



...eine starke Verbindung

DECLARAÇÃO DE DESEMPENHO

DoP N.o: MKT-1.2-300_pt

- ✧ **Código de identificação único do produto-tipo: MKT Âncora de prego N**
- ✧ **Utilização(ões) prevista(s):** Âncora de expansão controlada por carga para uso como fixação múltipla de sistemas sem carga em concreto, ver Anexo / Annex B
- ✧ **Fabricante:** MKT Metall-Kunststoff-Technik GmbH & Co.KG
Auf dem Immel 2
67685 Weilerbach
- ✧ **Sistema(s) de avaliação e verificação da regularidade do desempenho (AVCP):** 2+
- ✧ **Documento de Avaliação Europeu** **ETAG 001-6**
Avaliação Técnica Europeia : **ETA-11/0240, 07.05.2015**
Organismo de Avaliação Técnica: **DIBt, Berlin**
Organismo(s) notificado (s): **NB 2873 – Technische Universität Darmstadt**
- ✧ **Desempenho(s) declarado(s):**

Características essenciais	Desempenho
Resistência mecânica e estabilidade (BWR 1)	
Valores característicos	Anexo/Annex C1
Segurança contra incêndio (BWR 2)	
Comportamento do fogo	Classe A1
Resistência ao fogo	Anexo/Annex C2

O desempenho do produto identificado acima está em conformidade com o conjunto de desempenhos declarados. A presente declaração de desempenho é emitida, em conformidade com o Regulamento (UE) n.o 305/2011, sob a exclusiva responsabilidade do fabricante identificado acima.

Assinado por e em nome do fabricante por:



Stefan Weustenhagen
(Diretor-gerente)
Weilerbach, 01.01.2021

p.p.



Dipl.-Ing. Detlef Bigalke
(Director de Desenvolvimento de Produto)



O original desta declaração de desempenho foi escrito em alemão. Em caso de desvios na tradução, a versão alemã é válida.

Specifications 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 C12/15 to C50/60 according to EN 206-1:2000
- cracked and non-cracked concrete

Use conditions (environmental conditions):	Effective anchorage depth
<ul style="list-style-type: none"> • Structures subject to dry internal conditions; (zinc plated steel, stainless steel or high corrosion resistant steel). 	$h_{ef} \geq 30\text{mm}$ and $h_{ef,red} \geq 25\text{mm}$
<ul style="list-style-type: none"> • Structures subject to permanently damp internal conditions, if no particular aggressive conditions exist; (stainless steel or high corrosion resistant steel). 	$h_{ef} \geq 30\text{mm}$ and $h_{ef,red} \geq 25\text{mm}$
<ul style="list-style-type: none"> • Structures subject to external atmospheric exposure including industrial and marine environment, if no particular aggressive conditions exist; (stainless steel or high corrosion resistant steel). 	$h_{ef} \geq 30\text{mm}$
<ul style="list-style-type: none"> • Structures subject to external atmospheric exposure and to permanently damp internal condition, if other particular aggressive conditions; (high corrosion resistant steel). 	$h_{ef} \geq 30\text{mm}$

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used.)

Design:

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).
- The design of the fixture is such that in case of excessive slip or failure of one anchor the load can be transmitted to neighbouring anchors.
- Anchorages under static or quasi-static actions for multiple use in non-structural applications are designed in accordance with:
 - ETAG 001, Annex C, Edition August 2010, design method C or
 - CEN/TS 1992-4: 2009, design method C
- Fasteners are only to be used for multiple use for non-structural application, according to ETAG 001 Part 6, Edition August 2010.
- Anchorages under fire exposure are designed in accordance with:
 - EOTA Technical Report TR 020, Edition May 2004 or
 - CEN/TS 1992-4: 2009, Annex D
 - It must be ensured that local spalling of the concrete cover does not occur.

Installation:

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site,
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools,
- Hammer drilling only,
- Anchor installation such that the effective setting depth is complied with. This compliance is ensured, if the admissible thickness of fixture is kept or the loop of Nail Anchor N-O rests on the concrete surface.

Nail Anchor N

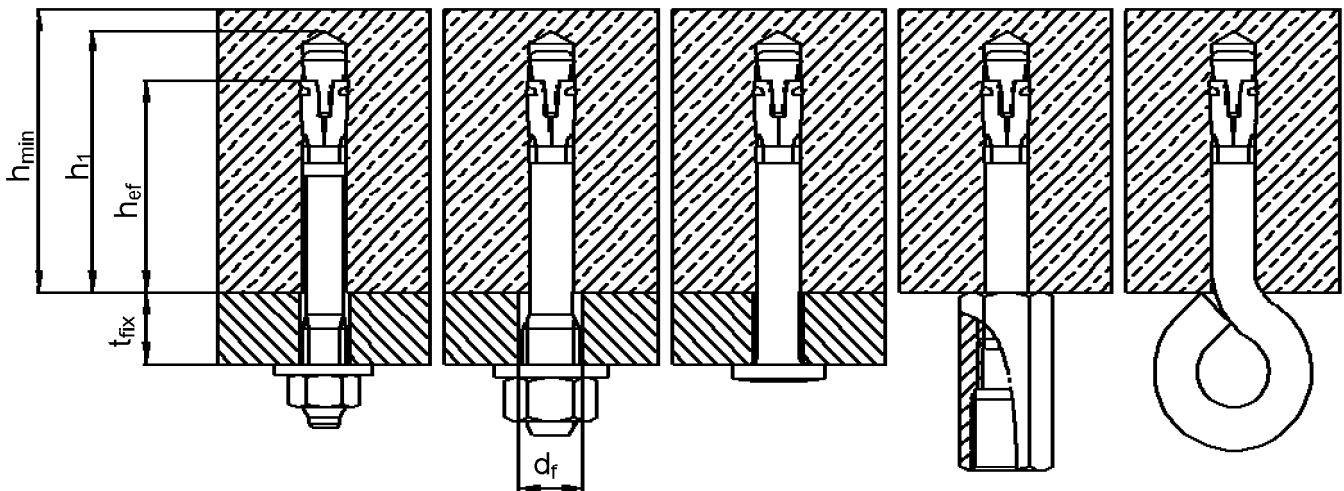
Intended use
Specifications

Annex B1

Table B1: Installation parameters

Anchor type			N 6 N-K N-O	N 8 N-M	N 6 N-K N-O	N 8 N-M
Effective anchorage depth	$h_{ef} \geq$	[mm]	25 ¹⁾		30	
Nominal drill hole diameter	d_0	[mm]	6	6	6	6
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	6,40	6,40	6,40	6,40
Depth of drill hole	$h_1 \geq$	[mm]	35	35	40	40
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	7	9	7	9
Maximum tightening torque (N 6 and N 8 only)	$T_{inst} \leq$	[Nm]	4	4	4	4
Minimum member thickness	h_{min}	[mm]	80	80	80	80

¹⁾ Internal use only



Nail Anchor N

Intended use
Installation parameters

Annex B2

Installation instructions

	N 6 / N 8	N-K	N-M	N-O
1				
	Drill hole perpendicular to concrete surface.			
2				
	Blow out dust.			
3		-		-
	Check position of nut.		Check position of coupling nut.	
4				
	Drive in anchor.			
5				
	Max. tightening torque $T_{inst} \leq 4 \text{ Nm}$ may be applied by using torque wrench.		-	

Nail Anchor N

Intended use
Installation instructions

Annex B3

Table C1: Characteristic and design resistance for a **fixing point** ¹⁾, design method C

Anchor types		N 6	N 8 N-K N-M	N-O	N 6	N 8 N-K N-M	N-O
Effective anchorage depth	$h_{ef} \geq$ [mm]	25			30		
Partial safety factor for any direction	γ_M	1,5					
Optimized for maximum load							
Characteristic resistance C12/15	F_{Rk} [kN]	3,0	3,0 ⁴⁾	1,5	4,0	4,0 ⁴⁾	1,5
Characteristic resistance C20/25 to C50/60		4,5	4,5 ⁴⁾		5,9	5,9 ⁴⁾	
Design resistance C12/15	F_{Rd} [kN]	2,0	2,0 ⁴⁾	1,0	2,7	2,7 ⁴⁾	1,0
Design resistance C20/25 to C50/60		3,0	3,0 ⁴⁾		3,9	3,9 ⁴⁾	
Respective spacing between fixing points ^{1) 2)}	$\frac{S_{cr}}{\text{for } c_{cr} \geq}$ [mm]	100					
		200					
Respective edge distance ²⁾	$\frac{C_{cr}}{\text{for } s_{cr} \geq}$ [mm]	100					
		200					
Optimized for minimum edge distance							
Characteristic resistance C12/15	F_{Rk} [kN]	1,5	1,5 ⁴⁾	1,5	2,0	2,0 ⁴⁾	1,5
Characteristic resistance C20/25 to C50/60		2,0	2,0 ⁴⁾		2,5	2,5 ⁴⁾	
Design resistance C12/15	F_{Rd} [kN]	1,0	1,0 ⁴⁾	1,0	1,3	1,3 ⁴⁾	1,0
Design resistance C20/25 to C50/60		1,3	1,3 ⁴⁾		1,7	1,7 ⁴⁾	
Respective spacing between fixing points ¹⁾	$\frac{C_{cr}}{\text{for } s_{cr} \geq}$ [mm]	50					
		100					
Shear load with lever arm							
Characteristic resistance, steel zinc plated	$M^0_{Rk,s}$ [Nm]	9,2	12,7	³⁾	9,2	12,7	³⁾
Characteristic resistance, stainless steel A4/HCR		9,2	13,5	³⁾	9,2	13,5	³⁾
Partial safety factor	γ_{Ms}	1,25					

1) A fixing point is defined as:

- Single anchor,
- Double anchor group with a minimum spacing s of $50 \text{ mm} \leq s < s_{cr}$ or
- Quadruple anchor group with a minimum spacing s of $50 \text{ mm} \leq s < s_{cr}$

If the spacing in a fixing point is greater than or equal to the respective spacing in this table, the characteristic resistances apply to every single anchor.

2) Intermediate values can be linearly interpolated.

3) Proof against failure due to shear load with lever arm is not required.

4) When applying a shear load to anchor version N-M, shear load with lever arm must be proven.

Nail Anchor N

Performance
Characteristic and design resistance

Annex C1

Table C2: Characteristic resistance for a fixing point ¹⁾ under **fire exposure** in concrete C20/25 to C50/60, design method C

Fire resistance class			N 6 N 8	N-K	N-M ³⁾	N-O	N 6 N 8	N-K	N-M ³⁾	N-O	
	Effective anchorage depth	$h_{ef} \geq$	[mm]	25				30			
Load in any direction											
R 30	Characteristic resistance, steel zinc plated	$F_{Rk,fi}$	[kN]	0,6	0,6	0,6	0,2	0,9	0,9	0,8	-
R 60				0,6	0,6	0,6	0,2	0,7	0,8	0,7	-
R 90				0,5	0,6	0,6	0,1	0,5	0,6	0,6	-
R120				0,4	0,5	0,5	0,1	0,4	0,5	0,6	-
R 30	Characteristic resistance, stainless steel A4 / HCR	$F_{Rk,fi}$	[kN]	0,6	0,6	0,6	0,2	0,9	0,9	0,8	0,2
R 60				0,6	0,6	0,6	0,2	0,9	0,9	0,7	0,2
R 90				0,5	0,6	0,6	0,1	0,9	0,9	0,6	0,1
R120				0,4	0,5	0,5	0,1	0,7	0,7	0,6	0,1
R 30 – R 120	Edge distance	$C_{cr,fi}$	[mm]	50							
	Spacing	$S_{cr,fi}$	[mm]	100							
Shear load with lever arm											
R 30	Characteristic resistance, steel zinc plated	$M^0_{Rk,fi}$	[Nm]	0,7	1,0	0,7	²⁾	0,7	1,0	0,7	-
R 60				0,5	0,8	0,7	²⁾	0,5	0,8	0,7	-
R 90				0,4	0,5	0,6	²⁾	0,4	0,5	0,6	-
R120				0,3	0,4	0,5	²⁾	0,3	0,4	0,5	-
R 30	Characteristic resistance, stainless steel A4 / HCR	$M^0_{Rk,fi}$	[Nm]	1,4	2,1	0,7	²⁾	1,4	2,1	0,7	²⁾
R 60				1,1	1,5	0,7	²⁾	1,1	1,5	0,7	²⁾
R 90				0,7	1,0	0,6	²⁾	0,7	1,0	0,6	²⁾
R120				0,5	0,7	0,5	²⁾	0,5	0,7	0,5	²⁾
If the fire attack is from more than one side, the edge distance shall be ≥ 300 mm.											

¹⁾ A fixing point is defined as:

- Single anchor,
- Double anchor group with a minimum spacing s of $50 \text{ mm} \leq s < S_{cr,fi}$ or
- Quadruple anchor group with a minimum spacing s of $50 \text{ mm} \leq s < S_{cr,fi}$

If the spacing in a fixing point is greater than or equal to the respective spacing in this table, the characteristic resistances apply to every single anchor.

²⁾ Proof against failure due to shear load with lever arm is not required.

³⁾ Only in connection with threaded rods M8, M10 or M12 minimum strength class 5.8. When applying shear load to this anchor version, shear load with lever arm must be proven.

Nail Anchor N

Performance
Characteristic resistance under fire exposure

Annex C2