

This chart is based on the Engineering News Record (ENR) formula for pile bearing capacity and is provided as a convenience only.

**Pile bearing (Tons) =  $2E/(S + 0.1)/2000$** , where  $E$  = Hammer energy (given by the Saximeter formula)  
 $S$  = Pile set (inch per blow)

| Blow per Minute | Ram Stroke (ft) | Hammer Energy (lb.ft) | Pile Set (Blows per inch) |    |    |    |     |     |     |     |     |     |     |     |
|-----------------|-----------------|-----------------------|---------------------------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|
|                 |                 |                       | 1                         | 2  | 3  | 4  | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  |
| 35              | 11.52           | 32,517                | 30                        | 54 | 75 | 93 | 108 | 122 | 134 | 145 | 154 | 163 | 170 | 177 |
| 36              | 10.88           | 30,689                | 28                        | 51 | 71 | 88 | 102 | 115 | 126 | 136 | 145 | 153 | 161 | 167 |
| 37              | 10.28           | 29,007                | 26                        | 48 | 67 | 83 | 97  | 109 | 119 | 129 | 137 | 145 | 152 | 158 |
| 38              | 9.73            | 27,457                | 25                        | 46 | 63 | 78 | 92  | 103 | 113 | 122 | 130 | 137 | 144 | 150 |
| 39              | 9.22            | 26,024                | 24                        | 43 | 60 | 74 | 87  | 98  | 107 | 116 | 123 | 130 | 136 | 142 |
| 40              | 8.75            | 24,697                | 22                        | 41 | 57 | 71 | 82  | 93  | 102 | 110 | 117 | 123 | 129 | 135 |
| 41              | 8.32            | 23,466                | 21                        | 39 | 54 | 67 | 78  | 88  | 97  | 104 | 111 | 117 | 123 | 128 |
| 42              | 7.91            | 22,322                | 20                        | 37 | 52 | 64 | 74  | 84  | 92  | 99  | 106 | 112 | 117 | 122 |
| 43              | 7.53            | 21,257                | 19                        | 35 | 49 | 61 | 71  | 80  | 88  | 94  | 101 | 106 | 111 | 116 |
| 44              | 7.18            | 20,264                | 18                        | 34 | 47 | 58 | 68  | 76  | 83  | 90  | 96  | 101 | 106 | 111 |
| 45              | 6.85            | 19,336                | 18                        | 32 | 45 | 55 | 64  | 73  | 80  | 86  | 92  | 97  | 101 | 105 |
| 46              | 6.54            | 18,468                | 17                        | 31 | 43 | 53 | 62  | 69  | 76  | 82  | 87  | 92  | 97  | 101 |
| 47              | 6.26            | 17,655                | 16                        | 29 | 41 | 50 | 59  | 66  | 73  | 78  | 84  | 88  | 92  | 96  |
| 48              | 5.99            | 16,892                | 15                        | 28 | 39 | 48 | 56  | 63  | 70  | 75  | 80  | 84  | 88  | 92  |
| 49              | 5.73            | 16,176                | 15                        | 27 | 37 | 46 | 54  | 61  | 67  | 72  | 77  | 81  | 85  | 88  |
| 50              | 5.49            | 15,501                | 14                        | 26 | 36 | 44 | 52  | 58  | 64  | 69  | 73  | 78  | 81  | 85  |
| 51              | 5.27            | 14,867                | 14                        | 25 | 34 | 42 | 50  | 56  | 61  | 66  | 70  | 74  | 78  | 81  |
| 52              | 5.06            | 14,268                | 13                        | 24 | 33 | 41 | 48  | 54  | 59  | 63  | 68  | 71  | 75  | 78  |

**Caution:** Driving at more than 20 blows per inch (set of 0.05 inch per blow) is considered practical refusal.

This chart is based on the Engineering News Record (ENR) formula for pile bearing capacity and is provided as a convenience only.

**Pile bearing (kN) =  $100E/(S + 0.254)/6$** , where  $E$  = Hammer energy (given by the Saximeter formula)  
 $S$  = Pile set (cm per blow)

| Blows per Minute | Ram Stroke (m) | Hammer Energy (kJ) | Pile Set (Blows per 2cm) |      |      |      |      |      |      |      |      |      |      |      |
|------------------|----------------|--------------------|--------------------------|------|------|------|------|------|------|------|------|------|------|------|
|                  |                |                    | 5                        | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   | 16   |
| 35               | 3.51           | 44                 | 1124                     | 1252 | 1362 | 1459 | 1544 | 1620 | 1687 | 1748 | 1803 | 1853 | 1898 | 1940 |
| 36               | 3.32           | 42                 | 1061                     | 1182 | 1286 | 1377 | 1457 | 1529 | 1592 | 1650 | 1702 | 1749 | 1792 | 1831 |
| 37               | 3.13           | 39                 | 1003                     | 1117 | 1215 | 1302 | 1378 | 1445 | 1505 | 1559 | 1608 | 1653 | 1694 | 1731 |
| 38               | 2.97           | 37                 | 949                      | 1057 | 1151 | 1232 | 1304 | 1368 | 1425 | 1476 | 1523 | 1565 | 1603 | 1638 |
| 39               | 2.81           | 35                 | 900                      | 1002 | 1091 | 1168 | 1236 | 1296 | 1350 | 1399 | 1443 | 1483 | 1520 | 1553 |
| 40               | 2.67           | 34                 | 854                      | 951  | 1035 | 1108 | 1173 | 1230 | 1282 | 1328 | 1370 | 1408 | 1442 | 1474 |
| 41               | 2.54           | 32                 | 812                      | 904  | 983  | 1053 | 1115 | 1169 | 1218 | 1262 | 1301 | 1337 | 1370 | 1400 |
| 42               | 2.41           | 30                 | 772                      | 860  | 935  | 1002 | 1060 | 1112 | 1159 | 1200 | 1238 | 1272 | 1304 | 1332 |
| 43               | 2.30           | 29                 | 735                      | 819  | 891  | 954  | 1010 | 1059 | 1103 | 1143 | 1179 | 1212 | 1241 | 1269 |
| 44               | 2.19           | 28                 | 701                      | 780  | 849  | 909  | 963  | 1010 | 1052 | 1090 | 1124 | 1155 | 1183 | 1209 |
| 45               | 2.09           | 26                 | 669                      | 745  | 810  | 868  | 918  | 963  | 1004 | 1040 | 1072 | 1102 | 1129 | 1154 |
| 46               | 2.00           | 25                 | 639                      | 711  | 774  | 829  | 877  | 920  | 959  | 993  | 1024 | 1053 | 1079 | 1102 |
| 47               | 1.91           | 24                 | 611                      | 680  | 740  | 792  | 839  | 880  | 916  | 949  | 979  | 1006 | 1031 | 1054 |
| 48               | 1.83           | 23                 | 584                      | 651  | 708  | 758  | 802  | 842  | 877  | 908  | 937  | 963  | 987  | 1008 |
| 49               | 1.75           | 22                 | 560                      | 623  | 678  | 726  | 768  | 806  | 840  | 870  | 897  | 922  | 945  | 966  |
| 50               | 1.68           | 21                 | 536                      | 597  | 650  | 696  | 736  | 772  | 805  | 834  | 860  | 884  | 905  | 925  |
| 51               | 1.61           | 20                 | 514                      | 573  | 623  | 667  | 706  | 741  | 772  | 800  | 825  | 848  | 868  | 887  |
| 52               | 1.54           | 19                 | 494                      | 550  | 598  | 641  | 678  | 711  | 741  | 767  | 792  | 813  | 833  | 852  |

**Caution:** Driving at more than 8 blows per cm (set of 0.125 cm per blow) is considered practical refusal.