

DECLARATION OF PERFORMANCE No WDB-06/20

1. Unique identification code of the product-type: **WDBLS-06 ; WDBLP-06; WDBLG-06; WDBGW-06**
2. Intended use/es: **Fasteners for use in concrete for redundant non-structural systems**
3. Manufacturer: **KLIMAS Sp. z o.o.
 ul. Wincentego Witosa 135/137
 Kuźnica Kiedrzyńska 42-233 Mykanów**
4. Authorised representative: **not applicable**
5. System/s of AVCP: **system 2+**
6. European Assessment Document: **a) EAD 330747-00-0601
 b) ETA-20/0769 13/11/2020
 c) DiBt Deutsches Institut für Bautechnik
 d) 2323**

7. Declared performance/s:

7a. Safety in case of fire (BWR 2)

Reaction to fire	Class A1
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Table C3: Design method EN-1992-4:2018 method A and Technical Report TR055

Characteristic values for resistance to fire (Tension)

Anchor size				WDB 6		
Head type				LS,GW	LP	LG
Partial factor		$\gamma_{M,fi}$	[-]	1,0		
Steel failure						
Characteristic resistance	R30	$N_{Rk,s,fi}$	[kN]	0,23		
	R60	$N_{Rk,s,fi}$	[kN]	0,20		
	R90	$N_{Rk,s,fi}$	[kN]	0,16		
	R120	$N_{Rk,s,fi}$	[kN]	0,11		
Pull-out failure						
Characteristic resistance in concrete \geq C20/25	R30	$N_{Rk,p,fi}$	[kN]	1,3	1,0	
	R60					
	R90					
	R120	$N_{Rk,p,fi}$	[kN]	1,0	0,8	

DECLARATION OF PERFORMANCE No WDB-06/20

Concrete cone failure				
Characteristic resistance in concrete \geq C20/25	R30	$N_{Rk,c,fi}^0$	[kN]	2,0
	R60			
	R90			
	R120	$N_{Rk,c,fi}^0$	[kN]	
Effective embedment depth	h_{ef}		[mm]	42,6
Minimum member thickness	h_{min}		[mm]	100
Spacing	$s_{cr,N,fi}$		[mm]	$4h_{ef}$
	s_{min}		[mm]	40
Edge distance	$c_{cr,N,fi}$		[mm]	$2h_{ef}$
Fire exposure from one side only	c_{min}		[mm]	40
Fire exposure from more than one side				≥ 300 mm

Table C4: Design method EN-1992-4:2018 method A and Technical Report TR055

Characteristic values for resistance to fire (Shear)

Anchor size				WDB 6		
Head type				LS, GW	LP	LG
Partial factor		$\gamma_{M,fi}$	[-]	1,0		
Steel failure without level arm						
Characteristic resistance	R30	$V_{Rk,s,fi}$	[kN]	0,23		
	R60	$V_{Rk,s,fi}$	[kN]	0,20		
	R90	$V_{Rk,s,fi}$	[kN]	0,16		
	R120	$V_{Rk,s,fi}$	[kN]	0,11		
Steel failure with level arm						
Characteristic resistance	R30	$M_{Rk,p,fi}^0$	[Nm]	0,18		
	R60	$M_{Rk,p,fi}^0$	[Nm]	0,16		
	R90	$M_{Rk,p,fi}^0$	[Nm]	0,13		
	R120	$M_{Rk,p,fi}^0$	[Nm]	0,09		
Pry-out failure						
k_s			[-]	1,0		
Characteristic resistance	R30	$V_{Rk,cp,fi}$	[kN]	2,0		
	R60					
	R90	$V_{Rk,cp,fi}$	[kN]	1,6		
	R120					

DECLARATION OF PERFORMANCE No WDB-06/20

Concrete edge failure				
Characteristic resistance	≤ R90	$V_{Rk,c,fi}$	[kN]	$V_{Rk,c,fi}^0 = 0,25 * V_{Rk,c}^0$
	R120	$V_{Rk,c,fi}$	[kN]	$V_{Rk,c,fi}^0 = 0,20 * V_{Rk,c}^0$

7b. Safety in use (BWR 4)

Table B2: Design method EN-1992-4:2018 method A and Technical Report TR055

Minimum thickness of member, minimum spacing and edge distance

Anchor size			WDB 6
			LS, LP, LG, GW
Minimum member thickness	h_{min}	[mm]	100
Minimum edge distance	c_{min}	[mm]	40
Minimum spacing	s_{min}	[mm]	40

Table C1: Design method EN-1992-4:2018 method A and Technical Report TR055

Characteristic resistance under tension loading (static and quasi-static loading)

Anchor size		WDB 6			
Head type		LS,GW	LP	LG	
Steel failure					
Characteristic resistance	$N_{Rk,s}$	[kN]	19,7		
Partial factor	γ_{Ms}	[-]	1,4		
Pull-out failure					
Characteristic resistance in cracked and uncracked concrete C20/25	$N_{Rk,p}$	[kN]	5,0	5,0	4,0
Increasing factors for $N_{Rk,p}$ in cracked or non-cracked concrete	ψ_c	C30/37	1,22		
		C40/50	1,41		
		C50/60	1,58		
Installation factor	γ_{inst}	[-]	1,0		

DECLARATION OF PERFORMANCE No WDB-06/20

Concrete cone failure			
Effective anchorage depth	h_{ef}	[mm]	42,6
Characteristic edge distance	$c_{cr,N}$	[mm]	$1,5h_{ef}$
Characteristic spacing	$s_{cr,N}$	[mm]	$3,0h_{ef}$
Installation factor	γ_{inst}	[-]	1,0
Factor for cracked concrete	$k_{cr,N}$	[-]	7,7
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0
Splitting failure			
Proof of splitting is required	-	[-]	Yes
Characteristic resistance	$N_{Rk,sp}^0$	[kN]	$N_{Rk,sp}^0 = \min (N_{Rk,p} ; N_{Rk,c}^0)$ ¹⁾
Characteristic edge distance for splitting	$c_{cr,sp}$	[mm]	$1,5h_{ef}$
Characteristic anchor spacing for splitting	$s_{cr,sp}$	[mm]	$3,0h_{ef}$
Installation factor	γ_{inst}	[-]	1,0
Factor for cracked concrete	$k_{cr,N}$	[-]	7,7
Factor for uncracked concrete	$k_{ucr,N}$	[-]	11,0

1) $N_{Rk,c}^0$ according to EN 1992-4:2018

Table C2: Design method EN-1992-4:2018 method A and Technical Report TR055

Characteristic resistance to shear load (static and quasi-static loading)

Anchor size			WDB 6		
Head type			LS,GW	LP	LG
Setting depth	h_{nom}	[mm]	55		
Effective embedment depth	h_{ef}	[mm]	42,6		
Steel failure without lever arm					
Characteristic resistance	$V_{Rk,s}$	[kN]	7,9		
Ductility factor	k_7	[-]	0,8		
Partial factor	γ_{Ms}	[-]	1,5		
Steel failure with lever arm					
Characteristic resistance	$M_{Rk,s}^0$	[Nm]	15,9		
Partial factor	γ_{Ms}	[-]	1,5		
Concrete pryout failure					
k-factor	k_8	[-]	1,0		
Partial factor	γ_{Mcp}	[-]	1,5		

DECLARATION OF PERFORMANCE No WDB-06/20

Concrete edge failure			
Effective length of anchor in shear loading	l_f	[mm]	42,6
Effective diameter of anchor	d_{nom}	[mm]	5,37
Partial factor	γ_{Mc}	[-]	1,5

Durability

Table B1: Design method EN-1992-4:2018 method A and Technical Report TR055

Installation parameters

Anchor size			WDB 6			
Head type			LS	LG	GW	LP
Nominal diameter of drill bit	d_0	[mm]	6			
Nominal embedment depth	h_{nom}	[mm]	55			
Min. hole depth in concrete	$h_l \geq$	[mm]	64			
Effective anchorage depth	h_{ef}	[mm]	42,6			
Clearance hole	d_f	[mm]	9			
Thickness of fixture	t_{fix}	[mm]	5-85		-	10-85
Installation torque ¹⁾	T_{inst}	[Nm]	20	- ¹⁾	20	- ¹⁾
Wrench size	WS	[mm]	10	-	12,7	-
Torx size	TX	-	-	40	-	40
Max. power output, machine setting	$T_{max} \leq$	[Nm]	80			

1) Screws can only be set using a impact screw driver.

Table A1: Design method EN-1992-4:2018 method A and Technical Report TR055

Materials and screw types

Head marking	Material
WDB	Carbon steel zinc coating: electro plated (> 5 μm) or mechanical plated (> 30 μm)



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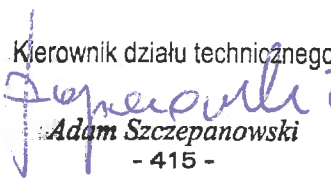
DECLARATION OF PERFORMANCE No WDB-06/20

8. Appropriate Technical Documentation and/or Specific Technical Documentation: **not applicable**

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:

Kuźnica Kiedrzyńska
14.01.2021 r.
(place and date of issue)

Kierownik działu technicznego

Adam Szczepanowski
- 415 -
(signature)