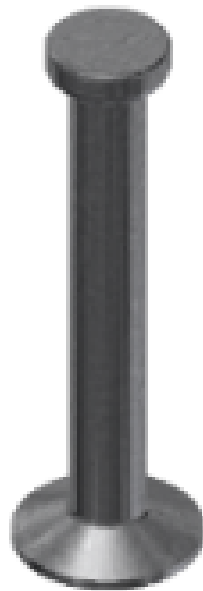


## MOUNTING INSTRUCTIONS



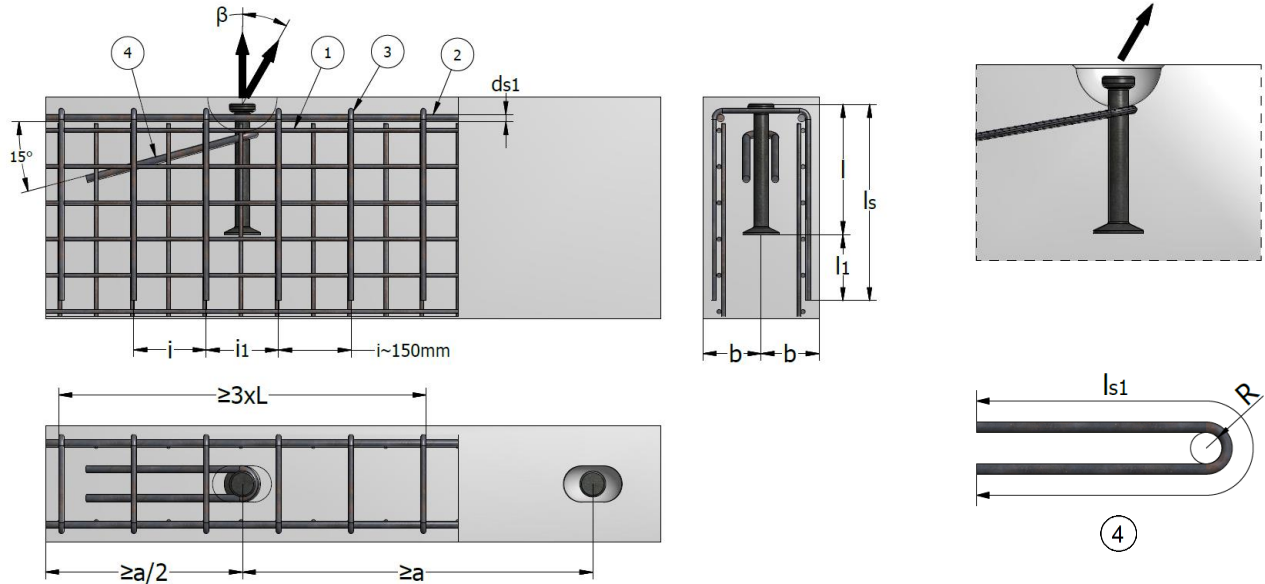
### 3D - LIFTING SYSTEMS | T-SLOT ANCHOR



## T-ANCHOR – INSTALLATION AND REINFORCEMENT

### REINFORCEMENT USED IN ANCHOR ZONE FOR ANGLED LIFT IN PANELS OR BEAMS

For angled pull, additional reinforcement installed in the direction opposite of the load is required. We recommend installing this angled pull reinforcement as close as possible under the recess former and in full contact with the anchor.. The additional reinforcements necessary in the anchor zone for lifting the panels and beams at angles  $\beta \leq 45^\circ$  are shown in the figures below and in next table. The concrete strength must be at least 15 MPa. We recommend that angle  $\beta$  should not exceed  $30^\circ$ .



**Note:**

The bend radius  $R$  will be determined according to EN 1992.

The diagonal reinforcement must be placed as close as possible under the recess former and installed so it is in contact with the lifting anchor.

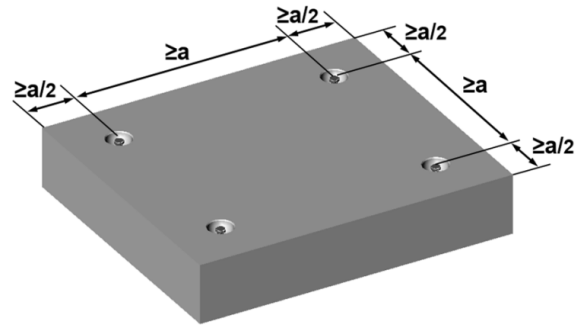
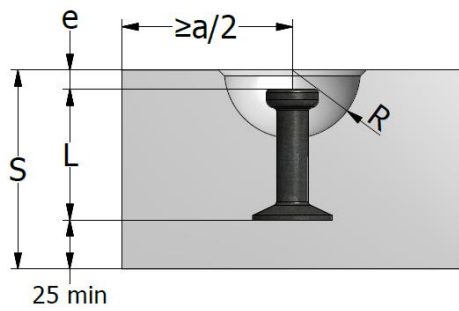
The reinforced zone must be  $\geq 3 \times$  anchor length "L". The two stirrups near the anchor should be installed as close as possible to the recess former.

Length  $l_s = l_1 + \text{Anchor length}$

The dimensions in the illustrations are in [mm]

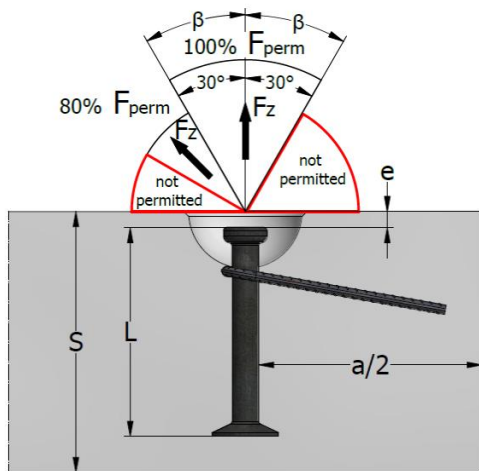
Type of anchor	Load Group	Mesh reinforcement ①	Edge reinforcement B500B (both sides) ②	Stirrups - B500B ③						Angled pull reinforcement B500B ④
				Axial pull $\beta < 30^\circ$			Angled pull $\beta > 30^\circ$ max. $45^\circ$			
			ds1	Number of stirrups	"d"	"l <sub>1</sub> "	Number of stirrups	"d"	"l <sub>1</sub> "	$\varnothing \times l_{s1}$
Symbol	[kN]	[mm <sup>2</sup> /m]	[mm]	[pcs]	[mm]	[mm]	[pcs]	[mm]	[mm]	[mm]
T-013-0xxx	13	2 x 60	$\varnothing 10$	$\geq 2$	$\varnothing 6$	300	$\geq 2$	$\varnothing 6$	450	$\varnothing 8 \times 800$
T-025-0xxx	25	2 x 100	$\varnothing 10$	$\geq 2$	$\varnothing 8$	600	$\geq 4$	$\varnothing 8$	600	$\varnothing 10 \times 1500$
T-040-0xxx	40	2 x 125	$\varnothing 10$	$\geq 2$	$\varnothing 8$	600	$\geq 4$	$\varnothing 8$	600	$\varnothing 12 \times 1600$
T-050-0xxx	50	2 x 140	$\varnothing 12$	$\geq 2$	$\varnothing 10$	750	$\geq 4$	$\varnothing 10$	750	$\varnothing 16 \times 2000$
T-075-0xxx	75	2 x 160	$\varnothing 12$	$\geq 4$	$\varnothing 10$	750	$\geq 6$	$\varnothing 10$	750	$\varnothing 16 \times 2300$
T-100-0xxx	100	2 x 180	$\varnothing 12$	$\geq 4$	$\varnothing 10$	750	$\geq 8$	$\varnothing 10$	750	$\varnothing 20 \times 2600$
T-150-0xxx	150	2 x 240	$\varnothing 16$	$\geq 4$	$\varnothing 12$	800	$\geq 6$	$\varnothing 12$	1000	$\varnothing 25 \times 3000$
T-200-0xxx	200	2 x 350	$\varnothing 16$	$\geq 6$	$\varnothing 12$	1000	$\geq 10$	$\varnothing 12$	1000	2 x $\varnothing 25 \times 3400$
T-320-0xxx	320	2 x 400	$\varnothing 16$	$\geq 8$	$\varnothing 12$	1000	$\geq 10$	$\varnothing 14$	1100	2 x $\varnothing 25 \times 3400$
T-450-0xxx	450	2 x 500	$\varnothing 20$	$\geq 10$	$\varnothing 14$	1400	$\geq 12$	$\varnothing 14$	1450	2 x $\varnothing 25 \times 3400$

### INSTALLATION OF T-ANCHOR IN SLABS



$L$  = anchor length  
 $a/2$  = edge distance  
 $e$  = cover to anchor head  
 $R$  = recess radius

For slab units or demoulding panels, the edge distance of the “T” anchor ( $a$ ) is:  $a/2 = 3 \times (L + e)$







- **Angled pull of  $30^\circ \leq \beta \leq 45^\circ$  with no angled pull reinforcement is only permitted for:**
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
- **Angled pull with cable/chain spread of  $\beta > 45^\circ$  is not permitted**

#### Required reinforcement

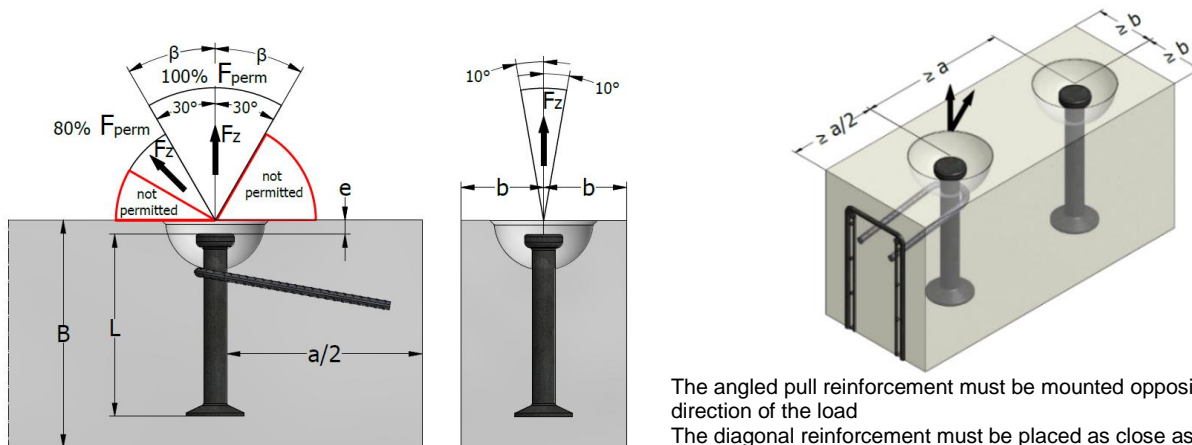
- Mesh reinforcement - ①
- Angled pull reinforcement - ④

T-ANCHOR – LOAD CAPACITY IN SLABS FOR ANY DIRECTION OF PULL							
Type of anchor	Load group	Minimum thickness	Load capacity for minimum thickness				Minimum spacing between anchors
			Axial pull $F_Z$ $\beta < 30^\circ$	Angled pull $F_Z$ $\beta < 45^\circ$	Axial pull and angled pull $F_Z$ $\beta < 45^\circ$		
		$s$	$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 25 \text{ MPa}$	$f_{cu} \geq 35 \text{ MPa}$	$a$
		[kN]	[mm]	[kN]	[kN]	[kN]	[kN]
T-013-0040	13	75	3.0	2.4	3.9	4.6	180
T-013-0050		85	10.1	10.1			220
T-013-0065		100		11.1			260
T-013-0085		120	13.0	13.0	13.0	13.0	315
T-013-0120		155					375
T-025-0055	25	90	4.7	3.8	6.1	7.2	240
T-025-0065		100	13.8	13.8	7.2	21.1	285
T-025-0085		120	19.5	19.5	17.8		325
T-025-0120		155		22.8		25.0	410
T-025-0170		205	25.0	25.0	25.0		520

T-ANCHOR – LOAD CAPACITY IN SLABS FOR ANY DIRECTION OF PULL							
Type of anchor	Load group	Minimum thickness	Load capacity for minimum thickness				Minimum spacing between anchors
			Axial pull $F_Z$ $\beta < 30^\circ$	Angled pull $F_Z$ $\beta < 45^\circ$	Axial pull and angled pull $F_Z$ $\beta < 45^\circ$		
		s	$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 25 \text{ MPa}$ 	$f_{cu} \geq 35 \text{ MPa}$ 	a
		[kN]	[mm]	[kN]	[kN]	[kN]	[kN]
T-040-0075	40	115	17.5	17.5	22.6	26.8	325
T-040-0100		140	25.3	25.3	32.7	38.6	350
T-040-0170		210	40.0	40.0	40.0	40.0	565
T-040-0210		250					650
T-050-0085	50	125	20.1	20.1	26.0	30.8	360
T-050-0095		135	23.3	23.3	30.0	35.5	400
T-050-0120		160	31.7	31.7	41.0	48.5	475
T-050-0180		220	50.0	44.4	50.0	50.0	630
T-050-0240		280					50.0
T-075-0100	75	140	24.5	24.5	31.6	37.4	415
T-075-0120		160	31.3	31.3	40.4	47.8	490
T-075-0140		180	38.6	38.6	49.9	59.0	550
T-075-0165		205	48.6	48.6	62.7	74.2	620
T-075-0200		240	63.8	60.0	75.0	75.0	710
T-075-0300		340	75.0	75.0			910
T-100-0115	100	155	29.1	29.2	37.5	44.4	470
T-100-0135		175	36.3	36.3	46.8	55.4	550
T-100-0150		190	42.0	42.0	54.3	64.2	590
T-100-0170		210	50.2	50.2	64.8	76.6	655
T-100-0200		240	63.2	63.2	81.7	96.6	730
T-100-0250		290	87.3	80.0	100.0	100.0	890
T-100-0340		380	100.0	100.0	100.0	100.0	1025
T-150-0140	150	180	37.5	37.5	48.6	57.2	560
T-150-0165		205	47.3	47.3	61.1	72.3	640
T-150-0200		240	62.4	62.4	80.6	95.3	730
T-150-0300		340	113.0	113.0	145.8	150.0	1020
T-150-0400		440	150.0	138.6	150.0	150.0	1195
T-200-0200	200	240	61.6	61.6	79.5	94.1	780
T-200-0240		280	80.5	80.5	103.9	122.9	900
T-200-0340		380	134.9	134.9	174.2	200.0	1175
T-200-0500		540	200.0	192.6	200.0	200.0	1485
T-320-0200	320	248	62.4	62.4	80.5	95.3	800
T-320-0250		298	86.4	86.4	111.5	132.0	1000
T-320-0280		328	102.1	102.1	131.8	155.9	1065
T-320-0320		368	124.4	124.4	160.6	190.0	1120

## INSTALLATION OF T-ANCHOR IN BEAMS AND WALLS

### LOAD CAPACITY IN BEAMS AND WALLS WITH ADDITIONAL REINFORCEMENTS







The angled pull reinforcement must be mounted opposite the direction of the load  
 The diagonal reinforcement must be placed as close as possible under the recess former and installed so it makes contact with the lifting anchor.

#### NOTES:

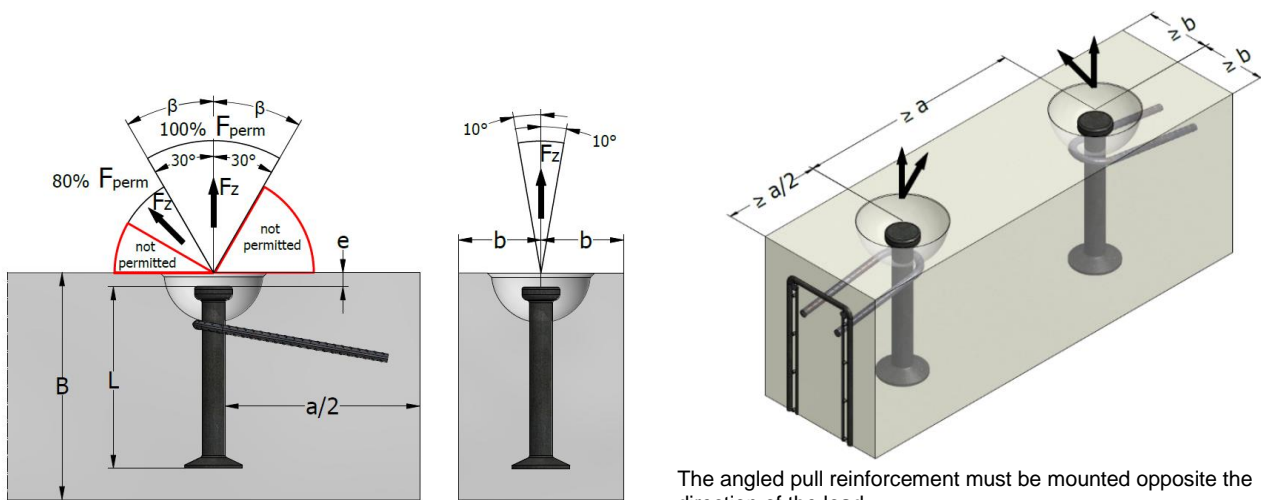
Required reinforcement (see page 26)

- Mesh reinforcement - ①
- Angled pull reinforcement - ④
- **Angled pull of  $30^\circ \leq \beta \leq 45^\circ$  with no angled pull reinforcement is only permitted for:**
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
- **Angled pull with cable/chain spread of  $\beta > 45^\circ$  is not permitted**

T-ANCHOR – LOAD CAPACITY IN BEAMS AND WALLS WITH NO SPECIAL REINFORCEMENTS								
Type of anchor	Load group	Minimum height of beams B	Wall thickness 2 x b	Load capacity				Spacing between anchors a
				Axial pull $F_Z$ $\beta < 30^\circ$	Angled pull $F_Z$ $\beta < 45^\circ$	Axial pull and angled pull $F_Z$ $\beta < 45^\circ$		
				$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 25 \text{ MPa}$	$f_{cu} \geq 35 \text{ MPa}$	
[kN]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[mm]	
T-013-0085	13	180	100	12.2	9.8	13.0	13.0	270
			120	13.0	11.2			
			140	13.0	12.5			
T-013-0120	13	250	80	13.0	10.7	13.0	13.0	375
			100	13.0	12.7			
			120	13.0	13.0			
T-013-0240	490	250	60	9.9	9.9	13.0	13.0	735
			80	13.0	13.0			
			100	13.0	13.0			
T-025-0120	25	250	120	18.1	14.5	25.0	25.0	375
			140	20.3	16.2			
			160	22.4	17.9			
T-025-0170	25	350	100	20.7	16.5	25.0	25.0	525
			120	23.7	19.0			
			140	25.0	21.3			
T-025-0280	570	350	80	18.4	18.4	25.0	25.0	855
			100	23.0	23.0			
			120	25.0	25.0			
T-040-0170	40	347	160	29.8	23.8	40.0	40.0	535
			180	32.5	26.0			
			200	35.2	28.2			
T-040-0240	40	487	120	31.3	25.1	40.0	40.0	745
			140	35.2	28.1			
			160	38.9	31.1			
T-040-0340	687	487	100	29.6	28.7	40.0	40.0	1045
			120	35.6	32.9			
			140	40.0	36.9			

T-ANCHOR – LOAD CAPACITY IN BEAMS AND WALLS WITH NO SPECIAL REINFORCEMENTS								
Type of anchor	Load group	Minimum height of beams B	Wall thickness 2 x b	Load capacity				Spacing between anchors a
				Axial pull $F_Z$ $\beta < 30^\circ$	Angled pull $F_Z$ $\beta < 45^\circ$	Axial pull and angled pull $F_Z$ $\beta < 45^\circ$		
				$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 25 \text{ MPa}$ 	$f_{cu} \geq 35 \text{ MPa}$ 	
[kN]	[mm]	[mm]	[kN]	[kN]	[kN]	[kN]	[mm]	
T-050-0240	50	490	200	45.7	36.5	50.0	50.0	735
			220	49.1	39.2			
			240	50.0	41.9			
T-050-0340	50	690	160	50.0	40.6	50.0	50.0	1035
			180	50.0	44.4			
			200	50.0	48.0			
T-050-0480	50	970	140	46.1	46.1	50.0	50.0	1455
			160	50.0	50.0			
			180	50.0	50.0			
T-075-0200	75	410	240	45.1	36.0	58.2	68.8	610
			260	47.8	38.3	61.8	73.1	
			280	50.6	40.5	65.3	75.0	
T-075-0300	75	610	200	54.1	43.3	69.9	75.0	910
			220	58.1	46.5	75.0		
			240	62.2	49.7	75.0		
T-075-0540	75	1090	160	63.2	58.4	75.0	75.0	1630
			180	71.1	63.8			
			200	75.0	69.1			
T-100-0170	100	340	300	46.4	37.2	60.0	70.9	520
			350	52.1	41.7	67.3	79.6	
			400	57.6	46.1	74.4	88.0	
T-100-0340	100	680	280	76.6	61.3	98.9	100.0	1030
			300	80.7	64.5	100.0		
			320	84.7	67.7	100.0		
T-100-0680	100	1360	160	73.7	70.0	95.2	100.0	2050
			180	83.0	76.5	100.0		
			200	92.2	82.8	100.0		
T-150-0300	150	600	350	81.3	65.0	104.9	124.2	900
			400	89.5	71.9	116.0	137.2	
			500	106.2	85.0	137.1	150.0	
T-150-0400	150	800	350	102.5	82.0	132.3	150.0	1200
			400	113.2	90.6	146.2		
			450	123.7	99.0	150.0		
T-150-0840	150	1680	300	150.0	132.5	150.0	150.0	2520
			340	150.0	145.5			
			380	150.0	150.0			
T-200-0340	200	670	500	116.6	93.3	150.6	178.2	1010
			750	158.1	126.5	200.0	200.0	
			1000	196.2	156.9	200.0	200.0	
T-200-0500	200	990	400	134.8	107.9	174.1	200.0	1490
			500	159.4	127.5	200.0		
			600	182.8	146.2	200.0		
T-200-1000	200	1990	240	154.9	128.6	200.0	200.0	3000
			300	190.0	152.0	200.0		
			330	200.0	163.2	200.0		
T-320-0320	320	630	600	126.7	101.3	163.5	193.5	940
			800	157.2	125.7	202.9	240.1	
			1200	177.2	141.8	228.8	270.1	
T-320-0700	320	1390	500	208.6	166.9	269.4	318.7	2080
			600	239.2	191.4	308.8	320.0	
			750	282.8	226.2	320.0	320.0	
T-320-1200	320	2390	400	272.5	218.0	320.0	320.0	3580
			450	297.7	238.2			
			500	320.0	257.8			
T-450-0500	450	990	800	226.0	180.8	291.8	345.3	1480
			1000	267.2	213.8	345.0	408.2	
			1500	358.4	286.7	450.0	450.0	
T-450-1200	450	2400	500	322.2	257.8	416.0	450	3580
			600	369.4	295.5	450.0		
			750	436.7	349.4	450.0		

### LOAD CAPACITY IN WALLS WITH ADDITIONAL REINFORCEMENTS



The angled pull reinforcement must be mounted opposite the direction of the load  
 The diagonal reinforcement must be placed as close as possible under the recess former and installed so it makes contact with the lifting anchor.





**NOTES:**

Required reinforcement (see page 26)

- Mesh reinforcement - ①
- Edge reinforcement - ②
- Stirrups - ③
- Angled pull reinforcement - ④

- **Angled pull of  $30^\circ \leq \beta \leq 45^\circ$  with no angled pull reinforcement is only permitted for:**
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
  - $f_{cu} \geq 15 \text{ MPa} + 3 \text{ times min. edge distance } a/2$
- **Angled pull with cable/chain spread of  $\beta > 45^\circ$  is not permitted**

T-ANCHOR – LOAD CAPACITY IN WALLS WITH ADDITIONAL REINFORCEMENTS							
Type of anchor	Load group	Wall thickness  2 x b	Load capacity				Spacing between anchors  a
			Axial pull $F_z$ $\beta < 30^\circ$	Angled pull $F_z$ $\beta < 45^\circ$	Axial pull and angled pull $F_z$ $\beta < 45^\circ$		
			$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 15 \text{ MPa}$	$f_{cu} \geq 25 \text{ MPa}$	$f_{cu} \geq 35 \text{ MPa}$	
[kN]	[mm]	[kN]	[kN]	[kN]	[kN]	[mm]	
T-013-0120	13	60	9.9	9.9	12.8		375
		80	13.0	13.0	13.0	13.0	
		100	13.0	13.0	13.0		
T-013-0240		60	9.9	9.9	12.8		735
		80	13.0	13.0	13.0	13.0	
		100	13.0	13.0	13.0		
T-025-0170	25	80	18.4	18.4	23.8		525
		100	23.0	23.0	25.0	25.0	
		120	25.0	25.0	25.0		
T-025-0280		80	18.4	18.4	23.8		855
		100	23.0	23.0	25.0	25.0	
		120	25.0	25.0	25.0		
T-040-0240	40	120	35.6	35.6			745
		140	40.0	36.0	40.0	40.0	
		160	40.0	38.5			
T-040-0340		100	29.6	29.6	38.2		1045
		120	35.6	35.6	40.0	40.0	
		140	40.0	40.0	40.0		
T-050-0240	50	160	50.0	45.2			735
		180	50.0	48.0	50.0	50.0	
		200	50.0	50.0			
T-050-0340		120	39.5	39.5			1035
		140	46.1	46.1	50.0	50.0	
		160	50.0	50.0			

T-ANCHOR – LOAD CAPACITY IN WALLS WITH ADDITIONAL REINFORCEMENTS							
Type of anchor	Load group	Wall thickness  2 x b	Load capacity				Spacing between anchors  a
			Axial pull $F_Z$ $\beta < 30^\circ$	Angled pull $F_Z$ $\beta < 45^\circ$	Axial pull and angled pull $F_Z$ $\beta < 45^\circ$		
			$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 15 \text{ MPa}$ 	$f_{cu} \geq 25 \text{ MPa}$ 	$f_{cu} \geq 35 \text{ MPa}$ 	[kN]
T-050-0480		100	32.9	32.9	42.5	1455	
		120	39.5	39.5	50.0		
		140	46.1	46.1	50.0		
T-075-0300	75	160	63.2	56.6	75.0	910	
		180	71.1	60.0			
		200	75.0	63.2			
T-075-0540	75	140	55.3	55.3	71.4	1630	
		160	63.2	63.2	75.0		
		180	71.1	71.1	75.0		
T-100-0340	100	200	89.5	71.6	100.0	1030	
		240	98.0	78.4			
		280	100.0	84.7			
T-100-0680	100	160	73.7	73.7	95.2	2050	
		180	83.0	83.0	100.0		
		200	92.2	92.2	100.0		
T-150-0400	150	300	128.9	103.1	150.0	1200	
		400	148.9	119.1			
		500	150.0	133.1			
T-150-0840	150	200	111.9	111.9	144.5	2520	
		220	123.1	123.1	150.0		
		240	134.2	134.2	150.0		
T-200-0500	200	400	175.1	140.1	200.0	200.0	
		500	187.2	149.7			
		600	200.0	183.4			
T-200-1000	200	240	154.9	154.9	200.0	200.0	
		260	167.8	167.8			
		280	180.7	180.7			
T-320-0700	320	450	282.6	226.1	320.0	2080	
		550	312.5	250.0			
		650	320.0	271.8			
T-320-1200	320	300	266.7	266.7	320.0	3580	
		350	311.1	311.1			
		400	320.0	320.0			
T-450-1200	450	400	355.5	355.5	450	3580	
		500	444.4	421.6			
		600	450.0	450.0			



**CONTACT**

TERWA is the global supplier for precast and construction solutions with multiple offices around the world. With all our staff, partners and agents, we are happy to provide all construction and precast companies who work in the building industry with full service and 100% support.

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