

Public-law institution jointly founded by the federal states and the Federation

European Technical Assessment Body
for construction products



European Technical Assessment

ETA-23/0763
of 12 December 2023

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

Wego Power Nail anchor

Product family to which the construction product belongs

Fasteners for use in concrete for redundant non-structural systems

Manufacturer

WeGo Systembaustoffe GmbH
Maybachstraße 14
63456 Hanau

Manufacturing plant

Wego Systembaustoff

This European Technical Assessment contains

11 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

330747-00-0601, Edition 06/2018

The European Technical Assessment is issued by the Technical Assessment Body in its official language. Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and shall be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full. However, partial reproduction may only be made with the written consent of the issuing Technical Assessment Body. Any partial reproduction shall be identified as such.

This European Technical Assessment may be withdrawn by the issuing Technical Assessment Body, in particular pursuant to information by the Commission in accordance with Article 25(3) of Regulation (EU) No 305/2011.

Specific Part

1 Technical description of the product

The Wego Power Nail Anchor is an anchor made of galvanised (SNA) or stainless steel (SNA R) or high corrosion resistant steel (SNA HCR). The anchor is pushed into a predrilled cylindrical drill hole and expanded by loading.

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 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 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Class A1
Resistance to fire	See Annex C 2

3.2 Safety in use (BWR 4)

Essential characteristic	Performance
Characteristic resistance to tension and shear load (static and quasi-static loading)	See Annex B 2 and C 1
Durability	See Annex B 1

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

In accordance with European Assessment Document EAD No. 330747-00-0601, the applicable European legal act is: [97/161/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 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 12 December 2023 by Deutsches Institut für Bautechnik

Dipl.-Ing. Beatrix Wittstock
Head of Section

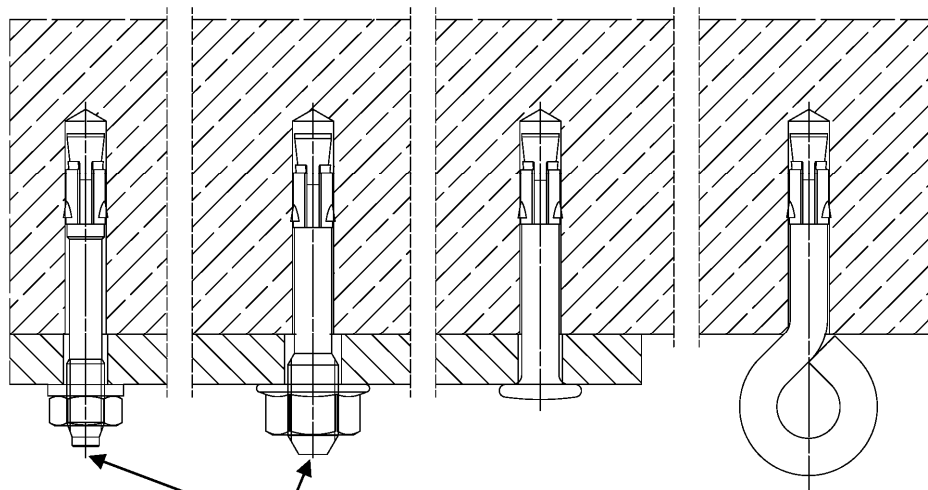
beglaubigt:
Baderschneider

**Only for use for redundant non-structural systems according
to EN 1992-4:2018**

Design types:

Nail head		SNA 6x25/.. SNA 6x30/..
Nail head RB		SNA 6x25/.. RB SNA 6x30/.. RB
Threaded bolt with ISO standard metric thread M6		SNA 6x25 M6/.. SNA 6x30 M6/..
Threaded bolt with ISO standard metric thread M8		SNA 6x25 M8/.. SNA 6x30 M8/..
SNA OE with eye		SNA 6x25 OE SNA 6x30 OE

Intended use:



Additional marking only galvanised steel for $h_{ef} = 25$ mm (centring, bar or points)

(Fig. not to scale)

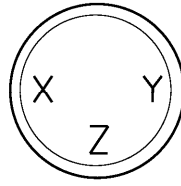
Wego Power Nail Anchor

Product description
Product and intended use

Annex A 1

Marking:

Nail head



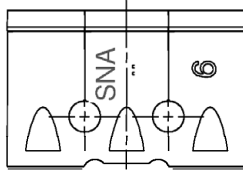
Marking at **X**: "O" for $h_{ef} = 25$ mm
and "I" for $h_{ef} = 30$ mm;

Marking at **Y**: t_{fix}

Marking at **Z**: "R" or "HCR" (stainless steel)

Expansion sleeve (or bolt)

e.g.:



For stainless steel additional marking "R" or "HCR"

Marking-Codes for Y:

	A	Q	T	N	P	B	L	H	U
t_{fix}	5	10	15	20	25	30	35	40	45

	D	V	S	W	X	E	M	Z	K
t_{fix}	50	55	60	65	70	75	80	85	90

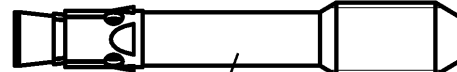
	(A)	F	(B)	(D)	(E)	G	J
t_{fix}	95	100	105	110	115	120	125

At $t_{fix} > 125$ mm the corresponding figure is marked.

Shaft (threaded bolt)



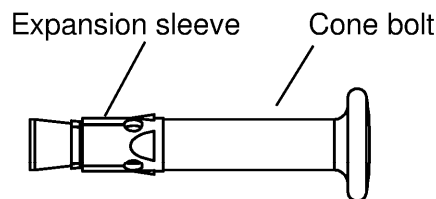
Marking e.g.: 6/10
thread size/thickness of the fixture



Marking e.g.: 8/10
thread size /thickness of the fixture
Exception: 8/5 no marking

Table A2.1: Materials SNA

Part	Designation	Material		
		SNA	SNA R	SNA HCR
	Steel grade	Steel	Stainless steel R	High corrosion resistant steel HCR
		Zinc plated $\geq 5 \mu\text{m}$, EN ISO 4042:2018	Acc. to EN 10088:2014 Corrosion resistance class CRC III acc. to EN 1993-1-4:2015	Acc. to EN 10088:2014 Corrosion resistance class CRC V acc. to EN 1993-1-4:2015
1	Expansion sleeve	Cold strip, EN 10139:2016 or stainless steel EN 10088:2014	Stainless steel EN 10088:2014	Stainless steel EN 10088:2014
2	Cone bolt	Cold form steel or free cutting steel		High corrosion resistant steel EN 10088:2014



(Fig. not to scale)


Wego Power Nail Anchor

Product description
Marking and materials

Annex A 2

Specifications of intended use

Fastenings subject to:

Size	SNA, SNA R, SNA HCR
Hammer drilling with standard drill bit 	All types
Static and quasi-static loads	✓
Cracked and uncracked concrete	
Fire exposure	

Base materials:

- Compacted reinforced and unreinforced normal weight concrete without fibres (cracked and uncracked) according to EN 206:2013+A1:2016
- Strength classes C12/15 to C50/60 according to EN 206:2013+A1:2016

Use conditions (Environmental conditions):

- Structures subject to dry internal conditions (SNA, SNA R, SNA HCR) with $h_{ef} \geq 25$ mm
- For all other conditions according to EN 1993-1-4:2006 + A1:2015 corresponding to corrosion resistance class
 - CRC III: for SNA R with $h_{ef} \geq 30$ mm
 - CRC V: for SNA HCR with $h_{ef} \geq 30$ mm

Design:

- Fastenings are to be designed under the responsibility of an engineer experienced in fastenings and concrete work
- Verifiable calculation notes and drawings have to be prepared taking account of the loads to be anchored. The position of the fastener is indicated on the design drawings (e.g. position of the fastener relative to reinforcement or to supports, etc.)
- Only for use for redundant non-structural systems according to EN 1992-4:2018, Chapter 7.3
- Simplified design method C according to EN 1992-4:2018 Annex G

Installation:

- Fastener installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters on site
- Use of the fastener only as supplied by the manufacturer without exchanging the components of the fastener
- Checking before placing the fastener to ensure that the strength class of the concrete in which the fastener is to be placed, is in the range given and is not lower than that of the concrete to which the characteristic loads apply
- Check of concrete being well compacted, e.g. without significant voids
- Drill hole created perpendicular +/- 5° to concrete surface, positioning without damaging the reinforcement
- In case of aborted hole: new drilling at a minimum distance twice the depth of the aborted drill 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

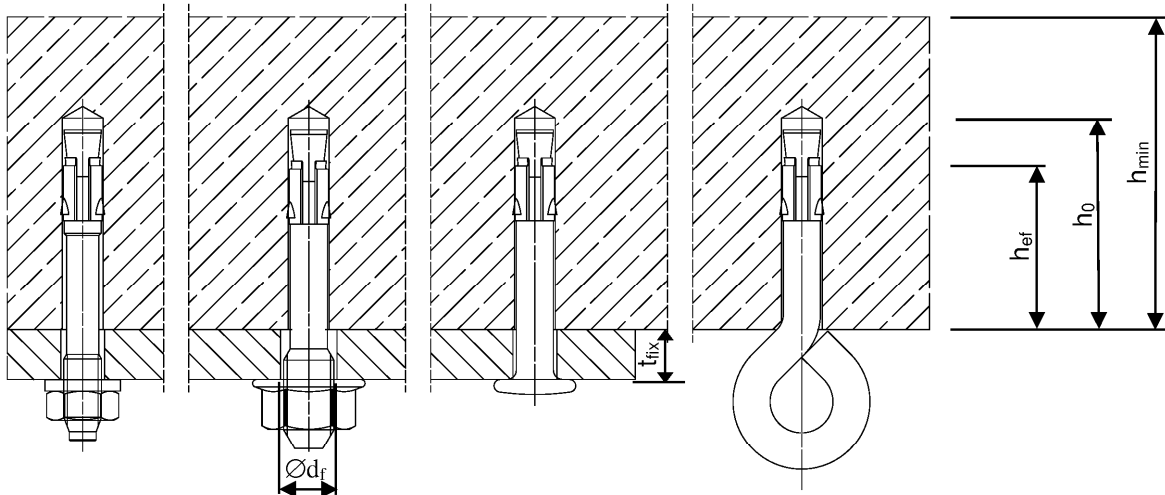
Wego Power Nail Anchor

Intended Use
Specifications

Annex B 1

Table B2.1: Installation parameters

Effective embedment depth	$h_{ef} \geq$	[mm]	25	30
Nominal drill bit diameter	$d_0 =$		6	
Cutting diameter of drill bit	$d_{cut,max} \leq$		6,4	
Depth of drill hole	$h_0 \geq$		31	36
Diameter of clearance hole in the fixture for all SNA except for M8 and OE	$d_f \leq$	[mm]	7	
Diameter of clearance hole in the fixture for M8	$d_f \leq$		9	
Maximum torque moment (only threaded types)	$max. T_{inst} \leq$	[Nm]	4	
Minimum thickness of member	h_{min}	[mm]	80	
Maximum thickness of fixture	$max. t_{fix}$		400	



(Fig. not to scale)

Wego Power Nail Anchor

Intended Use
Installation parameters

Annex B 2

Installation instruction:

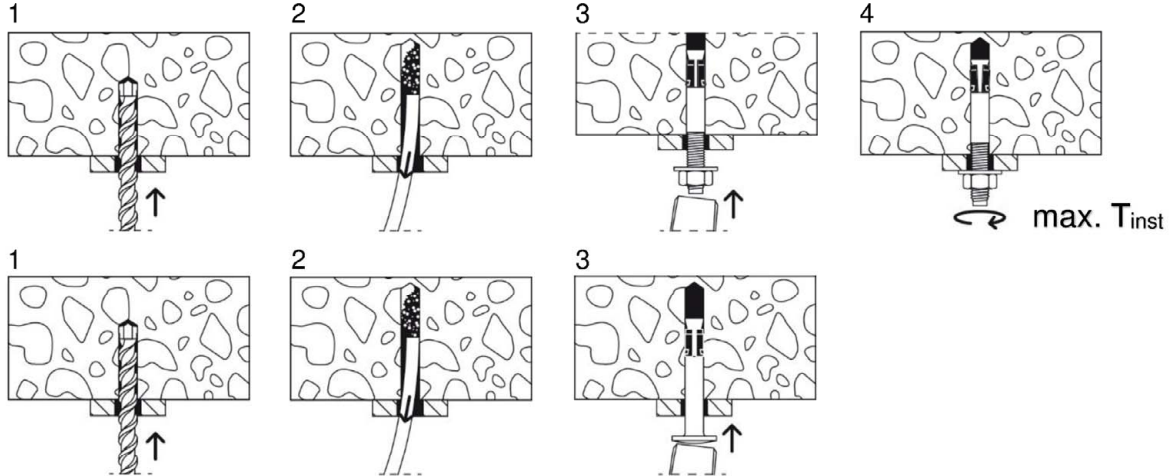
Drill the hole

Clean the hole

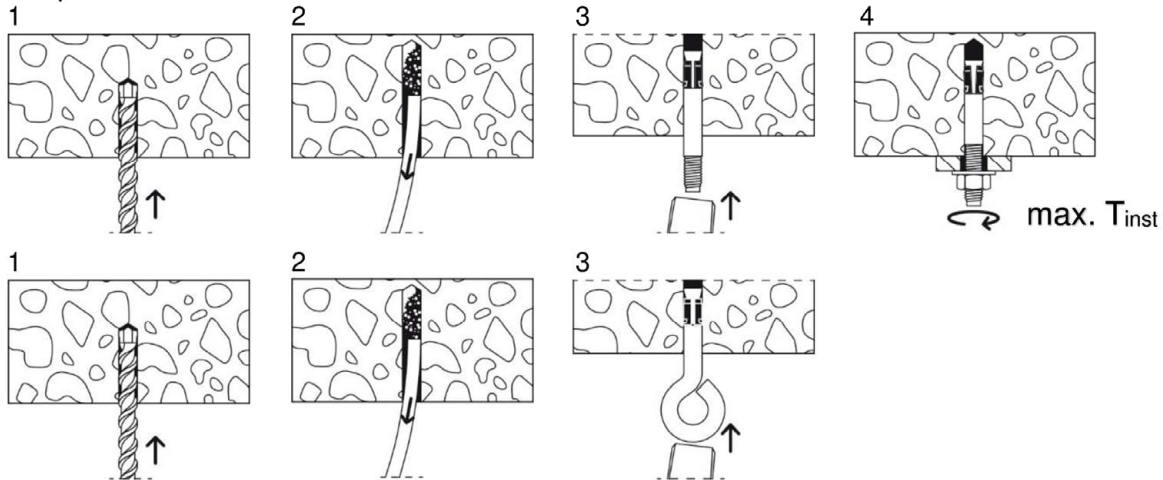
Set the fastener

Apply max. T_{inst}

Push through installation



Pre-positioned installation



(Fig. not to scale)

Wego Power Nail Anchor

Intended Use
Installation instruction

Annex B 3

Table C1.1: Characteristic resistance of a fixing point¹⁾ for all load directions

Type of anchor		SNA 6x25/..	SNA 6x25 M6/.. SNA 6x25 M8/..	SNA 6x25 OE	SNA 6x30 OE	SNA 6x30/..	SNA 6x30 M6/.. SNA 6x30 M8/..
Material		SNA			SNA, SNA R, SNA HCR		
Effective anchorage depth	$h_{ef} \geq$ [mm]	25			30		
Installation factor	γ_{inst} [-]	1,0					
Characteristic bending moment	$M^0_{Rk,s}$ [Nm]	10,7	9,2		13,2	9,2	
Partial factor	γ_{Ms} [-]	1,25					
Maximum load and corresponding spacing - and edge distances							
Characteristic spacing between fixing points ¹⁾	$a_1 = a_2 \geq$ [mm]	200					
Minimum spacing within a fixing point ¹⁾	$s_{cr} =$	50					
Characteristic resistance F_{Rk} C20/25 to C50/60 (C12/15)	$c_{cr}^{(2)} \geq 100$ mm	3,0 (2,5)	1,5		5,0 (4,0)		
	$c_{cr}^{(2)} \geq 50$ mm	2,35 (1,9)			2,35 (1,9)		
Partial factor	γ_M [-]	1,5					
Reduced loads for reduced spacing - and corresponding edge distances							
Characteristic spacing between fixing points ¹⁾	$a_1 = a_2 \geq$ [mm]	100					
Minimum spacing within a fixing point ¹⁾	$s_{cr} =$	50					
Characteristic resistance F_{Rk} C20/25 to C50/60 (C12/15)	$c_{cr}^{(2)} \geq 200$ mm	3,0 (2,5)	1,5		5,0 (4,0)		
	$c_{cr}^{(2)} \geq 50$ mm	1,7 (1,2)	1,5 (1,2)		1,7 (1,2)		
Partial factor	γ_M [-]	1,5					
Reduced loads for minimum spacing - and edge distance							
Characteristic spacing between fixing points ¹⁾	$a_1 = a_2 \geq$ [mm]	100					
Minimum spacing within a fixing point ¹⁾	$s_{cr} =$	40					
Characteristic resistance F_{Rk} C20/25 to C50/60 (C12/15)	$c_{cr} \geq 40$ mm	1,30 (0,85)					
Partial factor	γ_M [-]	1,5					
¹⁾ See EN 1992-4:2018, Picture 3.4 ²⁾ Intermediate values for c may be calculated by linear interpolation							
Wego Power Nail Anchor						Annex C 1	
Performances Characteristic resistance							

Table C2.1: Characteristic resistance of a fixing point²⁾ under fire exposure in concrete
C20/25 to C50/60

Characteristic resistance under fire exposure for all load directions for $h_{ef} = 25$ mm

Type of anchor	Spacing $s_{cr,fi} \geq$ [mm]	Edge distance $c_{cr,fi} \geq$ [mm]	Effective anchorage depth $h_{ef} \geq$ [mm]	Characteristic resistance $F_{Rk,fi}$ [kN]			
				R 30	R 60	R 90	R 120
SNA 6x25/..	100	50	25	0,6	0,6	0,5	0,3
SNA 6x25 M6/.. SNA 6x25 M8/..					0,35	0,3	
SNA 6x25 OE				0,3	0,2	0,1	

Characteristic resistance under fire exposure for all load directions for $h_{ef} = 30$ mm

Type of anchor	Spacing $s_{cr,fi} \geq$ [mm]	Edge distance $c_{cr,fi} \geq$ [mm]	Effective anchorage depth $h_{ef} \geq$ [mm]	Characteristic resistance $F_{Rk,fi}$ [kN]			
				R 30	R 60	R 90	R 120
SNA 6x30/..	120 100	60 50	30	0,9	0,8	0,5	0,3
SNA 6x30 M6/.. SNA 6x30 M8/..	120 100	60 50		0,6	0,35	0,3	
SNA 6x30/..R/HCR	120 100	60 50		0,9		0,7	
				0,6		0,5	
SNA 6x30 M6/.. R/HCR SNA 6x30 M8/.. R/HCR	120 100	60 50		0,9		0,7	
				0,6		0,5	
SNA 6x30 OE R/HCR	100	50		0,3	0,2	0,1	

Characteristic resistance under fire exposure for all load directions for $h_{ef} = 30 + 5^{1)}$ mm

Type of anchor	Spacing $s_{cr,fi} \geq$ [mm]	Edge distance $c_{cr,fi} \geq$ [mm]	Effective anchorage depth $h_{ef} \geq$ [mm]	Characteristic resistance $F_{Rk,fi}$ [kN]			
				R 30	R 60	R 90	R 120
SNA 6x30/.. R/HCR SNA 6x30 M6/.. R/HCR SNA 6x30 M8/.. R/HCR	140 100	70 50	30+5 ¹⁾	1,3		1,0	0,7
				0,7		0,6	

Characteristic resistance under fire exposure for shear load without level arm

Type of anchor	Characteristic resistance $M^0_{Rk,s,fi}$ [Nm]			
	R 30	R 60	R 90	R 120
SNA 6x25 OE/..	0,2	0,1	0,08	0,07
SNA 6x25..; SNA 6x25 .. RB; /..	0,9	0,7	0,4	0,3
SNA 6x25 M6..; SNA 6x25 M8.. / ..	0,3	0,2	0,2	0,2
SNA 6x30..; SNA 6x30 .. RB; /.. R/HCR	4,4	2,0	1,2	0,8
SNA 6x30 M6..; SNA 6x30 M8.. /.. R/HCR	2,8	1,3	0,8	0,5

¹⁾ The effective anchorage depth $h_{ef} = 30 + 5$ mm is reached by setting the anchor SNA 6x30/... 5 mm deeper with an anchor that is 5 mm longer than required for the actual thickness of the fixture.

²⁾ A fixing point is defined as a single anchor or a group of 2 or 4 anchors

In case of fire attack from more than one side, the edge distance shall be $c_{fi,min} \geq 300$ mm

Wego Power Nail Anchor

Performances
Characteristic resistance under fire exposure

Annex C 2