

Section 1. PRODUCT DESCRIPTION

STEEL DROP-IN ANCHOR – TSW

Steel drop-in anchor TSW comprises drop-in sleeve with female thread and driven expansion cone. Expansion section of drop-in sleeve is divided by lengthwise cut-outs into four portions. Sleeves are made from carbon steel with zinc plating. Fixing in a substrate is executed by driving expansion cone into the sleeve to a specified depth using special tool OTSW (drop-in anchor setting tool). Sleeve TSW is used as an expansion piece for fasteners with metric thread (metric bolts, threaded rods, hanger bolts).



Recommended for substrates:

- non-cracked or cracked reinforced and non-reinforced concrete of C20/25 ÷ C50/60 strength class

Advantages:

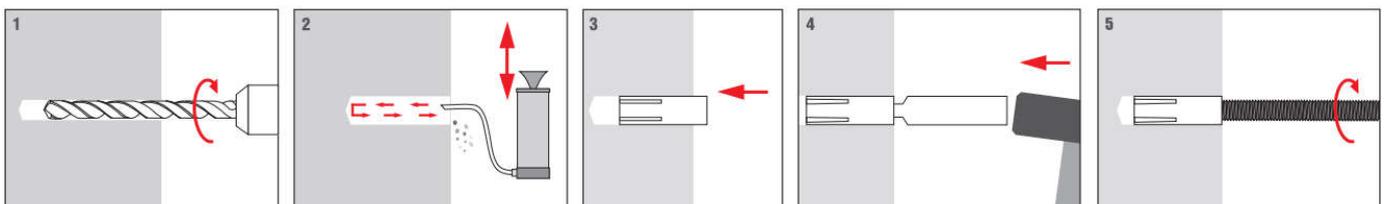
- fast and simple installation by expansion of sleeve in substrate by means of integrated key using OTSW tool
- ready to carry full capacity instantly
- flush fitting in substrate



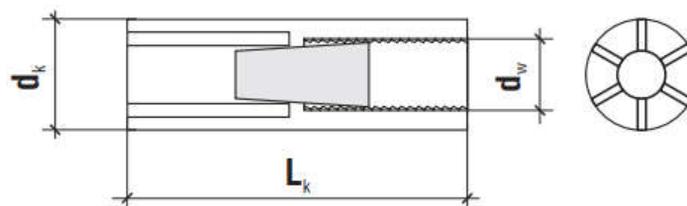
Steel anchors hold National Technical Assessment: ITB-KOT-2018/0464 Rev. 1

Section 2. METHOD OF INSTALLATION

1. Original sleeves delivered by the manufacturer can be used only
2. Before installation check whether parameters of the substrate (where sleeves 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 sleeves so that reinforcement of the substrate is not damaged
4. Before installation, indicate the drilling points where sleeves 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 (3x) and blow out clean with PCF pump (3x)
7. Insert the sleeve into the hole, and then drive steel pin to a specified depth using OTSW tool (drop-in anchor setting tool)



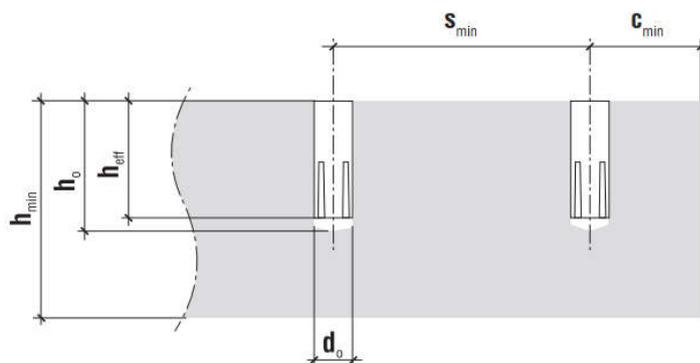
Section 3. TECHNICAL DATA



PRODUCT DATA SHEET – TSW

Parameter	Symbol	Unit	8	10	12	16	20	25
Sleeve diameter	d_k	[mm]	8	10	12	16	20	25
Hole diameter	d_o	[mm]	8	10	12	16	20	25
Fixed member hole diameter	d_f	[mm]	7	9	12	14	18	22
Min. anchorage depth	h_{eff}	[mm]	25	30	40	50	65	80
Min. hole depth	h_o	[mm]	30	35	45	55	75	90
Female thread length	L_g	[mm]	11,5	14,0	18,0	22,75	31,0	33,4
Min. substrate thickness	h_{min}	[mm]	80	80	80	100	130	160
Min. spacing between sleeves	s_{min}	[mm]	200	200	200	200	260	320
Min. distance from substrate edge	c_{min}	[mm]	150	150	150	150	195	240
Torque	T_{inst}	[Nm]	-	-	-	-	-	-
National Technical Assessment	[-]	[-]	ITB-KOT-2018/0464 Rev. 1					

Type	Min. anchorage depth h_{eff} [mm]	Non-cracked concrete and cracked C20/25 ÷ C50/60	
		Characteristic pull-out strength $N_{R,k}$ [kN]	Characteristic shear strength $V_{R,k}$ [kN]
TSW-06	25	1.4	1.4
TSW-08	30	2.0	2.0
TSW-10	40	3.5	3.5
TSW-12	50	6.0	6.0
TSW-16	65	11.0	11.0
TSW-20	80	16.0	16.0



*Recommended partial safety factor of:
 2.52 (pull-out) / 1.25 (shear)

Product code	Anchor diameter and length	Max. thickness of fixed member	Female thread of threaded pin or screw	Pieces per pack
	$d_k \times L_k$ [mm]	t_{fix} [mm]	d_w	[pcs.]
TSW-06	8 x 25	-	M6	100
TSW-08	10 x 30	-	M8	100
TSW-10	12 x 40	-	M10	50
TSW-12	15 x 50	-	M12	50
TSW-16	20 x 65	-	M16	25
TSW-20	25 x 80	-	M20	10

STEEL DROP-IN ANCHOR SETTING TOOL – OTSW



Product code	For anchor setting	Pieces per pack
		[pcs.]
OTSW-06*	TSW-06	1
OTSW-08*	TSW-08	1
OTSW-10*	TSW-10	1
OTSW-12*	TSW-12	1
OTSW-16*	TSW-16	1
OTSW-20*	TSW-20	1

*on request and to order

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.