nail			MDSN
Drill hole diameter	$d_0$	[mm]	6,0
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	6,40
Depth of drill hole to deepest point	$h_1 \geq$	[mm]	35
Overall anchor embedment depth in the base material	$h_{nom} \geq$	[mm]	25
Thickness of fixture and equalizing layer or non-load-bearing coating	$t_{fix} + t_{tol} \leq$	[mm]	10

**Table B2: Minimum thickness of member, edge distance and spacing in concrete**

Metal nail			MDSN
Minimum thickness of member	$h_{min}$	[mm]	80
Minimum edge distance	$c_{min}$	[mm]	60
Minimum spacing	$s_{min}$	[mm]	120

Scheme of distances and spacings:



**Schnabl MDSN**

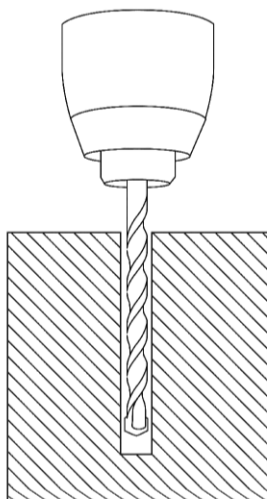
**Intended use**

Installation parameters, edge distances and spacing for use in concrete

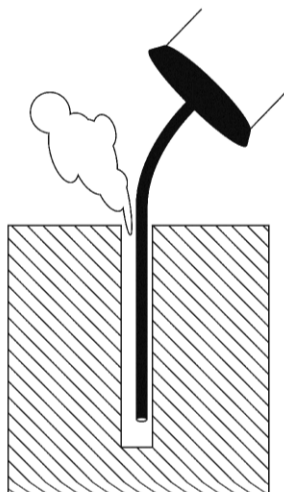
**Annex B 2**



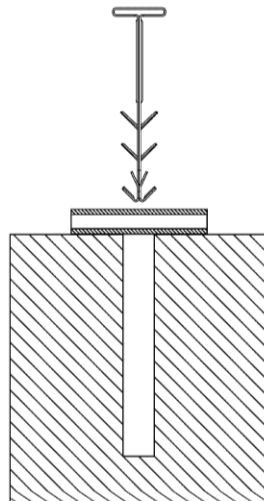
## Installation instructions



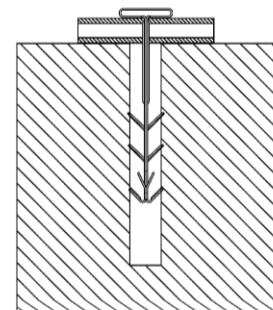
Drilling of a hole  
with a 6 mm drill



Cleaning of the drill-  
hole



Inserting of the metal  
nail through the fixture  
by hand



Installed condition

**Schnabl MDSN**

**Intended use**  
Installation instructions

**Annex B 3**

**Table C1: Characteristic resistance for pull-out failure for use in concrete (hammer drilling)**

Metal nail			MDSN
Characteristic resistance in cracked and uncracked concrete C20/25 - C50/60	$F_{Rk}$	[kN]	0,08
Partial safety factor for the material	$\gamma_M$	[kN]	1,8

**Table C2: Characteristic resistance under fire exposure in concrete C20/25 to C50/60 in any load direction without lever arm**

Metal nail			MDSN
Fire resistance class			
R 30	Characteristic resistance	$F_{Rk,fi30}$	[kN] 0,08
R 60	Characteristic resistance	$F_{Rk,fi60}$	[kN] 0,08
R 90	Characteristic resistance	$F_{Rk,fi90}$	[kN] 0,07
R 120	Characteristic resistance	$F_{Rk,fi120}$	[kN] 0,05
R 30	Spacing	$s_{min,fi}$	[mm] 120
- R 120	Edge distance <sup>1)</sup>	$c_{min,fi}$	60

<sup>1)</sup> The edge distance shall be  $\geq 300$  mm, in case of fire attack from more than one side.

**Schnabl MDSN**

**Performances**  
Characteristic resistance

**Annex C 1**