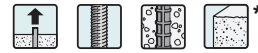


**SET-XP™ Epoxy Anchor Installation Information and Additional Data for Threaded Rod and Rebar in Normal-Weight Concrete<sup>1</sup>**

Characteristic	Symbol	Units	Nominal Anchor Diameter				
			1/2 / #4	5/8 / #5	3/4 / #6	7/8 / #7	1 / #8
<b>Installation Information</b>							
Drill Bit Diameter	d	in.	5/8	3/4	7/8	1	1 1/8
Maximum Tightening Torque	T <sub>inst</sub>	ft-lb	40	90	130	200	300
Permitted Embedment Depth (h <sub>ef</sub> ) Range <sup>2</sup>	Minimum	-	2 3/4	3 1/8	3 1/2	3 3/4	4
	Maximum	-	10	12 1/2	15	17 1/2	20
Minimum Concrete Thickness	h <sub>min</sub>	in.	2.25 x h <sub>ef</sub>				
Critical Edge Distance	c <sub>ac</sub>	in.	3 x h <sub>ef</sub>				
Minimum Edge Distance	c <sub>min</sub>	in.	1 3/4				
Minimum Anchor Spacing	s <sub>min</sub>	in.	3				

- The information presented in this table is to be used in conjunction with the design criteria of ICC-ES AC308. See pages 18–19.
- Minimum and maximum embedment depths are set so as to fit the ICC-ES AC308 design model.



\* See page 10 for an explanation of the load table icons

**SET-XP™ Epoxy Tension Design Data for Threaded Rod and Rebar in Normal-Weight Concrete<sup>1,2</sup>**

Characteristic	Symbol	Units	Nominal Anchor Diameter (inch) / Rebar Size					
			1/2 / #4	5/8 / #5	3/4 / #6	7/8 / #7	1 / #8	
<b>Steel Strength in Tension</b>								
Threaded Rod	Minimum Tensile Stress Area	A <sub>se</sub>	in <sup>2</sup>	0.142	0.226	0.334	0.462	0.606
	Tension Resistance of Steel - ASTM A193, Grade B7	N <sub>sa</sub>	lb.	17,750	28,250	41,750	57,750	75,750
	- ASTM A307, Grade C			8,235	13,110	19,370	26,795	35,150
	- Type 410 Stainless (ASTM A193, Grade B6)			15,620	24,860	36,740	50,820	66,660
	- Type 304 Stainless (ASTM A193, Grade B8)			10,650	16,950	25,050	34,650	45,450
Strength Reduction Factor - Steel Failure	φ	-	0.75 <sup>9</sup>					
Rebar	Minimum Tensile Stress Area	A <sub>se</sub>	in <sup>2</sup>	0.20	0.31	0.44	0.60	0.79
	Tension Resistance of Steel - Rebar (ASTM A615, Grade 60)	N <sub>sa</sub>	lb.	18,000	27,900	39,600	54,000	71,100
	Strength Reduction Factor - Steel Failure	φ	-	0.65 <sup>9</sup>				
<b>Concrete Breakout Strength in Tension</b>								
Effectiveness Factor - Uncracked Concrete	k <sub>uncr</sub>	-	24					
Effectiveness Factor - Cracked Concrete	k <sub>cr</sub>	-	17					
Strength Reduction Factor - Breakout Failure	φ	-	0.65 <sup>11</sup>					
<b>Bond Strength in Tension (2,500 psi ≤ f'c ≤ 8,000 psi)</b>								
Temp. Range 1 for Uncracked Concrete <sup>2,4,5</sup>	Characteristic Bond Strength <sup>8</sup>	τ <sub>k,uncr</sub>	psi	2,422	2,263	1,942	1,670	2,003
	Permitted Embedment Depth Range	Minimum	h <sub>ef</sub>	in	2 3/4	3 1/8	3 1/2	3 3/4
Maximum		h <sub>ef</sub>	in	10	12 1/2	15	17 1/2	20
Temp. Range 1 for Cracked Concrete <sup>2,4,5</sup>	Characteristic Bond Strength <sup>8,13,14</sup>	τ <sub>k,cr</sub>	psi	1,040	718	1,003	619	968
	Permitted Embedment Depth Range	Minimum	h <sub>ef</sub>	in	4	5	6	7
Maximum		h <sub>ef</sub>	in	10	12 1/2	15	17 1/2	20
Temp. Range 2 for Uncracked Concrete <sup>3,4,5</sup>	Characteristic Bond Strength <sup>6,8</sup>	τ <sub>k,uncr</sub>	psi	1,250	1,170	1,005	860	1,035
	Permitted Embedment Depth Range	Minimum	h <sub>ef</sub>	in	2 3/4	3 1/8	3 1/2	3 3/4
Maximum		h <sub>ef</sub>	in	10	12 1/2	15	17 1/2	20
Temp. Range 2 for Cracked Concrete <sup>3,4,5</sup>	Characteristic Bond Strength <sup>6,8,13,14</sup>	τ <sub>k,cr</sub>	psi	537	371	518	320	500
	Permitted Embedment Depth Range	Minimum	h <sub>ef</sub>	in	4	5	6	7
Maximum		h <sub>ef</sub>	in	10	12 1/2	15	17 1/2	20
<b>Bond Strength in Tension - Bond Strength Reduction Factors for Continuous Special Inspection</b>								
Strength Reduction Factor - Dry Concrete	φ <sub>dry, ci</sub>	-	0.65 <sup>10</sup>					
Strength Reduction Factor - Water-saturated Concrete	φ <sub>sat, ci</sub>	-	0.45 <sup>10</sup>					
Additional Factor for Water-saturated Concrete <sup>7</sup>	K <sub>sat, ci</sub>	-	0.57					
<b>Bond Strength in Tension - Bond Strength Reduction Factors for Periodic Special Inspection</b>								
Strength Reduction Factor - Dry Concrete	φ <sub>dry, pi</sub>	-	0.55 <sup>10</sup>					
Strength Reduction Factor - Water-saturated Concrete	φ <sub>sat, pi</sub>	-	0.45 <sup>10</sup>					
Additional Factor for Water-saturated Concrete <sup>7</sup>	K <sub>sat, pi</sub>	-	0.48					

- The information presented in this table is to be used in conjunction with the design criteria of ICC-ES AC308, except as modified below. See pages 18–19.
- Temperature Range 1: Maximum short-term temperature of 110°F. Maximum long-term temperature of 75°F.
- Temperature Range 2: Maximum short-term temperature of 150°F. Maximum long-term temperature of 110°F.
- Short-term concrete temperatures are those that occur over short intervals (diurnal cycling).
- Long-term concrete temperature are constant temperatures over a significant time period.
- For anchors that only resist wind or seismic loads, bond strengths may be increased by 72%.
- In water-saturated concrete, multiply τ<sub>k,uncr</sub> and τ<sub>k,cr</sub> by K<sub>sat</sub>.
- For anchors installed in overhead and subjected to tension resulting from sustained loading, multiply the value calculated for N<sub>s</sub> according to ICC-ES AC308 by 0.75. See page 18.
- The value of φ applies when the load combinations of ACI 318 Section 9.2 are used. If the load combinations of ACI 318 Appendix C are used, refer to Section D4.5 to determine the appropriate value of φ.
- The value of φ applies when both the load combinations of ACI 318 Section 9.2 are used and the requirements of Section D4.4(c) for Condition B are met. If the load combinations of ACI 318 Appendix C are used, refer to Section D4.5 to determine the appropriate value of φ.
- The value of φ applies when both the load combinations of ACI 318 Section 9.2 are used and the requirements of Section D4.4(c) for Condition B are met. If the load combinations of ACI 318 Appendix C are used, refer to Section D4.5 to determine the appropriate value of φ.
- The value of φ applies when both the load combinations of ACI 318 Section 9.2 are used and the requirements of Section D4.4(c) for Condition B are met. If the load combinations of ACI 318 Appendix C are used, refer to Section D4.5 to determine the appropriate value of φ.
- Sand-lightweight and all-lightweight concrete are beyond the scope of this table.
- For anchors installed in regions assigned to Seismic Design Category C, D, E or F, the bond strength values for 7/8" anchors or #7 rebar anchors must be multiplied by α<sub>N,SEIS</sub> = 0.80.
- For anchors installed in regions assigned to Seismic Design Category C, D, E or F, the bond strength values for 1" anchors or #8 rebar anchors must be multiplied by α<sub>N,SEIS</sub> = 0.92.