



Product Table: High Performance Spotting Drills

| Material Guide | | Hardness | SFM | Chip Load (IPR) By Drill Diameter | | | | | | |
|--|--|------------------------|---------|-----------------------------------|--------|--------|--------|--------|--------|--------|
| | | | | 1/8 | 3/16 | 1/4 | 3/8 | 1/2 | 5/8 | 3/4 |
| Carbon Steel | 10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36 | 29-37 Rc (279-344 HBn) | 240 | .00270 | .00404 | .00540 | .00810 | .01080 | .01350 | .01620 |
| Low Alloy Steel | 13XX, 41XX, 43XX, 51XX, 86XX, 93XX | 29-37 Rc (279-344 HBn) | 150 | .00295 | .00442 | .00591 | .00886 | .01181 | .01477 | .01772 |
| Tool Steel | A, L, O, P, W series | 29-37 Rc (279-344 HBn) | 125 | .00270 | .00404 | .00540 | .00810 | .01080 | .01350 | .01620 |
| | | 38-45 Rc (353-421 HBn) | 100 | .00180 | .00269 | .00360 | .00540 | .00720 | .00900 | .01080 |
| | D, H, M, T, S series | 29-37 Rc (279-344 HBn) | 90 | .00169 | .00252 | .00338 | .00506 | .00675 | .00844 | .01013 |
| | | 38-45 Rc (353-421 HBn) | 75 | .00113 | .00168 | .00225 | .00338 | .00450 | .00563 | .00675 |
| Austenitic Stainless Steel | Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347 | 29-37 Rc (279-344 HBn) | 180 | .00295 | .00442 | .00591 | .00886 | .01181 | .01477 | .01772 |
| Martensitic & Ferritic Stainless Steel | 403, 410, 416, 420, 440, 430, 446 | 29-37 Rc (279-344 HBn) | 150 | .00270 | .00404 | .00540 | .00810 | .01080 | .01350 | .01620 |
| | | 38-45 Rc (353-421 HBn) | 100 | .00180 | .00269 | .00360 | .00540 | .00720 | .00900 | .01080 |
| PH Stainless Steel | 15-5, 17-4, Carpenter 450, Carpenter 465 | 29-37 Rc (279-344 HBn) | 125 | .00169 | .00252 | .00338 | .00506 | .00675 | .00844 | .01013 |
| | | 38-45 Rc (353-421 HBn) | 90 | .00113 | .00168 | .00225 | .00338 | .00450 | .00563 | .00675 |
| Nickel Alloy | Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20 | 29-37 Rc (279-344 HBn) | 70 | .00169 | .00252 | .00338 | .00506 | .00675 | .00844 | .01013 |
| | | 38-45 Rc (353-421 HBn) | 50 | .00113 | .00168 | .00225 | .00338 | .00450 | .00563 | .00675 |
| Titanium Alloy | Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al | 29-37 Rc (279-344 HBn) | 100 | .00169 | .00252 | .00338 | .00506 | .00675 | .00844 | .01013 |
| | | 38-45 Rc (353-421 HBn) | 75 | .00113 | .00168 | .00225 | .00338 | .00450 | .00563 | .00675 |
| Wrought Aluminum Alloy | 2014, 5062, 6061, 7050, 7075, 7475 | ≤ 28 Rc (≤ 271 HBn) | 600 | .00338 | .00505 | .00675 | .01013 | .01350 | .01688 | .02025 |
| | 5% - 8% Si (4XXX) | | 600 | .00304 | .00454 | .00608 | .00911 | .01215 | .01519 | .01823 |
| | 8% - 12% Si (4XXX) | | 480 | | | | | | | |
| Cast Aluminum Alloy | 319.0, 328.0, 355.0, 360.0, 380.0, 383.0, 390.0, 520.0, 535.0 | ≤ 28 Rc (≤ 271 HBn) | 450 | .00338 | .00505 | .00675 | .01013 | .01350 | .01688 | .02025 |
| | 3% - 5% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX) | | 450 | | | | | | | |
| | 5% - 8% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX) | | 420 | | | | | | | |
| | 8% - 12% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX) | | 390 | | | | | | | |
| | 12% - 16% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX) | | 350 | | | | | | | |
| Copper Alloy | Cu-ETP, CuBe2, CuZn30, CuZn36Pb3, CuZn10, CuSn5 | ≤ 28 Rc (≤ 271 HBn) | 170-400 | .00270 | .00404 | .00540 | .00810 | .01080 | .01350 | .01620 |
| Magnesium Alloys | | ≤ 28 Rc (≤ 271 HBn) | 900 | .00338 | .00505 | .00675 | .01013 | .01350 | .01688 | .02025 |
| Zinc Alloys | | 480 | | | | | | | | |

General Notes:

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. Chip loads reflect uncoated cutters and may be increased 10%-20% if coated. For ferrous materials with hardness ≤ 28 Rc, chip loads can be increased 10%-20%. If you require additional information, Valor Holemaking has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **866-840-1505** or **Valortech@harveyperformance.com**.

WARNING: Cutting tools may shatter under improper use. Government regulations require use of safety glasses and other appropriate safety equipment in the vicinity of use.