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CUTTING TOOLS

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Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish

Straight Flute hand taps are used for hand tapping and machine tapping in through holes or blind holes in a wide variety of materials.

Available in sets or taper (8-10 thread chamfer), plug (3-5 thread chamfer), or bottoming (1-2 thread chamfer)



List No. 2046 Machine Screw
Fractional
Metric

List No. 2046 Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| #2 | 56 | 4 | H4 | 7/16 | 1-3/4 | 03025 | 03547 | 04052 |
| | 32 | 3 | H2 | 1/2 | 1-13/16 | 03028 | 03549 | 04054 |
| #4 | 36 | 3 | H2 | 1/2 | 1-13/16 | 03029 | 03550 | 04055 |
| | 40 | 3 | H3 | 9/16 | 1-7/8 | 03031 | 03552 | 04057 |
| #6 | 32 | 3 | H5 | 11/16 | 2 | 03035 | 03556 | 04061 |
| | 32 | 3 | H7 | 11/16 | 2 | 03036 | 03557 | 04062 |
| | 32 | 3 | H11 | 11/16 | 2 | 03037 | — | 04063 |
| | 48 | 3 | H2 | 11/16 | 2 | 03039 | 03559 | 04065 |
| #8 | 24 | 4 | H3 | 3/4 | 2-1/8 | 03040 | 03560 | 04066 |
| | 32 | 4 | H5 | 3/4 | 2-1/8 | 03042 | 03562 | 04068 |
| | 32 | 4 | H7 | 3/4 | 2-1/8 | 03043 | 03563 | 04069 |
| | 32 | 7 | H11 | 3/4 | 2-1/8 | 03044 | — | 04070 |
| | 40 | 4 | H2 | 3/4 | 2-1/8 | 03046 | 03565 | 04072 |
| #10 | 24 | 4 | H3 | 7/8 | 2-3/8 | 03006 | 03529 | 04033 |
| | 24 | 4 | H7 | 7/8 | 2-3/8 | 03004 | 03528 | 04031 |
| | 24 | 4 | H11 | 7/8 | 2-3/8 | 03005 | — | 04032 |
| #10 | 28 | 4 | H3 | 7/8 | 2-3/8 | 03007 | 03530 | 04034 |
| | 30 | 4 | H3 | 7/8 | 2-3/8 | 03008 | 03531 | 04035 |
| #10 | 32 | 4 | H4 | 7/8 | 2-3/8 | 03010 | 03532 | 04036 |
| | 32 | 4 | H5 | 7/8 | 2-3/8 | 03011 | 03533 | 04037 |
| | 32 | 4 | H7 | 7/8 | 2-3/8 | 03012 | 03534 | 04038 |
| | 32 | 4 | H11 | 7/8 | 2-3/8 | 03013 | — | 04039 |
| #10 | 36 | 4 | H2 | 7/8 | 2-3/8 | 03014 | 03535 | 04040 |
| | 40 | 4 | H2 | 7/8 | 2-3/8 | 03015 | 03536 | 04041 |
| | 48 | 4 | H2 | 7/8 | 2-3/8 | 03016 | 03537 | 04042 |
| | 56 | 4 | H2 | 7/8 | 2-3/8 | 03017 | 03538 | 04043 |
| | 64 | 4 | H2 | 7/8 | 2-3/8 | 03018 | 03539 | 04044 |
| #12 | 32 | 4 | H3 | 1/2 | 2-3/8 | 03021 | 03542 | 04047 |
| | 36 | 4 | H2 | 15/16 | 2-3/8 | 03022 | 03543 | 04048 |
| #14 | 20 | 4 | H3 | 1 | 2-1/2 | 03023 | 03544 | 04049 |
| | 24 | 4 | H3 | 1 | 2-1/2 | 03024 | 03545 | 04050 |

Straight Flute Hand Taps

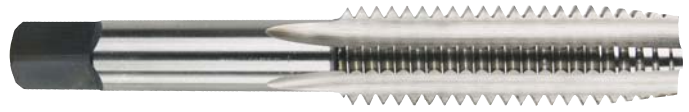
Ground Thread — High Speed Steel
Bright Finish



List No. 2046 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|------------------|------------------------|------------------|---------|------------------|-----------------|-------------------|
| 5/32 | 32 | 4 | H3 | 3/4 | 2-1/8 | 03317 | 03822 | 04337 |
| 3/16 | 24 | 4 | H3 | 7/8 | 2-3/8 | 03257 | 03769 | 04282 |
| | 32 | 4 | H3 | 7/8 | 2-3/8 | 03258 | 03770 | 04283 |
| 7/32 | 32 | 4 | H3 | 15/16 | 2-3/8 | 03347 | 03847 | 04363 |
| 1/4 | 20 | 4 | H7 | 1 | 2-1/2 | 03175 | 03690 | 04201 |
| | 20 | 4 | H11 | 1 | 2-1/2 | 03176 | — | 04202 |
| | 20 | 4 | H21 | 1 | 2-1/2 | 03177 | 03691 | 04203 |
| | 20 | 4 | H3 | 1 | 2-1/2 | 03178 | 03692 | 04204 |
| 1/4 | 24 | 4 | H3 | 1 | 2-1/2 | 03179 | 03693 | 04205 |
| | 27 | 4 | H3 | 1 | 2-1/2 | 03180 | 03694 | 04206 |
| | 28 | 4 | H5 | 1 | 2-1/2 | 03182 | 03695 | 04207 |
| | 28 | 4 | H7 | 1 | 2-1/2 | 03183 | 03696 | 04208 |
| | 28 | 4 | H11 | 1 | 2-1/2 | 03184 | 03697 | 04209 |
| | 28 | 4 | H3 | 1 | 2-1/2 | 03185 | 03698 | 04210 |
| | 32 | 4 | H3 | 1 | 2-1/2 | 03186 | 03699 | 04212 |
| | 32 | 4 | H5 | 1 | 2-1/2 | 03187 | 03701 | 04214 |
| 1/4 | 36 | 4 | H2 | 1 | 2-1/2 | 03155 | 03702 | 04215 |
| | 36 | 4 | H3 | 1 | 2-1/2 | 03189 | 03703 | 04216 |
| | 40 | 4 | H2 | 1 | 2-1/2 | 03190 | 03704 | 04217 |
| | 40 | 4 | H3 | 1 | 2-1/2 | 03191 | 03705 | 04218 |
| | 48 | 4 | H2 | 1 | 2-1/2 | 03192 | 03706 | 04219 |
| | 56 | 4 | H2 | 1 | 2-1/2 | 03193 | 03707 | 04220 |
| | 80 | 4 | H2 | 1 | 2-1/2 | 03194 | 03708 | 04221 |
| 9/32 | 32 | 4 | H3 | 1-1/8 | 2-23/32 | 03372 | 03871 | 04387 |
| 5/16 | 18 | 4 | H3 | 1-1/8 | 2-23/32 | 03306 | 03812 | 04327 |
| | 18 | 4 | H7 | 1-1/8 | 2-23/32 | 03303 | 03810 | 04324 |
| | 18 | 4 | H11 | 1-1/8 | 2-23/32 | 03304 | — | 04325 |
| | 18 | 4 | H21 | 1-1/8 | 2-23/32 | 03305 | 03811 | 04326 |
| | 20 | 4 | H3 | 1-1/8 | 2-23/32 | 03307 | 03813 | 04328 |
| 5/16 | 24 | 4 | H5 | 1-1/8 | 2-23/32 | 03310 | 03814 | 04329 |
| | 24 | 4 | H6 | 1-1/8 | 2-23/32 | 03311 | 03815 | 04330 |
| | 24 | 4 | H11 | 1-1/8 | 2-23/32 | 03309 | 03816 | 04331 |
| 5/16 | 27 | 4 | H3 | 1-1/8 | 2-23/32 | 03312 | 03817 | 04332 |
| | 28 | 4 | H3 | 1-1/8 | 2-23/32 | 03313 | 03818 | 04333 |
| | 32 | 4 | H3 | 1-1/8 | 2-23/32 | 03314 | 03819 | 04334 |
| | 32 | 4 | H5 | 1-1/8 | 2-23/32 | 03315 | 03820 | 04335 |
| | 40 | 4 | H2 | 1-1/8 | 2-23/32 | 03316 | 03821 | 04336 |
| 11/32 | 32 | 4 | H3 | 1-1/4 | 2-15/16 | 03205 | 03718 | 04231 |
| 3/8 | 16 | 4 | H3 | 1-1/4 | 2-15/16 | 03282 | 03791 | 04303 |
| | 16 | 4 | H7 | 1-1/4 | 2-15/16 | 03279 | 03788 | 04300 |
| | 16 | 4 | H11 | 1-1/4 | 2-15/16 | 03280 | 03789 | 04301 |
| 3/8 | 16 | 4 | H21 | 1-1/4 | 2-15/16 | 03281 | 03790 | 04302 |
| | 18 | 4 | H3 | 1-1/4 | 2-15/16 | 03283 | 03792 | 04304 |
| | 20 | 4 | H3 | 1-1/4 | 2-15/16 | 03284 | 03793 | 04305 |
| 3/8 | 24 | 4 | H5 | 1-1/4 | 2-15/16 | 03286 | 03794 | 04306 |
| | 24 | 4 | H7 | 1-1/4 | 2-15/16 | 03287 | 03796 | 04308 |
| | 24 | 4 | H8 | 1-1/4 | 2-15/16 | — | 03795 | 04307 |
| | 24 | 4 | H11 | 1-1/4 | 2-15/16 | 03288 | — | 04309 |
| 3/8 | 27 | 4 | H3 | 1-1/4 | 2-15/16 | 03289 | 03797 | 04311 |
| | 28 | 4 | H3 | 1-1/4 | 2-15/16 | 03290 | 03798 | 04312 |
| 3/8 | 32 | 4 | H3 | 1-1/4 | 2-15/16 | 03291 | 03799 | 04313 |
| | 32 | 4 | H5 | 1-1/4 | 2-15/16 | 03292 | 03800 | 04314 |
| 3/8 | 40 | 4 | H2 | 1-1/4 | 2-15/16 | 03294 | 03801 | 04315 |
| | 40 | 4 | H3 | 1-1/4 | 2-15/16 | 03293 | 03802 | 04316 |
| | 48 | 4 | H2 | 1-1/4 | 2-15/16 | 03295 | 03803 | 04317 |

Straight Flute Hand Taps



Ground Thread — High Speed Steel
Bright Finish

List No. 2046 Fractional

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| 13/32 | 32 | 4 | H3 | 1-7/16 | 3-5/32 | 03214 | 03726 | 04239 |
| | 14 | 4 | H11 | 1-7/16 | 3-5/32 | 03334 | 03835 | 04351 |
| 7/16 | 16 | 4 | H3 | 1-7/16 | 3-5/32 | 03335 | 03836 | 04352 |
| | 18 | 4 | H3 | 1-7/16 | 3-5/32 | 03336 | 03837 | 04353 |
| 7/16 | 20 | 4 | H6 | 1-7/16 | 3-5/32 | 03339 | 03838 | 04354 |
| | 20 | 4 | H11 | 1-7/16 | 3-5/32 | 03338 | 03839 | 04355 |
| 7/16 | 24 | 4 | H3 | 1-7/16 | 3-5/32 | 03340 | 03840 | 04356 |
| | 24 | 4 | H5 | 1-7/16 | 3-5/32 | 03341 | 03841 | 04357 |
| | 27 | 4 | H3 | 1-7/16 | 3-5/32 | 03342 | 03842 | 04358 |
| 7/16 | 28 | 4 | H3 | 1-7/16 | 3-5/32 | 03343 | 03843 | 04359 |
| | 28 | 4 | H5 | 1-7/16 | 3-5/32 | 03344 | 03844 | 04360 |
| | 32 | 4 | H3 | 1-7/16 | 3-5/32 | 03345 | 03845 | 04361 |
| | 40 | 4 | H2 | 1-7/16 | 3-5/32 | 03346 | 03846 | 04362 |
| 15/32 | 32 | 6 | H3 | 1-21/32 | 3-3/8 | 03222 | 03734 | 04247 |
| 1/2 | 12 | 4 | H3 | 1-21/32 | 3-3/8 | 03156 | 03675 | 04184 |
| | 13 | 4 | H3 | 1-21/32 | 3-3/8 | 03161 | 03678 | 04188 |
| | 13 | 4 | H7 | 1-21/32 | 3-3/8 | 03158 | 03676 | 04185 |
| | 13 | 4 | H11 | 1-21/32 | 3-3/8 | 03159 | — | 04186 |
| | 13 | 4 | H21 | 1-21/32 | 3-3/8 | 03160 | 03677 | 04187 |
| 1/2 | 14 | 4 | H3 | 1-21/32 | 3-3/8 | 03162 | 03679 | 04189 |
| | 16 | 4 | H3 | 1-21/32 | 3-3/8 | 03163 | 03680 | 04190 |
| | 18 | 4 | H3 | 1-21/32 | 3-3/8 | 03164 | 03681 | 04191 |
| 1/2 | 20 | 4 | H5 | 1-21/32 | 3-3/8 | — | — | 04192 |
| | 20 | 4 | H7 | 1-21/32 | 3-3/8 | 03166 | 03682 | 04193 |
| | 20 | 4 | H11 | 1-21/32 | 3-3/8 | 03167 | 03683 | 04194 |
| 1/2 | 24 | 4 | H3 | 1-21/32 | 3-3/8 | 03168 | 03684 | 04195 |
| | 27 | 4 | H3 | 1-21/32 | 3-3/8 | 03169 | 03685 | 04196 |
| | 28 | 4 | H3 | 1-21/32 | 3-3/8 | 03170 | 03686 | 04197 |
| | 28 | 4 | H5 | 1-21/32 | 3-3/8 | 03171 | 03687 | 04198 |
| | 32 | 6 | H3 | 1-21/32 | 3-3/8 | 03172 | 03688 | 04199 |
| 1/2 | 40 | 6 | H2 | 1-21/32 | 3-3/8 | 03173 | 03689 | 04200 |
| | 33/64 | 13 | H3 | 1-21/32 | 3-19/32 | 03296 | 03804 | 04318 |
| 9/16 | 16 | 4 | H3 | 1-21/32 | 3-19/32 | 03364 | 03862 | 04378 |
| | 18 | 4 | H5 | 1-21/32 | 3-19/32 | — | 03864 | 04380 |
| | 18 | 4 | H11 | 1-21/32 | 3-19/32 | 03366 | 03865 | 04381 |
| | 20 | 4 | H3 | 1-21/32 | 3-19/32 | 03367 | 03866 | 04382 |
| 9/16 | 24 | 4 | H3 | 1-21/32 | 3-19/32 | 03368 | 03867 | 04383 |
| | 24 | 4 | H5 | 1-21/32 | 3-19/32 | 03369 | 03868 | 04384 |
| | 27 | 6 | H3 | 1-21/32 | 3-19/32 | 03370 | 03869 | 04385 |
| | 32 | 6 | H3 | 1-21/32 | 3-19/32 | 03371 | 03870 | 04386 |
| 5/8 | 11 | 4 | H11 | 1-13/16 | 3-13/16 | 03319 | 03823 | 04338 |
| | 11 | 4 | H21 | 1-13/16 | 3-13/16 | 03320 | 03824 | 04339 |
| | 12 | 4 | H3 | 1-13/16 | 3-13/16 | 03321 | 03825 | 04340 |
| | 16 | 4 | H3 | 1-13/16 | 3-13/16 | 03322 | 03826 | 04341 |
| 5/8 | 18 | 4 | H7 | 1-13/16 | 3-13/16 | 03326 | 03827 | 04342 |
| | 18 | 4 | H8 | 1-13/16 | 3-13/16 | — | 03828 | 04343 |
| | 18 | 4 | H11 | 1-13/16 | 3-13/16 | 03324 | — | 04344 |

Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 2046 Fractional

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH | | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|--------|------------------|---------------|----|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | H3 | | | | | |
| 5/8 | 20 | 4 | H3 | | 1-13/16 | 3-13/16 | 03327 | 03829 | 04345 |
| | 24 | 6 | H3 | | 1-13/16 | 3-13/16 | 03328 | 03830 | 04346 |
| | 24 | 6 | H5 | | 1-13/16 | 3-13/16 | 03329 | 03831 | 04347 |
| | 27 | 6 | H3 | | 1-13/16 | 3-13/16 | 03330 | 03832 | 04348 |
| | 28 | 6 | H3 | | 1-13/16 | 3-13/16 | 03331 | 03833 | 04349 |
| | 32 | 6 | H3 | | 1-13/16 | 3-13/16 | 03332 | 03834 | 04350 |
| 41/64 | 11 | 4 | H4 | | 1-13/16 | 4-1/32 | 03300 | 03808 | 04322 |
| 11/16 | 18 | 4 | H3 | | 1-13/16 | 4-1/32 | 03197 | 03712 | 04225 |
| | 20 | 6 | H3 | | 1-13/16 | 4-1/32 | 03200 | 03713 | 04226 |
| | 24 | 6 | H3 | | 1-13/16 | 4-1/32 | 03201 | 03714 | 04227 |
| | 24 | 6 | H5 | | 1-13/16 | 4-1/32 | 03202 | 03715 | 04228 |
| | 28 | 6 | H3 | | 1-13/16 | 4-1/32 | 03203 | 03716 | 04229 |
| | 32 | 6 | H3 | | 1-13/16 | 4-1/32 | 03204 | 03717 | 04230 |
| 3/4 | 10 | 4 | H11 | | 2 | 4-1/4 | 03260 | 03771 | 04284 |
| | 10 | 4 | H21 | | 2 | 4-1/4 | 03261 | 03772 | 04285 |
| | 11-1/2 | 6 | Hose | | 2 | 4-1/4 | 03262 | 03773 | 04286 |
| | 12 | 4 | H4 | | 2 | 4-1/4 | 03263 | 03774 | 04287 |
| | 12 | 4 | H4 | | 2 | 4-1/4 | 03263 | 03774 | 04287 |
| 3/4 | 16 | 4 | H7 | | 2 | 4-1/4 | 03264 | 03776 | 04289 |
| | 16 | 4 | H11 | | 2 | 4-1/4 | 03266 | 03778 | 04291 |
| | 16 | 4 | H8 | | 2 | 4-1/4 | 03268 | 03777 | 04290 |
| | 18 | 4 | H3 | | 2 | 4-1/4 | 03270 | 03780 | 04292 |
| 3/4 | 20 | 6 | H3 | | 2 | 4-1/4 | 03271 | 03782 | 04294 |
| | 20 | 6 | H5 | | 2 | 4-1/4 | 03272 | 03783 | 04295 |
| | 24 | 6 | H3 | | 2 | 4-1/4 | 03274 | 03784 | 04296 |
| | 27 | 6 | H3 | | 2 | 4-1/4 | 03275 | 03785 | 04297 |
| 3/4 | 32 | 6 | H3 | | 2 | 4-1/4 | 03276 | 03786 | 04298 |
| | 40 | 6 | H3 | | 2 | 4-1/4 | 03277 | 03787 | 04299 |
| 49/64 | 10 | 4 | H4 | | 2 | 4-15/32 | 03301 | 03809 | 04323 |
| 13/16 | 10 | 4 | H4 | | 2 | 4-15/32 | 03207 | 03719 | 04232 |
| | 12 | 4 | H4 | | 2 | 4-15/32 | 03208 | 03720 | 04233 |
| | 16 | 4 | H3 | | 2 | 4-15/32 | 03209 | 03721 | 04234 |
| | 18 | 4 | H3 | | 2 | 4-15/32 | 03210 | 03722 | 04235 |
| | 20 | 6 | H3 | | 2 | 4-15/32 | 03211 | 03723 | 04236 |
| | 20 | 6 | H5 | | 2 | 4-15/32 | 03212 | 03724 | 04237 |
| | 24 | 6 | H3 | | 2 | 4-15/32 | 03213 | 03725 | 04238 |
| 7/8 | 9 | 4 | H11 | | 2-7/32 | 4-11/16 | 03362 | 03860 | 04376 |
| | 10 | 4 | H4 | | 2-7/32 | 4-11/16 | 03348 | 03848 | 04364 |
| | 12 | 4 | H4 | | 2-7/32 | 4-11/16 | 03349 | 03849 | 04365 |
| 7/8 | 14 | 4 | H5 | | 2-7/32 | 4-11/16 | 03353 | 03850 | 04366 |
| | 14 | 4 | H6 | | 2-7/32 | 4-11/16 | 03352 | 03851 | 04367 |
| | 14 | 4 | H11 | | 2-7/32 | 4-11/16 | 03351 | 03852 | 04368 |
| | 16 | 4 | H3 | | 2-7/32 | 4-11/16 | 03354 | 03853 | 04369 |
| | 18 | 4 | H3 | | 2-7/32 | 4-11/16 | 03355 | 03854 | 04370 |
| | 20 | 6 | H3 | | 2-7/32 | 4-11/16 | 03356 | 03855 | 04371 |
| | 20 | 6 | H5 | | 2-7/32 | 4-11/16 | 03357 | 03856 | 04372 |
| 7/8 | 24 | 6 | H3 | | 2-7/32 | 4-11/16 | 03358 | 03857 | 04373 |
| | 27 | 6 | H3 | | 2-7/32 | 4-11/16 | 03359 | 03858 | 04374 |
| | 32 | 6 | H3 | | 2-7/32 | 4-11/16 | 03360 | 03859 | 04375 |
| 15/16 | 12 | 4 | H4 | | 2-7/32 | 4-29/32 | 03215 | 03727 | 04240 |
| | 14 | 4 | H4 | | 2-7/32 | 4-29/32 | 03216 | 03728 | 04241 |

Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 2046 Fractional

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|--------|-------|------------------|------------------------|------------------|---------|------------------|-----------------|-------------------|
| 15/16 | 16 | 6 | H3 | 2-7/32 | 4-29/32 | 03217 | 03729 | 04242 |
| | 18 | 6 | H3 | 2-7/32 | 4-29/32 | 03218 | 03730 | 04243 |
| | 20 | 6 | H3 | 2-7/32 | 4-29/32 | 03219 | 03731 | 04244 |
| | 20 | 6 | H5 | 2-7/32 | 4-29/32 | 03220 | 03732 | 04245 |
| | 32 | 6 | H3 | 2-7/32 | 4-29/32 | 03221 | 03733 | 04246 |
| 1 | 8 | 4 | H6 | 2-1/2 | 5-1/8 | — | 03672 | 04181 |
| | 8 | 4 | H11 | 2-1/2 | 5-1/8 | 03152 | 03673 | 04182 |
| | 8 | 4 | H21 | 2-1/2 | 5-1/8 | 03154 | 03674 | 04183 |
| 1 | 10 | 4 | H4 | 2-1/2 | 5-1/8 | 03135 | 03658 | 04167 |
| | 12 | 4 | H6 | 2-1/2 | 5-1/8 | 03137 | 03659 | 04168 |
| | 12 | 4 | H11 | 2-1/2 | 5-1/8 | 03138 | 03660 | 04169 |
| 1 | 14 | 4 | H6 | 2-1/2 | 5-1/8 | 03140 | 03661 | 04170 |
| | 14 | 4 | H11 | 2-1/2 | 5-1/8 | 03141 | 03662 | 04171 |
| | 16 | 6 | H3 | 2-1/2 | 5-1/8 | 03142 | 03664 | 04173 |
| | 18 | 6 | H3 | 2-1/2 | 5-1/8 | 03144 | 03665 | 04174 |
| 1 | 20 | 6 | H3 | 2-1/2 | 5-1/8 | 03145 | 03667 | 04176 |
| | 20 | 6 | H5 | 2-1/2 | 5-1/8 | 03146 | 03668 | 04177 |
| | 24 | 6 | H3 | 2-1/2 | 5-1/8 | 03148 | 03669 | 04178 |
| | 27 | 6 | H6 | 2-1/2 | 5-1/8 | 03149 | 03670 | 04179 |
| | 32 | 6 | H3 | 2-1/2 | 5-1/8 | 03150 | 03671 | 04180 |
| 1-1/16 | 12 | 4 | H4 | 2-1/2 | 5-1/8 | 03049 | 03566 | 04073 |
| | 12 | 4 | H5 | 2-1/2 | 5-1/8 | 03047 | 03567 | 04074 |
| | 12 | 4 | H7 | 2-1/2 | 5-1/8 | 03048 | 03568 | 04075 |
| 1-1/16 | 14 | 6 | H5 | 1-1/2 | 4 | 03050 | 03569 | 04077 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03051 | 03570 | 04078 |
| | 16 | 6 | H6 | 1-1/2 | 4 | 03052 | 03571 | 04079 |
| 1-1/16 | 18 | 6 | H4 | 1-1/2 | 4 | 03053 | 03572 | 04080 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03054 | 03573 | 04081 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03055 | 03574 | 04082 |
| | 24 | 6 | H4 | 1-1/2 | 4 | 03056 | 03575 | 04083 |
| 1-1/8 | 8 | 4 | H5 | 2-9/16 | 5-7/16 | 03091 | 03613 | 04121 |
| | 10 | 4 | H5 | 2-9/16 | 5-7/16 | 03079 | 03600 | 04108 |
| | 12 | 4 | H6 | 2-9/16 | 5-7/16 | 03081 | 03602 | 04110 |
| | 12 | 4 | H11 | 2-9/16 | 5-7/16 | 03082 | 03603 | 04111 |
| 1-1/8 | 14 | 6 | H5 | 1-1/2 | 4 | 03083 | 03604 | 04112 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03084 | 03605 | 04113 |
| 1-1/8 | 18 | 6 | H4 | 1-1/2 | 4 | 03085 | 03606 | 04114 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03086 | 03607 | 04115 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03087 | 03608 | 04116 |
| | 24 | 6 | H4 | 1-1/2 | 4 | 03088 | 03609 | 04117 |
| 1-1/8 | 28 | 6 | H4 | 1-1/2 | 4 | 03206 | 03610 | 04118 |
| | 32 | 8 | H4 | 1-1/2 | 4 | 03089 | 03611 | 04119 |
| 1-3/16 | 12 | 6 | H5 | 2-9/16 | 5-7/16 | 03092 | 03614 | 04123 |
| | 14 | 6 | H5 | 1-1/2 | 4 | 03093 | 03615 | 04124 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03094 | 03616 | 04125 |
| | 16 | 6 | H6 | 1-1/2 | 4 | 03095 | 03617 | 04126 |
| 1-3/16 | 18 | 6 | H4 | 1-1/2 | 4 | 03096 | 03618 | 04127 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03097 | 03619 | 04128 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03098 | 03620 | 04129 |

Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



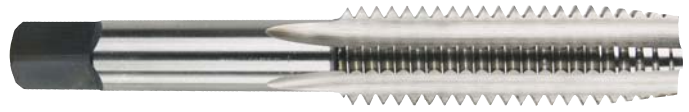
List No. 2046 Fractional

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|--------|-------|------------------|------------------------|------------------|---------|------------------|-----------------|-------------------|
| 1-1/4 | 10 | 4 | H5 | 2-9/16 | 5-3/4 | 03066 | 03586 | 04094 |
| | 12 | 6 | H6 | 2-9/16 | 5-3/4 | 03068 | 03588 | 04096 |
| | 14 | 6 | H5 | 1-1/2 | 4 | 03069 | 03589 | 04097 |
| 1-1/4 | 16 | 6 | H4 | 1-1/2 | 4 | 03070 | 03590 | 04098 |
| | 18 | 6 | H4 | 1-1/2 | 4 | 03071 | 03591 | 04099 |
| 1-1/4 | 18 | 6 | H6 | 1-1/2 | 4 | 03072 | 03592 | 04100 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03073 | 03593 | 04101 |
| | 24 | 8 | H4 | 1-1/2 | 4 | 03074 | 03594 | 04102 |
| 1-1/4 | 32 | 10 | H4 | 1-1/2 | 4 | 03075 | 03595 | 04103 |
| | 7 | 4 | H8 | 2-9/16 | 5-3/4 | 03076 | 03597 | 04105 |
| | 7 | 4 | H11 | 2-9/16 | 5-3/4 | 03077 | 03598 | 04106 |
| | 8 | 4 | H5 | 2-9/16 | 5-3/4 | 03078 | 03599 | 04107 |
| 1-5/16 | 12 | 6 | H5 | 2-9/16 | 5-3/4 | 03114 | 03636 | 04145 |
| | 12 | 6 | H8 | 2-9/16 | 5-3/4 | 03115 | 03637 | 04146 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03116 | 03638 | 04147 |
| | 16 | 6 | H6 | 1-1/2 | 4 | 03117 | 03639 | 04148 |
| | 18 | 6 | H4 | 1-1/2 | 4 | 03118 | 03640 | 04149 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03119 | 03641 | 04150 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03120 | 03642 | 04151 |
| 1-3/8 | 8 | 4 | H5 | 3 | 6-1/16 | 03113 | 03635 | 04144 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03108 | 03630 | 04139 |
| | 18 | 6 | H4 | 1-1/2 | 4 | 03109 | 03631 | 04140 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03110 | 03632 | 04141 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03111 | 03633 | 04142 |
| 1-7/16 | 18 | 6 | H4 | 1-1/2 | 4 | 03126 | 03649 | 04158 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03127 | 03650 | 04159 |
| 1-1/2 | 8 | 6 | H5 | 3 | 6-3/8 | 03065 | 03585 | 04093 |
| | 10 | 6 | H5 | 3 | 6-3/8 | 03057 | 03576 | 04084 |
| | 12 | 6 | H6 | 3 | 6-3/8 | 03059 | 03578 | 04086 |
| | 16 | 6 | H4 | 1-1/2 | 4 | 03060 | 03579 | 04087 |
| 1-1/2 | 18 | 6 | H4 | 1-1/2 | 4 | 03061 | 03580 | 04088 |
| | 18 | 6 | H6 | 1-1/2 | 4 | 03062 | 03581 | 04089 |
| | 20 | 6 | H4 | 1-1/2 | 4 | 03063 | 03582 | 04090 |
| | 24 | 8 | H4 | 1-1/2 | 4 | 03064 | 03583 | 04091 |
| 1-5/8 | 5-1/2 | 6 | H7 | 3-7/32 | 6-11/16 | 03124 | 03647 | 04156 |
| | 8 | 6 | H6 | 3-7/32 | 6-11/16 | 03125 | 03648 | 04157 |
| 1-5/8 | 12 | 6 | H4 | 2 | 5 | — | 03643 | 04152 |
| | 12 | 6 | H6 | 2 | 5 | 03121 | 03644 | 04153 |
| | 16 | 6 | H5 | 2 | 5 | 03122 | 03645 | 04154 |
| | 18 | 6 | H5 | 2 | 5 | 03123 | 03646 | 04155 |
| 1-9/16 | 16 | 6 | H5 | 2 | 5 | 03133 | 03656 | 04165 |
| | 18 | 6 | H5 | 2 | 5 | 03134 | 03657 | 04166 |
| 1-3/4 | 5 | 6 | H7 | 3-7/32 | 7 | 03105 | 03627 | 04136 |
| | 8 | 6 | H6 | 3-7/32 | 7 | 03106 | 03628 | 04137 |
| | 10 | 6 | H6 | 3-7/32 | 7 | 03099 | 03621 | 04130 |
| | 12 | 6 | H6 | 2 | 5 | 03100 | 03622 | 04131 |
| | 12 | 6 | H8 | 2 | 5 | 03101 | 03623 | 04132 |
| 1-3/4 | 16 | 6 | H5 | 2 | 5 | 03102 | 03624 | 04133 |
| | 16 | 6 | H7 | 2 | 5 | 03103 | 03625 | 04134 |
| | 18 | 6 | H5 | 2 | 5 | 03104 | 03626 | 04135 |
| 1-7/8 | 5 | 6 | H7 | 3-9/16 | 7-5/16 | 03131 | 03654 | 04163 |
| | 8 | 6 | H6 | 3-9/16 | 7-5/16 | 03132 | 03655 | 04164 |

Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 2046 Fractional

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|------------------|---------------|------------------|--------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| 1-7/8 | 12 | 6 | H6 | 2 | 5 | 03128 | 03651 | 04160 |
| | 12 | 6 | H8 | 2 | 5 | 03129 | 03652 | 04161 |
| | 16 | 6 | H5 | 2 | 5 | 03130 | 03653 | 04162 |
| 2 | 4-1/2 | 6 | H7 | 3-9/16 | 7-5/8 | 03242 | 03754 | 04267 |
| | 8 | 6 | H6 | 3-9/16 | 7-5/8 | 03243 | 03755 | 04268 |
| | 12 | 6 | H6 | 2 | 5 | 03238 | 03750 | 04263 |
| | 12 | 6 | H8 | 2 | 5 | 03239 | 03751 | 04264 |
| | 16 | 6 | H5 | 2 | 5 | 03240 | 03752 | 04265 |
| | 20 | 8 | H5 | 2 | 5 | 03241 | 03753 | 04266 |
| 2-1/8 | 8 | 6 | H6 | 3-9/16 | 8 | 03233 | 03745 | 04258 |
| | 12 | 6 | H6 | 2 | 5-1/4 | 03231 | 03743 | 04256 |
| | 16 | 6 | H5 | 2 | 5-1/4 | 03232 | 03744 | 04257 |
| 2-1/4 | 4-1/2 | 6 | H7 | 3-9/16 | 8-1/4 | 03229 | 03741 | 04254 |
| | 8 | 6 | H6 | 3-9/16 | 8-1/4 | 03230 | 03742 | 04255 |
| | 12 | 6 | H6 | 2 | 5-1/4 | 03227 | 03739 | 04252 |
| | 16 | 6 | H5 | 2 | 5-1/4 | 03228 | 03740 | 04253 |
| 2-3/8 | 8 | 6 | H6 | 4 | 8-1/2 | 03237 | 03749 | 04262 |
| | 12 | 6 | H6 | 2 | 5-1/4 | 03235 | 03747 | 04260 |
| | 16 | 6 | H5 | 2 | 5-1/4 | 03236 | 03748 | 04261 |
| 2-1/2 | 4 | 6 | H7 | 4 | 8-3/4 | 03225 | 03737 | 04250 |
| | 8 | 6 | H6 | 4 | 8-3/4 | 03226 | 03738 | 04251 |
| | 12 | 6 | H6 | 2 | 5-1/4 | 03223 | 03735 | 04248 |
| | 16 | 6 | H5 | 2 | 5-1/4 | 03224 | 03736 | 04249 |
| 2-3/4 | 12 | 6 | H7 | 2 | 5-1/2 | 03234 | 03746 | 04259 |
| 3 | 4 | 6 | H9 | 4-9/16 | 9-3/4 | 03255 | 03767 | 04280 |
| | 8 | 6 | H8 | 4-9/16 | 9-3/4 | 03256 | 03768 | 04281 |
| | 12 | 8 | H7 | 2 | 5-1/2 | 03253 | 03765 | 04278 |
| | 16 | 8 | H7 | 2 | 5-1/2 | 03254 | 03766 | 04279 |
| 3-1/8 | 12 | 8 | H7 | 2 | 5-3/4 | 03249 | 03761 | 04274 |
| 3-1/4 | 12 | 8 | H7 | 2 | 5-3/4 | 03247 | 03759 | 04272 |
| | 8 | 6 | H8 | 4-9/16 | 10 | 03248 | 03760 | 04273 |
| 3-1/2 | 4 | 6 | H9 | 4-15/16 | 10-1/4 | 03245 | 03757 | 04270 |
| | 8 | 6 | H8 | 4-15/16 | 10-1/4 | 03246 | 03758 | 04271 |
| | 12 | 8 | H7 | 2 | 5-3/4 | 03244 | 03756 | 04269 |
| 3-3/4 | 4 | 10 | H9 | 5-5/16 | 10-1/2 | 03251 | 03763 | 04276 |
| | 8 | 10 | H8 | 5-5/16 | 10-1/2 | 03252 | 03764 | 04277 |
| | 12 | 10 | H7 | 2 | 6 | 03250 | 03762 | 04275 |
| 4 | 4 | 10 | H9 | 5-5/16 | 10-3/4 | 03298 | 03806 | 04320 |
| | 8 | 10 | H8 | 5-5/16 | 10-3/4 | 03299 | 03807 | 04321 |
| | 12 | 10 | H7 | 2 | 6 | 03297 | 03805 | 04319 |

Metric Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 7500 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH | | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|----------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | DIAMETER | | | | | |
| M1.6 | 0.35 | 2 | D3 | | 5/16 | 1-5/8 | 03373 | 03872 | — |
| M1.8 | 0.35 | 2 | D3 | | 3/8 | 1-11/16 | 03374 | 03873 | 04388 |
| M2 | 0.40 | 3 | D3 | | 7/16 | 1-3/4 | 03423 | 03921 | 04436 |
| M2.2 | 0.45 | 3 | D3 | | 7/16 | 1-3/4 | 03424 | 03922 | 04437 |
| M2.5 | 0.45 | 3 | D3 | | 1/2 | 1-13/16 | 03426 | 03924 | 04438 |
| | 0.45 | 3 | D11 | | 1/2 | 1-13/16 | 03425 | 03923 | 04439 |
| M2.6 | 0.45 | 3 | D3 | | 1/2 | 1-13/16 | 03427 | 03925 | 04440 |
| M3 | 0.50 | 3 | D1 | | 5/8 | 1-15/16 | 03460 | 03961 | 04474 |
| | 0.50 | 3 | D3 | | 5/8 | 1-15/16 | 03461 | 03960 | 04473 |
| M3.5 | 0.60 | 3 | D1 | | 11/16 | 2 | 03462 | 03962 | 04476 |
| | 0.60 | 3 | D4 | | 11/16 | 2 | 03463 | 03963 | 04475 |
| | 0.60 | 3 | D11 | | 11/16 | 2 | 03464 | 03964 | 04477 |
| M4 | 0.70 | 4 | D2 | | 3/4 | 2-1/8 | 03487 | 03989 | 04502 |
| | 0.70 | 4 | D4 | | 3/4 | 2-1/8 | 03488 | 03988 | 04501 |
| | 0.70 | 4 | D11 | | 3/4 | 2-1/8 | 03490 | 03991 | 04504 |
| | 0.75 | 4 | D4 | | 3/4 | 2-1/8 | 03491 | 03992 | 04505 |
| M4.5 | 0.75 | 4 | D2 | | 1/2 | 2-3/8 | 03492 | 03994 | 04507 |
| | 0.75 | 4 | D4 | | 1/2 | 2-3/8 | 03493 | 03993 | 04506 |
| | 0.75 | 4 | D11 | | 1/2 | 2-3/8 | 03495 | 03996 | 04509 |
| M5 | 0.50 | 4 | D3 | | 7/8 | 2-3/8 | 03498 | 04000 | 04513 |
| | 0.80 | 4 | D2 | | 7/8 | 2-3/8 | 03499 | 04002 | 04515 |
| | 0.80 | 4 | D4 | | 7/8 | 2-3/8 | 03500 | 04001 | 04514 |
| | 0.80 | 4 | D11 | | 7/8 | 2-3/8 | 03502 | 04004 | 04517 |
| | 0.90 | 4 | D3 | | 7/8 | 2-3/8 | 03503 | 04005 | 04518 |
| M5.5 | 0.90 | 4 | D3 | | 15/16 | 2-3/8 | 03504 | 04006 | 04519 |
| M6 | 0.50 | 4 | D3 | | 1 | 2-1/2 | 03505 | 04007 | 04520 |
| | 0.75 | 4 | D3 | | 1 | 2-1/2 | 03506 | 04008 | 04522 |
| | 1.00 | 4 | D3 | | 1 | 2-1/2 | 03507 | 04010 | 04524 |
| | 1.00 | 4 | D5 | | 1 | 2-1/2 | 03508 | 04009 | 04523 |
| M7 | 1.00 | 4 | D11 | | 1 | 2-1/2 | 03510 | 04012 | 04526 |
| | 1.00 | 4 | D5 | | 1-1/8 | 2-23/32 | 03511 | 04013 | 04527 |
| | 1.00 | 4 | D11 | | 1-1/8 | 2-23/32 | 03513 | 04015 | 04529 |
| M8 | 0.50 | 4 | D4 | | 1-1/8 | 2-23/32 | 03514 | 04016 | 04530 |
| | 0.75 | 4 | D5 | | 1-1/8 | 2-23/32 | 03515 | 04017 | 04531 |
| | 1.00 | 4 | D3 | | 1-1/8 | 2-23/32 | 03516 | 04019 | 04533 |
| | 1.00 | 4 | D5 | | 1-1/8 | 2-23/32 | 03517 | 04018 | 04532 |
| | 1.00 | 4 | D11 | | 1-1/8 | 2-23/32 | 03519 | 04021 | 04535 |
| M8 | 1.25 | 4 | D3 | | 1-1/8 | 2-23/32 | 03520 | 04023 | 04537 |
| | 1.25 | 4 | D5 | | 1-1/8 | 2-23/32 | 03521 | 04022 | 04536 |
| | 1.25 | 4 | D11 | | 1-1/8 | 2-23/32 | 03523 | 04025 | 04539 |
| M9 | 1.00 | 4 | D5 | | 1-1/4 | 2-15/16 | 03524 | 04027 | 04540 |
| | 1.25 | 4 | D5 | | 1-1/4 | 2-15/16 | 03525 | 04028 | 04541 |
| M10 | 1.00 | 4 | D3 | | 1-1/4 | 2-15/16 | 03375 | 03874 | 04389 |
| | 1.00 | 4 | D5 | | 1-1/4 | 2-15/16 | 03376 | 03875 | 04390 |
| | 1.25 | 4 | D3 | | 1-1/4 | 2-15/16 | 03378 | 03877 | 04392 |
| | 1.25 | 4 | D5 | | 1-1/4 | 2-15/16 | 03379 | 03878 | 04393 |

Metric Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 7500 Metric

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH | | THREAD LENGTH | OAL | TAPER | PLUG | BOTTOM |
|------|-------|---------------|------------|---------|---------------|-------|---------|---------|---------|
| | | | DIA. LIMIT | THREAD | | | EDP NO. | EDP NO. | EDP NO. |
| M10 | 1.25 | 4 | D11 | 1-1/4 | 2-15/16 | 03385 | 03880 | 04395 | |
| | 1.50 | 4 | D3 | 1-1/4 | 2-15/16 | 03381 | 03882 | 04397 | |
| | 1.50 | 4 | D6 | 1-1/4 | 2-15/16 | 03382 | 03881 | 04396 | |
| | 1.50 | 4 | D11 | 1-1/4 | 2-15/16 | 03384 | 03884 | 04399 | |
| M11 | 1.00 | 4 | D5 | 1-7/16 | 3-5/32 | 03386 | 03885 | 04400 | |
| | 1.50 | 4 | D6 | 1-7/16 | 3-5/32 | 03387 | 03886 | 04401 | |
| M12 | 1.00 | 4 | D5 | 1-21/32 | 3-3/8 | 03388 | 03887 | 04402 | |
| | 1.25 | 4 | D11 | 1-21/32 | 3-3/8 | 03389 | 03891 | 04406 | |
| | 1.25 | 4 | D3 | 1-21/32 | 3-3/8 | 03390 | 03889 | 04404 | |
| | 1.25 | 4 | D5 | 1-21/32 | 3-3/8 | 03391 | 03888 | 04403 | |
| M12 | 1.50 | 4 | D6 | 1-21/32 | 3-3/8 | 03393 | 03892 | 04407 | |
| | 1.75 | 4 | D11 | 1-21/32 | 3-3/8 | 03394 | 03896 | 04411 | |
| | 1.75 | 4 | D3 | 1-21/32 | 3-3/8 | 03395 | 03894 | 04409 | |
| | 1.75 | 4 | D6 | 1-21/32 | 3-3/8 | 03396 | 03893 | 04408 | |
| M14 | 1.00 | 4 | D5 | 1-21/32 | 3-19/32 | 03398 | 03897 | 04412 | |
| | 1.25 | 4 | D4 | 1-21/32 | 3-19/32 | 03399 | 03898 | 04413 | |
| | 1.50 | 4 | D3 | 1-21/32 | 3-19/32 | 03400 | 03899 | 04415 | |
| | 1.50 | 4 | D6 | 1-21/32 | 3-19/32 | 03401 | 03900 | 04414 | |
| | 2.00 | 4 | D3 | 1-21/32 | 3-19/32 | 03403 | 03902 | 04418 | |
| M15 | 2.00 | 4 | D7 | 1-21/32 | 3-19/32 | 03404 | 03903 | 04417 | |
| | 1.00 | 4 | D5 | 1-13/16 | 3-13/16 | 03406 | 03905 | 04420 | |
| M16 | 1.00 | 4 | D5 | 1-13/16 | 3-13/16 | 03407 | 03906 | 04421 | |
| | 1.50 | 4 | D3 | 1-13/16 | 3-13/16 | 03408 | 03907 | 04423 | |
| | 1.50 | 4 | D6 | 1-13/16 | 3-13/16 | 03409 | 03908 | 04422 | |
| M16 | 2.00 | 4 | D4 | 1-13/16 | 3-13/16 | 03411 | 03911 | 04426 | |
| | 2.00 | 4 | D7 | 1-13/16 | 3-13/16 | 03412 | 03910 | 04425 | |
| | 2.00 | 4 | D11 | 1-13/16 | 3-13/16 | 03414 | 03913 | 04428 | |
| M18 | 1.00 | 4 | D5 | 1-13/16 | 4-1/32 | 03416 | 03914 | 04429 | |
| | 1.50 | 4 | D3 | 1-13/16 | 4-1/32 | 03417 | 03917 | 04432 | |
| | 1.50 | 4 | D4 | 1-13/16 | 4-1/32 | 03418 | 03916 | 04431 | |
| | 1.50 | 4 | D6 | 1-13/16 | 4-1/32 | 03419 | 03915 | 04430 | |
| | 2.50 | 4 | D7 | 1-13/16 | 4-1/32 | 03421 | 03919 | 04434 | |
| M20 | 1.00 | 4 | D6 | 2 | 4-15/32 | 03428 | 03926 | 04441 | |
| | 1.50 | 4 | D3 | 2 | 4-15/32 | 03429 | 03928 | 04443 | |
| | 1.50 | 4 | D6 | 2 | 4-15/32 | 03430 | 03927 | 04442 | |
| | 1.50 | 4 | D11 | 2 | 4-15/32 | 03432 | 03930 | 04445 | |
| M20 | 2.50 | 4 | D4 | 2 | 4-15/32 | 03433 | 03932 | 04447 | |
| | 2.50 | 4 | D7 | 2 | 4-15/32 | 03434 | 03931 | 04446 | |
| | 2.50 | 4 | D11 | 2 | 4-15/32 | 03436 | 03934 | 04449 | |
| M22 | 1.50 | 4 | D3 | 2-7/32 | 4-11/16 | 03437 | 03937 | 04451 | |
| | 1.50 | 4 | D6 | 2-7/32 | 4-11/16 | 03438 | 03936 | 04450 | |
| | 1.50 | 4 | D11 | 2-7/32 | 4-11/16 | 03440 | 03939 | 04453 | |
| | 2.50 | 4 | D4 | 2-7/32 | 4-11/16 | 03441 | 03941 | 04455 | |
| | 2.50 | 4 | D7 | 2-7/32 | 4-11/16 | 03442 | 03940 | 04454 | |

Metric Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 7500 Metric

(continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| M24 | 1.50 | 4 | D6 | 2-7/32 | 4-29/32 | 03444 | 03943 | 04457 |
| | 2.00 | 4 | D4 | 2-7/32 | 4-29/32 | 03445 | 03945 | 04459 |
| | 2.00 | 4 | D7 | 2-7/32 | 4-29/32 | 03446 | 03944 | 04458 |
| | 3.00 | 4 | D4 | 2-7/32 | 4-29/32 | 03448 | 03948 | 04462 |
| | 3.00 | 4 | D8 | 2-7/32 | 4-29/32 | 03449 | 03947 | 04461 |
| | 3.00 | 4 | D11 | 2-7/32 | 4-29/32 | 03451 | 03950 | 04464 |
| M25 | 1.50 | 4 | D6 | 2-1/2 | 5-1/8 | 03452 | 03952 | 04465 |
| M26 | 1.50 | 6 | D6 | 1-1/2 | 4 | 03453 | 03953 | 04466 |
| M27 | 1.50 | 6 | D6 | 1-1/2 | 4 | 03454 | 03954 | 04467 |
| | 2.00 | 4 | D5 | 2-1/2 | 5-1/8 | 03455 | 03956 | 04469 |
| | 2.00 | 4 | D7 | 2-1/2 | 5-1/8 | 03456 | 03955 | 04468 |
| M27 | 3.00 | 4 | D5 | 2-1/2 | 5-1/8 | 03457 | 03958 | 04471 |
| | 3.00 | 4 | D8 | 2-1/2 | 5-1/8 | 03458 | 03957 | 04470 |
| M30 | 1.50 | 6 | D6 | 1-1/2 | 4 | 03465 | 03965 | 04478 |
| | 2.00 | 4 | D5 | 2-9/16 | 5-7/16 | 03466 | 03967 | 04480 |
| | 2.00 | 4 | D7 | 2-9/16 | 5-7/16 | 03467 | 03966 | 04479 |
| | 3.50 | 4 | D5 | 2-9/16 | 5-7/16 | 03468 | 03969 | 04482 |
| | 3.50 | 4 | D9 | 2-9/16 | 5-7/16 | 03469 | 03968 | 04481 |
| M32 | 1.50 | 6 | D6 | 1-1/2 | 4 | — | 03971 | 04484 |
| | 2.00 | 6 | D7 | 2-9/16 | 5-3/4 | 03471 | 03972 | 04485 |
| M33 | 2.00 | 4 | D5 | 2-9/16 | 5-3/4 | 03472 | 03974 | 04487 |
| | 2.00 | 4 | D7 | 2-9/16 | 5-3/4 | 03473 | 03973 | 04486 |
| | 3.50 | 4 | D5 | 2-9/16 | 5-3/4 | 03474 | 03976 | 04489 |
| | 3.50 | 4 | D9 | 2-9/16 | 5-3/4 | 03475 | 03975 | 04488 |
| M35 | 1.50 | 6 | D6 | 1-1/2 | 4 | 03476 | 03977 | 04490 |
| M36 | 1.50 | 6 | D6 | 1-1/2 | 4 | 03477 | 03978 | 04491 |
| | 2.00 | 6 | D7 | 3 | 6-1/16 | 03478 | 03979 | 04492 |
| | 3.00 | 4 | D5 | 3 | 6-1/16 | 03479 | 03981 | 04494 |
| | 3.00 | 4 | D8 | 3 | 6-1/16 | 03480 | 03980 | 04493 |
| | 4.00 | 4 | D5 | 3 | 6-1/16 | 03481 | 03983 | 04496 |
| | 4.00 | 4 | D9 | 3 | 6-1/16 | 03482 | 03982 | 04495 |
| M39 | 3.00 | 6 | D6 | 3-7/32 | 6-11/16 | 03483 | 03985 | 04498 |
| | 3.00 | 6 | D8 | 3-7/32 | 6-11/16 | 03484 | 03984 | 04497 |
| | 4.00 | 6 | D6 | 3-7/32 | 6-11/16 | 03485 | 03987 | 04500 |
| | 4.00 | 6 | D9 | 3-7/32 | 6-11/16 | 03486 | 03986 | 04499 |
| M40 | 1.50 | 6 | D6 | 2 | 5 | 03496 | 03997 | 04510 |
| M42 | 1.50 | 6 | D6 | 2 | 5 | — | 03998 | 04511 |
| | 4.50 | 6 | D10 | 3-7/32 | 7 | 03497 | 03999 | 04512 |

Titanium Nitride (TiN) Coated Straight Flute Hand Taps

High Speed Steel



List No. 7500 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|---------|--------------|----------------|
| M6 | 0.50 | 4 | D3 | 1 | 2-1/2 | — | 04521 |
| M8 | 1.25 | 4 | D5 | 1-1/8 | 2-23/32 | 04026 | — |
| M20 | 2.50 | 4 | D7 | 2 | 4-15/32 | 03935 | — |
| M24 | 3.00 | 4 | D8 | 2-7/32 | 4-29/32 | 03951 | — |

Titanium Nitride (TiN) Coated Straight Flute Hand Taps

High Speed Steel



List No. 2046 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|--------|-------|---------------|------------------|---------------|---------|--------------|----------------|
| 1/4 | 28 | 4 | H5 | 1 | 2-1/2 | — | 04211 |
| 3/8 | 24 | 4 | H7 | 1-1/4 | 2-15/16 | — | 04310 |
| 3/4 | 16 | 4 | H8 | 2 | 4-1/4 | 03779 | — |
| 1-1/16 | 12 | 4 | H4 | 2-1/2 | 5-1/8 | — | 04076 |
| 1-1/8 | 8 | 4 | H5 | 2-9/16 | 5-7/16 | — | 04122 |

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Left Hand Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish

Left Hand taps are left hand cutting for producing left hand threads in a wide variety of materials.



List No. 2020 Machine Screw
Fractional
Metric

List No. 2020 Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|---------|---------------|--------------|----------------|
| #0 | 80 | 2 | H1 | 5/16 | 1-5/8 | 03001 | 03526 | 04029 |
| #2 | 56 | 2 | H2 | 7/16 | 1-3/4 | 03026 | 03546 | 04051 |
| #3 | 48 | 2 | H2 | 1/2 | 1-13/16 | 03027 | 03548 | 04053 |
| #4 | 40 | 3 | H2 | 9/16 | 1-7/8 | 03030 | 03551 | 04056 |
| | 48 | 3 | H2 | 9/16 | 1-7/8 | 03032 | 03553 | 04058 |
| #5 | 40 | 3 | H2 | 5/8 | 1-15/16 | 03033 | 03554 | 04059 |
| #6 | 32 | 3 | H3 | 11/16 | 2 | 03034 | 03555 | 04060 |
| | 40 | 3 | H2 | 11/16 | 2 | 03038 | 03558 | 04064 |
| #8 | 32 | 4 | H3 | 3/4 | 2-1/8 | 03041 | 03561 | 04067 |
| | 36 | 4 | H2 | 3/4 | 2-1/8 | 03045 | 03564 | 04071 |
| #10 | 24 | 4 | H3 | 7/8 | 2-3/8 | 03002 | — | — |
| | 32 | 4 | H3 | 7/8 | 2-3/8 | 03009 | — | — |
| #12 | 24 | 4 | H3 | 15/16 | 2-3/8 | 03019 | 03540 | 04045 |
| | 28 | 4 | H3 | 1/2 | 2-3/8 | 03020 | 03541 | 04046 |

List No. 2020 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|---------------|------------------|---------------|---------|---------------|--------------|----------------|
| 1/4 | 20 | 4 | H3 | 1 | 2-1/2 | 03174 | — | — |
| | 28 | 4 | H3 | 1 | 2-1/2 | 03181 | — | — |
| | 32 | 4 | H3 | 1 | 2-1/2 | 03188 | 03700 | 04213 |
| 5/16 | 18 | 4 | H3 | 1-1/8 | 2-23/32 | 03302 | — | — |
| | 24 | 4 | H3 | 1-1/8 | 2-23/32 | 03308 | — | — |
| 3/8 | 16 | 4 | H3 | 1-1/4 | 2-15/16 | 03278 | — | — |
| | 24 | 4 | H3 | 1-1/4 | 2-15/16 | 03285 | — | — |
| 7/16 | 14 | 4 | H3 | 1-7/16 | 3-5/32 | 03333 | — | — |
| | 20 | 4 | H3 | 1-7/16 | 3-5/32 | 03337 | — | — |
| 1/2 | 20 | 4 | H3 | 1-21/32 | 3-3/8 | 03165 | — | — |
| 9/16 | 12 | 4 | H3 | 1-21/32 | 3-19/32 | 03363 | 03861 | 04377 |
| | 18 | 4 | H3 | 1-21/32 | 3-19/32 | 03365 | 03863 | 04379 |
| 5/8 | 11 | 4 | H3 | 1-13/16 | 3-13/16 | 03318 | — | — |
| | 18 | 4 | H3 | 1-13/16 | 3-13/16 | 03323 | — | — |
| 11/16 | 11 | 4 | H3 | 1-13/16 | 4-1/32 | 03195 | 03709 | 04222 |
| | 16 | 4 | H3 | 1-13/16 | 4-1/32 | 03196 | 03710 | 04223 |
| | 18 | 4 | H3 | 1-13/16 | 4-1/32 | 03198 | 03711 | 04224 |
| 3/4 | 10 | 4 | H3 | 2 | 4-1/4 | 03259 | — | — |
| | 16 | 4 | H3 | 2 | 4-1/4 | 03265 | — | — |
| | 16 | 4 | H5 | 2 | 4-1/4 | 03269 | 03775 | 04288 |
| | 20 | 6 | H3 | 2 | 4-1/4 | 03273 | 03781 | 04293 |
| 7/8 | 14 | 4 | H4 | 2-7/32 | 4-11/16 | 03350 | — | — |
| | 9 | 4 | H4 | 2-7/32 | 4-11/16 | 03361 | — | — |
| 1 | 12 | 4 | H4 | 2-1/2 | 5-1/8 | 03136 | — | — |
| | 14 | 4 | H4 | 2-1/2 | 5-1/8 | 03139 | — | — |
| | 16 | 6 | H3 | 2-1/2 | 5-1/8 | 03143 | 03663 | 04172 |
| | 20 | 6 | H3 | 2-1/2 | 5-1/8 | 03147 | 03666 | 04175 |
| 1-1/8 | 8 | 4 | H4 | 2-1/2 | 5-1/8 | 03151 | — | — |
| | 12 | 4 | H4 | 2-9/16 | 5-7/16 | 03080 | 03601 | 04109 |
| 1-1/4 | 7 | 4 | H4 | 2-9/16 | 5-7/16 | 03090 | 03612 | 04120 |
| | 12 | 6 | H4 | 2-9/16 | 5-3/4 | 03067 | 03587 | 04095 |
| 1-3/8 | 7 | 4 | H4 | 2-9/16 | 5-3/4 | 04543 | 03596 | 04104 |
| | 12 | 6 | H4 | 3 | 6-1/16 | 03107 | 03629 | 04138 |
| 1-1/2 | 6 | 4 | H4 | 3 | 6-1/16 | 03112 | 03634 | 04143 |
| | 12 | 6 | H4 | 3 | 6-3/8 | 03058 | 03577 | 04085 |
| | 6 | 4 | H4 | 3 | 6-3/8 | 04542 | 03584 | 04092 |

Left Hand Straight Flute Hand Taps

Ground Thread — High Speed Steel
Bright Finish



List No. 2020 Metric

Left Hand taps are left hand cutting for producing left hand threads in a wide variety of materials.

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| M4 | 0.70 | 4 | D4 | 3/4 | 2-1/8 | 03489 | 03990 | 04503 |
| M4.5 | 0.75 | 4 | D4 | 1/2 | 2-3/8 | 03494 | 03995 | 04508 |
| M5 | 0.80 | 4 | D4 | 7/8 | 2-3/8 | 03501 | 04003 | 04516 |
| M6 | 1.00 | 4 | D5 | 1 | 2-1/2 | 03509 | 04011 | 04525 |
| M7 | 1.00 | 4 | D5 | 1-1/8 | 2-23/32 | 03512 | 04014 | 04528 |
| M8 | 1.00 | 4 | D5 | 1-1/8 | 2-23/32 | 03518 | 04020 | 04534 |
| | 1.25 | 4 | D5 | 1-1/8 | 2-23/32 | 03522 | 04024 | 04538 |
| M10 | 1.00 | 4 | D5 | 1-1/4 | 2-15/16 | 03377 | 03876 | 04391 |
| | 1.25 | 4 | D5 | 1-1/4 | 2-15/16 | 03380 | 03879 | 04394 |
| | 1.50 | 4 | D6 | 1-1/4 | 2-15/16 | 03383 | 03883 | 04398 |
| M12 | 1.25 | 4 | D5 | 1-21/32 | 3-3/8 | 03392 | 03890 | 04405 |
| | 1.75 | 4 | D6 | 1-21/32 | 3-3/8 | 03397 | 03895 | 04410 |
| M14 | 1.50 | 4 | D6 | 1-21/32 | 3-19/32 | 03402 | 03901 | 04416 |
| | 2.00 | 4 | D7 | 1-21/32 | 3-19/32 | 03405 | 03904 | 04419 |
| M16 | 1.50 | 4 | D6 | 1-13/16 | 3-13/16 | 03410 | 03909 | 04424 |
| | 2.00 | 4 | D7 | 1-13/16 | 3-13/16 | 03413 | 03912 | 04427 |
| M18 | 1.50 | 4 | D6 | 1-13/16 | 4-1/32 | 03420 | 03918 | 04433 |
| | 2.50 | 4 | D7 | 1-13/16 | 4-1/32 | 03422 | 03920 | 04435 |
| M20 | 1.50 | 4 | D6 | 2 | 4-15/32 | 03431 | 03929 | 04444 |
| | 2.50 | 4 | D7 | 2 | 4-15/32 | 03435 | 03933 | 04448 |
| M22 | 1.50 | 4 | D6 | 2-7/32 | 4-11/16 | 03439 | 03938 | 04452 |
| | 2.50 | 4 | D7 | 2-7/32 | 4-11/16 | 03443 | 03942 | 04456 |
| M24 | 2.00 | 4 | D7 | 2-7/32 | 4-29/32 | 03447 | 03946 | 04460 |
| | 3.00 | 4 | D8 | 2-7/32 | 4-29/32 | 03450 | 03949 | 04463 |
| M27 | 3.00 | 4 | D8 | 2-1/2 | 5-1/8 | 03459 | 03959 | 04472 |
| M30 | 3.50 | 4 | D9 | 2-9/16 | 5-7/16 | 03470 | 03970 | 04483 |

CUTTING FLUIDS

Coolants and lubricants offer many benefits including reduced friction and heat, enhanced chip removal, improved accuracy and surface finish, higher speeds and feeds, corrosion protection and increased tool life.

Proper selection and application of cutting fluids is critical to optimizing machining applications. **Please consult your cutting fluids supplier for advice on your specific machining application.**

Extension Straight Flute Hand Taps

Straight Flute Extension Hand Taps are used for tapping by hand or machine in blind holes or through holes in a wide variety of materials.

Small Shank Taps and Standard Shank Taps Size 7/16" and Larger have a shank diameter that is smaller than the minor diameter of the thread.



List No. 2040 Machine Screw
Ground Thread — High Speed Steel
Bright Finish

6" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | TAPER EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------------|
| #6 | 32 | H3 | 3 | Std | 11/16 | 0.141 | 05132 |
| #8 | 32 | H3 | 4 | Std | 3/4 | 0.168 | 05133 |
| #10 | 24 | H3 | 4 | Std | 7/8 | 0.194 | 05130 |
| #10 | 32 | H3 | 4 | Std | 7/8 | 0.194 | 05131 |

Extension Straight Flute Hand Taps

Straight Flute Extension Hand Taps are used for tapping by hand or machine in blind holes or through holes in a wide variety of materials.

Small Shank Taps and Standard Shank Taps Size 7/16" and Larger have a shank diameter that is smaller than the minor diameter of the thread.



List No. 2040 Fractional
Ground Thread — High Speed Steel
Bright Finish

6" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | TAPER EDP NO. | PLUG EDP NO. | BOTTOMING EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------------|--------------|-------------------|
| 1/4 | 20 | H3 | 4 | Std | 1 | 0.255 | 05179 | — | — |
| | 8 | H3 | 4 | Std | 1 | 0.255 | 05181 | — | — |
| 5/16 | 18 | H3 | 4 | Small | 1-1/8 | 0.240 | — | — | 05197 |
| | 18 | H3 | 4 | Std | 1-1/8 | 0.318 | 05199 | — | — |
| | 24 | H3 | 4 | Std | 1-1/8 | 0.318 | 05201 | — | — |
| 3/8 | 16 | H3 | 4 | Std | 1-1/4 | 0.381 | 05191 | — | — |
| | 16 | H3 | 4 | Small | 1-1/4 | 0.275 | 05194 | — | — |
| | 16 | H5 | 4 | Std | 1-1/4 | 0.381 | 05195 | — | — |
| | 24 | H3 | 4 | Std | 1-1/4 | 0.381 | 05196 | — | — |
| 1/2 | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | 05212 | 05168 | — |
| | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | 05173 | — | — |
| | 20 | H3 | 4 | Std | 1-21/32 | 0.367 | 05177 | — | 05172 |
| 9/16 | 18 | H3 | 4 | Std | 1-21/32 | 0.429 | 05217 | — | — |
| 5/8 | 11 | H3 | 4 | Std | 1-13/16 | 0.480 | 05208 | — | 05204 |
| | 18 | H3 | 4 | Std | 1-13/16 | 0.480 | 03225 | — | — |
| 3/4 | 10 | H3 | 4 | Std | 2 | 0.590 | 05185 | — | — |

8" Overall Length

| | | | | | | | | | |
|------|----|----|---|-----|---------|-------|-------|-------|-------|
| 1/4 | 20 | H3 | 4 | Std | 1 | 0.255 | 05180 | — | 05178 |
| 5/16 | 18 | H3 | 4 | Std | 1-1/8 | 0.318 | 05200 | — | 05198 |
| 3/8 | 16 | H3 | 4 | Std | 1-1/4 | 0.381 | 05192 | — | 05189 |
| 7/16 | 14 | H3 | 4 | Std | 1-7/16 | 0.323 | 05212 | — | — |
| | 20 | H3 | 4 | Std | 1-7/16 | 0.323 | 05213 | — | — |
| 1/2 | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | 05174 | 05169 | — |
| 5/8 | 11 | H3 | 4 | Std | 1-13/16 | 0.480 | 05209 | — | 05205 |
| 3/4 | 10 | H3 | 4 | Std | 2 | 0.590 | 05186 | — | 05183 |
| 7/8 | 9 | H4 | 4 | Std | 2-7/32 | 0.697 | 05216 | 05214 | 05215 |
| 1 | 8 | H4 | 4 | Std | 2-1/2 | 0.800 | 05158 | 05162 | — |

10" Overall Length

| | | | | | | | | | |
|-------|----|----|---|-----|---------|-------|-------|-------|-------|
| 3/8 | 16 | H3 | 4 | Std | 1-1/4 | 0.381 | 05193 | 05188 | 05190 |
| 1/2 | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | 05175 | 05166 | 05170 |
| | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | 05176 | — | — |
| 5/8 | 11 | H3 | 4 | Std | 1-13/16 | 0.480 | 05210 | 05202 | 05206 |
| 3/4 | 10 | H3 | 4 | Std | 2 | 0.590 | 05187 | 05182 | 05184 |
| 1 | 8 | H4 | 4 | Std | 2-1/2 | 0.800 | 05159 | 05160 | 05163 |
| 1-1/4 | 7 | H4 | 4 | Std | 2-9/16 | 1.021 | 05154 | 05146 | 05148 |
| | 8 | H5 | 4 | Std | 2-9/16 | 1.021 | 05156 | 05150 | 05152 |
| 1-1/2 | 6 | H4 | 4 | Std | 3 | 1.233 | 05142 | 05134 | 05136 |
| | 8 | H5 | 4 | Std | 3 | 1.233 | 05144 | 05138 | 05140 |

12" Overall Length

| | | | | | | | | | |
|-------|----|----|---|-----|---------|-------|-------|-------|-------|
| 1/2 | 13 | H3 | 4 | Std | 1-21/32 | 0.367 | — | 05167 | 05171 |
| 5/8 | 11 | H3 | 4 | Std | 1-13/16 | 0.480 | 05211 | 05203 | 05207 |
| 1 | 8 | H4 | 4 | Std | 2-1/2 | 0.800 | 05165 | 05161 | 05164 |
| 1-1/4 | 7 | H4 | 4 | Std | 2-9/16 | 1.021 | 05155 | 05147 | 05149 |
| | 8 | H5 | 4 | Std | 2-9/16 | 1.021 | 05157 | 05151 | 05153 |
| 1-1/2 | 6 | H4 | 4 | Std | 3 | 1.233 | 05143 | 05135 | 05137 |
| | 8 | H5 | 4 | Std | 3 | 1.233 | 05145 | 05139 | 05141 |

Extension Hand Taps

High Speed Steel
Bright Finish



List No. 2040M Metric

6" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | TAPER EDP NO. | PLUG EDP NO. | BOTTOMING EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------------|--------------|-------------------|
| M3.5 | 0.60 | D4 | 3 | Std | 1 1/16 | 0.141 | 05229 | 05227 | 05228 |
| M4 | 0.70 | D4 | 4 | Std | 3/4 | 0.168 | — | 05230 | 05231 |
| M4.5 | 0.75 | D4 | 4 | Std | 1/2 | 0.194 | 05232 | — | — |
| M5 | 0.80 | D4 | 4 | Std | 7/8 | 0.194 | — | 05233 | 05234 |
| M8 | 1.25 | D5 | 4 | Std | 1-1/8 | 0.318 | 05235 | — | — |
| M10 | 1.50 | D6 | 4 | Std | 1-1/4 | 0.381 | 05220 | 05218 | 05219 |
| M12 | 1.75 | D6 | 4 | Std | 1-21/32 | 0.367 | 05221 | — | — |
| M16 | 2.00 | D7 | 4 | Std | 1-13/16 | 0.480 | — | 05222 | — |
| M16 | 2.00 | D7 | 4 | Std | 1-13/16 | 0.480 | — | 05223 | 05224 |
| M20 | 2.50 | D7 | 4 | Std | 2 | 0.652 | 05226 | — | 05225 |

TOOL COATINGS

Tool Coatings enhance cutting tool performance for increased productivity and lower overall tooling cost. Benefits include increased surface hardness, lubricity & heat resistance and decreased chemical reactivity. Results include reduced friction & torque, higher speeds & feeds, increased tool life, decreased galling & chip welding and improved surface finish.

TiN – Titanium Nitride

A good general purpose coating for a wide range of ferrous materials. Not recommended for non-ferrous materials. Has higher heat resistance than TiCN coating.

TiCN – Titanium Carbonitride

Enhanced toughness, hardness & wear resistance for aggressive speeds & feeds. Recommended for difficult-to-machine, gummy & abrasive materials where moderate cutting temperatures are generated.

TiALN – Titanium Aluminum Nitride

ALTiN – Aluminum Titanium Nitride

Excellent all around coatings featuring high heat resistance. Recommended for high thermal stress applications including dry machining, abrasive materials and hard-to-machine materials that generate higher cutting temperatures. ALTiN has higher AL content for increased hardness & heat resistance.

CrN – Chromium Nitride

CrC – Chromium Carbide

Especially recommended for titanium and non-ferrous materials including aluminum, copper & brass. CrC has slightly higher hardness than CrN. These coatings resist adhesion of the material being machined and resist chipping and cracking.

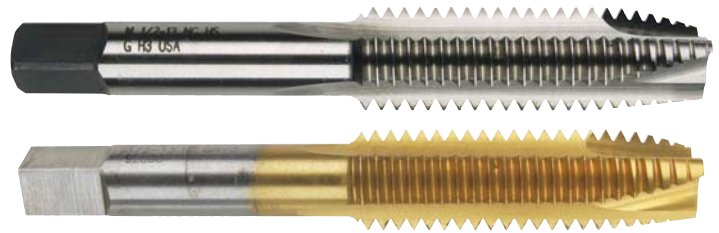
DLC – Diamond Like Carbon

A thin carbon based amorphous (non-crystalline) coating featuring very high hardness & low coefficient of friction. Highly recommended for non-ferrous materials including plastic, aluminum, copper & brass. Typically used on solid carbide tools.

Spiral Point Plug Taps

High Speed Steel Straight Flute

Spiral Point taps are designed for machine tapping in through holes in a wide variety of materials. The point ejects the chips ahead of the tap, eliminating chip disposal problems and thread damage. Shallower flutes also result in greater tap core strength allowing for higher cutting speeds.



List No. 2047 Machine Screw

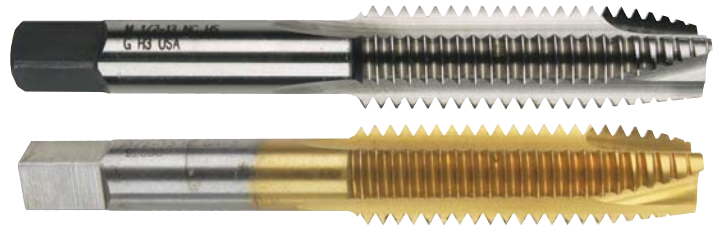
TiN – Titanium Nitride is an excellent coating for machining a wide variety of materials at greatly increased speeds and feeds. Increases tool surface hardness, lubricity, and heat resistance and resists chip welding.

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | BRIGHT EDP NO. | TIN EDP NO. |
|------|-------|------------------|---------------|------------------|---------|-------------------|----------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | |
| #00 | 90 | 0 | H1 | 3/8 | 1-5/8 | 04600 | — |
| | 96 | 0 | H1 | 5/16 | 1-5/8 | 04601 | — |
| #0 | 80 | 0 | H3 | 5/16 | 1-5/8 | 04604 | — |
| #1 | 56 | 0 | H1 | 13/32 | 1-11/16 | 04617 | — |
| | 56 | 2 | H3 | 7/16 | 1-3/4 | 04619 | — |
| | 56 | 2 | H4 | 7/16 | 1-3/4 | 04620 | — |
| | 56 | 2 | H5 | 7/16 | 1-3/4 | 04621 | — |
| #2 | 56 | 2 | H7 | 7/16 | 1-3/4 | 04622 | — |
| | 40 | 2 | H3 | 9/16 | 1-7/8 | 04625 | — |
| | 40 | 2 | H4 | 9/16 | 1-7/8 | 04626 | 04630 |
| | 40 | 2 | H5 | 9/16 | 1-7/8 | 04627 | — |
| #4 | 40 | 2 | H7 | 9/16 | 1-7/8 | 04628 | — |
| | 40 | 2 | H11 | 9/16 | 1-7/8 | 04629 | — |
| | 40 | 2 | H5 | 5/8 | 1-15/16 | 04633 | 04636 |
| | 40 | 2 | H7 | 5/8 | 1-15/16 | 04634 | — |
| #5 | 40 | 2 | H11 | 5/8 | 1-15/16 | 04635 | — |
| | 32 | 2 | H5 | 11/16 | 2 | 04638 | — |
| | 32 | 2 | H7 | 11/16 | 2 | 04639 | — |
| #6 | 40 | 2 | H3 | 11/16 | 2 | 04640 | — |
| | 48 | 2 | H2 | 11/16 | 2 | 04641 | — |
| | 32 | 2 | H5 | 3/4 | 2-1/8 | 04643 | 04645 |
| | 32 | 2 | H7 | 3/4 | 2-1/8 | 04644 | — |
| #8 | 40 | 2 | H2 | 3/4 | 2-1/8 | 04647 | — |
| | 24 | 2 | H5 | 7/8 | 2-3/8 | 04606 | — |
| | 24 | 2 | H7 | 7/8 | 2-3/8 | 04607 | — |
| #10 | 32 | 2 | H4 | 7/8 | 2-3/8 | 04609 | 04612 |
| | 32 | 2 | H5 | 7/8 | 2-3/8 | 04610 | 04613 |
| | 32 | 2 | H7 | 7/8 | 2-3/8 | 04611 | — |
| | 32 | 2 | H11 | 7/8 | 2-3/8 | — | 04614 |
| | 40 | 2 | H2 | 7/8 | 2-3/8 | 04615 | — |
| | 32 | 2 | H3 | 15/16 | 2-3/8 | 04616 | — |

Spiral Point Plug Taps

High Speed Steel Straight Flute

Spiral Point taps are designed for machine tapping in through holes in a wide variety of materials. The point ejects the chips ahead of the tap, eliminating chip disposal problems and thread damage. Shallower flutes also result in greater tap core strength allowing for higher cutting speeds.



List No. 2047 Fractional

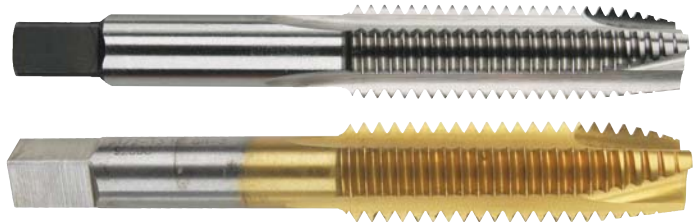
TiN - Titanium Nitride is an excellent coating for machining a wide variety of materials at greatly increased speeds and feeds. Increases tool surface hardness, lubricity, and heat resistance and resists chip welding.

| SIZE | PITCH | NO. OF FLUTES | PITCH | | | BRIGHT EDP NO. | TiN EDP NO. |
|-------|-------|------------------|---------------|------------------|---------|-------------------|----------------|
| | | | DIA. LIMIT | THREAD LENGTH | OAL | | |
| 1/4 | 20 | 2 | H7 | 1 | 2-1/2 | 04658 | 04659 |
| | 20 | 2 | H11 | 1 | 2-1/2 | — | 04660 |
| | 24 | 2 | H3 | 1 | 2-1/2 | 04661 | — |
| | 28 | 2 | H5 | 1 | 2-1/2 | 04663 | — |
| | 28 | 2 | H7 | 1 | 2-1/2 | 04664 | — |
| | 28 | 2 | H11 | 1 | 2-1/2 | 04665 | — |
| 1/4 | 32 | 2 | H3 | 1 | 2-1/2 | 04666 | — |
| | 36 | 2 | H2 | 1 | 2-1/2 | 04667 | — |
| | 36 | 2 | H3 | 1 | 2-1/2 | 04668 | 04669 |
| | 40 | 3 | H2 | 1 | 2-1/2 | 04670 | — |
| 5/16 | 18 | 2 | H7 | 1-1/8 | 2-23/32 | 04684 | — |
| | 24 | 2 | H5 | 1-1/8 | 2-23/32 | 04686 | — |
| | 24 | 2 | H11 | 1-1/8 | 2-23/32 | 04687 | — |
| | 32 | 2 | H3 | 1-1/8 | 2-23/32 | 04688 | — |
| 3/8 | 16 | 2 | H3 | 1-1/4 | 2-15/16 | 04676 | — |
| | 16 | 3 | H7 | 1-1/4 | 2-15/16 | 04677 | — |
| | 24 | 3 | H5 | 1-1/4 | 2-15/16 | 04679 | — |
| | 24 | 3 | H7 | 1-1/4 | 2-15/16 | 04680 | — |
| | 24 | 3 | H11 | 1-1/4 | 2-15/16 | 04681 | — |
| | 32 | 3 | H3 | 1-1/4 | 2-15/16 | 04682 | — |
| 7/16 | 14 | 3 | H11 | 1-7/16 | 3-5/32 | 04694 | — |
| | 20 | 3 | H11 | 1-7/16 | 3-5/32 | 04695 | — |
| 15/32 | 32 | 3 | H3 | 1-21/32 | 3-3/8 | 04671 | — |
| 1/2 | 13 | 3 | H11 | 1-21/32 | 3-3/8 | — | 04653 |
| | 20 | 3 | H11 | 1-21/32 | 3-3/8 | 04655 | — |
| | 28 | 3 | H3 | 1-21/32 | 3-3/8 | 04656 | — |
| 9/16 | 12 | 3 | H3 | 1-21/32 | 3-19/32 | 04698 | — |
| | 18 | 3 | H3 | 1-21/32 | 3-19/32 | 04699 | — |
| | 18 | 3 | H5 | 1-21/32 | 3-19/32 | 04700 | — |
| | 18 | 3 | H11 | 1-21/32 | 3-19/32 | 04701 | — |
| | 20 | 3 | H3 | 1-21/32 | 3-19/32 | 04702 | — |
| 5/8 | 18 | 3 | H3 | 1-13/16 | 3-13/16 | 04690 | — |
| | 18 | 3 | H5 | 1-13/16 | 3-13/16 | 04691 | 04692 |
| 3/4 | 10 | 3 | H11 | 2 | 4-1/4 | 04672 | — |
| | 16 | 3 | H3 | 2 | 4-1/4 | 04673 | — |
| | 16 | 3 | H5 | 2 | 4-1/4 | 04674 | — |
| 7/8 | 9 | 3 | H4 | 2-7/32 | 4-11/16 | 04697 | — |
| | 14 | 3 | H4 | 2-7/32 | 4-11/16 | 04696 | — |
| 1 | 8 | 3 | H4 | 2-1/2 | 5-1/8 | 04650 | — |
| | 8 | 3 | H11 | 2-1/2 | 5-1/8 | 04651 | — |
| | 14 | 3 | H4 | 2-1/2 | 5-1/8 | 04649 | — |
| 1-1/4 | 7 | 3 | H4 | 2-9/16 | 5-3/4 | 04648 | — |

Right Hand Metric Spiral Point Plug Taps

High Speed Steel
Straight Flute

Spiral Point taps are designed for machine tapping in through holes in a wide variety of materials. The point ejects the chips ahead of the tap, eliminating chip disposal problems and thread damage. Shallower flutes also result in greater tap core strength allowing for higher cutting speeds.



List No. 7501 Metric

TiN - Titanium Nitride is an excellent coating for machining a wide variety of materials at greatly increased speeds and feeds. Increases tool surface hardness, lubricity, and heat resistance and resists chip welding.

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | BRIGHT EDP NO. | TiN EDP NO. |
|------|-------|---------------|------------------|---------------|---------|----------------|-------------|
| M1.6 | 0.35 | 0 | D3 | 5/16 | 1-5/8 | 04703 | — |
| M1.8 | 0.35 | 0 | D3 | 3/8 | 1-11/16 | 04704 | — |
| M2 | 0.40 | 2 | D3 | 7/16 | 1-3/4 | 04733 | — |
| M2.2 | 0.45 | 2 | D3 | 7/16 | 1-3/4 | 04734 | — |
| M2.5 | 0.45 | 2 | D1 | 1/2 | 1-13/16 | 04736 | — |
| | 0.45 | 2 | D3 | 1/2 | 1-13/16 | 04735 | — |
| M3 | 0.50 | 2 | D1 | 5/8 | 1-15/16 | 04743 | — |
| | 0.50 | 2 | D3 | 5/8 | 1-15/16 | 04740 | — |
| | 0.50 | 2 | D5 | 5/8 | 1-15/16 | 04741 | — |
| | 0.50 | 2 | D7 | 5/8 | 1-15/16 | 04742 | — |
| M3.5 | 0.60 | 2 | D1 | 11/16 | 2 | 04745 | — |
| | 0.60 | 2 | D4 | 11/16 | 2 | 04744 | — |
| | 0.60 | 2 | D11 | 11/16 | 2 | 04746 | — |
| M4 | 0.70 | 2 | D2 | 3/4 | 2-1/8 | 04749 | — |
| | 0.70 | 2 | D4 | 3/4 | 2-1/8 | 04747 | — |
| | 0.70 | 2 | D5 | 3/4 | 2-1/8 | 04748 | — |
| | 0.70 | 2 | D7 | 3/4 | 2-1/8 | 04750 | — |
| | 0.70 | 2 | D11 | 3/4 | 2-1/8 | 04751 | — |
| M4.5 | 0.75 | 2 | D2 | 7/8 | 2-3/8 | 04753 | — |
| | 0.75 | 2 | D4 | 7/8 | 2-3/8 | 04752 | — |
| | 0.75 | 2 | D11 | 7/8 | 2-3/8 | 04754 | — |
| M5 | 0.50 | 2 | D3 | 7/8 | 2-3/8 | 04755 | — |
| | 0.80 | 2 | D2 | 7/8 | 2-3/8 | 04757 | — |
| | 0.80 | 2 | D4 | 7/8 | 2-3/8 | 04756 | — |
| | 0.80 | 2 | D7 | 7/8 | 2-3/8 | 04758 | 04760 |
| | 0.80 | 2 | D11 | 7/8 | 2-3/8 | 04759 | — |
| M5.5 | 0.90 | 2 | D3 | 7/8 | 2-3/8 | 04761 | — |
| | 0.90 | 2 | D3 | 15/16 | 2-3/8 | 04762 | — |
| M6 | 0.75 | 2 | D3 | 1 | 2-1/2 | 04763 | — |
| | 1.00 | 2 | D3 | 1 | 2-1/2 | 04765 | — |
| | 1.00 | 2 | D5 | 1 | 2-1/2 | 04764 | — |
| | 1.00 | 2 | D11 | 1 | 2-1/2 | 04766 | — |
| M7 | 1.00 | 2 | D5 | 1-1/8 | 2-23/32 | 04767 | — |
| | 1.00 | 2 | D11 | 1-1/8 | 2-23/32 | 04768 | — |
| M8 | 1.00 | 2 | D3 | 1-1/8 | 2-23/32 | 04770 | — |
| | 1.00 | 2 | D5 | 1-1/8 | 2-23/32 | 04769 | — |
| | 1.00 | 2 | D11 | 1-1/8 | 2-23/32 | 04771 | — |
| | 1.25 | 2 | D3 | 1-1/8 | 2-23/32 | 04773 | — |
| | 1.25 | 2 | D5 | 1-1/8 | 2-23/32 | 04772 | 04775 |
| | 1.25 | 2 | D11 | 1-1/8 | 2-23/32 | 04774 | — |
| M10 | 1.00 | 3 | D5 | 1-1/4 | 2-15/16 | 04705 | — |
| | 1.25 | 3 | D3 | 1-1/4 | 2-15/16 | 04706 | — |
| | 1.25 | 3 | D5 | 1-1/4 | 2-15/16 | 04707 | 04709 |
| | 1.25 | 3 | D11 | 1-1/4 | 2-15/16 | 04708 | — |
| M10 | 1.50 | 3 | D3 | 1-1/4 | 2-15/16 | 04711 | — |
| | 1.50 | 3 | D6 | 1-1/4 | 2-15/16 | 04710 | — |
| | 1.50 | 3 | D11 | 1-1/4 | 2-15/16 | 04713 | — |
| | 1.50 | 3 | D7 | 1-1/4 | 2-15/16 | 04712 | — |
| M11 | 1.50 | 3 | D6 | 1-7/16 | 3-5/32 | 04714 | — |
| M12 | 1.00 | 3 | D5 | 1-21/32 | 3-3/8 | 04715 | — |
| | 1.25 | 3 | D3 | 1-21/32 | 3-3/8 | 04717 | — |
| | 1.25 | 3 | D5 | 1-21/32 | 3-3/8 | 04716 | — |
| | 1.50 | 3 | D6 | 1-21/32 | 3-3/8 | 04718 | 04719 |

List No. 7501 Metric (continued)

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | BRIGHT EDP NO. | TiN EDP NO. |
|------|-------|---------------|------------------|---------------|---------|----------------|-------------|
| M12 | 1.75 | 3 | D3 | 1-21/32 | 3-3/8 | 04721 | — |
| | 1.75 | 3 | D6 | 1-21/32 | 3-3/8 | 04720 | — |
| | 1.75 | 3 | D11 | 1-21/32 | 3-3/8 | 04722 | — |
| M14 | 1.50 | 3 | D3 | 1-21/32 | 3-19/32 | 04724 | — |
| | 1.50 | 3 | D6 | 1-21/32 | 3-19/32 | 04723 | — |
| | 2.00 | 3 | D3 | 1-21/32 | 3-19/32 | 04726 | — |
| | 2.00 | 3 | D7 | 1-21/32 | 3-19/32 | 04725 | — |
| M16 | 1.50 | 3 | D3 | 1-13/16 | 3-13/16 | 04728 | — |
| | 1.50 | 3 | D6 | 1-13/16 | 3-13/16 | 04727 | — |
| | 2.00 | 3 | D4 | 1-13/16 | 3-13/16 | 04730 | — |
| | 2.00 | 3 | D7 | 1-13/16 | 3-13/16 | 04729 | — |
| | 2.00 | 3 | D11 | 1-13/16 | 3-13/16 | 04731 | — |
| M18 | 2.50 | 3 | D7 | 1-13/16 | 4-1/32 | 04732 | — |
| M20 | 2.50 | 3 | D7 | 2 | 4-15/32 | 04737 | 04738 |
| M24 | 3.00 | 3 | D8 | 2-7/32 | 4-29/32 | 04739 | — |

Left Hand Spiral Point Plug Taps

High Speed Steel
Straight Flute
Bright Finish

Spiral Point taps are designed for machine tapping in through holes in a wide variety of materials. The point ejects the chips ahead of the tap, eliminating chip disposal problems and thread damage. Shallower flutes also result in greater tap core strength allowing for higher cutting speeds.



List No. 2047L Machine Screw
Fractional

List No. 2047L Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | EDP NO. |
|------|-------|---------------|------------------|---------------|---------|---------|
| #0 | 80 | 0 | H1 | 5/16 | 1-5/8 | 04602 |
| | 80 | 2 | H1 | 5/16 | 1-5/8 | 04603 |
| #2 | 56 | 2 | H2 | 7/16 | 1-3/4 | 04618 |
| #3 | 48 | 2 | H2 | 1/2 | 1-13/16 | 04623 |
| #4 | 40 | 2 | H2 | 9/16 | 1-7/8 | 04624 |
| | 48 | 2 | H2 | 9/16 | 1-7/8 | 04631 |
| #5 | 40 | 2 | H2 | 5/8 | 1-15/16 | 04632 |
| #6 | 32 | 2 | H3 | 11/16 | 2 | 04637 |
| #8 | 32 | 2 | H3 | 3/4 | 2-1/8 | 04642 |
| | 36 | 2 | H2 | 3/4 | 2-1/8 | 04646 |
| #10 | 24 | 2 | H3 | 7/8 | 2-3/8 | 04605 |
| | 32 | 2 | H3 | 7/8 | 2-3/8 | 04608 |

List No. 2047L Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | EDP NO. |
|------|-------|---------------|------------------|---------------|---------|---------|
| 1/4 | 20 | 2 | H3 | 1 | 2-1/2 | 04657 |
| | 28 | 2 | H3 | 1 | 2-1/2 | 04662 |
| 5/16 | 18 | 2 | H3 | 1-1/8 | 2-23/32 | 04683 |
| | 24 | 2 | H3 | 1-1/8 | 2-23/32 | 04685 |
| 3/8 | 16 | 3 | H3 | 1-1/4 | 2-15/16 | 04675 |
| | 24 | 3 | H3 | 1-1/4 | 2-15/16 | 04678 |
| 7/16 | 14 | 3 | H3 | 1-7/16 | 3-5/32 | 04693 |
| 1/2 | 13 | 3 | H3 | 1-21/32 | 3-3/8 | 04652 |
| | 20 | 3 | H3 | 1-21/32 | 3-3/8 | 04654 |
| 5/8 | 11 | 3 | H3 | 1-13/16 | 3-13/16 | 04689 |

Slow Spiral Spiral Flute Taps

High Speed Steel
30° Helix Angle

Bright Finish

Spiral Flute taps lift the chips out of the hole in blind hole tapping, eliminating chip disposal problems, damaged threads and broken taps. They will also bridge interruptions in the tapped hole. **Slow Spiral** taps have a stronger cutting edge (less susceptible to chipping) than Fast Spiral taps and are recommended for general purpose applications. (less susceptible to chipping) than Fast Spiral taps and are recommended for general purpose applications.



List No. 2039 Fractional

List No. 2039 Metric

List No. 2039 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| 3/8 | 24 | 3 | H5 | 1-1/4 | 2-15/16 | — | 04814 | 04815 |
| 5/8 | 11 | 4 | H3 | 1-13/16 | 3-13/16 | 04878 | 04816 | 04818 |
| | 18 | 4 | H3 | 1-13/16 | 3-13/16 | 04879 | 04820 | 04822 |
| 3/4 | 10 | 4 | H3 | 2 | 4-1/4 | 04895 | 04808 | 04809 |
| | 16 | 4 | H3 | 2 | 4-1/4 | — | 04810 | 04811 |
| 7/8 | 9 | 4 | H4 | 2-7/32 | 4-11/16 | 04880 | 04825 | 04826 |
| 1 | 8 | 4 | H4 | 2-1/2 | 5-1/8 | — | 04802 | 04804 |

List No. 2039 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH | | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|------------------|---------|------------------|-----------------|-------------------|
| | | | DIA. LIMIT | THREAD LENGTH | | | | |
| M3 | 0.50 | 2 | D3 | 5/8 | 1-15/16 | 04885 | 04846 | 04848 |
| M3.5 | 0.60 | 2 | D4 | 11/16 | 2 | 04886 | 04850 | 04852 |
| M4 | 0.70 | 2 | D4 | 3/4 | 2-1/8 | 04888 | 04854 | 04856 |
| M4.5 | 0.75 | 2 | D4 | 7/8 | 2-3/8 | 04889 | 04858 | 04860 |
| M5 | 0.80 | 2 | D4 | 7/8 | 2-3/8 | 04890 | 04862 | 04864 |
| M6 | 1.00 | 3 | D5 | 1 | 2-1/2 | 04891 | 04866 | 04868 |
| M8 | 1.00 | 3 | D5 | 1-1/8 | 2-23/32 | 04892 | 04870 | 04872 |
| | 1.25 | 3 | D5 | 1-1/8 | 2-23/32 | 04894 | 04874 | 04876 |
| M10 | 1.25 | 3 | D5 | 1-1/4 | 2-15/16 | 04881 | 04827 | 04829 |
| | 1.50 | 3 | D6 | 1-1/4 | 2-15/16 | 04882 | 04831 | 04833 |
| M12 | 1.25 | 3 | D5 | 1-21/32 | 3-3/8 | — | 04835 | — |
| | 1.25 | 3 | D5 | 1-21/32 | 3-3/8 | 04883 | 04837 | 04838 |
| | 1.75 | 3 | D6 | 1-21/32 | 3-3/8 | 04884 | 04840 | 04842 |

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Fast Spiral Spiral Flute Taps

High Speed Steel
52° Helix Angle
Bright Finish



List No. 2063 Machine Screw

Spiral Flute taps lift the chips out of the hole in blind hole tapping, eliminating chip disposal problems, damaged threads and broken taps. They will also bridge interruptions in the tapped hole. **Fast Spiral** taps provide enhanced chip lifting action, will bridge wider interruptions and have a freer-cutting geometry. Recommended for softer materials that produce stringy chips.

List No. 2063 Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|-------|--------------|----------------|
| 4 | 40 | 2 | H3 | 9/16 | 1-7/8 | 04800 | 04801 |

Fast Spiral Spiral Flute Taps

High Speed Steel
52° Helix Angle
Bright Finish



List No. 2059 Fractional

List No. 2059 Metric

Spiral Flute taps lift the chips out of the hole in blind hole tapping, eliminating chip disposal problems, damaged threads and broken taps. They will also bridge interruptions in the tapped hole. **Fast Spiral** taps provide enhanced chip lifting action, will bridge wider interruptions and have a freer-cutting geometry. Recommended for softer materials that produce stringy chips.

List No. 2059 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|---------|--------------|----------------|
| 1/4 | 20 | 3 | H5 | 1 | 2-1/2 | 04806 | 04807 |
| 3/8 | 16 | 3 | H5 | 1-1/4 | 2-15/16 | 04812 | 04813 |
| | 11 | 4 | H3 | 1-13/16 | 3-13/16 | 04817 | 04819 |
| 5/8 | 18 | 4 | H3 | 1-13/16 | 3-13/16 | 04821 | 04823 |
| | 18 | 4 | H3 | 1-13/16 | 3-13/16 | — | 04824 |
| 1 | 8 | 4 | H4 | 2-1/2 | 5-1/8 | 04803 | 04805 |

List No. 2059 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | TAPER EDP NO. | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|---------|---------------|--------------|----------------|
| M3 | 0.50 | 2 | D3 | 5/8 | 1-15/16 | — | 04847 | 04849 |
| M3.5 | 0.60 | 2 | D4 | 11/16 | 2 | 04887 | 04851 | 04853 |
| M4 | 0.70 | 3 | D4 | 3/4 | 2-1/8 | — | 04855 | 04857 |
| M4.5 | 0.75 | 3 | D4 | 7/8 | 2-3/8 | — | 04859 | 04861 |
| M5 | 0.80 | 3 | D4 | 7/8 | 2-3/8 | — | 04863 | 04865 |
| M6 | 1.00 | 3 | D5 | 1 | 2-1/2 | — | 04867 | 04869 |
| M8 | 1.00 | 3 | D5 | 1-1/8 | 2-23/32 | 04893 | 04871 | 04873 |
| | 1.25 | 3 | D5 | 1-1/8 | 2-23/32 | — | 04875 | 04877 |
| M10 | 1.25 | 3 | D5 | 1-1/4 | 2-15/16 | — | 04828 | 04830 |
| | 1.50 | 3 | D6 | 1-1/4 | 2-15/16 | — | 04832 | 04834 |
| M12 | 1.25 | 3 | D5 | 1-21/32 | 3-3/8 | — | 04836 | 04839 |
| | 1.75 | 3 | D6 | 1-21/32 | 3-3/8 | — | 04841 | 04843 |
| M20 | 2.50 | 4 | D7 | 2 | 4-15/32 | — | 04844 | 04845 |

Thread Forming Taps

Ground Thread — High Speed Steel

Thread Forming taps cold form rather than cut the threads. Advantages include no chips to dispose of, stronger higher quality threads, increased tapping speeds, longer tap life and reduced tap breakage. Recommended for a wide variety of ductile materials.

Lube Grooves provide a path for lubrication and act as vents to relieve pressure in blind hole tapping.

Plug Style (4 threads tapered) for through holes and blind holes with adequate depth. The longer taper lead is easier starting, requires less torque, produces less burr above the mouth of the tapped hole and increases tool life.

Bottoming Style (2 threads tapered) for blind holes.

Titanium Nitride (TiN) Coating results in an extremely hard surface with high lubricity for increased tool life, improved thread quality, reduced torque and increased tapping speeds for greater productivity.



List No. 2105 Machine Screw Fractional Metric

List No. 2105 Machine Screw

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | OAL | NO. OF LUBE GROOVES | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------------|------------------|---------|---------------------------|-----------------|-------------------|
| #0 | 80 | H3 | 5/16 | 1-5/8 | 0 | — | 04930 |
| #1 | 64 | H3 | 3/8 | 1-11/16 | 0 | — | 04937 |
| | 72 | H3 | 3/8 | 1-11/16 | 0 | — | 04938 |
| #6 | 32 | H10 | 3/8 | 2 | 1 | 04939 | 04940 |
| | #8 | 32 | H10 | 3/8 | 2-1/8 | 1 | 04941 |
| #10 | 24 | H10 | 1/2 | 2-3/8 | 1 | 04931 | 04932 |
| | 32 | H10 | 1/2 | 2-3/8 | 1 | 04933 | 04934 |
| #12 | 28 | H4 | 1/2 | 2-3/8 | 1 | — | 04935 |
| | 28 | H6 | 1/2 | 2-3/8 | 1 | — | 04936 |

List No. 2105 Fractional

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | OAL | NO. OF LUBE GROOVES | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------------|------------------|---------|---------------------------|-----------------|-------------------|
| 1/4 | 20 | H10 | 5/8 | 2-1/2 | 1 | 04945 | 04946 |
| | 28 | H10 | 5/8 | 2-1/2 | 1 | 04947 | 04948 |
| 5/16 | 18 | H10 | 11/16 | 2-23/32 | 1 | 04953 | 04954 |
| | 24 | H10 | 11/16 | 2-23/32 | 1 | 04955 | 04956 |
| 3/8 | 16 | H10 | 3/4 | 2-15/16 | 1 | 04949 | 04950 |
| | 24 | H10 | 3/4 | 2-15/16 | 1 | 04951 | 04952 |
| 1/2 | 20 | H10 | 15/16 | 3-3/8 | 1 | 04943 | 04944 |

List No. 2105 Metric

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | OAL | NO. OF LUBE GROOVES | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------------|------------------|---------|---------------------------|-----------------|-------------------|
| M3.5 | 0.60 | D6 | 3/8 | 2 | 1 | 04969 | 04970 |
| M4.5 | 0.75 | D6 | 1/2 | 2-3/8 | 1 | 04971 | 04972 |
| M5 | 0.80 | D7 | 1/2 | 2-3/8 | 1 | — | 04973 |
| M7 | 1.00 | D8 | 11/16 | 2-23/32 | 1 | 04974 | 04975 |
| M8 | 1.00 | D8 | 11/16 | 2-23/32 | 1 | 04976 | 04977 |
| M10 | 1.25 | D9 | 3/4 | 2-15/16 | 1 | 04957 | 04958 |
| M12 | 1.25 | D10 | 15/16 | 3-3/8 | 1 | 04959 | 04960 |
| M14 | 1.50 | D11 | 1 | 3-19/32 | 1 | 04961 | 04962 |
| | 2.00 | D12 | 1 | 3-19/32 | 1 | 04963 | 04964 |
| M16 | 2.00 | D14 | 1-3/32 | 3-13/16 | 1 | 04965 | 04966 |
| M18 | 1.50 | D12 | 1-3/32 | 4-1/32 | 1 | 04967 | 04968 |

Extension Spiral Point Plug Taps

Spiral Point Extension Taps are used for tapping through holes by machine in a wide variety of materials. Chips are ejected ahead of the tap eliminating problems associated with chips remaining in the hole.



List No. 2041
Ground Thread — High Speed Steel
Bright Finish

Small Shank Taps and Standard Shank Taps Size 7/16" and Larger have a shank diameter that is smaller than the minor diameter of the thread.

List No. 2041 Machine Screw

4" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------|
| #10 | 32 | H3 | 2 | Std | 7/8 | 0.194 | 05100 |

List No. 2041 Fractional

4" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------|
| 1/4 | 20 | H3 | 2 | Std | 1 | 0.255 | 05102 |
| 5/16 | 18 | H3 | 2 | Std | 1-1/8 | 0.318 | 05113 |
| | 24 | H3 | 2 | Small | 1-1/8 | 0.240 | 05115 |
| 3/8 | 16 | H3 | 3 | Std | 1-1/4 | 0.381 | 05108 |
| | 24 | H3 | 3 | Small | 1-1/4 | 0.275 | 05112 |

6" Overall Length

| | | | | | | | |
|-----|----|----|---|-----|---------|-------|-------|
| 3/8 | 16 | H5 | 3 | Std | 1-1/4 | 0.381 | 05109 |
| 5/8 | 11 | H3 | 3 | Std | 1-13/16 | 0.430 | 05116 |
| 3/4 | 10 | H3 | 3 | Std | 2 | 0.480 | 05106 |

List No. 2041 Metric

6" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------|
| M3.5 | 0.60 | D4 | 2 | Std | 11/16 | 0.141 | 05122 |
| M4.5 | 0.75 | D4 | 2 | Std | 7/8 | 0.194 | 05123 |
| M10 | 1.50 | D6 | 3 | Small | 1-1/4 | 0.323 | 05118 |
| M16 | 2.00 | D7 | 3 | Std | 1-13/16 | 0.480 | 05121 |
| M10 | 1.50 | D6 | 3 | Std | 1-1/4 | 0.381 | 05119 |
| M12 | 1.75 | D6 | 3 | Std | 1-21/32 | 0.367 | 05120 |

Extension Spiral Point Plug Taps

Spiral Point Extension Taps are used for tapping through holes by machine in a wide variety of materials. Chips are ejected ahead of the tap eliminating problems associated with chips remaining in the hole.



List No. 2041
Ground Thread — High Speed Steel
Titanium Nitride

Small Shank Taps and Standard Shank Taps Size 7/16" and Larger have a shank diameter that is smaller than the minor diameter of the thread.

List No. 2041 Fractional

4" Overall Length

| SIZE | PITCH | PITCH DIA. LIMIT | NO. OF FLUTES | SHANK STYLE | THREAD LENGTH | SHANK DIA. | EDP NO. |
|------|-------|------------------|---------------|-------------|---------------|------------|---------|
| 1/4 | 20 | H3 | 2 | Std | 1 | 0.255 | 05105 |

6" Overall Length

| | | | | | | | |
|------|----|----|---|-------|---------|-------|-------|
| 1/4 | 20 | H3 | 2 | Std | 1 | 0.255 | 05103 |
| | 20 | H3 | 2 | Small | 1 | 0.185 | 05104 |
| 5/16 | 18 | H3 | 2 | Std | 1-1/8 | 0.318 | 05114 |
| 3/8 | 16 | H3 | 3 | Std | 1-1/4 | 0.381 | 05110 |
| | 16 | H3 | 3 | Small | 1-1/4 | 0.275 | 05111 |
| 1/2 | 13 | H3 | 3 | Std | 1-21/32 | 0.367 | 05101 |
| 5/8 | 11 | H3 | 3 | Std | 1-13/16 | 0.480 | 05117 |
| 3/4 | 10 | H3 | 3 | Std | 2 | 0.580 | 05107 |

Extension Straight Flute Taper Pipe Taps

Ground Thread — High Speed Steel
NPT

Bright & TiN Finish

Right Hand Cut

Regular Thread NPT taper pipe taps are commonly used for tapping pipe fittings and couplings in a wide variety of materials. Assembly requires the use of a thread sealant to ensure a tight seal.



List No. 2042 Fractional

Interrupted Thread taper pipe taps reduce friction, increase chip capacity and enhance coolant flow to the cutting teeth for reduced chance of torn threads and improved thread quality. Recommended for a wide variety of materials, especially soft ductile materials and materials producing long continuous chips.

TiN - Titanium Nitride is an excellent coating for machining a wide variety of materials at greatly increased speeds and feeds. Increases tool surface hardness, lubricity, and heat resistance and resists chip welding.

6" Overall Length

| SIZE | PITCH | NO. OF FLUTES | FLUTE TYPE | THREAD LENGTH | BRIGHT EDP NO. | TiN EDP NO. |
|------|-------|---------------|---------------------|---------------|----------------|-------------|
| 1/8 | 27 | 5 | Tapered-Interrupted | 3/4 | 05256 | 05266 |
| 1/4 | 18 | 4 | Tapered | 1-1/16 | — | 05277 |
| 1/4 | 18 | 5 | Tapered | 1-1/16 | — | 05279 |
| 3/8 | 18 | 4 | Tapered | 1-1/16 | — | 05290 |
| 3/8 | 18 | 5 | Tapered-Interrupted | 1-1/16 | 05284 | 05292 |
| 1/2 | 14 | 5 | Tapered-Interrupted | 1-3/8 | 05296 | — |
| 3/4 | 14 | 5 | Tapered-Interrupted | 1-3/8 | 05306 | — |

8" Overall Length

| | | | | | | |
|-----|----|---|---------|--------|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05259 | — |
| 1/4 | 18 | 4 | Tapered | 1-1/16 | 05272 | — |
| 3/8 | 18 | 4 | Tapered | 1-1/16 | 05286 | — |
| 1/2 | 14 | 4 | Tapered | 1-3/8 | 05299 | — |
| 3/4 | 14 | 5 | Tapered | 1-3/8 | 05308 | — |

10" Overall Length

| | | | | | | |
|-----|--------|---|---------|-------|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05261 | — |
| 1/2 | 14 | 4 | Tapered | 1-3/8 | 05301 | — |
| 3/4 | 14 | 5 | Tapered | 1-3/8 | 05310 | — |
| 1 | 11-1/2 | 5 | Tapered | 1-3/4 | 05315 | — |

12" Overall Length

| | | | | | | |
|-----|----|---|---------|-----|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05263 | — |
|-----|----|---|---------|-----|-------|---|

Extension Straight Flute Taper Pipe Taps

Ground Thread — High Speed Steel
NPTF

Bright Finish

Right Hand Cut

NPTF Dryseal taper pipe taps produce threads where a tight seal is achieved during assembly by metal-to-metal contact. Used for applications requiring a tight seal without the use of thread sealants.



List No. 2042 Fractional

TiN - Titanium Nitride is an excellent coating for machining a wide variety of materials at greatly increased speeds and feeds. Increases tool surface hardness, lubricity, and heat resistance and resists chip welding.

Interrupted Thread taper pipe taps reduce friction, increase chip capacity and enhance coolant flow to the cutting teeth for reduced chance of torn threads and improved thread quality. Recommended for a wide variety of materials, especially soft ductile materials and materials producing long continuous chips.

6" Overall Length

| SIZE | PITCH | NO. OF FLUTES | FLUTE TYPE | THREAD LENGTH | BRIGHT EDP NO. | TiN EDP NO. |
|------|-------|---------------|---------------------|---------------|----------------|-------------|
| 1/8 | 27 | 5 | Tapered-Interrupted | 3/4 | 05257 | 05267 |
| 1/4 | 18 | 5 | Tapered-Interrupted | 1-1/16 | 05271 | 05278 |
| 1/4 | 18 | 5 | Tapered | 1-1/16 | — | 05280 |
| 3/8 | 18 | 5 | Tapered-Interrupted | 1-1/16 | 05285 | 05293 |
| 3/8 | 18 | 4 | Tapered | 1-1/16 | — | 05291 |
| 1/2 | 14 | 5 | Tapered-Interrupted | 1-3/8 | 05297 | — |
| 3/4 | 14 | 5 | Tapered-Interrupted | 1-3/8 | 05307 | — |

8" Overall Length

| | | | | | | |
|-----|----|---|---------|--------|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05260 | — |
| 1/4 | 18 | 4 | Tapered | 1-1/16 | 05273 | — |
| 3/8 | 18 | 4 | Tapered | 1-1/16 | 05287 | — |
| 1/2 | 14 | 4 | Tapered | 1-3/8 | 05300 | — |
| 3/4 | 14 | 5 | Tapered | 1-3/8 | 05309 | — |

10" Overall Length

| | | | | | | |
|-----|--------|---|---------|-------|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05262 | — |
| 1/2 | 14 | 4 | Tapered | 1-3/8 | 05302 | — |
| 3/4 | 14 | 5 | Tapered | 1-3/8 | 05311 | — |
| 1 | 11-1/2 | 5 | Tapered | 1-3/4 | 05316 | — |

12" Overall Length

| | | | | | | |
|-----|----|---|---------|-----|-------|---|
| 1/8 | 27 | 4 | Tapered | 3/4 | 05264 | — |
|-----|----|---|---------|-----|-------|---|

Extension Straight Flute Straight Pipe Taps

Ground Thread — High Speed Steel
NPS-NPSF
Bright Finish
Right Hand Cut



List No. 2042A Fractional

NPS straight pipe taps produce straight pipe threads for low pressure applications in a wide variety of materials. Can be assembled with taper pipe threads, straight pipe threads or fittings. Assembly requires the use of a thread sealant to ensure a tight seal.

NPSF Dryseal straight pipe taps produce threads where a tight seal is achieved during assembly by metal-to-metal contact when assembled with dryseal taper pipe threads. Used for applications requiring a tight seal without the use of thread sealants.

| SIZE | PITCH | NUMBER OF FLUTES | THREAD LENGTH | OAL | NPS EDP NO. | NPSF EDP NO. |
|------|-------|------------------|---------------|-----|-------------|--------------|
| 1/8 | 27 | 4 | 3/4 | 6 | — | 05258 |
| 1/4 | 18 | 4 | 1-1/16 | 6 | 05275 | 05274 |
| 3/8 | 18 | 4 | 1-1/16 | 6 | — | 05289 |
| 1/2 | 14 | 4 | 1-3/8 | 6 | — | 05298 |

PTF-SAE – Straight Pipe Taps

Ground Thread — High Speed Steel
Bright Finish
Right Hand Cut

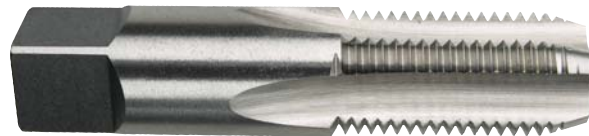


List No. 2119P Fractional

| SIZE | PITCH | NUMBER OF FLUTES | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|------------------|---------------|--------|--------------|----------------|
| 1/4 | 18 | 4 | 1-1/16 | 2-7/16 | 05270 | 05281 |

Straight Pipe Taps

Ground Thread — High Speed Steel
NPS-NPSF
Bright Finish
Right Hand Cut



List No. 2123 Fractional

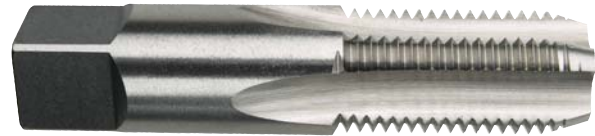
NPS straight pipe taps produce straight pipe threads for low pressure applications in a wide variety of materials. Can be assembled with taper pipe threads, straight pipe threads or fittings. Assembly requires the use of a thread sealant to ensure a tight seal.

| SIZE | PITCH | NUMBER OF FLUTES | THREAD LENGTH | OAL | NPS EDP NO. | NPSF EDP NO. |
|-------|--------|------------------|---------------|-------|-------------|--------------|
| 1-1/4 | 11-1/2 | 5 | 1-3/4 | 4 | 05319 | 05320 |
| 1-1/2 | 11-1/2 | 7 | 1-3/4 | 4-1/4 | 05323 | — |
| 2 | 11-1/2 | 7 | 1-3/4 | 4-1/4 | 05326 | — |

NPSI – Straight Pipe Taps

Ground Thread — High Speed Steel
Bright Finish
Right Hand Cut

NPS straight pipe taps produce straight pipe threads for low pressure applications in a wide variety of materials. Can be assembled with taper pipe threads, straight pipe threads or fittings. Assembly requires the use of a thread sealant to ensure a tight seal.



List No. 2123 Fractional

| SIZE | PITCH | NUMBER OF FLUTES | THREAD LENGTH | OAL | EDP NO. |
|------|-------|------------------|---------------|--------|-----------------------|
| 1/8 | 27 | 4 | 3/4 | 2-1/8 | 05265 |
| 1/4 | 18 | 4 | 1-1/16 | 2-7/16 | 05276 |
| 3/8 | 18 | 4 | 1-1/16 | 2-9/16 | 05288 |
| 1/2 | 14 | 4 | 1-3/8 | 3-1/8 | 05303 |
| 3/4 | 14 | 5 | 1-3/8 | 3-1/4 | 05312 |

NPT-NPTF – Left Hand Pipe Taps

Ground Thread — High Speed Steel
NPT-NPTF
Bright Finish

Regular Thread NPT taper pipe taps are commonly used for tapping pipe fittings and couplings in a wide variety of materials. Assembly requires the use of a thread sealant to ensure a tight seal.

NPTF Dryseal taper pipe taps produce threads where a tight seal is achieved during assembly by metal-to-metal contact. Used for applications requiring a tight seal without the use of thread sealants.



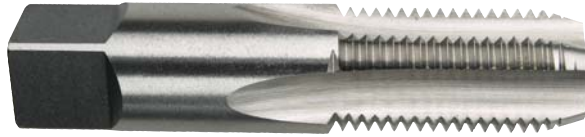
List No. 2119 Fractional

| SIZE | PITCH | NUMBER OF FLUTES | THREAD LENGTH | OAL | NPT EDP NO. | NPTF EDP NO. |
|-------|--------|------------------|---------------|--------|-----------------------|-----------------------|
| 1/16 | 27 | 4 | 11/16 | 2-1/8 | 05250 | 05251 |
| 1/8 | 27 | 4 | 3/4 | 2-1/8 | 05254 | 05255 |
| 1/4 | 18 | 4 | 1-1/16 | 2-7/16 | 05268 | 05269 |
| 3/8 | 18 | 4 | 1-1/16 | 2-9/16 | 05282 | 05283 |
| 1/2 | 14 | 4 | 1-3/8 | 3-1/8 | 05294 | 05295 |
| 3/4 | 14 | 5 | 1-3/8 | 3-1/4 | 05304 | 05305 |
| 1 | 11-1/2 | 5 | 1-3/4 | 3-3/4 | 05313 | 05314 |
| 1-1/4 | 11-1/2 | 5 | 1-3/4 | 4 | 05317 | 05318 |
| 1-1/2 | 11-1/2 | 7 | 1-3/4 | 4-1/4 | 05321 | 05322 |

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BSPT Taper Taps

Ground Thread — High Speed Steel
Bright Finish — General Purpose
55°



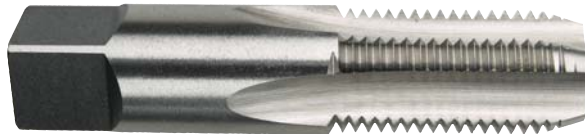
List No. 2119W Fractional

List No. 2119W Fractional

| SIZE | NO. OF FLUTES | PITCH | THREAD LENGTH | OAL | FLUTE TYPE | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|---------------|-------|---------------|--------|-----------------|--------------|----------------|
| 1/8 | 4 | 28 | 3/4 | 2-1/8 | Taper Modified | 05039 | 05043 |
| | 4 | 28 | 3/4 | 2-1/8 | Taper Full Form | 05041 | — |
| 1/4 | 4 | 19 | 1-1/16 | 2-7/16 | Taper Modified | 05027 | 05031 |
| | 4 | 19 | 1-1/16 | 2-7/16 | Taper Full Form | 05029 | — |
| 3/8 | 4 | 19 | 1-1/16 | 2-9/16 | Taper Modified | 05060 | 05058 |
| | 4 | 19 | 1-1/16 | 2-9/16 | Taper Modified | 05062 | — |
| 1/2 | 4 | 14 | 1-3/8 | 3-1/8 | Taper Modified | 05020 | 05024 |
| | 4 | 14 | 1-3/8 | 3-1/8 | Taper Full Form | 05022 | — |
| 3/4 | 5 | 14 | 1-3/8 | 3-1/4 | Taper Modified | 05051 | 05055 |
| | 5 | 14 | 1-3/8 | 3-1/4 | Taper Full Form | 05053 | — |
| 1 | 5 | 11 | 1-3/4 | 3-3/4 | Taper Modified | 05014 | — |
| | 5 | 11 | 1-3/4 | 3-3/4 | Taper Modified | 05015 | — |
| | 5 | 11 | 1-3/4 | 3-3/4 | Taper Full Form | — | 05017 |
| 1-1/4 | 5 | 11 | 1-3/4 | 4 | Taper Modified | 05006 | 05010 |
| | 5 | 11 | 1-3/4 | 4 | Taper Full Form | 05008 | — |
| 1-1/2 | 7 | 11 | 1-3/4 | 4-1/4 | Taper Modified | 05000 | 05004 |
| | 7 | 11 | 1-3/4 | 4-1/4 | Taper Full Form | 05002 | — |
| 2 | 7 | 11 | 1-3/4 | 4-1/4 | Taper Modified | 05045 | 05049 |
| | 7 | 11 | 1-3/4 | 4-1/4 | Taper Full Form | 05047 | — |

BSPP Parallel Taps

Ground Thread — High Speed Steel
Bright Finish — General Purpose
55°



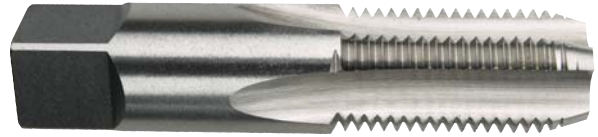
List No. 2119W Fractional

List No. 2119W Fractional

| SIZE | NO. OF FLUTES | PITCH | THREAD LENGTH | OAL | FLUTE TYPE | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|---------------|-------|---------------|--------|--------------------|--------------|----------------|
| 1/8 | 4 | 28 | 3/4 | 2-1/8 | Parallel Modified | 05040 | 05044 |
| | 4 | 28 | 3/4 | 2-1/8 | Parallel Full Form | 05042 | — |
| 1/4 | 4 | 19 | 1-1/16 | 2-7/16 | Parallel Modified | 05028 | — |
| | 4 | 19 | 1-1/16 | 2-7/16 | Parallel Full Form | 05030 | 05032 |
| 3/8 | 4 | 19 | 1-1/16 | 2-9/16 | Parallel Full Form | 05057 | — |
| | 4 | 19 | 1-1/16 | 2-9/16 | Parallel Modified | 05061 | 05059 |
| 1/2 | 4 | 14 | 1-3/8 | 3-1/8 | Parallel Modified | 05021 | 05025 |
| | 4 | 14 | 1-3/8 | 3-1/8 | Parallel Full Form | 05023 | — |
| 3/4 | 5 | 14 | 1-3/8 | 3-1/4 | Parallel Modified | 05052 | 05056 |
| | 5 | 14 | 1-3/8 | 3-1/4 | Parallel Full Form | 05054 | — |
| 1 | 5 | 11 | 1-3/4 | 3-3/4 | Parallel Modified | 05012 | 05013 |
| | 5 | 11 | 1-3/4 | 3-3/4 | Parallel Full Form | 05016 | — |
| 1-1/4 | 5 | 11 | 1-3/4 | 4 | Parallel Modified | 05007 | 05011 |
| | 5 | 11 | 1-3/4 | 4 | Parallel Full Form | 05009 | — |
| 1-1/2 | 7 | 11 | 1-3/4 | 4-1/4 | Parallel Modified | 05001 | 05005 |
| | 7 | 11 | 1-3/4 | 4-1/4 | Parallel Full Form | 05003 | — |
| 2 | 7 | 11 | 1-3/4 | 4-1/4 | Parallel Modified | 05046 | 05050 |
| | 7 | 11 | 1-3/4 | 4-1/4 | Parallel Full Form | 05048 | — |

BSF-Whitworth Fine Taps

Ground Thread — High Speed Steel
 Bright Finish — General Purpose
 Straight Flute — 55°



List No. 2119W Fractional

| SIZE | PITCH | NO. OF FLUTES | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. | TAPER EDP NO. |
|------|-------|---------------|---------------|---------|--------------|----------------|---------------|
| 1/4 | 26 | 4 | 1 | 2-1/2 | 05035 | 05036 | 05038 |
| 5/16 | 22 | 4 | 1-1/8 | 2-23/32 | 05068 | 05069 | 05071 |
| 3/8 | 20 | 4 | 1-1/4 | 2-15/16 | 05063 | 05064 | 05065 |

BSW-Whitworth Coarse Taps

Ground Thread — High Speed Steel
 Bright Finish — General Purpose
 Straight Flute — 55°



List No. 2119W Fractional

| SIZE | PITCH | NO. OF FLUTES | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. | TAPER EDP NO. |
|------|-------|---------------|---------------|---------|--------------|----------------|---------------|
| 1/4 | 20 | 4 | 1 | 2-1/2 | 05033 | 05034 | 05037 |
| 5/16 | 18 | 4 | 1-1/8 | 2-23/32 | 05066 | 05067 | 05070 |
| 1/2 | 12 | 4 | 1-21/32 | 3-3/8 | 05018 | 05019 | 05026 |
| 5/8 | 11 | 4 | 1-13/16 | 3-13/16 | 05072 | 05073 | 05074 |

Combined Tap and Drill

High Speed Steel
 Bright Finish

Combined Tap and Drills drill and tap in a single pass for increased productivity. Recommended for through hole applications up to 2X the nominal diameter of the tap. The self-centering point eliminates the need for center drilling or center punching. **NOTE: Drill point must penetrate the workpiece prior to start of tapping.**



List No. 2080 Machine Screw Fractional Metric

List No. 2080 Machine Screw

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | DRILL DIA. | DRILL LENGTH | OAL | EDP NO. |
|------|-------|------------------|---------------|------------|--------------|-------|---------|
| 4 | 40 | H2 | 3/8 | 0.9100 | 0.2500 | 1-7/8 | 06000 |

List No. 2080 Fractional

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | DRILL DIA. | DRILL LENGTH | OAL | EDP NO. |
|------|--------|------------------|---------------|------------|--------------|--------|---------|
| 1/16 | 27 | — | 11/16 | 0.2420 | 0.6875 | 2-1/8 | 06006 |
| 1/8 | 27 | — | 3/4 | 0.3320 | 0.7500 | 2-1/8 | 06007 |
| 1/4 | 18 | — | 1-1/16 | 0.4830 | 0.8750 | 2-7/16 | 06008 |
| 3/8 | 18 | — | 1-1/16 | 0.5620 | 0.9375 | 2-9/16 | 06009 |
| 1/2 | 14 | — | 1-3/8 | 0.7030 | 1.2500 | 3-1/8 | 06010 |
| 5/8 | 11 | H3 | 1-3/4 | 0.5480 | 1.5000 | 5-1/16 | 06001 |
| 3/4 | 14 | — | 1-3/8 | 0.9060 | 1.3125 | 3-1/4 | 06011 |
| 1 | 11-1/2 | — | 1-3/4 | 1.1410 | 1.6250 | 3-3/4 | 06012 |

List No. 2080 Metric

| SIZE | PITCH | PITCH DIA. LIMIT | THREAD LENGTH | DRILL DIA. | DRILL LENGTH | OAL | EDP NO. |
|------|-------|------------------|---------------|------------|--------------|---------|---------|
| M3 | 0.50 | D3 | 13/32 | 0.1020 | 0.2812 | 1-15/16 | 06002 |
| M3.5 | 0.60 | D4 | 7/16 | 0.1200 | 0.3125 | 2 | 06003 |
| M4.5 | 0.75 | D4 | 5/8 | 0.1520 | 0.4062 | 2-3/8 | 06004 |
| M7 | 1.00 | D5 | 15/16 | 0.2420 | 0.6875 | 2-23/32 | 06005 |

Pulley Taps

Ground Thread — High Speed Steel
Bright Finish

Pulley taps, commonly used wherever extra reach is required, were originally designed for tapping holes in pulleys with hubs. The shank diameter is the same diameter as the major diameter of the thread and the threaded section has the same dimensions as a standard hand tap.



List No. 2082 Fractional

Plug Style - H3 Pitch Dia. Limit

STANDARD PACKAGE All sizes — 1 each

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. | TAPER EDP NO. |
|------|-------|---------------|------------------|---------------|-----|--------------|----------------|---------------|
| 7/16 | 20 | 4 | H3 | 1-7/16 | 6 | 04903 | 04904 | 04905 |
| 1/2 | 20 | 4 | H3 | 1-21/32 | 6 | 04900 | 04901 | 04902 |

Conduit Thread Taps

High Speed Steel

80° Angle
Bright Finish



List No. 2087 Metric

| SIZE | PITCH | NO. OF FLUTES | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|---------------|---------------|---------|--------------|----------------|
| M12.5 | 1.27 | 4 | 1-21/32 | 3-3/8 | 05413 | 05414 |
| M15.2 | 1.41 | 4 | 1-13/16 | 3-13/16 | 05415 | 05416 |
| M18.6 | 1.41 | 4 | 2 | 4-1/4 | 05417 | 05418 |
| M20.4 | 1.41 | 4 | 2 | 4-15/32 | 05419 | 05420 |
| M22.5 | 1.41 | 4 | 2-7/32 | 4-11/16 | 05421 | 05422 |
| M28.3 | 1.588 | 6 | 1-1/2 | 4 | 05423 | 05424 |
| M37 | 1.588 | 6 | 1-1/2 | 4 | 05425 | 05426 |
| M47 | 1.588 | 6 | 2 | 5 | 05427 | 05428 |
| M54 | 1.588 | 6 | 2 | 5-1/4 | 05429 | 05430 |
| M59.3 | 1.588 | 6 | 2 | 5-1/4 | 05431 | 05432 |

Carbide Tipped Taps

Ground Thread
Bright Finish

Used for materials up to 32Rc.
Not recommended for hard materials.



List No. 2084 Fractional

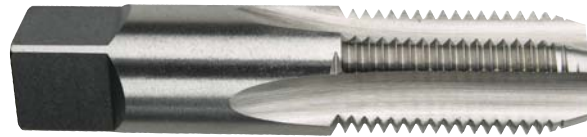
Recommended for abrasive materials including space age alloys, exotic materials, aluminum and non-ferrous materials. Higher speeds and longer tool life in production applications.

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|-------|-------|---------------|------------------|---------------|---------|--------------|----------------|
| 7/8 | 9 | 4 | H4 | 1-11/32 | 4-11/16 | 05433 | 05434 |
| | 14 | 4 | H4 | 1-11/32 | 4-11/16 | 05435 | 05436 |
| 1 | 8 | 4 | H4 | 1-1/2 | 5-1/8 | 05437 | 05438 |
| | 12 | 4 | H4 | 1-1/2 | 5-1/8 | 05439 | 05440 |
| 1-1/4 | 7 | 4 | H4 | 2-17/64 | 5-3/4 | 05441 | 05442 |
| 1-3/8 | 12 | 4 | H4 | 3 | 6-1/16 | 05443 | 05444 |
| 1-1/2 | 6 | 4 | H4 | 3 | 6-3/8 | 05445 | 05446 |

Carbide Pipe Taps Straight Flute

NPS/NPSF
Ground Thread
Bright Finish

Used for materials up to 32Rc.
Not recommended for hard materials.



List No. 2083 Fractional

Recommended for abrasive materials including space age alloys, exotic materials, aluminum and non-ferrous materials. Higher speeds and longer tool life in production applications.

| SIZE | PITCH | NO. OF FLUTES | THREAD LENGTH | NECK LENGTH | OAL | NPS EDP NO. | NPSF EDP NO. |
|------|-------|---------------|---------------|-------------|-------|-------------|--------------|
| 1/8 | 27 | 4 | 3/4 | 0.5000 | 2-1/8 | 05309 | 05473 |

Carbide Pipe Taps Tapered

NPT/NPTF
Ground Thread
Bright Finish

Used for materials up to 32Rc.
Not recommended for hard materials.



List No. 2083 Fractional

Recommended for abrasive materials including space age alloys, exotic materials, aluminum and non-ferrous materials. Higher speeds and longer tool life in production applications.

| SIZE | PITCH | NO. OF FLUTES | THREAD LENGTH | NECK LENGTH | OAL | NPT EDP NO. | NPTF EDP NO. |
|------|-------|---------------|---------------|-------------|-------|-------------|--------------|
| 1/16 | 27 | | 11/16 | 0.4400 | 2-1/8 | 05474 | 05475 |
| 1/8 | 27 | 4 | 3/4 | 0.5000 | 2-1/8 | 05469 | 05471 |
| 1/4 | 18 | 4 | 5/8 | 0.3800 | 2-1/2 | 05467 | 05307 |

Decimal Equivalent Pocket Chart List No. 1005

Tableau décimal Tabla de medidas decimales

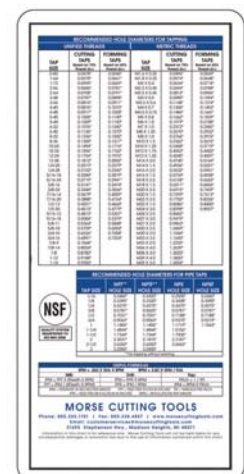
NEW LOOK! LARGER SIZE! Decimal Equivalents.
Tap Drill Sizes for inch, metric and pipe threads.
Size: 3 3/8" x 7", Printed on plastic

Pack of 50
EDP No. 20412

Pack of 100
EDP No. 20413



Front



Back

Carbide Taps Straight Flute

Ground Thread – Carbide
Bright Finish



List No. 2083 Machine Screw Fractional Metric

Used for materials up to 32Rc.
Not recommended for hard materials.

Recommended for abrasive materials including space age alloys, exotic materials, aluminum and non-ferrous materials. Higher speeds and longer tool life in production applications.

List No. 2083 Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | NECK LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|-------------|---------|--------------|----------------|
| #0 | 80 | 2 | H2 | 5/16 | — | 1-5/8 | 05343 | 05344 |
| #2 | 56 | 2 | H2 | 7/16 | — | 1-3/4 | 05357 | 05358 |
| #4 | 40 | 2 | H2 | 5/16 | 0.2500 | 1-7/8 | 05362 | 05363 |
| | 48 | 2 | H2 | 5/16 | 0.2500 | 1-7/8 | 05364 | 05365 |
| #5 | 40 | 3 | H2 | 5/16 | 0.3100 | 1-15/16 | 05367 | 05368 |
| #6 | 32 | 3 | H3 | 3/8 | 0.3100 | 2 | 05370 | 05371 |
| | 40 | 3 | H2 | 3/8 | 0.3100 | 2 | 05372 | 05373 |
| #8 | 32 | 4 | H3 | 3/8 | 0.3800 | 2-1/8 | 05375 | 05376 |
| | 36 | 4 | H2 | 3/8 | 0.3800 | 2-1/8 | 05377 | 05378 |
| #10 | 24 | 4 | H3 | 1/2 | 0.3800 | 2-3/8 | 05347 | 05348 |
| | 32 | 4 | H3 | 1/2 | 0.3800 | 2-3/8 | 05349 | 05350 |
| #12 | 24 | 4 | H3 | 1/2 | 0.4400 | 2-3/8 | 05353 | 05354 |
| | 28 | 4 | H3 | 1/2 | 0.4400 | 2-3/8 | 05355 | 05356 |

List No. 2083 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | NECK LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|-------------|---------|--------------|----------------|
| 1/4 | 20 | 4 | H3 | 5/8 | 0.3800 | 2-1/2 | 05300 | 05301 |
| | 28 | 4 | H3 | 5/8 | 0.3800 | 2-1/2 | 05302 | 05303 |
| 5/16 | 18 | 4 | H3 | 11/16 | 0.4400 | 2-23/32 | 05327 | 05328 |
| | 24 | 4 | H3 | 11/16 | 0.4400 | 2-23/32 | 05329 | 05330 |
| 3/8 | 16 | 4 | H3 | 3/4 | 0.5000 | 2-15/16 | 05318 | 05319 |
| | 24 | 4 | H3 | 3/4 | 0.5000 | 2-15/16 | 05320 | 05321 |
| 7/16 | 14 | 4 | H3 | 7/8 | — | 3-5/32 | 05333 | 05334 |
| | 20 | 4 | H3 | 7/8 | — | 3-5/32 | 05335 | 05336 |
| 1/2 | 13 | 4 | H3 | 15/16 | 0.4400 | 3-3/8 | 05294 | 05295 |
| | 20 | 4 | H3 | 15/16 | 0.4400 | 3-3/8 | 05296 | 05297 |
| 9/16 | 12 | 4 | H3 | 1 | — | 3-19/32 | 05339 | 05340 |
| | 18 | 4 | H3 | 1 | — | 3-19/32 | 05341 | 05342 |
| 5/8 | 11 | 4 | H3 | 1-3/32 | — | 3-13/16 | 05323 | 05324 |
| | 18 | 4 | H3 | 1-3/32 | — | 3-13/16 | 05325 | 05326 |
| 3/4 | 10 | 4 | H3 | 1-7/32 | 0.6900 | 4-1/4 | 05314 | 05315 |
| | 16 | 4 | H3 | 1-7/32 | 0.6900 | 4-1/4 | 05316 | 05317 |

List No. 2083 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH DIA. LIMIT | THREAD LENGTH | NECK LENGTH | OAL | PLUG EDP NO. | BOTTOM EDP NO. |
|------|-------|---------------|------------------|---------------|-------------|---------|--------------|----------------|
| M3 | 0.50 | 3 | D3 | 5/16 | 0.3100 | 1-15/16 | — | 05389 |
| M3.5 | 0.60 | 3 | D4 | 3/8 | 0.3100 | 2 | 05391 | 05392 |
| M4 | 0.70 | 4 | D4 | 3/8 | 0.3800 | 2-1/8 | 05394 | 05395 |
| M4.5 | 0.75 | 4 | D4 | 1/2 | 0.3800 | 2-1/8 | 05397 | 05398 |
| M5 | 0.80 | 4 | D4 | 1/2 | 0.3800 | 2-1/8 | 05400 | 05401 |
| M6 | 1.00 | 4 | D5 | 5/8 | 0.3800 | 2-1/2 | 05403 | 05404 |
| M7 | 1.00 | 4 | D5 | 11/16 | 0.4400 | 2-23/32 | 05406 | 05407 |
| M8 | 1.25 | 4 | D5 | 11/16 | 0.4400 | 2-23/32 | 05409 | 05410 |
| | 1.00 | 4 | D5 | 11/16 | 0.4400 | 2-23/32 | 05411 | 05412 |
| M10 | 1.50 | 4 | D6 | 3/4 | 0.5000 | 2-15/16 | 05379 | 05380 |
| | 1.25 | 4 | D5 | 3/4 | 0.5000 | 2-15/16 | 05381 | 05382 |
| M12 | 1.75 | 4 | D6 | 15/16 | — | 3-3/8 | 05385 | 05386 |

Carbide Spiral Point Taps Straight Flute

Ground Thread
Bright Finish



List No. 2083 Machine Screw
Fractional
Metric

Used for materials up to 32Rc.
Not recommended for hard materials.

Recommended for abrasive materials including space age alloys, exotic materials, aluminum and non-ferrous materials. Higher speeds and longer tool life in production applications.

List No. 2083 Machine Screw

| SIZE | PITCH | NO. OF FLUTES | PITCH | | NECK LENGTH | OAL | EDP NO. |
|------|-------|---------------|------------|---------------|-------------|---------|---------|
| | | | DIA. LIMIT | THREAD LENGTH | | | |
| #2 | 56 | 2 | H2 | 7/16 | — | 1-3/4 | 05359 |
| #4 | 40 | 2 | H2 | 5/16 | 0.2500 | 1-7/8 | 05360 |
| | 48 | 2 | H2 | 5/16 | 0.2500 | 1-7/8 | 05361 |
| #5 | 40 | 2 | H2 | 5/16 | 0.3100 | 1-15/16 | 05366 |
| #6 | 32 | 2 | H3 | 3/8 | 0.3100 | 2 | 05369 |
| #8 | 32 | 2 | H3 | 3/8 | 0.3800 | 2-1/8 | 05374 |
| #10 | 24 | 2 | H3 | 1/2 | 0.3800 | 2-3/8 | 05345 |
| | 32 | 2 | H3 | 1/2 | 0.3800 | 2-3/8 | 05346 |
| #12 | 24 | 2 | H3 | 1/2 | 0.4400 | 2-3/8 | 05351 |
| | 28 | 2 | H3 | 1/2 | 0.4400 | 2-3/8 | 05352 |

List No. 2083 Fractional

| SIZE | PITCH | NO. OF FLUTES | PITCH | | NECK LENGTH | OAL | EDP NO. |
|------|-------|---------------|------------|---------------|-------------|---------|---------|
| | | | DIA. LIMIT | THREAD LENGTH | | | |
| 1/4 | 20 | 2 | H3 | 5/8 | 0.3800 | 2-1/2 | 05304 |
| | 28 | 2 | H3 | 5/8 | 0.3800 | 2-1/2 | 05305 |
| 5/16 | 18 | 2 | H3 | 11/16 | 0.4400 | 2-23/32 | 05331 |
| | 24 | 2 | H3 | 11/16 | 0.4400 | 2-23/32 | 05332 |
| 3/8 | 16 | 3 | H3 | 3/4 | 0.5000 | 2-15/16 | 05322 |
| 7/16 | 14 | 3 | H3 | 7/8 | — | 3-5/32 | 05337 |
| | 20 | 3 | H3 | 7/8 | — | 3-5/32 | 05338 |
| 1/2 | 13 | 3 | H3 | 15/16 | 0.4400 | 3-3/8 | 05298 |
| | 20 | 3 | H3 | 15/16 | 0.4400 | 3-3/8 | 05299 |

List No. 2083 Metric

| SIZE | PITCH | NO. OF FLUTES | PITCH | | NECK LENGTH | OAL | EDP NO. |
|------|-------|---------------|------------|---------------|-------------|---------|---------|
| | | | DIA. LIMIT | THREAD LENGTH | | | |
| M3 | 0.50 | 2 | D3 | 5/16 | 0.3100 | 1-15/16 | 05388 |
| M3.5 | 0.60 | 2 | D4 | 3/8 | 0.3100 | 2" | 05390 |
| M4 | 0.70 | 2 | D4 | 3/8 | 0.3800 | 2-1/8 | 05393 |
| M4.5 | 0.75 | 2 | D4 | 1/2 | 0.3800 | 2-1/8 | 05396 |
| M5 | 0.80 | 2 | D4 | 1/2 | 0.3800 | 2-1/8 | 05399 |
| M6 | 1.00 | 2 | D5 | 5/8 | 0.3800 | 2-1/2 | 05402 |
| M7 | 1.00 | 2 | D5 | 11/16 | 0.4400 | 2-23/32 | 05405 |
| M8 | 1.25 | 2 | D5 | 11/16 | 0.4400 | 2-23/32 | 05408 |
| M10 | 1.50 | 3 | D6 | 3/4 | 0.5000 | 2-15/16 | 05383 |
| | 1.25 | 3 | D5 | 3/4 | 0.5000 | 2-15/16 | 05384 |
| M12 | 1.75 | 3 | D6 | 15/16 | — | 3-3/8 | 05387 |

Standard Taps Cutting Speeds

| Workpiece Material | Brinell Hardness (BHN) | Surface Speed (SFM) |
|--|------------------------|---------------------|
| Low Carbon Steel - 1018, 12L12, 1108, 1213 | ≤ 120 | 65 |
| Low & Medium Carbon Steel - 1018, 1551, 11L44 | 120 - 250 | 40 |
| Medium Carbon and Alloyed Steel - 1040, 1140, 4340, 8640 | ≤ 250 | 40 |
| Tool and Die Steels - P20, A2, D2, H12 | ≤ 250 | 20 |
| Tool and Die Steels - P20, A2, D2, H12 | 250 - 350 | 15 |
| Free Machining Stainless Steels - 303, 410, 416, 440F | ≤ 260 | 35 |
| Moderate Machining Stainless Steels - 304, 316 | ≤ 300 | 25 |
| Difficult Machining Stainless Steels - 17-4PH, 316L, AM350 | ≤ 300 | 10 |
| Cast Iron - Soft Gray | ≤ 160 | 70 |
| Cast Iron - Gray | 160 - 260 | 60 |
| Cast Iron - Ductile | 250 | 50 |
| Cast Iron - Malleable | 250 - 330 | 35 |
| Titanium Alloys - Commercially Pure 99.0 | 110 - 170 | 20 |
| Titanium Alloys - Ti-6Al-4V, ASTM B367 Grades C-3, C-4 | ≤ 250 | 15 |
| High Temperature Alloys - Inconel, Hastelloy, Waspaloy | ≤ 150 | 25 |
| High Temperature Alloys - Inconel, Hastelloy, Waspaloy | 150 - 250 | 10 |
| Aluminum Alloys - 2025, 6061, A140, 514.0 | ≤ 150 | 100 |
| Copper Alloys - Brass and Bronze | ≤ 200 | 50 |
| Magnesium Alloys - AZ80A, HM12A, AM60A, ZE41A | 50 - 90 | 70 |

SPEEDS shown are suggested starting points only and may be increased or decreased depending on actual material and machining conditions. Start conservatively and increase until the machining cycle is optimized.

TAP SPEEDS may be **increased** for coated taps, spiral point taps, fine pitch taps and when the percentage of thread is decreased.

TAP SPEEDS may need to be **decreased** for uncoated taps, spiral flute taps, coarse pitch taps, bottoming taps, difficult materials, longer thread lengths, and when the percentage of thread is increased.

THREAD FORMING TAPS generally form threads more efficiently at higher speeds. Suggested speeds are 50% to 100% higher than the suggested speeds for cutting taps in similar applications.

PIPE TAP SPEEDS should be between one-half and three-quarters of the speeds of taps of comparable diameter and pitch.

**We can quote sizes & styles not listed.
Call or email us today.
800-255-2701
customerservices@morsecuttingtools.com**

Tap Drill Sizes – STI (Screw Thread Insert) Taps

| STI TAP SIZE | ALUMINUM | | STEEL, PLASTIC, MAGNESIUM | | MINOR DIA. LIMITS (AFTER TAPPING) | |
|--------------|----------------|--------------------------------------|---------------------------|--------------------------------------|-----------------------------------|-------|
| | TAP DRILL SIZE | DECIMAL EQUIV. OF TAP DRILL (INCHES) | TAP DRILL SIZE | DECIMAL EQUIV. OF TAP DRILL (INCHES) | MIN. | MAX. |
| | | | | | | |
| 2 - 56 | 3/32 | .0938 | #41 | .0960 | .0899 | .0961 |
| 4 - 40 | #31 | .1200 | #31 | .1200 | .1175 | .1252 |
| 5 - 40 | 3.4mm | .1339 | #29 | .1360 | .1305 | .1373 |
| 6 - 32 | #26 | .1470 | #25 | .1495 | .1448 | .1527 |
| 6 - 40 | #26 | .1470 | #25 | .1495 | .1435 | .1503 |
| 8 - 32 | #17 | .1730 | #16 | .1770 | .1708 | .1781 |
| 10- 24 | 13/64 | .2031 | #5 | .2055 | .1990 | .2080 |
| 10 - 32 | #7 | .2010 | 13/64 | .2031 | .1968 | .2041 |
| 12 - 24 | #1 | .2280 | #1 | .2280 | .2250 | .2340 |
| 1/4 - 20 | H | .2660 | H | .2660 | .2608 | .2704 |
| 1/4 - 28 | G | .2610 | 6.7mm | .2638 | .2577 | .2646 |
| 5/16 - 18 | Q | .3320 | Q | .3320 | .3245 | .3342 |
| 5/16 - 24 | 21/64 | .3281 | 21/64 | .3281 | .3215 | .3288 |
| 3/8 - 16 | X | .3970 | X | .3970 | .3885 | .3987 |
| 3/8 - 24 | 25/64 | .3906 | 25/64 | .3906 | .3840 | .3910 |
| 7/16 - 14 | 29/64 | .4531 | 29/64 | .4531 | .4530 | .4639 |
| 7/16 - 20 | 29/64 | .4531 | 29/64 | .4531 | .4483 | .4561 |
| 1/2 - 13 | 33/64 | .5156 | 17/32 | .5312 | .5166 | .5273 |
| 1/2 - 20 | 33/64 | .5156 | 33/64 | .5156 | .5108 | .5186 |

Recommended tap drill sizes may vary slightly from recommended minor diameter limits to enable use of standard stock drill sizes. This variance does not cause any issues in most applications.

Drill sizes shown for steel, plastic and magnesium are such as to allow for material contraction in softer materials and to provide increased tap life. Variations in material and equipment may require the use of drills which are larger or smaller than those recommended.

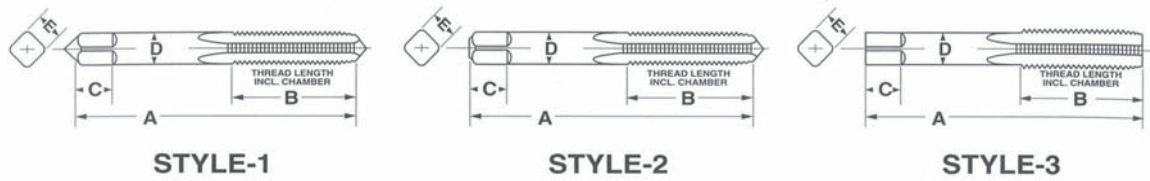
Threads produced should be checked with thread plug gages to ensure that the threads meet required specifications.

NOTE: Information in this chart is for reference only. We will not be held liable for any consequential damages or economic loss due to the use of information contained within this chart.

Tapping Formulas

| | | | | | | |
|--|---|---|---|--|---|---|
| Formula for Obtaining Tap Drill Sizes for Cutting Taps: | | | | | | |
| Major Dia. of Thread | - | $\frac{.01299 \times \text{Amt. of percentage of full thread}}{\text{No. of threads per inch}}$ | | | = | Drilled Hole* Size |
| Note: Select nearest commercial stock drill. | | | | | | |
| Percentage of Full Thread for Other Drill Sizes | | | | | | |
| No. of Threads per Inch | x | $\frac{\text{Major Dia. Selected of Thread} - \text{Drill Dia.}}{.01299}$ | | | = | Percentage of Full Thread |
| Formula For Obtaining Tap Drill Sizes For Thread Forming Taps: | | | | | | |
| *Drill Hole Size (inches) | = | Basic Major Dia. of thread (inches) | - | .0068 | x | $\frac{\text{Percentage of Full Thread}}{\text{No. of Threads per Inch}}$ |
| *Drilled Hole Size (mm) | = | Basic Major Dia. of thread (mm) | - | $\frac{\text{Percentage of Full Thread X mm Pitch}}{147.06}$ | | |
| *Note: Drill size should be smaller than hole size by the probable amount the drill will cut oversize. | | | | | | |

Table 302 — Hand Taps



General Dimensions

| NOMINAL DIA. RANGE-INCHES | | MACHINE SCREW SIZE NO. | NOMINAL FRACTIONAL DIAMETER (INCHES) | NOMINAL METRIC DIAMETER (MM) | STYLE | TAP DIMENSIONS — INCHES | | | | |
|---------------------------|------------|------------------------|--------------------------------------|------------------------------|-------|-------------------------|-----------------|-----------------|------------------|------------------|
| | | | | | | LENGTH OVERALL A | THREAD LENGTH B | SQUARE LENGTH C | SHANK DIAMETER D | SIZE OF SQUARE E |
| OVER | TO (Incl.) | | | | | | | | | |
| .052 | .065 | 0 | 1/16 | M1.6 | 1 | 1 5/8 | 5/16 | 3/16 | .141 | .110 |
| .065 | .078 | 1 | — | M1.8 | 1 | 1 11/16 | 3/8 | 3/16 | .141 | .110 |
| .078 | .091 | 2 | — | M2, M2.2 | 1 | 1 3/4 | 7/16 | 3/16 | .141 | .110 |
| .091 | .104 | 3 | 3/32 | M2.5 | 1 | 1 13/16 | 1/2 | 3/16 | .141 | .110 |
| .104 | .117 | 4 | — | — | 1 | 1 7/8 | 9/16 | 3/16 | .141 | .110 |
| .117 | .130 | 5 | 1/8 | M3, M3.15 | 1 | 1 15/16 | 5/8 | 3/16 | .141 | .110 |
| .130 | .145 | 6 | — | M3.5 | 1 | 2 | 1 1/16 | 3/16 | .141 | .110 |
| .145 | .171 | 8 | 5/32 | M4 | 1 | 2 1/8 | 3/4 | 1/4 | .168 | .131 |
| .171 | .197 | 10 | 3/16 | M4.5, M5 | 1 | 2 3/8 | 7/8 | 1/4 | .194 | .152 |
| .197 | .223 | 12 | 7/32 | — | 1 | 2 3/8 | 15/16 | 9/32 | .220 | .165 |
| .223 | .260 | 14 | 1/4 | M6, M6.3 | 2 | 2 1/2 | 1 | 5/16 | .255 | .191 |
| .260 | .323 | | 5/16 | M7, M8 | 2 | 2 23/32 | 1 1/8 | 3/8 | .318 | .238 |
| .323 | .395 | | 3/8 | M10 | 2 | 2 15/16 | 1 1/4 | 7/16 | .381 | .286 |
| .395 | .448 | | 7/16 | — | 3 | 3 5/32 | 1 7/16 | 1 3/32 | .323 | .242 |
| .448 | .510 | | 1/2 | M12, M12.5 | 3 | 3 3/8 | 1 21/32 | 7/16 | .367 | .275 |
| .510 | .573 | | 9/16 | M14 | 3 | 3 19/32 | 1 21/32 | 1/2 | .429 | .322 |
| .573 | .635 | | 5/8 | M16 | 3 | 3 13/16 | 1 13/16 | 9/16 | .480 | .360 |
| .635 | .709 | | 1 1/16 | M18 | 3 | 4 1/32 | 1 13/16 | 5/8 | .542 | .406 |
| .709 | .760 | | 3/4 | — | 3 | 4 1/4 | 2 | 1 1/16 | .590 | .442 |
| .760 | .823 | | 13/16 | M20 | 3 | 4 15/32 | 2 | 1 1/16 | .652 | .489 |
| .823 | .885 | | 7/8 | M22 | 3 | 4 11/16 | 2 7/32 | 3/4 | .697 | .523 |
| .885 | .948 | | 15/16 | M24 | 3 | 4 29/32 | 2 7/32 | 3/4 | .760 | .570 |
| .948 | 1.010 | | 1 | M25 | 3 | 5 1/8 | 2 1/2 | 13/16 | .800 | .600 |
| 1.010 | 1.073 | | 1 1/16 | M27 | 3 | 5 1/8 | 2 1/2 | 7/8 | .896 | .672 |
| 1.073 | 1.135 | | 1 1/8 | — | 3 | 5 7/16 | 2 9/16 | 7/8 | .896 | .672 |
| 1.135 | 1.198 | | 1 3/16 | M30 | 3 | 5 7/16 | 2 9/16 | 1 | 1.021 | .766 |
| 1.198 | 1.260 | | 1 1/4 | — | 3 | 5 3/4 | 2 9/16 | 1 | 1.021 | .766 |
| 1.260 | 1.323 | | 1 5/16 | M33 | 3 | 5 3/4 | 2 9/16 | 1 1/16 | 1.108 | .831 |
| 1.323 | 1.385 | | 1 3/8 | — | 3 | 6 1/16 | 3 | 1 1/16 | 1.108 | .831 |
| 1.385 | 1.448 | | 1 7/16 | M36 | 3 | 6 1/16 | 3 | 1 1/8 | 1.233 | .925 |
| 1.448 | 1.510 | | 1 1/2 | — | 3 | 6 3/8 | 3 | 1 1/8 | 1.233 | .925 |
| 1.510 | 1.635 | | 1 5/8 | M39 | 3 | 6 11/16 | 3 3/16 | 1 1/8 | 1.305 | .979 |
| 1.635 | 1.760 | | 1 3/4 | M42 | 3 | 7 | 3 3/16 | 1 1/4 | 1.430 | 1.072 |
| 1.760 | 1.885 | | 1 7/8 | — | 3 | 7 5/16 | 3 9/16 | 1 1/4 | 1.519 | 1.139 |
| 1.885 | 2.010 | | 2 | M48 | 3 | 7 5/8 | 3 9/16 | 1 3/8 | 1.644 | 1.233 |
| 2.010 | 2.135 | | 2 1/8 | — | 3 | 8 | 3 9/16 | 1 3/8 | 1.769 | 1.327 |
| 2.135 | 2.260 | | 2 1/4 | M56 | 3 | 8 1/4 | 3 9/16 | 1 7/16 | 1.894 | 1.420 |
| 2.260 | 2.385 | | 2 3/8 | — | 3 | 8 1/2 | 4 | 1 7/16 | 2.019 | 1.514 |
| 2.385 | 2.510 | | 2 1/2 | — | 3 | 8 3/4 | 4 | 1 1/2 | 2.100 | 1.575 |
| 2.510 | 2.635 | | 2 5/8 | M64 | 3 | 8 3/4 | 4 | 1 1/2 | 2.225 | 1.669 |
| 2.635 | 2.760 | | 2 3/4 | — | 3 | 9 1/4 | 4 | 1 9/16 | 2.350 | 1.762 |
| 2.760 | 2.885 | | 2 7/8 | M72 | 3 | 9 1/4 | 4 | 1 9/16 | 2.475 | 1.856 |

(continued)

Table 302 — Hand Taps (continued)

General Dimensions

| NOMINAL DIA. RANGE-INCHES | | MACHINE SCREW SIZE NO. | NOMINAL FRACTIONAL DIAMETER (INCHES) | NOMINAL METRIC DIAMETER (MM) | STYLE | TAP DIMENSIONS —INCHES | | | | |
|---------------------------|-------|------------------------|--------------------------------------|------------------------------|-------|--------------------------------|---------------------------------|-------------------------------|------------------|------------------|
| | | | | | | LENGTH OVERALL A | THREAD LENGTH B | SQUARE LENGTH C | SHANK DIAMETER D | SIZE OF SQUARE E |
| 2.885 | 3.010 | | 3 | — | 3 | 9/4 | 4 ⁹ / ₁₆ | 1 ⁵ / ₈ | 2.543 | 1.907 |
| 3.010 | 3.135 | | 3 ¹ / ₈ | — | 3 | 9/4 | 4 ⁹ / ₁₆ | 1 ⁵ / ₈ | 2.668 | 2.001 |
| 3.135 | 3.260 | | 3 ¹ / ₄ | M80 | 3 | 10 | 4 ⁹ / ₁₆ | 1 ³ / ₄ | 2.793 | 2.095 |
| 3.260 | 3.385 | | 3 ³ / ₈ | — | 3 | 10 | 4 ⁹ / ₁₆ | 1 ³ / ₄ | 2.883 | 2.162 |
| 3.385 | 3.510 | | 3 ¹ / ₂ | — | 3 | 10 ¹ / ₄ | 4 ¹⁵ / ₁₆ | 2 | 3.008 | 2.256 |
| 3.510 | 3.635 | | 3 ⁵ / ₈ | M90 | 3 | 10 ¹ / ₄ | 4 ¹⁵ / ₁₆ | 2 | 3.133 | 2.350 |
| 3.635 | 3.760 | | 3 ³ / ₄ | — | 3 | 10 ¹ / ₂ | 5 ⁵ / ₁₆ | 2 ¹ / ₈ | 3.217 | 2.413 |
| 3.760 | 3.885 | | 3 ⁷ / ₈ | — | 3 | 10 ¹ / ₂ | 5 ⁵ / ₁₆ | 2 ¹ / ₈ | 3.342 | 2.506 |
| 3.885 | 4.010 | | 4 | M100 | 3 | 10 ³ / ₄ | 5 ⁵ / ₁₆ | 2 ¹ / ₄ | 3.467 | 2.600 |

Tolerances

| ELEMENT | NOMINAL DIAMETER RANGE —INCHES | | DIRECTION | TOLERANCE — INCHES |
|-----------------------|--------------------------------|------------|---------------|--------------------|
| | OVER | TO (Incl.) | | |
| Length Overall — A | .052 | 1.010 | Plus or Minus | 1/32 |
| | 1.010 | 4.010 | Plus or Minus | 1/16 |
| Length of Thread — B | .052 | .223 | Plus or Minus | 3/64 |
| | .223 | .510 | Plus or Minus | 1/16 |
| | .510 | 1.510 | Plus or Minus | 3/32 |
| | 1.510 | 4.010 | Plus or Minus | 1/8 |
| Length of Square — C | .052 | 1.010 | Plus or Minus | 1/32 |
| | 1.010 | 4.010 | Plus or Minus | 1/16 |
| Diameter of Shank — D | .052 | .223 | Minus | .0015 |
| | .223 | .635 | Minus | .0015 |
| | .635 | 1.010 | Minus | .002 |
| | 1.010 | 1.510 | Minus | .002 |
| | 1.510 | 2.010 | Minus | .003 |
| | 2.010 | 4.010 | Minus | .003 |
| Size of Square — E | .052 | .510 | Minus | .004 |
| | .510 | 1.010 | Minus | .006 |
| | 1.010 | 2.010 | Minus | .008 |
| | 2.010 | 4.010 | Minus | .010 |

Special Taps

Unless otherwise specified:

Special taps over 1.010" to 1.510" diameter inclusive, having 14 or more threads per inch or 1.75 millimeter pitch and finer, and sizes over 1.510" diameter with 10 or more threads per inch or 2.5 millimeter pitch and finer, are made to general dimensions shown in Table 303.

Special ground thread taps are made to limits shown in Table 331 for Unified Inch Screw Threads and Table 341 for Metric M-Profile Screw Threads.

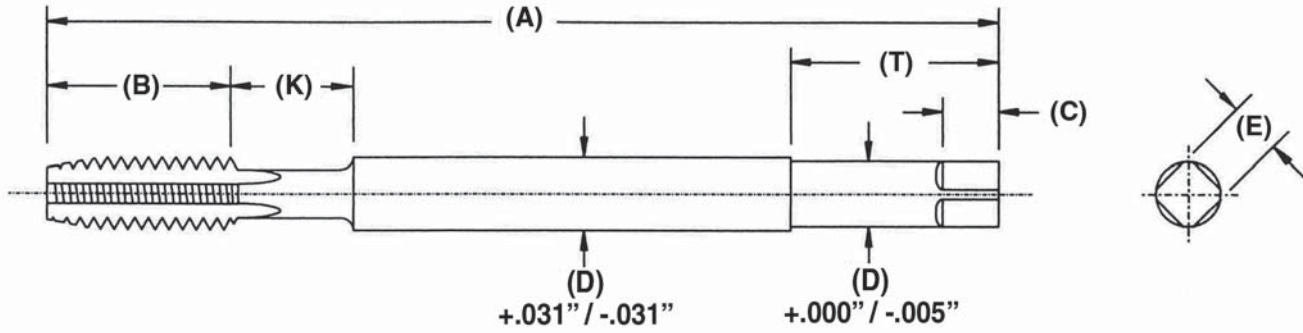
Notes

Ground thread taps, sizes .395" and smaller, have external center on thread end (may be removed on bottoming taps). Sizes .223" and smaller have external center on shank end; sizes .224" thru .395" have truncated partial cone centers on shank end (length of cone approximately 1/4 of diameter shank). Sizes over .395" have internal center in thread and shank ends.

For standard thread limits and tolerances for Unified Inch Screw Threads see Table 327 and for Metric Threads see Table 337.

For eccentricity tolerances of tap elements see Table 317.

Table 310 — Pulley Taps



General Dimensions

| DIAMETER OF TAP INCHES | DIMENSIONS - INCHES | | | | | | |
|------------------------|---------------------|--------------------|--------------------|-----------------|------------------------------|------------------|--------------------|
| | LENGTH OVERALL A | LENGTH OF THREAD B | LENGTH OF SQUARE C | DIA. OF SHANK D | LENGTH OF CLOSE TOLERANCE T* | SIZE OF SQUARE E | LENGTH OF NECK K** |
| 1/4 | 6, 8 | 1 | 5/16 | .255 | 1 1/2 | .191 | 3/8 |
| 5/16 | 6, 8 | 1 1/8 | 3/8 | .318 | 1 9/16 | .238 | 3/8 |
| 3/8 | 6, 8, 10 | 1 1/4 | 7/16 | .381 | 1 5/8 | .286 | 3/8 |
| 7/16 | 6, 8 | 1 7/16 | 1/2 | .444 | 1 11/16 | .333 | 7/16 |
| 1/2 | 6, 8, 10, 12 | 1 21/32 | 9/16 | .507 | 1 11/16 | .380 | 1/2 |
| 5/8 | 6, 8, 10, 12 | 1 13/16 | 1 1/16 | .633 | 2 | .475 | 5/8 |
| 3/4 | 10, 12 | 2 | 3/4 | .759 | 2 1/4 | .569 | 3/4 |

Tolerances

| ELEMENT | RANGE | DIRECTION | TOLERANCE |
|-----------------------|--|----------------|----------------|
| Length Overall — A | 1/4" to 3/4" incl. | Plus or Minus | 1/16" |
| Length of Thread — B | 1/4" to 3/4" incl. | Plus or Minus | 1/16" |
| Length of Square — C | 1/4" to 3/4" incl. | Plus or Minus | 1/32" |
| Diameter of Shank — D | 1/4" to 3/4" incl. | Minus | .005" |
| Size of Square — E | 1/4" to 1/2" incl. 5/8" to 3/4" incl. | Minus Minus | .004" .006" |

Formulae (Approximate)

Diameter of Shank "D" = Maximum Major Diameter.

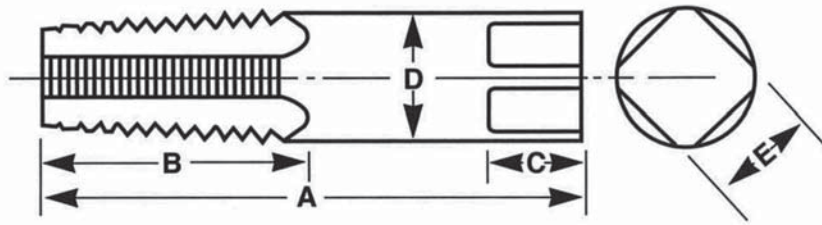
Size of Square = Diameter of Shank "D" x .75 to nearest .001"

Notes

*T is minimum length of shank which is held to eccentricity tolerances.

**K (neck and its length) is optional with manufacturer.

Table 311 — Pipe Taps



General Dimensions

| NOMINAL SIZE INCHES | DIMENSIONS - INCHES | | | | |
|---------------------|---------------------|--------------------|--------------------|-----------------|------------------|
| | LENGTH OVERALL A | LENGTH OF THREAD B | LENGTH OF SQUARE C | DIA. OF SHANK D | SIZE OF SQUARE E |
| 1/16 | 2 1/8 | 1 1/16 | 3/8 | .3125 | .234 |
| 1/8 | 2 1/8 | 3/4 | 3/8 | .3125 | .234 |
| 1/8 | 2 1/8 | 3/4 | 3/8 | .4375 | .328 |
| 1/4 | 2 7/16 | 1 1/16 | 7/16 | .5625 | .421 |
| 3/8 | 2 9/16 | 1 1/16 | 1/2 | .7000 | .531 |
| 1/2 | 3 1/8 | 1 3/8 | 5/8 | .6875 | .515 |
| 3/4 | 3 1/4 | 1 3/8 | 1 1/16 | .9063 | .679 |
| 1 | 3 3/4 | 1 3/4 | 1 3/16 | 1.1250 | .843 |
| 1 1/4 | 4 | 1 3/4 | 1 5/16 | 1.3125 | .984 |
| 1 1/2 | 4 1/4 | 1 3/4 | 1 | 1.5000 | 1.125 |
| 2 | 4 1/2 | 1 3/4 | 1 1/8 | 1.8750 | 1.406 |
| 2 1/2 | 5 1/2 | 2 9/16 | 1 1/4 | 2.2500 | 1.687 |
| 3 | 6 | 2 5/8 | 1 3/8 | 2.6250 | 1.968 |
| 3 1/2 | 6 1/2 | 2 11/16 | 1 1/2 | 2.8125 | 2.108 |
| 4 | 6 3/4 | 2 3/4 | 1 5/8 | 3.0000 | 2.250 |

Tolerances

| ELEMENT | RANGE | DIRECTION | TOLERANCE |
|-----------------------|---------------------|---------------|-----------|
| Length Overall — A | 1/16" to 3/4" incl. | Plus or Minus | 1/32" |
| | 1" to 4" incl. | Plus or Minus | 1/16" |
| Length of Thread — B | 1/16" to 3/4" incl. | Plus or Minus | 1/16" |
| | 1" to 1 1/4" incl. | Plus or Minus | 3/32" |
| | 1 1/2" to 4" incl. | Plus or Minus | 1/8" |
| Length of Square — C | 1/16" to 3/4" incl. | Plus or Minus | 1/32" |
| | 1" to 4" incl. | Plus or Minus | 1/16" |
| Diameter of Shank — D | 1/16" to 1/8" incl. | Minus | .0015" |
| | 1/4" to 1/2" incl. | Minus | .0020" |
| | 3/4" to 1" incl. | Minus | .0020" |
| | 1 1/4" to 4" incl. | Minus | .0030" |
| Size of Square — E | 1/16" to 1/8" incl. | Minus | .0040" |
| | 1/4" to 3/4" incl. | Minus | .0060" |
| | 1" to 4" incl. | Minus | .0080" |

USEFUL FORMULAS

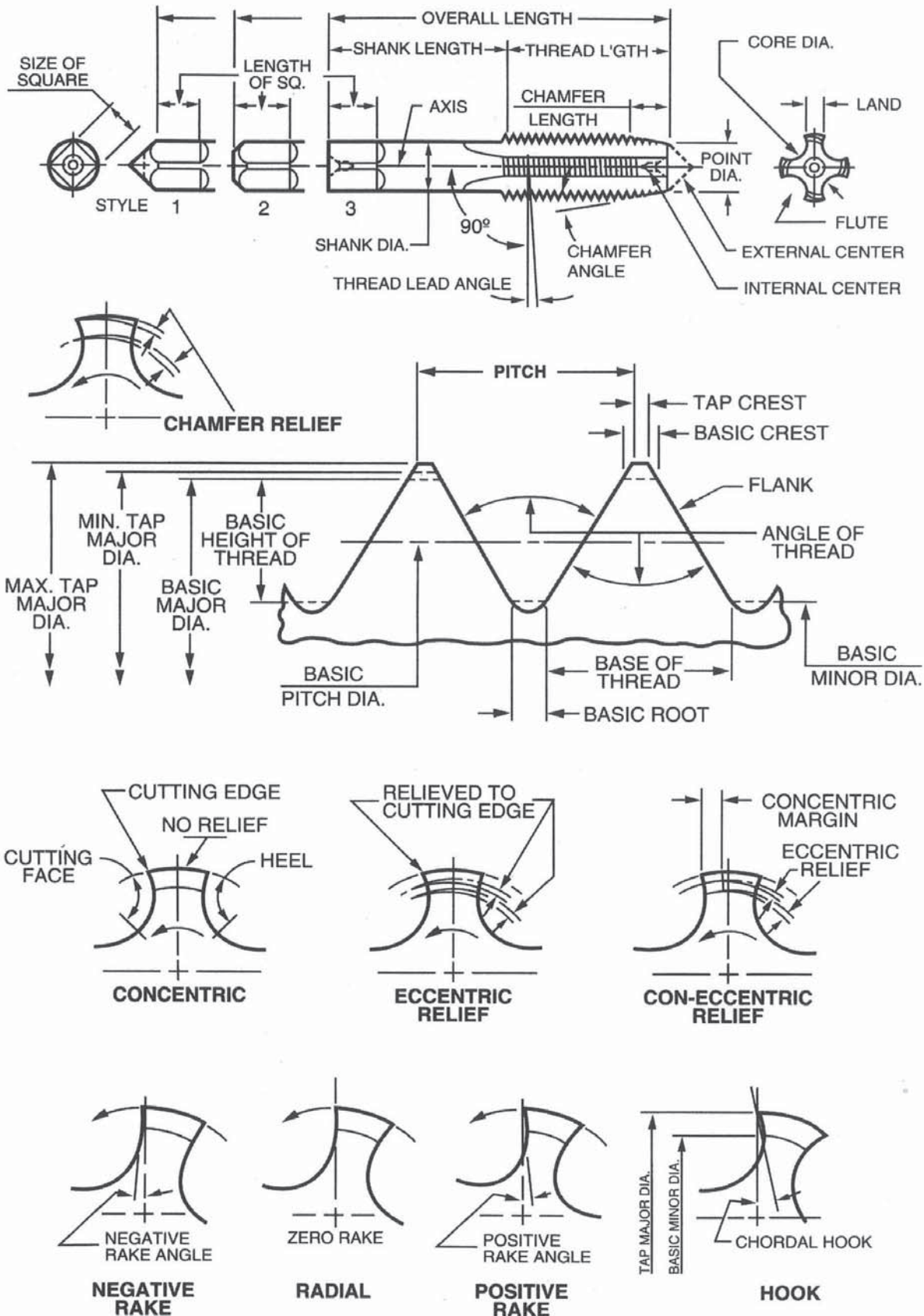
Surface Feet Per Minute = SFM
 Revolutions Per Minute = RPM
 Threads Per Inch = TPI
 Pitch = P
 Inches Per Minute = IPM

When TPI is known
 $P = 1 \div TPI$

When SFM and DIA are known:
 $RPM = 3.82 \times SFM \div DIA$

When RPM and P are known:
 $IPM = RPM \times P$

Tap Terminology



TOOL COATINGS

Tool Coatings enhance cutting tool performance for increased productivity and lower overall tooling cost. Benefits include increased surface hardness, lubricity & heat resistance and decreased chemical reactivity. Results include reduced friction & torque, higher speeds & feeds, increased tool life, decreased galling & chip welding and improved surface finish.

TiN – Titanium Nitride

A good general purpose coating for a wide range of ferrous materials. Not recommended for non-ferrous materials. Has higher heat resistance than TiCN coating.

TiCN – Titanium Carbonitride

Enhanced toughness, hardness & wear resistance for aggressive speeds & feeds. Recommended for difficult-to-machine, gummy & abrasive materials where moderate cutting temperatures are generated.

TiALN – Titanium Aluminum Nitride

ALTiN – Aluminum Titanium Nitride

Excellent all around coatings featuring high heat resistance. Recommended for high thermal stress applications including dry machining, abrasive materials and hard-to-machine materials that generate higher cutting temperatures. ALTiN has higher AL content for increased hardness & heat resistance.

CrN – Chromium Nitride

CrC – Chromium Carbide

Especially recommended for titanium and non-ferrous materials including aluminum, copper & brass. CrC has slightly higher hardness than CrN. These coatings resist adhesion of the material being machined and resist chipping and cracking.

DLC – Diamond Like Carbon

A thin carbon based amorphous (non-crystalline) coating featuring very high hardness & low coefficient of friction. Highly recommended for non-ferrous materials including plastic, aluminum, copper & brass. Typically used on solid carbide tools.

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Hole Diameters for Tapping

| UNIFIED THREADS | | | METRIC THREADS | | |
|-----------------|---|---|----------------|---|---|
| TAP SIZE | CUTTING TAPS Based on 75% Thread (in.) | FORMING TAPS Based on 65% Thread (in.) | TAP SIZE | CUTTING TAPS Based on 75% Thread (in.) | FORMING TAPS Based on 65% Thread (in.) |
| 0-80 | 0.0478" | 0.0545" | M1.6 X 0.35 | 0.0496" | 0.0569" |
| 1-64 | 0.0578" | 0.0661" | M1.8 X 0.35 | 0.0574" | 0.0648" |
| 1-72 | 0.0595" | 0.0669" | M2 X 0.4 | 0.0634" | 0.0718" |
| 2-56 | 0.0686" | 0.0781" | M2.2 X 0.45 | 0.0694" | 0.0788" |
| 2-64 | 0.0708" | 0.0791" | M2.5 X 0.45 | 0.0812" | 0.0906" |
| 3-48 | 0.0787" | 0.0898" | M3 X 0.5 | 0.0989" | 0.1094" |
| 3-56 | 0.0816" | 0.0911" | M3.5 X 0.6 | 0.1148" | 0.1274" |
| 4-40 | 0.0876" | 0.1010" | M4 X 0.7 | 0.1306" | 0.1453" |
| 4-48 | 0.0917" | 0.1028" | M4.5 X 0.75 | 0.1484" | 0.1641" |
| 5-40 | 0.1006" | 0.1140" | M5 X 0.8 | 0.1662" | 0.1829" |
| 5-44 | 0.1029" | 0.1150" | M6 X 1.0 | 0.1979" | 0.2188" |
| 6-32 | 0.1076" | 0.1242" | M7 X 1.0 | 0.2372" | 0.2582" |
| 6-40 | 0.1136" | 0.1270" | M8 X 1.25 | 0.2670" | 0.2932" |
| 8-32 | 0.1336" | 0.1502" | M8 X 1.0 | 0.2766" | 0.2976" |
| 8-36 | 0.1369" | 0.1517" | M10 X 1.5 | 0.3362" | 0.3676" |
| 10-24 | 0.1494" | 0.1716" | M10 X 1.25 | 0.3458" | 0.3719" |
| 10-32 | 0.1596" | 0.1762" | M12 X 1.75 | 0.4053" | 0.4420" |
| 12-24 | 0.1754" | 0.1976" | M12 X 1.25 | 0.4245" | 0.4507" |
| 12-28 | 0.1812" | 0.2002" | M14 X 2.0 | 0.4745" | 0.5164" |
| 1/4-20 | 0.2013" | 0.2279" | M14 X 1.5 | 0.4936" | 0.5251" |
| 1/4-28 | 0.2152" | 0.2342" | M16 X 2.0 | 0.5532" | 0.5951" |
| 5/16-18 | 0.2584" | 0.2879" | M16 X 1.5 | 0.5724" | 0.6038" |
| 5/16-24 | 0.2719" | 0.2941" | M18 X 2.5 | 0.6128" | 0.6652" |
| 3/8-16 | 0.3141" | 0.3474" | M18 X 1.5 | 0.6511" | 0.6826" |
| 3/8-24 | 0.3344" | 0.3566" | M20 X 2.5 | 0.6915" | 0.7439" |
| 7/16-14 | 0.3679" | 0.4059" | M20 X 1.5 | 0.7299" | 0.7613" |
| 7/16-20 | 0.3888" | 0.4154" | M22 X 2.5 | 0.7702" | 0.8226" |
| 1/2-13 | 0.4251" | 0.4660" | M22 X 1.5 | 0.8086" | 0.8400" |
| 1/2-20 | 0.4513" | 0.4779" | M24 X 3.0 | 0.8298" | 0.8927" |
| 9/16-12 | 0.4813" | 0.5257" | M24 X 2.0 | 0.8682" | |
| 9/16-18 | 0.5084" | 0.5379" | M27 X 3.0 | 0.9479" | |
| 5/8-11 | 0.5364" | 0.5848" | M27 X 2.0 | 0.9863" | |
| 5/8-18 | 0.5709" | 0.6004" | M30 X 3.5 | 1.0469" | |
| 3/4-10 | 0.6526" | 0.7058" | M30 X 2.0 | 1.1044" | |
| 3/4-16 | 0.6891" | 0.7224" | M33 X 3.5 | 1.1650" | |
| 7/8-9 | 0.7668" | | M33 X 2.0 | 1.2225" | |
| 7/8-14 | 0.8054" | | M36 X 4.0 | 1.2639" | |
| 1-8 | 0.8782" | | M36 X 3.0 | 1.3023" | |
| 1-12 | 0.9188" | | M39 X 4.0 | 1.3820" | |
| 1-14 | 0.9304" | | M39 X 3.0 | 1.4204" | |

Pipe Taps

| TAP SIZE | NPT** HOLE SIZE | NPTF** HOLE SIZE | NPS HOLE SIZE | NPSF HOLE SIZE |
|----------|--------------------|---------------------|------------------|-------------------|
| 1/16 | 0.2460" | 0.2420" | 0.2500" | 0.2460" |
| 1/8 | 0.3390" | 0.3320" | 0.3438" | 0.3390" |
| 1/4 | 0.4375" | 0.4375" | 0.4375" | 0.4375" |
| 3/8 | 0.5781" | 0.5625" | 0.5781" | 0.5781" |
| 1/2 | 0.7031" | 0.7031" | 0.7188" | 0.7188" |
| 3/4 | 0.9063" | 0.9063" | 0.9375" | 0.9219" |
| 1 | 1.1406" | 1.1406" | 1.1719" | 1.1563" |
| 1-1/4 | 1.4844" | 1.4844" | 1.5156" | |
| 1-1/2 | 1.7344" | 1.7344" | 1.7500" | |
| 2 | 2.2031" | 2.1875" | 2.2187" | |
| 2-1/2 | 2.6250" | 2.6250" | 2.6563" | |
| 3 | 3.2500" | 3.2500" | | |

**For tapping without reaming

NOTE: Information in this chart is for reference only. We will not be held liable for any consequential damages or economic loss due to the use of information contained within this chart.

Standard Taps

Class of Fit Recommendations

These tap recommendations will produce the specified class of fit in most applications. Threads produced should be checked with thread plug gages to ensure that the threads meet required specifications. Threads that gage loose or tight may require experimentation with taps of lower or higher pitch diameter limit ("H" or "D" number).

| Unified and American National Screw Threads | | | | | | | |
|--|------------------|-----|-------------------------------------|----------|---|------------------|------------------|
| Nominal Size | Threads Per Inch | | Recommended Tap for Class of Thread | | Pitch Diameter Limits for Class of Thread | | |
| | UNC | UNF | Class 2B | Class 3B | Minimum (Basic) | Maximum Class 2B | Maximum Class 3B |
| 0 | — | 80 | H2 | H1 | .0519 | .0542 | .0536 |
| 1 | 64 | — | H2 | H1 | .0629 | .0655 | .0648 |
| 1 | — | 72 | H2 | H1 | .0640 | .0665 | .0659 |
| 2 | 56 | — | H2 | H1 | .0744 | .0772 | .0765 |
| 2 | — | 64 | H2 | H1 | .0759 | .0786 | .0779 |
| 3 | 48 | — | H2 | H1 | .0855 | .0885 | .0877 |
| 3 | — | 56 | H2 | H1 | .0874 | .0902 | .0895 |
| 4 | 40 | — | H2 | H2 | .0958 | .0991 | .0982 |
| 4 | — | 48 | H2 | H1 | .0985 | .1016 | .1008 |
| 5 | 40 | — | H2 | H2 | .1088 | .1121 | .1113 |
| 5 | — | 44 | H2 | H1 | .1102 | .1134 | .1126 |
| 6 | 32 | — | H3 | H2 | .1177 | .1214 | .1204 |
| 6 | — | 40 | H2 | H2 | .1218 | .1252 | .1243 |
| 8 | 32 | — | H3 | H2 | .1437 | .1475 | .1465 |
| 8 | — | 36 | H2 | H2 | .1460 | .1496 | .1487 |
| 10 | 24 | — | H3 | H3 | .1629 | .1672 | .1661 |
| 10 | — | 32 | H3 | H2 | .1697 | .1736 | .1726 |
| 12 | 24 | — | H3 | H3 | .1889 | .1933 | .1922 |
| 12 | — | 28 | H3 | H3 | .1928 | .1970 | .1959 |
| 1/4 | 20 | — | H5 | H3 | .2175 | .2224 | .2211 |
| 1/4 | — | 28 | H4 | H3 | .2268 | .2311 | .2300 |
| 5/16 | 18 | — | H5 | H3 | .2764 | .2817 | .2803 |
| 5/16 | — | 24 | H4 | H3 | .2854 | .2902 | .2890 |
| 3/8 | 16 | — | H5 | H3 | .3344 | .3401 | .3387 |
| 3/8 | — | 24 | H4 | H3 | .3479 | .3528 | .3516 |
| 7/16 | 14 | — | H5 | H3 | .3911 | .3972 | .3957 |
| 7/16 | — | 20 | H5 | H3 | .4050 | .4104 | .4091 |
| 1/2 | 13 | — | H5 | H3 | .4500 | .4565 | .4548 |
| 1/2 | — | 20 | H5 | H3 | .4675 | .4731 | .4717 |
| 9/16 | 12 | — | H5 | H3 | .5084 | .5152 | .5135 |
| 9/16 | — | 18 | H5 | H3 | .5264 | .5323 | .5308 |
| 5/8 | 11 | — | H5 | H3 | .5660 | .5732 | .5714 |
| 5/8 | — | 18 | H5 | H3 | .5889 | .5949 | .5934 |
| 3/4 | 10 | — | H5 | H3 | .6850 | .6927 | .6907 |
| 3/4 | — | 16 | H5 | H3 | .7094 | .7159 | .7143 |
| 7/8 | 9 | — | H6 | H4 | .8028 | .8110 | .8089 |
| 7/8 | — | 14 | H6 | H4 | .8286 | .8356 | .8339 |
| 1 | 8 | — | H6 | H4 | .9188 | .9276 | .9254 |
| 1 | — | 12 | H6 | H4 | .9459 | .9535 | .9516 |
| 1 | — | 14* | H6 | H4 | .9536 | .9609 | .9590 |
| 1 1/8 | 7 | — | H8 | H4 | 1.0322 | 1.0416 | 1.0393 |
| 1 1/8 | — | 12 | H6 | H4 | 1.0709 | 1.0787 | 1.0768 |
| 1 1/4 | 7 | — | H8 | H4 | 1.1572 | 1.1668 | 1.1644 |
| 1 1/4 | — | 12 | H6 | H4 | 1.1959 | 1.2039 | 1.2019 |
| 1 3/8 | 6 | — | H8 | H4 | 1.2667 | 1.2771 | 1.2745 |
| 1 3/8 | — | 12 | H6 | H4 | 1.3209 | 1.3291 | 1.3270 |
| 1 1/2 | 6 | — | H8 | H4 | 1.3917 | 1.4022 | 1.3996 |
| 1 1/2 | — | 12 | H6 | H4 | 1.4459 | 1.4542 | 1.4522 |

*UNS

Standard Metric Taps

Class of Fit Recommendations

These tap recommendations will produce the specified class of fit in most applications. Threads produced should be checked with thread plug gages to ensure that the threads meet required specifications. Threads that gage loose or tight may require experimentation with taps of lower or higher pitch diameter limit ("H" or "D" number).

| Metric Threads | | | | | | |
|-----------------------|----------|-------------------------------------|----------|---|------------------|------------------|
| Size mm | Pitch mm | Recommended Tap for Class of Thread | | Pitch Diameter Limits for Class of Thread | | |
| | | Class 4H | Class 6H | Minimum (Basic) | Maximum Class 4H | Maximum Class 6H |
| M1.6 | 0.35 | D1 | D3 | 1.373 | 1.426 | 1.458 |
| M1.8 | 0.35 | D1 | D3 | 1.573 | 1.626 | 1.658 |
| M2 | 0.4 | D1 | D3 | 1.740 | 1.796 | 1.830 |
| M2.2 | 0.45 | D1 | D3 | 1.908 | 1.968 | 2.003 |
| M2.5 | 0.45 | D1 | D3 | 2.208 | 2.268 | 2.303 |
| M2.6 | 0.45 | D1 | D2 | 2.308 | 2.368 | 2.403 |
| M3 | 0.5 | D1 | D3 | 2.675 | 2.738 | 2.775 |
| M3.5 | 0.6 | D1 | D4 | 3.110 | 3.181 | 3.222 |
| M4 | 0.75 | D2 | D3 | 3.513 | 3.588 | 3.631 |
| M4 | 0.7 | D2 | D4 | 3.545 | 3.620 | 3.663 |
| M4.5 | 0.75 | D2 | D4 | 4.013 | 4.088 | 4.131 |
| M5 | 0.9 | D2 | D3 | 4.415 | 4.501 | 4.549 |
| M5 | 0.8 | D2 | D4 | 4.480 | 4.560 | 4.605 |
| M5.5 | 0.9 | D2 | D3 | 4.915 | 5.002 | 5.050 |
| M6 | 1 | D3 | D5 | 5.350 | 5.445 | 5.500 |
| M6 | 0.75 | D3 | D4 | 5.513 | 5.598 | 5.645 |
| M7 | 1 | D3 | D5 | 6.350 | 6.445 | 6.500 |
| M8 | 1.25 | D3 | D5 | 7.188 | 7.288 | 7.348 |
| M8 | 1 | D3 | D5 | 7.350 | 7.445 | 7.500 |
| M9 | 1.25 | D3 | D5 | 8.188 | 8.288 | 8.348 |
| M9 | 1 | D3 | D5 | 8.350 | 8.445 | 8.500 |
| M10 | 1.5 | D3 | D6 | 9.026 | 9.138 | 9.206 |
| M10 | 1.25 | D3 | D5 | 9.188 | 9.288 | 9.348 |
| M10 | 1 | D3 | D5 | 9.350 | 9.445 | 9.500 |
| M11 | 1.5 | D3 | D5 | 10.026 | 10.138 | 10.206 |
| M12 | 1.75 | D3 | D6 | 10.863 | 10.988 | 11.063 |
| M12 | 1.5 | D3 | D6 | 11.026 | 11.144 | 11.216 |
| M12 | 1.25 | D3 | D5 | 11.188 | 11.300 | 11.368 |
| M14 | 2 | D3 | D7 | 12.701 | 12.833 | 12.913 |
| M14 | 1.5 | D3 | D6 | 13.026 | 13.144 | 13.216 |
| M14 | 1.25 | D3 | D5 | 13.188 | 13.300 | 13.368 |
| M16 | 2 | D4 | D7 | 14.701 | 14.833 | 14.913 |
| M16 | 1.5 | D3 | D6 | 15.026 | 15.144 | 15.216 |
| M18 | 2.5 | D4 | D7 | 16.376 | 16.516 | 16.600 |
| M18 | 1.5 | D3 | D6 | 17.026 | 17.144 | 17.216 |
| M20 | 2.5 | D4 | D7 | 18.376 | 18.516 | 18.600 |
| M20 | 1.5 | D3 | D6 | 19.026 | 19.144 | 19.216 |
| M22 | 2.5 | D4 | D7 | 20.376 | 20.516 | 20.600 |
| M22 | 1.5 | D3 | D6 | 21.026 | 21.144 | 21.216 |
| M24 | 3 | D4 | D8 | 22.051 | 22.221 | 22.316 |
| M24 | 2 | D4 | D7 | 22.701 | 22.841 | 22.925 |
| M24 | 1.5 | D3 | D5 | 23.026 | 23.151 | 23.226 |
| M25 | 1.5 | D3 | D5 | 24.026 | 24.151 | 24.226 |
| M27 | 3 | D5 | D8 | 25.051 | 25.221 | 25.316 |
| M27 | 2 | D5 | D7 | 25.701 | 25.841 | 25.925 |
| M30 | 3.5 | D5 | D9 | 27.727 | 27.907 | 28.007 |
| M30 | 2 | D5 | D7 | 28.701 | 28.841 | 28.925 |
| M32 | 2 | D5 | D7 | 30.701 | 30.841 | 30.925 |
| M33 | 3.5 | D5 | D9 | 30.727 | 30.907 | 31.007 |
| M33 | 2 | D5 | D7 | 31.701 | 31.841 | 31.925 |
| M36 | 4 | D5 | D9 | 33.402 | 33.592 | 33.702 |
| M36 | 3 | D5 | D8 | 34.051 | 34.221 | 34.316 |
| M36 | 2 | D5 | D7 | 34.701 | 34.841 | 34.925 |
| M39 | 4 | D6 | D9 | 36.402 | 36.592 | 36.702 |
| M39 | 3 | D6 | D8 | 37.051 | 37.221 | 37.316 |

Fluteless Thread Forming Taps

Class of Fit Recommendations

These tap recommendations will produce the specified class of fit in most applications. Threads produced should be checked with thread plug gages to ensure that the threads meet required specifications. Threads that gage loose or tight may require experimentation with taps of lower or higher pitch diameter limit ("H" or "D" number).

Machine Screw & Fractional

| SIZE | THREADS PER INCH | | "H" LIMIT for CLASS of FIT | | |
|------|------------------|-----|----------------------------|-----|----|
| | UNC | UNF | 2 | 2B | 3B |
| 0 | 80 | — | H2 | H3 | H2 |
| 1 | 64 | — | H2 | H3 | H2 |
| | — | 72 | H2 | H3 | H2 |
| 2 | 56 | — | H2 | H3 | H2 |
| | — | 64 | H2 | H3 | H2 |
| 3 | 48 | — | H2 | H3 | H2 |
| | — | 56 | H2 | H3 | H2 |
| 4 | 40 | — | H3 | H5 | H3 |
| | — | 48 | H3 | H5 | H3 |
| 5 | 40 | — | H3 | H5 | H3 |
| | — | 44 | H3 | H5 | H3 |
| 6 | 32 | — | H3 | H5 | H3 |
| | — | 40 | H3 | H5 | H3 |
| 8 | 32 | — | H3 | H5 | H3 |
| | — | 36 | H3 | H5 | H3 |
| 10 | 24 | — | H4 | H6 | H4 |
| | — | 32 | H4 | H6 | H4 |
| 12 | 24 | — | H4 | H6 | H4 |
| | — | 28 | H4 | H6 | H4 |
| 1/4 | 20 | — | H4 | H6 | H4 |
| | — | 28 | H4 | H6 | H4 |
| 5/16 | 18 | — | H5 | H7 | H5 |
| | — | 24 | H5 | H7 | H5 |
| 3/8 | 16 | — | H5 | H7 | H5 |
| | — | 24 | H5 | H7 | H5 |
| 7/16 | 14 | — | H5 | H8 | H5 |
| | — | 20 | H5 | H8 | H5 |
| 1/2 | 13 | — | H5 | H8 | H5 |
| | — | 20 | H5 | H8 | H5 |
| 9/16 | 12 | — | H7 | H10 | H7 |
| | — | 18 | H7 | H10 | H7 |
| 5/8 | 11 | — | H7 | H10 | H7 |
| | — | 18 | H7 | H10 | H7 |
| 3/4 | 10 | — | H7 | H10 | H7 |
| | — | 16 | H7 | H10 | H7 |

Metric

| SIZE | PITCH | "D" LIMIT for CLASS of FIT | |
|------|-------|----------------------------|-----|
| | | 4H | 6H |
| M3 | 0.5 | D3 | D5 |
| M4 | 0.7 | D4 | D6 |
| M5 | 0.8 | D4 | D7 |
| M6 | 1 | D5 | D8 |
| M8 | 1.25 | D5 | D9 |
| M10 | 1.5 | D6 | D10 |
| M12 | 1.75 | D6 | D11 |
| M14 | 2 | D7 | D11 |
| M16 | 2 | D7 | D12 |
| M20 | 2.5 | D7 | D12 |



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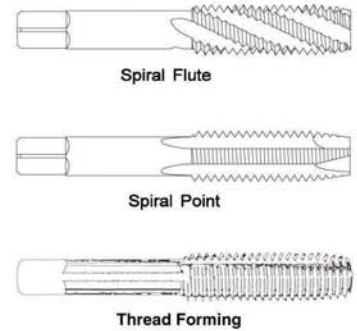
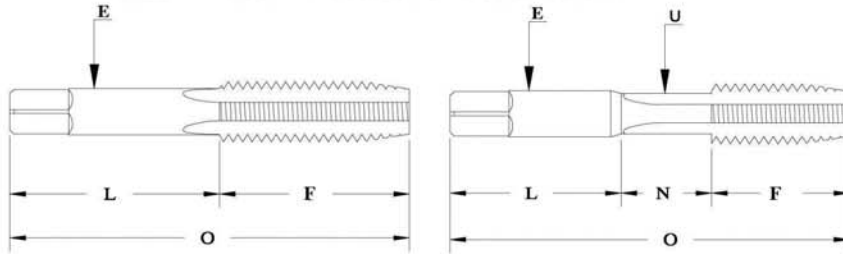
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| Thread Spec = _____ | Cut Tap <input type="checkbox"/> | <input type="checkbox"/> HSS |
| Pitch Dia. Limit = _____ | Form Tap <input type="checkbox"/> | <input type="checkbox"/> PM Premium Steel |
| Thread Depth = _____ | | <input type="checkbox"/> Carbide |
| <input type="checkbox"/> Through Hole | | <input type="checkbox"/> Other Specify _____ |
| <input type="checkbox"/> Blind Hole | | |
| <input type="checkbox"/> LH Thread* | | |
| Style: | | |
| <input type="checkbox"/> Spiral Point | | |
| <input type="checkbox"/> Taper | | |
| <input type="checkbox"/> Plug | | |
| <input type="checkbox"/> Semi-Bottoming | | |
| <input type="checkbox"/> Bottoming | | |
| <input type="checkbox"/> Special Chamfer | | |
| Specify _____ | | |
| <input type="checkbox"/> Straight Flutes | | |
| <input type="checkbox"/> Spiral Flutes | | |
| Specify Spiral _____ | | |
| Number of Flutes= _____ | | |
| *Right-Hand Cut and Right Hand Spiral are Standard | | |
| | Dimensions | Coating |
| | Overall Length O = . _____ | Type of Coating _____ |
| | <input type="checkbox"/> Necked (CNC) Design | |
| | Length N = _____ | |
| | Dia. U = _____ | |
| | Shank Diameter E = _____ | |
| | Shank Length L = _____ | |
| | Thread Length F = _____ | |
| | | Application Specific |
| | | Workpiece Mtl = _____ |
| | | Hardness = _____ |
| | | Machine Type (Describe) _____ |
| | | _____ |
| | | _____ |
| | | Tool Holder |
| | | Radial Float / Tension & Compression _____ |
| | | _____ |
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