

Insert Selection Guide

| Material Group | Light Machining | | General Purpose | | Heavy Machining | |
|----------------|-----------------|--------|-----------------|--------|-----------------|--------|
| | Geometry | Grade | Geometry | Grade | Geometry | Grade |
| P1-P2 | ML | WP25PM | MM | WP40PM | MM | WP40PM |
| P3-P4 | ML | WP25PM | MM | WP25PM | MH | WP40PM |
| P5-P6 | ML | WP35CM | MM | WP35CM | MH | WP35CM |
| M1-M2 | ML | WP25PM | ML | WU35PM | MM | WU35PM |
| M3 | ML | WP25PM | MM | WU35PM | MM | WU35PM |
| K1-K2 | MH | WK15CM | MH | WK15CM | MH | WP20CM |
| K3 | MH | WK15PM | MH | WK15PM | MH | WP25PM |
| N1-N2 | ALP | WN25PM | ALP | WN25PM | ALP | WN25PM |
| N3 | ALP | WN25PM | ALP | WN25PM | ALP | WN25PM |
| S1-S2 | ML | WS30PM | MM | WS30PM | MM | WU35PM |
| S3 | ML | WS30PM | MM | WU35PM | MM | WU35PM |
| S4 | ML | WS30PM | MM | WU35PM | MM | WU35PM |
| H1 | MH | WP25PM | MH | WP20CM | - | - |

Recommended Starting Speeds [m/min]

| Material Group | 1 | 2 | 3 | WK15CM | | | WK15PM | | | WN25PM | | | WP20CM | | | WP25PM | | |
|----------------|---|---|---|--------|------------|-----|--------|------------|-----|--------|-------------|------|--------|------------|-----|--------|------------|------------|
| | | | | P | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | 660 | 580 |
| | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | 410 | 370 | 330 | 330 | 290 | 240 |
| | 5 | 6 | 1 | - | - | - | - | - | - | - | - | - | 370 | 330 | 305 | 305 | 260 | 210 |
| | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | 275 | 260 | 230 | 270 | 220 | 180 |
| | 5 | 6 | 1 | - | - | - | - | - | - | - | - | - | 330 | 300 | 275 | 220 | 205 | 180 |
| | 2 | 3 | 4 | - | - | - | - | - | - | - | - | - | 230 | 205 | 175 | 200 | 150 | 120 |
| M | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | 270 | 240 | 210 | 245 | 215 | 200 |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | 245 | 210 | 190 | 220 | 190 | 155 |
| | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | 190 | 175 | 150 | 170 | 145 | 115 |
| K | 1 | 2 | 3 | 505 | 460 | 410 | 325 | 295 | 260 | - | - | - | 430 | 390 | 355 | 275 | 245 | 220 |
| | 4 | 5 | 6 | 400 | 355 | 330 | 250 | 230 | 210 | - | - | - | 340 | 305 | 280 | 215 | 190 | 180 |
| | 1 | 2 | 3 | 335 | 300 | 275 | 210 | 190 | 175 | - | - | - | 290 | 260 | 240 | 180 | 160 | 145 |
| N | 1 | 2 | 3 | - | - | - | - | - | - | 1290 | 1135 | 1050 | - | - | - | - | - | - |
| | 4 | 5 | 6 | - | - | - | - | - | - | 1135 | 1050 | 910 | - | - | - | - | - | - |
| | 1 | 2 | 3 | - | - | - | - | - | - | 1135 | 1050 | 910 | - | - | - | - | - | - |
| S | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 50 | 40 | 30 |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 50 | 40 | 30 |
| | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | 60 | 50 | 30 |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | 85 | 60 | 40 |
| H | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | 170 | 140 | 115 | 145 | 110 | 85 |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

| Material Group | 1 | 2 | 3 | WP35CM | | | WP40PM | | | WS30PM | | | WS40PM | | | WU35PM | | |
|----------------|---|---|---|--------|------------|-----|--------|------------|------------|--------|------------|------------|--------|------------|------------|--------|------------|-----|
| | | | | P | 1 | 2 | 3 | 545 | 475 | 445 | 355 | 310 | 295 | 445 | 385 | 360 | - | - |
| | 4 | 5 | 6 | 335 | 305 | 275 | 300 | 260 | 215 | 365 | 325 | 265 | - | - | - | 265 | 230 | 190 |
| | 1 | 2 | 3 | 305 | 275 | 245 | 275 | 235 | 190 | 340 | 290 | 235 | - | - | - | 240 | 205 | 170 |
| | 4 | 5 | 6 | 230 | 210 | 190 | 245 | 205 | 160 | 300 | 245 | 200 | - | - | - | 215 | 180 | 145 |
| | 1 | 2 | 3 | 310 | 275 | 250 | 205 | 185 | 160 | 245 | 230 | 200 | 165 | 120 | 85 | 180 | 160 | 145 |
| | 4 | 5 | 6 | 190 | 160 | 130 | 180 | 140 | 110 | 220 | 170 | 130 | 140 | 100 | 60 | 155 | 120 | 95 |
| M | 1 | 2 | 3 | 245 | 220 | 185 | 235 | 205 | 185 | 270 | 240 | 220 | 315 | 225 | 140 | 205 | 180 | 160 |
| | 4 | 5 | 6 | 220 | 190 | 170 | 210 | 180 | 150 | 245 | 215 | 175 | 280 | 205 | 130 | 185 | 155 | 130 |
| | 1 | 2 | 3 | 175 | 155 | 140 | 155 | 140 | 110 | 185 | 160 | 125 | 230 | 165 | 105 | 140 | 120 | 95 |
| K | 1 | 2 | 3 | 355 | 320 | 290 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 4 | 5 | 6 | 280 | 250 | 230 | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1 | 2 | 3 | 235 | 210 | 190 | - | - | - | - | - | - | - | - | - | - | - | - |
| N | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| S | 1 | 2 | 3 | - | - | - | 50 | 40 | 35 | 55 | 50 | 35 | 75 | 55 | 35 | 40 | 35 | 30 |
| | 4 | 5 | 6 | - | - | - | 50 | 40 | 35 | 55 | 50 | 35 | 70 | 50 | 35 | 40 | 35 | 30 |
| | 1 | 2 | 3 | - | - | - | 60 | 50 | 35 | 65 | 55 | 35 | 80 | 55 | 35 | 55 | 40 | 30 |
| | 4 | 5 | 6 | 80 | 60 | 40 | 80 | 60 | 40 | 100 | 70 | 50 | 110 | 80 | 50 | 70 | 55 | 35 |
| H | 1 | 2 | 3 | - | - | - | - | - | - | 160 | 120 | 90 | - | - | - | - | - | - |
| | 4 | 5 | 6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | 1 | 2 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

NOTE: FIRST choice starting speeds are in **bold** type.
As the average chip thickness increases, the speed should be decreased.

Recommended Starting Feeds [mm]

At 6,00 Axial Depth of Cut (ap)

| | | |
|-----------------|-----------------|-----------------|
| Light Machining | General Purpose | Heavy Machining |
|-----------------|-----------------|-----------------|

| Insert Geometry | Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae) | | | | | | | | | | | | | | Insert Geometry | |
|-----------------|---|-------------|------|------|-------------|------|------|-------------|------|------|-------------|------|---------|-------------|-----------------|-----|
| | 5% | | | 10% | | | 20% | | | 30% | | | 40-100% | | | |
| ALP | 0,12 | 0,20 | 0,28 | 0,08 | 0,15 | 0,20 | 0,06 | 0,11 | 0,15 | 0,06 | 0,09 | 0,13 | 0,05 | 0,09 | 0,12 | ALP |
| ML | 0,12 | 0,18 | 0,32 | 0,09 | 0,13 | 0,23 | 0,07 | 0,10 | 0,18 | 0,06 | 0,08 | 0,15 | 0,05 | 0,08 | 0,14 | ML |
| MM | 0,28 | 0,51 | 0,84 | 0,21 | 0,37 | 0,61 | 0,15 | 0,28 | 0,45 | 0,13 | 0,24 | 0,39 | 0,12 | 0,22 | 0,36 | MM |
| MH | 0,46 | 0,70 | 1,02 | 0,33 | 0,50 | 0,73 | 0,25 | 0,38 | 0,55 | 0,22 | 0,33 | 0,48 | 0,20 | 0,30 | 0,44 | MH |

At 3,00 Axial Depth of Cut (ap)

| Insert Geometry | Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae) | | | | | | | | | | | | | | Insert Geometry | |
|-----------------|---|-------------|------|------|-------------|------|------|-------------|------|------|-------------|------|---------|-------------|-----------------|-----|
| | 5% | | | 10% | | | 20% | | | 30% | | | 40-100% | | | |
| ALP | 0,12 | 0,20 | 0,28 | 0,08 | 0,15 | 0,20 | 0,06 | 0,11 | 0,15 | 0,06 | 0,09 | 0,13 | 0,05 | 0,09 | 0,12 | ALP |
| ML | 0,14 | 0,20 | 0,37 | 0,10 | 0,15 | 0,27 | 0,08 | 0,11 | 0,20 | 0,07 | 0,10 | 0,18 | 0,06 | 0,09 | 0,16 | ML |
| MM | 0,33 | 0,59 | 0,97 | 0,24 | 0,43 | 0,70 | 0,18 | 0,32 | 0,52 | 0,16 | 0,28 | 0,45 | 0,14 | 0,25 | 0,42 | MM |
| MH | 0,54 | 0,81 | 1,18 | 0,39 | 0,58 | 0,85 | 0,29 | 0,43 | 0,63 | 0,25 | 0,38 | 0,55 | 0,23 | 0,35 | 0,51 | MH |

At 1,50 Axial Depth of Cut (ap)

| Insert Geometry | Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae) | | | | | | | | | | | | | | Insert Geometry | |
|-----------------|---|-------------|------|------|-------------|------|------|-------------|------|------|-------------|------|---------|-------------|-----------------|-----|
| | 5% | | | 10% | | | 20% | | | 30% | | | 40-100% | | | |
| ALP | 0,12 | 0,20 | 0,28 | 0,08 | 0,15 | 0,20 | 0,06 | 0,11 | 0,15 | 0,06 | 0,09 | 0,13 | 0,05 | 0,09 | 0,12 | ALP |
| ML | 0,18 | 0,27 | 0,49 | 0,13 | 0,19 | 0,35 | 0,10 | 0,15 | 0,26 | 0,09 | 0,13 | 0,23 | 0,08 | 0,12 | 0,21 | ML |
| MM | 0,43 | 0,77 | 1,28 | 0,31 | 0,56 | 0,92 | 0,23 | 0,42 | 0,68 | 0,20 | 0,36 | 0,60 | 0,19 | 0,33 | 0,55 | MM |
| MH | 0,70 | 1,06 | 1,56 | 0,51 | 0,76 | 1,12 | 0,38 | 0,57 | 0,83 | 0,33 | 0,50 | 0,72 | 0,30 | 0,45 | 0,66 | MH |

At 0,75 Axial Depth of Cut (ap)

| Insert Geometry | Programmed Feed per Tooth (fz) as a % of Radial Depth of Cut (ae) | | | | | | | | | | | | | | Insert Geometry | |
|-----------------|---|-------------|------|------|-------------|------|------|-------------|------|------|-------------|------|---------|-------------|-----------------|-----|
| | 5% | | | 10% | | | 20% | | | 30% | | | 40-100% | | | |
| ALP | 0,12 | 0,20 | 0,28 | 0,08 | 0,15 | 0,20 | 0,06 | 0,11 | 0,15 | 0,06 | 0,09 | 0,13 | 0,05 | 0,09 | 0,12 | ALP |
| ML | 0,25 | 0,37 | 0,67 | 0,18 | 0,27 | 0,48 | 0,14 | 0,20 | 0,36 | 0,12 | 0,17 | 0,32 | 0,11 | 0,16 | 0,29 | ML |
| MM | 0,59 | 1,06 | 1,77 | 0,43 | 0,76 | 1,26 | 0,32 | 0,57 | 0,94 | 0,28 | 0,50 | 0,81 | 0,25 | 0,45 | 0,75 | MM |
| MH | 0,96 | 1,46 | 2,16 | 0,69 | 1,04 | 1,53 | 0,52 | 0,78 | 1,14 | 0,45 | 0,68 | 0,99 | 0,41 | 0,62 | 0,90 | MH |

NOTE: Use "Light Machining" value as starting feed rate.

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INDEXABLE MILLING



SOLID END MILLING



HOLEMAKING



TAPPING



TURNING