



**DECLARATION OF PERFORMANCE**  
**DoP no. 2873-02911/1 EN**

Version: 1

print date: 04.01.2021

1. Unique identification code of the product-type: **TOX Drop-in anchor E / ES Impact**  
2. Intended use/es:

Product	Intended use
Deformation controlled anchor	For multiple use for non-structural applications in cracked and non-cracked concrete.

3. Manufacturer: **TOX-Dübel-Technik GmbH, Brunnenstraße 31, D-72505 Krauchenwies Ablach**  
4. Authorised representative: --  
5. System/s of AVCP: **2+**

6. a) Harmonised standard: --  
Notified body/ies: --

6. b) **European Assessment Document: ETAG 001 - Part 6; January 2011**  
European Technical Assessment: **ETA-08/0345; 27.02.2018**  
Technical Assessment Body: **DIBt Deutsches Institut für Bautechnik**  
Notified body/ies: **2873 TU Darmstadt**

7. Declared performance/s:

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

Essential characteristics	Performances
Reaction to fire	Anchorage satisfy requirements for Class A1
Resistance to fire	See Annex C4 - C5

**Safety in use (BWR 4)**

Essential characteristic	Performance
Characteristic values for static and quasi- static actions	See Annex C1 to C3

8. Appropriate Technical Documentation and/or Specific Technical Documentation: --  
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 the manufacturer by:

i.A. Daniel Wilhelm (Applications Engineering)  
Krauchenwies-Ablach, 04.01.2021

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

Anchor size			M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65
<b>Load in any direction</b>									
Characteristic resistance in concrete <b>C20/25 to C50/60</b>	$F_{Rk}^0$	[kN]	3	5	6	6	6	6	16
Partial safety factor	$\gamma_M$	[-]	1,8	2,16		2,1	2,16	1,8	1,8
Spacing	$s_{cr}$	[mm]	130	180	210	230	170	170	400
Edge distance	$c_{cr}$	[mm]	65	90	105	115	85	85	200
<b>Shear load with lever arm, Steel zinc plated</b>									
Characteristic resistance <b>(Steel 4.6)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	6,1	15	15	30	30	52	133
Partial safety factor	$\gamma_{Ms}$	[-]	1,67						
Characteristic resistance <b>(Steel 4.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	6,1	15	15	30	30	52	133
Partial safety factor	$\gamma_{Ms}$	[-]	1,25						
Characteristic resistance <b>(Steel 5.6)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	7,6	19	19	37	37	65	166
Partial safety factor	$\gamma_{Ms}$	[-]	1,67						
Characteristic resistance <b>(Steel 5.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	7,6	19	19	37	37	65	166
Partial safety factor	$\gamma_{Ms}$	[-]	1,25						
Characteristic resistance <b>(Steel 8.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	12	30	30	59	60	105	266
Partial safety factor	$\gamma_{Ms}$	[-]	1,25						
<b>Shear load with lever arm, Stainless steel A4 / HCR</b>									
Characteristic resistance <b>(Property class 70)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	11	26	26	-	52	92	233
Partial safety factor	$\gamma_{Ms}$	[-]	1,56						
Characteristic resistance <b>(Property class 80)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	12	30	30	-	60	105	266
Partial safety factor	$\gamma_{Ms}$	[-]	1,33						

<sup>1)</sup> 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

**TOX Drop-in Anchor E / ES**

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

**Annex C1**

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

Anchor size			M6x25	M8x25	M10x25	M12x25
<b>Load in any direction</b>						
Characteristic resistance in concrete <b>C12/15 and C16/20</b>	$F_{Rk}^0$	[kN]	2,5	2,5	3,5	3,5
Characteristic resistance in concrete <b>C20/25 to C50/60</b>	$F_{Rk}^0$	[kN]	3,5	4,0	4,5	4,5
Partial safety factor	$\gamma_M$	[-]	1,5			
Spacing	$s_{cr}$	[mm]	75	75	75	75
Edge distance	$c_{cr}$	[mm]	38	38	38	38
<b>Shear load with lever arm</b>						
Characteristic resistance <b>(Steel 4.6)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	6,1	15	30	52
Partial safety factor	$\gamma_{Ms}$	[-]	1,67			
Characteristic resistance <b>(Steel 4.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	6,1	15	30	52
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			
Characteristic resistance <b>(Steel 5.6)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	7,6	19	37	65
Partial safety factor	$\gamma_{Ms}$	[-]	1,67			
Characteristic resistance <b>(Steel 5.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	7,6	19	37	65
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			
Characteristic resistance <b>(Steel 8.8)</b>	$M_{Rk,s}^0$ <sup>1)</sup>	[Nm]	12	30	60	105
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			

<sup>1)</sup> 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

**TOX Drop-in Anchor E / ES**

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

**Annex C2**

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

Anchor size			M6x25	M8x25	M10x25	M12x25
<b>Load in any direction</b>						
Flange thickness	$d_b$	[mm]	$\geq 35$ (30) <sup>1)</sup>			
Characteristic resistance in precast pre-stressed hollow core slabs <b>C30/37 to C50/60</b>	$F_{Rk}$	[kN]	3,5	4,0	4,5	4,5
Partial safety factor	$\gamma_M$	[-]	1,5			
Spacing	$s_{cr}$	[mm]	200			
Edge distance	$c_{cr}$	[mm]	150			
<b>Shear load with lever arm</b>						
Characteristic resistance <b>(Steel 4.6)</b>	$M_{Rk,s}^0$ <sup>2)</sup>	[Nm]	6,1	15	30	52
Partial safety factor	$\gamma_{Ms}$	[-]	1,67			
Characteristic resistance <b>(Steel 4.8)</b>	$M_{Rk,s}^0$ <sup>2)</sup>	[Nm]	6,1	15	30	52
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			
Characteristic resistance <b>(Steel 5.6)</b>	$M_{Rk,s}^0$ <sup>2)</sup>	[Nm]	7,6	19	37	65
Partial safety factor	$\gamma_{Ms}$	[-]	1,67			
Characteristic resistance <b>(Steel 5.8)</b>	$M_{Rk,s}^0$ <sup>2)</sup>	[Nm]	7,6	19	37	65
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			
Characteristic resistance <b>(Steel 8.8)</b>	$M_{Rk,s}^0$ <sup>2)</sup>	[Nm]	12	30	60	105
Partial safety factor	$\gamma_{Ms}$	[-]	1,25			

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

<sup>2)</sup> 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

**TOX Drop-in Anchor E / ES**

**Performance**

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

**Annex C3**

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

Anchor size				M6x30	M8x30	M8x40	M10x30	M10x40	M12x50	M16x65	
Fire resistance class		Load in any direction									
Steel 4.6	R 30	Characteristic resistance	$F_{Rk,fi}^0$	[kN]	0,4	0,6	0,6	0,9	0,9	1,5	3,1
	R 60		[kN]	0,35	0,6	0,6	0,8	0,8	1,3	2,4	
	R 90		[kN]	0,30	0,6	0,6	0,6	0,6	1,1	2,0	
	R 120		[kN]	0,25	0,5	0,5	0,5	0,5	0,8	1,6	
Steel 4.8	R 30	Characteristic resistance	$F_{Rk,fi}^0$	[kN]	0,4	0,9	1,1	0,9	1,5	1,5	4,0
	R 60		[kN]	0,35	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 $\geq 5.6$	R 30	Characteristic resistance	$F_{Rk,fi}^0$	[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	$F_{Rk,fi}^0$	[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							
<b>Steel zinc plated</b>											
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 $\geq 300$ mm.										
<b>Stainless steel A4, HCR</b>											
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 $\geq 300$ mm.										

**TOX Drop-in Anchor E / ES**

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

**Annex C4**

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

Anchor size		M6x25	M8x25	M10x25	M12x25		
<b>Fire resistance class</b>		<b>Load in any direction</b>					
Steel $\geq 4.6$	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 $\geq 300$ mm.						

**TOX Drop-in Anchor E / ES**

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

**Annex C5**