



THE



THT

CHARACTERISTICS

- Pilot hole in concrete needed, thread is created by the anchor during the Installation process.
- Use for high loads. High fire resistance.
- Assessed for 2 installation depths and 3 for Ø10.
- Use in cracked and non-cracked concrete.
- Comply with guideline VdS CEA 4001:2021-01(07) "Guidelines for sprinklers systems. Planning and installation"
- Suitable when reduced edge distances or spacing required.
- Qualified for static and cuasi-static.
- Easy installation.
- Installation through the fixture.
- Possibility of installation by drill bit cleaning
- Reusable
- Removable, leaving concrete surface flat.
- Variety of lengths and sizes, assembly flexibility.
- VdS available from Ø6 to Ø18
- Base material temperatura range: -40°C to +80 °C
- Available in INDEXcal

APPLICATION

- Structural fixings in cracked and uncracked concrete subject to dry internal conditions.
- Glazing, windows and storefronts
- Racking and shelving
- Attaching railings, handrails and ledgers
- Fixings wood structures in concrete

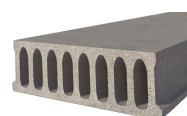
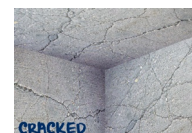


THA



THP

BASE MATERIAL



SIZE RANGE

Ø5 - Ø18

DRILL CONDITION



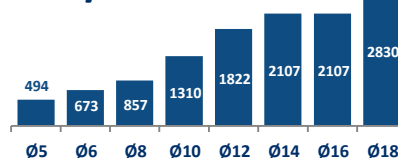
DRY

WET

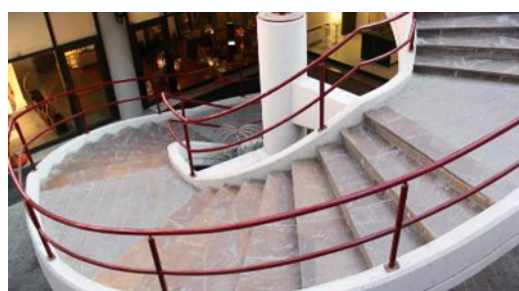
FLOODED

MAXIMUM LOADS RECOMMENDED
FOR CRACKED AND UNCRACKED
CONCRETE [kg]

TH/TF



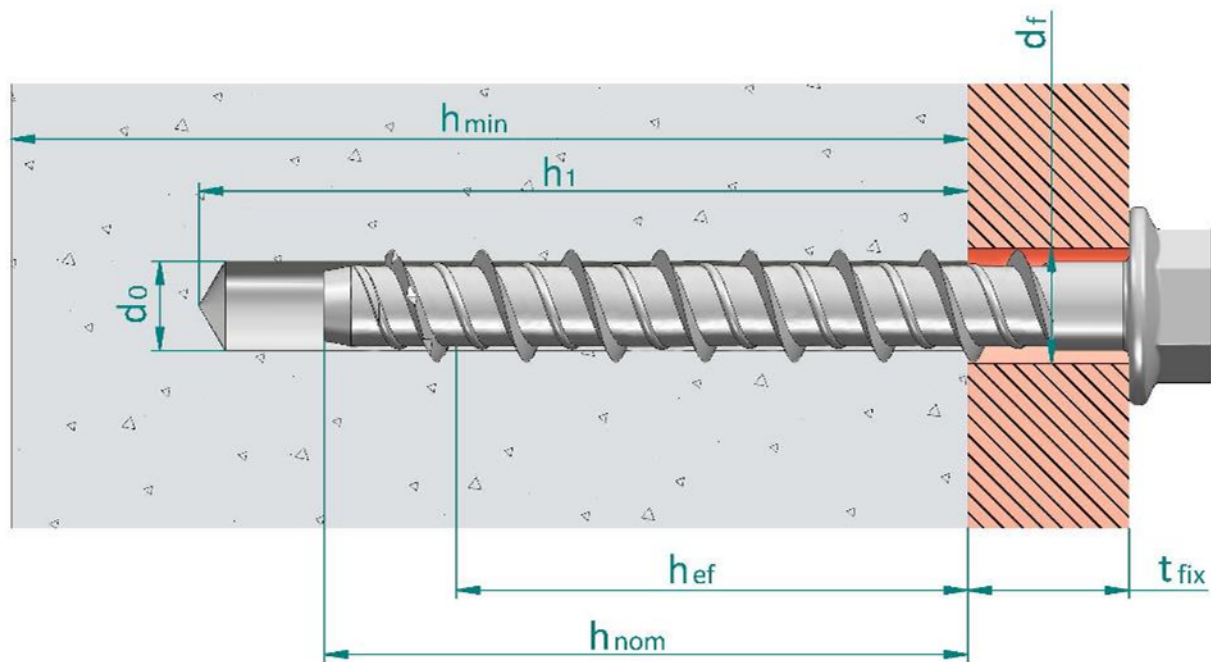
APPLICATION EXAMPLES



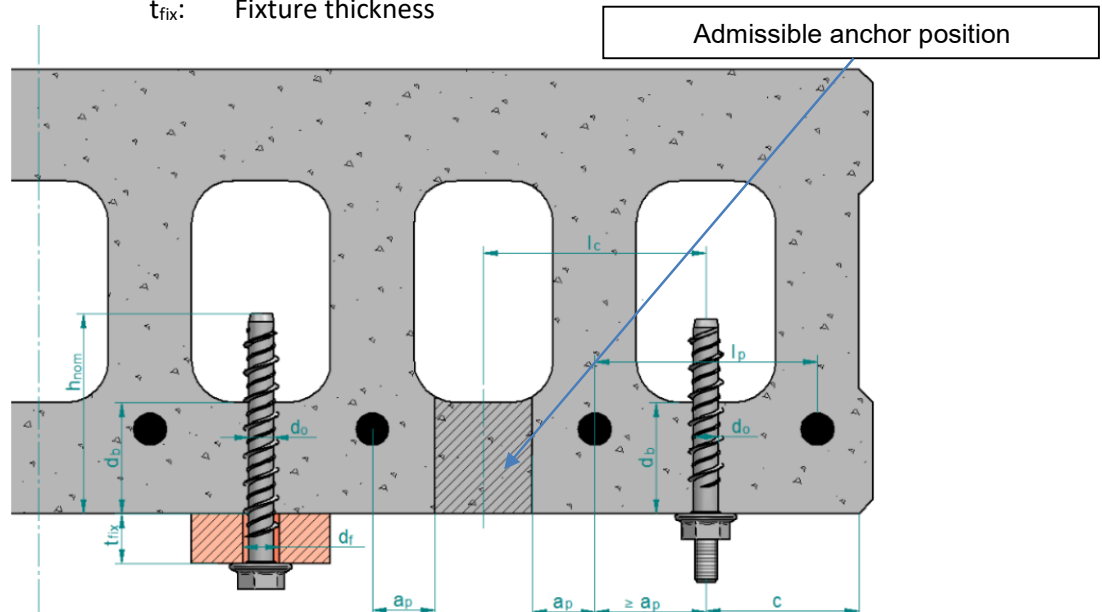
1. RANGE						
ITEM	CODE	SIZES	PHOTO	DESCRIPTION	MATERIAL	COVERING
1	THE	Ø5 - Ø18		Hexagonal head with flange screw anchor	Carbon steel, ATLANTIS coating	
2	THA	Ø5 - Ø10		Countersunk screw anchor	Carbon steel, ATLANTIS coating	
3	THT	Ø6		Truss head screw anchor	Carbon steel, ATLANTIS coating	
4	THP	Ø5 - Ø8		Pan head screw anchor	Carbon steel, ATLANTIS coating	

2. INSTALLATION DATA

2.1. INSTALLATION DRAWING



- d_0 : Nominal diameter of drill bit
- d_b : Bottom flange thickness
- d_f : Fixture clearance hole diameter
- h_{ef} : Effective anchorage depth
- h_1 : Depth of drilled hole
- h_{nom} : Overall fastener embedment depth in the concrete
- h_{min} : Minimum thickness of concrete member
- t_{fix} : Fixture thickness



2.2. SEISMIC LOAD ASSESSMENT

Family	Code	Size (Letter)	Assessed	C1	C2	Family	Code	Size (Letter)	Assessed	C1	C2
[--]	[--]	[--]	ETA	[--]	[--]	[--]	[--]	[--]	ETA	[--]	[--]
THE	THE05040	Ø5 x 40 (A)	✓*	--	--	THE	THE16100	Ø16 x 100	✓	✓	--
	THE05050	Ø5 x 50 (A)	✓*	--	--		THE16150	Ø16 x 150	✓	✓	✓
	THE05060	Ø5 x 60 (B)	✓*	--	--		THE18100	Ø18 x 100	✓	--	--
	THE05080	Ø5 x 80 (D)	✓*	--	--		THE18130	Ø18 x 130	✓	--	--
	THE05100	Ø5 x 100 (E)	✓*	--	--		THE18160	Ø18 x 160	✓	✓	✓
	THE06035	Ø6 x 35	✓	--	--		THE18180	Ø18 x 180	✓	✓	✓
	THE06040	Ø6 x 40	✓	--	--		THE18200	Ø18 x 200	✓	✓	✓
	THE06045	Ø6 x 45	✓	--	--	THA	THA05040	Ø5 x 40 (A)	✓*	--	--
	THE06050	Ø6 x 50	✓	--	--		THA05060	Ø5 x 60 (B)	✓*	--	--
	THE06060	Ø6 x 60	✓	✓	--		THA05080	Ø5 x 80 (D)	✓*	--	--
	THE06070	Ø6 x 70	✓	✓	--		THA05100	Ø5 x 100 (E)	✓*	--	--
	THE06080	Ø6 x 80	✓	✓	--		THA06045	Ø6 x 45	✓	--	--
	THE06100	Ø6 x 100	✓	✓	--		THA06050	Ø6 x 50	✓	--	--
	THE06120	Ø6 x 120	✓	✓	--		THA06060	Ø6 x 60	✓	✓	--
	THE08055	Ø8 x 55	✓	✓	✓		THA06080	Ø6 x 80	✓	✓	--
	THE08060	Ø8 x 60	✓	✓	✓		THA06100	Ø6 x 100	✓	✓	--
	THE08070	Ø8 x 70	✓	✓	✓		THA06120	Ø6 x 120	✓	✓	--
	THE08075	Ø8 x 75	✓	✓	✓		THA06140	Ø6 x 140	✓	✓	--
	THE08080	Ø8 x 80	✓	✓	✓		THA08060	Ø8 x 60	✓	✓	✓
	THE08090	Ø8 x 90	✓	✓	✓		THA08080	Ø8 x 80	✓	✓	✓
	THE08100	Ø8 x 100	✓	✓	✓		THA08100	Ø8 x 100	✓	✓	✓
	THE08110	Ø8 x 110	✓	✓	✓		THA08120	Ø8 x 120	✓	✓	✓
	THE08120	Ø8 x 120	✓	✓	✓		THA10100	Ø10 x 100	✓	✓	✓
	THE08140	Ø8 x 140	✓	✓	✓		THA10120	Ø10 x 120	✓	✓	✓
	THE10060	Ø10 x 60	✓	✓	--	THT	THT06040	Ø6 x 40	✓	--	--
	THE10070	Ø10 x 70	✓	✓	--		THT06050	Ø6 x 50	✓	--	--
	THE10080	Ø10 x 80	✓	✓	--		THT06060	Ø6 x 60	✓	✓	--
	THE10090	Ø10 x 90	✓	✓	✓	THP	THP05040	Ø5 x 40 (A)	✓*	--	--
	THE10100	Ø10 x 100	✓	✓	✓		THP05060	Ø5 x 60 (B)	✓*	--	--
	THE10120	Ø10 x 120	✓	✓	✓		THP06040	Ø6 x 40	✓	--	--
	THE10140	Ø10 x 140	✓	✓	✓		THP06050	Ø6 x 50	✓	--	--
	THE10160	Ø10 x 160	✓	✓	✓		THP06060	Ø6 x 60	✓	✓	--
	THE10180	Ø10 x 180	✓	✓	✓		THP06080	Ø6 x 80	✓	✓	--
	THE12080	Ø12 x 80	✓	✓	--		THP06100	Ø6 x 100	✓	✓	--
	THE12090	Ø12 x 90	✓	✓	--		THP08060	Ø8 x 60	✓	✓	✓
	THE12100	Ø12 x 100	✓	✓	--		THP08080	Ø8 x 80	✓	✓	✓
	THE12110	Ø12 x 110	✓	✓	✓						
	THE12130	Ø12 x 130	✓	✓	✓						
	THE12150	Ø12 x 150	✓	✓	✓						
	THE14080	Ø14 x 80	✓	--	--						
	THE14100	Ø14 x 100	✓	--	--						
	THE14110	Ø14 x 110	✓	--	--						
	THE14120	Ø14 x 120	✓	✓	✓						
	THE14130	Ø14 x 130	✓	✓	✓						
	THE14140	Ø14 x 140	✓	✓	✓						
	THE14160	Ø14 x 160	✓	✓	✓						

3. INSTALLATION PARAMETERS (CONCRETE)

General Installation parameters										Standard Installation depth (h _{ef, std})									Reduced Installation depth (h _{ef, red})									
Family	Code	Size (Letter)	Assessed	Drill bit diameter	Fixture clearance hole	Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)	
[--]	[--]	[--]	ETA	d ₀ [mm]	d _f [mm]	SW/Tx [--]	T _{inst} [Nm]	S _{min} [mm]	C _{min} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]	
THE	THE05040	Ø5 x 40(A)	✓*	5	6,5 - 8	SW 8	8	35	35	--	--	--	--	--	--	--	--	--	80	45/--	35	26,5	5	80	40	80	40	
	THE05050	Ø5 x 50(A)	✓*			SW 8				5	15																	
	THE05060	Ø5 x 60(B)	✓*			SW 8				15	105	53	105	53	25													
	THE05080	Ø5 x 80(D)	✓*			SW 8				35	105	53	45															
	THE05100	Ø5 x 100(E)	✓*			SW 8				55	65																	
	THE06035	Ø6 x 35	✓	6	7,5 - 9	SW 10	10	35	35	--	--	--	--	--	--	--	--	--	100	45/57	35	26,0	--	78	39	90	45	
	THE06040	Ø6 x 40	✓			SW 10				--	5																	
	THE06045	Ø6 x 45	✓			SW 10				--	10																	
	THE06050	Ø6 x 50	✓			SW 10				--	15																	
	THE06060	Ø6 x 60	✓			SW 10				100	65/77	55	43,0	5	129	65	170	85					25					
	THE06070	Ø6 x 70	✓			SW 10								15									35					
	THE06080	Ø6 x 80	✓			SW 10								25									45					
	THE06100	Ø6 x 100	✓			SW 10								45									65					
	THE06120	Ø6 x 120	✓			SW 10								65									85					
	THE08055	Ø8 x 55	✓	8	10,5 - 12	SW 13	20	35	35	--	--	--	--	--	--	--	--	--	100	60/76	50	37,5	5	113	57	130	65	
	THE08060	Ø8 x 60	✓			SW 13				--	10																	
	THE08070	Ø8 x 70	✓			SW 13				100	75/91	65	50,5	5	152	76	200	100					20					
	THE08075	Ø8 x 75	✓			SW 13								10									25					
	THE08080	Ø8 x 80	✓			SW 13								15									30					
	THE08090	Ø8 x 90	✓			SW 13								25									40					
	THE08100	Ø8 x 100	✓			SW 13								35									50					
	THE08110	Ø8 x 110	✓			SW 13								45									60					
	THE08120	Ø8 x 120	✓			SW 13								55									70					
	THE08140	Ø8 x 140	✓			SW 13								75									90					

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

General Installation parameters										Standard Installation depth (h _{ef, std})									Reduced Installation depth (h _{ef, red})								
Family	Code	Size (Letter)	Assessed	Drill bit diameter	Fixture clearance hole	Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)
[--]	[--]	[--]	ETA	d ₀ [mm]	d _f [mm]	SW/Tx [--]	T _{inst} [Nm]	S _{min} [mm]	C _{min} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]
THE	THE10060	Ø10 x 60	✓	10	12,5 -14	SW 15	30	50	40	--	--	--	--	--	--	--	--	--	100	65/85	55	41,5	5	125	63	140	70
	THE10070	Ø10 x 70	✓			SW 15				--	--	--	--	--	--	--	--	--					15				
	THE10080	Ø10 x 80	✓			SW 15				--	--	--	--	--	--	--	--	25									
	THE10090	Ø10 x 90	✓			SW 15				135	95/115	85	67,0	5	201	101	210	105					35				
	THE10100	Ø10 x 100	✓			SW 15								15									45				
	THE10120	Ø10 x 120	✓			SW 15								35									65				
	THE10140	Ø10 x 140	✓			SW 15								55									85				
	THE10160	Ø10 x 160	✓			SW 15								75									105				
	THE10180	Ø10 x 180	✓			SW 15								95									125				
	THE12080	Ø12 x 80	✓	12	14,8 -16	SW 18	50	75	45	--	--	--	--	--	--	--	--	120	90/114	75	58,0	5	174	87	190	95	
	THE12090	Ø12 x 90	✓			SW 18				--	--	--	--	--	--	--	--					15					
	THE12100	Ø12 x 100	✓			SW 18				--	--	--	--	--	--	--	--					25					
	THE12110	Ø12 x 110	✓			SW 18				170	120/144	105	83,5	5	251	126	220					110					35
	THE12130	Ø12 x 130	✓			SW 18								25													55
	THE12150	Ø12 x 150	✓			SW 18								45													75
	THE14080	Ø14 x 80	✓	14	16,9 -18	SW 21	70	80	50	--	--	--	--	--	--	--	--	--	120	90/118	75	58,0	5	174	87	190	95
	THE14100	Ø14 x 100	✓			SW 21				--	--	--	--	--	--	--	--	25									
	THE14110	Ø14 x 110	✓			SW 21				--	--	--	--	--	--	--	--	35									
	THE14120	Ø14 x 120	✓			SW 21				185	130/158	115	92,0	5	276	138	230	115					45				
	THE14130	Ø14 x 130	✓			SW 21								15									55				
	THE14140	Ø14 x 140	✓			SW 21								25									65				
	THE14160	Ø14 x 160	✓			SW 21								45									85				
	THE16100	Ø16 x 100	✓	16	18,9 -20	SW24	80	80	50	--	--	--	--	--	--	--	--	--	115	100/132	80	58	20	174	87	180	90
	THE16150	Ø16 x 150	✓			SW24				185	140/172	120	92,0	30	276	138	280	140					70				
	THE18100	Ø18 x 100	✓	18	20,9 -22	SW 24	90	90	55	--	--	--	--	--	--	--	--	--	140	110/146	90	69,5	10	209	105	230	115
	THE18130	Ø18 x 130	✓			SW 24				--	--	--	--	--	--	--	--	--					40				
	THE18160	Ø18 x 160	✓			SW 24				225	160/196	140	112,0	20	336	168	350	175					70				
	THE18180	Ø18 x 180	✓			SW 24								40									90				
	THE18200	Ø18 x 200	✓			SW 24								60									110				

General Installation parameters										Standard Installation depth (h _{ef, std})								Reduced Installation depth (h _{ef, red})										
Family	Code	Size (Letter)	Assessed	Drill bit diameter	Fixture clearance hole	Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)	Minimum concrete thickness	Depth of drill hole/ Depth for drill bit cleaning	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)	
[--]	[--]	[--]	ETA	d ₀ [mm]	d _f [mm]	SW/Tx [--]	T _{inst} [Nm]	S _{min} [mm]	C _{min} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]	h _{min} [mm]	h ₁ / h _{1,bit} [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]	
THA	THA05040	Ø5 x 40(A)	✓*	5	6,5 - 8	TX25	8	35	35	--	--	--	--	--	--	--	--	--	--	80	45/--	35	26,5	5	80	40	80	40
	THA05060	Ø5 x 60(B)	✓*			TX25				15	105	53	105	53	25													
	THA05080	Ø5 x 80(D)	✓*			TX25				35					45													
	THA05100	Ø5 x 100(E)	✓*			TX25				55					65													
	THA06045	Ø6 x 45	✓	6	7,5 - 9	TX30	10	35	35	--	--	--	--	--	--	--	--	--	100	45/57	35	26,0	10	78	39	90	45	
	THA06050	Ø6 x 50	✓			TX30				--	--	--	--	--	15													
	THA06060	Ø6 x 60	✓			TX30				5	129	65	170	85	25													
	THA06080	Ø6 x 80	✓			TX30				45					65													
	THA06100	Ø6 x 100	✓			TX30				65					85													
	THA06120	Ø6 x 120	✓			TX30				85					105													
	THA06140	Ø6 x 140	✓			TX30				105					125													
	THA08060	Ø8 x 60	✓	8	10,5 - 12	TX45	20	35	35	--	--	--	--	--	--	--	--	--	100	60/76	50	37,5	10	113	57	130	65	
	THA08080	Ø8 x 80	✓			TX45				15	30																	
	THA08100	Ø8 x 100	✓			TX45				35	50																	
	THA08120	Ø8 x 120	✓			TX45				55	70																	
	THA10100	Ø10 x 100	✓	10	12,5 - 14	TX50	30	50	40	135	95/115	85	67,0	15	201	101	210	105	100	65/85	55	41,5	45	125	63	140	70	
	THA10120	Ø10 x 120	✓			TX50								35									65					
THT	THT06040	Ø6 x 40	✓	6	7,5 - 9	TX30	10	35	35	--	--	--	--	--	--	--	--	--	--	100	45/57	35	26,0	5	78	39	90	45
	THT06050	Ø6 x 50	✓			TX30				--	--	--	--	--	15													
	THT06060	Ø6 x 60	✓			TX30				100	65/77	55	43,0	5	129	65	170	85	25									
THP	THP05040	Ø5 x 40(A)	✓*	5	6,5 - 8	TX30	8	35	35	--	--	--	--	--	--	--	--	--	--	80	45	35	26,5	5	80	40	80	40
	THP05060	Ø5 x 60(B)	✓*			TX30				80	55/--	45	35,0	15	105	53	105	53	25									
	THP06040	Ø6 x 40	✓	6	7,5 - 9	TX40	10	35	35	--	--	--	--	--	--	--	--	--	100	45/57	35	26,0	5	78	39	90	45	
	THP06050	Ø6 x 50	✓			TX40				--	--	--	--	--	15													
	THP06060	Ø6 x 60	✓			TX40				5	129	65	170	85	25													
	THP06080	Ø6 x 80	✓			TX40				45					65													
	THP06100	Ø6 x 100	✓			TX40				65					85													
	THP08060	Ø8 x 60	✓	8	10,5 - 12	TX45	20	35	35	--	--	--	--	--	--	--	--	--	100	60/76	50	37,5	10	113	57	130	65	
THP08080	Ø8 x 80	✓	TX45			100				75/91	65	50,5	15	152	76	200	100	30										

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

4. INSTALLATION PARAMETERS (HOLLOW CORE SLABS) [Installation depth reduced/intermediate/standard]

General Installation parameters										Installation depth (h_{ef1} / h_{ef2} / h_{ef3})								
Family	Code	Size (Letter)	Assessed	Drill bit diameter	Fixture clearance hole	Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Bottom flange thickness	Depth of drill hole	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing (splitting)	Critical edge distance (splitting)
[--]	[--]	[--]	ETA	d_0 [mm]	d_f [mm]	SW/Tx [--]	T_{inst} [Nm]	S_{min} [mm]	C_{min} [mm]	d_b [mm]	h_1 [mm]	h_{nom} [mm]	h_{ef} [mm]	t_{fix} [mm]	$S_{cr,N}$ [mm]	$C_{cr,N}$ [mm]	$S_{cr,sp}$ [mm]	$C_{cr,sp}$ [mm]
THE	THE05040	Ø5 x 40(A)	✓*	5	6,5 - 8	SW 8	8	35	35	25/30/40	30/40/45	30/40/45	20/22/26,5	10/--/--	60/66/80	30/33/40	80	80
	THE05050	Ø5 x 50(A)	✓*			SW 8								20/10/5				
	THE05060	Ø5 x 60(B)	✓*			SW 8								30/20/15				
	THE05080	Ø5 x 80(D)	✓*			SW 8								50/40/35				
	THE05100	Ø5 x 100(E)	✓*			SW 8								70/60/55				
	THE06035	Ø6 x 35	✓	6	7,5 - 9	SW 10	10	35	35	25/30/40	30/40/45	30/40/45	20/22/26	5/--/--	60/66/78	30/33/39	90	45
	THE06040	Ø6 x 40	✓			SW 10								10/--/--				
	THE06045	Ø6 x 45	✓			SW 10								15/5/--				
	THE06050	Ø6 x 50	✓			SW 10								20/10/5				
	THE06060	Ø6 x 60	✓			SW 10								30/20/15				
	THE06070	Ø6 x 70	✓			SW 10								40/30/25				
	THE06080	Ø6 x 80	✓			SW 10								50/40/35				
	THE06100	Ø6 x 100	✓			SW 10								70/60/55				
	THE06120	Ø6 x 120	✓			SW 10								90/80/75				
	THE06120	Ø6 x 120	✓			SW 10								90/80/75				
THA	THA05040	Ø5 x 40(A)	✓*	5	6,5 - 8	TX25	8	35	35	25/30/40	30/40/45	30/40/45	20/22/26,5	10/--/--	60/66/80	30/33/40	80	80
	THA05060	Ø5 x 60(B)	✓*			TX25								30/20/15				
	THA05080	Ø5 x 80(D)	✓*			TX25								50/40/35				
	THA05100	Ø5 x 100(E)	✓*			TX25								70/60/55				
	THA06045	Ø6 x 45	✓	6	7,5 - 9	TX30	10	35	35	25/30/40	30/40/45	30/40/45	20/22/26	15/5/--	60/66/78	30/33/39	90	45
	THA06050	Ø6 x 50	✓			TX30								20/10/5				
	THA06060	Ø6 x 60	✓			TX30								30/20/15				
	THA06080	Ø6 x 80	✓			TX30								50/40/35				
	THA06100	Ø6 x 100	✓			TX30								70/60/55				
	THA06120	Ø6 x 120	✓			TX30								90/80/75				
	THA06120	Ø6 x 120	✓			TX30								90/80/75				
	THA06140	Ø6 x 140	✓			TX30								110/100/95				

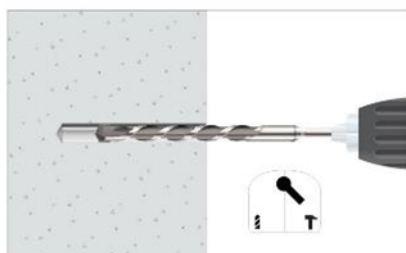
*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

General Installation parameters										Installation depth (h _{ef1} / h _{ef2} / h _{ef3})								
Family	Code	Size (Letter)	Assessed	Drill bit diameter	Fixture clearance hole	Spanner	Maximum torque	Minimum allowable spacing	Minimum allowable edge distance	Bottom flange thickness	Depth of drill hole	Installation depth	Effective anchorage depth	Thickness of fixture	Critical spacing (concrete cone)	Critical edge distance (cone)	Critical spacing(splitting)	Critical edge distance (splitting)
[--]	[--]	[--]	ETA	d ₀ [mm]	d _f [mm]	SW/Tx [--]	T _{inst} [Nm]	S _{min} [mm]	C _{min} [mm]	d _b [mm]	h ₁ [mm]	h _{nom} [mm]	h _{ef} [mm]	t _{fix} [mm]	S _{cr,N} [mm]	C _{cr,N} [mm]	S _{cr,sp} [mm]	C _{cr,sp} [mm]
THT	THT06040	Ø6 x 40	✓	6	7,5 - 9	TX30	10	35	35	25/30/40	30/40/45	30/40/45	20/22/26	10/--/--	60/66/78	30/33/39	90	45
	THT06050	Ø6 x 50	✓			TX30								20/10/5				
	THT06060	Ø6 x 60	✓			TX30								30/20/15				
THP	THP05040	Ø5 x 40(A)	✓*	5	6,5 - 8	TX30	8	35	35	25/30/40	30/40/45	30/40/45	20/22/26,5	10/--/--	60/66/80	30/33/40	80	80
	THP05060	Ø5 x 60(B)	✓*			TX30								30/20/15				
	THP06040	Ø6 x 40	✓	6	7,5 - 9	TX40	10	35	35	25/30/40	30/40/45	30/40/45	20/22/26	10/--/--	60/66/78	30/33/39	90	45
	THP06050	Ø6 x 50	✓			TX40								20/10/5				
	THP06060	Ø6 x 60	✓			TX40								30/20/15				
	THP06080	Ø6 x 80	✓			TX40								50/40/35				
	THP06100	Ø6 x 100	✓			TX40								70/60/55				

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

5. INSTALLATION PROCEDURE

5.1. CONCRETE AND HOLLOW CORE INSTALLATION



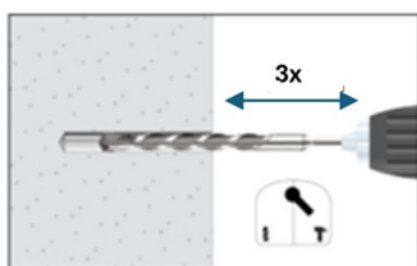
1. DRILLING

Check the concrete is well compacted and without significant porosity.
Suitable for dry, wet and flooded holes.
Use drill in hammer mode.
Drill according to specified depths in previous tables.



2.a) BLOW AND CLEAN

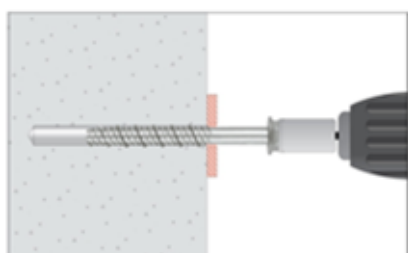
Clean the hole from dust and concrete remains.
Use blow pump and brush.



2. b) CLEAN WITH DRILL BIT

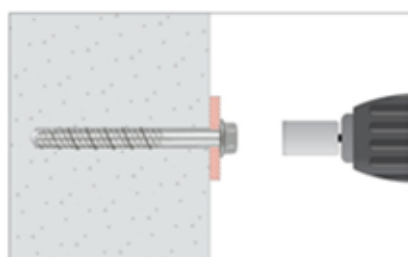
Alternatively, to 2.a):

- Upward installation direction: no cleaning is needed.
- Downward or horizontal installation direction: no cleaning is needed if drilling depth is h_1 , bit, and after the drilling process the drill bit is moved in and out of the hole for 3 times with both rotary and hammer modes of the drilling machine activated.



3. INSTALL

Select a powered impact wrench or a torque wrench that does not exceed the maximum torque indicated in previous tables.
Attach an appropriate size hex socket to the wrench.
Mount the screw anchor head in the socket.



4. APPLY THE TORQUE

Drive the anchor with an impact driver or a torque wrench through the fixture and into the hole until the anchor head washer comes in contact with the fixture. The anchor must be snug after installation. Do not spin the hex socket off the anchor to disengage.

6. RESISTANCES (CONCRETE)

Resistances in concrete class C20/25 for an isolated anchor without spacing or concrete edge distance effects are indicated in the following table:

Values underlined and in italics show Steel failure, **bold** values concrete failure and other indicate pull out failure.
1 kN ≈ 100 kg

6.1 CHARACTERISTIC RESISTANCE (STRUCTURAL APPLICATION) [kN]

General Parameter				Non-cracked concrete				Cracked concrete			
Family	Code	Size	ETA Assessed	Tension $N_{Rk, ucr}$		Shear $V_{Rk, ucr}$		Tension $N_{Rk, ucr}$		Shear $V_{Rk, ucr}$	
				($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)
THE	THE05040	Ø5 x 40	✓*	--	6,71	--	6,71	--	4,70	--	4,70
	THE05050	Ø5 x 50	✓*	10,19	6,71	<u>8,19</u>	6,71	7,13	4,70	7,13	4,70
	THE05060	Ø5 x 60	✓*								
	THE05080	Ø5 x 80	✓*								
	THE05100	Ø5 x 100	✓*								
	THE06035	Ø6 x 35	✓	--	5,00	--	<u>12,53</u>	--	4,57	--	9,36
	THE06040	Ø6 x 40	✓	--		--		--			
	THE06045	Ø6 x 45	✓	--		--		--			
	THE06050	Ø6 x 50	✓	--		--		--			
	THE06060	Ø6 x 60	✓	13,87	5,00	<u>12,53</u>	<u>12,53</u>	9,71	4,57	11,17	9,36
	THE06070	Ø6 x 70	✓								
	THE06080	Ø6 x 80	✓								
	THE06100	Ø6 x 100	✓								
	THE06120	Ø6 x 120	✓	--	11,30	--	<u>19,57</u>	--	7,91	--	14,23
	THE08055	Ø8 x 55	✓								
	THE08060	Ø8 x 60	✓								
	THE08070	Ø8 x 70	✓			17,65	11,30	<u>19,57</u>	<u>19,57</u>	12,36	7,91
	THE08075	Ø8 x 75	✓								
	THE08080	Ø8 x 80	✓								
	THE08090	Ø8 x 90	✓								
	THE08100	Ø8 x 100	✓								
	THE08110	Ø8 x 110	✓								
	THE08120	Ø8 x 120	✓								
	THE08140	Ø8 x 140	✓								
	THE10060	Ø10 x 60	✓	--	13,15	--	25,65	--	9,21	--	17,95
	THE10070	Ø10 x 70	✓	--		--		--			
	THE10080	Ø10 x 80	✓	--		--		--			
	THE10090	Ø10 x 90	✓	26,98	13,15	<u>27,40</u>	25,65	18,89	9,21	<u>27,40</u>	17,95
	THE10100	Ø10 x 100	✓								
	THE10120	Ø10 x 120	✓								
	THE10140	Ø10 x 140	✓								
	THE10160	Ø10 x 160	✓								
	THE10180	Ø10 x 180	✓								
	THE12080	Ø12 x 80	✓	--	21,73	--	<u>37,24</u>	--	15,21	--	35,44
	THE12090	Ø12 x 90	✓	--		--		--			
	THE12100	Ø12 x 100	✓	--		--		--			
	THE12110	Ø12 x 110	✓	37,54	21,73	<u>37,24</u>	<u>37,24</u>	26,27	15,21	<u>37,24</u>	35,44
	THE12130	Ø12 x 130	✓								
	THE12150	Ø12 x 150	✓								
	THE14080	Ø14 x 80	✓	--	21,73	--	<u>52,72</u>	--	15,21	--	38,79
	THE14100	Ø14 x 100	✓	--		--		--			
	THE14110	Ø14 x 110	✓	--		--		--			
	THE14120	Ø14 x 120	✓	43,41	21,73	<u>52,72</u>	<u>52,72</u>	30,39	15,21	<u>52,72</u>	38,79
	THE14130	Ø14 x 130	✓								
	THE14140	Ø14 x 140	✓								
	THE14160	Ø14 x 160	✓								
	TFE16100	Ø16 x 100	✓	--	--	--	--	30,39	15,21	<u>52,72</u>	32,55
	TFE16150	Ø16 x 150	✓	43,41	21,73	<u>57,97</u>	46,50				
	THE18100	Ø18 x 100	✓	--	28,50	--	75,82	--	19,95	--	53,07
	THE18130	Ø18 x 130	✓	--		--					
	THE18160	Ø18 x 160	✓	58,31	28,50	<u>80,78</u>	75,82	40,82	19,95	<u>80,78</u>	53,07
	THE18180	Ø18 x 180	✓								
	THE18200	Ø18 x 200	✓								

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

General Parameter				Non-cracked concrete				Cracked concrete			
Family	Code	Size	ETA Assessed	Tension $N_{Rk, ucr}$		Shear $V_{Rk, ucr}$		Tension $N_{Rk, ucr}$		Shear $V_{Rk, ucr}$	
				($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)
THA	THA05040	Ø5 x 40	✓*	--	6,71	--	6,71	--	4,70	--	4,70
	THA05060	Ø5 x 60	✓*	10,19	6,71	8,19	6,71	7,13	4,70	7,13	4,70
	THA05080	Ø5 x 80	✓*								
	THA05100	Ø5 x 100	✓*								
	THA06045	Ø6 x 45	✓	--	5,00	--	12,53	--	4,57	--	9,36
	THA06050	Ø6 x 50	✓	--		--	--	--			
	THA06060	Ø6 x 60	✓	13,87	5,00	12,53	12,53	9,71	4,57	11,17	9,36
	THA06080	Ø6 x 80	✓								
	THA06100	Ø6 x 100	✓								
	THA06120	Ø6 x 120	✓								
	THA06140	Ø6 x 140	✓								
	THA08060	Ø8 x 60	✓	--	11,30	--	19,57	--	7,91	--	14,23
	THA08080	Ø8 x 80	✓	17,65	11,30	19,57	19,57	12,36	7,91	15,69	14,23
	THA08100	Ø8 x 100	✓								
	THA08120	Ø8 x 120	✓								
	THA10100	Ø10 x 100	✓	26,98	13,15	27,40	25,65	18,89	9,21	27,40	17,95
	THA10120	Ø10 x 120	✓								
THT	THT06040	Ø6 x 40	✓	--	5,00	--	12,53	--	4,57	--	9,36
	THT06050	Ø6 x 50	✓	--		--	--	--			
	THT06060	Ø6 x 60	✓	13,87	5,00	12,53	12,53	9,71	4,57	11,17	9,36
THP	THP05040	Ø5 x 40	✓*	--	6,71	--	6,71	--	4,70	--	4,70
	THP05060	Ø5 x 60	✓*	10,19	6,71	8,19	6,71	7,13	4,70	7,13	4,70
	THP06040	Ø6 x 40	✓	--	5,00	--	12,53	9,71	4,57	--	9,36
	THP06050	Ø6 x 50	✓	--		--	--	--			
	THP06060	Ø6 x 60	✓	13,87	5,00	12,53	12,53	9,71	4,57	11,17	9,36
	THP06080	Ø6 x 80	✓								
	THP06100	Ø6 x 100	✓								
	THP08060	Ø8 x 60	✓	--	11,30	--	19,57	--	7,91	--	14,23
	THP08080	Ø8 x 80	✓	17,65	11,30	19,57	19,57	12,36	7,91	15,69	14,23

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

6.2 DESIGN RESISTANCE (STRUCTURAL APPLICATION) [kN]

General Parameter				Non-cracked concrete				Cracked concrete			
Family	Code	Size	ETA Assessed	Tension $N_{Rd, ucr}$		Shear $V_{Rd, ucr}$		Tension $N_{Rd, cr}$		Shear $V_{Rd, cr}$	
				($h_{ef, sta}$)	($h_{ef, red}$)	($h_{ef, sta}$)	($h_{ef, red}$)	($h_{ef, sta}$)	($h_{ef, red}$)	($h_{ef, sta}$)	($h_{ef, red}$)
THE	THE05040	Ø5 x 40	✓*	--	4,47	--	4,47	--	3,13	--	3,13
	THE05050	Ø5 x 50	✓*	6,79	4,47	<u>5,46</u>	4,47	4,75	3,13	4,75	3,13
	THE05060	Ø5 x 60	✓*								
	THE05080	Ø5 x 80	✓*								
	THE05100	Ø5 x 100	✓*								
	THE06035	Ø6 x 35	✓	--	2,78	--	<u>8,35</u>	--	2,54	--	6,24
	THE06040	Ø6 x 40	✓	--		--		--		--	
	THE06045	Ø6 x 45	✓	--		--		--		--	
	THE06050	Ø6 x 50	✓	--		--		--		--	
	THE06060	Ø6 x 60	✓	9,25	2,78	<u>8,35</u>	<u>8,35</u>	6,47	2,54	7,44	6,24
	THE06070	Ø6 x 70	✓								
	THE06080	Ø6 x 80	✓								
	THE06100	Ø6 x 100	✓								
	THE06120	Ø6 x 120	✓	11,77	6,28	<u>13,05</u>	<u>13,05</u>	8,24	4,39	10,46	9,49
	THE08055	Ø8 x 55	✓								
	THE08060	Ø8 x 60	✓								
	THE08070	Ø8 x 70	✓								
	THE08075	Ø8 x 75	✓								
	THE08080	Ø8 x 80	✓								
	THE08090	Ø8 x 90	✓								
	THE08100	Ø8 x 100	✓								
	THE08110	Ø8 x 110	✓								
	THE08120	Ø8 x 120	✓								
	THE08140	Ø8 x 140	✓	17,99	8,77	<u>18,27</u>	17,10	12,59	6,14	<u>18,27</u>	11,97
	THE10060	Ø10 x 60	✓								
	THE10070	Ø10 x 70	✓								
	THE10080	Ø10 x 80	✓								
	THE10090	Ø10 x 90	✓	25,02	14,49	<u>24,83</u>	<u>24,83</u>	17,52	10,14	<u>24,83</u>	23,63
	THE10100	Ø10 x 100	✓								
	THE10120	Ø10 x 120	✓								
	THE10140	Ø10 x 140	✓								
	THE10160	Ø10 x 160	✓	28,94	14,49	<u>35,15</u>	<u>35,15</u>	20,26	10,14	<u>35,15</u>	25,86
	THE10180	Ø10 x 180	✓								
	THE12080	Ø12 x 80	✓								
	THE12090	Ø12 x 90	✓								
	THE12100	Ø12 x 100	✓	28,94	14,49	<u>35,15</u>	<u>35,15</u>	20,26	10,14	<u>35,15</u>	25,86
	THE12110	Ø12 x 110	✓								
	THE12130	Ø12 x 130	✓								
	THE12150	Ø12 x 150	✓								
	THE14080	Ø14 x 80	✓	28,94	14,49	<u>35,15</u>	<u>35,15</u>	20,26	10,14	<u>35,15</u>	25,86
	THE14100	Ø14 x 100	✓								
	THE14110	Ø14 x 110	✓								
	THE14120	Ø14 x 120	✓								
	THE14130	Ø14 x 130	✓	28,94	14,49	<u>35,15</u>	<u>35,15</u>	20,26	10,14	<u>35,15</u>	25,86
	THE14140	Ø14 x 140	✓								
	THE14160	Ø14 x 160	✓								
	TFE16100	Ø16 x 100	✓					20,26	10,14	<u>38,65</u>	21,70
	TFE16150	Ø16 x 150	✓	28,94	14,49	<u>38,65</u>	31,00				
	THE18100	Ø18 x 100	✓	38,87	19,00	<u>53,85</u>	50,54	27,21	13,30	<u>53,85</u>	35,38
	THE18130	Ø18 x 130	✓								
	THE18160	Ø18 x 160	✓								
	THE18180	Ø18 x 180	✓								
	THE18200	Ø18 x 200	✓								

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

General Parameter				Non-cracked concrete				Cracked concrete			
Family	Code	Size	ETA Assessed	Tension $N_{Rd, ucr}$		Shear $V_{Rd, ucr}$		Tension $N_{Rd, cr}$		Shear $V_{Rd, cr}$	
				($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)
THA	THA05040	Ø5 x 40	✓*	--	4,47	--	4,47	--	3,13	--	3,13
	THA05060	Ø5 x 60	✓*	6,79	4,47	<u>5,46</u>	4,47	4,75	3,13	4,75	3,13
	THA05080	Ø5 x 80	✓*								
	THA05100	Ø5 x 100	✓*								
	THA06045	Ø6 x 45	✓	--	2,78	--	<u>8,35</u>	--	2,54	--	6,24
	THA06050	Ø6 x 50	✓	--		--		--		--	
	THA06060	Ø6 x 60	✓	9,25	2,78	<u>8,35</u>	<u>8,35</u>	6,47	2,54	7,44	6,24
	THA06080	Ø6 x 80	✓								
	THA06100	Ø6 x 100	✓								
	THA06120	Ø6 x 120	✓								
	THA06140	Ø6 x 140	✓	11,77	6,28	<u>13,05</u>	<u>13,05</u>	8,24	4,39	10,46	9,49
	THA08060	Ø8 x 60	✓								
	THA08080	Ø8 x 80	✓								
	THA08100	Ø8 x 100	✓								
THT	THA08120	Ø8 x 120	✓	17,99	8,77	<u>18,27</u>	17,10	12,59	6,14	<u>18,27</u>	11,97
	THA10100	Ø10 x 100	✓								
	THA10120	Ø10 x 120	✓								
THT	THT06040	Ø6 x 40	✓	--	2,78	--	<u>8,35</u>	--	2,54	--	6,24
	THT06050	Ø6 x 50	✓	--		--		--		--	
	THT06060	Ø6 x 60	✓	9,25	2,78	<u>8,35</u>	<u>8,35</u>	6,47	2,54	7,44	6,24
THP	THP05040	Ø5 x 40	✓*	--	4,47	--	4,47	--	3,13	--	3,13
	THP05060	Ø5 x 60	✓*	6,79	4,47	<u>5,46</u>	4,47	4,75	3,13	4,75	3,13
	THP06040	Ø6 x 40	✓	--	2,78	--	<u>8,35</u>	--	2,54	--	6,24
	THP06050	Ø6 x 50	✓	--		--		--		--	
	THP06060	Ø6 x 60	✓	9,25	2,78	<u>8,35</u>	<u>8,35</u>	6,47	2,54	7,44	6,24
	THP06080	Ø6 x 80	✓								
	THP06100	Ø6 x 100	✓								
	THP08060	Ø8 x 60	✓	--	6,28	--	<u>13,05</u>	--	4,39	--	9,49
	THP08080	Ø8 x 80	✓	11,77	6,28	<u>13,05</u>	<u>13,05</u>	8,24	4,39	10,46	9,49

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

6.3 MAXIMUM RECOMMENDED LOADS (STRUCTURAL APPLICATION) [kN] (with $\gamma_F = 1.4$)

General Parameter				Non-cracked concrete				Cracked concrete			
Family	Code	Size	ETA Assessed	Tension $N_{rec, ucr}$		Shear $V_{rec, ucr}$		Tension $N_{rec, cr}$		Shear $V_{rec, cr}$	
				($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)
THE	THE05040	Ø5 x 40	✓*	--	3,20	--	3,20	--	2,24	--	2,24
	THE05050	Ø5 x 50	✓*	4,85	3,20	<u>3,90</u>	3,20	3,40	2,24	3,40	2,24
	THE05060	Ø5 x 60	✓*								
	THE05080	Ø5 x 80	✓*								
	THE05100	Ø5 x 100	✓*								
	THE06035	Ø6 x 35	✓	--	1,98	--	<u>5,97</u>	--	1,81	--	4,46
	THE06040	Ø6 x 40	✓	--		--		--		--	
	THE06045	Ø6 x 45	✓	--		--		--		--	
	THE06050	Ø6 x 50	✓	--		--		--		--	
	THE06060	Ø6 x 60	✓	6,61	1,98	<u>5,97</u>	<u>5,97</u>	4,62	1,81	5,32	4,46
	THE06070	Ø6 x 70	✓								
	THE06080	Ø6 x 80	✓								
	THE06100	Ø6 x 100	✓								
	THE06120	Ø6 x 120	✓								
	THE08055	Ø8 x 55	✓	--	4,48	--	<u>9,32</u>	--	3,14	--	6,78
	THE08060	Ø8 x 60	✓	--		--		--		--	
	THE08070	Ø8 x 70	✓	8,41	4,48	<u>9,32</u>	<u>9,32</u>	5,88	3,14	7,47	6,78
	THE08075	Ø8 x 75	✓								
	THE08080	Ø8 x 80	✓								
	THE08090	Ø8 x 90	✓								
	THE08100	Ø8 x 100	✓								
	THE08110	Ø8 x 110	✓								
	THE08120	Ø8 x 120	✓								
	THE08140	Ø8 x 140	✓								
	THE10060	Ø10 x 60	✓	--	6,26	--	12,21	--	4,38	--	8,55
	THE10070	Ø10 x 70	✓	--		--		--		--	
	THE10080	Ø10 x 80	✓	--		--		--		--	
	THE10090	Ø10 x 90	✓	12,85	6,26	<u>13,05</u>	12,21	8,99	4,38	<u>13,05</u>	8,55
	THE10100	Ø10 x 100	✓								
	THE10120	Ø10 x 120	✓								
	THE10140	Ø10 x 140	✓								
	THE10160	Ø10 x 160	✓								
	THE10180	Ø10 x 180	✓								
	THE12080	Ø12 x 80	✓	--	10,35	--	<u>17,73</u>	--	7,24	--	16,88
	THE12090	Ø12 x 90	✓	--		--		--		--	
	THE12100	Ø12 x 100	✓	--		--		--		--	
	THE12110	Ø12 x 110	✓	17,87	10,35	<u>17,73</u>	<u>17,73</u>	12,51	7,24	<u>17,73</u>	16,88
	THE12130	Ø12 x 130	✓								
	THE12150	Ø12 x 150	✓								
	THE14080	Ø14 x 80	✓	--	10,35	--	<u>25,10</u>	--	7,24	--	18,47
	THE14100	Ø14 x 100	✓	--		--		--		--	
	THE14110	Ø14 x 110	✓	--		--		--		--	
	THE14120	Ø14 x 120	✓	20,67	10,35	<u>25,10</u>	<u>25,10</u>	14,47	7,24	<u>25,10</u>	18,47
	THE14130	Ø14 x 130	✓								
	THE14140	Ø14 x 140	✓								
	THE14160	Ø14 x 160	✓								
	TFE16100	Ø16 x 100	✓	--	--	--	--	14,47	7,24	<u>27,60</u>	15,50
	TFE16150	Ø16 x 150	✓	20,67	10,35	<u>27,60</u>	22,14				
	THE18100	Ø18 x 100	✓	--	13,57	--	36,10	--	9,50	--	25,27
	THE18130	Ø18 x 130	✓	--		--		--		--	
	THE18160	Ø18 x 160	✓	--		--		--		--	
	THE18180	Ø18 x 180	✓	27,77	13,57	<u>38,47</u>	36,10	19,44	9,50	<u>38,47</u>	25,27
	THE18200	Ø18 x 200	✓								

*Ø5 Assessed only for use in concrete and in precast prestressed hollow core slabs for redundant non-structural systems

General Parameter				Non-cracked concrete				Cracked concrete											
Family	Code	Size	ETA Assessed	Tension $N_{rec, ucr}$		Shear $V_{rec, ucr}$		Tension $N_{rec, cr}$		Shear $V_{rec, cr}$									
				($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)								
THA	THA05040	Ø5 x 40	✓*	--	3,20	--	3,20	--	2,24	--	2,24								
	THA05060	Ø5 x 60	✓*	4,85	3,20	<u>3,90</u>	3,20	3,40	2,24	3,40	2,24								
	THA05080	Ø5 x 80	✓*																
	THA05100	Ø5 x 100	✓*																
	THA06045	Ø6 x 45	✓	--	1,98	--	<u>5,97</u>	--	1,81	--	4,46								
	THA06050	Ø6 x 50	✓	--		--		--		--									
	THA06060	Ø6 x 60	✓	6,61	1,98	<u>5,97</u>	<u>5,97</u>	4,62	1,81	5,32	4,46								
	THA06080	Ø6 x 80	✓																
	THA06100	Ø6 x 100	✓																
	THA06120	Ø6 x 120	✓																
	THA06140	Ø6 x 140	✓	--	4,48	--	<u>9,32</u>	--	3,14	--	6,78								
	THA08060	Ø8 x 60	✓																
	THA08080	Ø8 x 80	✓																
	THA08100	Ø8 x 100	✓									8,41	4,48	<u>9,32</u>	<u>9,32</u>	5,88	3,14	7,47	6,78
	THA08120	Ø8 x 120	✓																
	THA10100	Ø10 x 100	✓	12,85	6,26	<u>13,05</u>	12,21	8,99	4,38	<u>13,05</u>	8,55								
	THA10120	Ø10 x 120	✓																
THT	THT06040	Ø6 x 40	✓	--	1,98	--	<u>5,97</u>	--	1,81	--	4,46								
	THT06050	Ø6 x 50	✓	--		--		--		--									
	THT06060	Ø6 x 60	✓	6,61	1,98	<u>5,97</u>	<u>5,97</u>	4,62	1,81	5,32	4,46								
THP	THP05040	Ø5 x 40	✓*	--	3,20	--	3,20	--	2,24	--	2,24								
	THP05060	Ø5 x 60	✓*	4,85	3,20	<u>3,90</u>	3,20	3,40	2,24	3,40	2,24								
	THP06040	Ø6 x 40	✓	--	1,98	--	<u>5,97</u>	--	1,81	--	4,46								
	THP06050	Ø6 x 50	✓	--		--		--		--									
	THP06060	Ø6 x 60	✓	6,61	1,98	<u>5,97</u>	<u>5,97</u>	4,62	1,81	5,32	4,46								
	THP06080	Ø6 x 80	✓																
	THP06100	Ø6 x 100	✓																
	THP08060	Ø8 x 60	✓	--	4,48	--	<u>9,32</u>	--	3,14	--	6,78								
	THP08080	Ø8 x 80	✓	8,41	4,48	<u>9,32</u>	<u>9,32</u>	5,88	3,14	7,47	6,78								

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PULL OUT INCREASING FACTOR FOR TENSION LOADS IN HIGH RESISTANCE CONCRETE ψ_c															
Diameter	Ø5		Ø6		Ø8		Ø10			Ø12		Ø14		Ø18	
Installation depth	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, 1}$)	($h_{ef, 2}$)	($h_{ef, 3}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)	($h_{ef, red}$)	($h_{ef, std}$)
C30/37	1,00	1,00	1,16	1,22	1,21	1,22	1,22	1,17	1,22	1,16	1,22	1,21	1,20	1,22	1,17
C40/50	1,00	1,00	1,28	1,41	1,39	1,41	1,41	1,30	1,41	1,29	1,41	1,39	1,37	1,40	1,32
C50/60	1,00	1,00	1,39	1,58	1,54	1,58	1,58	1,42	1,58	1,40	1,58	1,55	1,51	1,57	1,42

7. RESISTANCES (HOLLOW CORE SLABS)

Resistances in hollow core slab class C30/37 for an isolated anchor without spacing or concrete edge distance effects are indicated in the following table:

Values underlined and in italics show Steel failure, **bold** values concrete failure and other indicate pull out failure.
1 kN ≈ 100 kg

7.1 CHARACTERISTIC RESISTANCE (NON-STRUCTURAL APPLICATION) [kN]

General Parameter				Hollow core slabs						
Family	Code	Size	ETA Assessed	Tension N _{Rk}			Shear V _{Rk}			
				(h _{ef1})	(h _{ef2})	(h _{ef3})	(h _{ef1})	(h _{ef2})	(h _{ef3})	
THE	THE05040	Ø5 x 40	✓*	5,39	--	--	5,39	--	--	
	THE05050	Ø5 x 50	✓*		6,22	8,22		6,22	8,19	
	THE05060	Ø5 x 60	✓*							
	THE05080	Ø5 x 80	✓*							
	THE05100	Ø5 x 100	✓*							
	THE06035	Ø6 x 35	✓	5,39	--	--	5,39	--	--	
	THE06040	Ø6 x 40	✓		--	--		--	--	
	THE06045	Ø6 x 45	✓		6,22	7,99		6,22	7,99	
	THE06050	Ø6 x 50	✓							
	THE06060	Ø6 x 60	✓							
	THE06070	Ø6 x 70	✓							
	THE06080	Ø6 x 80	✓							
	THE06100	Ø6 x 100	✓							
	THE06120	Ø6 x 120	✓							
THA	THA05040	Ø5 x 40	✓*	5,39	--	--	5,39	--	--	
	THA05060	Ø5 x 60	✓*		6,22	8,22		6,22	8,19	
	THA05080	Ø5 x 80	✓*							
	THA05100	Ø5 x 100	✓*							
	THA06045	Ø6 x 45	✓	5,39	--	5,39	6,22	7,99		
	THA06050	Ø6 x 50	✓		--				--	
	THA06060	Ø6 x 60	✓		7,99					
	THA06080	Ø6 x 80	✓							
	THA06100	Ø6 x 100	✓							
	THA06120	Ø6 x 120	✓							
	THA06140	Ø6 x 140	✓							
THT	THT06040	Ø6 x 40	✓	5,39	--	--	5,39	--	--	
	THT06050	Ø6 x 50	✓		6,22	7,99		6,22	7,99	
	THT06060	Ø6 x 60	✓							
THP	THP05040	Ø5 x 40	✓*	5,39	--	--	5,39	--	--	
	THP05060	Ø5 x 60	✓*		6,22	8,22		6,22	8,19	
	THP06040	Ø6 x 40	✓	5,39						
	THP06050	Ø6 x 50	✓							
	THP06060	Ø6 x 60	✓							
	THP06080	Ø6 x 80	✓							
	THP06100	Ø6 x 100	✓							

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7.2 DESIGN RESISTANCE (NON-STRUCTURAL APPLICATION) [kN]										
General Parameter				Hollow core slabs						
Family	Code	Size	ETA Assessed	Tension N_{Rd}			Shear V_{Rd}			
				(h_{ef1})	(h_{ef2})	(h_{ef3})	(h_{ef1})	(h_{ef2})	(h_{ef3})	
THE	THE05040	Ø5 x 40	✓*	2,99	--	--	3,59	--	--	
	THE05050	Ø5 x 50	✓*		3,45	4,57		4,14	5,46	
	THE05060	Ø5 x 60	✓*							
	THE05080	Ø5 x 80	✓*							
	THE05100	Ø5 x 100	✓*							
	THE06035	Ø6 x 35	✓	2,99	--	--	3,59	--	--	
	THE06040	Ø6 x 40	✓		--	--		--	--	
	THE06045	Ø6 x 45	✓		3,45	--		4,44	4,14	5,33
	THE06050	Ø6 x 50	✓							
	THE06060	Ø6 x 60	✓							
	THE06070	Ø6 x 70	✓							
	THE06080	Ø6 x 80	✓							
THE06100	Ø6 x 100	✓								
THE06120	Ø6 x 120	✓								
THA	THA05040	Ø5 x 40	✓*	2,99	--	--	3,59	--	--	
	THA05060	Ø5 x 60	✓*		3,45	4,57		4,14	5,46	
	THA05080	Ø5 x 80	✓*							
	THA05100	Ø5 x 100	✓*							
	THA06045	Ø6 x 45	✓	2,99	3,45	--	3,59	4,14	--	
	THA06050	Ø6 x 50	✓			--			--	
	THA06060	Ø6 x 60	✓			4,44			5,33	
	THA06080	Ø6 x 80	✓							
	THA06100	Ø6 x 100	✓							
	THA06120	Ø6 x 120	✓							
	THA06140	Ø6 x 140	✓							
THT	THT06040	Ø6 x 40	✓	2,99	--	--	3,59	--	--	
	THT06050	Ø6 x 50	✓		3,45	4,44		4,14	5,33	
	THT06060	Ø6 x 60	✓							
THP	THP05040	Ø5 x 40	✓*	2,99	--	--	3,59	--	--	
	THP05060	Ø5 x 60	✓*		3,45	4,57		4,14	5,46	
	THP06040	Ø6 x 40	✓	2,99	--	--	3,59	--	--	
	THP06050	Ø6 x 50	✓		3,45	4,44		4,14	5,33	
	THP06060	Ø6 x 60	✓							
	THP06080	Ø6 x 80	✓							
	THP06100	Ø6 x 100	✓							

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7.3 MAXIMUM RECOMMENDED LOADS (NON-STRUCTURAL APPLICATION) [kN] (with $\gamma_F = 1.4$)

General Parameter				Hollow core slabs						
Family	Code	Size	ETA Assessed	Tension N_{rec}			Shear V_{rec}			
				(h_{ef1})	(h_{ef2})	(h_{ef3})	(h_{ef1})	(h_{ef2})	(h_{ef3})	
THE	THE05040	Ø5 x 40	✓*	2,14	--	--	2,57	--	--	
	THE05050	Ø5 x 50	✓*		2,47	3,26		2,96	<u>3,90</u>	
	THE05060	Ø5 x 60	✓*							
	THE05080	Ø5 x 80	✓*							
	THE05100	Ø5 x 100	✓*							
	THE06035	Ø6 x 35	✓	2,14	--	--	2,57	--	--	
	THE06040	Ø6 x 40	✓		--	--		--	--	
	THE06045	Ø6 x 45	✓		2,47	3,17		2,96	3,80	
	THE06050	Ø6 x 50	✓							
	THE06060	Ø6 x 60	✓							
	THE06070	Ø6 x 70	✓							
	THE06080	Ø6 x 80	✓							
	THE06100	Ø6 x 100	✓							
	THE06120	Ø6 x 120	✓							
THA	THA05040	Ø5 x 40	✓*	2,14	--	--	2,57	--	--	
	THA05060	Ø5 x 60	✓*		2,47	3,26		2,96	<u>3,90</u>	
	THA05080	Ø5 x 80	✓*							
	THA05100	Ø5 x 100	✓*							
	THA06045	Ø6 x 45	✓	2,14	--	--	2,57	2,96	--	
	THA06050	Ø6 x 50	✓		--	--			--	
	THA06060	Ø6 x 60	✓		3,17				3,80	
	THA06080	Ø6 x 80	✓							
	THA06100	Ø6 x 100	✓							
	THA06120	Ø6 x 120	✓							
THA06140	Ø6 x 140	✓								
THT	THT06040	Ø6 x 40	✓	2,14	--	--	2,57	--	--	
	THT06050	Ø6 x 50	✓		2,47	3,17		2,96	3,80	
	THT06060	Ø6 x 60	✓							
THP	THP05040	Ø5 x 40	✓*	2,14	--	--	2,57	--	--	
	THP05060	Ø5 x 60	✓*		2,47	3,26		2,96	<u>3,90</u>	
	THP06040	Ø6 x 40	✓	2,14	--	--	2,57	--	--	
	THP06050	Ø6 x 50	✓		2,47	3,17		2,96	3,80	
	THP06060	Ø6 x 60	✓							
	THP06080	Ø6 x 80	✓							
	THP06100	Ø6 x 100	✓							

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8. OFFICIAL DOCUMENTATION

The following documents are available on our official website www.indexfix.com:

- European assessment ETA 20/0046 for Installation in cracked and non-cracked concrete according to guideline EAD 330232-01-0601, option 1, from Ø6 to Ø18.
- European assessment ETA 20/0494 for use in concrete and prestressed hollow core slabs for redundant non-structural systems according to guideline EAD 330747-00-0601 from Ø5 to Ø6.
- Declaration of performance DoP THE.
- VdS certificate CEA 4001:2021-01(07) *Guidelines for sprinklers systems. Planning and installation for applications of water extinguishing systems on concrete elements* from Ø8 to Ø18.
- Available in the anchor design software INDEXcal.