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PRODUCT DATA SHEET – WDBLS

Section 1. PRODUCT DESCRIPTION

CONCRETE SCREW WITH HEX WASHER HEAD – WDBLS





Concrete screw with a hexagonal washer head WDBLS with a threaded pin for the installation of permanent and temporary fixings. It is made of carbon steel and covered with a layer of galvanic zinc, which provides anti-corrosion protection. The screw is intended for the installation of temporary fixings at the construction site, serial fixings (barriers, handrails, storage racks, brackets), and the installation of light and medium steel structures.

Recommended for substrates:

- **cracked and non-cracked, reinforced and non-reinforced concrete C20/25 ÷ C50/60**

Advantages:

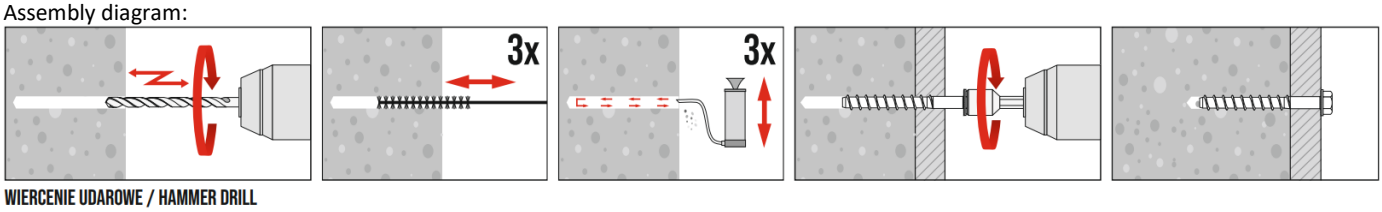
- **no stresses characteristic of mechanical anchors**
- **quick and easy assembly by direct screwing into a hole in the concrete**
- **without the use of expansion sleeves or other anchoring mortars**
- **immediate load ability**
- **multiple use**
- **fire resistance R30 – R120**

Concrete screws hold European Technical Assessment: ETA-20/0768, ETA-20/0769

Section 2. METHOD OF INSTALLATION

1. Original mechanical screws delivered by the manufacturer can be used only
2. Before installation check whether parameters of the substrate (where screws are to be installed) conform to parameters of the substrate used in testing, based on which characteristic loading resistances of connections were determined
3. Install screws so that reinforcement of the substrate is not damaged
4. Before installation, indicate the drilling points where screws are to be installed in accordance with installation guidelines
5. Then drill the holes in accordance with the parameters selected (diameter and depth of the hole), perpendicularly to the substrate
6. Clean holes with SCF brush (min. 3x) and blow out clean with PCF pump (min. 3x)
7. The screws should be screwed into the prepared hole and subsequently tightened with the appropriate tightening torque (T_{inst}) using a torque wrench
8. Make sure that the washer part of the head is pressed against the fastened element after the screw is fastened

Assembly diagram:



WIERCENIE UDAROWE / HAMMER DRILL

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Section 3. TECHNICAL DATA

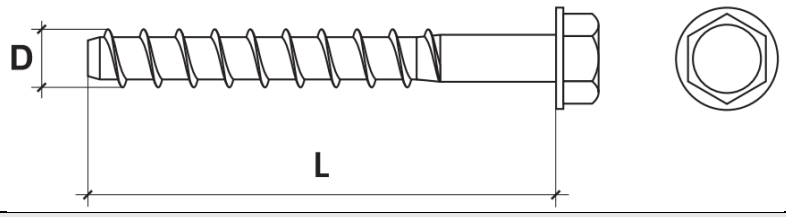


TABLE 1. INSTALLATION PARAMETERS						
Anchor size		**[mm]**	**6**	**8**	**10**	**12**
Hole diameter	D_0	[mm]	6	8	10	12
Nominal embedment depth	h_{nom}	[mm]	55	65	75	95
Effective embedment depth	h_{ef}	[mm]	42,6	50,6	58,1	75,4
Drilled hole depth	$h_{0\geq}$	[mm]	65	75	85	105
Fixed member hole diameter	$d_{f\leq}$	[mm]	9	11	13	15
Torque	T_{inst}	[Nm]	20	40	60	80
Wrench size	SW	[mm]	10	13	17	19
Minimum substrate thickness	h_{min}	[mm]	100	110	130	160
Minimum spacing	s_{min}	[mm]	40	50	60	70
Minimum clearance from edge	c_{min}	[mm]	40	50	60	70
Spacing which ensures transfer of characteristic resistance for tension of a single fastener without any impact from the edge and spacing in case of concrete cone failure	$s_{cr,N}$	[mm]	127,8	151,8	174,3	226,2
Clearance from the edge which ensures transfer of characteristic resistance for tension of a single fastener without any impact from the edge and spacing in case of concrete cone failure	$c_{cr,N}$	[mm]	63,9	75,9	87,15	113,1
Spacing which ensures transfer of characteristic resistance for tension of a single fastener without any impact from the edge and spacing in case of pry-out failure	$s_{cr,sp}$	[mm]	127,8	151,8	174,3	226,2
Clearance from the edge which ensures transfer of characteristic resistance for tension of a single fastener without any impact from the edge and spacing in case of pry-out failure	$c_{cr,sp}$	[mm]	63,9	75,9	87,15	113,1

TABLE 2. TENSILE STRENGTH							
Characteristic resistance for tension for steel		$N_{Rk,s}$	[kN]	19,7	35,9	57,0	83,0
Design loading resistance for tension for steel		$N_{Rd,s}$	[kN]	14,1	25,6	40,7	59,2
Characteristic pull-out strength	non-cracked concrete	$N_{Rk,p}$	[kN]	5,0	9,0	16,0	25,0
	cracked concrete	$N_{Rk,p}$	[kN]	5,0	4,5	10,0	12,0
Design pull-out strength	non-cracked concrete	$N_{Rd,p}$	[kN]	3,33	4,29	10,67	16,67
	cracked concrete	$N_{Rd,p}$	[kN]	3,33	2,14	6,67	8,00
Characteristic resistance for concrete cone failure	non-cracked concrete	$N_{Rk,c}$	[kN]	13,7	17,7	21,8	32,2
	cracked concrete	$N_{Rk,c}$	[kN]	9,6	12,4	15,2	22,5
Design resistance for concrete cone failure	non-cracked concrete	$N_{Rd,c}$	[kN]	9,1	8,4	14,5	21,4
	cracked concrete	$N_{Rd,c}$	[kN]	6,4	5,9	10,2	15

TABLE 3. SHEAR STRENGTH							
Characteristic resistance for shear for steel		$V_{Rk,s}$	[kN]	7,9	16,9	26,8	39,0
Design resistance for shear for steel		$V_{Rd,s}$	[kN]	5,3	11,3	17,9	26,0
Characteristic resistance for bend for steel		$M^0_{Rk,s}$	[Nm]	15,9	39,1	79,0	138,8
Design resistance for bend for steel		$M^0_{Rk,s}$	[Nm]	10,6	26,1	52,7	92,5
Characteristic resistance for pry-out failure	non-cracked concrete	$V_{Rk,cp}$	[kN]	13,7	17,7	21,8	64,4
	cracked concrete	$V_{Rk,cp}$	[kN]	9,6	12,4	15,3	45,0
Design resistance for pry-out failure for steel	non-cracked concrete	$V_{Rd,cp}$	[kN]	9,1	11,8	14,5	42,9
	cracked concrete	$V_{Rd,cp}$	[kN]	6,4	8,3	10,2	30,0

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TABLE 4. SELECTION TABLE						
Product code	Hole diameter	Screw length	Thread outer diameter	Max. thickness of element installed	Head type	Number of pieces in a box
	D_0 [mm]	L [mm]	D [mm]	t_{fix} [mm]	[-]	[pcs.]
WDBLS-6						
WDBLS-06040[1)]	6	40	7,5	1	SW10	100
WDBLS-06060	6	60	7,5	5	SW10	100
WDBLS-06080	6	80	7,5	25	SW10	100
WDBLS-06100[2)]	6	100	7,5	45	SW10	100
WDBLS-8						
WDBLS-08050[1)]	8	50	9,9	1	SW13	50
WDBLS-08060[1)]	8	60	9,9	1	SW13	50
WDBLS-08070	8	70	9,9	5	SW13	50
WDBLS-08080	8	80	9,9	15	SW13	50
WDBLS-08100[2)]	8	100	9,9	35	SW13	50
WDBLS-08130[2)]	8	130	9,9	65	SW13	50
WDBLS-08150[2)]	8	150	9,9	85	SW13	50
WDBLS-10						
WDBLS-10060[1)]	10	60	12,5	1	SW17	50
WDBLS-10070[1)]	10	70	12,5	1	SW17	50
WDBLS-10080	10	80	12,5	5	SW17	50
WDBLS-10090	10	90	12,5	15	SW17	50
WDBLS-10100	10	100	12,5	25	SW17	50
WDBLS-10110	10	110	12,5	35	SW17	50
WDBLS-10120	10	120	12,5	45	SW17	50
WDBLS-10130	10	130	12,5	55	SW17	50
WDBLS-10140	10	140	12,5	65	SW17	50
WDBLS-12						
WDBLS-12100[2)]	12	100	14,3	5	SW19	20
WDBLS-12110[2)]	12	110	14,3	15	SW19	20
WDBLS-12130[2)]	12	130	14,3	35	SW19	20
WDBLS-12150[2)]	12	150	14,3	55	SW19	20

[1)] not covered by ETA
[2)] new products - please contact with sales representative

Section 4. REMARKS

1. All previous versions of this Product Data Sheet shall cease to be valid
2. Data given in this Product Data Sheet is in accordance with current knowledge and published in good faith. KLIMAS Sp. z o.o. is not responsible for correctness and quality of the fixing if recommendations regarding method of use and installation are not followed.

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