

## DECLARATION OF PERFORMANCE

No. DoP-20/0935-R-KEM-II

1. Unique identification code of the product type: **R-KEM II**
2. Intended use: **Bonded anchor R-KEM II, R-KEM II-S, R-KEM II-W, RM50, RM50-S, RM50-W with threaded rod for use in masonry. The anchors shall be used in accordance with the conditions set out in Annex B ETA-20/0935. Assumption of an anticipated 50 years service life.**
3. Producer: **RAWLPLUG S.A., ul. Kwidzyńska 6, 51-416 Wrocław, Poland**
4. System(s) of assessment and verification of constancy of performance: **System 1**
5. European Assessment Document: **EAD 330076-01-0604; May 2021**
6. European Technical Assessment: **ETA-20/0935; 2025-07-29**  
Technical Assessment Unit: **Instytut Techniki Budowlanej**  
Notified body or bodies: **1488 ITB**  
Certificate numer and type: **1488-CPR-1189/W**
7. Declared performance characteristics:

### Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Characteristic resistance for static and quasi-static loading	Table C1 – C9
Characteristic resistance and displacements for seismic loading	No performance assessed

### Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	No performance assessed
Resistance to fire under tension and shear loading with and without lever arm, minimum edge distances and spacing	No performance assessed

### Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Content, emission and/or release of dangerous substances	No performance assessed

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VI Wydział Gospodarczy, KRS: 0000033537,

kapitał zakładowy: 31.059.401 PLN, kapitał wpłacony: 31.059.401 PLN

**Table C1: Characteristic resistance under tension and shear loading**

Density / Compressive strength	Sleeve	Anchor size	Effective embedment depth	Characteristic resistance	Characteristic resistance
$\rho_m / f_b$	$d_s \times l_s$	<b>M</b>	$h_{ef}$	$N_{Rk}^{1)}$	$V_{Rk}^{2)}$
[kg/dm <sup>3</sup> ] / [N/mm <sup>2</sup> ]	[-]	[-]	[mm]	[kN]	[kN]
<b>Brick No. 1</b>					
$\rho_m \geq 2,0 / f_b \geq 20$	without	M8	80	6,0	3,5
		M10	85	7,0	5,0
		M12	95	7,0	7,0
		M16	105	7,0	7,0
<b>Brick No. 2</b>					
$\rho_m \geq 0,65 / f_b \geq 6$	without	M8	80	1,5	1,5
		M10	85	1,5	1,5
		M12	95	2,0	2,0
		M16	105	2,5	2,5
<b>Brick No. 3</b>					
$\rho_m \geq 2,0 / f_b \geq 20$	without	M8	80	5,0	3,5
		M10	85	5,0	5,0
		M12	95	5,0	5,0
		M16	105	5,0	5,0
<b>Brick No. 4</b>					
$\rho_m \geq 1,4 / f_b \geq 12$	12 x 50	M8	50	2,0	2,0
	12 x 80	M8	80	2,0	2,0
	16 x 85	M10	85	2,5	2,5
	16 x 125	M10	125	3,5	2,5
	16 x 85	M12	85	2,5	2,5
	16 x 125	M12	125	3,0	2,5
	20 x 85	M16	85	2,5	2,5
<b>Brick No. 5</b>					
$\rho_m \geq 0,9 / f_b \geq 12$	12 x 50	M8	50	2,0	2,0
	12 x 80	M8	80	2,0	2,0
	16 x 85	M10	85	3,0	2,5
	16 x 125	M10	125	3,0	2,5
	16 x 85	M12	85	3,5	2,5
	16 x 125	M12	125	3,5	2,5
	20 x 85	M16	85	4,0	2,5
Partial safety factor $\gamma_M = 2,0$ for AAC (Brick No. 2) and $\gamma_{Ms} = 2,5$ for other base materials (in the absence of other national regulation) 1) $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,s}$ 2) $V_{Rk} = V_{Rk,b} = V_{Rk,c} = V_{Rk,s}$					

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**Table C2: Characteristic resistance under tension and shear loading**

Density / Compressive strength	Sleeve	Anchor size	Effective embedment depth	Characteristic resistance	Characteristic resistance
$\rho_m / f_b$	$d_s \times l_s$	<b>M</b>	$h_{ef}$	$N_{Rk}^{1)}$	$V_{Rk}^{2)}$
[kg/dm <sup>3</sup> ] / [N/mm <sup>2</sup> ]	[-]	[-]	[mm]	[kN]	[kN]
<b>Brick No. 6</b>					
$\rho_m \geq 0,8 /$ $f_b \geq 15$	12 x 50	M8	50	1,2	1,2
	12 x 80	M8	80	1,5	1,5
	16 x 85	M10	85	2,0	2,0
	16 x 125	M10	125	2,5	2,5
	16 x 85	M12	85	3,0	2,5
	16 x 125	M12	125	3,0	2,5
	20 x 85	M16	85	2,0	2,0
<b>Brick No. 7</b>					
$\rho_m \geq 0,7 /$ $f_b \geq 10$	12 x 50	M8	50	1,2	1,2
	12 x 80	M8	80	1,5	1,5
	16 x 85	M10	85	2,0	2,0
	16 x 125	M10	125	2,5	2,5
	16 x 85	M12	85	3,0	2,5
	16 x 125	M12	125	3,0	2,5
	20 x 85	M16	85	2,0	2,0
<b>Brick No. 8</b>					
$\rho_m \geq 0,8 /$ $f_b \geq 15$	12 x 50	M8	50	1,5	1,5
	12 x 80	M8	80	2,0	2,0
	16 x 85	M10	85	3,0	2,5
	16 x 125	M10	125	3,0	2,5
	16 x 85	M12	85	3,5	2,5
	16 x 125	M12	125	3,5	2,5
	20 x 85	M16	85	3,5	2,5
<b>Brick No. 9</b>					
$\rho_m \geq 0,93 /$ $f_b \geq 6$	12 x 50	M8	50	0,75	0,75
	12 x 80	M8	80	0,75	0,75
	16 x 85	M10	85	1,5	1,5
	16 x 125	M10	125	1,5	1,5
	16 x 85	M12	85	1,5	1,5
	16 x 125	M12	125	1,5	1,5
	20 x 85	M16	85	1,2	1,2
Partial safety factor $\gamma_M = 2,5$ (in the absence of other national regulation) 1) $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,s}$ 2) $V_{Rk} = V_{Rk,b} = V_{Rk,c} = V_{Rk,s}$					

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**Table C3: Characteristic resistance under tension and shear loading**

Density / Compressive strength	Sleeve	Anchor size	Effective embedment depth	Characteristic resistance	Characteristic resistance
$\rho_m / f_b$	$d_s \times l_s$	<b>M</b>	$h_{ef}$	$N_{Rk}^{1)}$	$V_{Rk}^{2)}$
[kg/dm <sup>3</sup> ] / [N/mm <sup>2</sup> ]	[-]	[-]	[mm]	[kN]	[kN]
<b>Brick No. 10</b>					
$\rho_m \geq 0,75 /$ $f_b \geq 6$	12 x 50	M8	50	1,0	0,9
	12 x 80	M8	80	1,0	1,0
	16 x 85	M10	85	1,5	1,5
	16 x 125	M10	125	1,5	1,5
	16 x 85	M12	85	1,5	1,5
	16 x 125	M12	125	1,5	1,5
	20 x 85	M16	85	1,2	1,2
<b>Brick No. 11</b>					
$\rho_m \geq 0,865 /$ $f_b \geq 6$	12 x 50	M8	50	0,75	0,75
	12 x 80	M8	80	0,9	0,9
	16 x 85	M10	85	1,2	1,2
	16 x 125	M10	125	1,2	1,2
	16 x 85	M12	85	1,2	1,2
	16 x 125	M12	125	1,2	1,2
	20 x 85	M16	85	1,2	1,2
<b>Brick No. 12</b>					
$\rho_m \geq 0,659 /$ $f_b \geq 6$	12 x 50	M8	50	0,9	0,9
	12 x 80	M8	80	0,9	0,9
	16 x 85	M10	85	1,5	1,5
	16 x 125	M10	125	1,2	1,2
	16 x 85	M12	85	1,5	1,5
	16 x 125	M12	125	1,5	1,5
	20 x 85	M16	85	1,5	1,5
<b>Brick No. 13</b>					
$\rho_m \geq 0,755 /$ $f_b \geq 6$	12 x 50	M8	50	1,0	0,9
	12 x 80	M8	80	1,0	1,0
	16 x 85	M10	85	1,0	0,9
	16 x 125	M10	125	1,0	0,9
	16 x 85	M12	85	1,2	1,2
	16 x 125	M12	125	1,2	1,2
	20 x 85	M16	85	1,2	1,2
Partial safety factor $\gamma_M = 2,5$ (in the absence of other national regulation) 1) $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,s}$ 2) $V_{Rk} = V_{Rk,b} = V_{Rk,c} = V_{Rk,s}$					

**Table C4: Characteristic resistance under tension and shear loading**

Density / Compressive strength	Sleeve	Anchor size	Effective embedment depth	Characteristic resistance	Characteristic resistance
$\rho_m / f_b$	$d_s \times l_s$	<b>M</b>	$h_{ef}$	$N_{Rk}^{1)}$	$V_{Rk}^{2)}$
[kg/dm <sup>3</sup> ] / [N/mm <sup>2</sup> ]	[-]	[-]	[mm]	[kN]	[kN]
<b>Brick No. 14</b>					
$\rho_m \geq 0,8 /$ $f_b \geq 2$	12 x 50	M8	50	1,0	1,0
	12 x 80	M8	80	1,5	1,5
	16 x 85	M10	85	2,0	2,0
	16 x 125	M10	125	2,0	2,0
	16 x 85	M12	85	2,5	2,5
	16 x 125	M12	125	3,0	2,5
	20 x 85	M16	85	3,5	2,5
Partial safety factor $\gamma_M = 2,5$ for other base materials (in the absence of national regulation) <sup>1)</sup> $N_{Rk} = N_{Rk,p} = N_{Rk,b} = N_{Rk,s}$ <sup>2)</sup> $V_{Rk} = V_{Rk,b} = V_{Rk,c} = V_{Rk,s}$					

**Table C5: Characteristic bending moment**

Size of rod			<b>M8</b>	<b>M10</b>	<b>M12</b>	<b>M16</b>	
Characteristic bending moment	$M_{Rk,s}^0$	Nm	5.8	19	37	65	166
			6.8	22	45	79	200
			8.8	30	60	105	266
			10.9	37	75	131	333
			12.9	45	90	157	400
			A4-70	26	52	92	232
			A4-80	30	60	105	266
			70	26	52	92	233
Partial safety factor	$\gamma_{Ms}$	-	5.8	1,25			
			6.8	1,25			
			8.8	1,25			
			10.9	1,50			
			12.9	1,50			
			A4-70	1,56			
			A4-80	1,33			
			70	1,56			

**Table C6: Displacements under tension loading**

Brick No. 1					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,11	0,12	0,15	0,16
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36
Brick No. 2					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,05	0,07	0,10	0,11
$\delta_{N\infty}$	[mm]	0,19	0,19	0,20	0,22
Brick No. 3					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,13	0,15	0,15	0,18
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36
Brick No. 4					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,10	0,13	0,15	0,18
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36
Brick No. 5					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,14	0,13	0,24	0,18
$\delta_{N\infty}$	[mm]	0,36	0,36	0,48	0,36
Brick No. 6					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,09	0,27	0,14	0,16
$\delta_{N\infty}$	[mm]	0,36	0,54	0,36	0,36
Brick No. 7					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,05	0,16	0,30	0,28
$\delta_{N\infty}$	[mm]	0,36	0,36	0,60	0,56
Brick No. 8					
Size of rod		M8	M10	M12	M16
$\delta_{N0}$	[mm]	0,08	0,10	0,10	0,27
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,54

Equation N =  $N_{RK} / \gamma_F \times \gamma_M$ , przy  $\gamma_F = 1,4$

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**Table C7: Displacements under tension loading**

Brick No. 9						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,06	0,04	0,07	0,10	
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36	
Brick No. 10						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,04	0,05	0,08	0,12	
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36	
Brick No. 11						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,04	0,05	0,08	0,12	
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36	
Brick No. 12						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,06	0,08	0,08	0,15	
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36	
Brick No. 13						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,04	0,04	0,10	0,07	
$\delta_{N\infty}$	[mm]	0,36	0,36	0,36	0,36	
Brick No. 14						
Size of rod		M8	M10	M12	M16	
$\delta_{N0}$	[mm]	0,22	0,25	0,30	0,20	
$\delta_{N\infty}$	[mm]	0,44	0,50	0,60	0,40	

Equation  $N = N_{Rk} / \gamma_F \times \gamma_M$ , przy  $\gamma_F = 1,4$

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**Table C8: Displacements under shear loading**

Brick No. 1					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,29	0,33	0,34	0,42
$\delta_{v\infty}$	[mm]	0,44	0,50	0,51	0,63
Brick No. 2					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,15	0,16	0,22	0,23
$\delta_{v\infty}$	[mm]	0,23	0,24	0,33	0,35
Brick No. 3					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,21	0,22	0,25	0,25
$\delta_{v\infty}$	[mm]	0,32	0,33	0,38	0,38
Brick No. 4					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,10	0,13	0,16	0,20
$\delta_{v\infty}$	[mm]	0,15	0,20	0,24	0,30
Brick No. 5					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,18	0,22	0,25	0,25
$\delta_{v\infty}$	[mm]	0,27	0,33	0,38	0,38
Brick No. 6					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,18	0,21	0,23	0,19
$\delta_{v\infty}$	[mm]	0,27	0,32	0,35	0,29
Brick No. 7					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,24	0,20	0,34	0,26
$\delta_{v\infty}$	[mm]	0,36	0,30	0,51	0,39
Brick No. 8					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,11	0,13	0,36	0,27
$\delta_{v\infty}$	[mm]	0,17	0,20	0,54	0,41

Equation N =  $N_{Rk} / \gamma_F \times \gamma_M$ , przy  $\gamma_F = 1,4$

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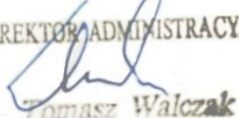
**Table C9: Displacements under shear loading**

Brick No. 9					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,12	0,15	0,22	0,21
$\delta_{v\infty}$	[mm]	0,18	0,23	0,33	0,32
Brick No. 10					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,11	0,14	0,15	0,25
$\delta_{v\infty}$	[mm]	0,17	0,21	0,23	0,38
Brick No. 11					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,14	0,15	0,25	0,20
$\delta_{v\infty}$	[mm]	0,21	0,23	0,38	0,30
Brick No. 12					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,09	0,11	0,24	0,26
$\delta_{v\infty}$	[mm]	0,14	0,17	0,36	0,39
Brick No. 13					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,10	0,14	0,17	0,21
$\delta_{v\infty}$	[mm]	0,15	0,21	0,26	0,32
Brick No. 14					
Size of rod		M8	M10	M12	M16
$\delta_{v0}$	[mm]	0,24	0,35	0,32	0,34
$\delta_{v\infty}$	[mm]	0,36	0,53	0,48	0,51

Equation  $N = N_{Rk} / \gamma_F \times \gamma_M$ , przy  $\gamma_F = 1,4$

The performance of the product identified above is in conformity with the set of declared performance characteristic. This declaration of performance is issued in accordance with Regulation (EU) No 305/2011 under the sole responsibility of the manufacturer identified above.

Tomasz Walczak  
Wrocław, 2025-08-05

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