

TP THROUGH BOLT ANCHORS

TP Cracked Concrete Anchor - TP CCA A-4+ Option 1

■ Characteristics

- TP CCA A4+ (AISI 316) Stainless steel is used in cracked and non-cracked concrete
- European Technical Approval (ETA) Option 1
- Approved for fire resistance R30 to R120
- Used for medium loads, static or quasi-static loads
- TP CCA A4+ has roughness working principle. Easy to install by using a controlled torque
- Available in variety of lengths and sizes, assembly flexibility.
- Size range M8 – M16



■ Application

- TP CCA A4+ is used in Structural applications in cracked concrete in outdoor applications, including marine and industrial
- Uses to fix safety fences, steel beams, channels, machinery, boilers, signals, stadium seating, façade substructures, wood structures to concrete, etc.

■ TP CCA A4+ (Stainless Steel)



Item Number	Description	Size*	Approval
TP 11500	TP CCA A4+ Option 1 - Cracked Concrete	M8x68	ETA
TP 11501	TP CCA A4+ Option 1 - Cracked Concrete	M8x75	ETA
TP 11502	TP CCA A4+ Option 1 - Cracked Concrete	M8x90	ETA
TP 11503	TP CCA A4+ Option 1 - Cracked Concrete	M8x115	ETA
TP 11504	TP CCA A4+ Option 1 - Cracked Concrete	M8x135	ETA
TP 11505	TP CCA A4+ Option 1 - Cracked Concrete	M8x165	ETA
TP 11506	TP CCA A4+ Option 1 - Cracked Concrete	M10x90	ETA
TP 11507	TP CCA A4+ Option 1 - Cracked Concrete	M10x105	ETA
TP 11508	TP CCA A4+ Option 1 - Cracked Concrete	M10x115	ETA
TP 11509	TP CCA A4+ Option 1 - Cracked Concrete	M10x135	ETA
TP 11510	TP CCA A4+ Option 1 - Cracked Concrete	M10x155	ETA
TP 11511	TP CCA A4+ Option 1 - Cracked Concrete	M10x185	ETA
TP 11512	TP CCA A4+ Option 1 - Cracked Concrete	M12x110	ETA
TP 11513	TP CCA A4+ Option 1 - Cracked Concrete	M12x120	ETA
TP 11514	TP CCA A4+ Option 1 - Cracked Concrete	M12x130	ETA
TP 11515	TP CCA A4+ Option 1 - Cracked Concrete	M12x145	ETA
TP 11516	TP CCA A4+ Option 1 - Cracked Concrete	M12x170	ETA
TP 11517	TP CCA A4+ Option 1 - Cracked Concrete	M12x200	ETA
TP 11518	TP CCA A4+ Option 1 - Cracked Concrete	M16x130	ETA
TP 11519	TP CCA A4+ Option 1 - Cracked Concrete	M16x150	ETA
TP 11520	TP CCA A4+ Option 1 - Cracked Concrete	M16x185	ETA
TP 11521	TP CCA A4+ Option 1 - Cracked Concrete	M16x220	ETA

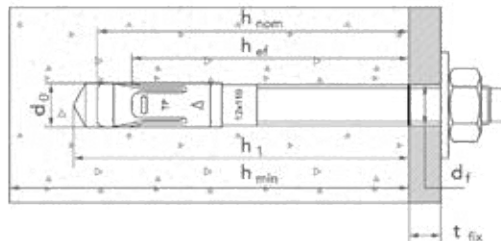
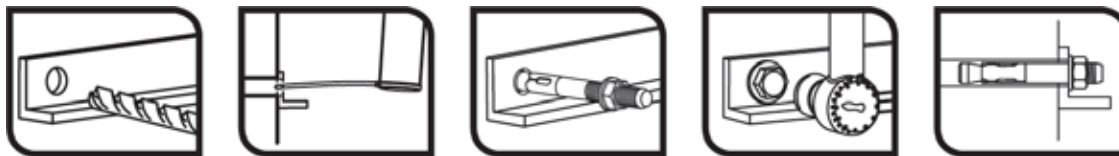
*(Diameter) x (Length) - mm

■ Anchor Material

No.	Designation	TP CCA A4
1	Anchor Body	A4 Stainless steel
2	Expansion Clip	A4 Stainless steel
3	Nut	DIN 934, A4 stainless steel
4	Washer	DIN 125, A4 stainless steel

■ Installation Procedure

- Check the concrete base is compact and porosity is insignificant. Drill to the specified diameter and depth values. Note: Use drill in hammer mode. Suitable for wet, dry or flooded drill holes.
- Clean the drill holes completely with an air pump and brush to clear all the dust and fragments.
- With the help of a hammer, insert the anchor in the hole until the red ring mark is flat with concrete surface. The installation could be done through the fixture baseplate.
- Apply nominal installation torque using a torque wrench. Once installed it can be verified the total length of the anchor through the letter on bolt tip .



■ Installation Parameters – TP CCA A4+



Item Number	Drill bit diameter	Torque	Minimum concrete thickness	Depth of drill hole \geq	Installation depth	Effective anchorage depth	Thickness of fixture \leq	Critical spacing	Critical edge distance	Minimum allowable spacing	Minimum allowable edge distance
	do (mm)	Tinst [Nm]	hmin (mm)	h1 (mm)	hnom (mm)	hef (mm)	tfix (mm)	Scr (mm)	Ccr (mm)	Smin (mm)	Cmin (mm)
TP 11500	8	20	100	70	54	48	4	144	72	50	50
TP 11501							10				
TP 11502							25				
TP 11503							50				
TP 11504							70				
TP 11505							100				
TP 11506	10	40	120	80	67	60	10	180	90	55	50
TP 11507							25				
TP 11508							35				
TP 11509							55				
TP 11510							75				
TP 11511							105				
TP 11512	12	60	150	100	81	72	10	216	108	60	60
TP 11513							20				
TP 11514							30				
TP 11515							45				
TP 11516							70				
TP 11517							100				
TP 11518	16	120	170	115	97	86	10	258	129	70	70
TP 11519							30				
TP 11520							60				
TP 11521							100				

■ Characteristic Resistance – TP CCA A4+



Characteristic resistances for C20/25 concrete for an isolated anchor (without considering anchor-to-anchor or anchor-to-edge distance effects).

Item Number	Letter on head tip	Tension resistance in C20/25 concrete		Coefficient for higher concrete resistances			Tension partial safety coefficient	Shear resistance		Shear partial safety coefficient	
		Uncracked NRk [kN]	Cracked NRk [kN]	C30/37 Ψ [-]	C40/45 Ψ [-]	C50/60 Ψ [-]	γ_M [-]	Uncracked VRk [kN]	Cracked VRk [kN]	Uncracked γ_M [-]	Cracked γ_M [-]
TP 11500	A	9.00	5.00	1.22	1.41	1.55	1.50	11.90	12.00	1.30	1.50
TP 11501	B										
TP 11502	C										
TP 11503	D										
TP 11504	E										
TP 11505	G	16.00	9.00	1.22	1.41	1.55	1.50	18.80	18.80	1.30	1.30
TP 11506	A										
TP 11507	B										
TP 11508	C										
TP 11509	D										
TP 11510	E	20.00	12.00	1.22	1.41	1.55	1.50	27.40	27.40	1.30	1.30
TP 11511	F										
TP 11512	A										
TP 11513	B										
TP 11514	P										
TP 11515	C	35.00	25.00	1.22	1.41	1.55	1.50	51.00	57.40	1.30	1.50
TP 11516	D										
TP 11517	E										
TP 11518	A										
TP 11519	B										
TP 11520	C	35.00	25.00	1.22	1.41	1.55	1.50	51.00	57.40	1.30	1.50
TP 11521	D										

■ Calculation example

Fixing a tension load of 500 kg (= 4.91 kN) in C30/37 cracked concrete using a TP CCA A4+ M10 anchor.

Calculation:

A load safety factor of $\gamma_F = 1.4$ is recommended

Verification to be performed: Design load < Design resistance

Design load = service load * load safety factor = $4.91 * 1.4 = 6.87$ kN

Design resistance = characteristic resistance * concrete coefficient / tension partial safety coefficient = $9 * 1.22 / 1.5 = 7.32$ kN

Verification: $6.87 < 7.32$ kN

Result: The fixing is safe.