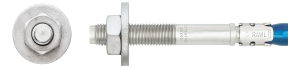


Declaration of Performance

DoP-17/0185-R-HPTII-A4D

1. Unique identification code of the product-type:



The photo depicts an example of a product of the given type of goods

2. Intended use/es:

**general type
to be applied in**

Expansion anchor

Stainless steel torque-controlled M8, M10, M12, M16 expansion anchor for use in both cracked and non-cracked concrete

option / category

**Loading
material**

static, quasi-static and seismic

The RAWL R-HPTII-A4 anchors are through-fixing torque controlled expansion anchors in sizes of M8, M10, M12 and M16. Each type comprises special bolt with a taper, an expansion sleeve, a hexagonal nut and a washer. Anchors are made of stainless steel A4.

3. Manufacturer:

Rawlplug S.A.

ul. Kwidzyńska 6, 51-416 Wrocław, PL

www.rawlplug.com

4. System/s of AVCP:

System 1

5. European Assessment Document:

EAD-330232-00-0601 Mechanical anchors for use in concrete.

Utilization category:

6. European Technical Assessment:

ETA-17/0185 edition of 2017-10-02

7. Technical Assessment Body:

Technicky a zkusebni ustav stavebni Praha

8. Notified body/ies:

1488 on the basis of:

- an assessment of the performance of the construction product carried out on the basis of testing (including sampling), calculation, tabulated values or descriptive documentation of the product
- initial inspection of the manufacturing plant and of factory production control
- continuing surveillance, assessment and evaluation of factory production control

issued a certificate **1488-CPR-0628/W**

9. Declared performance/s:

Essential Characteristics:

Technical Specification	Basic requirements according to CPR		Remarks:
ETA-17/0185	[1]	Mechanical resistance and stability	Declared values on the page 2
	[4]	Operational safety	Such criteria as those significant for [1]

Characteristic values of anchors subject to tensile load without the influence of distances between anchors and from the edge of concrete

				M8		M10		M12		M16	
				Red (1)	Std	Red (1)	Std	Red (1)	Std	Red (1)	Std
Steel failure											
Characteristic resistance	$N_{Rk,s}$	[kN]		21,2		33,6		44,8		82,6	
Calculated resistance	$N_{Rd,s}$	[kN]		14,1		22,4		29,9		55,1	
Safety factor	γ_{Ms}			1.5							
Concrete pull-out failure											
Characteristic resistance in cracked concrete	$N_{Rk,p}$	C20/25 [kN]		3,0	6,0	7,5	9,0	9,0	12,0	16,0	25,0
Calculated resistance in cracked concrete	$N_{Rd,p}$	C20/25 [kN]		1,7	3,3	4,2	6,0	6,0	8,0	10,7	16,7
Characteristic resistance in non-cracked concrete	$N_{Rk,p}$	C20/25 [kN]		7,5	9,0	12,0	16,0	-	25,0	-	-
Calculated resistance in non-cracked concrete	$N_{Rd,p}$	C20/25 [kN]		4,2	5,0	6,7	10,7	-	16,7	-	-
Safety factor	γ_{Mp}			1.8 ⁽²⁾				1.5 ⁽³⁾			
Failure of concrete cone											
Characteristic resistance in non-cracked concrete	$N_{Rk,c}$	C20/25 [kN]		-	-	-	-	16,8	-	26,4	39,5
Calculated resistance in non-cracked concrete	$N_{Rd,c}$	C20/25 [kN]		-	-	-	-	11,2	-	17,6	26,3
Safety factor	γ_{Mc}			1.8 ⁽²⁾				1.5 ⁽³⁾			
Effective anchoring depth	h_{ef}	[mm]		32	47	39	59	48	68	65	85
Distance between anchors	$s_{cr,N}$	[mm]		96	141	117	177	144	204	195	255
Distance from edge of concrete	$c_{cr,N}$	[mm]		48	71	59	89	72	102	98	128
Destruction by splitting off											
Distance between anchors	$s_{cr,sp}$	[mm]		160	240	200	300	250	340	320	430
Distance from edge of concrete	$c_{cr,sp}$	[mm]		80	120	100	150	125	170	160	215
Safety factor	γ_{Msp}			1.8 ⁽²⁾				1.5 ⁽³⁾			

Increasing factors for NRk,p & NRk,c										
Cracked and non-cracked concrete	ψ_c	C30/37	1,07	1,16	1,07	1,26	1,16	1,23	1,18	1,18
		C40/50	1,13	1,33	1,13	1,52	1,32	1,45	1,37	1,37
		C50/60	1,20	1,50	1,20	1,78	1,49	1,67	1,55	1,55

(1) Use limited to anchoring statically undetermined structural elements

(2) Includes factor γ_2 equal to 1.2.

(3) Includes factor γ_2 equal to 1.0.

Characteristic values of anchors subject to shear load without the influence of distances between anchors and from the edge of concrete

			M8		M10		M12		M16	
			Red (1)	Std	Red (1)	Std	Red (1)	Std	Red (1)	Std
Steel failure without moment arm										
Characteristic resistance	$V_{Rk,s}$	[kN]	11,7		18,5		24,6		45,4	
Calculated resistance	$V_{Rd,s}$	[kN]	9,4		14,8		19,7		36,3	
Safety factor	γ_{Ms}		1,25							
Steel failure on moment arm										
Characteristic resistance	$M_{Rk,s}$	[Nm]	22		45		72		180	
Safety factor	γ_{Ms}		1,25							
Concrete failure through prying out										
Characteristic resistance	$V_{Rk,cp}$	C20/25 [kN]	-	-	14,7	-	-	-	-	-
Calculated resistance	$V_{Rd,cp}$	C20/25 [kN]	-	-	8,2	-	-	-	-	-
Coefficient for equation (5.6), ETAG 001, Annex C, 5.2.3.3	k		-	-	1,2	-	-	-	-	-
Safety factor	γ_{Mc}		-	-	1.8 ⁽²⁾	-	-	-	-	-
Concrete edge failure										
Effective anchor length	l_f	[mm]	32	47	39	59	48	68	65	85
Anchor diameter	d_{nom}	[mm]	8		10		12		16	
Safety factor	γ_{Mc}		1.8 ⁽²⁾			1.5 ⁽³⁾				

(1) Use limited to anchoring statically undetermined structural elements

(2) Includes factor γ_2 equal to 1.2.

(3) Includes factor γ_2 equal to 1.0.

Characteristic values of resistance under seismic action category C1

Size	M8		M10		M12		M16			
	Red	Std	Red	Std	Red	Std	Red	Std		
Tension load										
Steel failure										
Characteristic resistance	$N_{Rk,s,eq}$	[kN]	21,2	33,6	44,8	82,6				
Partial safety factor	$\gamma_{Ms,eq}$	[-]	1,5	1,5	1,5	1,5				
Pull-out failure										
Characteristic resistance in concrete C20/25	$N_{Rk,p,eq}$	[kN]	3,0	6,0	7,5	9,0	9,0	12,0	16,0	25,0
Installation safety factor	$\gamma_{Mp,eq}$	[-]	1,2	1,2	1,2	1,0	1,0	1,0	1,0	1,0
Shear load										
Steel failure without lever arm										
Characteristic resistance	$V_{0Rk,s,eq}$	[kN]	-	6,7	-	12,5	18,4	39,0		
Partial safety factor	$\gamma_{Ms,eq}$	[-]	1,25	1,25	1,25	1,25	1,25	1,25		

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

Signed for and on behalf of manufacturer:

Sławomir Jagła
Proxy of the Quality Management System
Wrocław, 26.03.2018.

PEŁNOMOCNIK SYSTEMU
ZARZĄDZANIA JAKOŚCIĄ

Jagła
mgr Sławomir Jagła