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Technical data for multiple use for non-structural applications in concrete

ETA-16/0123
nur für Mehrfachbefestigung von nichttragende Systeme im Beton

Technical values without fire exposure for multiple fastening: TSM / TSM A4 / TSM HCR						
TSM high performance screw size				**TSM 5**	**TSM 6**	
Nominal embedment depth	h_{nom}		**[mm]**	**35**	**35**	**55**
Nominal borehole diameter	d_0		**[mm]**	5	6	
Depth of the drill hole	h_1	≥	**[mm]**	40	40	60
Effective anchorage depth	h_{ef}		**[mm]**	27	27	44
Through-hole in fixture to be attached	d_f	≤	**[mm]**	7	8	
Permissible tensile loads in cracked concrete [1);2)]	N_{zul}		**[kN]**	0,6	0,6	3,6
Permissible shear loads in cracked concrete [1);2)]	V_{zul}		**[kN]**	2,1	3,3	
Permissible tensile loads in non-cracked concrete [1);2)]	N_{zul}		**[kN]**	0,6	0,6	3,6
Permissible shear loads in non-cracked concrete [1);2)]	V_{zul}		**[kN]**	2,1	3,3	
Minimum edge distance	c_{min}		**[mm]**	35	35	40
Minimum spacing	s_{min}		**[mm]**	35	35	40
Minimum concrete thickness	h_{min}		**[mm]**	80	80	100
Installation torque	T_{inst}		**[Nm]**	8	10	
Max. torque			**[Nm]**	120	160	

[1)] The partial safety factor for material resistance from the approval γ_M=1.5 as well a partial safety factor for load γ_F=1.4 were considered for determining the load.
[2)] The influence of spacing and edge distances are not taken into count for load values.

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Technical values with fire exposure for multiple fastening: TSM / TSM A4 / TSM HCR							
TSM high performance screw size				**TSM 6**		**TSM 6 A4 / HCR**	
Nominal length of engagement		h_{nom}	[mm]	**35**	**55**	**35**	**55**
Permissible tensile- and shear loads ($F_{zul,fi} = N_{zul,fi} = V_{zul,fi}$)							
Fire resistance class							
R 30	**Permissible resistance**	$F_{zul,fi\ 30}$	[kN]	0,4	0,9	0,4	1,2
R 60		$F_{zul,fi\ 60}$	[kN]	0,4	0,8	0,4	1,2
R 90		$F_{zul,fi\ 90}$	[kN]	0,4	0,6	0,4	1,2
R 120		$F_{zul,fi\ 120}$	[kN]	0,3	0,4	0,3	0,8
R 30		$M^0_{zul,fi\ 30}$	[kN]	0,7		0,9	
R 60		$M^0_{zul,fi\ 60}$	[kN]	0,6		0,9	
R 90		$M^0_{zul,fi\ 90}$	[kN]	0,5		0,9	
R 120		$M^0_{zul,fi\ 120}$	[kN]	0,3		0,6	
Edge distance							
R 30 to R 120		$c_{cr,fi}$	[mm]	$2 \times h_{ef}$			
The edge distance must be ≥ 300 mm if the exposure to fire is from more than one side							
Spacing							
R 30 to R 120		$s_{cr,fi}$	[mm]	$2 \times C_{cr,fi}$			
Concrete edge failure							
R 30 to R 120		**k**	[-]	1,0			
For damp concrete the anchorage depth must be increased by at least 30 mm							

[1] For determining the permissible load the partial safety factor from the permit for the resistance side γ_M=1.0 and a partial safety factor on the load side γ_F=1.0 were considered.

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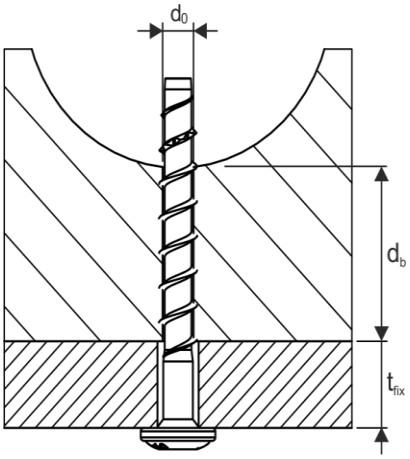
Technical data for multiple use for non-structural applications in prestressed hollow core slabs

ETA-16/0123
nur für Mehrfachbefestigung von nichttragende Systeme im Beton

Only for screw size 6

Technical values without fire exposure for prestressed hollow core slabs: TSM / TSM A4 / TSM HCR						
TSM high performance screw size				**TSM 6**		
Bottom flnage thickness	d_b		[mm]	**≥ 25**	**≥ 30**	**≥ 35**
Nominal borehole diameter	d_0		[mm]	6		
Depth of the drill hole	h_1	≥	[mm]	30	35	40
Through-hole in fixture to be attached	d_f	≤	[mm]	8		
Permissible loads[1)]	F_{zul}		[kN]	0,4	0,8	1,2
Minimum edge distance	c_{min}		[mm]	100		
Minimum spacing	s_{min}		[mm]	100		
Minimum distance between anchor groups	a_{min}		[mm]	100		
Distance between hollow centres	l_c	≥	[mm]	100		
Distance between prestressing wires	l_p	≥	[mm]	100		
Distance between prestressing wires and borehole	a_p	≥	[mm]	50		
Hollow thickness (w) / **Width of space (e)**	(w/e)	≤	[mm]	4,2		
Installation torque	T_{inst}		[Nm]	10		
Max. Torque			[Nm]	160		

1) The partial safety factor for material resistance from the approval γM= 1.5 as well a partial safety factor for load actions γF=1.4 were considered for determining the load.



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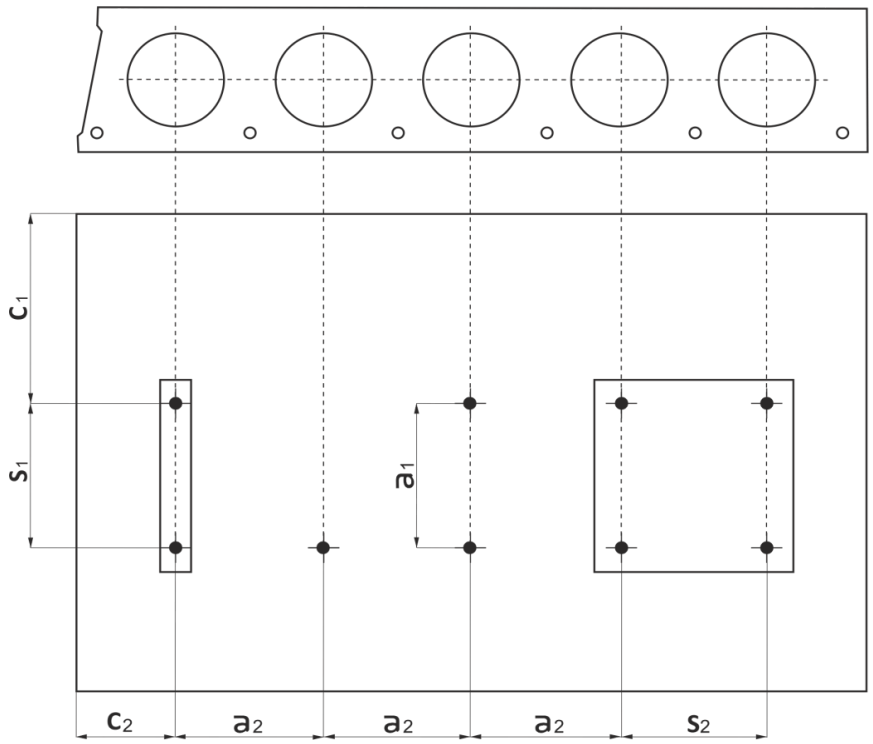

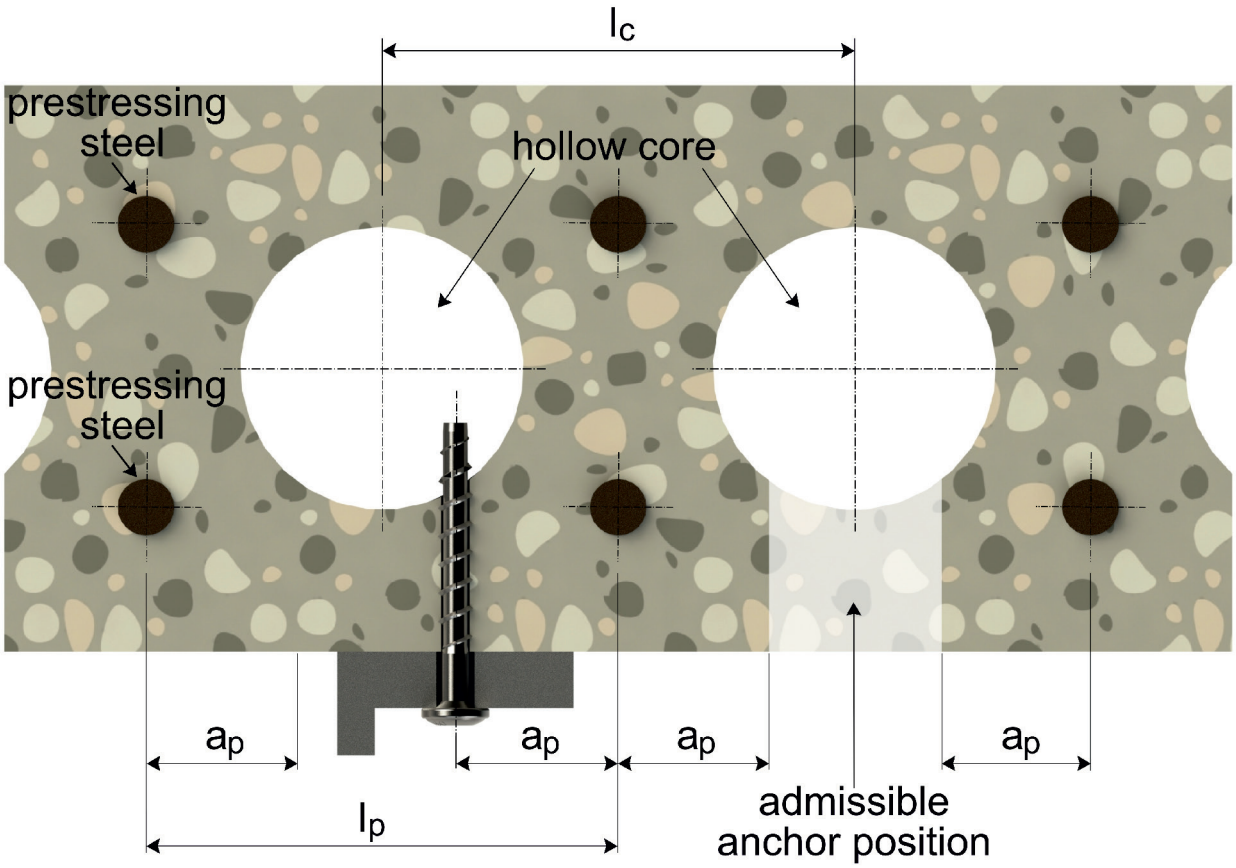

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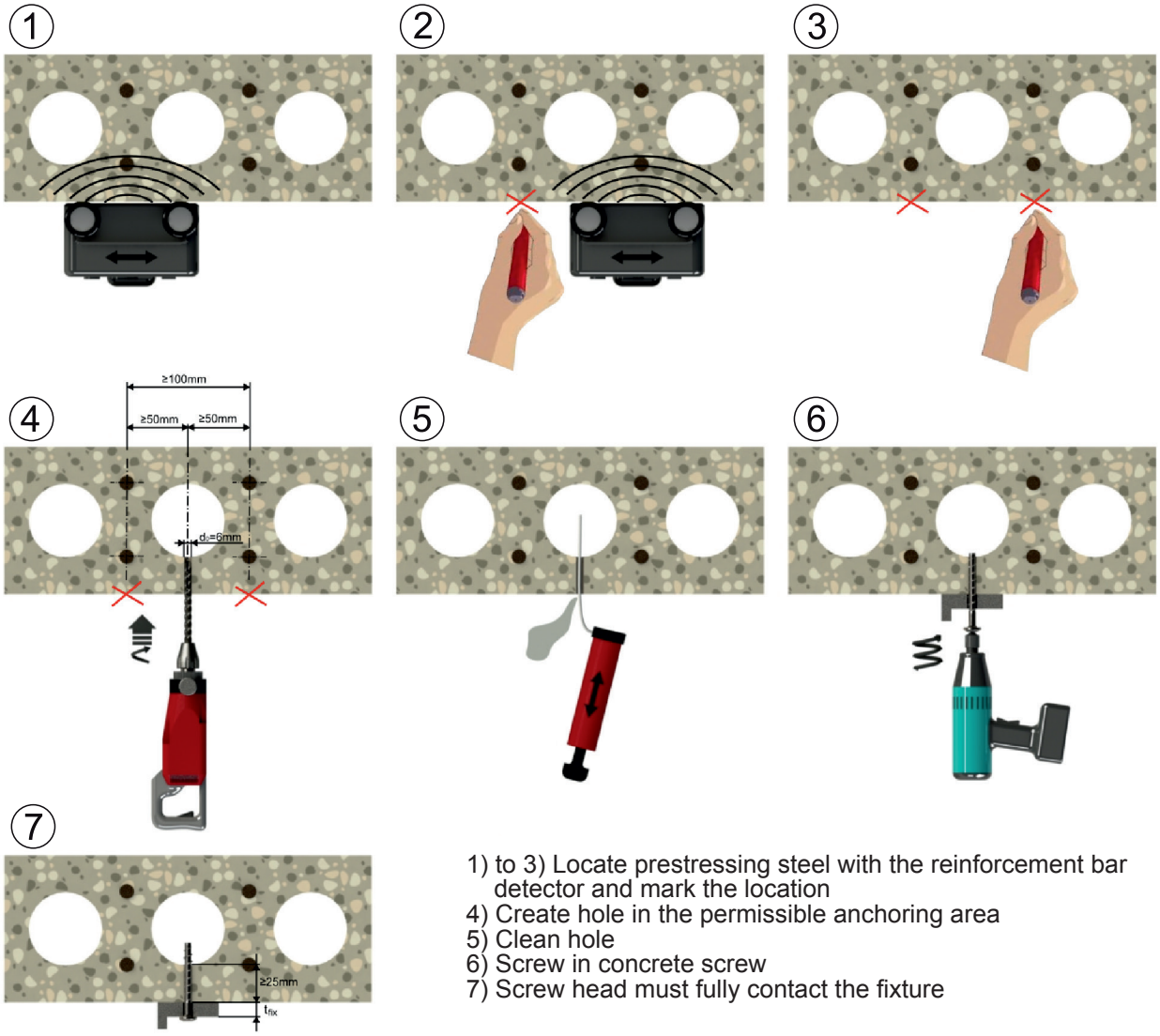
Installation notes



1) to 3) Locate prestressing steel with the reinforcement bar detector and mark the location
4) Create hole in the permissible anchoring area
5) Clean hole
6) Screw in concrete screw
7) Screw head must fully contact the fixture

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