TRUTEK TSA – SHIELD ANCHOR

Applications:

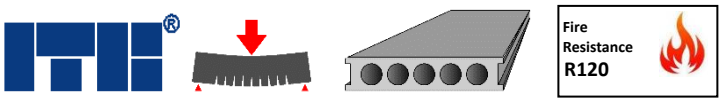
- fastening of tubing, ventilation, electrical and telecommunication installations
- fastening and securing of scaffolding and falsework
- fastening of suspended ceilings and lighting
- optional installation of threaded bars

Advantages:

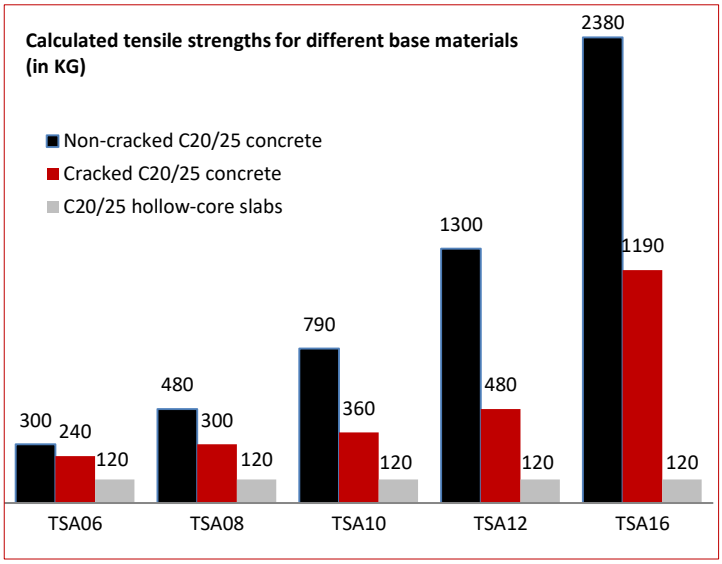
- all-purpose anchor for solid base material and hollow-core slabs
- can be used in cracked and non-cracked concrete
- anchoring in hollow-core slabs of min C20/25 grade concrete
- R120 fire resistance
- simple installation requiring no special tools
- high anchorage safety in low-quality cavity base materials and hollow-core slabs as building blocks and precast concrete floors of such types as FERT, TERIVA, ACKERMAN, COBIAX

Anchor bar material:
TSA expansion anchor sleeves and threaded rods with eyelet or hook are made of regular carbon steel of the mechanical property class 5.8 acc. to PN-EN ISO898-1:2001 and their bolts are made of min 4.8 class to the same standard. Zinc coating up to 5µm acc. to PN-EN ISO 4042:2001/Ap1:2004

Base material:
Non-cracked and cracked concrete from C20/25 to C50/60 concrete acc. to PN-EN 206:2014 and hollow-core slabs of non-cracked concrete from C20/25 to C50/60 concrete acc. to PN-EN 206:2014



TSA anchor designation			
Trutek Shield Anchor	Thread size d [mm]	Max. thickness of fixed element [mm]	Anchor version
TSA	**12**	-	- internally threaded version



Technical specification of TSA anchors

Product code	Thread size	Hole diameter	Min. hole depth	Effective embedment depth	Min. base material thickness	Max. thickness of the fixed element	Min. hole diameter in fixed element	Anchor length
	d [mm]	d_o [mm]	h_1 [mm]	h_{ef} [mm]	h_{min} [mm]	t_{fix} [mm]	d_f [mm]	L [mm]
TSA06	6	12	50	35	70	-	6,5	45
TSA08	8	14	55	40	80	-	9	50
TSA10	10	16	65	50	100	-	11	60
TSA12	12	20	85	60	120	-	13	75
TSA16	16	25	125	95	190	-	17	115

Calculated load capacity of TSA anchors

Anchor size symbol	TSA06	TSA08	TSA10	TSA12	TSA16
Effective embedment depth	35	40	50	60	95
Tensile capacity N_{Rd} [kN] – non-cracked C20/25 concrete	3,0	4,8	7,9	13,9	23,8
Tensile capacity N_{Rd} [kN] – cracked C20/25 concrete	2,4	3,0	3,6	4,8	11,9
Tensile capacity N_{Rd} [kN] – C20/25 concrete hollow-core slab	1,2	1,2	1,2	1,2	1,2
Shear capacity V_{Rd} [kN] – non-cracked C20/25 concrete	2,4	3,8	6,3	11,1	19,0
Shear capacity V_{Rd} [kN] – cracked C20/25 concrete	1,9	2,4	2,8	3,8	9,5
Shear capacity V_{Rd} [kN] – C20/25 concrete hollow-core slab	0,9	0,9	0,9	0,9	0,9
Anchor spacing $S_{cr,N}$ [mm]	105	120	150	180	285
Edge distance $C_{cr,N}$ [mm]	70	80	100	120	190
Required tightening torque	6	14	27	46	110

When designing, the entire technical approval AT-15-7851 / 2015 should be taken into account

Calculated load capacity of TSA anchors in non-cracked concrete at any load direction in case of fire

Anchor size symbol	TSA06	TSA08	TSA10	TSA12
Effective embedment depth	35	40	50	60
Calculated load capacity R30 N_{Rd} [kN]	0,1	0,4	0,9	1,7
Calculated load capacity R60 N_{Rd} [kN]	0,1	0,3	0,8	1,3
Calculated load capacity R90 N_{Rd} [kN]	0,1	0,3	0,6	1,1
Calculated load capacity R120 N_{Rd} [kN]	0,1	0,2	0,5	0,8

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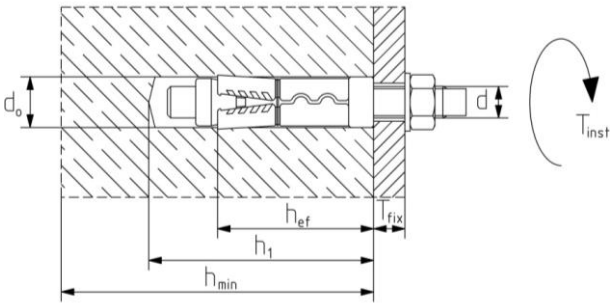
Calculated load capacity of TSA anchors in cracked concrete at any load direction in case of fire

Anchor size symbol	TSA06	TSA08	TSA10	TSA12
Effective embedment depth	35	40	50	60
Calculated load capacity R30 N_{Rd} [kN]	0,1	0,4	0,9	1,7
Calculated load capacity R60 N_{Rd} [kN]	0,1	0,3	0,8	1,3
Calculated load capacity R90 N_{Rd} [kN]	0,1	0,3	0,6	1,1
Calculated load capacity R120 N_{Rd} [kN]	0,1	0,2	0,5	0,8

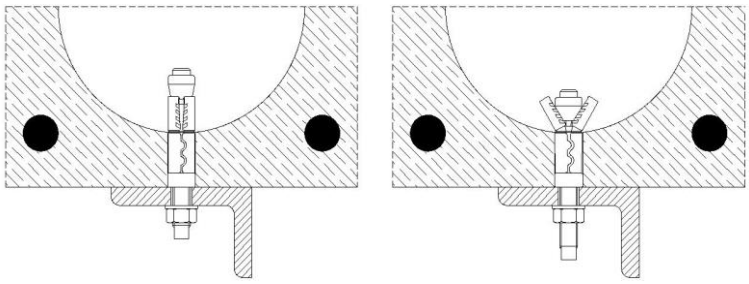
Calculated load capacity of TSA anchors in hollow-core slabs at any load direction in case of fire

Anchor size symbol	TSA06	TSA08	TSA10	TSA12
Effective embedment depth	35	40	50	60
Calculated load capacity R30 N_{Rd} [kN]	0,1	0,4	0,8	0,8
Calculated load capacity R60 N_{Rd} [kN]	0,1	0,3	0,8	0,8
Calculated load capacity R90 N_{Rd} [kN]	0,1	0,3	0,6	0,8
Calculated load capacity R120 N_{Rd} [kN]	0,1	0,2	0,5	0,6

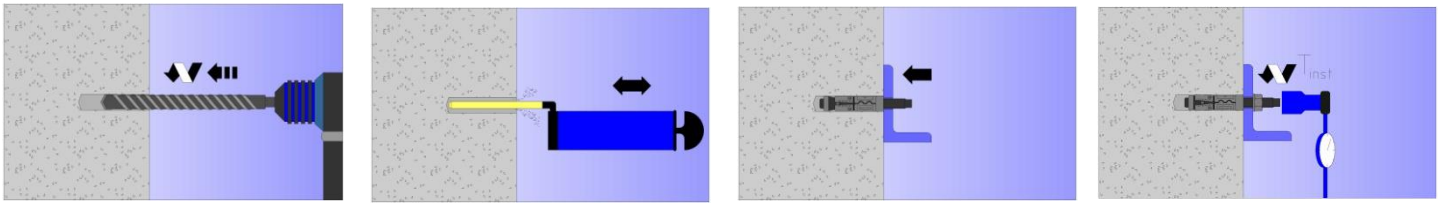
TSA anchors installation scheme



TSA anchors installation scheme in hollow-core slabs



TSA anchor installation



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