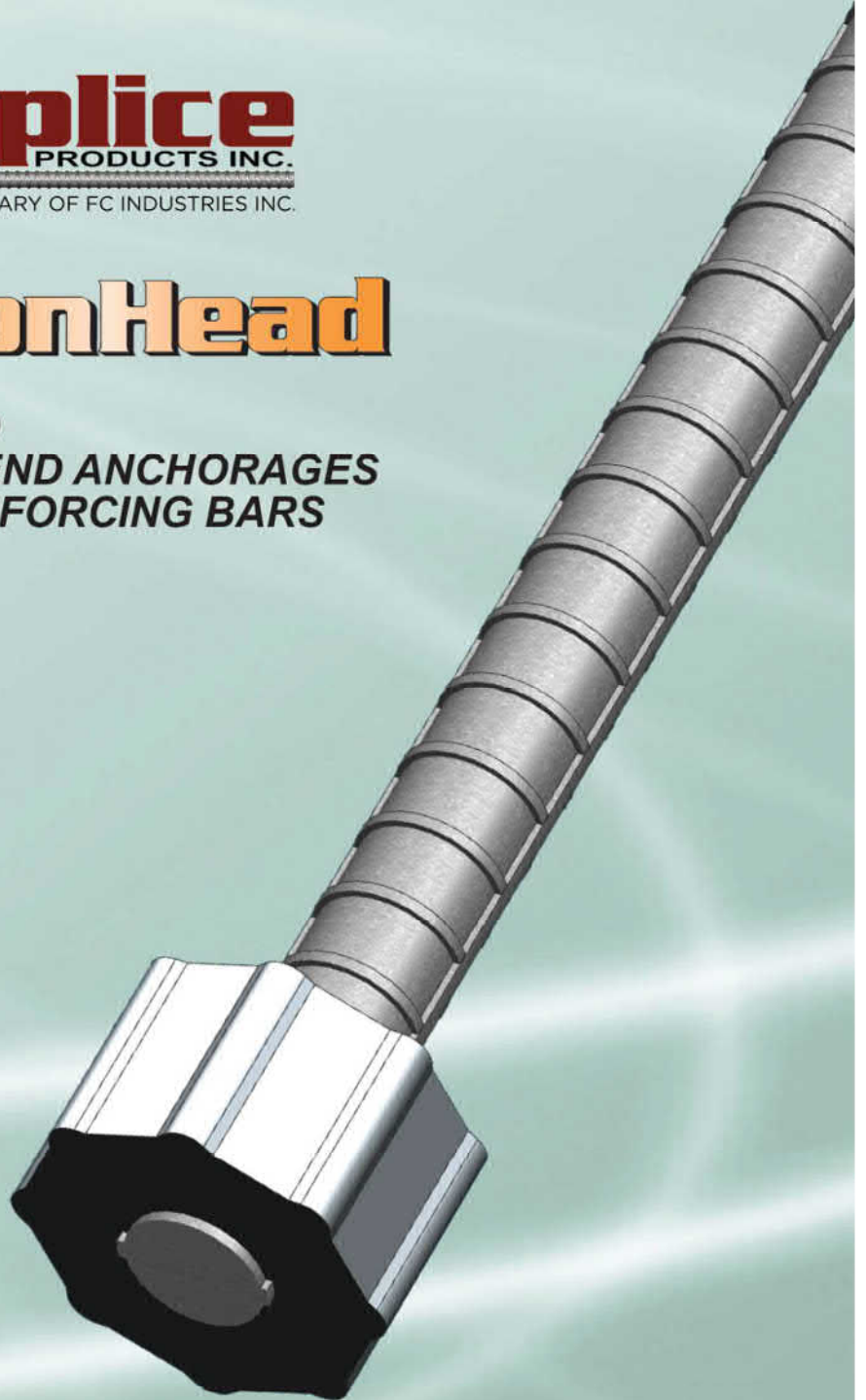




ButtonHead

**COLD-SWAGED
MECHANICAL END ANCHORAGES
FOR Gr.60 REINFORCING BARS**



PERFORMANCE TEST DATA

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INTRODUCTION

Barsplice Products, Inc. has conducted a series of in-air tests on the ButtonHead system of reinforcing bar mechanical end anchorages, sizes No. 4 through No. 18. 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.

TENSILE TEST PROCEDURE

Test specimens were loaded monotonically in tension to failure to determine the capability of the ButtonHead end anchorage system. The tests were conducted in accordance with ASTM A370, "Standard Test Methods and Definitions for Mechanical Testing of Steel Products." 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) 318-2014 Section 25.4.5.1 (ACI 318-2011 Section 12.6) and ASTM A970, Class A & Class HA.

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.

TEST RESULTS

Results of the ButtonHead tension testing described above are summarized in Table 1 and represented in Chart 1.

SUMMARY

Tension test specimens exceeded the strength requirements of ACI 318-2014*, namely 100% x specified yield strength of Grade 60 rebar.

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 rebar which equates to 90,000 psi or 150% x specified yield for A615 rebar and 80,000 psi or 133% x specified yield for A706 rebar.

* In meeting the strength requirements of ACI-318, the ButtonHead system complies with IBC 2015 Section 1901.2.

TABLE 1: TENSILE TEST RESULTS

BAR SIZE	TEST LAB ID # & REF #		PEAK STRENGTH	
			MAX STRESS (psi)	% GR. 60 SPEC. YIELD
No. 4	4T792	4A	115,750	193%
		4B	116,150	194%
	4T1237	4A	109,600	183%
		4B	110,350	184%
	4T2356	4A	109,800	183%
		4B	105,900	177%
	4T2412	4A	108,300	181%
		4B	108,200	180%
No. 5	5T3060	5A	109,710	183%
		5B	111,290	185%
	5T3066	5A	109,129	182%
		5B	110,903	185%
	5T4573	5A	101,484	169%
		5B	102,742	171%
	5T5994	5A	107,871	180%
		5B	108,161	180%
No. 6	6T1836	6A	101,886	170%
		6B	104,886	175%
	6T2694	6A	103,005	172%
		6B	102,766	171%
	6T4330	6A	102,273	170%
		6B	102,432	171%
	6T4744	6A	109,682	183%
		6B	109,568	183%
No. 7	7T1077	7A	106,850	178%
		7B	105,317	176%
	7T1292	7A	104,752	175%
		7B	105,305	176%
		7C	107,053	178%
	7T1780	7A	105,217	175%
		7B	104,700	175%
	7T2016	7A	112,467	187%
7B		105,733	176%	
No. 8	8T1709	8A	104,734	175%
		8B	103,101	172%
	8T1831	8A	104,582	174%
		8B	108,405	181%
	8T2107	8A	106,772	178%
		8B	107,304	179%
	8T2989	8A	116,646	194%
		8B	111,544	186%

BAR SIZE	TEST LAB ID # & REF #		PEAK STRENGTH	
			MAX STRESS (psi)	% GR. 60 SPEC. YIELD
No. 9	9T1176	9A	110,120	184%
		9B	110,210	184%
	9T1298	9A	101,780	170%
		9B	101,500	169%
	9T1710	9A	108,460	181%
		9B	115,490	192%
	9T1940	9A	106,030	177%
		9B	106,270	177%
No. 10	10T1279	10A	104,268	174%
		10B	105,874	176%
		10C	105,976	177%
	10T1489	10A	106,402	177%
		10B	103,220	172%
	10T1678	10A	106,803	178%
		10B	109,598	183%
	10T1803	10A	105,386	176%
10B		107,685	179%	
No. 11	11T1985	11A	109,551	183%
		11B	110,205	184%
	11T2213	11A	105,853	176%
		11B	106,128	177%
	11T2639	11A	107,449	179%
		11B	108,571	181%
	11T2869	11A	107,628	179%
		11B	107,968	180%
11T3455	11A	114,167	190%	
	11B	105,083	175%	
No. 14	14T658	14A	100,742	168%
		14B	111,484	186%
	14T757	14A	112,609	188%
		14B	111,076	185%
	14T770	14A	111,076	185%
		14B	109,249	182%
14T934	14A	101,724	170%	
	14B	101,667	169%	
No. 18	18T648	18A	104,978	175%
		18B	103,178	172%
	18T651	18A	102,832	171%
		18B	103,118	172%
	18T782	18A	102,868	171%
	18T783	18A	99,350	166%
	18T816	18A	105,598	176%
		18B	105,955	177%

CHART 1: TENSILE TEST RESULTS

