

INFORMATION

The torque controlled AWA Throughbolt is a zinc plated high performance anchor for use in non-cracked concrete and structural applications such as:

- Columns
- Guard rails
- Façades
- Staircases
- Silo installation
- Machines
- Cantilever beams

BASE MATERIAL

- Concrete C20/25 to C50/60
- Non-Cracked Concrete

FEATURES

- Medium to High Performance
- Wide Range Of Sizes
- Fast And Secure Installation
- Through Fixing
- Three way Expansion Sleeve
- Zinc Plated Min. 5µm
- Reaction To Fire Class A1

APPROVALS

European Technical Assessment
Option 7 Non-Cracked Concrete



ETA-19/0432

RELATED PRODUCTS



SDS+ Drill Bits

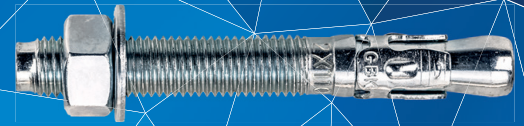


Hole Cleaning Pump

RANGE AND LOAD DATA

RANGE DATA															
Part Number	Size of Thread	Min. Structure Thickness	Drill Hole Diameter	Min Hole Depth	Min Embedment Depth	Fixture Clearance Hole	Effective Embedment Depth	Max Fixture Thickness	Washer and Nut Thickness	Total Length	Thread Length	Width Across Flats	Washer Outer diameter	Tightening Torque	
															(h _c)
AWA06060*	M6	100	6	55	48	7	40	3	8	60		10	12	7	
AWA06080*								23		80					
AWA08050*	M8	100	8	47	37	9	45	5	10	50	13	16	20		
AWA08065				60	50			9		45				7	65
AWA08075														17	75
AWA08090														37	95
AWA08100														42	100
AWA08115														57	115
AWA08130														72	130
AWA10065*	M10	100	10	55	45	12	50	10	13	65	17	20	35		
AWA10075				65	55			12		50				10	75
AWA10090														25	90
AWA10100														35	100
AWA10120														55	120
AWA10150														85	150

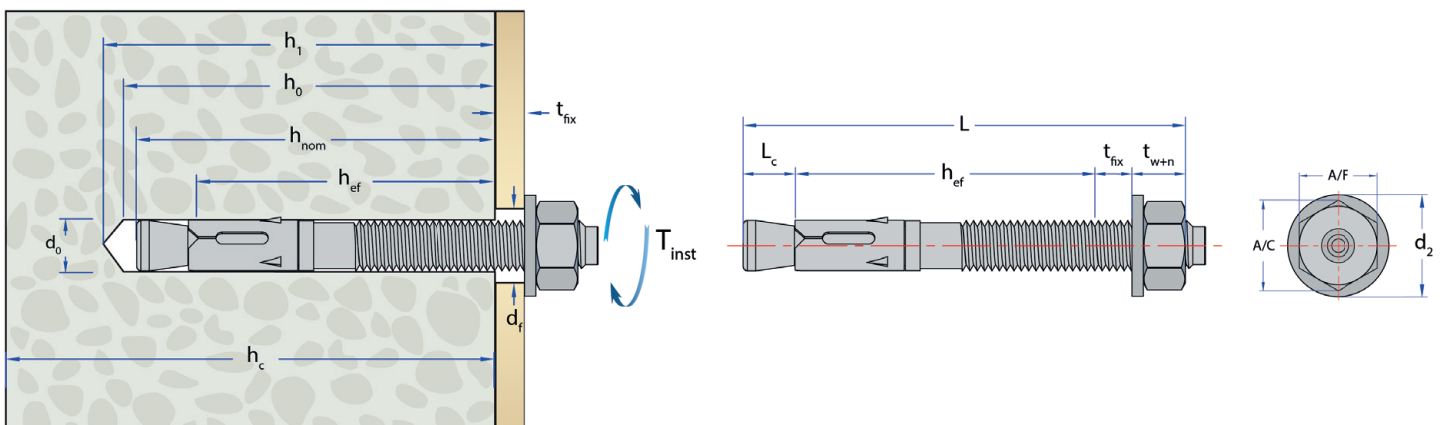


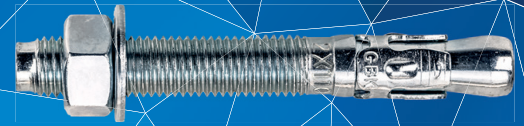


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	-	(h_c)	(d_o)	(h_1)	(h_{nom})	(d_f)	(h_{ef})	(t_{fix})	(t_{w+n})	(L)	(L_{th})	(A/F)	(d_2)	(T_{inst})
		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Nm
AWA12080*	M12	120	12	70	60	14	50	8	16	80		19	24	55
AWA12090					8		90							
AWA12100					18		100							
AWA12110					28		110							
AWA12120					38		120							
AWA12140					58		140							
AWA12160					78		160							
AWA12180					98		180							
AWA12200					118		200							
AWA16105*	M16	170	16	95	85	18	70	5	19	105		24	30	100
AWA16125					10		125							
AWA16145					30		145							
AWA16170					55		170							
AWA16220					105		220							
AWA20130*	M20	200	20	105	95	22	80	15	22	130		30	37	150
AWA20170					35		170							
AWA20215					80		215							
AWA24180*	M24	240	24	155	143	26	120	5	27	180		36	44	280
AWA24260*					85		260							

* Not included in the product's ETA.





NON-CRACKED CONCRETE

Performance Data (C20/25 non-cracked concrete)												
Size Of Thread	Effective Embedment Depth (h_{ef})	Minimum Concrete Thickness (h_{min})	Characteristic Resistance		Design Resistance		Approved Resistance		Design Spacing (s)		Design Edge Distance (c)	
			Tensile (N_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
-	mm	mm	kN	kN	kN	kN	kN	kN	mm	mm	mm	mm
M6*	40	100	7.7	5.1	5.5	4.0	3.9	2.8	50	50	50	50
M8	45	100	9.0	9.2	5.0	7.3	3.5	5.2	70	70	70	80
M10	50	100	12.0	14.5	6.6	11.6	4.7	8.2	90	150	80	130
M12	60	120	16.0	21.1	8.8	16.8	6.2	12.0	110	90	90	160
M16	85	170	16.0	39.3	8.8	31.4	6.2	22.4	120	120	120	250
M20	100	200	30.0	58.8	16.6	47.0	11.8	33.5	140	150	140	340
M24*	120	240	65.3	81.2	36.2	64.9	25.8	46.3	330	160	220	390

* Not included in the product's ETA.

SUPPLEMENTARY DATA

Influence Of Concrete Strength (Cracked/Non-cracked Concrete)					
Concrete strength		C20/25	C30/37	C40/50	C50/60
Cylinder	N/mm ²	20	30	40	50
Cube	N/mm ²	25	37	50	60
Factor	-	1.0	1.22	1.41	1.55

Important Note:

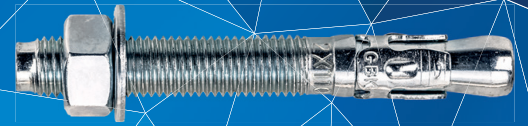
When using concrete factors ensure that loads do not exceed Steel Design Resistance.

Steel Failure						
Size Of Thread	Tensile Resistance			Shear Resistance		
	Characteristic Resistance ($N_{Rk,s}$)	Design Resistance ($N_{Rd,s}$)*	Approved Resistance ($N_{Ra,s}$)	Characteristic Resistance ($V_{Rk,s}$)	Design Resistance ($V_{Rd,s}$ **)	Approved Resistance ($V_{Ra,s}$)
-	kN	kN	kN	kN	kN	kN
M6	7.7	5.5	3.9	5.1	4.0	2.8
M8	18.3	12.2	8.7	9.2	7.3	5.2
M10	29.0	19.3	13.7	14.5	11.6	8.2
M12	42.2	28.1	20.0	21.1	16.8	12.0
M16	78.5	52.3	37.3	39.3	31.4	22.4
M20	117.6	78.4	56.0	58.8	47.0	33.5
M24	176.3	117.5	83.9	88.1	70.5	50.3

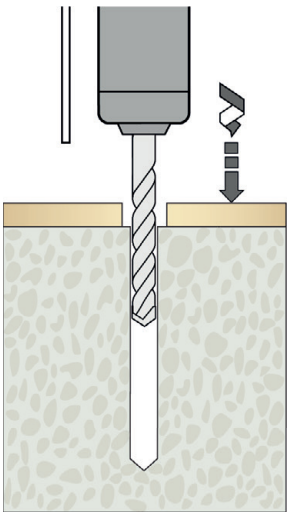
* A partial safety factor (γ_{MS}) equal to 1.4 for M6 and 1.50 for the rest is included.

** A partial safety factor (γ_{MS}) equal to 1.25 is included.

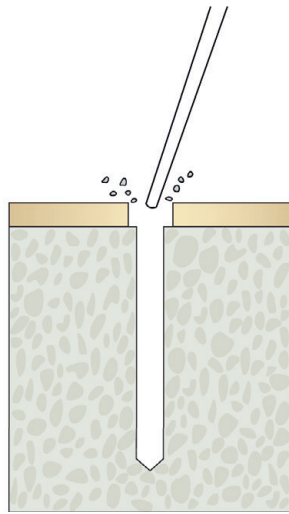




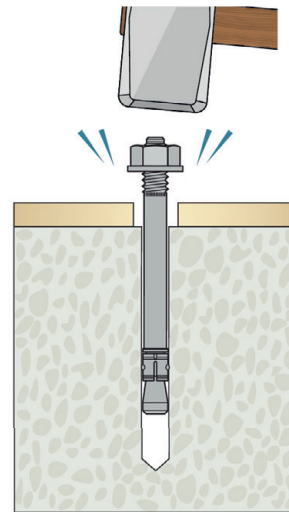
INSTALLATION INSTRUCTIONS



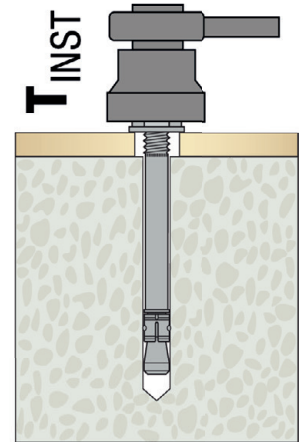
-Position fixture and drill correct diameter hole to corresponding depth



-Clean hole by blowing to remove drilling debris and dust



-Insert anchor through fixture into concrete and lightly hammer into concrete



-Tighten with torque wrench to recommended torque

