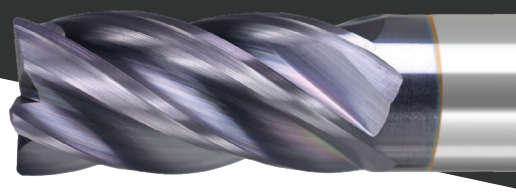
CASTELAR TOOL

# PERFECT PITCH 5F

## SPEEDS AND FEEDS

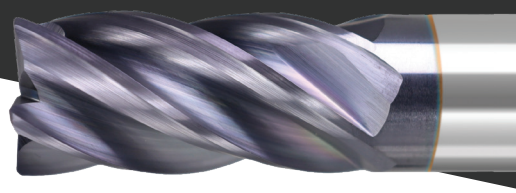


| | WORK MATERIAL | TYPE OF CUT | AXIAL DOC | RADIAL DOC | SFM | IPT | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 1/4" Ø | 3/8" Ø | 1/2" Ø |
| CARBON STEEL | LOW CARBON STEELS ≤ 38 HRc 10xx; 11xx; 12xx; 12Lxx, 15xx | Slotting | ≤1 x D | 1 x D | 255-305 | 0.0006-0.001 | 0.0009-0.0015 | 0.0012-0.002 |
| | | Roughing | ≤1.5 x D | <.5 x D | 325-380 | 0.0012-0.002 | 0.0013-0.0022 | 0.0018-0.003 |
| | | Adaptive | ≤2 x D | <.2 x D | 405-475 | 0.0015-0.0025 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Finishing | ≤1.5 x D | <.15 x D | 370-435 | 0.0011-0.0018 | 0.0013-0.0021 | 0.0015-0.0025 |
| | MEDIUM CARBON STEELS ≤ 38 HRc 13xx; 41xx; 43xx; 86xx, 92xx; 93xx; Chromoly | Slotting | ≤1 x D | 1 x D | 245-290 | 0.0004-0.0007 | 0.0006-0.001 | 0.001-0.0017 |
| | | Roughing | ≤1.5 x D | <.5 x D | 310-360 | 0.0006-0.001 | 0.0009-0.0015 | 0.0017-0.0028 |
| | | Adaptive | ≤2 x D | <.2 x D | 385-450 | 0.0012-0.002 | 0.0012-0.002 | 0.0018-0.003 |
| | | Finishing | ≤1.5 x D | <.15 x D | 350-415 | 0.0008-0.0013 | 0.0011-0.0018 | 0.0012-0.002 |
| TOOL STEEL | TOOL & DIE STEELS ≤ 38 HRc A2; A3; D2; H11; H13; M1; O-1; S-7; NAK 55 | Slotting | ≤1 x D | 1 x D | 195-230 | 0.0005-0.0008 | 0.0007-0.0012 | 0.001-0.0017 |
| | | Roughing | ≤1.5 x D | <.5 x D | 240-285 | 0.0006-0.001 | 0.0012-0.002 | 0.0017-0.0028 |
| | | Adaptive | ≤2 x D | <.2 x D | 305-355 | 0.0011-0.0018 | 0.0012-0.002 | 0.0018-0.003 |
| | | Finishing | ≤1.5 x D | <.15 x D | 280-330 | 0.0007-0.0012 | 0.0011-0.0018 | 0.0012-0.002 |
| | TOOL & DIE STEELS 39 to 48 HRc P20; P21; S-136; PX-5; NAK 80 | Slotting | ≤.75 x D | 1 x D | 95-115 | 0.0003-0.0005 | 0.0005-0.0008 | 0.0006-0.001 |
| | | Roughing | ≤1.5 x D | <.2 x D | 125-145 | 0.0005-0.0009 | 0.0008-0.0014 | 0.0011-0.0018 |
| | | Adaptive | ≤2 x D | <.1 x D | 150-180 | 0.0006-0.001 | 0.0011-0.0018 | 0.0015-0.0025 |
| | | Finishing | ≤1.5 x D | <.1 x D | 145-165 | 0.0006-0.001 | 0.0009-0.0015 | 0.0012-0.002 |
| STAINLESS STEEL | MARTENSITIC 72 - 85 HRb 410; 416; 420; 430F; | Slotting | ≤1 x D | 1 x D | 195-230 | 0.0005-0.0009 | 0.0007-0.0012 | 0.001-0.0016 |
| | | Roughing | ≤1.25 x D | .3 x D | 245-290 | 0.0009-0.0015 | 0.0012-0.002 | 0.0018-0.003 |
| | | Adaptive | ≤2 x D | .15 x D | 310-365 | 0.0012-0.002 | 0.0018-0.003 | 0.0024-0.004 |
| | | Finishing | ≤1.5 x D | <.15 x D | 285-335 | 0.0011-0.0018 | 0.0013-0.0022 | 0.0016-0.0026 |
| | AUSTENETIC 79-85 HRb 25-41 HRc 304; 304L; 316; 316L; | Slotting | ≤1 x D | 1 x D | 180-210 | 0.0005-0.0009 | 0.0008-0.0013 | 0.0011-0.0018 |
| | | Roughing | ≤1.25 x D | .3 x D | 220-260 | 0.0009-0.0015 | 0.0012-0.002 | 0.0018-0.003 |
| | | Adaptive | ≤2 x D | .1 x D | 275-325 | 0.0012-0.002 | 0.0015-0.0025 | 0.0024-0.004 |
| | | Finishing | ≤1.5 x D | <.1 x D | 255-300 | 0.0008-0.0013 | 0.0011-0.0018 | 0.0014-0.0023 |
| | DIFFICULT TO MACHINE 31 - 50 HRc 13-8 PH; 15-5 PH; 17-4 PH; Carpenter; Custo 465; Invar | Slotting | ≤.75 x D | 1 x D | 135-160 | 0.0004-0.0006 | 0.0006-0.001 | 0.0007-0.0012 |
| | | Roughing | ≤1.25 x D | .3 x D | 170-200 | 0.0007-0.0011 | 0.001-0.0016 | 0.0013-0.0021 |
| | | Adaptive | ≤1.5 x D | .1 x D | 215-250 | 0.0009-0.0015 | 0.0011-0.0018 | 0.0015-0.0025 |
| | | Finishing | ≤1.5 x D | <.1 x D | 195-230 | 0.0007-0.0012 | 0.001-0.0016 | 0.0011-0.0019 |
| CAST IRON | GRAY 100 - 200 HRb | Slotting | ≤1 x D | 1 x D | 255-305 | 0.0008-0.0013 | 0.0011-0.0018 | 0.0015-0.0025 |
| | | Roughing | ≤1.5 x D | .5 x D | 325-380 | 0.0011-0.0018 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Adaptive | ≤2 x D | .2 x D | 405-475 | 0.0013-0.0022 | 0.0021-0.0035 | 0.0024-0.004 |
| | | Finishing | ≤1.5 x D | <.15 x D | 370-435 | 0.0011-0.0018 | 0.0013-0.0021 | 0.0021-0.0035 |
| | DUCTILE 150 - 300 HRb | Slotting | ≤1 x D | 1 x D | 170-200 | 0.0005-0.0008 | 0.0008-0.0013 | 0.001-0.0017 |
| | | Roughing | ≤1.5 x D | .5 x D | 210-245 | 0.0008-0.0013 | 0.0013-0.0022 | 0.0018-0.003 |
| | | Adaptive | ≤2 x D | .2 x D | 260-310 | 0.0011-0.0018 | 0.0017-0.0028 | 0.0021-0.0035 |
| | | Finishing | ≤1.5 x D | <.15 x D | 240-285 | 0.0009-0.0015 | 0.0015-0.0025 | 0.0017-0.0028 |
| | MALLEABLE 150 - 310 HRb | Slotting | ≤.75 x D | 1 x D | 230-265 | 0.0005-0.0008 | 0.0008-0.0013 | 0.001-0.0017 |
| | | Roughing | ≤1.5 x D | .5 x D | 285-335 | 0.0008-0.0013 | 0.0013-0.0022 | 0.0018-0.003 |
| | | Adaptive | ≤2 x D | .2 x D | 355-420 | 0.0011-0.0018 | 0.0017-0.0028 | 0.0021-0.0035 |
| | | Finishing | ≤1.5 x D | <.15 x D | 325-380 | 0.0009-0.0015 | 0.0015-0.0025 | 0.0017-0.0028 |
| SUPER ALLOYS | PURE NICKEL 75 - 98 HRb Nickel 200, Nickel 201 | Roughing | ≤1.25 x D | .3 x D | 235-275 | 0.0012-0.002 | 0.0017-0.0028 | 0.0014-0.0024 |
| | | Adaptive | ≤1.5 x D | .1 x D | 280-330 | 0.0015-0.0025 | 0.0017-0.0033 | 0.0018-0.0036 |
| | | Finishing | ≤1.5 x D | <.1 x D | 270-315 | 0.0012-0.002 | 0.0018-0.003 | 0.0018-0.003 |
| | NICKEL ALLOY 75-98 HRb 21 - 36 HRc Hastelloy C-22 In | Roughing | ≤1.25 x D | .25 x D | 60-70 | 0.0005-0.0008 | 0.0008-0.0014 | 0.0011-0.0018 |
| | | Adaptive | ≤1.5 x D | .1 x D | 70-85 | 0.0006-0.001 | 0.0011-0.0018 | 0.0013-0.0022 |
| | | Finishing | ≤1.5 x D | <.1 x D | 70-80 | 0.0005-0.0008 | 0.0009-0.0015 | 0.0012-0.002 |
| | PURE TITANIUM 75 - 98 HRb 25 - 36 HRc | Roughing | ≤1.25 x D | .3 x D | 215-250 | 0.0013-0.0022 | 0.0018-0.003 | 0.0024-0.004 |
| | | Adaptive | ≤1.5 x D | .1 x D | 255-300 | 0.0016-0.0026 | 0.0022-0.0036 | 0.0029-0.0048 |
| | | Finishing | ≤1.5 x D | <.1 x D | 245-290 | 0.0013-0.0022 | 0.0015-0.0025 | 0.0018-0.003 |
| | TITANIUM ALLOYS 21 - 36 HRc Ti 6Al-4V Ti 10V-2Fe-3Al | Roughing | ≤1.25 x D | .25 x D | 140-165 | 0.0006-0.001 | 0.0011-0.0018 | 0.0014-0.0023 |
| | | Adaptive | ≤1.5 x D | .1 x D | 170-200 | 0.001-0.0016 | 0.0015-0.0025 | 0.0018-0.003 |
| | | Finishing | ≤1.5 x D | <.1 x D | 160-190 | 0.0008-0.0013 | 0.0011-0.0019 | 0.0012-0.002 |
| | COBALT ALLOY 75 - 98 HRb 21 - 36 HRc ASTM F562 , | Roughing | ≤1.25 x D | .25 x D | 150-175 | 0.0006-0.001 | 0.001-0.0016 | 0.0012-0.002 |
| | | Adaptive | ≤1.5 x D | .1 x D | 180-210 | 0.0009-0.0015 | 0.0012-0.002 | 0.0015-0.0025 |
| | | Finishing | ≤1.5 x D | <.1 x D | 170-200 | 0.0008-0.0013 | 0.0008-0.0014 | 0.0011-0.0019 |

CASTELAR TOOL

# PERFECT PITCH 5F

## SPEEDS AND FEEDS



| | WORK MATERIAL | TYPE OF CUT | AXIAL DOC | RADIAL DOC | SFM | 5/8" Ø | 3/4" Ø | 1" Ø |
|---|---|---|---|---|---|---|---|---|
| CARBON STEEL | LOW CARBON STEELS ≤ 38 HRc 10xx; 11xx; 12xx; 12Lxx, 15xx | Slotting | ≤1 x D | 1 x D | 255-305 | 0.0015-0.0025 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Roughing | ≤1.5 x D | <.5 x D | 325-380 | 0.0023-0.0038 | 0.0027-0.0045 | 0.003-0.005 |
| | | Adaptive | ≤2 x D | <.2 x D | 405-475 | 0.0026-0.0043 | 0.003-0.005 | 0.0036-0.006 |
| | | Finishing | ≤1.5 x D | <.15 x D | 370-435 | 0.0017-0.0028 | 0.0018-0.003 | 0.0018-0.003 |
| | MEDIUM CARBON STEELS ≤ 38 HRc 13xx; 41xx; 43xx; 86xx, 92xx; 93xx; Chromoly | Slotting | ≤1 x D | 1 x D | 245-290 | 0.001-0.0017 | 0.001-0.0017 | 0.0012-0.002 |
| | | Roughing | ≤1.5 x D | <.5 x D | 310-360 | 0.0018-0.0029 | 0.0018-0.003 | 0.0024-0.004 |
| | | Adaptive | ≤2 x D | <.2 x D | 385-450 | 0.0021-0.0035 | 0.0024-0.004 | 0.003-0.005 |
| | | Finishing | ≤1.5 x D | <.15 x D | 350-415 | 0.0016-0.0026 | 0.0019-0.0032 | 0.0024-0.004 |
| TOOL STEEL | TOOL & DIE STEELS ≤ 38 HRc A2; A3; D2; H11; H13; M1; O-1; S-7; NAK 55 | Slotting | ≤1 x D | 1 x D | 195-230 | 0.001-0.0017 | 0.001-0.0017 | 0.0012-0.002 |
| | | Roughing | ≤1.5 x D | <.5 x D | 240-285 | 0.0018-0.0029 | 0.0018-0.003 | 0.0024-0.004 |
| | | Adaptive | ≤2 x D | <.2 x D | 305-355 | 0.0021-0.0035 | 0.0024-0.004 | 0.003-0.005 |
| | | Finishing | ≤1.5 x D | <.15 x D | 280-330 | 0.0016-0.0026 | 0.0019-0.0032 | 0.0024-0.004 |
| | TOOL & DIE STEELS 39 to 48 HRc P20; P21; S-136; PX-5; NAK 80 | Slotting | ≤.75 x D | 1 x D | 95-115 | 0.0008-0.0013 | 0.0009-0.0015 | 0.0011-0.0019 |
| | | Roughing | ≤1.5 x D | <.2 x D | 125-145 | 0.0013-0.0022 | 0.0015-0.0025 | 0.0021-0.0035 |
| | | Adaptive | ≤2 x D | <.1 x D | 150-180 | 0.0018-0.003 | 0.0021-0.0035 | 0.0024-0.004 |
| | | Finishing | ≤1.5 x D | <.1 x D | 145-165 | 0.0013-0.0022 | 0.0014-0.0023 | 0.0018-0.003 |
| STAINLESS STEEL | MARTENSITIC 72 - 85 HRb 410; 416; 420; 430F; | Slotting | ≤1 x D | 1 x D | 195-230 | 0.0013-0.0021 | 0.0015-0.0025 | 0.0018-0.003 |
| | | Roughing | ≤1.25 x D | .3 x D | 245-290 | 0.0021-0.0035 | 0.0024-0.004 | 0.0027-0.0045 |
| | | Adaptive | ≤2 x D | .15 x D | 310-365 | 0.0027-0.0045 | 0.003-0.005 | 0.0033-0.0055 |
| | | Finishing | ≤1.5 x D | <.15 x D | 285-335 | 0.0017-0.0027 | 0.0017-0.0028 | 0.0019-0.0032 |
| | AUSTENETIC 79-85 HRb 25-41 HRc 304; 304L; 316; 316L; | Slotting | ≤1 x D | 1 x D | 180-210 | 0.0013-0.0021 | 0.0014-0.0024 | 0.0018-0.003 |
| | | Roughing | ≤1.25 x D | .3 x D | 220-260 | 0.0021-0.0035 | 0.0024-0.004 | 0.0027-0.0045 |
| | | Adaptive | ≤2 x D | .1 x D | 275-325 | 0.0027-0.0045 | 0.003-0.005 | 0.0033-0.0055 |
| | | Finishing | ≤1.5 x D | <.1 x D | 255-300 | 0.0015-0.0025 | 0.0016-0.0027 | 0.0019-0.0032 |
| | DIFFICULT TO MA-CHINE 31 - 50 HRc 13-8 PH; 15-5 PH; 17-4 PH; Carpenter; Custo 465; Invar | Slotting | ≤.75 x D | 1 x D | 135-160 | 0.0009-0.0015 | 0.0011-0.0018 | 0.0013-0.0021 |
| | | Roughing | ≤1.25 x D | .3 x D | 170-200 | 0.0016-0.0026 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Adaptive | ≤1.5 x D | .1 x D | 215-250 | 0.0018-0.003 | 0.0021-0.0035 | 0.0024-0.004 |
| | | Finishing | ≤1.5 x D | <.1 x D | 195-230 | 0.0014-0.0023 | 0.0016-0.0026 | 0.0017-0.0028 |
| CAST IRON | GRAY 100 - 200 HRb | Slotting | ≤1 x D | 1 x D | 255-305 | 0.0017-0.0028 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Roughing | ≤1.5 x D | .5 x D | 325-380 | 0.0026-0.0044 | 0.0031-0.0052 | 0.0036-0.006 |
| | | Adaptive | ≤2 x D | .2 x D | 405-475 | 0.003-0.0049 | 0.0035-0.0058 | 0.0042-0.007 |
| | | Finishing | ≤1.5 x D | <.15 x D | 370-435 | 0.002-0.0033 | 0.0018-0.003 | 0.0021-0.0035 |
| | DUCTILE 150 - 300 HRb | Slotting | ≤1 x D | 1 x D | 170-200 | 0.0012-0.002 | 0.0013-0.0022 | 0.0018-0.003 |
| | | Roughing | ≤1.5 x D | .5 x D | 210-245 | 0.0021-0.0035 | 0.0024-0.004 | 0.0027-0.0045 |
| | | Adaptive | ≤2 x D | .2 x D | 260-310 | 0.0026-0.0043 | 0.003-0.005 | 0.0033-0.0055 |
| | | Finishing | ≤1.5 x D | <.15 x D | 240-285 | 0.0019-0.0032 | 0.0021-0.0035 | 0.0021-0.0035 |
| | MALLEABLE 150 - 310 HRb | Slotting | ≤.75 x D | 1 x D | 230-265 | 0.0012-0.002 | 0.0013-0.0022 | 0.0018-0.003 |
| | | Roughing | ≤1.5 x D | .5 x D | 285-335 | 0.0021-0.0035 | 0.0024-0.004 | 0.0027-0.0045 |
| | | Adaptive | ≤2 x D | .2 x D | 355-420 | 0.0026-0.0043 | 0.003-0.005 | 0.0033-0.0055 |
| | | Finishing | ≤1.5 x D | <.15 x D | 325-380 | 0.0019-0.0032 | 0.0021-0.0035 | 0.0021-0.0035 |
| SUPER ALLOYS | PURE NICKEL 75 - 98 HRb Nickel 200, Nickel 201 | Roughing | ≤1.25 x D | .3 x D | 235-275 | 0.0021-0.0035 | 0.0027-0.0045 | 0.0033-0.0055 |
| | | Adaptive | ≤1.5 x D | .1 x D | 280-330 | 0.0024-0.0043 | 0.003-0.005 | 0.0036-0.006 |
| | | Finishing | ≤1.5 x D | <.1 x D | 270-315 | 0.0018-0.003 | 0.0018-0.003 | 0.002-0.0034 |
| | NICKEL ALLOY 75-98 HRb 21 - 36 HRc Hastelloy C-22 In | Roughing | ≤1.25 x D | .25 x D | 60-70 | 0.0014-0.0023 | 0.0017-0.0028 | 0.002-0.0034 |
| | | Adaptive | ≤1.5 x D | .1 x D | 70-85 | 0.0016-0.0027 | 0.0019-0.0032 | 0.0023-0.0038 |
| | | Finishing | ≤1.5 x D | <.1 x D | 70-80 | 0.0014-0.0023 | 0.0015-0.0025 | 0.0018-0.003 |
| | PURE TITANIUM 75 - 98 HRb 25 - 36 HRc | Roughing | ≤1.25 x D | .3 x D | 215-250 | 0.0027-0.0045 | 0.003-0.005 | 0.0033-0.0055 |
| | | Adaptive | ≤1.5 x D | .1 x D | 255-300 | 0.0031-0.0052 | 0.0033-0.0055 | 0.0036-0.006 |
| | | Finishing | ≤1.5 x D | <.1 x D | 245-290 | 0.002-0.0033 | 0.0021-0.0035 | 0.0022-0.0037 |
| | TITANIUM ALLOYS 21 - 36 HRc Ti 6Al-4V Ti 10V-2Fe-3Al | Roughing | ≤1.25 x D | .25 x D | 140-165 | 0.0016-0.0027 | 0.0018-0.003 | 0.0021-0.0035 |
| | | Adaptive | ≤1.5 x D | .1 x D | 170-200 | 0.002-0.0033 | 0.0021-0.0035 | 0.0027-0.0045 |
| | | Finishing | ≤1.5 x D | <.1 x D | 160-190 | 0.0014-0.0023 | 0.0015-0.0025 | 0.0018-0.003 |
| | COBALT ALLOY 75 - 98 HRb 21 - 36 HRc ASTM F562 , | Roughing | ≤1.25 x D | .25 x D | 150-175 | 0.0014-0.0023 | 0.0016-0.0026 | 0.002-0.0033 |
| | | Adaptive | ≤1.5 x D | .1 x D | 180-210 | 0.0017-0.0028 | 0.0018-0.003 | 0.0025-0.0042 |
| | | Finishing | ≤1.5 x D | <.1 x D | 170-200 | 0.0013-0.0021 | 0.0014-0.0023 | 0.0017-0.0028 |