

Detailed Ultimate Strength Results

| Researcher                    | Specimen ID | h (mm) | b (mm) | d (mm) | t (mm) | L (mm) | fy (MPa) | P (kN) | fcr_local (MPa) | fcr_dist (MPa) | test to predicted ratios for studied methods |      |      |      |      |      |      |      |      | AISI comparison |      |       |       |
|-------------------------------|-------------|--------|--------|--------|--------|--------|----------|--------|-----------------|----------------|--|------|------|------|------|------|------|------|------|-----------------|------|-------|-------|
|                               |             |        |        |        |        |        |          |        |                 |                | A1   | A2   | B1   | B2   | B3   | C1   | C2   | C3   | D1   | D2              | D3   | C1/A1 | C3/A1 |
| Mulligan (1983) Pekoz (1987)  | GM1         | 155    | 80     | 18     | 1.14   | 1600   | 223      | 43.6   | 54              | 130            | 0.94   | 0.94 | 0.94 | 1.06 | 1.02 | 0.94 | 1.06 | 1.02 | 1.18 | 1.35            | 1.32 | 1.00  | 0.91  |
| Mulligan (1983) Pekoz (1987)  | GM2         | 129    | 80     | 16     | 1.14   | 1905   | 221      | 46.3   | 76              | 137            | 1.05   | 1.05 | 1.05 | 1.14 | 1.10 | 1.05 | 1.14 | 1.10 | 1.27 | 1.38            | 1.34 | 1.00  | 0.96  |
| Mulligan (1983) Pekoz (1987)  | GM3         | 156    | 80     | 16     | 1.17   | 3073   | 221      | 36.5   | 56              | 121            | 0.96   | 0.96 | 0.96 | 1.08 | 1.05 | 0.96 | 1.08 | 1.05 | 0.99 | 1.12            | 1.10 | 1.00  | 0.91  |
| Mulligan (1983) Pekoz (1987)  | GM4         | 154    | 80     | 17     | 1.14   | 3073   | 221      | 37.4   | 54              | 125            | 1.01   | 1.01 | 1.01 | 1.15 | 1.11 | 1.01 | 1.15 | 1.11 | 1.04 | 1.18            | 1.15 | 1.00  | 0.91  |
| Mulligan (1983) Pekoz (1987)  | GM5         | 155    | 79     | 18     | 1.24   | 1905   | 224      | 52.5   | 64              | 144            | 1.01   | 1.01 | 1.01 | 1.15 | 1.11 | 1.01 | 1.15 | 1.11 | 1.20 | 1.37            | 1.34 | 1.00  | 0.91  |
| Mulligan (1983) Pekoz (1987)  | GM6         | 230    | 80     | 17     | 1.14   | 1829   | 225      | 42.7   | 25              | 71             | 0.94   | 0.94 | 0.94 | 1.14 | 1.12 | 0.94 | 1.14 | 1.12 | 1.39 | 1.67            | 1.69 | 0.99  | 0.83  |
| Mulligan (1983) Pekoz (1987)  | GM7         | 231    | 80     | 17     | 1.14   | 2413   | 223      | 38.9   | 25              | 70             | 0.93   | 0.93 | 0.93 | 1.14 | 1.12 | 0.93 | 1.14 | 1.12 | 1.27 | 1.53            | 1.55 | 1.00  | 0.83  |
| Mulligan (1983) Pekoz (1987)  | GM8         | 231    | 80     | 17     | 1.12   | 2997   | 223      | 33.8   | 24              | 69             | 0.93   | 0.93 | 0.93 | 1.14 | 1.12 | 0.93 | 1.14 | 1.12 | 1.14 | 1.38            | 1.40 | 1.00  | 0.83  |
| Mulligan (1983) Pekoz (1987)  | GM9         | 229    | 80     | 18     | 1.22   | 2413   | 228      | 48.0   | 29              | 81             | 1.00   | 1.00 | 1.00 | 1.23 | 1.21 | 1.00 | 1.23 | 1.21 | 1.31 | 1.59            | 1.60 | 1.00  | 0.83  |
| Mulligan (1983) Pekoz (1987)  | GM10        | 113    | 113    | 19     | 1.22   | 2515   | 236      | 48.9   | 89              | 111            | 0.98   | 0.98 | 0.98 | 0.92 | 0.91 | 0.98 | 0.94 | 1.00 | 1.14 | 1.08            | 1.11 | 1.00  | 0.98  |
| Mulligan (1983) Pekoz (1987)  | GM11        | 221    | 113    | 19     | 1.22   | 1908   | 219      | 54.7   | 30              | 74             | 0.98   | 0.98 | 0.98 | 1.10 | 1.06 | 0.98 | 1.10 | 1.06 | 1.49 | 1.69            | 1.65 | 1.00  | 0.92  |
| Mulligan (1983) Pekoz (1987)  | GM12        | 222    | 112    | 19     | 1.22   | 2517   | 244      | 53.8   | 30              | 75             | 0.95   | 0.95 | 0.95 | 1.07 | 1.04 | 0.95 | 1.07 | 1.04 | 1.42 | 1.61            | 1.57 | 1.00  | 0.92  |
| Mulligan (1983) Pekoz (1987)  | GM13        | 221    | 113    | 19     | 1.22   | 2520   | 234      | 52.5   | 30              | 74             | 0.95   | 0.95 | 0.95 | 1.06 | 1.03 | 0.95 | 1.06 | 1.03 | 1.40 | 1.59            | 1.55 | 1.00  | 0.92  |
| Thomasson (1978) Pekoz (1987) | A71         | 299    | 100    | 20     | 0.64   | 2690   | 391      | 16.0   | 5               | 26             | 0.85   | 0.85 | 0.85 | 0.95 | 0.94 | 0.85 | 0.95 | 0.94 | 1.63 | 1.96            | 2.00 | 1.00  | 0.91  |
| Thomasson (1978) Pekoz (1987) | A74         | 300    | 101    | 21     | 0.64   | 2690   | 395      | 16.2   | 5               | 27             | 0.85   | 0.85 | 0.85 | 0.95 | 0.93 | 0.85 | 0.95 | 0.93 | 1.61 | 1.93            | 1.98 | 1.00  | 0.92  |
| Thomasson (1978) Pekoz (1987) | A75         | 299    | 101    | 20     | 0.64   | 2690   | 398      | 15.5   | 5               | 26             | 0.82   | 0.82 | 0.82 | 0.91 | 0.89 | 0.82 | 0.91 | 0.89 | 1.57 | 1.88            | 1.92 | 1.00  | 0.91  |
| Thomasson (1978) Pekoz (1987) | A76         | 300    | 100    | 20     | 0.66   | 2690   | 288      | 14.5   | 5               | 26             | 0.81   | 0.81 | 0.81 | 0.92 | 0.90 | 0.81 | 0.92 | 0.90 | 1.49 | 1.81            | 1.85 | 1.00  | 0.89  |
| Thomasson (1978) Pekoz (1987) | A101        | 300    | 101    | 20     | 0.94   | 2690   | 464      | 36.9   | 10              | 39             | 0.89   | 0.89 | 0.89 | 1.05 | 1.03 | 0.89 | 1.05 | 1.03 | 1.56 | 1.90            | 1.94 | 1.00  | 0.87  |
| Thomasson (1978) Pekoz (1987) | A102        | 300    | 101    | 20     | 0.94   | 2690   | 460      | 35.0   | 10              | 39             | 0.85   | 0.85 | 0.85 | 0.99 | 0.98 | 0.85 | 0.99 | 0.98 | 1.48 | 1.81            | 1.84 | 1.00  | 0.87  |
| Thomasson (1978) Pekoz (1987) | A103        | 299    | 101    | 20     | 0.94   | 2690   | 460      | 37.1   | 10              | 39             | 0.90   | 0.90 | 0.90 | 1.05 | 1.03 | 0.90 | 1.05 | 1.03 | 1.56 | 1.91            | 1.95 | 1.00  | 0.87  |
| Thomasson (1978) Pekoz (1987) | A104        | 298    | 100    | 20     | 0.97   | 2690   | 475      | 34.5   | 10              | 16             |  |      |      |      |      |      |      |      |      |                 |      |       |       |
| Thomasson (1978) Pekoz (1987) | A151        | 299    | 100    | 20     | 1.45   | 2690   | 382      | 76.5   | 24              | 64             | 0.89   | 0.89 | 0.89 | 1.09 | 1.07 | 0.97 | 1.09 | 1.07 | 1.36 | 1.66            | 1.68 | 0.92  | 0.83  |
| Thomasson (1978) Pekoz (1987) | A152        | 300    | 100    | 20     | 1.42   | 2690   | 379      | 69.8   | 23              | 62             | 0.84   | 0.84 | 0.84 | 1.03 | 1.01 | 0.91 | 1.03 | 1.01 | 1.31 | 1.59            | 1.61 | 0.92  | 0.83  |
| Thomasson (1978) Pekoz (1987) | A153        | 300    | 100    | 21     | 1.37   | 2690   | 395      | 71.2   | 22              | 62             | 0.90   | 0.90 | 0.90 | 1.10 | 1.08 | 0.95 | 1.10 | 1.08 | 1.38 | 1.70            | 1.72 | 0.95  | 0.83  |
| Thomasson (1978) Pekoz (1987) | A154        | 301    | 100    | 23     | 1.40   | 2690   | 393      | 72.9   | 23              | 68             | 0.88   | 0.88 | 0.88 | 1.07 | 1.05 | 0.89 | 1.07 | 1.05 | 1.30 | 1.60            | 1.63 | 0.99  | 0.83  |
| Thomasson (1978) Pekoz (1987) | A156        | 299    | 100    | 20     | 1.40   | 2690   | 381      | 68.9   | 23              | 61             | 0.85   | 0.85 | 0.85 | 1.04 | 1.02 | 0.92 | 1.04 | 1.02 | 1.32 | 1.61            | 1.63 | 0.92  | 0.83  |
| Loughlan (1979) Pekoz (1987)  | L1          | 102    | 51     | 19     | 0.81   | 1905   | 242      | 13.9   | 63              | 195            | 0.70   | 0.70 | 0.68 | 0.75 | 0.73 | 0.68 | 0.75 | 0.73 | 0.68 | 0.75            | 0.73 | 1.03  | 0.96  |
| Loughlan (1979) Pekoz (1987)  | L2          | 254    | 50     | 19     | 0.79   | 1295   | 242      | 16.0   | 11              | 33             | 0.74   | 0.74 | 0.72 | 0.92 | 0.92 | 0.74 | 0.92 | 0.92 | 1.24 | 1.57            | 1.73 | 1.01  | 0.81  |
| Loughlan (1979) Pekoz (1987)  | L3          | 103    | 63     | 25     | 0.79   | 1905   | 242      | 15.7   | 57              | 187            | 0.73   | 0.73 | 0.70 | 0.71 | 0.68 | 0.70 | 0.71 | 0.68 | 0.73 | 0.75            | 0.74 | 1.04  | 1.07  |
| Loughlan (1979) Pekoz (1987)  | L4          | 102    | 63     | 25     | 0.81   | 1600   | 242      | 16.8   | 61              | 193            | 0.71   | 0.71 | 0.68 | 0.69 | 0.66 | 0.68 | 0.69 | 0.66 | 0.74 | 0.76            | 0.75 | 1.04  | 1.07  |
| Loughlan (1979) Pekoz (1987)  | L5          | 102    | 63     | 26     | 0.79   | 1295   | 242      | 18.2   | 58              | 191            | 0.78   | 0.78 | 0.74 | 0.74 | 0.71 | 0.74 | 0.74 | 0.71 | 0.84 | 0.85            | 0.84 | 1.05  | 1.09  |
| Loughlan (1979) Pekoz (1987)  | L6          | 128    | 51     | 19     | 0.79   | 1905   | 242      | 16.9   | 39              | 147            | 0.88   | 0.88 | 0.86 | 1.00 | 0.98 | 0.86 | 1.00 | 0.98 | 0.86 | 1.00            | 1.02 | 1.03  | 0.90  |
| Loughlan (1979) Pekoz (1987)  | L7          | 126    | 50     | 19     | 0.79   | 1600   | 242      | 17.7   | 40              | 151            | 0.87   | 0.87 | 0.84 | 0.98 | 0.95 | 0.84 | 0.98 | 0.95 | 0.90 | 1.05            | 1.06 | 1.03  | 0.91  |
| Loughlan (1979) Pekoz (1987)  | L8          | 126    | 51     | 19     | 0.79   | 1295   | 242      | 19.2   | 40              | 151            | 0.87   | 0.87 | 0.84 | 0.97 | 0.95 | 0.84 | 0.97 | 0.95 | 0.97 | 1.13            | 1.14 | 1.03  | 0.91  |
| Loughlan (1979) Pekoz (1987)  | L9          | 128    | 63     | 25     | 0.79   | 1905   | 242      | 19.3   | 38              | 154            | 0.89   | 0.89 | 0.85 | 0.92 | 0.90 | 0.85 | 0.92 | 0.90 | 0.93 | 1.02            | 1.02 | 1.04  | 1.00  |
| Loughlan (1979) Pekoz (1987)  | L10         | 127    | 63     | 26     | 0.79   | 1600   | 242      | 20.3   | 39              | 158            | 0.90   | 0.90 | 0.85 | 0.91 | 0.88 | 0.85 | 0.91 | 0.88 | 0.97 | 1.05            | 1.05 | 1.05  | 1.01  |
| Loughlan (1979) Pekoz (1987)  | L11         | 127    | 63     | 26     | 0.81   | 1295   | 242      | 20.7   | 41              | 162            | 0.84   | 0.84 | 0.80 | 0.86 | 0.83 | 0.80 | 0.86 | 0.83 | 0.94 | 1.02            | 1.02 | 1.05  | 1.01  |
| Loughlan (1979) Pekoz (1987)  | L12         | 152    | 51     | 19     | 0.81   | 1905   | 242      | 14.9   | 30              | 115            | 0.75   | 0.75 | 0.73 | 0.88 | 0.86 | 0.73 | 0.88 | 0.86 | 0.77 | 0.93            | 0.95 | 1.03  | 0.87  |
| Loughlan (1979) Pekoz (1987)  | L13         | 152    | 51     | 20     | 0.81   | 1600   | 242      | 15.7   | 30              | 119            | 0.73   | 0.73 | 0.70 | 0.84 | 0.83 | 0.70 | 0.84 | 0.83 | 0.80 | 0.96            | 0.99 | 1.04  | 0.88  |
| Loughlan (1979) Pekoz (1987)  | L14         | 152    | 50     | 19     | 0.81   | 1295   | 242      | 17.1   | 30              | 115            | 0.75   | 0.75 | 0.72 | 0.87 | 0.86 | 0.72 | 0.87 | 0.86 | 0.88 | 1.07            | 1.10 | 1.03  | 0.87  |
| Loughlan (1979) Pekoz (1987)  | L15         | 154    | 63     | 25     | 0.79   | 1905   | 235      | 21.8   | 27              | 126            | 1.02   | 1.02 | 0.98 | 1.10 | 1.08 | 0.98 | 1.10 | 1.08 | 1.11 | 1.27            | 1.29 | 1.04  | 0.94  |
| Loughlan (1979) Pekoz (1987)  | L16         | 154    | 63     | 26     | 0.81   | 1600   | 242      | 23.0   | 28              | 132            | 0.97   | 0.97 | 0.92 | 1.04 | 1.01 | 0.92 | 1.04 | 1.01 | 1.09 | 1.25            | 1.27 | 1.05  | 0.96  |
| Loughlan (1979) Pekoz (1987)  | L17         | 152    | 63     | 26     | 0.79   | 1295   | 242      | 23.6   | 28              | 130            | 1.00   | 1.00 | 0.95 | 1.06 | 1.03 | 0.95 | 1.06 | 1.03 | 1.18 | 1.34            | 1.36 | 1.05  | 0.97  |
| Loughlan (1979) Pekoz (1987)  | L18         | 178    | 50     | 19     | 0.79   | 1905   | 242      | 13.9   | 21              | 81             | 0.75   | 0.75 | 0.72 | 0.90 | 0.89 | 0.72 | 0.90 | 0.89 | 0.82 | 1.01            | 1.07 | 1.03  | 0.84  |
| Loughlan (1979) Pekoz (1987)  | L19         | 177    | 50     | 19     | 0.79   | 1600   | 242      | 15.1   | 21              | 82             | 0.74   | 0.74 | 0.72 | 0.89 | 0.88 | 0.72 | 0.89 | 0.88 | 0.89 | 1.10            | 1.16 | 1.03  | 0.85  |
| Loughlan (1979) Pekoz (1987)  | L20         | 178    | 50     | 20     | 0.81   | 1295   | 242      | 16.3   | 22              | 86             | 0.71   | 0.71 | 0.69 | 0.84 | 0.83 | 0.69 | 0.84 | 0.83 | 0.90 | 1.11            | 1.17 | 1.04  | 0.86  |
| Loughlan (1979) Pekoz (1987)  | L21         | 178    | 63     | 25     | 0.79   | 1905   | 242      | 17.2   | 20              | 102            | 0.79   | 0.79 | 0.76 | 0.89 | 0.87 | 0.76 | 0.89 | 0.87 | 0.91 | 1.08            | 1.11 | 1.04  | 0.91  |
| Loughlan (1979) Pekoz (1987)  | L22         | 178    | 63     | 25     | 0.79   | 1600   | 242      | 19.7   | 20              | 102            | 0.86   | 0.86 | 0.83 | 0.96 | 0.94 | 0.83 | 0.96 | 0.94 | 1.05 | 1.23            | 1.27 | 1.04  | 0.92  |
| Loughlan (1979) Pekoz (1987)  | L23         | 177    | 63     | 26     | 0.79   | 1295   | 242      | 18.4   | 21              | 105            | 0.78   | 0.78 | 0.74 | 0.85 | 0.84 | 0.74 | 0.85 | 0.84 | 0.97 | 1.13            | 1.17 | 1.05  | 0.93  |
| Loughlan (1979) Pekoz (1987)  | L24         | 152    | 49     | 18     | 1.63   | 1905   | 233      | 65.8   | 120             | 242            | 1.22   | 1.22 | 1.22 | 1.25 | 1.23 | 1.22 | 1.25 | 1.23 | 1.22 | 1.25            | 1.23 | 1.00  | 0.99  |
| Loughlan (1979) Pekoz (1987)  | L25         | 152    | 62     | 25     | 1.65   | 1905   | 233      | 71.2   | 120             | 283            | 0.94   | 0.94 | 0.94 | 1.03 | 1.01 | 0.94 | 1.03 | 1.01 | 0.94 | 1.03            | 1.01 | 1.00  | 0.93  |
| Loughlan (1979) Pekoz (1987)  | L26         | 152    | 62     | 25     | 1.68   | 1600   | 233      | 72.9   | 124             | 289            | 0.87   | 0.87 | 0.87 | 0.97 | 0.95 | 0.87 | 0.97 | 0.95 | 0.87 | 0.97            | 0.95 | 1.00  | 0.92  |
| Loughlan (1979) Pekoz (1987)  | L27         | 151    | 62     | 25     | 1.65   | 1295   | 233      | 73.8   | 122             | 285            | 0.87   | 0.87 | 0.86 | 0.97 | 0.94 | 0.86 | 0.97 | 0.94 | 0.88 | 0.99            | 0.99 | 1.01  | 0.92  |
| Loughlan (1979) Pekoz (1987)  | L28         | 178    | 49     | 18     | 1.63   | 1905   | 233      | 51.2   | 88              | 175            | 0.95   | 0.95 | 0.95 | 0.99 | 0.98 | 0.95 | 0.99 | 0.98 | 0.95 | 0.99            | 0.98 | 1.00  | 0.97  |
| Loughlan (1979) Pekoz (1987)  | L29         | 178    | 49     | 18     | 1.65   | 1600   | 233      | 56.0   | 91              | 178            | 0.91   | 0.91 | 0.91 |      |      |      |      |      |      |                 |      |       |       |

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|-----------------------------------|--------------|--------|--------|--------|--------|--------|----------|--------|-----------------|----------------|--|------|------|------|------|------|------|------|------|-----------------|------|-------|-------|
|                                   |              |        |        |        |        |        |          |        |                 |                | A1   | A2   | B1   | B2   | B3   | C1   | C2   | C3   | D1   | D2              | D3   | C1/A1 | C3/A1 |
| Loughlan (1979) Pekoz (1987)      | L30          | 176    | 49     | 18     | 1.65   | 1295   | 233      | 60.5   | 93              | 183            | 0.88   | 0.88 | 0.88 | 0.96 | 0.95 | 0.88 | 0.96 | 0.95 | 0.95 | 1.01            | 1.06 | 1.00  | 0.93  |
| Loughlan (1979) Pekoz (1987)      | L31          | 178    | 62     | 25     | 1.63   | 1905   | 233      | 75.6   | 87              | 223            | 1.01   | 1.01 | 1.01 | 1.15 | 1.13 | 1.01 | 1.15 | 1.13 | 1.01 | 1.15            | 1.14 | 1.00  | 0.89  |
| Loughlan (1979) Pekoz (1987)      | L32          | 178    | 62     | 25     | 1.63   | 1600   | 233      | 75.6   | 87              | 223            | 0.94   | 0.94 | 0.94 | 1.08 | 1.07 | 0.94 | 1.08 | 1.07 | 0.97 | 1.11            | 1.14 | 1.00  | 0.88  |
| Loughlan (1979) Pekoz (1987)      | L33          | 177    | 62     | 25     | 1.63   | 1295   | 233      | 80.1   | 88              | 225            | 0.95   | 0.95 | 0.94 | 1.10 | 1.08 | 0.94 | 1.10 | 1.08 | 1.03 | 1.18            | 1.20 | 1.01  | 0.88  |
| Mulligan (1983) Stubs             | SLC/1 60x30  | 81     | 40     | 9      | 1.22   | 304    | 226      | 46.3   | 225             | 296            | 1.17   | 1.17 | 1.12 | 1.16 | 1.13 | 1.14 | 1.16 | 1.16 | 1.27 | 1.28            | 1.25 | 1.02  | 1.01  |
| Mulligan (1983) Stubs             | SLC/1 90x30  | 115    | 40     | 9      | 1.22   | 304    | 226      | 44.7   | 116             | 183            | 1.09   | 1.09 | 1.08 | 1.16 | 1.14 | 1.10 | 1.16 | 1.14 | 1.37 | 1.44            | 1.44 | 1.00  | 0.96  |
| Mulligan (1983) Stubs             | SLC/1 120x30 | 153    | 41     | 9      | 1.22   | 278    | 226      | 45.1   | 66              | 100            | 1.08   | 1.14 | 1.14 | 1.18 | 1.24 | 1.16 | 1.18 | 1.26 | 1.60 | 1.68            | 1.77 | 0.93  | 0.86  |
| Mulligan (1983) Stubs             | SLC/1 60x60  | 79     | 81     | 17     | 1.20   | 458    | 230      | 58.7   | 171             | 279            | 1.12   | 1.12 | 1.12 | 1.06 | 1.04 | 1.12 | 1.06 | 1.04 | 1.23 | 1.17            | 1.16 | 1.00  | 1.07  |
| Mulligan (1983) Stubs             | SLC/2 60x60  | 78     | 80     | 17     | 1.21   | 458    | 230      | 60.5   | 178             | 283            | 1.14   | 1.14 | 1.14 | 1.08 | 1.06 | 1.14 | 1.08 | 1.06 | 1.25 | 1.19            | 1.18 | 1.00  | 1.07  |
| Mulligan (1983) Stubs             | SLC/1 120x60 | 150    | 81     | 17     | 1.20   | 457    | 230      | 57.8   | 63              | 184            | 1.04   | 1.04 | 1.04 | 1.17 | 1.13 | 1.04 | 1.17 | 1.13 | 1.24 | 1.39            | 1.42 | 1.00  | 0.92  |
| Mulligan (1983) Stubs             | SLC/2 120x60 | 150    | 81     | 16     | 1.20   | 457    | 230      | 60.5   | 63              | 171            | 1.11   | 1.11 | 1.10 | 1.23 | 1.19 | 1.10 | 1.23 | 1.19 | 1.35 | 1.51            | 1.53 | 1.01  | 0.93  |
| Mulligan (1983) Stubs             | SLC/1 180x60 | 227    | 80     | 17     | 1.20   | 559    | 230      | 56.9   | 29              | 77             | 1.02   | 1.02 | 1.02 | 1.24 | 1.22 | 1.02 | 1.24 | 1.22 | 1.47 | 1.78            | 1.99 | 1.00  | 0.84  |
| Mulligan (1983) Stubs             | SLC/2 180x60 | 227    | 81     | 17     | 1.19   | 685    | 230      | 56.9   | 28              | 76             | 1.04   | 1.04 | 1.04 | 1.26 | 1.24 | 1.04 | 1.26 | 1.24 | 1.60 | 1.93            | 2.01 | 1.00  | 0.84  |
| Mulligan (1983) Stubs             | SLC/1 240x60 | 299    | 81     | 17     | 1.19   | 559    | 230      | 56.9   | 17              | 41             | 1.02   | 1.02 | 1.02 | 1.29 | 1.29 | 1.02 | 1.29 | 1.30 | 1.71 | 2.13            | 2.56 | 1.00  | 0.79  |
| Mulligan (1983) Stubs             | SLC/2 240x60 | 300    | 81     | 17     | 1.19   | 914    | 239      | 53.4   | 17              | 41             | 0.96   | 1.10 | 1.10 | 1.21 | 1.20 | 1.13 | 1.21 | 1.22 | 1.86 | 2.28            | 2.38 | 0.85  | 0.78  |
| Mulligan (1983) Stubs             | SLC/3 240x60 | 299    | 81     | 17     | 1.20   | 558    | 230      | 56.0   | 17              | 42             | 0.99   | 0.99 | 0.99 | 1.25 | 1.25 | 0.99 | 1.25 | 1.26 | 1.66 | 2.06            | 2.47 | 1.00  | 0.79  |
| Mulligan (1983) Stubs             | SLC/1 60x90  | 80     | 113    | 19     | 1.14   | 648    | 223      | 51.2   | 88              | 166            | 1.07   | 1.07 | 1.07 | 1.05 | 1.01 | 1.07 | 1.05 | 1.01 | 1.28 | 1.27            | 1.24 | 1.00  | 1.06  |
| Mulligan (1983) Stubs             | SLC/2 60x90  | 79     | 113    | 19     | 1.14   | 647    | 223      | 52.5   | 88              | 166            | 1.10   | 1.10 | 1.10 | 1.08 | 1.04 | 1.10 | 1.08 | 1.04 | 1.31 | 1.30            | 1.27 | 1.00  | 1.06  |
| Mulligan (1983) Stubs             | SLC/1 90x90  | 114    | 113    | 19     | 1.13   | 647    | 225      | 52.9   | 76              | 155            | 1.07   | 1.07 | 1.07 | 0.99 | 0.98 | 1.07 | 0.99 | 0.98 | 1.34 | 1.27            | 1.26 | 1.00  | 1.09  |
| Mulligan (1983) Stubs             | SLC/2 90x90  | 113    | 113    | 19     | 1.14   | 647    | 225      | 53.4   | 78              | 156            | 1.06   | 1.06 | 1.06 | 0.99 | 0.97 | 1.06 | 0.99 | 0.97 | 1.33 | 1.26            | 1.25 | 1.00  | 1.09  |
| Mulligan (1983) Stubs             | SLC/1 180x90 | 280    | 144    | 33     | 1.55   | 891    | 412      | 138.6  | 30              | 122            | 1.03   | 1.03 | 1.03 | 1.09 | 1.05 | 1.03 | 1.09 | 1.05 | 1.39 | 1.53            | 1.75 | 1.00  | 0.98  |
| Mulligan (1983) Stubs             | SLC/2 180x90 | 280    | 145    | 33     | 1.55   | 892    | 412      | 139.7  | 30              | 122            | 1.03   | 1.03 | 1.03 | 1.10 | 1.06 | 1.03 | 1.10 | 1.06 | 1.40 | 1.54            | 1.76 | 1.00  | 0.98  |
| Mulligan (1983) Stubs             | SLC/3 180x90 | 223    | 113    | 19     | 1.22   | 647    | 368      | 67.6   | 30              | 91             | 0.89   | 0.89 | 0.87 | 0.95 | 0.91 | 0.87 | 0.95 | 0.91 | 1.34 | 1.52            | 1.63 | 1.03  | 0.97  |
| Mulligan (1983) Stubs             | SLC/4 180x90 | 222    | 114    | 18     | 1.28   | 648    | 199      | 61.4   | 33              | 92             | 1.04   | 1.04 | 1.02 | 1.15 | 1.11 | 1.02 | 1.15 | 1.11 | 1.42 | 1.59            | 1.65 | 1.02  | 0.94  |
| Mulligan (1983) Stubs             | SLC/5 180x90 | 222    | 114    | 19     | 1.29   | 648    | 199      | 64.9   | 34              | 98             | 1.06   | 1.06 | 1.06 | 1.19 | 1.15 | 1.06 | 1.19 | 1.15 | 1.42 | 1.60            | 1.68 | 1.00  | 0.92  |
| Mulligan (1983) Stubs             | SLC/1 270x90 | 330    | 114    | 18     | 1.27   | 762    | 199      | 60.5   | 15              | 40             | 1.03   | 1.03 | 1.01 | 1.22 | 1.20 | 1.01 | 1.22 | 1.20 | 1.72 | 2.07            | 2.31 | 1.02  | 0.85  |
| Mulligan (1983) Stubs             | SLC/2 270x90 | 329    | 114    | 18     | 1.28   | 971    | 203      | 62.3   | 16              | 41             | 1.04   | 1.09 | 1.09 | 1.23 | 1.21 | 1.12 | 1.23 | 1.21 | 1.89 | 2.26            | 2.32 | 0.93  | 0.86  |
| Mulligan (1983) Stubs             | SLC/1 360x90 | 440    | 112    | 19     | 1.24   | 762    | 201      | 55.6   | 8               | 21             | 0.96   | 0.96 | 0.96 | 1.20 | 1.33 | 0.97 | 1.20 | 1.34 | 1.88 | 2.34            | 2.88 | 0.99  | 0.71  |
| Miller and Pekoz (1994)           | LC-1         | 89     | 34     | 10     | 1.93   | 1307   | 366      | 50.3   | 473             | 548            | 0.87   | 0.87 | 0.87 | 0.87 | 0.86 | 0.87 | 0.87 | 0.86 | 0.87 | 0.87            | 0.86 | 1.00  | 1.01  |
| Miller and Pekoz (1994)           | LC-2         | 89     | 34     | 11     | 1.92   | 1310   | 366      | 45.8   | 470             | 568            | 0.78   | 0.78 | 0.78 | 0.78 | 0.77 | 0.78 | 0.78 | 0.77 | 0.78 | 0.78            | 0.77 | 1.00  | 1.01  |
| Miller and Pekoz (1994)           | LC-3         | 89     | 34     | 11     | 1.94   | 1310   | 366      | 47.6   | 479             | 575            | 0.80   | 0.80 | 0.80 | 0.80 | 0.79 | 0.80 | 0.80 | 0.79 | 0.80 | 0.80            | 0.79 | 1.00  | 1.01  |
| Miller and Pekoz (1994)           | LC-4         | 151    | 34     | 7      | 0.90   | 1310   | 302      | 15.8   | 38              | 53             | 0.92   | 0.92 | 0.92 | 1.03 | 1.03 | 1.08 | 1.08 | 1.15 | 1.14 | 1.21            | 1.27 | 0.85  | 0.80  |
| Miller and Pekoz (1994)           | LC-6         | 151    | 34     | 8      | 0.89   | 1308   | 302      | 13.3   | 37              | 58             | 0.76   | 0.76 | 0.76 | 0.86 | 0.86 | 0.85 | 0.86 | 0.91 | 0.91 | 0.99            | 1.04 | 0.89  | 0.83  |
| Miller and Pekoz (1994)           | LC-7         | 151    | 33     | 8      | 0.90   | 1307   | 302      | 15.1   | 38              | 58             | 0.90   | 0.90 | 0.90 | 0.99 | 0.99 | 0.99 | 0.99 | 1.06 | 1.03 | 1.11            | 1.17 | 0.91  | 0.84  |
| Miller and Pekoz (1994)           | LC-10        | 89     | 35     | 11     | 1.92   | 1308   | 366      | 97.9   | 469             | 562            | 1.09   | 1.09 | 1.09 | 1.02 | 1.00 | 1.09 | 1.05 | 1.06 | 1.09 | 1.05            | 1.06 | 1.00  | 1.02  |
| Miller and Pekoz (1994)           | LC-14        | 151    | 34     | 8      | 0.91   | 2531   | 302      | 6.5    | 39              | 59             | 1.01   | 1.01 | 1.01 | 0.94 | 0.94 | 1.01 | 0.94 | 0.94 | 1.01 | 0.94            | 0.94 | 1.00  | 1.07  |
| Miller and Pekoz (1994)           | LC-15        | 151    | 34     | 8      | 0.90   | 2534   | 302      | 14.5   | 38              | 58             | 0.78   | 0.78 | 0.78 | 0.89 | 0.89 | 0.89 | 0.89 | 0.95 | 0.97 | 1.06            | 1.11 | 0.88  | 0.82  |
| Miller and Pekoz (1994)           | LC-17        | 90     | 34     | 11     | 1.92   | 2532   | 366      | 55.6   | 460             | 559            | 1.06   | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06 | 1.06            | 1.06 | 1.00  | 1.00  |
| Miller and Pekoz (1994)           | LC-18        | 90     | 35     | 11     | 1.92   | 2532   | 366      | 49.8   | 459             | 554            | 0.93   | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93            | 0.93 | 1.00  | 1.00  |
| Miller and Pekoz (1994)           | LC-19        | 90     | 35     | 11     | 1.92   | 2531   | 366      | 26.7   | 459             | 554            | 1.50   | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50            | 1.50 | 1.00  | 1.00  |
| Miller and Pekoz (1994)           | LC-21        | 90     | 34     | 11     | 1.91   | 1300   | 366      | 54.1   | 455             | 555            | 0.92   | 0.92 | 0.92 | 0.92 | 0.90 | 0.92 | 0.92 | 0.90 | 0.92 | 0.92            | 0.90 | 1.00  | 1.02  |
| Miller and Pekoz (1994)           | LC-22        | 90     | 35     | 11     | 1.92   | 1313   | 366      | 52.5   | 459             | 554            | 0.86   | 0.86 | 0.86 | 0.86 | 0.84 | 0.86 | 0.86 | 0.84 | 0.86 | 0.86            | 0.84 | 1.00  | 1.02  |
| Miller and Pekoz (1994)           | LC-23        | 90     | 35     | 11     | 1.91   | 1318   | 366      | 50.3   | 454             | 550            | 0.83   | 0.83 | 0.83 | 0.83 | 0.81 | 0.83 | 0.83 | 0.81 | 0.83 | 0.83            | 0.81 | 1.00  | 1.02  |
| Miller and Pekoz (1994)           | LC-24        | 90     | 35     | 11     | 1.92   | 1305   | 366      | 103.6  | 459             | 554            | 1.15   | 1.15 | 1.15 | 1.07 | 1.06 | 1.15 | 1.11 | 1.12 | 1.15 | 1.11            | 1.12 | 1.00  | 1.02  |
| Miller and Pekoz (1994)           | LC-25        | 151    | 34     | 8      | 0.90   | 1310   | 366      | 24.2   | 38              | 58             | 0.86   | 0.95 | 0.95 | 0.96 | 1.02 | 1.06 | 1.06 | 1.14 | 1.51 | 1.66            | 1.75 | 0.81  | 0.75  |
| Miller and Pekoz (1994)           | LC-30        | 90     | 35     | 11     | 1.92   | 2532   | 366      | 27.4   | 459             | 554            | 1.55   | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55 | 1.55            | 1.55 | 1.00  | 1.00  |
| Miller and Pekoz (1994)           | LC-31        | 90     | 35     | 11     | 1.91   | 2532   | 366      | 22.5   | 454             | 550            | 1.28   | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28            | 1.28 | 1.00  | 1.00  |
| <b>Z-Section Columns</b>          |              |        |        |        |        |        |          |        |                 |                |  |      |      |      |      |      |      |      |      |                 |      |       |       |
| Polyzois and Charnvarnichborikarn | 38-0-0-1     | 116.6  | 45.2   | 0      | 1.5    | 458    | 345      | 52.96  | 116.877         | 116.877        | 1.09   | 1.17 | 1.17 | 1.17 | 1.09 | 1.24 | 1.24 | 1.15 | 1.38 | 1.33            | 1.41 | 0.88  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-0-0-2     | 115.5  | 45.5   | 0      | 1.5    | 458    | 345      | 49.17  | 117.56          | 117.5605       | 1.01   | 1.08 | 1.08 | 1.08 | 1.01 | 1.14 | 1.14 | 1.07 | 1.27 | 1.23            | 1.31 | 0.88  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-0-0-3     | 116.3  | 45.5   | 0      | 1.5    | 457.2  | 345      | 52.93  | 116.613         | 116.6127       | 1.09   | 1.17 | 1.17 | 1.17 | 1.09 | 1.23 | 1.23 | 1.15 | 1.37 | 1.33            | 1.41 | 0.88  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-6.4-1     | 114.8  | 52.3   | 14.5   | 1.5    | 457.2  | 345      | 84.11  | 171.424         | 349.1          | 1.00   | 1.00 | 0.92 | 1.04 | 1.02 | 0.95 | 1.04 | 1.02 | 1.12 | 1.25            | 1.17 | 1.05  | 0.99  |
| Polyzois and Charnvarnichborikarn | 38-6.4-2     | 115.6  | 52.9   | 14.8   | 1.5    | 458    | 345      | 77.65  | 169.012         | 350.952        | 0.91   | 0.91 | 0.84 | 0.96 | 0.93 | 0.87 | 0.96 | 0.93 | 1.03 | 1.15            | 1.08 | 1.05  | 0.98  |
| Polyzois and Charnvarnichborikarn | 38-6.4-3     | 115.3  | 52.8   | 14.2   | 1.5    | 457.7  | 345      | 85.89  | 169.82          | 339.7036       | 1.03   | 1.03 | 0.94 | 1.06 | 1.04 | 0.98 | 1.06 | 1.04 | 1.16 | 1.29            | 1.21 | 1.05  | 0.99  |

Detailed Ultimate Strength Results

| Researcher                        | Specimen ID | h (mm) | b (mm) | d (mm) | t (mm) | L (mm) | fy (MPa) | P (kN) | fcr_local (MPa) | fcr_dist (MPa) | test to predicted ratios for studied methods |      |      |      |      |      |      |      |      | AISI comparison |      |       |       |
|-----------------------------------|-------------|--------|--------|--------|--------|--------|----------|--------|-----------------|----------------|--|------|------|------|------|------|------|------|------|-----------------|------|-------|-------|
|                                   |             |        |        |        |        |        |          |        |                 |                | A1   | A2   | B1   | B2   | B3   | C1   | C2   | C3   | D1   | D2              | D3   | C1/A1 | C3/A1 |
| Polyzois and Charnvarnichborikarn | 38-12.7-1   | 115.6  | 52.9   | 20.6   | 1.5    | 457.2  | 345      | 79.66  | 169.325         | 441.0982       | 0.85   | 0.85 | 0.83 | 0.93 | 0.91 | 0.83 | 0.93 | 0.91 | 0.92 | 1.03            | 1.00 | 1.03  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-12.7-2   | 115.9  | 53.2   | 21.1   | 1.5    | 457.2  | 345      | 88.56  | 168.409         | 444.1084       | 0.94   | 0.94 | 0.92 | 1.03 | 1.01 | 0.92 | 1.03 | 1.01 | 1.01 | 1.14            | 1.10 | 1.03  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-12.7-3   | 115    | 52.3   | 20.6   | 1.5    | 457.7  | 345      | 67.86  | 171.206         | 445.1763       | 0.73   | 0.73 | 0.71 | 0.80 | 0.78 | 0.71 | 0.80 | 0.78 | 0.78 | 0.88            | 0.85 | 1.03  | 0.94  |
| Polyzois and Charnvarnichborikarn | 38-19.1-1   | 115.3  | 52.3   | 26.9   | 1.5    | 458    | 345      | 80.55  | 170.394         | 488.4826       | 0.88   | 0.88 | 0.82 | 0.90 | 0.88 | 0.82 | 0.90 | 0.88 | 0.85 | 0.93            | 0.94 | 1.06  | 1.00  |
| Polyzois and Charnvarnichborikarn | 38-19.1-2   | 115.5  | 52.8   | 26.7   | 1.5    | 457.2  | 345      | 88.11  | 169.668         | 485.8655       | 0.95   | 0.95 | 0.90 | 0.98 | 0.96 | 0.90 | 0.98 | 0.96 | 0.93 | 1.02            | 1.03 | 1.06  | 1.00  |
| Polyzois and Charnvarnichborikarn | 38-19.1-3   | 115.4  | 52.9   | 26.7   | 1.5    | 457.7  | 345      | 92.87  | 169.911         | 486.6304       | 1.01   | 1.01 | 0.95 | 1.04 | 1.01 | 0.95 | 1.04 | 1.01 | 0.98 | 1.08            | 1.09 | 1.06  | 1.00  |
| Polyzois and Charnvarnichborikarn | 38-25.4-1   | 115    | 52.6   | 32.8   | 1.5    | 457.7  | 345      | 93.01  | 170.893         | 557.7216       | 1.04   | 1.04 | 0.94 | 0.99 | 0.97 | 0.94 | 0.99 | 0.97 | 0.94 | 0.99            | 1.01 | 1.10  | 1.07  |
| Polyzois and Charnvarnichborikarn | 38-25.4-2   | 116.1  | 52.9   | 33.1   | 1.5    | 457.2  | 345      | 85.89  | 167.747         | 552.0763       | 0.96   | 0.96 | 0.87 | 0.92 | 0.89 | 0.87 | 0.92 | 0.89 | 0.87 | 0.92            | 0.94 | 1.10  | 1.07  |
| Polyzois and Charnvarnichborikarn | 38-25.4-3   | 115.8  | 52.6   | 33     | 1.5    | 457.7  | 345      | 81.21  | 168.673         | 551.7394       | 0.91   | 0.91 | 0.82 | 0.87 | 0.84 | 0.82 | 0.87 | 0.84 | 0.82 | 0.87            | 0.89 | 1.10  | 1.07  |
| Polyzois and Charnvarnichborikarn | 51.0.0-1    | 117.4  | 58.2   | 0      | 1.5    | 457.2  | 345      | 49.84  | 88.1694         | 88.16935       | 0.99   | 1.06 | 1.06 | 1.06 | 1.05 | 1.10 | 1.10 | 1.09 | 1.21 | 1.20            | 1.43 | 0.90  | 0.91  |
| Polyzois and Charnvarnichborikarn | 51.0.0-2    | 117.4  | 58.2   | 0      | 1.5    | 457.7  | 345      | 52.73  | 88.1694         | 88.16935       | 1.04   | 1.12 | 1.12 | 1.12 | 1.11 | 1.16 | 1.16 | 1.15 | 1.28 | 1.27            | 1.51 | 0.90  | 0.91  |
| Polyzois and Charnvarnichborikarn | 51.0.0-3    | 117.2  | 57.7   | 0      | 1.5    | 457.7  | 345      | 52.96  | 89.3027         | 89.30272       | 1.05   | 1.13 | 1.13 | 1.13 | 1.11 | 1.16 | 1.16 | 1.15 | 1.29 | 1.28            | 1.51 | 0.90  | 0.91  |
| Polyzois and Charnvarnichborikarn | 51-6.4-1    | 116.1  | 65     | 14.7   | 1.5    | 457.7  | 345      | 77.79  | 163.742         | 343.2307       | 0.90   | 0.90 | 0.82 | 0.88 | 0.85 | 0.84 | 0.88 | 0.85 | 1.02 | 1.12            | 1.00 | 1.07  | 1.05  |
| Polyzois and Charnvarnichborikarn | 51-6.4-2    | 115.4  | 65.3   | 14.5   | 1.5    | 457.7  | 345      | 78.77  | 165.49          | 342.0292       | 0.91   | 0.91 | 0.84 | 0.89 | 0.86 | 0.86 | 0.89 | 0.86 | 1.04 | 1.13            | 1.01 | 1.07  | 1.06  |
| Polyzois and Charnvarnichborikarn | 51-6.4-3    | 115.3  | 64.7   | 14.7   | 1.5    | 457.7  | 345      | 73.38  | 165.973         | 347.9863       | 0.85   | 0.85 | 0.77 | 0.83 | 0.80 | 0.79 | 0.83 | 0.80 | 0.96 | 1.05            | 0.94 | 1.07  | 1.05  |
| Polyzois and Charnvarnichborikarn | 51-12.7-1   | 114.5  | 65.3   | 20.6   | 1.5    | 457.2  | 345      | 78.32  | 168.223         | 442.1679       | 0.79   | 0.79 | 0.77 | 0.85 | 0.82 | 0.77 | 0.85 | 0.82 | 0.87 | 0.95            | 0.90 | 1.02  | 0.97  |
| Polyzois and Charnvarnichborikarn | 51-12.7-2   | 115    | 65     | 20.8   | 1.5    | 457.2  | 345      | 67.2   | 166.965         | 441.0846       | 0.68   | 0.68 | 0.66 | 0.73 | 0.70 | 0.66 | 0.73 | 0.70 | 0.74 | 0.81            | 0.77 | 1.02  | 0.96  |
| Polyzois and Charnvarnichborikarn | 51-12.7-3   | 114    | 65     | 20.3   | 1.5    | 457.2  | 345      | 89.22  | 169.699         | 443.3529       | 0.90   | 0.90 | 0.88 | 0.97 | 0.93 | 0.88 | 0.97 | 0.93 | 1.00 | 1.09            | 1.03 | 1.01  | 0.96  |
| Polyzois and Charnvarnichborikarn | 51-19.1-1   | 116.1  | 65.1   | 27.2   | 1.5    | 457.7  | 345      | 71.2   | 163.981         | 531.0268       | 0.72   | 0.72 | 0.69 | 0.74 | 0.71 | 0.69 | 0.74 | 0.71 | 0.71 | 0.76            | 0.76 | 1.04  | 1.02  |
| Polyzois and Charnvarnichborikarn | 51-19.1-2   | 116.1  | 65.1   | 27.5   | 1.5    | 457.7  | 345      | 89.36  | 163.975         | 537.0634       | 0.91   | 0.91 | 0.87 | 0.92 | 0.89 | 0.87 | 0.92 | 0.89 | 0.89 | 0.95            | 0.94 | 1.04  | 1.02  |
| Polyzois and Charnvarnichborikarn | 51-19.1-3   | 116.1  | 65.3   | 27     | 1.5    | 457.7  | 345      | 83.22  | 163.92          | 527.3896       | 0.84   | 0.84 | 0.81 | 0.86 | 0.83 | 0.81 | 0.86 | 0.83 | 0.84 | 0.89            | 0.88 | 1.04  | 1.02  |
| Polyzois and Charnvarnichborikarn | 51-25.4-1   | 115.8  | 65     | 32.5   | 1.5    | 457.7  | 345      | 80.77  | 164.584         | 575.0345       | 0.83   | 0.83 | 0.78 | 0.81 | 0.78 | 0.78 | 0.81 | 0.78 | 0.78 | 0.81            | 0.82 | 1.07  | 1.07  |
| Polyzois and Charnvarnichborikarn | 51-25.4-2   | 115.3  | 65     | 33     | 1.4    | 458    | 345      | 77.21  | 144.524         | 543.5859       | 0.91   | 0.91 | 0.84 | 0.86 | 0.83 | 0.84 | 0.86 | 0.83 | 0.84 | 0.86            | 0.88 | 1.08  | 1.09  |
| Polyzois and Charnvarnichborikarn | 51-25.4-3   | 115.6  | 65.6   | 33.1   | 1.5    | 457.7  | 345      | 86.33  | 164.871         | 579.7639       | 0.89   | 0.89 | 0.83 | 0.85 | 0.82 | 0.83 | 0.85 | 0.82 | 0.83 | 0.85            | 0.86 | 1.07  | 1.08  |
| Polyzois and Charnvarnichborikarn | 63-0.0-1    | 117.9  | 70.4   | 0      | 1.5    | 458    | 345      | 53.62  | 65.825          | 65.82497       | 1.04   | 1.14 | 1.14 | 1.14 | 1.19 | 1.17 | 1.17 | 1.22 | 1.27 | 1.28            | 1.70 | 0.89  | 0.85  |
| Polyzois and Charnvarnichborikarn | 63-0.0-2    | 118.2  | 70.4   | 0      | 1.5    | 458    | 345      | 55.4   | 65.7661         | 65.76609       | 1.08   | 1.18 | 1.18 | 1.18 | 1.23 | 1.21 | 1.21 | 1.26 | 1.31 | 1.32            | 1.75 | 0.89  | 0.85  |
| Polyzois and Charnvarnichborikarn | 63-0.0-3    | 116.6  | 70.6   | 0      | 1.5    | 458    | 345      | 54.29  | 65.7726         | 65.77262       | 1.05   | 1.16 | 1.16 | 1.16 | 1.21 | 1.19 | 1.18 | 1.24 | 1.28 | 1.29            | 1.73 | 0.89  | 0.85  |
| Polyzois and Charnvarnichborikarn | 63-6.4-1    | 115.4  | 78.8   | 14.3   | 1.5    | 458    | 345      | 70.31  | 160.67          | 312.0451       | 0.82   | 0.82 | 0.73 | 0.74 | 0.70 | 0.75 | 0.75 | 0.70 | 0.94 | 0.99            | 0.85 | 1.09  | 1.16  |
| Polyzois and Charnvarnichborikarn | 63-6.4-2    | 116.1  | 78.3   | 14.5   | 1.5    | 458    | 345      | 78.32  | 159.133         | 315.0381       | 0.90   | 0.90 | 0.81 | 0.82 | 0.79 | 0.82 | 0.82 | 0.79 | 1.04 | 1.10            | 0.95 | 1.10  | 1.15  |
| Polyzois and Charnvarnichborikarn | 63-6.4-3    | 116.3  | 77.7   | 14.2   | 1.5    | 458    | 345      | 88.11  | 158.835         | 308.5292       | 1.03   | 1.03 | 0.92 | 0.93 | 0.89 | 0.94 | 0.94 | 0.89 | 1.18 | 1.25            | 1.08 | 1.09  | 1.15  |
| Polyzois and Charnvarnichborikarn | 63-12.7-1   | 114.8  | 78     | 20.6   | 1.4    | 457.7  | 345      | 72.98  | 141.903         | 362.1081       | 0.79   | 0.79 | 0.79 | 0.83 | 0.79 | 0.79 | 0.83 | 0.79 | 0.90 | 0.95            | 0.92 | 1.00  | 1.01  |
| Polyzois and Charnvarnichborikarn | 63-12.7-2   | 114.9  | 78     | 21.1   | 1.5    | 457.7  | 345      | 85     | 162.609         | 409.5519       | 0.82   | 0.82 | 0.81 | 0.85 | 0.81 | 0.81 | 0.85 | 0.81 | 0.91 | 0.96            | 0.92 | 1.01  | 1.00  |
| Polyzois and Charnvarnichborikarn | 63-12.7-3   | 114.5  | 78     | 20.8   | 1.5    | 457.7  | 345      | 82.99  | 163.633         | 409.541        | 0.80   | 0.80 | 0.80 | 0.83 | 0.80 | 0.80 | 0.83 | 0.80 | 0.90 | 0.95            | 0.90 | 1.00  | 1.00  |
| Polyzois and Charnvarnichborikarn | 63-19.1-1   | 114.6  | 78     | 27.2   | 1.5    | 457.7  | 345      | 82.77  | 163.341         | 508.592        | 0.80   | 0.80 | 0.78 | 0.80 | 0.76 | 0.78 | 0.80 | 0.76 | 0.81 | 0.82            | 0.82 | 1.03  | 1.05  |
| Polyzois and Charnvarnichborikarn | 63-19.1-2   | 115.6  | 78     | 27     | 1.5    | 457.7  | 345      | 89     | 160.805         | 497.0054       | 0.86   | 0.86 | 0.84 | 0.86 | 0.82 | 0.84 | 0.86 | 0.82 | 0.87 | 0.89            | 0.89 | 1.03  | 1.05  |
| Polyzois and Charnvarnichborikarn | 63-19.1-3   | 115.6  | 78     | 27     | 1.5    | 457.7  | 345      | 85     | 160.805         | 497.0054       | 0.82   | 0.82 | 0.80 | 0.82 | 0.79 | 0.80 | 0.82 | 0.79 | 0.83 | 0.85            | 0.85 | 1.03  | 1.05  |
| Polyzois and Charnvarnichborikarn | 63-25.4-1   | 114.5  | 78.2   | 32.8   | 1.4    | 457.7  | 345      | 84.55  | 142.184         | 526.5667       | 0.94   | 0.94 | 0.90 | 0.88 | 0.84 | 0.90 | 0.88 | 0.84 | 0.90 | 0.88            | 0.90 | 1.05  | 1.12  |
| Polyzois and Charnvarnichborikarn | 63-25.4-2   | 114.8  | 78.2   | 33     | 1.5    | 457.7  | 345      | 84.06  | 162.415         | 562.0575       | 0.83   | 0.83 | 0.79 | 0.78 | 0.75 | 0.79 | 0.78 | 0.75 | 0.79 | 0.78            | 0.79 | 1.05  | 1.11  |
| Polyzois and Charnvarnichborikarn | 63-25.4-3   | 115.4  | 78.6   | 33.3   | 1.4    | 457.7  | 345      | 80.1   | 140.032         | 519.6032       | 0.89   | 0.89 | 0.85 | 0.83 | 0.80 | 0.85 | 0.83 | 0.80 | 0.85 | 0.83            | 0.86 | 1.05  | 1.12  |
| Polyzois and Charnvarnichborikarn | -           | 203.8  | 76     | 0      | 1.5    | 609.3  | 345      | 55.18  | 39.3975         | 39.39746       | 1.04   | 1.29 | 1.29 | 1.29 | 1.18 | 1.33 | 1.33 | 1.22 | 1.68 | 1.75            | 1.83 | 0.78  | 0.85  |
| Polyzois and Charnvarnichborikarn | -           | 202.9  | 75.2   | 0      | 1.5    | 609.3  | 345      | 47.17  | 39.9065         | 39.90651       | 0.89   | 1.10 | 1.10 | 1.10 | 1.01 | 1.14 | 1.14 | 1.04 | 1.44 | 1.49            | 1.56 | 0.78  | 0.85  |
| Polyzois and Charnvarnichborikarn | -           | 203.3  | 77.1   | 3.6    | 1.5    | 610.1  | 345      | 58.07  | 43.6732         | 43.67317       | 0.90   | 1.22 | 1.22 | 1.22 | 1.15 | 1.26 | 1.26 | 1.18 | 1.60 | 1.70            | 1.74 | 0.72  | 0.77  |
| Polyzois and Charnvarnichborikarn | -           | 201.2  | 76.8   | 4.1    | 1.5    | 609.6  | 345      | 49.62  | 46.4016         | 46.40163       | 0.76   | 1.01 | 1.01 | 1.01 | 0.95 | 1.04 | 1.04 | 0.98 | 1.32 | 1.41            | 1.43 | 0.73  | 0.77  |
| Polyzois and Charnvarnichborikarn | -           | 201.9  | 75.7   | 5.15   | 1.5    | 609.9  | 345      | 54.74  | 51.3264         | 51.32641       | 0.81   | 1.03 | 1.03 | 1.03 | 0.99 | 1.07 | 1.07 | 1.02 | 1.38 | 1.49            | 1.47 | 0.76  | 0.79  |
| Polyzois and Charnvarnichborikarn | -           | 202.4  | 75.7   | 5.3    | 1.5    | 609.6  | 345      | 54.96  | 51.8619         | 51.86188       | 0.81   | 1.03 | 1.03 | 1.03 | 0.99 | 1.06 | 1.06 | 1.02 | 1.37 | 1.48            | 1.46 | 0.76  | 0.79  |
| Polyzois and Charnvarnichborikarn | -           | 201.1  | 74.9   | 9.4    | 1.5    | 609.6  | 345      | 67.64  | 56.4726         | 77.8667        | 0.89   | 0.97 | 0.97 | 0.97 | 0.96 | 0.99 | 0.99 | 0.99 | 1.33 | 1.52            | 1.49 | 0.89  | 0.90  |
| Polyzois and Charnvarnichborikarn | -           | 202.4  | 76.2   | 9.6    | 1.5    | 609.9  | 345      | 70.31  | 55.7349         | 77.6901        | 0.92   | 0.99 | 0.99 | 0.99 | 0.99 | 1.02 | 1.02 | 1.02 | 1.37 | 1.57            | 1.54 | 0.90  | 0.90  |
| Polyzois and Charnvarnichborikarn | -           | 202.7  | 74.7   | 15.7   | 1.5    | 610.1  | 345      | 84.11  | 56.1952         | 115.3263       | 0.92   | 0.92 | 0.90 | 1.00 | 0.98 | 0.92 | 1.00 | 0.98 | 1.31 | 1.55            | 1.57 | 1.00  | 0.94  |
| Polyzois and Charnvarnichborikarn | -           | 201.3  | 75     | 15.8   | 1.5    | 609.6  | 345      | 81.21  | 56.9237         | 117.0984       | 0.89   | 0.89 | 0.86 | 0.96 | 0.94 | 0.88 | 0.96 | 0.94 | 1.26 | 1.49            | 1.50 | 1.00  | 0.94  |
| Polyzois and Charnvarnichborikarn | -           | 203.4  | 76.2   | 22.6   | 1.5    | 609.6  | 345      | 91.49  | 55.8878         | 158.1927       | 0.88   | 0.88 | 0.87 | 1.04 | 1.01 | 0.87 | 1.04 | 1.01 | 1.14 | 1.38            | 1.48 | 1.01  | 0.86  |
| Polyzois and Charnvarnichborikarn | -           | 203.2  | 76.4   | 22.8   | 1.5    | 609.3  | 345      | 90.78  | 55.9804         | 159.8541       | 0.87   | 0.87 | 0.86 | 1.03 | 1.00 | 0.86 | 1.03 | 1.00 | 1.13 |                 |      |       |       |

Detailed Ultimate Strength Results

| Researcher                        | Specimen ID | h<br>(mm) | b<br>(mm) | d<br>(mm) | t<br>(mm) | L<br>(mm) | fy<br>(MPa) | P<br>(kN) | fcr_local<br>(MPa) | fcr_dist<br>(MPa) | test to predicted ratios for studied methods |      |      |      |      |      |      |      |      | AISI comparison |      |       |       |
|-----------------------------------|-------------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|--------------------|-------------------|--|------|------|------|------|------|------|------|------|-----------------|------|-------|-------|
|                                   |             |           |           |           |           |           |             |           |                    |                   | A1   | A2   | B1   | B2   | B3   | C1   | C2   | C3   | D1   | D2              | D3   | C1/A1 | C3/A1 |
| Polyzois and Charnvarnichborikarn | -           | 202.2     | 74.9      | 41.1      | 1.5       | 609.9     | 345         | 104.13    | 56.7268            | 227.0378          | 1.05   | 1.05 | 0.96 | 1.08 | 1.06 | 0.96 | 1.08 | 1.06 | 1.00 | 1.12            | 1.38 | 1.09  | 1.00  |
| Polyzois and Charnvarnichborikarn | -           | 201.9     | 75.2      | 40.9      | 1.5       | 609.9     | 345         | 97.46     | 56.863             | 227.8079          | 0.98   | 0.98 | 0.90 | 1.01 | 0.99 | 0.90 | 1.01 | 0.99 | 0.94 | 1.05            | 1.29 | 1.09  | 1.00  |
| Polyzois and Charnvarnichborikarn | -           | 200.6     | 75.4      | 54.1      | 1.5       | 610.1     | 345         | 103.69    | 57.477             | 249.9819          | 1.12   | 1.12 | 0.95 | 1.01 | 0.99 | 0.95 | 1.01 | 0.99 | 0.95 | 1.01            | 1.26 | 1.18  | 1.14  |
| Polyzois and Charnvarnichborikarn | -           | 202.4     | 74.4      | 54.3      | 1.5       | 609.9     | 345         | 93.01     | 56.5949            | 243.1791          | 1.01   | 1.01 | 0.85 | 0.91 | 0.89 | 0.85 | 0.91 | 0.89 | 0.85 | 0.91            | 1.15 | 1.19  | 1.14  |
| Polyzois and Charnvarnichborikarn | -           | 205.1     | 75.5      | 0         | 1.5       | 1220      | 345         | 51.18     | 39.2246            | 39.22458          | 1.09   | 1.20 | 1.20 | 1.20 | 1.10 | 1.37 | 1.37 | 1.25 | 1.57 | 1.63            | 1.70 | 0.80  | 0.87  |
| Polyzois and Charnvarnichborikarn | -           | 203.2     | 75.7      | 0         | 1.5       | 1219      | 345         | 56.52     | 39.6564            | 39.65643          | 1.20   | 1.32 | 1.32 | 1.32 | 1.21 | 1.50 | 1.50 | 1.38 | 1.72 | 1.79            | 1.87 | 0.80  | 0.87  |
| Polyzois and Charnvarnichborikarn | -           | 200.2     | 73.5      | 6.1       | 1.5       | 1220      | 345         | 55.85     | 55.5712            | 57.65107          | 0.90   | 0.99 | 0.99 | 0.99 | 0.96 | 1.12 | 1.12 | 1.09 | 1.33 | 1.45            | 1.42 | 0.80  | 0.82  |
| Polyzois and Charnvarnichborikarn | -           | 201.5     | 73.7      | 6.1       | 1.5       | 1219      | 345         | 51.84     | 54.8533            | 58.1709           | 0.83   | 0.92 | 0.92 | 0.92 | 0.88 | 1.04 | 1.04 | 1.00 | 1.24 | 1.35            | 1.31 | 0.80  | 0.83  |
| Polyzois and Charnvarnichborikarn | -           | 201.1     | 73.4      | 6.1       | 1.5       | 1220      | 345         | 57.41     | 55.0803            | 58.4471           | 0.92   | 1.02 | 1.02 | 1.02 | 0.98 | 1.15 | 1.15 | 1.11 | 1.37 | 1.49            | 1.45 | 0.80  | 0.83  |
| Polyzois and Charnvarnichborikarn | -           | 201.9     | 73.9      | 6.1       | 1.5       | 1219      | 345         | 56.52     | 54.6308            | 57.9271           | 0.90   | 1.00 | 1.00 | 1.00 | 0.96 | 1.13 | 1.13 | 1.09 | 1.35 | 1.47            | 1.43 | 0.80  | 0.83  |
| Polyzois and Charnvarnichborikarn | -           | 202.2     | 74.5      | 8.9       | 1.5       | 1220      | 345         | 60.97     | 55.7998            | 74.3934           | 0.90   | 0.90 | 0.90 | 0.90 | 0.89 | 1.01 | 1.01 | 1.00 | 1.24 | 1.40            | 1.37 | 0.89  | 0.90  |
| Polyzois and Charnvarnichborikarn | -           | 202.7     | 74.7      | 8.7       | 1.5       | 1220      | 345         | 63.64     | 55.4745            | 72.8491           | 0.94   | 0.95 | 0.95 | 0.95 | 0.94 | 1.07 | 1.07 | 1.05 | 1.31 | 1.48            | 1.45 | 0.88  | 0.89  |
| Polyzois and Charnvarnichborikarn | -           | 200.1     | 73.6      | 15.5      | 1.5       | 1220      | 345         | 86.33     | 57.6684            | 116.7028          | 1.05   | 1.05 | 0.95 | 1.14 | 1.12 | 1.05 | 1.14 | 1.12 | 1.36 | 1.61            | 1.61 | 0.99  | 0.93  |
| Polyzois and Charnvarnichborikarn | -           | 201.4     | 74.9      | 14.7      | 1.5       | 1219      | 345         | 75.21     | 56.8292            | 110.1133          | 0.93   | 0.93 | 0.84 | 0.99 | 0.98 | 0.94 | 0.99 | 0.98 | 1.21 | 1.43            | 1.43 | 0.99  | 0.96  |
| Polyzois and Charnvarnichborikarn | -           | 202       | 74.7      | 21.1      | 1.5       | 1220      | 345         | 93.23     | 56.7145            | 143.953           | 0.99   | 0.99 | 0.98 | 1.18 | 1.16 | 0.98 | 1.18 | 1.16 | 1.28 | 1.55            | 1.57 | 1.01  | 0.85  |
| Polyzois and Charnvarnichborikarn | -           | 201.7     | 74.5      | 21.6      | 1.5       | 1220      | 345         | 92.56     | 56.8993            | 146.8438          | 0.98   | 0.98 | 0.97 | 1.17 | 1.15 | 0.97 | 1.17 | 1.15 | 1.26 | 1.52            | 1.55 | 1.01  | 0.85  |
| Polyzois and Charnvarnichborikarn | -           | 202.3     | 74.7      | 28        | 1.5       | 1220      | 345         | 95.45     | 56.6433            | 170.1019          | 1.01   | 1.01 | 0.98 | 1.15 | 1.13 | 0.98 | 1.15 | 1.13 | 1.21 | 1.43            | 1.47 | 1.03  | 0.89  |
| Polyzois and Charnvarnichborikarn | -           | 202.3     | 74.7      | 27.5      | 1.5       | 1218      | 345         | 87.22     | 56.6389            | 168.4684          | 0.92   | 0.92 | 0.89 | 1.06 | 1.04 | 0.89 | 1.06 | 1.04 | 1.11 | 1.32            | 1.36 | 1.03  | 0.89  |
| Polyzois and Charnvarnichborikarn | -           | 202.3     | 74.2      | 34.3      | 1.5       | 1220      | 345         | 91.45     | 56.7195            | 183.8017          | 0.98   | 0.98 | 0.92 | 1.07 | 1.05 | 0.92 | 1.07 | 1.05 | 1.10 | 1.28            | 1.34 | 1.06  | 0.93  |
| Polyzois and Charnvarnichborikarn | -           | 202.3     | 74.2      | 34.3      | 1.5       | 1219      | 345         | 99.24     | 56.7195            | 183.8018          | 1.06   | 1.06 | 1.00 | 1.16 | 1.14 | 1.00 | 1.16 | 1.14 | 1.20 | 1.39            | 1.46 | 1.06  | 0.93  |
| Polyzois and Charnvarnichborikarn | -           | 202.3     | 75        | 40.4      | 1.5       | 1220      | 345         | 92.34     | 56.6662            | 194.2872          | 1.00   | 1.00 | 0.92 | 1.04 | 1.02 | 0.92 | 1.04 | 1.02 | 1.08 | 1.23            | 1.29 | 1.09  | 0.98  |
| Polyzois and Charnvarnichborikarn | -           | 201.5     | 74.7      | 40.7      | 1.5       | 1219      | 345         | 95.45     | 57.1165            | 195.9231          | 1.04   | 1.04 | 0.95 | 1.07 | 1.05 | 0.95 | 1.07 | 1.05 | 1.12 | 1.26            | 1.33 | 1.09  | 0.99  |
| Polyzois and Charnvarnichborikarn | -           | 202       | 74.7      | 53.4      | 1.5       | 1220      | 345         | 96.79     | 56.791             | 214.498           | 1.11   | 1.11 | 0.95 | 1.01 | 0.99 | 0.95 | 1.01 | 0.99 | 1.08 | 1.16            | 1.24 | 1.17  | 1.12  |
| Polyzois and Charnvarnichborikarn | -           | 202.5     | 74.5      | 53.9      | 1.5       | 1218      | 345         | 100.35    | 56.5382            | 214.2484          | 1.16   | 1.16 | 0.98 | 1.05 | 1.03 | 0.98 | 1.05 | 1.03 | 1.11 | 1.20            | 1.28 | 1.18  | 1.12  |