

Declaration of Performance

DoP-11/0126-R-SPL

1. Unique identification code of the product-type:

R-SPL



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 anchors

option / category

**Loading
material**

Torque-controlled expansion M8, M10, M12, M16, M20 anchors for use in non-cracked concrete

subject to static or quasi-static

RAWL SafetyPlus anchors type R-SPL, R-SPL-C and R-SPL-BP in the sizes of M8 to M20 (R-SPL in the sizes M8 to M20, R-SPL-C in the sizes M8 to M16 and R-SPL-BP in the sizes M8 to M20) are the anchors made of galvanized steel which is placed into a drill hole and anchored by torque-controlled expansion.

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-11/0126 edition of 2017-05-29

7. Technical Assessment Body:

Instytut Techniki Budowlanej

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-0635/W**

9. Declared performance/s:

Essential Characteristics:

Technical Specification	Basic requirements according to CPR		Remarks:
ETA-11/0126	[1]	Mechanical resistance and stability	Declared values on the page 2
	[4]	Operational safety	Such criteria as those significant for [1]

Characteristic values for tension loads (static and quasi-static loading)

Anchor size		M8	M10	M12	M16	M20	
Steel failure							
Characteristic resistance	$N_{Rk,s}$ [kN]	29,3	46,4	57,4	125,6	196,0	
Partial safety factor	$\gamma_{Ms}^{1)}$	1,5					
Pull-out failure							
Characteristic resistance in non-cracked concrete C20/25	$N_{Rk,p}$ [kN]	9	12	16	35	40	
Installation safety factor	$\gamma_2^{2)} = \gamma_{inst}^{3) 4)}$	1,2					
Increasing factor	concrete C30/37	1,22					
	concrete C40/50	1,41					
	concrete C50/60	1,55					
Concrete cone failure and splitting failure							
Effective anchorage depth	h_{ef} [mm]	60	70	80	100	125	
Factor for non-cracked concrete	$k_1^{2)} = k_{ucr}^{3)}$	10,1	10,1	10,1	10,1	10,1	
	$k_1^{2)} = k_{ucr,N}^{4)}$	11,0	11,0	11,0	11,0	11,0	
Installation safety factor	$\gamma_2^{2)} = \gamma_{inst}^{3) 4)}$	1,2					
Increasing factor	concrete C30/37	1,22					
	concrete C40/50	1,41					
	concrete C50/60	1,55					
Characteristic resistance for splitting	$N_{Rk,sp}^{4)}$ [kN]	9	12	16	35	40	
Characteristic spacing	concrete cone failure	$s_{cr,N}$ [mm]	180	210	240	300	375
	splitting failure	$s_{cr,sp}$ [mm]	180	210	240	300	375
Characteristic edge distance	concrete cone failure	$c_{cr,N}$ [mm]	90	105	120	150	188
	splitting failure	$c_{cr,sp}$ [mm]	90	105	120	150	188

¹⁾ in absence of other national regulations

²⁾ parameter for design according to ETAG-001 Annex C

³⁾ parameter for design according to CEN/TS 1992-4-4:2009

⁴⁾ parameter for design according to FprEN 1992-4:2016

Displacements under tension loads

Anchor size		M8	M10	M12	M16	M20
Tension load	N [kN]	3,06	4,08	6,80	11,90	13,61
Displacement	δ_{N0} [mm]	0,08	0,27	0,11	0,15	0,36
	$\delta_{N\infty}$ [mm]	1,00	1,00	1,00	1,00	1,00

Characteristic values for shear loads (static and quasi-static loading)

Anchor size		M8	M10	M12	M16	M20
Steel failure without lever arm						
Characteristic resistance	$V_{Rk,s}^{2)3)} = V_{Rk,s}^{4)}$ [kN]	19,20	30,00	43,20	77,60	73,68
Ductility factor	$k^{2)} = k_2^{3)} = k_7^{4)}$	0,8	0,8	0,8	0,8	0,8
Partial safety factor	$\gamma_{Ms}^{1)}$	1,25				
Steel failure with lever arm						
Characteristic bending resistance	$M_{Rk,s}^0$ [Nm]	45,04	87,97	152,01	365,97	728,54
Partial safety factor	$\gamma_{Ms}^{1)}$	1,25				
Concrete pry-out failure						
Factor	$k^{2)} = k_3^{3)} = k_8^{4)}$	2,0				
Partial safety factor	$\gamma_{Ms}^{1)}$	1,25				
Concrete edge failure						
Effective length of anchor under shear loading	l_f [mm]	60	70	80	100	125
Outside diameter of anchor	d_{nom} [mm]	8	10	12	16	20
Partial safety factor	$\gamma_{Mc}^{1)}$	1,5				
¹⁾ in absence of other national regulations ²⁾ parameter for design according to ETAG-001 Annex C ³⁾ parameter for design according to CEN/TS 1992-4-4:2009 ⁴⁾ parameter for design according to FprEN 1992-4:2016						

Displacements under shear loads

Anchor size		M8	M10	M12	M16	M20
Shear load	V [kN]	6,53	10,20	14,69	26,39	25,06
Displacement	δ_{v0} [mm]	1,91	0,99	2,07	2,44	2,81
	$\delta_{v\infty}$ [mm]	2,86	1,49	3,11	3,66	4,21

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, 04.01.2018.

PEŁNOMOCNIK SYSTEMU
ZARZĄDZANIA JAKOŚCIĄ

Jagła
mgr Sławomir Jagła