# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

# ISO RECOMMENDATION

# R 409

## TABLES OF VICKERS HARDNESS VALUES (HV) FOR METALLIC MATERIALS

1st EDITION
December 1964

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# BRIEF HISTORY

The ISO Recommendation R 409, *Tables of Vickers Hardness Values (HV) for Metallic Materials*, was drawn up by Co-ordinating Committee on the Mechanical Testing of Metals (METESCO), the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question began in 1960 and led, in 1962, to the adoption of a document which the METESCO Secretariat turned over to the General Secretariat, with the request that it be subjected to the procedures that Draft ISO Recommendations customarily follow.

In May 1962, this document was circulated, as Draft ISO Recommendation (No. 515) to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications, by the following Member Bodies:

| | | |
|---|---|---|
| Australia | France | Poland |
| Austria | Germany | Romania |
| Belgium | Hungary | Sweden |
| Canada | India | Turkey |
| Chile | Israel | United Kingdom |
| Czechoslovakia | Italy | U.S.S.R. |
| Colombia | Mexico | Yugoslavia |
| Denmark | Netherlands | |
| Finland | New Zealand | |

No Member Body opposed the approval of the Draft.

The Draft was submitted simultaneously to the Secretariats of all the ISO Technical Committees. It was approved by the Secretariats of the following Technical Committees concerned with the question of mechanical tests:

ISO/TC 17, *Steel*.
ISO/TC 25, *Cast iron*.

and was disapproved by the Secretariats of the following Technical Committees:

ISO/TC 2, *Bolts, nuts and accessories*.
ISO/TC 26, *Copper and copper alloys*.
ISO/TC 79, *Light Metals and their Alloys*.
ISO/TC 82, *Mining*.

The Draft ISO Recommendation was then, in revised form, submitted by correspondence to the ISO Council, which decided, in December 1964, to accept it as an ISO RECOMMENDATION.

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# TABLES OF VICKERS HARDNESS VALUES (HV)
# FOR METALLIC MATERIALS

This ISO Recommendation contains

### 1. TABLES OF VICKERS HARDNESS VALUES (HV)
### FOR USE IN TESTS MADE ON FLAT SURFACES

The following tables, for loads of 1, 2.5, 3, 5, 10, 20, 30, 50 and 100 kgf have been calculated from the formula below:

$$\text{Vickers hardness (HV)} = \frac{2F \sin \dfrac{136°}{2}}{d^2}$$

where    $F$  = applied load,

$d$  = mean diagonal,

136°   = angle of the vertex, between two opposite faces of the indenter,

without regard to the limitations imposed by practical conditions.

In industrial tests carried out in accordance with this ISO Recommendation, using testing machines in good order, the principal limitation will arise in the measurement of the diagonals of the indentation, and it is unlikely that the accuracy of determination of the mean diagonal will be better than ± 0.001 mm. The corresponding accuracy in the resulting hardness value may be obtained from the graph reproduced at the end of the tables (Figure, page 31) which shows the change of hardness value equivalent to a change of 0.001 mm in the length of the mean diagonal for various loads at different levels of hardness.

NOTES

1. The tables are calculated on the basis of k = 1.8543678 where $k$ = 2 sin 68°.

2. For workshop conditions, it is recommended that Vickers hardness values above 100 HV should be rounded off to round numbers and that all values below 100 HV should be taken to the first decimal place. The accurate values shown in these tables are essential for testing the hardness of blocks for calibrating Vickers hardness testing machines.

# TABLE 1

Load   1 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.03 | 2060 | 1930 | 1811 | 1703 | 1604 | 1514 | 1431 | 1355 | 1284 | 1219 |
| 0.04 | 1159 | 1103 | 1051 | 1003 | 958 | 916 | 876 | 839 | 805 | 772 |
| 0.05 | 742 | 713 | 686 | 660 | 636 | 613 | 591 | 571 | 551 | 533 |
| 0.06 | 515 | 498 | 482 | 467 | 453 | 439 | 426 | 413 | 401 | 389 |
| 0.07 | 378 | 368 | 358 | 348 | 339 | 330 | 321 | 313 | 305 | 297 |
| 0.08 | 290 | 283 | 276 | 269 | 263 | 257 | 251 | 245 | 239 | 234 |
| 0.09 | 229 | 224 | 219 | 214 | 210 | 205 | 201 | 197 | 193 | 189 |
| 0.10 | 185 | 182 | 178 | 175 | 171 | 168 | 165 | 162 | 159 | 156 |
| 0.11 | 153 | 151 | 148 | 145 | 143 | 140 | 138 | 135 | 133 | 131 |
| 0.12 | 129 | 127 | 125 | 123 | 121 | 119 | 117 | 115 | 113 | 111 |
| 0.13 | 110 | 108 | 106 | 105 | 103 | 102 | 100 | 98.8 | 97.4 | 96.0 |
| 0.14 | 94.6 | 93.3 | 92.0 | 90.7 | 89.4 | 88.2 | 87.0 | 85.8 | 84.7 | 83.5 |
| 0.15 | 82.4 | 81.3 | 80.3 | 79.2 | 78.2 | 77.2 | 76.2 | 75.2 | 74.3 | 73.4 |
| 0.16 | 72.4 | 71.5 | 70.7 | 69.8 | 68.9 | 68.1 | 67.3 | 66.5 | 65.7 | 64.9 |
| 0.17 | 64.2 | 63.4 | 62.7 | 62.0 | 61.2 | 60.6 | 59.9 | 59.2 | 58.5 | 57.9 |
| 0.18 | 57.2 | 56.6 | 56.0 | 55.4 | 54.8 | 54.2 | 53.6 | 53.0 | 52.5 | 51.9 |
| 0.19 | 51.4 | 50.8 | 50.3 | 49.8 | 49.3 | 48.8 | 48.3 | 47.8 | 47.3 | 46.8 |
| 0.20 | 46.4 | 45.9 | 45.4 | 45.0 | 44.6 | 44.1 | 43.7 | 43.3 | 42.9 | 42.5 |
| 0.21 | 42.0 | 41.7 | 41.3 | 40.9 | 40.5 | 40.1 | 39.7 | 39.4 | 39.0 | 38.7 |
| 0.22 | 38.3 | 38.0 | 37.6 | 37.3 | 37.0 | 36.6 | 36.3 | 36.0 | 35.7 | 35.4 |
| 0.23 | 35.1 | 34.8 | 34.5 | 34.2 | 33.9 | 33.6 | 33.3 | 33.0 | 32.7 | 32.5 |
| 0.24 | 32.2 | 31.9 | 31.7 | 31.4 | 31.1 | 30.9 | 30.6 | 30.4 | 30.2 | 29.9 |
| 0.25 | 29.7 | 29.4 | 29.2 | 29.0 | 28.7 | 28.5 | 28.3 | 28.1 | 27.9 | 27.6 |
| 0.26 | 27.4 | 27.2 | 27.0 | 26.8 | 26.6 | 26.4 | 26.2 | 26.0 | 25.8 | 25.6 |
| 0.27 | 25.4 | 25.2 | 25.1 | 24.9 | 24.7 | 24.5 | 24.3 | 24.2 | 24.0 | 23.8 |
| 0.28 | 23.7 | 23.5 | 23.3 | 23.2 | 23.0 | 22.8 | 22.7 | 22.5 | 22.4 | 22.2 |
| 0.29 | 22.0 | 21.9 | 21.7 | 21.6 | 21.5 | 21.3 | 21.2 | 21.0 | 20.9 | 20.7 |
| 0.30 | 20.6 | 20.5 | 20.3 | 20.2 | 20.1 | 19.9 | 19.8 | 19.7 | 19.5 | 19.4 |
| 0.31 | 19.3 | 19.2 | 19.0 | 18.9 | 18.8 | 18.7 | 18.6 | 18.5 | 18.3 | 18.2 |
| 0.32 | 18.1 | 18.0 | 17.9 | 17.8 | 17.7 | 17.6 | 17.4 | 17.3 | 17.2 | 17.1 |
| 0.33 | 17.0 | 16.9 | 16.8 | 16.7 | 16.6 | 16.5 | 16.4 | 16.3 | 16.2 | 16.1 |
| 0.34 | 16.04 | 15.95 | 15.85 | 15.76 | 15.67 | 15.58 | 15.49 | 15.40 | 15.31 | 15.22 |
| 0.35 | 15.14 | 15.05 | 14.97 | 14.88 | 14.80 | 14.71 | 14.63 | 14.55 | 14.47 | 14.39 |
| 0.36 | 14.31 | 14.23 | 14.15 | 14.07 | 14.00 | 13.92 | 13.84 | 13.77 | 13.69 | 13.62 |
| 0.37 | 13.55 | 13.47 | 13.40 | 13.33 | 13.26 | 13.19 | 13.12 | 13.05 | 12.98 | 12.91 |
| 0.38 | 12.84 | 12.77 | 12.71 | 12.64 | 12.58 | 12.51 | 12.45 | 12.38 | 12.32 | 12.25 |
| 0.39 | 12.19 | 12.13 | 12.07 | 12.01 | 11.95 | 11.89 | 11.83 | 11.77 | 11.71 | 11.65 |
| 0.40 | 11.59 | 11.53 | 11.47 | 11.42 | 11.36 | 11.31 | 11.25 | 11.19 | 11.14 | 11.09 |
| 0.41 | 11.03 | 10.98 | 10.92 | 10.87 | 10.82 | 10.77 | 10.72 | 10.66 | 10.61 | 10.56 |
| 0.42 | 10.51 | 10.46 | 10.41 | 10.36 | 10.31 | 10.27 | 10.22 | 10.17 | 10.12 | 10.08 |
| 0.43 | 10.03 | 9.98 | 9.94 | 9.89 | 9.85 | 9.80 | 9.75 | 9.71 | 9.67 | 9.62 |
| 0.44 | 9.58 | 9.53 | 9.49 | 9.45 | 9.41 | 9.36 | 9.32 | 9.28 | 9.24 | 9.20 |
| 0.45 | 9.16 | 9.12 | 9.08 | 9.04 | 9.00 | 8.96 | 8.92 | 8.88 | 8.84 | 8.80 |
| 0.46 | 8.76 | 8.73 | 8.69 | 8.65 | 8.61 | 8.58 | 8.54 | 8.50 | 8.47 | 8.43 |
| 0.47 | 8.39 | 8.36 | 8.32 | 8.29 | 8.25 | 8.22 | 8.18 | 8.15 | 8.12 | 8.08 |
| 0.48 | 8.05 | 8.02 | 7.98 | 7.95 | 7.92 | 7.88 | 7.85 | 7.82 | 7.79 | 7.75 |
| 0.49 | 7.72 | 7.69 | 7.66 | 7.63 | 7.60 | 7.57 | 7.54 | 7.51 | 7.48 | 7.45 |
| 0.50 | 7.42 | 7.39 | 7.36 | 7.33 | 7.30 | 7.27 | 7.24 | 7.21 | 7.19 | 7.16 |
| 0.51 | 7.13 | 7.10 | 7.07 | 7.05 | 7.02 | 6.99 | 6.96 | 6.94 | 6.91 | 6.88 |
| 0.52 | 6.86 | 6.83 | 6.81 | 6.78 | 6.75 | 6.73 | 6.70 | 6.68 | 6.65 | 6.63 |
| 0.53 | 6.60 | 6.58 | 6.55 | 6.53 | 6.50 | 6.48 | 6.45 | 6.43 | 6.41 | 6.38 |
| 0.54 | 6.36 | 6.34 | 6.31 | 6.29 | 6.27 | 6.24 | 6.22 | 6.20 | 6.17 | 6.15 |
| 0.55 | 6.13 | 6.11 | 6.09 | 6.06 | 6.04 | 6.02 | 6.00 | 5.98 | 5.96 | 5.93 |
| 0.56 | 5.91 | 5.89 | 5.87 | 5.85 | 5.83 | 5.81 | 5.79 | 5.77 | 5.75 | 5.73 |
| 0.57 | 5.71 | 5.69 | 5.67 | 5.65 | 5.63 | 5.61 | 5.59 | 5.57 | 5.55 | 5.53 |
| 0.58 | 5.51 | 5.49 | 5.47 | 5.46 | 5.44 | 5.42 | 5.40 | 5.38 | 5.36 | 5.35 |
| 0.59 | 5.33 | 5.31 | 5.29 | 5.27 | 5.26 | 5.24 | 5.22 | 5.20 | 5.19 | 5.17 |
| 0.60 | 5.15 | 5.13 | 5.12 | 5.10 | 5.08 | 5.07 | 5.05 | 5.03 | 5.02 | 5.00 |

# TABLE 2

**Load 2.5 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.04 | 2897 | 2758 | 2628 | 2507 | 2395 | 2289 | 2191 | 2099 | 2012 | 1931 |
| 0.05 | 1854 | 1782 | 1714 | 1650 | 1590 | 1533 | 1478 | 1427 | 1378 | 1332 |
| 0.06 | 1288 | 1246 | 1206 | 1168 | 1132 | 1097 | 1064 | 1033 | 1003 | 974 |
| 0.07 | 946 | 920 | 894 | 870 | 847 | 824 | 803 | 782 | 762 | 743 |
| 0.08 | 724 | 707 | 689 | 673 | 657 | 642 | 627 | 612 | 599 | 585 |
| 0.09 | 572 | 560 | 548 | 536 | 525 | 514 | 503 | 493 | 483 | 473 |
| 0.10 | 464 | 454 | 446 | 437 | 429 | 420 | 413 | 405 | 397 | 390 |
| 0.11 | 383 | 376 | 370 | 363 | 357 | 351 | 345 | 339 | 333 | 327 |
| 0.12 | 322 | 317 | 311 | 306 | 302 | 297 | 292 | 287 | 283 | 279 |
| 0.13 | 274 | 270 | 266 | 262 | 258 | 254 | 251 | 247 | 243 | 240 |
| 0.14 | 237 | 233 | 230 | 227 | 224 | 220 | 217 | 215 | 212 | 209 |
| 0.15 | 206 | 203 | 201 | 198 | 195 | 193 | 190 | 188 | 186 | 183 |
| 0.16 | 181 | 179 | 177 | 174 | 172 | 170 | 168 | 166 | 164 | 162 |
| 0.17 | 160 | 159 | 157 | 155 | 153 | 151 | 150 | 148 | 146 | 145 |
| 0.18 | 143 | 142 | 140 | 138 | 137 | 135 | 134 | 133 | 131 | 130 |
| 0.19 | 128 | 127 | 126 | 124 | 123 | 122 | 121 | 119 | 118 | 117 |
| 0.20 | 116 | 115 | 114 | 112 | 111 | 110 | 109 | 108 | 107 | 106 |
| 0.21 | 105 | 104 | 103 | 102 | 101 | 100 | 99.4 | 98.5 | 97.5 | 96.7 |
| 0.22 | 95.8 | 94.9 | 94.1 | 93.2 | 92.4 | 91.6 | 90.8 | 90.0 | 89.2 | 88.4 |
| 0.23 | 87.6 | 86.9 | 86.1 | 85.4 | 84.7 | 83.9 | 83.2 | 82.5 | 81.8 | 81.2 |
| 0.24 | 80.5 | 79.8 | 79.2 | 78.5 | 77.9 | 77.2 | 76.6 | 76.0 | 75.4 | 74.8 |
| 0.25 | 74.2 | 73.6 | 73.0 | 72.4 | 71.9 | 71.3 | 70.7 | 70.2 | 69.6 | 69.1 |
| 0.26 | 68.6 | 68.1 | 67.5 | 67.0 | 66.5 | 66.0 | 65.5 | 65.0 | 64.5 | 64.1 |
| 0.27 | 63.6 | 63.1 | 62.7 | 62.2 | 61.7 | 61.3 | 60.9 | 60.4 | 60.0 | 59.6 |
| 0.28 | 59.1 | 58.7 | 58.3 | 57.9 | 57.5 | 57.1 | 56.7 | 56.3 | 55.9 | 55.5 |
| 0.29 | 55.1 | 54.7 | 54.4 | 54.0 | 53.6 | 53.3 | 52.9 | 52.6 | 52.2 | 51.9 |
| 0.30 | 51.5 | 51.2 | 50.8 | 50.5 | 50.2 | 49.8 | 49.5 | 49.2 | 48.9 | 48.6 |
| 0.31 | 48.2 | 47.9 | 47.6 | 47.3 | 47.0 | 46.7 | 46.4 | 46.1 | 45.8 | 45.6 |
| 0.32 | 45.3 | 45.0 | 44.7 | 44.4 | 44.2 | 43.9 | 43.6 | 43.4 | 43.1 | 42.8 |
| 0.33 | 42.6 | 42.3 | 42.1 | 41.8 | 41.6 | 41.3 | 41.1 | 40.8 | 40.6 | 40.3 |
| 0.34 | 40.1 | 39.9 | 39.6 | 39.4 | 39.2 | 38.9 | 38.7 | 38.5 | 38.3 | 38.1 |
| 0.35 | 37.8 | 37.6 | 37.4 | 37.2 | 37.0 | 36.8 | 36.6 | 36.4 | 36.2 | 36.0 |
| 0.36 | 35.8 | 35.6 | 35.4 | 35.2 | 35.0 | 34.8 | 34.6 | 34.4 | 34.2 | 34.0 |
| 0.37 | 33.9 | 33.7 | 33.5 | 33.3 | 33.1 | 33.0 | 32.8 | 32.6 | 32.4 | 32.3 |
| 0.38 | 32.1 | 31.9 | 31.8 | 31.6 | 31.4 | 31.3 | 31.1 | 31.0 | 30.8 | 30.6 |
| 0.39 | 30.5 | 30.3 | 30.2 | 30.0 | 29.9 | 29.7 | 29.6 | 29.4 | 29.3 | 29.1 |
| 0.40 | 29.0 | 28.8 | 28.7 | 28.5 | 28.4 | 28.3 | 28.1 | 28.0 | 27.8 | 27.7 |
| 0.41 | 27.6 | 27.4 | 27.3 | 27.2 | 27.0 | 26.9 | 26.8 | 26.7 | 26.5 | 26.4 |
| 0.42 | 26.3 | 26.2 | 26.0 | 25.9 | 25.8 | 25.7 | 25.5 | 25.4 | 25.3 | 25.2 |
| 0.43 | 25.1 | 25.0 | 24.8 | 24.7 | 24.6 | 24.5 | 24.4 | 24.3 | 24.2 | 24.1 |
| 0.44 | 23.9 | 23.8 | 23.7 | 23.6 | 23.5 | 23.4 | 23.3 | 23.2 | 23.1 | 23.0 |
| 0.45 | 22.9 | 22.8 | 22.7 | 22.6 | 22.5 | 22.4 | 22.3 | 22.2 | 22.1 | 22.0 |
| 0.46 | 21.9 | 21.8 | 21.7 | 21.6 | 21.5 | 21.4 | 21.35 | 21.26 | 21.17 | 21.08 |
| 0.47 | 20.99 | 20.90 | 20.81 | 20.72 | 20.63 | 20.55 | 20.46 | 20.38 | 20.29 | 20.21 |
| 0.48 | 20.12 | 20.04 | 19.95 | 19.87 | 19.79 | 19.71 | 19.63 | 19.55 | 19.47 | 19.39 |
| 0.49 | 19.31 | 19.23 | 19.15 | 19.07 | 19.00 | 18.92 | 18.84 | 18.77 | 18.69 | 18.62 |
| 0.50 | 18.54 | 18.47 | 18.40 | 18.32 | 18.25 | 18.18 | 18.11 | 18.04 | 17.96 | 17.89 |
| 0.51 | 17.82 | 17.75 | 17.68 | 17.62 | 17.55 | 17.48 | 17.41 | 17.34 | 17.28 | 17.21 |
| 0.52 | 17.14 | 17.08 | 17.01 | 16.95 | 16.88 | 16.82 | 16.76 | 16.69 | 16.63 | 16.57 |
| 0.53 | 16.50 | 16.44 | 16.38 | 16.32 | 16.26 | 16.20 | 16.14 | 16.08 | 16.02 | 15.96 |
| 0.54 | 15.90 | 15.84 | 15.78 | 15.72 | 15.67 | 15.61 | 15.55 | 15.49 | 15.44 | 15.38 |
| 0.55 | 15.33 | 15.27 | 15.21 | 15.16 | 15.10 | 15.05 | 15.00 | 14.94 | 14.89 | 14.84 |
| 0.56 | 14.78 | 14.73 | 14.68 | 14.63 | 14.57 | 14.52 | 14.47 | 14.42 | 14.37 | 14.32 |
| 0.57 | 14.27 | 14.22 | 14.17 | 14.12 | 14.07 | 14.02 | 13.97 | 13.92 | 13.88 | 13.83 |

**TABLE 2** *(concluded)*

Load    2.5 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.58 | 13.78 | 13.73 | 13.69 | 13.64 | 13.59 | 13.55 | 13.50 | 13.45 | 13.41 | 13.36 |
| 0.59 | 13.32 | 13.27 | 13.23 | 13.18 | 13.14 | 13.09 | 13.05 | 13.01 | 12.96 | 12.92 |
| 0.60 | 12.88 | 12.83 | 12.79 | 12.75 | 12.71 | 12.67 | 12.62 | 12.58 | 12.54 | 12.50 |
| 0.61 | 12.46 | 12.42 | 12.38 | 12.34 | 12.30 | 12.26 | 12.22 | 12.18 | 12.14 | 12.10 |
| 0.62 | 12.06 | 12.02 | 11.98 | 11.94 | 11.91 | 11.87 | 11.83 | 11.79 | 11.75 | 11.72 |
| 0.63 | 11.68 | 11.64 | 11.61 | 11.57 | 11.53 | 11.50 | 11.46 | 11.43 | 11.39 | 11.35 |
| 0.64 | 11.32 | 11.28 | 11.25 | 11.21 | 11.18 | 11.14 | 11.11 | 11.07 | 11.04 | 11.01 |
| 0.65 | 10.97 | 10.94 | 10.91 | 10.87 | 10.84 | 10.81 | 10.77 | 10.74 | 10.71 | 10.67 |
| 0.66 | 10.64 | 10.61 | 10.58 | 10.55 | 10.51 | 10.48 | 10.45 | 10.42 | 10.39 | 10.36 |
| 0.67 | 10.33 | 10.30 | 10.27 | 10.24 | 10.21 | 10.17 | 10.14 | 10.11 | 10.09 | 10.06 |
| 0.68 | 10.03 | 10.00 | 9.97 | 9.94 | 9.91 | 9.88 | 9.85 | 9.82 | 9.79 | 9.77 |
| 0.69 | 9.74 | 9.71 | 9.68 | 9.65 | 9.63 | 9.60 | 9.57 | 9.54 | 9.52 | 9.49 |
| 0.70 | 9.46 | 9.43 | 9.41 | 9.38 | 9.35 | 9.33 | 9.30 | 9.27 | 9.25 | 9.22 |
| 0.71 | 9.20 | 9.17 | 9.14 | 9.12 | 9.09 | 9.07 | 9.04 | 9.02 | 8.99 | 8.97 |
| 0.72 | 8.94 | 8.92 | 8.89 | 8.87 | 8.84 | 8.82 | 8.80 | 8.77 | 8.75 | 8.72 |
| 0.73 | 8.70 | 8.68 | 8.65 | 8.63 | 8.60 | 8.58 | 8.56 | 8.53 | 8.51 | 8.49 |
| 0.74 | 8.47 | 8.44 | 8.42 | 8.40 | 8.38 | 8.35 | 8.33 | 8.31 | 8.29 | 8.26 |
| 0.75 | 8.24 | 8.22 | 8.20 | 8.18 | 8.15 | 8.13 | 8.11 | 8.09 | 8.07 | 8.05 |
| 0.76 | 8.03 | 8.01 | 7.98 | 7.96 | 7.94 | 7.92 | 7.90 | 7.88 | 7.86 | 7.84 |
| 0.77 | 7.82 | 7.80 | 7.78 | 7.76 | 7.74 | 7.72 | 7.70 | 7.68 | 7.66 | 7.64 |
| 0.78 | 7.62 | 7.60 | 7.58 | 7.56 | 7.54 | 7.52 | 7.50 | 7.48 | 7.47 | 7.45 |
| 0.79 | 7.43 | 7.41 | 7.39 | 7.37 | 7.35 | 7.34 | 7.32 | 7.30 | 7.28 | 7.26 |
| 0.80 | 7.24 | 7.23 | 7.21 | 7.19 | 7.17 | 7.15 | 7.14 | 7.12 | 7.10 | 7.08 |
| 0.81 | 7.07 | 7.05 | 7.03 | 7.01 | 7.00 | 6.98 | 6.96 | 6.95 | 6.93 | 6.91 |
| 0.82 | 6.89 | 6.88 | 6.86 | 6.84 | 6.83 | 6.81 | 6.79 | 6.78 | 6.76 | 6.75 |
| 0.83 | 6.73 | 6.71 | 6.70 | 6.68 | 6.67 | 6.65 | 6.63 | 6.62 | 6.60 | 6.59 |
| 0.84 | 6.57 | 6.55 | 6.54 | 6.52 | 6.51 | 6.49 | 6.48 | 6.46 | 6.45 | 6.43 |
| 0.85 | 6.42 | 6.40 | 6.39 | 6.37 | 6.36 | 6.34 | 6.33 | 6.31 | 6.30 | 6.28 |
| 0.86 | 6.27 | 6.25 | 6.24 | 6.22 | 6.21 | 6.20 | 6.18 | 6.17 | 6.15 | 6.14 |
| 0.87 | 6.12 | 6.11 | 6.10 | 6.08 | 6.07 | 6.06 | 6.04 | 6.03 | 6.01 | 6.00 |
| 0.88 | 5.99 | 5.97 | 5.96 | 5.95 | 5.93 | 5.92 | 5.91 | 5.89 | 5.88 | 5.87 |
| 0.89 | 5.85 | 5.84 | 5.83 | 5.81 | 5.80 | 5.79 | 5.77 | 5.76 | 5.75 | 5.74 |
| 0.90 | 5.72 | 5.71 | 5.70 | 5.69 | 5.67 | 5.66 | 5.65 | 5.64 | 5.62 | 5.61 |
| 0.91 | 5.60 | 5.59 | 5.57 | 5.56 | 5.55 | 5.54 | 5.53 | 5.51 | 5.50 | 5.49 |
| 0.92 | 5.48 | 5.47 | 5.45 | 5.44 | 5.43 | 5.42 | 5.41 | 5.39 | 5.38 | 5.37 |
| 0.93 | 5.36 | 5.35 | 5.34 | 5.33 | 5.31 | 5.30 | 5.29 | 5.28 | 5.27 | 5.26 |
| 0.94 | 5.25 | 5.24 | 5.22 | 5.21 | 5.20 | 5.19 | 5.18 | 5.17 | 5.16 | 5.15 |
| 0.95 | 5.14 | 5.13 | 5.12 | 5.10 | 5.09 | 5.08 | 5.07 | 5.06 | 5.05 | 5.04 |
| 0.96 | 5.03 | 5.02 | 5.01 | 5.00 | 4.99 | 4.98 | 4.97 | 4.96 | 4.95 | 4.94 |

## TABLE 3

Load    3 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.05 | 2225 | 2139 | 2057 | 1980 | 1908 | 1839 | 1774 | 1712 | 1654 | 1598 |
| 0.06 | 1545 | 1495 | 1447 | 1402 | 1358 | 1317 | 1277 | 1239 | 1203 | 1168 |
| 0.07 | 1135 | 1104 | 1073 | 1044 | 1016 | 989 | 963 | 938 | 914 | 891 |
| 0.08 | 869 | 848 | 827 | 808 | 788 | 770 | 752 | 735 | 718 | 702 |
| 0.09 | 687 | 672 | 657 | 643 | 630 | 616 | 604 | 591 | 579 | 568 |
| 0.10 | 556 | 545 | 535 | 524 | 514 | 505 | 495 | 486 | 477 | 468 |
| 0.11 | 460 | 452 | 443 | 436 | 428 | 421 | 413 | 406 | 400 | 393 |
| 0.12 | 386 | 380 | 374 | 368 | 362 | 356 | 350 | 345 | 340 | 334 |
| 0.13 | 329 | 324 | 319 | 314 | 310 | 305 | 301 | 296 | 292 | 288 |
| 0.14 | 284 | 280 | 276 | 272 | 268 | 265 | 261 | 257 | 254 | 251 |
| 0.15 | 247 | 244 | 241 | 238 | 235 | 232 | 229 | 226 | 223 | 220 |
| 0.16 | 217 | 215 | 212 | 209 | 207 | 204 | 202 | 199 | 197 | 195 |
| 0.17 | 192 | 190 | 188 | 186 | 184 | 182 | 180 | 178 | 176 | 174 |
| 0.18 | 172 | 170 | 168 | 166 | 164 | 163 | 161 | 159 | 157 | 156 |
| 0.19 | 154 | 152 | 151 | 149 | 148 | 146 | 145 | 143 | 142 | 140 |
| 0.20 | 139 | 138 | 136 | 135 | 134 | 132 | 131 | 130 | 129 | 127 |
| 0.21 | 126 | 125 | 124 | 123 | 121 | 120 | 119 | 118 | 117 | 116 |
| 0.22 | 115 | 114 | 113 | 112 | 111 | 110 | 109 | 108 | 107 | 106 |
| 0.23 | 105 | 104 | 103 | 102 | 101.6 | 100.7 | 99.9 | 99.0 | 98.2 | 97.4 |
| 0.24 | 96.6 | 95.8 | 95.0 | 94.2 | 93.4 | 92.7 | 91.9 | 91.2 | 90.5 | 89.7 |
| 0.25 | 89.0 | 88.3 | 87.6 | 86.9 | 86.2 | 85.6 | 84.9 | 84.2 | 83.6 | 82.9 |
| 0.26 | 82.3 | 81.7 | 81.0 | 80.4 | 79.8 | 79.2 | 78.6 | 78.0 | 77.5 | 76.9 |
| 0.27 | 76.3 | 75.7 | 75.2 | 74.6 | 74.1 | 73.6 | 73.0 | 72.5 | 72.0 | 71.5 |
| 0.28 | 71.0 | 70.5 | 70.0 | 69.5 | 69.0 | 68.5 | 68.0 | 67.5 | 67.1 | 66.6 |
| 0.29 | 66.1 | 65.7 | 65.2 | 64.8 | 64.4 | 63.9 | 63.5 | 63.1 | 62.6 | 62.2 |
| 0.30 | 61.8 | 61.4 | 61.0 | 60.6 | 60.2 | 59.8 | 59.4 | 59.0 | 58.6 | 58.3 |
| 0.31 | 57.9 | 57.5 | 57.1 | 56.8 | 56.4 | 56.1 | 55.7 | 55.4 | 55.0 | 54.7 |
| 0.32 | 54.3 | 54.0 | 53.7 | 53.3 | 53.0 | 52.7 | 52.3 | 52.0 | 51.7 | 51.4 |
| 0.33 | 51.1 | 50.8 | 50.5 | 50.2 | 49.9 | 49.6 | 49.3 | 49.0 | 48.7 | 48.4 |
| 0.34 | 48.1 | 47.8 | 47.6 | 47.3 | 47.0 | 46.7 | 46.5 | 46.2 | 45.9 | 45.7 |
| 0.35 | 45.4 | 45.2 | 44.9 | 44.6 | 44.4 | 44.1 | 43.9 | 43.6 | 43.4 | 43.2 |
| 0.36 | 42.9 | 42.7 | 42.5 | 42.2 | 42.0 | 41.8 | 41.5 | 41.3 | 41.1 | 40.9 |
| 0.37 | 40.6 | 40.4 | 40.2 | 40.0 | 39.8 | 39.6 | 39.3 | 39.1 | 38.9 | 38.7 |
| 0.38 | 38.5 | 38.3 | 38.1 | 37.9 | 37.7 | 37.5 | 37.3 | 37.1 | 37.0 | 36.8 |
| 0.39 | 36.6 | 36.4 | 36.2 | 36.0 | 35.8 | 35.7 | 35.5 | 35.3 | 35.1 | 34.9 |
| 0.40 | 34.8 | 34.6 | 34.4 | 34.3 | 34.1 | 33.9 | 33.7 | 33.6 | 33.4 | 33.3 |
| 0.41 | 33.1 | 32.9 | 32.8 | 32.6 | 32.5 | 32.3 | 32.1 | 32.0 | 31.8 | 31.7 |
| 0.42 | 31.5 | 31.4 | 31.2 | 31.1 | 30.9 | 30.8 | 30.7 | 30.5 | 30.4 | 30.2 |
| 0.43 | 30.1 | 29.9 | 29.8 | 29.7 | 29.5 | 29.4 | 29.3 | 29.1 | 29.0 | 28.9 |
| 0.44 | 28.7 | 28.6 | 28.5 | 28.3 | 28.2 | 28.1 | 28.0 | 27.8 | 27.7 | 27.6 |
| 0.45 | 27.5 | 27.4 | 27.2 | 27.1 | 27.0 | 26.9 | 26.8 | 26.6 | 26.5 | 26.4 |
| 0.46 | 26.3 | 26.2 | 26.1 | 26.0 | 25.8 | 25.7 | 25.6 | 25.5 | 25.4 | 25.3 |
| 0.47 | 25.2 | 25.1 | 25.0 | 24.9 | 24.8 | 24.7 | 24.6 | 24.5 | 24.3 | 24.2 |
| 0.48 | 24.1 | 24.0 | 23.9 | 23.8 | 23.75 | 23.65 | 23.55 | 23.46 | 23.36 | 23.26 |
| 0.49 | 23.17 | 23.08 | 22.98 | 22.89 | 22.80 | 22.70 | 22.61 | 22.52 | 22.43 | 22.34 |
| 0.50 | 22.25 | 22.16 | 22.08 | 21.99 | 21.90 | 21.81 | 21.73 | 21.64 | 21.56 | 21.47 |
| 0.51 | 21.39 | 21.30 | 21.22 | 21.14 | 21.06 | 20.98 | 20.89 | 20.81 | 20.73 | 20.65 |
| 0.52 | 20.57 | 20.49 | 20.42 | 20.34 | 20.26 | 20.18 | 20.11 | 20.03 | 19.95 | 19.88 |
| 0.53 | 19.80 | 19.73 | 19.66 | 19.58 | 19.51 | 19.44 | 19.36 | 19.29 | 19.22 | 19.15 |
| 0.54 | 19.08 | 19.01 | 18.94 | 18.87 | 18.80 | 18.73 | 18.66 | 18.59 | 18.52 | 18.46 |
| 0.55 | 18.39 | 18.32 | 18.26 | 18.19 | 18.13 | 18.06 | 18.00 | 17.93 | 17.87 | 17.80 |
| 0.56 | 17.74 | 17.68 | 17.61 | 17.55 | 17.49 | 17.43 | 17.37 | 17.30 | 17.24 | 17.18 |
| 0.57 | 17.12 | 17.06 | 17.00 | 16.94 | 16.88 | 16.83 | 16.77 | 16.71 | 16.65 | 16.59 |
| 0.58 | 16.54 | 16.48 | 16.42 | 16.37 | 16.31 | 16.26 | 16.20 | 16.15 | 16.09 | 16.04 |

## TABLE 3 *(concluded)*

Load    3 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.59 | 15.98 | 15.93 | 15.87 | 15.82 | 15.77 | 15.71 | 15.66 | 15.61 | 15.56 | 15.50 |
| 0.60 | 15.45 | 15.40 | 15.35 | 15.30 | 15.25 | 15.20 | 15.15 | 15.10 | 15.05 | 15.00 |
| 0.61 | 14.95 | 14.90 | 14.85 | 14.80 | 14.76 | 14.71 | 14.66 | 14.61 | 14.57 | 14.52 |
| 0.62 | 14.47 | 14.43 | 14.38 | 14.33 | 14.29 | 14.24 | 14.20 | 14.15 | 14.11 | 14.06 |
| 0.63 | 14.02 | 13.97 | 13.93 | 13.88 | 13.84 | 13.80 | 13.75 | 13.71 | 13.67 | 13.62 |
| 0.64 | 13.58 | 13.54 | 13.50 | 13.46 | 13.41 | 13.37 | 13.33 | 13.29 | 13.25 | 13.21 |
| 0.65 | 13.17 | 13.13 | 13.09 | 13.05 | 13.01 | 12.97 | 12.93 | 12.89 | 12.85 | 12.81 |
| 0.66 | 12.77 | 12.73 | 12.69 | 12.66 | 12.62 | 12.58 | 12.54 | 12.50 | 12.47 | 12.43 |
| 0.67 | 12.39 | 12.36 | 12.32 | 12.28 | 12.25 | 12.21 | 12.17 | 12.14 | 12.10 | 12.07 |
| 0.68 | 12.03 | 12.00 | 11.96 | 11.93 | 11.89 | 11.86 | 11.82 | 11.79 | 11.75 | 11.72 |
| 0.69 | 11.68 | 11.65 | 11.62 | 11.58 | 11.55 | 11.52 | 11.48 | 11.45 | 11.42 | 11.39 |
| 0.70 | 11.35 | 11.32 | 11.29 | 11.26 | 11.22 | 11.19 | 11.16 | 11.13 | 11.10 | 11.07 |
| 0.71 | 11.04 | 11.00 | 10.97 | 10.94 | 10.91 | 10.88 | 10.85 | 10.82 | 10.79 | 10.76 |
| 0.72 | 10.73 | 10.70 | 10.67 | 10.64 | 10.61 | 10.58 | 10.55 | 10.53 | 10.50 | 10.47 |
| 0.73 | 10.44 | 10.41 | 10.38 | 10.35 | 10.33 | 10.30 | 10.27 | 10.24 | 10.21 | 10.19 |
| 0.74 | 10.16 | 10.13 | 10.10 | 10.08 | 10.05 | 10.02 | 10.00 | 9.97 | 9.94 | 9.92 |
| 0.75 | 9.89 | 9.86 | 9.84 | 9.81 | 9.79 | 9.76 | 9.73 | 9.71 | 9.68 | 9.66 |
| 0.76 | 9.63 | 9.61 | 9.58 | 9.56 | 9.53 | 9.51 | 9.48 | 9.46 | 9.43 | 9.41 |
| 0.77 | 9.38 | 9.36 | 9.33 | 9.31 | 9.29 | 9.26 | 9.24 | 9.21 | 9.19 | 9.17 |
| 0.78 | 9.14 | 9.12 | 9.10 | 9.07 | 9.05 | 9.03 | 9.00 | 8.98 | 8.96 | 8.94 |
| 0.79 | 8.91 | 8.89 | 8.87 | 8.85 | 8.82 | 8.80 | 8.78 | 8.76 | 8.74 | 8.71 |
| 0.80 | 8.69 | 8.67 | 8.65 | 8.63 | 8.61 | 8.58 | 8.56 | 8.54 | 8.52 | 8.50 |
| 0.81 | 8.48 | 8.46 | 8.44 | 8.42 | 8.40 | 8.38 | 8.35 | 8.33 | 8.31 | 8.29 |
| 0.82 | 8.27 | 8.25 | 8.23 | 8.21 | 8.19 | 8.17 | 8.15 | 8.13 | 8.11 | 8.09 |
| 0.83 | 8.08 | 8.06 | 8.04 | 8.02 | 8.00 | 7.98 | 7.96 | 7.94 | 7.92 | 7.90 |
| 0.84 | 7.88 | 7.87 | 7.85 | 7.83 | 7.81 | 7.79 | 7.77 | 7.75 | 7.74 | 7.72 |
| 0.85 | 7.70 | 7.68 | 7.66 | 7.65 | 7.63 | 7.61 | 7.59 | 7.57 | 7.56 | 7.54 |
| 0.86 | 7.52 | 7.50 | 7.49 | 7.47 | 7.45 | 7.44 | 7.42 | 7.40 | 7.38 | 7.37 |
| 0.87 | 7.35 | 7.33 | 7.32 | 7.30 | 7.28 | 7.27 | 7.25 | 7.23 | 7.22 | 7.20 |
| 0.88 | 7.18 | 7.17 | 7.15 | 7.14 | 7.12 | 7.10 | 7.09 | 7.07 | 7.05 | 7.04 |
| 0.89 | 7.02 | 7.01 | 6.99 | 6.98 | 6.96 | 6.94 | 6.93 | 6.91 | 6.90 | 6.88 |
| 0.90 | 6.87 | 6.85 | 6.84 | 6.82 | 6.81 | 6.79 | 6.78 | 6.76 | 6.75 | 6.73 |
| 0.91 | 6.72 | 6.70 | 6.69 | 6.67 | 6.66 | 6.64 | 6.63 | 6.62 | 6.60 | 6.59 |
| 0.92 | 6.57 | 6.56 | 6.54 | 6.53 | 6.52 | 6.50 | 6.49 | 6.47 | 6.46 | 6.45 |
| 0.93 | 6.43 | 6.42 | 6.40 | 6.39 | 6.38 | 6.36 | 6.35 | 6.34 | 6.32 | 6.31 |
| 0.94 | 6.30 | 6.28 | 6.27 | 6.26 | 6.24 | 6.23 | 6.22 | 6.20 | 6.19 | 6.18 |
| 0.95 | 6.16 | 6.15 | 6.14 | 6.13 | 6.11 | 6.10 | 6.09 | 6.07 | 6.06 | 6.05 |
| 0.96 | 6.04 | 6.02 | 6.01 | 6.00 | 5.99 | 5.97 | 5.96 | 5.95 | 5.94 | 5.92 |
| 0.97 | 5.91 | 5.90 | 5.89 | 5.88 | 5.86 | 5.85 | 5.84 | 5.83 | 5.82 | 5.80 |
| 0.98 | 5.79 | 5.78 | 5.77 | 5.76 | 5.75 | 5.73 | 5.72 | 5.71 | 5.70 | 5.69 |
| 0.99 | 5.68 | 5.66 | 5.65 | 5.64 | 5.63 | 5.62 | 5.61 | 5.60 | 5.59 | 5.57 |
| 1.00 | 5.56 | 5.55 | 5.54 | 5.53 | 5.52 | 5.51 | 5.50 | 5.49 | 5.48 | 5.46 |
| 1.01 | 5.45 | 5.44 | 5.43 | 5.42 | 5.41 | 5.40 | 5.39 | 5.38 | 5.37 | 5.36 |
| 1.02 | 5.35 | 5.34 | 5.33 | 5.32 | 5.31 | 5.30 | 5.28 | 5.27 | 5.26 | 5.25 |
| 1.03 | 5.24 | 5.23 | 5.22 | 5.21 | 5.20 | 5.19 | 5.18 | 5.17 | 5.16 | 5.15 |
| 1.04 | 5.14 | 5.13 | 5.12 | 5.11 | 5.10 | 5.09 | 5.08 | 5.07 | 5.07 | 5.06 |
| 1.05 | 5.05 | 5.04 | 5.03 | 5.02 | 5.01 | 5.00 | 4.99 | 4.98 | 4.97 | 4.96 |

# TABLE 4

**Load    5 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 mm | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.06 | 2576 | 2492 | 2412 | 2336 | 2264 | 2195 | 2129 | 2065 | 2005 | 1947 |
| 0.07 | 1892 | 1839 | 1789 | 1740 | 1693 | 1648 | 1605 | 1564 | 1524 | 1486 |
| 0.08 | 1449 | 1413 | 1379 | 1346 | 1314 | 1283 | 1254 | 1225 | 1197 | 1171 |
| 0.09 | 1145 | 1120 | 1095 | 1072 | 1049 | 1027 | 1006 | 985 | 965 | 946 |
| 0.10 | 927 | 909 | 891 | 874 | 857 | 841 | 825 | 810 | 795 | 780 |
| 0.11 | 766 | 753 | 739 | 726 | 713 | 701 | 689 | 677 | 666 | 655 |
| 0.12 | 644 | 633 | 623 | 613 | 603 | 593 | 584 | 575 | 566 | 557 |
| 0.13 | 549 | 540 | 532 | 524 | 516 | 509 | 501 | 494 | 487 | 480 |
| 0.14 | 473 | 466 | 460 | 453 | 447 | 441 | 435 | 429 | 423 | 418 |
| 0.15 | 412 | 407 | 401 | 396 | 391 | 386 | 381 | 376 | 371 | 367 |
| 0.16 | 362 | 358 | 353 | 349 | 345 | 341 | 336 | 332 | 329 | 325 |
| 0.17 | 321 | 317 | 313 | 310 | 306 | 303 | 299 | 296 | 293 | 289 |
| 0.18 | 286 | 283 | 280 | 277 | 274 | 271 | 268 | 265 | 262 | 260 |
| 0.19 | 257 | 254 | 252 | 249 | 246 | 244 | 241 | 239 | 237 | 234 |
| 0.20 | 232 | 229 | 227 | 225 | 223 | 221 | 218 | 216 | 214 | 212 |
| 0.21 | 210 | 208 | 206 | 204 | 202 | 201 | 199 | 197 | 195 | 193 |
| 0.22 | 192 | 190 | 188 | 186 | 185 | 183 | 182 | 180 | 178 | 177 |
| 0.23 | 175 | 174 | 172 | 171 | 169 | 168 | 166 | 165 | 164 | 162 |
| 0.24 | 161 | 160 | 158 | 157 | 156 | 154 | 153 | 152 | 151 | 150 |
| 0.25 | 148 | 147 | 146 | 145 | 144 | 143 | 141 | 140 | 139 | 138 |
| 0.26 | 137 | 136 | 135 | 134 | 133 | 132 | 131 | 130 | 129 | 128 |
| 0.27 | 127 | 126 | 125 | 124 | 123.5 | 122.6 | 121.7 | 120.8 | 120.0 | 119.1 |
| 0.28 | 118.3 | 117.4 | 116.6 | 115.8 | 115.0 | 114.2 | 113.4 | 112.6 | 111.8 | 111.0 |
| 0.29 | 110.2 | 109.5 | 108.7 | 108.0 | 107.3 | 106.5 | 105.8 | 105.1 | 104.4 | 103.7 |
| 0.30 | 103.0 | 102.3 | 101.7 | 101.0 | 100.3 | 99.7 | 99.0 | 98.4 | 97.7 | 97.1 |
| 0.31 | 96.5 | 95.9 | 95.2 | 94.6 | 94.0 | 93.4 | 92.9 | 92.3 | 91.7 | 91.1 |
| 0.32 | 90.5 | 90.0 | 89.4 | 88.9 | 88.3 | 87.8 | 87.2 | 86.7 | 86.2 | 85.7 |
| 0.33 | 85.1 | 84.6 | 84.1 | 83.6 | 83.1 | 82.6 | 82.1 | 81.6 | 81.2 | 80.7 |
| 0.34 | 80.2 | 79.7 | 79.3 | 78.8 | 78.4 | 77.9 | 77.4 | 77.0 | 76.6 | 76.1 |
| 0.35 | 75.5 | 75.3 | 74.8 | 74.4 | 74.0 | 73.6 | 73.2 | 72.7 | 72.3 | 71.9 |
| 0.36 | 71.5 | 71.1 | 70.8 | 70.4 | 70.0 | 69.6 | 69.2 | 68.8 | 68.5 | 68.1 |
| 0.37 | 67.7 | 67.4 | 67.0 | 66.6 | 66.3 | 65.9 | 65.6 | 65.2 | 64.9 | 64.5 |
| 0.38 | 64.2 | 63.9 | 63.5 | 63.2 | 62.9 | 62.6 | 62.2 | 61.9 | 61.6 | 61.3 |
| 0.39 | 61.0 | 60.6 | 60.3 | 60.0 | 59.7 | 59.4 | 59.1 | 58.8 | 58.5 | 58.2 |
| 0.40 | 57.9 | 57.7 | 57.4 | 57.1 | 56.8 | 56.5 | 56.2 | 56.0 | 55.7 | 55.4 |
| 0.41 | 55.2 | 54.9 | 54.6 | 54.4 | 54.1 | 53.8 | 53.6 | 53.3 | 53.1 | 52.8 |
| 0.42 | 52.6 | 52.3 | 52.1 | 51.8 | 51.6 | 51.3 | 51.1 | 50.9 | 50.6 | 50.4 |
| 0.43 | 50.1 | 49.9 | 49.7 | 49.5 | 49.2 | 49.0 | 48.8 | 48.6 | 48.3 | 48.1 |
| 0.44 | 47.9 | 47.7 | 47.5 | 47.2 | 47.0 | 46.8 | 46.6 | 46.4 | 46.2 | 46.0 |
| 0.45 | 45.8 | 45.6 | 45.4 | 45.2 | 45.0 | 44.8 | 44.6 | 44.4 | 44.2 | 44.0 |
| 0.46 | 43.8 | 43.6 | 43.4 | 43.3 | 43.1 | 42.9 | 42.7 | 42.5 | 42.3 | 42.2 |
| 0.47 | 42.0 | 41.8 | 41.6 | 41.4 | 41.3 | 41.1 | 40.9 | 40.8 | 40.6 | 40.4 |
| 0.48 | 40.2 | 40.1 | 39.9 | 39.7 | 39.6 | 39.4 | 39.3 | 39.1 | 38.9 | 38.8 |
| 0.49 | 38.6 | 38.5 | 38.3 | 38.1 | 38.0 | 37.8 | 37.7 | 37.5 | 37.4 | 37.2 |
| 0.50 | 37.1 | 36.9 | 36.8 | 36.6 | 36.5 | 36.4 | 36.2 | 36.1 | 35.9 | 35.8 |
| 0.51 | 35.6 | 35.5 | 35.4 | 35.2 | 35.1 | 35.0 | 34.8 | 34.7 | 34.6 | 34.4 |
| 0.52 | 34.3 | 34.2 | 34.0 | 33.9 | 33.8 | 33.6 | 33.5 | 33.4 | 33.3 | 33.1 |
| 0.53 | 33.0 | 32.9 | 32.8 | 32.6 | 32.5 | 32.4 | 32.3 | 32.2 | 32.0 | 31.9 |
| 0.54 | 31.8 | 31.7 | 31.6 | 31.4 | 31.3 | 31.2 | 31.1 | 31.0 | 30.9 | 30.8 |
| 0.55 | 30.7 | 30.5 | 30.4 | 30.3 | 30.2 | 30.1 | 30.0 | 29.9 | 29.8 | 29.7 |
| 0.56 | 29.6 | 29.5 | 29.4 | 29.3 | 29.1 | 29.0 | 28.9 | 28.8 | 28.7 | 28.6 |
| 0.57 | 28.5 | 28.4 | 28.3 | 28.2 | 28.1 | 28.0 | 27.9 | 27.85 | 27.75 | 27.66 |
| 0.58 | 27.56 | 27.47 | 27.37 | 27.28 | 27.19 | 27.09 | 27.00 | 26.91 | 26.82 | 26.73 |
| 0.59 | 26.64 | 26.55 | 26.46 | 26.37 | 26.28 | 26.19 | 26.10 | 26.01 | 25.93 | 25.84 |

## Table 4 (continued)

**Load    5 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.60 | 25.76 | 25.67 | 25.58 | 25.50 | 25.42 | 25.33 | 25.25 | 25.16 | 25.08 | 25.00 |
| 0.61 | 24.92 | 24.84 | 24.75 | 24.67 | 24.59 | 24.51 | 24.43 | 24.36 | 24.28 | 24.20 |
| 0.62 | 24.12 | 24.04 | 23.97 | 23.89 | 23.81 | 23.74 | 23.66 | 23.58 | 23.51 | 23.43 |
| 0.63 | 23.36 | 23.29 | 23.21 | 23.14 | 23.07 | 22.99 | 22.92 | 22.85 | 22.78 | 22.71 |
| 0.64 | 22.64 | 22.57 | 22.50 | 22.43 | 22.36 | 22.29 | 22.22 | 22.15 | 22.08 | 22.01 |
| 0.65 | 21.95 | 21.88 | 21.81 | 21.74 | 21.68 | 21.61 | 21.55 | 21.48 | 21.41 | 21.35 |
| 0.66 | 21.29 | 21.22 | 21.16 | 21.09 | 21.03 | 20.97 | 20.90 | 20.84 | 20.78 | 20.72 |
| 0.67 | 20.65 | 20.59 | 20.53 | 20.47 | 20.41 | 20.35 | 20.29 | 20.23 | 20.17 | 20.11 |
| 0.68 | 20.05 | 19.99 | 19.93 | 19.88 | 19.82 | 19.76 | 19.70 | 19.65 | 19.59 | 19.53 |
| 0.69 | 19.47 | 19.42 | 19.36 | 19.31 | 19.25 | 19.20 | 19.14 | 19.09 | 19.03 | 18.98 |
| 0.70 | 18.92 | 18.87 | 18.81 | 18.76 | 18.71 | 18.65 | 18.60 | 18.55 | 18.50 | 18.44 |
| 0.71 | 18.39 | 18.34 | 18.29 | 18.24 | 18.19 | 18.14 | 18.09 | 18.04 | 17.99 | 17.94 |
| 0.72 | 17.89 | 17.84 | 17.79 | 17.74 | 17.69 | 17.64 | 17.59 | 17.54 | 17.49 | 17.45 |
| 0.73 | 17.40 | 17.35 | 17.30 | 17.26 | 17.21 | 17.16 | 17.12 | 17.07 | 17.02 | 16.98 |
| 0.74 | 16.93 | 16.89 | 16.84 | 16.80 | 16.75 | 16.71 | 16.66 | 16.62 | 16.57 | 16.53 |
| 0.75 | 16.48 | 16.44 | 16.40 | 16.35 | 16.31 | 16.27 | 16.22 | 16.18 | 16.14 | 16.09 |
| 0.76 | 16.05 | 16.01 | 15.97 | 15.93 | 15.88 | 15.84 | 15.80 | 15.76 | 15.72 | 15.68 |
| 0.77 | 15.64 | 15.60 | 15.56 | 15.52 | 15.48 | 15.44 | 15.40 | 15.36 | 15.32 | 15.28 |
| 0.78 | 15.24 | 15.20 | 15.16 | 15.12 | 15.08 | 15.05 | 15.01 | 14.97 | 14.93 | 14.89 |
| 0.79 | 14.86 | 14.82 | 14.78 | 14.74 | 14.71 | 14.67 | 14.63 | 14.60 | 14.56 | 14.52 |
| 0.80 | 14.49 | 14.45 | 14.42 | 14.38 | 14.34 | 14.31 | 14.27 | 14.24 | 14.20 | 14.17 |
| 0.81 | 14.13 | 14.10 | 14.06 | 14.03 | 13.99 | 13.96 | 13.92 | 13.89 | 13.86 | 13.82 |
| 0.82 | 13.79 | 13.76 | 13.72 | 13.69 | 13.66 | 13.62 | 13.59 | 13.56 | 13.52 | 13.49 |
| 0.83 | 13.46 | 13.43 | 13.39 | 13.36 | 13.33 | 13.30 | 13.27 | 13.23 | 13.20 | 13.17 |
| 0.84 | 13.14 | 13.11 | 13.08 | 13.05 | 13.02 | 12.99 | 12.95 | 12.92 | 12.89 | 12.86 |
| 0.85 | 12.83 | 12.80 | 12.77 | 12.74 | 12.71 | 12.68 | 12.65 | 12.62 | 12.59 | 12.57 |
| 0.86 | 12.54 | 12.51 | 12.48 | 12.45 | 12.42 | 12.39 | 12.36 | 12.33 | 12.31 | 12.28 |
| 0.87 | 12.25 | 12.22 | 12.19 | 12.17 | 12.14 | 12.11 | 12.08 | 12.05 | 12.03 | 12.00 |
| 0.88 | 11.97 | 11.95 | 11.92 | 11.89 | 11.86 | 11.84 | 11.81 | 11.78 | 11.76 | 11.73 |
| 0.89 | 11.71 | 11.68 | 11.65 | 11.63 | 11.60 | 11.57 | 11.55 | 11.52 | 11.50 | 11.47 |
| 0.90 | 11.45 | 11.42 | 11.40 | 11.37 | 11.35 | 11.32 | 11.30 | 11.27 | 11.25 | 11.22 |
| 0.91 | 11.20 | 11.17 | 11.15 | 11.12 | 11.10 | 11.07 | 11.05 | 11.03 | 11.00 | 10.98 |
| 0.92 | 10.95 | 10.93 | 10.91 | 10.88 | 10.86 | 10.84 | 10.81 | 10.79 | 10.77 | 10.74 |
| 0.93 | 10.72 | 10.70 | 10.67 | 10.65 | 10.63 | 10.61 | 10.58 | 10.56 | 10.54 | 10.52 |
| 0.94 | 10.49 | 10.47 | 10.45 | 10.43 | 10.40 | 10.38 | 10.36 | 10.34 | 10.32 | 10.30 |
| 0.95 | 10.27 | 10.25 | 10.23 | 10.21 | 10.19 | 10.17 | 10.14 | 10.12 | 10.10 | 10.08 |
| 0.96 | 10.06 | 10.04 | 10.02 | 10.00 | 9.98 | 9.96 | 9.94 | 9.92 | 9.89 | 9.87 |
| 0.97 | 9.85 | 9.83 | 9.81 | 9.79 | 9.77 | 9.75 | 9.73 | 9.71 | 9.69 | 9.67 |
| 0.98 | 9.65 | 9.63 | 9.61 | 9.60 | 9.58 | 9.56 | 9.54 | 9.52 | 9.50 | 9.48 |
| 0.99 | 9.46 | 9.44 | 9.42 | 9.40 | 9.38 | 9.37 | 9.35 | 9.33 | 9.31 | 9.29 |
| 1.00 | 9.27 | 9.25 | 9.23 | 9.22 | 9.20 | 9.18 | 9.16 | 9.14 | 9.13 | 9.11 |
| 1.01 | 9.09 | 9.07 | 9.05 | 9.04 | 9.02 | 9.00 | 8.98 | 8.96 | 8.95 | 8.93 |
| 1.02 | 8.91 | 8.89 | 8.88 | 8.86 | 8.84 | 8.83 | 8.81 | 8.79 | 8.77 | 8.76 |
| 1.03 | 8.74 | 8.72 | 8.71 | 8.69 | 8.67 | 8.66 | 8.64 | 8.62 | 8.61 | 8.59 |
| 1.04 | 8.57 | 8.56 | 8.54 | 8.52 | 8.51 | 8.49 | 8.47 | 8.46 | 8.44 | 8.43 |
| 1.05 | 8.41 | 8.39 | 8.38 | 8.36 | 8.35 | 8.33 | 8.31 | 8.30 | 8.28 | 8.27 |
| 1.06 | 8.25 | 8.24 | 8.22 | 8.21 | 8.19 | 8.17 | 8.16 | 8.14 | 8.13 | 8.11 |
| 1.07 | 8.10 | 8.08 | 8.07 | 8.05 | 8.04 | 8.02 | 8.01 | 7.99 | 7.98 | 7.96 |
| 1.08 | 7.95 | 7.93 | 7.92 | 7.91 | 7.89 | 7.88 | 7.86 | 7.85 | 7.83 | 7.82 |
| 1.09 | 7.80 | 7.79 | 7.78 | 7.76 | 7.75 | 7.73 | 7.72 | 7.70 | 7.69 | 7.68 |
| 1.10 | 7.66 | 7.65 | 7.63 | 7.62 | 7.61 | 7.59 | 7.58 | 7.57 | 7.55 | 7.54 |
| 1.11 | 7.53 | 7.51 | 7.50 | 7.48 | 7.47 | 7.46 | 7.44 | 7.43 | 7.42 | 7.40 |
| 1.12 | 7.39 | 7.38 | 7.37 | 7.35 | 7.34 | 7.33 | 7.31 | 7.30 | 7.29 | 7.27 |
| 1.13 | 7.26 | 7.25 | 7.24 | 7.22 | 7.21 | 7.20 | 7.18 | 7.17 | 7.16 | 7.15 |

## TABLE 4 (concluded)

**Load    5 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| **1.14** | 7.13 | 7.12 | 7.11 | 7.10 | 7.08 | 7.07 | 7.06 | 7.05 | 7.04 | 7.02 |
| **1.15** | 7.01 | 7.00 | 6.99 | 6.97 | 6.96 | 6.95 | 6.94 | 6.93 | 6.91 | 6.90 |
| **1.16** | 6.89 | 6.88 | 6.87 | 6.85 | 6.84 | 6.83 | 6.82 | 6.81 | 6.80 | 6.78 |
| **1.17** | 6.77 | 6.76 | 6.75 | 6.74 | 6.73 | 6.72 | 6.70 | 6.69 | 6.68 | 6.67 |
| **1.18** | 6.66 | 6.65 | 6.64 | 6.63 | 6.61 | 6.60 | 6.59 | 6.58 | 6.57 | 6.56 |
| **1.19** | 6.55 | 6.54 | 6.53 | 6.51 | 6.50 | 6.49 | 6.48 | 6.47 | 6.46 | 6.45 |
| **1.20** | 6.44 | 6.43 | 6.42 | 6.41 | 6.40 | 6.39 | 6.37 | 6.36 | 6.35 | 6.34 |
| **1.21** | 6.33 | 6.32 | 6.31 | 6.30 | 6.29 | 6.28 | 6.27 | 6.26 | 6.25 | 6.24 |
| **1.22** | 6.23 | 6.22 | 6.21 | 6.20 | 6.19 | 6.18 | 6.17 | 6.16 | 6.15 | 6.14 |
| **1.23** | 6.13 | 6.12 | 6.11 | 6.10 | 6.09 | 6.08 | 6.07 | 6.06 | 6.05 | 6.04 |
| **1.24** | 6.03 | 6.02 | 6.01 | 6.00 | 5.99 | 5.98 | 5.97 | 5.96 | 5.95 | 5.94 |
| **1.25** | 5.93 | 5.92 | 5.92 | 5.91 | 5.90 | 5.89 | 5.88 | 5.87 | 5.86 | 5.85 |
| **1.26** | 5.84 | 5.83 | 5.82 | 5.81 | 5.80 | 5.79 | 5.78 | 5.78 | 5.77 | 5.76 |
| **1.27** | 5.75 | 5.74 | 5.73 | 5.72 | 5.71 | 5.70 | 5.69 | 5.69 | 5.68 | 5.67 |
| **1.28** | 5.66 | 5.65 | 5.64 | 5.63 | 5.62 | 5.62 | 5.61 | 5.60 | 5.59 | 5.58 |
| **1.29** | 5.57 | 5.56 | 5.55 | 5.55 | 5.54 | 5.53 | 5.52 | 5.51 | 5.50 | 5.49 |
| **1.30** | 5.49 | 5.48 | 5.47 | 5.46 | 5.45 | 5.44 | 5.44 | 5.43 | 5.42 | 5.41 |
| **1.31** | 5.40 | 5.39 | 5.39 | 5.38 | 5.37 | 5.36 | 5.35 | 5.35 | 5.34 | 5.33 |
| **1.32** | 5.32 | 5.31 | 5.31 | 5.30 | 5.29 | 5.28 | 5.27 | 5.27 | 5.26 | 5.25 |
| **1.33** | 5.24 | 5.23 | 5.23 | 5.22 | 5.21 | 5.20 | 5.19 | 5.19 | 5.18 | 5.17 |
| **1.34** | 5.16 | 5.16 | 5.15 | 5.14 | 5.13 | 5.13 | 5.12 | 5.11 | 5.10 | 5.09 |
| **1.35** | 5.09 | 5.08 | 5.07 | 5.06 | 5.06 | 5.05 | 5.04 | 5.04 | 5.03 | 5.02 |
| **1.36** | 5.01 | 5.01 | 5.00 | 4.99 | 4.98 | 4.98 | 4.97 | 4.96 | 4.95 | 4.95 |

# TABLE 5

**Load    10 kgf**

| Mean diagonal of indentation mm | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.09 | 2289 | 2239 | 2191 | 2144 | 2099 | 2055 | 2012 | 1971 | 1931 | 1892 |
| 0.10 | 1854 | 1818 | 1782 | 1748 | 1714 | 1682 | 1650 | 1620 | 1590 | 1561 |
| 0.11 | 1533 | 1505 | 1478 | 1452 | 1427 | 1402 | 1378 | 1355 | 1332 | 1309 |
| 0.12 | 1288 | 1267 | 1246 | 1226 | 1206 | 1187 | 1168 | 1150 | 1132 | 1114 |
| 0.13 | 1097 | 1081 | 1064 | 1048 | 1033 | 1017 | 1003 | 988 | 974 | 960 |
| 0.14 | 946 | 933 | 920 | 907 | 894 | 882 | 870 | 858 | 847 | 835 |
| 0.15 | 824 | 813 | 803 | 792 | 782 | 772 | 762 | 752 | 743 | 734 |
| 0.16 | 724 | 715 | 707 | 698 | 689 | 681 | 673 | 665 | 657 | 649 |
| 0.17 | 642 | 634 | 627 | 620 | 612 | 606 | 599 | 592 | 585 | 579 |
| 0.18 | 572 | 566 | 560 | 554 | 548 | 542 | 536 | 530 | 525 | 519 |
| 0.19 | 514 | 508 | 503 | 498 | 493 | 488 | 483 | 478 | 473 | 468 |
| 0.20 | 464 | 459 | 454 | 450 | 446 | 441 | 437 | 433 | 429 | 425 |
| 0.21 | 420 | 417 | 413 | 409 | 405 | 401 | 397 | 394 | 390 | 387 |
| 0.22 | 383 | 380 | 376 | 373 | 370 | 366 | 363 | 360 | 357 | 354 |
| 0.23 | 351 | 348 | 345 | 342 | 339 | 336 | 333 | 330 | 327 | 325 |
| 0.24 | 322 | 319 | 317 | 314 | 311 | 309 | 306 | 304 | 302 | 299 |
| 0.25 | 297 | 294 | 292 | 290 | 287 | 285 | 283 | 281 | 279 | 276 |
| 0.26 | 274 | 272 | 270 | 268 | 266 | 264 | 262 | 260 | 258 | 256 |
| 0.27 | 254 | 252 | 251 | 249 | 247 | 245 | 243 | 242 | 240 | 238 |
| 0.28 | 237 | 235 | 233 | 232 | 230 | 228 | 227 | 225 | 224 | 222 |
| 0.29 | 220 | 219 | 217 | 216 | 215 | 213 | 212 | 210 | 209 | 207 |
| 0.30 | 206 | 205 | 203 | 202 | 201 | 199 | 198 | 197 | 195 | 194 |
| 0.31 | 193 | 192 | 190 | 189 | 188 | 187 | 186 | 185 | 183 | 182 |
| 0.32 | 181 | 180 | 179 | 178 | 177 | 176 | 174 | 173 | 172 | 171 |
| 0.33 | 170 | 169 | 168 | 167 | 166 | 165 | 164 | 163 | 162 | 161 |
| 0.34 | 160.4 | 159.5 | 158.5 | 157.6 | 156.7 | 155.8 | 154.9 | 154.0 | 153.1 | 152.2 |
| 0.35 | 151.4 | 150.5 | 149.7 | 148.8 | 148.0 | 147.1 | 146.3 | 145.5 | 144.7 | 143.9 |
| 0.36 | 143.1 | 142.3 | 141.5 | 140.7 | 140.0 | 139.2 | 138.4 | 137.7 | 136.9 | 136.2 |
| 0.37 | 135.5 | 134.7 | 134.0 | 133.3 | 132.6 | 131.9 | 131.2 | 130.5 | 129.8 | 129.1 |
| 0.38 | 128.4 | 127.7 | 127.1 | 126.4 | 125.8 | 125.1 | 124.5 | 123.8 | 123.2 | 122.5 |
| 0.39 | 121.9 | 121.3 | 120.7 | 120.1 | 119.5 | 118.9 | 118.3 | 117.7 | 117.1 | 116.5 |
| 0.40 | 115.9 | 115.3 | 114.7 | 114.2 | 113.6 | 113.1 | 112.5 | 111.9 | 111.4 | 110.9 |
| 0.41 | 110.3 | 109.8 | 109.2 | 108.7 | 108.2 | 107.7 | 107.2 | 106.6 | 106.1 | 105.6 |
| 0.42 | 105.1 | 104.6 | 104.1 | 103.6 | 103.1 | 102.7 | 102.2 | 101.7 | 101.2 | 100.8 |
| 0.43 | 100.3 | 99.8 | 99.4 | 98.9 | 98.5 | 98.0 | 97.5 | 97.1 | 96.7 | 96.2 |
| 0.44 | 95.8 | 95.3 | 94.9 | 94.5 | 94.1 | 93.6 | 93.2 | 92.8 | 92.4 | 92.0 |
| 0.45 | 91.6 | 91.2 | 90.8 | 90.4 | 90.0 | 89.6 | 89.2 | 88.8 | 88.4 | 88.0 |
| 0.46 | 87.6 | 87.3 | 86.9 | 86.5 | 86.1 | 85.8 | 85.4 | 85.0 | 84.7 | 84.3 |
| 0.47 | 83.9 | 83.6 | 83.2 | 82.9 | 82.5 | 82.2 | 81.8 | 81.5 | 81.2 | 80.8 |
| 0.48 | 80.5 | 80.2 | 79.8 | 79.5 | 79.2 | 78.8 | 78.5 | 78.2 | 77.9 | 77.5 |
| 0.49 | 77.2 | 76.9 | 76.6 | 76.3 | 76.0 | 75.7 | 75.4 | 75.1 | 74.8 | 74.5 |
| 0.50 | 74.2 | 73.9 | 73.6 | 73.3 | 73.0 | 72.7 | 72.4 | 72.1 | 71.9 | 71.6 |
| 0.51 | 71.3 | 71.0 | 70.7 | 70.5 | 70.2 | 69.9 | 69.6 | 69.4 | 69.1 | 68.8 |
| 0.52 | 68.6 | 68.3 | 68.1 | 67.8 | 67.5 | 67.3 | 67.0 | 66.8 | 66.5 | 66.3 |
| 0.53 | 66.0 | 65.8 | 65.6 | 65.3 | 65.0 | 64.8 | 64.5 | 64.3 | 64.1 | 63.8 |
| 0.54 | 63.6 | 63.4 | 63.1 | 62.9 | 62.7 | 62.4 | 62.2 | 62.0 | 61.7 | 61.5 |
| 0.55 | 61.3 | 61.1 | 60.9 | 60.6 | 60.4 | 60.2 | 60.0 | 59.8 | 59.6 | 59.3 |
| 0.56 | 59.1 | 58.9 | 58.7 | 58.5 | 58.3 | 58.1 | 57.9 | 57.7 | 57.5 | 57.3 |
| 0.57 | 57.1 | 56.9 | 56.7 | 56.5 | 56.3 | 56.1 | 55.9 | 55.7 | 55.5 | 55.3 |
| 0.58 | 55.1 | 54.9 | 54.7 | 54.6 | 54.4 | 54.2 | 54.0 | 53.8 | 53.6 | 53.5 |
| 0.59 | 53.2 | 53.1 | 52.9 | 52.7 | 52.6 | 52.4 | 52.2 | 52.0 | 51.9 | 51.7 |
| 0.60 | 51.5 | 51.3 | 51.2 | 51.0 | 50.8 | 50.7 | 50.5 | 50.3 | 50.2 | 50.0 |
| 0.61 | 49.8 | 49.7 | 49.5 | 49.3 | 49.2 | 49.0 | 48.9 | 48.7 | 48.6 | 48.4 |
| 0.62 | 48.2 | 48.1 | 47.9 | 47.8 | 47.6 | 47.5 | 47.3 | 47.2 | 47.0 | 46.9 |

## TABLE 5 (continued)

**Load    10 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.63 | 46.7 | 46.6 | 46.4 | 46.3 | 46.1 | 46.0 | 45.8 | 45.7 | 45.6 | 45.4 |
| 0.64 | 45.3 | 45.1 | 45.0 | 44.9 | 44.7 | 44.6 | 44.4 | 44.3 | 44.2 | 44.0 |
| 0.65 | 43.9 | 43.8 | 43.6 | 43.5 | 43.4 | 43.2 | 43.1 | 43.0 | 42.8 | 42.7 |
| 0.66 | 42.6 | 42.4 | 42.3 | 42.2 | 42.1 | 41.9 | 41.8 | 41.7 | 41.6 | 41.4 |
| 0.67 | 41.3 | 41.2 | 41.1 | 40.9 | 40.8 | 40.7 | 40.6 | 40.5 | 40.3 | 40.2 |
| 0.68 | 40.1 | 40.0 | 39.9 | 39.8 | 39.6 | 39.5 | 39.4 | 39.3 | 39.2 | 39.1 |
| 0.69 | 38.9 | 38.8 | 38.7 | 38.6 | 38.5 | 38.4 | 38.3 | 38.2 | 38.1 | 38.0 |
| 0.70 | 37.8 | 37.7 | 37.6 | 37.5 | 37.4 | 37.3 | 37.2 | 37.1 | 37.0 | 36.9 |
| 0.71 | 36.8 | 36.7 | 36.6 | 36.5 | 36.4 | 36.3 | 36.2 | 36.1 | 36.0 | 35.9 |
| 0.72 | 35.8 | 35.7 | 35.6 | 35.5 | 35.4 | 35.3 | 35.2 | 35.1 | 35.0 | 34.9 |
| 0.73 | 34.8 | 34.7 | 34.6 | 34.5 | 34.4 | 34.3 | 34.2 | 34.1 | 34.05 | 33.96 |
| 0.74 | 33.86 | 33.77 | 33.68 | 33.59 | 33.50 | 33.41 | 33.32 | 33.23 | 33.14 | 33.05 |
| 0.75 | 32.97 | 32.88 | 32.79 | 32.70 | 32.62 | 32.53 | 32.45 | 32.36 | 32.27 | 32.19 |
| 0.76 | 32.10 | 32.02 | 31.94 | 31.85 | 31.77 | 31.69 | 31.60 | 31.52 | 31.44 | 31.36 |
| 0.77 | 31.28 | 31.20 | 31.11 | 31.03 | 30.95 | 30.87 | 30.79 | 30.72 | 30.64 | 30.56 |
| 0.78 | 30.48 | 30.40 | 30.32 | 30.25 | 30.17 | 30.09 | 30.02 | 29.94 | 29.86 | 29.79 |
| 0.79 | 29.71 | 29.64 | 29.56 | 29.49 | 29.41 | 29.34 | 29.27 | 29.19 | 29.12 | 29.05 |
| 0.80 | 28.97 | 28.90 | 28.83 | 28.76 | 28.69 | 28.62 | 28.54 | 28.47 | 28.40 | 28.33 |
| 0.81 | 28.26 | 28.19 | 28.12 | 28.06 | 27.99 | 27.92 | 27.85 | 27.78 | 27.71 | 27.65 |
| 0.82 | 27.58 | 27.51 | 27.44 | 27.38 | 27.31 | 27.25 | 27.18 | 27.11 | 27.05 | 26.98 |
| 0.83 | 26.92 | 26.85 | 26.79 | 26.72 | 26.66 | 26.60 | 26.53 | 26.47 | 26.41 | 26.34 |
| 0.84 | 26.28 | 26.22 | 26.16 | 26.09 | 26.03 | 25.97 | 25.91 | 25.85 | 25.79 | 25.73 |
| 0.85 | 25.67 | 25.61 | 25.55 | 25.49 | 25.43 | 25.37 | 25.31 | 25.25 | 25.19 | 25.13 |
| 0.86 | 25.07 | 25.01 | 24.96 | 24.90 | 24.84 | 24.78 | 24.73 | 24.67 | 24.61 | 24.56 |
| 0.87 | 24.50 | 24.44 | 24.39 | 24.33 | 24.28 | 24.22 | 24.17 | 24.11 | 24.06 | 24.00 |
| 0.88 | 23.95 | 23.89 | 23.84 | 23.78 | 23.73 | 23.68 | 23.62 | 23.57 | 23.52 | 23.46 |
| 0.89 | 23.41 | 23.36 | 23.31 | 23.25 | 23.20 | 23.15 | 23.10 | 23.05 | 23.00 | 22.94 |
| 0.90 | 22.89 | 22.84 | 22.79 | 22.74 | 22.69 | 22.64 | 22.59 | 22.54 | 22.49 | 22.44 |
| 0.91 | 22.39 | 22.34 | 22.29 | 22.25 | 22.20 | 22.15 | 22.10 | 22.05 | 22.00 | 21.96 |
| 0.92 | 21.91 | 21.86 | 21.81 | 21.77 | 21.72 | 21.67 | 21.63 | 21.58 | 21.53 | 21.49 |
| 0.93 | 21.44 | 21.39 | 21.35 | 21.30 | 21.26 | 21.21 | 21.17 | 21.12 | 21.08 | 21.03 |
| 0.94 | 20.99 | 20.94 | 20.90 | 20.85 | 20.81 | 20.77 | 20.72 | 20.68 | 20.63 | 20.59 |
| 0.95 | 20.55 | 20.50 | 20.46 | 20.42 | 20.38 | 20.33 | 20.29 | 20.25 | 20.21 | 20.16 |
| 0.96 | 20.12 | 20.08 | 20.04 | 20.00 | 19.95 | 19.91 | 19.87 | 19.83 | 19.79 | 19.75 |
| 0.97 | 19.71 | 19.67 | 19.63 | 19.59 | 19.55 | 19.51 | 19.47 | 19.43 | 19.39 | 19.35 |
| 0.98 | 19.31 | 19.27 | 19.23 | 19.19 | 19.15 | 19.11 | 19.07 | 19.04 | 19.00 | 18.96 |
| 0.99 | 18.92 | 18.88 | 18.84 | 18.81 | 18.77 | 18.73 | 18.69 | 18.66 | 18.62 | 18.58 |
| 1.00 | 18.54 | 18.51 | 18.47 | 18.43 | 18.40 | 18.36 | 18.32 | 18.29 | 18.25 | 18.21 |
| 1.01 | 18.18 | 18.14 | 18.11 | 18.07 | 18.04 | 18.00 | 17.96 | 17.93 | 17.89 | 17.86 |
| 1.02 | 17.82 | 17.79 | 17.75 | 17.72 | 17.68 | 17.65 | 17.62 | 17.58 | 17.55 | 17.51 |
| 1.03 | 17.48 | 17.45 | 17.41 | 17.38 | 17.34 | 17.31 | 17.28 | 17.24 | 17.21 | 17.18 |
| 1.04 | 17.14 | 17.11 | 17.08 | 17.05 | 17.01 | 16.98 | 16.95 | 16.92 | 16.88 | 16.85 |
| 1.05 | 16.82 | 16.79 | 16.76 | 16.72 | 16.69 | 16.66 | 16.63 | 16.60 | 16.57 | 16.53 |
| 1.06 | 16.50 | 16.47 | 16.44 | 16.41 | 16.38 | 16.35 | 16.32 | 16.29 | 16.26 | 16.23 |
| 1.07 | 16.20 | 16.17 | 16.14 | 16.11 | 16.08 | 16.05 | 16.02 | 15.99 | 15.96 | 15.93 |
| 1.08 | 15.90 | 15.87 | 15.84 | 15.81 | 15.78 | 15.75 | 15.72 | 15.69 | 15.67 | 15.64 |
| 1.09 | 15.61 | 15.58 | 15.55 | 15.52 | 15.49 | 15.47 | 15.44 | 15.41 | 15.38 | 15.35 |
| 1.10 | 15.33 | 15.30 | 15.27 | 15.24 | 15.21 | 15.19 | 15.16 | 15.13 | 15.10 | 15.08 |
| 1.11 | 15.05 | 15.02 | 15.00 | 14.97 | 14.94 | 14.92 | 14.89 | 14.86 | 14.84 | 14.81 |
| 1.12 | 14.78 | 14.76 | 14.73 | 14.70 | 14.68 | 14.65 | 14.63 | 14.60 | 14.57 | 14.55 |
| 1.13 | 14.52 | 14.50 | 14.47 | 14.45 | 14.42 | 14.39 | 14.37 | 14.34 | 14.32 | 14.29 |
| 1.14 | 14.27 | 14.24 | 14.22 | 14.19 | 14.17 | 14.14 | 14.12 | 14.10 | 14.07 | 14.05 |
| 1.15 | 14.02 | 14.00 | 13.97 | 13.95 | 13.92 | 13.90 | 13.88 | 13.85 | 13.83 | 13.80 |
| 1.16 | 13.78 | 13.76 | 13.73 | 13.71 | 13.69 | 13.66 | 13.64 | 13.62 | 13.59 | 13.57 |

## TABLE 5 (continued)

**Load    10 kgf**

| Mean diagonal of indentation mm | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 1.17 | 13.55 | 13.52 | 13.50 | 13.48 | 13.45 | 13.43 | 13.41 | 13.39 | 13.36 | 13.34 |
| 1.18 | 13.32 | 13.30 | 13.27 | 13.25 | 13.23 | 13.21 | 13.18 | 13.16 | 13.14 | 13.12 |
| 1.19 | 13.09 | 13.07 | 13.05 | 13.03 | 13.01 | 12.99 | 12.96 | 12.94 | 12.92 | 12.90 |
| 1.20 | 12.88 | 12.86 | 12.83 | 12.81 | 12.79 | 12.77 | 12.75 | 12.73 | 12.71 | 12.69 |
| 1.21 | 12.67 | 12.64 | 12.62 | 12.60 | 12.58 | 12.56 | 12.54 | 12.52 | 12.50 | 12.48 |
| 1.22 | 12.46 | 12.44 | 12.42 | 12.40 | 12.38 | 12.36 | 12.34 | 12.32 | 12.30 | 12.28 |
| 1.23 | 12.26 | 12.24 | 12.22 | 12.20 | 12.18 | 12.16 | 12.14 | 12.12 | 12.10 | 12.08 |
| 1.24 | 12.06 | 12.04 | 12.02 | 12.00 | 11.98 | 11.96 | 11.94 | 11.93 | 11.91 | 11.89 |
| 1.25 | 11.87 | 11.85 | 11.83 | 11.81 | 11.79 | 11.77 | 11.75 | 11.74 | 11.72 | 11.70 |
| 1.26 | 11.68 | 11.66 | 11.64 | 11.62 | 11.61 | 11.59 | 11.57 | 11.55 | 11.53 | 11.52 |
| 1.27 | 11.50 | 11.48 | 11.46 | 11.44 | 11.43 | 11.41 | 11.39 | 11.37 | 11.35 | 11.34 |
| 1.28 | 11.32 | 11.30 | 11.28 | 11.27 | 11.25 | 11.23 | 11.21 | 11.20 | 11.18 | 11.16 |
| 1.29 | 11.14 | 11.13 | 11.11 | 11.09 | 11.07 | 11.06 | 11.04 | 11.02 | 11.01 | 10.99 |
| 1.30 | 10.97 | 10.96 | 10.94 | 10.92 | 10.91 | 10.89 | 10.87 | 10.86 | 10.84 | 10.82 |
| 1.31 | 10.81 | 10.79 | 10.77 | 10.76 | 10.74 | 10.72 | 10.71 | 10.69 | 10.67 | 10.66 |
| 1.32 | 10.64 | 10.63 | 10.61 | 10.59 | 10.58 | 10.56 | 10.55 | 10.53 | 10.51 | 10.50 |
| 1.33 | 10.48 | 10.47 | 10.45 | 10.44 | 10.42 | 10.40 | 10.39 | 10.37 | 10.36 | 10.34 |
| 1.34 | 10.33 | 10.31 | 10.30 | 10.28 | 10.27 | 10.25 | 10.24 | 10.22 | 10.21 | 10.19 |
| 1.35 | 10.17 | 10.16 | 10.14 | 10.13 | 10.11 | 10.10 | 10.09 | 10.07 | 10.06 | 10.04 |
| 1.36 | 10.03 | 10.01 | 10.00 | 9.98 | 9.97 | 9.95 | 9.94 | 9.92 | 9.91 | 9.89 |
| 1.37 | 9.88 | 9.87 | 9.85 | 9.84 | 9.82 | 9.81 | 9.79 | 9.78 | 9.77 | 9.75 |
| 1.38 | 9.74 | 9.72 | 9.71 | 9.70 | 9.68 | 9.67 | 9.65 | 9.64 | 9.63 | 9.61 |
| 1.39 | 9.60 | 9.58 | 9.57 | 9.56 | 9.54 | 9.53 | 9.52 | 9.50 | 9.49 | 9.47 |
| 1.40 | 9.46 | 9.45 | 9.43 | 9.42 | 9.41 | 9.39 | 9.38 | 9.37 | 9.35 | 9.34 |
| 1.41 | 9.33 | 9.31 | 9.30 | 9.29 | 9.27 | 9.26 | 9.25 | 9.24 | 9.22 | 9.21 |
| 1.42 | 9.20 | 9.18 | 9.17 | 9.16 | 9.14 | 9.13 | 9.12 | 9.11 | 9.09 | 9.08 |
| 1.43 | 9.07 | 9.06 | 9.04 | 9.03 | 9.02 | 9.01 | 8.99 | 8.98 | 8.97 | 8.96 |
| 1.44 | 8.94 | 8.93 | 8.92 | 8.91 | 8.89 | 8.88 | 8.87 | 8.86 | 8.84 | 8.83 |
| 1.45 | 8.82 | 8.81 | 8.80 | 8.78 | 8.77 | 8.76 | 8.75 | 8.74 | 8.72 | 8.71 |
| 1.46 | 8.70 | 8.69 | 8.68 | 8.66 | 8.65 | 8.64 | 8.63 | 8.62 | 8.60 | 8.59 |
| 1.47 | 8.58 | 8.57 | 8.56 | 8.55 | 8.53 | 8.52 | 8.51 | 8.50 | 8.49 | 8.48 |
| 1.48 | 8.47 | 8.45 | 8.44 | 8.43 | 8.42 | 8.41 | 8.40 | 8.39 | 8.38 | 8.36 |
| 1.49 | 8.35 | 8.34 | 8.33 | 8.32 | 8.31 | 8.30 | 8.29 | 8.27 | 8.26 | 8.25 |
| 1.50 | 8.24 | 8.23 | 8.22 | 8.21 | 8.20 | 8.19 | 8.18 | 8.17 | 8.15 | 8.14 |
| 1.51 | 8.13 | 8.12 | 8.11 | 8.10 | 8.09 | 8.08 | 8.07 | 8.06 | 8.05 | 8.04 |
| 1.52 | 8.03 | 8.02 | 8.01 | 7.99 | 7.98 | 7.97 | 7.96 | 7.95 | 7.94 | 7.93 |
| 1.53 | 7.92 | 7.91 | 7.90 | 7.89 | 7.88 | 7.87 | 7.86 | 7.85 | 7.84 | 7.83 |
| 1.54 | 7.82 | 7.81 | 7.80 | 7.79 | 7.78 | 7.77 | 7.76 | 7.75 | 7.74 | 7.73 |
| 1.55 | 7.72 | 7.71 | 7.70 | 7.69 | 7.68 | 7.67 | 7.66 | 7.65 | 7.64 | 7.63 |
| 1.56 | 7.62 | 7.61 | 7.60 | 7.59 | 7.58 | 7.57 | 7.56 | 7.55 | 7.54 | 7.53 |
| 1.57 | 7.52 | 7.51 | 7.50 | 7.49 | 7.48 | 7.48 | 7.47 | 7.46 | 7.45 | 7.44 |
| 1.58 | 7.43 | 7.42 | 7.41 | 7.40 | 7.39 | 7.38 | 7.37 | 7.36 | 7.35 | 7.34 |
| 1.59 | 7.34 | 7.33 | 7.32 | 7.31 | 7.30 | 7.29 | 7.28 | 7.27 | 7.26 | 7.25 |
| 1.60 | 7.24 | 7.23 | 7.23 | 7.22 | 7.21 | 7.20 | 7.19 | 7.18 | 7.17 | 7.16 |
| 1.61 | 7.15 | 7.15 | 7.14 | 7.13 | 7.12 | 7.11 | 7.10 | 7.09 | 7.08 | 7.07 |
| 1.62 | 7.07 | 7.06 | 7.05 | 7.04 | 7.03 | 7.02 | 7.01 | 7.01 | 7.00 | 6.99 |
| 1.63 | 6.98 | 6.97 | 6.96 | 6.95 | 6.95 | 6.94 | 6.93 | 6.92 | 6.91 | 6.90 |
| 1.64 | 6.89 | 6.89 | 6.88 | 6.87 | 6.86 | 6.85 | 6.84 | 6.84 | 6.83 | 6.82 |
| 1.65 | 6.81 | 6.80 | 6.79 | 6.79 | 6.78 | 6.77 | 6.76 | 6.75 | 6.75 | 6.74 |
| 1.66 | 6.73 | 6.72 | 6.71 | 6.71 | 6.70 | 6.69 | 6.68 | 6.67 | 6.67 | 6.66 |
| 1.67 | 6.65 | 6.64 | 6.63 | 6.63 | 6.62 | 6.61 | 6.60 | 6.59 | 6.59 | 6.58 |
| 1.86 | 6.57 | 6.56 | 6.55 | 6.55 | 6.54 | 6.53 | 6.52 | 6.52 | 6.51 | 6.50 |
| 1.96 | 6.49 | 6.48 | 6.48 | 6.47 | 6.46 | 6.45 | 6.45 | 6.44 | 6.43 | 6.42 |
| 1.70 | 6.42 | 6.41 | 6.40 | 6.39 | 6.39 | 6.38 | 6.37 | 6.36 | 6.36 | 6.35 |

### TABLE 5 *(concluded)*

Load    10 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 1.71 | 6.34 | 6.33 | 6.33 | 6.32 | 6.31 | 6.30 | 6.30 | 6.29 | 6.28 | 6.28 |
| 1.72 | 6.27 | 6.26 | 6.25 | 6.25 | 6.24 | 6.23 | 6.22 | 6.22 | 6.21 | 6.20 |
| 1.73 | 6.20 | 6.19 | 6.18 | 6.17 | 6.17 | 6.16 | 6.15 | 6.15 | 6.14 | 6.13 |
| 1.74 | 6.12 | 6.12 | 6.11 | 6.10 | 6.10 | 6.09 | 6.08 | 6.08 | 6.07 | 6.06 |
| 1.75 | 6.06 | 6.05 | 6.04 | 6.03 | 6.03 | 6.02 | 6.01 | 6.01 | 6.00 | 5.99 |
| 1.76 | 5.99 | 5.98 | 5.97 | 5.97 | 5.96 | 5.95 | 5.95 | 5.94 | 5.93 | 5.93 |
| 1.77 | 5.92 | 5.91 | 5.91 | 5.90 | 5.89 | 5.89 | 5.88 | 5.87 | 5.87 | 5.86 |
| 1.78 | 5.85 | 5.85 | 5.84 | 5.83 | 5.83 | 5.82 | 5.81 | 5.81 | 5.80 | 5.79 |
| 1.79 | 5.79 | 5.78 | 5.77 | 5.77 | 5.76 | 5.76 | 5.75 | 5.74 | 5.74 | 5.73 |
| 1.80 | 5.72 | 5.72 | 5.71 | 5.70 | 5.70 | 5.69 | 5.69 | 5.68 | 5.67 | 5.67 |
| 1.81 | 5.66 | 5.65 | 5.65 | 5.64 | 5.64 | 5.63 | 5.62 | 5.62 | 5.61 | 5.60 |
| 1.82 | 5.60 | 5.59 | 5.59 | 5.58 | 5.57 | 5.57 | 5.56 | 5.56 | 5.55 | 5.54 |
| 1.83 | 5.54 | 5.53 | 5.53 | 5.52 | 5.51 | 5.51 | 5.50 | 5.50 | 5.49 | 5.48 |
| 1.84 | 5.48 | 5.47 | 5.47 | 5.46 | 5.45 | 5.45 | 5.44 | 5.44 | 5.43 | 5.42 |
| 1.85 | 5.42 | 5.41 | 5.41 | 5.40 | 5.39 | 5.39 | 5.38 | 5.38 | 5.37 | 5.37 |
| 1.86 | 5.36 | 5.35 | 5.35 | 5.34 | 5.34 | 5.33 | 5.33 | 5.32 | 5.31 | 5.31 |
| 1.87 | 5.30 | 5.30 | 5.29 | 5.29 | 5.28 | 5.27 | 5.27 | 5.26 | 5.26 | 5.25 |
| 1.88 | 5.25 | 5.24 | 5.24 | 5.23 | 5.22 | 5.22 | 5.21 | 5.21 | 5.20 | 5.20 |
| 1.89 | 5.19 | 5.19 | 5.18 | 5.17 | 5.17 | 5.16 | 5.16 | 5.15 | 5.15 | 5.14 |
| 1.90 | 5.14 | 5.13 | 5.13 | 5.12 | 5.12 | 5.11 | 5.10 | 5.10 | 5.09 | 5.09 |
| 1.91 | 5.08 | 5.08 | 5.07 | 5.07 | 5.06 | 5.06 | 5.05 | 5.05 | 5.04 | 5.14 |
| 1.92 | 5.03 | 5.03 | 5.02 | 5.01 | 5.01 | 5.00 | 5.00 | 4.99 | 4.99 | 4.98 |

# TABLE 6

**Load    20 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| **0.13** | 2195 | 2161 | 2129 | 2097 | 2065 | 2035 | 2005 | 1976 | 1947 | 1920 |
| **0.14** | 1892 | 1865 | 1839 | 1814 | 1789 | 1764 | 1740 | 1716 | 1693 | 1671 |
| **0.15** | 1648 | 1627 | 1605 | 1584 | 1564 | 1544 | 1524 | 1505 | 1486 | 1467 |
| **0.16** | 1449 | 1431 | 1413 | 1396 | 1379 | 1362 | 1346 | 1330 | 1314 | 1296 |
| **0.17** | 1283 | 1268 | 1254 | 1239 | 1225 | 1211 | 1197 | 1184 | 1171 | 1157 |
| **0.18** | 1145 | 1132 | 1120 | 1107 | 1095 | 1084 | 1072 | 1061 | 1049 | 1038 |
| **0.19** | 1027 | 1017 | 1006 | 696 | 985 | 975 | 965 | 656 | 646 | 637 |
| **0.20** | 927 | 918 | 906 | 901 | 891 | 883 | 874 | 866 | 857 | 849 |
| **0.21** | 841 | 833 | 825 | 817 | 810 | 802 | 765 | 788 | 780 | 773 |
| **0.22** | 766 | 759 | 753 | 746 | 736 | 733 | 726 | 720 | 713 | 717 |
| **0.23** | 701 | 695 | 689 | 683 | 677 | 672 | 666 | 660 | 655 | 646 |
| **0.24** | 644 | 639 | 633 | 628 | 623 | 618 | 613 | 608 | 603 | 598 |
| **0.25** | 593 | 589 | 584 | 576 | 575 | 570 | 566 | 562 | 557 | 553 |
| **0.26** | 549 | 544 | 540 | 536 | 532 | 528 | 524 | 520 | 516 | 513 |
| **0.27** | 519 | 505 | 501 | 498 | 464 | 491 | 487 | 483 | 480 | 476 |
| **0.28** | 473 | 471 | 466 | 463 | 460 | 457 | 453 | 450 | 447 | 444 |
| **0.29** | 441 | 438 | 435 | 432 | 429 | 426 | 423 | 420 | 418 | 415 |
| **0.30** | 412 | 406 | 407 | 414 | 401 | 399 | 396 | 394 | 391 | 388 |
| **0.31** | 386 | 383 | 381 | 379 | 376 | 374 | 371 | 369 | 367 | 364 |
| **0.32** | 362 | 360 | 358 | 355 | 353 | 351 | 349 | 347 | 345 | 343 |
| **0.33** | 341 | 339 | 336 | 334 | 332 | 330 | 329 | 327 | 325 | 323 |
| **0.34** | 321 | 319 | 317 | 315 | 313 | 312 | 310 | 308 | 306 | 304 |
| **0.35** | 303 | 301 | 299 | 298 | 296 | 294 | 293 | 291 | 289 | 288 |
| **0.36** | 286 | 285 | 283 | 281 | 280 | 278 | 277 | 275 | 274 | 272 |
| **0.37** | 271 | 269 | 268 | 267 | 265 | 264 | 262 | 261 | 260 | 258 |
| **0.38** | 257 | 255 | 254 | 253 | 252 | 250 | 249 | 248 | 246 | 245 |
| **0.39** | 244 | 243 | 241 | 240 | 239 | 238 | 237 | 235 | 234 | 233 |
| **0.40** | 232 | 231 | 229 | 228 | 227 | 226 | 225 | 224 | 223 | 222 |
| **0.41** | 221 | 220 | 218 | 217 | 216 | 215 | 214 | 213 | 212 | 211 |
| **0.42** | 210 | 209 | 208 | 207 | 206 | 205 | 204 | 203 | 202.5 | 201.5 |
| **0.43** | 200.6 | 199.7 | 198.7 | 197.8 | 196.9 | 196.0 | 195.1 | 194.2 | 193.3 | 192.4 |
| **0.44** | 191.6 | 190.7 | 189.8 | 189.0 | 188.1 | 187.3 | 186.4 | 185.6 | 184.8 | 184.0 |
| **0.45** | 183.1 | 182.3 | 181.5 | 180.7 | 179.9 | 179.1 | 178.4 | 177.6 | 176.8 | 176.0 |
| **0.46** | 175.3 | 174.5 | 173.8 | 173.0 | 172.3 | 171.5 | 170.8 | 170.1 | 169.3 | 168.6 |
| **0.47** | 167.9 | 167.2 | 166.5 | 165.8 | 165.1 | 164.4 | 163.7 | 163.0 | 162.3 | 161.6 |
| **0.48** | 161.0 | 160.3 | 159.6 | 159.0 | 158.3 | 157.7 | 157.0 | 156.4 | 155.7 | 155.1 |
| **0.49** | 154.5 | 153.8 | 153.2 | 152.6 | 152.0 | 151.4 | 150.8 | 150.1 | 149.5 | 148.9 |
| **0.50** | 148.3 | 147.8 | 147.2 | 146.6 | 146.0 | 145.4 | 144.9 | 144.3 | 143.7 | 143.1 |
| **0.51** | 142.6 | 142.0 | 141.5 | 140.9 | 140.4 | 139.8 | 139.3 | 138.8 | 138.2 | 137.7 |
| **0.52** | 137.2 | 136.6 | 136.1 | 135.6 | 135.1 | 134.6 | 134.0 | 133.5 | 133.0 | 132.5 |
| **0.53** | 132.0 | 131.5 | 131.0 | 130.5 | 130.1 | 129.6 | 129.1 | 128.6 | 128.1 | 127.7 |
| **0.54** | 127.2 | 126.7 | 126.2 | 125.8 | 125.3 | 124.9 | 124.4 | 124.0 | 123.5 | 123.0 |
| **0.55** | 122.6 | 122.2 | 121.7 | 121.3 | 120.8 | 120.4 | 120.0 | 119.5 | 119.1 | 118.7 |
| **0.56** | 118.3 | 117.8 | 117.4 | 117.0 | 116.6 | 116.2 | 115.8 | 115.4 | 115.0 | 114.6 |
| **0.57** | 114.2 | 113.8 | 113.4 | 113.0 | 112.6 | 112.2 | 111.8 | 111.4 | 111.0 | 110.6 |
| **0.58** | 110.2 | 109.9 | 109.5 | 109.1 | 108.7 | 108.4 | 108.0 | 107.6 | 107.3 | 106.9 |
| **0.59** | 106.5 | 106.2 | 105.8 | 105.5 | 105.1 | 104.8 | 104.4 | 104.1 | 103.7 | 103.4 |
| **0.60** | 103.0 | 102.7 | 102.3 | 102.0 | 101.7 | 101.3 | 101.0 | 100.7 | 100.3 | 100.0 |
| **0.61** | 99.7 | 99.3 | 99.0 | 98.7 | 98.4 | 98.1 | 97.7 | 97.4 | 97.1 | 96.8 |
| **0.62** | 96.5 | 96.2 | 95.9 | 95.6 | 95.2 | 94.9 | 94.6 | 94.3 | 94.0 | 93.7 |
| **0.63** | 93.4 | 93.1 | 92.9 | 92.6 | 92.3 | 92.0 | 91.7 | 91.4 | 91.1 | 90.8 |
| **0.64** | 90.5 | 90.3 | 90.0 | 89.7 | 89.4 | 89.1 | 88.9 | 88.6 | 88.3 | 88.1 |
| **0.65** | 87.8 | 87.5 | 87.2 | 87.0 | 86.7 | 86.4 | 86.2 | 85.9 | 85.7 | 85.4 |
| **0.66** | 85.1 | 84.9 | 84.6 | 84.4 | 84.1 | 83.9 | 83.6 | 83.4 | 83.1 | 82.9 |

## TABLE 6 (continued)

Load    20 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.67 | 82.6 | 82.4 | 82.1 | 81.9 | 81.6 | 81.4 | 81.2 | 80.9 | 80.7 | 80.4 |
| 0.68 | 80.2 | 80.0 | 79.7 | 79.5 | 79.3 | 79.0 | 78.8 | 78.6 | 78.4 | 78.1 |
| 0.69 | 77.9 | 77.7 | 77.4 | 77.2 | 77.0 | 76.8 | 76.6 | 76.3 | 76.1 | 75.9 |
| 0.70 | 75.7 | 75.5 | 75.3 | 75.0 | 74.8 | 74.6 | 74.4 | 74.2 | 74.0 | 73.8 |
| 0.71 | 73.6 | 73.4 | 73.2 | 73.0 | 72.7 | 72.5 | 72.3 | 72.1 | 71.9 | 71.7 |
| 0.72 | 71.5 | 71.3 | 71.1 | 70.9 | 70.8 | 70.6 | 70.4 | 70.2 | 70.0 | 69.8 |
| 0.73 | 69.6 | 69.4 | 69.2 | 69.0 | 68.8 | 68.7 | 68.5 | 68.3 | 68.1 | 67.9 |
| 0.74 | 67.7 | 67.5 | 67.4 | 67.2 | 67.0 | 66.8 | 66.6 | 66.5 | 66.3 | 66.1 |
| 0.75 | 65.9 | 65.8 | 65.6 | 65.4 | 65.2 | 65.1 | 64.9 | 64.7 | 64.5 | 64.4 |
| 0.76 | 64.2 | 64.0 | 63.9 | 63.7 | 63.5 | 63.4 | 63.2 | 63.0 | 62.9 | 62.7 |
| 0.77 | 62.6 | 62.4 | 62.2 | 62.1 | 61.9 | 61.7 | 61.6 | 61.4 | 61.3 | 61.1 |
| 0.78 | 61.0 | 60.8 | 60.6 | 60.5 | 60.3 | 60.2 | 60.0 | 59.9 | 59.7 | 59.6 |
| 0.79 | 59.4 | 59.3 | 59.1 | 59.0 | 58.8 | 58.7 | 58.5 | 58.4 | 58.2 | 58.1 |
| 0.80 | 57.9 | 57.8 | 57.7 | 57.5 | 57.4 | 57.2 | 57.1 | 56.9 | 56.8 | 56.7 |
| 0.81 | 56.5 | 56.4 | 56.2 | 56.1 | 56.0 | 55.8 | 55.7 | 55.6 | 55.4 | 55.3 |
| 0.82 | 55.2 | 55.0 | 54.9 | 54.8 | 54.6 | 54.5 | 54.4 | 54.2 | 54.1 | 54.0 |
| 0.83 | 53.8 | 53.7 | 53.6 | 53.4 | 53.3 | 53.2 | 53.1 | 52.9 | 52.8 | 52.7 |
| 0.84 | 52.6 | 52.4 | 52.3 | 52.2 | 52.1 | 51.9 | 51.8 | 51.7 | 51.6 | 51.5 |
| 0.85 | 51.3 | 51.2 | 51.1 | 51.0 | 50.9 | 50.7 | 50.6 | 50.5 | 50.4 | 50.3 |
| 0.86 | 50.1 | 50.0 | 49.9 | 49.8 | 49.7 | 49.6 | 49.5 | 49.3 | 49.2 | 49.1 |
| 0.87 | 49.0 | 48.9 | 48.8 | 48.7 | 48.6 | 48.4 | 48.3 | 48.2 | 48.1 | 48.0 |
| 0.88 | 47.9 | 47.8 | 47.7 | 47.6 | 47.5 | 47.4 | 47.2 | 47.1 | 47.0 | 46.9 |
| 0.89 | 46.8 | 46.7 | 46.6 | 46.5 | 46.4 | 46.3 | 46.2 | 46.1 | 46.0 | 45.9 |
| 0.90 | 45.8 | 45.7 | 45.6 | 45.5 | 45.4 | 45.3 | 45.2 | 45.1 | 45.0 | 44.9 |
| 0.91 | 44.8 | 44.7 | 44.6 | 44.5 | 44.4 | 44.3 | 44.2 | 44.1 | 44.0 | 43.9 |
| 0.92 | 43.8 | 43.7 | 43.6 | 43.5 | 43.4 | 43.35 | 43.25 | 43.16 | 43.07 | 42.97 |
| 0.93 | 42.88 | 42.79 | 42.70 | 42.61 | 42.51 | 42.42 | 42.33 | 42.24 | 42.15 | 42.06 |
| 0.94 | 41.97 | 41.88 | 41.79 | 41.71 | 41.62 | 41.53 | 41.44 | 41.35 | 41.27 | 41.18 |
| 0.95 | 41.09 | 41.01 | 40.92 | 40.84 | 40.75 | 40.66 | 40.58 | 40.50 | 40.41 | 40.33 |
| 0.96 | 40.24 | 40.16 | 40.08 | 39.99 | 39.91 | 39.83 | 39.74 | 39.66 | 39.58 | 39.50 |
| 0.97 | 39.42 | 39.34 | 39.25 | 39.17 | 39.09 | 39.01 | 38.93 | 38.85 | 38.77 | 38.70 |
| 0.98 | 38.62 | 38.54 | 38.46 | 38.38 | 38.30 | 38.23 | 38.15 | 38.07 | 37.99 | 37.92 |
| 0.99 | 37.84 | 37.76 | 37.69 | 37.61 | 37.54 | 37.46 | 37.39 | 37.31 | 37.24 | 37.16 |
| 1.00 | 37.09 | 37.01 | 36.94 | 36.87 | 36.79 | 36.72 | 36.65 | 36.57 | 36.50 | 36.43 |
| 1.01 | 36.36 | 36.28 | 36.21 | 36.14 | 36.07 | 36.00 | 35.93 | 35.86 | 35.79 | 35.72 |
| 1.02 | 35.65 | 35.58 | 35.51 | 35.44 | 35.37 | 35.30 | 35.23 | 35.16 | 35.09 | 35.03 |
| 1.03 | 34.96 | 34.89 | 34.82 | 34.76 | 34.69 | 34.62 | 34.55 | 34.49 | 34.42 | 34.36 |
| 1.04 | 34.29 | 34.22 | 34.16 | 34.09 | 34.03 | 33.96 | 33.90 | 33.83 | 33.77 | 33.70 |
| 1.05 | 33.64 | 33.58 | 33.51 | 33.45 | 33.38 | 33.32 | 33.26 | 33.20 | 33.13 | 33.07 |
| 1.06 | 33.01 | 32.95 | 32.88 | 32.82 | 32.76 | 32.70 | 32.64 | 32.58 | 32.51 | 32.45 |
| 1.07 | 32.39 | 32.33 | 32.27 | 32.21 | 32.15 | 32.09 | 32.03 | 31.97 | 31.91 | 31.86 |
| 1.08 | 31.80 | 31.74 | 31.68 | 31.62 | 31.56 | 31.50 | 31.45 | 31.39 | 31.33 | 31.27 |
| 1.09 | 31.22 | 31.16 | 31.10 | 31.04 | 30.99 | 30.93 | 30.87 | 30.82 | 30.76 | 30.71 |
| 1.10 | 30.65 | 30.60 | 30.54 | 30.48 | 30.43 | 30.37 | 30.32 | 30.26 | 30.21 | 30.16 |
| 1.11 | 30.10 | 30.05 | 29.99 | 29.94 | 29.89 | 29.83 | 29.78 | 29.72 | 29.67 | 29.62 |
| 1.12 | 29.57 | 29.51 | 29.46 | 29.41 | 29.36 | 29.30 | 29.25 | 29.20 | 29.15 | 29.10 |
| 1.13 | 29.04 | 28.99 | 28.94 | 28.89 | 28.84 | 28.79 | 28.74 | 28.69 | 28.64 | 28.59 |
| 1.14 | 28.54 | 28.49 | 28.44 | 28.39 | 28.34 | 28.29 | 28.24 | 28.19 | 28.14 | 28.09 |
| 1.15 | 28.04 | 27.99 | 27.95 | 27.90 | 27.85 | 27.80 | 27.75 | 27.71 | 27.66 | 27.61 |
| 1.16 | 27.56 | 27.51 | 27.47 | 27.42 | 27.37 | 27.33 | 27.28 | 27.23 | 27.19 | 27.14 |
| 1.17 | 27.09 | 27.05 | 27.00 | 26.95 | 26.91 | 26.86 | 26.82 | 26.77 | 26.73 | 26.68 |
| 1.18 | 26.64 | 26.59 | 26.55 | 26.50 | 26.46 | 26.41 | 26.37 | 26.32 | 26.28 | 26.23 |
| 1.19 | 26.19 | 26.15 | 26.10 | 26.06 | 26.01 | 25.97 | 25.93 | 25.88 | 25.84 | 25.80 |
| 1.20 | 25.76 | 25.71 | 25.67 | 25.63 | 25.58 | 25.54 | 25.50 | 25.46 | 25.42 | 25.37 |

## TABLE 6 (continued)

Load    20 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 1.21 | 25.33 | 25.29 | 25.25 | 25.21 | 25.16 | 25.12 | 25.08 | 25.04 | 25.00 | 24.96 |
| 1.22 | 24.92 | 24.88 | 24.84 | 24.80 | 24.75 | 24.71 | 24.67 | 24.63 | 24.59 | 24.55 |
| 1.23 | 24.51 | 24.47 | 24.43 | 24.39 | 24.36 | 24.32 | 24.28 | 24.24 | 24.20 | 24.16 |
| 1.24 | 24.12 | 24.08 | 24.04 | 24.00 | 23.97 | 23.93 | 23.89 | 23.85 | 23.81 | 23.77 |
| 1.25 | 23.74 | 23.70 | 23.66 | 23.62 | 23.58 | 23.55 | 23.51 | 23.47 | 23.43 | 23.40 |
| 1.26 | 23.36 | 23.32 | 23.29 | 23.25 | 23.21 | 23.18 | 23.14 | 23.10 | 23.07 | 23.03 |
| 1.27 | 22.99 | 22.96 | 22.92 | 22.89 | 22.85 | 22.81 | 22.78 | 22.74 | 22.71 | 22.67 |
| 1.28 | 22.64 | 22.60 | 22.57 | 22.53 | 22.50 | 22.46 | 22.43 | 22.39 | 22.36 | 22.32 |
| 1.29 | 22.29 | 22.25 | 22.22 | 22.18 | 22.15 | 22.11 | 22.08 | 22.05 | 22.01 | 21.98 |
| 1.30 | 21.95 | 21.91 | 21.88 | 21.84 | 21.81 | 21.78 | 21.74 | 21.71 | 21.68 | 21.64 |
| 1.31 | 21.61 | 21.58 | 21.55 | 21.51 | 21.48 | 21.45 | 21.41 | 21.38 | 21.35 | 21.32 |
| 1.32 | 21.29 | 21.25 | 21.22 | 21.19 | 21.16 | 21.12 | 21.09 | 21.06 | 21.03 | 21.00 |
| 1.33 | 20.97 | 20.93 | 20.90 | 20.87 | 20.84 | 20.81 | 20.78 | 20.75 | 20.72 | 20.69 |
| 1.34 | 20.65 | 20.62 | 20.59 | 20.56 | 20.53 | 20.50 | 20.47 | 20.44 | 20.41 | 20.38 |
| 1.35 | 20.35 | 20.32 | 20.29 | 20.26 | 20.23 | 20.20 | 20.17 | 20.14 | 20.11 | 20.08 |
| 1.36 | 20.05 | 20.02 | 19.99 | 19.96 | 19.93 | 19.90 | 19.88 | 19.85 | 19.82 | 19.79 |
| 1.37 | 19.76 | 19.73 | 19.70 | 19.67 | 19.65 | 19.62 | 19.59 | 19.56 | 19.53 | 19.50 |
| 1.38 | 19.47 | 19.45 | 19.42 | 19.39 | 19.36 | 19.33 | 19.31 | 19.28 | 19.25 | 19.22 |
| 1.39 | 19.20 | 19.17 | 19.14 | 19.11 | 19.09 | 19.06 | 19.03 | 19.00 | 18.98 | 18.95 |
| 1.40 | 18.92 | 18.90 | 18.87 | 18.84 | 18.81 | 18.79 | 18.76 | 18.73 | 18.71 | 18.68 |
| 1.41 | 18.65 | 18.63 | 18.60 | 18.58 | 18.55 | 18.52 | 18.50 | 18.47 | 18.44 | 18.42 |
| 1.42 | 18.39 | 18.37 | 18.34 | 18.32 | 18.29 | 18.26 | 18.24 | 18.21 | 18.19 | 18.16 |
| 1.43 | 18.14 | 18.11 | 18.09 | 18.06 | 18.04 | 18.01 | 17.99 | 17.96 | 17.94 | 17.91 |
| 1.44 | 17.89 | 17.86 | 17.84 | 17.81 | 17.79 | 17.76 | 17.74 | 17.71 | 17.69 | 17.66 |
| 1.45 | 17.64 | 17.62 | 17.59 | 17.57 | 17.54 | 17.52 | 17.49 | 17.47 | 17.45 | 17.42 |
| 1.46 | 17.40 | 17.38 | 17.35 | 17.33 | 17.30 | 17.28 | 17.26 | 17.23 | 17.21 | 17.19 |
| 1.47 | 17.16 | 17.14 | 17.12 | 17.09 | 17.07 | 17.05 | 17.02 | 17.00 | 16.98 | 16.95 |
| 1.48 | 16.93 | 16.91 | 16.89 | 16.86 | 16.84 | 16.82 | 16.80 | 16.77 | 16.75 | 16.73 |
| 1.49 | 16.71 | 16.68 | 16.66 | 16.64 | 16.62 | 16.59 | 16.57 | 16.55 | 16.53 | 16.51 |
| 1.50 | 16.48 | 16.46 | 16.44 | 16.42 | 16.40 | 16.37 | 16.35 | 16.33 | 16.31 | 16.29 |
| 1.51 | 16.27 | 16.24 | 16.22 | 16.20 | 16.18 | 16.16 | 16.14 | 16.12 | 16.09 | 16.07 |
| 1.52 | 16.05 | 16.03 | 16.01 | 15.99 | 15.97 | 15.95 | 15.93 | 15.91 | 15.88 | 15.86 |
| 1.53 | 15.84 | 15.82 | 15.80 | 15.78 | 15.76 | 15.74 | 15.72 | 15.70 | 15.68 | 15.66 |
| 1.54 | 15.64 | 15.62 | 15.60 | 15.58 | 15.56 | 15.54 | 15.52 | 15.50 | 15.48 | 15.46 |
| 1.55 | 15.44 | 15.42 | 15.40 | 15.38 | 15.36 | 15.34 | 15.32 | 15.30 | 15.28 | 15.26 |
| 1.56 | 15.24 | 15.22 | 15.20 | 15.18 | 15.16 | 15.14 | 15.12 | 15.10 | 15.08 | 15.07 |
| 1.57 | 15.05 | 15.03 | 15.01 | 14.99 | 14.97 | 14.95 | 14.93 | 14.91 | 14.89 | 14.88 |
| 1.58 | 14.86 | 14.84 | 14.82 | 14.80 | 14.78 | 14.76 | 14.74 | 14.73 | 14.71 | 14.69 |
| 1.59 | 14.67 | 14.65 | 14.63 | 14.61 | 14.60 | 14.58 | 14.56 | 14.54 | 14.52 | 14.51 |
| 1.60 | 14.49 | 14.47 | 14.45 | 14.43 | 14.42 | 14.40 | 14.38 | 14.36 | 14.34 | 14.33 |
| 1.61 | 14.31 | 14.29 | 14.27 | 14.25 | 14.24 | 14.22 | 14.20 | 14.18 | 14.17 | 14.15 |
| 1.62 | 14.13 | 14.11 | 14.10 | 14.08 | 14.06 | 14.04 | 14.03 | 14.01 | 13.99 | 13.98 |
| 1.63 | 13.96 | 13.94 | 13.92 | 13.91 | 13.89 | 13.87 | 13.86 | 13.84 | 13.82 | 13.81 |
| 1.64 | 13.79 | 13.77 | 13.76 | 13.74 | 13.72 | 13.71 | 13.69 | 13.67 | 13.66 | 13.64 |
| 1.65 | 13.62 | 13.61 | 13.59 | 13.57 | 13.56 | 13.54 | 13.52 | 13.51 | 13.49 | 13.48 |
| 1.66 | 13.46 | 13.44 | 13.43 | 13.41 | 13.39 | 13.38 | 13.36 | 13.35 | 13.33 | 13.31 |
| 1.67 | 13.30 | 13.28 | 13.27 | 13.25 | 13.23 | 13.22 | 13.20 | 13.19 | 13.17 | 13.16 |
| 1.68 | 13.14 | 13.12 | 13.11 | 13.09 | 13.08 | 13.06 | 13.05 | 13.03 | 13.02 | 13.00 |
| 1.69 | 12.99 | 12.97 | 12.95 | 12.94 | 12.92 | 12.91 | 12.89 | 12.88 | 12.86 | 12.85 |
| 1.70 | 12.83 | 12.82 | 12.80 | 12.79 | 12.77 | 12.76 | 12.74 | 12.73 | 12.71 | 12.70 |
| 1.71 | 12.68 | 12.67 | 12.65 | 12.64 | 12.62 | 12.61 | 12.59 | 12.58 | 12.57 | 12.55 |
| 1.72 | 12.54 | 12.52 | 12.51 | 12.49 | 12.48 | 12.46 | 12.45 | 12.43 | 12.42 | 12.41 |
| 1.73 | 12.39 | 12.38 | 12.36 | 12.35 | 12.33 | 12.32 | 12.31 | 12.29 | 12.28 | 12.26 |
| 1.74 | 12.25 | 12.24 | 12.22 | 12.21 | 12.19 | 12.18 | 12.17 | 12.15 | 12.14 | 12.12 |

## TABLE 6 (concluded)

**Load 20 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 1.75 | 12.11 | 12.10 | 12.08 | 12.07 | 12.05 | 12.04 | 12.03 | 12.01 | 12.00 | 11.99 |
| 1.76 | 11.97 | 11.96 | 11.95 | 11.93 | 11.92 | 11.91 | 11.89 | 11.88 | 11.86 | 11.85 |
| 1.77 | 11.84 | 11.82 | 11.81 | 11.80 | 11.78 | 11.77 | 11.76 | 11.74 | 11.73 | 11.72 |
| 1.78 | 11.71 | 11.69 | 11.68 | 11.67 | 11.65 | 11.64 | 11.63 | 11.61 | 11.60 | 11.59 |
| 1.79 | 11.57 | 11.56 | 11.55 | 11.54 | 11.52 | 11.51 | 11.50 | 11.48 | 11.47 | 11.46 |
| 1.80 | 11.45 | 11.43 | 11.42 | 11.41 | 11.40 | 11.38 | 11.37 | 11.36 | 11.35 | 11.33 |
| 1.81 | 11.32 | 11.31 | 11.30 | 11.28 | 11.27 | 11.26 | 11.25 | 11.23 | 11.22 | 11.21 |
| 1.82 | 11.20 | 11.18 | 11.17 | 11.16 | 11.15 | 11.14 | 11.12 | 11.11 | 11.10 | 11.09 |
| 1.83 | 11.07 | 11.06 | 11.05 | 11.04 | 11.03 | 11.01 | 11.00 | 10.99 | 10.98 | 10.97 |
| 1.84 | 10.95 | 10.94 | 10.93 | 10.92 | 10.91 | 10.90 | 10.88 | 10.87 | 10.86 | 10.85 |
| 1.85 | 10.84 | 10.82 | 10.81 | 10.80 | 10.79 | 10.78 | 10.77 | 10.75 | 10.74 | 10.73 |
| 1.86 | 10.72 | 10.71 | 10.70 | 10.69 | 10.67 | 10.66 | 10.65 | 10.64 | 10.63 | 10.62 |
| 1.87 | 10.61 | 10.59 | 10.58 | 10.57 | 10.56 | 10.55 | 10.54 | 10.53 | 10.52 | 10.50 |
| 1.88 | 10.49 | 10.48 | 10.47 | 10.46 | 10.45 | 10.44 | 10.43 | 10.42 | 10.40 | 10.39 |
| 1.89 | 10.38 | 10.37 | 10.36 | 10.35 | 10.34 | 10.33 | 10.32 | 10.31 | 10.30 | 10.28 |
| 1.90 | 10.27 | 10.26 | 10.25 | 10.24 | 10.23 | 10.22 | 10.21 | 10.20 | 10.19 | 10.18 |
| 1.91 | 10.17 | 10.16 | 10.14 | 10.13 | 10.12 | 10.11 | 10.10 | 10.09 | 10.08 | 10.07 |
| 1.92 | 10.06 | 10.05 | 10.04 | 10.03 | 10.02 | 10.01 | 10.00 | 9.99 | 9.98 | 9.97 |
| 1.93 | 9.96 | 9.95 | 9.94 | 9.93 | 9.92 | 9.91 | 9.89 | 9.88 | 9.87 | 9.86 |
| 1.94 | 9.85 | 9.84 | 9.83 | 9.82 | 9.81 | 9.80 | 9.79 | 9.78 | 9.77 | 9.76 |
| 1.95 | 9.75 | 9.74 | 9.73 | 9.72 | 9.71 | 9.70 | 9.69 | 9.68 | 9.67 | 9.66 |
| 1.96 | 9.65 | 9.64 | 9.63 | 9.62 | 9.61 | 9.61 | 9.60 | 9.59 | 9.58 | 9.57 |
| 1.97 | 9.56 | 9.55 | 9.54 | 9.53 | 9.52 | 9.51 | 9.50 | 9.49 | 9.48 | 9.47 |
| 1.98 | 9.46 | 9.45 | 9.44 | 9.43 | 9.42 | 9.41 | 9.40 | 9.39 | 9.38 | 9.37 |
| 1.99 | 9.37 | 9.36 | 9.35 | 9.34 | 9.33 | 9.32 | 9.31 | 9.30 | 9.29 | 9.28 |

# TABLE 7

**Load   30 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.16 | 2173 | 2146 | 2120 | 2094 | 2068 | 2043 | 2019 | 1995 | 1971 | 1948 |
| 0.17 | 1925 | 1903 | 1880 | 1859 | 1837 | 1817 | 1796 | 1776 | 1756 | 1736 |
| 0.18 | 1717 | 1698 | 1679 | 1661 | 1643 | 1625 | 1608 | 1591 | 1574 | 1557 |
| 0.19 | 1541 | 1525 | 1509 | 1493 | 1478 | 1463 | 1448 | 1433 | 1419 | 1405 |
| 0.20 | 1391 | 1377 | 1363 | 1350 | 1337 | 1324 | 1311 | 1298 | 1286 | 1274 |
| 0.21 | 1261 | 1250 | 1238 | 1226 | 1215 | 1203 | 1192 | 1181 | 1171 | 1160 |
| 0.22 | 1149 | 1139 | 1129 | 1119 | 1109 | 1099 | 1089 | 1080 | 1070 | 1061 |
| 0.23 | 1052 | 1043 | 1034 | 1025 | 1016 | 1007 | 999 | 990 | 982 | 974 |
| 0.24 | 966 | 958 | 950 | 942 | 934 | 927 | 919 | 912 | 905 | 897 |
| 0.25 | 890 | 883 | 876 | 869 | 862 | 856 | 849 | 842 | 836 | 829 |
| 0.26 | 823 | 817 | 810 | 804 | 798 | 792 | 786 | 780 | 775 | 769 |
| 0.27 | 763 | 757 | 752 | 746 | 741 | 736 | 730 | 725 | 720 | 715 |
| 0.28 | 710 | 705 | 700 | 695 | 690 | 685 | 680 | 675 | 671 | 666 |
| 0.29 | 661 | 657 | 652 | 648 | 644 | 639 | 635 | 631 | 626 | 622 |
| 0.30 | 618 | 614 | 610 | 606 | 602 | 598 | 594 | 590 | 586 | 583 |
| 0.31 | 579 | 575 | 571 | 568 | 564 | 561 | 557 | 554 | 550 | 547 |
| 0.32 | 543 | 540 | 537 | 533 | 530 | 527 | 523 | 520 | 517 | 514 |
| 0.33 | 511 | 508 | 505 | 502 | 499 | 496 | 493 | 490 | 487 | 484 |
| 0.34 | 481 | 478 | 476 | 473 | 470 | 467 | 465 | 462 | 459 | 457 |
| 0.35 | 454 | 452 | 449 | 446 | 444 | 441 | 439 | 436 | 434 | 432 |
| 0.36 | 429 | 427 | 425 | 422 | 420 | 418 | 415 | 413 | 411 | 409 |
| 0.37 | 406 | 404 | 402 | 400 | 398 | 396 | 393 | 391 | 389 | 387 |
| 0.38 | 385 | 383 | 381 | 379 | 377 | 375 | 373 | 371 | 370 | 368 |
| 0.39 | 366 | 364 | 362 | 360 | 358 | 357 | 355 | 353 | 351 | 349 |
| 0.40 | 348 | 346 | 344 | 343 | 341 | 339 | 337 | 336 | 334 | 333 |
| 0.41 | 331 | 329 | 328 | 326 | 325 | 323 | 321 | 320 | 318 | 317 |
| 0.42 | 315 | 314 | 312 | 311 | 309 | 308 | 307 | 305 | 304 | 302 |
| 0.43 | 301 | 299 | 298 | 297 | 295 | 294 | 293 | 291 | 290 | 289 |
| 0.44 | 287 | 286 | 285 | 283 | 282 | 281 | 280 | 278 | 277 | 276 |
| 0.45 | 275 | 274 | 272 | 271 | 270 | 269 | 268 | 266 | 265 | 264 |
| 0.46 | 263 | 262 | 261 | 260 | 258 | 257 | 256 | 255 | 254 | 253 |
| 0.47 | 252 | 251 | 250 | 249 | 248 | 247 | 246 | 245 | 243 | 242 |
| 0.48 | 241 | 240 | 239 | 238 | 237.5 | 236.5 | 235.5 | 234.6 | 233.6 | 232.6 |
| 0.49 | 231.7 | 230.8 | 229.8 | 228.9 | 228.0 | 227.0 | 226.1 | 225.2 | 224.3 | 223.4 |
| 0.50 | 222.5 | 221.6 | 220.8 | 219.9 | 219.0 | 218.1 | 217.3 | 216.4 | 215.6 | 214.7 |
| 0.51 | 213.9 | 213.0 | 212.2 | 211.4 | 210.6 | 209.8 | 208.9 | 208.1 | 207.3 | 206.5 |
| 0.52 | 205.7 | 204.9 | 204.2 | 203.4 | 202.6 | 201.8 | 201.1 | 200.3 | 199.5 | 198.8 |
| 0.53 | 198.0 | 197.3 | 196.6 | 195.8 | 195.1 | 194.4 | 193.6 | 192.9 | 192.2 | 191.5 |
| 0.54 | 190.8 | 190.1 | 189.4 | 188.7 | 188.0 | 187.3 | 186.6 | 185.9 | 185.2 | 184.6 |
| 0.55 | 183.9 | 183.2 | 182.6 | 181.9 | 181.3 | 180.6 | 180.0 | 179.3 | 178.7 | 178.0 |
| 0.56 | 177.4 | 176.8 | 176.1 | 175.5 | 174.9 | 174.3 | 173.7 | 173.0 | 172.4 | 171.8 |
| 0.57 | 171.2 | 170.6 | 170.0 | 169.4 | 168.8 | 168.3 | 167.7 | 167.1 | 166.5 | 165.9 |
| 0.58 | 165.4 | 164.8 | 164.2 | 163.7 | 163.1 | 162.6 | 162.0 | 161.5 | 160.9 | 160.4 |
| 0.59 | 159.8 | 159.3 | 158.7 | 158.2 | 157.7 | 157.1 | 156.6 | 156.1 | 155.6 | 155.0 |
| 0.60 | 154.5 | 154.0 | 153.5 | 153.0 | 152.5 | 152.0 | 151.5 | 151.0 | 150.5 | 150.0 |
| 0.61 | 149.5 | 149.0 | 148.5 | 148.0 | 147.6 | 147.1 | 146.6 | 146.1 | 145.7 | 145.2 |
| 0.62 | 144.7 | 144.3 | 143.8 | 143.3 | 142.9 | 142.4 | 142.0 | 141.5 | 141.1 | 140.6 |
| 0.63 | 140.2 | 139.7 | 139.3 | 138.8 | 138.4 | 138.0 | 137.5 | 137.1 | 136.7 | 136.2 |
| 0.64 | 135.8 | 135.4 | 135.0 | 134.6 | 134.1 | 133.7 | 133.3 | 132.9 | 132.5 | 132.1 |
| 0.65 | 131.7 | 131.3 | 130.9 | 130.5 | 130.1 | 129.7 | 129.3 | 128.9 | 128.5 | 128.1 |
| 0.66 | 127.7 | 127.3 | 126.9 | 126.6 | 126.2 | 125.8 | 125.4 | 125.0 | 124.7 | 124.3 |
| 0.67 | 123.9 | 123.6 | 123.2 | 122.8 | 122.5 | 122.1 | 121.7 | 121.4 | 121.0 | 120.7 |
| 0.68 | 120.3 | 120.0 | 119.6 | 119.3 | 118.9 | 118.6 | 118.2 | 117.9 | 117.5 | 117.2 |
| 0.69 | 116.8 | 116.5 | 116.2 | 115.8 | 115.5 | 115.2 | 114.8 | 114.5 | 114.2 | 113.9 |

## TABLE 7 (continued)

Load    30 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.70 | 113.5 | 113.2 | 112.9 | 112.6 | 112.2 | 111.9 | 111.6 | 111.3 | 111.0 | 110.7 |
| 0.71 | 110.4 | 110.0 | 109.7 | 109.4 | 109.1 | 108.8 | 108.5 | 108.2 | 107.9 | 107.6 |
| 0.72 | 107.3 | 107.0 | 106.7 | 106.4 | 106.1 | 105.8 | 105.5 | 105.3 | 105.0 | 104.7 |
| 0.73 | 104.4 | 104.1 | 103.8 | 103.5 | 103.3 | 103.0 | 102.7 | 102.4 | 102.1 | 101.9 |
| 0.74 | 101.6 | 101.3 | 101.0 | 100.8 | 100.5 | 100.2 | 100.0 | 99.7 | 99.4 | 99.2 |
| 0.75 | 98.9 | 98.6 | 98.4 | 98.1 | 97.9 | 97.6 | 97.3 | 97.1 | 96.8 | 96.6 |
| 0.76 | 96.3 | 96.1 | 95.8 | 95.6 | 95.3 | 95.1 | 94.8 | 94.6 | 94.3 | 94.1 |
| 0.77 | 93.8 | 93.6 | 93.3 | 93.1 | 92.9 | 92.6 | 92.4 | 92.1 | 91.9 | 91.7 |
| 0.78 | 91.4 | 91.2 | 91.0 | 90.7 | 90.5 | 90.3 | 90.0 | 89.8 | 89.6 | 89.4 |
| 0.79 | 89.1 | 88.9 | 88.7 | 88.5 | 88.2 | 88.0 | 87.8 | 87.6 | 87.4 | 87.1 |
| 0.80 | 86.9 | 86.7 | 86.5 | 86.3 | 86.1 | 85.8 | 85.6 | 85.4 | 85.2 | 85.0 |
| 0.81 | 84.8 | 84.6 | 84.4 | 84.2 | 84.0 | 83.8 | 83.5 | 83.3 | 83.1 | 82.9 |
| 0.82 | 82.7 | 82.5 | 82.3 | 82.1 | 81.9 | 81.7 | 81.5 | 81.3 | 81.1 | 80.9 |
| 0.83 | 80.8 | 80.6 | 80.4 | 80.2 | 80.0 | 79.8 | 79.6 | 79.4 | 79.2 | 79.0 |
| 0.84 | 78.8 | 78.7 | 78.5 | 78.3 | 78.1 | 77.9 | 77.7 | 77.5 | 77.4 | 77.2 |
| 0.85 | 77.0 | 76.8 | 76.6 | 76.5 | 76.3 | 76.1 | 75.9 | 75.7 | 75.6 | 75.4 |
| 0.86 | 75.2 | 75.0 | 74.9 | 74.7 | 74.5 | 74.4 | 74.2 | 74.0 | 73.8 | 73.7 |
| 0.87 | 73.5 | 73.3 | 73.2 | 73.0 | 72.8 | 72.7 | 72.5 | 72.3 | 72.2 | 72.0 |
| 0.88 | 71.8 | 71.7 | 71.5 | 71.4 | 71.2 | 71.0 | 70.9 | 70.7 | 70.5 | 70.4 |
| 0.89 | 70.2 | 70.1 | 69.9 | 69.8 | 69.6 | 69.4 | 69.3 | 69.1 | 69.0 | 68.8 |
| 0.90 | 68.7 | 68.5 | 68.4 | 68.2 | 68.1 | 67.9 | 67.8 | 67.6 | 67.5 | 67.3 |
| 0.91 | 67.2 | 67.0 | 66.9 | 66.7 | 66.6 | 66.4 | 66.3 | 66.2 | 66.0 | 65.9 |
| 0.92 | 65.7 | 65.6 | 65.4 | 65.3 | 65.2 | 65.0 | 64.9 | 64.7 | 64.6 | 64.5 |
| 0.93 | 64.3 | 64.2 | 64.0 | 63.9 | 63.8 | 63.6 | 63.5 | 63.4 | 63.2 | 63.1 |
| 0.94 | 63.0 | 62.8 | 62.7 | 62.6 | 62.4 | 62.3 | 62.2 | 62.0 | 61.9 | 61.8 |
| 0.95 | 61.6 | 61.5 | 61.4 | 61.3 | 61.1 | 61.0 | 60.9 | 60.7 | 60.6 | 60.5 |
| 0.96 | 60.4 | 60.2 | 60.1 | 60.0 | 59.9 | 59.7 | 59.6 | 59.5 | 59.4 | 59.2 |
| 0.97 | 59.1 | 59.0 | 58.9 | 58.8 | 58.6 | 58.5 | 58.4 | 58.3 | 58.2 | 58.0 |
| 0.98 | 57.9 | 57.8 | 57.7 | 57.6 | 57.5 | 57.3 | 57.2 | 57.1 | 57.0 | 56.9 |
| 0.99 | 56.8 | 56.6 | 56.5 | 56.4 | 56.3 | 56.2 | 56.1 | 56.0 | 55.9 | 55.7 |
| 1.00 | 55.6 | 55.5 | 55.4 | 55.3 | 55.2 | 55.1 | 55.0 | 54.9 | 54.8 | 54.6 |
| 1.01 | 54.5 | 54.4 | 54.3 | 54.2 | 54.1 | 54.0 | 53.9 | 53.8 | 53.7 | 53.6 |
| 1.02 | 53.5 | 53.4 | 53.3 | 53.2 | 53.1 | 53.0 | 52.8 | 52.7 | 52.6 | 52.5 |
| 1.03 | 52.4 | 52.3 | 52.2 | 52.1 | 52.0 | 51.9 | 51.8 | 51.7 | 51.6 | 51.5 |
| 1.04 | 51.4 | 51.3 | 51.2 | 51.1 | 51.0 | 50.9 | 50.8 | 50.75 | 50.65 | 50.56 |
| 1.05 | 50.46 | 50.36 | 50.27 | 50.17 | 50.08 | 49.98 | 49.89 | 49.79 | 49.70 | 49.60 |
| 1.06 | 49.51 | 49.42 | 49.33 | 49.23 | 49.14 | 49.05 | 48.96 | 48.86 | 48.77 | 48.68 |
| 1.07 | 48.59 | 48.50 | 48.41 | 48.32 | 48.23 | 48.14 | 48.05 | 47.96 | 47.87 | 47.78 |
| 1.08 | 47.69 | 47.61 | 47.52 | 47.43 | 47.34 | 47.26 | 47.17 | 47.08 | 47.00 | 46.91 |
| 1.09 | 46.82 | 46.74 | 46.65 | 46.57 | 46.48 | 46.40 | 46.31 | 46.23 | 46.14 | 46.06 |
| 1.10 | 45.98 | 45.89 | 45.81 | 45.73 | 45.64 | 45.56 | 45.48 | 45.40 | 45.31 | 45.23 |
| 1.11 | 45.15 | 45.07 | 44.99 | 44.91 | 44.83 | 44.75 | 44.67 | 44.59 | 44.51 | 44.43 |
| 1.12 | 44.35 | 44.27 | 44.19 | 44.11 | 44.03 | 43.96 | 43.88 | 43.80 | 43.72 | 43.64 |
| 1.13 | 43.57 | 43.49 | 43.41 | 43.34 | 43.26 | 43.18 | 43.11 | 43.03 | 42.96 | 42.88 |
| 1.14 | 42.81 | 42.73 | 42.66 | 42.58 | 42.51 | 42.43 | 42.36 | 42.29 | 42.21 | 42.14 |
| 1.15 | 42.07 | 41.99 | 41.92 | 41.85 | 41.77 | 41.70 | 41.63 | 41.56 | 41.49 | 41.41 |
| 1.16 | 41.34 | 41.27 | 41.20 | 41.13 | 41.06 | 40.99 | 40.92 | 40.85 | 40.78 | 40.71 |
| 1.17 | 40.64 | 40.57 | 40.50 | 40.43 | 40.36 | 40.29 | 40.23 | 40.16 | 40.09 | 40.02 |
| 1.18 | 39.95 | 39.89 | 39.82 | 39.75 | 39.68 | 39.62 | 39.55 | 39.48 | 39.42 | 39.35 |
| 1.19 | 39.28 | 39.22 | 39.15 | 39.09 | 39.02 | 38.96 | 38.89 | 38.83 | 38.76 | 38.70 |
| 1.20 | 38.63 | 38.57 | 38.50 | 38.44 | 38.38 | 38.31 | 38.25 | 38.19 | 38.12 | 38.06 |
| 1.21 | 38.00 | 37.93 | 37.87 | 37.81 | 37.75 | 37.68 | 37.62 | 37.56 | 37.50 | 37.44 |
| 1.22 | 37.38 | 37.32 | 37.25 | 37.19 | 37.13 | 37.07 | 37.01 | 36.95 | 36.89 | 36.83 |
| 1.23 | 36.77 | 36.71 | 36.65 | 36.59 | 36.53 | 36.47 | 36.41 | 36.36 | 36.30 | 36.24 |

## TABLE 7 (continued)

Load 30 kgf

| Mean diagonal of indentation mm | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | +0.001 mm | +0.002 mm | +0.003 mm | +0.004 mm | +0.005 mm | +0.006 mm | +0.007 mm | +0.008 mm | +0.009 mm |
| 1.24 | 36.18 | 36.12 | 36.06 | 36.01 | 35.95 | 35.89 | 35.83 | 35.78 | 35.72 | 35.66 |
| 1.25 | 35.60 | 35.55 | 35.49 | 35.43 | 35.38 | 35.32 | 35.26 | 35.21 | 35.15 | 35.10 |
| 1.26 | 35.04 | 34.99 | 34.93 | 34.87 | 34.82 | 34.76 | 34.71 | 34.65 | 34.60 | 34.55 |
| 1.27 | 34.49 | 34.44 | 34.38 | 34.33 | 34.28 | 34.22 | 34.17 | 34.11 | 34.06 | 34.01 |
| 1.28 | 33.95 | 33.90 | 33.85 | 33.80 | 33.74 | 33.69 | 33.64 | 33.59 | 33.53 | 33.48 |
| 1.29 | 33.43 | 33.38 | 33.33 | 33.28 | 33.22 | 33.17 | 33.12 | 33.07 | 33.02 | 32.97 |
| 1.30 | 32.92 | 32.87 | 32.82 | 32.77 | 32.72 | 32.67 | 32.62 | 32.57 | 32.52 | 32.47 |
| 1.31 | 32.42 | 32.37 | 32.32 | 32.27 | 32.22 | 32.17 | 32.12 | 32.07 | 32.02 | 31.98 |
| 1.32 | 31.93 | 31.88 | 31.83 | 31.78 | 31.74 | 31.69 | 31.64 | 31.59 | 31.54 | 31.50 |
| 1.33 | 31.45 | 31.40 | 31.36 | 31.31 | 31.26 | 31.21 | 31.17 | 31.12 | 31.07 | 31.03 |
| 1.34 | 30.98 | 30.94 | 30.89 | 30.84 | 30.80 | 30.75 | 30.71 | 30.66 | 30.62 | 30.57 |
| 1.35 | 30.52 | 30.48 | 30.43 | 30.39 | 30.34 | 30.30 | 30.26 | 30.21 | 30.17 | 30.12 |
| 1.36 | 30.08 | 30.03 | 29.99 | 29.95 | 29.90 | 29.86 | 29.81 | 29.77 | 29.73 | 29.68 |
| 1.37 | 29.64 | 29.60 | 29.55 | 29.51 | 29.47 | 29.42 | 29.38 | 29.34 | 29.30 | 29.25 |
| 1.38 | 29.21 | 29.17 | 29.13 | 29.09 | 29.04 | 29.00 | 28.96 | 28.92 | 28.88 | 28.83 |
| 1.39 | 28.79 | 28.75 | 28.71 | 28.67 | 28.63 | 28.59 | 28.55 | 28.51 | 28.46 | 28.42 |
| 1.40 | 28.38 | 28.34 | 28.30 | 28.26 | 28.22 | 28.18 | 28.14 | 28.10 | 28.06 | 28.02 |
| 1.41 | 27.98 | 27.94 | 27.90 | 27.86 | 27.82 | 27.78 | 27.75 | 27.71 | 27.67 | 27.63 |
| 1.42 | 27.59 | 27.55 | 27.51 | 27.47 | 27.43 | 27.40 | 27.36 | 27.32 | 27.28 | 27.24 |
| 1.43 | 27.20 | 27.17 | 27.13 | 27.09 | 27.05 | 27.02 | 26.98 | 26.94 | 26.90 | 26.87 |
| 1.44 | 26.83 | 26.79 | 26.75 | 26.72 | 26.68 | 26.64 | 26.61 | 26.57 | 26.53 | 26.50 |
| 1.45 | 26.46 | 26.42 | 26.39 | 26.35 | 26.31 | 26.28 | 26.24 | 26.21 | 26.17 | 26.13 |
| 1.46 | 26.10 | 26.06 | 26.03 | 25.99 | 25.96 | 25.92 | 25.89 | 25.85 | 25.81 | 25.78 |
| 1.47 | 25.74 | 25.71 | 25.67 | 25.64 | 25.60 | 25.57 | 25.54 | 25.50 | 25.47 | 25.43 |
| 1.48 | 25.40 | 25.36 | 25.33 | 25.30 | 25.26 | 25.23 | 25.19 | 25.16 | 25.13 | 25.09 |
| 1.49 | 25.06 | 25.02 | 24.99 | 24.96 | 24.92 | 24.89 | 24.86 | 24.82 | 24.79 | 24.76 |
| 1.50 | 24.72 | 24.69 | 24.66 | 24.63 | 24.59 | 24.56 | 24.53 | 24.50 | 24.46 | 24.43 |
| 1.51 | 24.40 | 24.37 | 24.33 | 24.30 | 24.27 | 24.24 | 24.21 | 24.17 | 24.14 | 24.11 |
| 1.52 | 24.08 | 24.05 | 24.02 | 23.98 | 23.95 | 23.92 | 23.89 | 23.86 | 23.83 | 23.80 |
| 1.53 | 23.76 | 23.73 | 23.70 | 23.67 | 23.64 | 23.61 | 23.58 | 23.55 | 23.52 | 23.49 |
| 1.54 | 23.46 | 23.43 | 23.40 | 23.37 | 23.34 | 23.31 | 23.28 | 23.25 | 23.22 | 23.19 |
| 1.55 | 23.16 | 23.13 | 23.10 | 23.07 | 23.04 | 23.01 | 22.98 | 22.95 | 22.92 | 22.89 |
| 1.56 | 22.86 | 22.83 | 22.80 | 22.77 | 22.74 | 22.71 | 22.68 | 22.66 | 22.63 | 22.60 |
| 1.57 | 22.57 | 22.54 | 22.51 | 22.48 | 22.45 | 22.43 | 22.40 | 22.37 | 22.34 | 22.31 |
| 1.58 | 22.28 | 22.26 | 22.23 | 22.20 | 22.17 | 22.14 | 22.12 | 22.09 | 22.06 | 22.03 |
| 1.59 | 22.01 | 21.98 | 21.95 | 21.92 | 21.89 | 21.87 | 21.84 | 21.81 | 21.79 | 21.76 |
| 1.60 | 21.73 | 21.70 | 21.68 | 21.65 | 21.62 | 21.60 | 21.57 | 21.54 | 21.52 | 21.49 |
| 1.61 | 21.46 | 21.44 | 21.41 | 21.38 | 21.36 | 21.33 | 21.30 | 21.28 | 21.25 | 21.22 |
| 1.62 | 21.20 | 21.17 | 21.15 | 21.12 | 21.09 | 21.07 | 21.04 | 21.02 | 20.99 | 20.96 |
| 1.63 | 20.94 | 20.91 | 20.89 | 20.86 | 20.84 | 20.81 | 20.79 | 20.76 | 20.73 | 20.71 |
| 1.64 | 20.68 | 20.66 | 20.63 | 20.61 | 20.58 | 20.56 | 20.53 | 20.51 | 20.48 | 20.46 |
| 1.65 | 20.43 | 20.41 | 20.38 | 20.36 | 20.34 | 20.31 | 20.29 | 20.26 | 20.24 | 20.21 |
| 1.66 | 20.19 | 20.16 | 20.14 | 20.12 | 20.09 | 20.07 | 20.04 | 20.02 | 20.00 | 19.97 |
| 1.67 | 19.95 | 19.92 | 19.90 | 19.88 | 19.85 | 19.83 | 19.80 | 19.78 | 19.76 | 19.73 |
| 1.68 | 19.71 | 19.69 | 19.66 | 19.64 | 19.62 | 19.59 | 19.57 | 19.55 | 19.52 | 19.50 |
| 1.69 | 19.48 | 19.45 | 19.43 | 19.41 | 19.39 | 19.36 | 19.34 | 19.32 | 19.29 | 19.27 |
| 1.70 | 19.25 | 19.23 | 19.20 | 19.18 | 19.16 | 19.14 | 19.11 | 19.09 | 19.07 | 19.05 |
| 1.71 | 19.03 | 19.00 | 18.98 | 18.96 | 18.94 | 18.91 | 18.89 | 18.87 | 18.85 | 18.83 |
| 1.72 | 18.80 | 18.78 | 18.76 | 18.74 | 18.72 | 18.70 | 18.67 | 18.65 | 18.63 | 18.61 |
| 1.73 | 18.59 | 18.57 | 18.54 | 18.52 | 18.50 | 18.48 | 18.46 | 18.44 | 18.42 | 18.40 |
| 1.74 | 18.37 | 18.35 | 18.33 | 18.31 | 18.29 | 18.27 | 18.25 | 18.23 | 18.21 | 18.19 |
| 1.75 | 18.17 | 18.14 | 18.12 | 18.10 | 18.08 | 18.06 | 18.04 | 18.02 | 18.00 | 17.98 |
| 1.76 | 17.96 | 17.94 | 17.92 | 17.90 | 17.88 | 17.86 | 17.84 | 17.82 | 17.80 | 17.78 |
| 1.77 | 17.76 | 17.74 | 17.72 | 17.70 | 17.68 | 17.66 | 17.64 | 17.62 | 17.60 | 17.58 |

## TABLE 7 *(concluded)*

**Load    30 kgf**

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| **1.78** | 17.56 | 17.54 | 17.52 | 17.50 | 17.48 | 17.46 | 17.44 | 17.42 | 17.40 | 17.38 |
| **1.79** | 17.36 | 17.34 | 17.32 | 17.30 | 17.29 | 17.27 | 17.25 | 17.23 | 17.21 | 17.19 |
| **1.80** | 17.17 | 17.15 | 17.13 | 17.11 | 17.09 | 18.08 | 17.06 | 17.04 | 17.02 | 17.00 |
| **1.81** | 16.98 | 16.96 | 16.94 | 16.92 | 16.91 | 16.89 | 16.87 | 16.85 | 16.83 | 16.81 |
| **1.82** | 16.79 | 16.78 | 16.76 | 16.74 | 16.72 | 16.70 | 16.68 | 16.67 | 16.65 | 16.63 |
| **1.83** | 16.61 | 16.59 | 16.58 | 16.56 | 16.54 | 16.52 | 16.50 | 16.49 | 16.47 | 16.45 |
| **1.84** | 16.43 | 16.41 | 16.40 | 16.38 | 16.36 | 16.34 | 16.33 | 16.31 | 16.29 | 16.27 |
| **1.85** | 16.25 | 16.24 | 16.22 | 16.20 | 16.18 | 16.17 | 16.15 | 16.13 | 16.11 | 16.10 |
| **1.86** | 16.08 | 16.06 | 16.05 | 16.03 | 16.01 | 15.99 | 15.98 | 15.96 | 15.94 | 15.93 |
| **1.87** | 15.91 | 15.89 | 15.87 | 15.86 | 15.84 | 15.82 | 15.81 | 15.79 | 15.77 | 15.76 |
| **1.88** | 15.74 | 15.72 | 15.71 | 15.69 | 15.67 | 15.66 | 15.64 | 15.62 | 15.61 | 15.59 |
| **1.89** | 15.57 | 15.56 | 15.54 | 15.52 | 15.51 | 15.49 | 15.48 | 15.46 | 15.44 | 15.43 |
| **1.90** | 15.41 | 15.39 | 15.38 | 15.36 | 15.35 | 15.33 | 15.31 | 15.30 | 15.28 | 15.27 |
| **1.91** | 15.25 | 15.23 | 15.22 | 15.20 | 15.19 | 15.17 | 15.15 | 15.14 | 15.12 | 15.11 |
| **1.92** | 15.09 | 15.08 | 15.06 | 15.04 | 15.03 | 15.01 | 15.00 | 14.98 | 14.97 | 14.95 |
| **1.93** | 14.93 | 14.92 | 14.90 | 14.89 | 14.87 | 14.86 | 14.84 | 14.83 | 14.81 | 14.80 |
| **1.94** | 14.78 | 14.77 | 14.75 | 14.74 | 14.72 | 14.71 | 14.69 | 14.68 | 14.66 | 14.65 |
| **1.95** | 14.63 | 14.62 | 14.60 | 14.59 | 14.57 | 14.56 | 14.54 | 14.53 | 14.51 | 14.50 |
| **1.96** | 14.48 | 14.47 | 14.45 | 14.44 | 14.42 | 14.41 | 14.39 | 14.38 | 14.36 | 14.35 |
| **1.97** | 14.33 | 14.32 | 14.31 | 14.29 | 14.28 | 14.26 | 14.25 | 14.23 | 14.22 | 14.20 |
| **1.98** | 14.19 | 14.18 | 14.16 | 14.15 | 14.13 | 14.12 | 14.10 | 14.09 | 14.08 | 14.06 |
| **1.99** | 14.05 | 14.03 | 14.02 | 14.01 | 13.99 | 13.98 | 13.96 | 13.95 | 13.94 | 13.92 |

# TABLE 8

**Load    50 kgf**

| Mean diagonal of indentation mm | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.21 | 2102 | 2083 | 2063 | 2044 | 2025 | 2006 | 1987 | 1969 | 1951 | 1933 |
| 0.22 | 1916 | 1898 | 1881 | 1864 | 1848 | 1831 | 1815 | 1799 | 1784 | 1768 |
| 0.23 | 1753 | 1738 | 1723 | 1708 | 1693 | 1679 | 1665 | 1651 | 1637 | 1623 |
| 0.24 | 1610 | 1596 | 1583 | 1570 | 1557 | 1545 | 1532 | 1520 | 1508 | 1495 |
| 0.25 | 1483 | 1472 | 1460 | 1449 | 1437 | 1426 | 1415 | 1404 | 1393 | 1382 |
| 0.26 | 1372 | 1361 | 1351 | 1340 | 1330 | 1320 | 1310 | 1301 | 1291 | 1281 |
| 0.27 | 1272 | 1262 | 1253 | 1244 | 1235 | 1226 | 1217 | 1208 | 1200 | 1191 |
| 0.28 | 1183 | 1174 | 1166 | 1158 | 1150 | 1142 | 1134 | 1126 | 1118 | 1110 |
| 0.29 | 1102 | 1095 | 1087 | 1080 | 1073 | 1065 | 1058 | 1051 | 1044 | 1037 |
| 0.30 | 1030 | 1023 | 1017 | 1010 | 1003 | 997 | 990 | 984 | 977 | 971 |
| 0.31 | 965 | 959 | 952 | 946 | 940 | 934 | 929 | 923 | 917 | 911 |
| 0.32 | 905 | 900 | 894 | 889 | 883 | 878 | 872 | 867 | 862 | 857 |
| 0.33 | 851 | 846 | 841 | 836 | 831 | 826 | 821 | 816 | 812 | 807 |
| 0.34 | 802 | 797 | 793 | 788 | 784 | 779 | 774 | 770 | 769 | 761 |
| 0.35 | 757 | 753 | 748 | 744 | 740 | 736 | 732 | 727 | 723 | 719 |
| 0.36 | 715 | 711 | 708 | 704 | 700 | 696 | 692 | 688 | 685 | 681 |
| 0.37 | 677 | 674 | 670 | 666 | 663 | 659 | 656 | 652 | 649 | 645 |
| 0.38 | 642 | 639 | 635 | 632 | 629 | 626 | 622 | 619 | 616 | 613 |
| 0.39 | 610 | 606 | 603 | 600 | 597 | 594 | 591 | 588 | 585 | 582 |
| 0.40 | 579 | 577 | 574 | 571 | 568 | 565 | 562 | 560 | 557 | 554 |
| 0.41 | 552 | 549 | 546 | 544 | 541 | 538 | 536 | 533 | 531 | 528 |
| 0.42 | 526 | 523 | 521 | 518 | 516 | 513 | 511 | 509 | 506 | 504 |
| 0.43 | 501 | 499 | 497 | 495 | 492 | 490 | 488 | 486 | 483 | 481 |
| 0.44 | 479 | 477 | 475 | 472 | 470 | 468 | 466 | 464 | 462 | 460 |
| 0.45 | 458 | 456 | 454 | 452 | 450 | 448 | 446 | 444 | 442 | 440 |
| 0.46 | 438 | 436 | 434 | 433 | 431 | 429 | 427 | 425 | 423 | 422 |
| 0.47 | 420 | 418 | 416 | 414 | 413 | 411 | 409 | 408 | 406 | 404 |
| 0.48 | 402 | 401 | 399 | 397 | 396 | 394 | 393 | 391 | 389 | 388 |
| 0.49 | 386 | 385 | 383 | 381 | 380 | 378 | 377 | 375 | 374 | 372 |
| 0.50 | 371 | 369 | 368 | 366 | 365 | 364 | 362 | 361 | 359 | 358 |
| 0.51 | 356 | 355 | 354 | 352 | 351 | 350 | 348 | 347 | 346 | 344 |
| 0.52 | 343 | 342 | 340 | 339 | 338 | 336 | 335 | 334 | 333 | 331 |
| 0.53 | 330 | 329 | 328 | 326 | 325 | 324 | 323 | 322 | 320 | 319 |
| 0.54 | 318 | 317 | 316 | 314 | 313 | 312 | 311 | 310 | 309 | 308 |
| 0.55 | 307 | 305 | 304 | 303 | 302 | 301 | 300 | 299 | 298 | 297 |
| 0.56 | 296 | 295 | 294 | 293 | 291 | 290 | 289 | 288 | 287 | 286 |
| 0.57 | 285 | 284 | 283 | 282 | 281 | 280 | 279 | 278.5 | 277.5 | 276.6 |
| 0.58 | 275.6 | 274.7 | 273.7 | 272.8 | 271.9 | 270.9 | 270.0 | 269.1 | 268.2 | 267.3 |
| 0.59 | 266.4 | 265.5 | 264.6 | 263.7 | 262.8 | 261.9 | 261.0 | 260.1 | 259.3 | 258.4 |
| 0.60 | 257.6 | 256.7 | 255.8 | 255.0 | 254.2 | 253.3 | 252.5 | 251.6 | 250.8 | 250.0 |
| 0.61 | 249.2 | 248.4 | 247.6 | 246.7 | 245.9 | 245.1 | 244.3 | 243.6 | 242.8 | 242.0 |
| 0.62 | 241.2 | 240.4 | 239.7 | 238.9 | 238.1 | 237.4 | 236.6 | 235.8 | 235.1 | 234.3 |
| 0.63 | 233.6 | 232.9 | 232.1 | 231.4 | 230.7 | 229.9 | 229.2 | 228.5 | 227.8 | 227.1 |
| 0.64 | 226.4 | 225.7 | 225.0 | 224.3 | 223.6 | 222.9 | 222.2 | 221.5 | 220.8 | 220.1 |
| 0.65 | 219.5 | 218.8 | 218.1 | 217.4 | 216.8 | 216.1 | 215.5 | 214.8 | 214.1 | 213.5 |
| 0.66 | 212.9 | 212.2 | 211.6 | 210.9 | 210.3 | 209.7 | 209.0 | 208.4 | 207.8 | 207.2 |
| 0.67 | 206.5 | 205.9 | 205.3 | 204.7 | 204.1 | 203.5 | 202.9 | 202.3 | 201.7 | 201.1 |
| 0.68 | 200.5 | 199.9 | 199.3 | 198.8 | 198.2 | 197.6 | 197.0 | 196.5 | 195.9 | 195.3 |
| 0.69 | 194.7 | 194.2 | 193.6 | 193.1 | 192.5 | 192.0 | 191.4 | 190.9 | 190.3 | 189.8 |
| 0.70 | 189.2 | 188.7 | 188.1 | 187.6 | 187.1 | 186.5 | 186.0 | 185.5 | 185.0 | 184.4 |
| 0.71 | 183.9 | 183.4 | 182.9 | 182.4 | 181.9 | 181.4 | 180.9 | 180.4 | 179.9 | 179.4 |
| 0.72 | 178.9 | 178.4 | 177.9 | 177.4 | 176.9 | 176.4 | 175.9 | 175.4 | 174.9 | 174.5 |
| 0.73 | 174.0 | 173.5 | 173.0 | 172.6 | 172.1 | 171.6 | 171.2 | 170.7 | 170.2 | 169.8 |
| 0.74 | 169.3 | 168.9 | 168.4 | 168.0 | 167.5 | 167.1 | 166.6 | 166.2 | 165.7 | 165.3 |

## TABLE 8 *(continued)*

Load 50 kgf

| Mean diagonal of indentation | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| mm | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 0.75 | 164.8 | 164.4 | 164.0 | 163.5 | 163.1 | 162.7 | 162.2 | 161.8 | 161.4 | 160.9 |
| 0.76 | 160.5 | 160.1 | 159.7 | 159.3 | 158.8 | 158.4 | 158.0 | 157.6 | 157.2 | 156.8 |
| 0.77 | 156.4 | 156.0 | 155.6 | 155.2 | 154.8 | 154.4 | 154.0 | 153.6 | 153.2 | 152.8 |
| 0.78 | 152.4 | 152.0 | 151.6 | 151.2 | 150.8 | 150.5 | 150.1 | 149.7 | 149.3 | 148.9 |
| 0.79 | 148.6 | 148.2 | 147.8 | 147.4 | 147.1 | 146.7 | 146.3 | 146.0 | 145.6 | 145.2 |
| 0.80 | 144.9 | 144.5 | 144.2 | 143.8 | 143.4 | 143.1 | 142.7 | 142.4 | 142.0 | 141.7 |
| 0.81 | 141.3 | 141.0 | 140.6 | 140.3 | 139.9 | 139.6 | 139.2 | 138.9 | 138.6 | 138.2 |
| 0.82 | 137.9 | 137.6 | 137.2 | 136.9 | 136.6 | 136.2 | 135.9 | 135.6 | 135.2 | 134.9 |
| 0.83 | 134.6 | 134.3 | 133.9 | 133.6 | 133.3 | 133.0 | 132.7 | 132.3 | 132.0 | 131.7 |
| 0.84 | 131.4 | 131.1 | 130.8 | 130.5 | 130.2 | 129.9 | 129.5 | 129.2 | 128.9 | 128.6 |
| 0.85 | 128.3 | 128.0 | 127.7 | 127.4 | 127.1 | 126.8 | 126.5 | 126.2 | 125.9 | 125.7 |
| 0.86 | 125.4 | 125.1 | 124.8 | 124.5 | 124.2 | 123.9 | 123.6 | 123.3 | 123.1 | 122.8 |
| 0.87 | 122.5 | 122.2 | 121.9 | 121.7 | 121.4 | 121.1 | 120.8 | 120.5 | 120.3 | 120.0 |
| 0.88 | 119.7 | 119.5 | 119.2 | 118.9 | 118.6 | 118.4 | 118.1 | 117.8 | 117.6 | 117.3 |
| 0.89 | 117.1 | 116.8 | 116.5 | 116.3 | 116.0 | 115.7 | 115.5 | 115.2 | 115.0 | 114.7 |
| 0.90 | 114.5 | 114.2 | 114.0 | 113.7 | 113.5 | 113.2 | 113.0 | 112.7 | 112.5 | 112.2 |
| 0.91 | 112.0 | 111.7 | 111.5 | 111.2 | 111.0 | 110.7 | 110.5 | 110.3 | 110.0 | 109.8 |
| 0.92 | 109.5 | 109.3 | 109.1 | 108.8 | 108.6 | 108.4 | 108.1 | 107.9 | 107.7 | 107.4 |
| 0.93 | 107.2 | 107.0 | 106.7 | 106.5 | 106.3 | 106.1 | 105.8 | 105.6 | 105.4 | 105.2 |
| 0.94 | 104.9 | 104.7 | 104.5 | 104.3 | 104.0 | 103.8 | 103.6 | 103.4 | 103.2 | 103.0 |
| 0.95 | 102.7 | 102.5 | 102.3 | 102.1 | 101.9 | 101.7 | 101.4 | 101.2 | 101.0 | 100.8 |
| 0.96 | 100.6 | 100.4 | 100.2 | 100.0 | 99.8 | 99.6 | 99.4 | 99.2 | 98.9 | 98.7 |
| 0.97 | 98.5 | 98.3 | 98.1 | 97.9 | 97.7 | 97.5 | 97.3 | 97.1 | 96.9 | 96.7 |
| 0.98 | 96.5 | 96.3 | 96.1 | 96.0 | 95.8 | 95.6 | 95.4 | 95.2 | 95.0 | 94.8 |
| 0.99 | 94.6 | 94.4 | 94.2 | 94.0 | 93.8 | 93.7 | 93.5 | 93.3 | 93.1 | 92.9 |
| 1.00 | 92.7 | 92.5 | 92.3 | 92.2 | 92.0 | 91.8 | 91.6 | 91.4 | 91.3 | 91.1 |
| 1.01 | 90.9 | 90.7 | 90.5 | 90.4 | 90.2 | 90.0 | 89.8 | 89.6 | 89.5 | 89.3 |
| 1.02 | 89.1 | 88.9 | 88.8 | 88.6 | 88.4 | 88.3 | 88.1 | 87.9 | 87.7 | 87.6 |
| 1.03 | 87.4 | 87.2 | 87.1 | 86.9 | 86.7 | 86.6 | 86.4 | 86.2 | 86.1 | 85.9 |
| 1.04 | 85.7 | 85.6 | 85.4 | 85.2 | 85.1 | 84.9 | 84.7 | 84.6 | 84.4 | 84.3 |
| 1.05 | 84.1 | 83.9 | 83.8 | 83.6 | 83.5 | 83.3 | 83.1 | 83.0 | 82.8 | 82.7 |
| 1.06 | 82.5 | 82.4 | 82.2 | 82.1 | 81.9 | 81.7 | 81.6 | 81.4 | 81.3 | 81.1 |
| 1.07 | 81.0 | 80.8 | 80.7 | 80.5 | 80.4 | 80.2 | 80.1 | 79.9 | 79.8 | 79.6 |
| 1.08 | 79.5 | 79.3 | 79.2 | 79.1 | 78.9 | 78.8 | 78.6 | 78.5 | 78.3 | 78.2 |
| 1.09 | 78.0 | 77.9 | 77.8 | 77.6 | 77.5 | 77.3 | 77.2 | 77.0 | 76.9 | 76.8 |
| 1.10 | 76.6 | 76.5 | 76.3 | 76.2 | 76.1 | 75.9 | 75.8 | 75.7 | 75.5 | 75.4 |
| 1.11 | 75.3 | 75.1 | 75.0 | 74.8 | 74.7 | 74.6 | 74.4 | 74.3 | 74.2 | 74.0 |
| 1.12 | 73.9 | 73.8 | 73.7 | 73.5 | 73.4 | 73.3 | 73.1 | 73.0 | 72.9 | 72.7 |
| 1.13 | 72.6 | 72.5 | 72.4 | 72.2 | 72.1 | 72.0 | 71.8 | 71.9 | 71.3 | 71.5 |
| 1.14 | 71.3 | 71.2 | 71.1 | 71.0 | 70.8 | 70.7 | 70.6 | 70.5 | 70.4 | 70.2 |
| 1.15 | 70.1 | 70.0 | 69.9 | 69.7 | 69.6 | 69.5 | 69.4 | 69.3 | 69.1 | 69.0 |
| 1.16 | 68.9 | 68.8 | 68.7 | 68.5 | 68.4 | 68.3 | 68.2 | 68.1 | 68.0 | 67.8 |
| 1.17 | 67.7 | 67.6 | 67.5 | 67.4 | 67.3 | 67.2 | 67.0 | 66.9 | 66.8 | 66.7 |
| 1.18 | 66.6 | 66.5 | 66.4 | 66.3 | 66.1 | 66.0 | 65.9 | 65.8 | 65.7 | 65.6 |
| 1.19 | 65.5 | 65.4 | 65.3 | 65.1 | 65.0 | 64.9 | 64.8 | 64.7 | 64.6 | 64.5 |
| 1.20 | 64.4 | 64.3 | 64.2 | 64.1 | 64.0 | 63.9 | 63.7 | 63.6 | 63.5 | 63.4 |
| 1.21 | 63.3 | 63.2 | 63.1 | 63.0 | 62.9 | 62.8 | 62.7 | 62.6 | 62.5 | 62.4 |
| 1.22 | 62.3 | 62.2 | 62.1 | 62.0 | 61.9 | 61.8 | 61.7 | 61.6 | 61.5 | 61.4 |
| 1.23 | 61.3 | 61.2 | 61.1 | 61.0 | 60.9 | 60.8 | 60.7 | 60.6 | 60.5 | 60.4 |
| 1.24 | 60.3 | 60.2 | 60.1 | 60.0 | 59.9 | 59.8 | 59.7 | 59.6 | 59.5 | 59.4 |
| 1.25 | 59.3 | 59.24 | 59.15 | 59.06 | 58.96 | 58.87 | 58.77 | 58.68 | 58.59 | 58.49 |
| 1.26 | 58.40 | 58.31 | 58.22 | 58.12 | 58.03 | 57.94 | 57.85 | 57.76 | 57.67 | 57.58 |
| 1.27 | 57.49 | 57.40 | 57.30 | 57.21 | 57.13 | 57.04 | 56.95 | 56.86 | 56.77 | 56.68 |
| 1.28 | 56.59 | 56.50 | 56.41 | 56.33 | 56.24 | 56.15 | 56.06 | 55.98 | 55.89 | 55.80 |

## TABLE 8 *(continued)*

**Load    50 kgf**

| Mean diagonal of indentation mm | Change in length of mean diagonal | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0.000 | + 0.001 mm | + 0.002 mm | + 0.003 mm | + 0.004 mm | + 0.005 mm | + 0.006 mm | + 0.007 mm | + 0.008 mm | + 0.009 mm |
| 1.29 | 55.72 | 55.63 | 55.54 | 55.46 | 55.37 | 55.29 | 55.20 | 55.12 | 55.03 | 54.95 |
| 1.30 | 54.86 | 54.78 | 54.69 | 54.61 | 54.53 | 54.44 | 54.36 | 54.28 | 54.19 | 54.11 |
| 1.31 | 54.03 | 53.95 | 53.86 | 53.78 | 53.70 | 53.62 | 53.54 | 53.46 | 53.37 | 53.29 |
| 1.32 | 53.21 | 53.13 | 53.05 | 52.97 | 52.89 | 52.81 | 52.73 | 52.65 | 52.57 | 52.49 |
| 1.33 | 52.42 | 52.34 | 52.26 | 52.18 | 52.10 | 52.02 | 51.95 | 51.87 | 51.79 | 51.71 |
| 1.34 | 51.64 | 51.56 | 51.48 | 51.41 | 51.33 | 51.25 | 51.18 | 51.10 | 51.03 | 50.95 |
| 1.35 | 50.87 | 50.80 | 50.72 | 50.65 | 50.57 | 50.50 | 50.43 | 50.35 | 50.28 | 50.20 |
| 1.36 | 50.13 | 50.06 | 49.98 | 49.91 | 49.84 | 49.76 | 49.69 | 49.62 | 49.54 | 49.47 |
| 1.37 | 49.40 | 49.33 | 49.26 | 49.18 | 49.11 | 49.04 | 48.97 | 48.90 | 48.83 | 48.76 |
| 1.38 | 48.69 | 48.62 | 48.55 | 48.48 | 48.41 | 48.34 | 48.27 | 48.20 | 48.13 | 48.06 |
| 1.39 | 47.99 | 47.92 | 47.85 | 47.78 | 47.71 | 47.65 | 47.58 | 47.51 | 47.44 | 47.37 |
| 1.40 | 47.31 | 47.24 | 47.17 | 47.10 | 47.04 | 46.97 | 46.90 | 46.84 | 46.77 | 46.70 |
| 1.41 | 46.64 | 46.57 | 46.50 | 46.44 | 46.37 | 46.31 | 46.24 | 46.18 | 46.11 | 46.05 |
| 1.42 | 45.98 | 45.92 | 45.85 | 45.79 | 45.72 | 45.66 | 45.60 | 45.53 | 45.47 | 45.40 |
| 1.43 | 45.34 | 45.28 | 45.21 | 45.15 | 45.09 | 45.03 | 44.96 | 44.90 | 44.84 | 44.78 |
| 1.44 | 44.71 | 44.65 | 44.59 | 44.53 | 44.47 | 44.40 | 44.34 | 44.28 | 44.22 | 44.16 |
| 1.45 | 44.10 | 44.04 | 43.98 | 43.92 | 43.86 | 43.80 | 43.74 | 43.68 | 43.62 | 43.56 |
| 1.46 | 43.50 | 43.44 | 43.38 | 43.32 | 43.26 | 43.20 | 43.14 | 43.08 | 43.02 | 42.97 |
| 1.47 | 42.91 | 42.85 | 42.79 | 42.73 | 42.67 | 42.62 | 42.56 | 42.50 | 42.44 | 42.39 |
| 1.48 | 42.33 | 42.27 | 42.22 | 42.16 | 42.10 | 42.04 | 41.99 | 41.93 | 41.88 | 41.82 |
| 1.49 | 41.76 | 41.71 | 41.65 | 41.60 | 41.54 | 41.48 | 41.43 | 41.37 | 41.32 | 41.26 |
| 1.50 | 41.21 | 41.15 | 41.10 | 41.04 | 40.99 | 40.93 | 40.88 | 40.83 | 40.77 | 40.72 |
| 1.51 | 40.66 | 40.61 | 40.56 | 40.50 | 40.45 | 40.40 | 40.34 | 40.29 | 40.24 | 40.18 |
| 1.52 | 40.13 | 40.08 | 40.03 | 39.97 | 39.92 | 39.87 | 39.82 | 39.76 | 39.71 | 39.66 |
| 1.53 | 39.61 | 39.56 | 39.50 | 39.45 | 39.40 | 39.35 | 39.30 | 39.25 | 39.20 | 39.15 |
| 1.54 | 39.10 | 39.04 | 38.99 | 38.94 | 38.89 | 38.84 | 38.79 | 38.74 | 38.69 | 38.64 |
| 1.55 | 38.59 | 38.54 | 38.49 | 38.44 | 38.39 | 38.34 | 38.30 | 38.25 | 38.20 | 38.15 |
| 1.56 | 38.10 | 38.05 | 38.00 | 37.95 | 37.90 | 37.86 | 37.81 | 37.76 | 37.71 | 37.66 |
| 1.57 | 37.62 | 37.57 | 37.52 | 37.47 | 37.42 | 37.38 | 37.33 | 37.28 | 37.24 | 37.19 |
| 1.58 | 37.14 | 37.09 | 37.05 | 37.00 | 36.95 | 36.91 | 36.86 | 36.81 | 36.77 | 36.72 |
| 1.59 | 36.68 | 36.63 | 36.58 | 36.54 | 36.49 | 36.45 | 36.40 | 36.35 | 36.31 | 36.26 |
| 1.60 | 36.22 | 36.17 | 36.13 | 36.08 | 36.04 | 35.99 | 35.95 | 35.90 | 35.86 | 35.81 |
| 1.61 | 35.77 | 35.73 | 35.68 | 35.64 | 35.59 | 35.55 | 35.50 | 35.46 | 35.42 | 35.37 |
| 1.62 | 35.33 | 35.29 | 35.24 | 35.20 | 35.16 | 35.11 | 35.07 | 35.03 | 34.98 | 34.94 |
| 1.63 | 34.90 | 34.85 | 34.81 | 34.77 | 34.73 | 34.68 | 34.64 | 34.60 | 34.56 | 34.52 |
| 1.64 | 34.47 | 34.43 | 34.39 | 34.35 | 34.31 | 34.26 | 34.22 | 34.18 | 34.14 | 34.10 |
| 1.65 | 34.06 | 34.02 | 33.97 | 33.93 | 33.89 | 33.85 | 33.81 | 33.77 | 33.73 | 33.69 |
| 1.66 | 33.65 | 33.61 | 33.57 | 33.53 | 33.49 | 33.45 | 33.41 | 33.37 | 32.93 | 33.29 |
| 1.67 | 33.25 | 33.21 | 33.17 | 33.13 | 33.09 | 33.05 | 33.01 | 32.97 | 32.93 | 32.89 |
| 1.68 | 32.85 | 32.81 | 32.77 | 32.73 | 32.70 | 32.66 | 32.62 | 32.58 | 32.54 | 32.50 |
| 1.69 | 32.46 | 32.42 | 32.39 | 32.35 | 32.31 | 32.27 | 32.23 | 32.20 | 32.16 | 32.12 |
| 1.70 | 32.08 | 32.04 | 32.01 | 31.97 | 31.93 | 31.89 | 31.86 | 31.82 | 31.78 | 31.75 |
| 1.71 | 31.71 | 31.67 | 31.63 | 31.60 | 31.56 | 31.52 | 31.49 | 31.45 | 31.41 | 31.38 |
| 1.72 | 31.34 | 31.30 | 31.27 | 31.23 | 31.20 | 31.16 | 31.12 | 31.09 | 31.05 | 31.02 |
| 1.73 | 30.98 | 30.94 | 30.91 | 30.87 | 30.84 | 30.80 | 30.77 | 30.73 | 30.69 | 30.66 |
| 1.74 | 30.62 | 30.59 | 30.55 | 30.52 | 30.48 | 30.45 | 30.41 | 30.38 | 30.34 | 30.31 |
| 1.75 | 30.28 | 30.24 | 30.21 | 30.17 | 30.14 | 30.10 | 30.07 | 30.03 | 30.00 | 29.97 |
| 1.76 | 29.93 | 29.90 | 29.86 | 29.83 | 29.80 | 29.76 | 29.73 | 29.70 | 29.66 | 29.63 |
| 1.77 | 29.60 | 29.56 | 29.53 | 29.49 | 29.46 | 29.43 | 29.40 | 29.36 | 29.33 | 29.30 |
| 1.78 | 29.26 | 29.23 | 29.20 | 29.17 | 29.13 | 29.10 | 29.07 | 29.03 | 29.00 | 28.97 |
| 1.79 | 28.94 | 28.91 | 28.87 | 28.84 | 28.81 | 28.78 | 28.74 | 28.71 | 28.68 | 28.65 |
| 1.80 | 28.62 | 28.59 | 28.55 | 28.52 | 28.49 | 28.46 | 28.43 | 28.40 | 28.36 | 28.33 |
| 1.81 | 28.30 | 28.27 | 28.24 | 28.21 | 28.18 | 28.15 | 28.11 | 28.08 | 28.05 | 28.02 |
| 1.82 | 27.99 | 27.96 | 27.93 | 27.90 | 27.87 | 27.84 | 27.81 | 27.78 | 27.75 | 27.72 |