



# BarSplicer

## XP Series

**TYPE 2 THREADED MECHANICAL  
CONNECTIONS FOR  
FOR UNCOATED AND  
EPOXY COATED  
REINFORCING BARS**



## PERFORMANCE TEST DATA

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Barsplice Products, Inc., 4900 Webster Street, Dayton OH 45414, USA  
Tel: (937) 275-8700 • Fax: (937) 275-9566 • e-mail: [bar@barsplice.com](mailto:bar@barsplice.com)

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## **INTRODUCTION**

Barsplice Products, Inc. have conducted a series of tests on threaded dowel bar mechanical connections, sizes No. 4 through No. 11. The tests have been conducted on uncoated and epoxy coated Barsplicer XP couplers. 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 "Standard Test Methods and Definitions for Mechanical Testing of Steel Products", ASTM A370. The testing was performed to exceed the strength requirements of ACI (American Concrete Institute) 318-14, Chapter 25 and Chapter 18 using Grade 60 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 60 and ASTM A706, Grade 60.

## **TEST RESULTS**

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

### **SUMMARY**

- (1) Tension test specimens exceeded the Type 1 strength requirements of ACI 318-14, Chapter 25, namely 125% x specified yield strength of Grade 60 rebar or 75,000 psi.
- (2) Tension test specimens exceeded the Type 2 strength requirements of ACI 318-14, Chapter 18, namely the specified tensile strength of Grade 60 bar. ASTM A615, Grade 60 has a specified tensile strength of 90,000 psi which is equivalent to 150% x specified yield. ASTM A706, Grade 60 has a specified tensile strength of 80,000 psi which is equivalent to 133% x specified yield.

**TABLE 1: BARSPLICER XP TENSILE TEST RESULTS**

| BAR SIZE | BAR TYPE | TEST LAB ID # & REF # |    | PEAK STRENGTH    |                      |
|----------|----------|-----------------------|----|------------------|----------------------|
|          |          |                       |    | MAX STRESS (psi) | % GR. 60 SPEC. YIELD |
| No. 4    | BLACK    | 4T1032                | 4A | 109,550          | 183%                 |
|          |          |                       | 4B | 114,550          | 191%                 |
|          |          | 4T1188                | 4A | 105,300          | 176%                 |
|          |          |                       | 4B | 107,650          | 179%                 |
|          |          | 4T3218                | 4A | 104,950          | 175%                 |
|          |          |                       | 4B | 107,750          | 180%                 |
|          | EPOXY    | 4T2755                | 4A | 101,850          | 170%                 |
|          |          |                       | 4B | 105,600          | 176%                 |
|          |          | 4T2807                | 4A | 112,600          | 188%                 |
|          |          |                       | 4B | 116,950          | 195%                 |
|          |          | 4T3409                | 4A | 102,600          | 171%                 |
|          |          |                       | 4B | 103,050          | 172%                 |
| No. 5    | BLACK    | 5T2687                | 5A | 104,484          | 174%                 |
|          |          |                       | 5B | 101,516          | 169%                 |
|          |          | 5T3601                | 5A | 107,774          | 180%                 |
|          |          |                       | 5B | 108,258          | 180%                 |
|          |          | 5T7801 (A706)         | 5A | 99,677           | 166%                 |
|          |          |                       | 5B | 98,290           | 164%                 |
|          | EPOXY    | 5T7519                | 5A | 103,452          | 172%                 |
|          |          |                       | 5B | 101,226          | 169%                 |
|          |          | 5T7648                | 5A | 104,968          | 175%                 |
|          |          |                       | 5B | 106,548          | 178%                 |
|          |          | 5T7964 (A706)         | 5A | 103,032          | 172%                 |
|          |          |                       | 5B | 101,903          | 170%                 |
| No. 6    | BLACK    | 6T2251                | 6A | 101,932          | 170%                 |
|          |          |                       | 6B | 101,227          | 169%                 |
|          |          | 6T2285                | 6A | 105,023          | 175%                 |
|          |          |                       | 6B | 100,909          | 168%                 |
|          |          | 6T2547                | 6A | 109,136          | 182%                 |
|          |          |                       | 6B | 110,932          | 185%                 |
|          | EPOXY    | 6T2239                | 6A | 100,864          | 168%                 |
|          |          |                       | 6B | 104,909          | 175%                 |
|          |          | 6T2384                | 6A | 104,023          | 173%                 |
|          |          |                       | 6B | 103,409          | 172%                 |
|          |          | 6T2466                | 6A | 108,205          | 180%                 |
|          |          |                       | 6B | 107,432          | 179%                 |

| BAR SIZE | BAR TYPE | TEST LAB ID # & REF # |    | PEAK STRENGTH    |                      |
|----------|----------|-----------------------|----|------------------|----------------------|
|          |          |                       |    | MAX STRESS (psi) | % GR. 60 SPEC. YIELD |
| No. 7    | BLACK    | 7T2077                | 7A | 103,783          | 173%                 |
|          |          |                       | 7B | 104,900          | 175%                 |
|          |          | 7T2485                | 7A | 100,443          | 167%                 |
|          |          |                       | 7B | 100,287          | 167%                 |
|          |          | 7T2614 (A706)         | 7A | 95,446           | 159%                 |
|          |          |                       | 7B | 96,562           | 161%                 |
|          | EPOXY    | 7T2093                | 7A | 109,364          | 182%                 |
|          |          |                       | 7B | 108,726          | 181%                 |
|          |          | 7T2464                | 7A | 100,099          | 167%                 |
|          |          |                       | 7B | 101,652          | 169%                 |
|          |          | 7T2821 (A706)         | 7A | 99,966           | 167%                 |
|          |          |                       | 7B | 99,761           | 166%                 |
| No. 8    | BLACK    | 8T1402                | 8A | 107,430          | 179%                 |
|          |          |                       | 8B | 107,494          | 179%                 |
|          |          | 8T3080                | 8A | 100,390          | 167%                 |
|          |          |                       | 8B | 102,304          | 171%                 |
|          |          | 8T3528                | 8A | 103,345          | 172%                 |
|          |          |                       | 8B | 102,558          | 171%                 |
|          | EPOXY    | 8T3215 (A706)         | 8A | 101,518          | 169%                 |
|          |          |                       | 8B | 101,458          | 169%                 |
|          |          | 8T3419                | 8A | 110,115          | 184%                 |
|          |          |                       | 8B | 109,084          | 182%                 |
|          |          | 8T3521                | 8A | 103,863          | 173%                 |
|          |          |                       | 8B | 104,310          | 174%                 |
| No. 9    | BLACK    | 9T1694                | 9A | 105,260          | 175%                 |
|          |          |                       | 9B | 110,960          | 185%                 |
|          |          | 9T1827                | 9A | 104,890          | 175%                 |
|          |          |                       | 9B | 106,710          | 178%                 |
|          |          | 9T2081 (A706)         | 9A | 116,778          | 195%                 |
|          |          |                       | 9B | 117,708          | 196%                 |
|          | EPOXY    | 9T1138                | 9A | 108,710          | 181%                 |
|          |          |                       | 9B | 109,360          | 182%                 |
|          |          | 9T1155                | 9A | 101,310          | 169%                 |
|          |          |                       | 9B | 103,060          | 172%                 |
|          |          | 9T1283                | 9A | 100,690          | 168%                 |
|          |          |                       | 7B | 101,240          | 169%                 |

**TABLE 1: BARSPLICER XP TENSILE TEST RESULTS**

| BAR SIZE | BAR TYPE | TEST LAB ID # & REF # |     | PEAK STRENGTH    |                      |
|----------|----------|-----------------------|-----|------------------|----------------------|
|          |          |                       |     | MAX STRESS (psi) | % GR. 60 SPEC. YIELD |
| No. 10   | BLACK    | 10T1270               | 10A | 104,079          | 173%                 |
|          |          |                       | 10B | 102,457          | 171%                 |
|          |          | 10T1650               | 10A | 97,079           | 162%                 |
|          |          |                       | 10B | 103,472          | 172%                 |
|          |          | 10T2170               | 10A | 101,658          | 169%                 |
|          |          |                       | 10B | 100,764          | 168%                 |
|          | EPOXY    | 10T1107               | 10A | 102,402          | 171%                 |
|          |          |                       | 10B | 100,811          | 168%                 |
|          |          | 10T1778               | 10A | 100,913          | 168%                 |
|          |          |                       | 10B | 100,480          | 167%                 |
|          |          | 10T1935               | 10A | 97,797           | 163%                 |
|          |          |                       | 10B | 101,890          | 170%                 |
| No. 11   | BLACK    | 11T2293               | 11A | 112,577          | 188%                 |
|          |          |                       | 11B | 113,192          | 189%                 |
|          |          | 11T3369               | 11A | 102,218          | 170%                 |
|          |          |                       | 11B | 101,346          | 169%                 |
|          |          | 11T3957               | 11A | 103,566          | 173%                 |
|          |          |                       | 11B | 104,318          | 174%                 |
|          | EPOXY    | 11T2298               | 11A | 104,885          | 175%                 |
|          |          |                       | 11B | 105,256          | 175%                 |
|          |          | 11T3157               | 11A | 97,679           | 163%                 |
|          |          |                       | 11B | 98,474           | 164%                 |
|          |          | 11T3419               | 11A | 99,295           | 165%                 |
|          |          |                       | 11B | 100,288          | 167%                 |

**CHART 1: BARSPLICER XP TENSILE TEST RESULTS**

