# Wilson® | Hardness Conversion Table | Härtewerte Umwertungstabelle

Permissible deviation according to DIN EN ISO. Conversion tables according to DIN EN ISO 18265 Table A1 ( HV10-Brinell-Rockwell-Tensile Strength)
Zulässige Grenzabweichung nach entsprechender DIN EN ISO. Umwertungsbeziehungen nach DIN EN ISO 18265 Tabelle A1 ( HV10-Brinell-Rockwell-Zugfestigkeit )

| Vickers | | | | | | Brinell | | | | | | | | | Rockwell | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hardness Vickers Vickershärte | HV 0.3 Indentation diagonal Eindruckdiagonale | HV 0.5 Indentation diagonal Eindruckdiagonale | HV 1 Indentation diagonal Eindruckdiagonale | HV 10 Indentation diagonal Eindruckdiagonale | HV 30 Indentation diagonal Eindruckdiagonale | Brinell hardness Brinellhärte | HB10/3000 Indentation diagonal Eindruckdiagonale | HB5/750 Indentation diagonal Eindruckdiagonale | HB 2,5/187,5 Indentation diagonal Eindruckdiagonale | HB10/1000 Indentation diagonal Eindruckdiagonale | HB5/250 Indentation diagonal Eindruckdiagonale | HB 2,5/62,5 Indentation diagonal Eindruckdiagonale | HB10/500 Indentation diagonal Eindruckdiagonale | HB5/125 Indentation diagonal Eindruckdiagonale | HRC Hardness value Härtewert | HRA Hardness value Härtewert | HRB Hardness value Härtewert | HR15N Hardness value Härtewert | HR30N Hardness value Härtewert | HR45N Hardness value Härtewert | Tensile strength Zugfestigkeit DIN EN ISO 18265 Table A1 DIN EN ISO 18265 Tabelle A |
| 940 | 0.0243 | 0.0314 | 0.0444 | 0.1405 | 0.2432 | | | | | | | | | | 68.0 | 85.6 | | 93.2 | 84.4 | 75.4 | |
| 920 | 0.0246 | 0.0317 | 0.0449 | 0.142 | 0.2459 | | | | | | | | | | 67.5 | 85.3 | | 93.0 | 84.0 | 74.8 | |
| 900 | 0.0249 | 0.0321 | 0.0454 | 0.1435 | 0.2486 | | | | | | | | | | 67.0 | 85.0 | | 92.9 | 83.6 | 74.2 | |
| 880 | 0.0252 | 0.0324 | 0.0459 | 0.1451 | 0.2514 | | | | | | | | | | 66.4 | 84.7 | | 92.7 | 83.1 | 73.6 | |
| 860 | 0.0255 | 0.0328 | 0.0464 | 0.1468 | 0.2543 | | | | | | | | | | 65.9 | 84.4 | | 92.5 | 82.7 | 73.1 | |
| 840 | 0.0257 | 0.0332 | 0.0470 | 0.1486 | 0.2573 | | | | | | | | | | 65.3 | 84.1 | | 92.3 | 82.2 | 72.2 | |
| 820 | 0.0260 | 0.0336 | 0.0476 | 0.1504 | 0.2603 | | | | | | | | | | 64.7 | 83.8 | | 92.1 | 81.7 | 71.8 | |
| 800 | 0.0264 | 0.0340 | 0.0482 | 0.1523 | 0.2636 | | | | | | | | | | 64.0 | 83.4 | | 91.8 | 81.1 | 71.0 | |
| 780 | 0.0267 | 0.0345 | 0.0488 | 0.1542 | 0.2670 | | | | | | | | | | 63.3 | 83.0 | | 91.5 | 80.4 | 70.2 | |
| 760 | 0.0271 | 0.0349 | 0.0494 | 0.1562 | 0.2705 | | | | | | | | | | 62.5 | 82.6 | | 91.2 | 79.7 | 69.4 | |
| 740 | 0.0274 | 0.0354 | 0.0501 | 0.1583 | 0.2742 | | | | | | | | | | 61.9 | 82.2 | | 91.0 | 79.1 | 68.6 | |
| 720 | 0.0278 | 0.0359 | 0.0508 | 0.1604 | 0.2790 | | | | | | | | | | 61.0 | 81.8 | | 90.7 | 78.4 | 67.7 | |
| 700 | 0.0282 | 0.0364 | 0.0515 | 0.1628 | 0.2820 | | | | | | | | | | 60.1 | 81.3 | | 90.3 | 77.6 | 66.7 | |
| 690 | 0.0284 | 0.0367 | 0.0518 | 0.1640 | 0.2840 | | | | | | | | | | 59.7 | 81.1 | | 90.1 | 77.2 | 66.2 | |
| 680 | 0.0286 | 0.0369 | 0.0522 | 0.1652 | 0.2860 | | | | | | | | | | 59.2 | 80.8 | | 89.8 | 76.8 | 65.7 | |
| 670 | 0.0288 | 0.0372 | 0.0526 | 0.1664 | 0.2881 | | | | | | | | | | 58.8 | 80.6 | | 89.7 | 76.4 | 65.3 | |
| 660 | 0.0290 | 0.0375 | 0.0530 | 0.1676 | 0.2903 | | | | | | | | | | 58.3 | 80.3 | | 89.5 | 75.9 | 64.7 | |
| 650 | 0.0293 | 0.0378 | 0.0534 | 0.1689 | 0.2925 | 618 | 2.465 | 1.233 | 0.616 | | | | | | 57.8 | 80.0 | | 89.2 | 75.5 | 64.1 | 2180 |
| 640 | 0.0295 | 0.0381 | 0.0538 | 0.1702 | 0.2948 | 608 | 2.485 | 1.244 | 0.622 | | | | | | 57.3 | 79.8 | | 89.0 | 75.1 | 63.5 | 2145 |
| 630 | 0.0297 | 0.0383 | 0.0542 | 0.1716 | 0.2973 | 599 | 2.505 | 1.253 | 0.626 | | | | | | 56.8 | 79.5 | | 88.8 | 74.6 | 63.0 | 2105 |
| 620 | 0.0299 | 0.0387 | 0.0547 | 0.1730 | 0.2996 | 589 | 2.525 | 1.263 | 0.631 | | | | | | 56.3 | 79.2 | | 88.5 | 74.2 | 62.4 | 2070 |
| 610 | 0.0302 | 0.0390 | 0.0552 | 0.1744 | 0.3020 | 580 | 2.545 | 1.273 | 0.636 | | | | | | 55.7 | 78.9 | | 88.2 | 73.7 | 61.7 | 2030 |
| 600 | 0.0304 | 0.0393 | 0.0556 | 0.1758 | 0.3046 | 570 | 2.570 | 1.285 | 0.642 | | | | | | 55.2 | 78.6 | | 88.0 | 73.2 | 61.2 | 1995 |
| 590 | 0.0307 | 0.0397 | 0.0560 | 0.1773 | 0.3070 | 561 | 2.590 | 1.295 | 0.647 | | | | | | 54.7 | 78.4 | | 87.8 | 72.7 | 60.5 | 1955 |
| 580 | 0.0310 | 0.0399 | 0.0565 | 0.1788 | 0.3096 | 551 | 2.610 | 1.305 | 0.652 | | | | | | 54.1 | 78.0 | | 87.5 | 72.1 | 59.9 | 1920 |
| 570 | 0.0313 | 0.0403 | 0.0570 | 0.1803 | 0.3123 | 542 | 2.630 | 1.315 | 0.657 | | | | | | 53.6 | 77.8 | | 87.2 | 71.7 | 59.3 | 1880 |
| 560 | 0.0315 | 0.0407 | 0.0575 | 0.1820 | 0.3151 | 532 | 2.655 | 1.328 | 0.664 | | | | | | 53.0 | 77.4 | | 86.9 | 71.2 | 58.6 | 1845 |
| 550 | 0.0318 | 0.0411 | 0.0580 | 0.1837 | 0.3180 | 523 | 2.680 | 1.340 | 0.670 | | | | | | 52.3 | 77.0 | | 86.6 | 70.5 | 57.8 | 1810 |
| 540 | 0.0321 | 0.0415 | 0.0586 | 0.1853 | 0.3210 | 513 | 2.700 | 1.350 | 0.675 | | | | | | 51.7 | 76.7 | | 86.3 | 70.0 | 57.0 | 1775 |
| 530 | 0.0324 | 0.0419 | 0.0592 | 0.1870 | 0.3240 | 504 | 2.730 | 1.365 | 0.682 | | | | | | 51.1 | 76.4 | | 86.0 | 69.5 | 56.2 | 1740 |
| 520 | 0.0327 | 0.0423 | 0.0597 | 0.1888 | 0.3271 | 494 | 2.750 | 1.375 | 0.687 | | | | | | 50.5 | 76.1 | | 85.7 | 69.0 | 55.6 | 1700 |
| 510 | 0.033 | 0.0427 | 0.0603 | 0.1907 | 0.3303 | 485 | 2.780 | 1.390 | 0.695 | 1.615 | 0.808 | 0.404 | | | 49.8 | 75.7 | | 85.4 | 68.3 | 54.7 | 1665 |
| 500 | 0.0334 | 0.0431 | 0.0609 | 0.1926 | 0.3336 | 475 | 2.810 | 1.405 | 0.702 | 1.630 | 0.815 | 0.408 | | | 49.1 | 75.3 | | 85.0 | 67.7 | 53.9 | 1630 |
| 490 | 0.0337 | 0.0435 | 0.0615 | 0.1946 | 0.3370 | 466 | 2.830 | 1.415 | 0.707 | 1.653 | 0.827 | 0.414 | | | 48.4 | 74.9 | | 84.7 | 67.1 | 53.1 | 1595 |
| 480 | 0.0341 | 0.0439 | 0.0622 | 0.1966 | 0.3404 | 456 | 2.860 | 1.430 | 0.715 | 1.665 | 0.833 | 0.417 | | | 47.7 | 74.5 | | 84.3 | 66.4 | 52.2 | 1555 |
| 470 | 0.0344 | 0.0444 | 0.0628 | 0.1986 | 0.3440 | 447 | 2.890 | 1.445 | 0.722 | 1.680 | 0.840 | 0.420 | | | 46.9 | 74.1 | | 83.9 | 65.7 | 51.3 | 1520 |
| 460 | 0.0347 | 0.0449 | 0.0635 | 0.2008 | 0.3476 | 437 | 2.920 | 1.460 | 0.730 | 1.700 | 0.850 | 0.425 | | | 46.1 | 73.6 | | 83.6 | 64.9 | 50.4 | 1485 |
| 450 | 0.0352 | 0.0454 | 0.0642 | 0.2030 | 0.3513 | 428 | 2.950 | 1.475 | 0.737 | 1.720 | 0.860 | 0.430 | | | 45.3 | 73.3 | | 83.2 | 64.3 | 49.4 | 1455 |
| 440 | 0.0356 | 0.0459 | 0.0649 | 0.2054 | 0.3554 | 418 | 2.990 | 1.495 | 0.747 | 1.740 | 0.870 | 0.435 | | | 44.5 | 72.8 | | 82.8 | 63.5 | 48.4 | 1420 |
| 430 | 0.036 | 0.0465 | 0.0657 | 0.2078 | 0.3596 | 409 | 3.020 | 1.510 | 0.755 | 1.760 | 0.880 | 0.440 | | | 43.6 | 72.3 | | 82.3 | 62.7 | 47.4 | 1385 |
| 420 | 0.0364 | 0.0470 | 0.0664 | 0.2102 | 0.3640 | 399 | 3.060 | 1.530 | 0.765 | 1.780 | 0.890 | 0.445 | | | 42.7 | 71.8 | | 81.8 | 61.9 | 46.4 | 1350 |
| 410 | 0.0368 | 0.0475 | 0.0672 | 0.2127 | 0.3685 | 390 | 3.090 | 1.545 | 0.772 | 1.800 | 0.900 | 0.450 | | | 41.8 | 71.4 | | 81.4 | 61.1 | 45.3 | 1320 |
| 400 | 0.0373 | 0.0481 | 0.0681 | 0.2153 | 0.3730 | 380 | 3.130 | 1.565 | 0.782 | 1.820 | 0.910 | 0.455 | | | 40.8 | 70.8 | | 80.8 | 60.2 | 44.1 | 1290 |
| 390 | 0.0378 | 0.0487 | 0.0689 | 0.2180 | 0.3777 | 371 | 3.165 | 1.583 | 0.791 | 1.845 | 0.923 | 0.462 | | | 39.8 | 70.3 | | 80.3 | 59.3 | 42.9 | 1255 |
| 380 | 0.0383 | 0.0494 | 0.0699 | 0.2210 | 0.3825 | 361 | 3.210 | 1.605 | 0.802 | 1.870 | 0.935 | 0.468 | | | 38.8 | 69.8 | | 79.8 | 58.4 | 41.7 | 1220 |
| 370 | 0.0388 | 0.0501 | 0.0708 | 0.2240 | 0.3877 | 352 | 3.250 | 1.625 | 0.812 | 1.890 | 0.945 | 0.473 | | | 37.7 | 69.2 | | 79.2 | 57.4 | 40.4 | 1190 |
| 360 | 0.0393 | 0.0507 | 0.0718 | 0.2270 | 0.3930 | 342 | 3.295 | 1.648 | 0.824 | 1.920 | 0.960 | 0.480 | | | 36.6 | 68.7 | | 78.6 | 56.4 | 39.1 | 1155 |
| 350 | 0.0399 | 0.0515 | 0.0728 | 0.2303 | 0.3985 | 333 | 3.340 | 1.670 | 0.835 | 1.945 | 0.973 | 0.487 | | | 35.5 | 68.1 | | 78.0 | 55.4 | 37.8 | 1125 |
| 340 | 0.0405 | 0.0522 | 0.0739 | 0.2336 | 0.4045 | 323 | 3.390 | 1.695 | 0.847 | 1.980 | 0.990 | 0.495 | | | 34.4 | 67.6 | | 77.4 | 54.4 | 36.5 | 1095 |
| 330 | 0.0411 | 0.0530 | 0.0750 | 0.2370 | 0.4105 | 314 | 3.435 | 1.718 | 0.859 | 2.000 | 1.000 | 0.500 | | | 33.3 | 67.0 | | 76.8 | 53.6 | 35.2 | 1060 |
| 320 | 0.0417 | 0.0538 | 0.0761 | 0.2406 | 0.4170 | 304 | 3.490 | 1.745 | 0.872 | 2.042 | 1.021 | 0.511 | | | 32.2 | 66.4 | | 76.2 | 52.3 | 33.9 | 1030 |
| 310 | 0.0423 | 0.0547 | 0.0773 | 0.2446 | 0.4235 | 295 | 3.540 | 1.770 | 0.885 | 2.072 | 1.036 | 0.518 | | | 31.0 | 65.8 | | 75.6 | 51.3 | 32.5 | 995 |
| 300 | 0.0431 | 0.0556 | 0.0786 | 0.2487 | 0.4305 | 285 | 3.600 | 1.800 | 0.900 | 2.100 | 1.050 | 0.525 | | | 29.8 | 65.2 | | 74.9 | 50.2 | 31.1 | 965 |
| 295 | 0.0434 | 0.0561 | 0.0793 | 0.2506 | 0.4340 | 280 | 3.630 | 1.815 | 0.907 | 2.120 | 1.060 | 0.530 | | | 29.2 | 64.8 | | 74.6 | 49.7 | 30.4 | 950 |
| 290 | 0.0438 | 0.0565 | 0.0799 | 0.2526 | 0.4380 | 276 | 3.655 | 1.828 | 0.914 | 2.135 | 1.068 | 0.534 | | | 28.5 | 64.5 | 105 | 74.2 | 49.0 | 29.5 | 930 |
| 285 | 0.0442 | 0.0570 | 0.0806 | 0.2550 | 0.4420 | 271 | 3.690 | 1.845 | 0.922 | 2.155 | 1.078 | 0.539 | | | 27.8 | 64.2 | | 73.8 | 48.4 | 28.7 | 915 |
| 280 | 0.0446 | 0.0575 | 0.0814 | 0.2575 | 0.4460 | 266 | 3.720 | 1.860 | 0.930 | 2.175 | 1.088 | 0.544 | | | 27.1 | 63.8 | 104 | 73.4 | 47.8 | 27.9 | 900 |
| 275 | 0.0450 | 0.0581 | 0.0821 | 0.2595 | 0.4500 | 261 | 3.755 | 1.878 | 0.939 | 2.195 | 1.098 | 0.549 | | | 26.4 | 63.5 | | 73.0 | 47.2 | 27.1 | 880 |
| 270 | 0.0454 | 0.0584 | 0.0828 | 0.2620 | 0.4540 | 257 | 3.780 | 1.890 | 0.945 | 2.210 | 1.108 | 0.554 | | | 25.6 | 63.1 | 102 | 72.6 | 46.4 | 26.2 | 865 |
| 265 | 0.0458 | 0.0592 | 0.0836 | 0.2645 | 0.4580 | 252 | 3.820 | 1.910 | 0.955 | 2.235 | 1.118 | 0.559 | | | 24.8 | 62.7 | | 72.1 | 45.7 | 25.2 | 850 |
| 260 | 0.0463 | 0.0597 | 0.0844 | 0.2670 | 0.4625 | 247 | 3.855 | 1.928 | 0.964 | 2.255 | 1.128 | 0.564 | | | 24.0 | 62.4 | 101 | 71.6 | 45.0 | 24.3 | 835 |
| 255 | 0.0467 | 0.0603 | 0.0853 | 0.2695 | 0.4670 | 242 | 3.890 | 1.945 | 0.972 | 2.280 | 1.140 | 0.570 | 1.618 | 0.809 | 23.1 | 62.0 | | 71.1 | 44.2 | 23.2 | 820 |
| 250 | 0.0472 | 0.0609 | 0.0862 | 0.2725 | 0.4720 | 238 | 3.925 | 1.963 | 0.981 | 2.295 | 1.148 | 0.574 | 1.630 | 0.815 | 22.2 | 61.6 | 99.5 | 70.6 | 43.4 | 22.2 | 800 |
| 245 | 0.0477 | 0.0615 | 0.0870 | 0.2750 | 0.4770 | 233 | 3.975 | 1.988 | 0.994 | 2.320 | 1.160 | 0.580 | 1.648 | 0.824 | 21.3 | 61.2 | | 70.1 | 42.5 | 21.1 | 785 |
| 240 | 0.0481 | 0.0622 | 0.0879 | 0.2780 | 0.4820 | 228 | 4.010 | 2.005 | 1.002 | 2.345 | 1.173 | 0.586 | 1.665 | 0.833 | 20.3 | 60.7 | 98.1 | 69.6 | 41.7 | 19.9 | 770 |
| 235 | 0.0487 | 0.0628 | 0.0888 | 0.2810 | 0.4870 | 223 | 4.050 | 2.025 | 1.012 | 2.370 | 1.185 | 0.593 | 1.682 | 0.841 | | | | | | | 755 |
| 230 | 0.0492 | 0.0635 | 0.0898 | 0.2840 | 0.4920 | 219 | 4.080 | 2.040 | 1.020 | 2.395 | 1.198 | 0.599 | 1.700 | 0.850 | | | 96.7 | | | | 740 |
| 225 | 0.0497 | 0.0642 | 0.0908 | 0.2870 | 0.4970 | 214 | 4.130 | 2.065 | 1.032 | 2.420 | 1.210 | 0.605 | 1.720 | 0.860 | | | 96.0 | | | | 720 |
| 220 | 0.0503 | 0.0649 | 0.0918 | 0.2905 | 0.5030 | 209 | 4.180 | 2.090 | 1.045 | 2.450 | 1.225 | 0.613 | 1.740 | 0.870 | | | 95.0 | | | | 705 |
| 215 | 0.0509 | 0.0656 | 0.0928 | 0.2940 | 0.5090 | 204 | 4.220 | 2.110 | 1.055 | 2.480 | 1.240 | 0.620 | 1.760 | 0.880 | | | 94.0 | | | | 690 |
| 210 | 0.0515 | 0.0664 | 0.0939 | 0.2975 | 0.5150 | 199 | 4.270 | 2.135 | 1.067 | 2.510 | 1.255 | 0.628 | 1.780 | 0.890 | | | 93.5 | | | | 675 |
| 205 | 0.0521 | 0.0672 | 0.0951 | 0.3010 | 0.5210 | 195 | 4.320 | 2.160 | 1.080 | 2.535 | 1.268 | 0.634 | 1.795 | 0.898 | | | 92.5 | | | | 660 |
| 200 | 0.0528 | 0.0681 | 0.0963 | 0.0345 | 0.5270 | 190 | 4.370 | 2.185 | 1.092 | 2.570 | 1.285 | 0.643 | 1.822 | 0.911 | | | 91.5 | | | | 640 |
| 195 | 0.0534 | 0.0690 | 0.0975 | 0.3085 | 0.5340 | 185 | 4.420 | 2.210 | 1.105 | 2.600 | 1.300 | 0.650 | 1.845 | 0.923 | | | | | | | 625 |
| 190 | 0.0541 | 0.0698 | 0.0988 | 0.3125 | 0.5410 | 181 | 4.470 | 2.235 | 1.117 | 2.630 | 1.315 | 0.658 | 1.865 | 0.933 | | | 89.5 | | | | 610 |
| 185 | 0.0548 | 0.0708 | 0.1001 | 0.3165 | 0.5485 | 176 | 4.530 | 2.265 | 1.132 | 2.665 | 1.333 | 0.667 | 1.895 | 0.948 | | | | | | | 595 |
| 180 | 0.0556 | 0.0717 | 0.1015 | 0.3210 | 0.5560 | 171 | 4.590 | 2.295 | 1.147 | 2.700 | 1.350 | 0.675 | 1.920 | 0.960 | | | 87.1 | | | | 575 |
| 175 | 0.0564 | 0.0727 | 0.1030 | 0.3255 | 0.5640 | 166 | 4.660 | 2.330 | 1.165 | 2.740 | 1.370 | 0.685 | 1.950 | 0.975 | | | | | | | 560 |
| 170 | 0.0572 | 0.0739 | 0.1045 | 0.3300 | 0.5720 | 162 | 4.710 | 2.355 | 1.177 | 2.780 | 1.390 | 0.695 | 1.970 | 0.985 | | | 85.0 | | | | 545 |
| 165 | 0.0580 | 0.0750 | 0.1061 | 0.3350 | 0.5805 | 156 | 4.800 | 2.400 | 1.200 | 2.830 | 1.415 | 0.708 | 2.010 | 1.005 | | | | | | | 530 |
| 160 | 0.0590 | 0.0762 | 0.1077 | 0.3400 | 0.5895 | 147 | 4.860 | 2.430 | 1.215 | 2.860 | 1.430 | 0.715 | 2.035 | 1.018 | | | 81.7 | | | | 510 |
| 155 | 0.0600 | 0.0772 | 0.1094 | 0.3460 | 0.5985 | 147 | 4.930 | 2.465 | 1.232 | 2.910 | 1.455 | 0.728 | 2.070 | 1.035 | | | | | | | 495 |
| 150 | 0.0610 | 0.0785 | 0.1112 | 0.3520 | 0.6085 | 143 | 5.000 | 2.500 | 1.250 | 2.950 | 1.475 | 0.738 | 2.100 | 1.050 | | | 78.7 | | | | 480 |
| 145 | 0.0620 | 0.0800 | 0.1131 | 0.3580 | 0.6195 | 138 | 5.080 | 2.540 | 1.270 | 3.000 | 1.500 | 0.750 | 2.135 | 1.068 | | | | | | | 465 |
| 140 | 0.0630 | 0.0815 | 0.1151 | 0.3640 | 0.6305 | 133 | 5.160 | 2.580 | 1.290 | 3.060 | 1.530 | 0.765 | 2.175 | 1.088 | | | 75.0 | | | | 450 |
| 135 | 0.0642 | 0.0830 | 0.1172 | 0.3710 | 0.6420 | 128 | 5.260 | 2.630 | 1.315 | 3.120 | 1.560 | 0.780 | 2.220 | 1.110 | | | | | | | 430 |
| 130 | 0.0654 | 0.0845 | 0.1194 | 0.3780 | 0.6540 | 124 | 5.340 | 2.670 | 1.335 | 3.160 | 1.580 | 0.790 | 2.250 | 1.125 | | | 71.2 | | | | 415 |
| 125 | 0.0668 | 0.0860 | 0.1218 | 0.3855 | 0.6670 | 119 | 5.440 | 2.720 | 1.360 | 3.230 | 1.615 | 0.808 | 2.300 | 1.150 | | | | | | | 400 |
| 120 | 0.0682 | 0.0880 | 0.1243 | 0.3935 | 0.6810 | 114 | 5.540 | 2.770 | 1.385 | 3.300 | 1.650 | 0.825 | 2.350 | 1.175 | | | 66.7 | | | | 385 |
| 115 | 0.0696 | 0.0897 | 0.1270 | 0.4015 | 0.6960 | 109 | 5.660 | 2.830 | 1.415 | 3.370 | 1.685 | 0.843 | 2.400 | 1.200 | | | | | | | 370 |
| 110 | 0.0710 | 0.0920 | 0.1298 | 0.4105 | 0.7115 | 105 | 5.760 | 2.880 | 1.440 | 3.430 | 1.715 | 0.858 | 2.440 | 1.220 | | | 62.3 | | | | 350 |
| 105 | 0.0727 | 0.0940 | 0.1328 | 0.4200 | 0.7280 | 99.8 | 5.880 | 2.940 | 1.470 | 3.515 | 1.758 | 0.879 | 2.505 | 1.253 | | | | | | | 335 |
| 100 | 0.0745 | 0.0963 | 0.1361 | 0.4300 | 0.7455 | 95 | 6.014 | 3.007 | 1.504 | 3.600 | 1.800 | 0.900 | 2.562 | 1.281 | | | 56.2 | | | | 320 |
| 95 | 0.0765 | 0.0987 | 0.1397 | 0.4418 | 0.7653 | 90.2 | 6.150 | 3.075 | 1.538 | 3.690 | 1.845 | 0.923 | 2.635 | 1.318 | | | 52.0 | | | | 305 |
| 90 | 0.0785 | 0.1015 | 0.1435 | 0.4540 | 0.7860 | 85.5 | 6.300 | 3.150 | 1.575 | 3.785 | 1.893 | 0.947 | 2.705 | 1.353 | | | 48.0 | | | | 285 |
| 85 | 0.0810 | 0.1045 | 0.1477 | 0.4670 | 0.8090 | 80.7 | 6.460 | 3.230 | 1.615 | 3.890 | 1.945 | 0.972 | 2.780 | 1.390 | | | 41.0 | | | | 270 |
| 80 | 0.0833 | 0.1075 | 0.1522 | 0.4815 | 0.8340 | 76 | 6.630 | 3.315 | 1.658 | 4.010 | 2.005 | 1.002 | 2.865 | 1.433 | | | | | | | 255 |

**Brinell and Vickers**
Permissible deviation according to ISO 6506 (Brinell) and ISO 6507 (Vickers) hardness value of the deviation in% Zulässige Grenzabweichung nach ISO 6506 (Brinell) und ISO 6507 (Vickers) Abweichung in % vom Härtewert

| 10% | 9% | 8% | 7% | 6% | 5% | 4% | 3% | 2.5% | 2% |
|---|---|---|---|---|---|---|---|---|---|

**Rockwell**
Permissi ble deviation for ISO 6508 Variation in hardness values + / - Zulässige Grenzabweichung nach ISO 6508 Abweichung in Härtewerten jeweils +/-

| 4 | 3 | 2 | 1.5 |
|---|---|---|---|

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## Rockwell Minimum Sample Thickness Probenmindestdicke

Hardness testing Härteprüfverfahren

| | Hardness value /Härtewert | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |
| HRC | - | 1.6 | 1.4 | 1.2 | 1 | 0.8 | 0.6 | - | - | - |
| HRA | - | - | - | - | 1 | 0.8 | 0.6 | 0.4 | 0.2 | - |
| HRD | - | - | - | 1.2 | 1 | 0.8 | 0.6 | 0.4 | - | - |
| HRB | - | - | - | 1.75 | 1.65 | 1.55 | 1.4 | 1.25 | 1.05 | 0.85 |
| HRF | - | - | - | - | 1.65 | 1.55 | 1.4 | 1.25 | 1.05 | 0.85 |
| HR15N | - | - | - | - | - | - | 0.3 | 0.2 | 0.1 | - |
| HR30N | - | - | - | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | - | - |
| HR45N | 0.9 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | - | - | - |
| HR15T | - | - | - | - | - | 0.7 | 0.55 | 0.4 | 0.2 | - |
| HR30T | - | 1.25 | 1.15 | 1 | 0.85 | 0.7 | 0.55 | 0.4 | - | - |
| HR45T | 1.4 | 1.25 | 1.15 | 1 | 0.85 | 0.7 | 0.55 | - | - | - |

Minimum sample thickness (mm)/Mindestprobendicke (mm)

## Vickers Minimum Sample Thickness Probenmindestdicke

Hardness testing Härteprüfverfahren

| | Hardness value /Härtewert | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 50 | 100 | 200 | 300 | 400 | 500 | 600 | 800 | 1000 | 1300 |
| HV0,2 | 0.13 | 0.09 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 |
| HV0,3 | 0.16 | 0.11 | 0.08 | 0.07 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 |
| HV0,5 | 0.2 | 0.15 | 0.1 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | 0.05 | 0.04 |
| HV 1 | 0.29 | 0.2 | 0.15 | 0.12 | 0.11 | 0.09 | 0.09 | 0.07 | 0.07 | 0.06 |
| HV2 | 0.41 | 0.29 | 0.21 | 0.18 | 0.15 | 0.13 | 0.12 | 0.11 | 0.09 | 0.08 |
| HV3 | 0.5 | 0.36 | 0.25 | 0.21 | 0.18 | 0.16 | 0.15 | 0.13 | 0.11 | 0.1 |
| HV5 | 0.65 | 0.46 | 0.33 | 0.27 | 0.23 | 0.21 | 0.19 | 0.17 | 0.15 | 0.13 |
| HV10 | 0.92 | 0.65 | 0.46 | 0.38 | 0.33 | 0.29 | 0.26 | 0.23 | 0.21 | 0.18 |
| HV20 | 1.3 | 0.92 | 0.65 | 0.53 | 0.46 | 0.41 | 0.38 | 0.33 | 0.29 | 0.26 |
| HV30 | 1.6 | 1.2 | 0.79 | 0.65 | 0.56 | 0.5 | 0.46 | 0.4 | 0.36 | 0.31 |
| HV50 | 2.1 | 1.5 | 1.1 | 0.84 | 0.73 | 0.65 | 0.59 | 0.51 | 0.44 | 0.4 |
| HV60 | 2.3 | 1.6 | 1.2 | 0.92 | 0.8 | 0.72 | 0.65 | 0.56 | 0.5 | 0.44 |
| HV100 | 2.9 | 2.1 | 1.5 | 1.2 | 1.1 | 0.92 | 0.84 | 0.73 | 0.65 | 0.57 |
| HV120 | 3.1 | 2.3 | 1.6 | 1.3 | 1.2 | 1 | 0.92 | 0.79 | 0.71 | 0.62 |

Minimum sample thickness (mm)/Mindestprobendicke (mm)

## Brinell Minimum Sample Thickness Probenmindestdicke

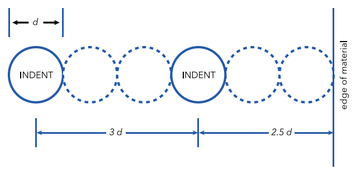
| | | Hardness value /Härtewert | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 40 | 60 | 80 | 100 | 150 | 200 | 300 | 400 | 500 |
| Ball / Kugel 1 mm | HB 1/2,5 | 0.2 | 0.13 | 0.1 | 0.08 | - | - | - | - | - |
| | HB 1/5 | 0.4 | 0.26 | 0.2 | 0.16 | 0.11 | - | - | - | - |
| | HB 1/10 | 0.8 | 0.52 | 0.4 | 0.32 | 0.22 | 0.16 | - | - | - |
| | HB 1/30 | - | - | - | 0.95 | 0.65 | 0.5 | 0.35 | 0.25 | 0.2 |
| Ball / Kugel 2.5 mm | HB 2,5/15,625 | 0.5 | 0.33 | 0.25 | 0.2 | - | - | - | - | - |
| | HB 2,5/31,25 | 1 | 0.66 | 0.5 | 0.4 | 0.26 | - | - | - | - |
| | HB 2,5/62,5 | 2 | 1.3 | 1 | 0.8 | 0.53 | 0.4 | - | - | - |
| | HB 2,5/187,5 | - | - | - | 2.4 | 1.6 | 1.2 | 0.8 | 0.6 | 0.48 |
| Ball / Kugel 5 mm | HB 5/62,5 | 1 | 0.66 | 0.5 | 0.4 | - | - | - | - | - |
| | HB 5/125 | 2 | 1.3 | 1 | 0.8 | 0.53 | - | - | - | - |
| | HB 5/250 | 4 | 2.65 | 2 | 1.6 | 1 | 0.8 | - | - | - |
| | HB 5/750 | - | - | - | 4.8 | 3.2 | 2.4 | 1.6 | 1.2 | 95 |
| Ball / Kugel 10 mm | HB 10/250 | 2 | 1.3 | 1 | 0.8 | - | - | - | - | - |
| | HB 10/500 | 4 | 2.65 | 2 | 1.6 | 1 | - | - | - | - |
| | HB 10/1000 | 8 | 5.3 | 4 | 3.2 | 2.1 | 1.6 | - | - | - |
| | HB 10/3000 | - | - | - | 9.6 | 6.3 | 4.58 | 3.2 | 2.4 | 1.9 |

Minimum sample thickness (mm)/Mindestprobendicke (mm)

## Proper Indent Spacing

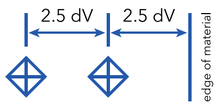
### Rockwell & Brinell

**According to ASTM and ISO Standards:**



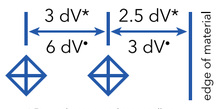

### Vickers

**According to ASTM Standards:**




dV= Vickers Diagonal

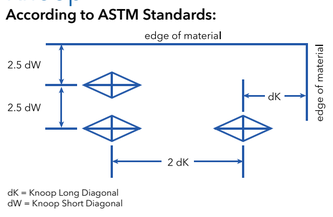
**According to ISO Standards:**




* For steel, copper and copper alloys
• For light metals, lead, tin and their alloys

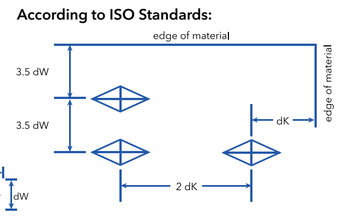
### Knoop

**According to ASTM Standards:**




dK = Knoop Long Diagonal
dW = Knoop Short Diagonal

**According to ISO Standards:**



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