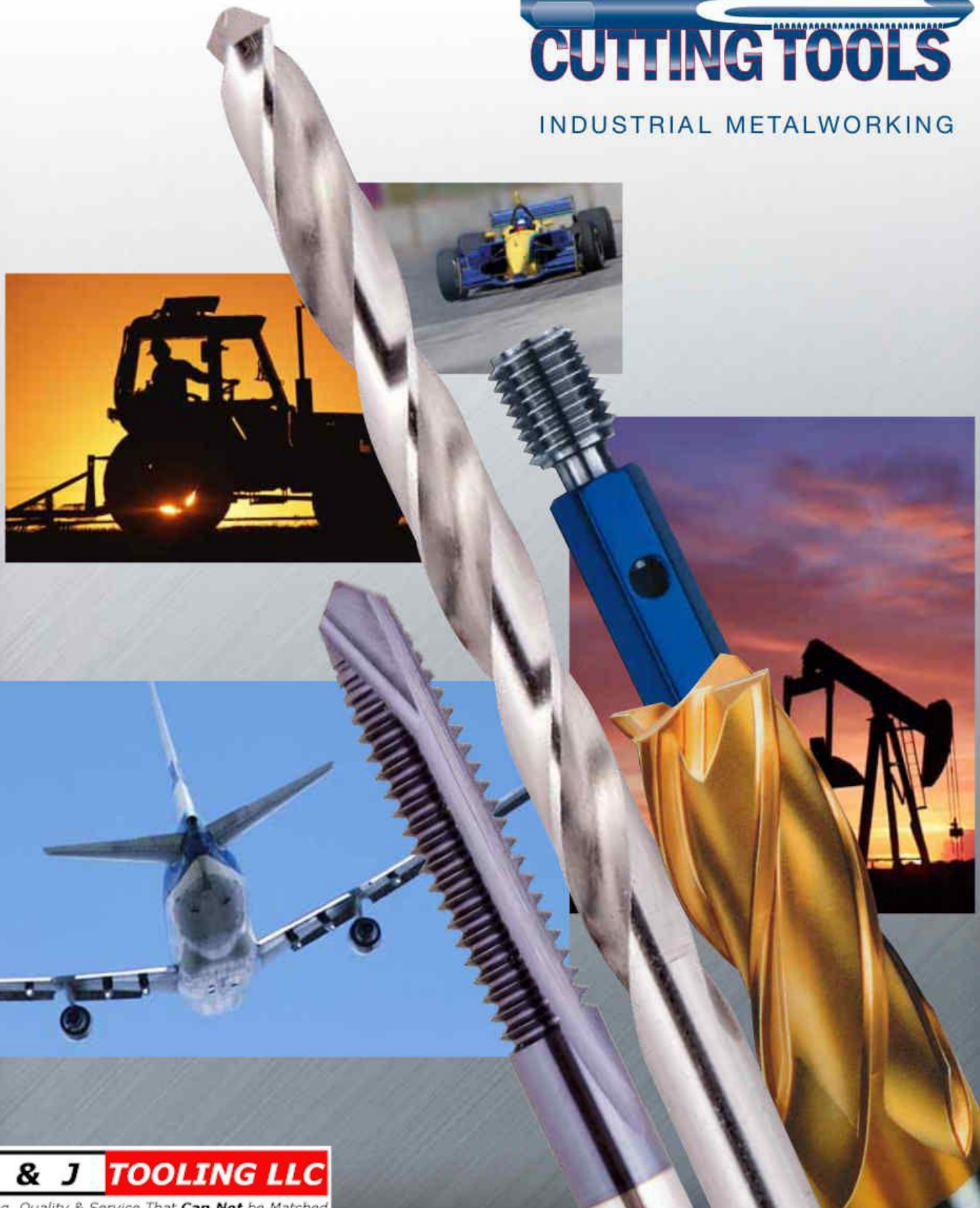
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INDUSTRIAL METALWORKING



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REGAL CUTTING TOOLS

REGAL'S FOCUS – YOU, THE CUSTOMER

Our commitment is to you! We value your business, so we will commit all our resources to insure that you are always satisfied with our products, service and delivery schedules. Our business focus is to support our distributors and their end-user customers.

In the Regal Cutting Tools' catalog, you will find over 9,500 products, ranging from taps, drills, end mills, dies, gages and the high performance Triple Crown Series of taps and end mills. Within this catalog, you will discover many new products designed to help you cut tooling costs and increase productivity and profits. If you can't find exactly what you need in the catalog, please contact our knowledgeable customer service representatives (800-435-2948) to utilize our 24-hour special metalworking tap manufacturing service for quick turnaround of the tap you require.

Regal Cutting Tools developed the Regal Premium brand over four decades of continual research to find the best combination of raw materials, heat treatment and tool grinding technology. The Regal Premium brand of taps, dies, gages and end mills premiered in the 1980's and today is the finest quality tooling money can buy.

The acquisition of National Twist Drill in 1985 allowed Regal to quickly expand the cutting tool line. Regal has continually invested in the National brand to enhance the product offering for today's toughest applications and hole-making requirements in a wide array of diverse materials.

The company's manufacturing facilities, each with its own product focus, are strategically located in Roscoe, Illinois, and Loris, South Carolina. Manufacturing facilities are streamlined for highly efficient through-put, equipped with CNC machinery, experienced operators, advanced in-house quality control and complete heat treating capabilities.

Regal has a nationwide network of industrial distributors servicing the diverse needs of industry, including aerospace, defense, and automotive manufacturing down to the smaller family-owned job shops. We provide cutting tools in high speed steel, cobalt and carbide with a wide array of coatings and treatments for working in the toughest materials.

Regal has been servicing the needs of industry since 1955 by manufacturing cutting tools that increase production, support uptime goals and provide optimum tool life when machining both common and exotic materials.

Thank you for choosing Regal Cutting Tools as your source for metal cutting tools. We value your business and look forward to a long-term, mutually beneficial business partnership.

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REGAL CUTTING TOOLS

GUIDE TO ICONS

TAPS, THREAD MILLS & GAGES

Materials

- HSS — High Speed Steel
- HSS EX — 3% Vanadium High Speed Steel
- HSS V — M7 High Speed Steel
- MG CARBIDE — Micrograin Carbide
- HSS PM — Powder Metal High Speed Steel

Thread Forms

- NC — American National Coarse Thread Series
- NF — American National Fine Thread Series
- UNC — Unified Coarse Thread Series
- UNF — Unified Fine Thread Series
- UNS — Unified Thread - Special
- NPS — Dryseal American National Standard Straight Pipe
- NPSF — Dryseal American National Standard Internal Straight Pipe Thread
- NPSM — American National Standard Straight Pipe Thread for Free Fitting Mechanical Joints
- NPT — American National Standard Taper Pipe Thread
- NPTF — Dryseal American National Standard Taper Pipe Thread
- M — Metric Screw Thread Series
- MF — Metric Fine Screw Thread Series
- ANPT — Aeronautical National Form Taper Pipe Thread
- BSPT — British Standard Taper Pipe Thread
- BSPP — British Standard Pipe (Parallel) Thread

USCTI Dimension Table

- 302 — Standard Tap Dimensions
- 303 — Standard Tap Dimensions Short Length (over 1")
- 311 — Pipe Tap Dimensions
- 302A — Short Thread Length Tap Dimensions
- 303A — Extension Tap Dimensions
- 337 — Standard Metric Tap Dimensions

Coatings

- AlTiN — Aluminum Titanium Nitride
- TiN — Titanium Nitride

Treatments

- BLACK OXIDE — Black Oxide
- NITRIDE & OXIDE — Nitride & Oxide

REGAL CUTTING TOOLS

DRILLS

Materials

- HSS — High Speed Steel
- COBALT — Cobalt
- CARBIDE TIPPED — Carbide Tipped
- MG CARBIDE — Micrograin Carbide

Drill Point

- 90° — 90° Point
- 118° — 118° Point
- 118° BLEND — 118° Blend Thinned Point
- 118° SPLIT — 118° Split Point
- 120° — 120° Point
- 130° — 130° Point
- 135° SPLIT — 135° Split Point
- 140° — 140° Point

Coatings

- AlTiN — Aluminum Titanium Nitride
- TiN COATED — Titanium Coated
- TiN POINT — Titanium Nitride Point

Treatments

- BRIGHT — Bright
- BLACK OXIDE — Black Oxide
- BRONZE OXIDE — Bronze Oxide
- BRIGHT BLACK — Bright & Black Oxide Flutes

National Aerospace Specification

- NAS 907 — NAS 907

END MILLS

Materials

- HSS — High Speed Steel
- COBALT — Cobalt
- HSS PM — Powder Metal High Speed Steel
- MG CARBIDE — Micrograin Carbide

Flutes

- 2 FLUTE — 2 Flute
- 3 FLUTE — 3 Flute
- 4 FLUTE — 4 Flute
- 5 FLUTE — 5 Flute
- 6 FLUTE — 6 Flute
- 8 FLUTE — 8 Flute

End Type

- SINGLE END — Single End
- DOUBLE END — Double End
- CC — Center Cutting
- NCC — Non-Center Cutting
- BALL — Ball Nose

Helix

- 20° HELIX — 20° Helix
- 45° HELIX — 45° Helix
- 40° HELIX — 40° Helix

Coatings

- AlTiN — Aluminum Titanium Nitride
- TiCN — Titanium Carbo-Nitride

National Aerospace Specification

- NAS 986 — NAS 986

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CERTIFICATE OF REGISTRATION

REGAL CUTTING TOOLS, INC.
5330 East Rockton Road
Roscoe, Illinois 61073

...has demonstrated that their Quality Management System complies with the requirements of

ISO 9001:2008

The scope of registration includes:

Design, manufacture and distribution of cutting tool products

Certificate Number: 2007-021

Date of Original Registration: May 6, 2008
Date of Current Registration: May 6, 2011
Date Registration Expires: May 6, 2014

Director of Operations

American Management Technology, Inc.
1126 Kathy Court
Portage, Wisconsin 53125



CERTIFICATE OF REGISTRATION

REGAL CUTTING TOOLS, INC.
3950 Lake Drive
Loris, South Carolina, 29569

...has demonstrated that their Quality Management System complies with the requirements of

ISO 9001:2008

The scope of registration includes:

Design, manufacture and distribution of cutting tool products

Certificate Number: 2007-021

Date of Original Registration: May 27, 2008
Date of Current Registration: May 27, 2011
Date Registration Expires: May 27, 2014

Director of Operations

American Management Technology, Inc.
1126 Kathy Court
Portage, Wisconsin 53125

WARRANTY

Regal Cutting Tools ("Seller") warrants to original equipment manufacturers, distributors and industrial and commercial users ("Buyer") of its products that each new product manufactured or supplied by Seller shall be commercially free from defects in material and workmanship at the time of shipment of the goods. All claims for allegedly defective goods must be made within 10 days after Buyer learns of such alleged defects limited to a maximum period of one year from the date of sale by Seller. All claims not made in writing and received by Seller within such 10-day period shall be deemed waived. Seller's sole obligation under this warranty is limited to furnishing without additional charge a replacement, or at its option, repairing or issuing credit for any product which shall be returned freight prepaid to the plant designated by a Seller representative and which upon inspection is determined by Seller to be defective in material or workmanship. Complete information as to operating conditions, machine setup, and application of cutting fluid should accompany any product returned for inspection. The provisions of this Warranty shall not apply to any Seller product which has been subjected to misuse, abuse, improper operating conditions (machine setup or application of cutting fluid), or which has been repaired or altered if such repair or alteration in the judgment of Seller would adversely affect performance of the product. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole liability on any claim of any kind, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of the products sold hereunder shall in no case exceed the cost of replacement or repair as provided herein. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. There are no other warranties, expressed or implied, made by Seller except the warranty against defects in material and workmanship set forth above. Unless authorized in writing by a corporate officer or vice president, no agent, employee or representative of Seller has any authority to bind Seller to any affirmation, representation or warranty concerning the goods sold under the sales contract and such affirmation, representation or warranty has not formed a part of the basis of the bargain and shall be unenforceable.

⚠WARNING

Cutting tools may shatter if broken. Wear safety glasses and use safeguards. Grinding this product may produce a dust containing chemicals known to the state of Californiato cause cancer. Please refer to the Material Safety Data Sheet. A copy of the MSDS can be obtained by request from the Regal Cutting Tool Customer Service department.

REGAL PREMIUM

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REGAL PREMIUM

HAND TAPS

Machine Screw Sizes

HSS UNC UNF 302



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Taper	Plug	Bottom	Set
#0-80 UNF	**H1**	2	008000AS	008001AS	008002AS	008900AS
#0-80 UNF	H2	2	008009AS	008003AS	008004AS	008960AS
#1-64 UNC	**H1**	2	008012AS	008013AS	008014AS	008901AS
#1-64 UNC	H2	2	008018AS	008015AS	008019AS	008961AS
#1-72 UNF	**H1**	2	008021AS	008022AS	008023AS	008902AS
#1-72 UNF	H2	2	008020AS	008024AS	008025AS	008962AS
#2-56 UNC	H1	2	—	008031AS	008032AS	—
#2-56 UNC	H1	3	008035AS	008036AS	008037AS	008963AS
#2-56 UNC	H2	2	—	008033AS	008034AS	—
#2-56 UNC	**H2**	3	008038AS	008039AS	008040AS	008903AS
#2-64 UNF	**H2**	3	008048AS	008049AS	008050AS	008904AS
#3-48 UNC	H1	3	—	008057AS	—	—
#3-48 UNC	H2	2	—	008055AS	008056AS	—
#3-48 UNC	**H2**	3	008058AS	008059AS	008060AS	008905AS
#3-56 UNF	**H2**	3	008066AS	008067AS	008068AS	008906AS
#4-36 UNS	**H2**	3	008074AS	008075AS	008076AS	008955AS
#4-40 UNC	H1	2	—	008081AS	008071AS	—
#4-40 UNC	H1	3	008084AS	008080AS	008078AS	008964AS
#4-40 UNC	H2	2	—	008082AS	008083AS	—
#4-40 UNC	**H2**	3	008086AS	008087AS	008088AS	008907AS
#4-48 UNF	H1	3	—	008097AS	—	—
#4-48 UNF	**H2**	3	008100AS	008101AS	008102AS	008908AS
#5-40 UNC	H1	3	—	008114AS	—	—
#5-40 UNC	H2	2	—	008112AS	008113AS	—
#5-40 UNC	**H2**	3	008115AS	008116AS	008117AS	008910AS
#5-44 UNF	**H2**	3	008132AS	008133AS	008134AS	008912AS
#6-32 UNC	H1	2	—	008139AS	008108AS	—
#6-32 UNC	H1	3	008144AS	008145AS	008146AS	008965AS
#6-32 UNC	H2	2	—	008140AS	008141AS	—
#6-32 UNC	H2	3	008147AS	008148AS	008149AS	008966AS
#6-32 UNC	H3	2	—	008142AS	008143AS	—
#6-32 UNC	**H3**	3	008150AS	008151AS	008152AS	008913AS
#6-32 UNC	H7	3	—	008153AS	008154AS	—
#6-40 UNF	H1	3	—	008170AS	—	—
#6-40 UNF	H2	2	—	008174AS	008109AS	—
#6-40 UNF	**H2**	3	008171AS	008172AS	008173AS	008914AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

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REGAL PREMIUM

HAND TAPS

Machine Screw Sizes

HSS UNC UNF 302



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Taper	Plug	Bottom	Set
#8-32 UNC	H1	2	—	008183AS	—	—
#8-32 UNC	H1	4	008180AS	008181AS	008182AS	008967AS
#8-32 UNC	H2	2	—	008189AS	008190AS	—
#8-32 UNC	H2	3	—	008187AS	008188AS	—
#8-32 UNC	H2	4	008184AS	008185AS	008186AS	008968AS
#8-32 UNC	H3	2	—	008196AS	008197AS	—
#8-32 UNC	**H3**	3	—	008194AS	008195AS	—
#8-32 UNC	**H3**	4	008191AS	008192AS	008193AS	008915AS
#8-32 UNC	**H7**	3	—	008200AS	008201AS	—
#8-32 UNC	H7	4	—	008198AS	008199AS	—
#8-36 UNF	H1	2	—	008214AS	—	—
#8-36 UNF	**H2**	4	008217AS	008218AS	008219AS	008916AS
#10-24 UNC	H1	4	008224AS	008225AS	008226AS	008969AS
#10-24 UNC	H2	2	—	008231AS	008232AS	—
#10-24 UNC	H2	3	—	008230AS	—	—
#10-24 UNC	H2	4	008227AS	008228AS	008229AS	008970AS
#10-24 UNC	H3	2	—	008238AS	008239AS	—
#10-24 UNC	H3	3	—	008236AS	008237AS	—
#10-24 UNC	**H3**	4	008233AS	008234AS	008235AS	008917AS
#10-24 UNC	H7	3	—	008221AS	008222AS	—
#10-24 UNC	H7	4	—	008240AS	008241AS	—
#10-32 UNF	H1	2	—	008259AS	008253AS	—
#10-32 UNF	H1	4	008256AS	008257AS	008258AS	008971AS
#10-32 UNF	H2	2	—	008265AS	008266AS	—
#10-32 UNF	H2	3	—	008263AS	008264AS	—
#10-32 UNF	H2	4	008260AS	008261AS	008262AS	008972AS
#10-32 UNF	H3	2	—	008272AS	008273AS	—
#10-32 UNF	H3	3	—	008270AS	008271AS	—
#10-32 UNF	**H3**	4	008267AS	008268AS	008269AS	008918AS
#10-32 UNF	H7	3	—	008276AS	008277AS	—
#10-32 UNF	H7	4	—	008274AS	008275AS	—
#12-24 UNC	**H3**	4	008293AS	008294AS	008295AS	008919AS
#12-28 UNF	H1	4	—	008301AS	—	—
#12-28 UNF	H3	4	008304AS	008305AS	008306AS	008920AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

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REGAL PREMIUM

HAND TAPS

Fractional Sizes

HSS UNC UNF 302



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Taper	Plug	Bottom	Set
1/4-20 UNC	H1	3	—	008314AS	—	—
1/4-20 UNC	H1	4	008311AS	008312AS	008313AS	008973AS
1/4-20 UNC	H2	3	—	008318AS	008111AS	—
1/4-20 UNC	H2	4	008315AS	008316AS	008317AS	008974AS
1/4-20 UNC	H3	2	—	008324AS	008325AS	—
1/4-20 UNC	H3	3	—	008322AS	008323AS	—
1/4-20 UNC	**H3**	4	008319AS	008320AS	008321AS	008921AS
1/4-20 UNC	H5	3	—	008328AS	008255AS	—
1/4-20 UNC	H5	4	008309AS	008326AS	008327AS	008975AS
1/4-20 UNC	H11	4	—	008329AS	—	—
1/4-28 UNF	H1	4	008347AS	008348AS	008349AS	008976AS
1/4-28 UNF	H2	4	008346AS	008350AS	008351AS	008977AS
1/4-28 UNF	H3	2	—	008357AS	008358AS	—
1/4-28 UNF	H3	3	—	008355AS	008356AS	—
1/4-28 UNF	**H3**	4	008352AS	008353AS	008354AS	008922AS
1/4-28 UNF	H4	4	008345AS	008359AS	008360AS	008978AS
5/16-18 UNC	H1	4	008372AS	008375AS	008376AS	008979AS
5/16-18 UNC	H2	4	008373AS	008377AS	008378AS	008980AS
5/16-18 UNC	H3	2	—	008384AS	008385AS	—
5/16-18 UNC	H3	3	—	008382AS	008383AS	—
5/16-18 UNC	**H3**	4	008379AS	008380AS	008381AS	008923AS
5/16-18 UNC	H5	4	008397AS	008386AS	008387AS	008981AS
5/16-18 UNC	H11	4	—	008388AS	008374AS	—
5/16-24 UNF	H1	4	008404AS	008405AS	008406AS	008982AS
5/16-24 UNF	H2	4	008402AS	008407AS	008403AS	008983AS
5/16-24 UNF	H3	3	—	008411AS	008412AS	—
5/16-24 UNF	**H3**	4	008408AS	008409AS	008410AS	008924AS
5/16-24 UNF	H4	4	—	008413AS	008414AS	—
3/8-16 UNC	H1	4	008428AS	008429AS	008430AS	008984AS
3/8-16 UNC	H2	4	008427AS	008431AS	008432AS	008985AS
3/8-16 UNC	**H3**	3	—	008436AS	008437AS	—
3/8-16 UNC	**H3**	4	008433AS	008434AS	008435AS	008925AS
3/8-16 UNC	H5	4	008453AS	008438AS	008439AS	008986AS
3/8-16 UNC	H11	4	—	008440AS	008451AS	—

Bold H Limits denote most popular limit. See page 194 for class of fit.

REGAL PREMIUM

HAND TAPS

Fractional Sizes

HSS | UNC UNF | UNS | 302



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Taper	Plug	Bottom	Set
3/8-24 UNF	H1	4	008426AS	008454AS	008455AS	008987AS
3/8-24 UNF	H2	4	—	008456AS	008457AS	—
3/8-24 UNF	H3	3	—	008461AS	008462AS	—
3/8-24 UNF	**H3**	4	008458AS	008459AS	008460AS	008926AS
3/8-24 UNF	H4	4	008452AS	008463AS	008464AS	008988AS
7/16-14 UNC	H3	3	—	008479AS	008446AS	—
7/16-14 UNC	**H3**	4	008476AS	008477AS	008478AS	008927AS
7/16-14 UNC	H5	4	—	008480AS	008481AS	—
7/16-14 UNC	H11	4	—	008482AS	008601AS	—
7/16-20 UNF	H3	3	—	008495AS	008541AS	—
7/16-20 UNF	**H3**	4	008492AS	008493AS	008494AS	008928AS
7/16-20 UNF	H5	4	—	008496AS	008497AS	—
1/2-13 UNC	H1	4	—	008505AS	008506AS	—
1/2-13 UNC	H2	4	008489AS	008503AS	008534AS	008989AS
1/2-13 UNC	H3	3	—	008510AS	008511AS	—
1/2-13 UNC	**H3**	4	008507AS	008508AS	008509AS	008929AS
1/2-13 UNC	H5	4	—	008512AS	008504AS	—
1/2-13 UNC	H11	4	—	008513AS	008524AS	—
1/2-20 UNF	H1	4	—	008527AS	008528AS	—
1/2-20 UNF	H3	3	—	008532AS	008584AS	—
1/2-20 UNF	**H3**	4	008529AS	008530AS	008531AS	008930AS
1/2-20 UNF	H5	4	—	008533AS	008579AS	—
9/16-12 UNC	**H3**	4	008544AS	008545AS	008546AS	008931AS
9/16-12 UNC	H5	4	—	008547AS	008548AS	—
9/16-18 UNF	H2	4	—	008551AS	—	—
9/16-18 UNF	**H3**	4	008552AS	008553AS	008554AS	008932AS
9/16-18 UNF	H5	4	—	008555AS	008556AS	—
5/8-11 UNC	H2	4	—	008559AS	008570AS	—
5/8-11 UNC	**H3**	4	008560AS	008561AS	008562AS	008933AS
5/8-11 UNC	H5	4	—	008563AS	008564AS	—
5/8-11 UNC	H11	4	—	008565AS	008569AS	—
5/8-18 UNF	H2	4	—	008572AS	—	—
5/8-18 UNF	**H3**	4	008573AS	008574AS	008575AS	008934AS
5/8-18 UNF	H5	4	—	008576AS	008577AS	—
11/16-11 UNS	**H3**	4	008581AS	008582AS	008583AS	008935AS
11/16-16 UNS	**H3**	4	008587AS	008588AS	008589AS	008936AS

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REGAL PREMIUM

HAND TAPS

Fractional Sizes

HSS UNC UNF 302 303



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards

Size	H Limit	Flutes	Taper	Plug	Bottom	Set
3/4-10 UNC	H2	4	—	008593AS	—	—
3/4-10 UNC	**H3**	4	008594AS	008595AS	008596AS	008937AS
3/4-10 UNC	H5	4	—	008597AS	008598AS	—
3/4-16 UNF	H1	4	—	008605AS	008585AS	—
3/4-16 UNF	H2	4	—	008606AS	008586AS	—
3/4-16 UNF	**H3**	4	008607AS	008608AS	008609AS	008938AS
3/4-16 UNF	H5	4	—	008610AS	008611AS	—
7/8-9 UNC	**H4**	4	008615AS	008616AS	008617AS	008939AS
7/8-9 UNC	H6	4	—	008618AS	—	—
7/8-14 UNF	H2	4	—	008622AS	—	—
7/8-14 UNF	**H4**	4	008623AS	008624AS	008625AS	008940AS
7/8-14 UNF	H6	4	—	008621AS	—	—
1"-8 UNC	**H4**	4	008629AS	008630AS	008631AS	008941AS
1"-8 UNC	H6	4	—	008632AS	008580AS	—
1"-12 UNF	**H4**	4	008636AS	008637AS	008638AS	008942AS
1"-14 UNS	H2	4	—	008641AS	—	—
1"-14 UNS	**H4**	4	008642AS	008643AS	008644AS	008943AS
1-1/8"-7 UNC	**H4**	4	008648AS	008649AS	008650AS	008944AS
1-1/8"-12 UNF	**H4**	4	008654AS	008655AS	008656AS	008945AS
1-1/4"-7 UNC	**H4**	4	008660AS	008661AS	008662AS	008946AS
1-1/4"-12 UNF	**H4**	6	008666AS	008667AS	008668AS	008947AS
1-3/8"-6 UNC	**H4**	4	008672AS	008673AS	008674AS	008948AS
1-3/8"-12 UNF	**H4**	6	008678AS	008679AS	008680AS	008949AS
1-1/2"-6 UNC	**H4**	4	008684AS	008685AS	008686AS	008950AS
1-1/2"-12 UNF	**H4**	6	008690AS	008691AS	008692AS	008951AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

REGAL PREMIUM

HAND TAPS WITH TiN COATING

Machine Screw & Fractional Sizes

HSS | UNC UNF | UNS | 302 303 | TiN



- Titanium nitride (TiN) coated tools run faster and provide greatly improved tool life
- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards

Size	H Limit	Flutes	Taper	Plug	Bottom
#4-40 UNC	**H2**	3	008086AS25	008087AS25	008088AS25
#4-48 UNF	**H2**	3	008100AS25	008101AS25	008102AS25
#6-32 UNC	**H3**	3	008150AS25	008151AS25	008152AS25
#6-40 UNF	**H2**	3	008171AS25	008172AS25	008173AS25
#8-32 UNC	**H3**	4	008191AS25	008192AS25	008193AS25
#8-36 UNF	**H2**	4	008217AS25	008218AS25	008219AS25
#10-24 UNC	**H3**	4	008233AS25	008234AS25	008235AS25
#10-32 UNF	**H3**	4	008267AS25	008268AS25	008269AS25
#12-24 UNC	**H3**	4	008293AS25	008294AS25	008295AS25
#12-28 UNF	**H3**	4	008304AS25	008305AS25	008306AS25
1/4-20 UNC	**H3**	4	008319AS25	008320AS25	008321AS25
1/4-28 UNF	**H3**	4	008352AS25	008353AS25	008354AS25
5/16-18 UNC	**H3**	4	008379AS25	008380AS25	008381AS25
5/16-24 UNF	**H3**	4	008408AS25	008409AS25	008410AS25
3/8-16 UNC	**H3**	4	008433AS25	008434AS25	008435AS25
3/8-24 UNF	**H3**	4	008458AS25	008459AS25	008460AS25
7/16-14 UNC	**H3**	4	008476AS25	008477AS25	008478AS25
7/16-20 UNF	**H3**	4	008492AS25	008493AS25	008494AS25
1/2-13 UNC	**H3**	4	008507AS25	008508AS25	008509AS25
1/2-20 UNF	**H3**	4	008529AS25	008530AS25	008531AS25
9/16-12 UNC	**H3**	4	008544AS25	008545AS25	008546AS25
9/16-18 UNF	**H3**	4	008552AS25	008553AS25	008554AS25
5/8-11 UNC	**H3**	4	008560AS25	008561AS25	008562AS25
5/8-18 UNF	**H3**	4	008573AS25	008574AS25	008575AS25
11/16-11 UNC	**H3**	4	008581AS25	008582AS25	008583AS25
11/16-16 UNF	**H3**	4	008587AS25	008588AS25	008589AS25
3/4-10 UNC	**H3**	4	008594AS25	008595AS25	008596AS25
3/4-16 UNF	**H3**	4	008607AS25	008608AS25	008609AS25
7/8-9 UNC	**H4**	4	008615AS25	008616AS25	008617AS25
7/8-14 UNF	**H4**	4	008623AS25	008624AS25	008625AS25
1"-8 UNC	**H4**	4	008629AS25	008630AS25	008631AS25
1"-12 UNF	**H4**	4	008636AS25	008637AS25	008638AS25
1"-14 UNS	**H4**	4	008642AS25	008643AS25	008644AS25

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REGAL PREMIUM

SPIRAL POINT TAPS

Machine Screw Sizes

HSS UNC UNF 302



- A rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- For material specific high-performance spiral point taps, see pages 47 to 56

Size	H Limit	Flutes	Plug	Bottom
#0-80 UNF	**H1**	2	008005AS	008006AS
#0-80 UNF	H2	2	008007AS	008008AS
#1-64 UNC	**H1**	2	008016AS	—
#1-64 UNC	H2	2	008017AS	—
#1-72 UNF	**H1**	2	008026AS	—
#1-72 UNF	H2	2	008027AS	008028AS
#2-56 UNC	H1	2	008041AS	008042AS
#2-56 UNC	**H2**	2	008043AS	008044AS
#2-64 UNF	**H2**	2	008051AS	008052AS
#3-48 UNC	**H2**	2	008061AS	008062AS
#3-56 UNF	H1	2	008069AS	—
#3-56 UNF	**H2**	2	008070AS	008072AS
#4-36 UNS	**H2**	2	008077AS	—
#4-40 UNC	H1	2	008089AS	—
#4-40 UNC	**H2**	2	008090AS	008091AS
#4-40 UNC	H7	2	008079AS	—
#4-48 UNF	H1	2	008103AS	—
#4-48 UNF	**H2**	2	008104AS	008105AS
#5-40 UNC	H1	2	008118AS	—
#5-40 UNC	**H2**	2	008119AS	008120AS
#5-44 UNF	**H2**	2	008135AS	—
#6-32 UNC	H1	2	008155AS	—
#6-32 UNC	H2	2	008156AS	008159AS
#6-32 UNC	**H3**	2	008157AS	008160AS
#6-32 UNC	H7	2	008158AS	008161AS
#6-40 UNF	H1	2	008169AS	—
#6-40 UNF	**H2**	2	008175AS	008176AS
#8-32 UNC	H1	2	008202AS	—
#8-32 UNC	H2	2	008203AS	008204AS
#8-32 UNC	**H3**	2	008205AS	008206AS
#8-32 UNC	H7	2	008207AS	008208AS
#8-36 UNF	H1	2	008029AS	—
#8-36 UNF	**H2**	2	008220AS	008223AS
#10-24 UNC	H1	2	008242AS	—
#10-24 UNC	H2	2	008243AS	008244AS
#10-24 UNC	**H3**	2	008245AS	008246AS
#10-24 UNC	H7	2	008247AS	—
#10-32 UNF	H1	2	008278AS	008279AS
#10-32 UNF	H2	2	008280AS	008281AS
#10-32 UNF	**H3**	2	008282AS	008283AS
#10-32 UNF	H7	2	008284AS	—
#12-24 UNC	H1	2	008292AS	—
#12-24 UNC	**H3**	2	008296AS	008297AS
#12-28 UNF	**H3**	2	008307AS	—

Bold H Limits denote most popular limit. See page 194 for class of fit.

REGAL PREMIUM

SPIRAL POINT TAPS

Fractional Sizes

HSS UNC UNF 302



- A rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- For material specific high-performance spiral point taps, see pages 47 to 56

Size	H Limit	Flutes	Plug	Bottom
1/4-20 UNC	H1	2	008330AS	—
1/4-20 UNC	H2	2	008331AS	—
1/4-20 UNC	**H3**	2	008332AS	008333AS
1/4-20 UNC	H5	2	008336AS	—
1/4-20 UNC	H11	2	008337AS	—
1/4-20 UNC	H3	3	008334AS	—
1/4-20 UNC	H5	3	008335AS	—
1/4-28 UNF	H1	2	008361AS	—
1/4-28 UNF	H2	2	008363AS	—
1/4-28 UNF	**H3**	2	008364AS	008365AS
1/4-28 UNF	H4	2	008366AS	—
1/4-28 UNF	H2	3	008362AS	—
1/4-28 UNF	H4	3	008367AS	—
5/16-18 UNC	H1	2	008389AS	—
5/16-18 UNC	H2	2	008390AS	—
5/16-18 UNC	**H3**	2	008391AS	008392AS
5/16-18 UNC	H5	2	008394AS	—
5/16-18 UNC	H3	3	008393AS	—
5/16-18 UNC	H5	3	008395AS	—
5/16-18 UNC	H11	2	008396AS	—
5/16-24 UNF	H1	2	008415AS	—
5/16-24 UNF	H2	2	008417AS	—
5/16-24 UNF	**H3**	2	008419AS	008418AS
5/16-24 UNF	H4	2	008421AS	—
5/16-24 UNF	H2	3	008416AS	—
5/16-24 UNF	H4	3	008420AS	—
3/8-16 UNC	H1	3	008441AS	—
3/8-16 UNC	H2	3	008442AS	—
3/8-16 UNC	**H3**	3	008443AS	099414AS
3/8-16 UNC	H5	3	008444AS	—
3/8-16 UNC	H11	3	008445AS	—

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REGAL PREMIUM

SPIRAL POINT TAPS

Fractional Sizes

HSS UNC UNF 302



- Rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- For material specific high-performance spiral point taps, see pages 47 to 56

Size	H Limit	Flutes	Plug	Bottom
3/8-24 UNF	H1	3	008465AS	—
3/8-24 UNF	H2	3	008466AS	—
3/8-24 UNF	**H3**	3	008467AS	099415AS
3/8-24 UNF	H4	3	008468AS	—
7/16-14 UNC	H1	3	008473AS	—
7/16-14 UNC	H2	3	008483AS	—
7/16-14 UNC	**H3**	3	008484AS	099416AS
7/16-14 UNC	H5	3	008485AS	—
7/16-14 UNC	H11	3	008486AS	—
7/16-20 UNF	H2	3	008502AS	—
7/16-20 UNF	**H3**	3	008498AS	099417AS
7/16-20 UNF	H5	3	008499AS	—
1/2-13 UNC	H1	3	008514AS	—
1/2-13 UNC	H2	3	008515AS	—
1/2-13 UNC	**H3**	3	008516AS	099409AS
1/2-13 UNC	H5	3	008517AS	—
1/2-13 UNC	H11	3	008518AS	—
1/2-20 UNF	H1	3	008535AS	—
1/2-20 UNF	H2	3	008536AS	—
1/2-20 UNF	**H3**	3	008537AS	099411AS
1/2-20 UNF	H5	3	008538AS	—
9/16-12 UNC	**H3**	3	008542AS	—
9/16-12 UNC	H5	3	008543AS	—
9/16-18 UNF	**H3**	3	008549AS	—
9/16-18 UNF	H5	3	008550AS	—
5/8-11 UNC	**H3**	3	008566AS	099418AS
5/8-11 UNC	H5	3	008567AS	—
5/8-11 UNC	H11	3	008568AS	—
5/8-18 UNF	**H3**	3	008578AS	099422AS
5/8-18 UNF	H5	3	008571AS	—
3/4-10 UNC	**H3**	3	008599AS	099419AS
3/4-10 UNC	H5	3	008600AS	—
3/4-16 UNF	**H3**	3	008612AS	099420AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

REGAL PREMIUM

SPIRAL POINT TAPS WITH AlTiN COATING

Machine Screw & Fractional Sizes

HSS | UNC UNF | 302 | AlTiN



- Aluminum Titanium Nitride (AlTiN) is a heat resistant coating that improves tool life and can be used without coolant
- Rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- For material specific high-performance spiral point taps, see pages 47 to 56

Size	H Limit	Flutes	Plug	Bottom
#4-40 UNF	H2	2	008090AS88	—
#4-48 UNF	H2	2	008104AS88	—
#5-40 UNF	H2	2	008119AS88	—
#5-44 UNF	H2	2	008135AS88	—
#6-32 UNF	H3	2	008157AS88	—
#6-40 UNF	H2	2	008175AS88	—
#8-32 UNF	H3	2	008205AS88	—
#8-36 UNF	H2	2	008220AS88	—
#10-24 UNF	H3	2	008245AS88	—
#10-32 UNF	H3	2	008282AS88	—
#12-24 UNF	H3	2	008296AS88	—
#12-28 UNF	H3	2	008307AS88	—
1/4-20 UNF	H3	2	008332AS88	—
1/4-20 UNF	H3	3	008334AS88	—
1/4-28 UNF	H3	2	008364AS88	—
5/16-18 UNF	H3	2	008391AS88	—
5/16-18 UNF	H3	3	008393AS88	—
5/16-24 UNF	H3	2	008419AS88	—
3/8-16 UNF	H3	3	008443AS88	—
3/8-24 UNF	H3	3	008467AS88	—
3/8-24 UNF	H4	3	008468AS8	—
7/16-14 UNF	H3	3	008484AS88	—
7/16-20 UNF	H3	3	008498AS88	—
1/2-13 UNF	H3	3	008516AS88	—
1/2-20 UNF	H3	3	008537AS88	—
9/16-12 UNF	H3	3	008542AS88	—
9/16-18 UNF	H3	3	008549AS88	—
5/8-11 UNF	H3	3	008566AS88	—
5/8-18 UNF	H3	3	008578AS88	—
3/4-10 UNF	H3	3	008599AS88	—
3/4-16 UNF	H3	3	008612AS88	—

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REGAL PREMIUM

LEFT HAND TAPS

HSS UNC UNF 302 303



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards

Size	H Limit	Flutes	Taper	Plug	Bottom
#6-32 UNC	**H3**	3	017036AS	017037AS	017038AS
#8-32 UNC	**H3**	4	017052AS	017053AS	017054AS
#10-24 UNC	**H3**	4	017070AS	017071AS	017072AS
#10-32 UNF	**H3**	4	017076AS	017077AS	017078AS
1/4-20 UNC	**H3**	4	017110AS	017111AS	017112AS
1/4-28 UNF	**H3**	4	017121AS	017122AS	017123AS
5/16-18 UNC	**H3**	4	017147AS	017148AS	017149AS
5/16-24 UNF	**H3**	4	017158AS	017159AS	017160AS
3/8-16 UNC	**H3**	4	017175AS	017176AS	017177AS
3/8-24 UNF	**H3**	4	017190AS	017191AS	017192AS
7/16-14 UNC	**H3**	4	017200AS	017201AS	017202AS
7/16-20 UNF	**H3**	4	017216AS	017217AS	017218AS
1/2-13 UNC	**H3**	4	017232AS	017233AS	017234AS
1/2-20 UNF	**H3**	4	017245AS	017246AS	017247AS
9/16-12 UNC	**H3**	4	017255AS	017256AS	017257AS
9/16-18 UNF	**H3**	4	017269AS	017270AS	017271AS
5/8-11 UNC	**H3**	4	017288AS	017289AS	017290AS
5/8-18 UNF	**H3**	4	017304AS	017305AS	017306AS
11/16-11 UNS	**H3**	4	017307AS	017308AS	017309AS
11/16-16 UNS	**H3**	4	017321AS	017322AS	017323AS
3/4-10 UNC	**H3**	4	017336AS	017337AS	017338AS
3/4-16 UNF	**H3**	4	017352AS	017353AS	017354AS
7/8-9 UNC	**H4**	4	017372AS	017373AS	017374AS
7/8-14 UNF	**H4**	4	017382AS	017383AS	017384AS
1"-8 UNC	**H4**	4	017406AS	017407AS	017408AS
1"-12 UNF	**H4**	4	017416AS	017417AS	017418AS
1"-14 UNS	**H4**	4	017426AS	017427AS	017428AS
1-1/8"-7 UNC	**H4**	4	017431AS	017435AS	017436AS
1-1/8"-12 UNF	**H4**	4	017437AS	017438AS	017439AS
1-1/4"-7 UNC	**H4**	4	017445AS	017446AS	017447AS
1-1/4"-12 UNF	**H4**	6	017448AS	017452AS	017453AS
1-3/8"-6 UNC	**H4**	4	017457AS	017458AS	017459AS
1-3/8"-12 UNF	**H4**	6	017463AS	017464AS	017465AS
1-1/2"-6 UNC	**H4**	4	017469AS	017470AS	017471AS
1 1/2"-12 UNF	**H4**	6	017475AS	017476AS	017477AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

REGAL PREMIUM

NUT TAPS

Fractional Sizes

HSS UNC



- Long chamfers assist in entering the hole
- May also be used to reach holes that would not be accessible with regular length taps

Size	NC, NF	H Limit	Flutes	Overall Length	EDP #
1/4-20	UNC	H3	4	5	008849AS
5/16-18	UNC	H3	4	5-1/2	008850AS
3/8-16	UNC	H3	4	6	008851AS
1/2-13	UNC	H3	4	7	008852AS

HAND TAPS

For Cast Iron - Machine Screw & Fractional Sizes

HSS UNC 302 NITRIDE & OXIDE



- Low rake angle, 2-1/2 thread chamfer and an oxide/nitride surface treatment that helps overcome the abrasive characteristic of cast iron
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Semi-Bottoming
#6-32 UNC	H3	4	011528AS
#8-32 UNC	H3	4	011529AS
#10-24 UNC	H3	4	011530AS
1/4-20 UNC	H3	4	011531AS
5/16-18 UNC	H3	4	011689AS
3/8-16 UNC	H3	4	011869AS
7/16-14 UNC	H3	4	012098AS
1/2-13 UNC	H3	4	012265AS
5/8-11 UNC	H3	4	012266AS
3/4-10 UNC	H3	4	012267AS

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REGAL PREMIUM

UNIPASS DRILL 'N' TAP™

Machine Screw & Fractional Sizes

HSS UNC UNF



- Drills and taps in a single pass
- Point is self-centering and eliminates the need for center drilling or center punching
- Can be used on multi-spindle heads with reversing mechanisms for tapping in most materials

Size	Flutes	Overall Length	Drill Length	Drill Size	Thread Length	Shank Diameter	Length of Square	Size of Square	EDP #
#4-40 UNC	2	1-7/8	1/4	.0910	3/8	.141	3/16	.110	007500AS
#4-48 UNF	2	1-7/8	1/4	.0945	3/8	.141	3/16	.110	007502AS
#5-40 UNC	2	1-15/16	9/32	.1040	13/32	.141	3/16	.110	007504AS
#5-44 UNF	2	1-15/16	9/32	.1060	13/32	.141	3/16	.110	007506AS
#6-32 UNC	2	2	5/16	.1115	7/16	.141	3/16	.110	007508AS
#6-40 UNF	2	2	5/16	.1170	7/16	.141	3/16	.110	007510AS
#8-32 UNC	2	2-1/8	3/8	.1375	1/2	.168	1/4	.131	007512AS
#8-36 UNF	2	2-1/8	3/8	.1405	1/2	.168	1/4	.131	007514AS
#10-24 UNC	2	2-3/8	13/32	.1545	5/8	.194	1/4	.152	007516AS
#10-32 UNF	2	2-3/8	13/32	.1635	5/8	.194	1/4	.152	007518AS
#12-24 UNC	2	2-3/8	15/32	.1805	21/32	.220	9/32	.165	007520AS
#12-28 UNF	2	2-3/8	15/32	.1860	21/32	.220	9/32	.165	007522AS
1/4-20 UNC	2	2-1/2	17/32	.2080	25/32	.255	5/16	.191	007524AS
1/4-28 UNF	2	2-1/2	17/32	.2200	25/32	.255	5/16	.191	007526AS
5/16-18 UNC	2	2-27/32	11/16	.2660	15/16	.318	3/8	.238	007528AS
5/16-24 UNF	2	2-27/32	11/16	.2770	15/16	.318	3/8	.238	007530AS
3/8-16 UNC	2	3-3/8	13/16	.3225	1-1/16	.381	7/16	.286	007532AS
3/8-24 UNF	2	3-3/8	13/16	.3395	1-1/16	.381	7/16	.286	007534AS
7/16-14 UNC	2	3-3/4	1	.3770	1-1/4	.323	13/32	.242	007536AS
7/16-20 UNF	2	3-3/4	1	.3955	1-1/4	.323	13/32	.242	007538AS
1/2-13 UNC	2	4-1/16	1-1/8	.4350	1-3/8	.367	7/16	.275	007540AS
1/2-20 UNF	2	4-1/16	1-1/8	.4580	1-3/8	.367	7/16	.275	007542AS
5/8-11 UNC	4	5-1/16	1-1/2	.5310	1-3/4	.480	9/16	.360	015846AS
3/4-10 UNC	4	6	1-3/4	.6655	2	.590	11/16	.442	015848AS

UNIPASS TAPER PIPE DRILL 'N' TAP™

HSS UNC UNF

Size	Flutes	Overall Length	Drill Length	Drill Size	Thread Length	Shank Diameter	Length of Square	Size of Square	EDP #
1/16-27 NPT/NPTF	4	2-13/16	11/16	.2420	11/16	.312	3/8	.234	007550AS
1/8-27 NPT/NPTF	4	2-7/8	3/4	.3320	3/4	.437	3/8	.328	007552AS
1/4-18 NPT/NPTF	4	3-5/16	7/8	.4370	1-1/16	.562	7/16	.421	007554AS
3/8-18 NPT/NPTF	4	3-1/2	15/16	.5620	1-1/16	.700	1/2	.531	007556AS
1/2-14 NPT/NPTF	4	4-3/8	1-1/4	.7030	1-3/8	.687	5/8	.515	007558AS
3/4-14 NPT/NPTF	5	4-9/16	1-5/16	.9060	1-3/8	.906	11/16	.679	007560AS
1"-11-1/2 NPT/NPTF	5	5-3/8	1-5/8	1.1410	1-3/4	1.125	13/16	.843	007562AS

REGAL PREMIUM

MET-FLO™ THREAD FORMING TAPS

HSS UNC UNF 302



- Specially designed for malleable materials such as aluminum and brass
- Eliminates chip disposal problems
- Ideal for blind holes
- Lasts up to five times longer than conventional taps
- Speed may be increased by as much as 200% in most applications
- Manufactured to Table 302 standards
- State-of-the-art design, manufactured on CNC equipment

Formula for Special Met-Flo™ Tap Drill Sizes

Drilled Hole Size (inches) = Basic Major Diameter of Thread (inches) − $\frac{.0068 \times \% \text{ of Full Thread}}{\text{Number of Threads per Inch}}$

Size	H Limit	Plug	Bottom
#0-80	H2 H3	—	010300AS 010301AS
#1-64	H2 H3	—	010302AS 010303AS
#1-72	H2 H3	—	010304AS 010305AS
#2-56	H2 H3	—	010306AS 010307AS
#2-64	H2 H3	—	010308AS 010309AS
#3-48	H2 H3	—	010310AS 010311AS
#3-56	H2 H3	—	010312AS 010313AS
#4-40	H3 H5	010314AS 010316AS	010315AS 010317AS
#4-48	H3 H5	010318AS 010320AS	010319AS 010321AS
#5-40	H3 H5	010322AS 010324AS	010323AS 010325AS
#5-44	H3 H5	010326AS 010328AS	010327AS 010329AS
#6-32	H3 H5 H10	010330AS 010332AS 010334AS	010331AS 010333AS 010335AS
#6-40	H3 H5	010336AS 010338AS	010337AS 010339AS
#8-32	H3 H10	010340AS 010342AS	010341AS 010343AS
#8-36	H3 H5	010344AS 010346AS	010345AS 010347AS
#10-24	H4 H6 H10	010348AS 010350AS 010352AS	010349AS 010351AS 010353AS
#10-32	H4 H6 H10	010354AS 010356AS 010358AS	010355AS 010357AS 010359AS
#12-24	H4 H6	010360AS 010362AS	010361AS 010363AS
#12-28	H4 H6	010364AS 010366AS	010365AS 010367AS

Size	H Limit	Plug	Bottom
1/4-20	H4 H6 H10	010368AS 010370AS 010372AS	010369AS 010371AS —
1/4-28	H4 H6	010373AS 010375AS	010374AS 010376AS
5/16-18	H5 H7	010377AS 010379AS	010378AS 010380AS
5/16-24	H5 H7 H10	010381AS 010383AS 010385AS	010382AS 010384AS 010386AS
3/8-16	H5 H7 H10	010389AS 010387AS 010391AS	010390AS 010388AS —
3/8-24	H5 H7	010392AS 010394AS	010393AS 010395AS
7/16-14	H5 H8	010396AS 010398AS	010397AS 010399AS
7/16-20	H5 H8	010400AS 010402AS	010401AS 010403AS
1/2-13	H5 H8	010404AS 010406AS	010405AS 010407AS
1/2-20	H5 H8	010408AS 010410AS	010409AS 010411AS
9/16-12	H7 H10	010412AS 010414AS	010413AS 010415AS
9/16-18	H7 H10	010416AS 010418AS	010417AS 010419AS
5/8-11	H7 H10	010420AS 010422AS	010421AS 010423AS
5/8-18	H7 H10	010424AS 010426AS	010425AS 010427AS
3/4-10	H7 H10	010428AS 010430AS	010429AS 010431AS
3/4-16	H7 H10	010432AS 010434AS	010433AS 010435AS

See page 201 for Met-Flo tap drill sizes.

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REGAL PREMIUM

TAPER PIPE TAPS
Regular Thread

HSS NPT NPTF 311



- Produces threads which conform to the American National Standard Taper Pipe Thread dimensions
- Manufactured to Table 311 standards
- Good for carbon and leaded steels and die-cast parts
- High hook specially designed for stainless steel
- Low angle specially designed for cast iron

Size	Overall Length	Thread Length	Flutes	NPT	High Hook NPTF	Low Angle NPTF	NPTF
1/16-27	2-1/8	11/16	4	008700AS	008733AS	008744AS	008701AS
1/8-27	2-1/8	3/4	4	008704AS	008734AS	008745AS	008706AS
1/8-27 Sm. Shnk.	2-1/8	3/4	4	008703AS	008735AS	008746AS	008705AS
1/4-18	2-7/16	1-1/16	4	008709AS	008736AS	008747AS	008710AS
3/8-18	2-9/16	1-1/16	4	008712AS	008737AS	008748AS	008713AS
1/2-14	3-1/8	1-3/8	4	008715AS	008738AS	008749AS	008716AS
3/4-14	3-1/4	1-3/8	5	008718AS	008739AS	008750AS	008719AS
1"-11-1/2	3-3/4	1-3/4	5	008721AS	008740AS	008751AS	008722AS
1-1/4"-11-1/2	4	1-3/4	5	008724AS	008741AS	008752AS	008725AS
1-1/2"-11-1/2	4-1/4	1-3/4	7	008727AS	008742AS	008753AS	008728AS
2"-11-1/2	4-1/2	1-3/4	7	008730AS	008743AS	008754AS	008731AS

TAPER PIPE TAPS
Interrupted Thread

HSS NPT NPTF 311



- Produces threads which conform to the American National Standard Taper Pipe Thread dimensions
- Interrupted threads reduce friction and permit better lubrication

Size	Overall Length	Thread Length	Flutes	NPT	NPTF
1/8-27	2-1/8	3/4	5	008760AS	008762AS
1/8-27 Sm. Shnk.	2-1/8	3/4	5	008761AS	008763AS
1/4-18	2-7/16	1-1/16	5	008766AS	008767AS
3/8-18	2-9/16	1-1/16	5	008769AS	008770AS
1/2-14	3-1/8	1-3/8	5	008772AS	008773AS
3/4-14	3-1/4	1-3/8	5	008775AS	008776AS
1"-11-1/2	3-3/4	1-3/4	5	008778AS	008779AS
1-1/4"-11-1/2	4	1-3/4	5	008781AS	008782AS
1-1/2"-11-1/2	4-1/4	1-3/4	7	008784AS	008785AS
2"-11-1/2	4-1/2	1-3/4	7	008787AS	008788AS

NPT = American National Standard Taper Pipe Thread

NPTF = Dryseal American National Standard Taper Pipe Thread (Fuel)

REGAL PREMIUM

TAPER PIPE TAPS

Spiral Flute

HSS NPT NPTF 311



- Produces threads which conform to the American National Standard Taper Pipe Thread dimensions
- Manufactured to Table 311 standards
- Used in ductile or stringy material to aid chip ejection

Size	Flutes	NPT	NPTF
1/8-27	4	008853AS	008854AS
1/4-18	4	008855AS	008856AS
3/8-18	4	008857AS	008858AS
1/2-14	4	008859AS	008860AS
3/4-14	5	008861AS	008878AS
3/4-14	5	008775AS	008776AS

STRAIGHT PIPE TAPS

High Speed Steel

HSS NPS NPSF 311



- Produces threads which conform to the American National Standard Straight Pipe Thread dimensions
- Manufactured to Table 311 standards

Size	Overall Length	Thread Length	Flutes	NPS	NPSF
1/8-27	2-1/8	3/4	4	008817AS	008819AS
1/8-27 Sm. Shnk.	2-1/8	3/4	4	008818AS	008820AS
1/4-18	2-7/16	1-1/16	4	008821AS	008822AS
3/8-18	2-9/16	1-1/16	4	008823AS	008824AS
1/2-14	3-1/8	1-3/8	4	008825AS	008826AS
3/4-14	3-1/4	1-3/8	5	008827AS	008828AS
1"-11-1/2	3-3/4	1-3/4	5	008829AS	008830AS

NPS = Dryseal American National Standard Straight Pipe

NPSF = Dryseal American National Standard Internal Straight Pipe

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REGAL PREMIUM

PERFORMANCE TAPER PIPE TAPS

Fractional Sizes

HSS NPT NPTF



- Specifically designed to thread stainless steel and aluminum
- Heat and wear resistant Super Premium Steel
- Bright finish

NPT/NPTF

Size	Flutes	EDP #	Overall Length	Thread Length	Square Length	Shank Diameter	Size of Square
1/8-27	4	019580DS	4	5/8	3/8	.312	.234
1/4-18	4	019582DS	4	15/16	3/8	.437	.328
3/8-18	5	019584DS	4-3/8	15/16	7/16	.562	.421
1/2-14	5	019586DS	5-1/2	1-3/16	5/8	.687	.515
3/4-14	5	019588DS	5-1/2	1-3/16	11/16	.906	.679
1"-11 1/2	5	019590DS	6-1/4	1-7/16	1-3/16	1.1245	.843

REGAL PREMIUM

STI SCREW THREAD INSERT TAPS

Machine Screw & Fractional Sizes

HSS UNC UNF



- General-purpose tap for hand or production machines
- Oversize taps that produce threads that will accommodate a helical screw thread insert

Size	H Limit	Flutes	Flute Length	Overall Length	Plug	Bottom
#2-56 UNC	H1	3	9/16	1-7/8	007104AS	007105AS
#2-56 UNC	H2	3	9/16	1-7/8	007107AS	007108AS
#4-40 UNC	H1	3	11/16	2	007000AS	007001AS
#4-40 UNC	H2	3	11/16	2	007003AS	007004AS
#5-40 UNC	H1	3	3/4	2-1/8	007006AS	007007AS
#5-40 UNC	H2	3	3/4	2-1/8	007009AS	007010AS
#6-32 UNC	H2	3	7/8	2-3/8	007012AS	007013AS
#6-32 UNC	H3	3	7/8	2-3/8	007015AS	007016AS
#6-40 UNF	H1	3	7/8	2-3/8	007018AS	007019AS
#6-40 UNF	H2	3	7/8	2-3/8	007021AS	007022AS
#8-32 UNC	H2	3	15/16	2-3/8	007024AS	007025AS
#8-32 UNC	H3	3	15/16	2-3/8	007027AS	007028AS
#10-24 UNC	H2	3	1	2-1/2	007030AS	007031AS
#10-24 UNC	H3	3	1	2-1/2	007033AS	007034AS
#10-32 UNF	H2	3	1	2-1/2	007036AS	007037AS
#10-32 UNF	H3	3	1	2-1/2	007039AS	007040AS
#12-24 UNC	H2	3	1-1/8	2-23/32	007042AS	007043AS
#12-24 UNC	H3	3	1-1/8	2-23/32	007045AS	007046AS
1/4-20 UNC	H2	3	1-1/8	2-23/32	007048AS	007049AS
1/4-20 UNC	H3	3	1-1/8	2-23/32	007051AS	007052AS
1/4-28 UNF	H2	3	1-1/8	2-23/32	007054AS	007055AS
1/4-28 UNF	H3	3	1-1/8	2-23/32	007057AS	007058AS
5/16-18 UNC	H3	4	1-1/4	2-15/16	007060AS	007061AS
5/16-18 UNC	H4	4	1-1/4	2-15/16	007063AS	007064AS
5/16-24 UNF	H2	4	1-1/4	2-15/16	007066AS	007067AS
5/16-24 UNF	H3	4	1-1/4	2-15/16	007069AS	007070AS

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REGAL PREMIUM

STI SCREW THREAD INSERT TAPS

Machine Screw & Fractional Sizes

HSS UNC UNF





- Oversize taps that produce threads that will accommodate a helical screw thread insert

Size	H Limit	Flutes	Flute Length	Overall Length	Plug	Bottom
3/8-16 UNC	H3	4	1-21/32	3-3/8	007072AS	007073AS
3/8-16 UNC	H4	4	1-21/32	3-3/8	007075AS	007076AS
3/8-24 UNF	H2	4	1-7/16	3-5/32	007078AS	007079AS
3/8-24 UNF	H3	4	1-7/16	3-5/32	007081AS	007082AS
7/16-14 UNC	H3	4	1-21/32	3-19/32	007084AS	007085AS
7/16-14 UNC	H4	4	1-21/32	3-19/32	007086AS	007087AS
7/16-20 UNF	H3	4	1-21/32	3-3/8	007088AS	007089AS
7/16-20 UNF	H4	4	1-21/32	3-3/8	007090AS	007091AS
1/2-13 UNC	H3	4	1-13/16	3-13/16	007092AS	007093AS
1/2-13 UNC	H4	4	1-13/16	3-13/16	007094AS	007095AS
1/2-20 UNF	H3	4	1-21/32	3-19/32	007096AS	007097AS
1/2-20 UNF	H4	4	1-21/32	3-19/32	007098AS	007099AS
5/8-11 UNC	H3	4	2	4-1/4	007138AS	007139AS
5/8-11 UNC	H4	4	2	4-1/4	007141AS	007142AS
5/8-18 UNF	H3	4	1-13/16	4-1/32	007144AS	007145AS
5/8-18 UNF	H4	4	1-13/16	4-1/32	007147AS	007148AS
3/4-10 UNC	H3	4	2-7/32	4-11/16	007168AS	007169AS
3/4-10 UNC	H5	4	2-7/32	4-11/16	007171AS	007172AS
3/4-16 UNF	H3	4	2	4-15/32	007174AS	007175AS
3/4-16 UNF	H4	4	2	4-15/32	007177AS	007178AS
7/8-9 UNC	H3	4	2-1/2	5-1/8	007180AS	007181AS
7/8-9 UNC	H5	4	2-1/2	5-1/8	007183AS	007184AS
7/8-14 UNF	H3	4	2-1/2	5-1/8	007186AS	007187AS
7/8-14 UNF	H4	4	2-1/2	5-1/8	007189AS	007190AS
1"-8 UNC	H4	4	2-9/16	5-3/4	007192AS	007193AS
1"-8 UNC	H6	4	2-9/16	5-3/4	007195AS	007196AS
1"-14 UNF	H4	4	2-9/16	5-7/16	007198AS	007199AS
1"-14 UNF	H6	4	2-9/16	5-7/16	007201AS	007202AS

REGAL PREMIUM

STI SCREW THREAD INSERT TAPS

Spiral Point Plug-Style Taps - Machine Screw & Fractional Sizes

HSS UNC UNF 302



- Oversize taps produce threads that accommodate a screw thread insert
- A rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications.
- Manufactured to Table 302 standards

Size	H Limit	Flutes	Flute Length	Overall Length	Plug
#2-56 UNC	H1	2	9/16	1-7/8	007100AS
#2-56 UNC	H2	2	9/16	1-7/8	007102AS
#3-48 UNC	H1	2	5/8	1-15/16	007110AS
#3-48 UNC	H2	2	5/8	1-15/16	007112AS
#4-40 UNC	H1	2	11/16	2	007002AS
#4-40 UNC	H2	2	11/16	2	007005AS
#5-40 UNC	H1	2	3/4	2-1/8	007008AS
#5-40 UNC	H2	2	3/4	2-1/8	007011AS
#6-32 UNC	H2	2	7/8	2-3/8	007014AS
#6-32 UNC	H3	2	7/8	2-3/8	007017AS
#6-40 UNF	H1	2	7/8	2-3/8	007020AS
#6-40 UNF	H2	2	7/8	2-3/8	007023AS
#8-32 UNC	H2	2	15/16	2-3/8	007026AS
#8-32 UNC	H3	2	15/16	2-3/8	007029AS
#10-24 UNC	H2	2	1	2-1/2	007032AS
#10-24 UNC	H3	2	1	2-1/2	007035AS
#10-32 UNF	H2	2	1	2-1/2	007038AS
#10-32 UNF	H3	2	1	2-1/2	007041AS
#12-24 UNC	H2	2	1	2-23/32	007044AS
#12-24 UNC	H3	2	1	2-23/32	007047AS
1/4-20 UNC	H2	2	1-1/8	2-23/32	007050AS
1/4-20 UNC	H3	2	1-1/8	2-23/32	007053AS
1/4-28 UNF	H2	2	1-1/8	2-23/32	007056AS
1/4-28 UNF	H3	2	1-1/8	2-23/32	007059AS
5/16-18 UNC	H3	3	1-1/4	2-15/16	007062AS
5/16-18 UNC	H4	3	1-1/4	2-15/16	007065AS
5/16-24 UNF	H2	3	1-1/4	2-15/16	007068AS
5/16-24 UNF	H3	3	1-1/4	2-15/16	007071AS
3/8-16 UNC	H3	3	1-21/32	3-3/8	007074AS
3/8-16 UNC	H4	3	1-21/32	3-3/8	007077AS
3/8-24 UNF	H2	3	1-7/16	3-5/32	007080AS
3/8-24 UNF	H3	3	1-7/16	3-5/32	007083AS
7/16-14 UNC	H3	3	1-21/32	3-19/32	007122AS
7/16-14 UNC	H4	3	1-21/32	3-19/32	007124AS
7/16-20 UNF	H3	3	1-21/32	3-3/8	007126AS
7/16-20 UNF	H4	3	1-21/32	3-3/8	007128AS
1/2-13 UNC	H3	3	1-13/16	3-13/32	007130AS
1/2-13 UNC	H4	3	1-13/16	3-13/32	007132AS
1/2-20 UNF	H3	3	1-21/32	3-19/32	007134AS
1/2-20 UNF	H4	3	1-21/32	3-19/32	007136AS

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REGAL PREMIUM

STI SCREW THREAD INSERT TAPS

Fast Spiral Flute Taps - Machine Screw & Fractional Sizes

HSS UNC UNF 302



- 50° high helix
- Provides greater lifting action, especially when tapping deep blind holes in ductile materials
- A built-in higher hook provides excellent shearing action
- Manufactured to Table 302 standards

Size	H Limit	Flutes	STI Plug	STI Bottom
#2-56	H1	2	—	007300AS
#2-56	H2	2	—	007301AS
#4-40	H1	2	—	007302AS
#4-40	H2	2	—	007305AS
#4-40	H2	3	007303AS	007304AS
#5-40	H1	3	—	007306AS
#5-40	H2	3	—	007307AS
#6-32	H2	3	—	007308AS
#6-32	H3	3	007309AS	007310AS
#6-40	H2	3	—	007311AS
#8-32	H2	3	—	007312AS
#8-32	H3	3	007313AS	007314AS
#10-24	H3	3	007316AS	007318AS
#10-32	H2	3	—	007315AS
#10-32	H3	3	007317AS	007319AS
1/4-20	H2	3	—	007321AS
1/4-20	H3	3	007323AS	007324AS
1/4-28	H2	3	—	007322AS
1/4-28	H3	3	—	007325AS
5/16-18	H3	3	007327AS	007328AS
5/16-18	H4	3	—	007330AS
5/16-24	H2	3	—	007326AS
5/16-24	H3	3	—	007329AS
3/8-16	H3	3	007334AS	007332AS
3/8-16	H3	4	—	007335AS
3/8-24	H2	3	—	007331AS
3/8-24	H3	3	—	007333AS
7/16-14	H3	4	—	007337AS
7/16-14	H4	4	—	007339AS
7/16-20	H3	3	—	007336AS
7/16-20	H4	3	—	007338AS
1/2-13	H4	4	—	007341AS
1/2-20	H3	4	—	007340AS

REGAL PREMIUM

METRIC HAND TAPS

HSS | M MF | 302 303 | 337



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards
- Thread form manufactured to Table 337 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	Taper	Plug	Bottom	Set
M1.6 x 0.35	6H	D3	2	027700AS	027701AS	027702AS	—
M1.8 x 0.35	6H	D3	2	027704AS	027705AS	027706AS	—
M2 x 0.4	6H	D3	3	027708AS	027709AS	027710AS	029505AS
M2.2 x 0.45	6H	D3	3	027712AS	027713AS	027714AS	—
M2.5 x 0.45	6H	D3	3	027716AS	027717AS	027718AS	—
M3 x 0.5	6H	D3	3	027720AS	027721AS	027722AS	029506AS
M3.5 x 0.6	6H	D4	3	027724AS	027725AS	027726AS	—
M3.5 x 0.6	—	+.127mm	3	027400AS	027401AS	027402AS	—
M4 x 0.7	6H	D4	4	027728AS	027729AS	027730AS	029507AS
M4 x 0.7	—	+.127mm	4	027408AS	027409AS	027410AS	—
M4.5 x 0.75	6H	D4	4	027732AS	027733AS	027734AS	—
M4.5 x 0.75	—	+.127mm	4	027416AS	027417AS	027418AS	—
M5 x .8	6H	D4	4	027736AS	027737AS	027738AS	029508AS
M5 x .8	—	+.127mm	4	027424AS	027425AS	027426AS	—
M6 x 1	6H	D5	4	027740AS	027741AS	027742AS	029509AS
M6 x 1	—	+.127mm	4	027432AS	027433AS	027434AS	—
M7 x 1	6H	D5	4	027744AS	027745AS	027746AS	029510AS
M7 x 1	—	+.127mm	4	027448AS	027449AS	027450AS	—
M8 x 1.25	6H	D5	4	027748AS	027749AS	027750AS	029511AS
M8 x 1.25	—	+.127mm	4	027456AS	027457AS	027458AS	—
M8 x 1	6H	D5	4	027752AS	027753AS	027754AS	—
M8 x 1	—	+.127mm	4	027464AS	027465AS	027466AS	—
M10 x 1.5	6H	D6	4	027756AS	027757AS	027758AS	029512AS
M10 x 1.5	—	+.127mm	4	027472AS	027473AS	027474AS	—
M10 x 1.25	6H	D5	4	027760AS	027761AS	027762AS	—
M10 x 1.25	—	+.127mm	4	027480AS	027481AS	027482AS	—
M12 x 1.75	6H	D6	4	027764AS	027765AS	027766AS	029513AS
M12 x 1.75	—	+.127mm	4	027488AS	027489AS	027490AS	—
M12 x 1.25	6H	D5	4	027768AS	027769AS	027770AS	—
M12 x 1.25	—	+.127mm	4	027496AS	027497AS	027498AS	—

See page 194 for class of fit.

+.127mm = +.005"

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REGAL PREMIUM

METRIC HAND TAPS

HSS | M MF | 302 303 | 337



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards
- Thread form manufactured to Table 337 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	Taper	Plug	Bottom	Set
M14 x 2	6H	D7	4	027772AS	027773AS	027774AS	029514AS
M14 x 1.5	6H	D6	4	027776AS	027777AS	027778AS	—
M16 x 2	6H	D7	4	027780AS	027781AS	027782AS	029515AS
M16 x 2	—	+.127mm	4	027504AS	027505AS	027506AS	—
M16 x 1.5	6H	D6	4	027784AS	027785AS	027786AS	—
M18 x 2.5	6H	D7	4	027788AS	027789AS	027790AS	029516AS
M18 x 1.5	6H	D6	4	027792AS	027793AS	027794AS	—
M20 x 2.5	6H	D7	4	027795AS	027796AS	027797AS	029517AS
M20 x 2.5	—	+.127mm	4	027520AS	027521AS	027522AS	—
M20 x 1.5	6H	D6	4	027799AS	027800AS	027801AS	—
M20 x 1.5	—	+.127mm	4	027529AS	027530AS	027531AS	—
M22 x 2.5	6H	D7	4	027802AS	027803AS	027804AS	—
M22 x 1.5	6H	D6	4	027805AS	027806AS	027807AS	—
M22 x 1.5	—	+.127mm	4	027547AS	027548AS	027549AS	—
M24 x 3	6H	D8	4	027808AS	027809AS	027810AS	029518AS
M24 x 3	—	+.127mm	4	027556AS	027557AS	027558AS	—
M24 x 2	6H	D7	4	027811AS	027812AS	027813AS	—
M27 x 3	6H	D8	4	027814AS	027815AS	027816AS	—
M27 x 2	6H	D7	4	027817AS	027818AS	027819AS	—
M30 x 3.5	6H	D9	4	027820AS	027821AS	027822AS	029519AS
M30 x 2	6H	D7	4	027823AS	027824AS	027825AS	—
M33 x 3.5	6H	D9	4	027826AS	027827AS	027828AS	—
M33 x 2	6H	D7	4	027829AS	027830AS	027831AS	—
M36 x 4	6H	D9	4	027832AS	027833AS	027834AS	029520AS
M36 x 3	6H	D8	4	027835AS	027836AS	027837AS	—
M39 x 4	6H	D9	6	027838AS	027839AS	027840AS	—
M39 x 3	6H	D8	6	027841AS	027842AS	027843AS	—

+.127mm = +.005"

REGAL PREMIUM

METRIC HAND TAPS WITH TiN COATING

HSS | M MF | 302 | TiN



- Titanium nitride (TiN) coated tools run faster and provide greatly improved tool life
- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302/303 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	Taper	Plug	Bottom
M3 x 0.5	6H	D3	3	027720AS25	027721AS25	027722AS25
M4 x 0.7	6H	D4	4	027728AS25	027729AS25	027730AS25
M5 x 0.8	6H	D4	4	027736AS25	027737AS25	027738AS25
M6 x 1	6H	D5	4	027740AS25	027741AS25	027742AS25
M8 x 1.25	6H	D5	4	027748AS25	027749AS25	027750AS25
M10 x 1.5	6H	D6	4	027756AS25	027757AS25	027758AS25
M10 x 1.25	6H	D5	4	027760AS25	027761AS25	027762AS25
M12 x 1.75	6H	D6	4	027764AS25	027765AS25	027766AS25
M12 x 1.25	6H	D5	4	027768AS25	027769AS25	027770AS25
M14 x 2	6H	D7	4	027772AS25	027773AS25	027774AS25
M14 x 1.5	6H	D6	4	027776AS25	027777AS25	027778AS25
M16 x 2	6H	D7	4	027780AS25	027781AS25	027782AS25
M16 x 1.5	6H	D6	4	027784AS25	027785AS25	027786AS25
M18 x 2.5	6H	D7	4	027788AS25	027789AS25	027790AS25
M18 x 1.5	6H	D6	4	027792AS25	027793AS25	027794AS25
M20 x 2.5	6H	D7	4	027795AS25	027796AS25	027797AS25
M20 x 1.5	6H	D6	4	027799AS25	027800AS25	027801AS25
M22 x 2.5	6H	D7	4	027802AS25	027803AS25	027804AS25
M24 x 3	6H	D8	4	027808AS25	027809AS25	027810AS25

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REGAL PREMIUM

METRIC SPIRAL POINT TAPS

HSS M MF 302 337



- A rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- Thread form manufactured to Table 337 standards

Size	Class of Fit	Pitch Diameter Limit	Flutes	Plug
M1.6 x 0.35	6H	D3	2	027703AS
M1.8 x 0.35	6H	D3	2	027707AS
M2 x 0.4	6H	D3	2	027711AS
M2.2 x 0.45	6H	D3	2	027715AS
M2.5 x 0.45	6H	D3	2	027719AS
M3 x 0.5	6H	D3	2	027723AS
M3.5 x 0.6	6H	D4	2	027727AS
M4 x 0.7	6H	D4	2	027731AS
M4 x 0.7	—	+.127mm	2	027411AS
M4.5 x 0.75	6H	D4	2	027735AS
M4.5 x 0.75	—	+.127mm	2	027419AS
M5 x 0.8	6H	D4	2	027739AS
M5 x 0.8	—	+.127mm	2	027427AS
M6 x 1	6H	D5	2	027743AS
M6 x 1	—	+.127mm	2	027435AS
M7 x 1	6H	D5	2	027747AS
M7 x 1	—	+.127mm	2	027451AS
M8 x 1.25	6H	D5	2	027751AS
M8 x 1.25	—	+.127mm	2	027459AS
M8 x 1	6H	D5	2	027755AS
M8 x 1	—	+.127mm	2	027467AS
M10 x 1.5	6H	D6	3	027759AS
M10 x 1.5	—	+.127mm	3	027475AS
M10 x 1.25	6H	D5	3	027763AS
M10 x 1.25	—	+.127mm	3	027483AS
M12 x 1.75	6H	D6	3	027767AS
M12 x 1.75	—	+.127mm	3	027491AS
M12 x 1.25	6H	D5	3	027771AS
M14 x 2	6H	D7	3	027775AS
M14 x 1.5	6H	D6	3	027779AS
M16 x 2	6H	D7	3	027783AS
M16 x 2	—	+.127mm	3	027507AS
M16 x 1.5	6H	D6	3	027787AS
M18 x 2.5	6H	D7	3	027791AS
M20 x 2.5	6H	D7	3	027798AS

REGAL PREMIUM

METRIC SPIRAL POINT TAPS WITH AlTiN COATING

HSS | M MF | 302 | AlTiN



- Aluminum Titanium Nitride (AlTiN) is a heat resistant coating that improves tool life and can be used without coolant
- A rugged, free-cutting tap that drives chips ahead of the tap
- Perfect for through-hole applications
- Manufactured to Table 302 standards
- Thread form manufactured to Table 337 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	Plug
M3 x 0.5	6H	D3	2	027723AS88
M4 x 0.7	6H	D4	2	027731AS88
M5 x 0.8	6H	D4	2	027739AS88
M6 x 1	6H	D5	2	027743AS88
M8 x 1.25	6H	D5	2	027751AS88
M8 x 1	6H	D5	2	027755AS88
M10 x 1.5	6H	D6	3	027759AS88
M12 x 1.75	6H	D6	3	027767AS88

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REGAL PREMIUM

METRIC LEFT HAND TAPS

HSS | M MF | 302



- General-purpose tap used either by hand or on production machines
- Precision ground for a wide variety of applications
- Proper number of flutes to provide sufficient chip room and cutting edges to handle most threading jobs
- Manufactured to Table 302 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	Taper	Plug	Bottom
M3.5 x 0.6	6H	D4	3	029009AS	029010AS	029011AS
M4 x 0.7	6H	D4	4	029027AS	029028AS	029029AS
M4.5 x 0.75	6H	D4	4	029036AS	029037AS	029038AS
M5 x .8	6H	D4	4	029045AS	029046AS	029047AS
M6 x 1	6H	D5	4	029054AS	029055AS	029056AS
M7 x 1	6H	D5	4	029072AS	029073AS	029074AS
M8 x 1.25	6H	D5	4	029081AS	029082AS	029083AS
M8 x 1	6H	D5	4	029090AS	029091AS	029092AS
M10 x 1.5	6H	D6	4	029099AS	029100AS	029101AS
M10 x 1.25	6H	D5	4	029108AS	029109AS	029110AS
M12 x 1.75	6H	D6	4	029117AS	029118AS	029119AS
M12 x 1.25	6H	D5	4	029126AS	029127AS	029128AS
M14 x 2	6H	D7	4	029135AS	029136AS	029137AS
M14 x 1.5	6H	D6	4	029144AS	029145AS	029146AS
M16 x 2	6H	D7	4	029153AS	029154AS	029155AS
M16 x 1.5	6H	D6	4	029162AS	029163AS	029164AS
M18 x 2.5	6H	D7	4	029171AS	029172AS	029173AS
M18 x 1.5	6H	D6	4	029180AS	029181AS	029182AS
M20 x 2.5	6H	D7	4	029189AS	029190AS	029191AS
M20 x 1.5	6H	D6	4	029198AS	029199AS	029200AS
M22 x 2.5	6H	D7	4	029207AS	029208AS	029209AS
M22 x 1.5	6H	D6	4	029216AS	029217AS	029218AS
M24 x 3	6H	D8	4	029225AS	029226AS	029227AS
M24 x 2	6H	D7	4	029234AS	029235AS	029236AS

REGAL PREMIUM

SPIRAL FLUTE TAPS

HSS UNC UNF 302





30° Helix

- Helical flutes provide lifting action to remove chips
- Recommended when tapping ductile, stringy materials; aluminum; some stainless steels; etc.
- Manufactured to Table 302 standards
- For material specific high-performance spiral point taps, see pages 47 to 56

50° High Helix

- Provides greater lifting action, especially when tapping deep blind holes in ductile materials
- A built-in higher hook provides excellent shearing action
- Manufactured to Table 302 standards

Size	H Limit	Flutes	30° Helix		50° High Helix	
			Plug	Bottom	Plug	Bottom
#3-48 UNC	**H2**	2	—	—	008064AS	008063AS
#3-56 UNF	**H2**	2	—	—	—	008065AS
#4-40 UNC	**H2**	2	008093AS	008094AS	008095AS	008096AS
#4-48 UNF	**H2**	2	008098AS	008099AS	008106AS	008107AS
#5-40 UNC	**H2**	2	008125AS	008126AS	008127AS	008128AS
#5-44 UNF	**H2**	2	008130AS	008131AS	008136AS	008137AS
#6-32 UNC	**H3**	2	008163AS	008164AS	008165AS	008166AS
#6-40 UNF	**H2**	2	008167AS	008168AS	008177AS	008178AS
#8-32 UNC	**H3**	2	008210AS	008211AS	—	—
#8-32 UNC	**H3**	3	—	—	008212AS	008213AS
#8-36 UNF	**H2**	2	008215AS	008216AS	—	—
#8-36 UNF	**H2**	3	—	—	008290AS	008291AS
#10-24 UNC	**H3**	2	008249AS	008250AS	—	—
#10-24 UNC	**H3**	3	—	—	008251AS	008252AS
#10-32 UNF	**H3**	2	008286AS	008287AS	—	—
#10-32 UNF	**H3**	3	—	—	008288AS	008289AS
#12-24 UNC	**H3**	3	—	—	008299AS	008300AS
#12-28 UNF	**H3**	3	—	—	008302AS	008303AS
1/4-20 UNC	**H3**	2	008339AS	008340AS	—	—
1/4-20 UNC	**H3**	3	008341AS	008342AS	008343AS	008344AS
1/4-28 UNF	**H3**	3	008368AS	008369AS	008370AS	008371AS
5/16-18 UNC	**H3**	3	008398AS	008399AS	008400AS	008401AS
5/16-24 UNF	**H3**	3	008422AS	008423AS	008424AS	008425AS
3/8-16 UNC	**H3**	3	008447AS	008448AS	008449AS	008450AS
3/8-24 UNF	**H3**	3	008469AS	008470AS	008471AS	008472AS
7/16-14 UNC	**H3**	3	008474AS	008475AS	008487AS	008488AS
7/16-20 UNF	**H3**	3	008490AS	008491AS	008500AS	008501AS
1/2-13 UNC	**H3**	3	008520AS	008521AS	008522AS	008523AS
1/2-20 UNF	**H3**	3	008525AS	008526AS	008539AS	008540AS
5/8-11 UNC	**H3**	4	—	—	008557AS	008558AS
5/8-18 UNF	**H3**	4	—	—	008602AS	008604AS
3/4-10 UNC	**H3**	4	—	—	008591AS	008592AS
3/4-16 UNF	**H3**	4	—	—	008613AS	008614AS
7/8-9 UNC	**H3**	4	—	—	008619AS	008620AS
1"-8 UNC	**H3**	4	—	—	008626AS	008627AS

Bold H Limits denote most popular limit. See page 194 for class of fit.

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REGAL PREMIUM

EIGHT PITCH HAND TAPS

HSS UNS 302



- A standard requirement in the power generation industry
- Free cutting for quality threads
- Manufactured to Table 302 standards

Size*	H Limit	Flutes	Taper	Plug	Bottom
1-1/8"-8 UNS	**H5**	4	017850AS	017851AS	017852AS
1-1/4"-8 UNS	**H5**	4	017853AS	017854AS	017855AS
1-3/8"-8 UNS	**H5**	4	017856AS	017857AS	017858AS
1-1/2"-8 UNS	**H5**	4	017859AS	017860AS	017861AS
1-5/8"-8 UNS	**H6**	6	017862AS	017863AS	017864AS
1-3/4"-8 UNS	**H6**	6	017865AS	017866AS	017867AS
1-7/8"-8 UNS	**H6**	6	017868AS	017869AS	017870AS
2"-8 UNS	**H6**	6	017871AS	017872AS	017873AS
2-1/8"-8 UNS	**H6**	6	017874AS	017875AS	017876AS
2-1/4"-8 UNS	**H6**	6	017877AS	017878AS	017879AS
2-3/8"-8 UNS	**H6**	6	017880AS	017881AS	017882AS
2-1/2"-8 UNS	**H6**	6	017883AS	017884AS	017885AS
2-5/8"-8 UNS	**H8**	6	017886AS	017887AS	017888AS
2-3/4"-8 UNS	**H8**	6	017889AS	017890AS	017891AS
2-7/8"-8 UNS	**H8**	6	017892AS	017893AS	017894AS
3"-8 UNS	**H8**	6	017895AS	017896AS	017897AS
3-1/4"-8 UNS	**H8**	6	017898AS	017899AS	017900AS
3-1/2"-8 UNS	**H8**	6	017901AS	017902AS	017903AS
3-3/4"-8 UNS	**H8**	6	017904AS	017905AS	017906AS
4"-8 UNS	**H8**	8	017907AS	017908AS	017909AS

Bold H Limits denote most popular limit. See page 194 for class of fit.
*Sizes up to 6" available as a popular special.

REGAL PREMIUM

PULLEY / EXTENSION TAPS

HSS UNC UNF 303A



- For tap applications which require use of extra length taps
- Provides extra length for tapping hubs of pulleys for oil caps or set screws

Size	H Limit	Flutes	Chamfer	Thread Length	Shank Diameter	6"	8"	10"	12"
#6-32 UNC	H3	3	Taper Plug Bottom	11/16	.141	015300AS 015301AS 015302AS	— — —	— — —	— — —
#8-32 UNC	H3	4	Taper Plug Bottom	3/4	.168	015312AS 015313AS 015314AS	— — —	— — —	— — —
#10-24 UNC	H3	4	Taper Plug Bottom	7/8	.194	015318AS 015319AS 015320AS	— — —	— — —	— — —
#10-32 UNF	H3	4	Taper Plug Bottom	7/8	.194	015324AS 015325AS 015326AS	— — —	— — —	— — —
1/4-20 UNC	H3	4	Plug Plug Bottom	1"	.255 .185* .255	008862AS 015125AS* 015150AS	008863AS — —	— — —	— — —
1/4-28 UNF	H3	4	Taper Plug Bottom	1"	.255	015342AS 008880AS 015344AS	— — —	— — —	— — —
5/16-18 UNC	H3	4	Plug Plug Bottom	1-1/8"	.318 .240* .318	008864AS 015131AS* 015152AS	008865AS — —	— — —	— — —
5/16-24 UNF	H3	4	Taper Plug Bottom	1-1/8"	.318	015360AS 008881AS 015362AS	— — —	— — —	— — —
3/8-16 UNC	H3	4	Plug Plug Bottom Bottom	1-1/4"	.381 .275* .381 .275*	008866AS 015140AS* 015154AS 015145AS*	008867AS — — —	008868AS — — —	— — — —
3/8-24 UNF	H3	4	Taper Plug Bottom	1-1/4"	.381	015372AS 008882AS 015374AS	— — —	— — —	— — —
7/16-14 UNC	H3	4	Taper Plug Bottom Plug	1-7/16"	.323 .323 .323 .444	015061AS 015062AS 015063AS —	— — — 015068AS	— — — —	— — — —
7/16-20 UNF	H3	4	Taper Plug Bottom	1-7/16"	.323	015064AS 015065AS 015066AS	— — —	— — —	— — —
1/2-13 UNC	H3	4	Plug Bottom Plug	1-21/32"	.367 .367 .507	015146AS 015147AS	— — 015153AS	— — 015151AS	— — 015135AS
1/2-20 UNF	H3	4	Plug	1-21/32"	.367	015149AS	—	—	—
9/16-12 UNC	H3	4	Taper Plug Bottom	1-21/32"	.429	015177AS 015178AS 015179AS	— — —	— — —	— — —
9/16-18 UNF	H3	4	Taper Plug Bottom	1-21/32"	.429	015185AS 015186AS 015187AS	— — —	— — —	— — —
5/8-11 UNC	H3	4	Plug Plug	1-13/16"	.480 .633	015160AS —	015161AS —	— 015173AS	— 015183AS
5/8-18 UNF	H3	4	Taper Plug Bottom	1-13/16"	.480	015180AS 015181AS 015182AS	— — —	— — —	— — —
3/4-10 UNC	H3	4	Taper Plug Plug	2"	.590 .590 .759	015431AS 015142AS —	015429AS — —	015430AS — —	— — 015435AS
1"-8 UNC	H4	4	Plug Bottom	2-1/2"	.800	— —	015162AS 015163AS	015164AS 015165AS	015166AS 015167AS
1-1/4"-7 UNC	H4	4	Plug	2-9/16"	1.021	—	—	015174AS	015175AS

*small shank

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REGAL PREMIUM

SPIRAL POINT EXTENSION TAPS

HSS UNC UNF



- A rugged, free-cutting tap that drives chips ahead of the tap
- For tap applications which require use of extra length taps
- Provides extra length for tapping hubs of pulleys, oil caps and set screws

Size	H Limit	Flutes	Chamfer	Thread Length	Shank Diameter	4"	6"
#6-32 UNC	H3	2	Plug	11/16	.141	091376AS	015100AS
#8-32 UNC	H3	2	Plug	3/4	.168	091378AS	015102AS
#10-24 UNC	H3	2	Plug	7/8	.194	091380AS	015110AS
#10-32 UNF	H3	2	Plug	7/8	.194	091382AS	015112AS
1/4-20 UNC	H3	2	Plug	1	.185*	091384AS*	015124AS*
1/4-20 UNC	H3	2	Plug	1	.255	—	015122AS
1/4-28 UNF	H3	2	Plug	1	.185*	091386AS*	—
1/4-28 UNF	H3	2	Plug	1	.255	—	015126AS
5/16-18 UNC	H3	2	Plug	1-1/8	.240*	091388AS*	015130AS*
5/16-18 UNC	H3	2	Plug	1-1/8	.318	—	015128AS
5/16-24 UNF	H3	2	Plug	1-1/8	.240*	091390AS*	—
5/16-24 UNF	H3	2	Plug	1-1/8	.318	—	015134AS
3/8-16 UNC	H3	3	Plug	1-1/4	.275*	091392AS*	015139AS*
3/8-16 UNC	H3	3	Plug	1-1/4	.381	—	015141AS
3/8-24 UNF	H3	3	Plug	1-1/4	.275*	091394AS*	—
3/8-24 UNF	H3	3	Plug	1-1/4	.381	—	015142AS
7/16-14 UNC	H3	3	Plug	1-7/16	.323	—	015136AS
7/16-20 UNF	H3	3	Plug	1-7/16	.323	—	015067AS
1/2-13 UNC	H3	3	Plug	1-21/32	.367	—	015144AS
1/2-20 UNF	H3	3	Plug	1-21/32	.367	—	015148AS
5/8-11 UNC	H3	3	Plug	1-13/16	.480	—	015157AS

*small shank

EXTENSION TAPER PIPE TAPS

HSS NPT NPTF



- For tap applications which require use of extra length taps
- Provides extra length for tapping hubs of pulleys, oil caps and set screws

Size	Flutes	Chamfer	Thread Length	Shank Diameter	4"	6"	8"	10"	12"
1/8-27 NPT/NPTF	4	Plug	3/4	.4375	015904AS	015905AS	015906AS	015907AS	015908AS
1/4-18 NPT/NPTF	4	Plug	1-1/16	.5625	015913AS	015915AS	015916AS	015917AS	015918AS
3/8-18 NPT/NPTF	4	Plug	1-1/16	.7000	—	015921AS	015922AS	015923AS	—
1/2-14 NPT/NPTF	4	Plug	1-3/8	.6875	—	015925AS	015927AS	015928AS	—
3/4-14 NPT/NPTF	5	Plug	1-3/8	.9093	—	015929AS	015930AS	015931AS	—
1"-11-1/2 NPT/NPTF	5	Plug	1-3/4	1.1250	—	015933AS	—	015934AS	—

Special extensions available to meet your requirements on a quick delivery basis. Call your Regal Cutting Tools representative for more information.

REGAL PREMIUM

METRIC SPIRAL FLUTE TAPS

HSS M MF 302



30° Helix

- Helical flutes provide lifting action to remove chips
- Recommended when tapping ductile, stringy materials; aluminum; some stainless steels; etc.
- Manufactured to Table 302 standards



50° High Helix

- Provides greater lifting action, especially when tapping deep blind holes in ductile materials
- Built-in higher hook provides excellent shearing action
- Manufactured to Table 302 standards

Size	Class of Fit	Pitch Dia. Limit	Flutes	30° Helix		50° High Helix	
				Plug	Bottom	Plug	Bottom
M3 x 0.5	6H	D3	2	027600AS	027601AS	027650AS	027651AS
M3.5 x 0.6	6H	D4	2	027603AS	027604AS	027653AS	027654AS
M4 x 0.7	6H	D4	2	027606AS	027607AS	027656AS	027657AS
M4.5 x 0.75	6H	D4	2	027609AS	027610AS	027659AS	027660AS
M5 x .8	6H	D4	2	027612AS	027613AS	027662AS	027663AS
M6 x 1	6H	D5	3	027615AS	027616AS	027665AS	027666AS
M7 x 1	6H	D5	3	027618AS	027619AS	027668AS	027669AS
M8 x 1.25	6H	D5	3	027621AS	027622AS	027671AS	027672AS
M8 x 1	6H	D5	3	027624AS	027625AS	027674AS	027675AS
M10 x 1.5	6H	D6	3	027627AS	027628AS	027677AS	027678AS
M10 x 1.25	6H	D5	3	027630AS	027631AS	027680AS	027681AS
M12 x 1.75	6H	D6	3	027633AS	027634AS	027683AS	027684AS
M12 x 1.25	6H	D5	3	027636AS	027637AS	027686AS	027687AS

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REGAL PREMIUM

METRIC UNIPASS DRILL 'N' TAP

HSS M MF



- Drills and taps in a single pass
- Point is self-centering and eliminates the need for center drilling or center punching
- Can be used on multi-spindle heads with reversing mechanisms in most materials

Size	Pitch Dia. Limit	Flutes	Overall Length	Drill Length	Drill Size	Thread Length	Shank Dia.	Length of Square	Size of Square	EDP #
M3 x 0.5	D3	2	1-15/16"	9/32"	.1015"	13/32"	.141"	3/16"	.110"	007600AS
M3.5 x 0.6	D4	2	2"	5/16"	.1180"	7/16"	.141"	3/16"	.110"	007605AS
M4 x 0.7	D4	2	2-1/8"	3/8"	.1340"	1/2"	.168"	1/4"	.131"	007610AS
M4.5 x 0.75	D4	2	2-3/8"	13/32"	.1520"	5/8"	.194"	1/4"	.152"	007615AS
M5 x .8	D4	2	2-3/8"	13/32"	.1700"	5/8"	.194"	1/4"	.152"	007620AS
M6 x 1	D5	2	2-1/2"	17/32"	.2030"	25/32"	.255"	5/16"	.191"	007625AS
M7 x 1	D5	2	2-27/32"	11/16"	.2420"	15/16"	.318"	3/8"	.238"	007630AS
M8 x 1.25	D5	2	2-27/32"	11/16"	.2735"	15/16"	.318"	3/8"	.238"	007635AS
M10 x 1.5	D6	2	3-3/8"	13/16"	.3440"	1-1/16"	.381"	7/16"	.286"	007640AS
M12 x 1.75	D6	2	4-1/16"	1-1/8"	.4140"	1-3/8"	.367"	7/16"	.275"	007645AS

METRIC MET-FLO THREAD FORMING TAPS

HSS M MF 302A





- Specially designed for malleable materials such as aluminum and brass
- Eliminates chip disposal problems
- Ideal for blind holes
- Lasts up to 5 times longer than conventional taps
- Speed may be increased by as much as 200% in most applications
- Manufactured to Table 302A standards.

Size	Pitch Diameter Limit	Plug	Bottom
M3 x 0.5	D5	010450AS	010451AS
M4 x 0.7	D6	010452AS	010453AS
M5 x .8	D7	010454AS	010455AS
M6 x 1	D8	010456AS	010457AS
M8 x 1.25	D9	010458AS	010459AS
M10 x 1.5	D10	010460AS	010461AS
M12 x 1.75	D11	010462AS	010463AS

REGAL PREMIUM

METRIC STI SCREW THREAD INSERT TAPS

HSS UNC UNF 302

- Oversize taps that produce threads that will accommodate a metric helical screw thread insert

Hand Taps

Size	Limit	Flutes	Plug	Bottom
M3 x 0.5	D1	3	007253AS	007254AS
M4 x 0.7	D1	3	007255AS	007256AS
M5 x 0.8	D1	3	007257AS	007258AS
M6 x 1	D2	3	007259AS	007260AS
M8 x 1.25	D2	4	007261AS	007262AS
M10 x 1.5	D3	4	007263AS	007264AS
M12 x 1.75	D3	4	007265AS	007266AS

Spiral Point

Size	Limit	Flutes	Plug	Bottom
M2.5 x 0.45	D1	2	007280AS	—
M3 x 0.5	D1	2	007281AS	—
M3.5 x 0.6	D1	2	007282AS	—
M4 x 0.7	D1	2	007294AS	—
M4 x 0.7	D2	2	007283AS	—
M5 x 0.8	D1	2	007295AS	—
M5 x 0.8	D2	2	007284AS	—
M6 x 1	D2	2	007285AS	—
M8 x 1	D2	3	007287AS	—
M8 x 1.25	D2	3	007286AS	—
M10 x 1.0	D2	3	007288AS	—
M10 x 1.25	D2	3	007289AS	—
M10 x 1.5	D3	3	007290AS	—
M12 x 1.25	D3	3	007291AS	—
M12 x 1.50	D3	3	007292AS	—
M12 x 1.75	D3	3	007293AS	—

Spiral Flute

Size	Limit	Flutes	Plug	Bottom
M2.2 x 0.45	D1	2	—	007350AS
M2.5 x 0.45	D1	2	—	007351AS
M3 x 0.5	D1	2	—	007349AS
M3 x 0.5	D1	3	007352AS	007353AS
M3.5 x 0.6	D1	3	—	007354AS
M4 x 0.7	D1	3	007355AS	007356AS
M5 x 0.8	D1	3	007357AS	007358AS
M6 x 1	D2	3	007359AS	007360AS
M8 x 1	D2	3	—	007362AS
M8 x 1.25	D2	3	007361AS	007363AS
M10 x 1	D2	3	—	007364AS
M10 x 1.25	D2	3	—	007365AS
M10 x 1.5	D3	3	007366AS	007367AS
M12 x 1.25	D3	4	—	007368AS
M12 x 1.75	D3	4	—	007369AS

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REGAL PREMIUM

ROUND ADJUSTABLE DIES

High Speed Steel

HSS



- Used for cutting external right-hand threads
- Adjustable to cut a limited amount of sizes smaller than shown

Size	13/16" OD	1" OD	1-1/2" OD	2" OD
0-80 UNC	040139AS	—	—	—
1-64 UNC	040140AS	—	—	—
1-72 UNF	040141AS	—	—	—
2-56 UNC	040142AS	—	—	—
3-48 UNC	040144AS	—	—	—
4-40 UNC	040147AS	—	—	—
4-48 UNF	040148AS	—	—	—
5-40 UNC	040150AS	—	—	—
5-44 UNF	040151AS	—	—	—
6-32 UNC	040152AS	040175AS	—	—
6-40 UNF	040153AS	—	—	—
8-32 UNC	040154AS	040176AS	—	—
8-36 UNF	040155AS	—	—	—
10-24 UNC	040156AS	040177AS	—	—
10-32 UNF	040157AS	040178AS	—	—
12-24 UNC	040158AS	040179AS	—	—
12-28 UNF	040159AS	—	—	—
1/4-20 UNC	040160AS	040180AS	040200AS	—
1/4-28 UNF	040161AS	040181AS	040201AS	—
5/16-18 UNC	040162AS	040182AS	040202AS	—
5/16-24 UNF	040163AS	040183AS	040203AS	—
3/8-16 UNC	—	040184AS	040204AS	—
3/8-24 UNF	—	040185AS	040205AS	—
7/16-14 UNC	—	040186AS	040206AS	—
7/16-20 UNF	—	040187AS	040207AS	—
1/2-13 UNC	—	—	040208AS	—
1/2-20 UNF	—	—	040209AS	—
9/16-12 UNC	—	—	040210AS	—
9/16-18 UNF	—	—	040211AS	—
5/8-11 UNC	—	—	040212AS	040225AS
5/8-18 UNF	—	—	040213AS	040226AS
3/4-10 UNC	—	—	—	040227AS
3/4-16 UNF	—	—	—	040228AS
7/8-9 UNC	—	—	—	040229AS
7/8-14 UNF	—	—	—	040230AS

REGAL PREMIUM

METRIC ROUND ADJUSTABLE DIES

High Speed Steel

HSS

- Used for cutting external right-hand threads
- Adjustable to cut a limited amount of sizes smaller than shown

Size	25.4mm OD	38mm OD	50.8mm OD	63.4mm OD	76.2mm OD
M2 x 0.4	046002AS	—	—	—	—
M2.2 x 0.45	046003AS	—	—	—	—
M2.5 x 0.45	046004AS	—	—	—	—
M3 x 0.5	046005AS	—	—	—	—
M3.5 x 0.6	046006AS	—	—	—	—
M4 x 0.7	046007AS	—	—	—	—
M4.5 x 0.75	046008AS	—	—	—	—
M5 x .8	046009AS	—	—	—	—
M6 x 1	046010AS	—	—	—	—
M6.3 x 1	046011AS	—	—	—	—
M7 x 1	046012AS	—	—	—	—
M8 x 1.25	046013AS	—	—	—	—
M8 x 1	046014AS	—	—	—	—
M10 x 1.5	—	046015AS	—	—	—
M10 x 1.25	—	046016AS	—	—	—
M12 x 1.75	—	046017AS	—	—	—
M12 x 1.25	—	046018AS	—	—	—
M14 x 2	—	046019AS	—	—	—
M14 x 1.5	—	046020AS	—	—	—
M16 x 2	—	046021AS	—	—	—
M16 x 1.5	—	046022AS	—	—	—
M18 x 2.5	—	046023AS	—	—	—
M18 x 1.5	—	046024AS	—	—	—
M20 x 2.5	—	—	046025AS	—	—
M20 x 1.5	—	—	046026AS	—	—
M22 x 2.5	—	—	046027AS	—	—
M22 x 1.5	—	—	046028AS	—	—
M24 x 3	—	—	046029AS	—	—
M24 x 2	—	—	046030AS	—	—
M27 x 3	—	—	—	046031AS	—
M27 x 2	—	—	—	046032AS	—
M30 x 3.5	—	—	—	046033AS	—
M30 x 2	—	—	—	046034AS	—
M33 x 3.5	—	—	—	046035AS	—
M33 x 2	—	—	—	046036AS	—
M36 x 4	—	—	—	046037AS	—
M36 x 3	—	—	—	046038AS	—
M39 x 4	—	—	—	—	046039AS
M39 x 3	—	—	—	—	046040AS

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REGAL PREMIUM

NPT TAPER & NPS STRAIGHT PIPE DIES

High Speed Steel

HSS



- Used in the repair or maintenance of worn parts

Size	Taper	Straight	OD
1/16-27	041500AS	041540AS	1
1/8-27	041501AS	041541AS	1
1/4-18	041502AS	041542AS	1-1/2
3/8-18	041503AS	041543AS	1-1/2
1/2-14	041504AS	041544AS	2
3/4-14	041505AS	041545AS	2
1"-11-1/2	041506AS	041546AS	2-1/2

HEX RETHREADING DIES

High Speed Steel

HSS



- Used in repair work for rusty and/or damaged threads

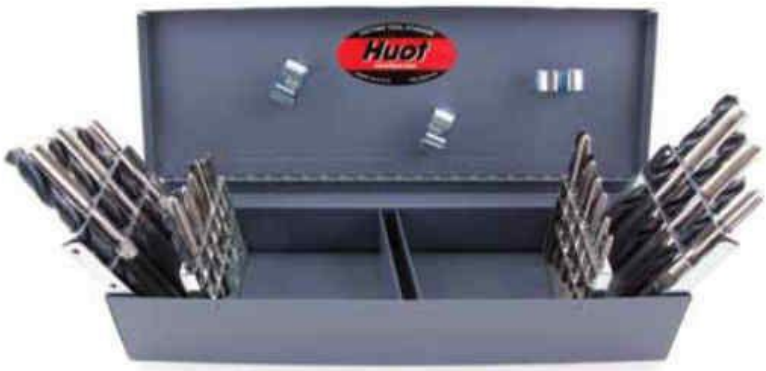
EPD #	Size	Dimension Across Flats	Dimension Thickness
046200AS	1/2-13	1-1/16	1/2
046202AS	1/2-20	1-1/16	1/2
046204AS	5/8-11	1-1/4	5/8
046206AS	5/8-18	1-1/4	5/8
046208AS	3/4-10	1-7/16	3/4
046210AS	3/4-16	1-7/16	3/4
046212AS	1"-8	1-13/16	1
046214AS	1"-12	1-13/16	1
046216AS	1"-14	1-13/16	1
046218AS	1-1/8"-7	2	1
046220AS	1-1/8"-12	2	1
046222AS	1-1/4"-7	2-3/16	1
046224AS	1-1/4"-12	2-3/16	1
046226AS	1-3/8"-6	2-3/8	1
046228AS	1-3/8"-12	2-3/8	1
046230AS	1-1/2"-6	2-9/16	1
046232AS	1-1/2"-12	2-9/16	1

REGAL PREMIUM

TAP AND DRILL SETS

High Speed Steel

HSS



- High quality taps and drills in a variety of sizes to fit most maintenance, repair or production needs



EDP #078710AS Tap and Drill Set, Bright			
Tap Size	Drill	Tap Size	Drill
6-32	36	6-40	33
8-32	29	8-36	29
10-24	25	10-32	21
12-24	16	12-28	15
1/4-20	7	1/4-28	3
5/16-18	F	5/16-24	I
3/8-16	5/16	3/8-24	O
7/16-14	U	7/16-20	25/64
1/2-13	27/64	1/2-20	29/64

EDP #045995AS Hand Taps, TiN Coated	
Tap Size	Drill
6-32	36
8-32	29
10-24	25
10-32	21
1/4-20	7
5/16-18	F
3/8-16	5/16
7/16-14	U
1/2-13	27/64





EDP #045999AS Spiral Point Taps, TiN Coated	
Tap Size	Drill
6-32	36
8-32	29
10-24	25
10-32	21
1/4-20	7
5/16-18	F
3/8-16	5/16
7/16-14	U
1/2-13	27/64

EDP #046590AS Metric Tap & Drill Set, Bright	
Tap Size	Drill
M2.5 x .45	2.05mm
M3 x .5	2.50mm
M4 x .7	3.30mm
M5 x .8	4.20mm
M6 x 1	5.00mm
M8 x 1.25	6.70mm
M10 x 1.5	8.50mm
M12 x 1.75	10.20mm

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REGAL PREMIUM

ROUND DIE STOCK

3-Screw Type

- Will hold any round adjustable die, but specifically designed for dies with open-type adjustment



Fits Die OD of	Length	EDP #
13/16	9-1/2	040270WS
1	10-1/2	040271WS
1-1/2	14-1/2	040272WS
2	18	040273WS
2-1/2	22-1/2	040274WS
3	28-1/4	040275WS

TAP WRENCHES



- T-Handle wrenches are designed for hand tapping and may also be used with drills, screw extractors and other tools
- Straight wrenches are designed to provide greater leverage when tapping larger diameters

Type	Capacity		Overall Length	EDP #
	Fractional	Machine Screw		
"T" Slip Handle	1/16 to 1/4	0 to 14	2-1/4	040278WS
"T" Slip Handle	7/32 to 1/2	12 to 14	3-5/8	040279WS
"T" Ratchet Handle	1/16 to 1/4	0 to 14	3-3/4	040280WS
"T" Ratchet Handle	7/32 to 1/2	12 to 14	5	040281WS

Type	Fractional	Pipe Taps	EDP #
Straight	1/4 to 1-1/8	1/8 to 3/4	040284WS
Straight	3/4 to 1-5/8	3/8 to 1-1/4	040285WS
Straight	1 to 2-1/2	3/4 to 2	040286WS

TRIPLE CROWN SERIES

MATERIAL SPECIFIC HIGH PERFORMANCE TAPS INDEX



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Metric Accu-Shear Taps 49
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Metric Blue Ring TC-SS Taps for Tough Materials 51
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TRIPLE CROWN SERIES

ACCU-SHEAR TAPS

Machine Screw & Fractional Sizes

HSS NC NF



Spiral Flute

Chamfer Size	Limit	Flutes	EDP #
#4-40 NC	H2	2	033000TC
#4-48 NF	H2	2	033001TC
#5-40 NC	H2	3	033002TC
#5-44 NF	H2	3	033003TC
#6-32 NC	H3	3	033004TC
#6-40 NF	H2	3	033005TC
#8-32 NC	H3	3	033006TC
#8-36 NF	H2	3	033007TC
#10-24 NC	H3	3	033008TC
#10-32 NF	H3	3	033009TC
#12-24 NC	H3	3	033010TC
#12-28 NF	H3	3	033011TC
1/4"-20 NC	H3	3	033012TC
1/4"-20 NC	H5	3	033013TC
1/4"-28 NF	H3	3	033014TC
1/4"-28 NF	H4	3	033015TC
5/16"-18 NC	H3	3	033016TC
5/16"-18 NC	H5	3	033017TC
5/16"-24 NF	H3	3	033018TC
5/16"-24 NF	H5	3	033019TC
3/8"-16 NC	H3	3	033020TC
3/8"-16 NC	H5	3	033021TC
3/8"-24 NF	H3	3	033022TC
3/8"-24 NF	H4	3	033023TC
7/16"-14 NC	H3	3	033024TC
7/16"-14 NC	H5	3	033025TC
7/16"-20 NF	H3	3	033026TC
7/16"-20 NF	H5	3	033027TC
1/2"-13 NC	H5	3	033028TC
1/2"-20 NF	H5	3	033029TC
9/16"-12 NC	H5	3	033030TC
9/16"-18 NF	H5	3	033031TC
5/8"-11 NC	H5	4	033032TC
5/8"-18 NF	H5	4	033033TC
3/4"-10 NC	H5	4	033034TC
3/4"-16 NF	H5	4	033035TC
7/8"-9 NC	H6	4	033036TC
7/8"-14 NF	H6	4	033037TC
1"-8 NC	H6	4	033038TC
1"-12 NF	H6	4	033039TC



Spiral Point

Chamfer Size	Limit	Flutes	EDP #
#4-40 NC	H2	2	033100TC
#4-48 NF	H2	2	033101TC
#5-40 NC	H2	3	033102TC
#5-44 NF	H2	3	033103TC
#6-32 NC	H3	3	033104TC
#6-40 NF	H2	3	033105TC
#8-32 NC	H3	3	033106TC
#8-36 NF	H2	3	033107TC
#10-24 NC	H3	3	033108TC
#10-32 NF	H3	3	033109TC
#12-24 NC	H3	3	033110TC
#12-28 NF	H3	3	033111TC
1/4"-20 NC	H3	3	033112TC
1/4"-20 NC	H5	3	033113TC
1/4"-28 NF	H3	3	033114TC
1/4"-28 NF	H4	3	033115TC
5/16"-18 NC	H3	3	033116TC
5/16"-18 NC	H5	3	033117TC
5/16"-24 NF	H3	3	033118TC
5/16"-24 NF	H5	3	033119TC
3/8"-16 NC	H3	3	033120TC
3/8"-16 NC	H5	3	033121TC
3/8"-24 NF	H3	3	033122TC
3/8"-24 NF	H4	3	033123TC
7/16"-14 NC	H3	3	033124TC
7/16"-14 NC	H5	3	033125TC
7/16"-20 NF	H3	3	033126TC
7/16"-20 NF	H5	3	033127TC
1/2"-13 NC	H5	3	033128TC
1/2"-20 NF	H5	3	033129TC
9/16"-12 NC	H5	3	033130TC
9/16"-18 NF	H5	3	033131TC
5/8"-11 NC	H5	3	033132TC
5/8"-18 NF	H5	3	033133TC
3/4"-10 NC	H5	3	033134TC
3/4"-16 NF	H5	3	033135TC
7/8"-9 NC	H6	3	033136TC
7/8"-14 NF	H6	3	033137TC
1"-8 NC	H6	3	033138TC
1"-12 NF	H6	3	033139TC

TRIPLE CROWN SERIES

ACCU-SHEAR TAPS

Metric Sizes

HSS M MF



- Eliminates loose threads due to overfeeding
- Improves thread quality and chip evacuations



- Improves tapping of many metals, including stainless steel and steels
- Eliminates "bird nests" around tap shank

Spiral Flute

Chamfer Size	Limit	Flutes	EDP #
M3 x 0.5	D3	3	033050TC
M3.5 x 0.6	D4	3	033051TC
M4 x 0.7	D4	3	033052TC
M5 x 0.8	D4	3	033053TC
M6 x 1	D5	3	033054TC
M7 x 1	D5	3	033055TC
M8 x 1.25	D5	3	033056TC
M8 x 1	D5	3	033057TC
M10 x 1.5	D6	3	033058TC
M10 x 1.5	D5	3	033059TC
M12 x 1.75	D6	3	033060TC
M12 x 1.25	D5	3	033061TC
M14 x 2	D7	3	033062TC
M14 x 1.5	D6	3	033063TC
M16 x 2	D7	3	033064TC
M16 x 1.5	D6	3	033065TC
M18 x 2.5	D7	4	033066TC
M18 x 1.5	D6	4	033067TC
M20 x 2.5	D7	4	033068TC
M20 x 1.5	D6	4	033069TC
M22 x 2.5	D7	4	033070TC
M22 x 1.5	D6	4	033071TC
M24 x 3	D8	4	033072TC

Spiral Point

Chamfer Size	Limit	Flutes	EDP #
M3 x 0.5	D3	3	033150TC
M3.5 x 0.6	D4	3	033151TC
M4 x 0.7	D4	3	033152TC
M5 x 0.8	D4	3	033153TC
M6 x 1	D5	3	033154TC
M7 x 1	D5	3	033155TC
M8 x 1.25	D5	3	033156TC
M8 x 1	D5	3	033157TC
M10 x 1.5	D6	3	033158TC
M10 x 1.5	D5	3	033159TC
M12 x 1.75	D6	3	033160TC
M12 x 1.25	D5	3	033161TC
M14 x 2	D7	3	033162TC
M14 x 1.5	D6	3	033163TC
M16 x 2	D7	3	033164TC
M16 x 1.5	D6	3	033165TC
M18 x 2.5	D7	3	033166TC
M18 x 1.5	D6	3	033167TC
M20 x 2.5	D7	3	033168TC
M20 x 1.5	D6	3	033169TC
M22 x 2.5	D7	3	033170TC
M22 x 1.5	D6	3	033171TC
M24 x 3	D8	3	033172TC

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TRIPLE CROWN SERIES

BLUE RING TC-SS TAPS FOR TOUGH MATERIALS

Machine Screw & Fractional Sizes

HSS EX | NC NF | BLACK OXIDE



- Steels and stainless steels



- Superior performance at higher speeds

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
#4-40 NC	H2	2	030259TC
#6-32 NC	H3	3	030260TC
#8-32 NC	H3	3	030261TC
#10-24 NC	H3	3	030262TC
#10-32 NF	H3	3	030276TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
#4-40	H2	2	030200TC
#6-32	H3	3	030201TC
#6-40	H2	3	030218TC
#8-32	H3	3	030202TC
#10-24	H3	3	030203TC
#10-32	H3	3	030219TC
#12-24	H3	3	030204TC

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
1/4-20	H3	3	030263TC
1/4-28	H3	3	030277TC
5/16-18	H3	3	030264TC
5/16-24	H3	3	030278TC
3/8-16	H3	3	030265TC
3/8-24	H3	3	030279TC
7/16-14	H3	3	030266TC
1/2-13	H3	3	030267TC
1/2-20	H3	3	030280TC
5/8-11	H3	4	030268TC
5/8-18	H3	4	030281TC
3/4-10	H3	4	030269TC
3/4-16	H3	4	030282TC
7/8-9	H4	4	030270TC
7/8-14	H4	4	030283TC
1-8	H4	4	030271TC
1-12	H4	4	030284TC
1-1/8"-7	H4	4	030272TC
1-1/8"-12	H4	4	030285TC
1-1/4"-7	H4	4	030273TC
1-1/4"-12	H4	4	030286TC
1-3/8"-6	H4	4	030274TC
1-3/8"-12	H4	4	030287TC
1-1/2"-6	H4	4	030275TC
1-1/2"-12	H4	4	030288TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
1/4-20	H3	3	030205TC
1/4-28	H3	3	030220TC
5/16-18	H3	3	030206TC
5/16-24	H3	3	030221TC
3/8-16	H3	3	030207TC
3/8-24	H3	3	030222TC
7/16-14	H3	3	030208TC
7/16-20	H3	3	031208TC
1/2-13	H3	3	030209TC
1/2-20	H3	3	030223TC
5/8-11	H3	3	030210TC
5/8-18	H3	3	030224TC
3/4-10	H3	3	030211TC
3/4-16	H3	3	030225TC
7/8-9	H4	3	030212TC
7/8-14	H4	3	030226TC
1-8	H4	3	030213TC
1-12	H4	3	030227TC
1-1/8"-7	H4	4	030214TC
1-1/8"-12	H4	4	030228TC
1-1/4"-7	H4	4	030215TC
1-1/4"-12	H4	4	030229TC
1-3/8"-6	H4	4	030216TC
1-3/8"-12	H4	4	030230TC
1-1/2"-6	H4	4	030217TC
1-1/2"-12	H4	4	030231TC

TRIPLE CROWN SERIES

BLUE RING TC-SS TAPS FOR TOUGH MATERIALS *Metric*

HSS EX | M MF | BLACK OXIDE



• Steels and stainless steels

Spiral Flute

Tap Size	Limit	Flutes	EDP #
M3 x 0.5	D3	3	030289TC
M3.5 x 0.6	D4	3	030290TC
M4 x 0.7	D4	3	030291TC
M5 x 0.8	D4	3	030292TC
M6 x 1.0	D5	3	030293TC
M7 x 1.0	D5	3	030294TC
M8 x 1.25	D5	3	030296TC
M8 x 1.0	D5	3	030295TC
M10 x 1.5	D6	3	030298TC
M10 x 1.25	D5	3	030297TC
M12 x 1.75	D6	3	030299TC
M12 x 1.25	D5	3	030300TC
M14 x 2.0	D7	3	030302TC
M14 x 1.5	D6	3	030301TC
M16 x 2.0	D7	3	030303TC
M16 x 1.5	D6	3	030304TC
M18 x 2.5	D7	4	030306TC
M18 x 1.5	D6	4	030305TC
M20 x 2.5	D6	4	030308TC
M20 x 1.5	D5	4	030307TC
M22 x 2.5	D6	4	030310TC
M22 x 1.5	D6	4	030309TC
M24 x 3.0	D7	4	030312TC
M24 x 1.5	D5	4	030311TC



• Superior performance at higher speeds

Spiral Point

Tap Size	Limit	Flutes	EDP #
M2 x 0.4	D3	2	030232TC
M2.5 x 0.45	D3	2	030233TC
M3 x 0.5	D3	3	030234TC
M3.5 x 0.6	D4	3	030235TC
M4 x 0.7	D4	3	030236TC
M4.5 x 0.75	D4	3	030237TC
M5 x 0.8	D4	3	030238TC
M6 x 1.0	D5	3	030239TC
M7 x 1.0	D5	3	030240TC
M8 x 1.25	D5	3	030242TC
M8 x 1.0	D5	3	030241TC
M10 x 1.5	D6	3	030244TC
M10 x 1.25	D5	3	030243TC
M12 x 1.75	D6	3	030245TC
M12 x 1.25	D5	3	030246TC
M14 x 2.0	D7	3	030248TC
M14 x 1.5	D6	3	030247TC
M16 x 2.0	D7	3	030249TC
M16 x 1.5	D6	3	030250TC
M18 x 2.5	D7	3	030252TC
M18 x 1.5	D6	3	030251TC
M20 x 2.5	D7	3	030254TC
M20 x 1.5	D5	3	030253TC
M22 x 2.5	D6	3	030256TC
M22 x 1.5	D6	3	030255TC
M24 x 3.0	D7	3	030258TC
M24 x 1.5	D5	3	030257TC

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TRIPLE CROWN SERIES

YELLOW RING TC-LT TAPS FOR GENERAL DUCTILE MATERIALS *Machine Screw & Fractional Sizes*

HSS V | NC NF | BLACK OXIDE



- For hardened tool steel and nickel alloys



- Superior performance at higher speeds

Spiral Flute

Tap Size	Limit	Flutes	EDP #
#4-40 NC	H2	2	030063TC
#6-32 NC	H3	2	030064TC
#8-32 NC	H3	3	030065TC
#10-24 NC	H3	3	030066TC
#10-32 NF	H3	3	030080TC

Spiral Point

Tap Size	Limit	Flutes	EDP #
#4-40	H2	2	030000TC
#6-32	H3	2	030001TC
#6-40	H2	2	030018TC
#8-32	H3	2	030002TC
#10-24	H3	2	030003TC
#10-32	H3	2	030019TC
#12-24	H3	2	030004TC

Spiral Flute

Tap Size	Limit	Flutes	EDP #
1/4-20 NC	H5	3	030067TC
1/4-28 NF	H4	3	030081TC
5/16-18 NC	H5	3	030068TC
5/16-24 NF	H4	3	030082TC
3/8-16 NC	H5	3	030069TC
3/8-24 NF	H4	3	030083TC
7/16-14 NC	H5	3	030070TC
1/2-13 NC	H5	3	030071TC
1/2-20 NF	H5	3	030084TC
5/8-11 NC	H5	4	030072TC
5/8-18 NF	H5	4	030085TC
3/4-10 NC	H5	4	030073TC
3/4-16 NF	H5	4	030086TC
7/8-9 NC	H6	4	030074TC
7/8-14 NF	H6	4	030087TC
1-8 NC	H6	4	030075TC
1-12 NF	H6	4	030088TC
1-1/8"-7 NC	H8	4	030076TC
1-1/4"-7 NC	H8	4	030077TC
1-3/8"-6 NC	H8	4	030078TC
1-1/2'-6 NC	H8	4	030079TC

Spiral Point

Tap Size	Limit	Flutes	EDP #
1/4-20 NC	H5	2	030005TC
1/4-28 NF	H4	3	030020TC
5/16-18 NC	H5	2	030006TC
5/16-24 NF	H4	3	030021TC
3/8-16 NC	H5	3	030007TC
3/8-24 NF	H4	3	030022TC
7/16-14 NC	H5	3	030008TC
7/16-20 NF	H5	3	031008TC
1/2-13 NC	H5	3	030009TC
1/2-20 NF	H5	3	030023TC
5/8-11 NC	H5	3	030010TC
5/8-18 NF	H5	3	030024TC
3/4-10 NC	H5	3	030011TC
3/4-16 NF	H5	3	030025TC
7/8-9 NC	H6	3	030012TC
7/8-14 NF	H6	3	030026TC
1-8 NC	H6	3	030013TC
1-12 NF	H6	3	030027TC
1-1/8"-7 NC	H8	4	030014TC
1-1/8"-12 NF	H6	4	030028TC
1-1/4"-7 NC	H8	4	030015TC
1-1/4"-12 NF	H6	4	030029TC
1-3/8"-6 NC	H8	4	030016TC
1-3/8"-12 NF	H6	4	030030TC
1-1/2"-6 NC	H8	4	030017TC
1-1/2"-12 NF	H6	4	030031TC

TRIPLE CROWN SERIES

YELLOW RING TC-LT TAPS FOR GENERAL DUCTILE MATERIALS *Metric Sizes*

HSS V | M MF | BLACK OXIDE



- For hardened tool steel and nickel alloys



- Superior performance at higher speeds

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
M3 x 0.5	D3	2	030089TC
M3.5 x 0.6	D4	2	030090TC
M4 x 0.7	D4	3	030091TC
M5 x 0.8	D4	3	030092TC
M6 x 1	D5	3	030093TC
M7 x 1	D5	3	030094TC
M8 x 1.25	D5	3	030096TC
M8 x 1	D5	3	030095TC
M10 x 1.5	D6	3	030098TC
M10 x 1.25	D5	3	030097TC
M12 x 1.75	D6	3	030099TC
M12 x 1.25	D5	3	030100TC
M14 x 2	D7	3	030102TC
M14 x 1.5	D6	3	030101TC
M16 x 2	D7	3	030103TC
M16 x 1.5	D6	3	030104TC
M18 x 2.5	D7	4	030106TC
M18 x 1.5	D6	4	030105TC
M20 x 2.5	D7	4	030108TC
M20 x 1.5	D6	4	030107TC
M22 x 2.5	D7	4	030110TC
M22 x 1.5	D6	4	030109TC
M24 x 1.5	D6	4	030111TC
M24 x 3.0	D8	4	030112TC
M27 x 3.0	D9	4	030114TC
M27 x 1.5	D6	4	030113TC
M30 x 3.5	D9	4	030116TC
M30 x 1.5	D6	4	030115TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
M2 x 0.4	D3	2	030032TC
M2.5 x 0.45	D3	2	030033TC
M3 x 0.5	D3	2	030034TC
M3.5 x 0.6	D4	2	030035TC
M4 x 0.7	D4	2	030036TC
M4.5 x 0.75	D4	2	030037TC
M5 x 0.8	D4	2	030038TC
M6 x 1	D5	3	030039TC
M7 x 1	D5	3	030040TC
M8 x 1.25	D5	3	030042TC
M8 x 1	D6	3	030041TC
M10 x 1.5	D6	3	030044TC
M10 x 1.25	D5	3	030043TC
M12 x 1.75	D6	3	030045TC
M12 x 1.25	D5	3	030046TC
M14 x 2	D7	3	030048TC
M14 x 1.5	D6	3	030047TC
M16 x 2	D7	3	030049TC
M16 x 1.5	D6	3	030050TC
M18 x 2.5	D7	3	030052TC
M18 x 1.5	D6	3	030051TC
M20 x 2.5	D7	3	030054TC
M20 x 1.5	D6	3	030053TC
M22 x 2.5	D7	3	030056TC
M22 x 1.5	D6	3	030055TC
M24 x 1.5	D8	3	030057TC
M24 x 3	D6	3	030058TC
M27 x 3.0	D6	4	030059TC
M27 x 1.5	D9	4	030060TC
M30 x 3.5	D9	4	030062TC
M30 x 1.5	D6	4	030061TC

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TRIPLE CROWN SERIES

RED RING TC-HT TAPS FOR HIGH TENSILE MATERIALS *Machine Screw & Fractional Sizes*

HSS PM | UNC UNF | BLACK OXIDE



• Multi-purpose tap



• Superior performance at higher speeds

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
#4-40	H2	3	030427TC
#6-32	H3	3	030428TC
#8-32	H3	3	030429TC
#10-24	H3	3	030430TC
#10-32	H3	3	030438TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
#4-40	H2	2	030400TC
#5-40	H2	3	030401TC
#6-32	H3	3	030402TC
#8-32	H3	3	030403TC
#10-24	H3	3	030404TC
#10-32	H3	3	030412TC

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
1/4-20	H3	3	030431TC
1/4-28	H3	3	030439TC
5/16-18	H3	3	030432TC
5/16-24	H3	3	030440TC
3/8-16	H3	3	030433TC
3/8-24	H3	3	030441TC
7/16-14	H3	3	030434TC
7/16-20	H3	3	031434TC
1/2-13	H3	3	030435TC
1/2-20	H3	3	030442TC
5/8-11	H3	4	030436TC
5/8-18	H3	4	030443TC
3/4-10	H3	4	030437TC
3/4-16	H3	4	031437TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
1/4-20	H3	3	030405TC
1/4-28	H3	3	030413TC
5/16-18	H3	3	030406TC
5/16-24	H3	3	030414TC
3/8-16	H3	3	030407TC
3/8-24	H3	3	030415TC
7/16-14	H3	3	030408TC
7/16-20	H3	3	031408TC
1/2-13	H3	3	030409TC
1/2-20	H3	3	030416TC
5/8-11	H3	3	030410TC
5/8-18	H3	3	030417TC
3/4-10	H3	3	030411TC
3/4-16	H3	3	030418TC

TRIPLE CROWN SERIES

RED RING TC-HT TAPS FOR HIGH TENSILE MATERIALS *Metric Sizes*

HSS PM | M MF | BLACK OXIDE



- For titanium, nickel and heat-resistant materials



- Superior performance at higher speeds

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
M3 x 0.5	D3	3	030445TC
M4 x 0.7	D4	3	030446TC
M5 x 0.8	D4	3	030447TC
M6 x 1.0	D5	3	030448TC
M8 x 1.2	D5	3	030449TC
M10 x 1.5	D6	3	030450TC
M10 x 1.25	D5	3	030451TC
M12 x 1.75	D6	3	030452TC

Spiral Point

TAP SIZE	Limit	Flutes	EDP #
M3 x 0.5	D3	3	030419TC
M4 x 0.7	D4	3	030420TC
M5 x 0.8	D4	3	030421TC
M6 x 1.0	D5	3	030422TC
M8 x 1.25	D5	3	030423TC
M10 x 1.5	D6	3	030424TC
M10 x 1.25	D5	3	030425TC
M12 x 1.75	D6	3	030426TC

TRIPLE CROWN SERIES

RED & YELLOW RING TAPS FOR MULTI PURPOSES *Machine Screw & Fractional Sizes*

HSS PM | UNC UNF | BLACK OXIDE



- Multi-purpose tap

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
#4-40	H3	3	032000AS
#4-48	H3	3	032001AS
#5-40	H3	3	032002AS
#5-44	H3	3	032003AS
#6-32	H3	3	032004AS
#6-40	H3	3	032005AS
#8-32	H3	3	032006AS
#8-36	H3	3	032007AS
#10-24	H4	3	032008AS
#10-32	H3	3	032009AS
#12-24	H4	3	032010AS
#12-28	H4	3	032011AS



- Superior performance at higher speeds

Spiral Flute

TAP SIZE	Limit	Flutes	EDP #
1/4-20	H5	3	032012AS
1/4-28	H5	3	032013AS
5/16-18	H5	3	032014AS
5/16-24	H5	3	032015AS
3/8-16	H5	3	032016AS
3/8-24	H5	3	032017AS
7/16-14	H5	3	032018AS
7/16-20	H5	3	032019AS
1/2-13	H5	3	032020AS
1/2-20	H5	3	032021AS
9/16-12	H5	3	032022AS
9/16-18	H5	3	032023AS
5/8-11	H5	3	032024AS
5/8-18	H5	3	032025AS
3/4-10	H5	3	032026AS
3/4-16	H5	3	032027AS
7/8-9	H6	4	032028AS
7/8-14	H6	4	032029AS
1-8	H6	4	032030AS
1-12	H6	4	032031AS

REGAL PREMIUM VORTEX

THREAD MILLS INDEX





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REGAL PREMIUM VORTEX

THREAD MILLS

Spiral Fluted Solid Carbide

- Regal Cutting Tools Premium Vortex Thread Mills are a viable alternative to the traditional methods of thread cutting or thread forming. They offer a wide variety of features and benefits.
- Made from sub-micrograin carbide with high transverse rupture strength and excellent wear-resistant properties
- Manufactured on state-of-the-art CNC equipment for consistent quality
- Full product offering of UN, Metric, NPT and NPTF
- Stocked with AlTiN coating, other coatings upon request
- One thread mill can produce a variety of thread diameters of the same pitch
- One tool can be used for both right-hand and left-hand threads
- Control the pitch diameter to within .0001
- Produce threads to within one pitch of a shoulder or counterbore
- Produce 100% thread height to UN specifications
- 20° helical flute design reduces chatter and guarantees two flutes always in the cut
- Produces threads with excellent form, finish and accuracy
- Helical flute reduces side-cutting pressure, allowing for higher feed rates
- Makes threading difficult materials easy
- Produces small, controllable chips
- No need to reverse the spindle
- Eliminates the need of removing broken taps
- Will reduce cycle times compared to indexable thread mills
- Smaller machines can produce larger threads due to less spindle torque
- Eliminates the need for many special dimensional taps

REGAL PREMIUM VORTEX

THREAD MILLS

Spiral Fluted Solid Carbide

MG CARBIDE AlTiN



UN Thread Forms

RCT EDP #	Min. Thread Size & Pitch	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
085900TM	#8-32	32	3	0.115	0.125	0.250	2.000
085901TM	#10-32	32	3	0.120	0.125	0.312	2.000
085902TM	#10-28	28	3	0.120	0.125	0.312	2.000
085903TM	1/4-28	28	3	0.180	0.187	0.500	2.500
085904TM	#10-24	24	3	0.120	0.125	0.312	2.000
085905TM	5/16-24	24	3	0.235	0.250	0.625	2.500
085906TM	3/8-24	24	4	0.285	0.312	0.750	3.000
085907TM	1/4-20	20	3	0.180	0.187	0.500	2.500
085908TM	7/16-20	20	4	0.335	0.375	0.875	3.500
085909TM	5/16-18	18	3	0.235	0.250	0.625	2.500
085910TM	9/16-18	18	4	0.370	0.375	0.875	3.500
085911TM	3/8-16	16	4	0.285	0.312	0.750	3.000
085912TM	3/4-16	16	4	0.490	0.500	1.250	3.500
085913TM	7/16-14	14	4	0.305	0.312	0.750	3.000
085914TM	7/8-14	14	4	0.490	0.500	1.250	3.500
085915TM	1/2-13	13	4	0.350	0.375	0.875	3.500
085916TM	9/16-12	12	4	0.370	0.375	0.875	3.500
085917TM	3/4-12	12	4	0.495	0.500	1.250	3.500
085918TM	5/8-11	11	4	0.470	0.500	1.250	3.500
085919TM	3/4-10	10	4	0.495	0.500	1.250	3.500
085920TM	7/8-9	9	4	0.620	0.625	1.375	4.000
085921TM	1"-8	8	4	0.620	0.625	1.375	4.000

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REGAL PREMIUM VORTEX

THREAD MILLS

Spiral Fluted Solid Carbide

MG CARBIDE AlTiN



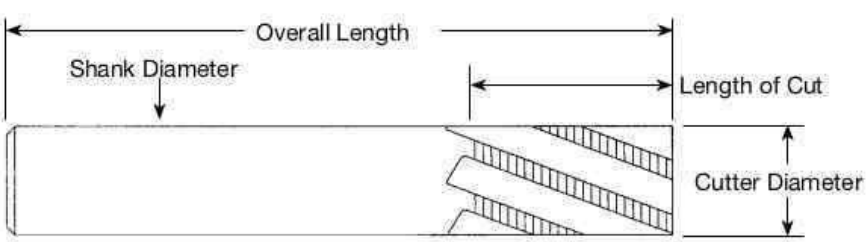
Metric Thread Mills

RCT EDP #	Min. Thread Size & Pitch	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
085950TM	M4.5	0.75	3	0.120	0.125	0.250	2.000
085951TM	M8	0.75	3	0.235	0.250	0.625	2.500
085952TM	M5	0.80	3	0.120	0.125	0.312	2.000
085953TM	M6	1	3	0.170	0.187	0.500	2.500
085954TM	M12	1	4	0.360	0.375	0.875	3.500
085955TM	M8	1.25	3	0.235	0.250	0.625	2.500
085956TM	M10	1.5	4	0.300	0.312	0.750	3.000
085957TM	M14	1.5	4	0.370	0.375	0.875	3.500
085958TM	M18	1.5	4	0.490	0.500	1.250	3.500
085959TM	M16	2	4	0.470	0.500	1.250	3.500
085960TM	M20	2.5	4	0.495	0.500	1.250	3.500
085961TM	M24	3	4	0.620	0.625	1.375	4.000



NPT & NPTF Thread Mills

RCT EDP #	Min. Thread Size & Pitch	Pitch	Flutes	Large End Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
085970TM	1/16 & 1/8 NPT	27	3	0.245	0.250	0.437	2.500
085971TM	1/4 & 3/8 NPT	18	4	0.305	0.312	0.625	3.000
085972TM	1/2 & 3/4 NPT	14	4	0.495	0.500	0.875	3.500
085973TM	1" to 2" NPT	11-1/2	4	0.620	0.625	1.125	4.000
085980TM	1/16 & 1/8 NPTF	27	3	0.245	0.250	0.437	2.500
085981TM	1/4 & 3/8 NPTF	18	4	0.305	0.312	0.625	3.000
085982TM	1/2 & 3/4 NPTF	14	4	0.495	0.500	0.875	3.500
085983TM	1" to 2" NPTF	11-1/2	4	0.620	0.625	1.125	4.000



- Special Thread Mills are available upon request.
- Two weeks delivery on most specials; add additional week for coatings.

REGAL PREMIUM VORTEX

THREAD MILLS
Heavy Duty Carbide

MG CARBIDE AlTiN



RCT EDP #	Min. Thread Size & Pitch	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length
085940TM	#10-32	32	3	.150	.187	.312	2.500
085941TM	#10-24	24	3	.145	.187	.312	2.500
085942TM	1/4-20	20	3	.195	.250	.500	2.500
085943TM	5/16-18	18	3	.245	.312	.625	3.000
085944TM	3/8-16	16	4	.300	.375	.750	3.500
085945TM	1/2-13	13	4	.400	.500	.875	3.500

THREAD MILLS
Coolant Feed Carbide

MG CARBIDE AlTiN

RCT EDP #	Min. Thread Size & Pitch	Pitch	Flutes	Cutter Diameter	Shank Diameter	Length of Cut	Overall Length	Hole Size
086000TM	#10-24	24	3	.145	.187	.312	2.375	0.5mm
086001TM	#10-32	32	3	.150	.187	.312	2.375	0.5mm
086002TM	1/4-20	20	3	.180	.187	.500	2.375	0.5mm
086003TM	1/4-28	28	3	.180	.187	.500	2.375	0.5mm
086004TM	5/16-18	18	3	.235	.250	.625	2.375	1.0mm
086005TM	5/16-24	24	3	.235	.250	.625	2.375	1.0mm
086006TM	3/8-16	16	4	.285	.312	.750	3.000	1.3mm
086007TM	3/8-24	24	4	.285	.312	.750	3.000	1.3mm
086008TM	7/16-14	14	4	.305	.375	.750	3.000	1.3mm
086009TM	7/16-20	20	4	.335	.375	.875	3.000	1.5mm
086010TM	1/2-13	13	4	.350	.375	.875	3.000	1.5mm
086011TM	9/16-18	18	4	.370	.375	.875	3.000	1.5mm
086012TM	5/8-11	11	4	.470	.500	1.250	3.500	2.0mm
086013TM	3/4-10	10	4	.495	.500	1.250	3.500	2.0mm
086014TM	3/4-12	12	4	.495	.500	1.250	3.500	2.0mm
086015TM	3/4-16	16	4	.490	.500	1.250	3.500	2.0mm
086016TM	7/8-9	9	4	.620	.625	1.375	4.000	2.5mm
086017TM	1"-8	8	4	.620	.625	1.375	4.000	2.5mm
086018TM	1/4 & 3/8 NPTF-18	18	4	.305	.312	.625	3.000	1.3mm
086019TM	1/2 & 3/4 NPTF-14	14	4	.495	.500	.875	3.500	2.0mm

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REGAL PREMIUM VORTEX

PROGRAMMING REQUEST & SUPPORT

REQUEST THE NO CHARGE SPREADSHEET PROGRAM!

Regal Cutting Tools' technical support staff is available to aid or provide programming for our thread mills. Complete and accurate job details need to be supplied by fax. Phoned information will not be accepted.

Most CNC machines produced in the last 10 years are suitable for helical interpolation. Some machines prior to that time supplied it as an option which can be enacted with a parameter. The best way to determine if your machine is capable is to MDI the part program to see if it will make the moves. It is generally recommended to cut fine threads in one pass and coarse threads in two passes. If you need to use two passes, just repeat the program below and use a different "D" word to reduce the depth of the first pass. If cutting a 3/8-16 thread, increase the offset for the first D worked by about 35 percent of the pitch or (.35 x .0625) = .0218.

Thread Mills cut by feeding into a predrilled hole, feeding out to the major diameter and then in one revolution generating the entire length of thread. In producing a right-hand thread, the Z axis will feed the tool out one pitch as the tool rotates clockwise while the spindle travels 360° counterclockwise. To produce a left-hand thread, the tool is fed one pitch in of the part; all else remains equal.

Sample Program for a 3/8-16 x 3/4 Deep Thread with a .235 Diameter Thread Mill							
N05	M3 S3521			Z-7578			
N10	G01G91			D (Offset #)			F30.00
N15	G41	X .0350	Y .0350	Z .0078	I -0.350	J 0	103
N20	G03	X -.0350	Y -.0350	Z .0625	I 0	J -.070	F4.85
N25	G03	X 0	Y 0	Z .0078	I 0	J -.035	F4.85
N30	G03	X -.0350	Y -.0350				F9.70
N35	G01G40	X .0350	Y .0350	Z .6797			F30.00
N40	G00						
N45	G90						

A programming spreadsheet is available upon request at no charge to our customers. The program may not be suitable for all machines or circumstances.

REGAL PREMIUM VORTEX

PROGRAMMING REQUEST & SUPPORT

Work Piece Material	Speed SFM	Feed Rate (Inches/Tooth) Tool Cutting Diameter						
		1/8	3/16	1/4	5/16	3/8	1/2	5/8
Aluminum	800 1400	.0005 .001	.001 .0015	.0015 .0025	.002 .003	.003 .0045	.0035 .0055	.005 .007
Magnesium	800 1400	.0005 .001	.001 .0015	.0015 .0025	.002 .003	.003 .0045	.0035 .0055	.005 .007
Brass	600 800	.0005 .001	.001 .0015	.0015 .0025	.002 .003	.003 .0045	.0035 .0045	.005 .006
Bronze	500 600	.0005 .001	.001 .0015	.0015 .0025	.002 .003	.003 .0045	.0035 .0045	.005 .006
Hard Bronze	200 300	.0004 .0008	.0007 .0012	.001 .002	.001 .002	.0015 .0025	.002 .003	.003 .004
Low Alloy Steels <25Rc	350 500	.0005 .001	.001 .0015	.0015 .0025	.002 .003	.0025 .0035	.003 .004	.004 .005
High Alloy Steels >25Rc	250 400	.0003 .0006	.0005 .001	.0008 .0015	.001 .002	.0015 .0025	.002 .003	.003 .004
Stainless Steel	150 250	.0004 .0008	.0006 .001	.001 .0015	.0015 .002	.0015 .0030	.002 .0035	.003 .004
Cast Iron Soft	250 350	.0004 .0008	.0007 .0013	.0007 .0013	.0015 .002	.002 .003	.002 .004	.003 .005
Cast Iron Hard	200 300	.0003 .0006	.0005 .001	.0008 .0015	.001 .002	.0015 .0025	.002 .003	.003 .004
Titanium	80 150	.0003 .0006	.0005 .001	.0008 .0015	.001 .002	.0015 .0025	.0015 .0025	.0025 .0035
Inconel	60 100	.0003 .0006	.0005 .001	.0008 .0015	.001 .002	.0015 .0025	.0015 .0025	.002 .003

When cutting an internal thread, the linear feed rate has to be reduced to compensate for the ratio of the tool's cutting diameter to the major diameter being cut. If not compensated, the feed rate that the cutting edge sees will be much greater and tool failure will occur.

Example #1:

Thread diameter to be cut (D2): 3/8

Thread mill diameter (D1): .285

If the linear feed rate calculated from the feeds and speeds above are 10 IPM, the programmed feed rate for the internal thread milling cut would be ((D2-D1)/D2) x linear feed rate or ((.375 - .285)/.375) x 10 or 2.4 inches per minute.

Example #2:

Application: To cut a 1/2-13 thread in low alloy steel, less than 25 Rc hardness.

Thread Mill: EDP 85915 .350 diameter, 4 flutes

SFM: 350 to 500 (use 400 in this example)

Feed/Tooth: .0025 .0035 (use .003"/tooth in the example)

RPM: Take 3.8 divided by the thread mill diameter and multiply by the SFM

Example: (3.8/.350) x 40SFM = 4343 RPM

Linear Inches: Take the (inch/tooth) x (number of flutes) x RPM

Example: (.003" x 4 flutes) x 4343 RPM = 52 linear inches per minute

Answer: ((D2-D1)/D2) x linear feed rate or ((.500 -.350)/.500) x 52 IPM = 15.5 IPM

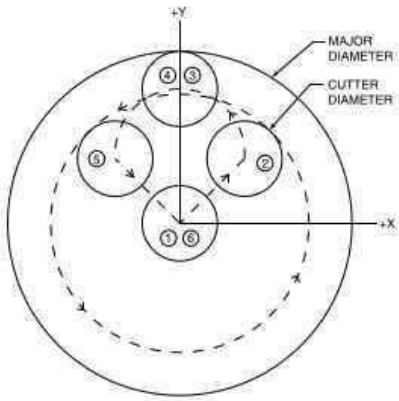
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REGAL PREMIUM VORTEX

THREAD MILL PROGRAMMING HELP SHEET

For UN Internal Threads

When programming thread mills, the start position in X and Y should be at the center of the drilled hole. The Z start position will be at the top of the part. All the programming is done in incremental mode since the absolute hole positions are not known. All the cutting will be climb milling.



The machine will go through the following sequences when programming:

(0-1) Feed Z in at 30 IPM to the full thread depth plus 1/8 of a pitch.

(1-2) Feed X and Y to position 2 (clear diameter) and activate the cutter compensation.

(2-3) Feed CCW through 45 degrees at the programmed feed rate in X, Y and Z to ramp out to the major diameter. The Z move will be out of the part and equal to 1/8 of the pitch (45/360 degrees = 1/8).

(3-4) Feed CCW around the entire circle to cut the threads in on revolution. The Z move will be out of part and be equal to the pitch (ex: 16 pitch = .0625).

(4-5) Feed CCW through 45 degrees to ramp out of the part to the clear diameter. The Z move will be out of the part and equal to 1/8 of the pitch.

(5-6) Move the cutter back to centerline at 30 IPM and delete the cutter compensation.

The last move is to rapid Z out to the top of the part and return to “absolute” mode.

TOOL HOLDER REQUIREMENTS

Regal Cutting Tools’ Solid Carbide Thread Mills are capable of running at very high RPMs and, therefore, must be held securely and concentrically. For the best tool performance and thread quality, an end mill-type holder with screw tightening is recommended. Only use precision ground holders or one that has been ground eccentric to minimize runout due to the side clamping screw. Collet chucks are not recommended as they tend to runout, which may lead to premature tool chipping or catastrophic failure.

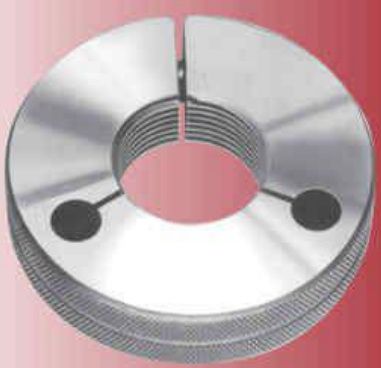
It is equally important to keep the tool length projecting out of the holder to a minimum. Minimizing the overhand will reduce deflection, aid in extending tool life and enhance the quality of threads being produced. A tool that extends out of the holder twice as far will have eight times more deflection given the same side forces. The tools should be inserted into the holder as close to the flute section as possible.

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M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

STANDARD GAGES

Working Thread Plug

UNC
UNF



- Working thread plug gages are furnished with Standard class "X" industry tolerance.
- Taperlock style has a Go and/or Not Go member(s) with the Go member being longer and having a chip groove (in larger sizes).
- Reversible thread plug gage consists of a Go and Not Go member(s) with both members being straight.
- Trilock design consists of a Go and/or Not Go member(s) with a bolt fastening system to support the size and weight. Design is best suited for large size (1-1/2 inches and up) with a chip groove on the Go member.

	Taperlock						Reversible					
	Go Member 2B-3B	Not Go (Hi) Member 2B	Not Go (Hi) Member 3B	Double End with Handle 2B	Double End with Handle 3B	Handle	Go Member 2B-3B	Not Go (Hi) Member 2B	Not Go (Hi) Member 3B	Double End with Handle 2B	Double End with Handle 3B	Handle
0-80 UNF	090000PS	090002PS	090004PS	090023PS	090025PS		090017PS	090019PS	090021PS	090027PS	090029PS	
1-64 UNC	090038PS	090040PS	090042PS	090061PS	090063PS		090055PS	090057PS	090059PS	090065PS	090067PS	0936042S
1-72 UNF	090076PS	090078PS	090080PS	090099PS	090101PS		090093PS	090095PS	090097PS	090103PS	090105PS	
2-56 UNC	090114PS	090116PS	090118PS	090137PS	090139PS	0935272S	090131PS	090133PS	090135PS	090141PS	090143PS	
2-64 UNF	090152PS	090154PS	090156PS	090175PS	090177PS		090169PS	090171PS	090173PS	090179PS	090181PS	
3-48 UNC	090190PS	090192PS	090194PS	090213PS	090215PS		090207PS	090209PS	090211PS	090217PS	090219PS	
3-56 UNF	090228PS	090230PS	090232PS	090251PS	090253PS		090245PS	090247PS	090249PS	090255PS	090257PS	
4-40 UNC	090266PS	090268PS	090270PS	090289PS	090291PS		090283PS	090285PS	090287PS	090293PS	090295PS	
4-48 UNF	090304PS	090306PS	090308PS	090327PS	090329PS		090321PS	090323PS	090325PS	090331PS	090333PS	0936062S
5-40 UNC	090342PS	090344PS	090346PS	090365PS	090367PS		090359PS	090361PS	090363PS	090369PS	090371PS	
5-44 UNF	090380PS	090382PS	090384PS	090403PS	090405PS	0935282S	090397PS	090399PS	090401PS	090407PS	090409PS	
6-32 UNC	090418PS	090420PS	090422PS	090441PS	090443PS		090435PS	090437PS	090439PS	090445PS	090447PS	
6-40 UNF	090456PS	090458PS	090460PS	090479PS	090481PS		090473PS	090475PS	090477PS	090483PS	090485PS	
8-32 UNC	090494PS	090496PS	090498PS	090517PS	090519PS		090511PS	090513PS	090515PS	090521PS	090523PS	
8-36 UNF	090532PS	090534PS	090536PS	090555PS	090557PS		090549PS	090551PS	090553PS	090559PS	090561PS	
10-24 UNC	090570PS	090572PS	090574PS	090593PS	090595PS		090587PS	090589PS	090591PS	090597PS	090599PS	
10-32 UNF	090608PS	090610PS	090612PS	090631PS	090633PS	0935292S	090625PS	090627PS	090629PS	090635PS	090637PS	0936082S
12-24 UNC	090646PS	090648PS	090650PS	090669PS	090671PS		090663PS	090665PS	090667PS	090673PS	090675PS	
12-28 UNF	090684PS	090686PS	090688PS	090707PS	090709PS		090701PS	090703PS	090705PS	090711PS	090713PS	
12-32 UNEF	090722PS	090724PS	090726PS	090740PS	090743PS		Reversible available as special					
1/4-20 UNC	090751PS	090753PS	090755PS	090774PS	090776PS		090768PS	090770PS	090772PS	090778PS	090780PS	0936082S
1/4-28 UNF	090789PS	090791PS	090793PS	090812PS	090814PS		090806PS	090808PS	090810PS	090816PS	090818PS	
1/4-32 UNEF	090826PS	090828PS	090830PS	090845PS	090847PS		Reversible available as special					
5/16-18 UNC	090856PS	090858PS	090860PS	090879PS	090881PS	0935302S	090873PS	090875PS	090877PS	090883PS	090885PS	0936102S
5/16-24 UNF	090895PS	090897PS	090899PS	090918PS	090920PS		090912PS	090914PS	090916PS	090922PS	090923PS	
5/16-32 UNEF	090933PS	090935PS	090937PS	090951PS	090953PS		Reversible available as special					
3/8-16 UNC	090962PS	090964PS	090966PS	090985PS	090987PS		090979PS	090981PS	090983PS	090989PS	090991PS	0936102S
3/8-24 UNF	091000PS	091002PS	091004PS	091023PS	091025PS		091017PS	091019PS	091021PS	091027PS	091029PS	
3/8-32 UNEF	091038PS	091040PS	091042PS	091056PS	091058PS		Reversible available as special					
7/16-14 UNC	091067PS	091069PS	091071PS	091090PS	091092PS		091084PS	091086PS	091088PS	091094PS	091096PS	0936122S
7/16-20 UNF	091105PS	091107PS	091109PS	091128PS	091130PS	0935312S	091122PS	091124PS	091126PS	091132PS	091134PS	
7/16-28 UNEF	091143PS	091145PS	091147PS	091161PS	091163PS		Reversible available as special					
1/2-13 UNC	091172PS	091174PS	091176PS	091195PS	091197PS		091189PS	091191PS	091193PS	091199PS	091201PS	0936122S
1/2-20 UNF	091210PS	091212PS	091214PS	091233PS	091235PS		091227PS	091229PS	091231PS	091237PS	091239PS	
1/2-28 UNEF	091248PS	091250PS	091252PS	091266PS	091268PS		Reversible available as special					

REGAL PREMIUM

STANDARD GAGES

Thread Ring & Setting Plug

UNC
UNF



- Ring gages are furnished with Standard class "X" industry tolerance.
- For rings with class "W" tolerance pitch diameters, set plugs must be ordered or provided.
- Set plugs are truncated and have class "W" tolerances on lead and class "X" tolerances on the pitch diameter.

	Ring							Taperlock Set Plug						
	Go Ring 2A	Go Ring 3A	Not Go Ring 2A	Not Go Ring 3A	Double with Holder 2A	Double with Holder 3A	Holder	Go Member 2A	Go Member 3A	Not Go (Lo) Member 2A	Not Go (Lo) Member 3A	Double End with Handle 2A	Double End with Handle 3A	Handle
0-80 UNF	090006PS	090005PS	090008PS	090010PS	097200PS	097300PS		090012PS	090011PS	090014PS	090016PS	090031PS	090033PS	
1-64 UNC	090044PS	090043PS	090046PS	090048PS	097201PS	097301PS		090050PS	090049PS	090052PS	090054PS	090069PS	090071PS	
1-72 UNF	090082PS	090081PS	090084PS	090086PS	097202PS	097302PS		090088PS	090087PS	090090PS	090092PS	090107PS	090109PS	
2-56 UNC	090120PS	090119PS	090122PS	090124PS	097203PS	097303PS		090126PS	090125PS	090128PS	090130PS	090145PS	090147PS	0935272S
2-64 UNF	090158PS	090157PS	090160PS	090162PS	097204PS	097304PS		090164PS	090163PS	090166PS	090168PS	090183PS	090185PS	
3-48 UNC	090196PS	090195PS	090198PS	090200PS	097205PS	097305PS		090202PS	090201PS	090204PS	090206PS	090221PS	090223PS	
3-56 UNF	090234PS	090233PS	090236PS	090238PS	097206PS	097306PS		090240PS	090239PS	090242PS	090244PS	090259PS	090261PS	
4-40 UNC	090272PS	090271PS	090273PS	090276PS	097207PS	097307PS		090278PS	090277PS	090280PS	090282PS	090297PS	090299PS	
4-48 UNF	090310PS	090309PS	090312PS	090314PS	097208PS	097308PS		090316PS	090315PS	090318PS	090320PS	090335PS	090337PS	
5-40 UNC	090348PS	090347PS	090350PS	090352PS	097209PS	097309PS		090354PS	090353PS	090356PS	090358PS	090373PS	090375PS	
5-44 UNF	090386PS	090385PS	090388PS	090390PS	097210PS	097310PS	0936504S	090392PS	090391PS	090394PS	090396PS	090411PS	090413PS	0935282S
6-32 UNC	090424PS	090423PS	090426PS	090428PS	097211PS	097311PS		090430PS	090429PS	090432PS	090434PS	090449PS	090451PS	
6-40 UNF	090462PS	090461PS	090464PS	090466PS	097212PS	097312PS		090468PS	090467PS	090470PS	090472PS	090487PS	090489PS	
8-32 UNC	090500PS	090499PS	090502PS	090504PS	097213PS	097313PS		090506PS	090505PS	090508PS	090510PS	090525PS	090527PS	
8-36 UNF	090538PS	090537PS	090540PS	090542PS	097214PS	097314PS		090544PS	090543PS	090546PS	090548PS	090563PS	090565PS	
10-24 UNC	090576PS	090575PS	090578PS	090580PS	097215PS	097315PS		090582PS	090581PS	090584PS	090586PS	090601PS	090603PS	
10-32 UNF	090614PS	090613PS	090616PS	090618PS	097216PS	097316PS		090620PS	090619PS	090622PS	090624PS	090639PS	090641PS	0935292S
12-24 UNC	090652PS	090651PS	090654PS	090656PS	097217PS	097317PS		090658PS	090657PS	090660PS	090662PS	090677PS	090679PS	
12-28 UNF	090690PS	090689PS	090692PS	090694PS	097218PS	097318PS		090696PS	090695PS	090698PS	090700PS	090715PS	090717PS	
12-32 UNEF	090728PS	090727PS	090730PS	090732PS	097250PS	097350PS		090734PS	090733PS	090736PS	090738PS	090744PS	090746PS	
1/4-20 UNC	090757PS	090756PS	090759PS	090761PS	097219PS	097319PS		090763PS	090762PS	090765PS	090767PS	090782PS	090784PS	
1/4-28 UNF	090795PS	090794PS	090797PS	090799PS	097220PS	097320PS		090801PS	090800PS	090803PS	090805PS	090820PS	090822PS	
1/4-32 UNEF	090832PS	090831PS	090834PS	090836PS	097251PS	097351PS		090839PS	090837PS	090841PS	090843PS	090849PS	090851PS	
5/16-18 UNC	090862PS	090861PS	090864PS	090866PS	097221PS	097321PS	0936524S	090868PS	090867PS	090870PS	090872PS	090887PS	090890PS	0935302S
5/16-24 UNF	090901PS	090900PS	090903PS	090905PS	097222PS	097322PS		090907PS	090906PS	090909PS	090911PS	090925PS	090932PS	
5/16-32 UNEF	090939PS	090938PS	090941PS	090943PS	097252PS	097352PS		090945PS	090944PS	090947PS	090949PS	090955PS	090957PS	
3/8-16 UNC	090968PS	090967PS	090970PS	090972PS	097223PS	097323PS		090974PS	090973PS	090976PS	090978PS	090993PS	090995PS	
3/8-24 UNF	091006PS	091005PS	091008PS	091010PS	097224PS	097324PS		091012PS	091011PS	091014PS	091016PS	091031PS	091033PS	
3/8-32 UNEF	091044PS	091043PS	091046PS	091048PS	097253PS	097353PS		091050PS	091049PS	091052PS	091054PS	091060PS	091062PS	
7/16-14 UNC	091073PS	091072PS	091075PS	091077PS	097225PS	097325PS		091079PS	091078PS	091081PS	091083PS	091098PS	091100PS	
7/16-20 UNF	091111PS	091110PS	091113PS	091115PS	097226PS	097326PS	0936544S	091117PS	091116PS	091119PS	091121PS	091136PS	091138PS	0935312S
7/16-28 UNEF	091149PS	091148PS	091151PS	091153PS	097254PS	097354PS		091155PS	091154PS	091157PS	091159PS	091165PS	091167PS	
1/2-13 UNC	091178PS	091177PS	091180PS	091182PS	097227PS	097327PS		091184PS	091183PS	091186PS	091188PS	091203PS	091205PS	
1/2-20 UNF	091216PS	091215PS	091218PS	091220PS	097228PS	097328PS		091222PS	091221PS	091224PS	091226PS	091241PS	091243PS	
1/2-28 UNEF	091254PS	091253PS	091256PS	091258PS	097255PS	097355PS		091260PS	091259PS	091262PS	091264PS	091270PS	091272PS	

REGAL PREMIUM

STANDARD GAGES

Working Thread Plug

UNC
UNF



- Working thread plug gages are furnished with Standard class "X" industry tolerance.
- Taperlock style has a Go and/or Not Go member(s) with the Go member being longer and having a chip groove (in larger sizes).
- Reversible thread plug gage consists of a Go and Not Go member(s) with both members being straight.
- Trilock design consists of a Go and/or Not Go member(s) with a bolt fastening system to support the size and weight. Design is best suited for large sizes (1-1/2 inches and up) with a chip groove on the Go member.

	Taperlock						Reversible					
	Go Member 2B-3B	Not Go (Hi) Member 2B	Not Go (Hi) Member 3B	Double End with Handle 2B	Double End with Handle 3B	Handle	Go Member 2B-3B	Not Go (Hi) Member 2B	Not Go (Hi) Member 3B	Double End with Handle 2B	Double End with Handle 3B	Handle
9/16-12 UNC	091277PS	091279PS	091281PS	091300PS	091302PS	0935322S	091294PS	091296PS	091298PS	091304PS	091306PS	0936142S
9/16-18 UNF	091315PS	091317PS	091319PS	091338PS	091340PS		091332PS	091334PS	091336PS	091342PS	091344PS	
9/16-24 UNEF	091353PS	091355PS	091357PS	091371PS	091373PS		Reversible available as special					
5/8-11 UNC	091382PS	091384PS	091386PS	091405PS	091407PS		091399PS	091401PS	091403PS	091409PS	091411PS	0936142S
5/8-18 UNF	091420PS	091422PS	091424PS	091443PS	091445PS		091437PS	091439PS	091441PS	091447PS	091449PS	
5/8-24 UNEF	091458PS	091460PS	091462PS	091476PS	091478PS		Reversible available as special					
11/16-24 UNEF	091487PS	091489PS	091491PS	091505PS	091507PS							
3/4-10 UNC	091516PS	091518PS	091520PS	091539PS	091541PS		091533PS	091535PS	091537PS	091543PS	091545PS	0936162S
3/4-16 UNF	091554PS	091556PS	091558PS	091577PS	091579PS		091571PS	091573PS	091575PS	091581PS	091583PS	
3/4-20 UNEF	091592PS	091594PS	091596PS	091610PS	091612PS							
13/16-20 UNEF	091621PS	091623PS	091625PS	091639PS	091641PS	0935332S						
7/8-9 UNC	091650PS	091652PS	091654PS	091673PS	091675PS							
7/8-14 UNF	091688PS	091690PS	091692PS	091711PS	091713PS							
7/8-20 UNEF	091725PS	091727PS	091729PS	091743PS	091745PS							
15/16-20 UNEF	091754PS	091756PS	091758PS	091772PS	091774PS							
1" - 8 UNC	091883PS	091885PS	091887PS	091906PS	091908PS							
1" - 12 UNF	091921PS	091923PS	091925PS	091944PS	091946PS							
1" - 14 UNS	091959PS	091961PS	091963PS	091982PS	091984PS							
1" - 20 UNEF	091997PS	091999PS	092001PS	092015PS	092017PS							
1-1/16"-18 UNEF	092026PS	092028PS	092030PS	092044PS	092046PS							
1-1/8"-7 UNC	092055PS	092057PS	092059PS	092078PS	092080PS							
1-1/8"-12 UNF	092093PS	092095PS	092097PS	092116PS	092118PS							
1-1/8"-18 UNEF	092131PS	092133PS	092135PS	092149PS	092151PS							
1-3/16"-18 UNEF	092160PS	092162PS	092164PS	092178PS	092180PS	0935342S						
1-1/4"-7 UNC	092189PS	092191PS	092193PS	092212PS	092214PS							
1-1/4"-12 UNF	092227PS	092229PS	092231PS	092250PS	092252PS							
1-1/4"-18 UNEF	092265PS	092267PS	092269PS	092283PS	092285PS							
1-5/16"-18 UNEF	092294PS	092296PS	092298PS	092312PS	092314PS							
1-3/8"-6 UNC	092323PS	092325PS	092327PS	092346PS	092348PS							
1-3/8"-12 UNF	092361PS	092363PS	092365PS	092385PS	092384PS							
1-3/8"-18 UNEF	092399PS	092401PS	092403PS	092417PS	092419PS							
1-7/16"-18 UNEF	092428PS	092430PS	092432PS	092446PS	092448PS							
1-1/2"-6 UNC	092457PS	092459PS	092461PS	092480PS	092482PS							
1-1/2"-12 UNF	092495PS	092497PS	092499PS	092518PS	092520PS							
1-1/2"-18 UNEF	092533PS	092535PS	092537PS	092551PS	092553PS							

Reversible available as special. Contact your local Regal Cutting Tools representative.

REGAL PREMIUM

STANDARD GAGES

Thread Ring & Setting Plug

UNC
UNF



- Ring gages are furnished with Standard class "X" industry tolerance.
- For rings with class "W" tolerance pitch diameters, set plugs must be ordered or provided.
- Set plugs are truncated and have class "W" tolerances on lead and class "X" tolerances on the pitch diameter.

	Ring							Taperlock Set Plug						
	Go Ring 2A	Go Ring 3A	Not Go Ring 2A	Not Go Ring 3A	Double with Holder 2A	Double with Holder 3A	Holder	Go Member 2A	Go Member 3A	Not Go (Lo) Member 2A	Not Go (Lo) Member 3A	Double End with Handle 2A	Double End with Handle 3A	Handle
9/16-12 UNC	091283PS	091282PS	091285PS	091287PS	097229PS	097329PS		091289PS	091288PS	091291PS	091293PS	091308PS	091310PS	
9/16-18 UNF	091321PS	091320PS	091323PS	091325PS	097230PS	097330PS		091327PS	091326PS	091329PS	091331PS	091346PS	091348PS	
9/16-24 UNEF	091359PS	091358PS	091361PS	091363PS	097256PS	097356PS		091365PS	091364PS	091367PS	091369PS	091375PS	091377PS	
5/8-11 UNC	091388PS	091387PS	091390PS	091392PS	097231PS	097331PS		091394PS	091393PS	091396PS	091398PS	091413PS	091415PS	
5/8-18 UNF	091426PS	091425PS	091428PS	091430PS	097232PS	097332PS		091432PS	091431PS	091434PS	091436PS	091451PS	091453PS	0935322S
5/8-24 UNEF	091464PS	091463PS	091466PS	091468PS	097257PS	097357PS	0936564S	091470PS	091469PS	091472PS	091474PS	091480PS	091482PS	
11/16-24 UNEF	091493PS	091492PS	091495PS	091497PS	097258PS	097358PS		091499PS	091498PS	091501PS	091503PS	091509PS	091511PS	
3/4-10 UNC	091522PS	091521PS	091524PS	091526PS	097233PS	097333PS		091528PS	091527PS	091530PS	091532PS	091547PS	091549PS	
3/4-16 UNF	091560PS	091559PS	091562PS	091564PS	097234PS	097334PS		091566PS	091565PS	091568PS	091570PS	091585PS	091587PS	
3/4-20 UNEF	091598PS	091597PS	091600PS	091602PS	097259PS	097359PS		091604PS	091603PS	091606PS	091608PS	091614PS	091616PS	
13/16-20 UNEF	091627PS	091626PS	091629PS	091631PS	097260PS	097360PS		091633PS	091632PS	091635PS	091637PS	091643PS	091645PS	
7/8-9 UNC	091656PS	091655PS	091658PS	091660PS	097235PS	097335PS		091662PS	091661PS	091664PS	091666PS	091681PS	091683PS	
7/8-14 UNF	091694PS	091693PS	091696PS	091698PS	097236PS	097336PS		091700PS	091699PS	091702PS	091704PS	091719PS	091720PS	
7/8-20 UNEF	091731PS	091730PS	091733PS	091735PS	097261PS	097361PS		091737PS	091736PS	091739PS	091741PS	091747PS	091749PS	
15/16-20 UNEF	091760PS	091759PS	091762PS	091764PS	097262PS	097362PS		091766PS	091765PS	091768PS	091770PS	091776PS	091778PS	
1" - 8 UNC	091889PS	091888PS	091891PS	091893PS	097237PS	097337PS		091895PS	091894PS	091897PS	091899PS	091914PS	091916PS	
1" - 12 UNF	091927PS	091926PS	091929PS	091931PS	097238PS	097338PS		091933PS	091932PS	091935PS	091937PS	091952PS	091954PS	0935332S
1" - 14 UNS	091965PS	091964PS	091967PS	091969PS	097239PS	097339PS	0936584S	091971PS	091970PS	091973PS	091975PS	091990PS	091992PS	
1" - 20 UNEF	092003PS	092002PS	092005PS	092007PS	097263PS	097363PS		092009PS	092008PS	092011PS	092013PS	092019PS	092021PS	
1-1/16"-18 UNEF	092032PS	092031PS	092034PS	092036PS	092047PS	092049PS		092038PS	092037PS	092040PS	092042PS	092048PS	092050PS	
1-1/8"-7 UNC	092061PS	092060PS	092063PS	092065PS	097240PS	097340PS		092067PS	092066PS	092069PS	092071PS	092086PS	092088PS	
1-1/8"-12 UNF	092099PS	092098PS	092101PS	092103PS	097241PS	097341PS		092105PS	092104PS	092107PS	092109PS	092124PS	092126PS	
1-1/8"-18 UNEF	092137PS	092136PS	092139PS	092141PS	092152PS	092154PS		092143PS	092142PS	092145PS	092147PS	092153PS	092155PS	
1-3/16"-18 UNEF	092166PS	092165PS	092168PS	092170PS	092181PS	092183PS		092172PS	092171PS	092174PS	092176PS	092182PS	092184PS	
1-1/4"-7 UNC	092195PS	092194PS	092197PS	092199PS	097242PS	097342PS		092201PS	092200PS	092203PS	092205PS	092220PS	092222PS	
1-1/4"-12 UNF	092233PS	092232PS	092235PS	092237PS	097243PS	097343PS		092239PS	092238PS	092241PS	092243PS	092258PS	092260PS	
1-1/4"-18 UNEF	092271PS	092270PS	092273PS	092275PS	092286PS	092288PS		092277PS	092276PS	092279PS	092281PS	092287PS	092289PS	
1-5/16"-18 UNEF	092300PS	092299PS	092302PS	092304PS	092313PS	092315PS		092306PS	092305PS	092308PS	092310PS	092316PS	092317PS	
1-3/8"-6 UNC	092329PS	092328PS	092331PS	092333PS	097244PS	097344PS		092335PS	092334PS	092337PS	092339PS	092354PS	092356PS	
1-3/8"-12 UNF	092367PS	092366PS	092369PS	092371PS	097245PS	097345PS	0936604S	092373PS	092372PS	092375PS	092377PS	092392PS	092394PS	0935342S
1-3/8"-18 UNEF	092405PS	092404PS	092407PS	092409PS	093420PS	092422PS		092411PS	092410PS	092413PS	092415PS	092421PS	092423PS	
1-7/16"-18 UNEF	092434PS	092433PS	092436PS	092438PS	093449PS	092451PS		092440PS	092439PS	092442PS	092444PS	092450PS	092452PS	
1-1/2"-6 UNC	092463PS	092462PS	092465PS	092467PS	097246PS	097346PS		092469PS	092468PS	092471PS	092473PS	092488PS	092490PS	
1-1/2"-12 UNF	092501PS	092500PS	092503PS	092505PS	097247PS	097347PS		092507PS	092506PS	092509PS	092511PS	092526PS	092528PS	
1-1/2"-18 UNEF	092539PS	092538PS	092541PS	092543PS	093554PS	093556PS		092545PS	092544PS	092547PS	092549PS	092555PS	092557PS	

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REGAL PREMIUM

METRIC GAGES

Working Thread Plug

M
MF



- Working thread plug and ring gages are furnished with Standard class "X" industry tolerance.
- For rings with class "W" tolerance pitch diameters, set plugs must be ordered or provided.
- Set plugs are truncated and have class "W" tolerances on lead and class "X" tolerances on the pitch diameter.

	Taperlock				Reversible			
	Go Member 6H	Not Go (Hi) Member 6H	Double End with Handle 6H	Handle	Go Member 6H	Not Go (Hi) Member 6H	Double End with Handle 6H	Handle
M1.6 x .35	095000PS	095001PS	095024PS	0980002S				
M1.8 x .35	095044PS	095045PS	095068PS					
M2 x .4	095088PS	095089PS	095112PS					
M2.2 x .45	095132PS	095133PS	095156PS					
M2.5 x .45	095176PS	095177PS	095200PS					
M3 x .5	095220PS	095221PS	095244PS	0980012S				
M3.5 x .6	095264PS	095265PS	095288PS					
M4 x .7	095308PS	095309PS	095332PS	0980022S				
M4.5 x .75	095352PS	095353PS	095376PS					
M5 x .8	095396PS	095397PS	095420PS					
M6 x 1	095440PS	095441PS	095464PS	0980032S				
M7 x 1	095528PS	095529PS	095552PS					
M8 x 1.25	095572PS	095573PS	095596PS					
M8 x 1	095616PS	095617PS	095640PS					
M10 x 1.5	095660PS	095661PS	095684PS	0980042S				
M10 x 1.25	095704PS	095705PS	095728PS					
M12 x 1.75	095748PS	095749PS	095772PS					
M12 x 1.25	095792PS	095793PS	095816PS					
M14 x 2	095836PS	095837PS	095860PS	0980052S				
M14 x 1.5	095880PS	095881PS	095904PS					
M16 x 2	095924PS	095925PS	095948PS					
M16 x 1.5	095968PS	095969PS	095992PS					
M18 x 2.5	096012PS	096013PS	096036PS					
M18 x 1.5	096056PS	096057PS	096080PS					
M20 x 2.5	096100PS	096101PS	096124PS					
M20 x 1.5	096144PS	096145PS	096168PS					
M22 x 2.5	096188PS	096189PS	096212PS	0980062S				
M22 x 1.5	096232PS	096233PS	096256PS					
M24 x 3	096276PS	096277PS	096300PS					
M24 x 2	096311PS	096312PS	096335PS					
M27 x 3	096355PS	096356PS	096379PS					
M27 x 2	096390PS	096391PS	096414PS					
M30 x 3.5	096434PS	096435PS	096458PS	0980072S				
M30 x 2	096478PS	096479PS	096503PS					
M33 x 3.5	096523PS	096524PS	096547PS					
M33 x 2	096567PS	096568PS	096591PS					
M36 x 4	096611PS	096612PS	096635PS					
M36 x 3	096655PS	096656PS	096679PS					
M39 x 4	096699PS	096700PS	096723PS	0980152S				
M39 x 3	096743PS	096744PS	096767PS					

Reversible available as special. Contact your local Regal Cutting Tools representative.

REGAL PREMIUM

METRIC GAGES

Thread Ring & Setting Plug

M
MF





- Working thread plug and ring gages are furnished with Standard class "X" industry tolerance.
- For rings with class "W" tolerance pitch diameters, set plugs must be ordered or provided.
- Set plugs are truncated and have class "W" tolerances on lead and class "X" tolerances on the pitch diameter.

	Ring				Taperlock Set Plug			
	Go Ring 6g	Not Go Ring 6g	Double End with Handle 6g	Handle	Go Member 6g	Not Go (Lo) Member 6g	Double End with Handle 6g	Handle
M1.6 x .35	095005PS	095009PS	097000PS	0936504S	095012PS	095016PS	095028PS	0980002S
M1.8 x .35	095049PS	095053P	097001PS		095056PS	095060PS	095072PS	
M2 x .4	095093PS	095097PS	097002PS		095100PS	095104PS	095116PS	
M2.2 x .45	095137PS	095141PS	097003PS		095144PS	095148PS	095160PS	
M2.5 x .45	095181PS	095185PS	097004PS		095188PS	095192PS	095204PS	
M3 x .5	095225PS	095229PS	097005PS		095232PS	095236PS	095248PS	0980012S
M3.5 x .6	095269PS	095273PS	097006PS		095276PS	095280PS	095292PS	
M4 x .7	095313PS	095317PS	097007PS		095320PS	095324PS	095336PS	0980022S
M4.5 x .75	095357PS	095361PS	097008PS		095364PS	095368PS	095380PS	
M5 x .8	095401PS	095405PS	097009PS		095408PS	095412PS	095424PS	
M6 x 1	095445PS	095449PS	097010PS	0936524S	095452PS	095456PS	095468PS	0980032S
M7 x 1	095533PS	095537PS	097011PS		095540PS	095544PS	095556PS	
M8 x 1.25	095577PS	095581PS	097012PS		095584PS	095588PS	095600PS	
M8 x 1	095621PS	095625PS	097013PS		095628PS	095632PS	095644PS	
M10 x 1.5	095665PS	095669PS	097014PS	0936544S	095672PS	095676PS	095688PS	0980042S
M10 x 1.25	095709PS	095713PS	097015PS		095716PS	095720PS	095732PS	
M12 x 1.75	095753PS	095757PS	097016PS		095760PS	095764PS	095776PS	
M12 x 1.25	095797PS	095801PS	097017PS		095804PS	095808PS	095820PS	
M14 x 2	095841PS	095845PS	097018PS	0936564S	095848PS	095852PS	095864PS	0980052S
M14 x 1.5	095885PS	095889PS	097019PS		095892PS	095896PS	095908PS	
M16 x 2	095929PS	095933PS	097020PS		095936PS	095940PS	095952PS	
M16 x 1.5	095973PS	095977PS	097021PS		095980PS	095984PS	095996PS	
M18 x 2.5	096017PS	096021PS	097022PS		096024PS	096028PS	096040PS	
M18 x 1.5	096061PS	096065PS	097023PS		096068PS	096072PS	096084PS	
M20 x 2.5	096105PS	096109PS	097024PS		096112PS	096116PS	096128PS	
M20 x 1.5	096149PS	096153PS	097025PS		096156PS	096160PS	096172PS	
M22 x 2.5	096193PS	096197PS	097026PS	0936584S	096200PS	096204PS	096216PS	0980062S
M22 x 1.5	096237PS	096241PS	097027PS		096244PS	096248PS	096260PS	
M24 x 3	096281PS	096285PS	097028PS		096288PS	096292PS	096304PS	
M24 x 2	096316PS	096320PS	097029PS		096323PS	096327PS	096339PS	
M27 x 3	096360PS	096364PS	097030PS		096367PS	096371PS	096383PS	
M27 x 2	096395PS	096399PS	097031PS		096402PS	096406PS	096418PS	
M30 x 3.5	096439PS	096443PS	097032PS		096446PS	096450PS	096462PS	0980072S
M30 x 2	096483PS	096487PS	097033PS		096490PS	096494PS	096507PS	
M33 x 3.5	096528PS	096532PS	097034PS	0936604S	096535PS	096539PS	096551PS	
M33 x 2	096572PS	096576PS	097035PS		096579PS	096583PS	096595PS	
M36 x 4	096616PS	096620PS	097036PS		096623PS	096627PS	096639PS	
M36 x 3	096660PS	096664PS	097037PS		096667PS	096671PS	096683PS	
M39 x 4	096704PS	096708PS	097038PS		096711PS	096715PS	096727PS	0980152S
M39 x 3	096748PS	096752PS	097039PS		096755PS	096759PS	096771PS	

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REGAL PREMIUM

PIPE THREAD GAGES





- NPT thread gages are manufactured to specification of the Bureau of Standard Handbook H-28 and ANSI B2.1
- NPSF (Straight Pipe Thread Dryseal)
- NPSM (Straight Pipe for Mechanical Joints)
- BSPT (British Standard Taper Pipe)

NPT (American National Standard Taper Pipe Thread)

NPT

	L-1 Rings	1-Step L-1 Plug (Members Only)	1-Step L-1 Plug with Handles	Handles Only
1/16-27	093001PS	093000PS	093025PS	0935302S
1/8-27	093030PS	093029PS	093055PS	0935312S
1/4-18	093059PS	093058PS	093074PS	0935322S
3/8-18	093088PS	093087PS	093112PS	
1/2-14	093117PS	093116PS	093132PS	0935332S
3/4-14	093146PS	093145PS	093170PS	
1"-11-1/2	093175PS	093174PS	093199PS	0935342S
1-1/4"-11-1/2	093204PS	093203PS	093228PS	
1-1/2"-11-1/2	093233PS	093232PS	093248PS	
2"-11-1/2	093261PS	093260PS	093286PS	
2-1/2"-8	093291PS	093290PS	093306PS	0935432S
3"-8	093320PS	093319PS	093335PS	
3-1/2"-8	093349PS	093348PS	093364PS	0935452S
4"-8	093378PS	093377PS	093393PS	
5"-8	093407PS	093406PS	093422PS	
6"-8	093436PS	093435PS	093451PS	

NPT-L1 thread plugs are supplied with 1-Step as standard. 2-Step or 3-Step limit plug members also available.

NPSF (Dryseal American National Standard Internal Straight Pipe Thread)
NPSM (American Standard National Straight Pipe Thread for Free Fitting Mechanical Joints)

NPSF NPSM

	NPSF Plug (Members Only)		NPSM Plug Class 2B (Members Only)	
	Go	Not Go	Go	Not Go
1/8-27	092750PS	092752PS	—	—
1/4-18	092754PS	092756PS	092758PS	092760PS
3/8-18	092768PS	092770PS	092764PS	092766PS
1/2-14	092771PS	092772PS	092774PS	092776PS
3/4-14	092777PS	092778PS	092780PS	092781PS

BSPT (British Standard Taper Pipe Thread) 55° Modified Whitworth

BSPT

	Rings	1-Step Plug (Members Only)	Plug Gage with Handles
1/8-28	093456PS	093455PS	093440PS
1/4-19	093458PS	093457PS	093441PS
3/8-19	093460PS	093462PS	093442PS
1/2-14	093471PS	093459PS	093443PS
3/4-14	093464PS	093463PS	093444PS
1"-11	093466PS	093465PS	093445PS
1-1/4"-11	093468PS	093467PS	093446PS
1-1/2"-11	093470PS	093469PS	093447PS

REGAL PREMIUM

PIPE THREAD GAGES





- NPTF (Dryseal) and ANPT (Aeronautical) gages are manufactured to specification of the bureau of Standard Handbook H-28 and ANSI B22 and comply to MIL-P-7105 Military Standards

NPTF (Dryseal American National Standard Taper Pipe Thread)
ANPT (Aeronautical National Form Taper Pipe Thread)

NPTF ANPT

	NPTF or ANPT Plugs (Members Only)				NPTF or ANPT Plugs (with Handle)			
	L-1 1-Step		L-3 1-Step		L-1 1-Step		L-3 1-Step	
	NPTF	ANPT	NPTF	ANPT	NPTF	ANPT	NPTF	ANPT
1/16-27	093002PS	092850PS	093004PS	092880PS	093026PS	092865PS	093019PS	092895PS
1/8-27	093031PS	092851PS	093033PS	092881PS	093046PS	092866PS	093048PS	092896PS
1/4-18	093060PS	092852PS	093062PS	092882PS	093075PS	092867PS	093077PS	092897PS
3/8-18	093089PS	092853PS	093091PS	092883PS	093113PS	092868PS	093106PS	092898PS
1/2-14	093118PS	092854PS	093120PS	092884PS	093133PS	092869PS	093135PS	092899PS
3/4-14	093147PS	092855PS	093149PS	092885PS	093162PS	092870PS	093164PS	092900PS
1"-11-1/2	093176PS	092856PS	093178PS	092886PS	093191PS	092871PS	093193PS	092901PS
1-1/4"-11-1/2	093205PS	092857PS	093207PS	092887PS	093220PS	092872PS	093222PS	092902PS
1-1/2"-11-1/2	093234PS	092858PS	093236PS	092888PS	093249PS	092873PS	093251PS	092903PS

L-1 and L-3 thread plugs are supplied with 1-Step as standard. 2-Step or 3-Step limit plug members also available.

NPTF and ANPT 6-Step Plain

NPTF ANPT

	6-Step Plain Plug (with Handle)		6-Step Plain Plug Handles	
	NPTF	ANPT	NPTF	ANPT
1/16-27	093006PS	093012PS	093021PS	093024PS
1/8-27	093035PS	093041PS	093050PS	093053PS
1/4-18	093064PS	093070PS	093079PS	093082PS
3/8-18	093093PS	093099PS	093108PS	093111PS
1/2-14	093122PS	093128PS	093137PS	093140PS
3/4-14	093151PS	093157PS	093166PS	093169PS
1"-11-1/2	093180PS	093186PS	093195PS	093198PS
1-1/4"-11-1/2	093209PS	093215PS	093224PS	093227PS
1-1/2"-11-1/2	093238PS	093244PS	093253PS	093256PS

NPTF and ANPT

NPTF ANPT

	NPTF Thread Rings		ANPT Thread Rings	
	L-1	L-2	L-1	L-2
1/16-27	093007PS	093008PS	093013PS	093014PS
1/8-27	093036PS	093037PS	093042PS	093043PS
1/4-18	093065PS	093066PS	093071PS	093072PS
3/8-18	093094PS	093095PS	093100PS	093101PS
1/2-14	093123PS	093124PS	093129PS	093130PS
3/4-14	093152PS	093153PS	093158PS	093159PS
1"-11-1/2	093181PS	093182PS	093187PS	093188PS
1-1/4"-11-1/2	093210PS	093211PS	093216PS	093217PS
1-1/2"-11-1/2	093239PS	093240PS	093245PS	093246PS

NPTF and ANPT 6-Step Plain

NPTF ANPT

	NPTF	ANPT
1/16-27	093009PS	093015PS
1/8-27	093038PS	093044PS
1/4-18	093067PS	093073PS
3/8-18	093096PS	093102PS
1/2-14	093125PS	093131PS
3/4-14	093154PS	093160PS
1"-11-1/2	093183PS	093189PS
1-1/4"-11-1/2	093212PS	093218PS
1-1/2"-11-1/2	093241PS	093247PS

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REGAL PREMIUM

STI SCREW THREAD INSERT GAGES

Working Thread Plug



- Working thread plug and ring gages are furnished with Standard class "X" industry tolerance.
- For rings with class "W" tolerance pitch diameters, set plugs must be ordered or provided.
- Set plugs are truncated and have class "W" tolerances on lead and class "X" tolerances on the pitch diameter.

Taperlock					
	Go Member 2B-3B	Not Go (Hi) Member 2B	Not Go (Hi) Member 3B	Double End with Handle 2B	Double End with Handle 3B
4-40 UNC-STI	094000PS	094001PS	094002PS	094003PS	094004PS
4-48 UNF-STI	094005PS	094006PS	—	094008PS	—
6-32 UNC-STI	094020PS	094021PS	094022PS	094023PS	094024PS
6-40 UNF-STI	094025PS	094026PS	—	094028PS	—
8-32 UNC-STI	094030PS	094031PS	094032PS	094033PS	094034PS
10-24 UNC-STI	094040PS	094041PS	094042PS	094043PS	094044PS
10-32 UNF-STI	094045PS	094046PS	094047PS	094048PS	094049PS
1/4-20 UNC-STI	094060PS	094061PS	094062PS	094063PS	094064PS
1/4-28 UNF-STI	094065PS	094066PS	094067PS	094068PS	094069PS
5/16-18 UNC-STI	094070PS	094071PS	—	094073PS	—
5/16-24 UNF-STI	094075PS	094076PS	—	094078PS	—
3/8-16 UNC-STI	094080PS	094081PS	—	094083PS	—
3/8-24 UNF-STI	094085PS	094086PS	—	094088PS	—
7/16-14 UNC-STI	094090PS	094091PS	—	094093PS	—
7/16-20 UNF-STI	094095PS	094096PS	—	094098PS	—
1/2-13 UNC-STI	094100PS	094101PS	—	094103PS	—
1/2-20 UNF-STI	094105PS	094106PS	—	094108PS	—

For all your special gage requirements, call your Regal Cutting Tools representative.

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National

JOBBER LENGTH DRILLS

Features



- General purpose straight shank drill
- Designed to perform under normal conditions in most materials

HSS - Regular - 118° Point - Treated



- General purpose straight shank drill
- Bright, smooth surfaces promote easy chip ejection, especially important when drilling light or soft materials
- Coatings and treatments available upon request on all bright finished drills, see page 240

HSS - Regular - 118° Point - Bright



- General purpose straight shank drill
- Titanium nitride coated surface allows for increased productivity, greater lubricity, improved drill life and chip ejection

HSS - Regular - 118° Point - TiN Coated



- Heavy-duty drill for high production drilling
- Rugged design for heavy duty drilling of tough steel parts in moderately deep holes

HSS - Heavy Duty - 135° Split Point - Treated

National

JOBBER LENGTH DRILLS

Features



- Designed with higher cutting rake and improved chip conveying properties
- Ideal for aluminum, die-casting alloys and some plastics

HSS - High Helix - 118° Blend Thinned Point - Bright



- General purpose straight shank drill
- Bright, smooth surfaces promote easy chip ejection, especially important when drilling light or soft materials

HSS - Para-Flute - 135° Split Point - Bright



- High red hardness and abrasion resistant
- Heavy-duty construction provides greater strength and rigidity
- Designed for drilling tough and abrasive materials, high temperature alloys, stainless and heat-treated high-strength steels

Cobalt - Heavy Duty - 135° Split Point - Bronze

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STRAIGHT SHANK Jobber Length Twist Drills

Fractional Sizes



HSS - Regular - 118° Point - Treated — HSS · 118° · Black Oxide

HSS - Regular - 118° Point - Bright — HSS · 118° · Bright

HSS - Regular - 118° Point - TiN Coated — HSS · 118° · TiN Coated

HSS - Heavy Duty - 135° Split Point - Treated — HSS · 135° Split · Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS · 118° Blend · Bright

HSS - Para-Flute - 135° Split Point - Bright — HSS · 135° Split · Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt · 135° Split · Bronze Oxide

Packaging: 1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	TiN Coated	Heavy Duty	High Helix	Para-Flute	Cobalt Bronze
3/64	.0469	3/4	1-3/4	012303AW	012435AW	—	012335AW	012367AW	—	020903AW
1/16	.0625	7/8	1-7/8	012304AW	012436AW	—	012336AW	012368AW	049104AW	020904AW
5/64	.0781	1	2	012305AW	012437AW	—	012337AW	012369AW	049105AW	020905AW
3/32	.0938	1-1/4	2-1/4	012306AW	012438AW	—	012338AW	012370AW	049106AW	020906AW
7/64	.1094	1-1/2	2-5/8	012307AW	012439AW	014236AW	012339AW	012371AW	049107AW	020907AW
1/8	.1250	1-5/8	2-3/4	012308AW	012440AW	014237AW	012340AW	012372AW	049108AW	020908AW
9/64	.1406	1-3/4	2-7/8	012309AW	012441AW	014238AW	012341AW	012373AW	049109AW	020909AW
5/32	.1563	2	3-1/8	012310AW	012442AW	014239AW	012342AW	012374AW	049110AW	020910AW
11/64	.1719	2-1/8	3-1/4	012311AW	012443AW	014240AW	012343AW	012375AW	049111AW	020911AW
3/16	.1875	2-5/16	3-1/2	012312AW	012444AW	014241AW	012344AW	012376AW	049112AW	020912AW
13/64	.2031	2-7/16	3-5/8	012313AW	012445AW	014242AW	012345AW	012377AW	049113AW	020913AW
7/32	.2188	2-1/2	3-3/4	012314AW	012446AW	014243AW	012346AW	012378AW	049114AW	020914AW
15/64	.2344	2-5/8	3-7/8	012315AW	012447AW	014244AW	012347AW	012379AW	049115AW	020915AW
1/4	.2500	2-3/4	4	012316AW	012448AW	014245AW	012348AW	012380AW	049116AW	020916AW
17/64	.2656	2-7/8	4-1/8	012317AW	012449AW	014246AW	012349AW	012381AW	049117AW	020917AW
9/32	.2813	2-15/16	4-1/4	012318AW	012450AW	014247AW	012350AW	012382AW	049118AW	020918AW
19/64	.2021	3-1/16	4-3/8	012319AW	012451AW	014248AW	012351AW	012383AW	049119AW	020919AW
5/16	.3125	3-3/16	4-1/2	012320AW	012452AW	014249AW	012352AW	012384AW	049120AW	020920AW
21/64	.3281	3-5/16	4-5/8	012321AW	012453AW	014250AW	012353AW	012385AW	049121AW	020921AW
11/32	.3438	3-7/16	4-3/4	012322AW	012454AW	014251AW	012354AW	012386AW	049122AW	020922AW

Coatings and treatments available upon request on all bright finished drills. See page 240.

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STRAIGHT SHANK Jobber Length Twist Drills

Fractional Sizes



HSS - Regular - 118° Point - Treated — HSS, 118°, Black Oxide

HSS - Regular - 118° Point - Bright — HSS, 118°, Bright

HSS - Regular - 118° Point - TiN Coated — HSS, 118°, TiN Coated

HSS - Heavy Duty - 135° Split Point - Treated — HSS, 135° Split, Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS, 118° Blend, Bright

HSS - Para-Flute - 135° Split Point - Bright — HSS, 135° Split, Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt, 135° Split, Bronze Oxide

Packaging: 1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	TiN Coated	Heavy Duty	High Helix	Para-Flute	Cobalt Bronze
23/64	.3594	3-1/2	4-7/8	012323AW	012455AW	014252AW	012355AW	012387AW	049123AW	020923AW
3/8	.3750	3-5/8	5	012324AW	012456AW	014253AW	012356AW	012388AW	049124AW	020924AW
25/64	.3906	3-3/4	5-1/8	012325AW	012457AW	014254AW	012357AW	012389AW	049125AW	020925AW
13/32	.4063	3-7/8	5-1/4	012326AW	012458AW	014255AW	012358AW	012390AW	049126AW	020926AW
27/64	.4219	3-15/16	5-3/8	012327AW	012459AW	014256AW	012359AW	012391AW	049127AW	020927AW
7/16	.4375	4-1/16	5-1/2	012328AW	012460AW	014257AW	012360AW	012392AW	049128AW	020928AW
29/64	.4531	4-3/16	5-5/8	012329AW	012461AW	014258AW	012361AW	012393AW	049129AW	020929AW
15/32	.4688	4-5/16	5-3/4	012330AW	012462AW	014259AW	012362AW	012394AW	049130AW	020930AW
31/64	.4844	4-3/8	5-7/8	012331AW	012463AW	014260AW	012363AW	012395AW	049131AW	020931AW
1/2	.5000	4-1/2	6	012332AW	012464AW	014261AW	012364AW	012396AW	049132AW	020932AW
33/64	.5156	4-13/16	6-5/8	012833AW	012465AW	—	—	—	—	—
17/32	.5313	4-13/16	6-5/8	012834AW	012466AW	—	—	—	—	—
35/64	.5469	4-13/16	6-5/8	012835AW	012467AW	—	—	—	—	—
9/16	.5625	4-13/16	6-5/8	012836AW	012468AW	—	—	—	—	—
37/64	.5781	4-13/16	6-5/8	012837AW	012469AW	—	—	—	—	—
19/32	.5938	5-3/16	7-1/8	012838AW	012470AW	—	—	—	—	—
39/64	.6094	5-3/16	7-1/8	012839AW	012471AW	—	—	—	—	—
5/8	.6250	5-3/16	7-1/8	012840AW	012472AW	—	—	—	—	—
41/64	.6406	5-3/16	7-1/8	012841AW	012473AW	—	—	—	—	—
21/32	.6563	5-3/16	7-1/8	012842AW	012474AW	—	—	—	—	—
43/64	.6719	5-5/8	7-5/8	012843AW	012475AW	—	—	—	—	—
11/16	.6875	5-5/8	7-5/8	012844AW	012476AW	—	—	—	—	—

Coatings and treatments available upon request on all bright finished drills. See page 240.

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STRAIGHT SHANK Jobber Length Twist Drills
Wire Gauge Sizes



HSS - Regular - 118° Point - Treated — HSS, 118°, Black Oxide

HSS - Regular - 118° Point - Bright — HSS, 118°, Bright

HSS - Heavy Duty - 135° Split Point - Treated — HSS, 135° Split, Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS, 118° Blend, Bright

HSS - Para-Flute - 135° Split Point - Bright — HSS, 135° Split, Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt, 135° Split, Bronze Oxide

Packaging: (12)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	Heavy Duty	High Helix	Para-Flute	Cobalt Bronze
60	.0400	11/16	1-5/8	013360AW	013760AW	013460AW+	013560AW	—	020860AW+
59	.0410	11/16	1-5/8	013359AW	013759AW	013459AW+	013559AW	—	020859AW+
58	.0420	11/16	1-5/8	013358AW	013758AW	013458AW+	013558AW	—	020858AW+
57	.0430	3/4	1-3/4	013357AW	013757AW	013457AW+	013557AW	—	020857AW+
56	.0465	3/4	1-3/4	013356AW	013756AW	013456AW+	013556AW	—	020856AW+
55	.0520	7/8	1-7/8	013355AW	013755AW	013455AW+	013555AW	—	020855AW+
54	.0550	7/8	1-7/8	013354AW	013754AW	013454AW+	013554AW	—	020854AW+
53	.0595	7/8	1-7/8	013353AW	013753AW	013453AW+	013553AW	—	020853AW+
52	.0635	7/8	1-7/8	013352AW	013752AW	013452AW	013552AW	049252AW	020852AW
51	.0670	1	2	013351AW	013751AW	013451AW	013551AW	049251AW	020851AW
50	.0700	1	2	013350AW	013750AW	013450AW	013550AW	049250AW	020850AW
49	.0730	1	2	013349AW	013749AW	013449AW	013579AW	049249AW	020849AW
48	.0760	1	2	013348AW	013748AW	013448AW	013548AW	049248AW	020848AW
47	.0785	1	2	013347AW	013747AW	013447AW	013547AW	049247AW	020847AW
46	.0810	1-1/8	2-1/8	013346AW	013746AW	013446AW	013546AW	049246AW	020846AW
45	.0820	1-1/8	2-1/8	013345AW	013745AW	013445AW	013545AW	049245AW	020845AW
44	.0860	1-1/8	2-1/8	013344AW	013744AW	013444AW	013544AW	049244AW	020844AW
43	.0890	1-1/4	2-1/4	013343AW	013743AW	013443AW	013543AW	049243AW	020843AW
42	.0935	1-1/4	2-1/4	013342AW	013742AW	013442AW	013542AW	049242AW	020842AW
41	.0960	1-3/8	2-3/8	013341AW	013741AW	013441AW	013541AW	049241AW	020841AW

Coatings and treatments available upon request on all bright finished drills. See page 240.

+ not split point

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STRAIGHT SHANK Jobber Length Twist Drills

Wire Gauge Sizes



HSS - Regular - 118° Point - Treated — HSS, 118°, Black Oxide

HSS - Regular - 118° Point - Bright — HSS, 118°, Bright

HSS - Heavy Duty - 135° Split Point - Treated — HSS, 135° Split, Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS, 118° Blend, Bright

HSS - Para-Flute - 135° Split Point - Bright — HSS, 135° Split, Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt, 135° Split, Bronze Oxide

Packaging:1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	Heavy Duty	High Helix	Para-Flute	Cobalt Bronze
40	.0980	1-3/8	2-3/8	013340AW	013740AW	013440AW	013540AW	049240AW	020840AW
39	.0995	1-3/8	2-3/8	013339AW	013739AW	013439AW	013539AW	049239AW	020839AW
38	.1015	1-7/16	2-1/2	013338AW	013738AW	013438AW	013538AW	049238AW	020838AW
37	.1040	1-7/16	2-1/2	013337AW	013737AW	013437AW	013537AW	049237AW	020837AW
36	.1065	1-7/16	2-1/2	013336AW	013736AW	013436AW	013536AW	049236AW	020836AW
35	.1100	1-1/2	2-5/8	013335AW	013735AW	013435AW	013535AW	049235AW	020835AW
34	.1110	1-1/2	2-5/8	013334AW	013734AW	013434AW	013534AW	049234AW	020834AW
33	.1130	1-1/2	2-5/8	013333AW	013733AW	013433AW	013533AW	049233AW	020833AW
32	.1160	1-5/8	2-3/4	013332AW	013732AW	013432AW	013532AW	049232AW	020832AW
31	.1200	1-5/8	2-3/4	013331AW	013731AW	013431AW	013531AW	049231AW	020831AW
30	.1285	1-5/8	2-3/4	013330AW	013730AW	013430AW	013530AW	049230AW	020830AW
29	.1360	1-3/4	2-7/8	013329AW	013729AW	013429AW	013529AW	049229AW	020829AW
28	.1405	1-3/4	2-7/8	013328AW	013728AW	013428AW	013528AW	049228AW	020828AW
27	.1440	1-7/8	3	013327AW	013727AW	013427AW	013527AW	049227AW	020827AW
26	.1470	1-7/8	3	013326AW	013726AW	013426AW	013526AW	049226AW	020826AW
25	.1495	1-7/8	3	013325AW	013725AW	013425AW	013525AW	049225AW	020825AW
24	.1520	2	3-1/8	013324AW	013724AW	013424AW	013524AW	049224AW	020824AW
23	.1540	2	3-1/8	013323AW	013723AW	013423AW	013523AW	049223AW	020823AW
22	.1570	2	3-1/8	013322AW	013722AW	013422AW	013522AW	049222AW	020822AW
21	.1590	2-1/8	3-1/4	013321AW	013721AW	013421AW	013521AW	049221AW	020821AW

Coatings and treatments available upon request on all bright finished drills. See page 240.

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STRAIGHT SHANK Jobber Length Twist Drills

Wire Gauge Sizes



HSS - Regular - 118° Point - Treated — HSS, 118°, Black Oxide

HSS - Regular - 118° Point - Bright — HSS, 118°, Bright

HSS - Heavy Duty - 135° Split Point - Treated — HSS, 135° Split, Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS, 118° Blend, Bright

HSS - Para-Flute - 135° Split Point - Bright — HSS, 135° Split, Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt, 135° Split, Bronze Oxide

Packaging:1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	Heavy Duty	High Helix	Para-Flute	Cobalt Bronze
20	.1610	2-1/8	3-1/4	013320AW	013720AW	013420AW	013520AW	049220AW	020820AW
19	.1660	2-1/8	3-1/4	013319AW	013719AW	013419AW	013519AW	049219AW	020819AW
18	.1695	2-1/8	3-1/4	013318AW	013718AW	013418AW	013518AW	049218AW	020818AW
17	.1730	2-3/16	3-3/8	013317AW	013717AW	013417AW	013517AW	049217AW	020817AW
16	.1770	2-3/16	3-3/8	013316AW	013716AW	013416AW	013516AW	049216AW	020816AW
15	.1800	2-3/16	3-3/8	013315AW	013715AW	013415AW	013515AW	049215AW	020815AW
14	.1820	2-3/16	3-3/8	013314AW	013714AW	013414AW	013514AW	049214AW	020814AW
13	.1850	2-5/16	3-1/2	013313AW	013713AW	013413AW	013513AW	049213AW	020813AW
12	.1890	2-5/16	3-1/2	013312AW	013712AW	013412AW	013512AW	049212AW	020812AW
11	.1910	2-5/16	3-1/2	013311AW	013711AW	013411AW	013511AW	049211AW	020811AW
10	.1935	2-7/16	3-5/8	013310AW	013710AW	013410AW	013510AW	049210AW	020810AW
9	.1960	2-7/16	3-5/8	013309AW	013709AW	013409AW	013509AW	049209AW	020809AW
8	.1990	2-7/16	3-5/8	013308AW	013708AW	013408AW	013508AW	049208AW	020808AW
7	.2010	2-7/16	3-5/8	013307AW	013707AW	013407AW	013507AW	049207AW	020807AW
6	.2040	2-1/2	3-3/4	013306AW	013706AW	013406AW	013506AW	049206AW	020806AW
5	.2055	2-1/2	3-3/4	013305AW	013705AW	013405AW	013505AW	049205AW	020805AW
4	.2090	2-1/2	3-3/4	013304AW	013704AW	013404AW	013504AW	049204AW	020804AW
3	.2130	2-1/2	3-3/4	013303AW	013703AW	013403AW	013503AW	049203AW	020803AW
2	.2210	2-5/8	3-7/8	013302AW	013702AW	013402AW	013502AW	049202AW	020802AW
1	.2280	2-5/8	3-7/8	013301AW	013701AW	013401AW	013501AW	049201AW	020801AW

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STRAIGHT SHANK Jobber Length Twist Drills

Letter Sizes



HSS - Regular - 118° Point - Treated — HSS | 118° | Black Oxide

HSS - Regular - 118° Point - Bright — HSS | 118° | Bright

HSS - Heavy Duty - 135° Split Point - Treated — HSS | 135° Split | Black Oxide

HSS - High Helix - 118° Blend Thinned Point - Bright — HSS | 118° Blend | Bright

Cobalt - Heavy Duty - 135° Split Point - Bronze — Cobalt | 135° Split | Bronze Oxide

Packaging: A to K (12), L to Z (6)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Treated	Bright	Heavy Duty	High Helix	Cobalt Bronze
A	.2340	2-5/8	3-7/8	013001AW	013105AW	014201AW	014001AW	012525AW
B	.2380	2-3/4	4	013002AW	013106AW	014202AW	014002AW	012526AW
C	.2420	2-3/4	4	013003AW	013107AW	014203AW	014003AW	012527AW
D	.2460	2-3/4	4	013004AW	013108AW	014204AW	014004AW	012528AW
E	.2500	2-3/4	4	013005AW	013109AW	014205AW	014005AW	012529AW
F	.2570	2-7/8	4-1/8	013006AW	013110AW	014206AW	014006AW	012530AW
G	.2610	2-7/8	4-1/8	013007AW	013111AW	014207AW	014007AW	012531AW
H	.2660	2-7/8	4-1/8	013008AW	013112AW	014208AW	014008AW	012532AW
I	.2720	2-7/8	4-1/8	013009AW	013113AW	014209AW	014009AW	012533AW
J	.2770	2-7/8	4-1/8	013010AW	013114AW	014210AW	014010AW	012534AW
K	.2810	2-15/16	4-1/4	013011AW	013115AW	014211AW	014011AW	012535AW
L	.2900	2-15/16	4-1/4	013012AW	013116AW	014212AW	014012AW	012536AW
M	.2950	3-1/16	4-3/8	013013AW	013117AW	014213AW	014013AW	012537AW
N	.3020	3-1/16	4-3/8	013014AW	013118AW	014214AW	014014AW	012538AW
O	.3160	3-3/16	4-1/2	013015AW	013119AW	014215AW	014015AW	012539AW
P	.3230	3-8/16	4-5/8	013016AW	013120AW	014216AW	014016AW	012540AW
Q	.3320	3-7/16	4-3/4	013017AW	013121AW	014217AW	014017AW	012541AW
R	.3390	3-7/16	4-3/4	013018AW	013122AW	014218AW	014018AW	012542AW
S	.3480	3-1/2	4-7/8	013019AW	013123AW	014219AW	014019AW	012543AW
T	.3580	3-1/2	4-7/8	013020AW	013124AW	014220AW	014020AW	012544AW
U	.3680	3-5/8	5	013021AW	013125AW	014221AW	014021AW	012545AW
V	.3770	3-5/8	5	013022AW	013126AW	014222AW	014022AW	012546AW
W	.3860	3-3/4	5-1/8	013023AW	013127AW	014223AW	014023AW	012547AW
X	.3970	3-3/4	5-1/8	013024AW	013128AW	014224AW	014024AW	012548AW
Y	.4040	3-7/8	5-1/4	013025AW	013129AW	014225AW	014025AW	012549AW
Z	.4130	3-7/8	5-1/4	013026AW	013130AW	014226AW	014026AW	012550AW

Coatings and treatments available upon request on all bright finished drills. See page 240.

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STRAIGHT SHANK Jobber Length Twist Drills
Metric Sizes

HSS 118° Black Oxide



- General purpose straight shank drill
- Designed to perform satisfactorily under normal conditions in most materials

HSS - Regular - 118° Point - Treated (1mm to 14mm)

Packaging: 0.15mm to 7.3mm (12), 7.40mm to 12.5mm (6), Over 12.50mm (1)

EDP #	Dia.	Decimal Equiv.	Flute Length		Overall Length		EDP #	Dia.	Decimal Equiv.	Flute Length		Overall Length	
			mm	Fractional	mm	Fractional				mm	Fractional	mm	Fractional
012621AW	1.00mm	.0394	12mm	15/32	34mm	1-11/32	012650AW	2.45mm	.0965	30mm	1-3/16	57mm	2-1/4
012622AW	1.05mm	.0413	12mm	15/32	34mm	1-11/32	012651AW	2.50mm	.0984	30mm	1-3/16	57mm	2-1/4
012623AW	1.10mm	.0433	14mm	9/16	36mm	1-7/16	012652AW	2.60mm	.1024	30mm	1-3/16	57mm	2-1/4
012624AW	1.15mm	.0453	14mm	9/16	36mm	1-7/16	012654AW	2.70mm	.1063	33mm	1-5/16	61mm	2-13/32
012625AW	1.20mm	.0472	16mm	5/8	38mm	1-1/2	012656AW	2.80mm	.1102	33mm	1-5/16	61mm	2-13/32
012626AW	1.25mm	.0492	16mm	5/8	38mm	1-1/2	012657AW	2.90mm	.1142	33mm	1-5/16	61mm	2-13/32
012627AW	1.30mm	.0512	16mm	5/8	38mm	1-1/2	012658AW	3.00mm	.1181	33mm	1-5/16	61mm	2-13/32
012628AW	1.35mm	.0531	18mm	23/32	40mm	1-9/16	012659AW	3.10mm	.1220	36mm	1-7/16	65mm	2-9/16
012629AW	1.40mm	.0551	18mm	23/32	40mm	1-9/16	012661AW	3.20mm	.1260	36mm	1-7/16	65mm	2-9/16
012630AW	1.45mm	.0571	18mm	23/32	40mm	1-9/16	012663AW	3.30mm	.1299	36mm	1-7/16	65mm	2-9/16
012631AW	1.50mm	.0591	18mm	23/32	40mm	1-9/16	012664AW	3.40mm	.1339	39mm	1-17/32	70mm	2-3/4
012632AW	1.55mm	.0610	20mm	25/32	43mm	1-11/16	012665AW	3.50mm	.1378	39mm	1-17/32	70mm	2-3/4
012633AW	1.60mm	.0630	20mm	25/32	43mm	1-11/16	012666AW	3.60mm	.1417	39mm	1-17/32	70mm	2-3/4
012634AW	1.65mm	.0650	20mm	25/32	43mm	1-11/16	012667AW	3.70mm	.1457	39mm	1-17/32	70mm	2-3/4
012635AW	1.70mm	.0669	20mm	25/32	43mm	1-11/16	012669AW	3.80mm	.1496	43mm	1-11/16	75mm	2-3/4
012636AW	1.75mm	.0689	22mm	7/8	46mm	1-13/16	012670AW	3.90mm	.1535	43mm	1-11/16	75mm	2-15/16
012637AW	1.80mm	.0709	22mm	7/8	46mm	1-13/16	012671AW	4.00mm	.1575	43mm	1-11/16	75mm	2-15/16
012638AW	1.85mm	.0728	22mm	7/8	46mm	1-13/16	012672AW	4.10mm	.1614	43mm	1-11/16	75mm	2-15/16
012639AW	1.90mm	.0748	22mm	7/8	46mm	1-13/16	012673AW	4.20mm	.1654	43mm	1-11/16	75mm	2-15/16
012640AW	1.95mm	.0768	24mm	15/16	49mm	1-15/16	012675AW	4.30mm	.1693	47mm	1-27/32	80mm	3-5/32
012641AW	2.00mm	.0787	24mm	15/16	49mm	1-15/16	012676AW	4.40mm	.1732	47mm	1-27/32	80mm	3-5/32
012642AW	2.05mm	.0807	24mm	15/16	49mm	1-15/16	012677AW	4.50mm	.1772	47mm	1-27/32	80mm	3-5/32
012643AW	2.10mm	.0827	24mm	15/16	49mm	1-15/16	012678AW	4.60mm	.1811	47mm	1-27/32	80mm	3-5/32
012644AW	2.15mm	.0546	27mm	1-1/16	53mm	2-3/32	012679AW	4.70mm	.1850	47mm	1-27/32	80mm	3-5/32
012645AW	2.20mm	.0866	27mm	1-1/16	53mm	2-3/32	012681AW	4.80 mm	.1890	52mm	2-1/16	86mm	3-3/8
012646AW	2.25mm	.0886	27mm	1-1/16	53mm	2-3/32	012682AW	4.90 mm	.1929	52 mm	2-1/16	86 mm	3-3/8
012647AW	2.30mm	.0906	27mm	1-1/16	53mm	2-3/32	012683AW	5.00 mm	.1969	52 mm	2-1/16	86 mm	3-3/8
012648AW	2.35mm	.0925	27mm	1-1/16	53mm	2-3/32	012684AW	5.10 mm	.2008	2-1/16	2-1/16	86 mm	3-3/8
012649AW	2.40mm	.0945	30mm	1-3/16	57mm	2-1/4							

National

STRAIGHT SHANK Jobber Length Twist Drills

Metric Sizes

HSS | 118° | Black Oxide



- General purpose straight shank drill
- Designed to perform satisfactorily under normal conditions in most materials

HSS - Regular - 118° Point - Treated (1mm to 14mm)

Packaging: 0.15mm to 7.3mm (12), 7.40mm to 12.5mm (6), Over 12.50mm (1)

EDP #	Dia.	Decimal Equiv.	Flute Length		Overall Length		EDP #	Dia.	Decimal Equiv.	Flute Length		Overall Length	
			mm	Fractional	mm	Fractional				mm	Fractional	mm	Fractional
012685AW	5.20 mm	.2047	52 mm	2-1/16	86 mm	3-3/8	012723AW	8.30 mm	.3268	75 mm	2-15/16	117 mm	4-19/32
012687AW	5.30 mm	.2087	52 mm	2-1/16	86 mm	3-3/8	012724AW	8.40 mm	.3307	75 mm	2-15/16	117 mm	4-19/32
012688AW	5.40 mm	.2126	57 mm	2-1/4	93 mm	3-21/32	012725AW	8.50 mm	.3346	75 mm	2-15/16	117 mm	4-19/32
012689AW	5.50 mm	.2165	57 mm	2-1/4	93 mm	3-21/32	012726AW	8.60 mm	.3386	81 mm	3-3/16	125 mm	4-29/32
012690AW	5.60 mm	.2205	57 mm	2-1/4	93 mm	3-21/32	012727AW	8.70 mm	.3425	81 mm	3-3/16	125 mm	4-29/32
012691AW	5.70 mm	.2244	57 mm	2-1/4	93 mm	3-21/32	012729AW	8.80 mm	.3465	81 mm	3-3/16	125 mm	4-29/32
012693AW	5.80 mm	.2283	57 mm	2-1/4	93 mm	3-21/32	012730AW	8.90 mm	.3504	81 mm	3-3/16	125 mm	4-29/32
012694AW	5.90 mm	.2323	57 mm	2-1/4	93 mm	3-21/32	012731AW	9.00 mm	.3543	81 mm	3-3/16	125 mm	4-29/32
012695AW	6.00 mm	.2362	57 mm	2-1/4	93 mm	3-21/32	012732AW	9.10 mm	.3583	81 mm	3-3/16	125 mm	4-29/32
012696AW	6.10 mm	.2402	63 mm	2-15/32	101 mm	3-31/32	012733AW	9.20 mm	.3622	81 mm	3-3/16	125 mm	4-29/32
012697AW	6.20 mm	.2441	63 mm	2-15/32	101 mm	3-31/32	012735AW	9.30 mm	.3661	81 mm	3-3/16	125 mm	4-29/32
012699AW	6.30 mm	.2480	63 mm	2-15/32	101 mm	3-31/32	012736AW	9.40 mm	.3701	81 mm	3-3/16	125 mm	4-29/32
012700AW	6.40 mm	.2520	63 mm	2-15/32	101 mm	3-31/32	012737AW	9.50 mm	.3740	81 mm	3-3/16	125 mm	4-29/32
012701AW	6.50 mm	.2559	63 mm	2-15/32	101 mm	3-31/32	012738AW	9.60 mm	.3780	87 mm	3-7/16	133 mm	5-1/4
012702AW	6.60 mm	.2598	63 mm	2-15/32	101 mm	3-31/32	012739AW	9.70 mm	.3819	87 mm	3-7/16	133 mm	5-1/4
012703AW	6.70 mm	.2638	63 mm	2-15/32	101 mm	3-31/32	012741AW	9.80 mm	.3858	87 mm	3-7/16	133 mm	5-1/4
012705AW	6.80 mm	.2677	69 mm	2-23/32	109 mm	4-9/32	012742AW	9.90 mm	.3898	87 mm	3-7/16	133 mm	5-1/4
012706AW	6.90 mm	.2717	69 mm	2-23/32	109 mm	4-9/32	012743AW	10.00 mm	.3937	87 mm	3-7/16	133 mm	5-1/4
012707AW	7.00 mm	.2756	69 mm	2-23/32	109 mm	4-9/32	012964AW	10.20 mm	.4016	87 mm	3-7/16	133 mm	5-1/4
012708AW	7.10 mm	.2795	69 mm	2-23/32	109 mm	4-9/32	012744AW	10.50 mm	.4134	87 mm	3-7/16	133 mm	5-1/4
012709AW	7.20 mm	.2835	69 mm	2-23/32	109 mm	4-9/32	012965AW	10.80 mm	.4252	94 mm	3-11/16	142 mm	5-19/32
012711AW	7.30 mm	.2874	69 mm	2-23/32	109 mm	4-9/32	012745AW	11.00 mm	.4331	94 mm	3-11/16	142 mm	5-19/32
012712AW	7.40 mm	.2913	69 mm	2-23/32	109 mm	4-9/32	012966AW	11.20 mm	.4410	94 mm	3-11/16	142 mm	5-19/32
012713AW	7.50 mm	.2953	69 mm	2-23/32	109 mm	4-9/32	012746AW	11.50 mm	.4528	94 mm	3-11/16	142 mm	5-19/32
012714AW	7.60 mm	.2992	75 mm	2-15/16	117 mm	4-19/32	012967AW	11.80 mm	.4646	94 mm	3-11/16	142 mm	5-19/32
012715AW	7.70 mm	.3031	75 mm	2-15/16	117 mm	4-19/32	012747AW	12.00 mm	.4724	101 mm	3-31/32	151 mm	42505
012717AW	7.80 mm	.3071	75 mm	2-15/16	117 mm	4-19/3	012968AW	12.20 mm	.4803	101 mm	3-31/32	151 mm	42506
012718AW	7.90 mm	.3110	75 mm	2-15/16	117 mm	4-19/32	012748AW	12.50 mm	.4921	101 mm	3-31/32	151 mm	42507
012719AW	8.00 mm	.3150	75 mm	2-15/16	117 mm	4-19/32	012970AW	13.00 mm	.5118	101 mm	3-31/32	151 mm	42508
012720AW	8.10 mm	.3189	75 mm	2-15/16	117 mm	4-19/32	012972AW	13.50 mm	.5315	108 mm	4-1/4	160 mm	6-5/16
012721AW	8.20 mm	.3228	75 mm	2-15/16	117 mm	4-19/32	012974AW	14.00 mm	.5512	108 mm	4-1/4	160 mm	6-5/16

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National

ROYAL GOLD TIP Jobber Length
Fractional Sizes

HSS | 135° SPLIT | TiN POINT



HSS - Regular Shank - 135° Split Point - Gold Tip

EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
027508AW	1/16	.0625	7/8	1-7/8
027509AW	5/64	.0781	1	2
027510AW	3/32	.0938	1 1/4	2-1/4
027511AW	7/64	.1094	1-1/2	2-5/8
027512AW	1/8	.1250	1-5/8	2-3/4
027513AW	9/64	.1406	1-3/4	2-7/8
027514AW	5/32	.1563	2	3-1/8
027515AW	11/64	.1719	2-1/8	3-1/4
027516AW	3/16	.1875	2-5/16	3-1/2
027517AW	13/64	.2031	2-7/16	3-5/8
027518AW	7/32	.2188	2-1/2	3-3/4
027519AW	15/64	.2344	2-5/8	3-7/8
027520AW	1/4	.2500	2-3/4	4
027521AW	17/64	.2656	2-7/8	4-1/8
027522AW	9/32	.2813	2-15/16	4-1/4
027523AW	19/64	.2969	3-1/16	4-3/8
027524AW	5/16	.3125	3-3/16	4-1/2
027525AW	21/64	.2164	3-5/16	4-5/8
027526AW	11/32	.3438	3-7/16	4-3/4
027527AW	23/64	.3594	3-1/2	4-7/8
027528AW	3/8	.3750	3-5/8	5
027529AW	25/64	.3906	3-3/4	5-1/8
027530AW	13/32	.4063	3-7/8	5-1/4
027531AW	27/64	.4219	3-5/16	5-3/8
027532AW	7/16	.4375	4-1/16	5-1/2
027533AW	29/64	.4531	4-3/16	5-5/8
027718AW	15/32	.4688	4-5/16	5-3/4
027719AW	31/64	.4844	4-3/8	5-7/8
027720AW	1/2	.5000	4-1/2	6

Tolerance of D

up to 1/8 (.1250) : 0~ -.0005

over 1/8 (.1250) ~ up to 1/4 (.2500) : 0~ -.0007

over 1/4 (.2500) ~ up to 1/2 (.5000) : 0~ -.0010

National

ROYAL GOLD TIP Jobber Length
Letter Sizes

HSS | 135° SPLIT | TiN POINT



HSS - Regular - 135° Split Point - Gold Tip

EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
027534AW	A	.2340	2-5/8	3-7/8
027535AW	B	.2380	2-3/4	4
027536AW	C	.2420	2-3/4	4
027537AW	D	.2460	2-3/4	4
027538AW	E	.2500	2-3/4	4
027539AW	F	.2570	2-7/8	4-1/8
027540AW	G	.2610	2-7/8	4-1/8
027541AW	H	.2660	2-7/8	4-1/8
027542AW	I	.2720	2-7/8	4-1/8
027543AW	J	.2770	2-7/8	4-1/8
027544AW	K	.2810	2-15/16	4-1/4
027545AW	L	.2900	2-15/16	4-1/4
027546AW	M	.2950	3-1/16	4-3/8
027547AW	N	.3020	3-1/16	4-3/8
027548AW	O	.3160	3-3/16	4-1/2
027549AW	P	.3230	3-5/16	4-5/8
027550AW	Q	.3320	3-7/16	4-3/4
027551AW	R	.3390	3-7/16	4-3/4
027552AW	S	.3480	3-1/2	4-7/8
027553AW	T	.3580	3-1/2	4-7/8
027554AW	U	.3680	3-5/8	5
027555AW	V	.3770	3-5/8	5
027556AW	W	.3860	3-3/4	5-1/8
027557AW	X	.3970	3-3/4	5-1/8
027558AW	Y	.4040	3-7/8	5-1/4
027559AW	Z	.4130	3-7/8	5-1/4

Tolerance of D

up to 1/8 (.1250)	0~ -.0005
over 1/8 (.1250) ~ up to 1/4 (.2500)	0~ -.0007
over 1/4 (.2500) ~ up to 1/2 (.5000)	0~ -.0010

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ROYAL GOLD TIP Jobber Length
Wire Gauge Sizes

HSS | 135° SPLIT | TiN POINT



HSS - Regular - 135° Split Point - Gold Tip

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length
027564AW	52	.0635	7/8	1-7/8	027590AW	26	.1495	1-7/8	3
027565AW	51	.0670	1	2	027591AW	25	.1520	2	3-1/8
027566AW	50	.0700	1	2	027592AW	24	.1540	2	3-1/8
027567AW	49	.0730	1	2	027593AW	23	.1570	2	3-1/8
027568AW	48	.0760	1	2	027594AW	22	.1590	2-1/8	3-1/4
027569AW	47	.0785	1	2	027595AW	21	.1160	1-5/8	2-3/4
027570AW	46	.0810	1-1/8	2-1/8	027596AW	20	.1610	2-1/8	3-1/4
027571AW	45	.0820	1-1/8	2-1/8	027597AW	19	.1660	2-1/8	3-1/4
027572AW	44	.0860	1-1/8	2-1/8	027598AW	18	.1695	2-1/8	3-1/4
027573AW	43	.0890	1-1/4	2-1/4	027599AW	17	.1730	2-3/16	3-3/8
027574AW	42	.0935	1-1/4	2-1/4	027600AW	16	.1770	2-3/16	3-3/8
027575AW	41	.0960	1-3/8	2-3/8	027601AW	15	.1800	2-3/16	3-3/8
027576AW	40	.0980	1-3/8	2-3/8	027602AW	14	.1820	2-3/16	3-3/8
027577AW	39	.0995	1-3/8	2-3/8	027603AW	13	.1850	2-5/16	3-1/2
027578AW	38	.1015	1-7/16	2-1/2	027604AW	12	.1890	2-5/16	3-1/2
027579AW	37	.1040	1-7/16	2-1/2	027605AW	11	.1910	2-5/16	3-1/2
027580AW	36	.1065	1-7/16	2-1/2	027606AW	10	.1935	2-7/16	3-5/8
027581AW	35	.1100	1-1/2	2-5/8	027607AW	9	.1960	2-7/16	3-5/8
027582AW	34	.1110	1-1/2	2-5/8	027608AW	8	.1990	2-7/16	3-5/8
027583AW	33	.1130	1-1/2	2-5/8	027609AW	7	.2010	2-7/16	3-5/8
027584AW	32	.1200	1-5/8	2-3/4	027610AW	6	.2040	2-1/2	3-3/4
027585AW	31	.1285	1-5/8	2-3/4	027611AW	5	.2055	2-1/2	3-3/4
027586AW	30	.1360	1-3/4	2-7/8	027612AW	4	.2090	2-1/2	3-3/4
027587AW	29	.1405	1-3/4	2-7/8	027613AW	3	.2130	2-1/2	3-3/4
027588AW	28	.1440	1-7/8	3	027614AW	2	.2210	2-5/8	3-7/8
027589AW	27	.1470	1-7/8	3	027615AW	1	.2280	2-5/8	3-7/8

Tolerance of D

up to 1/8(.1250)	0~ -.0005
over 1/8 (.1250) ~ up to 1/4(.2500)	0~ -.0007
over 1/4 (.2500) ~ up to 1/2(.5000)	0~ -.0010

National

ROYAL GOLD TIP *Parabolic Flute – Jobber Length*

COBALT 130° TiN POINT



Cobalt - Regular - 130° Point - Gold Tip

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length
027616AW	5/64	.0781	1	2	027644AW	A	.2340	2-5/8	3-7/8
027617AW	3/32	.0938	1-1/4	2-1/4	027645AW	B	.2380	2-3/4	4
027618AW	7/64	.1094	1-1/2	2-5/8	027646AW	C	.2420	2-3/4	4
027619AW	1/8	.1250	1-5/8	2-3/4	027647AW	D	.2460	2-3/4	4
027620AW	9/64	.1406	1-3/4	2-7/8	027648AW	E	.2500	2-3/4	4
027621AW	5/32	.1563	2	3-1/8	027649AW	F	.2570	2-7/8	4-1/8
027622AW	11/64	.1719	2-1/8	3-1/4	027650AW	G	.2610	2-7/8	4-1/8
027623AW	3/16	.1875	2-5/16	3-1/2	027651AW	H	.2660	2-7/8	4-1/8
027624AW	13/64	.2031	2-7/16	3-5/8	027652AW	I	.2720	2-7/8	4-1/8
027625AW	7/32	.2188	2-1/2	3-3/4	027653AW	J	.2770	2-7/8	4-1/8
027626AW	15/64	.2344	2-5/8	3-7/8	027654AW	K	.2810	2-15/16	4-1/4
027627AW	1/4	.2500	2-3/4	4	027655AW	L	.2900	2-15/16	4-1/4
027628AW	17/64	.2656	2-7/8	4-1/8	027656AW	M	.2950	3-1/16	4-3/8
027629AW	9/32	.2813	2-15/16	4-1/4	027657AW	N	.3020	3-1/16	4-3/8
027630AW	19/64	.2969	3-1/16	4-3/8	027658AW	O	.3160	3-3/16	4-1/2
027631AW	5/16	.3125	3-3/16	4-1/2	027659AW	P	.3230	3-5/16	4-5/8
027632AW	21/64	.3281	3-5/16	4-5/8	027660AW	Q	.3320	3-7/16	4-3/4
027633AW	11/32	.3438	3-7/16	4-3/4	027661AW	R	.3390	3-7/16	4-3/4
027634AW	23/64	.3594	3-1/2	4-7/8	027662AW	S	.3480	3-1/2	4-7/8
027635AW	3/8	.3750	3-5/8	5	027663AW	T	.3580	3-1/2	4-7/8
027636AW	25/64	.3906	3-3/4	5-1/8	027664AW	U	.3680	3-5/8	5
027637AW	13/32	.4063	3-7/8	5-1/4	027665AW	V	.3770	3-5/8	5
027638AW	27/64	.4219	3-15/16	5-3/8	027666AW	W	.3860	3-3/4	5-1/8
027639AW	7/16	.4375	4-1/16	5-1/2	027667AW	X	.3970	3-3/4	5-1/8
027640AW	29/64	.4531	4-3/16	5-5/8	027668AW	Y	.4040	3-7/8	5-1/4
027641AW	15/32	.4688	4-5/16	5-3/4	027669AW	Z	.4130	3-7/8	5-1/4
027642AW	31/64	.4844	4-3/8	5-7/8					
027643AW	1/2	.5000	4-1/2	6					

Tolerance of D

up to 1/8 (.1250) 0~ -.0005

over 1/8 (.1250) ~ up to 1/4 (.2500) 0~ -.0007

over 1/4 (.2500) ~ up to 1/2 (.5000) 0~ -.0010

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ROYAL GOLD TIP Parabolic – Jobber Length

Cobalt Gauge Sizes

COBALT 130° TiN POINT



HSSC05 - Regular - 130° Point - Gold Tip

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length
027670AW	47	.0785	1	2	027694AW	23	.1540	2	3-1/8
027671AW	46	.0810	1-1/8	2-1/8	027695AW	22	.1570	2	3-1/8
027672AW	45	.0820	1-1/8	2-1/8	027696AW	21	.1590	2-1/8	3-1/4
027673AW	44	.0860	1-1/8	2-1/8	027697AW	20	.1610	2-1/8	3-1/4
027674AW	43	.0890	1-1/4	2-1/4	027698AW	19	.1660	2-1/8	3-1/4
027675AW	42	.0935	1-1/4	2-1/4	027699AW	18	.1695	2-1/8	3-1/4
027676AW	41	.0960	1-3/8	2-3/8	027700AW	17	.1730	2-3/16	3-3/8
027677AW	40	.0980	1-3/8	2-3/8	027701AW	16	.1770	2-3/16	3-3/8
027678AW	39	.0995	1-3/8	2-3/8	027702AW	15	.1800	2-3/16	3-3/8
027679AW	38	.1015	1-7/16	2-1/2	027703AW	14	.1820	2-3/16	3-3/8
027680AW	37	.1040	1-7/16	2-1/2	027704AW	13	.1850	2-5/16	3-1/2
027681AW	36	.1065	1-7/16	2-1/2	027705AW	12	.1890	2-5/16	3-1/2
027682AW	35	.1100	1-1/2	2-5/8	027706AW	11	.1910	2-5/16	3-1/2
027683AW	34	.1110	1-1/2	2-5/8	027707AW	10	.1935	2-7/16	3-5/8
027684AW	33	.1130	1-1/2	2-5/8	027708AW	9	.1960	2-7/16	3-5/8
027685AW	32	.1160	1-5/8	2-3/4	027709AW	8	.1990	2-7/16	3-5/8
027686AW	31	.1200	1-5/8	2-3/4	027710AW	7	.2010	2-7/16	3-5/8
027687AW	30	.1285	1-5/8	2-3/4	027711AW	6	.2040	2-1/2	3-3/4
027688AW	29	.1360	1-3/4	2-7/8	027712AW	5	.2055	2-1/2	3-3/4
027689AW	28	.1405	1-3/4	2-7/8	027713AW	4	.2090	2-1/2	3-3/4
027690AW	27	.1440	1-7/8	3	027714AW	3	.2130	2-1/2	3-3/4
027691AW	26	.1470	1-7/8	3	027715AW	2	.2210	2-5/8	3-7/8
027692AW	25	.1495	1-7/8	3	027716AW	1	.2280	2-5/8	3-7/8
027693AW	24	.1520	2	3-1/8					

Tolerance of D

up to 1/8 (.1250)
0~ -.0005
over 1/8 (.1250) ~ up to 1/4 (.2500)
0~ -.0007
over 1/4 (.2500) ~ upto 1/2 (.5000)
0~ -.0010

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AIRCRAFT DRILLS *Jobber Length*

Fractional Sizes



- Manufactured to A.I.A. NAS-907 standards
- Designed for lighter duty applications in nonferrous materials, low carbon steel and Austenitic stainless

Type A *HSS - Regular - 118° Split Point - Bright*

HSS | NAS 907 | 118° SPLIT | BRIGHT



- Manufactured to A.I.A. NAS-907 standards
- Recommended for use in power and portable drilling of hard steels, stainless steels, titanium and other hard materials

Type B *HSS - Regular - 135° Split Point - Treated*

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Packaging: 1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Type D Flute	Overall Length	Type A	Type B
1/16	.0625	7/8	7/16	1-7/8	017904AW	018104AW
5/64	.0781	1	1/2	2	017905AW	018105AW
3/32	.0938	1-1/4	5/8	2-1/4	017906AW	018106AW
7/64	.1094	1-1/2	13/16	2-5/8	017907AW	018107AW
1/8	.1250	1-5/8	7/8	2-3/4	017908AW	018108AW
9/64	.1406	1-3/4	15/16	2-7/8	017909AW	018109AW
5/32	.1563	2	1	3-1/8	017910AW	018110AW
11/64	.1719	2-1/8	1-1/16	3-1/4	017911AW	018111AW
3/16	.1875	2-5/16	1-1/8	3-1/2	017912AW	018112AW
13/64	.2031	2-7/16	1-3/16	3-5/8	017913AW	018113AW
7/32	.2188	2-1/2	1-1/4	3-3/4	017914AW	018114AW
15/64	.2344	2-5/8	1-5/16	3-7/8	017915AW	018115AW
1/4	.2500	2-3/4	1-3/8	4	017916AW	018116AW
17/64	.2656	2-7/8	1-7/16	4-1/8	017917AW	018117AW
9/32	.2813	2-15/16	1-1/2	4-1/4	017918AW	018118AW
19/64	.2969	3-1/16	1-9/16	4-3/8	017919AW	018119AW
5/16	.3125	3-3/16	1-5/8	4-1/2	017920AW	018120AW
21/64	.3281	3-5/16	1-11/16	4-5/8	017921AW	018121AW
11/32	.3438	3-7/16	1-11/16	4-3/4	017922AW	018122AW
23/64	.3594	3-1/2	1-3/4	4-7/8	017923AW	018123AW
3/8	.3750	3-5/8	1-13/16	5	017924AW	018124AW
25/64	.3906	3-3/4	1-7/8	5-1/8	017925AW	018125AW
13/32	.4063	3-7/8	1-15/16	5-1/4	017926AW	018126AW
27/64	.4219	3-15/16	2	5-3/8	017927AW	018127AW
7/16	.4375	4-1/16	2-1/16	5-1/2	017928AW	018128AW
29/64	.4531	4-3/16	2-1/8	5-5/8	017929AW	018129AW
15/32	.4688	4-5/16	2-1/8	5-3/4	017930AW	018130AW
31/64	.4844	4-3/8	2-3/16	5-7/8	017931AW	018131AW
1/2	.5000	4-1/2	2-1/4	6	017932AW	018132AW

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AIRCRAFT DRILLS *Jobber Length*

Fractional Sizes



- Manufactured to A.I.A. NAS-907 standards
- High red hardness and abrasion resistant
- Heavy-duty construction provides greater strength and rigidity
- Designed for drilling tough and abrasive materials, high temperature alloys, stainless and heat-treated high-strength steels

Type J *Cobalt - Heavy Duty - 135° Split Point - Bronze*

COBALT NAS 907 135° SPLIT BRONZE OXIDE



- Manufactured to A.I.A. NAS-907 standards
- Heavy-duty construction provides greater strength and rigidity
- Designed for drilling tough and abrasive materials, high temperature alloys, stainless and heat-treated high-strength steels
- Similar to Type J, except screw machine length flutes are better suited for portable drilling

Type D *Cobalt - 135° Split Point - Short Flute - Bronze*

COBALT NAS 907 135° SPLIT BRONZE OXIDE

Packaging: 1/64" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

Diameter	Decimal Equiv.	Flute Length	Type D Flute	Overall Length	Type J	Type D
3/64	.0469	3/4	7/16	1-3/4	020903AW	—
1/16	.0625	7/8	7/16	1-7/8	020904AW	035403AW
5/64	.0781	1	1/2	2	020905AW	035404AW
3/32	.0938	1-1/4	5/8	2-1/4	020906AW	035405AW
7/64	.1094	1-1/2	13/16	2-5/8	020907AW	035406AW
1/8	.1250	1-5/8	7/8	2-3/4	020908AW	035407AW
9/64	.1406	1-3/4	15/16	2-7/8	020909AW	035408AW
5/32	.1563	2	1	3-1/8	020910AW	035409AW
11/64	.1719	2-1/8	1-1/16	3-1/4	020911AW	035410AW
3/16	.1875	2-5/16	1-1/8	3-1/2	020912AW	035411AW
13/64	.2031	2-7/16	1-3/16	3-5/8	020913AW	035412AW
7/32	.2188	2-1/2	1-1/4	3-3/4	020914AW	035413AW
15/64	.2344	2-5/8	1-5/16	3-7/8	020915AW	035414AW
1/4	.2500	2-3/4	1-3/8	4	020916AW	035415AW
17/64	.2656	2-7/8	1-7/16	4-1/8	020917AW	035416AW
9/32	.2813	2-15/16	1-1/2	4-1/4	020918AW	035417AW
19/64	.2969	3-1/16	1-9/16	4-3/8	020919AW	035418AW
5/16	.3125	3-3/16	1-5/8	4-1/2	020920AW	035419AW
21/64	.3281	3-5/16	1-11/16	4-5/8	020921AW	035420AW
11/32	.3438	3-7/16	1-11/16	4-3/4	020922AW	035421AW
23/64	.3594	3-1/2	1-3/4	4-7/8	020923AW	035422AW
3/8	.3750	3-5/8	1-13/16	5	020924AW	035423AW
25/64	.3906	3-3/4	1-7/8	5-1/8	020925AW	035424AW
13/32	.4063	3-7/8	1-15/16	5-1/4	020926AW	035425AW
27/64	.4219	3-15/16	2	5-3/8	020927AW	035426AW
7/16	.4375	4-1/16	2-1/16	5-1/2	020928AW	035427AW
29/64	.4531	4-3/16	2-1/8	5-5/8	020929AW	035428AW
15/32	.4688	4-5/16	2-1/8	5-3/4	020930AW	035429AW
31/64	.4844	4-3/8	2-3/16	5-7/8	020931AW	035430AW
1/2	.5000	4-1/2	2-1/4	6	020932AW	035431AW

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AIRCRAFT DRILLS *Jobber Length*

Wire Gauge Sizes



Type A *HSS - Regular - 118° Split Point - Bright*

Type B *HSS - Regular - 135° Split Point - Treated*

Type J *Cobalt - Heavy Duty - 135° Split Point - Bronze*

Type D *Cobalt - 135° Split Point - Short Flute - Bronze*

Packaging: All (12)

Diameter	Decimal Equiv.	Flute Length	Type D Flute	Overall Length	Type A	Type B	Type J	Type D
52	.0635	7/8	7/16	1-7/8	018052AW	018352AW	020852AW	035532AW
51	.0670	1	1/2	2	018051AW	018351AW	020851AW	035533AW
50	.0700	1	1/2	2	018050AW	018350AW	020850AW	035534AW
49	.0730	1	1/2	2	018049AW	018349AW	020849AW	035535AW
48	.0760	1	1/2	2	018048AW	018348AW	020848AW	035536AW
47	.0785	1	1/2	2	018047AW	018347AW	020847AW	035537AW
46	.0810	1-1/8	9/16	2-1/8	018046AW	018346AW	020846AW	035538AW
45	.0820	1-1/8	9/16	2-1/8	018045AW	018345AW	020845AW	035539AW
44	.0860	1-1/8	9/16	2-1/8	018044AW	018344AW	020844AW	035540AW
43	.0890	1-1/4	5/8	2-1/4	018043AW	018343AW	020843AW	035541AW
42	.0935	1-1/4	5/8	2-1/4	018042AW	018342AW	020842AW	035542AW
41	.0960	1-3/8	5/8	2-3/8	018041AW	018341AW	020841AW	035543AW

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AIRCRAFT DRILLS *Jobber Length*

Wire Gauge Sizes



Type A *HSS - Regular - 118° Split Point - Bright*

Type B *HSS - Regular - 135° Split Point - Treated*

Type J *Cobalt - Heavy Duty - 135° Split Point - Bronze*

Type D *Cobalt - 135° Split Point - Short Flute - Bronze*

Packaging: All (12)

Diameter	Decimal Equiv.	Flute Length	Type D Flute	Overall Length	Type A	Type B	Type J	Type D
40	.0980	1-3/8	13/16	2-3/8	018040AW	018340AW	020840AW	035544AW
39	.0995	1-3/8	13/16	2-3/8	018039AW	018339AW	020839AW	035545AW
38	.1015	1-7/16	13/16	2-1/2	018038AW	018338AW	020838AW	035546AW
37	.1040	1-7/16	13/16	2-1/2	018037AW	018337AW	020837AW	035547AW
36	.1065	1-7/16	13/16	2-1/2	018036AW	018336AW	020836AW	035548AW
35	.1100	1-1/2	7/8	2-5/8	018035AW	018335AW	020835AW	035549AW
34	.1110	1-1/2	7/8	2-5/8	018034AW	018334AW	020834AW	035550AW
33	.1130	1-1/2	7/8	2-5/8	018033AW	018333AW	020833AW	035551AW
32	.1160	1-5/8	7/8	2-3/4	018032AW	018332AW	020832AW	035552AW
31	.1200	1-5/8	7/8	2-3/4	018031AW	018331AW	020831AW	035553AW
30	.1285	1-5/8	15/16	2-3/4	018030AW	018330AW	020830AW	035554AW
29	.1360	1-3/4	15/16	2-7/8	018029AW	018329AW	020829AW	035555AW
28	.1405	1-3/4	15/16	2-7/8	018028AW	018328AW	020828AW	035556AW
27	.1440	1-7/8	1	3	018027AW	018327AW	020827AW	035557AW
26	.1470	1-7/8	1	3	018026AW	018326AW	020826AW	035558AW
25	.1495	1-7/8	1	3	018025AW	018325AW	020825AW	035559AW
24	.1520	2	1	3-1/8	018024AW	018324AW	020824AW	035560AW
23	.1540	2	1	3-1/8	018023AW	018323AW	020823AW	035561AW
22	.1570	2	1-1/16	3-1/8	018022AW	018322AW	020822AW	035562AW
21	.1590	2-1/8	1-1/16	3-1/4	018021AW	018321AW	020821AW	035563AW

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AIRCRAFT DRILLS *Jobber Length*

Wire Gauge Sizes



Type A *HSS - Regular - 118° Split Point - Bright*

Type B *HSS - Regular - 135° Split Point - Treated*

Type J *Cobalt - Heavy Duty - 135° Split Point - Bronze*

Type D *Cobalt - 135° Split Point - Short Flute - Bronze*

Packaging: All (12)

Diameter	Decimal Equiv.	Flute Length	Type D Flute	Overall Length	Type A	Type B	Type J	Type D
20	.1610	2-1/8	1-1/16	3-1/4	018020AW	018320AW	020820AW	035564AW
19	.1660	2-1/8	1-1/16	3-1/4	018019AW	018319AW	020819AW	035565AW
18	.1695	2-1/8	1-1/16	3-1/4	018018AW	018318AW	020818AW	035566AW
17	.1730	2-3/16	1-1/8	3-3/8	018017AW	018317AW	020817AW	035567AW
16	.1770	2-3/16	1-1/8	3-3/8	018016AW	018316AW	020816AW	035568AW
15	.1800	2-3/16	1-1/8	3-3/8	018015AW	018315AW	020815AW	035569AW
14	.1820	2-3/16	1-1/8	3-3/8	018014AW	018314AW	020814AW	035570AW
13	.1850	2-5/16	1-1/8	3-1/2	018013AW	018313AW	020813AW	035571AW
12	.1890	2-5/16	1-1/8	3-1/2	018012AW	018312AW	020812AW	035572AW
11	.1910	2-5/16	1-3/16	3-1/2	018011AW	018311AW	020811AW	035573AW
10	.1935	2-7/16	1-3/16	3-5/8	018010AW	018310AW	020810AW	035574AW
9	.1960	2-7/16	1-3/16	3-5/8	018009AW	018309AW	020809AW	035575AW
8	.1990	2-7/16	1-3/16	3-5/8	018008AW	018308AW	020808AW	035576AW
7	.2010	2-7/16	1-3/16	3-5/8	018007AW	018307AW	020807AW	035577AW
6	.2040	2-1/2	1-1/4	3-3/4	018006AW	018306AW	020806AW	035578AW
5	.2055	2-1/2	1-1/4	3-3/4	018005AW	018305AW	020805AW	035579AW
4	.2090	2-1/2	1-1/4	3-3/4	018004AW	018304AW	020804AW	035580AW
3	.2130	2-1/2	1-1/4	3-3/4	018003AW	018303AW	020803AW	035581AW
2	.2210	2-5/8	1-5/16	3-7/8	018002AW	018302AW	020802AW	035582AW
1	.2280	2-5/8	1-5/16	3-7/8	018001AW	018301AW	020801AW	035583AW

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AIRCRAFT DRILLS Jobber Length
Letter Sizes



Type A *HSS - Regular - 118° Split Point - Bright*

Type B *HSS - Regular - 135° Split Point - Treated*

Type J *Cobalt - Heavy Duty - 135° Split Point - Bronze*

Packaging: A to K (12), L to Z (6)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Type A	Type B	Type J
A	.2340	2-5/8	3-7/8	020101AW	020401AW	012525AW
B	.2380	2-3/4	4	020102AW	020402AW	012526AW
C	.2420	2-3/4	4	020103AW	020403AW	012527AW
D	.2460	2-3/4	4	020104AW	020404AW	012528AW
E	.2500	2-3/4	4	020105AW	020405AW	012529AW
F	.2570	2-7/8	4-1/8	020106AW	020406AW	012530AW
G	.2610	2-7/8	4-1/8	020107AW	020407AW	012531AW
H	.2660	2-7/8	4-1/8	020108AW	020408AW	012532AW
I	.2720	2-7/8	4-1/8	020109AW	020409AW	012533AW
J	.2770	2-7/8	4-1/8	020110AW	020410AW	012534AW
K	.2810	2-15/16	4-1/4	020111AW	020411AW	012535AW
L	.2900	2-15/16	4-1/4	020112AW	020412AW	012536AW
M	.2950	3-1/16	4-3/8	020113AW	020413AW	012537AW
N	.3020	3-1/16	4-3/8	020114AW	020414AW	012538AW
O	.3160	3-3/16	4-1/2	020115AW	020415AW	012539AW
P	.3230	3-5/16	4-5/8	020116AW	020416AW	012540AW
Q	.3320	3-7/16	4-3/4	020117AW	020417AW	012541AW
R	.3390	3-7/16	4-3/4	020118AW	020418AW	012542AW
S	.3480	3-1/2	4-7/8	020119AW	020419AW	012543AW
T	.3580	3-1/2	4-7/8	020120AW	020420AW	012544AW
U	.3680	3-5/8	5	020121AW	020421AW	012545AW
V	.3770	3-5/8	5	020122AW	020422AW	012546AW
W	.3860	3-3/4	5-1/8	020123AW	020423AW	012547AW
X	.3970	3-3/4	5-1/8	020124AW	020424AW	012548AW
Y	.4040	3-7/8	5-1/4	020125AW	020425AW	012549AW
Z	.4130	3-7/8	5-1/4	020126AW	020426AW	012550AW

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AIRCRAFT DRILLS *Screw Machine Length*

Fractional Sizes



- Manufactured to A.I.A. NAS-907 standards
- Recommended for use in power and portable drilling of hard steels, stainless steels, titanium and other hard materials

Type C *HSS - Regular - 135° Split Point - Treated*

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE



- Designed for use in portable power tools and portable hand tools for drilling holes in hard and tough sheet metal alloys of heat-resistant stainless steel and titanium

Type F *Cobalt - Heavy Duty - 135° Split Point - Bronze*

COBALT | 135° SPLIT | BRONZE OXIDE

Packaging: 1/16" to 9/32" (12), 19/64" to 1/2" (6))

Diameter	Decimal Equiv.	Flute Length	Overall Length	Type C	Type F
1/16	.0625	5/8	1-5/8	018404AW	017804AW
5/64	.0781	11/16	1-11/16	018405AW	017805AW
3/32	.0938	3/4	1-3/4	018406AW	017806AW
7/64	.1094	13/16	1-13/16	018407AW	017807AW
1/8	.1250	7/8	1-7/8	018408AW	017808AW
9/64	.1406	15/16	1-15/16	018409AW	017809AW
5/32	.1562	1	2-1/16	018410AW	017810AW
11/64	.1719	1-1/16	2-1/8	018411AW	017811AW
3/16	.1875	1-1/8	2-3/16	018412AW	017812AW
13/64	.2031	1-3/16	2-1/4	018413AW	017813AW
7/32	.2188	1-1/4	2-3/8	018414AW	017814AW
15/64	.2344	1-5/16	2-7/16	018415AW	017815AW
1/4	.2500	1-3/8	2-1/2	018416AW	017816AW
17/64	.2656	1-7/16	2-5/8	018417AW	017817AW
9/32	.2812	1-1/2	2-11/16	018418AW	017818AW
19/64	.2969	1-9/16	2-3/4	018419AW	017819AW
5/16	.3125	1-5/8	2-13/16	018420AW	017820AW
21/64	.3281	1-11/16	2-15/16	018421AW	017821AW
11/32	.3438	1-11/16	3	018422AW	017822AW
23-64	.3594	1-3/4	3-1/16	018423AW	017823AW
3/8	.3750	1-13/16	3-1/8	018424AW	017824AW
25/64	.3906	1-7/8	3-1/4	018425AW	017825AW
13/32	.4062	1-15/16	3-5/16	018426AW	017826AW
27/64	.4219	2	3-3/8	018427AW	017827AW
7/16	.4375	2-1/16	3-7/16	018428AW	017828AW
29/64	.4531	2-1/8	3-9/16	018429AW	017829AW
15/32	.4688	2-1/8	3-5/8	018430AW	017830AW
31/64	.4844	2-3/16	3-11/16	018431AW	017831AW
1/2	.5000	2-1/4	3-3/4	018432AW	017832AW

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

National

AIRCRAFT DRILLS Screw Machine Length
Wire Gauge Sizes




Type C *HSS - Regular - 135° Split Point - Treated*

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Type F *Cobalt - Heavy Duty - 135° Split Point - Bronze*

COBALT | 135° SPLIT | BRONZE OXIDE

Packaging: All (12)

Dia.	Decimal Equiv.	Flute Length	Overall Length	Type C	Type F	Dia.	Decimal Equiv.	Flute Length	Overall Length	Type C	Type F
52	.0635	11/16	1-11/16	018552AW	022352AW	26	.1470	1	2-1/16	018526AW	022326AW
51	.0670	11/16	1-11/16	018551AW	022351AW	25	.1495	1	2-1/16	018525AW	022325AW
50	.0700	11/16	1-11/16	018550AW	022350AW	24	.1520	1	2-1/16	018524AW	022324AW
49	.0730	11/16	1-11/16	018549AW	022349AW	23	.1540	1	2-1/16	018523AW	022323AW
48	.0760	11/16	1-11/16	018548AW	022348AW	22	.1570	1-1/16	2-1/8	018522AW	022322AW
47	.0785	11/16	1-11/16	018547AW	022347AW	21	.1590	1-1/16	2-1/8	018521AW	022321AW
46	.0810	3/4	1-3/4	018546AW	022346AW	20	.1610	1-1/16	2-1/8	018520AW	022320AW
45	.0820	3/4	1-3/4	018545AW	022345AW	19	.1660	1-1/16	2-1/8	018519AW	022319AW
44	.0860	3/4	1-3/4	018544AW	022344AW	18	.1695	1-1/16	2-1/8	018518AW	022318AW
43	.0890	3/4	1-3/4	018543AW	022343AW	17	.1730	1-1/8	2-3/16	018517AW	022317AW
42	.0935	3/4	1-3/4	018542AW	022342AW	16	.1770	1-1/8	2-3/16	018516AW	022316AW
41	.0960	13/16	1-13/16	018541AW	022341AW	15	.1800	1-1/8	2-3/16	018515AW	022315AW
40	.0980	13/16	1-13/16	018540AW	022340AW	14	.1820	1-1/8	2-3/16	018514AW	022314AW
39	.0995	13/16	1-13/16	018539AW	022339AW	13	.1850	1-1/8	2-3/16	018513AW	022313AW
38	.1015	13/16	1-13/16	018538AW	022338AW	12	.1890	1-3/16	2-1/4	018512AW	022312AW
37	.1040	13/16	1-13/16	018537AW	022337AW	11	.1910	1-3/16	2-1/4	018511AW	022311AW
36	.1065	13/16	1-13/16	018536AW	022336AW	10	.1935	1-3/16	2-1/4	018510AW	022310AW
35	.1100	7/8	1-7/8	018535AW	022335AW	9	.1960	1-3/16	2-1/4	018509AW	022309AW
34	.1110	7/8	1-7/8	018534AW	022334AW	8	.1990	1-3/16	2-1/4	018508AW	022308AW
33	.1130	7/8	1-7/8	018533AW	022333AW	7	.2010	1-3/16	2-1/4	018507AW	022307AW
32	.1160	7/8	1-7/8	018532AW	022332AW	6	.2040	1-1/4	2-3/8	018506AW	022306AW
31	.1200	7/8	1-7/8	018531AW	022331AW	5	.2055	1-1/4	2-3/8	018505AW	022305AW
30	.1285	15/16	1-15/16	018530AW	022330AW	4	.2090	1-1/4	2-3/8	018504AW	022304AW
29	.1360	15/16	1-15/16	018529AW	022329AW	3	.2130	1-1/4	2-3/8	018503AW	022303AW
28	.1405	15/16	1-15/16	018528AW	022328AW	2	.2210	1-5/16	2-7/16	018502AW	022302AW
27	.1440	1	2-1/16	018527AW	022327AW	1	.2280	1-5/16	2-7/16	018501AW	022301AW

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

National

AIRCRAFT DRILLS *Screw Machine Length*

Letter Sizes




Type C *HSS - Regular - 135° Split Point - Treated*

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Type F *Cobalt - Heavy Duty - 135° Split Point - Bronze*

COBALT | 135° SPLIT | BRONZE OXIDE

Packaging: A to K (12), L to Z (6)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Type C	Type F
A	.2340	1-5/16	2-7/16	020301AW	017875AW
B	.2380	1-3/8	2-1/2	020302AW	017876AW
C	.2420	1-3/8	2-1/2	020303AW	017877AW
D	.2460	1-3/8	2-1/2	020304AW	017878AW
E	.2500	1-3/8	2-1/2	020305AW	017879AW
F	.2570	1-7/16	2-5/8	020306AW	017880AW
G	.2610	1-7/16	2-5/8	020307AW	017881AW
H	.2660	1-1/2	2-11/16	020308AW	017882AW
I	.2720	1-1/2	2-11/16	020309AW	017883AW
J	.2770	1-1/2	2-11/16	020310AW	017884AW
K	.2810	1-1/2	2-11/16	020311AW	014400AW
L	.2900	1-9/16	2-3/4	020312AW	017885AW
M	.2950	1-9/16	2-3/4	020313AW	017886AW
N	.3020	1-5/8	2-13/16	020314AW	017887AW
O	.3160	1-11/16	2-13/16	020315AW	017888AW
P	.3230	1-11/16	2-13/16	020316AW	017889AW
Q	.3320	1-11/16	3	020317AW	017890AW
R	.3390	1-11/16	3	020318AW	017891AW
S	.3480	1-11/16	3	020319AW	017892AW
T	.3580	1-3/4	3-1/16	020320AW	017893AW
U	.3680	1-13/16	3-1/8	020321AW	017894AW
V	.3770	1-7/8	3-1/4	020322AW	017895AW
W	.3860	1-7/8	3-1/4	020323AW	017896AW
X	.3970	1-15/16	3-5/16	020324AW	014401AW
Y	.4040	1-15/16	3-5/16	020325AW	014402AW
Z	.4130	2	3-3/8	020326AW	014403AW

National

AIRCRAFT DRILLS *Extension Length*

Fractional Sizes



- Manufactured to A.I.A. NAS-907 standards
- Used in applications where standard drill lengths cannot reach

HSS 6" Overall - 135° Split Point - Treated

Cobalt 6" Overall - 135° Split Point - Bronze

HSS 12" Overall - 135° Split Point - Treated

Cobalt 12" Overall - 135° Split Point - Bronze

Packaging: 1/16" to 9/32" (12), 19/64" to 1/2" (6)

Diameter	Decimal Equiv.	Flute Length	6" Overall Length		12" Overall Length	
			HSS	Cobalt	HSS	Cobalt
1/16	.0625	7/8	017504AW	017304AW	017404AW	014404AW
5/64	.0781	1	017505AW	017305AW	017405AW	014405AW
3/32	.0938	1-1/4	017506AW	017306AW	017406AW	017006AW
7/64	.1094	1-1/2	017507AW	017307AW	017407AW	014406AW
1/8	.1250	1-5/8	017508AW	017308AW	017408AW	017008AW
9/64	.1406	1-3/4	017509AW	017309AW	017409AW	014407AW
5/32	.1562	2	017510AW	017310AW	017410AW	017010AW
11/64	.1719	2-1/8	017511AW	017311AW	017411AW	017011AW
3/16	.1875	2-5/16	017512AW	017312AW	017412AW	017012AW
13/64	.2031	2-7/16	017513AW	017313AW	017413AW	014408AW
7/32	.2188	2-1/2	017514AW	017314AW	017414AW	017014AW
15/64	.2344	2-5/8	017515AW	017315AW	017415AW	017015AW
1/4	.2500	2-3/4	017516AW	017316AW	017416AW	017016AW
17/64	.2676	2-7/8	–	–	017417AW	–
9/32	.2813	2-15/16	–	–	017418AW	–
19/64	.2969	3-1/16	–	–	017419AW	–
5/16	.3125	3-3/16	–	–	017420AW	–
21/64	.3281	3-5/16	–	–	017421AW	–
11/32	.3438	3-7/16	–	–	017422AW	–
23/64	.3594	3-1/2	–	–	017423AW	–
3/8	.3750	3-5/8	–	–	017424AW	–
25/64	.3906	3-3/4	–	–	017425AW	–
13/32	.4062	3-7/8	–	–	017426AW	–
27/64	.4219	3-15/16	–	–	017427AW	–
7/16	.4375	4-1/16	–	–	017428AW	–
29/64	.4531	4-3/16	–	–	017429AW	–
15/32	.4688	4-5/16	–	–	017430AW	–
31/64	.4844	4-3/8	–	–	017431AW	–
1/2	.5000	4-1/2	–	–	017432AW	–

National

AIRCRAFT DRILLS *Extension Length*

Letter Sizes



- Manufactured to A.I.A. NAS-907 standards
- Used in applications where standard drill lengths cannot reach

HSS 6" Overall - 135° Split Point - Treated

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Cobalt 6" Overall - 135° Split Point - Bronze

COBALT | NAS 907 | 135° SPLIT | BRONZE OXIDE

HSS 12" Overall - 135° Split Point - Treated

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Packaging: A to K (12), L to Z (6)

Diameter	Decimal Equiv.	Flute Length	6" Overall Length		12" Overall Length
			HSS	Cobalt	HSS
A	.2340	2-5/8	023401AW	023501AW	023601AW
B	.2380	2-3/4	023402AW	023502AW	023602AW
C	.2420	2-3/4	023403AW	023503AW	023603AW
D	.2460	2-3/4	023404AW	023504AW	023604AW
E	.2500	2-3/4	023405AW	023505AW	023605AW
F	.2570	2-7/8	023406AW	023506AW	023606AW

National

AIRCRAFT DRILLS *Extension Length*

Wire Gauge Sizes



- Manufactured to A.I.A. NAS-907 standards
- Used in applications where standard drill lengths cannot reach

HSS 6" Overall -135° Split Point - Treated

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Cobalt 6" Overall - 135° Split Point - Bronze

COBALT | NAS 907 | 135° SPLIT | BRONZE OXIDE

HSS 12" Overall - 135° Split Point - Treated

HSS | NAS 907 | 135° SPLIT | BLACK OXIDE

Packaging: All (12)

Dia.	Decimal Equiv.	Flute Length	6" Overall Length		12" Overall Length	Dia.	Decimal Equiv.	Flute Length	6" Overall Length		12" Overall Length
			HSS	Cobalt	HSS				HSS	Cobalt	HSS
52	.0635	7/8	017752AW	022552AW	—	26	.1470	1-7/8	017726AW	022526AW	022626AW
51	.0670	1	017751AW	022551AW	—	25	.1495	1-7/8	017725AW	022525AW	022625AW
50	.0700	1	017750AW	022550AW	022650AW	24	.1520	2	017724AW	022524AW	—
49	.0730	1	017749AW	022549AW	022649AW	23	.1540	2	017723AW	022523AW	022623AW
48	.0760	1	017748AW	022548AW	022648AW	22	.1570	2	017722AW	022522AW	022622AW
47	.0785	1	017747AW	022547AW	022647AW	21	.1590	2-1/8	017721AW	022521AW	022621AW
46	.0810	1-1/8	017746AW	022546AW	022646AW	20	.1610	2-1/8	017720AW	022520AW	022620AW
45	.0820	1-1/8	017745AW	022545AW	022645AW	19	.1660	2-1/8	017719AW	022519AW	022619AW
44	.0860	1-1/8	017744AW	022544AW	022644AW	18	.1695	2-1/8	017718AW	022518AW	022618AW
43	.0890	1-1/4	017743AW	022543AW	022643AW	17	.1730	2-3/16	017717AW	022517AW	022617AW
42	.0935	1-1/4	017742AW	022542AW	022642AW	16	.O1770	2-3/16	017716AW	022516AW	022616AW
41	.0960	1-3/8	017741AW	022541AW	022641AW	15	.1800	2-3/16	017715AW	022515AW	—
40	.0980	1-3/8	017740AW	022540AW	022640AW	14	.1820	2-3/16	017714AW	022514AW	022614AW
39	.0995	1-3/8	017739AW	022539AW	022639AW	13	.1850	2-5/16	017713AW	022513AW	022613AW
38	.1015	1-7/16	017738AW	022538AW	022638AW	12	.1890	2-5/16	017712AW	022512AW	022612AW
37	.1040	1-7/16	017737AW	022537AW	022637AW	11	.1910	2-5/16	017711AW	022511AW	022611AW
36	.1065	1-7/16	017736AW	022536AW	022636AW	10	.1935	2-7/16	017710AW	022510AW	022610AW
35	.1100	1-1/2	017735AW	022535AW	—	9	.1960	2-7/16	017709AW	022509AW	022609AW
34	.1110	1-1/2	017734AW	022534AW	—	8	.1990	2-7/16	017708AW	022508AW	—
33	.1130	1-1/2	017733AW	022533AW	—	7	.2010	2-7/16	017707AW	022507AW	022607AW
32	.1160	1-5/8	017732AW	022532AW	022632AW	6	.2040	2-1/2	017706AW	022506AW	—
31	.1200	1-5/8	017731AW	022531AW	022631AW	5	.2055	2-1/2	017705AW	022505AW	022605AW
30	.1285	1-5/8	017730AW	022530AW	022630AW	4	.2090	2-1/2	017704AW	022504AW	022604AW
29	.1360	1-3/4	017729AW	022529AW	022629AW	3	.2130	2-1/2	017703AW	022503AW	022603AW
28	.1405	1-3/4	017728AW	022528AW	—	2	.2210	2-5/8	017702AW	022502AW	—
27	.1440	1-7/8	017727AW	022527AW	022627AW	1	.2280	2-5/8	017701AW	022501AW	022601AW

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National

STRAIGHT SHANK Screw Machine Length Twist Drills
Fractional Sizes

HSS 118° Bright



- Designed for use in screw machines, the overall length and short flutes offer increased rigidity
- Other applications include portable drilling of tough, hard materials

HSS - Right Hand - 118° Point - Bright

Packaging: 3/94" to 9/32" (12), 19/64" to 1/2" (6)

EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
016203AW	3/64	.0469	1/2	1-3/8
016204AW	1/16	.0625	5/8	1-5/8
016205AW	5/64	.0781	11/16	1-11/16
016206AW	3/32	.0938	3/4	1-3/4
016207AW	7/64	.1094	13/16	1-13/16
016208AW	1/8	.1250	7/8	1-7/8
016209AW	9/64	.1406	15/16	1-15/16
016210AW	5/32	.1562	1	2-1/16
016211AW	11/64	.1719	1-1/16	2-1/8
016212AW	3/16	.1875	1-1/8	2-3/16
016213AW	13/64	.2031	1-3/16	2-1/4
016214AW	7/32	.2188	1-1/4	2-3/8
016215AW	15/64	.2344	1-5/16	2-7/16
016216AW	1/4	.2500	1-3/8	2-1/2
016217AW	17/64	.2656	1-7/16	2-5/8
016218AW	9/32	.2812	1-1/2	2-11/16
016219AW	19/64	.2969	1-9/16	2-3/4
016220AW	5/16	.3125	1-5/8	2-13/16
016221AW	21/64	.3281	1-11/16	2-15/16
016222AW	11/32	.3438	1-11/16	3
016223AW	23/64	.3594	1-3/4	3-1/16
016224AW	3/8	.3750	1-13/16	3-1/8
016225AW	25/64	.3906	1-7/8	3-1/4
016226AW	13/32	.4062	1-15/16	3-5/16
016227AW	27/64	.4219	2	3-3/8
016228AW	7/16	.4375	2-1/16	3-7/16
016229AW	29/64	.4531	2-1/8	3-9/16
016230AW	15/32	.4688	2-1/8	3-5/8
016231AW	31/64	.4844	2-3/16	3-11/16
016232AW	1/2	.5000	2-1/4	3-3/4

Coatings and treatments available upon request on all bright finished drills. See page 240.

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National

STRAIGHT SHANK Screw Machine Length Twist Drills
Fractional Sizes

HSS 118° Bright



- Designed for use in screw machines, the overall length and short flutes offer increased rigidity
- Other applications include portable drilling of tough, hard materials

HSS - Right Hand - 118° Point - Bright; 45/64" and Above - Treated

Packaging: All (1)

EDP #	Diameter	Decimal Equiv.	Shank Diameter	Shank Length	Flute Length	Overall Length
016333AW	33/64	.5156	33/64	1-1/2	2-3/8	3-7/8
016334AW	17/32	.5312	17/32	1-1/2	2-3/8	3-7/8
016335AW	35/64	.5469	35/64	1-1/2	2-1/2	4
016336AW	9/16	.5625	9/16	1-1/2	2-1/2	4
016337AW	37/64	.5781	37/64	1-1/2	2-5/8	4-1/8
016338AW	19/32	.5938	19/32	1-1/2	2-5/8	4-1/8
016339AW	39/64	.6094	39/64	1-1/2	2-3/4	4-1/4
016340AW	5/8	.6250	5/8	1-1/2	2-3/4	4-1/4
016341AW	41/64	.6406	41/64	1-5/8	2-7/8	4-1/2
016342AW	21/32	.6562	21/32	1-5/8	2-7/8	4-1/2
016343AW	43/64	.6719	43/64	1-3/4	2-7/8	4-5/8
016344AW	11/16	.6875	11/16	1-3/4	2-7/8	4-5/8
016345AW	45/64	.7031	45/64	1-3/4	3	4-3/4
016346AW	23/32	.7188	23/32	1-3/4	3	4-3/4
016347AW	47/64	.7344	47/64	1-7/8	3-1/8	5
016348AW	3/4	.7500	3/4	1-7/8	3-1/8	5
016349AW	49/64	.7656	49/64	1-7/8	3-1/4	5-1/8
016350AW	25/32	.7812	25/32	1-7/8	3-1/4	5-1/8
016351AW	51/64	.7969	51/64	1-7/8	3-3/8	5-1/4
016352AW	13/16	.8125	13/16	1-7/8	3-3/8	5-1/4
016353AW	53/64	.8281	53/64	1-7/8	3-1/2	5-3/8
016354AW	27/32	.8438	27/32	1-7/8	3-1/2	5-3/8
016355AW	55/64	.8594	55/64	2	3-1/2	5-1/2
016356AW	7/8	.8750	7/8	2	3-1/2	5-1/2
016357AW	57/64	.8906	57/64	2	3-5/8	5-5/8
016358AW	29/32	.9062	29/32	2	3-5/8	5-5/8
016359AW	59/64	.9219	59/64	2	3-3/4	5-3/4
016360AW	15/16	.9375	15/16	2	3-3/4	5-3/4
016361AW	61/64	.9531	61/64	2	3-7/8	5-7/8
016362AW	32/32	.9688	32/32	2	3-7/8	5-7/8
016363AW	63/64	.9844	63/64	2	4	6
016364AW	1	1.0000	1	2	4	6

Coatings and treatments available upon request on all bright finished drills. See page 240.

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National

STRAIGHT SHANK Taper Length Twist Drills
Fractional Sizes

HSS 118° Bright



- General purpose straight shank drill
- Used where a longer overall length and flute length are required



- Straight shank drill used where a longer overall length and flute length are required
- For deep hole drilling in nonferrous metals, low tensile steels and die-cast alloys
- Polished fast helix flutes promote easy chip ejection

HSS - Regular Helix - 118° Point - Bright (1/16" to 11/16"); Treated (45/64" to 1")

HSS - High Helix - 118° Point - Bright

Packaging: 1/8" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

EDP #		Diameter	Decimal Equiv.	Flute Length	Overall Length	EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
Regular Helix	High Helix					Regular Helix				
011504AW	011874AW	1/16	.0625	1-3/4	3	011535AW	35/64	.5469	4-7/8	8-1/4
011505AW	011875AW	5/64	.0781	2	3-3/4	011536AW	9/16	.5625	4-7/8	8-1/4
011506AW	011876AW	3/32	.0938	2-1/4	4-1/4	011537AW	37/64	.5781	4-7/8	8-3/4
011507AW	011877AW	7/64	.1094	2-1/2	4-5/8	011538AW	19/32	.5938	4-7/8	8-3/4
011508AW	011878AW	1/8	.1250	2-3/4	5-1/8	011539AW	39/64	.6094	4-7/8	8-3/4
011509AW	011879AW	9/64	.1406	3	5-3/8	011540AW	5/8	.6250	4-7/8	8-3/4
011510AW	011880AW	5/32	.1562	3	5-3/8	011541AW	41/64	.6406	5-1/8	9
011511AW	011881AW	11/64	.1719	3-3/8	5-3/4	011542AW	21/32	.6562	5-1/8	9
011512AW	011882AW	3/16	.1875	3-3/8	5-3/4	011543AW	43/64	.6719	5-3/8	9-1/4
011513AW	011883AW	13/64	.2031	3-5/8	6	011544AW	11/16	.6875	5-3/8	9-1/4
011514AW	011884AW	7/32	.2188	3-5/8	6	011545AW	45/64	.7031	5-5/8	9-1/2
011515AW	011885AW	15/64	.2344	3-3/4	6-1/8	011546AW	23/32	.7188	5-5/8	9-1/2
011516AW	011886AW	1/4	.2500	3-3/4	6-1/8	011547AW	47/64	.7344	5-7/8	9-3/4
011517AW	011887AW	17/64	.2656	3-7/8	6-1/4	011548AW	3/4	.7500	5-7/8	9-3/4
011518AW	011888AW	9/32	.2812	3-7/8	6-1/4	011549AW	49/64	.7656	6	9-7/8
011519AW	011889AW	19/64	.2969	4	6-3/8	011550AW	25/32	.7812	6	9-7/8
011520AW	011890AW	5/16	.3125	4	6-3/8	011551AW	51/64	.7969	6-1/8	10
011521AW	011891AW	21/64	.3281	4-1/8	6-1/2	011552AW	13/16	.8125	6-1/8	10
011522AW	011892AW	11/32	.3438	4-1/8	6-1/2	011553AW	53/64	.8281	6-1/8	10
011523AW	011893AW	23/64	.3594	4-1/4	6-3/4	011554AW	27/32	.8438	6-1/8	10
011524AW	011894AW	3/8	.3750	4-1/4	6-3/4	011555AW	55/64	.8594	6-1/8	10
011525AW	011895AW	25/64	.3906	4-3/8	7	011556AW	7/8	.8750	6-1/8	10
011526AW	011896AW	13/32	.4062	4-3/8	7	011557AW	57/64	.8906	6-1/8	10
011527AW	011897AW	27/64	.4219	4-5/8	7-1/4	011558AW	29/32	.9062	6-1/8	10
011528AW	011898AW	7/16	.4375	4-5/8	7-1/4	011559AW	59/64	.9219	6-1/8	10-3/4
011529AW	011899AW	29/64	.4531	4-3/4	7-1/2	011560AW	15/16	.9375	6-1/8	10-3/4
011530AW	011900AW	15/32	.4688	4-3/4	7-1/2	011561AW	61/64	.9531	6-3/8	11
011531AW	011901AW	31/64	.4844	4-3/4	7-3/4	011562AW	32/32	.9688	6-3/8	11
011532AW	011902AW	1/2	.5000	4-3/4	7-3/4	011563AW	63/64	.9844	6-3/8	11
011533AW	—	33/64	.5156	4-3/4	8	011564AW	1	1.0000	6-3/8	11
011534AW	—	17/32	.5312	4-3/4	8					

Coatings and treatments available upon request on all bright finished drills. See page 240.

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National

STRAIGHT SHANK

Automotive Jobber Length Twist Drills

HSS 118° Black Oxide



- General purpose straight shank drill
- Designed to perform satisfactorily under most normal conditions
- Furnished with tangs for use with split sleeve drill drivers

HSS - Regular - 118° Point - Tanged - Treated

Packaging: 1/8" to 9/32" (12), 19/64" to 1/2" (6), Over 1/2" (1)

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length
012570AW	1/8	.1250	1-5/8	2-3/4	015964AW	6.40mm	.2520	73mm	105mm
016030AW	30	.1285	1-5/8	2-3/4	015906AW	F	.2570	2-7/8	4-1/8
015933AW	3.30mm	.1299	45mm	73mm	015907AW	G	.2610	2-7/8	4-1/8
015934AW	3.40mm	.1339	45mm	73mm	012579AW	17/64	.2656	2-7/8	4-1/8
016029AW	29	.1360	1-3/4	2-7/8	015909AW	I	.2720	2-7/8	4-1/8
015935AW	3.50mm	.1378	45mm	73mm	015910AW	J	.2770	2-7/8	4-1/8
012571AW	9/64	.1406	1-3/4	2-7/8	012580AW	9/32	.2812	2-15/16	4-1/4
016027AW	27	.1440	1-7/8	3	015972AW	7.25mm	.2854	75mm	108mm
016026AW	26	.1470	1-7/8	3	015974AW	7.40mm	.2913	78mm	111mm
016024AW	24	.1520	2	3-1/8	012581AW	19/64	.2969	3-1/16	4-3/8
012572AW	5/32	.1562	2	3-1/8	015914AW	N	.3020	3-1/16	4-3/8
016020AW	20	.1610	2-1/8	3-1/4	015978AW	7.80mm	.3071	81mm	114mm
016019AW	19	.1660	2-1/8	3-1/4	012582AW	5/16	.3125	3-3/16	4-1/2
016018AW	18	.1695	2-1/8	3-1/4	015915AW	O	.3160	3-3/16	4-1/2
012573AW	11/64	.1719	2-1/8	3-1/4	015916AW	P	.3230	3-5/16	4-5/8
016017AW	17	.1730	2-3/16	3-3/8	012583AW	21/64	.3281	3-5/16	4-5/8
016016AW	16	.1770	2-3/16	3-3/8	015917AW	Q	.3320	3-7/16	4-3/4
016015AW	15	.1800	2-3/16	3-3/8	015918AW	R	.3390	3-7/16	4-3/4
016013AW	13	.1850	2-5/16	3-1/2	012584AW	11/32	.3438	3-7/16	4-3/4
012574AW	3/16	.1875	2-5/16	3-1/2	015919AW	S	.3480	3-1/2	4-7/8
016011AW	11	.1910	2-5/16	3-1/2	015990AW	9.00mm	.3543	89mm	124mm
016010AW	10	.1935	2-7/16	3-5/8	012585AW	23/64	.3594	3-1/2	4-7/8
016009AW	9	.1960	2-7/16	3-5/8	015921AW	U	.3680	3-5/8	5
016008AW	8	.1990	2-7/16	3-5/8	012586AW	3/8	.3750	3-5/8	5
012575AW	13/64	.2031	2-7/16	3-5/8	015923AW	W	.3860	3-3/4	5-1/8
016004AW	4	.2090	2-1/2	3-3/4	012587AW	25/64	.3906	3-3/4	5-1/8
016003AW	3	.2130	2-1/2	3-3/4	015924AW	X	.3970	3-3/4	5-1/8
012576AW	7/32	.2188	2-1/2	3-3/4	012588AW	13/32	.4062	3-7/8	5-1/4
015957AW	5.70mm	.2244	67mm	98mm	012589AW	27/64	.4219	3-15/16	5-3/8
016001AW	1	.2280	2-5/8	3-7/8	012590AW	7/16	.4375	4-1/16	5-1/2
012577AW	15/64	.2344	2-5/8	3-7/8	012591AW	29/64	.4531	4-3/16	5-5/8
015961AW	6.10mm	.2402	70mm	102mm	012592AW	15/32	.4688	4-5/16	5-3/40
015904AW	D	.2460	2-3/4	4	012593AW	31/64	.4844	4-3/8	5-7/8
015905AW	E	.2500	2-3/4	4	012594AW	1/2	.5000	4-1/2	6
012578AW	1/4	.2500	2-3/4	4					

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National

STRAIGHT SHANK TRACK BITS

HSS BLACK OXIDE



HSS - Flat Beaded Single End - Treated



- Design allows for drilling of both hard and soft rails

HSS - Flat Beaded Double End - Treated

Packaging: (12)

Diameter	Decimal Equiv.	Overall Length	Single End	Double End
7/8	.8750	6-1/4	032005AA	032103AA
15/16	.9375	6-1/4	032006AA	—
1	1.0000	6-1/4	032007AA	032105AA
1-1/16	1.0625	6-1/4	032008AA	032106AA
1-1/8	1.1250	6-1/4	032009AA	032107AA
1-3/16	1.1875	6-1/4	032010AA	032108AA
1-1/4	1.2500	6-1/4	032011AA	032109AA
1-5/16	1.3125	6-1/4	032012AA	032110AA
1-3/8	1.3750	6-1/4	032013AA	032111AA
1-7/16	1.4375	6-1/4	032014AA	032112AA
1-1/2	1.5000	6-1/4	032015AA	032113AA

TIE BORE DRILLS

HSS BRIGHT



- Designed for drilling spike holes in wooden railroad ties
- Available in one or two flute design

HSS - Bright

Packaging: All (3)

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	Shank Dia.	Shank Length	Flutes	Flats
031954AA	9/16	.5625	6	9-3/8	1/2	3	2	
031955AA	5/8	.6250	6-1/4	9-3/8	1/2	3	2	
031961AA	9/16	.5625	6	9-3/8	1/2	3	1	
031967AA	5/8	.6250	6-1/4	9-3/8	1/2	3	1	
031971AA	9/16	.5625	6-1/4	9-3/8	1/2	3	2	×
031973AA	3/4	.7500	6	9-3/8	1/2	2-1/2	1	
031974AA	9/16	.5625	8-3/8	12	1/2	3	2	×
031980AA	3/4	.7500	8-5/8	11-1/4	1/2	2-1/2	1	×
031982AA	11/16	.6875	7	9-5/8	1/2	3	1	

Coatings and treatments available upon request on all bright finished drills. See page 240.

BONDING DRILLS

COBALT BRONZE OXIDE



- Designed for drilling holes for bonding wires for track signals
- Available in flatted or round shanks
- 140° notched point

Cobalt - Treated

Packaging: All (1)

Diameter	Decimal Equiv.	Flute Length	Overall Length	Shank Diameter	Flat Shank EDP #	Round Shank EDP #
3/8	.3750	1-3/4	3	3/8	037204AA	037203AA

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TAPER SHANK TWIST DRILLS

Fractional Sizes

HSS 118° Black Oxide



- Designed to fit American Standard (Morse) taper shank holders
- Used in various drilling applications and materials

HSS - Regular Shank - 118° Point - Treated

Packaging: All (3)

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	Taper Shank	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	Taper Shank
010012AW	3/16	.1875	2-1/2	5-3/4	1	010043AW	43/64	.6719	5-3/8	9-1/4	2
010013AW	13/64	.2031	2-3/4	6	1	010044AW	11/16	.6875	5-3/8	9-1/4	2
010014AW	7/32	.2188	2-3/4	6	1	010045AW	45/64	.7031	5-5/8	9-1/2	2
010015AW	15/64	.2344	2-7/8	6-1/8	1	010046AW	23/32	.7188	5-5/8	9-1/2	2
010016AW	1/4	.2500	2-7/8	6-1/8	1	010047AW	47/64	.7344	5-7/8	9-3/4	2
010017AW	17/64	.2656	3	6-1/4	1	010048AW	3/4	.7500	5-7/8	9-3/4	2
010018AW	9/32	.2812	3	6-1/4	1	010049AW	49/64	.7656	6	9-7/8	2
010019AW	19/64	.2969	3-1/8	6-3/8	1	010050AW	25/32	.7812	6	9-7/8	2
010020AW	5/16	.3125	3-1/8	6-3/8	1	010051AW	51/64	.7969	6-1/8	10-3/4	3
010021AW	21/64	.3281	3-1/4	6-1/2	1	010052AW	13/16	.8125	6-1/8	10-3/4	3
010022AW	11/32	.3438	3-1/4	6-1/2	1	010053AW	53-64	.8281	6-1/8	10-3/4	3
010023AW	23/64	.3594	3-1/2	6-3/4	1	010054AW	27/32	.8438	6-1/8	10-3/4	3
010024AW	3/8	.3750	3-1/2	6-3/4	1	010055AW	55-64	.8594	6-1/8	10-3/4	3
010025AW	25/64	.3906	3-5/8	7	1	010056AW	7/8	.8750	6-1/8	10-3/4	3
010026AW	13/32	.4062	3-5/8	7	1	010057AW	57/64	.8906	6-1/8	10-3/4	3
010027AW	27/64	.4219	3-7/8	7-1/4	1	010058AW	29/32	.9062	6-1/8	10-3/4	3
010028AW	7/16	.4375	3-7/8	7-1/4	1	010059AW	59/64	.9219	6-1/8	10-3/4	3
010029AW	29/64	.4531	4-1/8	7-1/2	1	010060AW	15/16	.9375	6-1/8	10-3/4	3
010030AW	15/32	.4688	4-1/8	7-1/2	1	010061AW	61/64	.9531	6-3/8	11	3
010031AW	31/64	.4844	4-3/8	8-1/4	2	010062AW	31/32	.9688	6-3/8	11	3
010032AW	1/2	.5000	4-3/8	8-1/4	2	010063AW	63/64	.9844	6-3/8	11	3
010033AW	33/64	.5156	4-5/8	8-1/2	2	010064AW	1	1.0000	6-3/8	11	3
010034AW	17/32	.5312	4-5/8	8-1/2	2	010065AW	1-1/64	1.0156	6-1/2	11-1/8	3
010035AW	35/64	.5469	4-7/8	8-3/4	2	010066AW	1-1/32	1.0313	6-1/2	11-1/8	3
010036AW	9/16	.5625	4-7/8	8-3/4	2	010067AW	1-3/64	1.0469	6-5/8	11-1/4	3
010037AW	37/64	.5781	4-7/8	8-3/4	2	010068AW	1-1/16	1.0625	6-5/8	11-1/4	3
010038AW	19/32	.5938	4-7/8	8-3/4	2	010069AW	1-5/64	1.0781	6-7/8	12-1/2	4
010039AW	39/64	.6094	4-7/8	8-3/4	2	010070AW	1-3/32	1.0938	6-7/8	12-1/2	4
010040AW	5/8	.6250	4-7/8	8-3/4	2	010071AW	1-7/64	1.1094	7-1/8	12-3/4	4
010041AW	41/64	.6406	5-1/8	9	2	010072AW	1-1/8	1.1250	7-1/8	12-3/4	4
010042AW	21/32	.6562	5-1/8	9	2	010073AW	1-9/64	1.1406	7-1/4	12-7/8	4

National

TAPER SHANK TWIST DRILLS

Fractional Sizes

HSS 118° Black Oxide



- Designed to fit American Standard (Morse) taper shank holders
- Used in various drilling applications and materials

HSS - Regular Shank - 118° Point - Treated

Packaging: All (1)

EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	Taper Shank	EDP #	Dia.	Decimal Equiv.	Flute Length	Overall Length	Taper Shank
010074AW	1-5/32	1.1562	7-1/4	12-7/8	4	010112AW	1-3/4	1.7500	10-1/8	17-1/8	5
010075AW	1-11/64	1.1719	7-3/8	13	4	010114AW	1-25-32	1.7813	10-1/8	17-1/8	5
010076AW	1-3/16	1.1875	7-3/8	13	4	010116AW	1-13/16	1.8125	10-1/8	17-1/8	5
010077AW	1-13/64	1.2031	7-1/2	13-1/8	4	010118AW	1-27/32	1.8438	10-1/8	17-1/8	5
010078AW	1-7/32	1.2188	7-1/2	1311-8/	4	010120AW	1-7/8	1.8750	10-3/8	17-3/8	5
010079AW	1-15/64	1.2344	7-7/8	13-1/2	4	010122AW	1-29/32	1.9063	10-3/8	17-3/8	5
010080AW	1-1/4	1.2500	7-7/8	13-1/2	4	010124AW	1-15/16	19375.	10-3/8	17-3/8	5
010081AW	1-17/64	1.2656	8-1/2	14-1/8	4	010126AW	1-31/32	19688.	10-3/8	17-3/8	5
010082AW	1-9/32	1.2812	8-1/2	14-1/8	4	010128AW	2	2.0000	10-3/8	17-3/8	5
010083AW	1-19/64	1.2969	8-5/8	14-1/4	4	010130AW	2-1/32	2.0313	10-3/8	17-3/8	5
010084AW	1-5/16	1.3125	8-5/8	14-1/4	4	010132AW	2-1/6	2.0625	10-1/4	17-3/8	5
010085AW	1-21/64	1.3281	8-3/4	14-3/8	4	010134AW	2-3/32	2.0938	10-1/4	17-3/8	5
010086AW	1-11/32	1.3438	8-3/4	14-3/8	4	010136AW	2-1/8	2.1250	10-1/4	17-3/8	5
010087AW	1-23/64	1.3594	8-7/8	14-1/2	4	010138AW	2-5/32	2.1562	10-1/4	17-3/8	5
010088AW	1-3/8	1.3750	8-7/8	14-1/2	4	010140AW	2-3/16	2.1875	10-1/4	17-3/8	5
010089AW	1-25/64	1.3906	9	14-5/8	4	010142AW	2-7/32	2.2188	10-1/8	17-3/8	5
010090AW	1-13/32	1.4062	9	14-5/8	4	010144AW	2-1/4	2.2500	10-1/8	17-3/8	5
010091AW	1-27/64	1.4219	9-1/8	14-3/4	4	010148AW	2-5/16	2.3125	10-1/8	17-3/8	5
010092AW	1-7/16	1.4375	9-1/8	14-3/4	4	010152AW	2-3/8	2.3750	10-1/8	17-3/8	5
010093AW	1-29/64	1.4531	9-1/4	14-7/8	4	010156AW	2-7/16	2.4375	11-1/4	18-3/4	5
010094AW	1-15/32	1.4688	9-1/4	14-7/8	4	010160AW	2-1/2	2.5000	11-1/4	18-3/4	5
010095AW	1-31/64	1.4844	9-3/8	15	4	010164AW	2-9/16	2.5625	11-7/8	19-1/2	5
010096AW	1-1/2	1.5000	9-3/8	15	4	010168AW	2-5/8	2.6250	11-7/8	19-1/2	5
010098AW	1-17/32	1.5313	9-3/8	16-3/8	5	010172AW	2-11/16	2.6875	12-3/4	20-3/8	5
010100AW	1-9/16	1.5625	6-5/8	16-3/8	5	010176AW	2-3/4	2.7500	12-3/4	20-3/8	5
010102AW	1-19/32	1.5938	9-7/8	16-7/8	5	010180AW	2-13/16	2.8125	13-3/8	21-1/8	5
010104AW	1-5/8	1.6250	10	17	5	010184AW	2-7/8	2.8750	13-3/8	21-1/8	5
010106AW	1-21/32	1.6562	10-1/8	17-1/8	5	010188AW	2-15/16	2.9375	14	21-3/4	5
010108AW	1-11/16	1.6875	10-1/8	17-1/8	5	010192AW	3	3.0000	14	21-3/4	5
010110AW	1-23/32	1.7188	10-1/8	17-1/8	5						

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

SILVER & DEMING DRILLS

1/2" Reduced Shank - Fractional Sizes

HSS 118° BRIGHT BLACK



- Designed to fit 1/2" drill chucks
- Used in both drill presses and portable drills where diameter is larger than drill chuck
- Not recommended for enlarging holes

HSS - Round Shank - Shank Length 2-1/4" - 118° Point - Treated Flutes

HSS - 3 Flats - Shank Length 2-1/4" - 118° Point - Treated Flutes

HSS - Flatted Shank - Black & Gold - 118° Spiral Point - Treated Flutes

Packaging: All (1)

Dia.	Decimal Equiv.	Flute Length	Overall Length	Round Shank	Flat Shank	Black & Gold	Dia.	Decimal Equiv.	Flute Length	Overall Length	Round Shank	Flat Shank
1/2	0.5000	3	6	017232AW	017632AW	—	1-1/64	1.0156	3	6	014420AW	017665AW
33/64	0.5156	3	6	017233AW	017633AW	017200AW	1-1/32	1.0313	3	6	014421AW	017666AW
17/32	0.5312	3	6	017234AW	017634AW	017201AW	1-3/64	1.0469	3	6	014422AW	017667AW
35/64	0.5469	3	6	017235AW	017635AW	017202AW	1-1/16	1.0625	3	6	017268AW	017668AW
9/16	0.5625	3	6	017236AW	017636AW	017203AW	1-5/64	1.0781	3	6	014423AW	017669AW
37/64	0.5781	3	6	017237AW	017637AW	017204AW	1-3/32	1.0938	3	6	014424AW	017670AW
19/32	0.5938	3	6	017238AW	017638AW	017205AW	1-7/64	1.1094	3	6	014425AW	017671AW
39/64	0.6094	3	6	017239AW	017639AW	017206AW	1-1/8	1.1250	3	6	017272AW	017672AW
5/8	0.6250	3	6	017240AW	017640AW	017207AW	1-9/64	1.1406	3	6	014426AW	017673AW
41/64	0.6406	3	6	017241AW	017641AW	017208AW	1-5/32	1.1562	3	6	014427AW	017674AW
21/32	0.6562	3	6	017242AW	017642AW	017209AW	1-11/64	1.1719	3	6	014428AW	017675AW
43/64	0.6719	3	6	017243AW	017643AW	017210AW	1-3/16	1.1875	3	6	017276AW	017676AW
11/16	0.6875	3	6	017244AW	017644AW	017211AW	1-13/64	1.2031	3	6	014429AW	017677AW
45/64	0.7031	3	6	017245AW	017645AW	017212AW	1-7/32	1.2188	3	6	014430AW	017678AW
23/32	0.7188	3	6	017246AW	017646AW	017213AW	1-15/64	1.2344	3	6	014431AW	017679AW
47/64	0.7344	3	6	017247AW	017647AW	017214AW	1-1/4	1.2500	3	6	017280AW	017680AW
3/4	0.7500	3	6	017248AW	017648AW	017215AW	1-9/32	1.2812	3	6	014432AW	017681AW
49/64	0.7656	3	6	017249AW	017649AW	017216AW	1-5/16	1.3125	3	6	014433AW	017682AW
25/32	0.7812	3	6	017250AW	017650AW	017217AW	1-11/32	1.3438	3	6	014434AW	017683AW
51/64	0.7969	3	6	017251AW	017651AW	017218AW	1-3/8	1.3750	3	6	014435AW	017684AW
13/16	0.8125	3	6	017252AW	017652AW	017219AW	1-13/32	1.4062	3	6	014436AW	017685AW
53/64	0.8281	3	6	017253AW	017653AW	017220AW	1-7/16	1.4375	3	6	014437AW	017686AW
27/32	0.8438	3	6	017254AW	017654AW	017221AW	1-15/32	1.4688	3	6	014438AW	017687AW
55/64	0.8594	3	6	017255AW	017655AW	017222AW	1-1/2	1.5000	3	6	014439AW	017688AW
7/8	0.8750	3	6	017256AW	017656AW	017223AW						
57/64	0.8906	3	6	017257AW	017657AW	017224AW						
29/32	0.9062	3	6	017258AW	017658AW	017225AW						
59/64	0.9219	3	6	017259AW	017659AW	017226AW						
15/16	0.9375	3	6	017260AW	017660AW	017227AW						
61/64	0.9531	3	6	017261AW	017661AW	017228AW						
31/32	0.9688	3	6	017262AW	017662AW	017229AW						
63/64	0.9844	3	6	017263AW	017663AW	017230AW						
1	1.0000	3	6	017264AW	017664AW	017231AW						

SILVER & DEMING DRILL SETS

1/2" Reduced Shank - Fractional Sizes – Set includes 8 drills 9/16" to 1" by 16ths

EDP 014440AW *Round Shank - 118° Point - Treated Flutes*
EDP 014441AW *Flatted Shank - 118° Point - Treated Flutes*
EDP 014442AW *Flatted Shank - Black & Gold - 118° Spiral Point - Treated Flutes*



COMBINED DRILLS & COUNTERSINKS

HSS BRIGHT



- Used for centering work ends where the workpiece is to be revolved on machine centers

HSS - Plain Type - 60° Included Angle - Bright

Packaging: 00 to 5 (12), 6 to 8 (6)

EDP #	Size	Body Dia.	Drill Dia.	Drill Length	Overall Length
017100AW	00	1/8	.025	.030	1-1/8
017110AW	0	1/8	1/32	.038	1-1/8
017101AW	1	1/8	3/64	3/64	1-1/4
017102AW	2	3/16	5/64	5/64	1-7/8
017103AW	3	1/4	7/64	7/64	2
017104AW	4	5/16	1/8	1/8	2-1/8
017105AW	5	7/16	3/16	3/16	2-3/4
017106AW	6	1/2	7/32	7/32	3
017107AW	7	5/8	1/4	1/4	3-1/4
017108AW	8	3/4	5/16	5/16	3-1/2

HSS - Bell Type - 60° Included Angle - Bright

Packaging: 11 to 15 (12), 16 to 18 (6)

EDP #	Size	Body Dia.	Drill Dia.	Drill Length	Overall Length	Bell Dia.
017111AW	11	1/8	3/64	3/64	1-1/4	.100
017112AW	12	3/16	1/16	1/16	1-7/8	.150
017113AW	13	1/4	3/32	3/32	2	.200
017114AW	14	5/16	7/64	7/64	2-1/8	.250
017115AW	15	7/16	5/32	5/32	2-3/4	.350
017116AW	16	1/2	3/16	3/16	3	.400
017117AW	17	5/8	7/32	7/32	3-1/4	.500
017118AW	18	3/4	1/4	1/4	3-1/2	.600



HSS - Long Series - 60° Included Angle - Bright

Packaging: All (1)

EDP #	Size	Body Dia.	Drill Length	Overall Length
017122AW	1	1/8	3/64	6
017125AW	2	3/16	5/64	6
017128AW	3	1/4	7/64	6
017131AW	4	5/16	1/8	6
017134AW	5	7/16	3/16	6
017136AW	6	1/2	7/32	6
017137AW	7	5/8	1/4	6
017138AW	8	3/4	5/16	6

HSS - Plain Type - 60° Included Angle - Bright (Sizes 1,2,3,4,5) EDP 029020AW Set #25B

Coatings and treatments available upon request on all bright finished drills. See page 240.

M & J TOOLING LLC
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National

COBALT NC SPOTTING DRILLS



- For more precise centering work on NC/CNC machines
- A larger diameter in respect to the subsequent drilling tool permit to obtain centering and chamfering simultaneously

Cobalt - 90° - Treated

Cobalt | 90° | Bronze Oxide

EDP #	Diameter	Flute Length	Overall Length
027489AW	1/8	0.472	1.93
027490AW	3/16	0.590	2.44
027491AW	1/4	0.669	2.76
027492AW	5/16	0.984	3.11
027493AW	3/8	0.827	3.50
027494AW	1/2	0.984	4.02
027495AW	5/8	1.575	4.53
027496AW	3/4	1.968	5.16
027497AW	1	1.968	6.14



Cobalt - 120° - Treated

Cobalt | 120° | Bronze Oxide

EDP #	Diameter	Flute Length	Overall Length
027498AW	1/8	0.472	1.93
027499AW	3/16	0.590	2.44
027500AW	1/4	0.669	2.76
027501AW	5/16	0.984	3.11
027502AW	3/8	0.827	3.50
027503AW	1/2	0.984	4.02
027504AW	5/8	1.575	4.53
027505AW	3/4	1.968	5.16
027506AW	1	1.968	6.14

DRILL SETS WITH INDEX CASE



- Designed with the craftsman in mind
- Consists of the most popular size drills
- Manufactured from the finest high speed and cobalt steels
- Compact, rugged index makes drill selection easy and accurate

HSS - General Purpose Jobber Length Twist Drills

HSS | 118° Split | Black Oxide

Packaging: All (1)

EDP #	Drill Set #	Description of Drills in Index Case	Number of Drills
029004AW	29-HS	1/16 to 1/2 x 64th Drills Set - Treated	29
029012AW	13-HS	1/16 to 1/4 x 64th Drills Set - Treated	13
029022AW	21-HS	1/16 to 3/8 x 64th Drills Set - Treated	21
029505AW	15-HS	1/16 to 1/2 x 32nd Drills Set - Treated	15
029009AW	60-HS	1 to 60 Wire Sizes Drill Set - Treated	60
029015AW	20-HS	61 to 80 Wire Sizes Drill Set - Bright	20
029018AW	26-HS	A to Z Letter Sizes Drill Set - Treated	26
029031AW	115-HS	1/16 to 1/2 x 64, 1 to 60, A to Z Drill Set - Treated	115

Royal Gold Tip Drill Set

135° Split | TiN Point

Packaging: All (1)

EDP #	Description	Size	Number of Drills
027717AW	HSS Straight Shank, 135° Split Point (3/64 : Normal Point)	1/16 - 1/2 (Fractional)	29

Cobalt – General Purpose Jobber Length Twist Drill Sets

Cobalt | 135° Split | Black Oxide

Packaging: All (1)

EDP #	Drill Set #	Description of Drills in Index Case	Number of Drills
029024AW	29-CO	1/16 to 1/2 x 64th Drill Set	29
029049AW	21-CO	1/16 to 3/8 x 64th Drill Set	21
029025AW	26-CO	A to Z Letter Sizes Drill Set	26
029026AW	60-CO	1 to 60 Wire Sizes Drill Set	60

Cobalt - General Purpose Screw Machine Length Twist Drill Set

Cobalt | 135° Split | Black Oxide

Packaging: All (1)

EDP #	Drill Set #	Description of Drills in Index Case	Number of Drills
029027AW	29-CO-S	1/16 to 1/2 x 64th Drill Set	29

National

SPECIAL DRILLS



WIDE RANGE OF DRILLS FOR A VARIETY OF APPLICATIONS & INDUSTRIES

Regal Cuttting Tools offers a wide range of drills for many varied applications and industries. While the majority of hole drilling uses standard drills, there remains a need for specifically designed tools. These special drills are manufactured from premium tool steels for drilling difficult materials and for use in unusual applications.

Pictured above is a small example of these special tools. They are capable of producing holes to very close tolerances and finishes in many applications.

Productivity can be enhanced through special combination tools replacing several operations. Various shank configurations can be incorporated to accommodate spindles of specialty drilling machines.

Regal Cutting Tools manufactures most special drills, with delivery times second to none. Call your Regal Cutting Tools' representative today for all your special drill needs.

Want to place an order?
Give us a call or send us an email!
PH: 937-951-3527
Sales@MJToolingLLC.com

National

CARBIDE TIPPED Jobber Length Twist Drills

Fractional Sizes

CARBIDE HSS | 118° | BRIGHT



- Primarily used for drilling cast iron, bronze, hard copper, aluminum and other hard nonferrous materials
- Not recommended for steel

Regular Helix - 118° Point - Bright

EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
014908AW	1/8	.1250	1-5/8	2-3/4
014909AW	9/64	.1406	1-3/4	2-7/8
014910AW	5/32	.1563	2	3-1/8
014911AW	11/64	.1719	2-1/8	3-1/4
014912AW	3/16	.1875	2-5/16	3-1/2
014913AW	13/64	.2031	2-7/16	3-5/8
014914AW	7/32	.2188	2-1/2	3-3/4
014915AW	15/64	.2344	2-5/8	3-7/8
014916AW	1/4	.2500	2-3/4	4
014917AW	17/64	.2656	2-7/8	4-1/8
014918AW	9/32	.2813	2-15/16	4-1/4
014919AW	19/64	.2021	3-1/16	4-3/8
014920AW	5/16	.3125	3-3/16	4-1/2
014921AW	21/64	.3281	3-5/16	4-5/8
014922AW	11/32	.3438	3-7/16	4-3/4
014923AW	23/64	.3594	3-1/2	4-7/8
014924AW	3/8	.3750	3-5/8	5
014925AW	25/64	.3906	3-3/4	5-1/8
014926AW	13/32	.4063	3-7/8	5-1/4
014927AW	27/64	.4219	3-15/16	5-3/8
014928AW	7/16	.4375	4-1/16	5-1/2
014929AW	29/64	.4531	4-3/16	5-5/8
014930AW	15/32	.4688	4-5/16	5-3/4
014931AW	31/64	.4844	4-3/8	5-7/8
014932AW	1/2	.5000	4-1/2	6

Coatings and treatments available upon request on all bright finished drills. See page 240.

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

National

ROYAL HP Solid Carbide Drills – AlTiN Coated

MG CARBIDE | 140° | AlTiN



- Ideal for mass production drilling
- Ground from solid micro-grain carbide
- Suitable for cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal, and abrasive plastic

EDP #	Diameter	Decimal Equiv.	Flute Length	Overall Length
027000AW	1/8	.1250	45/64	1-59/64
027001AW	9/64	.1406	25/32	2-3/64
027002AW	5/32	.1562	7/8	2-3/16
027003AW	11/64	.1719	15/16	2-9/32
027004AW	3/16	.1875	1	2-7/16
027005AW	13/64	.2031	1	2-7/16
027006AW	7/32	.2188	1-1/8	2-5/8
027007AW	15/64	.2344	1-1/8	2-5/8
027008AW	1/4	.2500	1-5/8	3-3/16
027009AW	F	.2570	1-11/16	3-17/64
027010AW	17/64	.2656	1-11/16	3-17/64
027011AW	I	.2720	1-11/16	3-17/64
027012AW	9/32	.2812	1-3/4	3-7/16
027013AW	19/64	.2969	1-7/8	3-9/16
027014AW	5/16	.3125	1-7/8	3-9/16
027015AW	21/64	.3281	2-1/16	3-3/4
027016AW	Q	.3320	2-1/16	3-3/4
027017AW	11/32	.3438	2-3/16	3-7/8
027018AW	23/64	.3594	2-9/32	4
027019AW	U	.3680	2-9/32	4
027020AW	3/8	.3750	2-3/8	4-1/8
027021AW	25/64	.3906	2-3/8	4-1/8
027022AW	13/32	.4062	2-5/8	4-13/32
027023AW	27/64	.4219	2-11/16	4-1/2
027024AW	7/16	.4375	2-13/16	4-5/8
027025AW	29/64	.4531	2-7/8	4-3/4
027026AW	15/32	.4688	2-7/8	4-3/4
027027AW	31/64	.4844	3	5-5/16
027028AW	1/2	.5000	3-1/16	5-3/8
027029AW	33/64	.5156	3-11/32	5-11/16
027030AW	17/32	.5312	3-11/32	5-11/16
027031AW	9/16	.5625	3-1/2	5-15/16
027032AW	37/64	.5781	3-37/64	6
027033AW	5/8	.6250	3-25/32	6-19/64

National

ROYAL HP Carbide Drills – Coolant Holes AlTiN Coated - Short/Long

MG CARBIDE | 140° | AlTiN



- Ideal for mass production drilling
- Ground from solid micro-grain carbide
- Suitable for cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal, and abrasive plastic
- Self-centering
- Good chip removal

Carbide - Short

EDP #	Diameter	Decimal Equiv.	Shank Dia.	Overall Length	Flute Length	EDP #	Diameter	Decimal Equiv.	Shank Dia.	Overall Length	Flute Length
027034AW	1/8	.1250	15/94	2.992	1.102	027052AW	3/8	.3705	25-64	4.174	1.969
027035AW	11/64	.1719	15/64	3.386	1.417	027053AW	25/64	.3906	25/64	4.174	1.969
027036AW	3/16	.1875	15/64	3.543	1.575	027054AW	13/32	.4062	27/64	4.567	2.067
027037AW	13/64	.2031	15/64	3.228	1.082	027055AW	27/64	.4219	27/64	4.567	2.165
027038AW	7/32	.2188	15/64	3.228	1.181	027056AW	7/16	.4375	15/32	4.803	2.264
027039AW	15/64	.2344	15/64	3.228	1.181	027057AW	29/64	.4531	15/32	4.803	2.264
027040AW	1/4	.2500	17/64	3.465	1.279	027058AW	15/32	.4688	15/32	4.803	2.362
027041AW	F	.2570	17/64	3.465	1.279	027059AW	31/64	.4844	1/2	5.039	2.461
027042AW	17/64	.2656	17/64	3.465	1.378	027060AW	1/2	.5000	1/2	5.039	2.559
027043AW	I	.2720	.2720	3.465	1.378	027061AW	33/64	.5156	35/64	5.276	2.657
027044AW	9/32	.2812	5/16	3.701	1.476	027062AW	17/32	.5312	35/64	5.276	2.756
027045AW	19/64	.2969	5/16	3.701	1.476	027063AW	35/64	.5469	35/64	5.276	2.756
027046AW	5/16	.3125	5/16	3.701	1.575	027064AW	9/16	.5625	37/64	5.512	2.854
027047AW	21/64	.3281	11/32	3.937	1.673	027065AW	37/64	.5781	37/64	5.512	2.953
027048AW	Q	.3320	11/32	3.937	1.673	027066AW	19/32	.5937	5/8	5.709	3.051
027049AW	11/32	.3438	11/32	3.937	1.772	027067AW	39/64	.6094	5/8	5.709	3.051
027050AW	23/64	.3594	25/64	4.174	1.870	027068AW	5/8	.6250	5/8	5.709	3.150
027051AW	U	.3680	25/64	4.174	1.870						



Carbide - Long

EDP #	Diameter	Decimal Equiv.	Shank Dia.	Overall Length	Flute Length	EDP #	Diameter	Decimal Equiv.	Shank Dia.	Overall Length	Flute Length
027069AW	13-64	.2031	15/94	3-15/16	1-3/4	027081AW	11/32	.3438	11/32	5	2-27/32
027070AW	7/32	.2188	15/64	3-15/16	1-57/64	027082AW	23/64	.3594	25/64	5-23/64	3
027071AW	15/64	.2344	15/64	3-15/16	1-57/64	027083AW	U	.3680	25/64	5-23/64	3
027072AW	1/4	.2500	17/64	4-19/64	2-3/64	027084AW	3/8	.3750	25/64	5-23/64	3-5/32
027073AW	F	.2570	17/64	4-19/64	2-13/64	027085AW	25/64	.3906	25/64	5-23/64	3-5/32
027074AW	17/64	.2656	17/64	4-19/64	2-13/64	027086AW	13/32	.4062	27/64	5-7/8	3-5/16
027075AW	I	.2720	.2720	4-19/64	2-13/64	027087AW	27/64	.4219	27/64	5-7/8	3-15/32
027076AW	9/32	.2812	5/16	4-41/64	2-23/64	027088AW	7/16	.4375	15/32	6-7/32	3-5/8
027077AW	19/64	.2969	5/16	4-41/64	2-33/64	027089AW	29/64	.4531	15/32	6-7/32	3-25/32
027078AW	5/16	.3125	5/16	4-41/64	2-33/64	027090AW	15/32	.4688	15/32	6-7/32	3-25/32
027079AW	21/64	.3281	11/32	5	2-43/64	027091AW	31/64	.4844	1/2	6-37/64	3-15/16
027080AW	Q	.3320	11/32	5	2-43/64	027092AW	1/2	.5000	1/2	6-37/64	4-3/32

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

National

ROYAL HP Carbide Drills – AlTiN Coated - Short

MG CARBIDE | 140° | AlTiN



- Ideal for mass production drilling
- Ground from solid micro-grain carbide
- Suitable for cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal, and abrasive plastic

Carbide - Short

EDP #	Diameter	Decimal Equiv.	Overall Length	Flute Length	EDP #	Diameter	Decimal Equiv.	Overall Length	Flute Length
027093AW	3.0	.1181	46	16	027139AW	7.6	.2992	79	37
027094AW	3.1	.1220	49	18	027140AW	7.7	.3031	79	37
027095AW	3.2	.1260	49	18	027141AW	7.8	.3071	79	37
027096AW	3.3	.1299	49	18	027142AW	7.9	.3110	79	37
027097AW	3.4	.1339	52	20	027143AW	8.0	.3150	79	37
027098AW	3.5	.1378	52	20	027144AW	8.1	.3189	79	37
027099AW	3.6	.1417	52	20	027145AW	8.2	.3228	79	37
027100AW	3.7	.1457	52	20	027146AW	8.3	.3268	79	37
027101AW	3.8	.1496	55	22	027147AW	8.4	.3307	79	37
027102AW	3.9	.1535	55	22	027148AW	8.5	.3346	79	37
027103AW	4.0	.1575	55	22	027149AW	8.6	.3386	84	40
027104AW	4.1	.1614	55	22	027150AW	8.7	.3425	84	40
027105AW	4.2	.1654	55	22	027151AW	8.8	.3465	84	40
027106AW	4.3	.1693	58	24	027152AW	8.9	.3504	84	40
027107AW	4.4	.1732	58	24	027153AW	9.0	.3543	84	40
027108AW	4.5	.1772	58	24	027154AW	9.1	.3583	84	40
027109AW	4.6	.1811	58	24	027155AW	9.2	.3622	84	40
027110AW	4.7	.1850	58	24	027156AW	9.3	.3661	84	40
027111AW	4.8	.1890	62	26	027157AW	9.4	.3701	84	40
027112AW	4.9	.1929	62	26	027158AW	9.5	.3740	84	40
027113AW	5.0	.1969	62	26	027159AW	9.6	.3780	89	43
027114AW	5.1	.2008	62	26	027160AW	9.7	.3819	89	43
027115AW	5.2	.2047	62	26	027161AW	9.8	.3858	89	43
027116AW	5.3	.2087	62	26	027162AW	9.9	.3898	89	43
027117AW	5.4	.2126	66	28	027163AW	10.0	.3937	89	43
027118AW	5.5	.2165	66	28	027164AW	10.2	.4016	89	43
027119AW	5.6	.2205	66	28	027165AW	10.5	.4134	89	43
027120AW	5.7	.2244	66	28	027166AW	11.0	.4331	95	47
027121AW	5.8	.2283	66	28	027167AW	11.5	.4528	95	47
027122AW	5.9	.2323	66	28	027168AW	12.0	.4724	102	51
027123AW	6.0	.2362	66	28	027169AW	13.0	.5118	102	51
027124AW	6.1	.2402	70	31	027170AW	13.5	.5314	107	54
027125AW	6.2	.2441	70	31	027171AW	14.0	.5511	107	54
027126AW	6.3	.2480	70	31	027172AW	14.5	.5708	111	56
027127AW	6.4	.2520	70	31	027173AW	15.0	.5905	111	56
027128AW	6.5	.2559	70	31	027174AW	15.5	.6102	115	58
027129AW	6.6	.2598	70	31	027175AW	16.0	.6299	115	58
027130AW	6.7	.2638	70	31	027176AW	16.5	.6495	119	60
027131AW	6.8	.2677	74	34	027177AW	17.0	.6692	119	60
027132AW	6.9	.2717	74	34	027178AW	17.5	.6889	123	62
027133AW	7.0	.2756	74	34	027179AW	18.0	.7086	123	62
027134AW	7.1	.2795	74	34	027180AW	18.5	.7283	127	64
027135AW	7.2	.2835	74	34	027181AW	19.0	.7480	127	64
027136AW	7.3	.2874	74	34	027182AW	19.5	.7676	131	66
027137AW	7.4	.2913	74	34	027183AW	20.0	.7873	131	66
027138AW	7.5	.2953	74	34					

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- Ideal for mass production drilling
- Ground from solid micro-grain carbide
- Suitable for cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal, and abrasive plastic
- Self-centering
- Good chip removal

EDP #	Diameter		Shank Dia.	Overall Length	Flute Length	EDP #	Diameter		Shank Dia.	Overall Length	Flute Length
	mm	Decimal					mm	Decimal			
027184AW	3.0	.1181	6.0	62	20	027214AW	6.0	.2362	6.0	66	28
027185AW	3.1	.1220	6.0	62	20	027215AW	6.1	.2402	8.0	79	34
027186AW	3.2	.1260	6.0	62	20	027216AW	6.2	.2441	8.0	79	34
027187AW	3.3	.1299	6.0	62	20	027217AW	6.3	.2480	8.0	79	34
027188AW	3.4	.1339	6.0	62	20	027218AW	6.4	.2520	8.0	79	34
027189AW	3.5	.1378	6.0	62	20	027219AW	6.5	.2559	8.0	79	34
027190AW	3.6	.1417	6.0	62	20	027220AW	6.6	.2598	8.0	79	34
027191AW	3.7	.1457	6.0	62	20	027221AW	6.7	.2638	8.0	79	34
027192AW	3.8	.1496	6.0	66	24	027222AW	6.8	.2677	8.0	79	34
027193AW	3.9	.1535	6.0	66	24	027223AW	6.9	.2717	8.0	79	34
027194AW	4.0	.1575	6.0	66	24	027224AW	7.0	.2756	8.0	79	34
027195AW	4.1	.1614	6.0	66	24	027225AW	7.1	.2795	8.0	79	41
027196AW	4.2	.1654	6.0	66	24	027226AW	7.2	.2835	8.0	79	41
027197AW	4.3	.1693	6.0	66	24	027227AW	7.3	.2874	8.0	79	41
027198AW	4.4	.1732	6.0	66	24	027228AW	7.4	.2913	8.0	79	41
027199AW	4.5	.1772	6.0	66	24	027229AW	7.5	.2953	8.0	79	41
027200AW	4.6	.1811	6.0	66	24	027230AW	7.6	.2992	8.0	79	41
027201AW	4.7	.1850	6.0	66	24	027231AW	7.7	.3031	8.0	79	41
027202AW	4.8	.1890	6.0	66	28	027232AW	7.8	.3071	8.0	79	41
027203AW	4.9	.1929	6.0	66	28	027233AW	7.9	.3110	8.0	79	41
027204AW	5.0	.1969	6.0	66	28	027234AW	8.0	.3150	8.0	79	41
027205AW	5.1	.2008	6.0	66	28	027235AW	8.1	.3189	10.0	89	47
027206AW	5.2	.2047	6.0	66	28	027236AW	8.2	.3228	10.0	89	47
027207AW	5.3	.2087	6.0	66	28	027237AW	8.3	.3268	10.0	89	47
027208AW	5.4	.2126	6.0	66	28	027238AW	8.4	.3307	10.0	89	47
027209AW	5.5	.2165	6.0	66	28	027239AW	8.5	.3346	10.0	89	47
027210AW	5.6	.2205	6.0	66	28	027240AW	8.6	.3386	10.0	89	47
027211AW	5.7	.2244	6.0	66	28	027241AW	8.7	.3425	10.0	89	47
027212AW	5.8	.2283	6.0	66	28	027242AW	8.8	.3465	10.0	89	47
027213AW	5.9	.2323	6.0	66	28	027243AW	8.9	.3504	10.0	89	47

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- Self-centering
- Good chip removal

EDP #	Diameter		Shank Dia.	Overall Length	Flute Length	EDP #	Diameter		Shank Dia.	Overall Length	Flute Length
	mm	Decimal					mm	Decimal			
027244AW	9.0	.3543	10.0	89	47	027268AW	11.4	.4488	12.0	102	55
027245AW	9.1	.3583	10.0	89	47	027269AW	11.5	.4527	12.0	102	55
027246AW	9.2	.3622	10.0	89	47	027270AW	11.6	.4566	12.0	102	55
027247AW	9.3	.3661	10.0	89	47	027271AW	11.7	.4606	12.0	102	55
027248AW	9.4	.3701	10.0	89	47	027272AW	11.8	.4645	12.0	102	55
027249AW	9.5	.3740	10.0	89	47	027273AW	11.9	.4685	12.0	102	55
027250AW	9.6	.3780	10.0	89	47	027274AW	12.0	.4724	12.0	102	55
027251AW	9.7	.3819	10.0	89	47	027275AW	12.5	.4921	14.0	107	60
027252AW	9.8	.3858	10.0	89	47	027276AW	13.0	.5118	14.0	107	60
027253AW	9.9	.3898	10.0	89	47	027277AW	13.5	.5314	14.0	107	60
027254AW	10.0	.3937	10.0	89	47	027278AW	14.0	.5511	14.0	107	60
027255AW	10.1	.3976	12.0	102	55	027279AW	14.5	.5708	16.0	115	65
027256AW	10.2	.4016	12.0	102	55	027280AW	15.0	.5905	16.0	115	65
027257AW	10.3	.4055	12.0	102	55	027281AW	15.5	.6102	16.0	115	65
027258AW	10.4	.4094	12.0	102	55	027282AW	16.0	.6299	16.0	115	65
027259AW	10.5	.4134	12.0	102	55	027283AW	16.5	.6495	18.0	123	73
027260AW	10.6	.4173	12.0	102	55	027284AW	17.0	.6692	18.0	123	73
027261AW	10.7	.4212	12.0	102	55	027285AW	17.5	.6889	18.0	123	73
027262AW	10.8	.4252	12.0	102	55	027286AW	18.0	.7086	18.0	123	73
027263AW	10.9	.4291	12.0	102	55	027287AW	18.5	.7283	20.0	131	79
027264AW	11.0	.4330	12.0	102	55	027288AW	19.0	.7480	20.0	131	79
027265AW	11.1	.4370	12.0	102	55	027289AW	19.5	.7676	20.0	131	79
027266AW	11.2	.4409	12.0	102	55	027290AW	20.0	.7873	20.0	131	79
027267AW	11.3	.4448	12.0	102	55						

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- Self-centering
- Good chip removal

EDP #	Diameter		Shank Dia.	Overall Length	Flute Length	EDP #	Diameter		Shank Dia.	Overall Length	Flute Length
	mm	Decimal					mm	Decimal			
027291AW	3.0	.1181	6.0	66	28	027321AW	6.0	.2362	6.0	82	44
027292AW	3.1	.1220	6.0	66	28	027322AW	6.1	.2402	8.0	91	53
027293AW	3.2	.1260	6.0	66	28	027323AW	6.2	.2441	8.0	91	53
027294AW	3.3	.1299	6.0	66	28	027324AW	6.3	.2480	8.0	91	53
027295AW	3.4	.1339	6.0	66	28	027325AW	6.4	.2520	8.0	91	53
027296AW	3.5	.1378	6.0	66	28	027326AW	6.5	.2559	8.0	91	53
027297AW	3.6	.1417	6.0	66	28	027327AW	6.6	.2598	8.0	91	53
027298AW	3.7	.1457	6.0	66	28	027328AW	6.7	.2638	8.0	91	53
027299AW	3.8	.1496	6.0	74	36	027329AW	6.8	.2677	8.0	91	53
027300AW	3.9	.1535	6.0	74	36	027330AW	6.9	.2717	8.0	91	53
027301AW	4.0	.1575	6.0	74	36	027331AW	7.0	.2756	8.0	91	53
027302AW	4.1	.1614	6.0	74	36	027332AW	7.1	.2795	8.0	91	53
027303AW	4.2	.1654	6.0	74	36	027333AW	7.2	.2835	8.0	91	53
027304AW	4.3	.1693	6.0	74	36	027334AW	7.3	.2874	8.0	91	53
027305AW	4.4	.1732	6.0	74	36	027335AW	7.4	.2913	8.0	91	53
027306AW	4.5	.1772	6.0	74	36	027336AW	7.5	.2953	8.0	91	53
027307AW	4.6	.1811	6.0	74	36	027337AW	7.6	.2992	8.0	91	53
027308AW	4.7	.1850	6.0	74	36	027338AW	7.7	.3031	8.0	91	53
027309AW	4.8	.1890	6.0	82	44	027339AW	7.8	.3071	8.0	91	53
027310AW	4.9	.1929	6.0	82	44	027340AW	7.9	.3110	8.0	91	53
027311AW	5.0	.1969	6.0	82	44	027341AW	8.0	.3150	8.0	91	53
027312AW	5.1	.2008	6.0	82	44	027342AW	8.1	.3189	10.0	103	61
027313AW	5.2	.2047	6.0	82	44	027343AW	8.2	.3228	10.0	103	61
027314AW	5.3	.2087	6.0	82	44	027344AW	8.3	.3268	10.0	103	61
027315AW	5.4	.2126	6.0	82	44	027345AW	8.4	.3307	10.0	103	61
027316AW	5.5	.2165	6.0	82	44	027346AW	8.5	.3346	10.0	103	61
027317AW	5.6	.2205	6.0	82	44	027347AW	8.6	.3386	10.0	103	61
027318AW	5.7	.2244	6.0	82	44	027348AW	8.7	.3425	10.0	103	61
027319AW	5.8	.2283	6.0	82	44	027349AW	8.8	.3465	10.0	103	61
027320AW	5.9	.2323	6.0	82	44	027350AW	8.9	.3504	10.0	103	61

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- Ideal for mass production drilling
- Drill to three times diameter
- Ground from solid micro-grain carbide
- Suitable for general, cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal, and abrasive plastic
- Self-centering
- Good chip removal

EDP #	Diameter		Shank Dia.	Overall Length	Flute Length	EDP #	Diameter		Shank Dia.	Overall Length	Flute Length
	mm	Decimal					mm	Decimal			
027351AW	9.0	.3543	10.0	103	61	027375AW	11.4	.4488	12.0	118	71
027352AW	9.1	.3583	10.0	103	61	027376AW	11.5	.4527	12.0	118	71
027353AW	9.2	.3622	10.0	103	61	027377AW	11.6	.4566	12.0	118	71
027354AW	9.3	.3661	10.0	103	61	027378AW	11.7	.4606	12.0	118	71
027355AW	9.4	.3701	10.0	103	61	027379AW	11.8	.4645	12.0	118	71
027356AW	9.5	.3740	10.0	103	61	027380AW	11.9	.4685	12.0	118	71
027357AW	9.6	.3780	10.0	103	61	027381AW	12.0	.4724	12.0	118	71
027358AW	9.7	.3819	10.0	103	61	027382AW	12.5	.4921	14.0	124	77
027359AW	9.8	.3858	10.0	103	61	027383AW	13.0	.5118	14.0	124	77
027360AW	9.9	.3898	10.0	103	61	027384AW	13.5	.5314	14.0	124	77
027361AW	10.0	.3937	10.0	103	61	027385AW	14.0	.5511	14.0	124	77
027362AW	10.1	.3976	12.0	118	71	027386AW	14.5	.5708	16.0	133	83
027363AW	10.2	.4016	12.0	118	71	027387AW	15.0	.5905	16.0	133	83
027364AW	10.3	.4055	12.0	118	71	027388AW	15.5	.6102	16.0	133	83
027365AW	10.4	.4094	12.0	118	71	027389AW	16.0	.6299	16.0	133	83
027366AW	10.5	.4134	12.0	118	71	027390AW	16.5	.6495	18.0	143	93
027367AW	10.6	.4173	12.0	118	71	027391AW	17.0	.6692	18.0	143	93
027368AW	10.7	.4212	12.0	118	71	027392AW	17.5	.6889	18.0	143	93
027369AW	10.8	.4252	12.0	118	71	027393AW	18.0	.7086	18.0	143	93
027370AW	10.9	.4291	12.0	118	71	027394AW	18.5	.7283	20.0	153	101
027371AW	11.0	.4330	12.0	118	71	027395AW	19.0	.7480	20.0	153	101
027372AW	11.1	.4370	12.0	118	71	027396AW	19.5	.7676	20.0	153	101
027373AW	11.2	.4409	12.0	118	71	027397AW	20.0	.7873	20.0	153	101
027374AW	11.3	.4448	12.0	118	71						

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EDP #	Diameter		Shank Dia.	Overall Length	Flute Length	EDP #	Diameter		Shank Dia.	Overall Length	Flute Length
	mm	Decimal					mm	Decimal			
027398AW	3.0	.1181	6.0	72	34	027428AW	6.0	.2362	6.0	95	57
027399AW	3.1	.1220	6.0	72	34	027429AW	6.1	.2402	8.0	114	76
027400AW	3.2	.1260	6.0	72	34	027430AW	6.2	.2441	8.0	114	76
027401AW	3.3	.1299	6.0	72	34	027431AW	6.3	.2480	8.0	114	76
027402AW	3.4	.1339	6.0	72	34	027432AW	6.4	.2520	8.0	114	76
027403AW	3.5	.1378	6.0	72	34	027433AW	6.5	.2559	8.0	114	76
027404AW	3.6	.1417	6.0	72	34	027434AW	6.6	.2598	8.0	114	76
027405AW	3.7	.1457	6.0	72	34	027435AW	6.7	.2638	8.0	114	76
027406AW	3.8	.1496	6.0	81	43	027436AW	6.8	.2677	8.0	114	76
027407AW	3.9	.1535	6.0	81	43	027437AW	6.9	.2717	8.0	114	76
027408AW	4.0	.1575	6.0	81	43	027438AW	7.0	.2756	8.0	114	76
027409AW	4.1	.1614	6.0	81	43	027439AW	7.1	.2795	8.0	114	76
027410AW	4.2	.1654	6.0	81	43	027440AW	7.2	.2835	8.0	114	76
027411AW	4.3	.1693	6.0	81	43	027441AW	7.3	.2874	8.0	114	76
027412AW	4.4	.1732	6.0	81	43	027442AW	7.4	.2913	8.0	114	76
027413AW	4.5	.1772	6.0	81	43	027443AW	7.5	.2953	8.0	114	76
027414AW	4.6	.1811	6.0	81	43	027444AW	7.6	.2992	8.0	114	76
027415AW	4.7	.1850	6.0	81	43	027445AW	7.7	.3031	8.0	114	76
027416AW	4.8	.1890	6.0	95	57	027446AW	7.8	.3071	8.0	114	76
027417AW	4.9	.1929	6.0	95	57	027447AW	7.9	.3110	8.0	114	76
027418AW	5.0	.1969	6.0	95	57	027448AW	8.0	.3150	8.0	114	76
027419AW	5.1	.2008	6.0	95	57	027449AW	8.1	.3189	10.0	142	95
027420AW	5.2	.2047	6.0	95	57	027450AW	8.2	.3228	10.0	142	95
027421AW	5.3	.2087	6.0	95	57	027451AW	8.3	.3268	10.0	142	95
027422AW	5.4	.2126	6.0	95	57	027452AW	8.4	.3307	10.0	142	95
027423AW	5.5	.2165	6.0	95	57	027453AW	8.5	.3346	10.0	142	95
027424AW	5.6	.2205	6.0	95	57	027454AW	8.6	.3386	10.0	142	95
027425AW	5.7	.2244	6.0	95	57	027455AW	8.7	.3425	10.0	142	95
027426AW	5.8	.2283	6.0	95	57	027456AW	8.8	.3465	10.0	142	95
027427AW	5.9	.2323	6.0	95	57	027457AW	8.9	.3504	10.0	142	95

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EDP #	Diameter		Shank Diameter	Overall Length	Flute Length
	mm	Decimal			
027458AW	9.0	.3543	10.0	142	95
027459AW	9.1	.3583	10.0	142	95
027460AW	9.2	.3622	10.0	142	95
027461AW	9.3	.3661	10.0	142	95
027462AW	9.4	.3701	10.0	142	95
027463AW	9.5	.3740	10.0	142	95
027464AW	9.6	.3780	10.0	142	95
027465AW	9.7	.3819	10.0	142	95
027466AW	9.8	.3858	10.0	142	95
027467AW	9.9	.3898	10.0	142	95
027468AW	10.0	.3937	10.0	142	95
027469AW	10.1	.3976	12.0	162	114
027470AW	10.2	.4016	12.0	162	114
027471AW	10.3	.4055	12.0	162	114
027472AW	10.4	.4094	12.0	162	114
027473AW	10.5	.4134	12.0	162	114
027474AW	10.6	.4173	12.0	162	114
027475AW	10.7	.4212	12.0	162	114
027476AW	10.8	.4252	12.0	162	114
027477AW	10.9	.4291	12.0	162	114
027478AW	11.0	.4330	12.0	162	114
027479AW	11.1	.4370	12.0	162	114
027480AW	11.2	.4409	12.0	162	114
027481AW	11.3	.4448	12.0	162	114
027482AW	11.4	.4488	12.0	162	114
027483AW	11.5	.4527	12.0	162	114
027484AW	11.6	.4566	12.0	162	114
027485AW	11.7	.4606	12.0	162	114
027486AW	11.8	.4645	12.0	162	114
027487AW	11.9	.4685	12.0	162	114
027488AW	12.0	.4724	12.0	162	114

M & J TOOLING LLC
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REGAL PREMIUM

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REGAL PREMIUM

2-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | DOUBLE END | CC



- Plunge, slot, spot drill and profile
- Double end for cost efficiency



Double End - 2-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050080AM	1/8	3/8	3/8	3-1/6
050083AM	5/32	3/8	7/16	3-1/8
050086AM	3/16	3/8	7/16	3-1/4
050089AM	7/32	3/8	1/2	3-1/4
050092AM	1/4	3/8	1/2	3-3/8
050095AM	9/32	3/8	9/16	3-3/8
050098AM	5/16	3/8	9/16	3-1/2
050101AM	11/32	3/8	9/16	3-1/2
050104AM	3/8	3/8	9/16	3-1/2
050107AM	13/32	1/2	13/16	4-1/8
050110AM	7/16	1/2	13/16	4-1/8
050113AM	15/32	1/2	13/16	4-1/8
050116AM	1/2	1/2	13/16	4-1/8
050768AM	17/32	5/8	1-1/8	5
050119AM	9/16	5/8	1-1/8	5
050770AM	19/32	5/8	1-1/8	5
050122AM	5/8	5/8	1-1/8	5
050771AM	21/32	3/4	1-5/16	5-5/8
050125AM	11/16	3/4	1-5/16	5-5/8
050749AM	23/32	3/4	1-5/16	5-5/8
050128AM	3/4	3/4	1-5/16	5-5/8
050774AM	25/32	7/8	1-9/16	6-1/8
050131AM	13/16	7/8	1-9/16	6-1/8
050776AM	27/32	7/8	1-9/16	6-1/8
050134AM	7/8	7/8	1-9/16	6-1/8
050777AM	29/32	1	1-5/8	6-3/8
050137AM	15/16	1	1-5/8	6-3/8
050779AM	31/32	1	1-5/8	6-3/8
050140AM	1	1	1-5/8	6-3/8

REGAL PREMIUM

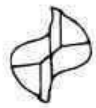
2-FLUTE KEYWAY END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Plunge, slot, spot drill and profile
- Greater chip carrying capacity
- Proper slot size and location easily held
- Keyway end mills for close tolerance keyway milling: Minus tolerance +.000 to -.0015



Single End - Spiral Flute





Single End - Straight Flute

Packaging: All (1)

EDP # Spiral Flute	EDP # Straight Flute	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052129AM	052100AM	1/4	3/8	1/2	2-7/16
052130AM	052104AM	5/16	3/8	9/16	2-1/2
052131AM	052106AM	3/8	3/8	9/16	2-1/2
052132AM	052108AM	7/16	3/8	3/4	2-1/2
052133AM	052110AM	1/2	1/2	1	3-1/4
052134AM	052112AM	9/16	1/2	1-1/8	3-3/8
052135AM	052114AM	5/8	5/8	1-5/16	3-3/4
052136AM	052116AM	11/16	5/8	1-5/16	3-3/4
052137AM	052118AM	3/4	3/4	1-5/16	3-7/8
052138AM	052120AM	7/8	7/8	1-1/2	4-1/8
052139AM	052122AM	1	1	1-5/8	4-1/2
—	052124AM	1-1/8	1	1-5/8	4-1/2
—	052126AM	1-1/4	1-1/4	1-5/8	4-1/2
—	052128AM	1-1/2	1-1/4	1-5/8	4-1/2

Depending on the application, you may require different tool material, a non-standard size, or even custom tool geometries. Whatever your needs, consult Regal Cutting Tools for the right end mill for the job. Our experienced staff of cutting tool specialists will work with you to find the optimum solution for your cutting tool requirements.

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REGAL PREMIUM

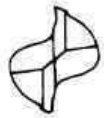
2-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Plunge, slot, spot drill and profile
- Greater chip carrying capacity
- Proper slot size and location easily held



Single End - 2-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050500AM	1/8	3/8	3/8	2-5/16	050545AM	13/16	5/8	1-1/2	4
050514AM	5/32	3/8	3/8	2-5/16	050546AM	13/16	3/4	1-7/8	4-1/8
050501AM	11/64	3/8	7/16	2-3/8	050759AM	27/32	7/8	1-7/8	4-1/8
050503AM	3/16	3/8	7/16	2-3/8	050548AM	7/8	5/8	1-1/2	4
050502AM	13/64	3/8	1/2	2-7/16	050549AM	7/8	3/4	1-1/2	4-1/8
050504AM	7/32	3/8	1/2	2-7/16	050575AM	7/8	7/8	1-1/2	4-1/8
050505AM	15/64	3/8	1/2	2-7/16	050762AM	29/32	7/8	1-7/8	4-1/8
050506AM	1/4	3/8	1/2	2-7/16	050551AM	15/16	5/8	1-1/2	4
050507AM	17/64	3/8	9/16	2-1/2	050552AM	15/16	3/4	1-1/2	4-1/8
050508AM	9/32	3/8	9/16	2-1/2	050578AM	15/16	7/8	1-1/2	4-1/8
050510AM	19/64	3/8	9/16	2-1/2	050764AM	31/32	1	1-5/8	4-1/2
050509AM	5/16	3/8	9/16	2-1/2	050554AM	1	5/8	1-1/2	4
050750AM	21/64	3/8	9/16	2-1/2	050560AM	1	3/4	1-1/2	4-1/8
050511AM	11/32	3/8	9/16	2-1/2	050581AM	1	7/8	1-1/2	4-1/8
050751AM	23/64	3/8	9/16	2-1/2	050590AM	1	1	1-5/8	4-1/2
050512AM	3/8	3/8	9/16	2-1/2	050591AM	1-1/16	3/4	1-5/8	4-1/4
050752AM	25/64	3/8	13/16	2-11/16	050765AM	1-1/16	3/4	2	4-1/4
050513AM	13/32	3/8	13/16	2-11/16	050563AM	1-1/8	3/4	1-5/8	4-1/4
050753AM	27/64	3/8	13/16	2-11/16	050584AM	1-1/8	7/8	1-5/8	4-1/4
050515AM	7/16	3/8	13/16	2-11/16	050593AM	1-1/8	1	1-5/8	4-1/2
050754AM	29/64	3/8	13/16	2-11/16	050594AM	1-3/16	3/4	1-5/8	4-1/4
050516AM	15/32	3/8	13/16	2-11/16	050767AM	1-3/16	1	1-5/8	4-1/2
050517AM	31/64	3/8	13/16	2-11/16	050566AM	1-1/4	3/4	1-5/8	4-1/2
050518AM	1/2	3/8	13/16	2-11/16	050587AM	1-1/4	7/8	1-5/8	4-1/2
050521AM	1/2	1/2	1	3-1/4	050596AM	1-1/4	1	1-5/8	4-1/2
050522AM	17/32	1/2	1-1/8	3-3/8	050605AM	1-1/4	1-1/4	1-5/8	4-1/2
050524AM	9/16	1/2	1-1/8	3-3/8	050569AM	1-3/8	3/4	1-5/8	4-1/4
050525AM	19/32	1/2	1-1/8	3-3/8	050599AM	1-3/8	1	1-5/8	4-1/2
050527AM	5/8	1/2	1-1/8	3-3/8	050572AM	1-1/2	3/4	1-5/8	4-1/4
050536AM	5/8	5/8	1-5/16	3-3/4	050602AM	1-1/2	1	1-5/8	4-1/2
050756AM	21/32	5/8	1-5/16	3-3/4	050608AM	1-1/2	1-1/4	1-5/8	4-1/2
050530AM	11/16	1/2	1-5/16	3-5/8	050611AM	1-5/8	1-1/4	1-5/8	4-1/2
050539AM	11/16	5/8	1-5/16	3-3/4	050612AM	1-3/4	3/4	1-5/8	4-1/4
050757AM	23/32	3/4	1-5/8	3-7/8	050614AM	1-3/4	1-1/4	1-5/8	4-1/2
050533AM	3/4	1/2	1-5/16	3-5/8	050617AM	1-7/8	1-1/4	1-5/8	4-1/2
050542AM	3/4	5/8	1-5/16	3-3/4	050618AM	2	3/4	1-5/8	4-1/4
050557AM	3/4	3/4	1-5/16	3-7/8	050620AM	2	1-1/4	1-5/8	4-1/2
050758AM	25/32	3/4	1-1/2	4					

REGAL PREMIUM

2-FLUTE END MILLS WITH AlTiN COATING

High Speed Steel - Center Cutting



- Plunge, slot, spot drill and profile
- Multi-layer coating for added hardness and lubricity



Single End - 2-Flute - Regular

HSS | 2 FLUTE | SINGLE END | CC | AlTiN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050500AM88	1/8	3/8	3/8	2-5/16	050525AM88	19/32	1/2	1-1/8	3-3/8
050514AM88	5/32	3/8	3/8	2-5/16	050527AM88	5/8	1/2	1-1/8	3-3/8
050501AM88	11/64	3/8	7/16	2-3/8	050536AM88	5/8	5/8	1-5/16	3-3/4
050503AM88	3/16	3/8	7/16	2-3/8	050756AM88	21/32	5/8	1-5/16	3-3/4
050502AM88	13/64	3/8	1/2	2-7/16	050530AM88	11/16	1/2	1-5/16	3-5/8
050504AM88	7/32	3/8	1/2	2-7/16	050539AM88	11/16	5/8	1-5/16	3-3/4
050505AM88	15/64	3/8	1/2	2-7/16	050757AM88	23/32	3/4	1-5/8	3-7/8
050506AM88	1/4	3/8	1/2	2-7/16	050533AM88	3/4	1/2	1-5/16	3-5/8
050507AM88	17/64	3/8	9/16	2-1/2	050542AM88	3/4	5/8	1-5/16	3-3/4
050508AM88	9/32	3/8	9/16	2-1/2	050557AM88	3/4	3/4	1-5/16	3-7/8
050510AM88	19/64	3/8	9/16	2-1/2	050758AM88	25/32	3/4	1-1/2	4
050509AM88	5/16	3/8	9/16	2-1/2	050545AM88	13/16	5/8	1-1/2	4
050750AM88	21/64	3/8	9/16	2-1/2	050546AM88	13/16	3/4	1-7/8	4-1/8
050511AM88	11/32	3/8	9/16	2-1/2	050759AM88	27/32	7/8	1-7/8	4-1/8
050751AM88	23/64	3/8	9/16	2-1/2	050548AM88	7/8	5/8	1-1/2	4
050512AM88	3/8	3/8	9/16	2-1/2	050549AM88	7/8	3/4	1-1/2	4-1/8
050752AM88	25/64	3/8	13/16	2-11/16	050575AM88	7/8	7/8	1-1/2	4-1/8
050513AM88	13/32	3/8	13/16	2-11/16	050762AM88	29/32	7/8	1-7/8	4-1/8
050753AM88	27/64	3/8	13/16	2-11/16	050551AM88	15/16	5/8	1-1/2	4
050515AM88	7/16	3/8	13/16	2-11/16	050552AM88	15/16	3/4	1-1/2	4-1/8
050754AM88	29/64	3/8	13/16	2-11/16	050578AM88	15/16	7/8	1-1/2	4-1/8
050516AM88	15/32	3/8	13/16	2-11/16	050764AM88	31/32	1	1-5/8	4-1/2
050517AM88	31/64	3/8	13/16	2-11/16	050554AM88	1	5/8	1-1/2	4
050518AM88	1/2	3/8	13/16	2-11/16	050560AM88	1	3/4	1-1/2	4-1/8
050521AM88	1/2	1/2	1	3-1/4	050581AM88	1	7/8	1-1/2	4-1/8
050522AM88	17/32	1/2	1-1/8	3-3/8	050590AM88	1	1	1-5/8	4-1/2

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

2-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Plunge, slot, spot drill and profile
- Greater chip carrying capacity
- Proper slot size and location easily held



Single End - 2-Flute - Long

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
053000AM	1/4	3/8	1-1/4	3-1/8	053008AM	1-1/8	1	3	5-1/2
053001AM	5/16	3/8	1-1/4	3	053009AM	1-1/4	1	3	5-1/2
053002AM	3/8	3/8	1-1/2	3-1/4	053010AM	1-1/4	1-1/4	3	5-1/2
053003AM	1/2	1/2	1-1/2	3-1/2	053011AM	1-1/2	1-1/4	3	5-1/2
053004AM	1/2	1/2	2	4	053012AM	1-3/4	1-1/4	3	5-1/2
053005AM	5/8	5/8	2	4-1/8	053013AM	1-7/8	1-1/4	3	5-1/2
053006AM	3/4	3/4	2-1/4	4-1/2	053014AM	2	1-1/4	3	5-1/2
053007AM	1	1	3	5-1/2					



Single End - 2-Flute - Long Extension

EDP #	Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length Below Shank	Length of Cut	Overall Length
053020AM	3/16	3/8	1-1/8	1/2	2-11/16	053025AM	5/8	5/8	2-23/32	1-3/8	4-5/8
053021AM	1/4	3/8	1-1/2	5/8	3-1/16	053026AM	3/4	3/4	3-7/32	1-5/8	5-3/8
053022AM	5/16	3/8	1-9/16	3/4	3-5/16	053027AM	1	1	4-31/32	2-1/2	7-1/4
053023AM	3/8	3/8	1-11/16	3/4	3-5/16	053028AM	1-1/4	1-1/4	4-31/32	3	7-1/4
053024AM	1/2	1/2	2-7/32	1	4						

REGAL PREMIUM

2-FLUTE BALL END MILLS

High Speed Steel - Center Cutting



- Full radius cutting action
- Free machining
- Excellent chip removal in slotting operations
- Avoids sharp machined corners
- Takes "delicate" cuts on contoured surfaces of molds and dies
- Cost effective: offers two tools in one



Double End - 2-Flute - Ball End - Regular

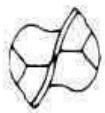
HSS | 2 FLUTE | DOUBLE END | CC | BALL

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050884AM	1/8	3/8	3/16	2-3/4	050894AM	5/16	3/8	9/16	3-1/2
050885AM	1/8	3/8	3/8	3-1/16	050895AM	11/32	3/8	9/16	3-1/2
050886AM	5/32	3/8	7/16	3-1/8	050897AM	3/8	3/8	9/16	3-1/2
050887AM	3/16	3/8	9/32	2-3/4	050898AM	7/16	1/2	13/16	4-1/8
050888AM	3/16	3/8	7/16	3-1/4	050900AM	1/2	1/2	13/16	4-1/8
050889AM	7/32	3/8	1/2	3-1/4	050902AM	5/8	5/8	1-1/8	5
050890AM	1/4	3/8	3/8	2-7/8	050904AM	3/4	3/4	1-5/16	5-5/8
050891AM	1/4	3/8	1/2	3-3/8	050906AM	7/8	7/8	1-9/16	6-1/8
050892AM	9/32	3/8	9/16	3-3/8	050908AM	1	1	1-5/8	6-3/8



- Full radius cutting action
- Free machining
- Excellent chip removal in slotting operations
- Avoids sharp machined corners
- Takes "delicate" cuts on contoured surfaces of molds and dies



Single End - 2-Flute - Ball End - Regular

HSS | 2 FLUTE | SINGLE END | CC | BALL

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050760AM	1/8	3/8	3/8	2-5/16	050787AM	3/4	3/4	1-5/8	3-7/8
050763AM	3/16	3/8	1/2	2-3/8	050789AM	13/16	3/4	2	4-1/4
050766AM	1/4	3/8	5/8	2-7/16	050791AM	7/8	3/4	2	4-1/4
050769AM	5/16	3/8	3/4	2-1/2	050790AM	7/8	7/8	2	4-1/4
050772AM	3/8	3/8	3/4	2-1/2	050792AM	15/16	3/4	2-1/4	4-1/2
050775AM	7/16	1/2	1	3-1/4	050794AM	1	3/4	2-1/4	4-1/2
050778AM	1/2	1/2	1	3-1/4	050793AM	1	1	2-1/4	4-3/4
050781AM	9/16	1/2	1-1/8	3-3/8	050796AM	1-1/8	1	2-1/4	4-3/4
050782AM	5/8	1/2	1-1/8	3-3/8	050799AM	1-1/4	1-1/4	2-1/2	5
050784AM	5/8	5/8	1-3/8	3-3/4	050805AM	1-1/2	1-1/4	2-1/2	5
050788AM	3/4	1/2	1-5/16	3-5/8					

REGAL PREMIUM

2-FLUTE HIGH HELIX END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Recommended for milling aluminum and other nonferrous materials
- Minimizes chip packing
- Reduced vibration and chatter



Single End - 2-Flute - High Helix - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051638AM	1/8	3/8	3/8	2-5/16	051644AM	13/16	3/4	1-7/8	4-1/8
051639AM	3/16	3/8	1/2	2-3/8	051664AM	7/8	7/8	1-7/8	4-1/8
051640AM	1/4	3/8	5/8	2-7/16	051645AM	15/16	7/8	1-7/8	4-1/8
051643AM	5/16	3/8	3/4	2-1/2	051667AM	1	1	2	4-1/2
051646AM	3/8	3/8	3/4	2-1/2	051668AM	1	1	3	5-1/2
051649AM	7/16	3/8	1	2-11/16	051670AM	1-1/4	1-1/4	2	4-1/2
051652AM	1/2	1/2	1-1/4	3-1/4	051671AM	1-1/4	1-1/4	3	5-1/2
051641AM	9/16	1/2	1-3/8	3-3/8	051673AM	1-1/2	1-1/4	2	4-1/2
051655AM	5/8	1/2	1-3/8	3-3/8	051674AM	1-1/2	1-1/4	3	5-1/2
051658AM	5/8	5/8	1-5/8	3-3/4	051676AM	1-3/4	1-1/4	2	4-1/2
051642AM	11/16	5/8	1-5/8	3-3/4	051679AM	2	1-1/4	2	4-1/2
051661AM	3/4	3/4	1-5/8	3-7/8	051680AM	2	1-1/4	3	5-1/2
051662AM	3/4	3/4	2	4-1/4					





Single End - 2-Flute - High Helix - Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051690AM	1/4	3/8	1-1/4	3-1/16	059981AM	7/8	7/8	3 1/2	5-3/4
051693AM	5/16	3/8	1-3/8	3-1/8	051711AM	1	1	4	6-1/2
051696AM	3/8	3/8	1-1/2	3-1/4	051714AM	1-1/4	1-1/4	4	6-1/2
051699AM	7/16	1/2	1-3/4	3-3/4	051717AM	1-1/2	1-1/4	4	6-1/2
051702AM	1/2	1/2	2	4	051720AM	1-3/4	1-1/4	4	6-1/2
051705AM	5/8	5/8	2-1/2	4-5/8	051723AM	2	1-1/4	4	6-1/2
051708AM	3/4	3/4	3	5-1/4	050722AM	2	2	4	7-3/4

REGAL PREMIUM

2-FLUTE HIGH HELIX END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Recommended for milling aluminum and other nonferrous materials
- Minimizes chip packing
- Reduced vibration and chatter
- Full radius cutting action
- For radius milling of slots, fillets, and special contours



Single End - High Helix Spiral Flute - Extra Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051740AM	1/4	3/8	1-3/4	3-9/16
051743AM	5/16	3/8	2	3-3/4
051746AM	3/8	3/8	2-1/2	4-1/4
051749AM	7/16	1/2	2-3/4	4-3/4
051752AM	1/2	1/2	3	5
051753AM	1/2	1/2	4	6
051706AM	5/8	5/8	3	5-1/8
051755AM	5/8	5/8	4	6-1/8
051758AM	3/4	3/4	4	6-1/4
051761AM	7/8	7/8	5	7-1/4
051764AM	1	1	6	8-1/2
051767AM	1-1/4	1-1/4	6	8-1/2
051770AM	1-1/2	1-1/4	6	8-1/2
051724AM	2	1-1/4	6	8-1/2
050723AM	2	2	6	9-3/4

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

3-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 3 FLUTE | SINGLE END | CC



- Smoother cutting action than two-flute end mills
- Offers more space between flutes than multiple flute end mills
- Often produces acceptable finish in roughing cut
- Plunge, slot, pocket and keyway mill
- Faster feed rates used



Single End - 3-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051492AM	3/8	3/8	3/4	2-1/2
051495AM	7/16	3/8	1	2-11/16
051498AM	1/2	3/8	1	2-11/16
051501AM	1/2	1/2	1-1/4	3-1/4
051504AM	9/16	1/2	1-3/8	3-3/8
051507AM	5/8	1/2	1-3/8	3-3/8
051513AM	5/8	5/8	1-5/8	3-3/4
051510AM	3/4	1/2	1-5/8	3-5/8
051519AM	3/4	5/8	1-5/8	3-3/4
051511AM	3/4	3/4	1-5/8	3-7/8
051522AM	7/8	5/8	1-7/8	4
051523AM	7/8	3/4	1-7/8	4-1/8
051524AM	7/8	7/8	1-7/8	4-1/8
051525AM	1	5/8	1-7/8	4
051526AM	1	3/4	1-7/8	4-1/8
051528AM	1	7/8	1-7/8	4-1/8
051527AM	1	1	2	4-1/2
051529AM	1-1/4	1	2	4-1/2
051530AM	1-1/2	1	2	4-1/2

REGAL PREMIUM

4-FLUTE END MILLS

High Speed Steel - Non-Center Cutting

HSS | 4 FLUTE | DOUBLE END | NCC



- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides extra rigidity
- Minimized deflection
- Excellent surface finish
- Cost effective: offers two tools in one



Double End - 4-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
050000AM	1/8	3/8	3/8	3-1/16
050003AM	5/32	3/8	7/16	3-1/8
050006AM	3/16	3/8	1/2	3-1/4
050009AM	7/32	3/8	9/16	3-1/4
050012AM	1/4	3/8	5/8	3-3/8
050015AM	9/32	3/8	11/16	3-3/8
050018AM	5/16	3/8	3/4	3-1/2
050021AM	11/32	3/8	3/4	3-1/2
050024AM	3/8	3/8	3/4	3-1/2
050027AM	13/32	1/2	1	4-1/8
050030AM	7/16	1/2	1	4-1/8
050033AM	15/32	1/2	1	4-1/8
050036AM	1/2	1/2	1	4-1/8
050039AM	9/16	5/8	1-3/8	5
050042AM	5/8	5/8	1-3/8	5
050045AM	11/16	3/4	1-5/8	5-5/8
050048AM	3/4	3/4	1-5/8	5-5/8
050051AM	13/16	7/8	1-7/8	6-1/8
050054AM	7/8	7/8	1-7/8	6-1/8
050057AM	15/16	1	1-7/8	6-3/8
050060AM	1	1	1-7/8	6-3/8

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REGAL PREMIUM

4, 6 & 8-FLUTE END MILLS

High Speed Steel - Non-Center Cutting

HSS | 4+ FLUTE | SINGLE END | NCC



- Machines a wide variety of materials, including steel, brass, bronze and iron
- Large core diameter provides extra rigidity
- Minimized deflection
- Excellent surface finish



Single End - 4, 6 & 8-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050200AM	1/8	3/8	3/8	2-5/16	4	050248AM	13/16	5/8	1-7/8	4	6
050201AM	11/64	3/8	1/2	2-3/8	4	050252AM	13/16	3/4	1-7/8	4-1/8	4
050199AM	5/32	3/8	1/2	2-3/8	4	050253AM	53/64	7/8	1-7/8	4-1/8	4
050203AM	3/16	3/8	1/2	2-3/8	4	050255AM	27/32	7/8	1-7/8	4-1/8	4
050202AM	13/64	3/8	1/2	2-3/8	4	050256AM	55/64	7/8	1-7/8	4-1/8	4
050204AM	7/32	3/8	5/8	2-7/16	4	050236AM	7/8	1/2	1-5/8	3-5/8	4
050205AM	15/64	3/8	5/8	2-7/16	4	050251AM	7/8	5/8	1-7/8	4	6
050206AM	1/4	3/8	5/8	2-7/16	4	050258AM	7/8	3/4	1-7/8	4-1/8	4
050207AM	17/64	3/8	5/8	2-7/16	4	050278AM	7/8	7/8	1-7/8	4-1/8	4
050208AM	9/32	3/8	5/8	2-7/16	4	050259AM	57/64	7/8	1-7/8	4-1/8	4
050210AM	19/64	3/8	3/4	2-1/2	4	050261AM	29/32	7/8	1-7/8	4-1/8	4
050209AM	5/16	3/8	3/4	2-1/2	4	050262AM	59/64	7/8	1-7/8	4-1/8	4
050219AM	21/64	3/8	3/4	2-1/2	4	050254AM	15/16	5/8	1-7/8	4	6
050211AM	11/32	3/8	3/4	2-1/2	4	050264AM	15/16	3/4	1-7/8	4-1/8	4
050220AM	23/64	3/8	3/4	2-1/2	4	050281AM	15/16	7/8	1-7/8	4-1/8	4
050212AM	3/8	3/8	3/4	2-1/2	4	050265AM	61/64	1	2	4-1/2	4
050223AM	25/64	3/8	1	2-11/16	4	050267AM	31/32	1	2	4-1/2	4
050213AM	13/32	3/8	1	2-11/16	4	050268AM	63/64	1	2	4-1/2	4
050226AM	27/64	3/8	1	2-11/16	4	050257AM	1	5/8	1-7/8	4	6
050215AM	7/16	3/8	1	2-11/16	4	050263AM	1	3/4	1-7/8	4-1/8	4
050228AM	29/64	3/8	1	2-11/16	4	050284AM	1	7/8	1-7/8	4-1/8	4
050216AM	15/32	3/8	1	2-11/16	4	050293AM	1	1	2	4-1/2	4
050229AM	31/64	3/8	1	2-11/16	4	050270AM	1-1/16	3/4	2	4-1/4	6
050218AM	1/2	3/8	1	2-11/16	4	050266AM	1-1/8	3/4	2	4-1/4	6
050221AM	1/2	1/2	1-1/4	3-1/4	4	050287AM	1-1/8	7/8	2	4-1/4	6
050222AM	17/32	1/2	1-3/8	3-3/8	4	050296AM	1-1/8	1	2	4-1/2	6
050224AM	9/16	1/2	1-3/8	3-3/8	4	050269AM	1-1/4	3/4	2	4-1/4	6
050225AM	19/32	1/2	1-3/8	3-3/8	4	050290AM	1-1/4	7/8	2	4-1/4	6
050235AM	39/64	5/8	1-5/8	3-3/4	4	050299AM	1-1/4	1	2	4-1/2	6
050227AM	5/8	1/2	1-3/8	3-3/8	4	050311AM	1-1/4	1-1/4	2	4-1/2	6
050239AM	5/8	5/8	1-5/8	3-3/4	4	050272AM	1-3/8	3/4	2	4-1/4	6
050237AM	41/64	5/8	1-5/8	3-3/4	4	050302AM	1-3/8	1	2	4-1/2	6
050238AM	21/32	5/8	1-5/8	3-3/4	4	050275AM	1-1/2	3/4	2	4-1/4	6
050240AM	43/64	5/8	1-5/8	3-3/4	4	050305AM	1-1/2	1	2	4-1/2	6
050230AM	11/16	1/2	1-5/8	3-5/8	4	050317AM	1-1/2	1-1/4	2	4-1/2	4
050242AM	11/16	5/8	1-5/8	3-3/4	4	050314AM	1-1/2	1-1/4	2	4-1/2	6
050243AM	45/64	3/4	1-5/8	3-7/8	4	050320AM	1-5/8	1 1/4	2	4-1/2	6
050244AM	23/32	3/4	1-5/8	3-7/8	4	050321AM	1-3/4	3/4	2	4-1/4	6
050246AM	47/64	3/4	1-5/8	3-7/8	4	050323AM	1-3/4	1-1/4	2	4-1/2	4
050233AM	3/4	1/2	1-5/8	3-5/8	4	050326AM	1-3/4	1 1/4	2	4-1/2	6
050245AM	3/4	5/8	1-5/8	3-3/4	4	050329AM	1 7/8	1-1/4	2	4-1/2	6
050260AM	3/4	3/4	1-5/8	3-7/8	4	050322AM	2	3/4	2	4-1/4	8
050247AM	49/64	3/4	1-7/8	4-1/8	4	050338AM	2	1-1/4	2	4-1/2	6
050249AM	25/32	3/4	1-7/8	4-1/8	4	050332AM	2	1-1/4	2	4-1/2	8
050250AM	51/64	3/4	1-7/8	4-1/8	4						

REGAL PREMIUM

4 & 6-FLUTE END MILLS

High Speed Steel - Non-Center Cutting

HSS | 4+ FLUTE | SINGLE END | NCC



- Machines a wide variety of materials, including steel, brass, bronze and iron
- Large core diameter provides extra rigidity
- Minimized deflection
- Excellent surface finish



Single End - 4 & 6-Flute - Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050350AM	1/4	3/8	1-1/4	3-1/16	4	050374AM	3/4	1/2	3	5	4
050447AM	9/32	3/8	1-3/8	3-1/8	4	050371AM	3/4	3/4	3	5-1/4	4
050353AM	5/16	3/8	1-3/8	3-1/8	4	050377AM	7/8	7/8	3-1/2	5-3/4	4
050448AM	11/32	3/8	1-1/2	3-1/4	4	050380AM	1	1	4	6-1/2	4
050356AM	3/8	3/8	1-1/2	3-1/4	4	050383AM	1-1/8	1	4	6-1/2	6
050449AM	13/32	3/8	2	3-11/16	4	050386AM	1-1/4	1	4	6-1/2	6
050359AM	7/16	3/8	1-3/4	3-3/4	4	050389AM	1-1/4	1-1/4	4	6-1/2	4
050451AM	15/32	3/8	2	3-11/16	4	050392AM	1-1/4	1-1/4	4	6-1/2	6
050362AM	1/2	1/2	2	4	4	050398AM	1-1/2	1	4	6-1/2	6
050452AM	17/32	1/2	2-1/2	4-1/2	4	050401AM	1-1/2	1-1/4	4	6-1/2	6
050454AM	9/16	1/2	2-1/2	4-1/2	4	050407AM	1-3/4	1-1/4	4	6-1/2	6
050365AM	5/8	5/8	2-1/2	4-5/8	4	050416AM	2	1-1/4	4	6-1/2	6





Single End - 4 & 6-Flute - Extra Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050450AM	1/4	3/8	1-3/4	3-9/16	4	050474AM	7/8	7/8	5	7-1/4	4
050453AM	5/16	3/8	2	3-3/4	4	050477AM	1	1	6	8-1/2	4
050456AM	3/8	3/8	2-1/2	4-1/4	4	050480AM	1-1/4	1-1/4	6	8-1/2	6
050460AM	7/16	3/8	2-5/8	4-5/16	4	050483AM	1-1/2	1-1/4	6	8-1/2	6
050459AM	1/2	1/2	3	5	4	050484AM	1-1/2	1-1/4	8	10-1/2	6
050462AM	5/8	5/8	4	6-1/8	4	050411AM	2	1-1/4	6	8-1/2	6
050468AM	3/4	3/4	4	6-1/4	4	050739AM	2	2	8	11-3/4	6

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

4-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 4 FLUTE | DOUBLE END | CC



- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides rigidity
- Minimized deflection
- Excellent surface finish
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut
- Cost effective: offers two tools in one



Double End - 4-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051080AM	1/8	3/8	3/8	3-1/16
051081AM	5/32	3/8	7/16	3-1/8
051083AM	3/16	3/8	1/2	3-1/4
051084AM	7/32	3/8	9/16	3-1/4
051086AM	1/4	3/8	5/8	3-3/8
051087AM	9/32	3/8	11/16	3-3/8
051089AM	5/16	3/8	3/4	3-1/2
051090AM	11/32	3/8	3/4	3-1/2
051092AM	3/8	3/8	3/4	3-1/2
051091AM	13/32	1/2	1	4-1/8
051093AM	7/16	1/2	1	4-1/8
051094AM	15/32	1/2	1	4-1/8
051095AM	1/2	1/2	1	4-1/8
051098AM	5/8	5/8	1-3/8	5
051101AM	3/4	3/4	1-5/8	5-5/8
051104AM	7/8	7/8	1-7/8	6-1/8
051107AM	1	1	1-7/8	6-3/8

REGAL PREMIUM

4 & 6-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 4+ FLUTE | SINGLE END | CC



- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides rigidity
- Minimized deflection
- Excellent surface finish
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4 & 6-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050950AM	1/8	3/8	3/8	2-5/16	4	050478AM	13/16	3/4	1-7/8	4-1/8	4
050953AM	3/16	3/8	1/2	2-3/8	4	050481AM	7/8	5/8	1-7/8	4-1/8	6
050467AM	7/32	3/8	5/8	2-7/16	4	050977AM	7/8	7/8	1-7/8	4-1/8	4
050956AM	1/4	3/8	5/8	2-7/16	4	050979AM	7/8	7/8	1-7/8	4-1/8	6
050469AM	9/32	3/8	5/8	2-7/16	4	050479AM	15/16	7/8	1-7/8	4-1/8	4
050959AM	5/16	3/8	3/4	2-1/2	4	050482AM	1	5/8	1-7/8	4-1/8	6
050470AM	11/32	3/8	3/4	2-1/2	4	050484AM	1	3/4	1-7/8	4-1/8	4
050962AM	3/8	3/8	3/4	2-1/2	4	050980AM	1	1	2	4-1/2	4
050471AM	13/32	3/8	1	2-11/16	4	050981AM	1	1	2	4-1/2	6
050472AM	7/16	3/8	1	2-11/16	4	050485AM	1-1/8	3/4	2	4-1/4	6
050473AM	15/32	3/8	1	2-11/16	4	050983AM	1-1/8	1	2	4-1/2	4
050965AM	1/2	1/2	1-1/4	3-1/4	4	050985AM	1-1/8	1	2	4-1/2	6
050475AM	17/32	1/2	1-3/8	3-3/8	4	050486AM	1-1/4	1	2	4-1/2	6
050476AM	9/16	1/2	1-3/8	3-3/8	4	050986AM	1-1/4	1-1/4	2	4-1/2	4
050967AM	5/8	1/2	1-3/8	3-3/8	4	050987AM	1-1/4	1-1/4	2	4-1/2	6
050968AM	5/8	5/8	1-5/8	3-3/4	4	050488AM	1-1/2	1	2	4-1/2	6
050971AM	11/16	5/8	1-5/8	3-3/4	4	050989AM	1-1/2	1-1/4	2	4-1/2	4
050973AM	3/4	5/8	1-5/8	3-3/4	4	050991AM	1-1/2	1-1/4	2	4-1/2	6
050974AM	3/4	3/4	1-5/8	3-7/8	4	050490AM	1-3/4	1-1/4	2	4-1/2	6
050975AM	3/4	3/4	1-5/8	3-7/8	6	050998AM	2	1-1/4	2	4-1/2	6

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

REGAL PREMIUM

4 & 6-FLUTE END MILLS WITH AlTiN COATING

High Speed Steel - Center Cutting



- Aluminum Titanium Nitride (AlTiN) is a heat resistant coating that improves tool life and can be used without coolant
- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides rigidity
- Minimized deflection
- Excellent surface finish
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4 & 6-Flute - Regular

HSS | 4+ FLUTE | SINGLE END | CC | AlTiN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050950AM88	1/8	3/8	3/8	2-5/16	4
050953AM88	3/16	3/8	1/2	2-3/8	4
050467AM88	7/32	3/8	5/8	2-7/16	4
050956AM88	1/4	3/8	5/8	2-7/16	4
050469AM88	9/32	3/8	5/8	2-7/16	4
050959AM88	5/16	3/8	3/4	2-1/2	4
050470AM88	11/32	3/8	3/4	2-1/2	4
050962AM88	3/8	3/8	3/4	2-1/2	4
050471AM88	13/32	3/8	1	2-11/16	4
050472AM88	7/16	3/8	1	2-11/16	4
050473AM88	15/32	3/8	1	2-11/16	4
050965AM88	1/2	1/2	1-1/4	3-1/4	4
050475AM88	17/32	1/2	1-3/8	3-3/8	4
050476AM88	9/16	1/2	1-3/8	3-3/8	4
050967AM88	5/8	1/2	1-3/8	3-3/8	4
050968AM88	5/8	5/8	1-5/8	3-3/4	4
050971AM88	11/16	5/8	1-5/8	3-3/4	4
050973AM88	3/4	5/8	1-5/8	3-3/4	4
050974AM88	3/4	3/4	1-5/8	3-7/8	4
050975AM88	3/4	3/4	1-5/8	3-7/8	6
050478AM88	13/16	3/4	1-7/8	4-1/8	4
050481AM88	7/8	5/8	1-7/8	4-1/8	6
050977AM88	7/8	7/8	1-7/8	4-1/8	4
050979AM88	7/8	7/8	1-7/8	4-1/8	6
050479AM88	15/16	7/8	1-7/8	4-1/8	4
050482AM88	1	5/8	1-7/8	4-1/8	6
050484AM88	1	3/4	1-7/8	4-1/8	4
050980AM88	1	1	2	4-1/2	4
050981AM88	1	1	2	4-1/2	6

REGAL PREMIUM

4 & 6-FLUTE END MILLS

High Speed Steel - Center Cutting

HSS | 4+ FLUTE | SINGLE END | CC



- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides rigidity
- Minimized deflection
- Excellent surface finish
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4 & 6-Flute - Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
051000AM	1/4	3/8	1-1/4	3-1/16	4	051019AM	7/8	7/8	3-1/2	5-3/4	6
051003AM	5/16	3/8	1-3/8	3-1/8	4	050408AM	15/16	7/8	4	6-1/4	4
051006AM	3/8	3/8	1-1/2	3-1/4	4	051021AM	1	1	4	6-1/2	4
051007AM	7/16	1/2	1-3/4	3-3/4	4	051022AM	1	1	4	6-1/2	6
051009AM	1/2	1/2	2	4	4	051024AM	1-1/4	1-1/4	4	6-1/2	4
051012AM	5/8	5/8	2-1/2	4-5/8	4	051025AM	1-1/4	1-1/4	4	6-1/2	6
051013AM	5/8	5/8	3	5-1/8	4	050994AM	1-1/2	1-1/4	4	6-1/2	4
051015AM	3/4	3/4	3	5-1/4	4	050995AM	1-1/2	1-1/4	4	6-1/2	6
051016AM	3/4	3/4	3	5-1/4	6	050996AM	1-3/4	1-1/4	4	6-1/2	6
050406AM	13/16	3/4	3-1/2	5-3/4	4	051070AM	2	1-1/4	4	6-1/2	6
051018AM	7/8	7/8	3-1/2	5-3/4	4	050928AM	2	2	6	9-3/4	6





Single End - 4 & 6-Flute - Extra Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050294AM	3/16	3/8	1-1/8	3	4	051052AM	1/2	1/2	4	6	4
050493AM	7/32	3/8	1-3/4	3-9/16	4	051054AM	5/8	5/8	4	6-1/8	4
051042AM	1/4	3/8	1-3/4	3-9/16	4	051057AM	3/4	3/4	4	6-1/4	4
050494AM	9/32	3/8	2	3-3/4	4	051058AM	3/4	3/4	4	6-1/4	6
051045AM	5/16	3/8	2	3-3/4	4	051060AM	7/8	7/8	5	7-1/4	4
050495AM	11/32	3/8	2-1/2	4-1/4	4	051061AM	7/8	7/8	5	7-1/4	6
051048AM	3/8	3/8	2-1/2	4-1/4	4	051063AM	1	1	6	8-1/2	4
050496AM	13/32	3/8	2-5/8	4-5/16	4	051064AM	1	1	6	8-1/2	6
050497AM	7/16	3/8	2-5/8	4-5/16	4	051067AM	1-1/4	1-1/4	6	8-1/2	6
050498AM	15/32	3/8	3	4-11/16	4	051069AM	1-1/2	1-1/4	6	8-1/2	6
051051AM	1/2	1/2	3	5	4	051071AM	2	1-1/4	6	8-1/2	6

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

REGAL PREMIUM

4 & 6-FLUTE BALL END MILLS

High Speed Steel - Center Cutting

HSS | 4+ FLUTE | SINGLE END | CC | BALL



- For radius milling of slots, fillets, special contours, as well as plunging cuts
- Produces excellent finish following rough cut
- Allows drilling into piece part prior to slotting operation



Single End - 4 & 6-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050845AM	1/4	3/8	5/8	2-7/16	4	050856AM	5/8	5/8	1-3/8	5	4
050847AM	5/16	3/8	3/4	2-1/2	4	050859AM	3/4	3/4	1-5/8	5-5/8	4
050850AM	3/8	3/8	3/4	2-1/2	4	050862AM	1	1	1-7/8	6-3/8	4
050853AM	1/2	1/2	1-1/4	3-1/4	4	050912AM	2	2	4	7-3/4	6





Single End - 4 & 6-Flute - Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050851AM	1/4	3/8	1-1/4	3-1/8	4	050858AM	3/4	3/4	2-1/4	4-1/2	4
050852AM	5/16	3/8	1-3/8	3-1/8	4	050869AM	3/4	3/4	3	5-1/4	4
050854AM	3/8	3/8	1-1/2	3-1/4	4	050860AM	1	1	3	5-1/2	4
050855AM	1/2	1/2	2	4	4	050865AM	1	1	4	6-1/2	4
050857AM	5/8	5/8	2-1/2	4-5/8	4	050915AM	2	2	6	9-3/4	6
050867AM	5/8	5/8	3	5-1/8	4						





Single End - 4 & 6-Flute - Extra Long

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
050861AM	1/4	3/8	1-3/4	3-9/16	4	050872AM	5/8	5/8	4	6-1/8	4
050863AM	5/16	3/8	2	3-3/4	4	050874AM	3/4	3/4	4	6-1/4	4
050864AM	3/8	3/8	2-1/2	4-1/4	4	050876AM	1	1	6	8-1/2	4
050866AM	1/2	1/2	3	5	4	050918AM	2	2	8	11-3/4	6
050870AM	1/2	1/2	4	6	4						

Ball-nose end mills have rounded end cutting edges. This style of end mill is available as a center-cutting tool only. It is used where rounded details must be machined in a part; for example, a slot with a rounded bottom. It is also used where sharp machined corners must be avoided. This is a typical requirement in the machining of aircraft structural parts where sharp corners can lead to stress cracking. Ball-nose end mills are also widely used for "delicate" cuts on contoured surfaces of molds and dies.

REGAL PREMIUM

2-FLUTE METRIC END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | DOUBLE END | CC



- Plunge, slot, spot drill and profile
- Greater chip carrying capacity
- Proper slot size and location easily held
- Cost effective: offers two tools in one



Double End - 2-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
055472AM	M2	3/8	3/8	3-1/16	055525AM	M11.5	1/2	13/16	4-1/8
055473AM	M2.5	3/8	3/8	3-1/16	055528AM	M12	1/2	13/16	4-1/8
055474AM	M3	3/8	3/8	3-1/16	055531AM	M12.5	1/2	13/16	4-1/8
055477AM	M3.5	3/8	7/16	3-1/4	055534AM	M13	5/8	1-1/8	5
055480AM	M4	3/8	7/16	3-1/4	055537AM	M13.5	5/8	1-1/8	5
055483AM	M4.5	3/8	7/16	3-1/4	055540AM	M14	5/8	1-1/8	5
055486AM	M5	3/8	7/16	3-1/4	055543AM	M14.5	5/8	1-1/8	5
055489AM	M5.5	3/8	1/2	3-1/4	055546AM	M15	5/8	1-1/8	5
055492AM	M6	3/8	1/2	3-3/8	055549AM	M16	3/4	1-5/16	5-5/8
055495AM	M6.5	3/8	1/2	3-3/8	055552AM	M17	3/4	1-5/16	5-5/8
055498AM	M7	3/8	9/16	3-3/8	055555AM	M18	3/4	1-5/16	5-5/8
055501AM	M7.5	3/8	9/16	3-3/8	055558AM	M19	3/4	1-5/16	5-5/8
055504AM	M8	3/8	9/16	3-1/2	055561AM	M20	7/8	1-9/16	6-1/8
055507AM	M8.5	3/8	9/16	3-1/2	055564AM	M21	7/8	1-9/16	6-1/8
055510AM	M9	3/8	9/16	3-1/2	055567AM	M22	7/8	1-9/16	6-1/8
055513AM	M9.5	3/8	9/16	3-1/2	055570AM	M23	1	1-5/8	6-3/8
055516AM	M10	1/2	13/16	4-1/8	055573AM	M24	1	1-5/8	6-3/8
055519AM	M10.5	1/2	13/16	4-1/8	055576AM	M25	1	1-5/8	6-3/8
055522AM	M11	1/2	13/16	4-1/8					

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

2-FLUTE METRIC END MILLS

High Speed Steel - Center Cutting

HSS | 2 FLUTE | SINGLE END | CC



- Plunge, slot, spot drill and profile
- Greater chip carrying capacity
- Proper slot size and location easily held



Single End - 2-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
055024AM	M3	3/8	3/8	2-5/16	055081AM	M12.5	1/2	1-1/4	3-1/4
055027AM	M3.5	3/8	7/16	2-3/8	055084AM	M13	1/2	1-1/8	3-1/8
055030AM	M4	3/8	7/16	2-3/8	055087AM	M13.5	1/2	1-1/8	3-1/8
055033AM	M4.5	3/8	7/16	2-3/8	055090AM	M14	1/2	1-1/8	3-1/8
055036AM	M5	3/8	7/16	2-7/16	055093AM	M14.5	1/2	1-1/8	3-1/8
055039AM	M5.5	3/8	1/2	2-7/16	055096AM	M15	1/2	1-1/8	3-1/8
055042AM	M6	3/8	1/2	2-7/16	055099AM	M16	5/8	1-3/8	3-3/4
055045AM	M6.5	3/8	1/2	2-7/16	055102AM	M17	5/8	1-5/8	3-3/4
055048AM	M7	3/8	9/16	2-1/2	055105AM	M18	5/8	1-5/8	3-3/4
055051AM	M7.5	3/8	9/16	2-1/2	055108AM	M19	3/4	1-5/8	3-7/8
055054AM	M8	3/8	9/16	2-1/2	055111AM	M20	5/8	1-1/2	3-5/8
055057AM	M8.5	3/8	9/16	2-1/2	055114AM	M21	5/8	1-1/2	3-5/8
055060AM	M9	3/8	9/16	2-1/2	055117AM	M22	7/8	1-7/8	4-1/8
055063AM	M9.5	3/8	3/4	2-1/2	055120AM	M23	7/8	1-7/8	4-1/8
055066AM	M10	3/8	3/4	2-1/2	055123AM	M24	1	2	4-1/2
055069AM	M10.5	3/8	1	2-11/16	055126AM	M25	1	2	4-1/2
055072AM	M11	3/8	1	2-11/16	055135AM	M28	1	2	4-1/2
055075AM	M11.5	3/8	1	2-11/16	055147AM	M32	1	2	4-1/2
055078AM	M12	1/2	1	3-1/4	055159AM	M36	1	2	4-1/2

REGAL PREMIUM

4-FLUTE METRIC END MILLS

High Speed Steel - Center Cutting

HSS | 4 FLUTE | SINGLE END | CC



- Machines a wide variety of materials, including steel, brass and iron
- Large core diameter provides rigidity
- Minimized deflection
- Excellent surface finish
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
055244AM	M2	3/8	3/8	2-5/16	055302AM	M12.5	1/2	1-1/4	3-1/4
055245AM	M2.5	3/8	3/8	2-5/16	055305AM	M13	1/2	1-1/4	3-1/4
055246AM	M3	3/8	3/8	2-5/16	055308AM	M13.5	1/2	1-3/8	3-3/8
055249AM	M3.5	3/8	1/2	2-3/8	055311AM	M14	1/2	1-3/8	3-3/8
055252AM	M4	3/8	1/2	2-3/8	055314AM	M14.5	1/2	1-3/8	3-3/8
055255AM	M4.5	3/8	1/2	2-3/8	055317AM	M15	1/2	1-3/8	3-3/8
055258AM	M5	3/8	5/8	2-7/16	055320AM	M16	5/8	1-5/8	3-3/4
055261AM	M5.5	3/8	5/8	2-7/16	055323AM	M17	5/8	1-5/8	3-3/4
055264AM	M6	3/8	5/8	2-7/16	055326AM	M18	5/8	1-5/8	3-3/4
055267AM	M6.5	3/8	5/8	2-7/16	055329AM	M19	3/4	1-5/8	3-3/4
055270AM	M7	3/8	3/4	2-1/2	055332AM	M20	5/8	1-7/8	4
055273AM	M7.5	3/8	3/4	2-1/2	055335AM	M21	5/8	1-7/8	4
055276AM	M8	3/8	3/4	2-1/2	055338AM	M22	7/8	1-7/8	4-1/8
055279AM	M8.5	3/8	3/4	2-1/2	055341AM	M23	7/8	1-7/8	4-1/8
055281AM	M9	3/8	3/4	2-1/2	055344AM	M24	1	2	4-1/2
055284AM	M9.5	3/8	3/4	2-1/2	055347AM	M25	1	2	4-1/2
055287AM	M10	3/8	3/4	2-1/2	055356AM	M28	1	2	4-1/2
055290AM	M10.5	3/8	1	2-11/16	055368AM	M32	1	2	4-1/2
055293AM	M11	3/8	1	2-11/16	055380AM	M36	1	2	4-1/2
055296AM	M11.5	3/8	1	2-11/16	055392AM	M40	1-1/4	2	4-1/2
055299AM	M12	1/2	1-1/4	3-1/4	055407AM	M45	1-1/4	2	4-1/2

M & J TOOLING LLC
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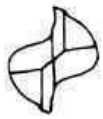
REGAL PREMIUM

2-FLUTE END MILLS

HSS Cobalt - Center Cutting



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant metals
- Plunge, slot, spot drill and profile
- Cost effective: offers two tools in one



Double End - 2-Flute - Cobalt - Regular

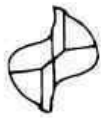
COBALT | 2 FLUTE | DOUBLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052150JM	1/8	3/8	3/8	3-1/16	052166JM	7/16	1/2	13/16	3-3/4
052151JM	5/32	3/8	7/16	3-1/8	052167JM	15/32	1/2	13/16	3-3/4
052152JM	3/16	3/8	7/16	3-1/4	052160JM	1/2	1/2	13/16	4-1/8
052153JM	7/32	3/8	1/2	3-1/4	052168JM	17/32	5/8	1-1/8	4-1/2
052154JM	1/4	3/8	1/2	3-3/8	052169JM	9/16	5/8	1-1/8	4-1/2
052155JM	9/32	3/8	9/16	3-3/8	052162JM	5/8	5/8	1-1/8	5
052156JM	5/16	3/8	9/16	3-1/2	052170JM	11/16	3/4	1-5/16	5
052157JM	11/32	3/8	9/16	3-1/2	052164JM	3/4	3/4	1-5/16	5-5/8
052158JM	3/8	3/8	9/16	3-1/2	052171JM	7/8	7/8	1-9/16	5-1/2
052165JM	13/32	1/2	13/16	3-3/4	052172JM	1	1	1-5/8	5-7/8



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant metals
- Plunge, slot, spot drill and profile



Single End - 2-Flute - Cobalt - Regular

COBALT | 2 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051825JM	1/8	3/8	3/8	2-5/16	051843JM	5/8	5/8	1-5/16	3-3/4
051828JM	3/16	3/8	7/16	2-3/8	051844JM	11/16	5/8	1-5/16	3-7/16
051829JM	7/32	3/8	1/2	2-7/16	051845JM	3/4	5/8	1-5/16	3-7/16
051831JM	1/4	3/8	1/2	2-7/16	051846JM	3/4	3/4	1-5/16	3-7/8
051832JM	1/4	3/8	5/8	2-7/16	051847JM	3/4	3/4	2	4-1/4
051833JM	9/32	3/8	9/16	2-1/2	051848JM	7/8	5/8	1-1/2	3-5/8
051834JM	5/16	3/8	9/16	2-1/2	051850JM	7/8	3/4	1-1/2	3-3/4
051835JM	11/32	3/8	9/16	2-1/2	051851JM	1	3/4	1-1/2	3-3/4
051837JM	3/8	3/8	9/16	2-1/2	051849JM	1	1	1-5/8	4-1/2
051838JM	13/32	3/8	13/16	2-11/16	051852JM	1-1/4	1-1/4	1-5/8	4-1/8
051839JM	7/16	3/8	13/16	2-11/16	051853JM	1-1/2	1-1/4	1-5/8	4-1/8
051840JM	1/2	1/2	1	3-1/4					

REGAL PREMIUM

2-FLUTE END MILLS WITH AlTiN COATING

HSS Cobalt - Center Cutting



- Aluminum Titanium Nitride (AlTiN) is a heat resistant coating that improves tool life and can be used without coolant
- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant metals
- Plunge, slot, spot drill and profile
- Cost effective: offers two tools in one



Single End - 2-Flute - Cobalt - Regular

COBALT | 2 FLUTE | SINGLE END | CC | AlTiN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051825JM88	1/8	3/8	3/8	2-5/16
051828JM88	3/16	3/8	7/16	2-3/8
051829JM88	7/32	3/8	1/2	2-7/16
051831JM88	1/4	3/8	1/2	2-7/16
051832JM88	1/4	3/8	5/8	2-7/16
051833JM88	9/32	3/8	9/16	2-1/2
051834JM88	5/16	3/8	9/16	2-1/2
051835JM88	11/32	3/8	9/16	2-1/2
051837JM88	3/8	3/8	9/16	2-1/2
051838JM88	13/32	3/8	13/16	2-11/16
051839JM88	7/16	3/8	13/16	2-11/16
051840JM88	1/2	1/2	1	3-1/4
051843JM88	5/8	5/8	1-5/16	3-3/4
051844JM88	11/16	5/8	1-5/16	3-7/16
051845JM88	3/4	5/8	1-5/16	3-7/16
051846JM88	3/4	3/4	1-5/16	3-7/8
051847JM88	3/4	3/4	2	4-1/4
051848JM88	7/8	5/8	1-1/2	3-5/8
051850JM88	7/8	3/4	1-1/2	3-3/4
051851JM88	1	3/4	1-1/2	3-3/4
051849JM88	1	1	1-5/8	4-1/2
051852JM88	1-1/4	1-1/4	1-5/8	4-1/8
051853JM88	1-1/2	1-1/4	1-5/8	4-1/8

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

REGAL PREMIUM

4 & 6-FLUTE END MILLS

HSS Cobalt - Center Cutting



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut
- Cost effective double end offers two tools in one



Double End - 4-Flute - Cobalt - Regular

COBALT | 4 FLUTE | DOUBLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052250JM	1/8	3/8	3/8	3-1/16	052257JM	11/32	3/8	3/4	3-1/2
052251JM	5/32	3/8	7/16	3-1/4	052258JM	3/8	3/8	3/4	3-1/2
052252JM	3/16	3/8	1/2	3-1/4	052259JM	13/32	1/2	1	4-1/8
052253JM	7/32	3/8	9/16	3-1/4	052261JM	7/16	1/2	1	4-1/8
052254JM	1/4	3/8	5/8	3-3/8	052260JM	1/2	1/2	1	4-1/8
052255JM	9/32	3/8	11/16	3-3/8	052262JM	5/8	5/8	1-3/8	5
052256JM	5/16	3/8	3/4	3-1/2	052264JM	3/4	3/4	1-5/8	5-5/8



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4 & 6-Flute - Cobalt - Regular

COBALT | 4+ FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
051915JM	1/8	3/8	3/8	2-5/16	4	051934JM	11/16	5/8	1-5/8	3-3/4	4
051916JM	5/32	3/8	1/2	2-3/8	4	051936JM	3/4	3/4	1-5/8	3-7/8	4
051918JM	3/16	3/8	1/2	2-3/8	4	051937JM	3/4	3/4	1-5/8	3-7/8	6
051919JM	7/32	3/8	9/16	2-7/16	4	051938JM	7/8	7/8	1-7/8	4-1/8	4
051921JM	1/4	3/8	5/8	2-7/16	4	051940JM	1	3/4	1-7/8	4-1/8	4
051922JM	9/32	3/8	3/4	2-1/2	4	051939JM	1	1	2	4-1/2	4
051924JM	5/16	3/8	3/4	2-1/2	4	051985JM	1	1	2	4-1/2	6
051927JM	3/8	3/8	3/4	2-1/2	4	051988JM	1-1/4	1-1/4	2	4-1/2	4
051928JM	7/16	3/8	1	2-11/16	4	051942JM	1-1/4	1-1/4	2	4-1/2	6
051930JM	1/2	1/2	1-1/4	3-1/4	4	052060JM	1-1/2	1-1/4	2	4-1/2	4
051931JM	9/16	1/2	1-3/8	3-3/8	4	051945JM	1-1/2	1-1/4	2	4-1/2	6
051933JM	5/8	5/8	1-5/8	3-3/4	4	052080JM	2	1-1/4	2	4-1/2	6

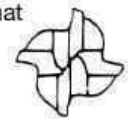
REGAL PREMIUM

4 & 6-FLUTE END MILLS WITH AlTiN COATING

HSS Cobalt - Center Cutting



- Aluminum Titanium Nitride (AlTiN) is a heat resistant coating that improves tool life and can be used without coolant
- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4 & 6-Flute - Cobalt - Regular

COBALT | 4+ FLUTE | SINGLE END | CC | AlTiN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
051915JM88	1/8	3/8	3/8	2-5/16	4
051916JM88	5/32	3/8	1/2	2-3/8	4
051918JM88	3/16	3/8	1/2	2-3/8	4
051919JM88	7/32	3/8	9/16	2-7/16	4
051921JM88	1/4	3/8	5/8	2-7/16	4
051922JM88	9/32	3/8	3/4	2-1/2	4
051924JM88	5/16	3/8	3/4	2-1/2	4
051927JM88	3/8	3/8	3/4	2-1/2	4
051928JM88	7/16	3/8	1	2-11/16	4
051930JM88	1/2	1/2	1-1/4	3-1/4	4
051931JM88	9/16	1/2	1-3/8	3-3/8	4
051933JM88	5/8	5/8	1-5/8	3-3/4	4
051934JM88	11/16	5/8	1-5/8	3-3/4	4
051936JM88	3/4	3/4	1-5/8	3-7/8	4
051937JM88	3/4	3/4	1-5/8	3-7/8	6
051938JM88	7/8	7/8	1-7/8	4-1/8	4
051940JM88	1	3/4	1-7/8	4-1/8	4
051939JM88	1	1	2	4-1/2	4
051985JM88	1	1	2	4-1/2	6

REGAL PREMIUM

4 & 6-FLUTE END MILLS

HSS Cobalt - Center Cutting



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4-Flute - Cobalt - Stub Length

COBALT | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051895JM	1/2	3/8	1	2-11/16
051896JM	3/4	5/8	1-5/8	3-3/4
051897JM	7/8	3/4	1-7/8	4-1/8
051898JM	1	3/4	1-7/8	4-1/8





Single End - 4 & 6-Flute - Cobalt - Long

COBALT | 4+ FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
051899JM	1/4	3/8	1-1/4	3-1/16	4
051900JM	5/16	3/8	1-3/8	3-1/8	4
051901JM	3/8	3/8	1-1/2	3-1/4	4
051902JM	7/16	1/2	1-1/4	3-1/4	4
051903JM	1/2	1/2	2	4	4
051904JM	5/8	5/8	2-1/2	4-5/8	4
051905JM	3/4	3/4	3	5-1/4	4
051906JM	7/8	7/8	3-1/2	5-3/4	4
051907JM	1	1	4	6-1/2	4
051908JM	1-1/4	1-1/4	4	6-1/2	6

REGAL PREMIUM

4 & 6-FLUTE END MILLS

HSS Cobalt - Center Cutting



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut



Single End - 4-Flute - Cobalt - Extra Long

COBALT | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
051909JM	1/4	3/8	1-3/4	3-9/16
051910JM	5/16	3/8	2	3-3/4
051911JM	3/8	3/8	2-1/2	4-1/4
051912JM	1/2	1/2	3	5
051913JM	5/8	5/8	4	6-1/8
051914JM	3/4	3/4	4	6-1/4
051917JM	1	1	6	8-1/2



- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Full radius cutting action
- Avoids sharp machined corners



Single End - 4 & 6-Flute - Cobalt - Ball End - Regular

COBALT | 4+ FLUTE | SINGLE END | CC | BALL

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
051960JM	1/8	3/8	3/8	2-5/16	4
051963JM	3/16	3/8	1/2	2-3/8	4
051966JM	1/4	3/8	5/8	2-7/16	4
051969JM	5/16	3/8	3/4	2-1/2	4
051972JM	3/8	3/8	3/4	2-1/2	4
051975JM	1/2	1/2	1-1/4	3-1/4	4
051978JM	5/8	5/8	1-5/8	3-3/4	4
051981JM	3/4	3/4	1-5/8	3-7/8	4
051984JM	1	1	2	4-1/2	4
051987JM	1-1/4	1-1/4	2	4-1/2	6

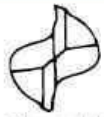
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REGAL PREMIUM

2 & 4-FLUTE METRIC END MILLS

HSS Cobalt - Center Cutting





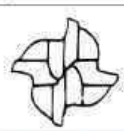
- Retains hardness at elevated temperatures
- Resists abrasion and premature wear
- Suitable for milling abrasive, high strength and heat-resistant exotic metals
- Plunge, slot, pocket, trace mill, cam mill, die sink and keyway cut

Double End - 2-Flute - Cobalt - Regular

COBALT 2 FLUTE DOUBLE END CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052180JM	M3	3/8	3/8	2-5/16
052181JM	M4	3/8	1/2	2-3/8
052182JM	M5	3/8	5/8	2-7/16
052183JM	M6	3/8	5/8	2-7/16
052184JM	M7	3/8	3/4	2-1/2
052185JM	M8	3/8	3/4	2-1/2
052186JM	M9	3/8	3/4	2-1/2
052187JM	M10	3/8	3/4	2-1/2
052188JM	M11	3/8	1	2-11/16
052189JM	M12	1/2	1-1/4	3-1/4
052190JM	M13	1/2	1-1/4	3-1/4
052191JM	M14	1/2	1-3/8	3-3/8
052192JM	M16	5/8	1-5/8	3-3/4
052193JM	M18	5/8	1-5/8	3-3/4
052194JM	M20	5/8	1-7/8	4



Single End - 4-Flute - Cobalt - Regular

COBALT 4 FLUTE SINGLE END CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052195JM	M3	3/8	3/8	2-5/16
052196JM	M4	3/8	1/2	2-3/8
052197JM	M5	3/8	5/8	2-7/16
052198JM	M6	3/8	5/8	2-7/16
052199JM	M7	3/8	3/4	2-1/2
052200JM	M8	3/8	3/4	2-1/2
052201JM	M9	3/8	3/4	2-1/2
052202JM	M10	3/8	3/4	2-1/2
052203JM	M11	3/8	1	2-11/16
052204JM	M12	1/2	1-1/4	3-1/4
052205JM	M13	1/2	1-1/4	3-1/4
052206JM	M14	1/2	1-3/8	3-3/8
052207JM	M16	5/8	1-5/8	3-3/4
052208JM	M18	5/8	1-5/8	3-3/4
052209JM	M20	5/8	1-7/8	4

REGAL PREMIUM

3-FLUTE 60° HIGH SPIRAL END MILLS

HSS Cobalt - Center Cutting

COBALT | 3 FLUTE | SINGLE END | CC



- Free cutting
- Designed for stainless, aluminum and other alloys
- High stock removal
- Lower horsepower



Single End - 3-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
052210JM	1/4	3/8	5/8	2-7/16
052211JM	5/16	3/8	3/4	2-1/2
052212JM	3/8	3/8	3/4	2-1/2
052213JM	3/8	3/8	1-1/2	3-1/4
052214JM	1/2	1/2	1	3-1/4
052215JM	1/2	1/2	2	4
052216JM	1/2	1/2	3	5
052217JM	5/8	5/8	1-5/8	3-3/4
052218JM	5/8	5/8	2-1/2	4-5/8
052219JM	3/4	3/4	1-5/8	3-7/8
052220JM	3/4	3/4	3	5-1/4
052221JM	7/8	3/4	1-7/8	4-1/8
052222JM	7/8	7/8	3-1/2	5-3/4
052223JM	1	1	2	4-1/2
052224JM	1	1	4	6-1/2
052225JM	1-1/4	1-1/4	2	4-1/2
052226JM	1-1/4	1-1/4	4	6-1/2
052227JM	1-1/2	1-1/4	2	4-1/2
052228JM	2	1-1/4	2	4-1/2

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REGAL PREMIUM

4-FLUTE SUPER TUF-V END MILLS

HSS PM - Center Cutting



- High performance end mills for the most demanding applications
- 40% increase in speeds and feeds attainable
- Metallurgical process ensures maximum tool life
- Fracture resistant under high shock conditions
- Ideal for machining materials of extreme hardness and abrasiveness, including titanium, inconel, hastaloy and waspaloy



Single End - 4-Flute - HSS PM - Regular

HSS PM | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
053600MM	1/8	3/8	3/8	2-5/16	4
053604MM	3/16	3/8	1/2	2-3/8	4
053608MM	1/4	3/8	5/8	2-7/16	4
053612MM	5/16	3/8	3/4	2-1/2	4
053616MM	3/8	3/8	3/4	2-1/2	4
053620MM	7/16	3/8	1	2-11/16	4
053624MM	1/2	1/2	1-1/4	3-1/4	4
053628MM	5/8	5/8	1-5/8	3-3/4	4
053632MM	3/4	3/4	1-5/8	3-7/8	4
053636MM	1	1	2	4-1/2	4

REGAL PREMIUM

4-FLUTE SUPER TUF-V END MILLS

HSS PM - Center Cutting



- High performance end mills for the most demanding applications
- 40% increase in speeds and feeds attainable
- Metallurgical process ensures maximum tool life
- Fracture resistant under high shock conditions
- Ideal for machining materials of extreme hardness and abrasiveness, including titanium, inconel, hastaloy and waspaloy



Single End - 4-Flute - HSS PM - Long

HSS PM | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
053550MM	1/4	3/8	1-1/4	3-1/16	4
053554MM	3/8	3/8	1-1/2	3-1/4	4
053558MM	1/2	1/2	2	4	4
053562MM	5/8	5/8	2-1/2	4-5/8	4
053566MM	3/4	3/4	3	5-1/4	4
053570MM	1	1	4	6-1/2	4

REGAL PREMIUM

4, 6 & 8-FLUTE ROUGHING END MILLS

HSS - Non-Center Cutting



- Increased metal removal at faster rates
- Free cutting action
- Decreased horsepower requirements
- Resharpen face only – double number of regrinds
- Coarse pitch



Single End - 4, 6 & 8-Flute - Regular

HSS | 4+ FLUTE | SINGLE END | NCC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
052540AM	3/8	3/8	3/4	2-1/2	4
052543AM	7/16	1/2	7/8	3	4
052546AM	1/2	1/2	1-1/4	3-1/4	4
052549AM	1/2	1/2	2	4	4
052552AM	5/8	5/8	1-5/8	3-3/4	4
052555AM	5/8	5/8	2-1/2	4-5/8	4
052558AM	3/4	3/4	1-5/8	3-7/8	4
052561AM	3/4	3/4	3	5-1/4	4
052564AM	7/8	3/4	1-3/4	3-7/8	5
052567AM	7/8	3/4	3-1/2	5-5/8	5
052570AM	1	1	2	4-1/2	5
052572AM	1	1	3	5-1/2	5
052573AM	1	1	4	6-1/2	5
052576AM	1	1	6	8-1/2	5
052579AM	1-1/8	1	2	4-1/2	6
052582AM	1-1/4	1-1/4	2	4-1/2	6
052583AM	1-1/4	1-1/4	3	5-1/2	6
052585AM	1-1/4	1-1/4	4	6-1/2	6
052588AM	1-1/4	1-1/4	6	8-1/2	6
052591AM	1-1/2	1-1/4	2	4-1/2	6
052594AM	1-1/2	1-1/4	4	6-1/2	6
052597AM	1-1/2	1-1/4	6	8-1/2	6
052600AM	1-3/4	1-1/4	4	6-1/2	6
052603AM	2	1-1/4	2	4-1/2	8
052606AM	2	1-1/4	4	6-1/2	8
052609AM	2	2	4	7-3/4	8
052612AM	2	2	6	9-3/4	8

REGAL PREMIUM

3-FLUTE HIGH HELIX ROUGHING END MILLS

HSS Cobalt - Center Cutting - For Aluminum



- Free cutting for faster metal removal
- Decreased horsepower requirements
- Resharpen face only – double number of grinds
- Coarse pitch

Single End - 3-Flute - Cobalt - Regular

COBALT | 3 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
059603JM	3/8	3/8	3/4	2-1/2	059633JM	1	3/4	2	4-1/4
059604JM	3/8	3/8	1-5/8	3-3/16	059634JM	1	3/4	3	5-1/4
059605JM	7/16	3/8	1	2-11/16	059635JM	1	3/4	4	6-1/4
059606JM	1/2	1/2	1	3	059636JM	1	1	1-1/8	3-5/8
059607JM	1/2	1/2	1-1/4	3-1/4	059637JM	1	1	1-5/8	4-1/8
059608JM	1/2	1/2	1-5/8	3-5/8	059638JM	1	1	2	4-1/2
059609JM	1/2	1/2	2	4	059639JM	1	1	3	5-1/2
059610JM	1/2	1/2	2-1/2	4-1/2	059640JM	1	1	6	8-1/2
059611JM	1/2	1/2	3	5	059641JM	1-1/8	3/4	1-1/8	3-3/8
059612JM	9/16	1/2	1-3/8	3-3/8	059642JM	1-1/8	3/4	2	4-1/4
059613JM	5/8	5/8	3/4	2-7/8	059643JM	1-1/4	3/4	2	4-1/4
059614JM	5/8	5/8	1-1/4	3-3/8	059644JM	1-1/4	1-1/4	2	4-1/2
059615JM	5/8	5/8	1-5/8	3-3/4	059645JM	1-1/4	1-1/4	3	5-1/2
059616JM	5/8	5/8	2-1/8	4-1/4	059646JM	1-1/4	1-1/4	4	6-1/2
059617JM	5/8	5/8	2-1/2	4-5/8	059647JM	1-1/4	1-1/4	6	8-1/2
059618JM	5/8	5/8	3-1/8	5-1/4	059648JM	1-3/8	3/4	1-1/8	3-3/8
059619JM	3/4	5/8	1-5/8	3-3/4	059649JM	1-1/2	3/4	1-1/2	3-3/4
059620JM	3/4	3/4	3/4	3	059650JM	1-1/2	3/4	2	4-1/4
059621JM	3/4	3/4	1-1/4	3-1/2	059651JM	1-1/2	1-1/4	2	4-1/2
059622JM	3/4	3/4	1-5/8	3-3/4	059652JM	1-1/2	1-1/4	3	5-1/2
059623JM	3/4	3/4	2-1/2	3-1/2	059653JM	1-1/2	1-1/4	4	6-1/2
059624JM	3/4	3/4	3	5-1/4	059654JM	1-3/4	1-1/4	2	4-1/2
059625JM	3/4	3/4	4-1/8	6-3/8	059655JM	2	3/4	1-1/8	3-1/2
059626JM	7/8	3/4	1-1/8	3-3/8	059656JM	2	3/4	2	4-1/2
059627JM	7/8	3/4	1-7/8	4-1/8	059657JM	2	1-1/4	2	4-1/2
059628JM	7/8	3/4	3-1/2	5-5/8	059658JM	2	1-1/4	4	6-1/2
059629JM	7/8	7/8	3-1/2	5-3/4	059659JM	2	1-1/4	6-1/8	8-5/8
059630JM	7/8	7/8	1-7/8	4-1/8	059660JM	2	2	3	6-3/4
059631JM	1	3/4	1-1/8	3-3/8	059661JM	2	2	4	7-3/4
059632JM	1	3/4	1-1/2	3-3/4					

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

REGAL PREMIUM

4, 5, 6 & 8-FLUTE ROUGHING END MILLS

HSS Cobalt - Non-Center Cutting



- Increased metal removal at faster rates
- Free cutting action
- Decreased horsepower requirements
- Resharpen face only – double number of regrinds



Single End - 4, 5, 6 & 8-Flute - Cobalt - Regular

COBALT | 4+ FLUTE | SINGLE END | NCC

Packaging: All (1)

Coarse Pitch	Fine Pitch	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
052477JM	052700JM	3/8	3/8	3/4	2-1/2	4
052475JM	052701JM	1/2	1/2	1-1/4	3-1/4	4
052478JM	052702JM	1/2	1/2	2	4	4
052479JM	052703JM	9/16	1/2	1-3/8	3-3/8	4
052481JM	052704JM	5/8	5/8	1-5/8	3-3/4	4
052484JM	052705JM	5/8	5/8	2-1/2	4-5/8	4
052487JM	052706JM	3/4	3/4	1-5/8	3-7/8	4
052490JM	052707JM	3/4	3/4	3	5-1/4	4
052493JM	052708JM	7/8	3/4	1-3/4	3-7/8	5
052496JM	052709JM	7/8	3/4	3-1/2	5-5/8	5
052499JM	052710JM	1	1	2	4-1/2	5
052500JM	052711JM	1	1	3	5-1/2	5
052502JM	052712JM	1	1	4	6-1/2	5
052503JM	052713JM	1	1	6	8-1/2	5
052505JM	052714JM	1-1/8	1	2	4-1/2	6
052508JM	052715JM	1-1/4	1-1/4	2	4-1/2	6
052510JM	052716JM	1-1/4	1-1/4	3	5-1/2	6
052511JM	052717JM	1-1/4	1-1/4	4	6-1/2	6
052512JM	052718JM	1-1/4	1-1/4	6	8-1/2	6
052514JM	052719JM	1-1/2	1-1/4	2	4-1/2	6
052517JM	052720JM	1-1/2	1-1/4	4	6-1/2	6
052520JM	052721JM	1-1/2	1-1/4	6	8-1/2	6
052525JM	052722JM	1-3/4	1-1/4	4	6-1/2	6
052530JM	052723JM	2	1-1/4	2	4-1/2	8
052531JM	052724JM	2	1-1/4	4	6-1/2	8
052533JM	052725JM	2	2	4	7-3/4	8
052536JM	052726JM	2	2	6	9-3/4	8

REGAL PREMIUM

4, 5, 6 & 8-FLUTE ROUGHING END MILLS

HSS Cobalt - Center Cutting



- Increased metal removal at faster rates
- Free cutting action
- Decreased horsepower requirements
- Resharpened face only – double number of regrinds
- High performance materials available from stock
- Coarse pitch



Single End - 4, 5, 6 & 8-Flute - Cobalt - Regular

COBALT | 4+ FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
059540JM	1/2	1/2	1-1/4	3-1/4	4	059572JM	1	1	3	5-1/2	5
059541JM	1/2	1/2	1-5/8	3-5/8	4	059573JM	1	1	4	6-1/2	5
059542JM	1/2	1/2	2	4	4	059574JM	1	1	6	8-1/2	5
059543JM	1/2	1/2	2-1/2	4-1/2	4	059575JM	1-1/8	3/4	2	4-1/4	6
059544JM	1/2	1/2	3	5	4	059576JM	1-1/8	1	2	4-1/2	6
059545JM	5/8	5/8	3/4	2-7/8	4	059577JM	1-1/8	1	3-1/2	6	6
059546JM	5/8	5/8	1-1/4	3-3/8	4	059578JM	1-1/4	3/4	1-1/8	3-3/8	6
059547JM	5/8	5/8	1-5/8	3-3/4	4	059579JM	1-1/4	3/4	2	4-1/4	6
059548JM	5/8	5/8	2-1/8	4-1/4	4	059580JM	1-1/4	1-1/4	3	5-1/2	6
059549JM	5/8	5/8	2-1/2	4-5/8	4	059581JM	1-1/4	1-1/4	4	6-1/2	6
059550JM	5/8	5/8	3-1/8	5-1/4	4	059582JM	1-1/4	1-1/4	6	8-1/2	6
059551JM	11/16	5/8	1-5/8	3-3/4	4	059583JM	1-3/8	3/4	2	4-1/4	6
059552JM	3/4	5/8	1-5/8	3-3/4	4	059584JM	1-1/2	3/4	1-1/8	3-3/8	6
059554JM	3/4	3/4	1-1/4	3-1/2	4	059585JM	1-1/2	3/4	2	4-1/4	6
059555JM	3/4	3/4	1-5/8	3-7/8	4	059586JM	1-1/2	1-1/4	2	4-1/2	6
059556JM	3/4	3/4	2-1/2	4-5/8	4	059587JM	1-1/2	1-1/4	3	5-1/2	6
059557JM	3/4	3/4	3	5-1/4	4	059588JM	1-1/2	1-1/4	4	6-1/2	6
059558JM	3/4	3/4	4-1/8	6-3/8	4	059589JM	1-1/2	1-1/4	6	8-1/2	6
059559JM	13/16	3/4	1-7/8	4-1/8	5	059590JM	1-3/4	3/4	1-1/8	3-3/8	6
059560JM	7/8	3/4	1-1/8	3-3/8	5	059591JM	-3/4	3/4	2	4-1/4	6
059561JM	7/8	3/4	1-7/8	4-1/8	5	059592JM	1-3/4	1-1/4	4	6-1/2	6
059562JM	7/8	3/4	3-1/2	5-5/8	5	059593JM	2	3/4	1-1/8	3-3/8	8
059563JM	7/8	7/8	1-1/8	3-3/8	5	059594JM	2	3/4	2	4-1/2	8
059564JM	1	3/4	1-1/8	3-3/8	5	059595JM	2	1-1/4	2	4-1/2	8
059565JM	1	3/4	1-1/2	3-3/8	5	059596JM	2	1-1/4	4	6-1/2	8
059566JM	1	3/4	2	4-1/4	5	059597JM	2	1-1/4	6-1/8	8-5/8	8
059567JM	1	3/4	3	5-1/4	5	059598JM	2	2	2	5-3/4	8
059568JM	1	3/4	4	6-1/4	5	059599JM	2	2	3	6-3/4	8
059569JM	1	1	1-1/8	3-5/8	5	059600JM	2	2	4	7-3/4	8
059570JM	1	1	1-5/8	4-1/8	5	059601JM	2	2	6	9-3/4	8
059571JM	1	1	2	4-1/2	5	059602JM	2	2	8	11-3/4	8

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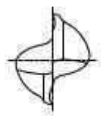
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Same construction features as 2- and 4-flute single end mills in a more economical version
- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Double End - 2-Flute - Stub Length

MG CARBIDE | 2 FLUTE | DOUBLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090354RM	1/32	1/8	1/16	1-1/2	090364RM	3/16	3/16	3/8	2
090355RM	3/64	1/8	3/32	1-1/2	090365RM	13/64	1/4	1/2	2-1/2
090356RM	1/16	1/8	1/8	1-1/2	090366RM	7/32	1/4	1/2	2-1/2
090357RM	5/64	1/8	1/8	1-1/2	090367RM	15/64	1/4	1/2	2-1/2
090358RM	3/32	1/8	3/16	1-1/2	090368RM	1/4	1/4	1/2	2-1/2
090359RM	7/64	1/8	3/16	1-1/2	090369RM	5/16	5/16	1/2	2-1/2
090360RM	1/8	1/8	1/4	1-1/2	090370RM	3/8	3/8	9/16	2-1/2
090361RM	9/64	3/16	5/16	2	090371RM	7/16	7/16	9/16	2-3/4
090362RM	5/32	3/16	5/16	2	090372RM	1/2	1/2	5/8	3
090363RM	11/64	3/16	5/16	2					



- Same construction features as 2- and 4-flute single end mills in a more economical version
- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Double End - 4-Flute - Stub Length

MG CARBIDE | 4 FLUTE | DOUBLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090373RM	1/16	1/8	1/8	1-1/2	090382RM	13/64	1/4	1/2	2-1/2
090374RM	5/64	1/8	1/8	1-1/2	090383RM	7/32	1/4	1/2	2-1/2
090375RM	3/32	1/8	3/16	1-1/2	090384RM	15/64	1/4	1/2	2-1/2
090376RM	7/64	1/8	3/16	1-1/2	090385RM	1/4	1/4	1/2	2-1/2
090377RM	1/8	1/8	1/4	1-1/2	090386RM	5/16	5/16	1/2	2-1/2
090378RM	9/64	3/16	5/16	2	090387RM	3/8	3/8	9/16	2-1/2
090379RM	5/32	3/16	5/16	2	090388RM	7/16	7/16	9/16	2-3/4
090380RM	11/64	3/16	5/16	2	090389RM	1/2	1/2	5/8	3
090381RM	3/16	3/16	3/8	2					

TRIPLE CROWN SERIES

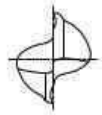
2-FLUTE END MILLS

Solid Carbide - Center Cutting

MG CARBIDE | 2 FLUTE | SINGLE END | CC



- Designed for slotting, drilling, pocketing and general operation
- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Single End - 2-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090238RM	1/32	1/8	5/64	1-1/2
090239RM	3/64	1/8	7/64	1-1/2
090240RM	1/16	1/8	3/16	1-1/2
090241RM	5/64	1/8	3/16	1-1/2
090242RM	3/32	1/8	3/8	1-1/2
090243RM	7/64	1/8	3/8	1-1/2
090244RM	1/8	1/8	1/2	1-1/2
090245RM	9/64	3/16	1/2	2
090246RM	5/32	3/16	9/16	2
090247RM	11/64	3/16	5/8	2
090248RM	3/16	3/16	5/8	2
090249RM	13/64	1/4	5/8	2-1/2
090250RM	7/32	1/4	5/8	2-1/2
090251RM	15/64	1/4	3/4	2-1/2
090252RM	1/4	1/4	3/4	2-1/2
090253RM	9/32	5/16	3/4	2-1/2
090254RM	5/16	5/16	13/16	2-1/2
090255RM	3/8	3/8	1	2-1/2
090256RM	7/16	7/16	1	2-3/4
090257RM	1/2	1/2	1	3
090258RM	5/8	5/8	1-1/4	3-1/2
090259RM	3/4	3/4	1-1/2	4
090260RM	1	1	1-1/2	4

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TRIPLE CROWN SERIES

4-FLUTE END MILLS

Solid Carbide - Center Cutting

MG CARBIDE | 4 FLUTE | SINGLE END | CC



- Possible for high-speed cutting, suitable for high efficiency machining for hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Single End - 4-Flute - Regular

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090261RM	1/16	1/8	3/16	1-1/2
090262RM	5/64	1/8	3/16	1-1/2
090263RM	3/32	1/8	3/8	1-1/2
090264RM	7/64	1/8	3/8	1-1/2
090265RM	1/8	1/8	1/2	1-1/2
090266RM	9/64	3/16	1/2	2
090267RM	5/32	3/16	9/16	2
090268RM	11/64	3/16	5/8	2
090269RM	3/16	3/16	5/8	2
090270RM	13/64	1/4	5/8	2-1/2
090271RM	7/32	1/4	5/8	2-1/2
090272RM	15/64	1/4	3/4	2-1/2
090273RM	1/4	1/4	3/4	2-1/2
090274RM	9/32	5/16	3/4	2-1/2
090275RM	5/16	5/16	13/16	2-1/2
090276RM	3/8	3/8	1	2-1/2
090277RM	7/16	7/16	1	2-3/4
090278RM	1/2	1/2	1	3
090279RM	5/8	5/8	1-1/4	3-1/2
090280RM	3/4	3/4	1-1/2	4
090281RM	1	1	1-1/2	4

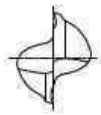
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Same construction features as single end mill in a more economical version
- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics

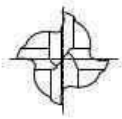


Double End - 2-Flute - Stub Length

MG CARBIDE | 2 FLUTE | DOUBLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090390RM	1/8	3/8	3/8	3-1/16	090396RM	5/16	3/8	3/4	3-1/2
090391RM	5/32	3/8	7/16	3-1/8	090397RM	11/32	3/8	3/4	3-1/2
090392RM	3/16	3/8	1/2	3-1/4	090398RM	3/8	3/8	3/4	3-1/2
090393RM	7/32	3/8	9/16	3-3/8	090399RM	7/16	1/2	7/8	4
090394RM	1/4	3/8	5/8	3-3/8	090400RM	1/2	1/2	1	4
090395RM	9/32	3/8	11/16	3-3/8					





Double End - 4-Flute - Stub Length

MG CARBIDE | 4 FLUTE | DOUBLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090401RM	1/8	3/8	3/8	3-1/16	090407RM	5/16	3/8	3/4	3-1/2
090402RM	5/32	3/8	7/16	3-1/8	090408RM	11/32	3/8	3/4	3-1/2
090403RM	3/16	3/8	1/2	3-1/4	090409RM	3/8	3/8	3/4	3-1/2
090404RM	7/32	3/8	9/16	3-3/8	090410RM	7/16	1/2	7/8	4
090405RM	1/4	3/8	5/8	3-3/8	090411RM	1/2	1/2	1	4
090406RM	9/32	3/8	11/16	3-3/8					

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

TRIPLE CROWN SERIES

5-FLUTE 45° HELIX END MILLS

Solid Carbide - Center Cutting

MG CARBIDE | 5 FLUTE | SINGLE END | CC | 45° HELIX



- Designed to machine stainless steels, inconels and other alloys
- New design of stub length allows cutting at maximum speeds and feeds with minimum deflection
- 5-flute and 45° medium helix allow harmonic balance and smooth cutting



Single End - 5-Flute - Standard

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090462RM	1/8	1/8	1/2	1-1/2
090463RM	5/32	3/16	9/16	2
090464RM	3/16	3/16	9/16	2
090465RM	7/32	1/4	3/4	2-1/2
090466RM	1/4	1/4	3/4	2-1/2
090467RM	5/16	5/16	13/16	2-1/2
090468RM	3/8	3/8	1	2-1/2
090469RM	7/16	7/16	1	2-3/4
090470RM	1/2	1/2	1-1/4	3
090471RM	5/8	5/8	1-5/8	3-1/2
090472RM	3/4	3/4	1-5/8	4
090473RM	7/8	7/8	2	4
090474RM	1	1	2	4

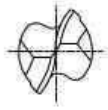
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics

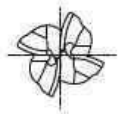


Single End - 2-Flute - Ball Nose - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090282RM	1/8	1/8	1/2	1-1/2	090288RM	3/8	3/8	1	2-1/2
090283RM	5/32	3/16	9/16	2	090289RM	7/16	7/16	1	2-3/4
090284RM	3/16	3/16	5/8	2	090290RM	1/2	1/2	1	3
090285RM	7/32	1/4	5/8	2-1/2	090291RM	5/8	5/8	1-1/4	3-1/2
090286RM	1/4	1/4	3/4	2-1/2	090292RM	3/4	3/4	1-1/2	4
090287RM	5/16	5/16	13/16	2-1/2	090293RM	1	1	1-1/2	4





Single End - 4-Flute - Ball Nose - Regular

MG CARBIDE | 4 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090294RM	1/8	1/8	1/2	1-1/2	090300RM	3/8	3/8	1	2-1/2
090295RM	5/32	3/16	9/16	2	090301RM	7/16	7/16	1	2-3/4
090296RM	3/16	3/16	5/8	2	090302RM	1/2	1/2	1	3
090297RM	7/32	1/4	5/8	2-1/2	090303RM	5/8	5/8	1-1/4	3-1/2
090298RM	1/4	1/4	3/4	2-1/2	090304RM	3/4	3/4	1-1/2	4
090299RM	5/16	5/16	13/16	2-1/2	090305RM	1	1	1-1/2	4

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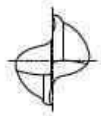
TRIPLE CROWN SERIES

2 & 4-FLUTE OR MORE END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Single End - 2-Flute - Long

MG CARBIDE | 2 FLUTE | SINGLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090306RM	1/8	1/8	3/4	2-1/4	090311RM	7/16	7/16	2	4
090307RM	3/16	3/16	3/4	2-1/2	090312RM	1/2	1/2	2	4
090308RM	1/4	1/4	1-1/8	3	090313RM	5/8	5/8	2-1/4	5
090309RM	5/16	5/16	1-1/8	3	090314RM	3/4	3/4	2-1/4	5
090310RM	3/8	3/8	1-1/8	3	090315RM	1	1	2-1/4	5





Single End - 4-Flute - Long

MG CARBIDE | 4 FLUTE | SINGLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090316RM	1/8	1/8	3/4	2-1/4	090321RM	7/16	7/16	2	4
090317RM	3/16	3/16	3/4	2-1/2	090322RM	1/2	1/2	2	4
090318RM	1/4	1/4	1-1/8	3	090323RM	5/8	5/8	2-1/4	5
090319RM	5/16	5/16	1-1/8	3	090324RM	3/4	3/4	2-1/4	5
090320RM	3/8	3/8	1-1/8	3	090325RM	1	1	2-1/4	5

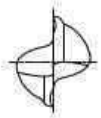
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Single End - 2-Flute - Extra Long

MG CARBIDE | 2 FLUTE | SINGLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090326RM	1/8	1/8	1	3	090337RM	3/8	3/8	1-1/2	6
090327RM	3/16	3/16	1-1/8	3	090331RM	7/16	7/16	3	6
090339RM	3/16	3/16	1	4	090338RM	1/2	1/2	1-1/2	6
090328RM	1/4	1/4	1-1/2	4	090332RM	1/2	1/2	3	6
090336RM	1/4	1/4	1-1/2	6	090333RM	5/8	5/8	3	6
090329RM	5/16	5/16	1-5/8	4	090334RM	3/4	3/4	3	6
090330RM	3/8	3/8	1-3/4	4	090335RM	1	1	3	6





Single End - 4-Flute - Extra Long

MG CARBIDE | 4 FLUTE | SINGLE END | CC

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090340RM	1/8	1/8	1	3	090351RM	3/8	3/8	1-1/2	6
090341RM	3/16	3/16	1-1/8	3	090345RM	7/16	7/16	3	6
090353RM	3/16	3/16	1	4	090352RM	1/2	1/2	1-1/2	6
090342RM	1/4	1/4	1-1/2	4	090346RM	1/2	1/2	3	6
090350RM	1/4	1/4	1-1/2	6	090347RM	5/8	5/8	3	6
090343RM	5/16	5/16	1-5/8	4	090348RM	3/4	3/4	3	6
090344RM	3/8	3/8	1-3/4	4	090349RM	1	1	3	6

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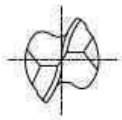
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics

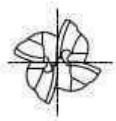


Single End - 2-Flute - Ball Nose - Long

MG CARBIDE | 2 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090412RM	1/8	1/8	3/4	2-1/4	090417RM	7/16	7/16	2	4
090413RM	3/16	3/16	3/4	2-1/2	090418RM	1/2	1/2	2	4
090414RM	1/4	1/4	1-1/8	3	090419RM	5/8	5/8	2-1/4	5
090415RM	5/16	5/16	1-1/8	3	090420RM	3/4	3/4	2-1/4	5
090416RM	3/8	3/8	1-1/8	3	090421RM	1	1	2-1/4	5





Single End - 4-Flute - Ball Nose - Long

MG CARBIDE | 4 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090422RM	1/8	1/8	3/4	2-1/4	090427RM	7/16	7/16	2	4
090423RM	3/16	3/16	3/4	2-1/2	090428RM	1/2	1/2	2	4
090424RM	1/4	1/4	1-1/8	3	090429RM	5/8	5/8	2-1/4	5
090425RM	5/16	5/16	1-1/8	3	090430RM	3/4	3/4	2-1/4	5
090426RM	3/8	3/8	1-1/8	3	090431RM	1	1	2-1/4	5

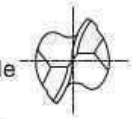
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics

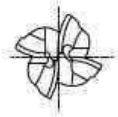


Single End - 2-Flute - Ball Nose - Extra Long

MG CARBIDE | 2 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090432RM	1/8	1/8	1	3	090443RM	3/8	3/8	1-1/2	6
090433RM	3/16	3/16	1-1/8	3	090437RM	7/16	7/16	3	6
090445RM	3/16	3/16	1	4	090444RM	1/2	1/2	1-1/2	6
090434RM	1/4	1/4	1-1/2	4	090438RM	1/2	1/2	3	6
090442RM	1/4	1/4	1-1/2	6	090439RM	5/8	5/8	3	6
090435RM	5/16	5/16	1-5/8	4	090440RM	3/4	3/4	3	6
090436RM	3/8	3/8	1-3/4	4	090441RM	1	1	3	6





Single End - 4-Flute - Ball Nose - Extra Long

MG CARBIDE | 4 FLUTE | SINGLE END | CC | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090446RM	1/8	1/8	1	3	090458RM	1/2	1/2	1-1/2	6
090447RM	3/16	3/16	1-1/8	3	090452RM	1/2	1/2	3	6
090448RM	1/4	1/4	1-1/2	4	090453RM	5/8	5/8	3	6
090456RM	1/4	1/4	1-1/2	6	090459RM	5/8	5/8	1-1/2	6
090449RM	5/16	5/16	1-5/8	4	090454RM	3/4	3/4	3	6
090450RM	3/8	3/8	1-3/4	4	090460RM	3/4	3/4	1-1/2	6
090457RM	3/8	3/8	1-1/2	6	090455RM	1	1	3	6
090451RM	7/16	7/16	3	6	090461RM	1	1	1-1/2	6

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

TRIPLE CROWN SERIES

2 & 4-FLUTE METRIC END MILLS

Solid Carbide - Center Cutting



- Suitable for cutting hardened and high alloy steels, steel casting, chill casting, malleable cast iron, CrNi steels, brass, copper, aluminum with a high percentage of silicon and abrasive plastics



Single End - 2-Flute - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC





Single End - 4-Flute - Regular

MG CARBIDE | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

2-Flute EDP #	4-Flute EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
098650RM	098671RM	1.0	3	2	39
098651RM	098672RM	1.5	3	3	39
098652RM	098673RM	2.0	3	6.3	38
098653RM	098674RM	2.5	3	9.5	38
098654RM	098675RM	3.0	3	12	38
098655RM	098676RM	3.5	4	12	50
098656RM	098677RM	4.0	4	14	50
098657RM	098678RM	4.5	6	16	50
098658RM	098679RM	5.0	6	16	50
098659RM	098680RM	6.0	6	19	50
098660RM	098681RM	7.0	8	19	63
098661RM	098682RM	8.0	8	20	63
098662RM	098683RM	9.0	10	22	75
098663RM	098684RM	10.0	10	25	75
098664RM	098685RM	11.0	10	25	75
098665RM	098686RM	12.0	12	25	75
098666RM	098687RM	14.0	14	32	89
098667RM	098688RM	16.0	16	32	89
098668RM	098689RM	18.0	18	38	100
098669RM	098690RM	20.0	20	38	100

TRIPLE CROWN SERIES

4 & 5-FLUTE ROUGHING END MILLS

Solid Carbide - Center Cutting



- Increased metal removal at faster rates
- Free cutting action
- Decreased horsepower requirements



Single End - 4-Flute - Regular

MG CARBIDE | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
098691RM	1/4	1/4	3/8	2
098693RM	5/16	5/16	7/8	2-1/2
098694RM	3/8	3/8	1/2	2
098696RM	1/2	1/2	1	3
098697RM	5/8	5/8	1-1/4	3-1/2
098698RM	3/4	3/4	1-1/2	4
098699RM	1	1	1	3





Single End - 5-Flute - Fine Pitch 45°

MG CARBIDE | 5 FLUTE | SINGLE END | CC

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
098600RM	3/8	3/8	1	2-1/2
098601RM	1/2	1/2	1-1/4	3
098602RM	5/8	5/8	1-5/8	3-1/2
098603RM	3/4	3/4	1-5/8	4
098604RM	1	1	2	4





Single End - 5-Flute - Fine Pitch 45° - TiCN Coated

MG CARBIDE | 5 FLUTE | SINGLE END | CC | TiCN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
098600RM85	3/8	3/8	1	2-1/2
098601RM85	1/2	1/2	1-1/4	3
098602RM85	5/8	5/8	1-5/8	3-1/2
098603RM85	3/4	3/4	1-5/8	4
098604RM85	1	1	2	4

TRIPLE CROWN SERIES

4, 6 & 8-FLUTE HIGH HELIX END MILLS WITH AlTiN COATING *Solid Carbide - Center Cutting*



- Increased metal removal at faster rates
- Free cutting action
- Decreased horsepower requirements



Single End - 4, 6 & 8-Flute - High Helix - Regular

MG CARBIDE | 4+ FLUTE | SINGLE END | CC | AlTiN

Packaging: All (1)

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
097850RM	1/8	1/8	1/2	1-1/2	4
097851RM	3/16	3/16	5/8	2	4
097852RM	1/4	1/4	3/4	2-1/2	6
097853RM	5/16	5/16	13/16	2-1/2	6
097854RM	3/8	3/8	1	2-1/2	6
097855RM	7/16	7/16	1	2-3/4	6
097856RM	1/2	1/2	1	3	6
097857RM	9/16	9/16	1-1/8	3-1/2	6
097858RM	5/8	5/8	1-1/4	3-1/2	6
097859RM	3/4	3/4	1-1/2	4	6
097860RM	7/8	7/8	1-1/2	4	6
097861RM	1	1	1-1/2	4	8

TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS

Solid Carbide - Center Cutting



- Designed for cutting radii
- Eliminates sharp corners



Single End - 2-Flute - Corner Radius - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC

Packaging: All (1)

Diameter of Mill	Diameter of Shank	Length of Flute	Overall Length	.015	.020	.030	.045	.060	.090	.0125
1/8	1/8	1/2	1-1/2	097862RM	—	—	—	—	—	—
3/16	3/16	5/8	2	—	097863RM	097871RM	—	—	—	—
1/4	1/4	3/4	2-1/2	—	097864RM	097872RM	097879RM	—	—	—
5/16	5/16	13/16	2-1/2	—	097865RM	097873RM	097880RM	—	—	—
3/8	3/8	7/8	2-1/2	—	097866RM	097874RM	097881RM	—	—	—
1/2	1/2	1	3	—	097867RM	097875RM	097882RM	097886RM	—	—
5/8	5/8	1-1/4	3-1/2	—	097868RM	097876RM	097883RM	097887RM	097890RM	—
3/4	3/4	1-1/2	4	—	097869RM	097877RM	097884RM	097888RM	097891RM	097893RM
1	1	1-1/2	4	—	097870RM	097878RM	097885RM	097889RM	097892RM	097894RM





Single End - 4-Flute - Corner Radius - Regular

MG CARBIDE | 4 FLUTE | SINGLE END | CC

Packaging: All (1)

Diameter of Mill	Diameter of Shank	Length of Flute	Overall Length	.015	.020	.030	.045	.060	.090	.0125
1/8	1/8	1/2	1-1/2	097895RM	—	—	—	—	—	—
3/16	3/16	5/8	2	—	097896RM	097904RM	—	—	—	—
1/4	1/4	3/4	2-1/2	—	097897RM	097905RM	097912RM	—	—	—
5/16	5/16	13/16	2-1/2	—	097898RM	097906RM	097913RM	—	—	—
3/8	3/8	7/8	2-1/2	—	097899RM	097907RM	097914RM	—	—	—
1/2	1/2	1	3	—	097900RM	097908RM	097915RM	097919RM	—	—
5/8	5/8	1-1/4	3-1/2	—	097901RM	097909RM	097916RM	097920RM	097923RM	—
3/4	3/4	1-1/2	4	—	097902RM	097910RM	097917RM	097921RM	097924RM	097926RM
1	1	1-1/2	4	—	097903RM	097911RM	097918RM	097922RM	097925RM	097927RM

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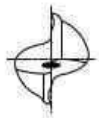
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials
- Superior workpiece finishes
- Increased feed rate



Single End - 2-Flute - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090000RM	1/16	1/8	5/16	2	090005RM	3/8	3/8	1	2-3/4
090001RM	1/8	1/8	5/8	2	090006RM	1/2	1/2	1-1/2	3-1/2
090002RM	3/16	3/16	3/4	2-1/8	090007RM	5/8	5/8	1-3/4	4
090003RM	1/4	1/4	1	2-3/4	090008RM	3/4	3/4	2	4-1/2
090004RM	5/16	5/16	1	2-3/4	090009RM	1	1	2	4/1-2





Single End - 4-Flute - Regular

MG CARBIDE | 4 FLUTE | SINGLE END | CC | AlTiN

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090010RM	1/16	1/8	5/16	2	090015RM	3/8	3/8	1	2-3/4
090011RM	1/8	1/8	5/8	2	090016RM	1/2	1/2	1-1/2	3-1/2
090012RM	3/16	3/16	3/4	2-1/8	090017RM	5/8	5/8	1-3/4	4
090013RM	1/4	1/4	1	2-3/4	090018RM	3/4	3/4	2	4-1/2
090014RM	5/16	5/16	1	2-3/4	090019RM	1	1	2	4/1-2

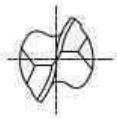
TRIPLE CROWN SERIES

2 & 4-FLUTE END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials
- For copy-milling machines

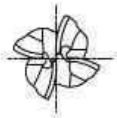


Single End - 2-Flute - Ball Nose - Long

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Diameter of Neck	Length Below Shank
090056RM	1/8	1/8	1/8	2-3/4	—	—
090057RM	3/16	3/16	3/16	3-1/8	—	—
090058RM	1/4	1/4	1/4	3-1/8	.242	7/8
090059RM	5/16	5/16	5/16	3-1/2	.305	1-1/16
090060RM	3/8	3/8	3/8	4	.367	1-1/4
090061RM	1/2	1/2	1/2	4-1/4	.492	1-1/2
090062RM	5/8	5/8	5/8	5-1/2	.617	2
090063RM	3/4	3/4	3/4	6-1/4	.742	2-1/4
090064RM	1	1	1	7	.992	3





Single End - 4-Flute - Ball Nose - Long

MG CARBIDE | 4 FLUTE | SINGLE END | CC | AlTiN | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Diameter of Neck	Length Below Shank
090065RM	1/8	1/8	1/8	2-3/4	—	—
090066RM	3/16	3/16	3/16	3-1/8	—	—
090067RM	1/4	1/4	1/4	3-1/8	.242	7/8
090068RM	5/16	5/16	5/16	3-1/2	.305	1-1/16
090069RM	3/8	3/8	3/8	4	.367	1-1/4
090070RM	1/2	1/2	1/2	4-1/4	.492	1-1/2
090071RM	5/8	5/8	5/8	5-1/2	.617	2
090072RM	3/4	3/4	3/4	6-1/4	.742	2-1/4
090073RM	1	1	1	7	.992	3

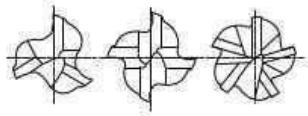
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TRIPLE CROWN SERIES

3, 4 & 5-FLUTE 20° HELIX ROUGHING END MILLS WITH AlTiN COATING *Solid Carbide - Center Cutting*



- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials
- High velocity milling of hardened steels
- For dry and wet milling
- Fast chip ejection



Single End - 3, 4 & 5-Flute - Long

MG CARBIDE | 3+ FLUTE | SINGLE END | AlTiN | 20° HELIX

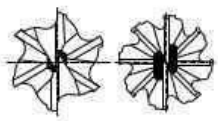
EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Diameter of Neck	Length Below Shank	No. of Flutes
090074RM	1/4	1/4	5/16	2-1/2	.225	3/4	3
090075RM	5/16	5/16	3/8	2-1/2	.285	1	3
090076RM	3/8	3/8	9/16	2-1/2	.350	1-1/8	3
090077RM	1/2	1/2	5/8	3	.460	1-1/2	4
090078RM	5/8	5/8	7/8	4	.585	2	4
090079RM	3/4	3/4	1	4-3/8	.710	2-1/4	4
090080RM	1	1	1	5	.960	3	5

6 & 8-FLUTE 45° HELIX END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting



- Designed to machine high hardened materials
- High speed cutting and finish milling with high feed rate
- Superior workpiece finishes
- Superior wear resistant
- Suitable for dry milling
- Corner protection against chipping



Single End - 6 & 8-Flute - Long

MG CARBIDE | 6+ FLUTE | SINGLE END | CC | AlTiN | 45° HELIX

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	No. of Flutes
090046RM	1/4	1/4	3/4	2-1/2	6
090047RM	5/16	5/16	1	2-3/4	6
090048RM	3/8	3/8	1-1/4	3-1/4	6
090049RM	1/2	1/2	1-1/2	3-3/4	6
090050RM	5/8	5/8	1-3/4	4-1/4	6
090051RM	3/4	3/4	2	4-5/8	8
090052RM	1	1	2	5	8

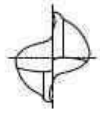
TRIPLE CROWN SERIES

2-FLUTE END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting - For RIB Processing



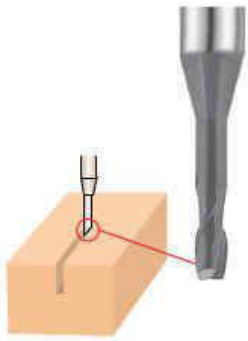
- Higher speeds and greater metal removal rates
- Improved surface finishes



Single End - 2-Flute - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Effective Length	Diameter of Neck
090081RM	1/32	1/8	3/64	1-7/8	3/16	.029
090082RM	1/32	1/8	3/64	1-7/8	9/32	.029
090083RM	3/64	1/8	1/16	1-7/8	3/16	.045
090084RM	3/64	1/8	1/16	1-7/8	1/4	.045
090085RM	3/64	1/8	1/16	1-7/8	15/32	.045
090086RM	1/16	1/8	3/32	1-7/8	9/32	.060
090087RM	1/16	1/8	3/32	1-7/8	11/32	.060
090088RM	1/16	1/8	3/32	1-7/8	15/32	.060
090089RM	1/16	1/8	3/32	1-7/8	19/32	.060
090090RM	5/64	1/8	1/8	1-7/8	15/32	.076
090091RM	5/64	1/8	1/8	1-7/8	19/32	.076
090092RM	3/32	1/8	9/64	1-7/8	15/32	.090
090093RM	3/32	1/8	9/64	1-7/8	19/32	.090
090094RM	1/8	1/4	3/16	2-1/8	17/32	.120
090095RM	1/8	1/4	3/16	2-1/8	23/32	.120



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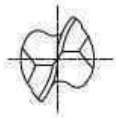
TRIPLE CROWN SERIES

2-FLUTE END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting - For RIB Processing



- Higher speeds and greater metal removal rates
- Improved surface finishes



Single End - 2-Flute - Ball Nose - Regular

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN | BALL

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Effective Length	Diameter of Neck
090096RM	1/32	1/8	3/64	1-7/8	3/16	.029
090097RM	1/32	1/8	3/64	1-7/8	9/32	.029
090098RM	3/64	1/8	1/16	1-7/8	3/16	.045
090099RM	3/64	1/8	1/16	1-7/8	1/4	.045
090100RM	3/64	1/8	1/16	1-7/8	15/32	.045
090101RM	1/16	1/8	3/32	1-7/8	9/32	.060
090102RM	1/16	1/8	3/32	1-7/8	15/32	.060
090103RM	1/16	1/8	3/32	1-7/8	19/32	.060
090104RM	5/64	1/8	1/8	1-7/8	15/32	.076
090105RM	5/64	1/8	1/8	1-7/8	19/32	.076
090107RM	3/32	1/8	9/64	1-7/8	15/32	.090
090108RM	3/32	1/8	9/64	1-7/8	19/32	.090
090109RM	1/8	1/4	3/16	2-1/8	17/32	.120
090110RM	1/8	1/4	3/16	2-1/8	23/32	.120

TRIPLE CROWN SERIES

2-FLUTE CORNER RADIUS WITH NECK ALU-MILLS AND AlTiN COATING *Solid Carbide - Center Cutting*



- Excellent cutting qualities on stainless steel, aluminum and copper
- Increased tool life and higher cutting accuracy



Single End - 2-Flute - Stub Length

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN

EDP #	Diameter of Mill	Radius	Diameter of Shank	Length of Cut	Overall Length	Length Below Shank	Diameter of Neck
090213RM	5/32	R.012	1/4	5/32	1-7/8	5/16	.140
090214RM	1/4	R.020	1/4	9/32	2-1/4	11/16	.226
090215RM	5/16	R.024	5/16	5/16	2-5/8	1-1/16	.282
090216RM	3/8	R.031	3/8	7/16	3	1-1/4	.336
090217RM	1/2	R.040	1/2	1/2	3-3/8	1-1/4	.460
090218RM	5/8	R.051	5/8	5/8	3-7/8	1-1/2	.566
090219RM	3/4	R.063	3/4	7/8	3-7/8	1-1/2	.670

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TRIPLE CROWN SERIES

3-FLUTE 40° HELIX ALU-MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting



- Excellent cutting qualities on stainless steel, aluminum and copper
- Increased tool life and higher cutting accuracy



Single End - 3-Flute - Ball Nose with Neck - Long

MG CARBIDE | 3 FLUTE | SINGLE END | CC | AlTiN | BALL | 40° HELIX

EDP #	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
090220RM	1/8	1/8	1/2	1-1/2
090221RM	3/16	3/16	5/8	2
090222RM	1/4	1/4	3/4	2-1/2
090223RM	5/16	5/16	13/16	2-1/2
090224RM	3/8	3/8	1	2-1/2
090225RM	1/2	1/2	1	3
090226RM	5/8	5/8	1-1/4	3-1/2
090227RM	3/4	3/4	1-1/2	4
090228RM	1	1	1-1/2	4

TRIPLE CROWN SERIES

4-FLUTE V-MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting

MG CARBIDE | 4 FLUTE | SINGLE END | CC | AlTiN



- Eliminates chatter and tool deflection
- Superior surface finish
- Variable helix design for faster machining



Single End - 4-Flute - Regular

EDP #		Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
Plain	Flat				
090163RM	—	1/8	1/8	3/8	1-1/2
090164RM	—	5/32	3/16	7/16	2
090165RM	—	3/16	3/16	7/16	2
090166RM	—	7/32	1/4	7/16	2-1/2
090167RM	090180RM	1/4	1/4	1/2	2-1/2
090168RM	090181RM	9/32	5/16	5/8	2-1/2
090169RM	090182RM	5/16	5/16	13/16	2-1/2
090170RM	090183RM	11/32	3/8	13/16	2-1/2
090171RM	090184RM	3/8	3/8	7/8	2-1/2
090172RM	090185RM	13/32	7/16	15/16	2-3/4
090173RM	090186RM	7/16	7/16	1	2-3/4
090174RM	090187RM	15/32	1/2	1	3
090175RM	090188RM	1/2	1/2	1	3
090176RM	090189RM	9/16	9/16	1-1/8	3-1/2
090177RM	090190RM	5/8	5/8	1-1/4	3-1/2
090178RM	090191RM	3/4	3/4	1-1/2	4
090179RM	090192RM	1	1	1-1/2	4



- Eliminates chatter and tool deflection
- Superior surface finish
- Variable helix design for faster machining



Single End - 4-Flute - Corner Radius - Regular

EDP #		Radius	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
Plain	Flat					
090193RM	—	R.010~R.015	1/8	1/8	3/8	1-1/2
090194RM	—	R.010~R.015	3/16	3/16	7/16	2
090195RM	090204RM	R.015~R.020	1/4	1/4	1/2	2-1/2
090196RM	090205RM	R.015~R.020	5/16	5/16	13/16	2-1/2
090197RM	090206RM	R.015~R.020	3/8	3/8	7/8	2-1/2
090198RM	090207RM	R.015~R.020	7/16	7/16	1	2-3/4
090199RM	090208RM	R.025~.030	1/2	1/2	1	3
090200RM	090209RM	R.025~.030	9/16	9/16	1-1/8	3-1/2
090201RM	090210RM	R.035~.040	5/8	5/8	1-1/4	3-1/2
090202RM	090211RM	R.035~.040	3/4	3/4	1-1/2	4
090203RM	090212RM	R.035~.040	1	1	1-1/2	4

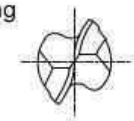
TRIPLE CROWN SERIES

2-FLUTE END MILLS WITH AlTiN COATING

Solid Carbide - Center Cutting



- Designed to machine high hardened materials
- Suitable for dry cutting, high speed cutting thanks to newly developed raw-material and new coating
- Excellent workpiece finishes
- Designed for high precision milling operation
- Higher wear-resistance



Single End - 2-Flute - Ball Nose - Stub Length with Extended Neck

MG CARBIDE | 2 FLUTE | SINGLE END | CC | AlTiN | BALL

EDP #	Radius	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length	Length Below Shank	Diameter of Neck
090154RM	R1/64	1/32	1/4	1/32	2	1/16	.029
090155RM	R1/32	1/16	1/4	1/16	2	1/8	.059
090156RM	R3/64	3/32	1/4	1/32	2	3/16	.090
090157RM	R1/16	1/8	1/4	1/8	2-1/2	1/4	.121
090158RM	R3/32	3/16	1/4	3/16	3	3/8	.184
090159RM	R1/8	1/4	1/4	1/4	3-1/2	1/2	.246
090160RM	R5/32	5/16	5/16	5/16	4	5/8	.309
090161RM	R3/16	3/8	3/8	3/8	4	3/4	.371
090162RM	R1/4	1/2	1/2	1/2	4-1/2	1	.496

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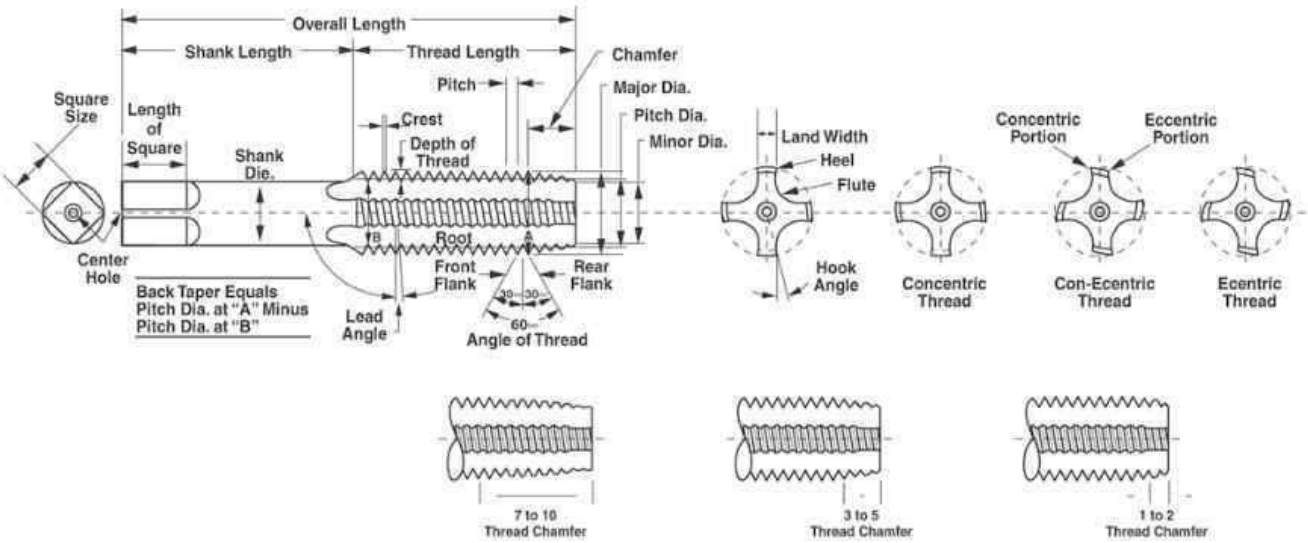
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ENGINEERING DATA

TAP TERMINOLOGY



Angle of Thread – The angle included between the flanks of the thread measured in an axial plane.

Back Taper – A slight axial relief of the tap which makes the pitch diameter of the thread near the shank somewhat smaller than that of the chamfered end.

Basic – The theoretical or nominal standard size from which all variations are made.

Chamfer – The tapering of the threads at the front end of each land of a tap by cutting away and relieving the crest of the first few teeth to distribute the cutting action over several teeth. When the tapering amounts to 7 to 10 threads, the tap is called a "taper" tap; 3 to 5 threads, a "plug" tap; and 1 to 2 threads, a "bottoming" tap.

Chamfer Relief – The gradual decrease in land height from cutting edge to heel on the chamfered portion. Provides clearance for the cutting action as the tap advances.

Crest – The top surface joining the two flanks of a thread. The crest of an external thread is at its major diameter, while the crest of an internal thread is at its minor diameter.

Cutting Face – The leading side of the land in the direction of rotation for cutting on which the chip impinges.

Dryseal – A pipe threaded fuel connection for both external and internal application designed for use where the assembled product must withstand high fluid or gas pressures without the use of a sealing compound, or where a sealer is functionally objectionable.

Flutes – The longitudinal channels formed in a tap to create cutting edges on the thread profile and to provide chip spaces and cutting fluid passages.

Height of Thread – The distance between the crest and the base of a thread measured normal to the axis.

Helical Flute – A flute with uniform axial lead and constant helix in a helical path around the axis of a cylindrical tap.

Hook Face – A concave cutting face, usually specified either as chordal hook or tangential hook.

Chordal Hook Angle – The angle between the chord passing through the root and crest of a thread form at the cutting face and a radial line through the crest at the cutting edge.

Tangential Hook Angle – The angle between a line tangent to a hook cutting face at the cutting edge and a radial line to the same point.

Interrupted Thread – A tap having an odd number of lands, with every other tooth along the thread helix removed.

Lead—The distance a screw thread advances axially in one complete turn. On a single lead screw or tap, the lead and pitch are identical. On a double lead screw or tap, the lead is twice the pitch, etc.

Threads Per Inch – The number of threads in one inch of length.

Pitch – The distance from any point on a screw or tap thread to a corresponding point on the next thread, measured parallel to the axis. The pitch equals one divided by the number of threads per inch.

Pitch Diameter – On a straight thread, the diameter of an imaginary coaxial cylinder, the surface of which would pass through the thread profile at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cylinder.

On a taper thread, the diameter at a given distance from a reference plane perpendicular to the axis of an imaginary coaxial cone, the surface of which would pass through the thread profile at such points as to make equal the width of the threads and the width of the spaces cut by the surface of the cone.

Rake – Any deviation of a straight cutting face of the tooth from a radial line. Positive rake means that the crest of the cutting face is angularly advanced ahead of the balance of the face of the tooth. Negative rake means that the same point is angularly behind the balance of the cutting face of the tooth. Zero rake means that the cutting face is directly on the center line.

Root – The bottom surface joining the flanks of two adjacent threads. The root of an external thread is at its minor diameter, while the root of an internal thread is at its major diameter.

Spiral Point (Chip Driver) – A supplementary angular fluting cut in the cutting face of the land at the chamfer end. It is slightly longer than the chamfer on the tap and of the opposite hand to that of rotation.

Thread Relief – The clearance produced by removal of metal from behind the cutting edge. When the thread angle is relieved from the heel to cutting edge, the tap is said to have "eccentric" relief. If relieved from the heel for only a portion of land width, the tap is said to have "con-eccentric" relief.

ENGINEERING DATA

RAKE ANGLE VERSUS MATERIAL CHART

Material	Rake Angle
STEEL	
Steel <70g/mm^2	12-14°
Steel <70-10Kg/mm^2	8-10°
Deep Drawn Sheetmetal	15-20°
Stainless Resistant Steel	8-10°
CAST IRON	
Cast Steel	12-14°
SG Cast Iron (Long Shavings)	12-14°
SG Cast Iron (Short Shavings)	6-8°
Malleable Iron	8-10°
Gray Cast Iron	3-6°
LIGHT METAL	
Aluminum (Short Chips)	12-14°
Aluminum (Long Chips)	20-25°
Zinc	12-14°
COPPER & COPPER ALLOYS	
Copper	18-25°
Bronze - Soft	12-14°
Bronze - Hard	5-8°
Brass 58	3-6°
Brass 63	12-14°
Titanium	0-4°
PLASTIC	
Bakelite - Hard	3-6°
PVC, Polystyrene - Soft	20-25°



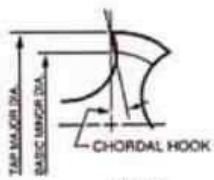
NEGATIVE RAKE



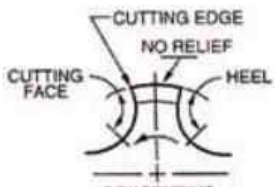
RADIAL



POSITIVE RAKE



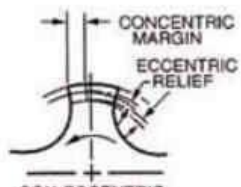
HOOK



CONCENTRIC



ECCENTRIC RELIEF

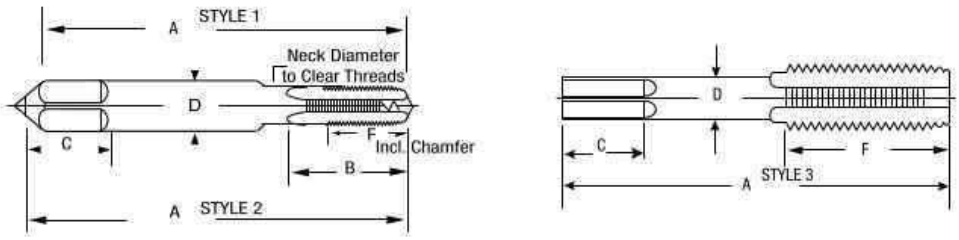


CON-ECCENTRIC RELIEF

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ENGINEERING DATA

SHORT THREAD LENGTH TAP DIMENSIONS *Table 302A*

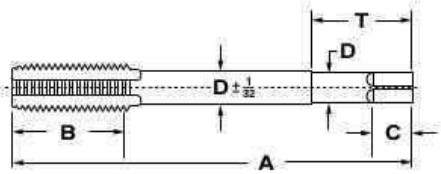


Nominal Diameter Range - Inches		Machine Screw Size Number	Nominal Fractional Diameter (Inches)	Nominal Metric Diameter (Millimeters)	Style	Tap Dimensions					
Over	To (Incl.)					A Overall Length	B* Length	C Square Length	D Shank Diameter	E Square Size	F** Thread Length
.104	.117	4	—	—	1	1-7/8	9/16	3/16	.141	.110	5/16
.117	.130	5	1/8	M3, M3.15	1	1-15/16	5/8	3/16	.141	.110	5/16
.130	.145	6	—	M3.5	1	2	11/16	3/16	.141	.110	3/8
.145	.171	8	5/32	M4	1	2-1/8	3/4	1/4	.168	.131	3/8
.171	.197	10	3/16	M4.5, M5	1	2-3/8	7/8	1/4	.194	.152	1/2
.197	.223	12	7/32	—	1	2-3/8	15/16	9/32	.220	.165	1/2
.223	.260	14	1/4	M6, M6.3	2	2-1/2	1	5/16	.255	.191	5/8
.260	.323		5/16	M7, M8	2	2-23/32	1-1/8	3/8	.318	.238	11/16
.323	.395		3/8	M10	2	2-15/16	1-1/4	7/16	.381	.286	3/4
.395	.448		7/16	—	3	3-5/32	*	13/32	.323	.242	7/8
.448	.510		1/2	M12, M12.5	3	3-3/8	*	7/16	.367	.275	15/16
.510	.573		9/16	M14	3	3-19/32	*	1/2	.429	.322	1
.573	.635		5/8	M16	3	3-13/16	*	9/16	.480	.360	1-3/32
.635	.709		11/16	M18	3	4-1/32	*	5/8	.542	.406	1-3/32
.709	.760		3/4	—	3	4-1/4	*	11/16	.590	.442	1-7/32
.760	.823		13/16	M20	3	4-15/32	*	11/16	.652	.489	1-7/32
.823	.885		7/8	M22	3	4-11/16	*	3/4	.697	.523	1-11/32
.885	.948		15/16	M24	3	4-29/32	*	3/4	.760	.570	1-11/32
.948	1.010		1	M25	3	5-1/8	*	13/16	.800	.600	1-1/2

* "B" based on Table 302, column B and shall be no less than minimum Table 302 thread length.
** "F" based on the length of 12 pitches of the UNC series.
Notes: 1) "F" is minimum value and has no tolerance. 2) Unless otherwise specified, all tolerances are in accordance with Table 302.

ENGINEERING DATA

EXTENSION TAP DIMENSIONS *Table 303A*



The "T" length of the shank diameter of extension taps is ground to close tolerances, whereas the remaining portion of the shank has ordinary bar tolerances. In special applications where the shank is used with a bushing, the entire shank length may be ground to close tolerance upon request.

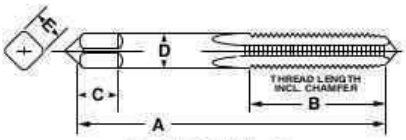
Size	B Thread Length	D Shank Diameter	C Square Length	Square Size	T Ground Shank Size
6	11/16	.141	3/16	.110	1-1/8
8	3/4	.168	1/4	.131	1-1/4
10	7/8	.194	1/4	.152	1-3/8
1/4	1	.255	5/16	.191	1-1/2
1/4*	1	.185	1/4	.138	1-1/2
5/16	1-1/8	.318	3/8	.238	1-9/16
5/16*	1-1/8	.240	9/32	.180	1-9/16
3/8	1-1/4	.381	7/16	.286	1-5/8
3/8*	1-1/4	.275	3/8	.206	1-5/8
7/16	1-7/16	.323	13/32	.242	1-11/16
1/2	1-21/32	.367	7/16	.275	1-11/16
9/16	1-21/32	.429	1/2	.322	1-7/8
5/8	1-13/16	.480	9/16	.360	2
3/4	2	.590	11/16	.442	2-1/4
7/8	2-7/32	.697	3/4	.523	2-1/2
1	2-1/2	.800	13/16	.600	2-5/8
1-1/8	2-9/16	.896	7/8	.672	2-3/4
1-1/4	2-9/16	1.021	1	.766	2-7/8
1-3/8	3	1.108	1-1/16	.831	3
1-1/2	3	1.233	1-1/8	.925	3

*Small shank

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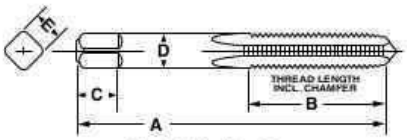
ENGINEERING DATA

STANDARD TAP DIMENSIONS *Table 302 - Up to 1" Diameter*



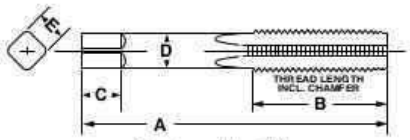
Size #0-12 Machine Screw
Sizes 1.6-6.3mm

STYLE-1



Size #14 Machine Screw
Sizes 7-10mm

STYLE-2



Sizes larger than 3/8"
Sizes 12mm and larger

STYLE-3

Nominal Diameter Range - Inches		Mach. Screw Size Number	Nominal Fractional Diameter (Inches)	Nominal Metric Diameter (Millimeters)	Style*	Tap Dimensions - Inches				
Over	To (Incl.)					A Overall Length	B Thread Length	C Square Length	D Shank Diameter	E Size of Square
.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	11/16	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	13/32	.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	—	11/16	M18	3	4-1/32	1-13/16	5/8	.542	.406
.709	.760	—	3/4	—	3	4-1/4	2	11/16	.590	.442
.760	.823	—	13/16	M20	3	4-15/32	2	11/16	.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

* Styles shown are for ground thread taps.

Notes:

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

2) Ground thread taps, sizes .395" and smaller, have external center on thread end (may be removed on bottoming taps).

3) For eccentricity tolerances of tap elements refer to Table 317, published by the United States Cutting Tool Institute.

ENGINEERING DATA

STANDARD TAP DIMENSIONS *Table 302/303 - Over 1" Diameter*

Nominal Diameter Range - Inches		Nominal Fractional Diameter (Inches)	Nominal Metric Diameter (Millimeters)	Style	Table 302 Long Length					Table 303 Short Length			
Over	To (Incl.)				D Shank Diameter	A Overall Length	B Thread Length	C Square Length	E Size of Square	A Overall Length	B Thread Length	C Square Length	E Size of Square
1.010	1.073	1-1/16	M27	3	.896	5-1/8	2-1/2	7/8	.672	4	1-1/2	7/8	.672
1.073	1.135	1-1/8		3	.896	5-7/16	2-9/16	7/8	.672	4	1-1/2	7/8	.672
1.135	1.198	1-3/16	M30	3	1.021	5-7/16	2-9/16	1	.766	4	1-1/2	1	.766
1.198	1.260	1-1/4		3	1.021	5-3/4	2-9/16	1	.766	4	1-1/2	1	.766
1.260	1.323	1-5/16	M33	3	1.108	5-3/4	2-9/16	1-1/16	.831	4	1-1/2	1	.831
1.323	1.385	1-3/8		3	1.108	6-1/16	3	1-1/16	.831	4	1-1/2	1	.831
1.385	1.448	1-7/16	M36	3	1.233	6-1/16	3	1-1/8	.925	4	1-1/2	1	.925
1.448	1.510	1-1/2		3	1.233	6-3/8	3	1-1/8	.925	4	1-1/2	1	.925
1.510	1.635	1-5/8	M39	3	1.305	6-11/16	3-3/16	1-1/8	.979	5	2	1-1/8	.979
1.635	1.760	1 3/4	M42	3	1.430	7	3-3/16	1-1/4	1.072	5	2	1-1/4	1.072
1.760	1.885	1-7/8		3	1.519	7-5/16	3-9/16	1-1/4	1.139	5	2	1-1/4	1.139
1.885	2.010	2	M48	3	1.644	7-5/8	3-9/16	1-3/8	1.233	5	2	1-3/8	1.233
2.010	2.135	2-1/8		3	1.769	8	3-9/16	1-3/8	1.327	5-1/4	2	1-3/8	1.327
2.135	2.260	2-1/4	M56	3	1.894	8-1/4	3-9/16	1-7/16	1.420	5-1/4	2	1-7/16	1.420
2.260	2.385	2-3/8		3	2.019	8-1/2	4	1-7/16	1.514	5-1/4	2	1-7/16	1.514
2.385	2.510	2-1/2		3	2.100	8-3/4	4	1-1/2	1.575	5-1/4	2	1-1/2	1.575
2.510	2.635	2-5/8	M64	3	2.225	8-3/4	4	1-1/2	1.669	5-1/2	2	1-1/2	1.575
2.635	2.760	2-3/4		3	2.350	9-1/4	4	1-9/16	1.762	5-1/2	2	1-1/2	1.575
2.760	2.885	2-7/8	M72	3	2.475	9-1/4	4	1	1.856	5-1/2	2	1-1/2	1.575
2.885	3.010	3		3	2.543	9-3/4	4-9/16	1-5/8	1.907	5-1/2	2	1-1/2	1.575
3.010	3.135	3-1/8		3	2.668	9-3/4	4-9/16	1-5/8	2.001	5-3/4	2	1-1/2	1.575
3.135	3.260	3-1/4	M80	3	2.793	10	4-9/16	1-3/4	2.095	5-3/4	2	1-1/2	1.575
3.260	3.385	3-3/8		3	2.883	10	4-9/16	1-3/4	2.162	5-3/4	2	1-1/2	1.575
3.385	3.510	3-1/2		3	3.008	10-1/4	4-15/16	2	2.256	5-3/4	2	1-1/2	1.575
3.510	3.635	3-5/8	M90	3	3.133	10-1/4	4-15/16	2	2.350	6	2	1-3/4	1.575
3.635	3.760	3-3/4		3	3.217	10-1/2	5-5/16	2-1/8	2.413	6	2	1-3/4	1.575
3.760	3.885	3-7/8		3	3.342	10-1/2	5-5/16	2-1/8	2.506	6	2	1-3/4	1.575
3.885	4.010	4	M100	3	3.467	10-3/4	5-5/16	2-1/4	2.600	6	2	1-3/4	1.575

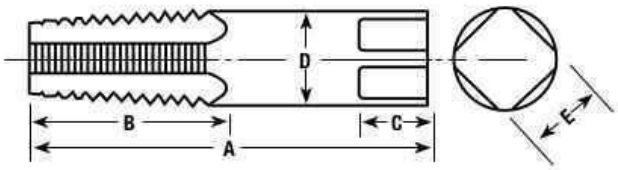
Short length blanks, 2.385" diameter through 4.010", have a 2.100" shank diameter.

Note: 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, Table 303, United States Cutting Tool Institute (USCTI) standards.

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

ENGINEERING DATA

PIPE TAP DIMENSIONS – STRAIGHT AND TAPER *Table 311*



Nominal Size Inches	Standard Projection	Minimum Projection	A Overall Length	B Thread Length	C Square Length	D Shank Diameter	E Size of Square
1/16	.312	Flush ("0" Proj.)	2-1/8	11/16	3/8	.3125	.234
1/8*	.312	Flush ("0" Proj.)	2-1/8	3/4	3/8	.3125	.234
1/8	.312	Flush ("0" Proj.)	2-1/8	3/4	3/8	.4375	.328
1/4	.459	.218	2-7/16	1-1/16	7/16	.5625	.421
3/8	.454	.150	2-9/16	1-1/16	1/2	.7000	.531
1/2	.579	.260	3-1/8	1-3/8	5/8	.6875	.515
3/4	.565	.245	3-1/4	1-3/8	11/16	.9063	.679
1	.678	.275	3-3/4	1-3/4	13/16	1.1250	.843
1-1/4	.686	.285	4	1-3/4	15/16	1.3125	.984
1-1/2	.699	.300	4-1/4	1-3/4	1	1.5000	1.125
2	.667	.267	4-1/2	1-3/4	1-1/8	1.8750	1.406
2-1/2	.925	.525	5-1/2	2-9/16	1-1/4	2.2500	1.687
3	.925.	525	6	2-5/8	1-3/8	2.6250	1.968
3-1/2	.938	.525	6-1/2	2-11/16	1-1/2	2.8125	2.108
4	.950	.525	6-3/4	2-3/4	1-5/8	3.0000	2.250

TAPER PIPE REAMERS *High Speed Steel*

Nominal Size - Inches High Speed Steel	Diameter Large End	Diameter Small End	Dimensions - Inches		Size of Square	Overall Length
			Length of Flutes	Diameter of Shank		
1/8	.362	.316	3/4	.4375	.328	2-1/8
1/4	.472	.406	1-1/16	.5625	.421	2-7/16
3/8	.606	.540	1-1/16	.7000	.531	2-9/16
1/2	.751	.665	1-3/8	.6875	.515	3-1/8
3/4	.962	.876	1-3/8	.9063	.679	3-1/4
1	1.212	1.103	1-3/4	1.1250	.843	3-3/4
1-1/4	1.553	1.444	1-3/4	1.3125	.984	4
1-1/2	1.793	1.684	1-3/4	1.5000	1.125	4-1/4
2	2.268	2.159	1-3/4	1.8750	1.406	4-1/2

ENGINEERING DATA

PITCH DIAMETER LIMIT SYMBOLS

HSG: High Speed Ground

G: Ground Thread

H: (High) Pitch diameter is above basic

L: (Low) Pitch diameter is below basic (replaces the letter "H")

The number following "H" or "L" signifies the number of .0005" steps above or below the basic pitch diameter.

Standard taps 1" diameter and smaller are ground to a .0005" tolerance on the pitch diameter and are marked with one of these corresponding pitch diameter limits:

L1 = Basic to basic minus .0005"
H1 = Basic to basic plus .0005"
H2 = Basic plus .0005" to basic plus .0010"
H3 = Basic plus .0010" to basic plus .0015"
H4 = Basic plus .0015" to basic plus .0020"
H5 = Basic plus .0020" to basic plus .0025"
H6 = Basic plus .0025" to basic plus .0030"

Standard taps larger than 1" diameter are ground to a .0010" tolerance on the pitch diameter and are marked with this pitch diameter limit:

H4 = Basic plus .0010" to basic .0020"

THREAD FORM SYMBOLS

M Metric Screw Thread Series
NC American National Coarse Thread Series
UNC Unified Coarse Thread Series
NF American National Fine Thread Series
UNF Unified Fine Thread Series
NEF American National Extra Fine Thread Series
UNEF Unified Extra Fine Thread Series
N American National 8, 12 and 16 Thread Series
UN Unified Constant-Pitch Thread Series
UNR Unified Constant-Pitch Thread Series with a 0.108P to 0.144P Controlled Root Radius
UNJ Unified Thread Series with a 0.15011P to 0.18042P Controlled Root Radius External Thread Only
UNM Unified Miniature Thread Series
NS American National Thread – Special
UNS Unified Thread – Special
NPT American National Standard Taper Pipe Thread
NPTF Dryseal American National Standard Taper Pipe Thread (Fuel)
PTF Dryseal SAE Short Taper Pipe Thread
ANPT Aeronautical National Form Taper Pipe Thread (MIL-P-7105)
NPS For Tap Marking Only (See NPSC, NPSM)
NPSC American National Standard Straight Pipe Thread in Pipe Couplings (Tap marked NPS)
NPSF Dryseal American National Standard Internal Straight Pipe Thread (Fuel)
NPSH American National Standard Straight Pipe Thread for Hose Couplings and Nipples
NPSI Dryseal American National Standard Intermediate Internal Straight Pipe Thread
NPSL American National Standard Straight Pipe Thread for Loose Fitting Mechanical Joints with Locknuts
NPSM American National Standard Straight Pipe Thread for Free Fitting Mechanical Joints for Fixtures (Tap marked NPS)
NPTR American National Standard Taper Pipe Thread for Railing Joints (Tap marked NPT)
NGO National Gas Outlet Thread
NH American National Hose Coupling and Fire Hose Coupling Threads
AMO American Standard Microscope Objective Thread
ACME C Acme Thread – Centralizing
ACME G Acme Thread – General Purpose
N BUTT American Buttress Screw Thread
STI Special Threads for Helical Coil Wire Screw Thread Inserts

Symbols used for British threads are:

BSW British Standard Whitworth Coarse Thread Series
BSF British Standard Fine Thread Series
BSP (BSP.TR) British Standard Taper Pipe Thread
BSPP (BSP.PL) British Standard Pipe (Parallel) Thread
WHIT Whitworth Standard Special Thread
BA British Association Standard Thread

ENGINEERING DATA

TAP RECOMMENDATIONS & THREAD LIMITS

For Classes 2B & 3B – Machine Screw & Fractional Sizes

Size	Recommended Tap for Class of Thread						Tap Recommendations and Thread Limits		
	Class 2B			Class 3B			Minimum All Classes (Basic)	Maximum Class 2B	Maximum Class 3B
	H Limit	Minimum	Maximum	H Limit	Minimum	Maximum			
#0-80 UNF	H2	.0524	.0529	H1	.0519	.0524	.0519	.0542	.0536
#1-64 UNC	H2	.0634	.0639	H1	.0629	.0634	.0629	.0655	.0648
#1-72 UNF	H2	.0645	.0650	H1	.0640	.0645	.0640	.0665	.0659
#2-56 UNC	H2	.0749	.0754	H1	.0744	.0749	.0744	.0772	.0765
#2-64 UNF	H2	.0764	.0769	H1	.0759	.0764	.0759	.0786	.0779
#3-48 UNC	H2	.0860	.0865	H1	.0855	.0860	.0855	.0885	.0877
#3-56 UNF	H2	.0879	.0884	H1	.0874	.0879	.0874	.0902	.0895
#4-40 UNC	H2	.0963	.0968	H2	.0963	.0968	.0958	.0991	.0982
#4-48 UNF	H2	.0990	.0995	H1	.0985	.0990	.0985	.1016	.1008
#5-40 UNC	H2	.1093	.1098	H2	.1093	.1098	.1088	.1121	.1113
#5-44 UNF	H2	.1107	.1112	H1	.1102	.1107	.1102	.1134	.1126
#6-32 UNC	H3	.1187	.1192	H2	.1182	.1187	.1177	.1214	.1204
#6-40 UNF	H2	.1223	.1228	H2	.1223	.1228	.1218	.1252	.1243
#8-32 UNC	H3	.1447	.1452	H2	.1442	.1447	.1437	.1475	.1465
#8-36 UNF	H2	.1465	.1470	H2	.1465	.1470	.1460	.1496	.1487
#10-24 UNC	H3	.1639	.1644	H3	.1639	.1644	.1629	.1672	.1661
#10-32 UNF	H3	.1707	.1712	H2	.1702	.1707	.1697	.1736	.1726
#12-24 UNC	H3	.1899	.1904	H3	.1899	.1904	.1889	.1933	.1922
#12-28 UNF	H3	.1938	.1942	H3	.1938	.1942	.1928	.1970	.1959
1/4-20 UNC	H5	.2195	.2200	H3	.2185	.2190	.2175	.2224	.2211
1/4-28 UNF	H4	.2283	.2288	H3	.2278	.2283	.2268	.2311	.2300
5/16-18 UNC	H5	.2784	.2789	H3	.2774	.2779	.2764	.2817	.2803
5/16-24 UNF	H4	.2869	.2874	H3	.2864	.2869	.2854	.2902	.2890
3/8-16 UNC	H5	.3364	.3369	H3	.3354	.3359	.3344	.3401	.3387
3/8-24 UNF	H4	.3494	.3499	H3	.3489	.3494	.3479	.3528	.3516
7/16-14 UNC	H5	.3931	.3936	H3	.3921	.3926	.3911	.3972	.3957
7/16-20 UNF	H5	.4070	.4075	H3	.4060	.4065	.4050	.4104	.4091
1/2-13 UNC	H5	.4520	.4525	H3	.4510	.4515	.4500	.4565	.4548
1/2-20 UNF	H5	.4695	.4700	H3	.4685	.4690	.4675	.4731	.4717
9/16-12 UNC	H5	.5104	.5109	H3	.5094	.5099	.5084	.5152	.5135
9/16-18 UNF	H5	.5284	.5289	H3	.5274	.5279	.5264	.5323	.5308
5/8-11 UNC	H5	.5680	.5685	H3	.5670	.5675	.5660	.5732	.5714
5/8-18 UNF	H5	.5909	.5914	H3	.5899	.5904	.5889	.5949	.5934
3/4-10 UNC	H5	.6870	.6875	H5	.6870	.6875	.6850	.6927	.6907
3/4-16 UNF	H5	.7114	.7119	H3	.7104	.7109	.7094	.7159	.7143
7/8-9 UNC	H6	.8053	.8058	H4	.8043	.8048	.8028	.8110	.8089
7/8-14 UNF	H6	.8311	.8316	H4	.8301	.8306	.8286	.8356	.8339
1-8 UNC	H6	.9213	.9218	H4	.9203	.9208	.9188	.9276	.9254
1-12 UNF	H6	.9484	.9489	H4	.9474	.9479	.9459	.9535	.9516
1-14 UNS	H6	.9561	.9566	H4	.9551	.9556	.9536	.9609	.9590
1 1/8-7 UNC	H8	1.0352	1.0357	H4	1.0332	1.0337	1.0322	1.0416	1.0393
1 1/8-12 UNF	H6	1.0739	1.0749	H4	1.0719	1.0729	1.0709	1.0787	1.0768
1 1/4-7 UNC	H8	1.1622	1.1632	H4	1.1582	1.1592	1.1572	1.1668	1.1644
1 1/4-12 UNF	H6	1.1989	1.1999	H4	1.1969	1.1979	1.1959	1.2039	1.2019
1 3/8-6 UNC	H8	1.2717	1.2727	H4	1.2677	1.2687	1.2667	1.2771	1.2745
1 3/8-12 UNF	H6	1.3239	1.3249	H4	1.3219	1.3229	1.3209	1.3291	1.3270
1 1/2-6 UNC	H8	1.3967	1.3977	H4	1.3927	1.3937	1.3917	1.4022	1.3996
1 1/2-12 UNF	H6	1.4489	1.4499	H4	1.4469	1.4479	1.4459	1.4542	1.4522

ENGINEERING DATA

METRIC TAP THREAD LIMITS *Table 337*

Nominal Dia. mm	Pitch mm	Major Diameter (Inches)			Basic	Pitch Diameter Limits (Inches)							
		Basic	Min.	Max.		D3		D4		D5		D6	
						Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
1.6	0.35	.0630	.0641	.0651	.0541	.0550	.0556	—	—	—	—	—	—
2	0.4	.0787	.0800	.0810	.0685	.0695	.0700	—	—	—	—	—	—
2.5	0.45	.0984	.0998	.1008	.0869	.0879	.0885	—	—	—	—	—	—
3	0.5	.1181	.1197	.1207	.1053	.1063	.1069	—	—	—	—	—	—
3.5	0.6	.1378	.1397	.1407	.1224	—	—	.1237	.1245	—	—	—	—
4	0.7	.1575	.1597	.1613	.1396	—	—	.1408	.1416	—	—	—	—
4.5	0.75	.1772	.1795	.1811	.1580	—	—	.1593	.1600	—	—	—	—
5	0.8	.1969	.1994	.2010	.1764	—	—	.1776	.1784	—	—	—	—
6	1	.2362	.2394	.2410	.2106	—	—	—	—	.2122	.2132	—	—
7	1	.2756	.2787	.2804	.2500	—	—	—	—	.2516	.2526	—	—
8	1.25	.3150	.3189	.3214	.2830	—	—	—	—	.2843	.2856	—	—
10	1.5	.3937	.3987	.4009	.3554	—	—	—	—	—	—	.3572	.3584
12	1.75	.4724	.4780	.4805	.4277	—	—	—	—	—	—	.4295	.4308

Nominal Dia. mm	Pitch mm	Major Diameter (Inches)			Basic	Pitch Diameter Limits (Inches)					
		Basic	Min.	Max.		D7		D8		D9	
						Min.	Max.	Min.	Max.	Min.	Max.
14	2	.5512	.5575	.5600	.5000	.5020	.5036	—	—	—	—
16	2	.6299	.6362	.6387	.5788	.5808	.5824	—	—	—	—
20	2.5	.7874	.7953	.7978	.7235	.7254	.7271	—	—	—	—
24	3	.9449	.9547	.9583	.8682	—	—	.8706	.8722	—	—
30	3.5	1.1811	1.1921	1.1961	1.0916	—	—	—	—	1.0942	1.0962
36	4	1.4173	1.4299	1.4339	1.3150	—	—	—	—	1.3176	1.3197

Basic pitch diameter is the same as mimimum pitch diameter of Internal Thread Class 6H - Table 21, ANSI B1.13M-1979

M & J TOOLING LLC
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ENGINEERING DATA

METRIC TAP LIMITS *Table 341*

Pitch mm	Tolerance			
	M1.6 - M8 Inclusive	Over M6 - M25 Inclusive	Over M25 - M90 Inclusive	Over M90
0.3	.0006	.0006	.0008	.0008
0.35	.0006	.0006	.0008	.0008
0.4	.0006	.0006	.0008	.0010
0.45	.0006	.0008	.0008	.0010
0.5	.0006	.0008	.0010	.0010
0.6	.0008	.0008	.0010	.0010
0.7	.0008	.0008	.0010	.0010
0.75	.0008	.0010	.0010	.0012
0.8	.0008	.0010	.0010	.0012
0.9	.0008	.0010	.0010	.0012
1	.0010	.0010	.0012	.0012
1.25	.0010	.0012	.0012	.0016
1.5	.0010	.0012	.0012	.0016
1.75	.0010	.0012	.0016	.0016
2	—	.0016	.0016	.0016
2.5	—	.0016	.0016	.0020
3	—	.0016	.0020	.0020
3.5	—	.0016	.0020	.0020
4	—	.0020	.0020	.0025
4.5	—	.0020	.0020	.0025
5	—	—	.0025	.0025
5.5	—	—	.0025	.0025
6	—	—	.0025	.0025

HSG: High Speed Ground

D: Pitch Diameter is above basic (Go Gage)

DU: Pitch diameter is below basic

Each .0005" represents one D number.

The number following "D" or "DU" signifies the number of .0005" steps above or below basic pitch diameter.

(Go Gage)

DU1	= Basic minus .0005"	= MIN PD	MIN PD plus Tol	= MAX PD
D1	= Basic plus .0005"	= MAX PD	MAX PD minus Tol	= MIN PD
D2	= Basic plus .0010"	= MAX PD	MAX PD minus Tol	= MIN PD
D3	= Basic plus .0015"	= MAX PD	MAX PD minus Tol	= MIN PD
D4	= Basic plus .0020"	= MAX PD	MAX PD minus Tol	= MIN PD

ENGINEERING DATA

TAP DRILL SIZES

Probable percentage of full thread produced in tapped hole using stock sizes of drills.

Tap	Tap Drill	Decimal Equivalent of Tap Drill	Theoretical Percentage of Thread	Probable Oversize (Mean)	Probable Hole Size	Percentage of Thread
0-80	56 3/64	.0465 .0469	83 81	.0015 .0015	.0480 .0484	74 71
1-64	54 53	.0550 .0595	89 67	.0015 .0015	.0565 .0610	81 59
1-72	53 1/16	.0595 .0625	75 58	.0015 .0015	.0610 .0640	67 50
2-56	51 50	.0670 .0700	82 69	.0017 .0017	.0687 .0717	74 62
2-64	50 49	.0700 .0730	79 64	.0017 .0017	.0717 .0747	70 56
3-48	48 5/64 47 46 45	.0760 .0781 .0785 .0810 .0820	85 77 76 67 63	.0019 .0019 .0019 .0019 .0019	.0779 .0800 .0804 .0829 .0839	78 70 69 60 56
3-56	46 45	.0810 .0820	78 73	.0019 .0019	.0829 .0839	69 65
4-40	44 43	.0860 .0890	80 71	.0020 .0020	.0880 .0910	74 65
4-48	42 3/32	.0935 .0938	68 68	.0020 .0020	.0955 .0958	61 60
5-40	40 39 38	.0980 .0995 .1015	83 79 72	.0023 .0023 .0023	.1003 .1018 .1038	76 71 65
5-44	38 37	.1015 .1040	79 71	.0023 .0023	.1038 .1063	72 63
6-32	37 36 7/64 35 34	.1040 .1065 .1094 .1100 .1110	84 78 70 69 67	.0023 .0023 .0026 .0026 .0026	.1063 .1088 .1120 .1126 .1136	78 72 64 63 60
6-40	34 33 32	.1110 .1130 .1160	83 77 68	.0026 .0026 .0026	.1136 .1156 .1186	75 69 60
8-32	29	.1360	69	.0029	.1389	62
8-36	29	.1360	78	.0029	.1389	70
10-24	27 26 25 24	.1140 .1470 .1495 .1520	85 79 75 70	.0032 .0032 .0032 .0032	.1472 .1502 .1527 .1152	79 74 69 64
10-32	5/32 22 21	.1653 .1570 .1590	83 81 76	.0032 .0032 .0032	.1595 .1602 .1622	75 73 68
12-24	11/64 17 16	.1719 .1730 .1770	82 79 72	.0035 .0035 .0035	.1754 .1765 .1805	75 73 66
12-28	16 15 14	.1770 .1800 .1820	84 78 73	.0035 .0035 .0035	.1805 .1835 .1855	77 70 66

Suggested Pipe Tap Drill Sizes

Drill Size	Tap Size	1/16	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4
	Taper Pipe Tap	C	Q	7/16	9/16	45/64	29/32	1-9/64	1-31/64	1-23/32	2-3/16	2-39/64	3-15/64	—	—
	Straight Pipe Tap	1/4	11/32	7/16	37/64	23/32	59/64	1-5/32	1-1/2	1-3/4	2-7/32	2-21/32	—	—	—

For Dryseal Straight Pipe Threads suggested drill sizes are as shown, except: 1/4" pipe, .444 drill size.

ENGINEERING DATA

TAP DRILL SIZES

Probable percentage of full thread produced in tapped hole using stock sizes of drills.

Tap	Tap Drill	Decimal Equivalent of Tap Drill	Theoretical Percentage of Thread	Probable Oversize (Mean)	Probable Hole Size	Percentage of Thread
1/4-20	9 8 7 13/64	.1960 .1990 .2010 .2031	83 79 75 72	.0038 .0038 .0038 .0038	.1998 .2028 .2048 .2069	77 73 70 66
1/4-28	3	.2130	80	.0038	.2168	72
5/16-18	F G	.2570 .2610	77 71	.0038 .0041	.2608 .2651	72 66
5/16-24	H I	.2660 .2720	86 75	.0041 .0041	.2701 .2761	78 67
3/8-16	5/16 O	.3125 .3160	77 73	.0044 .0044	.3169 .3204	72 68
3/8-24	21/64 Q	.3281 .3320	87 79	.0044 .0044	.3325 .3364	79 71
7/16-14	T 23/64 U	.3580 .3594 .3680	86 84 75	.0046 .0046 .0046	.3626 .3640 .3726	81 79 70
7/16-2	W 25/64	.3860 .3906	79 72	.0046 .0046	.3906 .3952	72 65
1/2-13	27/64	.4219	78	.0047	.4266	73
1/2-20	29/64	.4531	72	.0047	.4578	65
9/16-12	15/32 31/64	.4688 .4844	87 72	.0048 .0048	.4736 .4892	82 68
9/16-18	1/2	.500	87	.0048	.5048	80
5/8-11	17/32	.5313	79	.0049	.5362	75
5/8-18	9/16	.5625	87	.0049	.5674	80
3/4-10	41/64 21/32	.6406 .6563	84 72	.0050 .0050	.6456 .6613	80 68
3/4-16	11/16	.6875	77	.0050	.6925	71
7/8-9	49/64	.7656	76	.0052	.7708	72
7/8-14	51/64	.7969	84	.0052	.8021	79
1-8	55/64 7/8	.8594 .875	87 77	.0059 .0059	.8653 .8809	83 73
1-12	29/32 59/64	.9063 .9219	87 72	.0059 .0060	.9122 .9279	81 67
1-14	59/64	.9219	84	.0060	.9279	78
1-1/8-7	31/32 63/64 1-1/64	.9688 .9844 1.0156	84 76 59	.0062 .0067 .0070	.9750 .9911 1.0226	81 72 55
1-1/8-12	1-1/32	1.0313	87	.0071	1.0384	80
1-1/4-7	1-3/32 1-7/64	1.0938 1.1094	84 76	Reaming Recommended		
1-1/4-12	1-11/64	1.1719	72			
1-3/8-6	1-13/64 1-7/32	1.2031 1.2188	79 72			
1-3/8-12	1-19/64	1.2969	72			
1-1/2-6	1-21/64 1-11/32	1.3281 1.3438	79 72			
1-1/2-12	1-27/64	1.4219	72			

Suggested Pipe Tap Drill Sizes

Drill Size	Tap Size	1/16	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	3	3-1/2	4
	Taper Pipe Tap	C	Q	7/16	9/16	45/64	29/32	1-9/64	1-31/64	1-23/32	2-3/16	2-39/64	3-15/64	—	—
	Straight Pipe Tap	1/4	11/32	7/16	37/64	23/32	59/64	1-5/32	1-1/2	1-3/4	2-7/32	2-21/32	—	—	—

For Dryseal Straight Pipe Threads suggested drill sizes are as shown, except: 1/4" pipe, .444 drill size.

ENGINEERING DATA

TAP DRILL SIZES FOR METRICS

Nominal Size mm	Pitch mm	Basic Major Dia. Inches	Tap Drill Size	Decimal Equiv. of Tap Drill Inches	Theo. % of Thread	Probable Oversize (Mean) Inches	Probable Hole Size Inches	Probable % of Thread
1.6	0.35	.0630	1.20mm	.0472	88	.0014	.0486	80
			1.25mm	.0492	77	.0014	.0506	69
2	0.4	.0787	1/16	.0625	79	.0015	.0640	72
			1.60mm	.0630	77	.0017	.0647	69
			#52	.0635	74	.0017	.0652	66
2.5	0.45	.0984	2.05mm	.0807	77	.0019	.0826	69
			#46	.0810	76	.0019	.0829	67
			#45	.0820	71	.0019	.0839	63
3	0.5	.1181	#40	.0980	79	.0023	.1003	70
			2.5mm	.0984	77	.0023	.1007	68
			#39	.0995	73	.0023	.1018	64
3.5	0.6	.1378	#33	.1130	81	.0026	.1156	72
			2.9mm	.1142	77	.0026	.1168	68
			#32	.1160	71	.0026	.1186	63
4	0.7	.1574	3.2mm	.1280	82	.0029	.1309	74
			#30	.1285	81	.0029	.1314	73
			3.3mm	.1299	77	.0029	.1328	69
4.5	0.75	.1772	3.7mm	.1457	82	.0032	.1489	74
			#26	.1470	79	.0032	.1502	70
			#25	.1495	72	.0032	.1527	64
5	.08	.1968	4.2mm	.1654	77	.0032	.1686	69
			#19	.1660	75	.0032	.1692	68
6	1	.2362	#10	.1935	84	.0038	.1973	76
			#9	.1960	79	.0038	.1998	71
			5mm	.1968	77	.0038	.2006	70
			#8	.1990	73	.0038	.2028	65

Continued on page 194.

METRIC THREAD FORMULA

$$\text{Basic Major Diameter (mm)} - \frac{\text{\% of Thread x Pitch (mm)}}{76.980} = \text{Drilled Hole Size (mm)}$$

$$\frac{76.980}{\text{Pitch (mm)}} \times [\text{Basic Major Diameter (mm)} - \text{Drilled Hole Size}] = \text{\% of Thread}$$

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ENGINEERING DATA

TAP DRILL SIZES FOR METRICS

Nominal Size mm	Pitch mm	Basic Major Dia. Inches	Tap Drill Size	Decimal Equiv. of Tap Drill Inches	Theo. % of Thread	Probable Oversize (Mean) Inches	Probable Hole Size Inches	Probable % of Thread
7	1	.2756	A	.2340	81	.0038	.2378	74
			6mm	.2362	77	.0038	.2400	70
			B	.2380	74	.0838	.2418	66
8	1.25	.3150	6.7mm	.2638	80	.0041	.2679	74
			17/64	.2656	77	.0041	.2697	71
			H	.2660	77	.0041	.2701	70
			6.8mm	.2677	74	.0041	.2718	68
10	1.5	.3937	8.4mm	.3307	82	.0044	.3351	76
			Q	.3320	80	.0044	.3364	75
			8.5mm	.3346	77	.0044	.3390	71
12	1.75	.4724	10.25mm*	.2035	77	.0047	.4082	72
			Y	.4040	76	.0047	.4087	71
			13/32	.4062	74	.0047	.4109	69
14	2	.5512	15/32	.4688	81	.0048	.4736	76
			12mm	.4724	77	.0048	.4772	72
16	2	.6299	35/64	.5469	81	.0049	.5518	76
			14mm*	.5512	77	.0049	.5561	72
20	2.5	.7874	11/16	.6875	78	.0050	.6925	74
			17.5mm*	.6890	77	.0052	.6942	73
			13/16	.8125	86	.0052	.8177	82
24	3	.9449	21mm*	.8268	77	.0059	.8327	73
			53/64	.8281	76	.0059	.8340	72
			1-1/32	1.0312	83	.0071	1.0383	80
30	3.5	1.1811	26.5mm*	1.0433	77	.0071	1.0504	73
			1-3/64	1.0469	75	.0072	1.0541	70
36	4	1.4173	1-17/64	1.2656	74	Reaming Recommended		

Note: Sizes with asterisk (*) are not standard drills.

METRIC THREAD FORMULA

$$\text{Basic Major Diameter (mm)} - \frac{\text{\% of Thread} \times \text{Pitch (mm)}}{76.980} = \text{Drilled Hole Size (mm)}$$

$$\frac{76.980}{\text{Pitch (mm)}} \times [\text{Basic Major Diameter (mm)} - \text{Drilled Hole Size}] = \text{\% of Thread}$$

ENGINEERING DATA

TAP DRILL SIZES FOR METRICS

Met-Flo™ Tap Drill Sizes

Tap Size	T.P.I. NC NF	75% Thread			65% Thread			55% Thread		
		Theo. Hole Size	Nearest Drill Size	Decimal Equiv.	Theo. Hole Size	Nearest Drill Size	Decimal Equiv.	Theo. Hole Size	Nearest Drill Size	Decimal Equiv.
0	•	•	•	•	•	•	•	•	•	•
	80	.0536	1.35mm	.0531	.0545	54	.0550	.0553	54	.0500
1	64	.0650	1.65mm	.0650	.0661	1.65mm	.0650	.0672	51	.0670
	72	.0659	1.65mm	.0650	.0669	1.7mm	.0669	.0678	51	.0670
2	56	.0769	1.95mm	.0768	.0781	5/64	.0781	.0793	2mm	.0787
	64	.0780	5/64	.0781	.0791	2mm	.0787	.0802	2.05mm	.0807
3	48	.0884	2.25mm	.0886	.0898	43	.0890	.0912	2.3mm	.0906
	56	.0899	43	.0890	.0911	2.3mm	.0906	.0923	2.35mm	.0925
4	40	.0992	39	.0995	.1009	39	.0995	.1026	2.6mm	.1024
	48	.1014	38	.1015	.1028	2.6mm	.1024	.1042	28	.1045
5	40	.1122	34	.1100	.1139	33	.1130	.1156	32	.1160
	44	.1134	33	.1130	.1150	2.9mm	.1142	.1165	32	.1160
6	32	.1221	3.10mm	.1220	.1242	1/8	.1250	.1263	3.2mm	.1260
	40	.1252	1/8	.1250	.1269	3.2mm	.1260	.1288	30	.1285
8	32	.1481	3.75mm	.1476	.1502	3.8mm	.1496	.1523	24	.1520
	36	.1498	25	.1495	.1517	24	.1520	.1536	3.9mm	.1535
10	24	.1687	4.3mm	.1693	.1716	11/64	.1719	.1744	17	.1730
	32	.1741	4.4mm	.1732	.1762	16	.1770	.1783	15	.1800
12	24	.1947	10	.1935	.1976	5mm	.1968	.2004	5.1mm	.2008
	28	.1978	5mm	.1968	.2002	8	.1990	.2026	13/64	.2031
1/4	20	.2245	5.7mm	.2244	.2279	1	.2280	.2313	5.9mm	.2323
	28	.2318	5.8mm	.2323	.2342	A	.2340	.2366	6mm	.2362
5/16	18	.2842	7.2mm	.2835	.2879	7.3mm	.2874	.2917	7.4mm	.2913
	24	.2912	7.4mm	.2913	.2941	M	.2950	.2969	19/64	.2969
3/8	16	.3431	8.7mm	.3425	.3474	S	.3480	.3516	8.9mm	.3504
	24	.3537	9mm	.3543	.3566	9mm	.3543	.3594	23/64	.3594
7/16	14	.4011	X	.3970	.4059	Y	.4040	.4108	13/32	.4062
	20	.4120	Z	.4130	.4154	10.5mm	.4134	.4188	•	•
1/2	13	.4608	•	•	.4660	•	•	.4712	15/32	.4688
	20	.4745	12mm	.4724	.4779	•	•	.4813	•	•
9/16	12	.5200	33/64	.5156	.5257	•	•	.5313	17/32	.5312
	18	.5342	13.5mm	.5315	.5379	•	•	.5417	•	•
5/8	11	.5786	37/64	.5781	.5848	•	•	.5910	15mm	.5906
	18	.5967	19/32	.5938	.6004	•	•	.6042	•	•
3/4	10	.6990	•	•	.7058	45/64	.7031	.7126	•	•
	16	.7181	23/32	.7188	.7224	•	•	.7266	•	•

ENGINEERING DATA

TRIPLE CROWN SPECIFICATIONS *High Performance Taps*

TC-LT Yellow Ring						
Size	Overall Length	Thread Length		Square Length	Shank Dia.	Size of Square
		Spiral Point	Spiral Flute			
#4	1-7/8	5/16	5/16	3/16	.141	.110
#5	1-15/16					
#6	2	3/8	3/8			
#8	2-1/8			1/4	.168	.131
#10-24	2-3/8	1/2	1/2		.194	.152
#10-32						
#12-24				9/32	.220	.165
#12-28						
1/4-20	2-1/2	5/8	5/8	5/16	.255	.191
1/4-28						
5/16-18	2-23/32	11/16	11/16	3/8	.318	.238
5/16-24						
3/8-16	2-15/16	3/4	3/4	7/16	.381	.286
3/8-24						
7/16-14	3-5/32	7/8	7/8	13/32	.323	.242
7/16-20						
1/2-13	3-3/8	15/16	15/16	7/16	.367	.275
1/2-20						
5/8-11	3-13/16	1-3/32	1-3/32	9/16	.480	.360
5/8-18						
3/4-10	4-1/4	1-7/32	1-7/32	11/16	.590	.442
3/4-16						
7/8-9	4-11/16	1-11/32	1-11/32	3/4	.697	.523
7/8-14						
1-8	5-1/8	1-1/2	1-1/2	13/16	.800	.600
1-12						
M3	1-15/16	5/16	5/16	3/16	.141	.100
M3.5	2	3/8	3/8			
M4	2-1/8			1/4	.168	.131
M5	2-3/8	1/2	1/2		.194	.152
M6	2-1/2	5/8	5/8	5/16	.255	.191
M8	2-23/32	11/16	11/16	3/8	.318	.238
M10 x 1.5	2-15/16	3/4	3/4	7/16	.381	.286
M10 x 1.25						
M12 x 1.75	3-3/8	15/16	15/16		.367	.275
M12 x 1.25						
M14 x 2.0	3-19/32	1	1	1/2	.429	.322
M14 x 1.5						
M16 x 2.0	3-13/16	1-3/32	1-3/32	9/16	.480	.360
M16 x 1.5						
M18 x 2.5	4-1/32			5/8	.512	.406
M18 x 1.5						

TC-SS Blue Ring		TC-HT Red Ring		Red Yellow Ring		
Size	Overall Length	Thread Length		Square Length	Shank Dia.	Size of Square
		Spiral Point	Spiral Flute			
#4	1-7/8	.335	.236	3/16	.141	.110
#5	1-15/16	.374				
#6	2	.413	.276			
#8	2-1/8	.453		1/4	.168	.131
#10-24	2-3/8	.531	.354		.194	.152
#10-32			.276			
#12-24		.571	.354	9/32	.220	.165
#12-28			.276			
1/4-20	2-1/2	.591	.433	5/16	.255	.191
1/4-28			.354			
5/16-18	2-23/32	.669	.472	3/8	.318	.238
5/16-24			.394			
3/8-16	2-15/16	.748	.551	7/16	.381	.286
3/8-24			.394			
7/16-14	3-5/32	.866	.591	13/32	.323	.242
7/16-20			.472			
1/2-13	3-3/8	.984	.630	7/16	.367	.275
1/2-20			.472			
5/8-11	3-13/16	1.083	.748	9/16	.480	.360
5/8-18			.512			
3/4-10	4-1/4	1.201	.827	11/16	.590	.442
3/4-16			.591			
7/8-9	4-11/16	1.339	.827	3/4	.697	.523
7/8-14			.709			
1-8	5-1/8	1.496	.984	13/16	.800	.600
1-12			.709			
M3	1-15/16	.374	.197	3/16	.141	.100
M3.5	2	.413	.276			
M4	2-1/8	.453	.276	1/4	.168	.131
M5	2-3/8	.531	.354		.194	.152
M6	2-1/2	.591	.433	5/16	.255	.191
M8	2-23/32	.669	.472	3/8	.318	.238
M10 x 1.5	2-15/16	.748	.512	7/16	.381	.286
M10 x 1.25			.472			
M12 x 1.75	3-3/8	.984	.591		.367	.275
M12 x 1.25			.551			
M14 x 2.0	3-19/32		.709	1/2	.429	.322
M14 x 1.5			.551			
M16 x 2.0	3-13/16	1.083	.709	9/16	.480	.360
M16 x 1.5			.551			
M18 x 2.5	4-1/32		.787	5/8	.512	.406
M18 x 1.5			.551			

ENGINEERING DATA

HIGH PERFORMANCE TAPS *Recommended Speed Tables*

Stainless Steel

Material Types	Free Machining	Ferritic	Austenitic	Martensitic	Precipitation Hardened	
Material Examples	303, 303SE, 416, 420F, 430F	405, 430	302, 304, 316, 329, 436 <275	403, 410, 420, 431	15-5PH 17-4PH 17-7PH	
Hardness BHN RC	<250 <23	<260 <26	<28 —	<275 <28	<275 <28	350-440 <48
Thread Forming Taps	50-100 SFM	70-100 SFM	—	—	—	—
Carbide Taps	—	—	20-35 SFM	—	—	—
Blue Ring Color Taps	25-50 SFM	35-50 SFM	15-25 SFM	25-50 SFM	25-50 SFM	—
Yellow Ring Color Taps	15-35 SFM	25-35 SFM	—	15-35 SFM	15-35 SFM	—
Red Ring Color Taps	—	15-25 SFM	15-25 SFM	15-25 SFM	15-25 SFM	12-20 SFM
HSS	15-35 SFM	25-35 SFM	—	15-35 SFM	15-35 SFM	—

Carbon Steel

Material Types	Free Machining	Low Carbon	Alloy-Low Carbon	Medium Carbon	High Carbon	Alloy-High Carbon
Material Examples	1118, 1114, 1212, 12L14, 12L15, 1215	1008, 1010, 1011, 1015, 1018, 1029	3310, 4620, 4820, 8620	1030, 1035, 1040, 4045, 1050	1050, 1065, 1070, 1080, 1090	4140, 4150, 4340
Hardness BHN RC	<180 <20	<180 <20	<240 <24	<275 <28	<300 <32	<390 <42
Thread Forming Taps	120-180 SFM	60-129 SFM	50-90 SFM	—	—	—
Carbide Taps	—	—	—	—	—	—
Blue Ring Color Taps	20-50 SFM	20-50 SFM	15-25 SFM	20-40 SFM	—	—
Yellow Ring Color Taps	60-90 SFM	30-60 SFM	26-45 SFM	20-50 SFM	25-40 SFM	15-20 SFM
Red Ring Color Taps	—	—	—	25-50 SFM	25-50 SFM	15-25 SFM
HSS	45-65 SFM	20-45 SFM	20-30 SFM	15-35 SFM	20-30 SFM	12-19 SFM

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

ENGINEERING DATA

HIGH PERFORMANCE TAPS *Recommended Speed Tables*

Cast Iron & Sintered Metals

Material Types	Pearlitic-Martensitic	Martensitic (Malleable)	Martensitic (Ductile)	Martensitic (Malleable)	Precipitation (Malleable)	Austenitic (Gray)	Austenitic (Ductile)	Austenitic (Ductile)
Material Examples	100-70-03	120-90-02	53004, 60003, 60000	70002, 70003	80002, 90001	ASTM A436 Type 1-6	ASTM A439 TYPE D-2 D-2C, D-5, D3A, D5B	ASTM A439 Type D-2B D-3, D-4
Hardness BHN	240-300	270-300	200-255	220-260	240-320	100-250	120-200	140-275
Carbide Taps	15-26 SFM	12-20 SFM	35-45 SFM	30-40 SFM	29-30 SFM	35-60 SFM	20-30 SFM	15-25 SFM
Yellow Ring Color Taps	12-20 SFM	9-15 SFM	25-35 SFM	23-30 SFM	20-23 SFM	25-45 SFM	15-23 SFM	13-20 SFM
HSS	12-20 SFM	9-15 SFM	25-35 SFM	23-30 SFM	20-23 SFM	25-45 SFM	15-23 SFM	13-20 SFM

Titanium

Material Types	Commercial Pure	& - Alloy		& - Alloy
Material Examples	99.5, 99.2, 98.9	6AI-4V		6AI4V ELT 6AI-6V-2Sn
Hardness BHN RC	<275 <28	300-350 <36	300-400 <42	330-420 <45
Blue Ring Color Taps	15-30 SFM	—	—	—
Yellow Ring Color Taps	12-23 SFM	9-15 SFM	—	4-7 SFM
Red Ring Color Taps	25-40 SFM	15-20 SFM	—	5-7 SFM
HSS	12-23 SFM	9-15 SFM	8-15 SFM	4-7 SFM

Carbon Steel

Material Types	Tool Steel	
Material Examples	01, A-2, D-2, H-13, P-20	
Hardness BHN RC	<340 <35	350-440 <48
Yellow Ring Color Taps	15-20 SFM	—
Red Ring Color Taps	15-25 SFM	10-20 SFM

Aluminum

Material Types	Unalloyed	Wrought	Cast (Sand)	Die Castings
Material Examples	1000 Series	2000, 3000, 5000, 6000, 7000 Series	308, 319, 328, 365	360, 380, 383, 390, 392 50-125
Hardness BHN	<30	30-80	40-100	—
Thread Forming Taps	240 SFM	200-250 SFM	180-200 SFM	180-300 SFM
Carbide Taps	240-360 SFM	250-375 SFM	200-300 SFM	300-450 SFM
Blue Ring Color Taps	30-90 SFM	30-90 SFM	30-90 SFM	30-90 SFM
Yellow Ring Color Taps	90 SFM	75-95 SFM	65-75 SFM	65-110 SFM
HSS	90 SFM	75-95 SFM	65-75 SFM	65-110 SFM

ENGINEERING DATA

HIGH PERFORMANCE TAPS Recommended Speed Tables

Cast Iron & Sintered Metals

Material Types	Pearlitic-Ferritic	Pearlitic (Gray)	Pearlitic (Malleable)	Pearlitic with Free Carbide	
Material Examples	ASTM A48: Class 25	ASTM A48: Classes 30, 35, 40	40010, 43010, 45006, 45008, 48005, 50005	ASTM A48: Classes 45, 50	ASTM A48: Classes 55, 60
Hardness BHN	160-200	190-220	160-200	220-260	250-320
Carbide Taps	140-210 SFM	120-180 SFM	100-150 SFM	80-120 SFM	50-75 SFM
Yellow Ring Color Taps	35-50 SFM	30-45 SFM	30-35 SFM	20-30 SFM	12-19 SFM
HSS	35-50 SFM	30-45 SFM	30-35 SFM	20-30 SFM	12-19 SFM

Brass/Bronze

Material Types	Brass/Bronze
Blue Ring Color Taps	30-65 SFM
Yellow Ring Color Taps	30-80 SFM
Red Ring Color Taps	25-60 SFM

Copper

Material Types	Copper
Blue Ring Color Taps	50-60 SFM
Yellow Ring Color Taps	25-60 SFM

Nickel Alloys

Material Types	Nickel Alloys	Nickel Alloys	Nickel Alloys	High Temp Alloys (Nickel Base)	High Temp Alloys (Nickel Base)	High Temp Alloys (Nickel Base)	High Temp Alloys (Nickel Base)	High Temp Alloys (Nickel Base)	High Temp Alloys (Nickel Base)
Material Examples	Nickel 200, 201, 205	Monel 400, 401, 404	Duranickel Monel K800	Inconnel 700718	Waspaloy Rene41	Hastaloy BC, G, X	Inconnel 600 Inconnel 500700	Haynes 25188	A286, Inconnel 800
Hardness BHN RC	80-170 <20	115-240 <24	150-360 <38	200-300 <30	300-400 <42	140-220 <23	240-310 <32	180-270 <28	180-230 <23
Yellow Ring Color Taps	10-15 SFM	10-15 SFM	10-15 SFM	10-12 SFM	10-15 SFM	10-15 SFM	10-12 SFM	10-15 SFM	10-12 SFM
Red Ring Color Taps	5-20 SFM	5-20 SFM	5-25 SFM	5-25 SFM	5-20 SFM	5-25 SFM	5-20 SFM	5-20 SFM	5-25 SFM
HSS	15-20 SFM	8-20 SFM	4-9 SFM	6-9 SFM	4-8 SFM	8-11 SFM	5-7 SFM	4-7 SFM	11-15 SFM

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ENGINEERING DATA

THREAD PLUG GAGE PITCH DIAMETER

Machine Screw & Fractional Sizes

Nominal Size	Go Basic All Classes All Series	Unified Pitch Diameters				X + Half Angle Tolerance
		No Go		X Tol. Go = + No Go = -	X Lead Tolerance	
		Class 2B	Class 3B			
#0-80 UNF	.0519	.0542	.0536	.0002	.0002	0° 30'
#1-64 UNC	.0629	.0655	.0648	.0002	.0002	0° 30'
#1-72 UNF	.0640	.0665	.0659	.0002	.0002	0° 30'
#2-56 UNC	.0744	.0772	.0756	.0002	.0002	0° 30'
#2-64 UNF	.0759	.0786	.0779	.0002	.0002	0° 30'
#3-48 UNC	.0855	.0885	.0877	.0002	.0002	0° 30'
#3-56 UNF	.0874	.0902	.0895	.0002	.0002	0° 30'
#4-40 UNC	.0958	.0991	.0982	.0002	.0002	0° 20'
#4-48 UNF	.0985	.1016	.1008	.0002	.0002	0° 30'
#5-40 UNC	.1088	.1121	.1113	.0002	.0002	0° 20'
#5-44 UNF	.1102	.1134	.1126	.0002	.0002	0° 20'
#6-32 UNC	.1177	.1214	.1204	.0003	.0003	0° 15'
#6-40 UNF	.1218	.1252	.1243	.0002	.0002	0° 20'
#8-32 UNC	.1437	.1475	.1465	.0003	.0003	0° 15'
#8-36 UNF	.1460	.1496	.1487	.0002	.0002	0° 20'
#10-24 UNC	.1629	.1672	.1661	.0003	.0003	0° 15'
#10-32 UNF	.1697	.1736	.1726	.0003	.0003	0° 15'
#12-24 UNC	.1889	.1933	.1922	.0003	.0003	0° 15'
#12-28 UNF	.1928	.1970	.1959	.0003	.0003	0° 15'
1/4-20 UNC	.2175	.2224	.2211	.0003	.0003	0° 15'
1/4-28 UNF	.2268	.2311	.2300	.0003	.0003	0° 15'
5/16-18 UNC	.2764	.2817	.2803	.0003	.0003	0° 10'
5/16-24 UNF	.2854	.2902	.2890	.0003	.0003	0° 15'
3/8-16 UNC	.3344	.3401	.3387	.0003	.0003	0° 10'
3/8-24 UNF	.3479	.3528	.3516	.0003	.0003	0° 15'
7/16-14 UNC	.3911	.3972	.3957	.0003	.0003	0° 10'
7/16-20 UNF	.4050	.4104	.4091	.0003	.0003	0° 15'
1/2-13 UNC	.4500	.4565	.4548	.0003	.0003	0° 10'
1/2-20 UNF	.4675	.4731	.4717	.0003	.0003	0° 15'
9/16-12 UNC	.5084	.5152	.5135	.0003	.0003	0° 10'
9/16-18 UNF	.5264	.5323	.5308	.0003	.0003	0° 10'
5/8-11 UNC	.5660	.5732	.5714	.0003	.0003	0° 10'
5/8-18 UNF	.5889	.5949	.5934	.0003	.0003	0° 10'
3/4-10 UNC	.6850	.6927	.6907	.0003	.0003	0° 10'
3/4-16 UNF	.7094	.7159	.7143	.0003	.0003	0° 10'
7/8-9 UNC	.8028	.8110	.8089	.0003	.0003	0° 10'
7/8-14 UNF	.8286	.8356	.8339	.0003	.0003	0° 10'
1-8 UNC	.9188	.9276	.9254	.0004	.0004	0° 5'
1-12 UNF	.9459	.9535	.9516	.0003	.0003	0° 10'
1-14 UNS	.9536	.9609	.9590	.0003	.0003	0° 10'
1 1/8-7 UNC	1.0322	1.0416	1.0393	.0004	.0004	0° 5'
1 1/8-12 UNF	1.0709	1.0787	1.0768	.0003	.0003	0° 10'
1 1/4-7 UNC	1.1572	1.1668	1.1644	.0004	.0004	0° 5'
1 1/4-12 UNF	1.1959	1.2039	1.2019	.0003	.0003	0° 10'
1 3/8-6 UNC	1.2667	1.2771	1.2745	.0004	.0004	0° 5'
1 3/8-12 UNF	1.3209	1.3291	1.3270	.0003	.0003	0° 10'
1 1/2-6 UNC	1.3917	1.4022	1.3996	.0004	.0004	0° 5'
1 1/2-12 UNF	1.4459	1.4542	1.4522	.0003	.0003	0° 10'

ENGINEERING DATA

THREAD PLUG GAGE PITCH DIAMETER

Metric Sizes

Nominal Size	Go Basic Pitch Diameter mm	4H Tolerance No Go Pitch Diameter mm	6H Tolerance No Go Pitch Diameter mm
M1.6 x .35	1.373	1.426	1.458
M1.8 x 0.35	1.573	1.626	1.658
M2.0 x .40	1.740	1.796	1.830
M2.2 x 0.45	1.908	1.968	2.003
M2.5 x .45	2.208	2.268	2.303
M3.0 x .50	2.675	2.738	2.775
M3.5 x .60	3.110	3.181	3.222
M4.0 x .70	3.545	3.620	3.663
M4.5 x .75	4.013	4.088	4.131
M5.0 x .80	4.480	4.560	4.605
M6.0 x 1.0	5.350	5.445	5.500
M7 x 1.0	6.350	6.445	6.500
M8.0 x 1.25	7.188	7.288	7.348
M8.0 x 1.00	7.350	7.445	7.500
M10 x 1.5	9.026	9.138	9.206
M12 x 1.75	10.863	10.988	11.063
M12 x 1.25	11.188	11.300	11.368
M14 x 2.00	12.701	12.833	12.913
M14 x 1.50	13.026	13.144	13.216
M16 x 2.00	14.701	14.833	14.913
M16 x 1.50	15.026	15.144	15.216
M18 x 2.50	16.376	16.516	16.600
M18 x 1.50	17.026	17.144	17.216
M20 x 2.50	18.376	18.516	18.600
M20 x 1.50	19.026	19.144	19.216
M22 x 2.50	20.376	20.516	20.600
M22 x 1.50	21.026	21.144	21.216
M24 x 3.00	22.051	22.221	22.316
M24 x 2.00	22.701	22.841	22.925
M27 x 3.00	25.051	25.221	25.316
M27 x 2.00	25.701	25.841	25.925
M30 x 3.50	27.727	27.907	28.007
M30 x 2.00	28.701	28.841	28.925
M33 x 3.50	30.727	30.907	31.007
M33 x 2.00	31.701	31.841	31.925
M36 x 4.00	33.402	33.592	33.702
M36 x 3.00	34.051	34.221	34.316
M39 x 4.00	36.402	36.592	36.702
M39 x 3.00	37.051	37.221	37.316

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

ENGINEERING DATA

THREAD RING & SETTING THREAD PLUG GAGE PITCH DIAMETER *Machine Screw & Fractional Sizes*

Nominal Size	Unified Pitch Diameters				X Tolerance Go = + No Go = -
	Go		No Go		
	Class 3A	Class 2A	Class 2A	Class 3A	
0-80 UNF	.0519	.0514	.0496	.0506	.0002
1-64 UNC	.0629	.0623	.0603	.0614	.0002
1-72 UNF	.0640	.0634	.0615	.0626	.0002
2-56 UNC	.0744	.0738	.0717	.0728	.0002
2-64 UNF	.0759	.0753	.0733	.0744	.0002
3-48 UNC	.0855	.0848	.0825	.0838	.0002
3-56 UNF	.0874	.0867	.0845	.0858	.0002
4-40 UNC	.0958	.0950	.0925	.0939	.0002
4-48 UNF	.0985	.0978	.0954	.0967	.0002
5-40 UNC	.1088	.1080	.1054	.1069	.0002
5-44 UNF	.1102	.1095	.1070	.1082	.0002
6-32 UNC	.1177	.1169	.1141	.1156	.0003
6-40 UNF	.1218	.1210	.1184	.1198	.0002
8-32 UNC	.1437	.1428	.1399	.1415	.0003
8-36 UNF	.1460	.1452	.1424	.1439	.0002
10-24 UNC	.1629	.1619	.1586	.1604	.0003
10-32 UNF	.1697	.1688	.1658	.1674	.0003
12-24 UNC	.1889	.1879	.1845	.1863	.0003
12-28 UNF	.1928	.1918	.1886	.1904	.0003
12-32 UNEF	.1957	.1948	.1917	.1933	.0003
1/4-20 UNC	.2175	.2164	.2127	.2147	.0003
1/4-28 UNF	.2268	.2258	.2225	.2243	.0003
1/4-32 UNEF	.2297	.2287	.2255	.2273	.0003
5/16-18 UNC	.2764	.2752	.2712	.2734	.0003
5/16-24 UNF	.2854	.2843	.2806	.2827	.0003
5/16-32 UNEF	.2922	.2912	.2880	.2898	.0003
3/8-16 UNC	.3344	.3331	.3287	.3311	.0003
3/8-24 UNF	.3479	.3468	.3430	.3450	.0003
3/8-32 UNEF	.3547	.3537	.3503	.3522	.0003
7/16-14 UNC	.3911	.3897	.3850	.3876	.0003
7/16-20 UNF	.4050	.4037	.3995	.4019	.0003
7/16-28 UNEF	.4143	.4132	.4096	.4116	.0003
1/2-13 UNC	.4500	.4485	.4435	.4463	.0003
1/2-20 UNF	.4675	.4662	.4619	.4643	.0003
1/2-28 UNEF	.4768	.4757	.4720	.4740	.0003

ENGINEERING DATA

THREAD RING & SETTING THREAD PLUG GAGE PITCH DIAMETER *Machine Screw & Fractional Sizes*

Nominal Size	Unified Pitch Diameters				X Tolerance Go = + No Go = -
	Go		No Go		
	Class 3A	Class 2A	Class 2A	Class 3A	
9/16-12 UNC	.5084	.5068	.5016	.5045	.0003
9/16-18 UNF	.5264	.5250	.5205	.5230	.0003
9/16-24 UNEF	.5354	.5342	.5303	.5325	.0003
5/8-11 UNC	.5660	.5644	.5589	.5619	.0003
5/8-18 UNF	.5889	.5875	.5828	.5854	.0003
5/8-24 UNEF	.5979	.5967	.5927	.5949	.0003
11/16-24 UNEF	.6604	.6592	.6552	.6574	.0003
3/4-10 UNC	.6850	.6832	.6773	.6806	.0003
3/4-16 UNF	.7094	.7079	.7029	.7056	.0003
3/4-20 UNEF	.7175	.7162	.7118	.7142	.0003
13/16-20 UNEF	.7800	.7787	.7743	.7767	.0003
7/8-9 UNC	.8028	.8009	.7946	.7981	.0003
7/8-14 UNF	.8286	.8270	.8216	.8245	.0003
7/8-20 UNEF	.8425	.8412	.8368	.8392	.0003
15/16-20 UNEF	.9050	.9036	.8991	.9016	.0003
1-8 UNC	.9188	.9168	.9100	.9137	.0004
1-12 UNF	.9459	.9441	.9382	.9415	.0003
1-14 UNS	.9536	.9519	.9463	.9494	.0003
1-20 UNEF	.9675	.9661	.9616	.9641	.0003
1 1/16-18 UNEF	1.0264	1.0250	1.0203	1.0228	.0003
1 1/8-7 UNC	1.0322	1.0300	1.0228	1.0268	.0004
1 1/8-12 UNF	1.0709	1.0691	1.0631	1.0664	.0003
1 1/8-18 UNEF	1.0889	1.0875	1.0828	1.0853	.0003
1 3/16-18 UNEF	1.1514	1.1499	1.1450	1.1478	.0003
1 1/4-7 UNC	1.1572	1.1550	1.1476	1.1517	.0004
1 1/4-12 UNF	1.1959	1.1941	1.1879	1.1913	.0003
1 1/4-18 UNEF	1.2139	1.2124	1.2075	1.2103	.0003
1 5/16-18 UNEF	1.2764	1.2749	1.2700	1.2728	.0003
1 3/8-6 UNC	1.2667	1.2643	1.2563	1.2607	.0004
1 3/8-12 UNF	1.3209	1.3190	1.3127	1.3162	.0003
1 3/8-18 UNEF	1.3389	1.3374	1.3325	1.3353	.0003
1 7/16-18 UNEF	1.4014	1.3999	1.3949	1.3977	.0003
1 1/2-6 UNC	1.3917	1.3893	1.3812	1.3856	.0004
1 1/2-12 UNF	1.4459	1.4440	1.4376	1.4411	.0003
1 1/2-18 UNEF	1.4639	1.4624	1.4574	1.4602	.0003

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

ENGINEERING DATA

TWIST DRILL SPEED CONVERSION CHARTS

Fractional & Wire Gauge Sizes

Diameter Inches	Revolutions per Minute						
Feet per Minute	20 Feet	40 Feet	60 Feet	80 Feet	100 Feet	120 Feet	140 Feet
1/16	1222	2445	3667	4889	6111	7334	8556
1/8	611	1222	1833	2445	3056	3667	4278
3/16	407	815	1222	1630	2037	2445	2852
1/4	306	611	917	1222	1528	1833	2139
5/16	244	489	733	978	1222	1467	1711
3/8	204	407	611	815	1019	1222	1426
7/16	175	249	524	698	873	1048	1222
1/2	153	306	458	611	764	917	1070
5/8	122	244	367	489	661	733	856
3/4	102	203	306	407	509	611	713
7/8	87	175	262	349	436	524	611
1	76	153	229	306	382	458	535
No. Size	Revolutions per Minute						
Feet per Minute	20 Feet	40 Feet	60 Feet	80 Feet	100 Feet	120 Feet	140 Feet
1	335	670	1005	1340	1675	2010	2346
2	345	691	1037	1382	1728	2074	2420
3	359	717	1076	1434	1793	2152	2511
4	365	731	1097	1462	1828	2193	2560
5	372	744	1115	1487	1859	2230	2602
6	374	749	1123	1498	1872	2247	2621
7	380	760	1140	1520	1900	2281	2660
8	384	768	1151	1535	1919	2303	2687
9	390	780	1169	1559	1949	2339	2728
10	395	790	1184	1579	1974	2369	2764
11	400	800	1200	1600	2000	2400	2800
12	404	808	1213	1617	2021	2425	2829
13	413	826	1239	1652	2065	2479	2891
14	420	840	1259	1679	2099	2518	2938
15	425	851	1276	1702	2127	2546	2971
16	432	863	1295	1726	2158	2590	3021
17	442	883	1325	1766	2208	2650	3091
18	452	904	1356	1808	2260	2704	3155
19	460	920	1381	1841	2301	2761	3222
20	475	949	1423	1898	2372	2847	3322
21	480	961	1441	1922	2402	2883	3363
22	487	973	1460	1946	2433	2920	3406
23	496	992	1488	1984	2480	2976	3472
24	503	1005	1508	2010	2513	3016	3518
25	511	1022	1533	2044	2555	3066	3577
26	520	1039	1559	2078	2598	3118	3638
27	531	1061	1592	2122	2653	3183	3714
28	544	1088	1631	2175	2719	3262	3806
29	562	1124	1685	2247	2809	3370	3932
30	595	1189	1784	2378	2973	3567	4162
31	637	1273	1910	2546	3183	3821	4456
32	659	1317	1976	2634	3293	3951	4610
33	676	1352	2028	2704	3380	4056	4732
34	688	1376	2065	2753	3442	4129	4818
35	694	1389	2083	2778	3472	4167	4861
36	717	1435	2152	2870	3587	4304	5021
37	735	1469	2204	2938	3673	4407	5142
38	753	1505	2258	3010	3763	4516	5269
39	768	1505	2303	3071	3839	4607	5374
40	780	1559	2339	3118	3898	4677	5457

Diameter Inches	Revolutions per Minute						
Feet per Minute	20 Feet	40 Feet	60 Feet	80 Feet	100 Feet	120 Feet	140 Feet
1-1/8	68	136	204	272	340	407	475
1-1/4	61	122	183	244	306	367	428
1-3/8	56	111	167	222	278	333	389
1-1/2	51	102	153	204	255	306	357
1-5/8	47	94	414	188	235	282	329
1-3/4	44	87	131	175	218	262	306
1-7/8	41	81	122	163	204	244	285
2	38	76	115	153	191	229	267
2-1/4	34	68	102	136	170	204	238
2-1/2	31	61	92	122	153	183	214
2-3/4	28	56	83	111	139	167	194
3	25	51	76	102	127	153	178
No. Size	Revolutions per Minute						
Feet per Minute	20 Feet	40 Feet	60 Feet	80 Feet	100 Feet	120 Feet	140 Feet
41	796	1592	2387	3183	3979	4775	5570
42	817	1634	2451	3268	4085	4902	5719
43	858	1717	2575	3434	4292	5150	6008
44	888	1777	2665	3554	4442	5330	6218
45	932	1863	2795	3726	4658	5590	5622
46	943	1886	2830	3773	4716	5659	6602
47	973	1946	2920	3893	4866	5839	6812
48	1005	2010	3016	4021	5026	6031	7036
49	1047	2093	3140	4186	5233	6279	7326
50	1091	2183	3274	4366	5457	6548	7640
51	1140	2280	3421	4561	5701	6841	7982
52	1203	2406	3609	4812	6015	7218	8421
53	1283	2566	3848	5131	6414	7704	8988
54	1389	2778	4167	5556	6945	8334	9723
55	1469	2938	4408	5877	7346	8815	10284
56	1643	3286	4929	6572	8215	9857	11500
57	1777	3561	5342	7122	8903	10660	12436
58	1819	3637	5456	7275	9095	10913	12732
59	1863	3726	5590	7453	9316	11180	13043
60	1910	3820	5729	7639	9549	11459	13369
61	1959	3918	5876	7835	9794	11753	13712
62	2010	4020	6030	8040	10050	12060	14073
63	2064	4128	6192	8256	10320	1298	14453
64	2122	4244	6366	8488	10610	12732	14854
65	2182	4363	6546	8728	10910	13096	15279
66	2316	4632	6948	9264	11580	13890	16205
67	2388	4776	7164	9552	11940	14324	16712
68	2465	4928	7392	9856	12320	14786	17250
69	2616	5224	7836	10488	13060	15697	18314
70	2729	5456	8184	10912	13640	16370	19099
71	2938	5892	8838	11784	14730	17629	20568
72	3056	6112	9169	1224	15280	18335	21390
73	3183	6368	9552	12736	15920	19099	22282
74	3396	6808	10212	13616	17020	20372	23767
75	3638	7276	10914	14552	18190	21827	25465
76	3820	7640	11460	15280	19100	22918	26738
77	4244	8488	12732	16976	21220	25465	29709
78	4775	9548	14322	19096	23870	28648	33422
79	5269	10536	15804	21072	26340	31611	36880
80	5659	11320	16980	22640	28300	33953	39612

ENGINEERING DATA

TWIST DRILL SPEED CONVERSION CHARTS

Letter Sizes

No. Size	Revolutions per Minute						
Feet per Minute	20 Feet	40 Feet	60 Feet	80 Feet	100 Feet	120 Feet	140 Feet
A	326	654	982	1309	1636	1959	2285
B	321	642	963	1284	1605	1926	2247
C	316	631	947	1262	1578	1894	2210
D	311	622	934	1245	1556	1863	2174
E	306	611	917	1222	1528	1834	2139
F	297	594	892	1189	1486	1784	2081
G	293	585	878	1170	1463	1756	2049
H	287	574	862	1149	1436	1723	2010
I	281	562	842	1123	1404	1685	1966
J	276	552	827	1103	1279	1655	1930
K	272	554	815	1087	1359	1631	1903
L	263	527	790	1054	1317	1581	1844
M	259	518	777	1036	1295	1554	1813
N	253	506	759	1012	1265	1518	1771
O	242	484	725	967	1209	1450	1692
P	237	473	710	946	1183	1419	1657
Q	230	460	690	920	1150	1384	1611
R	225	451	676	902	1127	1355	1577
S	220	439	659	878	1098	1317	1537
T	213	426	640	853	1066	1280	1494
U	208	415	623	830	1038	1246	1453
V	203	405	608	810	1013	1219	1418
W	198	396	594	792	989	1188	1385
X	192	385	576	769	962	1155	1347
Y	189	378	567	756	945	1135	1324
Z	185	370	555	740	925	1110	1295

TWIST DRILL FEEDS CHART

Recommended Feeds for Various Diameter Drills	
Diameter of Drills	Feed Inches per Revolution
Under 1/8	.001 to .003
1/8 to 1/4	.002 to .006
1/4 to 1/2	.004 to .010
1/2 to 1	.007 to .015
1 inch and over	.015 to .025

Note: It is best to start with a moderate speed and feed, increasing either one, or both, after observing the action and condition of the drill.

Formulas for Drilling Applications

RPM = (3.8197 / Drill Diameter) x S.F.M.

SFM = 0.2618 x Drill Diameter x R.P.M.

IPM = IPR (feed) x RPM (speed)

Machine Time (seconds) = (60 x Feed - Stroke) / IPM

RPM = Revolutions per Minute

SFM = Surface Feet per Minute

IPM = Inches per Minute

IPR = Inches per Revolution

Feed Stroke = Drill Depth + 1/3 Drill Diameter + Approach and Over Travel Distance

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

ENGINEERING DATA

HSSCo8 NC SPOTTING DRILLS SPEED CHART

Work Material	Carbon Steels		Alloy Steels		Alloy Steels, Tool Steels, Hardened Steels		Carbon Steels		Carbon Steels	
Diameter mm	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
1/8 5/32	2460	0.002	2110	0.002	1080	0.002	940	0.002	7040	0.005
11/64 3/16	1850	0.002	1580	0.002	800	0.002	700	0.002	5280	0.006
13/64 15/64	1510	0.003	1300	0.003	670	0.003	580	0.003	4400	0.006
1/4 5/16	1170	0.003	1030	0.003	540	0.003	460	0.003	3520	0.007
21/64 25/64	880	0.004	790	0.004	400	0.004	350	0.004	2640	0.008
13/32 15/32	700	0.004	630	0.004	320	0.004	290	0.004	2110	0.009
31/64 5/8	590	0.005	530	0.005	260	0.005	240	0.005	1760	0.011
41/64 47/64	460	0.007	400	0.007	200	0.007	180	0.007	1320	0.012
3/4 1	350	0.009	320	0.009	150	0.009	140	0.009	1060	0.017

ENGINEERING DATA

ROYAL GOLD TIP DRILL SPEED CHARTS

Jobber Length - ANSI

Work Material Hardness Strength	Carbon Steels		Carbon Steels 240 Bhn		Alloy Steels 240-320 Bhn		Stainless Steels 240 Bhn	
Diameter (inch)	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
3/64 (.0469)	14000	0.0008	12500	0.0008	7700	0.0008	7000	0.0008
#47 (.0785)	7000	0.0023	6100	0.0024	3850	0.0024	3500	0.0024
#32 (.1160)	4650	0.0038	4100	0.0031	2550	0.0031	2350	0.0031
#22 (.1570)	3500	0.0044	3050	0.0043	1950	0.0039	1750	0.0039
#9 (.1960)	2800	0.0049	2450	0.0043	1550	0.0039	1400	0.0039
B (.2380)	2350	0.0056	2050	0.0051	1300	0.0047	1150	0.0047
J (.2770)	2000	0.0064	1750	0.0059	1100	0.0055	1000	0.0055
O (.3160)	1750	0.0072	1550	0.0071	960	0.0059	875	0.0059
T (.3580)	1550	0.0077	1350	0.0087	855	0.0071	780	0.0071
X (.3970)	1400	0.0084	1250	0.0087	770	0.0071	700	0.0071
7/16 (.4375)	1250	0.0087	1100	0.0087	700	0.0071	650	0.0071
15/32 (.4688)	1150	0.0090	1000	0.0087	650	0.0079	585	0.0079
1/2 (.5000)	1050	0.0090	950	0.0087	595	0.0079	540	0.0079

Work Material Hardness	Titanium Alloys		Aluminum Alloys, Zinc Alloys		Magnesium Alloys	
Diameter (inch)	RPM	IPR	RPM	IPR	RPM	IPR
3/64 (.0469)	8050	0.0008	30000	0.0008	11500	0.0012
#47 (.0785)	4050	0.0024	15000	0.0023	5800	0.0035
#32 (.1160)	2700	0.0031	9900	0.0038	3850	0.0051
#22 (.1570)	2000	0.0035	7450	0.0044	2900	0.0059
#9 (.1960)	1600	0.0039	5950	0.0049	2300	0.0067
B (.2380)	1350	0.0047	4950	0.0056	1950	0.0075
J (.2770)	1150	0.0055	4250	0.0064	1650	0.0087
O (.3160)	1000	0.0059	3700	0.0072	1450	0.0094
T (.3580)	895	0.0067	3300	0.0079	1280	0.0106
X (.3970)	805	0.0071	3000	0.0090	1150	0.0114
7/16 (.4375)	730	0.0071	2700	0.0090	1050	0.0118
15/32 (.4688)	670	0.0079	2480	0.0090	960	0.0122
1/2 (.5000)	620	0.0079	2300	0.0090	890	0.0122

M & J TOOLING LLC
Pricing, Quality & Service That **Can Not** be Matched

ENGINEERING DATA

ROYAL GOLD TIP DRILL SPEED CHARTS

Jobber Length - Parabolic Flute

Work Material Hardness	Carbon Steels Alloy Steels, 200-285 Bhn		Tool Steels Hardened Steels 225-375 Bhn		Soft Grey Cast Iron		Hard Grey Cast Iron	
Diameter (inch)	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
3/64 (.0469)	8750	0.0008	6300	0.0008	16000	0.0008	9800	0.0008
#47 (.0785)	4400	0.0022	3150	0.0022	7900	0.0027	4900	0.0027
#32 (.1160)	2900	0.0032	2100	0.0032	5250	0.0043	3250	0.0043
#22 (.1570)	2200	0.0036	1600	0.0036	3950	0.0054	2450	0.0054
#9 (.1960)	1750	0.0041	1250	0.0041	3150	0.0054	1950	0.0054
B (.2380)	1450	0.0047	1050	0.0047	2650	0.0069	1650	0.0069
J (.2770)	1250	0.0054	900	0.0054	2250	0.0078	1400	0.0078
O (.3160)	1100	0.0060	790	0.0060	1950	0.0087	1250	0.0087
T (.3580)	975	0.0066	700	0.0066	1750	0.0095	1100	0.0095
X (.3970)	875	0.0071	630	0.0071	1600	0.0108	980	0.0108
7/16 (.4375)	800	0.0077	575	0.0077	1450	0.0108	890	0.0108
15/32 (.4688)	730	0.0077	525	0.0077	1300	0.0108	815	0.0108
1/2 (.5000)	675	0.0077	485	0.0077	1200	0.0108	755	0.0108

ENGINEERING DATA

ROYAL HP DRILL SPEED CHARTS

Application

Drilling into steel in general, cast steel, cast iron, chilled cast iron, malleable cast iron, nonferrous heavy metal, nonferrous light metal and abrasive plastic.

Advantages

- Self centering – center drilling is not required
- Excellent positioning – bush is not necessary
- Special design – reaming is not required
- Good chip removal
- Powerful drilling

3xD AlTiN Coated Without Coolant Holes

Kf 3xD 1.0 5xD 0.85

30° Helix
140° Point

Material	Non-Coolant Fed Drills/Inch Diameter											
	1/8~3/16		3/16~5/16		5/16~3/8		3/8~1/2		1/2~9/16		9/16~13/16	
	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
Cast Iron <240 Bhn	13120	0.006	8200	0.008	5970	0.011	4690	0.014	3860	0.016	2980	0.018
Cast Iron >240 Bhn	8750	0.005	5470	0.006	3980	0.009	3120	0.011	2570	0.012	1990	0.014
Carbon Steels <300 Bhn	7880	0.005	4920	0.006	3560	0.009	2810	0.011	2310	0.012	1790	0.014
Alloy Steels 300 – 400 Bhn	7000	0.005	4370	0.006	3190	0.009	2500	0.011	2060	0.012	1590	0.014
Aluminum, Si <10%	13530	0.008	8450	0.010	6140	0.014	4830	0.017	3960	0.020	3080	0.022
Aluminum, Si >10%	11140	0.006	6960	0.008	5060	0.011	3980	0.014	3270	0.016	2530	0.018
Stainless Steels	3070	0.002	1910	0.003	1400	0.004	1090	0.005	910	0.006	700	0.007

3xD & 5xD AlTiN Coated With Coolant Holes

Kf 3xD 1.0 5xD 0.85

30° Helix
140° Point

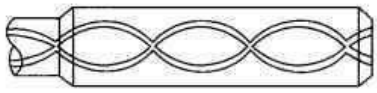
Material	Coolant Fed Drills/Inch Diameter											
	1/8~3/16		3/16~5/16		5/16~3/8		3/8~1/2		1/2~9/16		9/16~13/16	
	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR	RPM	IPR
Cast Iron <240 Bhn	13120	0.006	8200	0.008	5970	0.011	4690	0.014	3860	0.016	2980	0.018
Cast Iron <240 Bhn	14870	0.006	8200	0.008	6760	0.011	5310	0.014	4370	0.016	3380	0.018
Cast Iron >240 Bhn	9620	0.006	6010	0.008	4370	0.011	3440	0.014	2830	0.016	2190	0.018
Carbon Steels <300 Bhn	8750	0.006	5470	0.008	3980	0.011	3120	0.014	2570	0.016	1990	0.018
Alloy Steels 300-400 Bhn	7880	0.005	4920	0.006	3580	0.009	2810	0.011	2310	0.012	1790	0.014
Aluminum, Si <10%	15910	0.008	9940	0.010	7230	0.014	5680	0.017	4680	0.020	3610	0.022
Aluminum, Si >10%	13530	0.008	8450	0.010	6140	0.014	4830	0.017	3980	0.020	3080	0.022
Stainless Steels	3500	0.002	2190	0.003	1590	0.004	1250	0.005	1030	0.006	800	0.007

Up to .118	Over .118 Up to .236	Over .236 Up to .394	Over .394 Up to .709
+0	+0	+0	+0
-.00055	-.00071	-.00087	-.00106

Drill Diameter Tolerance Metric ($ød_1$)mm = 1/1000mm

Diameter Tolerance	From 1 to 3	Over 3 to 6	Over 6 to 10	Over 10 to 18	Over 18 to 30
h6	0 -6	0 -8	0 -9	0 -11	0 -13
h7	0 -10	0 -12	0 -15	0 -18	0 -21
h8	0 -14	0 -18	0 -22	0 -27	0 -33
m7	+12 +2	+16 +4	+21 +6	+25 +7	+29 +8

Shank Type – Form HA



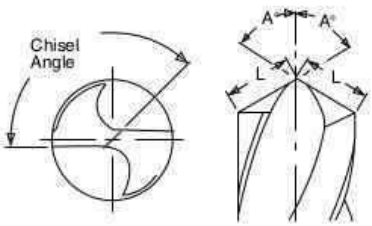
We recommend reducing the feed rate to Kf when you use 5xD drills.

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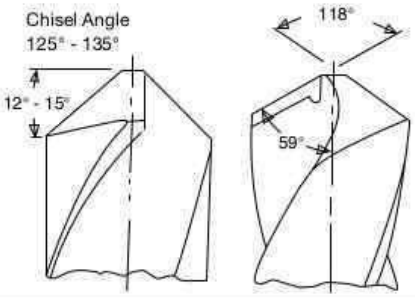
ENGINEERING DATA

DRILL POINTS SUGGESTED FOR VARIOUS MATERIALS

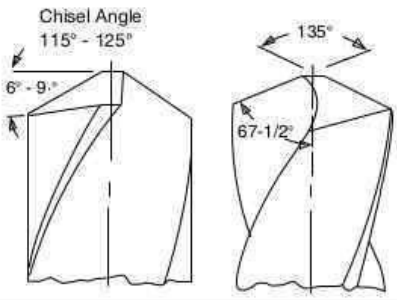
Important: Lip lengths and angles must be equal.



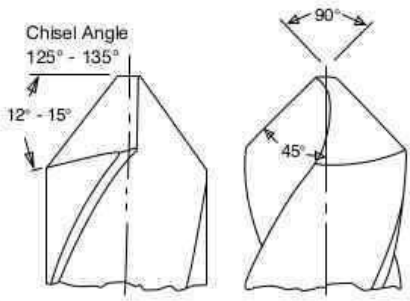
Brass and Soft Bronze



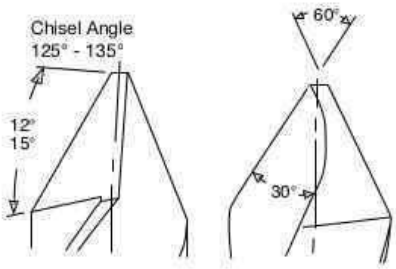
Hard and Tough Materials, Manganese Steel Rails, etc.



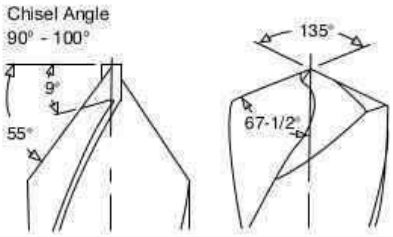
Hard Wood, Bakelite, Hard Rubber and Fibers, Soft and Medium Cast Iron



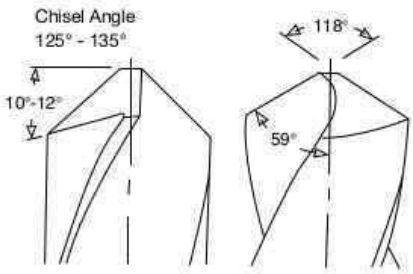
Wood, Rubber, Bakelite, Fiber, Molded Plastics



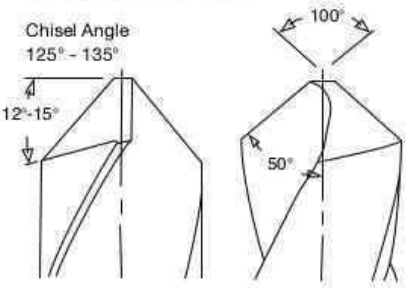
Crankshaft or Split Point for Deep Holes - overcomes excessive thrust (due to heavy web), Hard and Tough Materials



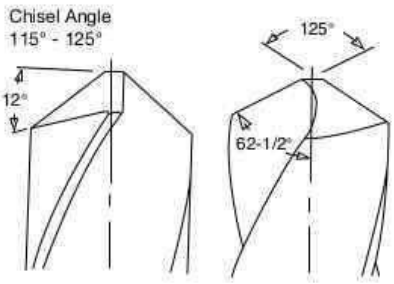
Regular Point for General Purpose, Mild Steels, Laminated Plastics, etc.



Soft Aluminum, Magnesium, Copper and Medium Hard Brass



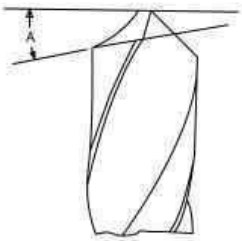
Heat Treated Steels, Drop Forgings and Connecting Rods



Note: Point designs illustrated are not necessarily available from factory stock. Grinds suggested may be made and evaluated by user.

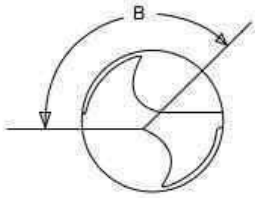
ENGINEERING DATA

LIP RELIEF ANGLES FOR DRILLS



The lip relief angle "A" should vary according to the material to be drilled and according to the drill diameter. Hard and tough material call for lesser relief angles than do the soft, free machining materials.

Smaller diameter drills require a greater amount of relief than do the larger diameters.



The chisel point angle "B" will increase or decrease with the relief angle "A," but should be held in the range of 115° to 135°.

The accompanying table of suggested relief angles for various drill diameters and materials to be drilled will be found useful as a guide.

Causes of Failures of Twist Drills

Indications	Causes
Outer corners breakdown	Cutting speed too high. Hard spots in material. No cutting compound at drill point.
Cutting edges chip	Too much feed. Lip clearance too great.
Checks or cracks in cutting edges	Overheated or too quickly cooled while sharpening or drilling.
Margin chips	Oversize jig bushing.
Drill breaks	Point improperly ground. Feed too heavy. Spring or backlash in drill press, fixture or work. Drill is dull. Flutes clogged with chips.
Tang breaks	Imperfect fit between taper shank and socket caused by dirt or chips, or burred or badly worn sockets.
Drill breaks when drilling brass or wood	Flutes clogged with chips. Improper type drill.
Drill splits up center	Lip clearance too small. Too much feed.
Drill will not enter work	Drill is dull. Lip clearance too small. Too heavy a web.
Hole rough	Point improperly ground or dull. No cutting compound at drill point. Feed too great. Fixture not rigid.
Hole oversize	Drill point improperly ground.
Chip shape changes while drilling	Drill becomes dull or cutting edges chipped.
Large chip coming out of one flute, small chip out of other flute	Point improperly ground, one lip doing all the cutting.

Suggested Lip Relief Angles at Periphery

Drill Diameters	For General Purpose	Hard and Tough Materials	Soft and Free Machining Materials
No. 80 to No. 61	24°	20°	26°
No. 60 to No. 41	21°	18°	24°
No. 40 to No. 31	18°	16°	22°
No. 30 to 1/4"	16°	14°	20°
F to 11/32"	14°	12°	18°
S to 1/2"	12°	10°	16°
33/64" to 3/4"	10°	8°	14°
49/64" and Larger	8°	7°	12°

Diameter Tolerance at Point

Drill Diameter Range		Tolerance
#97 to #81 inclusive	(.0059 to .0130)	+.0002 to -.0002
Over #81 to 1/8" inclusive	(.0130 to .1250)	+.0000 to -.0005
Over 1/8" to 1/4" inclusive	(.1250 to .2500)	+.0000 to -.0007
Over 1/4" to 1/2" inclusive	(.2500 to .5000)	+.0000 to -.0010
Over 1/2" to 1" inclusive	(.5000 to 1.0000)	+.0000 to -.0012
Over 1" to 2" inclusive	(1.0000 to 2.0000)	+.0000 to -.0015
Over 2" to 3-1/2" inclusive	(2.0000 to 3.5000)	+.0000 to -.0020

Lip Height Variation

Drill Diameter Range		TIV (Total Indicator Variation)
1/16" to 1/8" inclusive	(.0625 to .0125)	.0020
Over 1/8" to 1/4" inclusive	(.1250 to .2500)	.0030
Over 1/4" to 1/2" inclusive	(.2500 to .5000)	.0040
Over 1/2" to 1" inclusive	(.5000 to 1.0000)	.0050
Over 1" to 3-1/2" inclusive	(1.0000 to 3.5000)	.0060

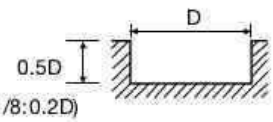
95% of drills in any one lot to fall within above tolerances.

Suggested Method of Measurement – Rotate the drill in a V-block against a back end stop. Measure the cutting lip height variation on a comparator, or with an indicator set at a location approximately 75% of the distance from the center to the periphery of the drill.

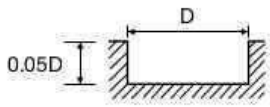
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2-Flute - Finish - Slotting

Material Hardness	Carbon Steels Alloy Steels Cast Iron <300 Bhn		Alloy Steels Tool Steels 300-430 Bhn		Stainless Steels		Hardened Steels 430-550 Bhn		Hardened Steels 550-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/16	11560	7.50	7560	4.70	6300	3.55	5040	1.40	—	—
1/8	8920	8.25	5560	5.50	4620	4.70	3360	1.55	1900	1.55
3/16	6300	12.60	3780	7.50	3160	6.30	2320	1.95	1260	1.55
1/4	5560	13.80	3360	8.65	2840	7.10	2000	2.15	1100	1.55
5/16	4200	14.95	2520	7.85	2100	7.10	1680	2.95	840	1.55
3/8	3260	13.00	2000	6.30	1680	6.30	1360	2.35	680	1.40
1/2	2740	11.00	1680	5.10	1360	5.10	1160	2.15	560	1.40
5/8	2200	8.65	1360	4.30	1060	4.30	900	1.55	440	0.80
3/4	1680	6.70	1060	3.15	840	3.15	680	1.20	320	0.80
1	1360	5.10	840	2.75	680	2.35	540	0.80	260	0.60

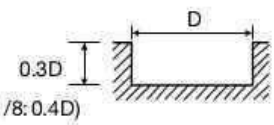


(Up to 1/8: 0.2D)

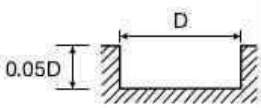


2-Flute - Finish Long - Slotting

Material Hardness	Carbon Steels Alloy Steels Cast Iron 300 Bhn		Alloy Steels Tool Steels 300-430 Bhn		Stainless Steels 430-550 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM
1/8	4410	7.8	3570	2.4	2200	1.2
3/16	3050	4.1	2420	3.3	1580	1.6
1/4	2630	4.9	2100	4.1	1370	2.0
5/16	2000	5.3	1580	4.1	1050	2.0
3/8	1680	5.3	1370	4.1	840	2.0
1/2	1370	4.1	1160	3.7	700	1.6
5/8	1160	3.7	890	3.0	560	1.4
3/4	840	2.8	680	2.0	420	1.0
1	610	2.0	540	1.6	330	0.7



(Up to 1/8: 0.4D)

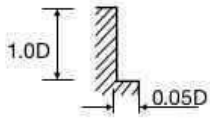


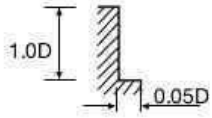
ENGINEERING DATA

PREMIUM HSS MILL SPEED & FEED CHARTS

4-Flute - Finish - Side Cutting

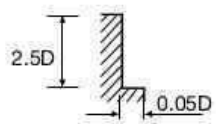
Material Hardness	Carbon Steels Alloy Steels Cast Iron <300 Bhn		Alloy Steels Tool Steels 300-430 Bhn		Stainless Steels		Hardened Steels 430-550 Bhn		Hardened Steels 550-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/16	11560	11.00	7560	6.70	6300	5.50	5040	1.95	—	—
1/8	8920	12.60	5560	7.85	4620	6.70	3360	2.35	1900	2.35
3/16	6300	23.60	3780	14.15	3160	11.80	2320	2.75	1260	2.35
1/4	5560	26.00	3360	16.15	2840	13.00	2000	3.15	1100	2.35
5/16	4200	27.95	2520	14.95	2100	13.80	1680	4.30	840	2.35
3/8	3260	24.00	2000	11.80	1680	11.80	1360	3.55	680	1.95
1/2	2740	20.50	1680	9.85	1360	9.45	1160	3.15	560	1.95
5/8	2200	16.15	1360	7.85	1060	7.85	900	2.35	440	1.20
3/4	1680	12.60	1060	6.30	840	5.90	680	1.55	320	1.20
1	1360	9.85	840	5.10	680	4.70	540	1.20	260	0.80

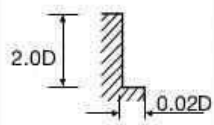




4-Flute - Long - Side Cutting

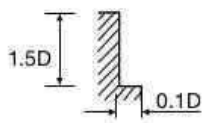
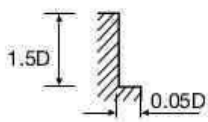
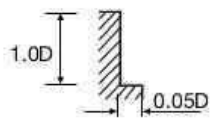
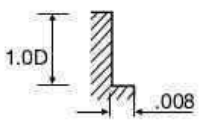
Material Hardness	Carbon Steels Alloy Steels Cast Iron 300 Bhn		Alloy Steels Tool Steels 300-430 Bhn		Hardened Steels 430-550 Bhn		Hardened Steels 550-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/8	4410	4.5	3570	3.9	2200	2.2	1890	1.2
3/16	3050	7.1	2420	5.5	1580	2.8	1260	1.6
1/4	2630	8.5	2100	7.1	1370	3.5	1160	2.0
5/16	2000	9.1	1580	7.1	1050	3.5	840	2.0
3/8	1680	9.1	1370	7.1	840	3.5	670	2.0
1/2	1370	7.1	1160	6.3	700	2.8	560	1.6
5/8	1160	6.3	890	4.9	560	2.4	440	1.4
3/4	840	4.5	680	3.5	420	1.8	340	1.0
1	670	4.5	540	3.5	340	1.8	270	1.0





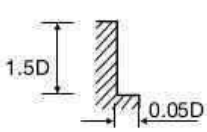
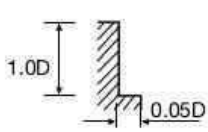
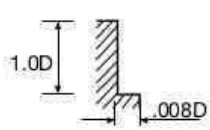
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6- & 8-Flute - 45° Helix - Long - Side Cutting

Material Hardness	Carbon Steels Alloy Steels Cast Iron <285 Bhn		Alloy Steels Tool Steels 285-495 Bhn		Hardened Steels 495-500 Bhn		Hardened Steels 550-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/4	5560	79.00	3880	54.00	1580	8.25	1100	5.10
5/16	4200	79.00	2940	54.00	1160	8.25	840	5.10
3/8	3360	79.00	2320	54.00	1000	8.25	680	5.10
1/2	2840	66.00	2000	46.00	840	7.10	560	4.35
5/8	2100	50.00	1480	35.00	640	5.10	420	2.75
3/4	1680	40.00	1160	27.00	500	4.35	320	2.35
1	1260	25.00	870	17.50	375	3.00	240	1.54
								

RPM = Revolutions per minute
Feed = inch/minute

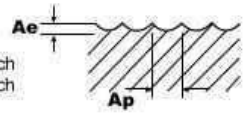
6- & 8-Flute - 45° Helix - Long - Side Cutting (High Speed Cutting)

Material Hard-ness	Carbon Steels Tool Steels <495 Bhn		Hardened Steels 495-550 Bhn		Hardened Steels >550 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM
1/4	16800	240.00	8400	120.00	4200	58.00
5/16	12600	240.00	6300	120.00	3160	58.00
3/8	9980	235.00	5040	120.00	2520	58.00
1/2	8400	199.00	4200	100.00	2100	50.00
5/8	6300	149.00	3160	75.00	1580	37.00
3/4	5040	120.00	2520	58.00	1260	30.00
1	3790	75.00	1890	38.00	950	19.00
						

2-Flute - Ball Nose - Long

Material Hardness	Non-Alloyed Steels Alloy Steels Cast Iron <285 Bhn		Alloy Steels Heat-Resistant Steels 285-430 Bhn		Hardened Steels 430-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM
R1/64 × 1/32	15760	9.80	12720	7.80	5800	3.50
R1/32 × 1/16	15760	13.80	12140	10.60	5320	4.70
R3/64 × 3/32	14400	29.50	10700	19.30	4680	5.90
R1/16 × 1/8	13100	26.70	10000	18.10	4520	5.90
R3/32 × 3/16	9140	32.30	7300	22.80	3680	7.10
R1/8 × 1/4	7780	33.00	6300	24.80	3160	7.50
R5/32 × 5/16	5260	37.50	4420	26.00	2100	7.50
R3/16 × 3/8	4620	40.10	3780	28.00	1780	7.50
R1/4 × 1/2	3780	35.40	2940	26.00	1360	7.50
R5/16 × 5/8	2740	36.20	2320	26.00	1160	7.50
R3/8 × 3/4	2100	33.00	1900	25.00	840	7.50

Ae: D1/32~D1/4 = .008 inch
D5/16~D3/4 = .012 inch
Ap: 0.2 × D

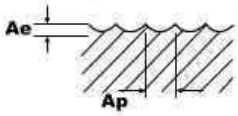


Ae: D1/32~D1/4 = .008 inch
D5/16~D3/4 = .012 inch
Ap: 0.1 × D

(High Speed Cutting)

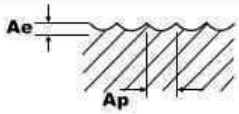
Material Hardness	Non-Alloyed Steels Alloy Steels Cast Iron <430 Bhn		Hardened Steels 430-710 Bhn	
Diameter	RPM	IPM	RPM	IPM
R1/64 × 1/32	25000	25.60	25000	15.70
R1/32 × 1/16	23000	27.50	23000	16.90
R3/64 × 3/32	21000	34.60	19000	19.30
R1/16 × 1/8	21000	39.40	17000	20.50
R3/32 × 3/16	21000	70.90	12000	23.60
R1/8 × 1/4	21000	90.90	10500	24.80
R5/32 × 5/16	15760	111.80	7880	29.10
R3/16 × 3/8	13660	120.00	6300	33.00
R1/4 × 1/2	10500	103.50	5260	33.00
R5/16 × 5/8	8200	103.50	3780	28.00
R3/8 × 3/4	6300	99.00	2940	20.80

Ae: D1/32~D1/4 = .008 inch
D5/16~D3/4 = .012 inch
Ap: 0.05 × D

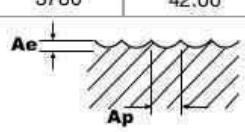


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4-Flute - Ball Nose - Long

Material Hardness	Carbon Steels Alloy Steels Cast Iron <285 Bhn		Alloy Steels Tool Steels 285-430 Bhn		Hardened Steels 430-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM
R1/16 x 1/8	13100	40.10	10000	27.00	4520	8.85
R3/32 x 3/16	9140	48.50	7300	34.00	3680	10.50
R1/8 x 1/4	7780	49.50	6300	37.00	3160	11.25
R5/32 x 5/16	5260	56.00	4420	39.00	2100	11.25
R3/16 x 3/8	4620	60.00	3780	42.00	1780	11.25
R1/4 x 1/2	3780	53.00	2940	39.00	1360	11.25
R5/16 x 5/8	2740	54.50	2320	38.50	1160	11.25
	Ae: D1/8~D1/4 = .008 inch D5/16~D5/8 = .012 inch **Ap:** 0.2×D				**Ae:** D1/8~D1/4 = .008 inch D5/16~D5/8 = .012 inch **Ap:** 0.1×D	

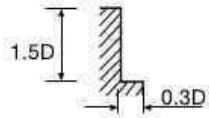
(High Speed Cutting)

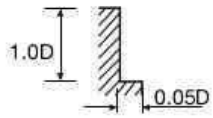
Material Hardness	Carbon Steels Alloy Steels Cast Iron <430 Bhn		Alloy Steels Tool Steels 430-710 Bhn	
Diameter	RPM	IPM	RPM	IPM
R1/16 x 1/8	21000	59.00	17000	30.50
R3/32 x 3/16	21000	106.25	12000	35.50
R1/8 x 1/4	21000	136.50	10500	37.00
R5/32 x 5/16	15760	167.50	7880	43.50
R3/16 x 3/8	13660	180.00	6300	49.50
R1/4 x 1/2	10500	155.50	5260	49.50
R5/16 x 5/8	8200	155.50	3780	42.00
	Ae: D1/8~D1/4 = .008 inch D5/16~D5/8 = .012 inch **Ap:** 0.05×D			

RPM = Revolutions per minute
Feed = Inch/minute

Multi-Flute Roughing - Side Cutting

Material Hardness	Non-Alloyed Steels Alloy Steels Cast Iron <285 Bhn		Alloy Steels Heat-Resistant Steels 285-365 Bhn		Alloy Steels Heat-Resistant Steels 365-430 Bhn		Hardened Steels 430-550 Bhn		Hardened Steels 550-710 Bhn	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/4	15600	91.35	12400	33.10	8400	22.45	3400	10.25	2400	7.50
5/16	11600	91.35	9200	33.10	6300	22.45	2400	9.50	1800	7.10
3/8	9200	91.35	7600	33.10	5100	22.45	2000	11.40	1300	7.50
1/2	8000	94.50	6000	31.50	4200	22.45	1680	10.25	1200	7.50
5/8	6000	94.50	4800	29.90	3300	20.05	1200	6.30	800	4.35
3/4	5200	91.35	4400	28.35	2700	16.55	1100	5.90	700	3.95
1	4800	85.05	3600	22.05	2400	14.15	1000	5.90	660	3.95

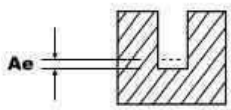




2-Flute Finish for Rib Processing

Material Hardness	Non-Alloyed Steels Alloy Steels Cast Iron <285 Bhn			Alloy Steels Heat-Resistant Steels 285-430 Bhn			Hardened Steels 430-550 Bhn		
Diameter	RPM	IPM	Ae (inch)	RPM	IPM	Ae (inch)	RPM	IPM	Ae (inch)
1/32	27000~35000	7.5~16.5	.0006~.0014	19500~24500	2.4~9.5	.0006~.0014	12500~14800	1.4~3.7	.0003~.0006
3/64	18500~23500	7.5~23.6	.0022~.0039	13000~16500	3.7~11.8	.0022~.0039	8300~10500	2.0~3.9	.0004~.0009
1/16	14000~18000	7.5~23.6	.0030~.0057	10200~12800	3.7~11.8	.0030~.0057	6400~8000	2.0~3.9	.0006~.0012
5/64	12000~14500	7.5~23.6	.0035~.0071	8300~10500	3.7~11.8	.0035~.0071	5300~6600	2.0~3.9	.0007~.0014
3/32	9500~12000	7.5~23.6	.0044~.0093	6700~8500	3.7~11.8	.0044~.0093	4300~5300	2.0~3.9	.0009~.0018
1/8	8000~10000	7.5~23.6	.0053~.0106	5500~7000	3.7~11.8	.0053~.0106	3500~4400	2.0~3.9	.0011~.0022

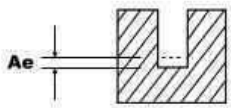
(Depth of cut per one pass)



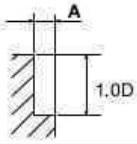
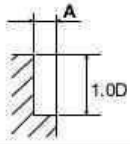
2-Flute Ball Nose for Rib Processing

Material Hardness	Non-Alloyed Steels Alloy Steels Cast Iron <285 Bhn			Alloy Steels Heat-Resistant Steels 285-430 Bhn			Hardened Steels 430-550 Bhn		
Diameter	RPM	IPM	Ae (inch)	RPM	IPM	Ae (inch)	RPM	IPM	Ae (inch)
R1/64 × 1/32	27000~35000	7.5~16.5	.0006~.0014	19500~24500	2.4~9.5	.0006~.0014	12500~14800	1.4~3.7	.0003~.0006
R.0234 × 3/64	18500~23500	7.5~23.6	.0022~.0039	13000~16500	3.7~11.8	.0022~.0039	8300~10500	2.0~3.9	.0004~.0009
R1/32 × 1/16	14000~18000	7.5~23.6	.0030~.0057	10200~12800	3.7~11.8	.0030~.0057	6400~8000	2.0~3.9	.0006~.0012
R.0391 × 5/64	12000~14500	7.5~23.6	.0035~.0071	8300~10500	3.7~11.8	.0035~.0071	5300~6600	2.0~3.9	.0007~.0014
R3/64 × 3/32	9500~12000	7.5~23.6	.0044~.0093	6700~8500	3.7~11.8	.0044~.0093	4300~5300	2.0~3.9	.0009~.0018
R1/16 × 1/8	8000~10000	7.5~23.6	.0053~.0106	5500~7000	3.7~11.8	.0053~.0106	3500~4400	2.0~3.9	.0011~.0022

(Depth of cut per one pass)



2-Flute - Corner Radius End Mills with Neck

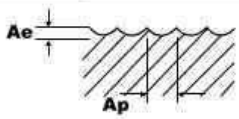
Material	Aluminum Aluminum Alloy				Copper Alloy			
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
R.012 × 5/32	10000	36.35	10000	42.40	3000	9.10	3000	10.60
R.020 × 1/4	10000	45.40	10000	60.60	3000	11.50	3000	15.15
R.024 × 5/16	8000	54.50	8000	69.60	2300	13.60	2300	17.55
R.031 × 3/8	8000	66.60	8000	81.75	2300	16.65	2300	20.60
R.040 × 1/2	8000	81.75	8000	103.00	2300	20.55	2300	25.75
R.051 × 5/8	6000	75.70	6000	93.90	1800	19.05	1800	23.60
R.063 × 3/4	4000	60.60	4000	75.70	1150	15.15	1150	19.10
			**A:** 5/32" 3/8 = 0.25 D 1/2" 3/4 = 0.5 D 				**A:** 5/32" 3/8 = 0.25 D 1/2" 3/4 = 0.5 D 	

3-Flute - Ball Nose End Mills with Neck

Material	Aluminum Aluminum Alloy		Copper Alloy	
Diameter	RPM	IPM	RPM	IPM
R3/64 × 3/32	20700	28.80	6200	7.25
R1/16 × 1/8	13800	28.80	4200	7.25
R3/32 × 3/16	13800	40.90	4200	10.30
R1/8 × 1/4	13800	53.00	4200	13.30
R5/32 × 5/16	10800	60.55	3200	15.15
R3/16 × 3/8	10800	71.15	3200	17.55
R1/4 × 1/2	10800	90.85	3200	22.70
R5/16 × 5/8	8500	81.75	2500	20.30

Ae: 0.2×D

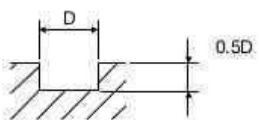
Ap: 0.05×D



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2-Flute Finish Slotting - HSS-Co8 End Mills

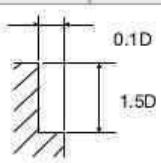
Material Hardness	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Aluminum Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/8	3500	2.20	3200	1.80	2500	1.60	1600	0.80	11000	9.80
1/4	1800	3.50	1600	3.10	1200	2.40	800	1.60	5600	12.20
3/8	1100	4.00	900	3.50	800	3.10	450	1.80	3100	15.80
1/2	900	4.30	800	4.00	630	3.10	400	2.00	2500	15.00
5/8	700	4.30	560	3.50	450	2.80	280	1.80	2000	13.80
3/4	630	4.00	500	3.50	400	2.80	250	1.80	1800	13.80
7/8	500	4.00	450	3.50	350	2.80	220	1.80	1400	11.80
1	450	3.50	400	3.10	310	2.40	180	1.40	1200	11.00
1-1/8	400	3.10	350	2.80	280	2.20	160	1.20	1100	10.50
1-3/8	310	2.40	250	2.00	200	1.60	120	1.00	900	8.70
1-1/2	310	2.40	250	2.00	200	1.60	120	1.00	900	8.70
1-3/4	280	2.40	220	2.00	180	1.60	110	1.00	800	7.80
2	250	2.00	190	1.80	110	1.00	80	0.80	630	6.30



The Feed, in long and extra long types, should be reduced by around 50%.

Multi-Flute - Finish Side Cutting - HSS-Co8 End Mills

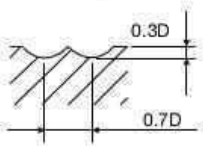
Material Hardness	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Aluminum Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/8	3500	4.30	3200	3.10	2500	2.40	1600	1.20	11000	15.00
1/4	1800	7.10	1600	5.70	1200	3.50	800	2.40	5600	18.50
3/8	1100	7.90	900	6.30	800	4.70	450	2.60	3100	23.60
1/2	900	8.70	800	7.10	630	4.70	400	3.00	2500	22.40
5/8	700	8.70	560	6.30	450	4.10	280	2.60	2000	20.90
3/4	630	7.90	500	6.30	400	4.10	250	2.60	1800	20.90
13/16	500	7.90	450	6.30	350	4.10	220	2.60	1400	17.70
15/16	500	7.90	450	6.30	350	4.10	220	2.60	1200	17.70
1	450	7.10	400	5.70	310	3.50	180	2.00	1100	16.50
1-1/2	310	4.70	250	3.50	200	2.40	120	1.40	900	13.00
1-3/4	280	4.70	220	3.50	150	2.40	110	1.40	900	11.80
2	280	4.70	190	3.50	110	1.80	80	1.00	800	11.80



The Feed, in long and extra long types, should be reduced by around 50%.

2-Flute - Ball Nose - HSS-Co8 End Mills

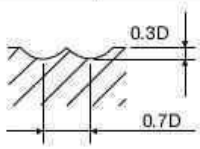
Material Hardness	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Aluminum Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
R1/16 x 1/8	4500	3.70	3400	2.80	2000	1.20	1400	0.80	11000	9.10
R5/64 x 5/32	3200	4.50	2400	3.10	1400	1.40	1000	1.00	8000	10.20
R1/8 x 1/4	2200	5.30	1700	3.50	1000	1.80	700	1.00	5600	11.00
R5/32 x 5/16	1600	6.30	1200	4.10	700	2.00	500	1.20	4000	13.80
R3/16 x 3/8	1300	7.10	1000	4.70	560	2.40	400	1.40	3200	14.20
R1/4 x 1/2	1000	6.70	800	4.10	450	2.20	320	1.40	2500	13.40
R5/16 x 5/8	800	6.00	600	4.00	350	2.20	250	1.40	2000	11.80
R3/32 x 3/16	600	5.50	500	3.40	300	2.00	200	1.40	1600	11.00
R1/2 x 1	500	5.10	400	2.80	220	1.60	160	1.20	1300	9.80



The Feed, in long and extra long types, should be reduced by around 50%.

Multi-Flute - Ball Nose - HSS-Co8 End Mills

Material Hardness	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Aluminum Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
R1/8 x 1/4	2200	7.90	1700	5.30	1000	2.80	700	1.60	5600	16.50
R5/32 x 5/16	1600	9.40	1200	6.30	700	3.00	500	1.80	4000	20.90
R3/16 x 3/8	1300	10.60	1000	7.10	560	3.50	400	2.00	3200	21.30
R1/4 x 1/2	1000	10.20	800	6.30	450	3.10	320	2.00	2500	20.10
R5/16 x 5/8	800	9.10	600	6.00	350	3.10	250	2.00	2000	17.70
R3/32 x 3/16	600	8.30	500	5.10	300	3.00	200	2.00	1600	16.50
R1/2 x 1	500	7.90	400	4.10	220	2.40	160	1.80	1300	15.00



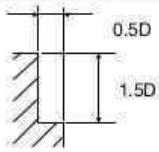
The Feed, in long and extra long types, should be reduced by around 50%.

ENGINEERING DATA

PREMIUM COBALT MILL SPEED & FEED CHARTS

Multi-Flute - Side Cutting - Roughing - HSS-Co8 End Mills

Material Hardness	Carbon Steels Alloy Steels Tool Steels		Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Aluminum Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
1/4	1800	3.10	1600	2.40	1200	2.20	800	1.20	4500	7.90
5/16	1400	4.10	1100	3.00	900	2.60	560	1.40	3100	9.10
3/8	1100	6.00	900	4.70	800	4.30	450	2.40	2500	13.80
1/2	900	7.10	800	5.50	630	4.30	400	2.80	2000	15.80
5/8	700	7.10	560	5.50	450	4.30	280	2.80	1600	17.70
11/16	630	7.10	500	5.50	400	4.30	250	2.80	1400	18.50
7/8	500	8.70	450	6.70	350	5.50	220	3.40	1100	18.50
1	450	8.70	400	6.70	310	5.50	180	3.40	1000	17.70
1-1/8	400	8.10	350	6.30	280	5.10	160	3.40	900	20.10
1-1/4	350	8.10	280	6.30	220	5.10	140	3.40	800	19.70
1-3/8	310	8.10	250	6.30	200	5.10	120	3.40	700	18.50
1-3/4	280	7.90	220	6.00	180	4.70	110	3.10	630	17.70
2	220	7.90	180	6.70	160	5.50	90	3.10	500	14.60

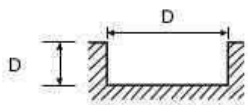


The Feed, in long and extra long types, should be reduced by around 50%.

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2-Flute End Mills - Slotting

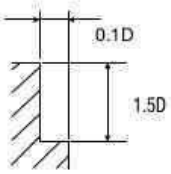
Material Hardness	Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Stainless Steels Titanium Alloys		Cast Iron		Aluminum Alloys		Copper, Brass Non-Ferrous Metals	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
3/32	5500	3.15	4800	2.76	4000	2.17	8000	2.56	6500	5.91	16000	12.60	12000	9.45
1/8	3700	3.54	3200	3.15	2600	2.36	5300	2.56	4200	5.91	11000	12.60	8000	9.45
5/32	2800	3.54	2400	3.15	2000	2.36	4000	2.56	3200	5.91	8000	12.60	6000	9.45
3/16	2200	3.54	1900	3.15	1600	2.36	3200	2.56	2500	5.91	6400	12.60	4800	9.45
1/4	1800	3.54	1600	3.15	1300	2.36	2600	2.56	2100	7.09	5300	13.39	4000	10.24
5/16	1400	3.54	1200	3.15	1000	2.36	2000	2.56	1600	7.48	4000	13.39	3000	10.24
3/8	1100	3.54	950	3.15	800	2.36	1600	2.56	1300	7.87	3200	13.39	2400	10.24
1/2	900	3.54	800	3.15	660	2.36	1300	2.56	1000	8.27	2600	13.39	2000	10.24
9/16	800	3.54	700	3.15	570	2.36	1100	2.56	900	8.66	2300	13.39	1700	10.24
5/8	700	3.94	600	3.35	500	2.95	1000	2.95	800	8.86	2000	13.39	1500	10.24
13/16	550	3.94	480	3.35	400	2.95	800	3.15	640	9.45	1600	13.39	1200	10.24



The Feed, in long and extra long types, should be reduced by around 50%.

4-Flute End Mills - Side Cutting

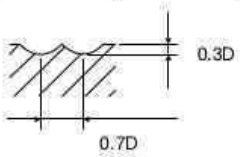
Material Hardness	Carbon Steels Alloy Steels Tool Steels <225 Bhn		Carbon Steels Alloy Steels Tool Steels 225-285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Stainless Steels Titanium Alloys		Cast Iron		Aluminum Alloys		Copper, Brass Non-Ferrous Metals	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
3/32	5500	9.45	4800	8.27	4000	6.30	8000	7.87	6500	17.72	16000	37.80	12000	25.35
1/8	3700	10.63	3200	9.45	2600	7.09	5300	7.87	4200	17.72	11000	37.80	8000	25.35
5/32	2800	10.63	2400	9.45	2000	7.09	4000	7.87	3200	17.72	8000	37.80	6000	25.35
3/16	2200	10.63	1900	9.45	1600	7.09	3200	7.87	2500	17.72	6400	37.80	4800	25.35
1/4	1800	10.63	1600	9.45	1300	7.09	2600	7.87	2100	21.26	5300	40.16	4000	30.71
5/16	1400	10.63	1200	9.45	1000	7.09	2000	7.87	1600	22.44	4000	40.16	3000	30.71
3/8	1100	10.63	950	9.45	800	7.09	1600	7.87	1300	23.62	3200	40.16	2400	30.71
1/2	900	10.63	800	9.45	660	7.09	1300	7.87	1000	24.80	2600	40.16	2000	30.71
9/16	800	10.63	700	9.45	570	7.09	1100	7.87	900	25.98	2300	40.16	1700	30.71
5/8	700	11.81	600	10.24	500	8.66	1000	8.86	800	26.77	2000	40.16	1500	30.71
13/16	550	11.81	480	10.24	400	8.66	800	9.45	640	28.35	1600	40.16	1200	30.71



The Feed, in long and extra long types, should be reduced by around 50%.

2-Flute - Ball Nose End Mills

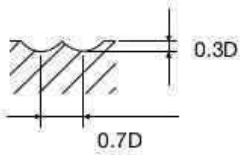
Material Hardness	Carbon Steels Alloy Steels Tool Steels <285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-375 Bhn		Cast Iron		Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
3/32	5200	3.54	4400	1.77	7300	5.91	21500	11.02
1/8	3500	3.94	2900	1.77	4900	6.30	14300	11.02
5/32	2600	3.94	2100	1.77	3600	7.87	10900	11.02
3/16	2100	4.13	1700	1.77	2900	9.06	8800	12.99
1/4	1700	3.94	1430	1.77	2400	9.84	7260	12.99
5/16	1270	3.74	1100	1.77	1800	12.60	5500	14.96
3/8	1000	3.74	870	1.77	1430	12.60	4300	14.96
1/2	870	3.35	730	1.77	1200	12.60	3600	17.32
9/16	750	3.35	620	1.77	1000	12.80	3000	17.32
5/8	650	3.35	540	1.77	920	12.80	2700	14.96
11/16	580	3.35	480	1.77	810	12.80	2400	14.96
13/16	500	3.35	430	1.77	730	11.42	2100	14.96



The Feed, in long and extra long types, should be reduced by around 50%.

4-Flute - Ball Nose End Mills

Material Hardness	Carbon Steels Alloy Steels Tool Steels <285 Bhn		Carbon Steels Alloy Steels Tool Steels 285-275 Bhn		Cast Iron		Aluminum Alloys	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
3/32	5200	5.51	4400	2.76	7300	9.06	21500	16.54
1/8	3500	5.91	2900	2.76	4900	9.45	14300	16.54
5/32	2600	5.91	2100	2.76	3600	11.81	10900	16.54
3/16	2100	6.30	1700	2.76	2900	13.78	8800	19.69
1/4	1700	5.91	1430	2.76	2400	14.96	7260	19.69
5/16	1270	5.52	1100	2.76	1800	18.90	5500	22.44
3/8	1000	5.52	870	2.76	1430	18.90	4300	22.44
1/2	870	5.12	730	2.76	1200	18.90	3600	25.98
9/16	750	5.12	620	2.76	1000	19.29	3000	25.98
5/8	650	5.12	540	2.76	920	19.29	2700	22.44
11/16	580	5.12	480	2.76	810	19.29	2400	22.44
13/16	500	5.12	430	2.76	730	17.29	2100	22.44



The Feed, in long and extra long types, should be reduced by around 50%.

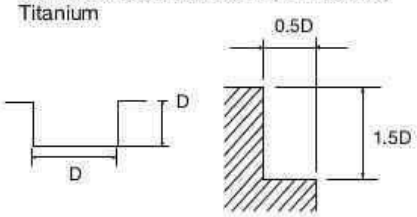
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ENGINEERING DATA

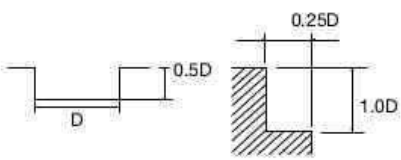
PREMIUM V-MILL SPEED & FEED CHARTS

Material Hardness	Alloy Steels Cast Iron <230 Bhn		Stainless Steels 300 Series		Stainless Steels 400 Series		Titanium		Inconel	
Diameter	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM	RPM	IPM
3	13475	275	8700	190	10400	240	8700	190	3080	43
4	10105	330	6525	250	7800	310	6525	250	2305	56
5	8085	370	5220	305	6240	380	5220	305	1850	68
6	6735	435	4355	355	5170	440	4355	355	1540	80
8	5050	555	3265	460	3900	570	3260	455	1155	103
10	4455	690	2665	515	2880	555	2665	515	890	69
12	3710	695	2230	520	2335	544	2230	520	745	69
14	3180	620	1910	480	2000	505	1910	480	640	64
16	2785	590	1670	440	1750	460	1670	440	555	59
18	2475	585	1485	437	1555	460	1485	440	495	58
20	2225	580	1340	435	1400	455	1340	435	445	58
25	1780	450	1070	350	1120	370	1070	350	355	47

Alloy Steels, Cast Iron,
Stainless Steels 300 Series, 400 Series,
Titanium



Inconel

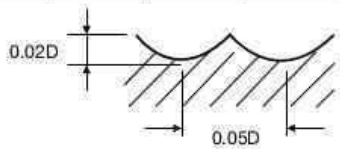


Tolerance

Metric		Inch	
Mill Diameter	Shank Diameter	Mill Diameter	Shank Diameter
0 ~ - 0.03	h6	0 ~ - .0012	h6

2-Flute - Stub Length - Ball Nose End Mills

Material Hardness	Carbon Steels Alloy Steels Tool Steels 285-380 Bhn		Hardened Steels 380-495 Bhn		Hardened Steels 495-555 Bhn		Hardened Steels 555-625 Bhn		Hardened Steels 625-710 Bhn		Hardened Steels 285-380 Bhn	
Diameter	RPM	IMP	RPM	IMP	RPM	IMP	RPM	IMP	RPM	IMP	RPM	IMP
R1/64 x 1/32	50000	188.98	50000	165.35	45000	149.61	40000	118.11	35000	102.36	35000	90.55
R1/32 x 1/16	49700	224.41	47800	188.98	40000	157.48	35000	124.02	32000	110.24	28500	90.55
R3/64 x 3/32	49700	224.41	47800	188.98	40000	157.48	35000	124.02	32000	110.24	28500	90.55
R1/16 x 1/8	33100	236.22	31800	208.66	26500	157.48	23500	124.02	21000	110.24	19000	90.55
R3/32 x 3/16	18600	228.35	17800	192.91	15000	147.64	13500	120.08	11500	100.39	10500	82.68
R1/8 x 1/14	13900	190.94	13400	161.42	11000	122.05	10000	98.43	8800	84.65	8000	68.90
R5/32 x 5/16	11100	165.35	10700	137.80	9000	106.30	8000	84.65	7000	72.83	6500	61.02
R3/16 x 3/8	9300	145.67	8900	122.05	7500	94.49	6600	74.80	5800	64.96	5300	54.33
R1/4 x 1/2	6950	116.14	6680	98.43	5600	74.80	5000	61.02	4400	49.21	4000	41.34



The Feed, in long and extra long types, should be reduced by around 50%.

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ENGINEERING DATA

HARDNESS CONVERSION TABLE

Vickers Hardness No.	Brinell Hardness No. 3000 Kg Load 10mm Ball		Rockwell Hardness No.				Rockwell Superficial Hardness No. Superficial Brale Indenter			Tensile Strength (Approx.) MPs	Tensile Strength (Approx.) ksi
	Standard Ball	Tungsten Carbide Ball	A Scale 60 Kg Load Brale Indenter	B Scale 150 Kg Load-Brale Indenter	C Scale 150 Kg Load-Brale Indenter	D Scale 100 Kg Load-Brale Indenter	15M Scale 15 Kg Load	30M Scale 30 Kg Load	45M Scale 45 Kg Load		
520	(480)	488	76.1		50.5	63.5	85.7	69.0	55.6	1793	260
510	(473)	479	75.7		49.8	62.9	85.4	68.3	54.7	1751	254
500	(465)	471	75.3		49.1	62.2	85.0	67.7	53.9	1703	247
490	(456)	460	74.9		48.4	61.6	84.7	67.1	53.1	1662	241
480	(448)	452	74.5		47.7	61.3	84.3	66.4	52.2	1620	235
470	441	442	74.1		46.9	60.7	83.9	65.7	51.3	1572	228
460	433	433	73.6		46.1	60.1	83.6	64.9	50.4	1538	223
450	425	425	73.3		45.3	59.4	83.2	64.3	49.4	1496	217
440	415	415	72.8		44.5	58.8	82.8	63.5	48.4	1462	212
430	405	405	72.3		43.6	58.2	82.3	62.7	47.4	1413	205
420	397	397	71.8		42.7	57.5	81.8	61.9	46.4	1372	199
410	388	388	71.4		41.8	56.6	81.4	61.1	45.3	1331	193
400	379	379	70.8		40.8	56.0	80.8	60.2	44.1	1289	187
390	369	369	70.3		39.8	55.2	80.3	59.3	42.9	1248	181
380	360	360	69.8	(110.0)	38.8	54.4	79.8	58.4	41.7	1207	175
370	350	350	69.2		37.7	53.6	79.2	57.4	40.4	1172	170
360	341	341	68.7	(109.0)	36.6	52.8	78.6	56.4	39.1	1131	164
350	331	331	68.1		35.5	51.9	78.0	55.4	37.8	1096	159
340	322	322	67.6	(108.0)	34.4	51.1	77.4	54.4	36.5	1069	155
330	313	313	67.0		33.3	50.2	76.8	53.6	35.2	1034	150
320	303	303	66.4	(107.0)	32.2	49.4	76.2	52.3	33.9	1007	146
310	294	294	65.8		31.0	48.4	75.6	51.3	32.5	979	142
300	284	284	65.2	(105.5)	29.8	47.5	74.9	50.2	31.1	951	138
295	280	280	64.8		29.2	47.1	74.6	49.7	30.4	938	136
290	275	275	64.5	(104.5)	28.5	46.5	74.2	49.0	29.5	917	133
285	270	270	64.2		27.8	46.0	73.8	48.4	28.7	903	131
280	265	265	63.8	(103.5)	27.1	45.3	73.4	47.8	27.9	899	130
275	261	261	63.5		26.4	44.9	73.0	47.2	27.1	876	127
270	256	256	63.1	(102.0)	25.6	44.3	72.6	46.4	26.2	855	124
265	252	252	62.7		24.8	43.7	72.1	45.7	25.2	841	122
260	247	247	62.4	(101.0)	24.0	43.1	71.6	45.0	24.3	827	120
255	243	243	62.0		23.1	42.2	71.1	44.2	23.2	807	117
250	238	238	61.6	99.5	22.2	41.7	70.6	43.4	22.2	793	115
245	233	233	61.2		21.3	41.1	70.1	42.5	21.1	779	113
240	228	228	60.7	98.1	20.3	40.3	69.6	41.7	19.9	765	111
230	219	219		96.7	(18.0)					731	106
220	209	209		95.0	(15.7)					696	101
210	200	200		93.4	(13.4)					669	97
200	190	190		91.5	(11.0)					634	92
190	181	181		89.5	(8.5)					607	88
180	171	171		87.1	(6.0)					579	84
170	162	162		85.0	(3.0)					545	79
160	152	152		81.7	(0.0)					517	75
150	143	143		78.7						490	71
140	133	133		75.0						455	66
130	124	124		71.2						427	62
120	114	114		66.7						393	57
110	105	105		62.3							
100	95	95		56.2							
95	90	90		52.0							
90	86	86		48.0							
85	81	81		41.0							

ENGINEERING DATA

TERMS & CONDITIONS OF SALE

1. AGREEMENT AND LIMITATIONS. The agreement between Seller and Buyer ("Sales Contract") with respect to the sale of goods shall consist exclusively of the terms appearing herein. Seller objects to and shall not be bound by additional or different terms, whether printed or otherwise, in Buyer's purchase order or in any other communication from Buyer to Seller. Such additions and differences in terms shall be considered material and Seller's terms and conditions shall govern. The Sales Contract shall be for the benefit of Seller and Buyer and not for the benefit of any other person. Prior courses of dealing, trade usage and verbal agreements not reduced to a writing signed by Seller, to the extent they modify, add to or detract from the Sales Contract, shall not be binding on Seller.

2. TERMINATION OR MODIFICATION. The Sales Contract may be modified or terminated only upon Seller's express written consent. If all or part of the Sales Contract is terminated, Buyer, in the absence of a contrary written agreement signed by Seller, shall pay termination charges based upon expenses and costs incurred in the production of the goods to the date such termination is accepted by Seller including, without limitation, expenses of disposing of materials on hand or on order from suppliers and losses resulting from such disposition, plus a reasonable profit, except that any goods completed on or before Seller's acceptance of such termination shall be accepted and paid for in full by Buyer.

3. PRICE AND PAYMENT. Fulfillment of Buyer's order is contingent upon the availability of materials. The price of the goods sold pursuant to the Sales Contract shall be based upon Seller's price in effect at the time of shipment and any acceptance of the order will be on the basis of the freight rates now in effect. In the event of an increase or decrease in the applicable freight charges before the material is shipped, such changes in freight charges will be for the account of Buyer. Price advances, discounts, extras and terms and conditions are subject to changes without notice. Any sales or other tax or duty that Seller may be required to collect or pay upon the sale of the goods will be added to the quoted price. If such amount is not included in an invoice for the goods, it may be invoiced separately later. If the Sales Contact is for more than one unit of goods, the goods may be shipped in several lots at the discretion of Seller, and each such shipment shall be paid for separately. Seller may require full or partial payment or payment guarantee in advance of shipment whenever, in its opinion, the financial condition of Buyer so warrants. In addition, Seller may at any time or times, suspend performance of any order or require payment in cash, security or other adequate assurance satisfactory to Seller when, in Seller's opinion, the financial condition of Buyer warrants such action.

BLANKET ORDER WITH SCHEDULED RELEASES

(a) Stock item. Blanket orders of stock items with scheduled releases are predicated on total units released for shipment within the specified period. All blanket orders will be adjusted for price levels based on actual releases within the specified period.

(b) Special items. In the event Buyer has not taken delivery by the end of the specified period of all special items covered by a blanket order with scheduled releases, Seller shall, on that date, ship the remaining number of special items and invoice the Buyer accordingly. Any deviation from the policy set forth in (a) or (b) above must have prior written approval signed by Seller's authorized representative.

TERMS

Terms of payment, minimum order charges, broken package charges, and transportation charges are as set forth. C.O.D. shipments are not entitled to a cash discount or prepaid transportation. Shipment of specials may be 10% over/under quantity ordered unless otherwise stated on the order. All prices are F.O.B. shipping point. Methods and route of shipment are at Seller's discretion unless the Buyer supplies explicit instruction. Seller may assess a delinquency charge of 1–1 1/2% per month on invoices not paid within stated terms.

4. TAXES. Prices do not include federal, state or local taxes. Buyer shall pay to Seller, in addition to the price of the goods, all applicable taxes and other governmental charges upon the production, sale, delivery or use of the goods, to the extent required or not forbidden by law to be collected by Seller from Buyer, unless Buyer furnished Seller with valid exemption certificates acceptable to the appropriate taxing authorities before the date of acknowledgment.

5. RISK OF LOSS. Delivery shall occur, and risk of loss shall pass to Buyer, upon delivery of the material to a carrier at the point of shipment. Transportation shall be at Buyer's sole risk and expense, and any claim for loss or damage in transit shall be against the carrier only.

6. DELIVERY AND QUANTITIES.

(a) Promises of delivery from stock are subject to prior sales. Delivery dates are not guaranteed but are estimated on the basis of immediate receipt by Seller of all information to be furnished by Buyer and the absence of delay, direct or indirect, resulting from or contributed to by circumstances beyond Seller's reasonable control. Seller shall in good faith endeavor to meet estimated delivery dates. Seller shall not be liable to Buyer for damages as a result of any delay caused or contributed to by circumstances beyond Seller's reasonable control. If the goods are non-catalog goods, Seller may ship overages or underages to the extent of 10%) of quantity ordered, and Buyer shall pay for such quantity supplied based upon the unit price of the goods. Seller shall not be required to maintain closer control of quantity, unless specifically agreed to by Seller in writing. Quantities of all items may be determined by weight. Any claims for shortage must be made within 10 days from the date of receipt of the goods by Buyer, and in every case the weights found in any particular shipment, including tare, must be given and Seller advised as to the method used by Buyer in computing the count of parts.

(b) In the event that Buyer is unable to accept delivery of the goods at time of shipment, Seller shall invoice Buyer for the full purchase price as if shipment had been made and (i) if Seller is able to store such goods in its own facilities, Buyer will pay Seller the reasonable handling and storage charges for the period of such storage, and (ii) if Seller is unable to store such goods in its own facilities, Seller reserves the right to arrange handling and storage in a suitable bonded warehouse for the Buyer at Buyer's expense. In cases where handling and storage become necessary, it shall be Buyer's responsibility to notify Seller when shipment is to be made. Seller will make necessary arrangements for shipment at Buyer's expense.

7. RETURNED GOODS. Goods may not be returned. If Seller consents in writing to the return of goods for any reason, however, Buyer assumes all risk of loss of such returned goods until actual receipt by Seller.

8. INSPECTION. Buyer shall inspect the goods immediately upon the receipt thereof.

9. WARRANTY. Seller warrants to original equipment manufacturers, distributors and industrial and commercial users ("Buyer") of its products that each new product manufactured or supplied by Seller shall be commercially free from defects in material and workmanship at the time of shipment of the goods. All claims for allegedly defective goods must be made within 10 days after Buyer learns of such alleged defects limited to a maximum period of one year from the date of sale by Seller. All claims not made in writing and received by Seller within such 10-day period shall be deemed waived. Seller's sole obligation under this warranty is limited to furnishing without additional charge a replacement, or at its option, repairing or issuing credit for any product which shall be returned freight prepaid to the plant designated by a Seller representative and which upon inspection is determined by Seller to be defective in material or workmanship. Complete information as to operating conditions, machine setup, and application of cutting fluid should accompany any product returned for inspection. The provisions of this Warranty shall not apply to any Seller product which has been subjected to misuse, abuse, improper operating conditions (machine setup or application of cutting fluid), or which has been repaired or altered if such repair or alteration in the judgment of Seller would adversely affect performance of the product. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole liability on any claim of any kind, whether in contract, tort or otherwise, for any loss or damage arising out of, connected with, or resulting from the manufacture, sale, delivery or use of the products sold hereunder shall in no case exceed the cost of replacement or repair as provided herein. EVEN IF THE REPAIR OR REPLACEMENT REMEDY SHALL BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE UNDER SECTION 2-719 OF THE UNIFORM COMMERCIAL CODE, SELLER SHALL HAVE NO LIABILITY TO BUYER FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, SUCH AS LOST PROFITS, LOST REVENUE, DAMAGE TO OTHER EQUIPMENT OR LIABILITY OR INJURY TO A THIRD PARTY. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. There are no other warranties, expressed or implied, made by Seller except the warranty against defects in material and workmanship set forth above. Unless authorized in writing by a corporate officer or vice president, no agent, employee or representative of Seller has any authority to bind Seller to any affirmation, representation or warranty concerning the goods sold under the sales contract and such affirmation, representation or warranty has not formed a part of the basis of the bargain and shall be unenforceable.

10. REMEDIES AND LIMITATION OF LIABILITY. In the event Buyer claims Seller has breached any of its obligations under the Sales Contract, whether of warranty or otherwise, Seller may request the return of goods and tender to Buyer, at Seller's option, a replacement shipment of goods or the purchase price theretofore paid by Buyer. If Seller so requests the return of the goods, the goods will be redelivered to Seller in accordance with Seller's instructions and at Buyer's expense. If Seller so determines, a refund of the purchase price paid by Buyer shall be made only upon actual receipt of the goods by Seller. Except as herein provided, Seller shall have no further obligation under the Sales Contract. The remedies contained in this paragraph and paragraph 9 hereof shall constitute the sole recourse of Buyer against Seller for breach of any of Seller's obligations under the Sales Contract, whether of warranty or otherwise. In no event shall Seller be liable for incidental, consequential or special damages, nor shall Seller's liability on any claim for damages arising out of or connected with the Sales Contract or the manufacture, sale, delivery or use of the goods exceed the purchase price of the goods.

11. TECHNICAL ADVICE. Any technical advice furnished, or recommendation made by Seller or any representative of Seller concerning any use or application of any of the goods is believed to be reliable, but Seller makes no warranty, express or implied, on results to be obtained. Buyer assumes all responsibility for loss or damage resulting from the handling or use of any of the goods.

12. FORCE MAJEURE. Seller shall not be liable for failure to perform its obligations under the Sales Contract in whole or in part caused by the occurrence of any contingencies beyond the control either of Seller or of suppliers to Seller, including but not limited to acts of God; acts of Buyer; acts of any government or agency thereof or civil or military authority, fires, accidents, explosions, strikes or other labor disputes, earthquakes, storms, judicial action, floods, war (whether an actual declaration thereof is made or not), sabotage, riot, delays in transportation, lack of or inability to obtain raw materials, components, labor, fuel or supplies, technical failure, or other circumstances beyond Seller's reasonable control, whether similar or dissimilar to the foregoing. If any such contingency occurs, Seller may allocate goods and deliveries among Seller's customers.

13. ASSIGNMENT AND DELEGATION. No right or interest in the Sales Contract shall be assigned by Buyer without Seller's prior written consent, and no delegation of any obligation owed, or of the performance of any obligation by Buyer shall be made without Seller's prior written consent. Any attempted assignment or delegation shall be wholly void and totally ineffective for all purposes unless made in conformity with this paragraph.

14. CHANGES. Seller may, at any time without notice, make changes (whether in design, materials, improvements or otherwise) in any catalog goods, and may discontinue the manufacture of any catalog goods, all in its sole discretion, without incurring any obligations of any kind as a result thereof, whether for failure to fill an order of Buyer or otherwise.

15. SEVERABILITY. If any term, clause or provision contained in the Sales Contract is declared or held invalid by a court of competent jurisdiction, such declaration or holding shall not affect the validity of any other term, clause or provision contained herein.

16. GOVERNING LAW AND LIMITATION.

(a) The formation and performance of the Sales Contract shall be governed by the Uniform Commercial Code as adopted in the State of Illinois. Whenever a term defined by said Uniform Commercial Code is used in the Sales Contract, the definition contained in said Uniform Commercial Code controls. Any action for breach of the Sales Contract must be commenced within one year after the cause of action accrued, and all such claims shall be barred thereafter notwithstanding any statutory period of limitations to the contrary.

(b) The Sales Contract shall be deemed to have been made at Roscoe, Illinois, and shall be interpreted and the rights and liabilities of the parties hereto determined in accordance with the laws of Illinois. Seller represents that the goods will be produced in compliance with the Fair Labor Standards Act of 1938, as amended. Buyer hereby agrees to the jurisdiction of any state or federal court located within Winnebago County, Illinois. Buyer waives any objection based on forum non conveniens and any objection to venue of any action instituted hereunder, and consents to the granting of such legal or equitable relief as is deemed appropriate by a court of competent jurisdiction. The rights and obligations of Seller and Buyer shall not be governed by the provisions of the United Nations Convention on Contracts for the International Sales of Goods; and

(c) BUYER AGREES TO PAY ALL OF SELLER'S COSTS AND EXPENSES OF COLLECTION AND LITIGATION, INCLUDING BUT NOT LIMITED T

M & J TOOLING LLC
Pricing, Quality & Service That Can Not be Matched

ENGINEERING DATA

DECIMAL EQUIVALENTS

Fractional, Wire, Letter & Metric Sizes

Fractional Wire			Fractional Wire			Fractional Wire			Fractional Wire		
Decimal	Letter	mm	Decimal	Letter	mm	Decimal	Letter	mm	Decimal	Letter	mm
.0059	97		.0413		1.05	.1065	36		.1960	9	
.0063	96		.0420	58		.1083		2.75	.1969		5.0
.0067	95		.0430	57		.1094	7/64"		.1990	8	
.0071	94		.0433		1.1	.1100	35		.2008		5.1
.0075	93		.0453		1.15	.1102		2.8	.2010	7	
.0079	92	.2	.0465	56		.1110	34		.2031	13/64"	
.0083	91		.0469	3/64"		.1130	33		.2040	6	
.0087	90	.22	.0472		1.2	.1142		2.9	.2047		5.2
.0091	89		.0492		1.25	.1160	32		.2055	5	
.0095	88		.0512		1.3	.1181		3.0	.2067		5.25
.0098		.25	.0520	55		.1200	31		.2087		5.3
.0100	87		.0531		.135	.1220		3.1	.2090	4	
.0150	86		.0550	54		.1250	1/8"		.2126		5.4
.0110	85	.28	.0551		1.4	.1260		3.2	.2130	3	
.0115	84		.0571		1.45	.1280		3.25	.2165		5.5
.0188		.3	.0591		1.5	.1285	30		.2188	7/32"	
.0120	83		.0595	53		.1299		3.3	.2205		5.6
.0125	82		.0610		1.55	.1339		3.4	.220	2	
.0126		.32	.0625	1/16"		.1260	29		.2244		5.7
.0130	81		.0630		1.6	.1378		3.5	.2264		5.75
.0135	80		.0635	52		.1405	28		.2280	1	
.0138		.35	.0650		1.65	.1406	9/64"		.2283		5.8
.0145	79		.0669		1.7	.1417		3.6	.2323		5.9
.0156	1/64"		.0670	51		.1440	27		.2340	A	
.0157		.4	.0689		1.75	.1457		3.7	.2344	15/64"	
.0160	78		.0700	50		.1470	26		.2362		6.0
.0177		.45	.0709		1.8	.1476		3.75	.2380	B	
.0180	77		.0728		1.85	.1495	25		.2402		6.1
.0197		.5	.0730	49		.1496		3.8	.2420	C	
.0200	76		.0748		1.9	.1520	24		.2441		6.2
.0210	75		.0760	48		.1535		3.9	.2460	D	
.0217		.55	.0768		1.95	.1540	23		.2461		6.25
.0225	74		.0781	5/64"		.1562	5/32"		.2480		6.3
.0236		.6	.0785	47		.1570	22		.2500	1/4" E	
.0240	73		.0787		2.0	.1575		4.0	.2520		6.4
.0250	72		.0807		2.05	.1590	21		.2559		6.5
.0256		.65	.0810	46		.1610	20		.2570	F	
.0260	71		.0820	45		.1614		4.1	.2598		6.6
.0276		.7	.0827		2.1	.1654		4.2	.2610	G	
.0280	70		.0846		2.15	.1660	19		.2638		6.7
.0292	69		.0860	44		.1673		4.25	.2656	17/64"	
.0295		.75	.0866		2.2	.1693		4.3	.2657		6.75
.0310	68		.0886		2.25	.1695	18		.2660	H	
.0312	1/32"		.0890	43		.1719	11/64"		.2677		6.8
.0315		.8	.0906		2.3	.1730	17		.2717		6.9
.0320	67		.0925		2.35	.1732		4.4	.2720	I	
.0330	66		.0935	42		.1770	16		.2756		7.0
.0335		.85	.0938	3/32"		.1772		4.5	.2770	J	
.0350	65		.0945		2.4	.1800	15		.2795		7.1
.0354		.9	.0960	41		.1811		4.6	.2810	K	
.0360	64		.0965		2.45	.1820	14		.2812	9/32"	
.0370	63		.0980	40		.1850	13	4.7	.2835		7.2
.0374		.95	.0984		2.5	.1870		4.75	.2854		7.25
.0380	62		.0995	39		.1875	3/16"		.2874		7.3
.0390	61		.1015	38		.1890	12	4.8	.2900	L	
.0394		1.0	.1024		2.6	.1910	11		.2913		7.4
.0400	60		.1040	37		.1929		4.9			
.0410	59		.1063		2.7	.1935	10				

ENGINEERING DATA

DECIMAL EQUIVALENTS

Fractional, Wire, Letter & Metric Sizes

Fractional Wire			Fractional Wire			Fractional Wire			Fractional Wire		
Decimal	Letter	mm	Decimal	Letter	mm	Decimal	Letter	mm	Decimal	Letter	mm
.2950	M		.4688	15/32"		.9843		25.0	1.4961		38.0
.2953		7.5	.4724		12.0	.9844	63/64"		1.5000	1-1/2"	
.2969	19/64"		.4844	31/64"		1.0000	1"		1.5156	1-33/64"	
.2992		7.6	.4921		12.5	1.0039		25.5	1.5157		38.5
.3020	N		.5000	1/2"		1.0156	1-1/64"		1.5312	1-17/32"	
.3031		7.7	.5118		13.0	1.0236		26.0	1.5354		39.0
.3051		7.75	.5156	33/64"		1.0312	1-1/32"		1.5469	1-35/64"	
.3071		7.8	.5312	17/32"		1.0433		26.5	1.5551		39.5
.3110		7.9	.5315		13.5	1.0469	1-3/64"		1.5625	1-9/16"	
.3125	5/16"		.5469	35/64"		1.0625	1-1/16"		1.5748		40.0
.3150		8.0	.5512		14.0	1.0630		27.0	1.5781	1-37/64"	
.3160	O		.5625	9/16"		1.0781	1-5/64"		1.5938	1-19/32"	
.3189		8.1	.5709		14.5	1.0827		27.5	1.5945		40.5
.3228		8.2	.5781	37/64"		1.0938	1-3/32"		1.6094	1-39/64"	
.3230	P		.5906		15.0	1.1024		28.0	1.6142		41.0
.3248		8.25	.5938	19/32"		1.1094	1-7/64"		1.6250	1-5/8"	
.3268		8.3	.6094	39/64"		1.1220		28.5	1.6339		41.5
.3281	21/64"		.6102		15.5	1.1250	1-1/8"		1.6406	1-41/64"	
.3307		8.4	.6250	5/8"		1.1406	1-9/64"		1.6535		42.0
.3320	Q		.6299		16.0	1.1417		29.0	1.6562	1-21/32"	
.3346		8.5	.6406	41/64"		1.1562	1-5/32"		1.6719	1-43/64"	
.3386		8.6	.6496		16.5	1.1614		29.5	1.6732		42.5
.3390	R		.6562	21/32"		1.1719	1-11/64"		1.6875	1-11/16"	
.3425		8.7	.6693		17.0	1.1811		30.0	1.6929		43.0
.3438	11/32"		.6719	43/64"		1.1875	1-3/16"		1.7031	1-45/64"	
.3445		8.75	.6875	11/16"		1.2008		30.5	1.7126		43.5
.3465		8.8	.6890		17.5	1.2031	1-13/64"		1.7188	1-23/32"	
.3480	S		.7031	45/64"		1.2188	1-7/32"		1.7323		44.0
.3504		8.9	.7087		18.0	1.2205		31.0	1.7344	1-47/64"	
.3543		9.0	.7188	23/32"		1.2344	1-15/64"		1.7500	1-3/4"	
.3580	T		.7283		18.5	1.2402		31.5	1.7520		44.5
.3583		9.1	.7344	47/64"		1.2500	1-1/4"		1.7656	1-49/64"	
.3594	23/64"		.7480		19.0	1.2598		32.0	1.7717		45.0
.3622		9.2	.7500	3/4"		1.2656	1-17/64"		1.7812	1-23/32"	
.3642		9.25	.7656	49/64"		1.2795		32.5	1.7913		45.5
.3661		9.3	.7677		19.5	1.2812	1-9/32"		1.7969	1-51/64"	
.3680	U		.7812	25/32"		1.2969	1-19/64"		1.8110		46.0
.3701		9.4	.7874		20.0	1.2992		33.0	1.8125	1-13/16"	
.3740		9.5	.7969	51/64"		1.3125	1-5/16"		1.8281	1-53/64"	
.3750	3/8"		.8071		20.5	1.3189		33.5	1.8307		46.5
.3770	V		.8125	13/16"		1.3281	1-21/64"		1.8438	1-27/32"	
.3780		9.6	.8268		21.0	1.3386		34.0	1.8504		47.0
.3819		9.7	.8281	53/64"		1.3438	1-11/32"		1.8594	1-55/64"	
.3839		9.75	.8438	27/32"		1.3583		34.5	1.8701		47.5
.3858		9.8	.8465		21.5	1.3594	1-23/64"		1.8750	1-7/8"	
.3860	W		.8594	55/64"		1.3750	1-3/8"		1.8898		48.0
.3898		9.9	.8661		22.0	1.3780		35.0	1.8906	1-57/64"	
.3906	25/64"		.8750	7/8"		1.3906	1-25/64"		1.9062	1-29/32"	
.3937		10.0	.8858		22.5	1.3976		35.5	1.9094		48.5
.3970	X		.8906	57/64"		1.4062	1-13/32"		1.9219	1-59/64"	
.4040	Y		.9055		23.0	1.4173		36.0	1.9291		49.0
.4062	13/32"		.9062	29/32"		1.4219	1-27/64"		1.9375	1-15/16"	
.4130	Z		.9219	59/64"		1.4370		36.5	1.9488		49.5
.4134		10.5	.9252		23.5	1.4375	1-7/16"		1.9531	1-61/64"	
.4219	27/64"		.9375	15/16"		1.4531	1-29/64"		1.9685		50.0
.4331		11.0	.9449		24.0	1.4567		37.0	1.9688	1-31/32"	
.4375	7/16"		.9531	61/64"		1.4688	1-15/32"		1.9844	1-63/64"	
.4528		11.5	.9646		24.5	1.4784		37.5	1.9882		50.5
.4531	29/64"		.9688	31/32"		1.4844	1-31/64"		2.0000	2"	

ENGINEERING DATA

SURFACE TREATMENTS

Regal Cutting Tools offers many surface treatments which provide higher surface hardness to resist wear and make your taps resistant to galling or chip loading.

Surface Treatments		Benefits & Applications
Nitride Treatment	**#33**	Provides increased surface hardness. Recommended general purpose surface treatment for increasing tool life in a wide variety of applications.
Steam Oxide Treatment	**#43**	Acts as a solid lubricant and also retains liquid lubricant at cutting edges. Prevents chip welding, reduces friction, and acts as thermal insulator between the tap and the workpiece.
Nitride & Steam Oxide Combination	**#53**	This combination of both surface treatments affords the characteristics of both treatments.
Titanium Nitride	**#25**	Provides increased surface hardness, adhesive (lower C.O.F.) resistance and tool life.
Titanium Carbo Nitride	**#85**	Developed for machining difficult steel alloys. Adds life to tools in high speed machining.
Chrome Plate	**#74**	Adds lubricating and heat dissipation qualities at the cutting edge. Excellent for nonferrous materials and soft steel.
Chrome Plate Over Nitride	**#64**	An effective treatment when tapping nonferrous metals and some soft steels.
Aluminum Titanium Nitride	**#88**	A multi-layer coating. Excellent for machining cast iron, stainless steel and nickel based alloys.

Note: Other coatings available upon request.

Recommendations

Material	Surface Treatment							
	33	43	53	25	85	74	64	88
Aluminum							•	
Die Cast			•				•	
Sand Cast			•				•	
All Others – Bright								
Magnesium						•	•	
Bakelite							•	
Plastic	•						•	
Nylon						•	•	
Fiber	•							
Brass (soft & hard)	•				•			
Bronze	•						•	
Copper				•	•			
Iron (cast & malleable)			•	•	•			
Monel Metal			•					
Nickel	•				•			
Steel								
Cast			•	•	•			•
Chromium				•		•		
Tool			•	•	•			
Moly			•	•	•			
Nickel			•	•	•			•
Tungsten		•		•		•		
Vanadium			•	•	•			
Stainless		•		•	•	•		
Free Machining, leading			•	•	•			
Titanium		•						
Zinc	•			•				

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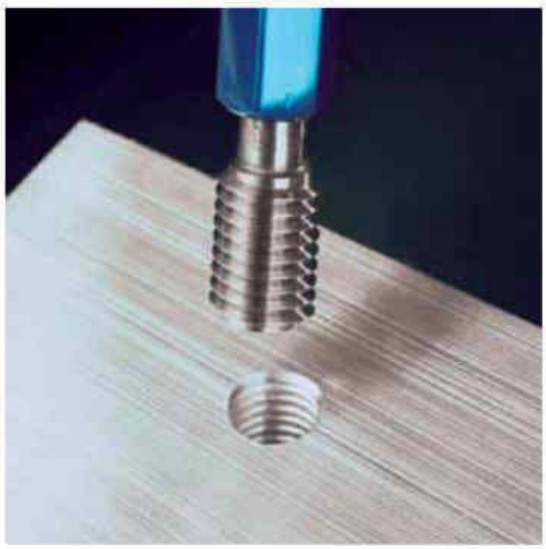
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