



DESCRIPTION/SUGGESTED SPECIFICATIONS

MORE OPPOTUNITIES TO USE THE PRODUCT

The new Red Head G5+ cures 3 times faster than the legacy, general-purpose Epcon G5 formula, and works in concrete in temperatures 30° lower than before. With a gel time of 10 minutes or more, G5+ can be used in deep embedment holes and hot temperatures.

APPLICATION TEMPERATURES (40° through 110°F (4° through 43°C))

IN-SERVICE TEMPERATURES (-41° through 176°F (-41° through 80°C))

APPROVALS / LISTING

EPOXY FOR ALL CONDITIONS

- ICC-ES ESR 4138 (Concrete Report).
- City of Los Angeles (COLA).
- Suitable for use in saturated concrete and water filled or submerged holes.
- Florida Building Code (FBC).
- Threaded rod: 3/8" - 1-1/2". Rebar: #3 - #11.
- NSF/ANSI 61 Approval for use in drinking water system components.
- Extensive Department of Transportation (DOT) Listings.
- ASTM C881, Types I, II, IV, and V, Grade 3, Classes, B & C.
- 2015, 2012, 2009, 2006 International Building Code (IBC) Compliant.
- 24 months from date of manufacture when stored in 50° through 95°F (10° through 35°C)

CURING TIMES



BASE MATERIAL (F°/C°)	WORKING TIME	FULL CURE TIME
110°/ 43°	10 minutes	4 hours
90°/ 32°	14 minutes	6 hours
70°/ 21°	16 minutes	8 hours
50°/ 13°	30 minutes	30 hours
40°/ 7°	46 minutes	48 hours

EVERYDAY EPOXY

MORE CLIMATE COVERAGE

- Cures in Concrete Temperatures Down to 40°F
- At Least 10 Minutes of Gel Time, even in 110°F
- Cures in Just 4 Hours at 110°F and 6 Hours at 90°F

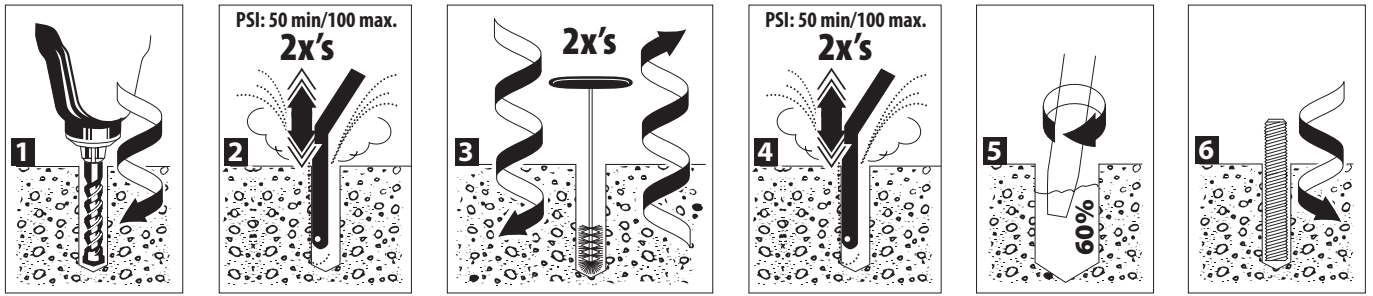
3RD PARTY APPROVED

- Cracked Concrete and Seismic Zones A-F
- Tested Based on ICC-ES AC-308 and ACI-355.4
- 20+ State DOT Approvals

FOR THE MOST DEMANDING APPLICATIONS

- | | |
|----------------------------------|---------------------------------|
| Structural rebar Dowelling | Traffic Barriers and Guardrails |
| Railings and Architectural Metal | Oversized Holes |
| Structural Anchoring | Overhead, Sustained Loads |

INSTALLATION STEPS



*Water saturated concrete and water-filled hole applications require 4x's air, 4x's brushing, and 4x's air

ORDERING INFORMATION

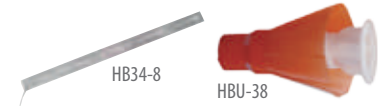
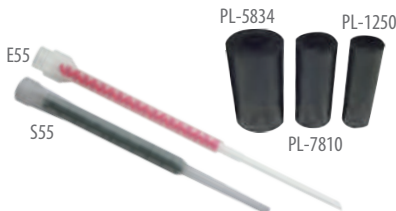


RED HEAD G5+ ADHESIVE ANCHORS

PART NO.	DESCRIPTION	BOX QTY.
G5P-15	Red Head G5+ 15.2oz Cartridge w/ Nozzle	6
G5P-30	Red Head G5+ 30.4oz Cartridge w/ Nozzle	4

RED HEAD C6+/G5+ DISPENSING TOOLS

PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
D100	15.2oz HD Manual Tool (C6P-15 and G5P-15)	D202	30.4oz Pneumatic Tool (C6P-30 and G5P-30)
D102	30.4oz HD Manual Tool (C6P-30 and G5P-30)	D300	15.2oz Battery Tool (C6P-15 and G5P-15)
D200	15.2oz Ergonomic Pneumatic Tool (C6P-15 and G5P-15)	A300	28oz/30oz Battery Tool (A7P-28, C6P-30, G5P-30)



DISPENSING ACCESSORIES

PART NO.	DESCRIPTION	BOX QTY.
A24S	Short Nozzle	24
S55	Standard Nozzle	24
E55	Long Nozzle	24
S75	High-Flow Nozzle	24
S75EXT	Extension for High-Flow Nozzle	24
E25-6	6' Extension Tube	5
E916-6	Heavy Duty 6' Extension Tube (Fits Piston Plugs)	5
PL-5834	Piston Plug for 5/8" and 3/4" diameter anchors	10
PL-7810	Piston Plug for 7/8" and 1" diameter anchors	10
PL-1250	Piston Plug for 1-1/4" diameter anchors	10

HOLE CLEANING ACCESSORIES

PART NO.	DESCRIPTION	BOX QTY.
BP-10	Manual Blow Pump	1
WB-038	Wire Brush for 3/8" Anchors	10
WB-012	Wire Brush for 1/2" Anchors	10
WB-058	Wire Brush for 5/8" Anchors	10
WB-034	Wire Brush for 3/4" Anchors	10
WB-078	Wire Brush for 7/8" Anchors	10
WB-100	Wire Brush for 1" Anchors	10
WB-125	Wire Brush for 1-1/4" Anchors	10
B012	Nylon Brush 1/2" Diameter (soft enough for Masonry)	1
ESDS-38	Wire Brush 12" Usable Extension with SDS+ Adaptor	1
EHAN-38	Wire Brush 12" Usable Extension with T-Handle	1

MASONRY ACCESSORIES

PART NO.	DESCRIPTION	BOX QTY.
HBU-38	Umbrella Anchor for Hollow Block	20
HBP 38-8	3/8" Diameter by 8" length Nylon screen	25
HB 34-8	3/4" Diameter by 8" length Stainless Steel Screen	20
HB38-312	3/8" Diameter by 3.5" length Stainless Steel Screen	100
HB12-312	1/2" Diameter by 3.5" length Stainless Steel Screen	50
HB58-412	5/8" Diameter by 4.5" length Stainless Steel Screen	50

MORE MASONRY ACCESSORIES AVAILABLE. FOR A FULL LIST OF RED HEAD ACCESSORIES, PLEASE SEE THE RED HEAD CATALOG AT WWW.ITWRREDHEAD.COM



Call our toll free number 800-848-5611 or visit our web site for the most current product and technical information at www.itwredhead.com



ESTIMATING TABLES

G5+ 30 Fluid Ounce Cartridge

Number of Anchoring Installations Per Cartridge Using Reinforcing Bar with G5+ Adhesive in Solid Concrete

REBAR	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
# 3	7/16	608.9	304.5	203.0	152.2	121.8	101.5	87.0	76.1	67.7	60.9	55.4	50.7	46.8	43.5	40.6
# 4	5/8	298.4	149.2	99.5	74.6	59.7	49.7	42.6	37.3	33.2	29.8	27.1	24.9	23.0	21.3	19.9
# 5	3/4	207.2	103.6	69.1	51.8	41.4	34.5	29.6	25.9	23.0	20.7	18.8	17.3	15.9	14.8	13.8
# 6	7/8	152.2	76.1	50.7	38.1	30.4	25.4	21.7	19.0	16.9	15.2	13.8	12.7	11.7	10.9	10.1
# 7	1-1/8	116.5	58.3	38.8	29.1	23.3	19.4	16.6	14.6	12.9	11.7	10.6	9.7	9.0	8.3	7.8
# 8	1-1/4	92.1	46.0	30.7	23.0	18.4	15.3	13.2	11.5	10.2	9.2	8.4	7.7	7.1	6.6	6.1
# 9	1-3/8	74.6	37.3	24.9	18.6	14.9	12.4	10.7	9.3	8.3	7.5	6.8	6.2	5.7	5.3	5.0
# 10	1-1/2	51.8	25.9	17.3	12.9	10.4	8.6	7.4	6.5	5.8	5.2	4.7	4.3	4.0	3.7	3.5
# 11	1-3/4	38.1	19.0	12.7	9.5	7.6	6.3	5.4	4.8	4.2	3.8	3.5	3.2	2.9	2.7	2.5

* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.
* Oversized holes acceptable but volume of adhesive will increase.

G5+ 30 Fluid Ounce Cartridge

Number of Anchoring Installations Per Cartridge Using Threaded Rod with G5+ Adhesive in Solid Concrete

REBAR In. (mm)	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
3/8 (9.5)	7/16	608.9	304.5	203.0	152.2	121.8	101.5	87.0	76.1	67.7	60.9	55.4	50.7	46.8	43.5	40.6
1/2 (12.7)	9/16	368.3	184.2	122.8	92.1	73.7	61.4	52.6	46.0	40.9	36.8	33.5	30.7	28.3	26.3	24.6
5/8 (15.9)	3/4	207.2	103.6	69.1	51.8	41.4	34.5	29.6	25.9	23.0	20.7	18.8	17.3	15.9	14.8	13.8
3/4 (19.1)	7/8	152.2	76.1	50.7	38.1	30.4	25.4	21.7	19.0	16.9	15.2	13.8	12.7	11.7	10.9	10.1
7/8 (22.2)	1	116.5	58.3	38.8	29.1	23.3	19.4	16.6	14.6	12.9	11.7	10.6	9.7	9.0	8.3	7.8
1 (25.4)	1-1/8	92.1	46.0	30.7	23.0	18.4	15.3	13.2	11.5	10.2	9.2	8.4	7.7	7.1	6.6	6.1
1-1/4 (31.8)	1-3/8	61.6	30.8	20.5	15.4	12.3	10.3	8.8	7.7	6.8	6.2	5.6	5.1	4.7	4.4	4.1

* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.
* Oversized holes acceptable but volume of adhesive will increase.

G5+ 15 Fluid Ounce Cartridge

Number of Anchoring Installations Per Cartridge Using Reinforcing Bar with G5+ Adhesive in Solid Concrete

REBAR	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
# 3	7/16	304.5	152.2	101.5	76.1	60.9	50.7	43.5	38.1	33.8	30.4	27.7	25.4	23.4	21.7	20.3
# 4	5/8	149.2	74.6	49.7	37.3	29.8	24.9	21.3	18.6	16.6	14.9	13.6	12.4	11.5	10.7	9.9
# 5	3/4	103.6	51.8	34.5	25.9	20.7	17.3	14.8	12.9	11.5	10.4	9.4	8.6	8.0	7.4	6.9
# 6	7/8	76.1	38.1	25.4	19.0	15.2	12.7	10.9	9.5	8.5	7.6	6.9	6.3	5.9	5.4	5.1
# 7	1-1/8	58.3	29.1	19.4	14.6	11.7	9.7	8.3	7.3	6.5	5.8	5.3	4.9	4.5	4.2	3.9
# 8	1-1/4	46.0	23.0	15.3	11.5	9.2	7.7	6.6	5.8	5.1	4.6	4.2	3.8	3.5	3.3	3.1
# 9	1-3/8	37.3	18.6	12.4	9.3	7.5	6.2	5.3	4.7	4.1	3.7	3.4	3.1	2.9	2.7	2.5
# 10	1-1/2	25.9	12.9	8.6	6.5	5.2	4.3	3.7	3.2	2.9	2.6	2.4	2.2	2.0	1.8	1.7
# 11	1-3/4	19.0	9.5	6.3	4.8	3.8	3.2	2.7	2.4	2.1	1.9	1.7	1.6	1.5	1.4	1.3

* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.
* Oversized holes acceptable but volume of adhesive will increase.

G5+ 15 Fluid Ounce Cartridge

Number of Anchoring Installations Per Cartridge Using Threaded Rod with G5+ Adhesive in Solid Concrete

REBAR In. (mm)	DRILL HOLE DIA. INCHES	EMBEDMENT DEPTH IN INCHES (mm)														
		1 (25.4)	2 (50.8)	3 (76.2)	4 (101.6)	5 (127.0)	6 (152.4)	7 (177.8)	8 (203.2)	9 (228.6)	10 (254.0)	11 (279.4)	12 (304.8)	13 (330.2)	14 (355.6)	15 (381.0)
3/8 (9.5)	7/16	304.5	152.2	101.5	76.1	60.9	50.7	43.5	38.1	33.8	30.4	27.7	25.4	23.4	21.7	20.3
1/2 (12.7)	9/16	184.2	92.1	61.4	46.0	36.8	30.7	26.3	23.0	20.5	18.4	16.7	15.3	14.2	13.2	12.3
5/8 (15.9)	3/4	103.6	51.8	34.5	25.9	20.7	17.3	14.8	12.9	11.5	10.4	9.4	8.6	8.0	7.4	6.9
3/4 (19.1)	7/8	76.1	38.1	25.4	19.0	15.2	12.7	10.9	9.5	8.5	7.6	6.9	6.3	5.9	5.4	5.1
7/8 (22.2)	1	58.3	29.1	19.4	14.6	11.7	9.7	8.3	7.3	6.5	5.8	5.3	4.9	4.5	4.2	3.9
1 (25.4)	1-1/8	46.0	23.0	15.3	11.5	9.2	7.7	6.6	5.8	5.1	4.6	4.2	3.8	3.5	3.3	3.1
1-1/4 (31.8)	1-3/8	30.8	15.4	10.3	7.7	6.2	5.1	4.4	3.9	3.4	3.1	2.8	2.6	2.4	2.2	2.1

* The number of anchoring installations is based upon calculations of hole volumes using ANSI tolerance carbide tipped drill bits, the nominal areas of the reinforcing bars and the stress areas of the threaded rods. These estimates do not account for waste.
* Oversized holes acceptable but volume of adhesive will increase.

ALLOWABLE STRESS DESIGN

G5+ *Average Ultimate Tension and Shear Loads^{1,2,3}* **Everyday Epoxy** *for Threaded Rod Installed in Solid Concrete*

THREADED ROD DIAM. (in.)	EMBEDMENT IN CONCRETE (in.)	MAX. CLAMPING FORCE AFTER PROPER CURE ft./lbs.	ULTIMATE TENSION (lbs.)			ULTIMATE SHEAR (lbs.)
			3,000 PSI CONCRETE	5,000 PSI CONCRETE	7,000 PSI CONCRETE	3,000 PSI CONCRETE & HIGHER
3/8	1-1/2	9	2,685	2,980	3,275	N/A
	3-3/8		9,890	10,385	10,800	4,420
1/2	2	16	5,160	5,835	6,535	N/A
	4-1/2		17,600	20,245	23,075	9,705
5/8	2-1/2	47	7,280	8,450	9,630	N/A
	5-5/8		22,910	26,575	30,295	16,470
3/4	3	70	10,225	11,450	12,710	N/A
	6-3/4		32,980	37,925	42,855	23,145
7/8	3-1/2	90	12,750	14,665	16,570	N/A
	7-7/8		48,350	58,020	70,200	27,300
1	4	110	15,070	17,335	19,585	N/A
	9		54,780	65,185	75,615	34,665
1-1/4	5	370	31,225	33,095	34,750	N/A
	11-1/4		73,920	86,490	98,600	58,570
1-1/2	13	450	85,920	100,095	114,275	N/A

1. Allowable working loads for the single installations under static loading should not exceed 25% capacity of the ultimate load (to get the allowable load of the anchor rod, divide the ultimate load by 4).

2. Performance values are based on the use of high strength threaded rod (ASTM A193 Gr. B7). The use of lower strength rods will result in lower ultimate tension and shear loads.

3. Linear interpolation may be used for intermediate spacing and edge distances.

ALLOWABLE STRESS DESIGN

G5+ *Allowable Tension Loads¹ for Threaded Rod* **Everyday Epoxy** *Installed in Solid Concrete*

THREADED ROD DIA (in.)	EMBEDMENT IN CONCRETE (in.)	ALLOWABLE TENSION LOAD BASED ON CONCRETE STRENGTH (lbs.)			ALLOWABLE TENSION LOAD BASED ON STEEL STRENGTH (lbs.)		
		3,000 psi concrete	5,000 psi concrete	7,000 psi concrete	ASTM A307	ASTM A193 GRADE B7	ASTM F593 AISI 304 SS
3/8	1-1/2	670	745	815	2,080	4,340	3,995
	3-3/8	2,470	2,595	2,700	2,080	4,340	3,995
1/2	2	1,290	1,455	1,630	3,730	7,780	7,155
	4-1/2	4,400	5,060	5,765	3,730	7,780	7,155
5/8	2-1/2	1,820	2,110	2,405	5,870	12,230	11,250
	5-5/8	5,725	6,640	7,570	5,870	12,230	11,250
3/4	3	2,555	2,860	3,175	8,490	17,690	14,860
	6-3/4	8,245	9,480	10,710	8,490	17,690	14,860
7/8	3-1/2	3,185	3,665	4,140	11,600	25,510	20,835
	7-7/8	12,085	14,505	17,550	11,600	25,510	20,835
1	4	3,765	4,330	4,895	15,180	31,620	26,560
	9	13,695	16,295	18,900	15,180	31,620	26,560
1-1/4	5	7,805	8,270	8,685	23,800	49,580	34,670
	11-1/4	18,480	21,620	24,650	23,800	49,580	34,670
1-1/2	13	21,480	25,025	28,570	33,720	70,250	47,770

1. Use lower value of either bond or steel strength for allowable tension load.

ALLOWABLE STRENGTH DESIGN

G5+ **Allowable Shear Loads¹ for Threaded Rod** Everyday Epoxy **Installed in Solid Concrete**

THREADED ROD DIA. (in.):	EMBEDMENT IN CONCRETE (in.)	ALLOWABLE SHEAR LOAD BASED ON CONCRETE STRENGTH (lbs.)		ALLOWABLE SHEAR LOAD BASED ON STEEL STRENGTH (lbs.)		
		3,000 psi concrete & higher		ASTM A307	ASTM A193 GRADE B7	ASTM F593 AISI 304 SS
3/8	1-1/2	N/A		1,040	2,170	1,995
	3-3/8	1,105		1,040	2,170	1,995
1/2	2	N/A		1,870	3,895	3,585
	4-1/2	2,455		1,870	3,895	3,585
5/8	2-1/2	N/A		2,940	6,125	5,635
	5-5/8	4,115		2,940	6,125	5,635
3/4	3	N/A		4,250	8,855	7,440
	6-3/4	5,915		4,250	8,855	7,440
7/8	3-1/2	N/A		5,800	12,760	10,730
	7-7/8	7,065		5,800	12,760	10,730
1	4	N/A		7,590	15,810	13,285
	9	8,570		7,590	15,810	13,285
1-1/4	5	N/A		11,900	24,790	18,840
	11-1/4	14,805		11,900	24,790	18,840

1. Use lower value of either concrete or steel strength for allowable shear load.

ALLOWABLE STRENGTH DESIGN

G5+ **Average Ultimate Tension Loads^{1,2,3} for Reinforcing Bar** Everyday Epoxy **Installed In Solid Concrete**

REINFORCING BAR	EMBEDMENT IN CONCRETE (in.)	ULTIMATE TENSION (lbs.)			ULTIMATE YIELD STRENGTH GRADE 60 REBAR (lbs.)	ULTIMATE TENSILE STRENGTH GRADE 60 REBAR (lbs.)
		3,000 psi concrete	5,000 psi concrete	7,000 psi concrete		
#3	1-1/2	2,685	3,165	3,640	6,600	9,900
	3-3/8	9,960	10,460	10,950		
#4	2	5,465	4,770	5,365	12,000	18,000
	4-1/2	17,600	20,420	23,075		
#5	2-1/2	7,710	9,020	10,240	18,600	27,900
	5-5/8	20,295	23,745	27,070		
#6	3	10,825	12,230	13,455	26,400	39,600
	6-3/4	32,980	38,405	43,855		
#7	3-1/2	13,800	15,875	18,015	36,000	54,000
	7-7/8	51,125	63,090	76,140		
#8	4	17,535	20,170	22,830	47,400	71,100
	9	61,565	73,100	85,015		
#10	5	29,835	31,295	33,205	79,200	114,300
	11-1/4	67,695	79,340	89,655		
#11	13	85,920	100,095	114,275	93,600	140,400

1. Allowable working loads for the single installations under static loading should not exceed 25% capacity of the ultimate load (to get the allowable load of the anchor rod, divide the ultimate load by 4).

2. Performance values are based on the use of ASTM A615 Grade 60 reinforcing bar. The use of lower strength rebar will result in lower ultimate tension loads.

3. SHEAR DATA: Provided the distance from the rebar to the edge of the concrete member exceeds 1.25 times the embedment depth of the rebar, calculate the ultimate shear load for the rebar anchorage as 60% of the ultimate tensile strength of the rebar.

ALLOWABLE STRENGTH DESIGN

G5+ **Adhesive Edge/Spacing Distance Load Factor Summary for** Everyday Epoxy **Installation of Threaded Rod and Reinforcing Bar^{1,2}**

LOAD FACTOR	DISTANCE FROM EDGE OF CONCRETE	LOAD FACTOR	DISTANCE FROM ANOTHER ANCHOR
Critical Edge Distance—Tension		Critical Spacing—Tension	
100% Tension Load	→ 1.25 x Anchor Embedment (or greater)	100% Tension Load	→ 1.50 x Anchor Embedment (or greater)
Minimum Edge Distance—Tension		Minimum Spacing—Tension	
70% Tension Load	→ 0.50 x Anchor Embedment	75% Tension Load	→ 0.75 x Anchor Embedment
Critical Edge Distance—Shear		Critical Spacing—Shear	
100% Shear Load	→ 1.25 x Anchor Embedment (or greater)	100% Shear Load	→ 1.50 x Anchor Embedment (or greater)
Minimum Edge Distance—Shear		Minimum Spacing—Shear	
30% Shear Load	→ 0.30 x Anchor Embedment	30% Shear Load	→ 0.50 x Anchor Embedment

1. Use linear interpolation for load factors at edge distances or spacing distances between critical and minimum.

2. Anchors are affected by multiple combination of spacing and/or edge distance loading and direction of the loading. Use the product of tension and shear loading factors in design.

STRENGTH DESIGN

G5+ **Tension (lbf) and Shear (lbf) in Uncracked Concrete with Everyday Epoxy ASTM A193 B7 Threaded Rod^{1,2,3,4}**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf) 2500-8000 psi
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	
3/8	3 3/8	3,910	3,910	3,910	3,910	3,910	3,910	3,775
	4 1/2	5,215	5,215	5,215	5,215	5,215	5,215	3,775
	7 1/2	7,265	7,265	7,265	7,265	7,265	7,265	3,775
1/2	4 1/2	6,705	6,705	6,705	6,705	6,705	6,705	6,915
	6	8,940	8,940	8,940	8,940	8,940	8,940	6,915
	10	13,305	13,305	13,305	13,305	13,305	13,305	6,915
5/8	5 5/8	10,080	10,080	10,080	10,080	10,080	10,080	11,015
	7 1/2	13,445	13,445	13,445	13,445	13,445	13,445	11,015
	12 1/2	21,185	21,185	21,185	21,185	21,185	21,185	11,015
3/4	6 3/4	13,675	13,950	13,950	13,950	13,950	13,950	16,305
	9	18,600	18,600	18,600	18,600	18,600	18,600	16,305
	15	31,000	31,000	31,000	31,000	31,000	31,000	16,305
7/8	7 7/8	17,235	18,275	18,275	18,275	18,275	18,275	22,505
	10 1/2	24,365	24,365	24,365	24,365	24,365	24,365	22,505
	17 1/2	40,610	40,610	40,610	40,610	40,610	40,610	22,505
1	9	21,060	22,935	22,935	22,935	22,935	22,935	29,525
	12	30,580	30,580	30,580	30,580	30,580	30,580	29,525
	20	50,970	50,970	50,970	50,970	50,970	50,970	29,525
1 1/4	11 1/4	29,430	32,240	35,475	35,475	35,475	35,475	47,240
	15	45,310	47,300	47,300	47,300	47,300	47,300	47,240
	25	78,830	78,830	78,830	78,830	78,830	78,830	47,240

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TruSpec anchorage design software at www.ITW-redhead.com)
2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.
3. Bond strengths are for dry, uncracked concrete with periodic inspection
4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).

STRENGTH DESIGN

G5+ **Tension (lbf) and Shear (lbf) in 4,000 psi Uncracked Concrete by Threaded Rod Type^{1,2,3,4}**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	ASTM A193 B7 THREAD ROD		CARBON STEEL A36		STAINLESS STEEL F593	
		TENSION (lbf)	SHEAR (lbf)	TENSION (lbf)	SHEAR (lbf)	TENSION (lbf)	SHEAR (lbf)
3/8	3 3/8	3,910	3,777	3,375	1,755	3,910	2,280
	4 1/2	5,215	3,777	3,375	1,755	4,785	2,280
	7 1/2	7,265	3,777	3,375	1,755	4,785	2,280
1/2	4 1/2	6,705	6,916	6,170	3,210	6,705	4,040
	6	8,940	6,916	6,170	3,210	8,760	4,040
	10	13,305	6,916	6,170	3,210	8,760	4,040
5/8	5 5/8	10,080	11,018	9,830	5,115	10,080	6,440
	7 1/2	13,445	11,018	9,830	5,115	13,445	6,440
	12 1/2	21,185	11,018	9,830	5,115	13,955	6,440
3/4	6 3/4	13,950	16,309	13,950	7,565	13,950	7,610
	9	18,600	16,309	14,550	7,565	16,500	7,610
	15	31,000	16,309	14,550	7,565	16,500	7,610
7/8	7 7/8	18,275	22,510	18,275	10,445	18,275	10,530
	10 1/2	24,365	22,510	20,085	10,445	22,820	10,530
	17 1/2	40,610	22,510	20,085	10,445	22,820	10,530
1	9	22,935	29,530	22,935	13,700	22,935	13,815
	12	30,580	29,530	26,345	13,700	29,935	13,815
	20	50,970	29,530	26,345	13,700	29,935	13,815
1 1/4	11 1/4	35,475	47,242	35,475	21,920	35,475	22,090
	15	47,300	47,242	42,155	21,920	47,300	22,090
	25	78,830	47,242	42,155	21,920	47,865	22,090

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TruSpec anchorage design software at www.ITW-redhead.com)
2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.
3. Bond strengths are for dry, uncracked concrete with periodic inspection
4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).

STRENGTH DESIGN

G5+ Tension (lbf) and Shear (lbf) in Cracked Concrete with Everyday Epoxy **ASTM A193 B7 Threaded Rod^{1,2,3,4}**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf) 2500-8000 psi
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	
3/8	3 3/8	1,865	1,865	1,865	1,865	1,865	1,865	2,615
	4 1/2	2,490	2,490	2,490	2,490	2,490	2,490	3,490
	7 1/2	4,155	4,155	4,155	4,155	4,155	4,155	3,775
1/2	4 1/2	3,185	3,185	3,185	3,185	3,185	3,185	4,460
	6	4,250	4,250	4,250	4,250	4,250	4,250	5,950
	10	7,080	7,080	7,080	7,080	7,080	7,080	6,915
5/8	5 5/8	4,765	4,765	4,765	4,765	4,765	4,765	6,675
	7 1/2	6,355	6,355	6,355	6,355	6,355	6,355	8,900
	12 1/2	10,595	10,595	10,595	10,595	10,595	10,595	11,015
3/4	6 3/4	6,645	6,645	6,645	6,645	6,645	6,645	9,305
	9	8,860	8,860	8,860	8,860	8,860	8,860	12,405
	15	14,770	14,770	14,770	14,770	14,770	14,770	16,305
7/8	7 7/8	8,750	8,750	8,750	8,750	8,750	8,750	12,250
	10 1/2	11,665	11,665	11,665	11,665	11,665	11,665	16,335
	17 1/2	19,445	19,445	19,445	19,445	19,445	19,445	22,505
1	9	11,040	11,040	11,040	11,040	11,040	11,040	15,455
	12	14,720	14,720	14,720	14,720	14,720	14,720	20,610
	20	24,535	24,535	24,535	24,535	24,535	24,535	29,525
1 1/4	11 1/4	16,520	16,520	16,520	16,520	16,520	16,520	23,130
	15	22,030	22,030	22,030	22,030	22,030	22,030	30,840
	25	36,715	36,715	36,715	36,715	36,715	36,715	47,240

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TruSpec anchorage design software at www.ITW-redhead.com)
2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.
3. Bond strengths are for dry, cracked concrete with periodic inspection
4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).

STRENGTH DESIGN

G5+ Tension (lbf) and Shear (lbf) in 4,000 psi Cracked Concrete by Everyday Epoxy **Threaded Rod Type^{1,2,3,4}**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	ASTM A193 B7 THREAD ROD		STAINLESS STEEL F593		CARBON STEEL A36	
		TENSION (lbf)	SHEAR (lbf)	TENSION (lbf)	SHEAR (lbf)	TENSION (lbf)	SHEAR (lbf)
3/8	3 3/8	1,865	2,615	1,865	1,755	1,865	2,280
	4 1/2	2,490	3,490	2,490	1,755	2,490	2,280
	7 1/2	4,155	3,775	3,375	1,755	4,155	2,280
1/2	4 1/2	3,185	4,460	3,185	3,210	3,185	4,040
	6	4,250	5,950	4,250	3,210	4,250	4,040
	10	7,080	6,915	6,170	3,210	7,080	4,040
5/8	5 5/8	4,765	6,675	4,765	5,115	4,765	6,440
	7 1/2	6,355	8,900	6,355	5,115	6,355	6,440
	12 1/2	10,595	11,015	9,830	5,115	10,595	6,440
3/4	6 3/4	6,645	9,305	6,645	7,565	6,645	7,610
	9	8,860	12,405	8,860	7,565	8,860	7,610
	15	14,770	16,305	14,550	7,565	14,770	7,610
7/8	7 7/8	8,750	12,250	8,750	10,445	8,750	10,530
	10 1/2	11,665	16,335	11,665	10,445	11,665	10,530
	17 1/2	19,445	22,505	19,445	10,445	19,445	10,530
1	9	11,040	15,455	11,040	13,700	11,040	13,815
	12	14,720	20,610	14,720	13,700	14,720	13,815
	20	24,535	29,525	24,535	13,700	24,535	13,815
1 1/4	11 1/4	16,520	23,130	16,520	21,920	16,520	22,090
	15	22,030	30,840	22,030	21,920	22,030	22,090
	25	36,715	47,240	36,715	21,920	36,715	22,090

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TruSpec anchorage design software at www.ITW-redhead.com)
2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.
3. Bond strengths are for dry, cracked concrete with periodic inspection
4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).

STRENGTH DESIGN

G5+ Tension (lbf) and Shear (lbf) in Uncracked Concrete with Everyday Epoxy **ASTM A615 Grade 60 Reinforcing Bar^{1,2,3,4}**

ANCHOR DIAMETER # Rebar	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf) 2500-8000 psi
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	
#3	3 3/8	3,910	3,910	3,910	3,910	3,910	3,910	3,560
	4 1/2	5,215	5,215	5,215	5,215	5,215	5,215	3,560
	7 1/2	4,835	6,435	6,435	6,435	6,435	6,435	3,560
#4	4 1/2	6,705	6,705	6,705	6,705	6,705	6,705	6,480
	6	8,940	8,940	8,940	8,940	8,940	8,940	6,480
	10	11,700	11,700	11,700	11,700	11,700	11,700	6,480
#5	5 5/8	10,080	10,080	10,080	10,080	10,080	10,080	10,040
	7 1/2	13,445	13,445	13,445	13,445	13,445	13,445	10,040
	12 1/2	18,135	18,135	18,135	18,135	18,135	18,135	10,040
#6	6 3/4	13,675	13,950	13,950	13,950	13,950	13,950	14,255
	9	18,600	18,600	18,600	18,600	18,600	18,600	14,255
	15	25,740	25,740	25,740	25,740	25,740	25,740	14,255
#7	7 7/8	17,235	18,275	18,275	18,275	18,275	18,275	19,440
	10 1/2	24,365	24,365	24,365	24,365	24,365	24,365	19,440
	17 1/2	35,100	35,100	35,100	35,100	35,100	35,100	19,440
#8	9	21,060	22,935	22,935	22,935	22,935	22,935	25,595
	12	30,580	30,580	30,580	30,580	30,580	30,580	25,595
	20	46,215	46,215	46,215	46,215	46,215	46,215	25,595
#9	10 1/8	25,130	27,525	29,030	29,030	29,030	29,030	32,400
	13 1/2	38,690	38,705	38,705	38,705	38,705	38,705	32,400
	22 1/2	58,500	58,500	58,500	58,500	58,500	58,500	32,400
#10	11 1/4	29,430	32,240	35,475	35,475	35,475	35,475	41,145
	15	45,310	47,300	47,300	47,300	47,300	47,300	41,145
	25	74,295	74,295	74,295	74,295	74,295	74,295	41,145

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TriuSpec anchorage design software at www.ITW-redhead.com)
2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.
3. Bond strengths are for dry, uncracked concrete with periodic inspection
4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).

STRENGTH DESIGN

G5+
Everyday Epoxy

Tension (lbf) and Shear (lbf) in Cracked Concrete with ASTM A615 Grade 60 Reinforcing Bar^{1,2,3,4}

ANCHOR DIAMETER # Rebar	EMBEDMENT DEPTH (in.)	TENSION (lbf)					SHEAR (lbf) 2500-8000 psi
		2500 psi	3000 psi	4000 psi	5000 psi	6000-8000 psi	
#3	3 3/8	1,865	1,865	1,865	1,865	1,865	2,615
	4 1/2	2,490	2,490	2,490	2,490	2,490	3,490
	7 1/2	4,155	4,155	4,155	4,155	4,155	3,560
#4	4 1/2	3,185	3,185	3,185	3,185	3,185	4,460
	6	4,250	4,250	4,250	4,250	4,250	5,950
	10	7,080	7,080	7,080	7,080	7,080	6,480
#5	5 5/8	4,765	4,765	4,765	4,765	4,765	6,675
	7 1/2	6,355	6,355	6,355	6,355	6,355	8,900
	12 1/2	10,595	10,595	10,595	10,595	10,595	10,040
#6	6 3/4	6,645	6,645	6,645	6,645	6,645	9,305
	9	8,860	8,860	8,860	8,860	8,860	12,405
	15	14,770	14,770	14,770	14,770	14,770	14,255
#7	7 7/8	8,750	8,750	8,750	8,750	8,750	12,250
	10 1/2	11,665	11,665	11,665	11,665	11,665	16,335
	17 1/2	19,445	19,445	19,445	19,445	19,445	19,440
#8	9	11,040	11,040	11,040	11,040	11,040	15,455
	12	14,720	14,720	14,720	14,720	14,720	20,610
	20	24,535	24,535	24,535	24,535	24,535	25,595
#9	10 1/8	13,970	13,970	13,970	13,970	13,970	19,560
	13 1/2	18,630	18,630	18,630	18,630	18,630	26,080
	22 1/2	31,050	31,050	31,050	31,050	31,050	32,400
#10	11 3/4	16,520	16,520	16,520	16,520	16,520	23,130
	15	22,030	22,030	22,030	22,030	22,030	30,840
	25	36,715	36,715	36,715	36,715	36,715	41,145

1. Tabulated values are for estimation purposes only and should not be used for design (please use our free TruSpec anchorage design software at www.ITW-redhead.com)

2. Tabulated values represent strength design per ACI 318 for a single anchor in adequate concrete thickness, not near an edge nor adjacent anchorage, and not for sustained loading.

3. Bond strengths are for dry, cracked concrete with periodic inspection

4. Bond strengths are for Temperature Range A (maximum long term temperature of 110F, maximum short term temperature of 142F).