

Declaration of performance

Steel anchor

**valid for
MÜPRO Steel anchor**

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Declaration of performance acc. Regulation (EU) 305/2011

DoP No.: MP Stahldübel MFB 20170407

1. Unique identification code of the product-type:

Steel anchor

2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):

ETA-05/0161, Annex A4

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	deformation-controlled expansion anchor
for use in	<p>cracked or non-cracked concrete C20/25 - C50/60 (EN 206): covered sizes: all</p> <p>cracked or non-cracked concrete C12/15 – C50/60 (EN 206) and precast pre-stressed hollow core slabs C30/37 – C50/60: covered sizes: M6x25 with plunge, M8x25 with plunge, M10x25 with plunge, M12x25 with plunge</p> <p>for multiple use for non-structural applications in concrete</p>
option	ETAG 001-06
loading	static or quasi-static
material	<p><u>steel galvanised:</u> dry internal conditions only covered sizes: M6x25¹⁾, M6x30²⁾, M8x25¹⁾, M8x30²⁾, M8x40²⁾, M10x25¹⁾, M10x30¹⁾, M10x40²⁾, M12x25¹⁾, M12x50²⁾, M16x65²⁾</p> <p>1) With plunge 2) With and without plunge</p> <p><u>stainless steel (marking A4):</u> internal and external use without particular aggressive conditions covered sizes: M6x30, M8x30, M8x40, M10x40, M12x50, M16x65 All with and without plunge</p> <p><u>high corrosion resistant steel (marking HCR):</u> internal and external use with particular aggressive conditions covered sizes: M6x30, M8x30, M8x40, M10x40, M12x50, M16x65 All with and without plunge</p>
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):

MP02023a

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MÜPRO Services GmbH
Hessenstrasse 11
65719 Hofheim-Wallau

5. Where applicable, name and contact address of the authorised representative whose mandate covers the tasks specified in Article 12(2):

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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:

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

Deutsches Institut für Bautechnik, Berlin

issued

ETA-05/0161

on the basis of

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 conformity 1343-CPR-M552-3/11.14

9. Declared performance:

Essential Characteristics	Design Method	Performance	Harmonized Technical Specification
characteristic resistance for tension	ETAG 001, Annex C CEN/TS 1992-4	Annex C1-C3	ETAG 001
characteristic resistance for shear	ETAG 001, Annex C CEN/TS 1992-4 CEN/TS 1992-4	Annex C1-C3	
Characteristic resistance under fire exposure	ETAG 001, Annex C CEN/TS 1992-4	Annex C4-C5	

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:



Hofheim-Wallau, 07.04.2017

i.V. Stefan Podszus,

Quality Manager

Table C1: Characteristic resistance for $h_{ef} \geq 30$ mm in solid concrete slabs

Anchor size			M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65
Load in any direction									
Characteristic resistance in concrete C20/25 to C50/60	F_{Rk}^0	[kN]	3	5	6	6	6	6	16
Partial safety factor	γ_M	[-]	1,8	2,16		2,1	2,16	1,8	1,8
Shear load with lever arm, Steel zinc plated									
Characteristic resistance (Steel 4.6)	$M_{Rk,s}^0$	[Nm]	6,1	15	15	30	30	52	133
Partial safety factor	γ_{Ms}	[-]	1,67						
Characteristic resistance (Steel 4.8)	$M_{Rk,s}^0$	[Nm]	6,1	15	15	30	30	52	133
Partial safety factor	γ_{Ms}	[-]	1,25						
Characteristic resistance (Steel 5.6)	$M_{Rk,s}^0$	[Nm]	7,6	19	19	37	37	65	166
Partial safety factor	γ_{Ms}	[-]	1,67						
Characteristic resistance (Steel 5.8)	$M_{Rk,s}^0$	[Nm]	7,6	19	19	37	37	65	166
Partial safety factor	γ_{Ms}	[-]	1,25						
Characteristic resistance (Steel 8.8)	$M_{Rk,s}^0$	[Nm]	12	30	30	59	60	105	266
Partial safety factor	γ_{Ms}	[-]	1,25						
Shear load with lever arm, Stainless steel A4 / HCR									
Characteristic resistance (Property class 70)	$M_{Rk,s}^0$	[Nm]	11	26	26	-	52	92	233
Partial safety factor	γ_{Ms}	[-]	1,56						
Characteristic resistance (Property class 80)	$M_{Rk,s}^0$	[Nm]	12	30	30	-	60	105	266
Partial safety factor	γ_{Ms}	[-]	1,33						

1) Characteristic bending moment $M_{Rk,s}^0$ for equation (5.5) in ETAG 001, Annex C or for equation (14) in CEN/TS 1992-4-4

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Characteristic resistance for $h_{ef} \geq 30$ mm in solid concrete

Annex C1

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Table C2: Characteristic resistance for $h_{ef} = 25$ mm in solid concrete slabs

Anchor size			M6x25	M8x25	M10x25	M12x25
Load in any direction						
Characteristic resistance in concrete C12/15 and C16/20	F^0_{Rk}	[kN]	2,5	2,5	3,5	3,5
Characteristic resistance in concrete C20/25 to C50/60	F^0_{Rk}	[kN]	3,5	4,0	4,5	4,5
Partial safety factor	γ_M	[-]	1,5			
Shear load with lever arm						
Characteristic resistance (Steel 4.6)	$M^0_{Rk,s}{}^1)$	[Nm]	6,1	15	30	52
Partial safety factor	γ_{Ms}	[-]	1,67			
Characteristic resistance (Steel 4.8)	$M^0_{Rk,s}{}^1)$	[Nm]	6,1	15	30	52
Partial safety factor	γ_{Ms}	[-]	1,25			
Characteristic resistance (Steel 5.6)	$M^0_{Rk,s}{}^1)$	[Nm]	7,6	19	37	65
Partial safety factor	γ_{Ms}	[-]	1,67			
Characteristic resistance (Steel 5.8)	$M^0_{Rk,s}{}^1)$	[Nm]	7,6	19	37	65
Partial safety factor	γ_{Ms}	[-]	1,25			
Characteristic resistance (Steel 8.8)	$M^0_{Rk,s}{}^1)$	[Nm]	12	30	60	105
Partial safety factor	γ_{Ms}	[-]	1,25			

¹⁾ Characteristic bending moment $M_{Rk,s}^0$ for equation (5.5) in ETAG 001, Annex C or for equation (14) in CEN/TS 1992-4-4

MÜPRO Steel anchor

Performance

Characteristic resistance for $h_{ef} = 25$ mm in solid concrete

Annex C2

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Table C3: Characteristic resistance for $h_{ef} = 25$ mm in precast pre-stressed hollow core slabs

Anchor size			M6x25	M8x25	M10x25	M12x25
Load in any direction						
Flange thickness	d _b	[mm]	≥ 35 (30) ¹⁾			
Characteristic resistance in precast pre-stressed hollow core slabs C30/37 to C50/60	F _{Rk}	[kN]	3,5	4,0	4,5	4,5
Partial safety factor	γ _M	[-]	1,5			
Shear load with lever arm						
Characteristic resistance (Steel 4.6)	M ⁰ _{Rk,s} ²⁾	[Nm]	6,1	15	30	52
Partial safety factor	γ _{Ms}	[-]	1,67			
Characteristic resistance (Steel 4.8)	M ⁰ _{Rk,s} ²⁾	[Nm]	6,1	15	30	52
Partial safety factor	γ _{Ms}	[-]	1,25			
Characteristic resistance (Steel 5.6)	M ⁰ _{Rk,s} ²⁾	[Nm]	7,6	19	37	65
Partial safety factor	γ _{Ms}	[-]	1,67			
Characteristic resistance (Steel 5.8)	M ⁰ _{Rk,s} ²⁾	[Nm]	7,6	19	37	65
Partial safety factor	γ _{Ms}	[-]	1,25			
Characteristic resistance (Steel 8.8)	M ⁰ _{Rk,s} ²⁾	[Nm]	12	30	60	105
Partial safety factor	γ _{Ms}	[-]	1,25			

¹⁾ The anchor may be set in a flange thickness of 30 mm with identical characteristic loads, if the borehole cuts no hollow core.

²⁾ Characteristic bending moment $M^0_{Rk,s}$ for equation (5.5) in ETAG 001, Annex C or for equation (14) in CEN/TS 1992-4-4

MÜPRO Steel anchor

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Characteristic resistance for $h_{ef} = 25$ mm in precast pre-stressed hollow core slabs

Annex C3

Table C4: Characteristic values under **fire exposure** in concrete C20/25 to C50/60 for $h_{ef} \geq 30 \text{ mm}$

Anchor size				M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65	
Fire resistance class		Load in any direction									
Steel 4.6	R 30	Characteristic resistance	$F^0_{Rk,fi}$	[kN]	0,2	0,4	0,4	0,9	0,9	1,5	3,1
	R 60			[kN]	0,2	0,3	0,3	0,8	0,8	1,3	2,4
	R 90			[kN]	0,1	0,3	0,3	0,6	0,6	1,1	2,0
	R 120			[kN]	0,1	0,2	0,2	0,5	0,5	0,8	1,6
Steel 4.8	R 30	Characteristic resistance	$F^0_{Rk,fi}$	[kN]	0,4	0,9	1,1	0,9	1,5	1,5	4,0
	R 60			[kN]	0,3	0,9	0,9	0,9	1,5	1,5	4,0
	R 90			[kN]	0,3	0,6	0,6	0,9	1,1	1,5	3,0
	R 120			[kN]	0,3	0,5	0,5	0,7	0,9	1,2	2,4
Steel ≥ 5.6	R 30	Characteristic resistance	$F^0_{Rk,fi}$	[kN]	0,8	0,9	1,5	0,9	1,5	1,5	4,0
	R 60			[kN]	0,8	0,9	1,5	0,9	1,5	1,5	4,0
	R 90			[kN]	0,4	0,9	0,9	0,9	1,5	1,5	3,7
	R 120			[kN]	0,3	0,5	0,5	0,7	1,0	1,2	2,4
A4 / HCR	R 30	Characteristic resistance	$F^0_{Rk,fi}$	[kN]	0,8	0,9	1,5	-	1,5	1,5	4,0
	R 60			[kN]	0,8	0,9	1,5	-	1,5	1,5	4,0
	R 90			[kN]	0,4	0,9	0,9	-	1,5	1,5	3,7
	R 120			[kN]	0,3	0,5	0,5	-	1,0	1,2	2,4
		Partial safety factor $\gamma_{M,fi}$	[-]	1,0							
Steel zinc plated											
R 30 – R 120		Spacing	$s_{cr,fi}$	[mm]	130	180	210	170	170	200	400
		Edge distance	$c_{cr,fi}$	[mm]	65	90	105	85	85	100	200
		If the fire attack is from more than one side, the edge distance shall be ≥ 300 mm.									
Stainless steel A4, HCR											
R 30 – R 120		Spacing	$s_{cr,fi}$	[mm]	130	180	210	-	170	200	400
		Edge distance	$c_{cr,fi}$	[mm]	65	90	105	-	85	100	200
		If the fire attack is from more than one side, the edge distance shall be ≥ 300 mm.									

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Characteristic values under **fire exposure** for $h_{ef} \geq 30 \text{ mm}$

Annex C4

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Table C5: Characteristic values under **fire exposure** in solid concrete C20/25 to C50/60 for $h_{ef} = 25 \text{ mm}$

Anchor size				M6x25	M8x25	M10x25	M12x25
Fire resistance class		Load in any direction					
Steel ≥ 4.6	R 30	Characteristic resistance $F^0_{Rk,fi}$	[kN]	0,4	0,6	0,6	0,6
	R 60		[kN]	0,35	0,6	0,6	0,6
	R 90		[kN]	0,30	0,6	0,6	0,6
	R 120		[kN]	0,25	0,5	0,5	0,5
		Partial safety factor $\gamma_{M,fi}$	[-]	1,0			
R 30 – R 120		Spacing $s_{cr,fi}$	[mm]	100	100	100	100
		Edge distance $c_{cr,fi}$	[mm]	50	50	50	50
		If the fire attack is from more than one side, the edge distance shall be ≥ 300 mm.					

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Performance

Characteristic values under **fire exposure** for $h_{ef} = 25 \text{ mm}$

Annex C5

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