

DECLARATION OF PERFORMANCE
DoP No. MKT-141 - en

1. Unique identification code of the product-type: **MKT Nail Anchor N**
2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

ETA-11/0240, Annex A1
Batch number: see packaging of the product

3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:

generic type	load controlled expansion anchor
for use in	cracked or non-cracked concrete C12/15 - C50/60 (EN 206), for multiple use for non-structural applications
option	ETAG 001-6
loading	static or quasi-static
material	<u>zinc-plated steel:</u> dry internal conditions covered sizes: N 6, N 8, N-K, N-M, N-O <u>stainless steel (marking A4):</u> internal and external use without particular aggressive conditions covered sizes: N 6, N 8, N-K, N-M, N-O <u>highly corrosion resistant steel (marking HCR):</u> internal and external use with particular aggressive conditions covered sizes: N 6, N 8, N-K, N-M, N-O
temperature range (if applicable)	--

4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):

MKT Metall-Kunststoff-Technik GmbH & Co. KG
Auf dem Immel 2
D - 67685 Weilerbach

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2): --
6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V: **System 2+**
7. In case of the declaration of performance concerning a construction product covered by a harmonised standard: --

8. In case of the declaration of performance concerning a construction product for which a European Technical Assessment has been issued:

issued **Deutsches Institut für Bautechnik, Berlin**
 on the basis of **ETA-11/0240**
ETAG 001-6

The notified body 1343-CPR performed under system 2+:

- (i) initial inspection of the manufacturing plant and of factory production control;
 - (ii) continuous surveillance, assessment and evaluation of factory production control.
- and issued: Certificate of constancy of performance 1343-CPR-M550-6

9. Declared performance:

Essential Characteristics	Design Method	Performance	Harmonized Technical Specification
characteristic resistance for tension	ETAG 001, Annex C	Annex C1	ETAG 001
	CEN/TS 1992-4		
characteristic resistance for shear	ETAG 001, Annex C	Annex C1	
	CEN/TS 1992-4		
characteristic resistance under fire exposure	ETAG 001, Annex C	Annex C2	
	CEN/TS 1992-4		

Where pursuant to Article 37 or 38 in the Specific Technical Documentation has been used, the requirements with which the product complies: --

10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.

This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 4.

Signed for and on behalf of the manufacturer by:

L. Weustenhagen

Lore Weustenhagen
 (General Manager)
 Weilerbach, 07.05.2015

i.V. *Detlef Bigalke*

Dipl.-Ing. Detlef Bigalke
 (Head of product development)



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.

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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.

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Performance

Characteristic resistance under fire exposure

Annex C2