

Transport Anchor ST-THA

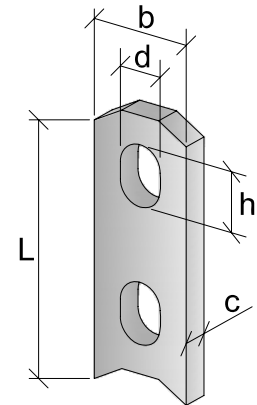
Transport Anchor ST-THA is suitable for load ranges 0,7 to 22,0. Transport Anchor ST-THA is similar to the Transport Anchor ST-SA, except this anchor utilizes additional reinforcement passed through the hole for anchorage.

The anchor head is provided with a hole, into which is fitted the locking bolt of the Lifting Clutch. The additional hole in the anchor is for additional reinforcement.

The components of the system are classified in load groups. Every load group corresponds to the permissible load of a ring clutches to which anchors of the different load rates of a load group can be connected.

The stress transfer to the concrete occurs through the reinforcement bar.

Transport Anchor ST-THA can be used in concrete with a compressive strength $\geq 15 \text{ N/mm}^2$ and the minimum necessary surface reinforcement (for load groups 2,5 and 5,0 $\geq 130 \text{ mm}^2/\text{m}$; for 10,0 $\geq 188 \text{ mm}^2/\text{m}$; for 26,0 $\geq 255 \text{ mm}^2/\text{m}$).



Material:

- steel S355J2, $f_{uk} \geq 510 \text{ N/mm}^2$

Main application: prestressed concrete trusses, thin-walled elements

Table 1: Transport Anchor ST-THA

Article	Load group [t]	Load range [t]	L [mm]	b [mm]	c [mm]	d [mm]	h [mm]
ST-THA-0,7-09	2,5	0,7	90	30	5	14	20
ST-THA-1,4-09		1,4	90	30	6	14	20
ST-THA-2,0-09		2,0	90	30	8	14	20
ST-THA-2,5-09		2,5	90	30	10	14	20
ST-THA-3,0-12	5,0	3,0	120	40	10	18	22
ST-THA-4,0-12		4,0	120	40	12	18	22
ST-THA-5,0-12		5,0	120	40	15	18	22
ST-THA-5,3-16	10,0	5,3	160	60	12	26	26
ST-THA-7,5-16		7,5	160	60	16	26	26
ST-THA-10,0-17		10,0	170	60	20	29	29
ST-THA-14,0-24	26,0	14,0	240	80	20	35	35
ST-THA-22,0-30		22,0	300	90	25	35	35
ST-THA-26,0-30		26,0	300	120	30	35	46

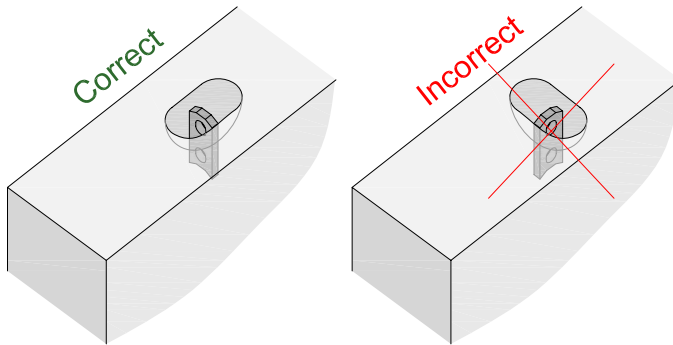
Installation Instructions for Transport Anchors ST-THA

1. Spacing of Transport Anchors ST-THA and edge distances

Table 2: Depth of installation

Load group [t]	k [mm]
2,5	10
5,0	10
10,0	15
26,0	15

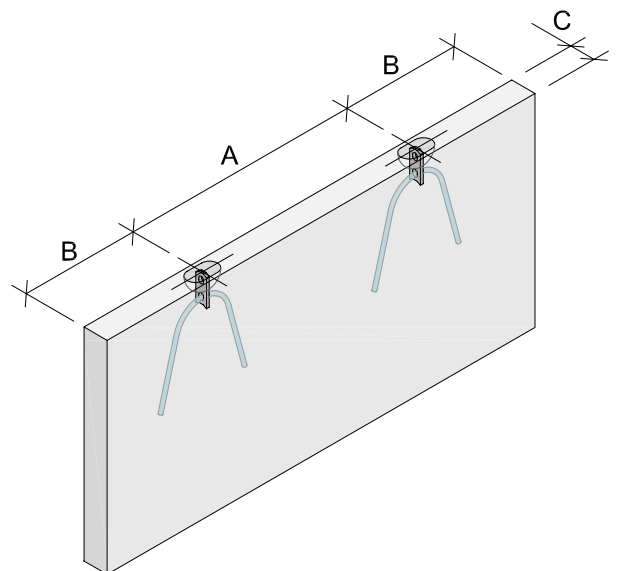
Orientation of installation:



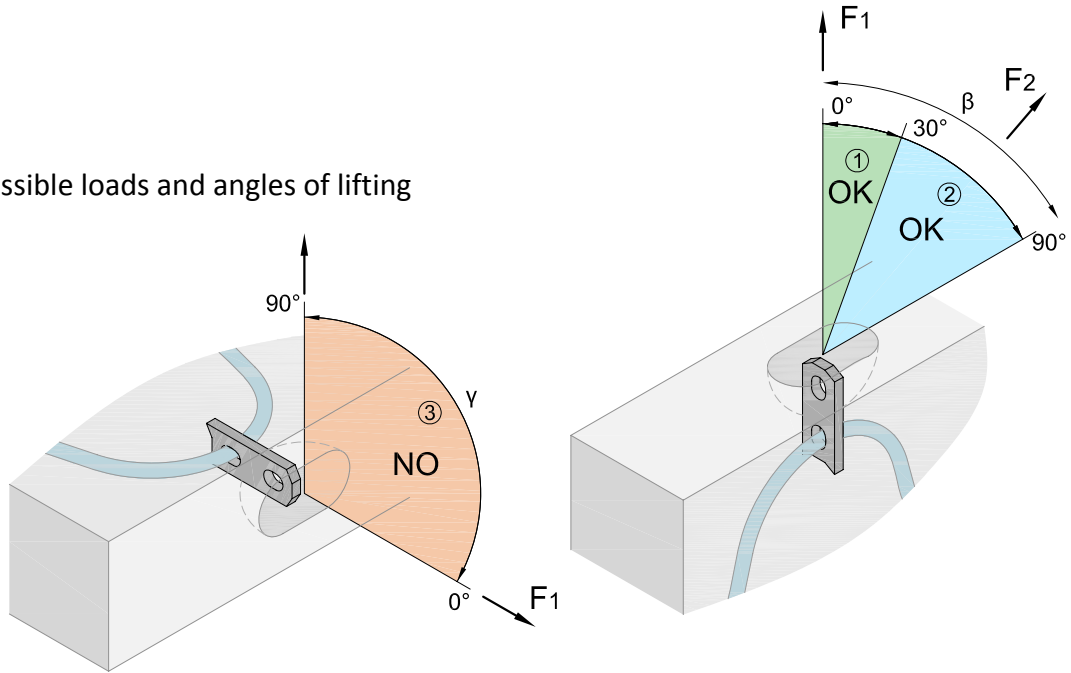
Transport Anchors ST-THA may only be installed in wall elements with the flat steel at right-angles of the slab

Table 3: Minimal dimensions

Article	A_{\min} [mm]	$B_{\min} = 0,5A$ [mm]	C_{\min} [mm]
ST-THA-0,7-09	400	200	70
ST-THA-1,4-09	500	250	80
ST-THA-2,0-09	500	300	90
ST-THA-2,5-09	600	300	100
ST-THA-3,0-12	650	325	100
ST-THA-4,0-12	700	350	110
ST-THA-5,0-12	800	400	120
ST-THA-5,3-16	800	400	130
ST-THA-7,5-16	1000	500	140
ST-THA-10,0-17	1200	600	180
ST-THA-14,0-24	1500	750	200
ST-THA-22,0-30	1900	950	260
ST-THA-26,0-30	2300	1000	300



2. Permissible loads and angles of lifting



- 1) $\beta < 30^\circ$ - **straight pull**
- 2) $30^\circ < \beta < 90^\circ$ - **angled pull** (with additional reinforcement)
- 3) $\gamma > 0^\circ$ - **not permissible**

Table 4: Permissible loads

Load group [t]	Load range F [t]	Permissible loads	
		Straight pull ($\beta < 30^\circ$): $F_1 = 100\% F$ [kN]	Angled pull ($\beta > 30^\circ$): $F_2 = 80\% F$ [kN]
2,5	0,7	7	5,6
	1,4	14	11,2
	2,0	20	16
	2,5	25	20
5,0	3,0	30	24
	4,0	40	32
	5,0	50	40
10,0	5,3	53	42
	7,5	75	60
	10,0	100	80
26,0	14,0	140	112
	22,0	220	176
	26,0	260	208

3. Reinforcement

Pull reinforcement:

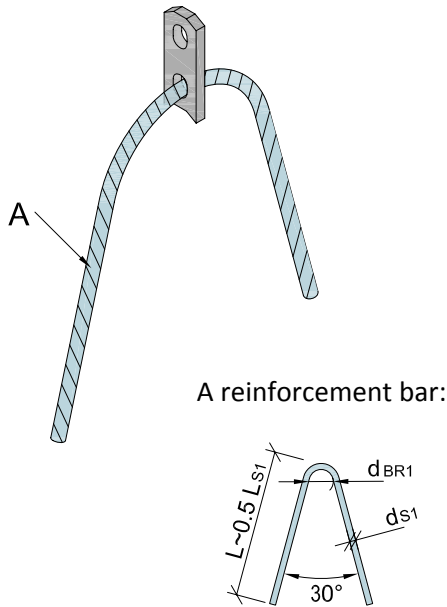
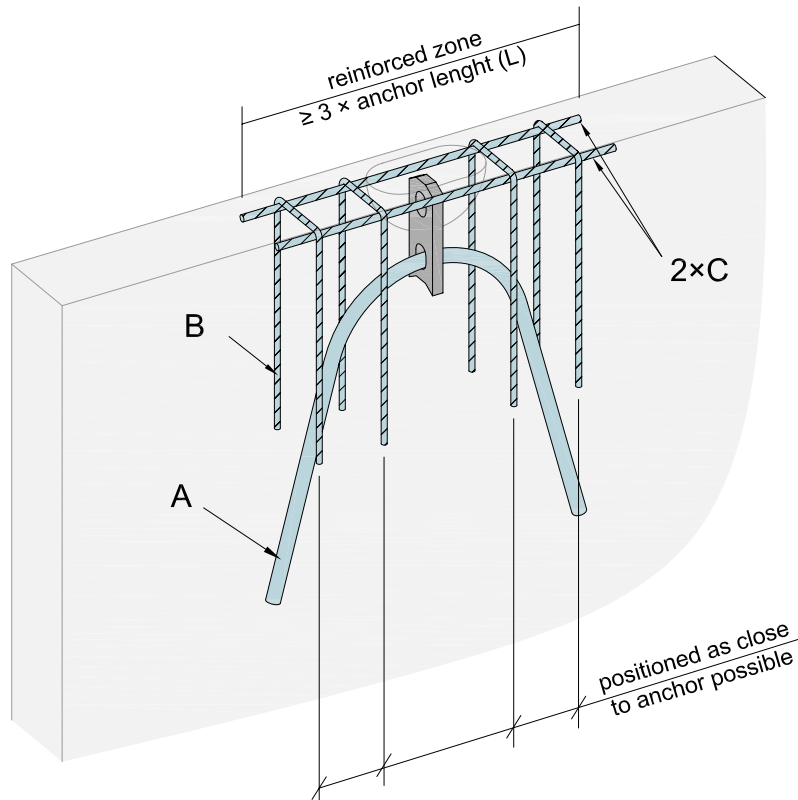


Table 5: Pull reinforcement bar A

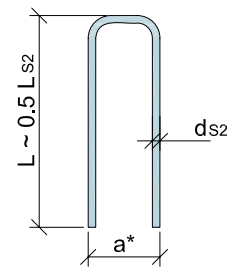
Load group [t]	Load range [t]	$n \times d_{s1}$ [mm]	d_{BR1} [mm]	L_{s1} [mm]
2,5	0,7	1 Ø8	80	450
	1,4	1 Ø10	100	650
	2,0	1 Ø12	120	750
	2,5	1 Ø12	120	900
5,0	3,0	1 Ø14	140	950
	4,0	1 Ø16	160	1100
	5,0	1 Ø16	160	1300
10,0	5,3	1 Ø16	160	1400
	7,5	1 Ø20	200	1600
	10,0	1 Ø25	250	1750
26,0	14,0	1 Ø28	280	2150
	22,0	1 Ø28	280	3100
	26,0	2 Ø28	280	2650

Reinforcement steel: Yield strength 500N/mm²,
Tensile strength 550 N/mm²

Reinforcement at anchorage zone:

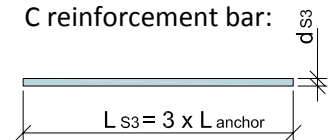


B reinforcement bar:



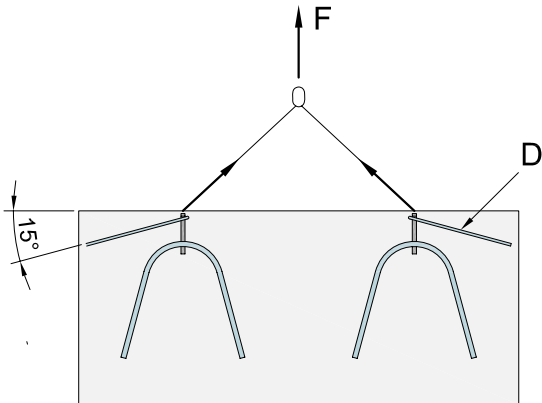
* a – depends on the panel thickness

C reinforcement bar:

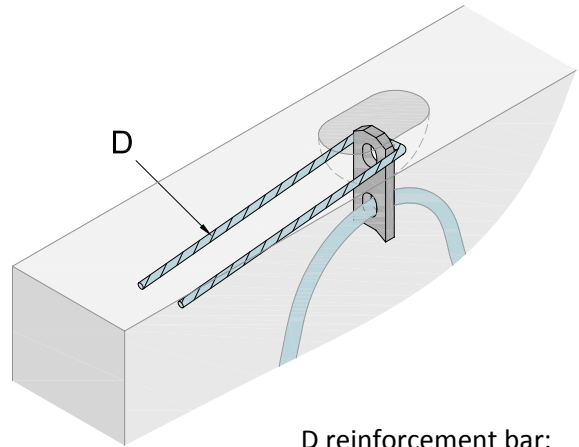


Transport Anchor ST-THA

Parallel shear pull at vertical lifting:

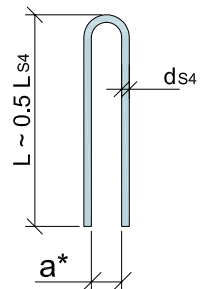


Additional parallel shear pull reinforcement:



The parallel shear pull reinforcement must be installed in opposite direction to the horizontal force components. Close contact is important!

D reinforcement bar:



*-a depends on the component thickness

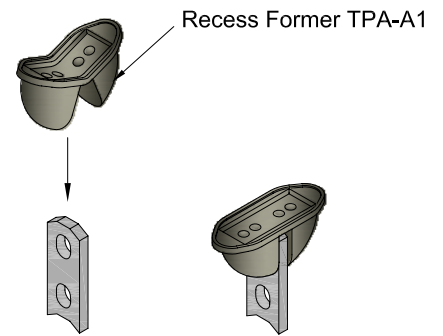
Table 6: Anchor zone reinforcement bars B, C, parallel shear pull reinforcement bar D

Load group [t]	Load range [t]	$\beta < 30^\circ$			$\beta > 30^\circ$					
		B		C	B		C	D		
		$n \times d_{s2}$ [mm]	L_{s2} [mm]	d_{s3} [mm]	$n \times d_{s2}$ [mm]	L_{s2} [mm]	d_{s3} [mm]	d_{s4} [mm]	L_{s4} [mm]	d_{BR4} [mm]
2,5	0,7	2 Ø6	400	constr.	4 Ø6	400	Ø8	Ø6	600	45
	1,4	2 Ø6	400	constr.	4 Ø6	400	Ø8	Ø6	900	45
	2,0	2 Ø6	500	constr.	4 Ø6	500	Ø8	Ø8	950	45
	2,5	2 Ø8	600	Ø8	4 Ø8	600	Ø10	Ø8	1200	45
5,0	3,0	2 Ø8	700	Ø8	4 Ø8	700	Ø10	Ø10	1150	50
	4,0	2 Ø8	700	Ø8	4 Ø8	700	Ø12	Ø12	1500	50
	5,0	2 Ø8	800	Ø8	4 Ø10	800	Ø12	Ø12	1550	50
10,0	5,3	2 Ø8	850	Ø8	4 Ø10	800	Ø12	Ø12	1700	70
	7,5	2 Ø10	1000	Ø10	4 Ø10	900	Ø12	Ø14	2000	70
	10,0	4 Ø10	850	Ø12	6 Ø10	900	Ø14	Ø16	2300	70
26,0	14,0	4 Ø10	1100	Ø14	8 Ø10	1000	Ø20	Ø20	2600	120
	22,0	4 Ø12	1400	Ø16	8 Ø12	1250	Ø25	Ø25	3000	120
	26,0	6 Ø12	1350	Ø20	8 Ø14	1350	Ø25	Ø28	3450	120

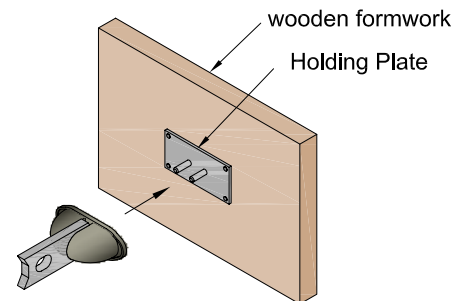
Reinforcement steel: Yield strength 500N/mm², Tensile strength 550 N/mm²

4. Accessories of Installation

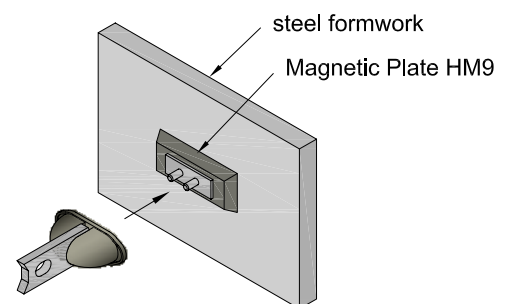
Recess Former TPA-A1 is used to attach Transport Anchor to the formwork. The Recess Former in open position will be put over the anchor head. Closing the Recess Former will fix the anchor tightly.



Holding Plate is used to fasten Recess Former TPA-A1 to a wooden formwork. The Recess Former with inserted Transport Anchor must be pressed on the Holding Plate.



Magnetic Plate HM9 is used to fasten Recess Former TPA-A1 to a steel formwork. The Recess Former with inserted Transport Anchor must be pressed on the Magnetic Plate.



To transport a precast concrete unit, the appropriate **Ring Clutch TPA-R1** for the load group is inserted in the concrete recess over the head of Transport Anchor.

