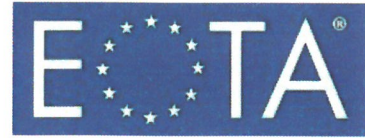




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European Technical Assessment

**ETA 23/0094
of 30/01/2023**

Technical Assessment Body issuing the ETA: Technical and Test Institute
for Construction Prague

Trade name of the construction product Nail anchor NH / NHH / NHZ Ø 6 mm

**Product family to which the construction
product belongs** Plastic anchors for multiple use in concrete
for non-structural applications

Manufacturer GMS Bautechnik GmbH
Sonnengasse 13,
9020 Klagenfurt am Wörthersee,
Austria

Manufacturing plant(s) Plant 1

**This European Technical Assessment
contains** 10 pages including 7 Annexes which form
an integral part of this assessment.

**This ETA is issued in accordance
with Regulation (EU) No 305/2011,
on the basis of** EAD 330284-00-0604 Plastic anchors for
redundant non-structural systems in
concrete and masonry

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1. Technical description of the product

The nail anchor NH / NHH / NHZ Ø 6 mm consists of a plastic sleeve made of polyamide and specific nail made of steel with electroplated zinc coating or zinc flake coating as expansion element.

The plastic sleeve is expanded by hammering in the specific nail which presses the sleeve against the wall of the drilled.

The illustration and the description of the product are given in Annex A.

2. Specification of the intended use in accordance with the applicable EAD

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 provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 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 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 (BWR1)

Requirements with respect to the mechanical resistance and stability of non load bearing parts of the works are included under the Essential Requirement safety in use (BWR 4).

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A 1
Resistance to fire	No performance assessed

3.3 Mechanical resistance and stability (BWR 4)

Essential characteristic	Performance
Characteristic resistance to steel failure for tension and shear loads	See Annex C1
Characteristic resistance to pull-out failure	See Annex C1
Edge distances and spacing	See Annex B2
Displacements under shear and tension loads	See Annex C1

3.4 Aspects of durability

Essential characteristic	Performance
Durability	See Annex B1

3.5 Sustainable use of natural resources (BWR 7)

No performance assessed.

3.6 General aspects

Durability and serviceability are only ensured if the specifications of intended use according to Annex B1 are kept.

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

According to the Decision 97/463/EC of the European Commission¹, the system 2+ of assessment verification of constancy of performance (see Annex V to the Regulation (EU) No 305/2011) given in the following table applies.

¹ Official Journal of the European Communities L 198/31 25.7.1997

Product	Intended use	Level or class	System
Plastic anchors for use in concrete and masonry	For use in systems, such as façade systems, for fixing or supporting elements which contribute to the stability of the systems	-	2+

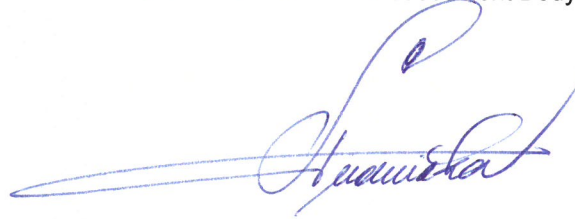
5. Technical details necessary for the implementation of the AVCP system, as provided in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at Technical and Test Institute for Construction Prague.

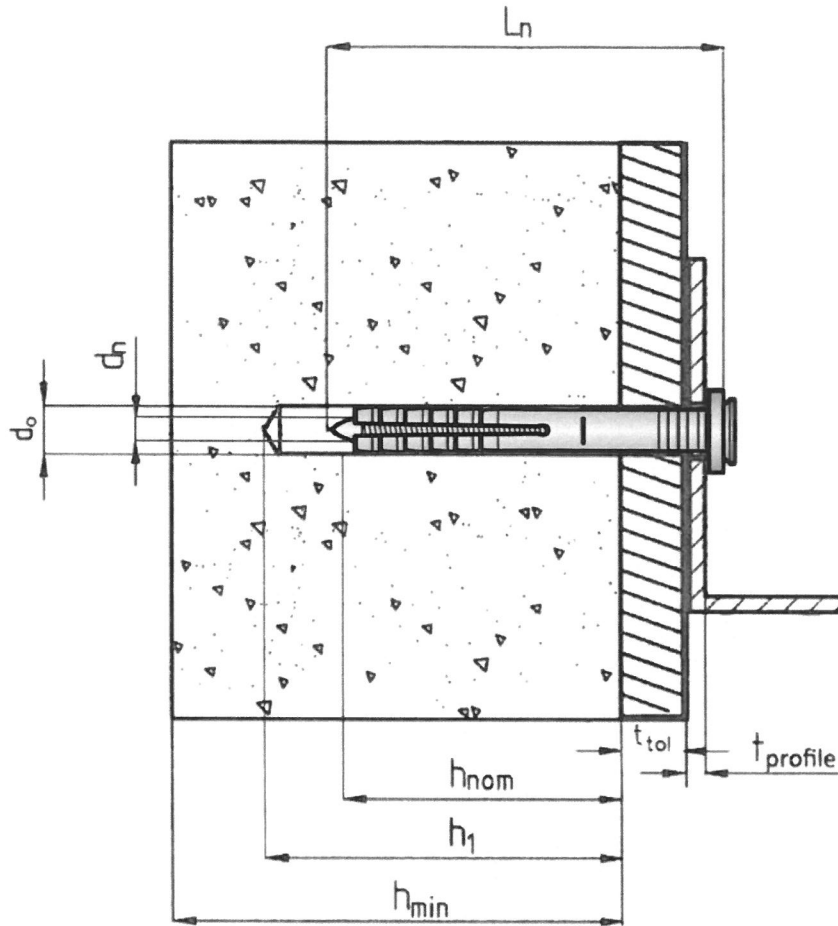
Issued in Prague on 30.01.2023

By

Ing. Jiří Studnička, Ph.D.
Head of the Technical Assessment Body




NH / NHH / NHZ Ø 6 mm



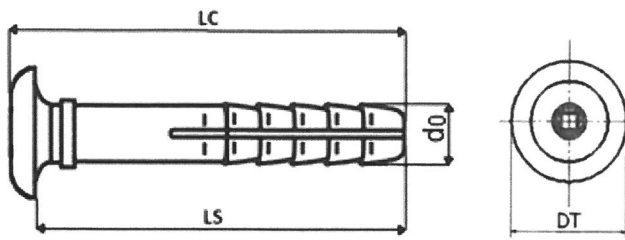
- d_0 = sleeve diameter (drill hole diameter)
- d_n = nominal diameter of the nail
- h_{nom} = overall plastic anchor embedment depth in the base material
- h_1 = depth of drilled hole to deepest point
- h_{min} = minimum thickness of member determined by manufacturer
- t_{tol} = thickness of equalization layer and/or non-load bearing coating
- $t_{profile}$ = thickness of profile
- L_n = length of nail

Nail anchor NH / NHH / NHZ Ø 6 mm

Product description
Installed conditions

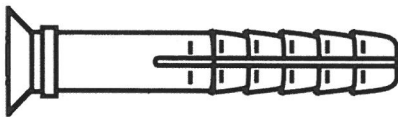
Annex A1

Plastic sleeve NHH 6

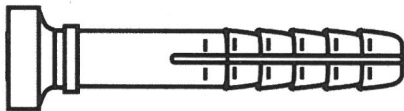


Marking:
Size
e.g. 6 x 40

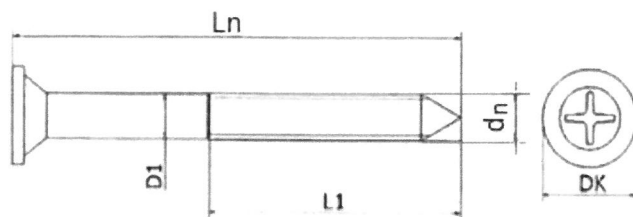
Plastic sleeve NH 6



Plastic sleeve NHZ 6



Specific nail



Nail anchor NH / NHH / NHZ Ø 6 mm

Product description
Plastic sleeve and nail

Annex A2

Table A1: Dimensions [mm]

Anchor type	Anchor sleeve ¹⁾				
	d ₀	L _c (±1,00)	L _s (±1,00)	DT (±0,25)	
NH 6	6	35	33	10	
	6	40	38	10	
	6	45	43	10	
	6	55	53	10	
	6	60	58	10	
	6	70	68	10	
	6	80	78	10	
NHH 6	6	35	33	12	
	6	40	38	12	
	6	45	43	12	
	6	55	53	12	
	6	60	58	12	
	6	70	68	12	
	6	80	78	12	
NHZ 6	6	35	31,8	10	
	6	40	36,8	10	
	6	45	41,8	10	
	6	55	51,8	10	
	6	60	56,8	10	
	6	70	66,8	10	
	6	80	76,8	10	
Specific nail	Specific nail ¹⁾				
	d _n	L _n (±1,00)	D1 (±0,10)	DK	L1 (±1,00)
3,8 x 38	3,65 – 3,8	38	3,30	9,0-9,5	25
3,8 x 43	3,65 – 3,8	43	3,30	9,0-9,5	25
3,8 x 48	3,65 – 3,8	48	3,30	9,0-9,5	25
3,8 x 58	3,65 – 3,8	58	3,30	9,0-9,5	35
3,8 x 63	3,65 – 3,8	63	3,30	9,0-9,5	35
3,8 x 73	3,65 – 3,8	73	3,30	9,0-9,5	35
3,8 x 83	3,65 – 3,8	83	3,30	9,0-9,5	35

1) The anchor (plastic sleeve and specific nail) shall only be packaged and supplied as a complete unit

Table A2: Materials

Element	
Anchor sleeve	Polyamide PA6, light grey, virgin material
Specific nail	Carbon steel; tensile strength $f_{u,k} \geq 420$ MPa and tensile yield strength $f_{y,k} \geq 320$ MPa <ul style="list-style-type: none"> zinc plating $\geq 5\mu\text{m}$, electroplated according to EN ISO 4042 Non-electrolytically applied zinc flake coated $\geq 5\mu\text{m}$ according to EN ISO 10683

Nail anchor NH / NHH / NHZ Ø 6 mm

Product description
Dimensions
Materials

Annex A3

Specifications of intended use

Anchorage subject to:

- Static and quasi-static loads.
- Multiple fixing of non-structural applications.

Base materials:

- Reinforced or unreinforced normal weight concrete with strength classes \geq C12/15 (base material group "a"), according to EN 206.
- For base material group "a" the characteristic resistance of the anchor may be determined by job site tests according TR 051.

Temperature range:

- a) 0°C to +40°C (max. short term temperature +40°C and max. long term temperature +24°C)

Use conditions:

- Structures subject to dry internal conditions.

Design:

- The anchorages are designed in accordance with the TR 064 under the responsibility of an engineer experienced in anchorages and masonry work.
- Verifiable calculation notes and drawings shall be prepared taking account 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.

Installation:

- Hole shall be drilled by the hammer drilling.
- Anchor installation shall be carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Installation shall be executed in temperature from 0°C to +40°C.
- Exposure to UV due to solar radiation of the anchor not protected by rendering \leq 6 weeks.

Nail anchor NH / NHH / NHZ \varnothing 6 mm

Intended use
Specifications

Annex B1

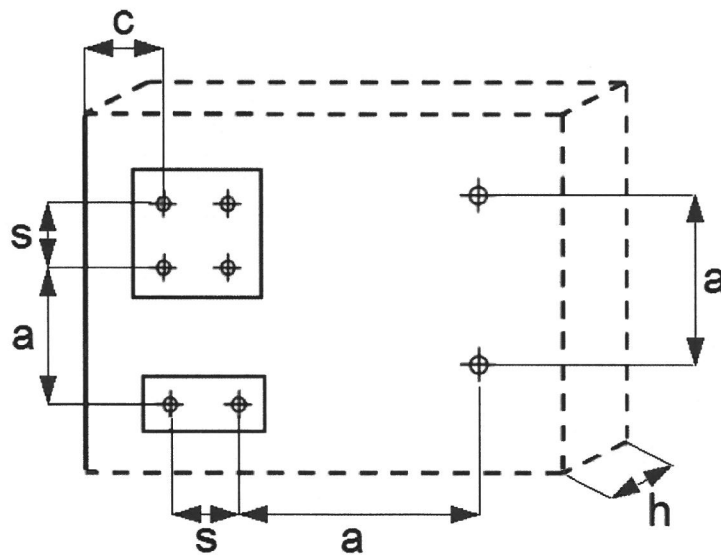
Table B1: Installation parameters

Anchor type		NH / NHH / NHZ
Use category		a
Nominal drill hole diameter	d_o [mm]	6
Cutting diameter of drill bit	$d_{cut} \leq$ [mm]	6,4
Depth of drill hole to deepest point	$h_1 \geq$ [mm]	35
Overall embedment depth in the base material	$h_{nom} \geq$ [mm]	30
Diameter of clearance hole in the fixture	d_f [mm]	6

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

Anchor type	Base material	h_{min} [mm]	$C_{cr,N}$ [mm]	C_{min} [mm]	S_{min} [mm]
NH NHH NHZ	Concrete \geq C12/15	100	100	100	100
	Concrete \geq C16/20	100	100	100	100

Scheme of edge distance and spacing in concrete



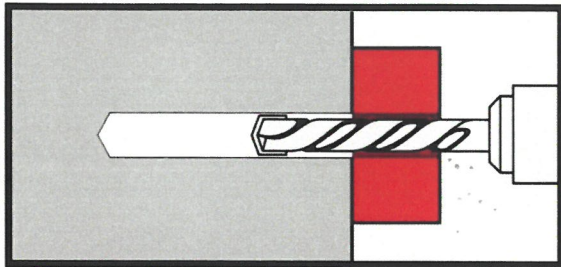
Nail anchor NH / NHH / NHZ \varnothing 6 mm

Intended use
Installation parameters
Edge distance and anchor spacing in concrete

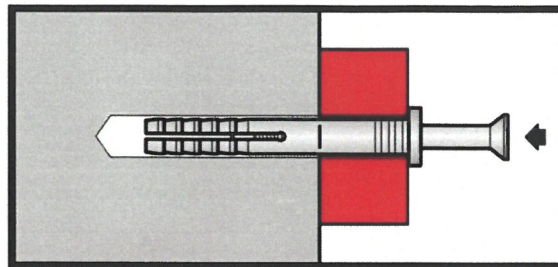
Annex B2

Installation instructions

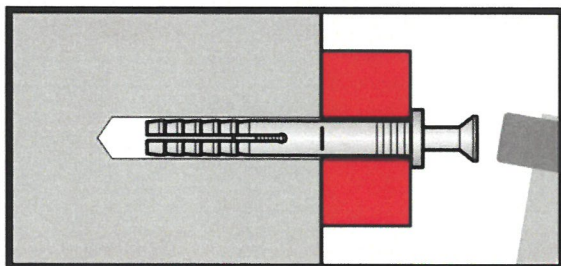
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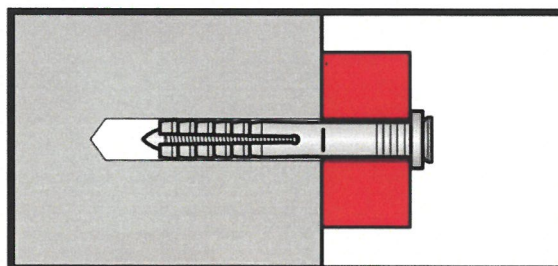
2.



2.



4.



Nail anchor NH / NHH / NHZ Ø 6 mm

Intended use
Installation instructions

Annex B5

Table C1: Characteristic resistance of the nail

Steel type		Zinc coated steel
Characteristic tension resistance	$N_{Rk,s}$ [kN]	4,39
Partial safety factor	$\gamma_{Ms}^{1)}$	1,58
Characteristic shear resistance	$V_{Rk,s}$ [kN]	2,20
Partial safety factor	$\gamma_{Ms}^{1)}$	1,31
Characteristic bending resistance	$M_{Rk,s}$ [Nm]	2,41
Partial safety factor	$\gamma_{Ms}^{1)}$	1,31

¹⁾in the absence of other national regulations

Table C2: Characteristic resistance for use in cracked and non-cracked concrete, pull-out failure hammer drilling

Anchor type		NH / NHH / NHZ
Concrete \geq C16/20		
Characteristic resistance	$N_{Rk,p}$ [kN]	0,5
Partial safety factor	$\gamma_{Mc}^{1)}$	1,8
Concrete C12/15		
Characteristic resistance	$N_{Rk,p}$ [kN]	0,3
Partial safety factor	$\gamma_{Mc}^{1)}$	1,8

¹⁾in the absence of other national regulations

Table C3: Displacement under tension and shear loading in concrete

Anchor type	Tension load			Shear load		
	N [kN]	δ_{N0} [mm]	$\delta_{N\infty}$ [mm]	V [kN]	δ_{V0} [mm]	$\delta_{V\infty}$ [mm]
NH NHH NHZ	0,2	0,78	1,56	0,79	2,77	4,16

Valid for temperature ranges according to Annex B1

Nail anchor NH / NHH / NHZ \varnothing 6 mm

Performances
Characteristic resistance of the screw

Annex C1