



Grip-Twist[®]

TAPER THREADED

**TYPE 2 MECHANICAL
CONNECTIONS FOR
GRADE 75 & GRADE 80
REINFORCING BARS**



PERFORMANCE TEST DATA

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INTRODUCTION

Barsplice Products, Inc. (BPI) have conducted a series of tests on reinforcing bar mechanical splices, sizes No. 4 through No. 18. The tests have been conducted on Taper Threaded Grip-Twist® Mechanical Splices. The purpose of the testing is to ensure that products are manufactured to the quality standards of BPI's ISO 9001 Quality System and are capable of exceeding strength requirements of various Building Codes.

TENSILE TEST PROCEDURE

Test specimens were loaded monotonically in tension to failure to determine the capability of the splice 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). The testing was performed to exceed the strength requirements of ACI (American Concrete Institute) 318-19, Chapter 25 and Chapter 18 using ASTM A615 Grades 75 & 80 and A706 Grade 80 reinforcing bar.

All monotonic tension tests were carried out on a 600 kip Forney universal testing machine, or a 900 kip MTS universal test machine, located at the Barsplice manufacturing facility. Current calibration certificates for the test machine(s) are on file.

The reinforcing steel used in these tests conforms to the requirements of ASTM A615, Grade 75 & 80 and ASTM A706, Grade 80.

TEST RESULTS

Results of the Taper Threaded Grip-Twist® tension testing described above are summarized in Table 1 and represented in Chart 1.

SUMMARY

Tension test specimens exceeded the Type 1 strength requirements of ACI 318-19, Chapter 25, namely 125% x specified yield strength of ASTM A615 Grade 75 reinforcement, or 93,750 psi (645 MPa) and 125% x specified yield strength of ASTM A615 and A706 Grade 80 bar or 100,000 psi (690 MPa).

Tension test specimens exceeded the Type 2 strength requirements of ACI 318-19, Chapter 18, namely the specified tensile strength of ASTM A615 Grade 75/80 bar & ASTM A706 Grade 80 bar, or 100,000 psi (690 MPa).

TABLE 1: TAPER THREADED GRIP-TWIST® TENSILE TEST RESULTS

BAR SIZE	BAR TYPE	TEST LAB ID # & REF #		PEAK STRENGTH			
				MAX STRESS (psi)	% GR.80 SPEC. YIELD		
No. 4	Gr.80	4T5087 *	4B	115,844	145%		
		4T5088 *	4B	128,723	161%		
		4T5149 *	4B	127,877	160%		
		4T5194 *	4B	120,623	151%		
		4T5201 *	4B	122,014	153%		
No. 5	Gr.80	5T13760 *	5B	110,575	138%		
		5T13856 *	5B	122,987	154%		
		5T13872 *	5A	112,886	141%		
		5T13889 *	5B	113,703	142%		
		5T14040 *	5B	111,569	139%		
No. 6	Gr.75	6T8829	6A	122,292	153%		
			6B	122,833	154%		
	Gr.80	6T8903 *	6B	116,410	146%		
		6T8937 *	6B	119,206	149%		
		6T8989 *	6B	123,767	155%		
		6T9076 *	6B	119,721	150%		
		6T9085 *	6B	113,824	142%		
No. 7	Gr.75	7T3835	7A	124,711	156%		
	Gr.80	7T4388 *	7B	113,826	142%		
		7T4399 *	7A	118,234	148%		
		7T4425 *	7B	116,530	146%		
		7T4436 *	7B	115,492	144%		
		7T4506 *	7B	117,240	147%		
No. 8	Gr.80	8T2577	8A	119,532	149%		
			8B	120,544	151%		
			8C	120,000	150%		
		8T5473 *	8B	123,292	154%		
		8T5562 *	8B	111,722	140%		
		8T5587 *	8B	110,923	139%		
		8T5591 *	8A	121,593	152%		
No. 9	Gr.80	9T1767	9A	118,640	148%		
			9B	118,490	148%		
			9C	118,400	148%		
		9T2556	9B	108,410	136%		
		9T3523 *	9B	122,748	153%		
		9T3524 *	9B	114,716	143%		
		9T3536 *	9B	112,105	140%		
		9T3605 *	9B	113,822	142%		
		No. 10	Gr.80	10T1698	10A	123,220	154%
10B	123,646				155%		
10C	124,110				155%		
10T3028 *	10A			113,627	142%		
10T3044 *	10A			118,703	148%		
10T3046 *	10B			110,662	138%		
10T3072 *	10B			109,426	137%		
10T3075 *	10B			110,170	138%		
10T3079 *	10B			110,328	138%		
No. 11	Gr.75			11T5013	11B	110,685	138%
	Gr.80			11T3256	11A	113,590	142%
					11B	114,891	144%
					11C	113,647	142%
				11T4437	11B	107,455	134%
				11T5132	11A	105,873	132%
		11T5656 *	11A	111,509	139%		
		11T5657 *	11B	109,598	137%		
		11T5703 *	11B	111,520	139%		
		11T5711 *	11B	111,942	140%		
11T5715 *	11A	112,225	140%				
No. 14	Gr.75	14T836	14A	114,400	143%		
			14B	114,391	143%		
	Gr.80	14T1805 *	14A	118,588	148%		
		14T1806 *	14B	113,567	142%		
		14T1808 *	14B	123,903	155%		
		14T1811 *	14B	115,320	144%		
14T1815 *	14B	120,017	150%				
14T1817 *	14B	110,632	138%				
No. 18	Gr.75	18T778	18A	120,661	151%		
			18B	117,597	147%		
	Gr.80	18T1301	18A	114,255	143%		
		18T1302 *	18A	114,077	143%		
		18T1304 *	18B	110,610	138%		
		18T1307 *	18A	110,702	138%		
		18T1314 *	18B	109,159	136%		
		18T1315 *	18B	120,107	150%		

* Test conducted on ASTM A706 Grade 80 reinforcement bar

CHART 1: TAPER THREADED GRIP-TWIST® TENSILE TEST RESULTS

