

TECHNICAL DATA SHEET

DESCRIPTION

The Dayton Superior Single-Use Bearcat Bolt is a high strength drill-in screw anchor. This anchor utilizes a pre-drilled hole and self-taps into the concrete, creating a mechanical connection between the concrete and the anchor threads. This screw anchor, unlike other competitor screw anchors, was designed specifically for use in tilt-up construction applications. The high strength carbon steel allows for quick and easy installation. This one-time-use bolt is available in a blue electro galvanized zinc finish to prevent rust and corrosion.

Testing per ACI 355.2-19 and AC 193 has been completed on the single-use Bearcat Bolt through a third-party laboratory. Industry standard ACI 355.2-19 testing in both cracked and uncracked concrete will allow specifying engineers and users to verify specific performance capacity through ACI 318-19 Chapter 17 calculations. This testing also includes data for seismic applications to allow for even greater application range. With this testing, the single-use Bearcat Bolt can be used with greater confidence and has qualified acceptance in a variety of applications, including tilt-up bracing, seismic anchoring and bracing, formwork, a variety of permanent connections, sill plates, racking/shelving, hand/guard rails and much more.

APPLICATION

The primary use of the Single-Use Bearcat Bolt is for anchoring tilt-up wall braces to floor slabs during panel erection. Additional uses include lift brackets/plates as well as permanent or temporary fixation of racking, rails, guards, etc. Reuse of this bolt is not recommended or supported.



FEATURES

- High capacity to maximize brace system
- 5" and 7" bolt lengths
- Compatible with 3/4" drilled holes
- Integrated cut-washer for anti-rotation
- Tested in accordance with ACI 355.2-19 and AC 193

BENEFITS

- Quick and clear installation
- Works in a wide variety of applications
- Better bite into concrete
- No spinning or slipping in hole
- One-time-use eliminates the need to restock used bolts

INSTALLATION

1. Drill a 3/4" hole per the setting chart. These screw anchors can work in bottomless holes when it is necessary to drill through the thickness of the concrete. Caution must be taken when drilling through slabs to minimize blowout at the bottom of the hole. Blowout of the concrete at the back of the slab can reduce the SWL of the anchor.
2. Thoroughly clean the drilled hole with compressed air or suction to rid the hole of debris.
3. Insert the Bearcat Bolt through the foot plate of the brace (or plate of the object to be anchored) and guide the tip of the bolt into the pre-drilled hole. Drive the anchor down until the integrated washer contacts the base plate.
4. Torque to 200 ft. lbs. to complete the install and ensure a secure connection. The base plate should be firmly in place. Be sure not to over-torque the bolt during installation once contact with the base plate is made, excessive torque could damage the threads cut into the concrete.

To Remove: Simply back the Single-Use Bearcat Bolt out with a wrench or impact drive.

ORDERING INFORMATION

BEARCAT™ BOLT - SINGLE-USE

Product Code	Description	Weight
101165	5" SINGLE-USE BEARCAT BOLT	0.91 LB
101166	7" SINGLE- USE BEARCAT BOLT	1.14 LB

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TECHNICAL DATA

Bearcat Bolt Setting Detail		
	5" Bearcat Bolt	7" Bearcat Bolt
Maximum Mounting Plate Thickness ¹	1"	
Minimum Mounting Plate Hole Diameter	15/16"	
Total Shank Length	5.25"	7.25"
Nominal Full Embedment ¹	4.25"	6.25"
Minimum Edge Distance	12"	15"
Over-drill Depth ²	0.50"	
Nominal Drill Bit Diameter	3/4"	
Socket/Hex-head Size	1-1/8"	
Installation Torque ³	200 ft-lbs.	

¹Ultimate capacities were obtained using a 1" plate thickness. Thicker plates will reduce the capacity.

²Over-drill depth is assuming full anchor embedment in the concrete. With concrete thinner than the nominal full embedment, the anchor will protrude through the back of the concrete. Reference the loading chart for thin concrete capacities.

³Over torquing can damage the anchor and/or reduce the capacities.

Temporary Bracing Applications ⁵							
In-Concrete, Single-Use Ultimate In-Concrete Capacity ^{1,2,3}							
Screw Anchor Size	Concrete Thickness	Minimum Concrete Compressive Strength (psi)					
		2,500		4,000		6,000	
		Tension ⁴ (lbs.)	Shear ⁴ (lbs.)	Tension ⁴ (lbs.)	Shear ⁴ (lbs.)	Tension ⁴ (lbs.)	Shear ⁴ (lbs.)
5" Bearcat Bolt	4"	8,317	7,327	10,520	9,268	12,884	11,351
	5"	10,376	10,872	13,125	13,752	16,074	16,843
	6"	12,012	11,909	15,194	15,064	18,609	18,449
	7"	12,012	12,765	15,194	16,147	18,609	19,776
	8" and up	12,012	12,765	15,194	16,147	18,609	19,776
7" Bearcat Bolt	6"	13,298	16,621	16,821	21,024	20,601	23,390
	7"	18,363	20,414	23,228	23,390	28,448	23,390
	8"	20,374	21,823	25,772	23,390	31,564	23,390
	9"	20,374	23,147	25,772	23,390	31,564	23,390
	10" and up	20,374	23,390	25,772	23,390	31,564	23,390

¹ A minimum recommended safety factor of 2.0 should be applied to these ultimate (nominal) capacities. Check project requirements or local jurisdictions

² Linear interpolation of embedment depths and concrete strengths are not permitted

³ Tension testing was conducted in 4,900 psi concrete

⁴ Shear values were obtained through ACI 318-19, Chapter 17 Calculations

⁵ Refer to the Tilt-Up Concrete Association's Guide for Temporary Wind Bracing of Tilt-Up Concrete Panels During Construction for more information

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ACI 318-19 Chapter 17 Calculation Parameters

The following parameters are the result of third-party testing in accordance with ACI 355.2-19 for use in ACI 318-19 Chapter 17 calculations.

Steel Strength ^{2,3}					
Characteristic	Symbol	Units	5" Bearcat	7" Bearcat	12" Bearcat
Outside Diameter	d_o	in.	0.750	0.750	0.750
		mm.	19.1	19.1	19.1
Nominal Embedment Depth	h_{nom}	in.	4.3	6.3	11.3
		mm.	108.0	159.0	286.0
Effective Steel Stress Area	A_{se}	in ²	0.4072	0.4072	0.4072
		mm ²	262.7	262.7	262.7
Minimum Specified Ultimate Strength	f_u	psi.	125,000		
		N/mm2	862		
Minimum Specified Yield Strength	f_y	psi.	100,000		
		N/mm2	689		
Steel Strength in Tension	N_{sa}	lb.	40,715		
		kN	181.1		
Steel Strength in Shear	V_{sa}	lb.	23,390		
		kN	104.04		
Steel Strength in Shear, Siesmic	$V_{sa,eq}$	lb.	17,100		
		kN	76.06		

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ACI 318-19 Chapter 17 Calculation Parameters Continued

Design Strength ^{2,3}					
Characteristic	Symbol	Units	5" Bearcat	7" Bearcat	12" Bearcat
Outside Diameter	d_o	in.	0.75	0.75	0.75
		mm.	19.1	19.1	19.1
Nominal Embedment Depth	h_{nom}	in.	4.25	6.25	11.25
		mm.	108	159	286
Pullout Strength uncracked concrete	$N_{p,uncr}$	lb.	-	-	30,618
		kN	-	-	136.2
Pullout Strength cracked concrete	$N_{p,cr}$	lb.	-	-	20,538
		kN	-	-	91.36
Pullout Strength cracked concrete, seismic	N_{eq}	lb.	-	-	20,538
		kN	-	-	91.36
Category Name	1,2,or 3	-	1	1	1
Effective Factor for uncracked concrete	k_{uncr}	-	27	27	24
Effective Factor for cracked concrete	k_{cr}	-	21	21	17
Modification factor for absence of cracks	$\Psi_{c,N}$	-	1.29	1.29	1.49
Pryout Factor	k_{cp}	-	1	1	1
Axial Stiffness in service load range in uncracked concrete	β_{uncr}	lb/inch	368,466	514,973	172,701
		N/mm	64,528	90,186	30,245
Coefficient of variation for axial stiffness in service load range in uncracked concrete	v_{uncr}	%	39%	34%	34%
Axial Stiffness in service load range in cracked concrete	β_{cr}	lb/inch	320,755	288,714	162,740
		N/mm	56,173	50,562	28,500
Coefficient of variation for axial stiffness in service load range in cracked concrete	v_{cr}	%	79%	23%	21%
Normalization Exponent, Unracked Concrete	n	-	0.5 ¹	0.5 ¹	0.45
Normalization Exponent, Cracked Concrete	n	-	0.5 ¹	0.5 ¹	0.50

¹The normalization exponent (n) for the shallow and middle embedment is recommended to be 0.5, as concrete failure mode is shown to control for these sizes.

²The information presented in this table is to be used in conjunction with the design criteria of ACI 318-19 chapter 17, ACI 318-14 Chapter 17 or

³The strength reduction factor applies when the load combinations from the IBC or ACI 318 are used and the requirements of ACI 318-19 17.5.3, ACI 318-14 17.3.3 or ACI 318-11 D.4.3, as applicable, are met. If the load combinations of ACI 318-11 Appendix C are used, the appropriate strength reduction factor must be determined in accordance with ACI 318-11 D.4.4.

TECHNICAL DATA SHEET**MANUFACTURER**

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Technical Services: 877-266-7732
Website: www.daytonsuperior.com

WARRANTY (ACCESSORIES)

Limited Warranty. Dayton warrants, for a period of 60 days from the date of shipment (three years from the date of shipment in the case of formwork, excluding any consumable Products included with such formwork), that Products and any associated application drawings and engineering services provided by Dayton ("Ancillary Services") will be free from defects in material and workmanship and, in the case of custom designed formwork, that the formwork will meet the specifications set forth in the design drawings approved by Dayton and Customer. Any claim under this warranty must be made in writing within such warranty period. If any Product and/or Ancillary Service covered by a timely claim are found to be defective, Dayton will, within a reasonable time, make any necessary repairs or corrections or, at Dayton's option, replace the Product. Unless pre-authorized by Dayton in writing, Dayton will not accept any charges for correcting defects or accept the return of any Product. This warranty will not apply to any Products that have been subjected to misuse, neglect, storage damage, misapplication, accident or any other damage caused by any person other than Dayton, or that have not been maintained in accordance with Dayton's specifications. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES AS TO THE PRODUCTS AND ANCILLARY SERVICES. DAYTON MAKES NO OTHER WARRANTIES OR GUARANTEES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE. THE REMEDIES SET FORTH IN THIS SECTION ARE CUSTOMER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY.