

# DECLARATION OF PERFORMANCE

DoP No. 17/0344-WTB7

1. Unique identification code of the product-type: **Walraven Throughbolt Option 7**
2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11 (4):

See: **ETAs-17/0344**  
 Charge number: **See product packaging**

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

<b>Generic type</b>	Torque-controlled expansion anchors
<b>For use in</b>	non-cracked concrete C20/25 to C50/60 acc. To EN 206:2000-12
<b>Material</b>	WTB1 Throughbolts are torque-controlled expansion anchors in sizes of M8, M10, M12, M16 and M20 made of galvanized carbon steel.
<b>Use category</b>	Torque-controlled steel expansion anchors in sizes M8, M10, M12, M16 and M20 for use in non-cracked concrete.
<b>Loading</b>	static or quasi-static

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

**J. van Walraven Holding B.V., Industrieweg 5, 3641 RK Mijdrecht, The Netherlands**

5. Where applicable, name and contact address of the authorized 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 1**

7. In case of the declaration of performance concerning a construction product covered by a harmonized standard:

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

Technical Assessment Body:	<b>Technical and Test Institute for Construction Prague</b>
European Technical Approval:	<b>ETA-17/0344 edition of 12-04-2017</b>
European Assessment Document:	<b>EAD 330232-00-0601</b>
Notified body/ies:	<b>1488</b>

The notified body 1488 performed under system 1:

- (i) determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product;
- (ii) initial inspection of the manufacturing plant and of factory production control;
- (iii) continuous surveillance, assessment and evaluation of factory production control and issued:

## Certificate of constancy of performance: 1488-CPD-0291/W

### 9. Declared performance/s:

Essential Characteristics	Performance	Harmonized Technical Specification
Characteristic resistance for tension and shear load	ETAs-17/0344, Annex C	EAD 330232-00-0601
Edge distances and spacing	ETAs-17/0344, Annex C	
Characteristic resistance under fire exposure	ETAs-17/0344, Annex C	

**Table:** Characteristic resistance under tension load

			M8		M10		M12		M16		M20	
			Red(1)	Std	Red(1)	Std	Red	Std	Red	Std	Red	Std
<b>Steel failure</b>												
Characteristic resistance	$N_{Rk,s}$	[kN]	158,00		252,00		373,00		661,00		1010,00	
Safety factor	$\gamma_{Ms}$		14,00									
<b>Pull-out failure</b>												
Characteristic resistance in uncracked concrete	$N_{Rk,p}$	C20/25 [kN]	90,00	120,00	90,00	120,00	160,00	250,00	300,00	400,00	350,00	400,00
Installation safety factor	$\gamma_2^{(2)} = \gamma_{inst}^{(3)(4)}$		12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00	12,00
Increasing factor												
Cracked and uncracked concrete	$\psi_c$	C30/37	1,25	1,10	1,36	1,37	1,20	1,16	1,12	1,17	1,18	1,30
		C40/50	1,50	1,21	1,72	1,74	1,40	1,33	1,23	1,34	1,36	1,59
		C50/60	1,76	1,32	2,08	2,10	1,60	1,49	1,34	1,50	1,54	1,89
<b>Concrete cone failure</b>												
Factor for uncracked concrete	$k_1^{(2)} = k_{ucr}^{(3)}$	$k_{ucr,N}^{(4)}$	10,1									
			11,0									
Installation safety factor	$\gamma_2^{(2)} = \gamma_{inst}^{(3)(4)}$		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
Effective anchorage depth	$h_{ef}$	[mm]	32	47	39	49	48	68	65	85	79	99
Spacing	$S_{cr,N}$	[mm]	96	141	117	147	144	204	195	255	237	297
Edge distance	$C_{cr,N}$	[mm]	48	71	59	74	72	102	98	128	119	149

Splitting failure												
Spacing	$S_{cr,sp}$	[mm]	160	240	200	260	250	370	360	430	410	530
Edge distance	$C_{cr,sp}$	[mm]	80	120	100	130	125	185	180	215	205	265
Installation safety factor	$\gamma_2^{(2)} = \gamma_{inst}^{(3)(4)}$		1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2

(1) Use restricted to anchoring statically indeterminate structural components

(2) parameter for design according to EOTA 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

**Table:** Characteristic resistance under shear load

			M8		M10		M12		M16		M20	
			Red(1)	Std	Red(1)	Std	Red	Std	Red	Std	Red	Std
Tension load in uncracked concrete	$V_{Rk,s}$	[kN]	36	48	36	48	63	99	119	159	139	159
Displacement	$\delta_{N0}$	[mm]	20	20	20	20	20	20	20	20	20	20
	$\delta_{N\infty}$	[mm]	35	35	35	35	35	35	35	35	35	35

(1) Use restricted to anchoring statically indeterminate structural components

**Table:** Characteristic resistance under shear load

			M8		M10		M12		M16		M20	
			Red(1)	Std	Red(1)	Std	Red	Std	Red	Std	Red	Std
<b>Steel failure without lever arm</b>												
Characteristic resistance	$V_{ORk,s}$	[kN]	10,1		16,0		23,3		43,0		67,4	
Ductility factor	$K_7$	[-]	0,8		0,8		0,8		0,8		0,8	
Partial safety factor	$\gamma_{Ms}$	[-]	1,25									
<b>Steel failure with lever arm</b>												
Characteristic resistance	$M_{Rk,s}$	[Nm]	x		35		61		154		301	
Partial safety factor	$\gamma_{Ms}$	[-]	1,25									

Concrete pry-out failure											
Characteristic resistance concrete	$V_{Rk,cp}$	-	-	12,0	-	-	-	-	-	68,7	-
Factor	$K_8$	-	-	1,0	-	-	-	-	-	2,0	-
Installation safety factor	$\gamma_{22} = \gamma_{inst3/4}$	1,20									
Concrete edge failure											
Effective anchor length	$l_f$ [mm]	32	47	39	49	48	68	65	85	79	99
Anchor diameter	$d_{nom}$ [mm]	8		10		12		16		20	
Installation safety factor	$\gamma_{22} = \gamma_{inst3/4}$	1,20									

- (1) Use restricted to anchoring statically indeterminate structural components  
 (2) parameter for design according to EOTA 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

**Table:** Displacement under shear load

		M8		M10		M12		M16		M20	
		Red(1)	Std	Red(1)	Std	Red	Std	Red	Std	Red	Std
Tension load in uncracked concrete	$V_{Rk,s}$ [kN]	4,0	4,0	4,8	6,3	9,2	9,2	17,1	17,1	27,4	27,4
Displacement	$\delta_{N0}$ [mm]	1,8	1,8	1,8	1,8	2,4	2,4	3,0	3,0	3,0	3,0
	$\delta_{N\infty}$ [mm]	2,7	2,7	2,7	2,7	3,6	3,6	4,5	4,5	4,5	4,5

- (1) Use restricted to anchoring statically indeterminate structural components

Technical Documentation and / or Specific Technical Documentation:

**ETA-17/0344 edition of 12-04-2017**

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:

