

## ZAP SCREWLOK® SL SYSTEM TEST DATA CONVERSION - 15M AND 20M (GRADE 400)

| Lab Report & Reference No. |    | Bar Type | ASTM Bar Size Designation | ASTM Bar area in <sup>2</sup> | Max Load lb | Max Stress psi | Developed Stress %fy ASTM Gr 60 (metric Gr 420) | Equivalent CSA Designation | CSA Bar Area mm <sup>2</sup> | Max Load kN | Equivalent Max Stress CSA Gr 400 N/mm <sup>2</sup> | Equivalent Developed Stress %fy CSA Gr 400 |
|----------------------------|----|----------|---------------------------|-------------------------------|-------------|----------------|---|----------------------------|------------------------------|-------------|--|--|
| 5T8334                     | 5A | Black    | <b>No. 5</b>              | 0.31                          | 32,230      | 103,968        | <b>173%</b>                                     | <b>15M</b>                 | 200                          | 143.4       | 717  | <b>179%</b>                                |
|                            | 5B |          | <b>No. 5</b>              | 0.31                          | 30,080      | 97,032         | <b>162%</b>                                     | <b>15M</b>                 | 200                          | 133.8       | 669  | <b>167%</b>                                |
| 5T8418                     | 5A | Black    | <b>No. 5</b>              | 0.31                          | 29,510      | 95,194         | <b>159%</b>                                     | <b>15M</b>                 | 200                          | 131.3       | 656  | <b>164%</b>                                |
|                            | 5B |          | <b>No. 5</b>              | 0.31                          | 28,750      | 92,742         | <b>155%</b>                                     | <b>15M</b>                 | 200                          | 127.9       | 639  | <b>160%</b>                                |
| 5T8698                     | 5A | Black    | <b>No. 5</b>              | 0.31                          | 28,880      | 93,161         | <b>155%</b>                                     | <b>15M</b>                 | 200                          | 128.5       | 642  | <b>161%</b>                                |
|                            | 5B |          | <b>No. 5</b>              | 0.31                          | 30,330      | 97,839         | <b>163%</b>                                     | <b>15M</b>                 | 200                          | 134.9       | 675  | <b>169%</b>                                |
| 5T7917<br>A706             | 5A | Epoxy    | <b>No. 5</b>              | 0.31                          | 28,050      | 90,484         | <b>151%</b>                                     | <b>15M</b>                 | 200                          | 124.8       | 624  | <b>156%</b>                                |
|                            | 5B |          | <b>No. 5</b>              | 0.31                          | 25,860      | 83,419         | <b>139%</b>                                     | <b>15M</b>                 | 200                          | 115.0       | 575  | <b>144%</b>                                |
| 5T8493                     | 5A | Epoxy    | <b>No. 5</b>              | 0.31                          | 28,830      | 93,000         | <b>155%</b>                                     | <b>15M</b>                 | 200                          | 128.2       | 641  | <b>160%</b>                                |
|                            | 5B |          | <b>No. 5</b>              | 0.31                          | 28,630      | 92,355         | <b>154%</b>                                     | <b>15M</b>                 | 200                          | 127.3       | 637  | <b>159%</b>                                |
|                            |    |          |                           |                               |             |                |   |                            |                              |             |  |  |
| 6T5694                     | 6A | Black    | <b>No. 6</b>              | 0.44                          | 41,780      | 94,955         | <b>158%</b>                                     | <b>20M</b>                 | 300                          | 185.8       | 619  | <b>155%</b>                                |
|                            | 6B |          | <b>No. 6</b>              | 0.44                          | 42,520      | 96,636         | <b>161%</b>                                     | <b>20M</b>                 | 300                          | 189.1       | 630  | <b>158%</b>                                |
| 6T5844                     | 6A | Black    | <b>No. 6</b>              | 0.44                          | 44,000      | 100,000        | <b>167%</b>                                     | <b>20M</b>                 | 300                          | 195.7       | 652  | <b>163%</b>                                |
|                            | 6B |          | <b>No. 6</b>              | 0.44                          | 45,720      | 103,909        | <b>173%</b>                                     | <b>20M</b>                 | 300                          | 203.4       | 678  | <b>169%</b>                                |
| 6T5853                     | 6A | Black    | <b>No. 6</b>              | 0.44                          | 40,600      | 92,273         | <b>154%</b>                                     | <b>20M</b>                 | 300                          | 180.6       | 602  | <b>150%</b>                                |
|                            | 6B |          | <b>No. 6</b>              | 0.44                          | 44,610      | 101,386        | <b>169%</b>                                     | <b>20M</b>                 | 300                          | 198.4       | 661  | <b>165%</b>                                |
| 6T5448<br>A706             | 6A | Epoxy    | <b>No. 6</b>              | 0.44                          | 37,390      | 84,977         | <b>142%</b>                                     | <b>20M</b>                 | 300                          | 166.3       | 554  | <b>139%</b>                                |
|                            | 6B |          | <b>No. 6</b>              | 0.44                          | 36,800      | 83,636         | <b>139%</b>                                     | <b>20M</b>                 | 300                          | 163.7       | 546  | <b>136%</b>                                |
| 6T5919                     | 6A | Epoxy    | <b>No. 6</b>              | 0.44                          | 40,220      | 91,409         | <b>152%</b>                                     | <b>20M</b>                 | 300                          | 178.9       | 596  | <b>149%</b>                                |
|                            | 6B |          | <b>No. 6</b>              | 0.44                          | 41,580      | 94,500         | <b>158%</b>                                     | <b>20M</b>                 | 300                          | 184.9       | 616  | <b>154%</b>                                |

**NOTES**

Test results are from routine testing of each heat lot of arriving coupler material, per Barsplice Products, Inc. ISO Quality System. Reinforcing Bars, per ASTM A615 (or \*A706) Grade 60, have a specified yield, fy = 60,000 psi (420 N/mm<sup>2</sup>). See Lab reports for stress versus displacement curves (stress versus cross-head position). Load rates per ASTM A 370. ASTM = American Society for Testing and Materials CSA = Canadian Standards Association

## ZAP SCREWLOK® SL SYSTEM TEST DATA CONVERSION - 25M AND 30M (GRADE 400)

| Lab Report & Reference No. |    | Bar Type | ASTM Bar Size Designation | ASTM Bar area in <sup>2</sup> | Max Load lb | Max Stress psi | Developed Stress %fy ASTM Gr 60 (metric Gr 420) | Equivalent CSA Designation | CSA Bar Area mm <sup>2</sup> | Max Load kN | Equivalent Max Stress CSA Gr 400 N/mm <sup>2</sup> | Equivalent Developed Stress %fy CSA Gr 400 |
|----------------------------|----|----------|---------------------------|-------------------------------|-------------|----------------|---|----------------------------|------------------------------|-------------|--|--|
| 8T3536                     | 8A | Black    | <b>No. 8</b>              | 0.79                          | 76,694      | 97,081         | <b>162%</b>                                     | <b>25M</b>                 | 500                          | 341.1       | 682  | <b>171%</b>                                |
|                            | 8B |          | <b>No. 8</b>              | 0.79                          | 76,288      | 96,567         | <b>161%</b>                                     | <b>25M</b>                 | 500                          | 339.3       | 679  | <b>170%</b>                                |
| 8T3573                     | 8A | Black    | <b>No. 8</b>              | 0.79                          | 80,871      | 102,368        | <b>171%</b>                                     | <b>25M</b>                 | 500                          | 359.7       | 719  | <b>180%</b>                                |
|                            | 8B |          | <b>No. 8</b>              | 0.79                          | 79,115      | 100,145        | <b>167%</b>                                     | <b>25M</b>                 | 500                          | 351.9       | 704  | <b>176%</b>                                |
| 8T3732                     | 8A | Black    | <b>No. 8</b>              | 0.79                          | 81,492      | 103,155        | <b>172%</b>                                     | <b>25M</b>                 | 500                          | 362.5       | 725  | <b>181%</b>                                |
|                            | 8B |          | <b>No. 8</b>              | 0.79                          | 79,338      | 100,428        | <b>167%</b>                                     | <b>25M</b>                 | 500                          | 352.9       | 706  | <b>176%</b>                                |
| 8T3504<br><b>A706</b>      | 8A | Epoxy    | <b>No. 8</b>              | 0.79                          | 71,904      | 91,018         | <b>152%</b>                                     | <b>25M</b>                 | 500                          | 319.8       | 640  | <b>160%</b>                                |
|                            | 8B |          | <b>No. 8</b>              | 0.79                          | 65,326      | 82,691         | <b>138%</b>                                     | <b>25M</b>                 | 500                          | 290.6       | 581  | <b>145%</b>                                |
| 8T3633                     | 8A | Epoxy    | <b>No. 8</b>              | 0.79                          | 80,891      | 102,394        | <b>171%</b>                                     | <b>25M</b>                 | 500                          | 359.8       | 720  | <b>180%</b>                                |
|                            | 8B |          | <b>No. 8</b>              | 0.79                          | 79,464      | 100,587        | <b>168%</b>                                     | <b>25M</b>                 | 500                          | 353.5       | 707  | <b>177%</b>                                |
|                            |    |          |                           |                               |             |                |   |                            |                              |             |  |  |
| 9T2321                     | 9A | Black    | <b>No. 9</b>              | 1.00                          | 104,947     | 104,947        | <b>175%</b>                                     | <b>30M</b>                 | 700                          | 466.8       | 667  | <b>167%</b>                                |
|                            | 9B |          | <b>No. 9</b>              | 1.00                          | 100,486     | 100,486        | <b>167%</b>                                     | <b>30M</b>                 | 700                          | 447.0       | 639  | <b>160%</b>                                |
| 9T2340                     | 9A | Black    | <b>No. 9</b>              | 1.00                          | 102,210     | 102,210        | <b>170%</b>                                     | <b>30M</b>                 | 700                          | 454.6       | 649  | <b>162%</b>                                |
|                            | 9B |          | <b>No. 9</b>              | 1.00                          | 106,722     | 106,722        | <b>178%</b>                                     | <b>30M</b>                 | 700                          | 474.7       | 678  | <b>170%</b>                                |
| 9T2374                     | 9A | Black    | <b>No. 9</b>              | 1.00                          | 105,676     | 105,676        | <b>176%</b>                                     | <b>30M</b>                 | 700                          | 470.0       | 671  | <b>168%</b>                                |
|                            | 9B |          | <b>No. 9</b>              | 1.00                          | 101,078     | 101,078        | <b>168%</b>                                     | <b>30M</b>                 | 700                          | 449.6       | 642  | <b>161%</b>                                |
| 9T2172                     | 9A | Epoxy    | <b>No. 9</b>              | 1.00                          | 91,820      | 91,820         | <b>153%</b>                                     | <b>30M</b>                 | 700                          | 408.4       | 583  | <b>146%</b>                                |
|                            | 9B |          | <b>No. 9</b>              | 1.00                          | 97,540      | 97,540         | <b>163%</b>                                     | <b>30M</b>                 | 700                          | 433.9       | 620  | <b>155%</b>                                |
| 9T2194<br><b>A706</b>      | 9A | Epoxy    | <b>No. 9</b>              | 1.00                          | 87,994      | 87,994         | <b>147%</b>                                     | <b>30M</b>                 | 700                          | 391.4       | 559  | <b>140%</b>                                |
|                            | 9B |          | <b>No. 9</b>              | 1.00                          | 92,077      | 92,077         | <b>153%</b>                                     | <b>30M</b>                 | 700                          | 409.6       | 585  | <b>146%</b>                                |

### NOTES

Test results are from routine testing of each heat lot of arriving coupler material, per Barsplice Products, Inc. ISO Quality System.  
 Reinforcing Bars, per ASTM A615 (or \*A706) Grade 60, have a specified yield, fy = 60,000 psi (420 N/mm<sup>2</sup>).  
 See Lab reports for stress versus displacement curves (stress versus cross-head position).  
 Load rates per ASTM A 370.  
 ASTM = American Society for Testing and Materials  
 CSA = Canadian Standards Association

## ZAP SCREWLOK® SL SYSTEM TEST DATA CONVERSION - 35M AND 45M (GRADE 400)

| Lab Report & Reference No. |     | Bar Type | ASTM Bar Size Designation | ASTM Bar area in <sup>2</sup> | Max Load lb | Max Stress psi | Developed Stress %fy ASTM Gr 60 (metric Gr 420) | Equivalent CSA Designation | CSA Bar Area mm <sup>2</sup> | Max Load kN | Equivalent Max Stress CSA Gr 400 N/mm <sup>2</sup> | Equivalent Developed Stress %fy CSA Gr 400 |
|----------------------------|-----|----------|---------------------------|-------------------------------|-------------|----------------|---|----------------------------|------------------------------|-------------|--|--|
| 11T3917                    | 11A | Black    | <b>No. 11</b>             | 1.56                          | 150,721     | 96,616         | <b>161%</b>                                     | <b>35M</b>                 | 1000                         | 670.4       | 670  | <b>168%</b>                                |
|                            | 11B |          | <b>No. 11</b>             | 1.56                          | 156,602     | 100,386        | <b>167%</b>                                     | <b>35M</b>                 | 1000                         | 696.6       | 697  | <b>174%</b>                                |
| 11T4181                    | 11A | Black    | <b>No. 11</b>             | 1.56                          | 162,920     | 104,436        | <b>174%</b>                                     | <b>35M</b>                 | 1000                         | 724.7       | 725  | <b>181%</b>                                |
|                            | 11B |          | <b>No. 11</b>             | 1.56                          | 170,478     | 109,281        | <b>182%</b>                                     | <b>35M</b>                 | 1000                         | 758.3       | 758  | <b>190%</b>                                |
| 11T4216                    | 11A | Black    | <b>No. 11</b>             | 1.56                          | 158,571     | 101,648        | <b>169%</b>                                     | <b>35M</b>                 | 1000                         | 705.3       | 705  | <b>176%</b>                                |
|                            | 11B |          | <b>No. 11</b>             | 1.56                          | 172,520     | 110,590        | <b>184%</b>                                     | <b>35M</b>                 | 1000                         | 767.4       | 767  | <b>192%</b>                                |
| 11T3895                    | 11A | Epoxy    | <b>No. 11</b>             | 1.56                          | 151,220     | 96,936         | <b>162%</b>                                     | <b>35M</b>                 | 1000                         | 672.6       | 673  | <b>168%</b>                                |
|                            | 11B |          | <b>No. 11</b>             | 1.56                          | 160,920     | 103,154        | <b>172%</b>                                     | <b>35M</b>                 | 1000                         | 715.8       | 716  | <b>179%</b>                                |
| 11T3927<br>A706            | 11A | Epoxy    | <b>No. 11</b>             | 1.56                          | 134,391     | 86,148         | <b>144%</b>                                     | <b>35M</b>                 | 1000                         | 597.8       | 598  | <b>149%</b>                                |
|                            | 11B |          | <b>No. 11</b>             | 1.56                          | 136,151     | 87,276         | <b>145%</b>                                     | <b>35M</b>                 | 1000                         | 605.6       | 606  | <b>151%</b>                                |
| 14T1348                    | 14A | Black    | <b>No. 14</b>             | 2.25                          | 215,395     | 95,731         | <b>160%</b>                                     | <b>45M</b>                 | 1500                         | 958.1       | 639  | <b>160%</b>                                |
|                            | 14B |          | <b>No. 14</b>             | 2.25                          | 210,526     | 93,567         | <b>156%</b>                                     | <b>45M</b>                 | 1500                         | 936.4       | 624  | <b>156%</b>                                |
| 14T1394                    | 14A | Black    | <b>No. 14</b>             | 2.25                          | 210,935     | 93,749         | <b>156%</b>                                     | <b>45M</b>                 | 1500                         | 938.2       | 625  | <b>156%</b>                                |
|                            | 14B |          | <b>No. 14</b>             | 2.25                          | 221,699     | 98,533         | <b>164%</b>                                     | <b>45M</b>                 | 1500                         | 986.1       | 657  | <b>164%</b>                                |
| 14T1419                    | 14A | Black    | <b>No. 14</b>             | 2.25                          | 207,943     | 92,419         | <b>154%</b>                                     | <b>45M</b>                 | 1500                         | 924.9       | 617  | <b>154%</b>                                |
|                            | 14B |          | <b>No. 14</b>             | 2.25                          | 219,542     | 97,574         | <b>163%</b>                                     | <b>45M</b>                 | 1500                         | 976.5       | 651  | <b>163%</b>                                |
| 14T1334                    | 14A | Epoxy    | <b>No. 14</b>             | 2.25                          | 198,416     | 88,185         | <b>147%</b>                                     | <b>45M</b>                 | 1500                         | 882.6       | 588  | <b>147%</b>                                |
|                            | 14B |          | <b>No. 14</b>             | 2.25                          | 196,742     | 87,441         | <b>146%</b>                                     | <b>45M</b>                 | 1500                         | 875.1       | 583  | <b>146%</b>                                |
| 14T1417                    | 14A | Epoxy    | <b>No. 14</b>             | 2.25                          | 209,342     | 93,041         | <b>155%</b>                                     | <b>45M</b>                 | 1500                         | 931.2       | 621  | <b>155%</b>                                |
|                            | 14B |          | <b>No. 14</b>             | 2.25                          | 218,986     | 97,327         | <b>162%</b>                                     | <b>45M</b>                 | 1500                         | 974.0       | 649  | <b>162%</b>                                |

### NOTES

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CSA = Canadian Standards Association

### ZAP SCREWLOK® SL SYSTEM TEST DATA CONVERSION - 55M (GRADE 400)

| Lab Report & Reference No. |     | Bar Type | ASTM Bar Size Designation | ASTM Bar area in <sup>2</sup> | Max Load lb | Max Stress psi | Developed Stress %fy ASTM Gr 60 (metric Gr 420) | Equivalent CSA Designation | CSA Bar Area mm <sup>2</sup> | Max Load kN | Equivalent Max Stress CSA Gr 400 N/mm <sup>2</sup> | Equivalent Developed Stress %fy CSA Gr 400 |
|----------------------------|-----|----------|---------------------------|-------------------------------|-------------|----------------|---|----------------------------|------------------------------|-------------|--|--|
| 18T806                     | 18A | Black    | <b>No. 18</b>             | 4.00                          | 364,596     | 91,149         | <b>152%</b>                                     | <b>55M</b>                 | 2500                         | 1621.7      | 649  | <b>162%</b>                                |
|                            | 18B |          | <b>No. 18</b>             | 4.00                          | 356,480     | 89,120         | <b>149%</b>                                     | <b>55M</b>                 | 2500                         | 1585.6      | 634  | <b>159%</b>                                |
| 18T861                     | 18A | Black    | <b>No. 18</b>             | 4.00                          | 376,092     | 94,023         | <b>157%</b>                                     | <b>55M</b>                 | 2500                         | 1672.9      | 669  | <b>167%</b>                                |
|                            | 18B |          | <b>No. 18</b>             | 4.00                          | 357,196     | 89,299         | <b>149%</b>                                     | <b>55M</b>                 | 2500                         | 1588.8      | 636  | <b>159%</b>                                |
| 18T918                     | 18A | Black    | <b>No. 18</b>             | 4.00                          | 347,540     | 86,885         | <b>145%</b>                                     | <b>55M</b>                 | 2500                         | 1545.9      | 618  | <b>155%</b>                                |
|                            | 18B |          | <b>No. 18</b>             | 4.00                          | 367,900     | 91,975         | <b>153%</b>                                     | <b>55M</b>                 | 2500                         | 1636.4      | 655  | <b>164%</b>                                |
| 18T863                     | 18A | Epoxy    | <b>No. 18</b>             | 4.00                          | 354,008     | 88,502         | <b>148%</b>                                     | <b>55M</b>                 | 2500                         | 1574.6      | 630  | <b>157%</b>                                |
|                            | 18B |          | <b>No. 18</b>             | 4.00                          | 346,968     | 86,742         | <b>145%</b>                                     | <b>55M</b>                 | 2500                         | 1543.3      | 617  | <b>154%</b>                                |

**NOTES**

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See Lab reports for stress versus displacement curves (stress versus cross-head position).

Load rates per ASTM A 370.

ASTM = American Society for Testing and Materials

CSA = Canadian Standards Association