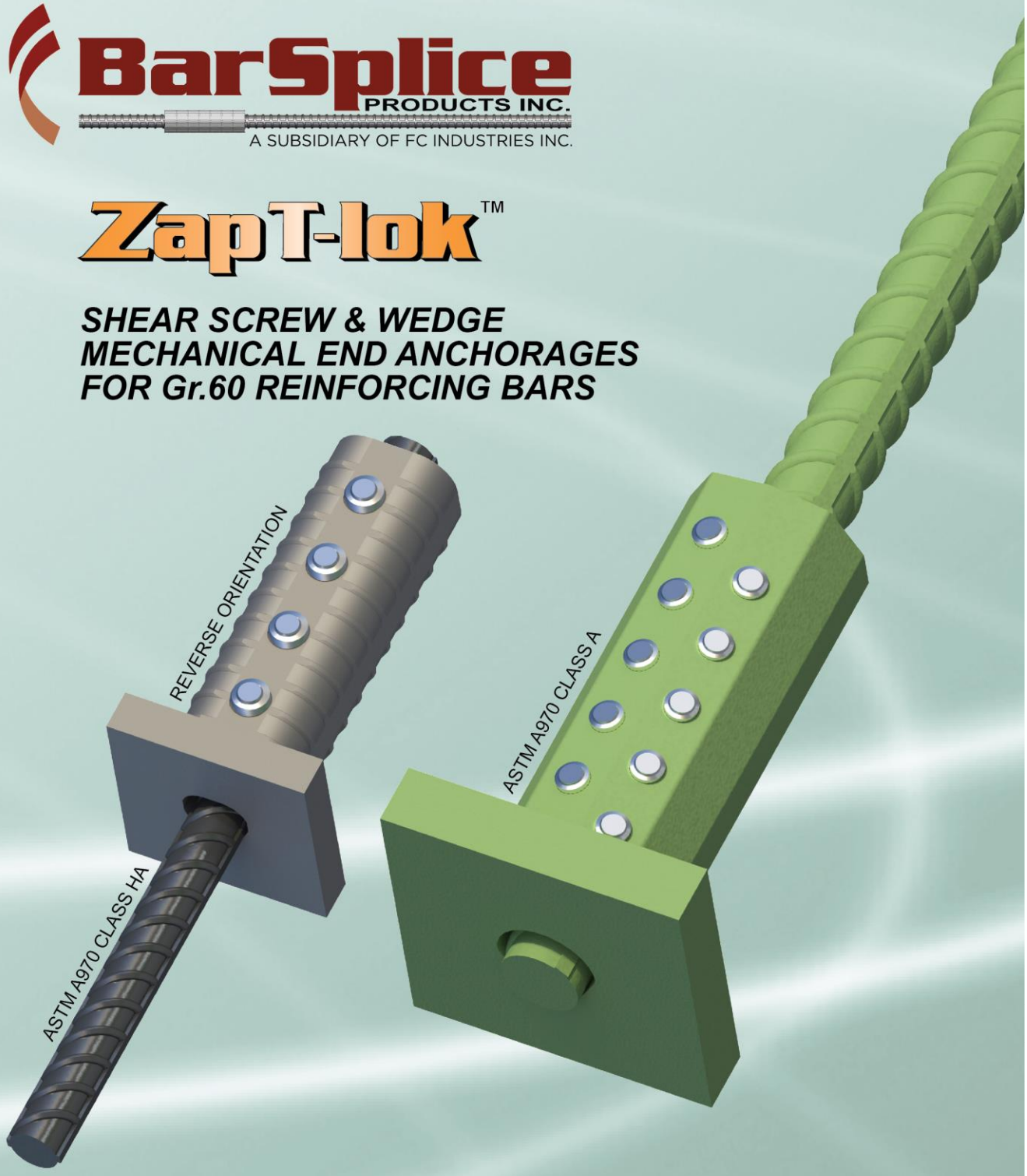
BarSplice PRODUCTS INC.

A SUBSIDIARY OF FC INDUSTRIES INC.

ZapT-lok™

SHEAR SCREW & WEDGE MECHANICAL END ANCHORAGES FOR Gr.60 REINFORCING BARS



PERFORMANCE TEST DATA

JULY 2020

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INTRODUCTION

Barsplice Products, Inc. has conducted a series of in-air tests on the Zap T-Lok™ system of reinforcing bar mechanical end anchorages, sizes No. 4 through No. 18. The tests have been conducted on uncoated and epoxy coated Zap T-Lok™. The purpose of this testing is to ensure that they are manufactured to the quality standards of BPI's ISO 9001 Quality System and are capable of exceeding various Building Codes strength requirements.

When the Zap T-Lok™ system is installed in the standard ASTM A970 Class A orientation, with the bearing face at the end of the reinforcing bar, the net head bearing area exceeds 9x rebar cross-sectional area. When installed in the reverse ASTM A970 Class HA orientation, the net head bearing area exceeds 14x rebar cross-sectional area.

TENSILE TEST PROCEDURE

Test specimens were loaded monotonically in tension to failure to determine the capability of the Zap T-Lok™ headed bar system. The tests were conducted in accordance with ASTM A370, "Standard Test Methods and Definitions for Mechanical Testing of Steel Products" and ASTM A1034, " Standard Test Methods for Testing Mechanical Splices for Steel Reinforcing Bars." Loads were applied through the bearing area of the head. The testing was performed to exceed the mechanical anchorage strength requirements of ACI (American Concrete Institute) 318-19 Section 25.4.5.1 and ASTM A970, Class A or Class HA in reverse orientation.

All monotonic tension tests were carried out in a 600 kip Forney universal testing machine, located at the Barsplice manufacturing facility. Current calibration certificates for the test machine are on file.

The reinforcing steel used in these tests conforms to the requirements of ASTM A615, Grade 60 and ASTM A706, Grade 60. Both uncoated and epoxy coated reinforcing steel and matching Zap T-Lok™ heads were tested.

TEST RESULTS

Results of the Zap T-Lok™ tension testing described above are summarized in Table 1 and represented in Chart 1.

SUMMARY

Tension test specimens exceeded the strength requirements of ACI 318-19*, namely 100% x specified yield strength of Grade 60 reinforcement, specifically 60,000 psi (420 MPa).

Additionally, the tension test specimens exceeded the strength requirements stated in ASTM A970, Class A and Class HA, namely the specified tensile strength of Grade 60 bar, specifically 80,000 psi (550 MPa).

* In meeting the strength requirements of ACI-318, the Zap T-Lok™ system complies with IBC 2018 Section 1901.2.

TABLE 1: ZAP T-LOK™ TENSILE TEST RESULTS

BAR SIZE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. TENSILE
No. 4	4T1961	4A	115,000	144%
	4T2006	4A	110,500	138%
	4T2408	4A	106,250	133%
		4B	107,750	135%
No. 5	5T5760	5A	106,161	133%
		5B	106,968	134%
	5T5870	5A	106,194	133%
		5B	107,452	134%
	5T5892	5A	113,806	142%
		5B	107,645	135%
	5T6123	5A	106,839	134%
	5T7930 EPOXY	5A	104,613	131%
		5B	106,129	133%
No. 6	6T3577	6A	113,864	142%
		6B	114,841	144%
	6T4391	6A	104,818	131%
		6B	102,068	128%
	6T5263	6A	107,591	134%
		6B	108,386	135%
	6T5997	6A	107,545	134%
		6B	107,909	135%
No. 7	7T1706	7A	107,117	134%
		7B	111,883	140%
	7T1844	7A	103,067	129%
		7B	110,467	138%
	7T2310	7A	105,583	132%
		7B	106,150	133%
	7T2658 EPOXY	7A	103,967	130%
No. 8	8T2862	8A	117,000	146%
	8T2876	8A	107,228	134%
		8B	109,266	137%
	8T2957	8A	111,506	139%
		8B	106,456	133%
	8T3085	8A	109,443	137%
		8B	108,620	136%

BAR SIZE	TEST LAB ID # & REF #		PEAK STRENGTH MAX STRESS (psi)	PEAK STRENGTH % GR. 60 SPEC. TENSILE
No. 9	9T1246	9A	101,720	127%
		9B	96,080	120%
	9T1343	9A	109,560	137%
		9B	100,410	126%
	9T2351 EPOXY	9A	111,290	139%
		9B	109,600	137%
	9T2378	9A	112,860	141%
		9B	114,180	143%
No. 10	10T1269	10A	105,780	132%
		10B	104,835	131%
	10T1396	10A	94,787	118%
		10B	96,496	121%
	10T1937	10A	105,480	132%
		10B	107,606	135%
	10T1954	10A	110,598	138%
		10B	109,992	137%
No. 11	11T2082	11A	105,147	131%
		11B	102,282	128%
	11T2085	11A	104,564	131%
		11B	106,481	133%
	11T4116 EPOXY	11A	98,737	123%
		11B	98,949	124%
	11T4155	11A	110,827	139%
		11B	109,301	137%
No. 14	14T628	14A	97,258	122%
		14B	100,831	126%
	14T773	14A	111,982	140%
		14B	115,200	144%
	14T775	14A	112,227	140%
	14T943	14A	103,191	129%
		14B	112,769	141%
	14T1511 EPOXY	14A	92,738	116%
		14B	90,107	113%
No. 18	18T907 EP	18A	91,402	114%
	18T925*	18A	91,018	114%
	18T934	18A	93,272	117%

CHART 1: ZAP T-LOK™ TENSILE TEST RESULTS