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## YDEEVNEDEKLARATION

DoP Nr.: MKT-1.2-300\_da

- ✧ **Varetypens unikke identifikationskode:** MKT Negleanker N
- ✧ **Tilsligtet anvendelse:** Laststyret ekspanderende anker til brug som multifastgørelse af ikke-bærende systemer i beton, se bilag / Annex B
- ✧ **Fabrikant:** MKT Metall-Kunststoff-Technik GmbH & Co.KG  
Auf dem Immel 2  
67685 Weilerbach
- ✧ **System eller systemer til vurdering og kontrol af konstansen af ydeevnen:** 2+
- ✧ **Europæisk vurderingsdokument:** ETAG 001-6  
Europæisk teknisk vurdering: ETA-11/0240, 07.05.2015  
Teknisk vurderingsorgan: DIBt, Berlin  
Notificeret organ/notificerede organer: NB 2873 – Technische Universität Darmstadt

✧ **Deklareret ydeevne/deklarerede ydeevner:**

Væsentlige funktioner	Ydeevne
<b>Mekanisk modstandsdygtighed og stabilitet (BWR 1)</b>	
Karakteristiske værdier	Bilag/Annex C1
<b>Brandsikring (BWR 2)</b>	
Brandegenskaber	Klasse A1
Brandsikkerhed	Bilag/Annex C2

Ydeevnen for den vare, der er anført ovenfor, er i overensstemmelse med den deklarerede ydeevne. Denne ydeevnedeklaration er udarbejdet i overensstemmelse med forordning (EU) nr. 305/2011 på eneansvar af den fabrikant, der er anført ovenfor.

Underskrevet for fabrikanten og på dennes vegne af:

  
Stefan Weustenhagen  
(CEO)

Weilerbach, 01.01.2021

p.p.   
Dipl.-Ing. Detlef Bigalke  
(Leder af produktudvikling)



Originalen af denne erklæringserklæring blev skrevet på tysk. I tilfælde af afvigelser i oversættelsen er den tyske udgave gyldig.

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

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

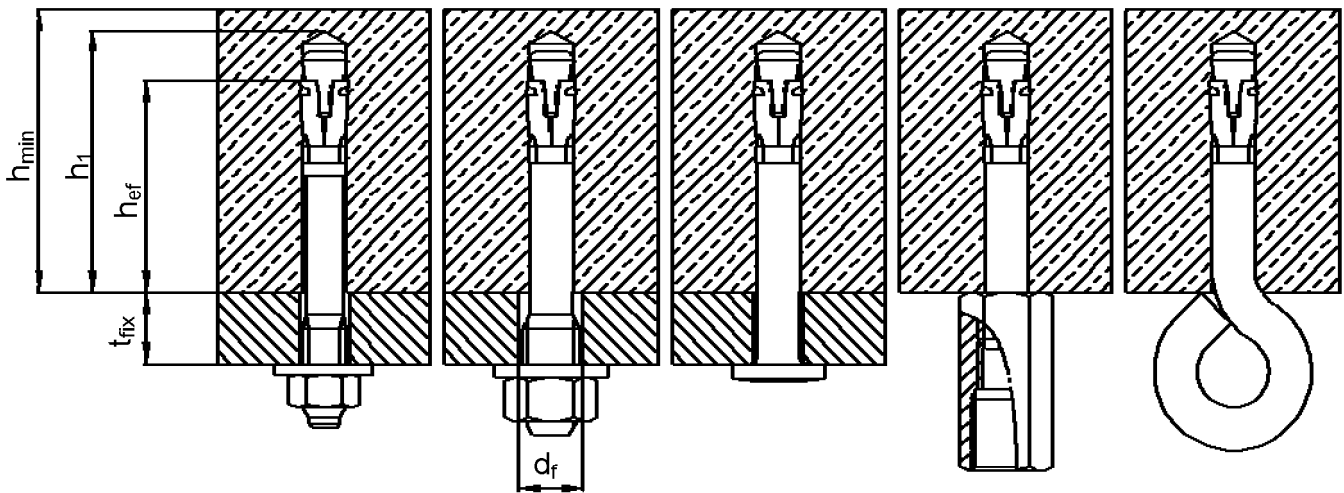
Intended use  
Specifications

**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 <sup>1)</sup>		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

<sup>1)</sup> 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				
	<b>Drill hole perpendicular to concrete surface.</b>			
2				
	<b>Blow out dust.</b>			
3		-		-
	<b>Check position of nut.</b>		<b>Check position of coupling nut.</b>	
4				
	<b>Drive in anchor.</b>			
5				
	<b>Max. tightening torque <math>T_{inst} \leq 4 \text{ Nm}</math> may be applied by using torque wrench.</b>		-	

## Nail Anchor N

**Intended use**  
Installation instructions

**Annex B3**

**Table C1:** Characteristic and design resistance for a **fixing point** <sup>1)</sup>, 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
<b>Effective anchorage depth</b>	$h_{ef} \geq$ [mm]	25			30		
Partial safety factor for any direction	$\gamma_M$	1,5					
<b>Optimized for maximum load</b>							
Characteristic resistance <b>C12/15</b>	$F_{Rk}$ [kN]	3,0	3,0 <sup>4)</sup>	1,5	4,0	4,0 <sup>4)</sup>	1,5
Characteristic resistance <b>C20/25 to C50/60</b>		4,5	4,5 <sup>4)</sup>		5,9	5,9 <sup>4)</sup>	
Design resistance <b>C12/15</b>	$F_{Rd}$ [kN]	2,0	2,0 <sup>4)</sup>	1,0	2,7	2,7 <sup>4)</sup>	1,0
Design resistance <b>C20/25 to C50/60</b>		3,0	3,0 <sup>4)</sup>		3,9	3,9 <sup>4)</sup>	
Respective spacing between fixing points <sup>1) 2)</sup>	$\frac{S_{cr}}{\text{for } c_{cr} \geq}$ [mm]	100					
		200					
Respective edge distance <sup>2)</sup>	$\frac{C_{cr}}{\text{for } s_{cr} \geq}$ [mm]	100					
		200					
<b>Optimized for minimum edge distance</b>							
Characteristic resistance <b>C12/15</b>	$F_{Rk}$ [kN]	1,5	1,5 <sup>4)</sup>	1,5	2,0	2,0 <sup>4)</sup>	1,5
Characteristic resistance <b>C20/25 to C50/60</b>		2,0	2,0 <sup>4)</sup>		2,5	2,5 <sup>4)</sup>	
Design resistance <b>C12/15</b>	$F_{Rd}$ [kN]	1,0	1,0 <sup>4)</sup>	1,0	1,3	1,3 <sup>4)</sup>	1,0
Design resistance <b>C20/25 to C50/60</b>		1,3	1,3 <sup>4)</sup>		1,7	1,7 <sup>4)</sup>	
Respective spacing between fixing points <sup>1)</sup>	$\frac{C_{cr}}{\text{for } s_{cr} \geq}$ [mm]	50					
		100					
<b>Shear load with lever arm</b>							
Characteristic resistance, <b>steel zinc plated</b>	$M^0_{Rk,s}$ [Nm]	9,2	12,7	<sup>3)</sup>	9,2	12,7	<sup>3)</sup>
Characteristic resistance, <b>stainless steel A4/HCR</b>		9,2	13,5	<sup>3)</sup>	9,2	13,5	<sup>3)</sup>
Partial safety factor	$\gamma_{Ms}$	1,25					

<sup>1)</sup> 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.

<sup>2)</sup> Intermediate values can be linearly interpolated.

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

<sup>4)</sup> 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 <sup>1)</sup> under **fire exposure** in concrete C20/25 to C50/60, design method C

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

<sup>1)</sup> 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.

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

<sup>3)</sup> 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**