

20/05/2025

TDS03183



Product

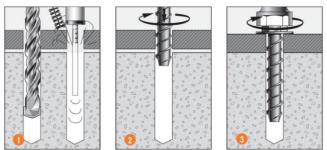
A seismic certified screw-in anchor for permanent anchoring into concrete. 6mm x 43m size is certified for seismic C1 applications.

Compliance

European Technical Assessment (option1) - ETA-24/0954 Design According to current standards:

- AS 5216
- AS 1170.4 Earthquake Actions
- EN 1992-4 (formerly ETAG001 Annex C, E & TR045)
- NZS 3101 (A3) Section 17 Seismic Design C1

Installation



1. Drill hole to correct diameter and depth. Important: Use Ramset[™] Dustless Drilling System to ensure holes are clean. Alternatively, clean thoroughly with brush and remove debris by way of vacuum or hand pump, compressed air etc.

2. Using a socket wrench, screw the AnkaScrew[™] Tapcon[™] Xtrem["] into the hole using slight pressure until the self-tapping action starts.

3. Tighten the AnkaScrew" Tapcon[™] Xtrem" until flush with fixture. If resistance is experienced when tightening, unscrew anchor one turnand re-tighten. Ensure not to over tighten. Refer to tightening torque for limitations.

Description and Part Numbers

Benefits, Advantages and Features

Fire tested

- Fire rated performance up to 120 minutes
- Highest level of European assessment for mechanical screw-in anchors
- Approved for all directions (floor, wall, overhead)
- Maximum Tensile & Shear capacities in cracked concrete
- Zinc plated steel (≥5um)
- Anchor diameter 6mm

Fast and easy to use:

- Install, simply screws into hole.
- Remove leaving an empty hole.

Close to edge and for close anchor spacing:

• Does not expand and burst concrete.

Principal Applications

- Seismic anchoring to Category C1
- Anchoring into cracked & non cracked concrete
- Steel framing
- Mechanical services
- Pallet racking
- Safety barriers
- Conveyors
- Handrails
- Bottom plates

Drilled hole diameter, dh (mm)	Effective Length, L _e	Maximum Fixture Thickness, t _{fix,max} (mm)	AnkaScrew™ Tapcon™ Xtrem Description™	Part No	Effective Depth, h _{ef} (mm) h _{ef} = Le – t t = total thickness of material(s) being fixed
6	34.5	3	6mm x 43mm zinc	AST06043X	

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AnkaScrew[™] Tapcon[™] Xtrem[™] 6mm x 43mm

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Installation and Static and Seismic Performance details – per anchor

Cracked and Non-Cracked Concrete

Non-Cracke	Non-Cracked Concrete (static & quasi-static loading)												
	Drilled hole	Fixture hole	Anchor	Depth of	Tightening	Static Shear	Non-Cracked Concrete Tension, φN _{ur,ucr} (kN)**						
Part No.	diameter, d _h (mm)	diameter,d _f (mm)	depth, h _{ef} (mm)	drill hole, h1 (mm)	torque, T _r (Nm)	Resistance Steel, φV _{us}	Concrete Compressive Strength, f'c (MPa)						
		()	(1111)			(kN)*	20	25	30	40	50		
AST06043X	6	9	31.5	50	15	5.7	3.3	3.5	3.6	3.8	3.9		

Cracked Concrete (static & quasi-static loading)

	Drilled hole	Fixture hole	Anchor effective	Depth of	Tightening	Static Shear	Cracked Concrete Tension, $\phi N_{ur,cr}$ (kN)*)**
Part No.	diameter, d _h (mm)		depth. her	drill hole, h1 (mm)	torque, T _r (Nm)		Concrete Compressive Strength, f'c (MPa)				
							20	25	30	40	50
AST06043X	6	9	31.5	50	15	5.7	1.2	1.3	1.5	1.7	1.9

Data is based on optimum dimensions, anchor spacing a_c = 3* h_{ef} , = 94.5 mm and edge distance e_c = 1.5* h_{ef} = 47.3 mm

For shear loads acting towards an edge where optimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity or contact Ramset™ Engineer.

Minium concrete substrate thickness is $b_m = 80$ mm.

*Note: Shear Resistance is based on steel resistance of the anchor with no influencing edge or anchor spacing.

**Note: Reduced characteristic ultimate tensile capacity = φNur where φ=0.67 and Nur is based on characteristic ultimate pull-out tensile capacity.

Seismic – Category C1

Part No.	Drilled hole diameter,	Fixture hole	Anchor effective	Depth of drill hole.	Tightening torque, Tr	C1 Seismic Shear Resistance	C1 Seismic Cracked Concrete Tension, N _{Rd,seis,C1} (kN)##				
Part No.	d _h (mm)	diameter,d _f (mm)	depth, h _{ef} (mm)	h₁ (mm)	(Nm)	Steel, V _{Rd,s,seis}	Concrete Compressive Strength, f'c (MPa)				
		. ,	. ,			(kN)#	20	25	30	40	50
AST06043X	6	9	31.5	50	15	1.2	0.9	1.0	1.1	1.3	1.4

Data is based on optimum dimensions, anchor spacing $a_c = 3^*h_{ef}$, = 94.5 mm and edge distance $e_c = 1.5^*h_{ef} = 47.3$ mm

For shear loads acting towards an edge where optimum dimensions are not achievable, please use the simplified strength limit state design process to verify capacity or contact Ramset™ Engineer.

Minium concrete substrate thickness is $b_m = 80$ mm.

#Note: Shear Resistance is based on steel resistance of the anchor with no influencing edge or anchor spacing.

Data includes annular gap reduction factor of 0.5

For single anchor values: Multiply V_{Rd,s,seis}* 1.17

##Note: Reduced characteristic ultimate tensile capacity is governed by Pull-out resistance.

For single anchor values: Multiply N_{Rd,seis,C1} * 1.17

For further information, please contact Ramset[™]

AU-PHONE: 1300780063 www.ramset.com.au

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AnkaScrew[™] Tapcon[™] Xtrem[™] 6mm x 43mm



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Installation and Fire Performance details - per anchor

Part No.	Drilled	Fixture	re Anchor	Dopth of	Tightoning	Minimum Concrete	Optimum dimensions* (Fire Performance)		
	hole diameter, d₁ (mm)	hole diameter, d _f (mm)	effective depth, h _{ef} (mm)	Depth of drill hole, h1 (mm)	Tightening torque, T _r (Nm)	substrate thickness, b _m (mm) ***	Anchor spacing, a _c (mm)	Edge** distance, e _c (mm)	
AST06043X	6	9	31.5	50	15	80	126.0	63.0	

*Note: For anchor spacings and edge distance less than the optimum dimensions, please contact your local Ramset Engineer.

**Note: If the fire attack is from more than one side, the edge distance of the anchor shall be ≥ 300 mm.

***Note: For performance based on smaller concrete substrate thickness, refer to iExpert Anchor Software or Ramset™ Engineer.

Tension – Fire Performance

Part No.	Drilled hole	Anchor effective	Characteristic Resistance Mode of Failure	Characteristic values of resistance to tension loads in 20 MPa to 50 MPa concrete strength					
i ultiloi	diameter, dh (mm)	depth, h _{ef} (mm)		Fire re	Fire resistance duration (minutes)		ıtes)		
		()		30 60 90		120			
		31.5	Steel Failure - N _{Rk,s,fi} (kN)	1.00	1.00	0.70	0.54		
AST06043X	6		Pull-out failure concrete - $N_{Rk,p,fi}$ (kN)	0.60	0.60	0.60	0.50		
			Concrete cone failure - N _{Rk,c,fi} (kN)	1.20	1.20	1.20	1.00		

Note: Bold values indicate limiting load. Data in table lists all possible failure mechanisms due to fire.

Shear – Fire Performance

Part No. di	Drilled hole diameter, d₁(mm)	Anchor effective depth, h _{ef}	Characteristic Resistance Mode of Failure	Characteristic values of resistance to shear loads in 20 MPa concrete strength Fire resistance duration (minutes)				
	u _h (mm)	(mm)		30	60	90	120	
			*Steel Failure - V _{Rk,s,fi} (kN)	1.00	1.00	0.70	0.54	
ACTOCO 40V	0	<u>о1 г</u>	Steel Failure with lever arm - $M^0_{\text{Rk},\text{p},\text{fi}}$ (kNm)	0.76	0.76	0.53	0.41	
AST06043X	6	31.5	**Concrete edge failure - V _{Rk,c,fi} (kN)	1.00	1.00	1.00	0.80	
			Concrete Pry-out failure - V _{Rk,cp,fi} (kN)	1.20	1.20	1.20	1.00	

*Note 1: Bold values indicate limiting load for conditions without lever arm. Data in table lists all possible failure mechanisms due to fire.

**Note 2: Concrete edge failure based on optimal concrete edge distance for fire performance ec = 2xhef = 63 mm.

For further information, please contact Ramset[™]

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