

G5+

Everyday Epoxy



G5P-15

G5P-30



**MADE IN USA
WITH U.S. AND
GLOBAL MATERIALS**

DESCRIPTION/SUGGESTED SPECIFICATIONS*

Economical, general-purpose adhesive for warm-weather anchoring applications

Red Head G5+ is a reliable general-purpose adhesive that is backed by many DOT approvals and ICC-ES listings for cracked, uncracked concrete, and seismic conditions. The new G5+ is also Buy American compliant and helps to support jobs here in the U.S.

- At least 50% stronger than the old Epcon G5 for threaded rod in cracked concrete and with seismic conditions
- Cures 3x faster than the old Epcon G5 formula
- Now works down to 40F, and all the way up to 110F
- ICC-ES listing for concrete (uncracked and cracked concrete, and all seismic conditions)
- At least 10 minutes of nozzle life (10 mins. at 110°F)
- Made In USA with U.S. and Global Components
- Can be used in oversized and core drilled holes
- 24-month shelf life
- NSF/ANSI 61
- Store between 50°F and 95°F in a cool, dry place

ADVANTAGES

- Get more pull out strength with Red Head G5+ vs. other general-purpose adhesives (per comparison of data in ICC-ES reports)
- Continue to work on chilly mornings, with curing abilities now down to 40°F
- ICC-ES listing for all wet conditions (including underwater)
- More time to set anchors in warm weather with at least 10 minutes of nozzle life
- More safe and durable on job sites than sausage packs
- Help support US jobs with G5+

Cure and Gel Times

BASE MATERIAL (F°/C°)	GEL TIME ²	FULL CURE TIME
110°/ 43°	10 minutes	4 hours
90°/ 32°	14 minutes	6 hours
70°/ 21°	16 minutes	8 hours
50°/ 10°	30 minutes	30 hours
40°/ 4.4°	46 minutes	48 hours

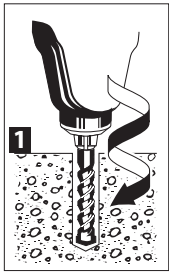
APPROVALS/LISTINGS

- ICC-ES ESR 4138 (Concrete Report)
- 2018, 2015, 2012, 2009, 2006 International Building Code (IBC) Compliant
- Florida Building Code (FBC)
- City of Los Angeles (COLA)
- Extensive Department of Transportation (DOT) Listings
- NSF/ANSI 61 Approval for use in Drinking Water System Components
- ASTM C881, Types I, II, IV, and V, Grade 3, Classes B & C

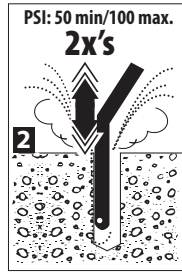
For the most current approvals/listings visit:
www.itwredhead.com

INSTALLATION STEPS for Carbide-Tipped Bits*

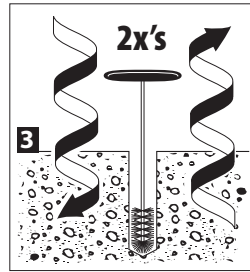
DRILL



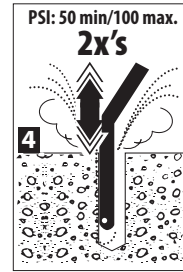
BLOW**



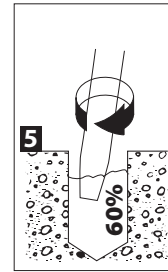
BRUSH



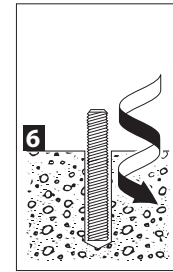
BLOW**



DISPENSE***



INSTALL

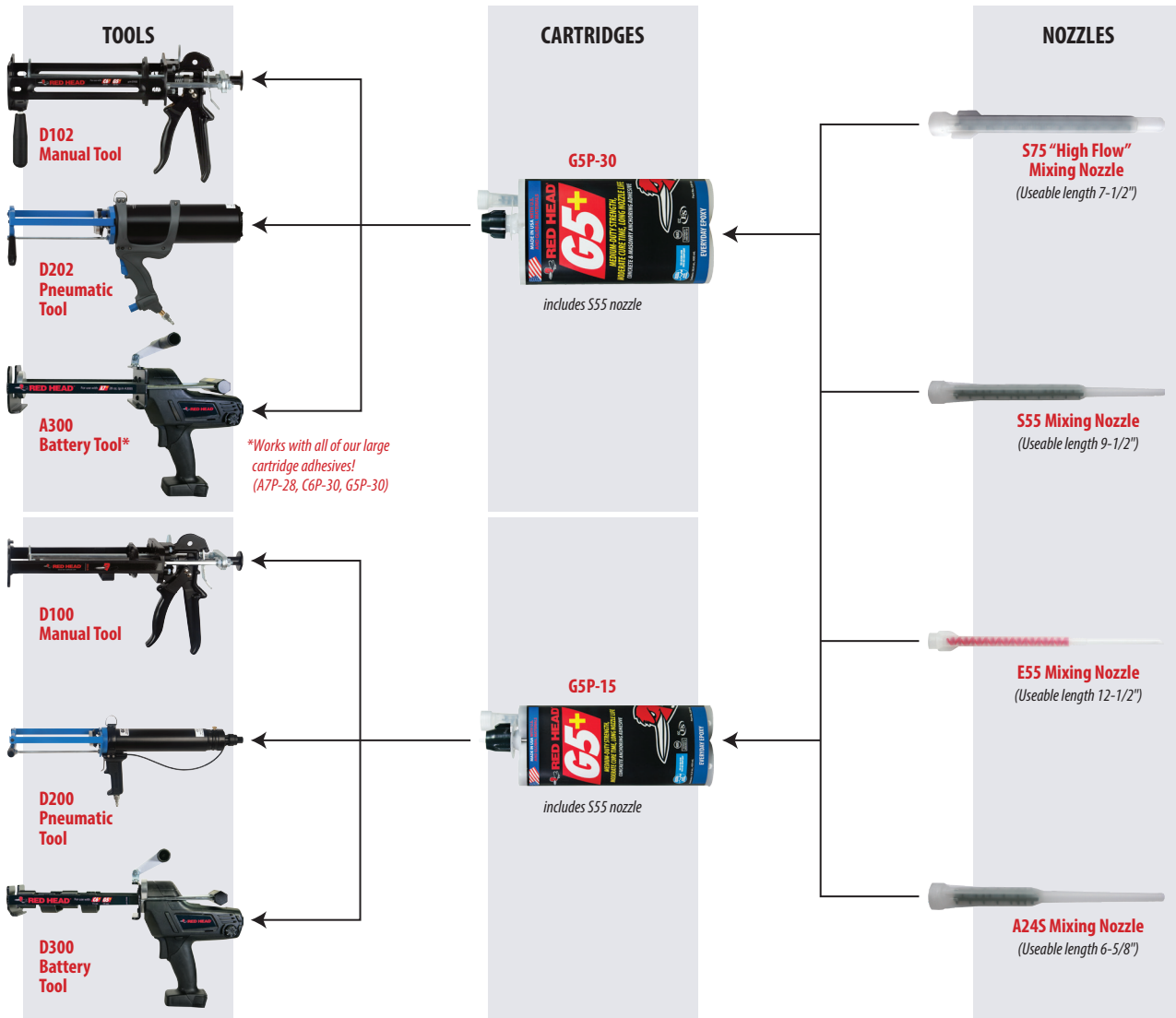


* Damp, submerged and underwater applications require 4x's air, 4x's brushing and 4x's air








** Dust is shown for diagram purposes only. To help mitigate airborne dust and comply with OSHA requirements, we recommend that you either wet the concrete before blowing out the hole, or use a drill dust extractor with your pneumatic air nozzle. We recommend vacuum assisted dust extractors like Milwaukee part numbers 5261-DE or 5317-DE. Call our technical services at (800) 848-5611 for more information.

*** Dispense mixed adhesive outside of hole until uniform color is achieved.

Selection Guide



G5P-15 fl. oz. Ordering Information

PART NUMBER	DESCRIPTION	BOX QTY	PART NUMBER	DESCRIPTION	BOX QTY
 G5P-15	15.2 Fluid Ounce Red Head C6+ Cartridge with S55 Nozzle	4	 D200	Ergonomic Pneumatic Dispenser for C6P-15 and G5P-15 cartridges	1
 D100	Heavy-Duty 34:1 thrust ratio hand dispenser for C6P-15 and G5P-15 cartridges	1	 D300	Cordless Battery Dispenser for C6P-15 and G5P-15 Cartridge. Includes one battery and charger. Works with all Milwaukee® M18™ batteries	1
 S55	Standard Mixing Nozzle, fits holes for 3/8" diameter anchors and larger. 3-1/2" inch useable length for 3/8" and 1/2" anchors, 9-1/2" useable length for 5/8" anchors and above	24	 S75	High Flow Mixing Nozzle, fits holes for 3/4" diameter anchors and larger. 7-1/2" useable length	24
 E55	Long Mixing Nozzle, fits holes for 3/8" diameter anchors and larger. 5-3/4" inch useable length for 3/8" and 1/2" anchors, 12-1/2" useable length for 5/8" anchors and above	24			

*See page 65 for nozzle extension tubes and other accessories

ESTIMATING TABLES

G5P-30








15.2 Fluid Ounce Cartridge

**Number of Anchoring Installations Per Cartridge*
using Threaded Rod or Rebar with G5+ in Solid Concrete**

ANCHOR DIA. in.	# rebar	DRILL HOLE DIA. (in.)	EMBEDMENT DEPTH IN INCHES														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3/8	#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
1/2		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
	#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
5/8	#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
3/4	#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
7/8	#7	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	#8	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
	#9	1-1/4	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
1-1/4		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
	#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
1-1/2"		1-5/8"	22.1	11.0	7.4	5.5	4.4	3.7	3.2	2.8	2.5	2.2	2.0	1.8	1.7	1.6	1.5
	#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 estimated number of anchoring installations per cartridge is based upon calculations of filling the hole 60% full of adhesive per the recommendation in our installation instructions. Hole volumes are calculated using ANSI tolerance carbide tipped drill bits. These estimates do not account for any waste.

G5P-30.4 fl. oz. Ordering Information

PART NUMBER	DESCRIPTION	BOX QTY	PART NUMBER	DESCRIPTION	BOX QTY
 G5P-30	30.4 Fluid Ounce Red Head C6+ Cartridge with S55 Nozzle	4	 D202	Pneumatic Dispenser for C6P-30 and G5P-30 cartridges	1
 D102	Heavy-Duty 34:1 thrust ratio hand dispenser for C6P-30 and G5P-30 cartridges	1	 A300	Cordless Battery Dispenser for A7P-28, C6P-30 and G5P-30 Cartridge. Includes one battery and charger. Works with all Milwaukee® M18™ batteries	1
 S55	Standard Mixing Nozzle, fits holes for 3/8" diameter anchors and larger. 3-1/2" inch useable length for 3/8" and 1/2" anchors, 9-1/2" useable length for 5/8" anchors and above	24	 S75	High Flow Mixing Nozzle, fits holes for 3/4" diameter anchors and larger. 7-1/2" useable length	24
 E55	Long Mixing Nozzle, fits holes for 3/8" diameter anchors and larger. 5-3/4" inch useable length for 3/8" and 1/2" anchors, 12-1/2" useable length for 5/8" anchors and above	24			

*See page 65 for nozzle extension tubes and other accessories

ESTIMATING TABLES

G5P-30

30.4 Fluid Ounce Cartridge

Number of Anchoring Installations Per Cartridge* using Threaded Rod or Rebar with G5+ in Solid Concrete

ANCHOR DIA.		DRILL HOLE DIA. (in.)	EMBEDMENT DEPTH IN INCHES														
in.	# rebar		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3/8	#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
1/2	#4	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	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
5/8	#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
3/4	#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
7/8	#7	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	#8	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	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
1-1/4	#10	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
		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
1-1/2"	#11	1-5/8"	44.1	22.1	14.7	11.0	8.8	7.4	6.3	5.5	4.9	4.4	4.0	3.7	3.4	3.2	2.9
		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 estimated number of anchoring installations per cartridge is based upon calculations of filling the hole 60% full of adhesive per the recommendation in our installation instructions. Hole volumes are calculated using ANSI tolerance carbide tipped drill bits. These estimates do not account for any waste.



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PERFORMANCE TABLE

G5+
Everyday Epoxy

Threaded Rod Ultimate Tension and Shear Loads^{1,2,3}
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 calculate the Allowable Load of the anchor, 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.

PERFORMANCE TABLE

G5+
Everyday Epoxy

Threaded Rod Allowable Tension Loads¹
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.

PERFORMANCE TABLE

G5+
Everyday Epoxy

Threaded Rod Allowable Shear Loads¹
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

PERFORMANCE TABLE

G5+
Everyday Epoxy

Rebar Allowable Tension Loads^{1,2,3}
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.

PERFORMANCE REFERENCE TABLE

G5+
Everyday Epoxy

Threaded Rod and Rebar Installation in Solid Concrete
Edge/Spacing Distance Load Factor Summary^{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.



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STRENGTH DESIGN TABLE

G5+
Everyday Epoxy

**Threaded Rod Tension (lbf) and Shear (lbf) Loads
in Uncracked Concrete^{1,2,3,4} ASTM A193 B7**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf)
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	2500-8000 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.itwredhead.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 TABLE

G5+
Everyday Epoxy

**Threaded Rod Tension (lbf) and Shear (lbf) Loads
in 4,000 psi Uncracked Concrete^{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.itwredhead.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 TABLE

G5+
Everyday Epoxy

**Threaded Rod Tension (lbf) and Shear (lbf) Loads
in Cracked Concrete^{1,2,3,4} ASTM A193 B7**

ANCHOR DIAMETER (in.)	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf)
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	2500-8000 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.itwredhead.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 TABLE

G5+
Everyday Epoxy

**Threaded Rod Tension (lbf) and Shear (lbf) Loads
in 4,000 psi Cracked Concrete^{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

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



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STRENGTH DESIGN TABLE

G5+
Everyday Epoxy

**Rebar Tension (lbf) and Shear (lbf) Loads
in Uncracked Concrete^{1,2,3,4} ASTM A615 Grade 60**

ANCHOR DIAMETER # Rebar	EMBEDMENT DEPTH (in.)	TENSION (lbf)						SHEAR (lbf)
		2500 psi	3000 psi	4000 psi	5000 psi	6000 psi	7000-8000 psi	2500-8000 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

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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 TABLE

G5+
Everyday Epoxy

**Rebar Tension (lbf) and Shear (lbf) Loads
in Cracked Concrete^{1,2,3,4} ASTM A615 Grade 60**

ANCHOR DIAMETER # Rebar	EMBEDMENT DEPTH (in.)	TENSION (lbf)					SHEAR (lbf)
		2500 psi	3000 psi	4000 psi	5000 psi	6000-8000 psi	2500-8000 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	11-1/4	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

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