ALLFASTENERS.COM

ADHESIVE ANCHOR RODS

ZINC, GALVANIZED & STAINLESS STEEL

CERTIFICATION | TECHNICAL DATA

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ADHESIVE ANCHOR RODS

ZINC, GALVANIZED & STAINLESS STEEL

Adhesive Anchor Rods are fully threaded anchor rod for use with injectable adhesives/epoxy. Includes finish hex nut and flat washer. Eliminates field cutting or trimming with exact lengths.

Can be made of A307 low carbon steel with zinc plated & hot dip galvanized finishes, or made of 316 stainless steel

KEY BENEFITS

- **Zinc:** Manufactured from low carbon steel
- **Hot Dip Galvanized:** HDG is a thick zinc coating offering more corrosion resistnace
- **Hot Dip Galvanized:** Preferable for appllications where exposed to the elements
- **Hot Dip Galvanized:** Use with over tapped galvanized nuts
- **316 Stainless Steel:** Has molybdenum added which is an alloy drastically enhancing corrosion resistance, especially for more saline or chloride exposed environments. Often used in marine applications

MATERIAL SPECIFICATIONS

The ASTM A307 specification covers carbon steel bolts and studs ranging from 1/4" through 4" diameter. This is your everyday, run of the mill bolt specification often manufactured using A36 round bar. There are three grades: A, B, and C*, which denote tensile strength, configuration, and application. Refer to the Mechanical Properties Chart for the subtle strength differences within each grade.

TABLE 1: MATERIAL GRADES

GRADE A	Headed bolts, threaded rods and bent bolts intended for general applications.
GRADE B	Heavy hex bolts and studs intended for flanged joints in piping systems with cast iron flanges.
GRADE C*	Nonheaded anchor bolts, either bent or straight, intended for structural anchorage purposes. The end of the grade C anchor bolt intended to project from the concrete will be painted green for identification purposes. Permanent marking is a supplemental requirement. *As of August 2007, Grade C has been replaced by specification F1554 Grade 36. We will continue supplying grade C, if required for the project.

TECHNICAL DATA - ZINC & HOT DIP GALVANIZED

TABLE 2: MECHANICAL PROPERTIES OF ADHESIVE ANCHOR RODS ZINC & HOT DIP GALVANIZED

GRADE	TENSILE ksi	MIN. YIELD ksi	ELONGATION % MIN.
A	60 min	–	18
B	60 - 100	–	18
C*	58 - 80	36	23

TABLE 3: CHEMICAL PROPERTIES OF ADHESIVE ANCHOR RODS ZINC & HOT DIP GALVANIZED

ELEMENT	GRADE A	GRADE B
Carbon, Max	0.29%	0.29%
Manganese, Max	1.20%	1.20%
Phosphorus, Max	0.04%	0.04%
Sulfur, Max	0.15%	0.15%

TECHNICAL DATA - ZINC & HOT DIP GALVANIZED

TABLE 4: PERFORMANCE DATA OF ADHESIVE ANCHOR RODS ZINC & HOT DIP GALVANIZED

SIZE	WGT / FT (lbs.)	MAX REC LOAD (lbs)	
		600°F	750°F
1/4 - 20	0.12	240	210
3/8 - 16	0.29	610	540
1/2 - 13	0.54	1130	1010
5/8 - 11	0.83	1810	1610
3/4 - 10	1.25	2710	2420
7/8 - 9	1.70	3770	3360
1 - 8	2.23	4960	4420
1-1/8 - 7	2.81	6230	5560
1-1/4 - 7	3.54	8000	7140
1-1/2 - 6	5.12	11630	10370

TECHNICAL DATA - 316 STAINLESS STEEL

TABLE 5: DIMENSIONAL INSPECTION OF ADHESIVE ANCHOR RODS 316 STAINLESS STEEL

SIZE	CHARACTERISTIC	REQUIREMENTS	RESULTS	S/S	PASS	REJ	SPECIFICAITON[1]	TEST METHOD [DEVICE[2]] (SAMPLE PLAN[3])
1/4-20 x 6ft	Nominal Length (in.)	71.9400 - 72.4800	72.2835 - 72.3228	9	9	0	IFI 136-2002	[MTP] (18)
	Major Diameter (in.)	0.2408 - 0.2489	0.24606 - 0.24724	9	9	0	ASME B1.1-2003	[MCR] (18)
	Functional Dia.	UNC 2A	PASSED	9	9	0	ASME B1.1-2003	[TRG] (18)
	Visual Appearance		PASSED	11	11	0	ASTM F788-13	(18)
3/8-16 x 6ft	Nominal Length (in.)	71.8800 - 72.4800	72.2441 - 72.2835	6	6	0	IFI 136-2002	[MTP] (18)
	Major Diameter (in.)	0.3643 - 0.3737	0.36811 - 0.36929	6	6	0	ASME B1.1-2003	[MCR] (18)
	Functional Dia.	UNC 2A	PASSED	6	6	0	ASME B1.1-2003	[TRG] (18)
	Visual Appearance		PASSED	7	7	0	ASTM F788-13	(18)
1/2-13 x 6ft	Nominal Length (in.)	71.8800 - 72.4800	72.2441 - 72.2835	5	5	0	IFI 136-2002	[MTP] (18)
	Major Diameter (in.)	0.4876 - 0.4985	0.49409 - 0.49528	5	5	0	ASME B1.1-2003	[MCR] (18)
	Functional Dia.	UNC 2A	PASSED	5	5	0	ASME B1.1-2003	[TRG] (18)
	Visual Appearance		PASSED	6	6	0	ASTM F788-13	(18)
5/8-11 x 6ft	Nominal Length (in.)	71.8800 - 72.4800	72.2835 - 72.3228	4	4	0	IFI 136-2002	[MTP] (18)
	Major Diameter (in.)	0.6112 - 0.6233	0.61417 - 0.61614	4	4	0	ASME B1.1-2003	[MCR] (18)
	Functional Dia.	UNC 2A	PASSED	4	4	0	ASME B1.1-2003	[TRG] (18)
	Visual Appearance		PASSED	5	5	0	ASTM F788-13	(18)
3/4-10 x 6ft	Nominal Length (in.)	71.8800 - 72.4800	72.2441 - 72.2835	4	4	0	IFI 136-2002	[MTP] (18)
	Major Diameter (in.)	0.7353 - 0.7482	0.74213 - 0.74409	4	4	0	ASME B1.1-2003	[MCR] (18)
	Functional Dia.	UNC 2A	PASSED	4	4	0	ASME B1.1-2003	[TRG] (18)
	Visual Appearance		PASSED	5	5	0	ASTM F788-13	(18)

Notes:

1. Additional explanation: N/A.
2. Device: [Mcr] Micrometer; [Mtm] Material Testing Machine; [Mtp] Measuring Tape; [Rht] Rockwell Hardness Tester; [Trg] Thread Ring Gauge.
3. Sample Plan: (14) ASTM F1470-2012 MECHANICAL TEST (18) ASME B18.18-2017 CATEGORY 2.

TECHNICAL DATA - 316 STAINLESS STEEL

TABLE 6: MECHANICAL PROPERTIES OF ADHESIVE ANCHOR RODS 316 STAINLESS STEEL

SIZE	CHARACTERISTIC	REQUIREMENTS	RESULTS	S/S	PASS	REJ	TEST METHOD [DEVICE[2]] (SAMPLE PLAN[3])
1/4-20 x 6ft	Core Hardness*[4] (HRBW)	MAX 96	95 - 96	9	9	0	ASTM F606/F606M-16 [RHT] (14)
	Tensile Strength (KSI)	MIN 75.0	118.9 - 125.1	3	3	0	ASTM F606/F606M-16 [MTM] (14)
	Yield Strength (0.2% offset) (KSI)	MIN 30.0	86.8 - 87.5	3	3	0	ASTM F606/F606M-16 [MTM] (14)
	Elongation (%)	MIN 30.0	30.6 - 33.5	3	3	0	ASTM F606/F606M-16 (14)
	Reduction of Area (%)	MIN 50.0	50.2 - 53.8	3	3	0	ASTM F606/F606M-16 (14)
3/8-16 x 6ft	Core Hardness*[4] (HRBW)	MAX 96	95 - 96	6	6	0	ASTM F606/F606M-16 [RHT] (14)
	Tensile Strength (KSI)	MIN 75.0	113.4 - 116.8	2	2	0	ASTM F606/F606M-16 [MTM] (14)
	Yield Strength (0.2% offset) (KSI)	MIN 30.0	80.8 - 81.7	2	2	0	ASTM F606/F606M-16 [MTM] (14)
	Elongation (%)	MIN 30.0	30.1 - 33.4	2	2	0	ASTM F606/F606M-16 (14)
	Reduction of Area (%)	MIN 50.0	50.2 - 53.6	2	2	0	ASTM F606/F606M-16 (14)
1/2-13 x 6ft	Core Hardness (HRBW)	MAX 96	95 - 96	5	5	0	ASTM F606/F606M-16 [RHT] (14)
	Tensile Strength (KSI)	MIN 75.0	110.5 - 111.9	2	2	0	ASTM F606/F606M-16 [MTM] (14)
	Yield Strength (0.2% offset) (KSI)	MIN 30.0	77.7 - 78.3	2	2	0	ASTM F606/F606M-16 [MTM] (14)
	Elongation (%)	MIN 30.0	30.4 - 33.5	2	2	0	ASTM F606/F606M-16 (14)
	Reduction of Area (%)	MIN 50.0	50.4 - 53.2	2	2	0	ASTM F606/F606M-16 (14)
5/8-11 x 6ft	Core Hardness (HRBW)	MAX 96	95 - 96	4	4	0	ASTM F606/F606M-16 [RHT] (14)
	Tensile Strength (KSI)	MIN 75.0	108.7 - 113.0	1	1	0	ASTM F606/F606M-16 [MTM] (14)
	Yield Strength (0.2% offset) (KSI)	MIN 30.0	78.4 - 79.1	1	1	0	ASTM F606/F606M-16 [MTM] (14)
	Elongation (%)	MIN 30.0	78.4 - 79.1	1	1	0	ASTM F606/F606M-16 (14)
	Reduction of Area (%)	MIN 50.0	50.2 - 53.6	1	1	0	ASTM F606/F606M-16 (14)
3/4-10 x 6ft	Core Hardness (HRBW)	MAX 96	95 - 96	4	4	0	ASTM F606/F606M-16 [RHT] (14)
	Tensile Strength (KSI)	MIN 75.0	105.8 - 106.7	1	1	0	ASTM F606/F606M-16 [MTM] (14)
	Yield Strength (0.2% offset) (KSI)	MIN 30.0	74.0 - 74.7	1	1	0	ASTM F606/F606M-16 [MTM] (14)
	Elongation (%)	MIN 30.0	30.1 - 33.4	1	1	0	ASTM F606/F606M-16 (14)
	Reduction of Area (%)	MIN 50.0	50.2 - 53.6	1	1	0	ASTM F606/F606M-16 (14)

Notes:
1. Additional explanation: N/A.
2. Device: [Mcr] Micrometer; [Mtm] Material Testing Machine; [Mtp] Measuring Tape; [Rht] Rockwell Hardness Tester; [Trg] Thread Ring Gauge.
3. Sample Plan: (14) ASTM F1470-2012 MECHANICAL TEST (18) ASME B18.18-2017 CATEGORY 2.

TECHNICAL DATA - 316 STAINLESS STEEL

TABLE 7: CHEMICAL COMPOSITION OF ADHESIVE ANCHOR RODS 316 STAINLESS STEEL

SIZE	HEAT NO.	MATERIAL SOURCE	CARBON (C)	SILICONE (Si)	MANGANESE (Mn)	PHOSPHORUS (P)	SULFER (S)	NICKEL (Ni)	CHROMIUM (Cr)	MOLYBDENUM (Mo)	COPPER (Cu)	NITROGEN (N)
			X 100	X 100	X 100	X 1000	X 1000	X 100	X 100	X 100	X 100	X 10000
1/4-20 x 6ft	5C434	Taiwan	4.3	32	117	30	5.4	1004	1626	205	25	305
3/8-16 x 6ft	4Z345	Taiwan	3.6	31	124	29	4.1	1002	1639	204	25	278
1/2-13 x 6ft	5B300	Taiwan	4.0	32	121	25	3.9	1004	1628	204	24	359
5/8-11 x 6ft	5C470	Taiwan	4.8	38	121	24	6.0	1004	1614	202	24	359
3/4-10 x 6ft	5F921	Taiwan	3.9	28	123	29	1.8	1000	1631	202	28	261

ORDERING INFORMATION

TABLE 8: ORDERING INFORMATION OF ADHESIVE ANCHOR RODS ZINC PLATED

PART NUMBER	SIZE	DESCRIPTION	FINISH	QTY/BOX
1SCMZ14400	1/4-20 x 4"	Anchor Rod Assembly w/ Nut & Washer	Zinc Plated	50
1SCMZ38418	3/8-16 x 4-1/8"		Zinc Plated	25
1SCMZ38518	3/8-16 x 5-1/8"		Zinc Plated	25
1SCMZ38638	3/8-16 x 6-3/8"		Zinc Plated	25
1SCMZ12612	1/2-13 x 6-1/2"		Zinc Plated	20
1SCMZ58712	5/8-11 x 7-1/2"		Zinc Plated	10
1SCMZ3410	3/4-10 x 10"		Zinc Plated	5

TABLE 9: ORDERING INFORMATION OF ADHESIVE ANCHOR RODS HOT DIP GALVANIZED

PART NUMBER	SIZE	DESCRIPTION	FINISH	QTY/BOX
1SCMG38418	3/8-16 x 4-1/8"	Anchor Rod Assembly w/ Nut & Washer	Hot Dip Galvanized	25
1SCMG38518	3/8-16 x 5-1/8"		Hot Dip Galvanized	25
1SCMG38638	3/8-16 x 6-3/8"		Hot Dip Galvanized	25
1SCMG12612	1/2-13 x 6-1/2"		Hot Dip Galvanized	20
1SCMG58712	5/8-11 x 7-1/2"		Hot Dip Galvanized	10
1SCMG3410	3/4-10 x 10"		Hot Dip Galvanized	5

TABLE 10: ORDERING INFORMATION OF ADHESIVE ANCHOR RODS 316 STAINLESS STEEL

PART NUMBER	SIZE	DESCRIPTION	FINISH	QTY/BOX
1SCMS438418	3/8-16 x 4-1/8"	Anchor Rod Assembly w/ Nut & Washer	316 Stainless Steel	25
1SCMS438518	3/8-16 x 5-1/8"		316 Stainless Steel	25
1SCMS438638	3/8-16 x 6-3/8"		316 Stainless Steel	25
1SCMS412612	1/2-13 x 6-1/2"		316 Stainless Steel	20
1SCMS458712	5/8-11 x 7-1/2"		316 Stainless Steel	10
1SCMS43410	3/4-10 x 10"		316 Stainless Steel	5